**UNITED STATES DISTRICT COURT**
**MIDDLE DISTRICT OF LOUISIANA**

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| PRESS ROBINSON, EDGAR CAGE, DOROTHY NAIRNE, EDWIN RENE SOULE, ALICE WASHINGTON, CLEE EARNEST LOWE, DAVANTE LEWIS, MARTHA DAVIS, AMBROSE SIMS, NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE ("NAACP") LOUISIANA STATE CONFERENCE, and POWER COALITION FOR EQUITY AND JUSTICE, | Civil Action No. 3:22-cv-00211-SDD-RLB |
| *Plaintiffs*, | |
| v. | |
| NANCY LANDRY, in her official capacity as Secretary of State for Louisiana, | |
| *Defendant*. | |
| EDWARD GALMON, SR., CIARA HART, NORRIS HENDERSON, and TRAMELLE HOWARD, | |
| *Plaintiffs*, | Civil Action No. 3:22-cv-00214-SDD-RLB |
| v. | |
| NANCY LANDRY, in her official capacity as Secretary of State for Louisiana, | |
| *Defendant*. | |

**PLAINTIFFS' MOTION TO EXCLUDE PROPOSED EXPERT TESTIMONY OF**
**DAVID A. SWANSON, Ph.D.**

Plaintiffs, through undersigned counsel, hereby move to exclude the proposed expert

testimony and expert reports of David A. Swanson, Ph.D., in accordance with the requirements of

Federal Rule of Evidence 702 and the reasons stated in the attached Memorandum of Law.

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Plaintiffs respectfully request that this Court grant the motion to exclude the proposed expert testimony and expert reports of David A. Swanson, Ph.D.

Date: January 15, 2024

Respectfully submitted,

J. E. Cullens, Jr.
Andrée Matherne Cullens
S. Layne Lee
WALTERS, THOMAS, CULLENS, LLC
12345 Perkins Road, Bldg. One
Baton Rouge, LA 70810
(225) 236-3636

By: */s/Abha Khanna*
Abha Khanna (*admitted pro hac vice*)
ELIAS LAW GROUP LLP
1700 Seventh Ave. Suite 2100
Seattle, Washington 98101
(206) 656-0177
akhanna@elias.law

Daniel Cohen (*admitted pro hac vice*)
Qizhou Ge (*admitted pro hac vice*)
Jacob D. Shelly (*admitted pro hac vice*)
ELIAS LAW GROUP LLP
250 Massachusetts Ave, NW Suite 400
Washington, D.C. 20001
(202) 968-4490
dcohen@elias.law
age@elias.law
jshelly@elias.law

*Counsel for Galmon Plaintiffs*

By: */s/Jonathan H. Hurwitz*

Stuart Naifeh (admitted *pro hac vice*)
Kathryn Sadasivan (admitted *pro hac vice*)
Victoria Wenger (admitted *pro hac vice*)
NAACP Legal Defense and Educational Fund, Inc.
40 Rector Street, 5th Floor
New York, NY 10006
Tel: (212) 965-2200
snaifeh@naacpldf.org
ksadasivan@naacpldf.org
vwenger@naacpldf.org

Jonathan H. Hurwitz (admitted *pro hac vice*)
Robert A. Atkins (admitted *pro hac vice*)
Yahonnes Cleary (admitted *pro hac vice*)
Amitav Chakraborty (admitted *pro hac vice*)
Adam P. Savitt (admitted *pro hac vice*)
PAUL, WEISS, RIFKIND, WHARTON & GARRISON LLP
1285 Avenue of the Americas,
New York, NY 10019
Tel.: (212) 373-3000
Fax: (212) 757-3990
jhurwitz@paulweiss.com
ratkins@paulweiss.com
ycleary@paulweiss.com
achakraborty@paulweiss.com
asavitt@paulweiss.com

R. Jared Evans
I. Sara Rohani (admitted *pro hac vice*)
NAACP Legal Defense and Educational Fund, Inc.
700 14th Street N.W. Ste. 600

1

Washington, DC 20005
Tel: (202) 682-1300
jevans@naacpldf.org
srohani@naacpldf.org

Nora Ahmed (admitted *pro hac vice)*
ACLU Foundation of Louisiana
1340 Poydras St, Ste. 2160
New Orleans, LA 70112
Tel: (504) 522-0628
nahmed@laaclu.org

Tracie L. Washington
Louisiana Justice Institute
Suite 132
3157 Gentilly Blvd
New Orleans LA, 70122
Tel: (504) 872-9134
tracie.washington.esq@gmail.com

John Adcock
Adcock Law LLC
3110 Canal Street
New Orleans, LA 70119
Tel: (504) 233-3125
jnadcock@gmail.com

Sophia Lin Lakin (admitted *pro hac vice)*
Dayton Campbell-Harris (admitted *pro hac*)**
American Civil Liberties Union Foundation
125 Broad Street, 18th Floor
New York, NY 10004
slakin@aclu.org

Megan Keenan (admitted *pro hac vice*)
Sarah Brannon (admitted *pro hac vice*)**
American Civil Liberties Union Foundation
915 15th St., NW
Washington, DC 20005
sbrannon@aclu.org

T. Alora Thomas-Lundborg (admitted *pro hac vice*)
Election Law Clinic
Harvard Law School
6 Everett Street, Ste. 4105
Cambridge, MA 02138
(617) 495-5202
tthomaslundborg@law.harvard.edu

*Counsel for Robinson Plaintiffs*

***Practice is limited to federal court.*

**UNITED STATES DISTRICT COURT**
**MIDDLE DISTRICT OF LOUISIANA**

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**PLAINTIFFS' MEMORANDUM OF LAW IN SUPPORT OF MOTION TO EXCLUDE**
**PROPOSED EXPERT TESTIMONY OF DAVID A. SWANSON, Ph.D.**

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**INTRODUCTION**

Defendants' expert witness Dr. David A. Swanson is patently unqualified to provide expert testimony regarding communities of interest in Louisiana's congressional districts. Dr. Swanson has little more than a passing familiarity with the concepts and maps he advances in his reports, with communities of interest in Louisiana, or with redistricting generally. Rather than educate himself on the issues relevant to this case, Dr. Swanson's "expert" report is based on little more than a Google search and a novel and inappropriate "clustering" algorithm that is wholly divorced from the way Louisiana congressional districts are actually configured. As a result, the testimony he would offer is based on unreliable methodology that does not resemble the work of experts in the field of demographics or redistricting and, as such, does not meet the requirements of Federal Rule of Evidence 702. Plaintiffs respectfully request that the Court exclude the Expert Report of David A. Swanson, Ph.D., Sept. 15, 2023, Ex. 1 ("Swanson Rep."), the Supplemental Expert Report of David A. Swanson, Ph.D., Jan. 11, 2024, Ex. 2 ("Swanson Supp. Rep."),[1] and any testimony offered by Dr. Swanson at trial.

**LEGAL STANDARD**

Expert testimony must be qualified, reliable, and relevant to be admissible. Fed. R. Evid. 702; *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993). Courts act as gatekeepers to ensure expert testimony meets these requirements and to evaluate whether there is an adequate fit between the data and the opinion proffered. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). This gatekeeping obligation extends to all scientific, technical, or other specialized knowledge. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 148 (1999). Testimony must be grounded in

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[1] Dr. Swanson's supplemental report applies the same analysis as his original report to the fifth illustrative map submitted by William Cooper and the fourth illustrative map submitted by Anthony Fairfax on December 22, 2023.

the relevant methods and procedures and must be more than unsupported speculation or subjective

belief. *Daubert*, 509 U.S. at 590. The proponent of an expert's testimony bears the burden of

establishing the reliability of the expert's testimony. *Moore v. Ashland Chem. Inc.*, 151 F.3d 269,

276 (5th Cir. 1998) (en banc). A court may exclude "opinion evidence that is connected to existing

data only by the *ipse dixit* of the expert." *Joiner*, 522 U.S. at 146.

Courts apply a "five-factor, non-exclusive, flexible test" to determine reliability under

*Daubert*: (1) whether the theory has been tested; (2) whether it has been subject to peer review and

publication; (3) its known or potential rate of error; (4) the existence and maintenance of standards

and controls; and (5) the degree to which the theory has been generally accepted in the scientific

community. *Moore*, 151 F.3d at 275. The proffered testimony of Dr. Swanson fails each and every

element of this test, and then some.

## ARGUMENT

The Court should exclude Dr. Swanson's reports and testimony. He is not qualified to opine

on communities of interest in Louisiana, and the methodologies presented in his reports are

unreliable.

**I.     Dr. Swanson is not qualified to opine on communities of interest in the redistricting context.**

First and foremost, Dr. Swanson lacks the knowledge, skill, experience, training, or

education to testify reliably about communities of interest in the context of Louisiana redistricting.

Dr. Swanson claims that his field of expertise is in demography, but, by his own account, he only

knows "something about the field" of redistricting. Deposition of David A. Swanson, Ph.D., Sept.

22, 2023, Ex. 3 ("Swanson Dep. Tr.") 19:7–17. He has not taught any courses nor published any

peer-reviewed articles on redistricting. *Id.* 19:25–20:8. Dr. Swanson admits that his expertise is

not in the "discrete area of redistricting," and he is unfamiliar with the methodology of redistricting

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scholars in analyzing communities of interest. *Id.* 37:3–38:2 ("Again, I'm not able to speak to what [redistricting scholars] generally use[.]").

Not only does Dr. Swanson lack expertise in redistricting, but he also lacks the ability to produce or verify the results of the figures in his own report. In fact, Dr. Swanson only has a "basic understanding of GIS and mapping" and lacks the skillset to generate many of the maps and analyses that appear in his own expert reports. *Id.* 24:10–25:6. In fact, many figures in Dr. Swanson's report were prepared by Thomas Bryan of Bryan GeoDemographics, who was also responsible for gathering much of the underlying data. *Id.* 22:4–23:7, 25:20–25. Dr. Swanson lacks the expertise to verify the accuracy of analyses provided by Bryan GeoDemographics, and the only validation he could conduct was to "look[] at the maps and mak[e] sure they looked reasonably consistent." *Id.* 23:8–25:11 ("I would have had to teach myself or go through a lot of coursework with GIS in order to [verify the accuracy of analyses].").

Notably, Defendants previously offered Mr. Bryan as an expert in this case. In its order granting Plaintiffs' motion for preliminary injunction, this Court found that Mr. Bryan's methodology was "poorly supported," his conclusions were "unsupported by the facts and data in this case and thus wholly unreliable," and his analysis "lacked rigor and thoroughness, which further undermines the reliability of his opinions." ECF No. 173, 92–94. This Court accordingly gave "very little weight to Bryan's analysis and conclusions." *Id.* at 94. Defendants have elected not to disclose Mr. Bryan as a witness they intend to call at trial; they should not be permitted to launder Mr. Bryan's discredited approach through *another* witness who is unable to answer questions about Mr. Bryan's processes.

Dr. Swanson is not qualified by knowledge, skill, experience, training, or education to provide the opinions in his report. He has at most a rudimentary understanding of the analyses and maps in his own expert report and cannot serve as a reliable witness on these matters.[2]

## II.    Dr. Swanson's opinions and methodologies are unreliable.

### A. Dr. Swanson's methodology of Googling online maps to identify communities of interest is deeply flawed.

Dr. Swanson's report presents a series of Louisiana regional maps that he offers to identify the communities of interest that map-drawers must prioritize when drawing congressional districts. *See* Swanson Rep. at 25–29. Dr. Swanson did not create these maps based on his own expert familiarity with the state; nor did he extract them from peer-reviewed or redistricting-related literature; nor did he perform a comprehensive survey of all Louisiana regional maps and select the ones that were most probative of redistricting criteria. Instead, he resorted to the go-to method of non-experts in every field: "A Google search." Swanson Dep. Tr. 121:19–23. Dr. Swanson copied into his report the first four maps that popped up from his search, *id.* 121:24–122:2, without any effort to determine whether the maps were drawn by relevant (or reliable) sources, without any analysis of whether the maps he chose were consistent with other efforts to identify communities of interest that are relevant to congressional districting, and without any consideration of how Google's algorithm could be influenced by the nature or contents of the search results or his own search history or location.

The four maps that Dr. Swanson identifies were created by the Louisiana Regional Folklore Program; an apparent advertiser in Smithsonian magazine seeking to lure tourists; the Louisiana

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[2] Nor is Dr. Swanson qualified to testify about Louisiana communities of interest as a lay witness. *See* Fed. R. Evid. 701. He has never lived in Louisiana or visited Louisiana for more than three or four days at a time. Swanson Dep. Tr. 17:13–15, 18:13–15.

Department of Culture, Recreation, and Tourism (purporting to depict "Folklife Regions"); and

the Louisiana Economic Development Agency, respectively. Swanson Rep. 25–29. Dr. Swanson

did not know when any of these maps were created, how they were created, or why they were

created. Swanson Dep. Tr. 123:4–124:16 (disclaiming knowledge of Louisiana Regional Folklore

Program map); *id.* 124:24–127:8 (disclaiming knowledge of Smithsonian advertisement); 127:9–

129:10 (disclaiming knowledge of Louisiana Department of Culture, Recreation, and Tourism

map); *id.* 129:11–131:13 (disclaiming knowledge of Louisiana Economic Development Agency

map). Notably, Dr. Swanson conceded that, to his understanding, none of the four maps were

drawn to identify communities of interest for redistricting purposes, and there was no indication

that any of the maps reflected communities that are likely to have similar legislative concerns and

who might benefit from cohesive representation. *Id.* 124:7–16; 125:19–126:3; 128:6–16; 130:10–

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Instead, the maps appear to reflect no more than the organizational agendas of their

creators. Two of the maps—the tourist advertisement in Smithsonian Magazine and the map

generated by the Louisiana Department of Culture, Recreation, and Tourism—appear to be

directed at the potential interests of *out-of-state* tourists rather than the interests of Louisianians.

The map generated by the Louisiana Economic Development Agency, in turn, does not purport to

identify regions based on shared economic development criteria; rather, the report simply

highlights that economic investments have been made in every corner of the state.[3] Two of the

maps that Dr. Swanson identifies reference folklore or folklife, but they do not address the interests

of State citizens relevant to legislative concerns. And Dr. Swanson ignores *another* online map of

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[3]    *See* La. 2022 Annual Report at 46–47, La. Econ. Dev., https://www.opportunitylouisiana.gov/wp-content/uploads/docs/23led103_led-annualreport2022_single_all_pages_lowres.pdf?sfvrsn=c9dab805_0 (last accessed Jan. 15, 2024).

"Louisiana Folk Regions" that shows the Delta Parishes connected to Baton Rouge[4]—the very connection that Dr. Swanson's analysis purports to reject. The maps Dr. Swanson found are patently not a reliable basis for identifying communities of interest relevant to redistricting.

Ultimately, even if the maps Dr. Swanson relies upon were a relevant, reliable basis for identifying Louisiana communities of interest, none of the maps that Dr. Swanson presents offers a tenable basis for redistricting. While Louisiana's congressional map must be comprised of six equally populated districts, each of the maps in Dr. Swanson's report contains either five or eight regions, none of which are drawn to be equally populated. As a result, it is inevitable that *any* congressional map in Louisiana will divide regions Dr. Swanson contends should remain united and/or combine regions that Dr. Swanson contends are dissimilar.

Dr. Swanson's methodology completely fails the Rule 702 test. *See Daubert*, 509 U.S. at 593–95. The reliability of Googling for regional maps and then selecting an arbitrary number that appear at the top of the search results, with unidentified search terms on a computer with an unknown location and unknown search history, has not been tested, has not been subject to peer review, has not been published, does not have an identifiable error rate, does not reflect the existence and maintenance of standards and controls, and is not generally accepted in the political science community. *See, e.g.*, *Madison v. Courtney*, No. 4:18-CV-00671-O, 2019 WL 8263428, at *3 (N.D. Tex. Jan. 26, 2019) (disqualifying an expert who "merely ran a Google search" and pasted the results without any explanation for how his expertise guided his conclusions); *Haynes ex rel. Haynes v. Nat'l R.R. Passenger Corp.*, 319 F. App'x 541, 543 (9th Cir. 2009) (finding that

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[4] *See* La. Folk Regions, ResearchGate, https://www.researchgate.net/figure/Map-showing-Louisianas-main-folk-regions-and-nine-cultural-subregions-Image-source_fig4_337225536 (last accessed Jan. 15, 2024).

a Google search, which would "ordinarily be a basis for little more than lay speculation," cannot provide the basis for expert opinion).

As observed by Dr. Jonathan Rodden, a professor of political science at Stanford University with extensive redistricting experience, Dr. Swanson's approach is "deeply flawed," "cannot possibly serve as a reliable guide," "cannot generate useful conclusions," is "arbitrary and discretionary," and is "untenable." Expert Report of Dr. Jonathan Rodden ("Rodden Rep.") at 2– 3, 6–15, Ex. 4. Dr. Swanson's own explanation for how he chose the regional maps for his report confirms there was no application of expertise: "[T]hose are the ones I found pretty quickly," he explained, "so I used them." Swanson Dep. Tr. 93:3–7. Any layperson could conduct this type of cursory online search; Dr. Swanson's approach reflects no "expert" methodology and comes with no assurances of reliability. Because Dr. Swanson's opinions on communities of interest in Louisiana fail the requirements of Rule 702, they should be excluded.

### B. Dr. Swanson's use of a clustering algorithm to identify communities of interest is deeply flawed.

Dr. Swanson next attempts to distinguish disparate communities of interest in Louisiana through his novel and inappropriate use of a clustering algorithm, but he makes several errors that deviate from the normal rigor and practice of redistricting scholars. Swanson Rep. at 33–35. Dr. Swanson is no expert in cluster analysis. He possesses only a "basic understanding" of the cluster analysis he employs and has never published any research—let alone peer-reviewed papers— relating to the use of cluster analysis to evaluate redistricting maps. Swanson Dep. Tr. 20:9–25. To conduct his analysis, Dr. Swanson chose 14 of the 97 parish-level variables tracked by the U.S. Census Bureau and split all 64 parishes in Louisiana into two clusters based on the extent to which they share characteristics associated with the 14 selected variables. Swanson Rep. at 34–37; Swanson Dep. Tr. 61:5–18. As Dr. Rodden explained, "[w]ithout a principled and rigorous way of

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deciding which variables to include, [Dr. Swanson's] approach is arbitrary and without meaning." Rodden Rep. at 19. Dr. Swanson also failed to conduct any robustness checks to test the validity of his conclusions. *Id.* 36:6–8 ("So you just accepted the results of the cluster analysis? A: Yes."). Though he recognized that the variables vary in terms of their importance, Dr. Swanson did not weigh any of the variables. Swanson Dep. Tr. 70:9–4. This arbitrary approach cannot be found reliable. *Stragent, LLC v. Intel Corp.*, No. 6:11-CV-421, 2014 WL 1389304, at *4 (E.D. Tex. Mar. 6, 2014), order clarified, No. 6:11-CV-421, 2014 WL 12611339 (E.D. Tex. Mar. 12, 2014).

Dr. Swanson repeated his cluster analysis exercise with 12 variables, 9 variables, and 7 variables, each time arbitrarily dropping variables. Swanson Rep. at 38–39. The 14-variable and 12-variable results are identical, and the 9-variable and 7-variable results are identical, indicating that the employment variables and migration variables that Dr. Swanson chose to omit in the lower-numbered exercise were not important to the clusters and likely highly correlated with other variables. Swanson Rep. at 54–62. Dr. Swanson did not implement any robustness checks before running his cluster analysis to identify these or any other correlated variables. Swanson Dep. Tr. 88:7-15.

As Dr. Rodden further explained, Dr. Swanson's "selection of variables also preordains certain outcomes." Rodden Rep. at 19. For example, Dr. Swanson included a variable for population per square mile in each iteration, Swanson Report at 37–39, producing clusters that necessarily separated cities from rural areas. Affirmatively choosing variables that assign urban areas and rural areas to different clusters is not reliable evidence that urban and rural areas do not share interests; instead, that result is simply an artifact of how Dr. Swanson designed his model. *See Joiner*, 522 U.S. at 146; *Muñoz v. Orr*, 200 F.3d 291, 301 (5th Cir. 2000) (finding that an

expert's failure to consider other explanatory variables and verify data could render the testimony unreliable).

Dr. Swanson's foray into cluster analysis included other errors that would be immediately obvious to anyone familiar with redistricting. For example, his 9-variable and 7-variable iterations produced a cluster of five disconnected parishes from all across the state. *See* Swanson Rep. at 54–62; Rodden Rep. at 20–21. These results cannot provide any meaningful insights into Louisiana congressional districting, which requires equally populated and contiguous districts.

Dr. Swanson's cluster analysis is also faulty and unreliable in his choice to generate only two clusters for all 64 parishes in Louisiana, a state with six congressional districts. Swanson Rep. at 36. He reasoned that two clusters were sufficient because if two parishes are not "in the same cluster under the two-cluster option, then they will not be in the same cluster under any" other scenario. *Id*. But simple logic defies that reasoning. If ten parishes were ordered by population and divided into two clusters, the fifth and sixth largest parishes would be in different clusters; but if those same ten parishes were divided by population into *three* clusters, then the fifth and sixth largest parishes would be in the *same* cluster. Thus, Dr. Swanson failed to consider that parishes assigned to different clusters in his two-cluster analysis could reasonably be assigned to the same "cluster" or district in a congressional map composed of six equally populated and contiguous districts. Dr. Swanson did not test his results for any number of clusters other than two, even though he agreed that there may be more than two communities of interest in Louisiana. Swanson Dep. Tr. 59:16–22.

Furthermore, Dr. Swanson admits that cluster analysis is not routinely used by redistricting scholars. *Id*. 53:9–21. Though Dr. Swanson occasionally cites the academic work of other scholars, he uses cluster analysis in a manner that is *opposite* to that used by those scholars. Scholars have

used social and demographic data to find clusters of voters with *similar* characteristics—communities of interest that map drawers might attempt to keep together. *See, e.g.*, John Mollenkopf, Joseph Pereira, and Steven Romalewski, *"Communities of Interest" and City Council Districting in New York, 2012-2013* (February 2013), https://www.gc.cuny.edu/sites/default/files/2021-05/CUR-Communities-of-Interest-NY-2012-2013.pdf. Dr. Swanson, on the other hand, uses his analysis to justify keeping certain groups *apart* if they appear in different clusters. But Dr. Swanson offers no evidence or analysis showing that areas in different clusters should be part of different electoral districts. Dr. Swanson further departed from professional practices by limiting his analysis to only two clusters; by failing to consider other variables for inclusion in a methodical way; and by failing to properly consider geography or contiguity. *Id.*; Swanson Dep. Tr. 41:9–10. Because the clusters he generates are not contiguous, they cannot possibly be drawn into actual congressional districts. *Daubert* requires experts to employ the same intellectual rigor of experts in the relevant field. Dr. Swanson was unable to identify any reason to believe that his particular ad hoc clustering methodology satisfies this requirement.

Finally, Dr. Swanson's cluster analysis calls into question the Enacted Plan as much as it does Plaintiffs' illustrative plans. Dr. Swanson uses his cluster analysis to conclude that East Baton Rouge is, in his "judgmental likelihood," in a different grouping from East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll. Swanson Dep. Tr. 90:23–91:12; Swanson Supp. Rep. at 30; Swanson Rep. at 41. The results of Dr. Swanson's cluster analysis rest on the notion that districts should not include parishes that are in different clusters, but this requirement—which in any event seemingly has no support in the academic literature or relevant legal authority—would defeat the Enacted Plan's CD 2, 4, 5, and 6, each of which contain parishes

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in different clusters. *See* Rodden Rep. at 21. Indeed, it is not clear that any Louisiana map could sort congressional districts consistently with the clusters that Dr. Swanson manufactured. Once again, Dr. Swanson's methodology has not been tested, subject to peer review or publication, evaluated for a potential error rate, subject to standards and controls, or generally accepted in the scientific community. *Daubert*, 509 U.S. at 593–95. Accordingly, Dr. Swanson's clustering analysis and related opinions should be excluded.

## CONCLUSION

The Court should exclude the proposed testimony and expert reports of Dr. David A. Swanson.

Date: January 15, 2024

J. E. Cullens, Jr.
Andrée Matherne Cullens
S. Layne Lee
WALTERS, THOMAS, CULLENS, LLC
12345 Perkins Road, Bldg. One
Baton Rouge, LA 70810
(225) 236-3636

Respectfully submitted,

By: */s/Abha Khanna*
Abha Khanna (*admitted pro hac vice*)
ELIAS LAW GROUP LLP
1700 Seventh Ave. Suite 2100
Seattle, Washington 98101
(206) 656-0177
akhanna@elias.law

Daniel Cohen (*admitted pro hac vice*)
Qizhou Ge (*admitted pro hac vice*)
Jacob D. Shelly (*admitted pro hac vice*)
ELIAS LAW GROUP LLP
250 Massachusetts Ave, NW Suite 400
Washington, D.C. 20001
(202) 968-4490
dcohen@elias.law
age@elias.law
jshelly@elias.law

*Counsel for Galmon Plaintiffs*

By: */s/Jonathan H. Hurwitz*

Stuart Naifeh (admitted *pro hac vice*)
Kathryn Sadasivan (admitted *pro hac vice*)
Victoria Wenger (admitted *pro hac vice*)
NAACP Legal Defense and Educational Fund, Inc.
40 Rector Street, 5th Floor
New York, NY 10006
Tel: (212) 965-2200
snaifeh@naacpldf.org
ksadasivan@naacpldf.org
vwenger@naacpldf.org

R. Jared Evans
I. Sara Rohani (admitted *pro hac vice*)
NAACP Legal Defense and Educational Fund, Inc.
700 14th Street N.W. Ste. 600
Washington, DC 20005

Jonathan H. Hurwitz (admitted *pro hac vice*)
Robert A. Atkins (admitted *pro hac vice*)
Yahonnes Cleary (admitted *pro hac vice*)
Amitav Chakraborty (admitted *pro hac vice*)
Adam P. Savitt (admitted *pro hac vice*)
PAUL, WEISS, RIFKIND, WHARTON & GARRISON LLP
1285 Avenue of the Americas,
New York, NY 10019
Tel.: (212) 373-3000
Fax: (212) 757-3990
jhurwitz@paulweiss.com
ratkins@paulweiss.com
ycleary@paulweiss.com
achakraborty@paulweiss.com
asavitt@paulweiss.com

Tel: (202) 682-1300
jevans@naacpldf.org
srohani@naacpldf.org

Nora Ahmed (admitted *pro hac vice*)
ACLU Foundation of Louisiana
1340 Poydras St, Ste. 2160
New Orleans, LA 70112
Tel: (504) 522-0628
nahmed@laaclu.org

Tracie L. Washington
Louisiana Justice Institute
Suite 132
3157 Gentilly Blvd
New Orleans LA, 70122
Tel: (504) 872-9134
tracie.washington.esq@gmail.com

John Adcock
Adcock Law LLC
3110 Canal Street
New Orleans, LA 70119
Tel: (504) 233-3125
jnadcock@gmail.com

Sophia Lin Lakin (admitted *pro hac vice*)
Dayton Campbell-Harris (admitted *pro hac*)**
American Civil Liberties Union Foundation
125 Broad Street, 18th Floor
New York, NY 10004
slakin@aclu.org

Megan Keenan (admitted *pro hac vice*)
Sarah Brannon (admitted *pro hac vice*)**
American Civil Liberties Union Foundation
915 15th St., NW
Washington, DC 20005
sbrannon@aclu.org

T. Alora Thomas-Lundborg (admitted *pro hac vice*)
Election Law Clinic
Harvard Law School
6 Everett Street, Ste. 4105
Cambridge, MA 02138
(617) 495-5202
tthomaslundborg@law.harvard.edu

*Counsel for Robinson Plaintiffs*

**Practice is limited to federal court.*

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# IN THE UNITED STATES DISTRICT COURT

# FOR THE MIDDLE DISTRICT OF LOUISIANA

| | |
|---|---|
| **PRESS ROBINSON, et al.,**<br><br>*Plaintiffs,*<br><br>**v.**<br><br>**KYLE ARDOIN, in his official capacity as Secretary of State for Louisiana,**<br><br>*Defendant.* | **Civil Action No. 3:22-cv-00211-SDD-SDJ**<br><br>**Chief Judge Shelly D. Dick**<br><br>**Magistrate Judge Scott D. Johnson** |
| **EDWARD GALMON, SR., et al.,**<br><br>*Plaintiffs,*<br><br>**v.**<br><br>**R. KYLE ARDOIN, in his official capacity as Secretary of State for Louisiana,**<br><br>*Defendant.* | **Consolidated with**<br>**Civil Action No. 3:22-cv-00214-SDD-SDJ** |

# Expert Report of David A Swanson, Ph.D.

Expert in Demography for the Defendant R. Kyle Ardoin, in his official capacity as Secretary of State of Louisiana

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## I.    ASSIGNMENT

1.  I have been engaged to evaluate the demographics of Remedial Congressional District 5 (RCD5) proposed by the plaintiffs. Specifically, I have been asked to determine if East Baton Rouge Parish and Lafayette Parish, on the one hand, should be placed into a single Community of Interest (COI) with, on the other, seven parishes found in northeast Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll). In responding to this question, I: (1) examine split parish and place geographies in the context of race; and (2) examine the cultural, economic, demographic, historic, and social characteristics upon which a COI would be defined. In my examination, I employ an empirically- and scientifically-based classification system called "Cluster Analysis" to determine if these two geographically-separated groups of parishes form a single COI, which, in turn, would serve as a justification for them being placed together into RCD5.


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## II.    EXPERT QUALIFICATIONS

2.    I am an expert in demography with more than 50 years of experience.

3.    I graduated with a Bachelor of Science in Sociology (with a minor in mathematics) from Western Washington University in 1972.  I earned a graduate diploma in social sciences from the University of Stockholm in 1974, an M.A. in Sociology/Population Studies from the University of Hawai'i Mãnoa in 1976 and a Ph.D. in Sociology/Population Studies from the University of Hawai'i Mãnoa in 1985.

4.    I have served in a number of professional association roles, including: general editor for Springer's Applied Demography series; member of the mortality expert panel of the Society of Actuaries Research Institute (2022-current); Secretary-Treasurer (1995-7 and 2003-7) of the Southern Demographic Association; and editor of *Population Research and Policy Review* (2004-7).  I have been on the program committee for the 2022 annual meeting of the Population Association of America and also the program committees for the 2019 Conference on Population and Public Policy and both the 2020 and 2017 annual meetings of the Population Association of America.  I have produced 119 refereed sole- and co-authored journal articles, and nine books. I also have edited or co-edited four additional books, with another on the COVID-19 pandemic in press. Google Scholar shows more than 6,800 citations to my work (https://scholar.google.com/citations?user=t7P6qoYAAAAJ&hl=en&oi=ao ).

5.    My first demographic consulting job was in the spring and summer of 1972 with KVOS TV in Bellingham, Washington. While a graduate student at the Mãnoa campus of the University of Hawai'i, I was employed as a staff researcher with the East-West Population Institute, a unit of the Congressionally funded East-West Center, which adjoins the Mãnoa campus. In late 1976, I accepted a position with the Population, Economic, and Enrollment Studies Division of the Washington State Office of Financial Management in Olympia, Washington (The Governor's Budget Office), and in 1981, I became the first State Demographer of Alaska. This was followed by private sector, government, and academic positions, to include serving as the State Demographer of Arkansas, Senior Scientist at Science Applications International Corporation, Dean at the Helsinki School of Economics and Business Administration (now part of Aalto University), and Professor & Chair of the Sociology/Anthropology Department at the University of Mississippi. I retired as Emeritus Professor of Sociology at the University of California Riverside in 2018 and was recognized as a "Dickson Professor Emeritus" in 2020-21. I have received a number of awards for my work, including two Fulbright scholarships, and the 2022 "Terrie Award" for presenting the best paper (co-authored with two colleagues) on state and local demography at the annual meeting of the Southern Demographic Association (an award I also won in 1999 and 2016). I am an elected fellow of the Mississippi Academy of Sciences

and an elected member of the Washington State Academy of Sciences. I have testified before Congress and State Legislatures and served on the U.S. Census Bureau's Scientific Advisory Committee, 2004-10, chairing it for two years. I am currently a Research Associate (.25 FTE) with the Population Research Center, Portland State University and a Research Affiliate with the Center for Studies in Demography and Ecology, University of Washington.

6. I have worked on revising school (K-12) attendance zones, an activity, which while lacking the same legal underpinnings of legislative redistricting, shares similarities with the latter in terms of public consequences, analytical methods, GIS mapping, and variables such as age, race and socio-economic status as criteria of interest (Swanson et al., 1997; Swanson et al., 1998). Furthermore, as indicated in the dedication and acknowledgments, respectively (Morrison and Bryan, 2019: viii, xi), I also played an active role in the development of *Redistricting: A Manual for Practitioners, Analysts, and Citizens*.

7. I been involved in the following court cases as a testifying and/or deposed expert witness:

   o Testifying expert witness in *White, et al. v. Mississippi State Board of Election Commissioners*. Deposition and testimony (forthcoming);

   o Deposed Expert Witness (testimony given in July, 2023). 2022. Case No. CV 6417-300, Superior Court of Arizona in and for the County of Apache, General Adjudication of All Rights in the Little Colorado River System and Source, Phoenix, AZ (On behalf of the Hopi Tribe, Review of Population Forecasts done by a Demographer hired by the Navajo Nation). Osborne Maledon, P.A., Phoenix, AZ;

   o Deposed and Testifying Expert Witness. 2022. Case A-17-762364-C. Estate of Joseph P. Schrage Jr & Kristina. D. Schrage v. Allan Stahl. Eighth Judicial Court, Clark County, Las Vegas, Nevada (life expectancy, working life expectancy and present value of lost earnings and benefits). O'Reilly Law Group, Las Vegas, NV;

   o Deposed and Testifying Expert Witness. 2021. Case No. CV 6417-203, Superior Court of Arizona in and for the County of Apache, General Adjudication of All Rights in the Little Colorado River System and Source, Phoenix, AZ (Forecast of Hopi Tribal Population). Osborne Maledon, P.A., Phoenix, AZ;

   o Deposed and Testifying Expert Witness. 2012. Board of Education, Shelby County, Tennessee et al. v. Memphis City Board of Education et al. / Board of County Commissioners, Shelby County, Tennessee (third party plaintiff) v. Robert E. Cooper et al (third party defendant)." (Constitutionality of a Tennessee state law). (School District Enrollment Forecasts). Baker, Donelson, Bearman, Caldwell and Berkowitz, PC. Memphis, TN;

   o Deposed Expert Witness. 2009. "Quest Medical Services v. FMIC." (Demographic Effects of Hurricane Katrina on New Orleans in a case involving a Medical Service Provider). Podvey, Meanor, Catenacci, Hildner, Cocoziello, and Chattman, P.C., Newark, NJ;

- o Deposed and Testifying Expert Witness. 2007. "Spring Hill Hospital, Inc. v. Williamson Medical Center and Maury Regional Hospital." (Evaluation of population forecasts in a case involving a proposed hospital). Miller and Martin, PLLC, Nashville, TN;

- o Deposed and Testifying Expert Witness. 1994. Arkansas Supreme Court. (Statistical evaluation of the accuracy of the number of qualified signatures on a public referendum as determined by a sample); and

- o Deposed Expert Witness. 1983. "Anchorage, et al., vs. J. Hammond et al." (Lawsuit brought by local governments against the state of Alaska on how populations are determined for purposes of state revenue sharing to local governments).

8. I have produced the following expert reports as a consultant/potential expert witness in other court cases:

- o Expert report: Demographers report submitted on behalf of Defendants in *White, et al. v. Mississippi State Board of Election Commissioners*;

- o Expert Report, Estimated Life Expectancy and Present Value of Household Costs, Z. Kirkson. O'Reilly Law Group, Las Vegas, Nevada. (2019); Expert Report, The Potential Number of Claimants in regard to the 2010 Gulf of Mexico Oils Spill and its Sequellae. Watts Guerra, LLC. San Antonio, TX. (2016);

- o Expert Report in the matter of Conseil scolaire francophone de la Colombie-Britannique, Fédération des parents francophones de Colombie-Britannique, et al. v. Her Majesty the Queen in Right of the Province of British Columbia, and the Minister of Education of the Province of British Columbia, Vancouver Registry S103975 in the Supreme Court of British Columbia. Prepared for the Office of the Attorney General, Ministry of Justice, Province of British Columbia, Canada (2014);

- o Expert Report re Title Insurance Loss Model, First American Title Insurance Company, Miller and Martin PLLC, Nashville, TN (2008);

- o Expert Report re Patient Population in the matter of Ochsner Clinical Foundation versus Continental Casualty Company. Fisher and Kanaris PC, Chicago, IL (2008); and

- o Expert Report re Hurricane Katrina: Its Impacts on the Population and Candidates for Endovascular Surgery in the Primary and Secondary Service Areas of Garden Park Hospital as Defined by Hospital Corporation of America. Salloum and Brawley LLP, Nashville, TN (2007).

9. Because of its expertise and experience, I use the services of Bryan Geodemographics, which under my direction assembles data, maps and other work products.

10. My full Curriculum Vitae, describing my 50 years of demography experience and my use of Cluster Analysis and a closely related method, Discriminant Analysis, is attached as Appendix 8.

11. I am being compensated at a rate of $450/hour.

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### III.    EXECUTIVE SUMMARY

12. My review of RCD5 leads me to three broad conclusions, which I address in detail in this report.  First, the majority-minority RCD5 is drawn from distant pieces of split parishes and place geographies that have never been included in the same legal congressional district before.  Second, race predominated and was the only significant Community of Interest (COI) considered by plaintiffs in drawing their plan.  Third, I created my own independent analysis of COIs using a demographic technique called "cluster analysis" – which objectively shows that the seven parishes making up Northeastern Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are in a COI group that is distinct from the COI group in which East Baton Rouge Parish and Lafayette Parish are classified.  I summarize each of these points here. They are explored in more detail in the remainder of the report.

13. My review of boundaries proposed by plaintiffs' experts over the course of this litigation, suggests that race predominates in the drawing of RCD5. All of the versions of RCD5 link the seven Northeastern Louisiana Parishes with five or more geographically dispersed and split parishes that consistently include East Baton Rouge Parish and part of Lafayette Parish.

14. Under RCD5, these dispersed areas are connected with each other and with the seven Northeastern Louisiana parishes by using whole parishes that have relatively low total population and Black Voting Age Population ("BVAP") numbers and often include large areas of non-populous wetlands and swamps. Historically, these dispersed split parishes have *never* before been included together in a lawful single member congressional district in the history of Louisiana. Further, these dispersed split parishes are located in regions that have never been defined as representing a common COI.

15. In examining the geography and demography of the Plaintiffs' proposed majority-minority RCD 5, I find that the seven Northeastern Louisiana parishes have different cultural factors that place them into a COI that is distinct from East Baton Rouge Parish and Lafayette Parish.  This finding is relevant because: (1)  "drawing districts to respect COIs is key to effective political representation for individuals and the groups to which they belong, allowing for greater protection of identifiable common interest" (Chen et al, 2022: 108); and  (2) "communities of interest provide a key legal criterion to guard against partisan and racial motives in redistricting" (Chen et al., 2022: 101).

16. In the process of considering cultural aspects of the COI issue, I examined the possibility that race is a predominant factor in the location of district lines found in plaintiffs proposed RCD5, all variants of which place the seven Northeastern Louisiana parishes into RCD5 with East Baton Rouge Parish and part of Lafayette Parish.

17. My examination of the role of race and the fact that plaintiffs' experts admit that they intended to draw their versions of RCD5 to ensure that their proposed district contained a majority of BVAP, lead me to the opinion that race is the predominant factor in the location of district lines found in RCD5**.** As such, race is the only significant "COI" these geographically dispersed areas share under RCD5.[1]  My opinion is also consistent with the definition of a COI proffered by plaintiffs' expert William Cooper in the parallel legislative case Nairne, et al. v. Ardoin, M.D. La. No. 3:22-CV-00178, namely that of the Brennan Center,[2] whereby all communities who have similar legislative concerns and who might therefore benefit from cohesive representation in the legislature should at least be considered, not just a COI based on race.

18. Turning to my Cluster Analysis results, I note that Plaintiffs' experts relied on subjective judgment in conjunction with ad hoc elements in an attempt to justify the "COI" they constructed in regard to RCD5. Instead of subjective judgement, I employ Cluster Analysis for this purpose (Landau and Chis Ster, 2010).  It is an empirically- and scientifically-based method that I use in conjunction with data that represent relevant demographic, economic, and social characteristics of Louisiana's parishes. Cluster analysis is a numerical method that classifies things into groups (Landau and Chis Ster, 2010: 72).  It is found not only in the field of general spatial analysis (Fritz et al., 2010: 195), but also, specifically, in spatial demography (Adamo, 2011; De Castro, 2007). I first used it 43 years ago (Swanson, 1980) and last used it in 2022 in my work as an expert witness in *White, et al. v. Mississippi State Board of Election Commissioners*. Cluster Analysis also has been used by others in the field of redistricting, as well (Chen et al., 2022; Hood, 2017; Rossiter et al, 2018).

19. The results of my Cluster Analysis (in conjunction with the parish data that represent the relevant demographic, economic, and social characteristics upon which a classification system such as a COI would be based) reveal that the seven Northeastern Louisiana parishes (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are in a different COI grouping than East Baton Rouge Parish and Lafayette Parish.  This finding is consistent with the cultural and historic factors I examined.

20. In conclusion, I find that race was the predominant factor used by plaintiffs to draw RCD5. Plaintiffs split parishes and cities where Black communities are located and then assembled

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[1] Cooper Supplemental Report (Nairne) - 06.30.2023 - 4865-4921-7646.PDF (from defense counsel) states at para 52 "Louisiana's Black population is a community of interest with a shared culture and history that transcends even the clear contemporary socioeconomic disparities that exist across the state vis-à-vis the White population."

[2] Plaintiffs' Expert Cooper refers in his Nairne Report (Cooper Supplemental Report (Nairne) - 06.30.2023 - 4865-4921-7646 1 at footnote 13) to the Brennan Center as providing a reasonable COI definition of "Several redistricting criteria — like following county or municipal lines, or drawing districts that are compact — are in some ways proxies for finding communities of common interest.  These are groups of individuals who are likely to have similar legislative concerns, and who might therefore benefit from cohesive representation in the legislature."

these fragments together with others into a single artificial "COI" that is comprised of distant and otherwise disconnected communities.


## IV.    GEOGRAPHIC AND DEMOGRAPHIC BACKGROUND

21. Turning to geographic and demographic factors, my analysis reveals that RCD5 is based upon pockets of black populations connected by linking together entire parishes that often contain small populations separated by swamps and wetlands. RCD5 also links parishes together that may be in different COIs. As described earlier, I have been engaged, in part, to evaluate the possibility that the East Baton Rouge Parish is in a different COI grouping than the seven parishes making up NE Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll). If this is the case, it would suggest that the former should not be included in proposed plans involving RCD5.  In the course of this litigation, Plaintiffs' experts have put forth numerous alternative "remedial" plans in the form of maps. For the purpose of making my report, I have focused on the features of RCD5 in the Enacted Plan and the joint remedial map represented and RCD5 (proposed by both sets of plaintiffs as being the best representation of all of the maps proposed by plaintiffs). The boundaries of all congressional districts (including CD5) for the Enacted Plan shown as **Figure IV.1**, and of all congressional districts (including RCD5) for the Remedial Plan shown in **Appendix 1**.


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**Figure IV.1. HB1 / SB5 Enrolled Congressional Plan of 2022 and 116ᵗʰ Congressional District Boundaries.**
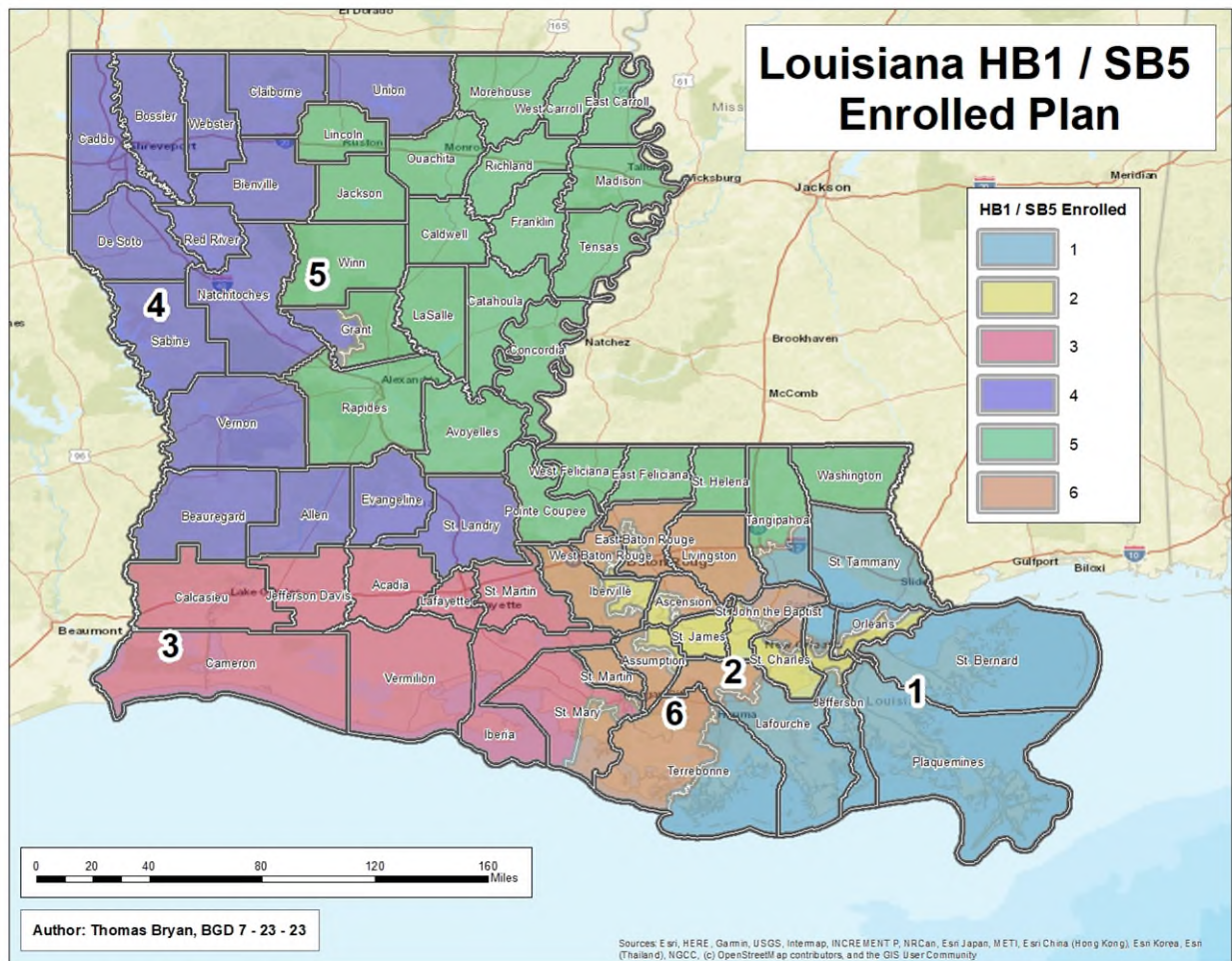


Source: Drawn by BGD at the direction of Dr. David Swanson with shapefiles provided by Plaintiffs' counsel to Defense counsel

22. In **Figure IV.2**, I illustrate the differences between the RCD5 boundaries for the Enrolled and the Remedial RCD5 – including the impact to parishes.  In addition to adding and subtracting numerous parishes compared to the Enacted Plan, the Remedial Plan also features five new splits of parishes that were not split in the Enrolled Plan.  In the Remedial Plan:

(1) The relatively white St. Landry Parish (55% white, non-Hispanic VAP)[3] is added as a land bridge to the heavily Black northern portion of Lafayette Parish in District 5 (70% Any Part Black VAP)– excluding the relatively white portion (72% white, non-

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[3]

https://data.census.gov/table?q=P4:+HISPANIC+OR+LATINO,+AND+NOT+HISPANIC+OR+LATINO+BY+RACE+FOR+THE+POPULATION+18+YEARS+AND+OVER&g=050XX00US22097&tid=DECENNIALPL2020.P4

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Hispanic VAP) of Lafayette to the south in District 3 (see **Figure IV.2** and **Appendix 2**).

(2) Rapides Parish is split between District 3 and 5– leaving the relatively white balance of the parish that is included in the Enacted Plan in District 3, and only keeping a small land bridge to the west capturing only the heavily Black neighborhoods of Alexandria in District 5 (see **Figure IV.2** and **Appendix 3**).

(3) Ouachita Parish is split between remedial District 4 and 5, leaving the relatively white balance of the parish that is included in the Enacted Plan in District 4, and only keeping a small land bridge to the west capturing only the heavily Black neighborhoods of Monroe in district 5 (see **Figure IV.2** and **Appendix 4**).

(4) East Baton Rouge Parish is split between remedial District 5 and 6 leaving the relatively white balance of the parish that is included in the Enacted Plan in District 6, and only keeping the most heavily Black portion of Baton Rouge in District 5 (see **Figure IV.2** and **Appendix 5**).

(5) Tangipahoa Parish is split between remedial District 5 and 6 (and leaving Washington Parish, with a relatively low Black population, excluded completely from District 5) leaving the relatively white balance of the parish that is included in the Enacted Plan in District 6, and only keeping the most heavily Black neighborhoods around Amite in District 5 (see **Appendix 6**).

**Figure IV.2. Congressional District 5 – Difference Between Enrolled and Remedial Plan**
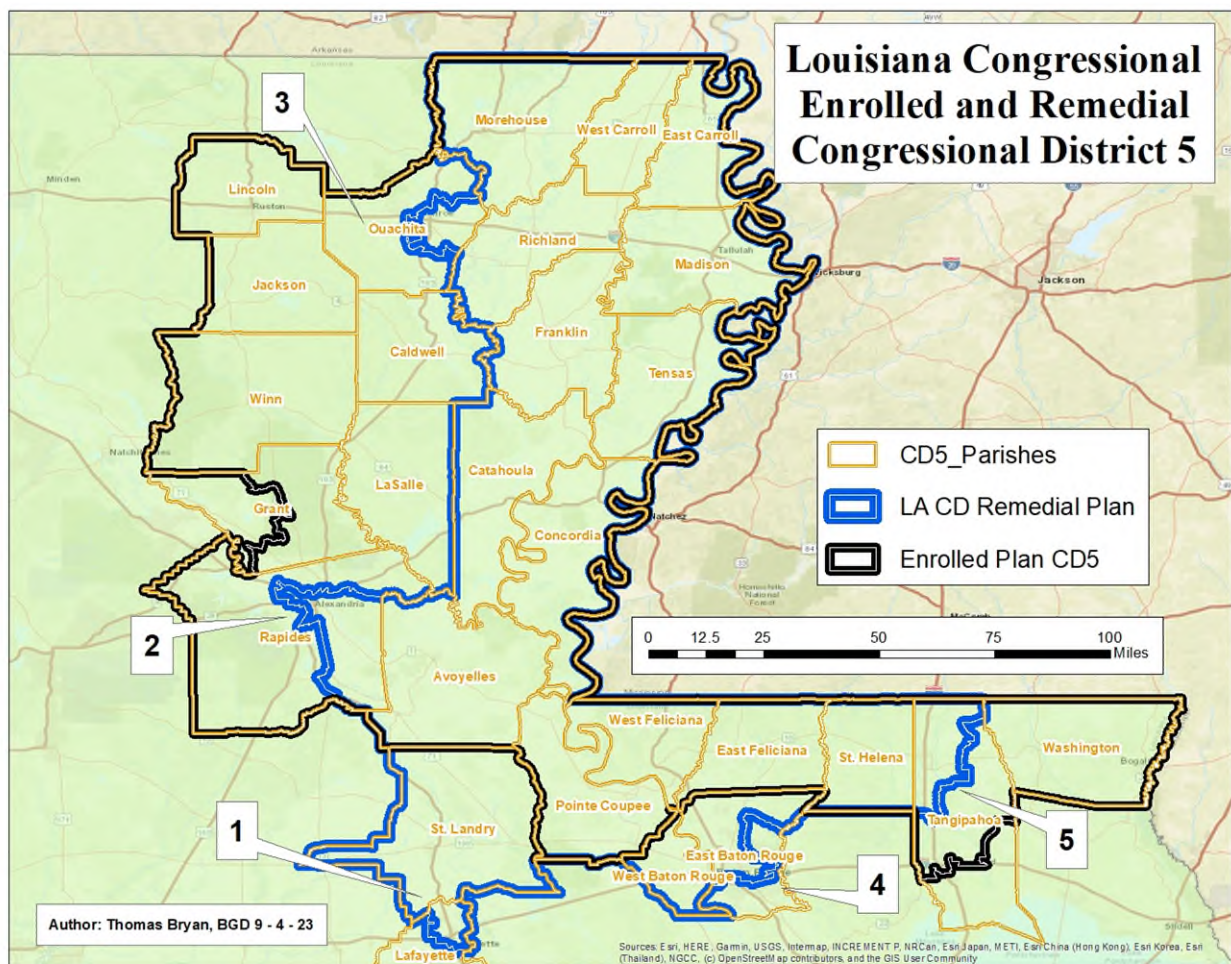


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

**Figure IV.3.  APB Population Splits by Selected Places under Fairfax Joint Remedial Plan.**
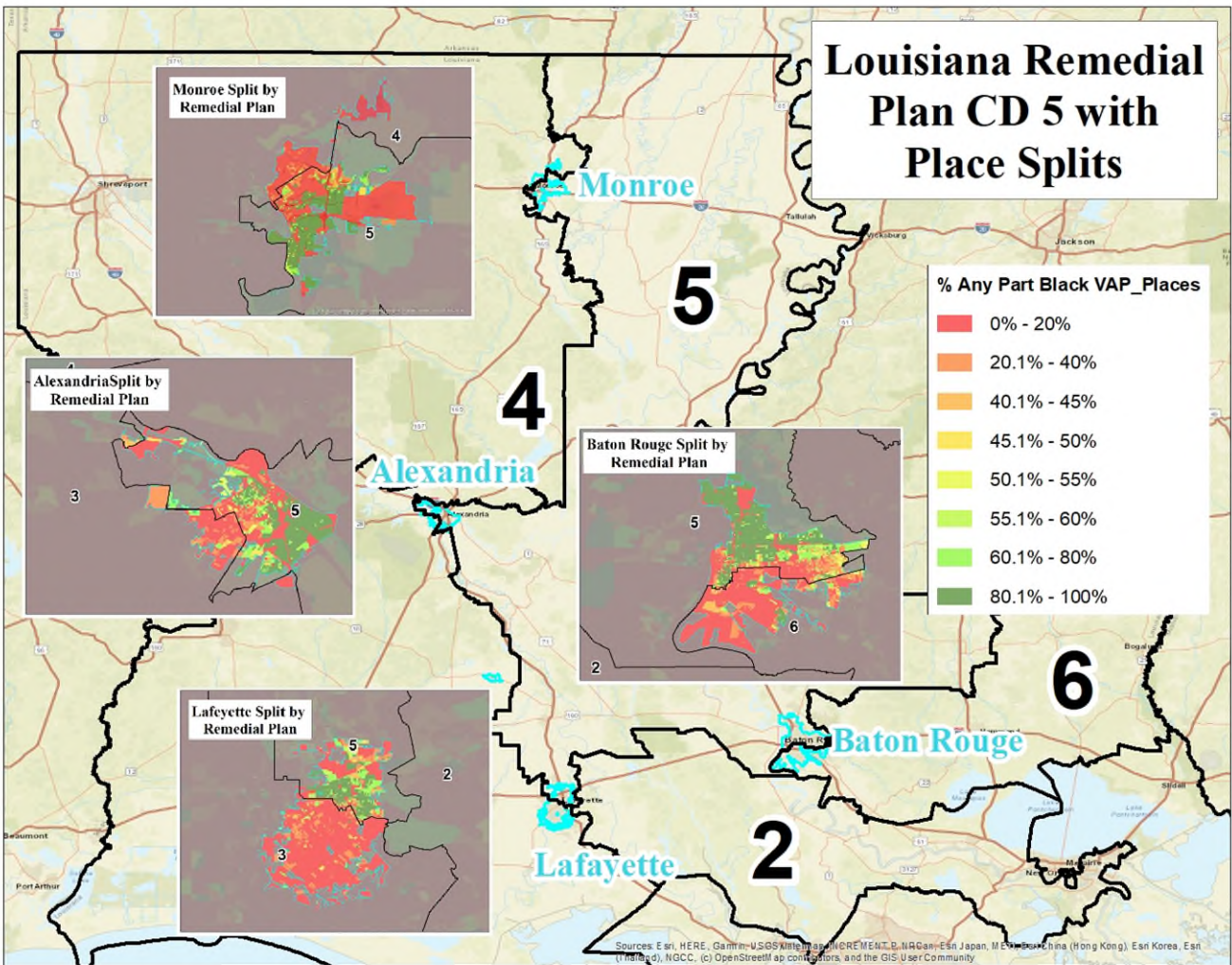


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel.

23. **Figure IV.3** shows the four places split by RCD5 and illustrates how each was drawn to include the Black neighborhoods and exclude non-Black neighborhoods as carefully as possible.  The differences in the characteristics of the population that was split by the remedial plan and included in RCD5, and population that was left to other congressional districts can be illustrated not only visually (as in **Figure IV.3** and **Appendices 2-5**) but numerically as well.

24. In **Table IV.1**, I show the population for each split parish that is both in, and out of RCD5.  At (1) I show that the portion of East Baton Rouge that was drawn into RCD5 is 69.3% Black, while the portion drawn out into CD6 is only 22.5% Black.  At (2) I show that the portion of Lafayette that was drawn into RCD5 is 54.0% Black, while the portion drawn out into CD1 is only 14.1% Black.  At (3) I show that the portion of Ouachita that was drawn into RCD5 is

67.5% Black, while the portion drawn out into CD4 is only 11.1% Black.  At (4) I show that the portion of Rapides that was drawn into RCD5 is 53.1% Black, while the portion drawn out into CD1 is only 11.2% Black.  At (5) I show that the portion of Tangipahoa that was drawn into RCD5 is 49.7% Black, while the portion drawn out into CD6 is only 24.8% Black.  At (6) I show that the parish pieces cumulatively are 29.9% white, non-Hispanic and 63.4% Black.

**Table IV.1. Racial Characteristics of Split Parish Pieces by Race and Parish Under Fairfax Joint Remedial Plan: WNH and APB VAP**

| Parish Name | District | VAP | | | Percent VAP | | |
|---|---|---|---|---|---|---|---|
| | | Total | WhiteNH | AP Black | Total | WhiteNH | AP Black |
| East Baton Rouge Parish | 5 | 164,322 | 38,387 | 113,810 | | 23.4% | 69.3% ①|
| | 6 | 191,290 | 122,041 | 42,980 | | 63.8% | 22.5% |
| Lafayette Parish | 5 | 50,089 | 19,936 | 27,044 | | 39.8% | 54.0% ②|
| | 1 | 133,786 | 99,734 | 18,873 | | 74.5% | 14.1% |
| Ouachita Parish | 5 | 51,356 | 13,331 | 34,673 | | 26.0% | 67.5% ③|
| | 4 | 68,844 | 55,935 | 7,617 | | 81.2% | 11.1% |
| Rapides Parish | 5 | 45,646 | 18,713 | 24,239 | | 41.0% | 53.1% ④|
| | 1 | 53,146 | 41,880 | 5,966 | | 78.8% | 11.2% |
| Tangipahoa Parish | 5 | 16,362 | 7,512 | 8,128 | | 45.9% | 49.7% ⑤|
| | 6 | 85,129 | 56,686 | 21,089 | | 66.6% | 24.8% |
| | | | | | | | |
| **Split Parish Pieces of CD 5** | | **327,775** | **97,879** | **207,894** | | **29.9%** | **63.4%** ⑥|

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel.

25. In **Table IV.2**, I examine how these newly split parishes contribute to the characteristics of the remedial plan, RCD5.  The sum of the VAP in the split parish pieces is 327,775 (also shown in **Table IV.1** above).  This split geography VAP is comprised of 97,879 White Non Hispanic (WNH) VAP, and 207,894 VAP.  At (1) I show that the VAP of 327,775 in split parishes is 55.5% of the total VAP in RCD5, while the WNH VAP is only 39.3% of the WNH VAP in RCD5 and APB VAP is 67.8% of the APB VAP in RCD5.  Conversely, the VAP in the remainder of RCD5 (that is, the portion that is comprised of whole parishes) looks quite different.  The total VAP in this geography is 262,338.  The WNH VAP is 151,296 and the APB VAP is 98,845.  At (2) I show that the total VAP of 262,338 in whole parishes is 45.5%, while the WNH VAP is 60.7% and APB VAP is only 32.2% VAP.  I conclude that the newly split parishes contain a population with characteristics that are materially different racially from the remaining whole parishes.

**Table IV.2. Racial Characteristics of Split Parish Pieces by Race and Parish Under Fairfax Joint Remedial Plan: WNH and APB VAP**

| CD5 Split and Remainder Geo. | Total | WhiteNH | AP Black | Total | WhiteNH | AP Black |
|---|---|---|---|---|---|---|
| Split Parish Pieces of CD 5 | 327,775 | 97,879 | 207,894 | 55.5% | 39.3% | 67.8% ① |
| Remaining Areas of CD5 | 262,338 | 151,296 | 98,845 | 44.5% | 60.7% | 32.2% ② |
| District Totals | 590,113 | 249,175 | 306,739 | 100.0% | 100.0% | 100.0% |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

26. The splits of parishes in the Plaintiffs' remedial plan do not only manifest themselves in parishes, but also in individual places.[4]  In **Table IV.3**, I show the population for each split place that is both in, and out of RCD5.  At (1), I show that the portion of Alexandria that was drawn into RCD5 is 69.7% Black while the portion drawn out into CD3 is only 18.6% Black.  At (2) I show that the portion of Baton Rouge City that was drawn into RCD5 is 72.4% Black (a value close and consistent with the split portion of East Baton Rouge Parish) while the portion drawn out into CD3 is only 24.2% Black.  At (3) I show that the portion of Lafayette that was drawn into RCD5 is 69.6% Black while the portion drawn out into CD3 is only 13.7% Black.  At (4) I show that the portion of Monroe that was drawn into RCD5 is 76.2% Black while the portion drawn out into CD4 is only 12.1% Black.  At (5) I show that the portion of all other small places (Arnaudville town, Central City, Eunice City, Independence town, Pineville City, Scott City and West Monroe City) combined are 40.2% Black while the portion drawn out into CD3 is only 13.4% Black.  At (6) I show that the place pieces cumulatively are 24.5% white, non-Hispanic and 69.0% Any Part Black.

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[4] The US Census Bureau provides useful details in understanding the number and characteristics of these geographic layers in Louisiana, as follows:
- 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.
https://www.census.gov/geographies/reference-files/2010/geo/state-local-geo-guides-2010/louisiana.html and
https://www.census.gov/geographies/reference-files/time-series/geo/gazetteer-files.html

**Table IV.3. Racial Characteristics of Split Place Pieces by Race and Parish Under Fairfax Joint Remedial Plan: WNH and APB VAP**

| Place Name | District | VAP | | | Percent VAP | | |
|---|---|---|---|---|---|---|---|
| | | Total | WhiteNH | AP Black | WhiteNH | AP Black | |
| Alexandria city | **5** | **23,887** | **6,247** | **16,653** | **26.2%** | **69.7%** | ① |
| | 3 | 10,636 | 7,489 | 1,973 | **70.4%** | **18.6%** | |
| Baton Rouge city | **5** | **104,596** | **20,061** | **75,751** | **19.2%** | **72.4%** | ② |
| | 6 | 75,644 | 47,843 | 18,310 | **63.2%** | **24.2%** | |
| Lafayette city | **5** | **27,900** | **7,302** | **19,420** | **26.2%** | **69.6%** | ③ |
| | 3 | 68,128 | 50,485 | 9,314 | **74.1%** | **13.7%** | |
| Monroe city | **5** | **27,135** | **5,316** | **20,674** | **19.6%** | **76.2%** | ④ |
| | 4 | 8,323 | 6,800 | 1,010 | **81.7%** | **12.1%** | |
| Other Minor Split Places | 5 | 20,562 | 11,007 | 8,270 | **53.5%** | **40.2%** | ⑤ |
| | 2, 3, 4, 6 | 38,078 | 29,670 | 5,117 | **77.9%** | **13.4%** | |
| **Split Place Pieces of CD 5** | | **204,080** | **49,933** | **140,768** | **24.5%** | **69.0%** | ⑥ |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

27. In all of the large places already discussed in the parish splits analysis (Baton Rouge, Alexandria, Lafayette and Monroe) we can see that the AP Black contributes anywhere from two times to three times the population in split geography than White NH. By comparison – in all of the other small split places (Arnaudville town, Central City, Eunice City, Independence town, Pineville City, Scott City and West Monroe City) combined – the WNH VAP exceeds the APB VAP. This clearly demonstrates that places are only split in such a way to garner significant APB VAP population *only where* there is the opportunity for it to contribute significantly to the plan.

28. In **Table IV.4,** I examine how these newly split places contribute to the characteristics of the remedial plan RCD5. The sum of the VAP in the split place pieces is 204,080 (also shown in **Table IV.3** above). This split geography VAP is comprised of 49,933 WNH VAP, and 140,768 VAP. At (1) I show that the VAP of 204,080 in split places is 34.6% of the total VAP in RCD5, while the WNH VAP is only 20.0% of the WNH VAP in RCD5 and APB VAP is 45.9 of the APB VAP in RCD5. Conversely, the VP in the remainder of RCD5 (that is, the portion that is comprised of whole parishes) looks quite different. The total VAP in this geography is 262,338. The WNH VAP is 151,296 and the APB VAP is 98,845. At (2) I show that the total VAP of 262,338 in whole parishes is 45.5% of RCD5, while the WNH VAP is 60.7% and APB VAP is only 32.2% VAP. I conclude that the newly split parishes contain a population with characteristics that are materially different racially from the remaining whole parishes.

**Table IV.4. Racial Characteristics of Split Place Pieces by Race and Parish Under Fairfax Joint Remedial Plan: WNH and APB VAP**

| CD5 Split and Remainder Geo. | Total | WhiteNH | AP Black | Total | WhiteNH | AP Black |
|---|---|---|---|---|---|---|
| Split Place Pieces of CD 5 | 204,080 | 49,933 | 140,768 | 34.6% | 20.0% | 45.9%  ①  |
| Remaining Areas of CD5 | 386,033 | 199,242 | 165,971 | 65.4% | 80.0% | 54.1%  ② |
| **District Totals** | **590,113** | **249,175** | **306,739** | **100.0%** | **100.0%** | **100.0%** |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

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## V.    REMEDIAL CONGRESSIONAL DISTRICT 5 (RCD5) POPULATION DISPERSION

29. RCD5 is unlike any lawful Louisiana congressional district before it.  Here I will show how its configuration is not only historically unprecedented, but also that important pieces of RCD5 (the seven northeastern parishes) have no cultural or community of interest ties with the newly split parishes and places I just described above.  In setting the table for the geodemographic analysis that follows, it is appropriate to start with an assessment of the state as a whole.  **Figure V.1** shows the total 2020 population by parish.

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**Figure V.1. Total 2020 Population by Parish.**
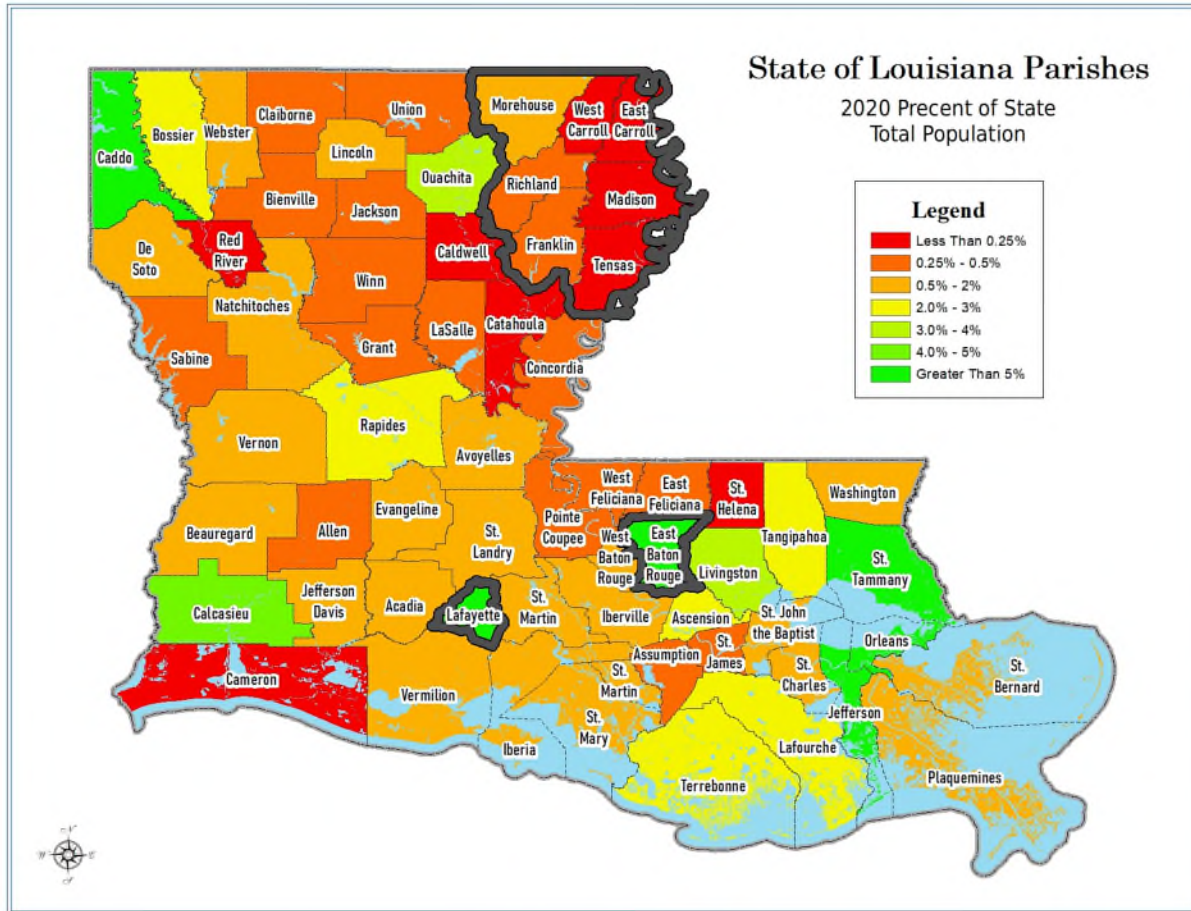


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data

30. How was RCD5 created? East Baton Rouge Parish and the part of Lafayette Parish found in RCD 5 are linked to the seven heavily Black NE Louisiana parishes. This linkage consists of an intermittent thread of Black VAP across thinly populated parishes (including Avoyelles, Catahoula, Concordia, East Feliciana, Pointe Coupee, St. Helena, West Feliciana, as well as parts of other parishes and more populated parishes, per **Figure V.2**. This linkage, which represents a geographically vast part of the center of the state effectively joins:

- Black VAP from a split piece of East Baton Rouge, (which has 113,810 APB VAP, per **Table IV.1**) to:

- Black VAP from a split piece of Lafayette, (which has 27,044 APB VAP, per Table **IV.1**) to:

- Black VAP (the seven NE Louisiana parishes, which combined, have 26,018 APB VAP.

31. **Figure V.2**, which shows the percentage by parish of VAP made up by APB VAP, which supports the argument that race is a major component of the Fairfax Joint Remedial Plan, as do figures **V.3** and **V.4.**

**Figure V.2 Percent APB VAP by Parish.**
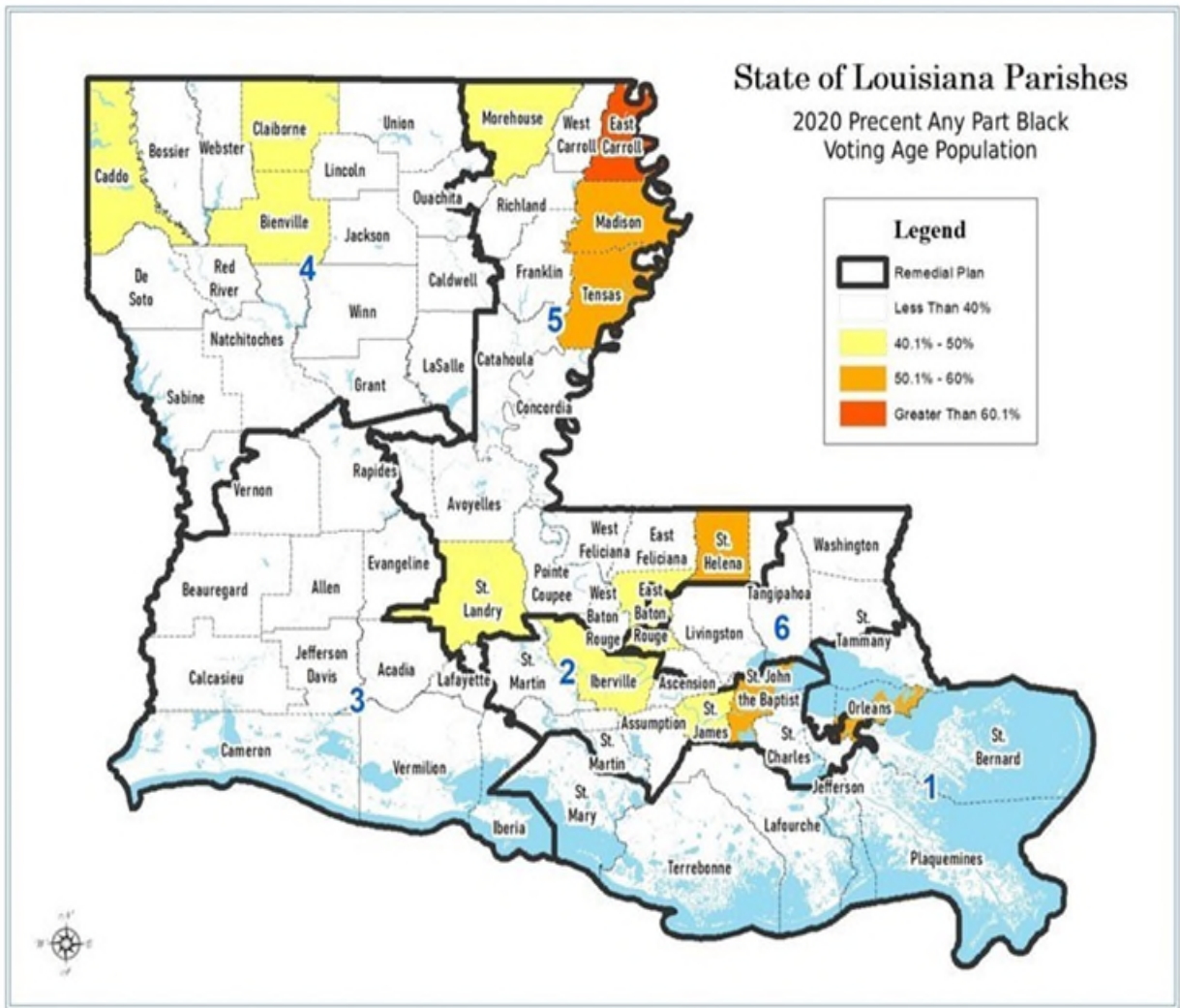


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

32. Figure V.3 shows that vast parts of the center of RCD5 that are covered by non-populous water and wetland areas.  These areas do not provide any logical demographic or geographic connective tissues between the northwestern parishes and the split parishes and cities to the west and south of RCD5.

**Figure V.3. Population Density and Wetlands by Parish under Fairfax Joint Remedial Plan.**



Source: Drawn by BGD at the direction of Dr. David Swanson using wetlands data (https://www.fws.gov/program/national-wetlands-inventory/download-state-wetlands-data) and shapefiles provided by Plaintiffs' counsel to Defense counsel

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33. Consistent with Figure V.3, Figure V.4 shows population density by census block. Because of the geographic composition of the east-central part of the state, there is very sparse population there (shown in bright green) that could potentially serve as a rationale for connecting the relatively small – but very dense Black populations of East Baton Rouge, Lafayette, Rapides and Ouachita parishes.

**Figure V.4. Population Density by Census Block across Louisiana Parishes under Fairfax Joint Remedial Plan**
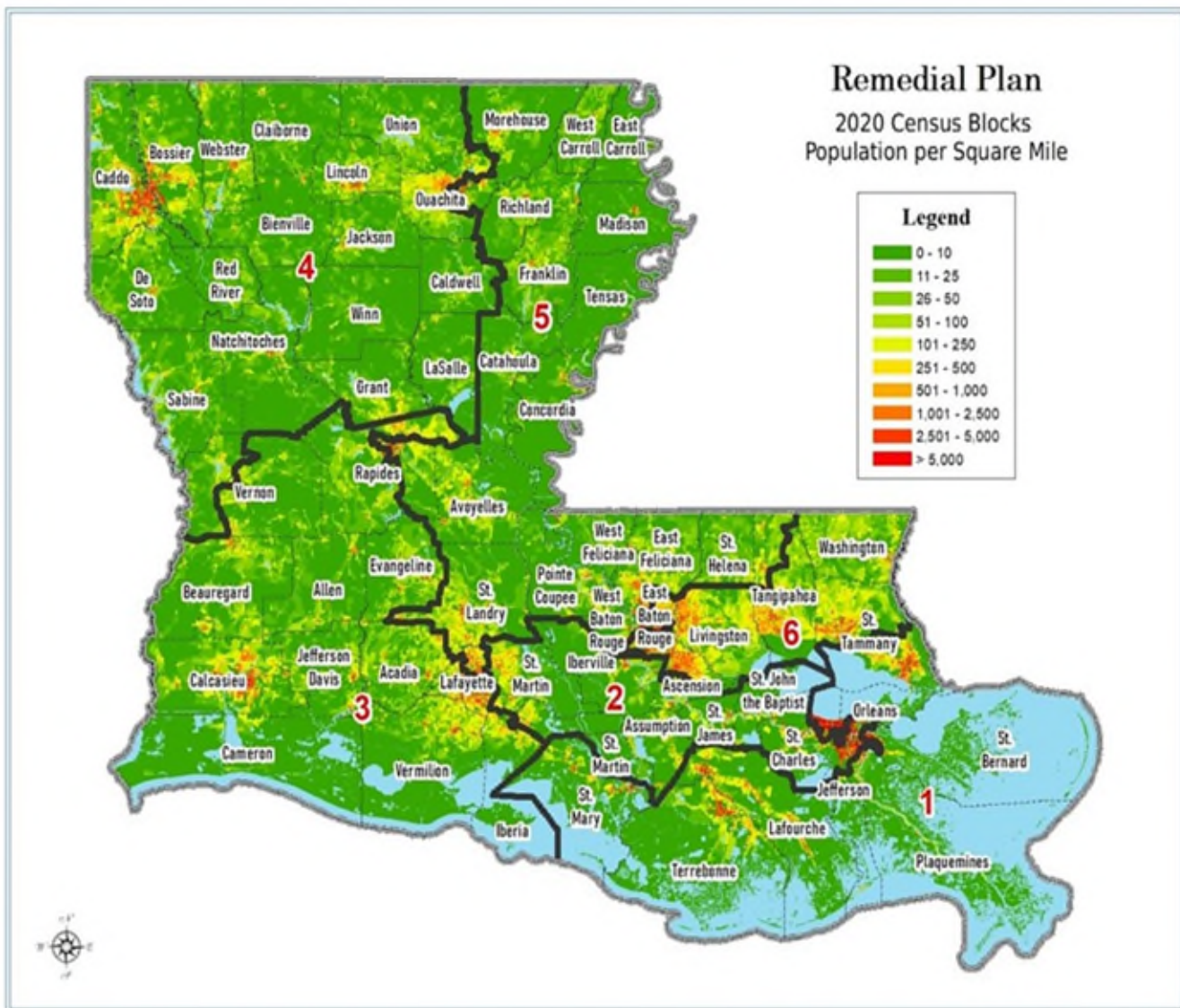


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

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## VI.    COMMUNITIES OF INTEREST (COI) ANALYSIS

34. What is a COI? Chen et al. (2022:108) offer the following definition.

> A community of interest is defined as an area for which the record before the entity responsible for developing and adopting the redistricting plan demonstrates the existence of broadly shared interests and representational needs, including shared interests and representational needs rooted in common ethnic, racial, economic, Indian, social, cultural, geographic, or historic identities, or arising from similar socioeconomic conditions. The term communities of interest may, if the record warrants, include political subdivisions such as counties, municipalities, Indian lands, or school districts, but shall not include common relationships with political parties or political candidates.

35. Chen et al (2022: 108) continue by noting that Professor Nicholas Stephanopoulos, a leading expert on election law at Harvard Law School, has written about the conceptual importance of "territorial communities," his term for spatially bounded COIs.  In outlining the theoretical underpinnings that justify preserving territorial communities as a standard for redistricting, Professor Stephanopoulos argues that "communities arise along geographic lines and should be represented in the legislature." His first tenet is that geography does indeed hold subjective and objective relevance in identifying meaningful communities; people generally feel connected to those who live in the same area, and they often are connected, for instance, by socioeconomic status, cultural values, or local industries. This representational theory thus lies in the political significance of these communities, which in turn legitimates them as a basis for redistricting." (Chen et al. 2022: 108).

36. Following Chen et al. (2022: 108) in considering cultural identities, I present three different cultural classification systems that have been applied to Louisiana.   The Louisiana Regional Folklore Program (LRFP), Smithsonian Louisiana Regions, and Parishes by Folklife Regions – as well as a widely recognized regional economic development region plan.

37.  The first cultural identify classification system of the state I present is from the Louisiana Regional Folklore Program (LRFP).[5]  This group's map of the LFRP regions is shown as **Figure VI.1.**  The program is a cooperative endeavor between Louisiana universities and the Louisiana Folklife Program within the Division of the Arts. One of the purposes is to identify and document folk cultural traditions and artists. The program is based at

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[5] https://www.nsula.edu/regionalfolklife/regions/default.htm

Louisiana Tech University.  It shows that the seven NE Louisiana parishes are in Region 1, East Baton Rouge Parish is in Region 4 and Lafayette Parish is in Region 3.

**Figure VI.1 Louisiana Regional Folklore Program (LRFP)**



Source: https://www.nsula.edu/regionalfolklife/regions/default.htm

38. The second cultural identity classification of the state I present is taken from the Smithsonian Museum Magazine[6] and shown as **Figure VI.2**. Here, the state is divided into five cultural regions. The seven NE Louisiana parishes are in the "Sportsman's Paradise" region, East Baton Rouge Parish is in the "Plantation Country" region and Lafayette Parish is in the "Cajun Country" region.

**Figure VI.2 Smithsonian Louisiana Regions**



Source: http://microsite.smithsonianmag.com/ads/louisiana/plan-your-trip/regions.html

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[6] http://microsite.smithsonianmag.com/ads/louisiana/plan-your-trip/regions.html

39. The third cultural identify classification system I present is provided in the form of an exhibit produced by the Louisiana Department of Culture, Recreation, and Tourism, which I show as **Figure VI.3.** It divides the state into eight cultural regions[7], with the seven NE Louisiana parishes located in the 8th region, East Baton Rouge Parish in the 2nd region and Lafayette Parish in the 4th region.

**Figure VI.3. Parishes by Folklife Region**
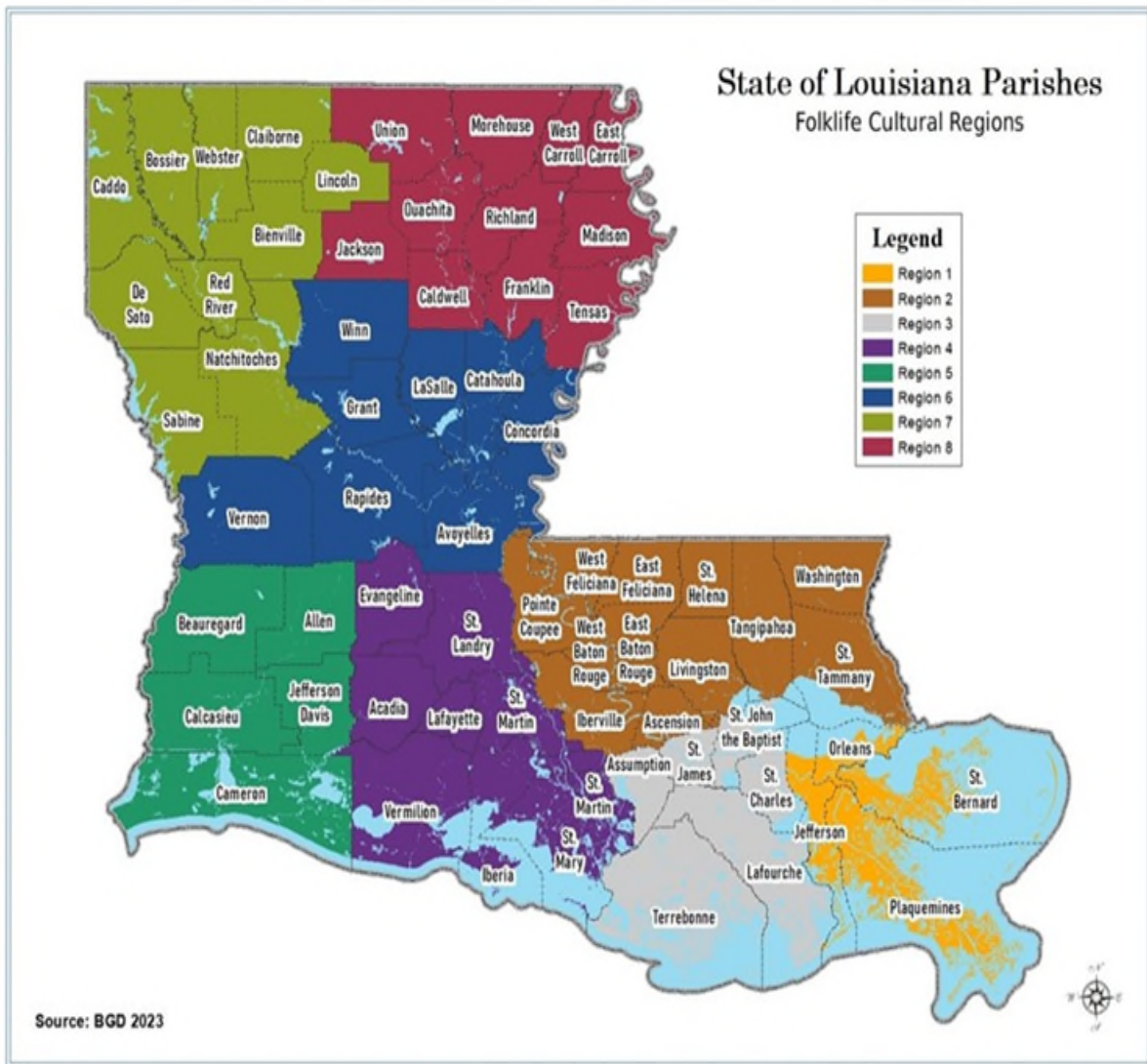


Source: Drawn by BGD at the direction of Dr. David Swanson.

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[7] https://www.louisianafolklife.org/lt/cse/cse_education_guide.pdf

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40. Still following Chen et al. (2022: 108), I turn from the concept of cultural identity to the concept of economic identity and present a classification system developed by the Louisiana Economic Development Agency. As shown in **Figure VI.4**, it divides the state into eight regions,[8] with the seven NE Louisiana parishes in region 2. East Baton Rouge Parish in region 6, and Lafayette Parish in region 5.

**Figure VI.4.  Louisiana Parishes by Economic Development Region**



Source: Drawn by BGD at the direction of Dr. David Swanson.

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[8] pp. 46-47, 2022 Annual Report, Louisiana Economic Development, https://www.opportunitylouisiana.gov/docs/default-source/default-document-library/23led103_led-annualreport2022_single_all_pages_lowres.pdf?sfvrsn=c9dab805_0

41. The physical distance, cultural, and economic differences between on the one hand, the seven NE Louisiana parishes, and on the other, East Baton Rouge Parish and Lafayette Parish also are reflected in the state's political history. As found in **Appendix 7**, I have summarized plans dating back to the early 19th century.  This analysis shows that Alexandria, Baton Rouge, Lafayette and Monroe have never been in  same congressional district with two exceptions: (1) in 1823, when the whole State of Louisiana had one at-large congressional district;  and (2)  in the 1990s, when two plans that lumped them together were adopted, both of which were both declared to be illegal racial gerrymanders.

42. A key linkage in all of the six different maps that have been proposed by the plaintiffs in this case, which I have summarized as RCD5, is that they connect Lafayette, East Baton Rouge, Rapides and Ouachita Parishes to the seven NE Louisiana parishes. The expert for the Galmon plaintiffs has offered four proposed maps while the expert for the Robinson plaintiffs, Mr. Fairfax, has offered two proposed maps. One of Mr. Fairfax's proposed maps was submitted by both parties as a proposed joint remedial map. All of the maps include divided parishes, usually the same ones, and attempt to link East Carroll Parish in northeastern Louisianan with East Baton Rouge Parish and other areas to form a majority black district, which plaintiffs' experts have labelled in all proposed maps as Congressional District 5.  This same linkage is found for Lafayette Parish in Plaintiffs' maps.

43. **Figure VI.5** shows Figure 2 from Plaintiffs' expert Cooper's Supplemental Report in the parallel legislative case *Nairne, et al. v. Ardoin*, M.D. La. No. 3:22-CV-00178,[9] which contains Cooper's "Cultural Region Overlay" with RCD5 superimposed over it. When you compare **Figure VI.5**  (Cooper's Figure 2, without the RCD overlay) with **Figure VI.6** (Cooper's Figure 2, *with* the RCD overlay), one can see that RCD5 cuts across several of the cultural regions identified by Cooper in *Nairne* including the Delta Parishes, the Florida Parishes, and Acadiana. Notably, East Baton Rouge, Lafayette, and East Carroll Parishes are all in different cultural regions as identified by Mr. Cooper.

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[9] Cooper Supplemental Report (Nairne) - 06.30.2023 - 4865-4921-7646 1.PDF

**Figure VI.5. Cooper Cultural Regions**

Figure 2: 2020 Percent Black by Parish (Cultural Region Overlay)
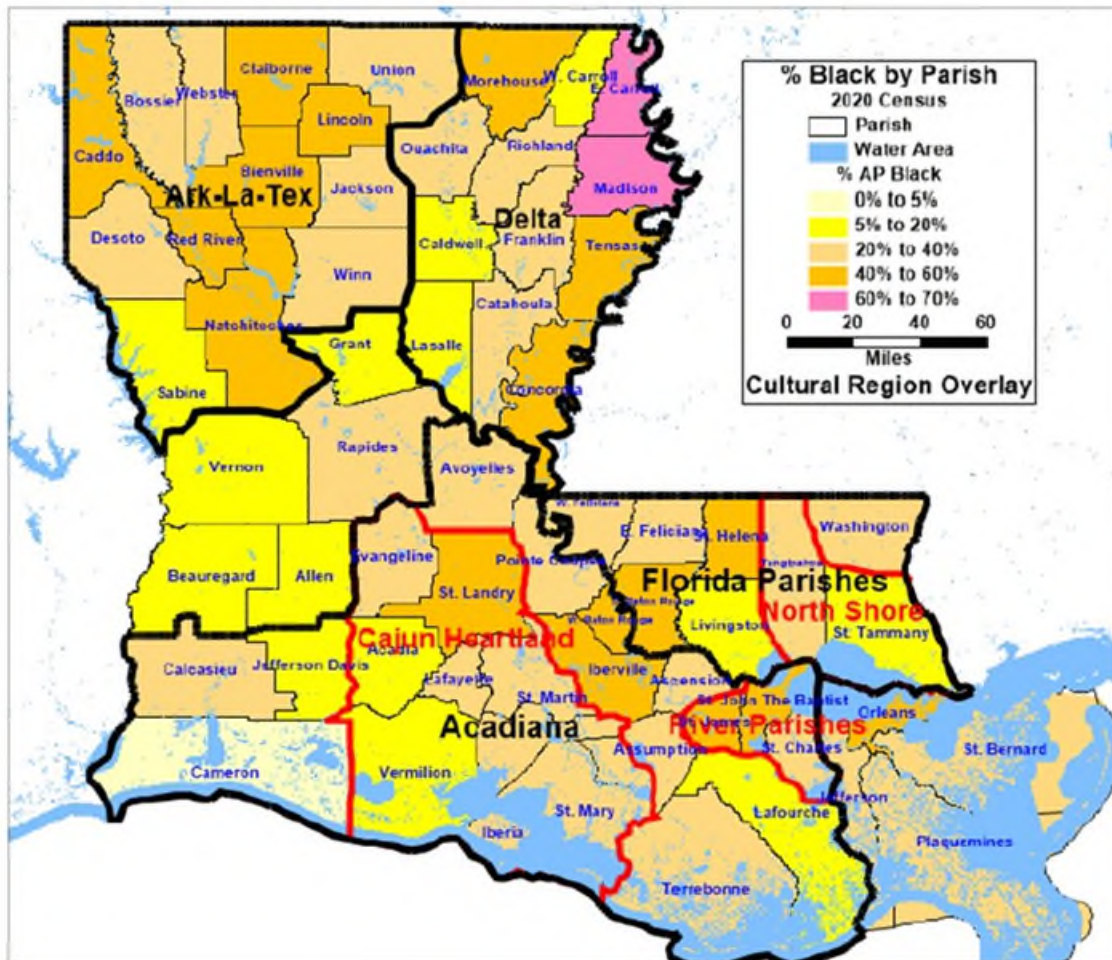


Source: Cooper Supplemental Report (Nairne) - 06.30.2023 - 4865-4921-7646 1.PDF

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**Figure VI.6. Cooper Cultural Regions with Remedial Plan Boundaries**



Figure 2: 2020 Percent Black by Parish (Cultural Region Overlay)
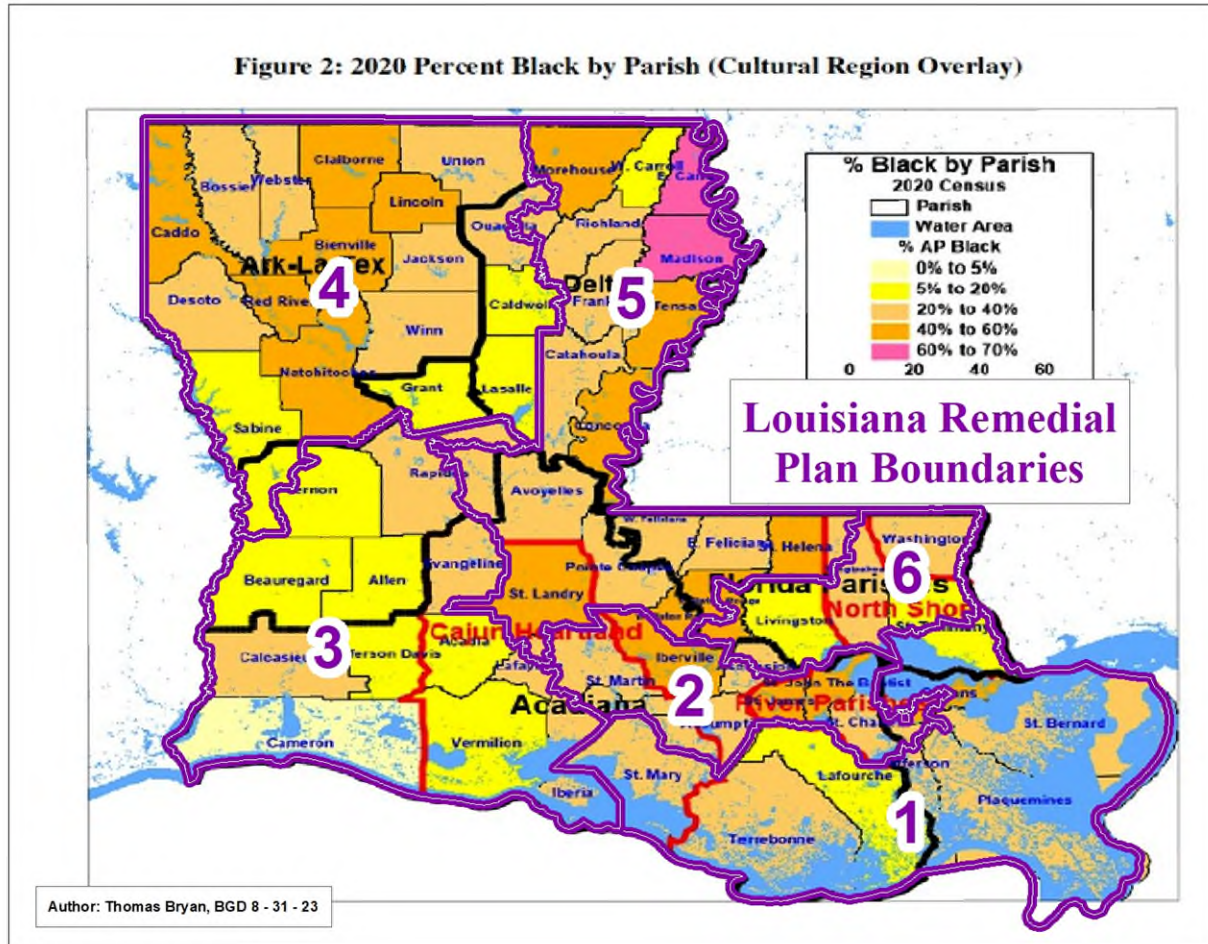
Source: Cooper Supplemental Report (Nairne) - 06.30.2023 - 4865-4921-7646 1.PDF

These facts and linkages suggest that race was the predominant motive for the location of district lines found in plaintiffs proposed RCD5. The groups of parishes in question comprising the new RCD5 do not share any historical or recognized COI other than the race of black voters who they assign to this district.

## VII.    PLAINTIFFS' PLAN MERGES DIFFERENT COMMUNITIES OF INTEREST (COIs)

44. Given the likelihood that that race represents *the* "community of interest" in RCD5, I conducted an examination of "Communities of Interest" (COI) in regard to the inclusion of East Baton Rouge Parish as a whole into Plaintiffs' proposed Congressional District 5 (RCD5) along with part of Lafayette Parish.  COIs are important in redistricting. As Chen et al. (2022) observe, they are a key legal criterion used to guard against partisan and racial motives in redistricting.

45. To determine whether this unprecedented combination of distant, urban split parishes with the seven NE Louisiana parishes can be justified by an impartial analysis, I used a "cluster analysis." Cluster analysis is set of tools and algorithms used to classify different objects into groups in such a way that the similarity between two objects is maximal if they belong to the same group and minimal otherwise (Gallesty, 2020). It is the process of grouping individuals or entities with similar characteristics or similar variables (NCSS, 2022). Specifically, I use socio-demographic characteristics as the basis for clustering, an approach that Rossiter, Wong, and Delamater (2018) find to be a feasible method for defining a COI, as do Chen et al. (2022). It is an approach used by Mollenkopf, Pereira, and Romalewski (2013) to identify COIs within the city of New York.

46. My use of cluster analysis, an objective, empirically- and scientifically-based, "ground-up" approach, can be contrasted with the COI analysis employed by Anthony Fairfax who authored not only the Remedial Congressional District Plan but also illustrative plans 2022a and 2022b. Mr. Fairfax employed subjective judgment and also ad hoc elements, namely "census designated places" and "major landmark areas," in looking at small areas in developing first his illustrative plans and then the "Remedial Congressional District Plan,"

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## VIII.   CLUSTER ANALYSIS: A DESCRIPTION

47. Cluster analysis is a numerical method based on a basic human conceptual activity, sorting similar things into groups, which is the process of classification. Landau and Chis Ster (2010: 72) state: "In addition to being a basic human conceptual activity, classification is fundamental to science." They go on to discuss examples (Landau and Chis Ster, 2010: 72), which I paraphrase here. Biology uses taxonomies, within which animals and plants are classified according to physical characteristics. Physics and Chemistry use the periodic table, within which elements are classified according to chemical properties. Social sciences use taxonomies such as socio-economic status within which people are classified according to "achieved" (e.g., highest level of education obtained) characteristics and "ascribed" (e.g., age) characteristics. Spatial cluster analysis is used in a wide range of disciplines (Fritz et al., 2010: 195), including demography (Adamo, 2011; de Castro, 2007). Using cluster analysis in a spatial demography approach allows for an examination of the potential classification of aggregates of people (e.g., by parish) into groups (e.g., Communities of Interest).

48. Landau and Chis Ster (2010: 72) state that that cluster analysis is aimed at uncovering as-yet-unknown groups of objects. This is the approach I use here in examining the "Community of Interest" grouping in regard to Louisiana's parishes.

49. I use the Cluster analysis approach to ascertain if the addition of East Baton Rouge Parish to the set of seven NE Louisiana parishes found in existing CD 5 as proposed by plaintiff joins these parishes in the same COI group or does not. In identifying COIs for purposes of the cluster analyses, I examined all of Louisiana's 64 parishes using current U.S. Census Bureau data (https://www.census.gov/quickfacts/ )  under four scenarios using different combinations of the data.

50. In this task, I employ K-Means Procedures found in the NCSS statistical Package to generate the clusters (https://www.ncss.com/software/ncss/clustering-in-ncss/#KMeans ) because I was looking for a small number of clusters. I first used Discriminant Analysis (an analytic method related to cluster analysis whereby the clusters are a priori known and a model is constructed such that it can be used to determine into which clusters new cases would be placed) in 1980 (Swanson, 1980). I have used cluster analysis: (1) to examine diversity of the counties making up the Mississippi Supreme Court Districts themselves; (2) to identify groups  of counties in work I did with Bryan GeoDemographics in regard to Texas redistricting (2021); (3) to identify value-chain clusters for the Southern Nevada Economic Study (Schlottman, et al., 2006); and (4) as a means of developing cost-effective ways to use the housing unit method to generate municipal population estimates in Washington (Swanson, Randall, and Weisser, 1977).

Specifically, I employ the "K-Means" Cluster Analysis procedure found in the NCSS Statistical Package, which is defined as follows (NCSS, 2020):

"The k-means algorithm was developed by J.A. Hartigan and M.A. Wong of Yale University as a partitioning technique. It is most useful for forming a small number of clusters from a large number of observations. It requires variables that are continuous with no outliers. The objective of this technique is to divide N observations with P dimensions (variables) into K clusters so that the within-cluster sum of squares is minimized. Since the number of possible arrangements is enormous, it is not practical to expect the single best solution. Rather, this algorithm finds a "local" optimum. This is a solution in which no movement of an observation from one cluster to another will reduce the within-cluster sum of squares. The algorithm may be repeated several times with different starting configurations. The optimum of these cluster solutions is then selected. Some of the reports available in this procedure include iteration details, cluster means, F-Ratios, distance sections, and bivariate plots."

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## IX.    CLUSTER ANALYSIS:  ANALYTIC PROCEDURES AND DATA

51. Under the cluster analysis approach I use here, the minimum number of clusters that can be found for Louisiana's 64 parishes is two and the maximum number is 63. The starting point is the two-cluster minimum. Given the same set of variables, if East Baton Rouge Parish and East Carroll Parish are determined by the K-Means Cluster Procedure not to be in the same cluster under the two-cluster option, then they will not be in the same cluster under any of the higher options, all of the way to 63 clusters. For this reason, I start with the two-cluster option.

52. In terms of the data, there are 62 substantive variables found in the U.S. Census Bureau's "Quick Facts (https://www.census.gov/quickfacts/ ). These are listed in **Appendix 7**. Some of these variables are correlated with one another. For example, "PCTWHTEALONE" has a correlation coefficient of -.99 with" PCTBLACKALONE." This high level of correlation means that only one of these two variables should be used in a given analysis because they provide redundant information. In other cases, where there is correlation, but it is less is less, it is useful to include these variables because they can provide additional, not redundant, information. As discussed in the following section, I selected 14 of these variables that provide demographic and related information useful for determining into which COI group a given parish should be placed.


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## X.    COMMUNITY OF INTEREST (COI) RESULTS USING CLUSTER ANALYSIS

53. In conjunction with the two-cluster option I employed four scenarios, which successively reduced the original number of variables. In each of the four scenarios, the seven NE Louisiana parishes are placed in a cluster that includes neither East Baton Rouge Parish nor Lafayette Parish. I interpret this result as a strong indication that East Baton Rouge Parish and Lafayette Parish are in a different COI group than that of the seven parishes in NE Louisiana. Results of these scenarios are found in Appendices 7.1 to 7.4, respectively.

54. For the first scenario of the Two-cluster analysis, I selected 14 variables listed below that in my judgment represent the likely maximum needed to form two clusters for the 64 parishes. Of these variables, all represent a parish as a whole, but nine are based individual persons (1, 2, 3, 8, 9,10 and 11), four are based on households (4, 5, 6 and 12, while one (7), "population per square mile," is based on the total population and land area. As I discuss shortly, these 14 variables provide a robust characterization of the population of a parish in that they summarize its demographic, economic, and social characteristics.

1. Persons under 5 years, percent

2. Black or African American alone, percent

3. Bachelor's degree or higher, percent of persons age 25 years+, 2017-2021

4. Owner-occupied housing unit rate, 2017-2021

5. Persons per household, 2017-2021

6. Median household income (in 2021 dollars), 2017-2021

7. Population per square mile, 2020

8. Foreign born persons, percent, 2017-2021

9. Living in same house 1 year ago, percent of persons age 1 year+, 2017-2021

10. Hispanic or Latino, percent

11. Language other than English spoken at home, percent of persons age 5 years+, 2017-2021

12. Households with a broadband Internet subscription, percent, 2017-2021

13. In civilian labor force, total, percent of population age 16 years+, 2017-2021

14. Persons in poverty, percent

55. The first variable, percent of persons under 5 years of age, provides an indication of both the fertility level of a population and its level of aging. The second variable, percent of Black alone, provides an indication of the racial composition of a population. The third variable, bachelor's degree or higher, provides an indication of the educational attainment of the population, which is linked to the 6th variable, household income level. The fifth variable, persons per household, indicates several population characteristics, including the presence of multi-generational households, fertility, level of aging and income. The seventh variable is linked to the degree of urbanization of a population. The eighth and ninth variables indicate levels of domestic and foreign migration; the 10th and 11th variables indicate the ethnic and cultural composition; the 12th variable indicates the degree of "connectivity" and access to information; the 13th and 14th variables speak to the degree of employment in a parish.

56. Under this first scenario, not only did I find that East Baton Rouge Parish is in a different COI group than that of the seven parishes in NE Louisiana, but that Lafayette Parish is as well. That is, East Baton Rouge and Lafayette parishes are in a different COI group than are the seven parishes in NE Louisiana (See Appendix 7.1).

57. For the second scenario, I deleted from the original list of 14, the two variables that indicate employment, leaving:

    1.    Persons under 5 years, percent

    2.    Black or African American alone, percent

    3.    Bachelor's degree or higher, percent of persons age 25 years+, 2017-2021

    4.    Owner-occupied housing unit rate, 2017-2021

    5.    Persons per household, 2017-2021

    6.    Median household income (in 2021 dollars), 2017-2021

    7.    Population per square mile, 2020

    8.    Foreign born persons, percent, 2017-2021

    9.    Living in same house 1 year ago, percent of persons age 1 year+, 2017-2021

    10.    Hispanic or Latino, percent

    11.    Language other than English spoken at home, percent of persons age 5 years+, 2017-2021

    12.    Households with a broadband Internet subscription, percent, 2017-2020

58. These 12 variables now represent the demographic and social characteristics of the populations in question. Under this second, scenario, I again found that East Baton Rouge and Lafayette parishes are in a different COI group than are the seven parishes in NE Louisiana (See Appendix 7.2).

59. For the third scenario, I deleted from the original list of 14, all preceding deletions plus two variables that indicate employment and two variables that indicate ethnic and cultural composition, leaving

    1.     Persons under 5 years, percent

    2.     Black or African American alone, percent

    3.     Bachelor's degree or higher, percent of persons age 25 years+, 2017-2021

    4.     Owner-occupied housing unit rate, 2017-2021

    5.     Persons per household, 2017-2021

    6.     Median household income (in 2021 dollars), 2017-2021

    7.     Population per square mile, 2020

    8.     Foreign born persons, percent, 2017-2021

    9.     Living in same house 1 year ago, percent of persons age 1 year+, 2017-2021

60. As is the case in the preceding scenario, this set of variables continues to provide a set of demographic and social characteristics of the populations in question. Under this third scenario, I again found that East Baton Rouge and Lafayette parishes are in a different COI group than are the seven parishes in NE Louisiana. (See Appendix 7.3).

61. For the fourth scenario I deleted from the original list of 14, all preceding deletions plus the two variables that indicate, respectively, domestic and foreign migration, leaving

    1.     Persons under 5 years, percent

    2.     Black or African American alone, percent

    3.     Bachelor's degree or higher, percent of persons age 25 years+, 2017-2021

    4.     Owner-occupied housing unit rate, 2017-2021

    5.     Persons per household, 2017-2021

    6.     Median household income (in 2021 dollars), 2017-2021

    7.     Population per square mile, 2020

62. As is the case in the preceding scenario, this set of variables continues to provide a set of demographic and social characteristics of the populations in question. Under this

fourth and final scenario, I again found that East Baton Rouge and Lafayette parishes are in a different COI group than are the seven parishes in NE Louisiana (See Appendix 7.4).

63. The results of each of these four scenarios, which successively reduce the original number of variables, place the seven NE Louisiana parishes into a COI cluster that does not include East Baton Rouge Parish. I interpret this result as a strong indication that East Baton Rouge Parish is in a distinctly different COI grouping and should not be included together with the seven NE Louisiana parishes in RCD5.

64. The finding that East Baton Rouge Parish is in a different COI group than the seven NE Louisiana parishes is consistent not only with relevant demographic, economic and social characteristics I employed in the cluster analysis, but also with cultural and other economic factors, I described earlier, to include: (1) an exhibit produced by the Louisiana Department of Culture, Recreation, and Tourism; (2) an article in the Smithsonian Museum Magazine; and (3) the state's economic development regions.

65. In closing, given that all four of the cluster analysis scenarios show that East Baton Rouge Parish is a different COI than the one in which the seven NE Louisiana parishes are found, the likelihood is very high it is, in fact, in a different COI group and should not be included in a congressional district with the seven NE Louisiana parishes. Further, the plan proposed by Plaintiffs also includes the addition of a portion of Lafayette Parish into proposed RCD5. As is the case for East Baton Rouge Parish, the fact that all four of the cluster analysis scenarios show that seven NE Louisiana parishes are in a COI cluster that does not include Lafayette Parish, the likelihood is very high that like East Baton Rouge Parish, Lafayette Parish, whether in whole or in part, should not be included with the seven NE Louisiana parishes in a congressional district.

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## XI.    COMMUNITY OF INTEREST SUMMARY

66. A key linkage in all of the six different maps that have been proposed by the plaintiffs in this case is that they connect East Baton Parish to the seven parishes in NE Louisiana. The expert for the Galmon plaintiffs has offered four proposed maps while the expert for the Robinson plaintiffs, Mr. Fairfax, has offered two proposed maps. One of Mr. Fairfax's proposed maps was submitted by both parties as a proposed joint remedial map. All of the proposed RCD5 maps include split parishes and link the seven parishes in northeastern Louisiana with East Baton Rouge Parish and other areas to form a majority black district. Given this, it is my opinion that race is the predominant motive for the location of district lines found in plaintiffs proposed RCD5. I find that the seven parishes making up NE Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are not part of the COI group in which East Baton Rouge Parish or Lafayette Parish are found, a group that does include Lafayette Parish.

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## XII.    CONCLUSIONS

67. In generating all of the six different maps proposed for RCD5, I find that in linking, on the one hand, the seven NE Louisiana Parishes (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) to, on the other, East Baton Rouge Parish and part of Lafayette Parish, plaintiffs used race as the major component of this linkage. This linkage is based upon parishes with relatively low population, low BVAP, and which, in many instances, include large areas of swamp or wetlands. In their attempt to justify their proposed district under a COI analysis, Plaintiffs failed to address the fact that their proposed RCD5 includes numerous regions in Louisiana that historically have not been considered as being in the same COI. Plaintiffs also failed to use an empirically- and scientifically-based methodology in determining if there were different COIs within their proposed Congressional District 5. The objective "ground-up" approach to identifying COIs at the parish level can be contrasted with the subjective "COI" analysis presented by Anthony Fairfax (2022a, 2022b). In developing his version of RCD5, Fairfax not only employed subjective judgement, but also ad hoc elements ("census designated places" and "major landmark areas"), which in my opinion are largely irrelevant to the main point: Are East Baton Rouge Parish and Lafayette Parish, whether in whole or part, in the same COI grouping as the seven NE Louisiana parishes?

68. The "cluster analysis" approach provides an efficient, objective means of examining the illustrative plan submitted by Mr. Fairfax from a comprehensive perspective that is directly relevant to the main point just described. Using this empirically- and scientifically-based method, I find that East Carroll Parish and its six neighboring parishes Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are in a different COI grouping than East Baton Rouge Parish. Moreover, from the COI perspective, East Baton Rouge Parish should not be included in proposed plans involving proposed RCD5 that include East Carroll Parish and its six neighboring parishes. This finding also applies to Lafayette Parish, both in whole and in part. This finding is relevant because COIs are important in redistricting. As Chen et al. (2022: 108) observe, they are a key legal criterion to guard against partisan and racial motives in redistricting.

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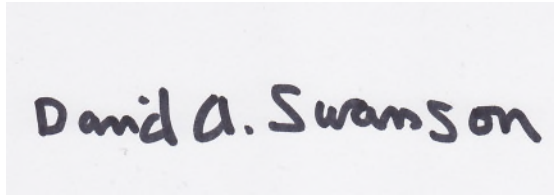
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## XIV.   SIGNATURE

On this day, I , David A. Swanson, acting in accordance with 28 U.S.C. § 1746, Federal Rule of Civil Procedure 26(a)(2)(B), and Federal Rules of Evidence 702 and 703, hereby declare that the foregoing is true and accurate to the best of my knowledge.

David A. Swanson

_____

David A. Swanson

September 15, 2023

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## XV.    APPENDICES

**Appendix 1: Plaintiffs Proposed Remedial Plan Map**

**Appendix 2: Plaintiffs Proposed Remedial Plan Split of Lafayette**

**Appendix 3: Plaintiffs Proposed Remedial Plan Split of Alexandria**

**Appendix 4: Plaintiffs Proposed Remedial Plan Split of Monroe**

**Appendix 5: Plaintiffs Proposed Remedial Plan Split of Baton Rouge**

**Appendix 6: Plaintiffs Proposed Remedial Plan Split of Tangipahoa Parish**

**Appendix 7: Louisiana Historical Congresses**

**Appendix 7. Parish COI Classifications**

    **7.1 Cluster Analysis: Parish COIs using 14 demographic, economic, and social characteristics**

    **7.2 Cluster Analysis: Parish COIs using 12 demographic and social characteristics**

    **7.3 Cluster Analysis: Parish COIs using 9 demographic and social characteristics**

    **7.4 Cluster Analysis: Parish COIs using 7 demographic and social characteristics**

**Appendix 8. Curriculum Vitae of David. A. Swanson.**

**Appendix Map 1: Plaintiffs Proposed Remedial Plan Map**
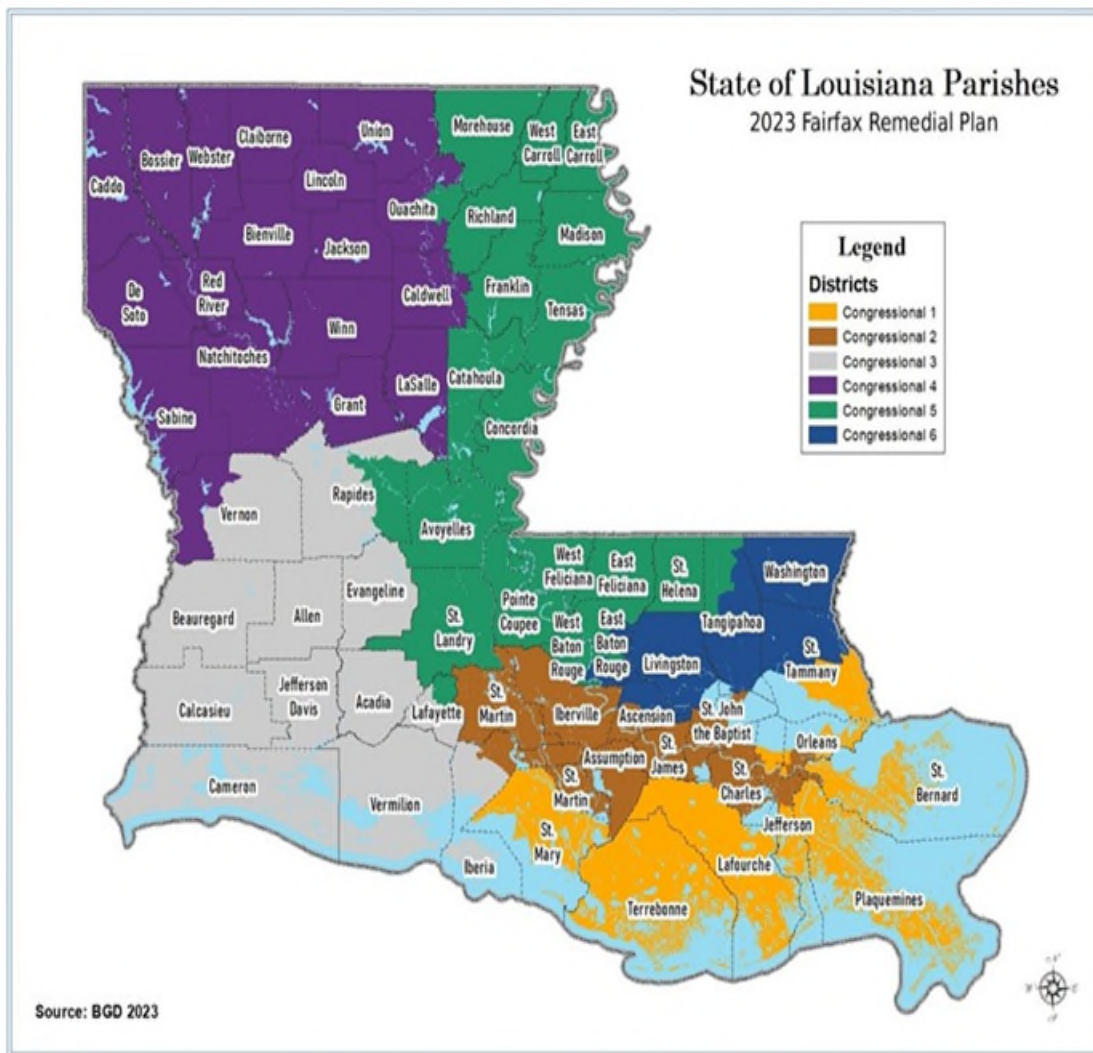


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel

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**Appendix 2: Plaintiffs Proposed Remedial Plan Split of the City of Lafayette**



Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census Data and shapefiles provided by Plaintiffs' counsel to Defense counsel

**Appendix 3: Plaintiffs Proposed Remedial Plan Split of the City of Alexandria**
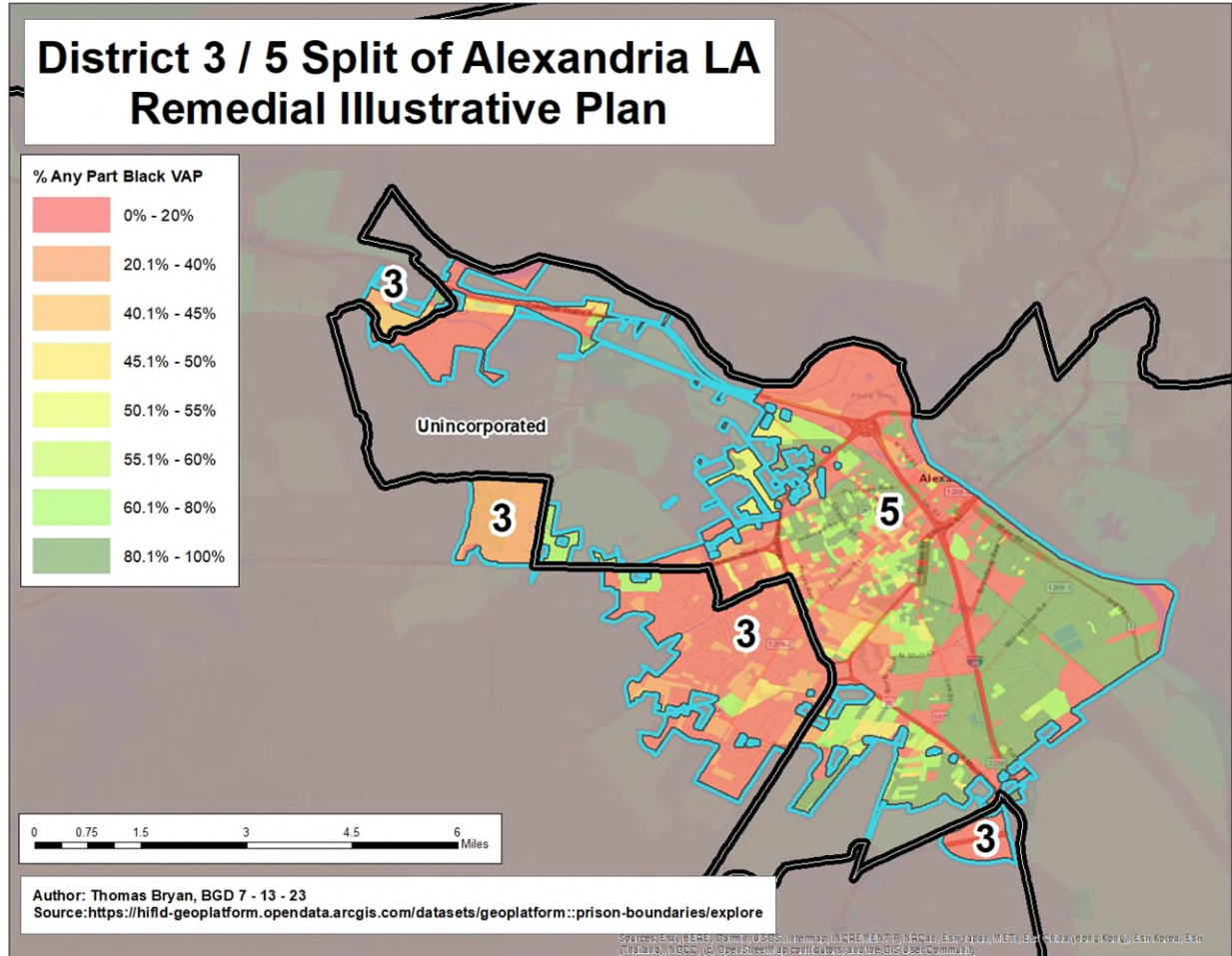


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census Data and shapefiles provided by Plaintiffs' counsel to Defense counsel

**Appendix 4: Plaintiffs Proposed Remedial Plan Split of the City of Monroe**
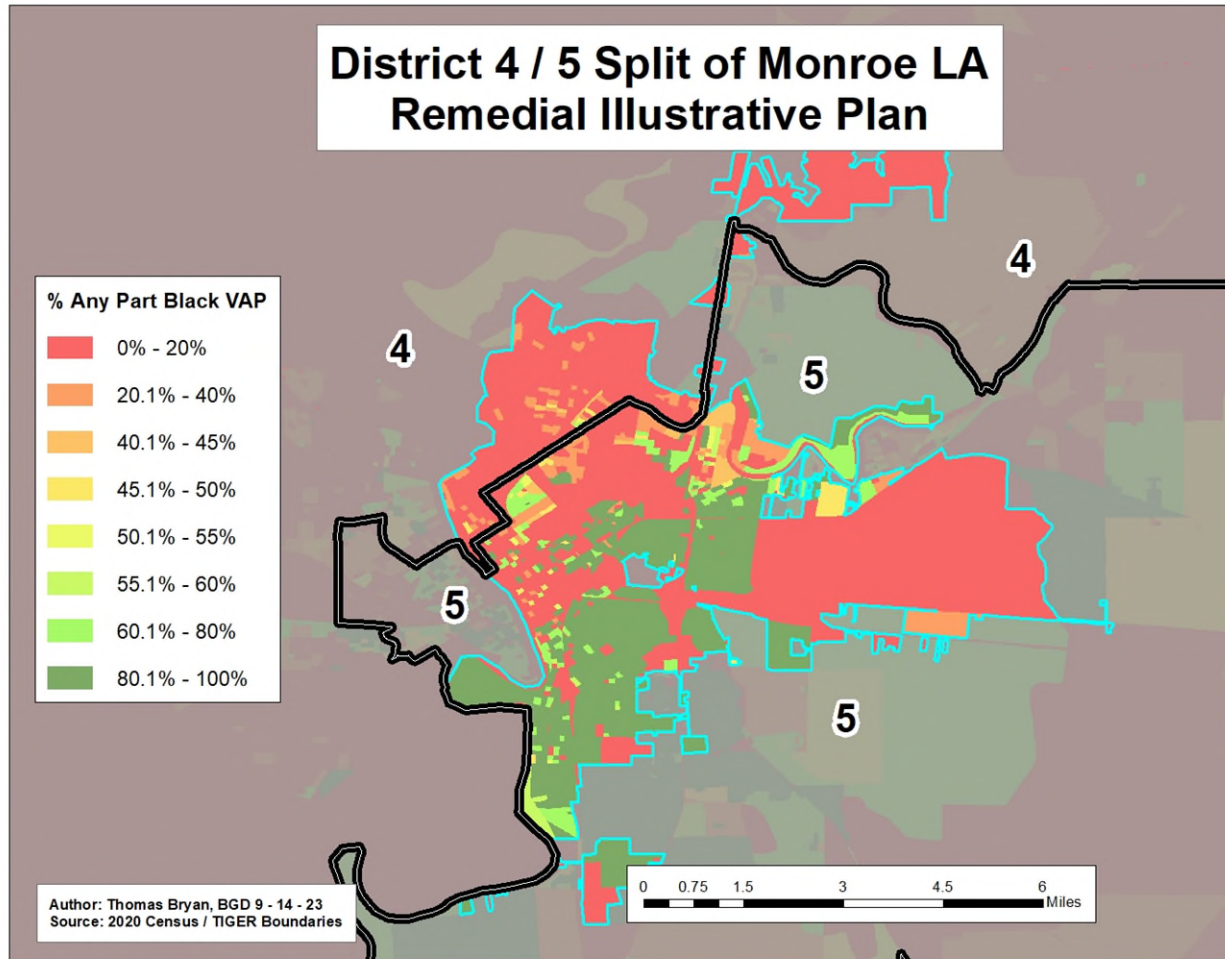


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census Data and shapefiles provided by Plaintiffs' counsel to Defense counsel

**Appendix 5: Plaintiffs Proposed Remedial Plan Split of the City of Baton Rouge**
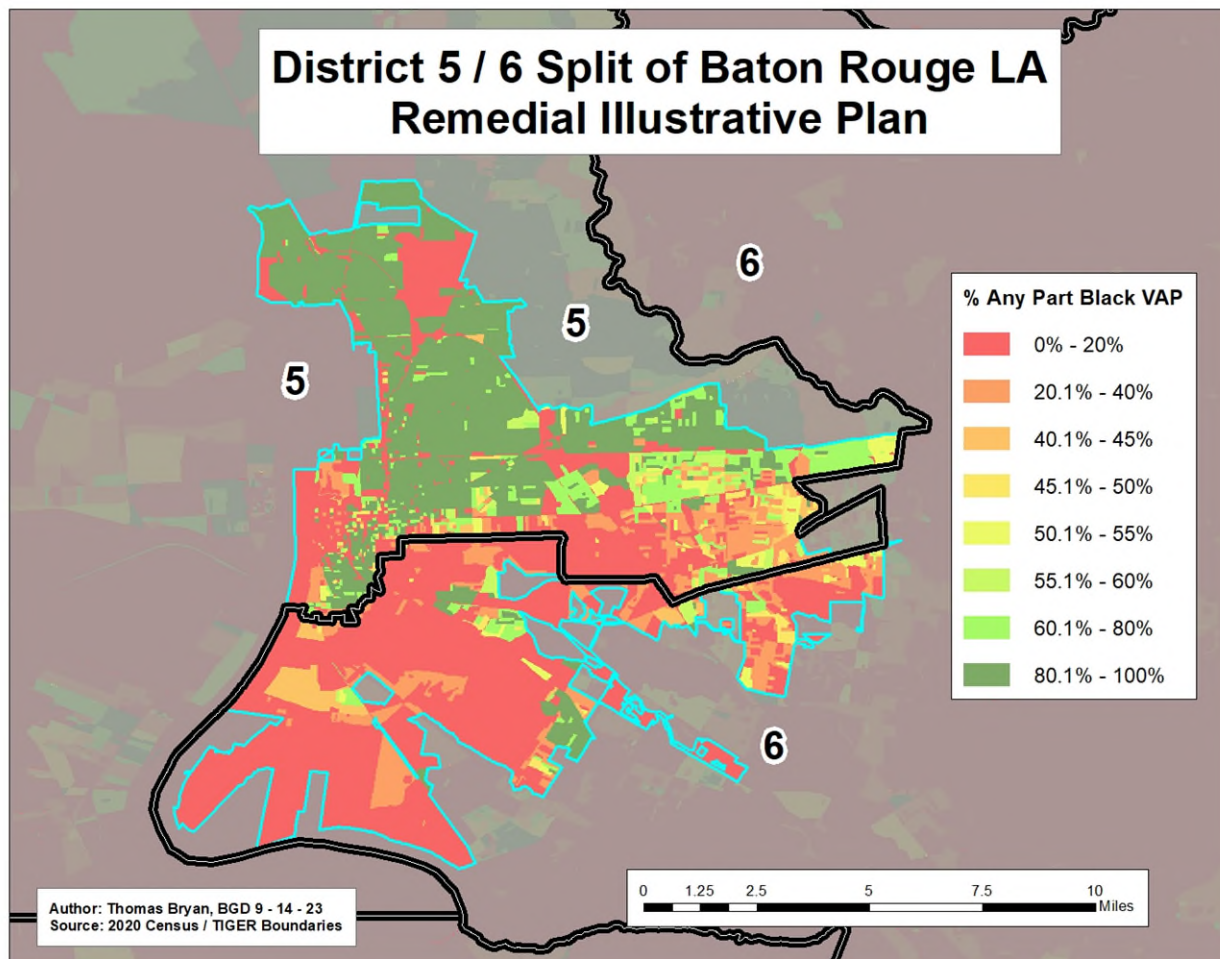


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census Data and shapefiles provided by Plaintiffs' counsel to Defense counsel

**Appendix 6: Plaintiffs Proposed Remedial Plan Split of the Tangipahoa Parish**
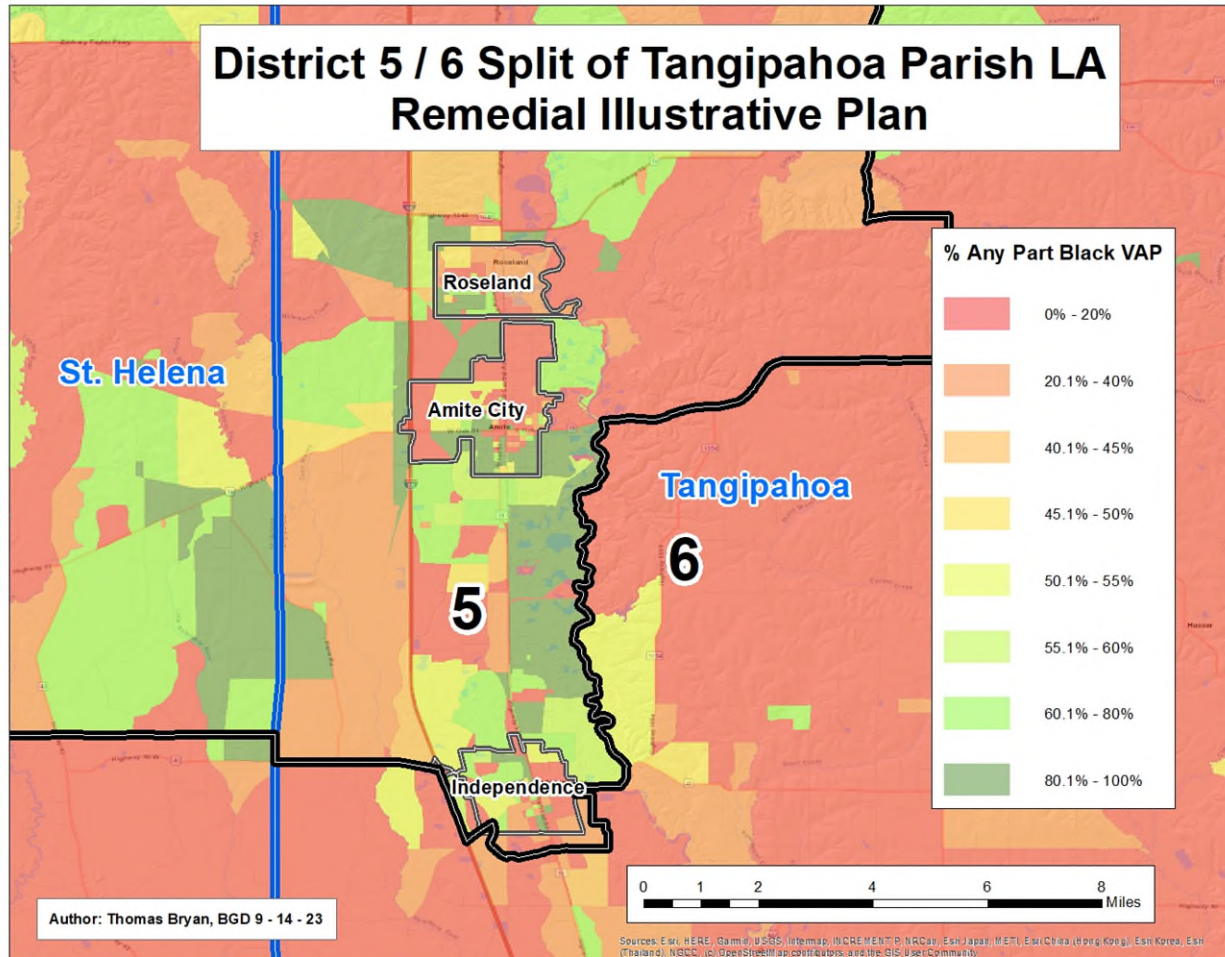
**Appendix 7: Louisiana Historical Congresses**

| Congress | Years | Alexandria | Baton Rouge | Lafayette | Monroe | New Orleans | Ruston | Shreveport | Number |
|---|---|---|---|---|---|---|---|---|---|
| 112th | 2011 - 2013 | 5 | 6 | 7 | 5 | 1/2 | 5 | 4 | 7 Total |
| 107th | 2001 - 2003 | 5 | 6 | 7 | 5 | 1/2 | 5 | 4 | 7 Total |
| 102nd | 1991 - 1993 | 8 | 6 | 7 | 5 | 1/2 | 5 | 4 | 8 Total |
| 97th | 1981 - 1983 | 8 | 6 | 7 | 5 | 1/2 | 5 | 4 | 8 Total |
| 92nd | 1971 - 1973 | 8 | 6 | 3 | 5 | 1/2 | 5 | 4 | 8 Total |
| 87th | 1961 - 1963 | 8 | 6 | 3 | 5 | 1/2 | 5 | 4 | 8 Total |
| 82nd | 1951 - 1953 | 8 | 6 | 3 | 5 | 1/2 | 5 | 4 | 8 Total |
| 77th | 1941 - 1943 | 8 | 6 | 3 | 5 | 1/2 | 5 | 4 | 8 Total |
| 72nd | 1931 - 1933 | 8 | 6 | 3 | 5 | 1/2 | 5 | 4 | 8 Total |
| 67th | 1921 - 1923 | 8 | 6 | 3 | 5 | 1/2 | 5 | 4 | 8 Total |
| 62nd | 1911 - 1913 | 7 | 6 | 3 | 5 | 1/2 | 5 | 4 | 7 Total |
| 57th | 1901 - 1903 | 4 | 6 | 3 | 5 | 1/2 | 5 | 4 | 6 Total |
| 52nd | 1891 - 1893 | 4 | 6 | 3 | 5 | 1/2 | 5 | 4 | 6 Total |
| 47th | 1881 - 1883 | 4 | 6 | 3 | 5 | 1/2 | 5 | 4 | 6 Total |
| 42nd | 1871 - 1873 | 4 | 3 | 3 | 5 | 1/2 | 5 | 4 | 5 Total |
| 37th | 1861 - 1863 | NA | NA | NA | NA | 1/2 | NA | NA | 2 Total |
| 32nd | 1851 - 1853 | 4 | 3 | 4 | 4 | 1/2 | 4 | 4 | 4 Total |
| 27th | 1841 - 1843 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 3 Total |
| 22nd | 1831 - 1833 | 3 | 2 | 3 | 3 | 1 | 3 | 3 | 3 Total |
| 17th | 1821 - 1823 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 Total |
| 12nd | 1811 - 1813 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 Total |

Source: Compiled by BGD at the direction of Dr. David Swanson Source: https://cdmaps.polisci.ucla.edu/

Note: Colors represent the districts those cities were a part of, or split by in each Congress
The "Number" column at the end reports how many districts Louisiana had in that Congress

# Appendix 7. Parish COI Classifications

## 7.1 Cluster Analysis: Parish COIs using 14 demographic, economic, and social characteristics

| Row Label | Cluster | Dist1 | Dist2 |
|---|---|---|---|
| 1 Acadia Parish, Louisiana | 2 | 3.131 | 2.5229 |
| 2 Allen Parish, Louisiana | 2 | 4.7019 | 3.8947 |
| 3 Ascension Parish, Louisiana | 2 | 6.6764 | 3.6197 |
| 4 Assumption Parish, Louisiana | 1 | 2.7557 | 3.364 |
| 5 Avoyelles Parish, Louisiana | 1 | 2.4259 | 3.8774 |
| 6 Beauregard Parish, Louisiana | 2 | 4.1593 | 2.4392 |
| 7 Bienville Parish, Louisiana | 1 | 1.7458 | 4.6319 |
| 8 Bossier Parish, Louisiana | 2 | 4.1255 | 1.8688 |
| 9 Catahoula Parish, Louisiana | 1 | 2.2405 | 4.7058 |
| 10 Cameron Parish, Louisiana | 2 | 5.8561 | 4.1091 |
| 11 Caldwell Parish, Louisiana | 1 | 2.3071 | 4.4265 |
| 12 Calcasieu Parish, Louisiana | 2 | 3.996 | 1.2638 |
| 13 Caddo Parish, Louisiana | 1 | 2.8903 | 3.4978 |
| 14 Claiborne Parish, Louisiana | 1 | 3.5385 | 6.9193 |
| 15 Concordia Parish, Louisiana | 1 | 2.6194 | 4.9103 |
| 16 De Soto Parish, Louisiana | 1 | 1.5166 | 3.3351 |
| 17 East Baton Rouge Parish, Louisia | 2 | 6.3317 | 4.1133 |
| 18 East Carroll Parish, Louisiana | 1 | 6.603 | 9.2534 |
| 19 East Feliciana Parish, Louisiana | 1 | 3.0081 | 4.9674 |
| 20 Evangeline Parish, Louisiana | 2 | 4.5886 | 3.9685 |
| 21 Franklin Parish, Louisiana | 1 | 1.6246 | 4.4871 |
| 22 Grant Parish, Louisiana | 2 | 4.0787 | 3.5241 |
| 23 Iberia Parish, Louisiana | 2 | 3.3463 | 1.9129 |
| 24 Iberville Parish, Louisiana | 1 | 2.2596 | 3.2543 |
| 25 Jackson Parish, Louisiana | 1 | 1.8438 | 3.9737 |
| 26 Jefferson Parish, Louisiana | 2 | 10.4394 | 7.773 |
| 27 Jefferson Davis Parish, Louisiana | 2 | 3.2356 | 2.7521 |
| 28 Lafayette Parish, Louisiana | 2 | 6.1285 | 3.3622 |
| 29 Lafourche Parish, Louisiana | 2 | 4.1412 | 1.9311 |
| 30 LaSalle Parish, Louisiana | 2 | 4.2076 | 3.6643 |
| 31 Lincoln Parish, Louisiana | 2 | 5.1032 | 4.7351 |
| 32 Livingston Parish, Louisiana | 2 | 5.5067 | 3.1433 |
| 33 Madison Parish, Louisiana | 1 | 3.5743 | 5.8591 |
| 34 Morehouse Parish, Louisiana | 1 | 2.0336 | 5.2271 |
| 35 Natchitoches Parish, Louisiana | 1 | 2.8713 | 4.6167 |
| 36 Orleans Parish, Louisiana | 2 | 8.6442 | 7.7005 |
| 37 Ouachita Parish, Louisiana | 1 | 2.7463 | 3.1135 |

| | | | |
|---|---|---|---|
| 38 Plaquemines Parish, Louisiana | 2 | 5.4612 | 2.7908 |
| 39 Pointe Coupee Parish, Louisiana | 1 | 2.3115 | 3.1115 |
| 40 Rapides Parish, Louisiana | 2 | 3.0115 | 1.8393 |
| 41 Red River Parish, Louisiana | 1 | 1.9374 | 4.0762 |
| 42 Richland Parish, Louisiana | 1 | 1.8691 | 4.3145 |
| 43 Sabine Parish, Louisiana | 1 | 2.0683 | 3.7799 |
| 44 St. Bernard Parish, Louisiana | 2 | 5.0056 | 3.1509 |
| 45 St. Charles Parish, Louisiana | 2 | 5.7501 | 3.0699 |
| 46 St. Helena Parish, Louisiana | 1 | 1.814 | 4.396 |
| 47 St. James Parish, Louisiana | 1 | 3.3671 | 3.7674 |
| 48 St. John the Baptist Parish, Louisia | 2 | 4.8376 | 3.4822 |
| 49 St. Landry Parish, Louisiana | 1 | 2.5792 | 3.5299 |
| 50 St. Martin Parish, Louisiana | 2 | 3.5121 | 2.5338 |
| 51 St. Mary Parish, Louisiana | 2 | 3.6626 | 2.3742 |
| 52 St. Tammany Parish, Louisiana | 2 | 6.1409 | 3.2098 |
| 53 Tangipahoa Parish, Louisiana | 2 | 3.5158 | 1.6407 |
| 54 Tensas Parish, Louisiana | 1 | 3.3701 | 6.3246 |
| 55 Terrebonne Parish, Louisiana | 2 | 3.8256 | 1.3399 |
| 56 Union Parish, Louisiana | 1 | 2.4937 | 3.9618 |
| 57 Vermilion Parish, Louisiana | 2 | 4.0316 | 1.8749 |
| 58 Vernon Parish, Louisiana | 2 | 6.3607 | 4.5591 |
| 59 Washington Parish, Louisiana | 1 | 1.7101 | 3.7589 |
| 60 Webster Parish, Louisiana | 1 | 2.1539 | 5.1789 |
| 61 West Baton Rouge Parish, Louisia | 2 | 4.483 | 3.0261 |
| 62 West Carroll Parish, Louisiana | 1 | 2.9203 | 4.6903 |
| 63 West Feliciana Parish, Louisiana | 1 | 4.7195 | 5.5019 |
| 64 Winn Parish, Louisiana | 1 | 1.7366 | 4.5176 |

**7.2 Cluster Analysis: Parish COIs using 12 demographic and social characteristics**

| Row Label | Cluster | Dist1 | Dist2 |
|---|---|---|---|
| 1 Acadia Parish, Louisiana | 1 | 2.4773 | 2.8318 |
| 2 Allen Parish, Louisiana | 1 | 3.5476 | 4.6258 |
| 3 Ascension Parish, Louisiana | 1 | 3.1812 | 5.7048 |
| 4 Assumption Parish, Louisiana | 2 | 3.3437 | 2.3592 |
| 5 Avoyelles Parish, Louisiana | 2 | 3.1169 | 2.1941 |
| 6 Beauregard Parish, Louisiana | 1 | 2.3848 | 3.7309 |
| 7 Bienville Parish, Louisiana | 2 | 4.0861 | 1.6789 |
| 8 Bossier Parish, Louisiana | 1 | 1.7926 | 3.581 |
| 9 Catahoula Parish, Louisiana | 2 | 3.9716 | 2.0778 |
| 10 Cameron Parish, Louisiana | 1 | 4.0445 | 5.4017 |
| 11 Caldwell Parish, Louisiana | 2 | 3.9858 | 2.2154 |
| 12 Calcasieu Parish, Louisiana | 1 | 1.2163 | 3.453 |
| 13 Caddo Parish, Louisiana | 2 | 3.3675 | 2.6783 |
| 14 Claiborne Parish, Louisiana | 2 | 6.2934 | 3.3484 |
| 15 Concordia Parish, Louisiana | 2 | 3.4611 | 1.922 |
| 16 De Soto Parish, Louisiana | 2 | 3.2358 | 1.0835 |
| 17 East Baton Rouge Parish, Louisi | 1 | 4.0474 | 5.8853 |
| 18 East Carroll Parish, Louisiana | 2 | 7.3524 | 5.337 |
| 19 East Feliciana Parish, Louisiana | 2 | 4.5812 | 2.8128 |
| 20 Evangeline Parish, Louisiana | 1 | 3.6745 | 4.5206 |
| 21 Franklin Parish, Louisiana | 2 | 4.207 | 1.6135 |
| 22 Grant Parish, Louisiana | 1 | 3.047 | 3.9782 |
| 23 Iberia Parish, Louisiana | 1 | 1.6154 | 3.0633 |
| 24 Iberville Parish, Louisiana | 2 | 3.0744 | 2.157 |
| 25 Jackson Parish, Louisiana | 2 | 3.5151 | 1.5631 |
| 26 Jefferson Parish, Louisiana | 1 | 7.8745 | 10.2865 |
| 27 Jefferson Davis Parish, Louisian | 1 | 2.7034 | 2.8319 |
| 28 Lafayette Parish, Louisiana | 1 | 3.1722 | 5.5122 |
| 29 Lafourche Parish, Louisiana | 1 | 1.8778 | 3.5612 |
| 30 LaSalle Parish, Louisiana | 1 | 3.6133 | 4.0356 |
| 31 Lincoln Parish, Louisiana | 1 | 4.556 | 5.0134 |
| 32 Livingston Parish, Louisiana | 1 | 2.9324 | 4.7484 |
| 33 Madison Parish, Louisiana | 2 | 4.663 | 3.0215 |
| 34 Morehouse Parish, Louisiana | 2 | 4.5908 | 1.7558 |
| 35 Natchitoches Parish, Louisiana | 2 | 4.4706 | 2.8096 |
| 36 Orleans Parish, Louisiana | 1 | 7.4347 | 8.3163 |
| 37 Ouachita Parish, Louisiana | 2 | 2.8425 | 2.4531 |
| 38 Plaquemines Parish, Louisiana | 1 | 2.6995 | 5.0559 |

| 39 Pointe Coupee Parish, Louisiana | 2 | 3.1016 | 1.7482 |
| 40 Rapides Parish, Louisiana | 1 | 1.8119 | 2.5914 |
| 41 Red River Parish, Louisiana | 2 | 3.7788 | 1.9207 |
| 42 Richland Parish, Louisiana | 2 | 4.0374 | 1.8448 |
| 43 Sabine Parish, Louisiana | 2 | 3.4358 | 1.8249 |
| 44 St. Bernard Parish, Louisiana | 1 | 3.0574 | 4.6456 |
| 45 St. Charles Parish, Louisiana | 1 | 2.7342 | 4.8376 |
| 46 St. Helena Parish, Louisiana | 2 | 4.2042 | 1.5761 |
| 47 St. James Parish, Louisiana | 2 | 3.7572 | 2.826 |
| 48 St. John the Baptist Parish, Louis | 1 | 3.4458 | 4.3188 |
| 49 St. Landry Parish, Louisiana | 2 | 3.1695 | 2.4958 |
| 50 St. Martin Parish, Louisiana | 1 | 2.5321 | 3.046 |
| 51 St. Mary Parish, Louisiana | 1 | 2.1746 | 3.5543 |
| 52 St. Tammany Parish, Louisiana | 1 | 3.0152 | 5.4593 |
| 53 Tangipahoa Parish, Louisiana | 1 | 1.6399 | 2.9826 |
| 54 Tensas Parish, Louisiana | 2 | 5.479 | 3.0407 |
| 55 Terrebonne Parish, Louisiana | 1 | 1.3147 | 3.3028 |
| 56 Union Parish, Louisiana | 2 | 3.818 | 2.3635 |
| 57 Vermilion Parish, Louisiana | 1 | 1.8411 | 3.7612 |
| 58 Vernon Parish, Louisiana | 1 | 4.2405 | 6.2177 |
| 59 Washington Parish, Louisiana | 2 | 3.5063 | 1.6418 |
| 60 Webster Parish, Louisiana | 2 | 4.8616 | 2.137 |
| 61 West Baton Rouge Parish, Louisi | 1 | 2.9163 | 3.6813 |
| 62 West Carroll Parish, Louisiana | 2 | 4.4619 | 2.8841 |
| 63 West Feliciana Parish, Louisiana | 2 | 5.2826 | 4.6924 |
| 64 Winn Parish, Louisiana | 2 | 3.8825 | 1.6343 |

**7.3 Cluster Analysis: Parish COIs using 9 demographic and social characteristics**

| Row Label | Cluster | Dist1 | Dist2 |
|---|---|---|---|
| 1 Acadia Parish, Louisiana | 1 | 1.6689 | 5.8118 |
| 2 Allen Parish, Louisiana | 1 | 3.5006 | 5.2677 |
| 3 Ascension Parish, Louisiana | 1 | 4.0452 | 5.3831 |
| 4 Assumption Parish, Louisiana | 1 | 1.9993 | 6.1466 |
| 5 Avoyelles Parish, Louisiana | 1 | 1.6294 | 5.6467 |
| 6 Beauregard Parish, Louisiana | 1 | 2.2899 | 6.1182 |
| 7 Bienville Parish, Louisiana | 1 | 2.2888 | 5.9558 |
| 8 Bossier Parish, Louisiana | 1 | 2.2051 | 3.8762 |
| 9 Catahoula Parish, Louisiana | 1 | 2.1338 | 5.8296 |
| 10 Cameron Parish, Louisiana | 1 | 4.0397 | 7.0728 |
| 11 Caldwell Parish, Louisiana | 1 | 2.092 | 6.4786 |
| 12 Calcasieu Parish, Louisiana | 1 | 2.0152 | 4.5462 |
| 13 Caddo Parish, Louisiana | 1 | 2.7093 | 3.7576 |
| 14 Claiborne Parish, Louisiana | 1 | 3.6435 | 6.5977 |
| 15 Concordia Parish, Louisiana | 1 | 1.7417 | 5.591 |
| 16 De Soto Parish, Louisiana | 1 | 1.0547 | 5.8399 |
| 17 East Baton Rouge Parish, Loui | 2 | 4.9539 | 1.1977 |
| 18 East Carroll Parish, Louisiana | 1 | 5.7773 | 7.0038 |
| 19 East Feliciana Parish, Louisia | 1 | 3.0198 | 6.2922 |
| 20 Evangeline Parish, Louisiana | 1 | 2.4336 | 5.3178 |
| 21 Franklin Parish, Louisiana | 1 | 1.4432 | 5.8168 |
| 22 Grant Parish, Louisiana | 1 | 2.9642 | 6.2763 |
| 23 Iberia Parish, Louisiana | 1 | 1.3557 | 4.8232 |
| 24 Iberville Parish, Louisiana | 1 | 1.8846 | 5.2415 |
| 25 Jackson Parish, Louisiana | 1 | 1.555 | 5.7475 |
| 26 Jefferson Parish, Louisiana | 2 | 7.2454 | 3.858 |
| 27 Jefferson Davis Parish, Louisia | 1 | 1.866 | 6.1082 |
| 28 Lafayette Parish, Louisiana | 2 | 4.2286 | 2.1976 |
| 29 Lafourche Parish, Louisiana | 1 | 1.6286 | 5.4989 |
| 30 LaSalle Parish, Louisiana | 1 | 3.1441 | 6.8078 |
| 31 Lincoln Parish, Louisiana | 2 | 4.5915 | 3.7926 |
| 32 Livingston Parish, Louisiana | 1 | 3.2798 | 6.2806 |
| 33 Madison Parish, Louisiana | 1 | 3.2152 | 6.0001 |
| 34 Morehouse Parish, Louisiana | 1 | 2.0485 | 5.9838 |
| 35 Natchitoches Parish, Louisiana | 1 | 3.1288 | 5.051 |

| | | | |
|---|---|---|---|
| 36 Orleans Parish, Louisiana | 2 | 8.006 | 3.664 |
| 37 Ouachita Parish, Louisiana | 1 | 2.0594 | 3.9314 |
| 38 Plaquemines Parish, Louisiana | 1 | 2.876 | 5.5703 |
| 39 Pointe Coupee Parish, Louisian | 1 | 1.5953 | 5.6671 |
| 40 Rapides Parish, Louisiana | 1 | 1.4512 | 4.3055 |
| 41 Red River Parish, Louisiana | 1 | 1.7943 | 6.4006 |
| 42 Richland Parish, Louisiana | 1 | 1.7057 | 5.6553 |
| 43 Sabine Parish, Louisiana | 1 | 1.5948 | 6.0017 |
| 44 St. Bernard Parish, Louisiana | 1 | 2.0432 | 5.6793 |
| 45 St. Charles Parish, Louisiana | 1 | 3.1823 | 5.3332 |
| 46 St. Helena Parish, Louisiana | 1 | 2.1113 | 6.1058 |
| 47 St. James Parish, Louisiana | 1 | 2.3986 | 6.1315 |
| 48 St. John the Baptist Parish, Lou | 1 | 3.0269 | 5.7848 |
| 49 St. Landry Parish, Louisiana | 1 | 1.7765 | 5.5918 |
| 50 St. Martin Parish, Louisiana | 1 | 1.0339 | 5.7949 |
| 51 St. Mary Parish, Louisiana | 1 | 1.8021 | 4.878 |
| 52 St. Tammany Parish, Louisiana | 1 | 3.8938 | 4.3936 |
| 53 Tangipahoa Parish, Louisiana | 1 | 1.5953 | 4.6907 |
| 54 Tensas Parish, Louisiana | 1 | 3.5017 | 6.8589 |
| 55 Terrebonne Parish, Louisiana | 1 | 1.4527 | 5.1627 |
| 56 Union Parish, Louisiana | 1 | 1.7163 | 6.2824 |
| 57 Vermilion Parish, Louisiana | 1 | 1.5136 | 5.5495 |
| 58 Vernon Parish, Louisiana | 1 | 4.5044 | 5.7686 |
| 59 Washington Parish, Louisiana | 1 | 1.8427 | 5.5656 |
| 60 Webster Parish, Louisiana | 1 | 2.515 | 5.8028 |
| 61 West Baton Rouge Parish, Loui | 1 | 2.5124 | 5.5254 |
| 62 West Carroll Parish, Louisiana | 1 | 2.5474 | 6.7164 |
| 63 West Feliciana Parish, Louisian | 1 | 4.5151 | 6.8582 |
| 64 Winn Parish, Louisiana | 1 | 1.9967 | 5.7083 |

## 7.4 Cluster Analysis: Parish COIs using 7 demographic and social characteristics

| Row Label | Cluster | Dist1 | Dist2 |
|---|---|---|---|
| 1 Acadia Parish, Louisiana | 1 | 1.6021 | 5.1077 |
| 2 Allen Parish, Louisiana | 1 | 1.6889 | 5.1768 |
| 3 Ascension Parish, Louisiana | 1 | 3.9393 | 5.1015 |
| 4 Assumption Parish, Louisiana | 1 | 1.7715 | 5.4559 |
| 5 Avoyelles Parish, Louisiana | 1 | 1.4906 | 4.9411 |
| 6 Beauregard Parish, Louisiana | 1 | 2.2723 | 5.5731 |
| 7 Bienville Parish, Louisiana | 1 | 2.1948 | 5.1783 |
| 8 Bossier Parish, Louisiana | 1 | 2.0016 | 3.5773 |
| 9 Catahoula Parish, Louisiana | 1 | 1.4552 | 4.9966 |
| 10 Cameron Parish, Louisiana | 1 | 3.4513 | 6.4218 |
| 11 Caldwell Parish, Louisiana | 1 | 1.4286 | 5.2213 |
| 12 Calcasieu Parish, Louisiana | 1 | 1.8993 | 4.1973 |
| 13 Caddo Parish, Louisiana | 1 | 2.6582 | 3.0509 |
| 14 Claiborne Parish, Louisiana | 1 | 3.3229 | 5.548 |
| 15 Concordia Parish, Louisiana | 1 | 1.5196 | 5.1878 |
| 16 De Soto Parish, Louisiana | 1 | 0.6036 | 4.8316 |
| 17 East Baton Rouge Parish, Loui | 2 | 4.4273 | 1.1159 |
| 18 East Carroll Parish, Louisiana | 1 | 4.9376 | 6.0725 |
| 19 East Feliciana Parish, Louisian | 1 | 2.8769 | 5.3579 |
| 20 Evangeline Parish, Louisiana | 1 | 2.1923 | 5.1288 |
| 21 Franklin Parish, Louisiana | 1 | 1.2309 | 4.877 |
| 22 Grant Parish, Louisiana | 1 | 2.318 | 6.0783 |
| 23 Iberia Parish, Louisiana | 1 | 1.2383 | 4.444 |
| 24 Iberville Parish, Louisiana | 1 | 1.775 | 4.6264 |
| 25 Jackson Parish, Louisiana | 1 | 1.5248 | 5.0899 |
| 26 Jefferson Parish, Louisiana | 2 | 4.8449 | 1.8734 |
| 27 Jefferson Davis Parish, Louisia | 1 | 1.7411 | 5.3986 |
| 28 Lafayette Parish, Louisiana | 2 | 3.8904 | 2.003 |
| 29 Lafourche Parish, Louisiana | 1 | 1.6176 | 5.0075 |
| 30 LaSalle Parish, Louisiana | 1 | 3.0474 | 6.394 |
| 31 Lincoln Parish, Louisiana | 2 | 4.0117 | 3.3557 |
| 32 Livingston Parish, Louisiana | 1 | 3.2606 | 5.8848 |
| 33 Madison Parish, Louisiana | 1 | 3.1663 | 5.2175 |

| | | | |
|---|---|---|---|
| 34 Morehouse Parish, Louisiana | 1 | 1.9561 | 5.2284 |
| 35 Natchitoches Parish, Louisiana | 1 | 2.9345 | 4.1988 |
| 36 Orleans Parish, Louisiana | 2 | 7.7927 | 3.6175 |
| 37 Ouachita Parish, Louisiana | 1 | 2.0275 | 3.1263 |
| 38 Plaquemines Parish, Louisiana | 1 | 2.5254 | 5.4485 |
| 39 Pointe Coupee Parish, Louisia | 1 | 1.2923 | 4.7666 |
| 40 Rapides Parish, Louisiana | 1 | 1.3448 | 3.805 |
| 41 Red River Parish, Louisiana | 1 | 1.2015 | 5.22 |
| 42 Richland Parish, Louisiana | 1 | 1.4283 | 4.5745 |
| 43 Sabine Parish, Louisiana | 1 | 1.4372 | 5.1798 |
| 44 St. Bernard Parish, Louisiana | 1 | 1.4046 | 5.0902 |
| 45 St. Charles Parish, Louisiana | 1 | 2.938 | 4.7919 |
| 46 St. Helena Parish, Louisiana | 1 | 2.0387 | 5.3988 |
| 47 St. James Parish, Louisiana | 1 | 1.7749 | 4.9785 |
| 48 St. John the Baptist Parish, Lou | 1 | 2.6787 | 5.2787 |
| 49 St. Landry Parish, Louisiana | 1 | 1.7487 | 4.882 |
| 50 St. Martin Parish, Louisiana | 1 | 0.8184 | 5.0157 |
| 51 St. Mary Parish, Louisiana | 1 | 1.2528 | 4.7453 |
| 52 St. Tammany Parish, Louisiana | 1 | 3.6653 | 4.2516 |
| 53 Tangipahoa Parish, Louisiana | 1 | 1.2921 | 4.1819 |
| 54 Tensas Parish, Louisiana | 1 | 2.9336 | 5.686 |
| 55 Terrebonne Parish, Louisiana | 1 | 1.4058 | 4.7078 |
| 56 Union Parish, Louisiana | 1 | 1.272 | 5.2815 |
| 57 Vermilion Parish, Louisiana | 1 | 1.498 | 5.0711 |
| 58 Vernon Parish, Louisiana | 1 | 3.7747 | 5.4419 |
| 59 Washington Parish, Louisiana | 1 | 1.5907 | 4.8829 |
| 60 Webster Parish, Louisiana | 1 | 2.2242 | 4.6731 |
| 61 West Baton Rouge Parish, Loui | 1 | 2.4391 | 4.6908 |
| 62 West Carroll Parish, Louisiana | 1 | 1.9007 | 5.6607 |
| 63 West Feliciana Parish, Louisian | 1 | 4.4009 | 6.2488 |
| 64 Winn Parish, Louisiana | 1 | 1.9224 | 4.883 |

**Appendix 8. Curriculum Vitae of David A. Swanson**

Curriculum Vitae

David A. Swanson

1 Lake Louise Drive #19
Bellingham, Washington 98229
&
8924 Evening Star Drive
Las Vegas, NV 89134

email: david.swanson@ucr.edu

Webpage : https://profiles.ucr.edu/app/home/profile/dswanson

I.        **Education**

| Ph.D. | 1985 | Sociology/Population Studies | University of Hawai`i |
|---|---|---|---|
| M.A. | 1976 | Sociology/Population Studies | University of Hawai`i |
| Graduate Studies Diploma | 1974 | Social Science/Swedish | University of Stockholm |
| B.Sc. | 1972 | Sociology/Mathematics | Western Washington State College |

(Credit courses also completed at the University of Puget Sound (9 semester hours) and Columbia Basin College (30 quarter hours)

II.   **Academic and Related Positions**

    **A.  Primary Appointments**

| | | |
|---|---|---|
| Center for Population Research Portland State University | 2022-2023 | Research Associate |
| Aoyama Gakuin University, Tokyo, Japan | October 27 to November 11 2018 | Visiting Professor |
| University of California Riverside Department of Sociology | 2007 - 2018 | Professor of Sociology (emeritus, 2018) |
| University of Mississippi Department of Sociology & Anthropology | 2003-2007 | Professor of Sociology and Chair |
| Helsinki School of Economics Mikkeli Business Campus BScBA Program, BBA & MBA Program | 2000 to 2003 1999-2000 1997 to 1999 | Dean Acting Dean Visiting Faculty |
| Portland State University, Department of Urban Studies | 1995 to 1997 | Professor of Urban Studies |
| University of Arkansas at Little Rock, | 1992 to 1995 | Senior Demographic |

| | | |
|---|---|---|
| College of Business, Institute for Economic Advancement | | Specialist |
| Pacific Lutheran University, Department of Sociology | 1987 to 1992 | Associate Professor (Tenure Awarded) |
| Bowling Green State University, Department of Sociology | 1985 to 1987<br>1984 to 1985 | Assistant Professor<br>Visiting Instructor |
| Alaska Department of Labor | 1981-1983 | State Demographer |
| Population, Enrollment, and Economic Studies Division, Washington State Office of Financial Management | 1977-1981 | Research Investigator |
| East-West Population Institute | 1975 to 1977 | Staff Researcher |

## B. Conjoint and Miscellaneous Appointments

| | | |
|---|---|---|
| M.P.S in Applied Demography Dept. of Sociology & Criminology Penn State University | 2019 | Lecturer (On-line) Appdem 804 Business Demography Appdem 805 Demog & Public Policy |
| Center for Studies in Demography & Ecology, University of Washington | 2017- | Faculty Affiliate |
| Demographic and Social Analysis Program, Department of Sociology University of California Irvine | 2007- 2019 | Affiliated Faculty |
| Blakely Center for Sustainable Suburban Development University of California Riverside | 2008 - 2009 | Interim Director |
| Blakely Center for Sustainable Suburban Development University of California Riverside | 2007-2018 | Research Associate |
| Social Science Research Center Mississippi State University | 2004- | Research Fellow |
| Center for Population Studies University of Mississippi | 2003-2007 | Director |
| Theodore Roosevelt Institute | 2002-2011 | Senior Fellow |
| HELP University, Malaysia | April, 2003 | Guest Lecturer |

| | | |
|---|---|---|
| Mikkeli Polytechnic College, International Business Program | Spring, 2001 | Guest Lecturer in Statistics |
| | Spring, 2000 | Guest Lecturer in Statistics |
| Portland State University Center for Population and Census | 1995 -1997 | Director |
| University of Arkansas at Little Rock, Institute for Economic Advancement | 1992 -1995 | Director, Demographic Research Unit |
| University of Arkansas for Medical Sciences, National Center for Rural Mental Healthcare Research | 1992-1995 | Research Scientist |
| Pacific Lutheran University, Center for Social Research And Public Policy | 1987 -1992 | Director |
| Pacific Lutheran University, Department of Sociology | 1990-1991 | Acting Chair |
| Bowling Green State University, Population and Society Research Center | 1984-1987 | Assistant Director for Population Research |
| University of Alaska, Juneau School of Business Administration | 1983 | Lecturer |
| National Science Foundation "Research For Undergraduates" Demographic Research Laboratory Western Washington  University | Summer, 1994 Summer, 1991 Summer, 1989 Summer, 1988 | Workshop Instructor Workshop Instructor Workshop Instructor Workshop Instructor |
| ICPSR Summer Program in Quantitative Methods, University of Michigan | July, 1989 July, 1988 July, 1987 July, 1986 | Guest Lecturer Workshop Instructor Workshop Instructor Workshop Instructor |
| Argonne National Laboratory, | Summer, 1987 | Faculty Research Participant |

## III. Teaching Experience

### A. Credit Courses

#### 1.  Undergraduate Courses

*Sociology Courses*
> Introductory Sociology
> Population, Poverty, and Hunger

Introductory Statistics
Research Methods
Urban Sociology

*Population Studies/Demography Courses*
Introduction to Population Studies
Introduction to Applied Demography
Demographic Analysis and International Business
Market Demographics
Population Analysis
Population Forecasting
The Baby Boom
World Population Issues

*Business Administration Courses*
Introductory Statistics for Business Administration
Business Mathematics
Demographic Methods and International Business
Quantitative Methods in Business
Business Forecasting
Market Demographics
Introduction to SPSS

## 2. Graduate Courses

*Sociology Courses*
Research Methods
Multivariate Analysis

*Population Studies/Demography Courses*
Business Demographics
Demographic Methods
Advanced Market Demographics
Applied Demography
Population Forecasting
Population Estimation Methods

*Business Administration Courses*

Business Forecasting
Refresher Mathematics for MBA Students
Quantitative Methods

## B. Non-Credit and Continuing Education Courses and Topics

Census and Survey Administration      Population Estimation
Census and Survey Methods             Population Forecasting
Interviewer Training                  Enrollment Forecasting

## IV. Thesis Supervision

### A. Committees chaired

2014.    *Overcrowding as a Determinant of Violence in California State Prisons.* B. A. Honors Thesis by John Maldonado. Department of Sociology. University of California Riverside.

2011    *Demographic Analysis and the U.S. Hispanic Population.* Ph.D. Dissertation by Matt Kaneshiro, Department of Sociology, University of California Riverside.

2007.    *A Comparison of Housing Unit Estimates to the American Community Survey Master Address File.* Sociology M.A. Thesis completed by A. J. Reese. Department of Sociology and Anthropology, University of Mississippi.

2004    *Towards International Standardisation of Accounting: IAS and the Accounting Practises in Finland and Russia.* Senior (BScBA) Thesis completed by O. Nieminen, Mikkeli Business Campus, Helsinki School of Economics and Business Administration

2003    *The Impact of International Mergers and Acquisitions on Brand Strategies.* Senior (BScBA) Thesis completed by N. Yli-Pirilä, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

2003    *International Franchising and Investment.* Senior (BScBA) Thesis completed by M. Wainwright, Mikkeli Business Campus, Helsinki School of Economics and Business Administration

2002    *Mobile Commerce: Hype or Reality?* Senior (BScBA.) Thesis completed by P. Louko, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

2002    *Transport Perspectives within the European Union.*  Senior (BScBA.) Thesis completed by O. Martychtchenko, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

2001    *Investing in African Economies: Inhibitions and Prospects – A General Overview.* Senior (BBA.) Thesis completed by P. Kalubi, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

1996    *Population Estimation Techniques Using the Housing Unit Method.* Master of Urban Science (M.U.S.) Research Paper completed by Tom Bryan, Department of Urban Studies, Portland State University (Co-chaired with George Hough).

1987    *Measuring Propensity:  The Association between Socioeconomic Variables and Differential Migration for Ohio, 1975-1980.* M.A. Thesis completed by K. A. Wright, Department of Sociology, Bowling Green State University.

1986    *Estimation of Net Migration among Major regions in Iraq, 1957- 1977,* M.A. Thesis completed by A. Al-Jiboury, Department of Sociology, Bowling Green State University.

1986    *An Interpretation of the Ratio-Correlation Method of Population Estimation.* M.A. Thesis completed by R. Prevost, Department of Sociology, Bowling Green State University.

**B. Committees of which a member**

2017        A Descriptive Profile of the Multiracial Asian Population in the United States.
            Ph.D. Dissertation completed by Sooji Han, Department of Sociology,
            University of California Riverside

2014        A Spatial Examination of Residency Restriction Legislation: The Impact of Social
            Disorganization and Social Services. Ph.D. Dissertation completed by Erin Wolbeck,
            Department of Sociology, University of California Riverside

2012.       Exploring the Decision-Making Process in Relation to Legitimacy Assignment.
            Ph.D. Dissertation completed by Adam Sanford, Department of Sociology,
            University of California Riverside.

2005        *Unique Competencies of International Non-Governmental Organizations (INGOs):
            Empirical Explorations from India*. Ph.D. Dissertation completed by Pranaya Kumar
            Swain, Department of Sociology, Indian Institute of Technology-Kanpur, Kanpur, Utter
            Pradesh, India (External Examiner).

1991        *The Influence of Parents on the Drinking Patterns of Their Teenage Children*. M.A.
            Thesis completed by R. D. Jacobsen, Division of Social Sciences, Pacific Lutheran
            University.

1990        *Austrian National Identity and the Dokumentationsarchis des Osterreichischen
            Widerstandes*. M.A. Thesis completed by F. Hornquist, Division of Social Science,
            Pacific Lutheran University.

1989        *A Model for Fertility Change*. Ph.D. Dissertation completed by N. Sugathan,
            Department of Demography, University of Kerala, (External Examiner).

1989        *The Spruce Program:  A Profile of the Participants*. M.A. Thesis completed by K. Roe,
            Division of Social Science, Pacific Lutheran University.

1986        *A Content Analysis of Music Videos*. M.A. Thesis completed by L. Olsen, Department of
            Radio, Television, and Film, Bowling Green State University.

1986        *Projection of Flexible Age-specific Migration Rates:  An Examination of
            Pittenger's Simplified Techniques*. M.A. completed by B. Bennett, Department of
            Sociology, Bowling Green State University.

1986.       *Alienation Correlates of Marital Dissolution:  A Longitudinal Study*. Ph.D. Dissertation
                    completed by Yvonne Woods, Department of Sociology, Bowling Green State
            University.


# V. Professional Development


Participant in (and Successful completion of) Records Management Training, ALCS,
June, 2016

Participant in (and Successful completion of) Information Security Training, ALCS, June,
2016.

Participant, Population Projections Workshop, Association for Latin American Population
Studies, 16 November 2010.

Participant, U.S. Census Bureau Workshop, "The American Community Survey," 22 September 2010.

Participant, U.S. Census Bureau Webinar, "The American Community Survey: Tracking How We Change with Multi-Year Estimates," 18 November 2009.

Participant, Nielsen Claritas Webinar, "Small Area Population Estimates," 10 November 2009.

Special Sworn Status. US Census Bureau. 2007 (renewed, 2008).

Participant, "Title 13 Training, Confidentiality and Privacy." US Census Bureau, Completed, March, 2007 and renewed November 2008.

Participant, "The Basic Course in the Protection of Human Research Subjects," University of Mississippi, Completed, October, 2005.

Participant, RAND Summer Institute on Aging. RAND, Santa Monica, California. July, 2004.

Participant, Fulbright German Studies Seminar. Berlin, Rostock, and Bonn, Germany. June, 2003.

Participant in (and successful completion of), "Finnish for Foreigners II," Kuopio University, Kuopio, Finland, July-August, 2001

Participant in (and successful completion of), "Finnish for Foreigners I," Mikkeli Polytechnic College, Mikkeli, Finland, July, 2000

Participant in (and successful completion of), "Ethics in Business," Science Applications International Corporation, 1998, 1999

Participant in (and successful completion of), Regulatory and Licensing Training Program, U.S. Department of Energy, Yucca Mountain Project, Las Vegas, Nevada, November, 1998

Participant, "The American Community Survey," American Statistical Association, Los Angeles, California, August, 1997

Participant, "Marketing and Census 2000," Seattle, Washington, August, 1996

Participant in and successful completion of), "Refresher Swedish," Portland State University, Portland, Oregon, Fall, 1995.

Participant in (and successful completion of), "Introductory Finnish," Portland State University, Portland, Oregon, Fall, 1995

Participant, "Census 2000 Content and Access," Cincinnati, Ohio, April, 1993.

Participant, "Arkansas State Census Data Center Annual Meeting," Little Rock, Arkansas, October, 1992.

Participant, "The Strategic Planning Process," Pacific Lutheran University, January, 1992.

Participant, "1990 Census Content," U.S. Bureau of the Census (Seattle Regional Office), Pacific  Lutheran University, November, 1990.

Participant, "Programs and Products of the U.S. Bureau of the Census," U.S. Bureau of the Census (Detroit Regional Office) Bowling Green State University, April, 1987.

Participant, "Proposal Writing and Research Administration," College of Education, Bowling Green State University, Spring Semester, 1987.

Participant, "An Introduction to the Bootstrap," Continuing Education Session, American Statistical Association, Chicago, Illinois, August, 1986.

Participant, First Annual Research Conference, U.S. Bureau of the Census, April, 1985.

Participant in (and successful completion of),, "Performance Evaluation for Supervisory Personnel," Alaska Department of Labor, September, 1983.

Participant, "Planning for the 1990 Census," Continuing Education Session, American Statistical Association, Toronto, Ontario, Canada, August, 1983.

Participant, (and successful completion of), "Successful Project Management," Alaska Department of Personnel, Juneau, Alaska, October, 1981.

Participant in (and successful completion of), "MARK-IV Programming," Informatics, Inc., Olympia, Washington, 1980.

Participant in (and successful completion of), "IBM OS JCL" and "WYLBUR," Washington State University, Olympia, Washington, 1979.

Participant (and successful completion of), "Zero-Based Budgeting," Washington Office of Financial Management, Olympia, Washington, 1978.

Participant, "Funding Public Higher Education," Washington Office of Financial Management-Washington Higher education Coordinating Board, Olympia, Washington, 1977.

Participant, "Didactic Seminar on Causal Modeling," American Sociological Association, San Francisco, California, August, 1976.

Participant in (and successful completion of), "Swedish I," "Swedish II," and "Swedish III," Stockholm University, Stockholm, Sweden, 1973-74.

Participant, "1970 Census Products and Their Use,"  Hawaii Department of Administration, Honolulu, Hawaii, May, 1973.

Participant in (and successful completion of), "Introduction to Basic Assembly Language (BAL) Programming," University of Hawaii, Honolulu, Hawaii, Spring, 1973.


## VI. Research Projects and Grants


### A. Research Grants and Contracts Let and Administered

 "Survey of Food Consumption and Lifestyles," Nye and Lincoln counties, Nevada, ($100,000). 1996-97, University of Nevada Las Vegas

"1984 Residential Energy Survey" ($250,000). 1983-84,  Walker Information, Inc.

"Cooperative Publication on Alaskan Native Demography" ($4,000). 1984, Alaska Department of Labor.

"Chloropleth Computer Mapping" ($3,500). 1983, Alaska Department of Labor.

"Public Opinion Survey", Washington State Board for Community College Education, ($25,000). 1981Gilmore Research Group.

"Revision to the Higher Education Enrollment Projection System (HEEPS)," ($5,000), 1980, Washington State Office of Financial Management.

"Population Forecasting System" ($30,000), 1980, Washington State Office of Financial Management.

**B. Research Contracts Awarded**

Population Health Impact of Reduced Risk Tobacco Products ($320,000). ALCS, Inc. (Principal Investigator) 2013-2018.

Hopi Tribal Population Dynamics and Forecast ($70,000). Hopi Tribe. 2017-2019.

Population Forecasting System Evaluation ($20,000) Washington State Office of Financial Management (Co-Principal Investigator with J. Tayman), 2015-2016

Accuracy Study ($228,000). ESRI (Co-Principal Investigator, Cropper GIS), 2011-2012.

Population Projections for Native Hawaiians.  ($16,078). Policy Analysis and System Evaluation, Kamehameha Schools, Honolulu, Hawaii. March, 2008 (Principal Investigator, McKibben Demographic Research).

Evaluation of methods used to estimate vacancy rates and average persons for households ($25,000), U. S. Bureau of the Census, Summer 2007- Fall 2008.
Multi-Year Estimates, American Community Survey, ($5,500). U. S. Bureau of the Census, Summer, 2007.

Evaluation of Methods used to Estimate the Size and Composition of the Foreign-Born Population ($27,000). U.S. Bureau of the Census, September, 2006  (through Sabre Systems, Inc.), Spring 2007 -  Fall 2007.

Enrollment Forecasting and Attendance Boundary Study. ($12,000). Harrison County School District, Biloxi, MS., Fall, 2006. (Principal Investigator, J. McKibben).

Small Area Labor Force and Population Projections. ($7,500). Southern Nevada Regional Planning Commission (Subcontract with Theodore Roosevelt Institute, Las Vegas, NV), Summer, 2006

Population Projections of the Chinese Population by Age and Sex for 22 Selected Counties. ($1,500). Third Wave Research, Inc. Madison, Wisconsin. November 2004.

Population Projections for Native Hawaiians.  ($9,871.24). Policy Analysis and System Evaluation, Kamehameha Schools, Honolulu, Hawaii. May 2004.

Forecasting Headcount Enrollment at the Southaven Satellite Campus, ($2,000). Office of Outreach and Continuing Education, University of Mississippi. December 2003.

Estimation and Forecasting of U.S. Lifestyle Segments, 2002 to 2012 ($6,500), Third Wave Research, Inc., Madison, Wisconsin. October, 2002.

Review and Revision of Demographic Forecasts for Jubail, Saudi Arabia ($20,000), Parsons Brinckerhoff, Inc., Jubail, Saudi Arabia, July, 1999.

Demographic Mentoring and Instruction ($3,000), Western Washington University, Bellingham, Washington, 1999.

Washoe County Population Estimation System Development ($24,900), Washoe County Nevada. 1999.

Redesign of the Nevada State Population Forecasting Model ($12,000), Nevada Consulting Alliance/Nevada State Demographer's Office. 1998-99.

Census Enumerator, Crew Leader, and Supervisor Training, Neighborhood Census Project ($2,500), Portland Multnomah Progress Board (funded by a grant from the Anne E. Casey Foundation), Portland, Oregon. 1997.

Evaluating Response Rates for the American Community Survey, Portland Test Site, ($2,000) U.S. Bureau of the Census.  1997.

Estimating Household Income from Incomplete Data ($25,000), Metromail, Inc. 1997.

Liberal Education Profile, Portland State University ($70,000), Portland State University. 1997 (with D. Atkinson).

Forecasting Enrollment and Attendance Zone Changes for the Hillsboro 1J District ($77,000), Hillsboro1J School District, Oregon, 1995-1996 (with D. Lycan, G. Hough, and I. Sharkova).

Forecasting Enrollment for the Newberg School District ($5,000), Newberg School District, Oregon, 1996.

Estimating and Forecasting U.S. Lifestyle Segments, 1990 to 2010 ($5,000), Third Wave Research, Inc. (with T. Bryan and G. Hough)

Omnibus Contract for Income Surveys, Community Development Block Grants ($18,000), Oregon Department of Economic Development, 1996.

Tribal Membership Forecast ($1,400). The Confederated Tribes of the Grand Ronde Community of Oregon, 1995.

"Demographic Services" for Study included in ADAMNA Grant No. P50 MH48197-03, entitled "Center For Rural Mental Health Care Research" ($7,198). University of Arkansas for Medical Sciences, 1992-93.

"Kitsap County Open Space Poll." Consultation and Training of a Volunteer Organization to conduct Polling in support of a proposed open-space Bond Issue, Kitsap County, Washington ($3,000). Kitsap Citizens for Open Space, 1992.

"Pierce County Private Industry Council, Evaluation of Programs." ($25,000). Pierce County Private Industry Council. 1991. (with J. Schiller and K. McDade).

Pierce County Solid Waste Management Survey: ($12,000). Jacobsen Ray McLaughlin and Fillips, Inc., 1991.

"1991 Tacoma-Pierce County Quality of Life Survey." Module on Mental Health Issues ($3,000). Greater Lakes Mental Health Foundation, 1991.

"Implementation of the REMI Socioeconomic Forecasting Model in support of the SAIC/YMPO socioeconomic monitoring program and SCA model development." ($29,000).  Science Applications International Corporation, Yucca Mountain Project Office. U.S. Department of Energy, 1991.

"1990 Tacoma-Pierce County Quality of Life Survey." Module on health Issues ($6,000). Tacoma-Pierce  County Health Department,.

1990."Implementation of the REMI Socioeconomic Forecasting Model, in support of the SAIC/YMPO socioeconomic monitoring program and SCA model development." ($38,000). Science Applications International Corporation, Yucca Mountain Project Office. U.S. Department of Energy, 1990.

"Review and Analysis of the Demographic Module of the EDFS-S REMI Module." ($6,380). Science Applications International Corporation, Yucca, Mountain Project Office, U.S. Department of Energy, 1989-90.

"Small Area Model Development for the High Level Radioactive Waste Repository." ($10,000). Battelle Human Affairs Research Centers, 1989.

"1989 Tacoma-Pierce County Solid Waste Management Survey." module on hazardous and other household wastes ($6,000). Pierce County Waste Management Division, Pierce County, Washington, 1989.

"Pierce County Solid Waste Management Survey." ($17,000). Pierce County, Washington (Co-Investigator with J. Schiller), 1988.

1988 "Tacoma Area Quality of Life Survey," module on racial issues ($2,000). Tacoma Urban League (Co-Investigator with J. Schiller), 1988.

"Evaluation of the Demographic Component of the HARC/REMI Economic Demographic Model ($3,000). Battelle Human Affairs Research Centers, 1988.

'Survey of Applied Demographers." ($1,500). Population Association of America, 1986-87.

"Life Tables By Sex, 1980 and 1970 and Net Migration By Age and Sex, 1970-80 and 1960-70 For Ohio." ($750). Final Report submitted to the Ohio Data User's Center, Department of Development, December, 1984.

"Technical Data Services." ($2,500).  Alaska Reapportionment Board, 1981. 1980 Census Computer Tape Acquisition and Evaluation" ($3,000). Washington State Redistricting Board, 1979.


### C. Research Grants Awarded

"Measuring Health Status for Populations with Incomplete Census & Vital Statistics Information: Estimating Life expectancy at Birth." ($9,861). COR Fellowship. University of California Riverside. 2017.

"Socio-Economic Status, Race, and Life Expectancy in Los Angeles County, 1970-1990: A Proof of Concept Proposal for $20,100 in Funds under Strategic Goal 1. ($20,100) College of Humanities, Arts, and Social Sciences, University of California (Principal Investigator). 2011-2012.

"Virtual Co-laboratory for Policy Analysis in Greater Los Angeles" ($2,300,000). UC Multicampus Research Program and Initiatives, University of California. (Co-Investigator with Richard Arnott et al.). 2010-2014.

"Perceptions of Disaster Relief and Recovery: Analyzing the Importance of Social and Kinship Networks Among Hurricane Katrina Refugees on the Mississippi Gulf Coast." ($96,212). National Science Foundation (Co-Principal Investigator with F. Forgette and M. Van Boening), 2005-6.

"Interdisciplinary Working Group to Develop a Strategy for the  Development of an NICHD Population and Health Research center in Mississippi." ($9,400). Office of Research and Sponsored Programs, University of Mississippi (Principal Investigator, with Co-Investigators, Fazlay Faruque and Peggy Hewlett). 2005-6.

"Applied Demographic Research in Migration" ($40,000). National Science Foundation (Co-Director with L.M. Tedrow), 1991.

"Applied Demographic Research in Migration" ($40,000). National Science Foundation (Co-Director with L.M. Tedrow), 1989.

"Applied Demographic Research in Migration" ($40,000). National Science Foundation (Co-Director with L.M. Tedrow), 1988.

"VCR Survey" ($1,500). Kaltenborn Foundation (with B. Klopfenstein), 1987.

VCR Survey" ($5,000). National Association of Broadcasters (with B. Klopfenstein), 1987.

"Pilot Survey of VCR Use" ($1,500). Kaltenborn Foundation, 1986.

"Pilot Survey of VCR Use" ($2,730). Bowling Green State University, 1986.

"Socioeconomic Correlates of Infant Mortality: Ohio, 1980" ($90,000). U.S. Department of Health and Human Services. (Co-principal Investigator with E.G. Stockwell and J. Wicks), 1985-86.


### D. Program Grants Awarded

"Transition Funding for the BScBA Degree Conversion, Phase II (€100,000), European Union Objective 1 Program (with V-P. Heiskanan). 2002

"Transition funding for the BScBA Degree Conversion, Phase I (€200,000), European Union Objective 1 Program (with V-P. Heiskanen), 2001

"BBA Program Development" (€200,000) European Union Objective 1 Program (with J. Masalin), 2000.

"Academic Challenge:  Developing an Applied Demography Program, Bowling Green State University" ($121,336). Ohio Board of Regents (with M. Pugh et al.), 1986.


## VII. Publications

### A. Books and Monographs

Socio-demographic Perspectives on the COVID-19 Pandemic. (Forthcoming) Co-editor with Richard Verdugo. Information Age Publishing, Charlotte, NC.

Global Populations in Transition (2018). Co-author with Jo Martins and Fei Guo. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

Cohort Change Ratios and Their Applications. (2017). Co-author with Jack Baker, Jeff Tayman, and Lucky Tedrow. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

The Frontiers of Applied Demography. (2016) Editor. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

The Washington State Census Board and Its Demographic Legacy. (2016). Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

Methods of Demographic Analysis. (2014). Co-author with Farhat Yusuf and Jo Martins. Springer  B.V. Press. Dordrecht, Heidelberg, London, and New York.

A Practitioner's Guide to State and Local Population Projections. (2013). Co-author with Stanley K. Smith and Jeff Tayman. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

Subnational Population Estimates. (2012). Co-author with Jeff Tayman. Springer B.V. Press.  Dordrecht, Heidelberg, London, and New York.

Opportunities and Challenges for Applied Demography in the 21st Century. (2012). Co-Editor with Nazrul Hoque. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York .
.
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2022    "Using Taylor's Law to Estimate Variance in Annual Unemployment by State." <u>Review of</u>
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**I. Book Reviews**


*Model-based Demography: Essays on Integrating Data, Technique and Theory*. Springer Research Monographs, 2018, by Thomas K. Burch. Invited Review, <u>Canadian Studies in Population</u> 45(3-4): 144-145.

*Changes in Censuses from Imperialist to Welfare States: How Societies and States Count.* Palgrave Macmillan Press, 2016, by Rebecca J. Emigh, Dylan Riley, and Patricia Ahmed. Invited review <u>Contemporary Sociology</u> 46 (Spring): 179-180.

*Applied Multiregional Demography: Migration and Population Redistribution.* Springer BV Press, 2016, by Andrei Rogers. Invited Review, <u>Canadian Studies in Population</u> 43 (3-4): 289-290.

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*Demographic Forecasting*. Princeton University Press, 2009, by Frederico Girosi and Gary King. Invited review published by <u>Contemporary Sociology</u> 38 (July): 369-370.


**VIII. <u>Papers Read at Professional Conferences</u>**


**A. Contributed Refereed Papers**

"Boosted Regression Trees for Small-Area Population Forecasting." Presented at the 2022 Conference of the Southern Demographic Association, Knoxville, TN (with J. Baker and J. Tayman).

"Expert Judgment & Standard Small Area Projection Methods: Population Forecasting
for Water District Needs." Presented at the 2022 Conference of the Southern Demographic

Association, Knoxville, TN (with T, Bryan, M. Hattendorf, K. Comstock, L. Starosta, and R. Schmidt).

"Repurposing record matching algorithms to identify blocks and block groups affected by Differential Privacy: Progress Report on a Pilot Project." Presented at the 2022 Small Area Estimation Conference, Session on Challenging Problems from SAE and Modern Data Science, May 26 (with T. Bryan).

"Producing Summary Statistics of COVID-19 cases and deaths over time: The case for using geometric measures, not arithmetic ones. Presented at the 2022 Conference of the Canadian Population Association, Session on Covid-19 and Mortality, May 10 (with R. Verdugo, A. Rao, and S. Krantz).

"Boosted Regression Trees for Small-Area Population Forecasting." Presented at the Annual Meeting of the Population Association of America, Session on Challenges Facing Small Area Forecasting and Estimation. Atlanta, GA. February 1st, 2022. (with J. Baker and J. Tayman).

"Taylor's Law and the Relationship between Life Expectancy at Birth and Variance in Age at Death in a Period Life Table." Presented at the Annual Meeting of the Population Association of America, Session on Mathematical Demography. Atlanta, GA. April 9th, 2022. (with L. M. Tedrow).

"Forecasting a Tribal Population using the Cohort-Component Method: A Case Study of the Hopi." Presented at the Annual Meeting of the Population Association of America, Session on Old Wine in New Bottles: Tools for Applied Demographers, Atlanta, GA, April 8th, 2022.

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"The American Community Survey: Would keeping the Long Form in conjunction with a Mid-Decade Census have been a better choice?" Presented at the 2022 Applied Demography Conference, February 1st.

"Broadband Access during a Pandemic: 2020 Census Results for the Hopi and Lummi Reservations. Presented at the 2022 Applied Demography Conference, February 2nd.

"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 Mississippi.." Presented at the Annual Conference of the American Statistical Association, Seattle, WA, August 11, 2021. (with R. Cossman).

"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." Presented at the Symposium on Data Sciences and Statistics, June 4th, 2021 (with T. Bryan and R. Sewell).

"Taylor's Law and the Relationship between Life Expectancy at Birth and Variance in Age at Death in a Period Life Table." Presented at the 2021 Conference of the Canadian Population Society, May 18-19.

A  Simple Method for Estimating the Number of Unconfirmed COVID-19 Cases in a Local Area that Includes a Confidence Interval: A Case Study of Whatcom County, Washington. Presented at the 2021 Conference of the Canadian Population Society, May 18-19, (with R. Cossman).

"An Example of Converting Clinical Study Data into a Life Table: A Life Table for the U.S. Population with Sickle Cell Disease." Presented at the 2021 Applied Demography Conference, February 1-4 (https://www.populationassociation.org/events-publications/adc-2021 ).

Modeling and the COVID‑19 Pandemic: A Local Area Perspective
David Swanson. Presented at the 2021 Applied Demography Conference, February 1-4
(https://www.populationassociation.org/events-publications/adc-2021 ).

"The End of the Census." Presented at the Annual Meeting of the American Statistical
Association, Philadelphia, PA 1-6 August, 2020 (with P. Walashek).

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"Constructing Life Tables from the Kaiser Permanente Smoking Study and Applying the Results to
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Cropper, J. McKibben, and J. Tayman).

"MAPE-R: An Empirical Assessment." Presented at the 2011 Conference of the Population
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"Urban-Suburban Migration Patterns in the United States, 2004-2008: The Beginning of the End
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"Leveraging Extant Data to Meet Local Information Needs:  A Case Study in Team Applied Demography." Presented at the Annual Meeting of the Population Association of America, March, 2000, Los Angeles, California (with P. Morrison, C. Popoff, I. Sharkova, and J. Tayman).

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"Teaching Statistics to Non-Specialists in an Intercultural Setting:  Addressing Issues of Understanding and Retention in a Modern Learning Environment."  Presented at the Mid-Term Conference of the Sociology of Education Research Committee, International Sociological Association, Joensuu, Finland, June, 1997. (with J. McKibben).

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"Changes in Factories, Changes in Accuracies:  On the Relationship Between Economic Structure and the Ratio-Correlation Method of Population Estimation." Presented at the 1994 Annual Meeting of the Southern Demographic Association, Atlanta, Georgia (with J. McKibben).

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"Measuring the Utility of Population Projections." Presented at the 1994 Annual Meeting of The Ohio Academy of Science. Toledo, Ohio (with J. Tayman).

"Mean Square Error Confidence Intervals for Intercensal Net Migration Estimates:  A Case Study of Arkansas 1980-1990." Presented at the 1993 Annual Meeting of the Southern Demographic Association, New Orleans, Louisiana (with H. Kintner and M. McGehee).

"Estimating Demographic Rates From Employer Administrative Database." Presented at the 1993 Annual Meeting of the International Union for the Scientific Study of Population, Montreal, Quebec (with H. Kintner).

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"Ratio-Correlation: A Short-Term County Population Projection Method." Presented at the 1993 International Symposium on Forecasting. Pittsburgh, Pennsylvania (with D. Beck).

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"Ratio-Correlation as a Short-Term County Population Projection Method: A Case Study for Washington State." Presented at the 1992 Annual Meeting of the Southern Demographic Association, Charleston, South Carolina (with D. Beck).

"Adult Transfer Students: Predicting Who Will Finish and Who Will Drop Out." Presented at the 1992 Annual Meeting of the Pacific Northwest Association of Institutional Researchers and Planners, Bellingham, Washington (with S. Hedman and L. Nelson).

"Measurement Errors in Census Counts and Estimates of Intercensal Net Migration." Presented at the 1992 Annual Meeting of the American Statistical Association, Boston, Massachusetts (with H. Kintner).

"The Disposal of Household Hazardous Waste: Results From a Survey of Pierce County, Washington." Presented at the 1992 Annual Meeting of the Northwest Scientific Association, Bellingham, Washington.

"A Variation of the Housing Unit Method For Estimating the Population of Small, Rural Areas: A Case Study of the Local Expert Procedure." Presented at the 1992 Annual Meeting of the Population Association of America, Denver, Colorado (with J. Carlson and L. Roe).

"A System for Placing Confidence Intervals Around Estimated the Population of Small, Rural Areas: A Case Study of the Local Expert Procedure." Presented at the 1992 Annual Meeting of the Population Association of America, Denver, Colorado (with J. Carlson and L. Roe).

"Perspectives on Change in Employer Health Benefits Populations." Presented at the 1991 Annual Meeting of the Population Association of America, Washington, D.C. (with H. Kintner).

"Evaluating Socioeconomic Impact Models: An Adoption of Winter's Method to the Yucca Mountain Project." Presented at the 1990 Annual Meeting of the American Statistical Association, Anaheim, California (with J. Carlson, J. Hollingsworth, and C. Williams).

"The Development of Small Area Socioeconomic Data to be Utilized for Impact Analysis: Rural Southern Nevada." Presented at the 1990 International High Level Radioactive Waste Management Conference, Las Vegas, Nevada (with J. Carlson and C. Williams).

"Identifying Factors Associated with the Subjective Feelings of One's Quality of Health." Presented at the 1990 U.S. Uniformed Services Conference of Family Physicians, Richmond, Virginia (with W. F. Miser).

"Demographic Issues for Washington State." Session on Regional Demography, 1989 Annual Meeting of the Rural Sociological Society, Seattle, Washington.

"Intercensal Net Migration Among the Three Major Regions of Iraq, 1957-1977." Presented at the 1989 Annual Meeting of the Population Association of America, Baltimore, Maryland (with A. Al-Jiboury).

"VCR Households:  A Comparison of Early and Recent Adopters." Presented at the 1988 Annual Meeting of the Broadcast Education Association, Las Vegas, Nevada (with B. Klopfenstein).

"Technical Skills and Training Needs of Applied Demography." Presented at the 1987 Annual Meeting for the American Statistical Association, San Francisco, California (with L. S. Rosen and H. J. Kintner).

"Causes of Death in Infancy and the Proposed Redefinition of the Neonatal Period." Presented at the 1987 Annual Meeting of the North Central Sociological Association, Cincinnati, Ohio (with E. G. Stockwell and J. Wicks).

"The Impact of Census Error Adjustments on Ohio Population Projections." Presented at the 1987 Annual Meeting of the North Central Sociological Association, Cincinnati, Ohio (with K. Vaidya, R. Yehya, B. Bennett and R. Prevost).

"Projecting Household VCR Penetration:  A Demographic Approach." Presented at the 1987 Annual Meeting of the Population Association of America, Chicago, Illinois (with B. Klopfenstein).

"A State Based Regression Model for Estimating Substate Life Expectancy: Tests Using 1980 Data." Presented at the 1987 Annual Meeting of the American Statistical Association, San Francisco, California.

"An Analysis of VCR Adopter Characteristics and Behavior." Presented at the 1987 Annual Meeting of the International Communication Association, Montreal, Quebec, Canada (with B. Klopfenstein).

"Estimating Life Expectancy for Health Service Areas:  A Test Using 1980 Data For Indiana." Presented at the 1986 Annual Meeting of the American Statistical Association, Chicago, Illinois.

"Converging Trends in the Relationship Between Infant Mortality and Socioeconomic Status." Presented at the 1986 Annual Meeting of the North Central Sociological Association, Toledo, Ohio (with E. Stockwell and J. Wicks).

"Geographic Variation of Longevity in Ohio, 1930 and 1980." Presented at the 1986 Annual Meeting of the North Central Sociological Association, Toledo, Ohio (with E. Stockwell).

"Identifying Extreme Errors in Ratio-Correlation Estimates of Population." Presented at the 1986 Annual Meeting of the Population Association of America, San Francisco, California (with R. Prevost).

"Missing Survey Data in End-Use Energy Models:  An Overlooked Problem." Presented at the 1985 Annual Meeting of the American Statistical Association, Las Vegas, Nevada.

"Fecundability Among Ethnic Groups in Hawaii." Presented at the 1985 Annual Meeting of the North Central Sociological Association, Louisville, Kentucky.

"Issues in Energy End-Use Survey Research." Presented at the 1985 Conference of the American Council for an Energy Efficient Society, San Cruz, California (with S. M. Buller, R. J. Canter, L. Guliasi, and R. M. Wong).

"Improving the Measurement of Temporal Change in Regression Models Used for County Population Estimates." Presented at the 1983 Annual Meeting of the Population Association of America, Pittsburgh, Pennsylvania (with B. Baker and J. Van Patten).

"Municipal Population Estimation:  Practical and Conceptual Features of the Housing Unit Method." Presented at the 1983 Annual Meeting of the Population Association of America, Pittsburgh, Pennsylvania (with B. Baker and J. Van Patten).

"Getting at the Factors Underlying Trends Using Statistical Decomposition Techniques." Presented at the 1980 Annual Meeting of The College and University Systems Exchange, Phoenix, Arizona.

"Allocation Accuracy in Population in Estimates:  An Overlooked Criterion with Fiscal Implications." Presented at the 1980 Annual Meeting of The American Statistical Association, Houston, Texas.

"Graphic Display of Demographic Data." Presented at the 1979 Annual Meeting of The Population Association of America, Philadelphia, Pennsylvania (with L. M. Tedrow).

"A Method of Estimating Annual Age-Standardized Mortality Rates for Counties: Results of a Test Using Washington State Data." Presented at the 1978 Annual Meeting of The American Statistical Association, San Diego, California.

"Preliminary Results of an Evaluation of the Utility of Ridge Regression for Making County Population Estimates." Presented at the 1978 Annual Meeting of the Pacific Sociological Association

## B. Contributed Non-Refereed Papers

"Why Do Group Health Benefit Populations Change Size? A Case Study of General Motors Salaried Population, 1983-1990." Presented at the 1994 Applied Demography Conference, Bowling Green, Ohio (with H. Kintner).

"An Evaluation of the Demographic Components of a Proprietary Economic Forecasting and Simulation System:  The REMI Model as used by SAIC, Inc. for the Yucca Mountain Project in Nevada." Presented at the 1994 Applied Demography Conference, Bowling Green, Ohio (with Y. Zhao and J. Carlson).

"On the Utility of Lagged Ratio-Correlation as a Short-Term County Population Projection Method: A Case Study of Washington State." Presented at the 1994 Applied Demography Conference, Bowling Green, Ohio (with J. Tayman and D. Beck).

"The Producers Perspective." Presented at the 1994 Annual Meeting of Federal-State Cooperative Program for Population Projections, Session on The Utility of Population Projections, Miami, Florida.

"Confidence Intervals for Net Migration Estimates that Incorporate Measurement Errors in Census Counts." Presented at the 1992 Applied Demography Conference, Bowling Green, Ohio (with H. Kintner).

"Baseline Projections of Household Solid Waste Generation:  A Case Study of Pierce County, Washington." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio.

"Conference Intervals for Estimates of Intercensal Net Migration." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio (with H. Kintner).

"Estimating Migration in a Sparsely-Populated Specialized Economic Area:  The Yucca Mountain High-Level Nuclear Waste Repository." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio (with J. Carlson).

"Development of Demographic Data Utilizing Key Informants in Rural Incorporated Places." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio (with L. K. Roe and J. Carlson).

"Poverty and Infant Mortality." Presented at the June, 1989 Meeting of the Washington State Child Health Research and Policy Group, Seattle, Washington.

"Some Results of the 1988 'Research Experience for Undergraduates' Program in Demography." Poster Session at the 1988 Applied Demography Conference, Bowling Green, Ohio (with L. Tedrow).

"Overview of the Survey of Applied Demographers." Presented at the 1987 Annual Meeting of the Population of Association of America, Chicago, Illinois (with H. Kintner).

"Applied Demography." Presented to the Department of Sociology, Western Washington University, October, 1986.

"Preliminary Results From the 1986 Survey Demographers." Presented at the 1986 Annual Meeting of the Population Association of America, San Francisco, CA (with H. Kintner et al.).

"Survey Findings." Presented at the Public Hearing on Public Affairs Programming and Commercial Television, June, 1984 San Francisco, California.

"Comparative Analysis of Change in Average Household Size With Reference to IRS Data on Average Exemptions Per Return:  Census Results From Selected Municipalities in Washington, 1970, 1977, and 1978." Presented at the October, 1979 meeting of The Task Force on Sub-County Population Estimates Federal-State Cooperative Program for Population Estimates, Washington, D. C. (with T. J. Lowe).

"Recent Trends in Household Size for Rural, Predominantly White, Non-Hispanic Communities: Special Census Results From Three Towns in Washington, 1976 and 1979." Presented at the October, 1979 meeting of The Task Force on Sub-County Population Estimates, Federal-State Cooperative Program for Population Estimates, Washington, D. C. (with T. J. Lowe).

## IX. Invited Presentations

"Modeling and the Covid-19 Pandemic:  A Local Area Perspective." Presented at the Annual Meeting of the Federal-State Cooperative Program for Population Projections (Virtual), May 13-14, 2021.

"Using a Simple Population Forecasting Method to Assess Economic and Health Characteristics of a Population of Interest." Presented at the Department of Public and Regional Economics, Aoyama Gakuin University, Tokyo, Japan, 7 November 2018

"Using a Population Forecasting Method to Assess the Demographic Impact of Natural and Man-made Disasters." Presented at the Department of Sociology, Kyoto University, Kyoto, Japan, 5 November 2018

"Cohort Change Ratios and Their Applications." Presented as part of the Open Seminar, Foreign Scholar Lecture Series, National Institute for Population and Social Security Research, Tokyo, Japan, 31 October 2018 (http://www.ipss.go.jp/int-sem/e/lec2.html )

"On Equality and Inequality in Stationary Populations." Presented at the 4th International Symposium on the Human Mortality Database, Berlin, Germany, May 23, 2017 (with Lucky Tedrow).

"Use of Demography in the Public Sector." presented in an invited session on demography and policy at the 2017 Conference of the Population Association of American, Chicago, IL.

"The Washington State Census Board and Its Demographic Legacy." Presented at the Center for Studies in Demography and Ecology, University of Washington. Seattle, Washington, January 8, 2016.


"Aging in the Western Hemisphere, 2015-2035." Presented at the analytic exchange on Demographic Change and Mobility in Aging Regions to 2035. Co-sponsored by the U.S. National Intelligence Council and the Bureau of Intelligence and Research, U.S. State Department. Arlington, VA. July 17. 2015.

"The Current Status of Applied Demography: A Four-Field View with an Eye toward the Future." Plenary Presentation.  8th International Conference on Population Geographies, University of Queensland, Brisbane, Australia. July 1-3, 2015.

"A New Estimate of the Hawaiian Population for 1778, the Year of First European Contact." Presented as part of the Colloquium Series, Department of Sociology, University of Hawai'i. February 13th, 2015.

"Measuring Uncertainty in Population Forecasts: A New Approach Employing the Hamilton-Perry Method." Presented at the Population Institute Methods Workshop, Penn State University, June 24th, 2014. State College, PA (with Jeff Tayman).

"Measuring Uncertainty in Population Forecasts: A New Approach Employing the Hamilton-Perry Method." Presented at the Annual Conference of the Federal-State Cooperative Program for Population Projections, Boston, MA, April 30th, 2014. (with Jeff Tayman).

"Measuring Uncertainty in Population Forecasts: A New Approach." Presented at the Joint Eurostat/UNECE Work Session on Demographic Projections, October 29-31, 2013. Rome, Italy (with Jeff Tayman).

"People of the Inland Empire: Changes in Ethnicity, Age and Race, Presented at the "Practically Speaking" Development Series, Center for Sustainable Suburban Development, University of California Riverside, June 11th, 2013. Riverside, CA.

"A Loss Function Approach to Examining ACS Estimates: A Case Study of 2010
"Persons Per Household" Estimates for California Counties." Presented at the Workshop on "The Benefits (and Burdens) of the American Community Survey" sponsored by the Committee on

National Statistics, National Academies of Science. June 14-15, 2012, Washington, DC (with George Hough).

"Practical Demography." Keynote address presented at the Warren Kalbach Conference, March 18-19, 2011, Edmonton Society of Demographers, University of Alberta, Edmonton, Alberta, Canada.

"Developing Small Area Population Estimates for Use in Health Information Systems." Presented in the Introductory Plenary Session at the 19th International Conference of the Forum for Interdisciplinary Mathematics,18-20 December 2010, Patna University, Patna, India. (with J. McKibben and K. Faust).

"Perspectives on the American Community Survey." Presented at the 2010 Conference of the Latin American Association for Population Studies, 15-19 November, Havana, Cuba.

"New Directions for the Decennial Census?" Presented in the Invited Session, What if the 2020 Census Was the First Census: What Would We do?, 2010 Conference of the American Statistical Association, 31 July – 5 August, Vancouver, British Columbia, Canada.

"Demographics and Housing." Presented at the Randall Lewis Seminar, Blakely Center for Sustainable Suburban Development, Riverside, California, 17 June 2010.

"The Possibilities for using the Housing Unit method."  Presented at Statistics Canada, Ottawa, Ontario, 28 May, 2009.

"The Future of Suburbs." Presented at Pitney Bowles Business Decisions. Toronto, Ontario, 27 May 09.

"Socio-economic Status and Life Expectancy in the United States: 1970 to 1990." Presented at the School of Public Policy, University of Texas- San Antonio, San Antonio, TX. 21 April 2009.

"Small Area Estimation and Health Information Systems" Presented at the Small Area Measurement Consultation Conference, Institute for Health Metrics and Evaluation, University of Washington. Seattle, WA,10 April 2009.

"Aging and other Population Trends and their Implications for Suburbs." Presented as part of the 'Leadership Lenexa' Seminar Series, Lenexa Chamber of Commerce. Lenexa, KS. 27 June 2008.

"How the Changing U.S. Census will Affect Decision-Making." Presented at the Randall Lewis Seminar, Blakely Center for Sustainable Suburban Development, Riverside, California, 15 May 2008.


"An Evaluation of Persons Per Household (PPH) Data Generated By the American Community Survey: A Demographic Perspective." Presented at the American Community Survey, Multi-Year Estimates Meeting, 15 November 2006, U.S. Census Bureau, Suitland, Maryland.

"Counting the Gulf Coast: A Demographer Gauges Katrina's Impact in Mississippi." Department of Sociology, University of California Irvine, 23 October 207, Irvine, CA.

"Assessing Katrina's Impact on the Mississippi Gulf Coast: A Report on Completed Research." Poster presented at the 2007 Post-Katrina Forum Gulf States Alliance:  Network Science and Recovery, 19-21 August, Biloxi, MS (with R. Forgette, M. Van Boening).

"The Needs of Researchers in Regard to Population Estimates." Conference on U.S. Census Bureau Population Estimates: Meeting User Needs." Sponsored by Council of Professional Associations on Federal Statistics.19 July 2006. Alexandria, VA.

The Impact of Hurricane Katrina on the Mississippi Gulf Coast." Annual Exhibition of the Coalition for National Science Funding, 7 June 2006. Washington, DC.

"The Impact of Hurricane Katrina on the Mississippi Gulf Coast." Annual CLARITAS Client Conference, 30-29 April, 2006, San Diego, CA.

"The Impact of Hurricane Katrina on the Mississippi Gulf Coast. Annual Meeting of the Population Association of America, Session of the Committee on Population Statistics.  30 March 2006. Los Angeles, CA.

"Demographic Changes Affecting Undergraduate Enrollment in Mississippi." College of Liberal Arts Faculty Forum, 22 March 2005. University of Mississippi.

"The Changing Demography of the CSGS Region." Plenary Keynote Address, Annual Meeting of the Conference of Southern Graduate Schools, 26 February 2005. Biloxi, MS.

"An Evaluation of the American Community Survey: Results from the Oregon Test Site." Presented at the Annual Meeting of the American Statistical Association, August 8th to 10th, 2004. Toronto, Ontario, Canada (with G. Hough).

"Evidence From Oregon."  Presented at the Annual Meeting of the Population Association of America, April 1st to 3rd, 2004. Boston, Massachusetts (with G. Hough).

"The Impact of Demographic Factors on Business: Selected Examples." Presented to Faculty of the H.E.L.P. Institute, Kuala Lumpur, Malaysia, 25 April 2003

"Results of the BScBA Program Self-Evaluation Study." Presented at the External Accreditation Peer Review Team's On-Site Visit, Finnish Ministry of Education, Valamo, Finland, October 8-9, 2002.

"Demographic Constraints on Regional Development."  Presented at the Technology and Economic Development in the Periphery (TEDIP) Dissemination Seminar, Joensuu University, Savonlinna, Finland, June 13th, 2002.

"International Education in Finland: Issues and Challenges." Presented to the Rural Studies Workshop, Institute for Rural Research Studies, Helsinki University, Mikkeli, Finland, February 1st, 2002.

"The International BBA Program of the Helsinki School of Economics and Business Administration." Presented to the President of Finland, Mikkeli, Finland, May 15th, 2001.

"Providing International Education:  A Finnish Example of the European Experience." Presented at the 4th Strategy Seminar on Strategic Alliances and Partnerships in International Education, Kuala Lumpur, Malaysia, April 7th, 2001.

"On Measuring Accuracy in Subnational Demographic Estimates."  Presented at the National Conference on Population Estimates Methods, Sponsored by the Population Estimates Branch, U.S. Bureau of the Census, June 8th, 1999. Suitland, Maryland (with J. Tayman and C. Barr).

"Census Errors and Census 2000:  The Role of Local Government."  Presented at the Public Stakeholders Meeting of the Southern Nevada Census 2000 Committee, March 23rd, 1999, Las Vegas, Nevada.

"The Food Consumption Survey."  Presented at the Total System Performance Assessment Technical Exchange, U.S. Department of Energy/ U.S. Nuclear Regulatory Commission. Las Vegas, Nevada, November 6th, 1997.

"Amargosa Valley Population Survey."  Presented to the U.S. National Advisory Committee on Nuclear Waste,  U.S. Nuclear Regulatory Commission.  94th Meeting, Las Vegas, Nevada, September 23rd, 1997.

"An ACS Performance Assessment."  Presented in the session "The American Community Survey – Uses and Issues."  Annual Meeting of the American Statistical Association, Anaheim, California, August 13th, 1997.

"The Region's Changing Demographics."  Presented at the International Council of Shopping Centers' 1996 Meeting, Skamania Lodge, Skamania, Washington, August, 1996.

"Local Population Trends."  Presented at the Chamber of Commerce Leadership Program." West Linn, Oregon, March, 1996.

"Oregon's Population Trends."  Presented  at the Strategic Budget Conference of Oregon  State Agency Directors, Salem, Oregon , March, 1996.

"Evaluation Plan for the Arkansas Network Based Technology Deployment Program." Presented at the Workshop on Manufacturing Modernization: Evaluation Practices, Methods and Results. National Institute of Standards and Technology, Atlanta, Georgia, September 18-20, 1994.

"Estimates of the Current Cost of Health Care in Arkansas." Presented to the Governor's Task Force on Health Care Reform. Little Rock, Arkansas, April 13, 1994.

"An Overview of Impact Analysis." Presented at the Local Development Association Meeting, Heber Springs, Arkansas 1993.

"Applied Demography for Urban Studies." Two-day workshop presented at Loyola University, Chicago, Illinois, 1993.

"Confidence Intervals for Net Migration Estimates that Incorporate Measurement Errors in Census." Presented at the Central Arkansas Chapter of the American Statistical Association, November, 1992 (with H. Kintner).

"Demographic Aspects of Labor Force Trends in Arkansas." Presented at the March 5th, 1993 Arkansas Business Leaders Symposium, Arkansas College, Batesville, Arkansas.

"Decennial Census Products and Their Use in Research." Presented in the Research Conference Series, Center for Mental Health Research, University of Arkansas for Medical Sciences, November 18th, 1992.

"Factor Analysis and Related Analytical Techniques." Presented to the Uniformed Services Physicians' Fellowship Program, Madigan Army Medical Center, April 17th, 1992.

"A Variation of the Housing Unit Method for Estimating the Age and Gender Distribution of Small, Rural Areas:  A Case Study of the Local Expert Procedure." Presented at the Invited Paper Session Methods of Small Area Population Estimation. Annual Meeting of the American Statistical Association, San Francisco, California, August, 1993 (with J. Carlson, L. Rowe and C. Williams).

"A First Bite in a Seven Course Meal:  Results from the 1990 Census." Presented to the City Club of Tacoma, June, 1991 (with W. Opitz).

"A New Method for Projecting Small Area Populations." Presented to the Center for Business and Economic Research, College of Business, University of Nevada, Las Vegas, March, 1991.

"Socio-Economic Impact Analysis for the Yucca Mountain Nuclear Waste Project:  Insights from Demography." Presented to the Department of Sociology, Michigan State University, February, 1991.

"Ratio-Correlation as a Short-Term, Subnational Population Forecasting Method:  A Case Study Using Washington State Data." Presented to the Demography Division, Statistics Canada, Ottawa, Ontario, February 11, 1991.

"Demographics! Demographics! Demographics!" Presented to members of the Private Industry Council, Pierce County, Washington, March, 1990.

"Marx vs. Malthus:  An Empirical Approach to Examining Orthodoxy." Presented in the Colloquium Series "Living In A Fragile Environment," Valparaiso University, January, 1990.

"Small Area Socio-Economic Forecasting," Presented to the Faculty Club, Valparaiso University, January,1990.

"Local, National, and International Demographic Trends." Presented to the Washington Agriculture and Forestry Leadership Program, Pacific Lutheran University, January, 1990.

"Some Problems in Small Area Forecasting." Presented at the ICPSR Summer Program in Quantitative Methods, University of Michigan, July, 1989.

"Washington State Population Issues." Presented at the Washington State Public School Social Studies Educators Retreat, Pilgrim Firs, Washington, October, 1987.

"Why are American Babies Dying Before Their First Birthday?' Presented at the October, 1987 Interdepartmental Colloquium, Pacific Lutheran University.

"Subnational Population Estimation and Its Relation to Emerging Legal Challenges in the United States." Presented at the November, 1986 Brown-bag session of The Population Studies Center, University of Michigan.

"Population Trends in North Central Ohio." Presented at the November, 1986 meeting of The Social Science Club, Firelands College.

"The Multiple Regression Approach to Deriving Local Area Population Estimates." Presented at the April, 1985 meeting of the Northwest Ohio Chapter of The American Statistical Association, Bowling Green, Ohio.

"Population and Enrollment Forecasting." Presented at the March, 1983 meeting of the Anchorage Demographic Group, Anchorage, Alaska.

"Trends in Washington's Population." Presented at the November, 1979 meeting of the Seattle Economists' Club, Seattle, Washington.

## X. <u>Testimony</u>

## A.  Legislative and Regulatory

Oral and written Testimony, "*Why 2+2 Should Never Equal 3: Getting Intercensal Population Estimates Right the First Time*," House Government Reform Subcommittee on Federalism and the Census oversight hearing, Washington, DC. September 6, 2006.

Oral and written Testimony, Nuclear Regulatory Commission, Advisory Committee On Nuclear Waste, September 25, 1997, Las Vegas, Nevada.

Oral Testimony on Oregon's Population Trends. Presented to the Interim Committee On Growth Management, Oregon House of Representatives, February, 1996.

Written Testimony on "The Proposed Options For Incorporating Information From The Post-Enumeration Survey into The Intercensal Population Estimates produced By the Bureau of the Census." Public Hearing Docket (No. 920895-2195) U.S. Bureau of the Census. August 31, 1992.

"Results From the 1988 Recycling Survey." Presented to the Subcommittee on Solid Waste Management, Pierce County Council, January, 1989.

Written Testimony on "Plans for Conducting the 1990 Census in Alaska." Subcommittee on Census and Population, Hearing Conducted in Anchorage, Alaska, August 19, 1987.

Written Testimony on "Federal Statistics and National Data Needs." <u>Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Committee on Government Affairs, United States Senate, 98th Congress, 1st Session.</u> Committee Print (S. Print 98-191) Washington: 1984.

Oral and Written Testimony, Labor Committee, Alaska House of Representatives, 1981, 1982, 1983.

Oral and Written Testimony, Finance Committee, Alaska House of Representatives, 1981, 1982, 1983.

Oral and Written Testimony, Finance Committee, Washington State Senate, 1979.

Oral and Written Testimony, Finance Committee, Hawaii State House of Representatives, 1974.


## B.  Judicial

Deposed and Testifying Expert Witness. 2023. Civil No. CV6417-300. In Re the General Adjudication of CV 6417 All Rights to Use Water in the Little Colorado River System and Source (evaluate population forecast done on behalf of the Navajo Nation). Phoenix, AZ.

Deposed and Testifying Expert Witness. 2022. Case A-17-762364-C. Estate of Joseph P. Schrage Jr & Kristina. D. Schrage v. Allan Stahl. (Wrongful death case on behalf of plaintiff) Eighth Judicial Court, Clark County, Las Vegas, Nevada.

Deposed and Testifying Witness. 2021.  Civil No. CV 6417-203, State of Arizona, General Adjudication of All Rights in the Little Colorado River System and Source. (generate forecast of Hopi Tribal Members). Phoenix, AZ

Deposed and Testifying Expert Witness. 2012. Board of Education, Shelby County, Tennessee et al. v. Memphis City Board of Education et al. / Board of County Commissioners, Shelby County,

Tennessee (third party plaintiff) v. Robert E. Cooper et al (third party defendant)." (Constitutionality of a Tennessee state law). Baker, Donelson, Bearman, Caldwell and Berkowitz, PC. Memphis, TN.

Deposed Expert Witness. 2009. "Quest Medical Services v. FMIC." (Demographic Effects of Hurricane Katrina on New Orleans in a case involving a Medical Service Provider). . Podvey, Meanor, Catenacci, Hildner, Cocoziello, and Chattman, P.C., Newark, NJ.

Deposed and Testifying Expert Witness. 2007. "Spring Hill Hospital, Inc. v. Williamson Medical Center and Maury Regional Hospital."  (Evaluation of population forecasts in a case involving a proposed hospital). Miller and Martin, PLLC, Nashville.

Deposed and Testifying Expert Witness. 1994. Arkansas Supreme Court. (Statistical evaluation of the accuracy of the number of qualified signatures on a public referendum as determined by a sample).

Deposed Expert Witness. 1983. "Anchorage, et al., vs. J. Hammond et al." (Lawsuit brought by local governments against the state of Alaska on how populations are determined for purposes of state revenue sharing to local governments).

## XI. Service

### A.  Professional

Co-editor, Special Issue on Population Forecasting, *Population Research and Policy Review* (2023) (with J. Baker, I. Grossman, and T. Wilson).

Mortality Expert Panel, Society of Actuaries Research Institute, February, 2022 -

Interview, "Census Bureau's use of Synthetic Data worries Researchers." A story that appears in Associate Press News. May 27, 2021 https://apnews.com/article/census-2020-technology-data-privacy-business-be938fa5db887a0ae6858dff0be217ef

External Advisory Board, Geo-Spatial and Population Studies Research Center, University of New Mexico, April 2019 -

Chair, Estimates and Projections Session I, 2022 Applied Demography Conference February 1st.

Interview: "Information for Real Estate Agents." Wallethub, April 24th, 2019. https://wallethub.com/edu/best-worst-cities-to-be-a-real-estate-agent/18713/#expert=david-a-swanson

Interview: "Demographic Formula Reveals Surprisingly Short Careers for MLB Pitchers." A story that appears in UPI's Science News, August 3rd, 2018 (https://www.upi.com/Demographic-formula-reveals-surprisingly-short-careers-for-MLB-pitchers/3841533304869/ ).

Editorial Board, *Population Research and Policy Review*, 2014-2021

Advisory Board, Online Program in Applied Demography, Pennsylvania State University, 2017-2021

Advisory Board, Nantucket Data Platform Project, Nantucket, Massachusetts, 2017-2020

Reviewer, Proposals for a special issue of *Population Research and Policy Review*, 2017.

Co-organizer, Conference on Applied Demography and Public Policy, University of Houston, Houston, TX, January, 2017.

Chair, Applied Demography Track Committee, 2017 Program Committee, Population Association of America. 2016-17.

2017 Program Committee, Population Association of America. 2016-2017.

Invited Commentary, "Compare Hawai'i and Mississippi," on the question, "Is Hawai'i a racial paradise?" Zocalo Public Square, September 15th, 2015 (http://www.zocalopublicsquare.org/2015/09/15/is-hawaii-a-racial-paradise/ideas/up-for-discussion/#David+A.+Swanson ).

Poster Session Judge, "8th International Conference on Population Geographies, Brisbane, Australia, June 30th to July 3rd, 2015.

Discussant, Session 1130, "Demographic and Statistical Approaches to Small Area Estimation." Population Association of American, April 30th to May 1st, 2014. Boston, MA.

Session Chair, "Mortality and Later Life Health." Social Science History Association, 1-4 November 2012, Vancouver, BC, Canada.

Grant Proposal Reviewer. "FR/38/2-220/11 - Defining the Demographic Prospects of Georgia and Providing their Software," Shosta Rustaveli National Science Foundation of Georgia, Republic of Georgia (December, 2011).

Session Organizer and Chair, "Population Projections," Applied Demography Conference, 8-10 January 2012, San Antonio, Texas.

Interview: "Experts Predict Bright Future." A story that appears in The Telegraph. (Calcutta, India) December 21, 2010.

Interview: "Census Bureau releases detailed statistics on smaller Inland areas." A story written by David Olson that appears in the Press-Enterprise, December 14, 2010

Interview: "Inland area lags behind state, nation in returning census forms." A story written by David Olson that appears in The Press-Enterprise, March 31, 2010

Interview: "Government 'a Counting: Does the U.S. Census Need a 21st-Century Makeover?." A story written by Katie Moisse that appears in Scientific American, March 25, 2010

Interview: "Some Hispanics puzzle over race question on census form." A story written by Randy Cordova that appears in the Arizona Republic, March 23, 2010.

Interview: "The census inspires a sense of civic duty, distrust and fear." A story written by Robert L. Smith that appears in The Cleveland Plain Dealer, March 16, 2010

Interview: "Campaign counts on snowbird surveys in Palm Springs." A story written by Kate McGinty that appears in The Desert Sun, March 13, 2010

Interview: "Census Bureau reaching out in Inland area to communities least likely to be counted." A story written by David Olson that appears in The Press-Enterprise, January 28, 2010

Interview: "Countdown to the Count-up." A story written by Bettye Miller that appears in UCR: The Magazine of UC Riverside Winter, 2010, pp. 22-23.

Session Chair, "The 2010 Census." Applied Demography Conference, 10-12 January 2010, San Antonio, Texas.

Session Organizer and Chair, "Expert Witness Work and the Applied Demographer," Applied Demography Conference, 10-12 January 2010, San Antonio, Texas.

Co-Program Organizer (with Nazrul Hoque and Lloyd Potter), Applied Demography Conference, 10-12 January 2010, San Antonio, Texas.

Discussant, Session 1704, "Using Demography in the Business and Public Sectors." 2009 Conference of the International Union for the Scientific Study of Population, Marrakech, Morocco, 27 September – 2 October 2009.

Associate Editor, Open Demography Journal, 2009-2010

Facilitator, Census Advisory Committee of Professional Associations, U.S. Census Bureau, 2009-10

Chair, Committee representing the Population Association of America, Census Advisory Committee of Professional Associations, U.S. Census Bureau. 2008-2009

Census Advisory Committee of Professional Associations, U.S. Census Bureau. 2004-2010

Member, Development Committee, Population Association of America, 2008-2013.

Chair and Conference Organizer, Psychology and Social Sciences Section, Mississippi Academy of Sciences, 2007-8.

Chair, Session on "Fertility: Social Issues and Reproduction." Annual Meeting of the Southern Demographic Association, 13 October 2007, Birmingham, Al.

Presenter and Discussant, "Symposium for School Districts that will be affected by the Toyota Assembly Plant near Tupelo. Mississippi."  School of Education, University of Mississippi, 30 March 2007.

Organizer, Symposium:  "the Psychological and Social Impacts of Hurricane Katrina." 2007 Conference of the Mississippi Academy of Sciences 22 February. Starkville, Mississippi.

Program Organizer, Applied Demography Conference, 9-11 January 2007, San Antonio, TX.

Chair and Conference Organizer, Psychology and Social Sciences Section, Mississippi Academy of Sciences, 2006-7.

Reviewer, Using the American Community Survey: Benefits and Challenges, Committee on Functionality and Usability of Data from the American Community Survey, Committee on National Statistics, National Research Council. Washington, DC: National Academy of Sciences Press. 2007.

Chair, Session on "Anxiety, Ambiguity, and Multiculturalism in Statistical Education," Annual Meeting of the American Statistical Association, 10 August 2006, Seattle, WA

Vice-Chair, Psychology and Social Sciences Section, Mississippi Academy of Sciences, 2005-6.

Local Arrangements Coordinator, Annual Meeting of the Southern Demographic Association University of Mississippi, October, 2005.

Editor, Population Research and Policy Review, Official Journal of the Southern Demographic Association, July 1st, 2004- July 1st, 2007.

Member, Advisory Board, Fulbright Academy of Science and Technology, 2003-2008.

Participant, Users Perspective Meeting, Panel on the Functionality and Usability of Data from the American Community Survey, Committee on National Statistics of the National Academies, April 2005, Washington, DC.

Technical Review Panel Member, Small Business Innovative Initiative Grants, National Institutes of Health, 2002.

Chair, National Committee on Applied Demography, Population Association of America, 2001-2.

Publications Officer, Government Statistics Section, American Statistical Association, 2001-2.

Member, National Committee on Applied Demography, Population Association of America, 1999 to 2003.

Organizer and Moderator, "Population Controls for the American Community Survey,"
Annual Meeting of the Southern Demographic Association, University of Mississippi, Oxford, Mississippi, November, 2005.

Organizer and Chair, "New Directions in Local Area Estimation and Forecasting,"
Annual Meeting of the Population Association of America, New York, New York. March, 1999

Technical Review Panel Member, Small Business Innovative Initiative Grants, National Institutes of Health, 1997.

Organizer and Chair, Panel Discussion on "Surf's Up! Building, Accessing, and Linking Demography's Internet Sites," Annual Meeting of the Southern Demographic Association, Memphis, Tennessee, October, 1996.

Chair, Session on "Computer Support of Statistical Education," The International Conference On Statistical Education In The Modern World:  Ideas, Orientations, Technologies, St. Petersburg, Russia, July, 1996.

Chair, Membership Committee, Population Association of America, 1996 to 1998.

Technical Advisory Committee, Oregon Survey Research Laboratory, University of Oregon, 1996-97.

Textbook Reviewer, *Life in a Business Oriented Society* (by Richard Caston), Allyn and Bacon Publishers, 1996.

Member, Editorial Board, Population Research and Policy Review, 1995 to 1997, 2007-current.

Organizer and Chair, Session on "Estimates and Projection," 1996 Annual Meeting of the Population Association of America.

Co-Organizer, Sessions and Papers on State and Local Demography, 1995 Annual Meeting of the Population Association of America.

Member, Committee on Applied Demography, Population Association of America, 1994 to 1997.

Chair, Session on "Population, Environment and Development," 1994 Annual Meeting of The Southern Demographic Association, Atlanta, Georgia.

Secretary-Treasurer, Southern Demographic Association, 1994-1997 and 2004-2007.

Chair, Session on "Demographics of School and College Enrollment." 1994 Applied Demography Conference, Bowling Green, Ohio.

Organizer, Session on "Should Projections be Privatized?" and Session on "The Utility of Population Projections." 1994 Annual Meeting of the Federal-State Cooperative Program on Population Projections, Miami, Florida.

Member, Delegation to visit U.S. Senators RE the FY 1994 Budget for the U.S. Bureau of the Census, sponsored by The Population Association of American, July, 1993.

Member, Senior Council, Ohio Academy of Science, 1993-95.

Roundtable Discussion Leader on "School District Demography" 1993 Annual Meeting of the Population Association of America, Cincinnati, Ohio.

Organizer, Session on "Methods of Forecasting and Estimating," 1993 Annual Workshop of the National Association for Welfare Research and Statistics, Scottsdale, Arizona.

Arkansas State Representative to the Federal-State Cooperative Program for Population Projections, 1992 to 1995.

Member, National Peer Review Committee, Socio-economic Studies, High Level Radioactive Waste Repository, 1992, Yucca Mountain, Nevada.

Organizer and Chair, Session on "Projection and Forecasting Special Populations," 1990 North American Conference on Applied Demography, Bowling Green, Ohio.

National Chairman, Federal -State Cooperative Program for Population Projections, 1993-94.

Discussant, Session on "Survey Research to Support Social Statistics," 1990 Annual Meeting of the American Statistical Association, Anaheim, California.

Panelist, "Applied Demography and the Population Association of America," given at the 1990 Annual Meeting of the Population Association of America, Toronto, Ontario. May, 1990.

External Examiner, "A Model for Fertility Change," Ph.D. Dissertation submitted by N. Sugathan, Department of Demography, University of Kerala, 1989.

Participant, National Resource Persons Network, Office of Minority Health Resource Center, U.S. Public Health Service, 1989.

Member, Washington State Child Health Research and Policy Group, 1989-1993.

Discussant, Session on "Is the Non-Metropolitan Population Turnaround Over?" 1989 Annual Meeting of the Rural Sociological Society, Seattle, Washington.

Organizer and Chair, Session on "Demographic Issues and The Law," 1988 National Conference on Applied Demography, Bowling Green, Ohio.

Chair, State and Local Demography Interest Group, Population Association of America, 1988-90.

Organizer and Chair, Session on Methodological Advances In State and Local Demography. 1988 Annual Meeting of the Population Association of America, New Orleans, Louisiana.

Member, Subcommittee on Academic Outreach, Business Demography Committee, Population Association of America, 1987-1988.

Roundtable Discussion Leader, "Marketing Your Organization's Demographic Expertise and Resources." 1987 Annual Meeting of The Population Association of America, Chicago, Illinois.

Judge, North Central Sociological Association Undergraduate Student Paper Competition, 1987. Co-Organizer, 1st Biennial Conference on Applied Demography, held at Bowling Green State University, September 26-27, 1986.

Member, State Advisory Committee on Population Forecasts, Ohio Data Users Center, Ohio Department of Development, 1986-1987.

Discussant, Session on Estimating and Forecasting Demographic Characteristics of Small Areas, 1986 Annual Meeting of the Population Association of America, San Francisco, California.

Discussant, Session on Estimates and Projections for State and Local Areas, 1985 Annual Meeting of the Population Association of America, Boston, Massachusetts.

Speaker, Panel on Careers in Applied Demography, 1985 Annual Meeting of the Population Association of America, Boston, Massachusetts.

Discussant, Session on Issues in State and Legal Demography, 1984 Annual Meeting of the Population Association of America, Minneapolis, Minnesota.

Alaska State Representative to the Federal State Cooperative Program for Population Projections, 1981-1983.

Discussant, Session on Forecasting Energy Demand, Northwest Utilities Conference, 1980 Annual Meeting, Portland, Oregon.

Discussant, Session on Mathematical Models in Sociology, 1978 Annual Meeting of the Pacific Sociological Association, Spokane, Washington.

Member, Editorial Board, Applied Demography, Population Association of America, 1985 to 1993.

External Examiner, "Unique Competencies of International Non-Governmental Organizations (INGOs): Empirical Explorations from India." Sociology Dissertation by Pranaya Kumar Swain, Ph.D. Candidate, Indian Institute of Technology-Kanpur, Kanpur, Utter Pradesh, India. 1995.

Editorial Referee, Canadian Studies in Population, 2023 (1 paper)

Editorial Referee, Population Research and Policy Review, 2023 (1 paper)

Editorial Referee, Population Research and Policy Review, 2022 (2 papers)

Editorial Referee, Demography, 2022 (1 paper)

Editorial Referee, Demographic Research 2021 (1 paper)

Editorial Referee, Population Research and Policy Review, 2021 (1 paper)

Editorial Referee, Spatial Demography, 2020 (1 paper)

Editorial Referee, Journal of Engineering and Applied Research, 2019 (1 paper)

Editorial Referee Spatial Demography, 2019 (1 paper),

Editorial Referee, Demography, 2018 (1 paper)

Editorial Referee, Canadian Studies in Population, 2018 (1 paper)

Editorial Referee, Journal of Mathematical Biology, 2018 (1 paper)

Editorial Referee, Demography, 2017 (1 paper)

Editorial Referee, Population, Space and Place, 2017 (1 paper)

Editorial Referee, Population Research & Policy Review, 2017 (1 paper)

Editorial Referee, Demography, 2016 (1 paper).

Editorial Referee, Review of Economics and Finance, 2016 (1 paper)

Editorial Referee, Journal of Population Research, 2016 (1 paper)

Editorial Referee, Population Studies, 2015 (1 paper).

Editorial Referee, The American Statistician, 2914 (1 paper)

Editorial Referee, Journal of Population Research. 2014. (1 paper).

Editorial Referee, Journal of Population Research. 2013. (1 paper)

Editorial Referee, Open Demography Journal. 2012. (1 paper)

Editorial Referee, Disasters Journal. 2012 (1 paper)

Editorial Referee, Population Research and Policy Review, 2011 (2 papers)

Editorial Referee, Canadian Journal of Sociology, 2011 (1 paper).

Editorial Referee, Journal of Population Research, 2011 (1 paper).

Editorial Referee, Journal of Population Research, 2010 (1 paper).

Editorial Referee, Population Research and Policy Review, 2010 (1 paper).

Editorial Referee, American Sociological Review, 2010 (1 paper).

Editorial Referee, Demography. 2010 (1 paper).

Editorial Referee, Population Health Metrics. 2010 (1 paper).

Editorial Referee, <u>Journal of Planning Education and Research</u>, 2009 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 2009 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 2008 (2 papers).

Editorial Referee, <u>Population Studies</u>, 2008 (1 paper).

Editorial Referee, <u>Journal of the Mississippi Academy of Sciences</u>, 2008 (2 papers) .

Editorial Referee, <u>Population Research and Policy Review</u>, 2007 (1 paper).

Editorial Referee, <u>Journal of Population Research</u>, 2007 (2 papers).

Editorial Referee, <u>City and Community</u>, 2006 (1 paper).

Editorial Referee, <u>Journal of Economic and Social Measurement</u>, 2005 (1 paper).

Editorial Referee, <u>International Journal of Forecasting</u>, 2004 (1 paper).

Editorial Referee, <u>Demography</u>, 2001 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 1999 (1 paper).

Editorial Referee, <u>International Journal of Forecasting</u>, 1997 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u> 1996 (1 paper).

Editorial Referee, <u>Demography</u>, 1993 (1 paper).

Editorial Referee, <u>Demography</u>, 1991 (1 paper).

Editorial Referee, <u>Demography</u>, 1987 (1 paper).

Editorial Referee, <u>The Energy Journal</u>, 1987 (1 paper).

Editorial Referee, <u>Demography</u>, 1986 (1 paper).

Editorial Referee, <u>Human Biology</u>, 1985 (1 paper).

Editorial Referee, <u>Demography</u>, 1984 (1 paper).

Editorial Referee, <u>Demography</u>, 1981 (1 paper).

Editorial Referee, <u>Social Biology</u>, 1981 (1 paper).

Editorial Referee, <u>Demography</u>, 1980, (1 paper).

Reviewer, <u>Proceedings of the 1992 International Conference on Applied Demography</u>    (1 paper).

**B.  Academic**

Reviewer, Long range demographic and Enrollment projections for California," as part of the "Framework for UC's Growth and Support" project, at the request of the UC Provost, Aimee Dorr, 2017.

Faculty Chair, Graduate Student Awards Committee, Department of Sociology, University of California Riverside, 2016-2017

Faculty Chair, Technology Committee, Department of Sociology, University of California Riverside, 2016-2017.

Faculty Member, Undergraduate Studies Committee, Department of Sociology, University of California Riverside, 2010-2015.

Faculty Chair, Undergraduate Program Review Committee, Department of Sociology, University of California Riverside, 2010-2011.

Interim Director, Blakely Center for Sustainable Suburban Development, University of California Riverside, 2008-2009.

Member, Leadership Institute Steering Committee, University of Mississippi, 2006-7.

Chair, Provost's Task Force on Undergraduate Education, University of Mississippi, 2004-5.

Member, Faculty Grant Review Committee, College of Liberal Arts, University of Mississippi, 2004-5.

Member, Ad Hoc Committee on Off-Campus Programs, College of Liberal Arts, University of Mississippi, 2003-4.

Member, Curriculum and Policy Committee, College of Liberal Arts, University of Mississippi, 2003-7.

BScBA  Program Representative, Academic Council, Helsinki School of Economics, 2001-3.

International Summer Term Governing Board, Mikkeli Polytechnic College, 2001-3.

Campus Council, Mikkeli Business Campus, Helsinki School of Economics, 1999-2003.

Member, Dean's Executive Council, School of Urban and Public Affairs, Portland State University, 1995-97.

Member, UALR 2000 Response Group, University of Arkansas at Little Rock, 1994-95.

Mentor in Demography, Arkansas Delta Research, Education and Development Foundation, West Memphis, Arkansas, 1992-93.

Member, Urban Demography Subcommittee, Masters of Social Science Committee, University of Arkansas at Little Rock, 1992-93.

Member, East Campus Facilities Usage Group, Pacific Lutheran University, 1991-92.

Member, Provost's Ad Hoc Committee for Faculty Research, Pacific Lutheran University, 1990-92.

Member, Center For Social Research Committee, Division of Social Sciences, Pacific Lutheran University, 1987-89.

Member, Graduate Studies Committee, Department of Sociology, Bowling Green State University, 1986-87.

Library Representative, Department of Sociology, Bowling Green State University, 1986-87.

Member, Search Committee for the Assistant Director of Research Services, the Graduate College, Bowling Green State University, 1985.

Representative, Washington Community College Computing Consortium, 1981.

President, Sociology Graduate Student Association, University of Hawaii, 1974-75

Member, Executive Committee, Department of Sociology, University of Hawaii, 1974-75
Member, Graduate Admission Committee, Department of Sociology, University of Hawaii, 1975-76.

## C.  Community

2022          Pro Bono Consulting, Department of City Planning (Kendra Taylor et al.),
              Atlanta, GA,

2018-         Member, Public Advisory Board, Caring Nurses Home Health Service,
              Las Vegas, NV.

2016 - 2022  President, University of Hawai'i Alumni Association,
             Las Vegas, NV Chapter

2016 - 2017  Secretary, Board, "Kimo Leads the Way," a non-profit organization in Las Vegas
             with a mission to ease the suffering of child cancer patients and their
             Parents.

2015-2016    Vice-President, University of Hawai'i Alumni Association, Las Vegas
             Chapter

1987-        As an annual donor and fund raiser, participate(d) in the endowment of the
             Demography Scholarship, Western Washington University Foundation, Bellingham,
             Washington.

2010         As a representative of the University of Hawai'i Alumni Association, represented the
             University of Hawai'i to prospective university students and their parents at the
             Laguna Beach High School Annual "College Round-up,"  6 October, Laguna Beach,
             CA,

2008         As a donor, established the David L. Swanson Endowed Scholarship for first
             generation college students, Eastern Washington University Foundation, Cheney,
             Washington.

2003-2007    As a donor and fund raiser, helped establish the E. Walter Terrie Endowed
             Graduate Student Award for the Southern Demographic Association, Florida State
             University Foundation, Tallahassee, Florida.

2007          Donor, Schiller Scholarship and Jobes Scholarship, Department of
              Sociology, Pacific Lutheran University, Tacoma, Washington.

Expert Report of Dr. David A. Swanson    Louisiana Communities of Interest    P.124

2006         Demographic Advisor, Town of Walls, Mississippi (Pro Bono Assistance)

2003-2005    Mississippi State Director, National Association of Medics and Corpsmen.

2001 -       As an annual donor and fund raiser, helped establish the Gary K. Sakihara
             Graduate Student Award, Department of Sociology, University of Hawai'i at Mānoa,
             University of Hawai'i Foundation, Honolulu, Hawai'i.

2003-2007    Annual donor, unrestricted funds for the Department of Sociology and Anthropology,
             University of Mississippi Foundation, Oxford, Mississippi

2001-2003    Representative, Savo Provincial Higher Education Council, Mikkeli, Finland

1999-2000    Member, Census 2000 Advisory Committee, City of Las Vegas, Las Vegas, Nevada

1996-1997    Member, Board of Directors, Mt. Hood Brewing Company, Portland, Oregon.

1994-1995    Member, Governor's Task Force on Hispanic Issues, State of Arkansas.


1994.        Technical Demographic Advisor, Evangelical Lutheran Church in America,
             Research and Planning Office, National Headquarters, Chicago, Illinois (Pro    Bono
             Assistance).

1992-1994.   Technical Demographic Advisor, Catholic Church Diocese Officer, Little Rock,
             Arkansas (Pro Bono Assistance).

1993.        Technical Coordinator, Governor's Task Force on Health Care Reform, State of
             Arkansas.

1988-1990.   Survey and Research Consultant, Prince of Peace Lutheran Church, Des Moines,
             Washington (Pro Bono Assistance).

Life Member, 101st Airborne Division Association.

Life Member, National Association of Corpsmen and Medics.

Life Member, Western Washington University Alumni Association


## XII. Research and Professional Consulting

Demographic Consultant, Bryan GeoDemographics, 2021-

Wrongful Death Loss Consultant, O'Reilly Law Group, Las Vegas, Nevada. 2019-2022.

Demographic Consultant, "Forecast of Hopi Tribal Members et al." The Hopi Tribe, Kykotsmovi, AZ, 2017-2022.

Demographic and Statistical Consultant, ALCS LLC, Richmond, VA, 2016 - 2018

Course Development Consultant, Department of Sociology, Penn State University, 2016-2017

Demographic Consultant, Watts Guerra, LLC. San Antonio, TX. 2016.

Demographic Consultant. "Conseil Scolaire Francophone de la Columbia-Britannique et al. v. Her Majesty the Queen et al." SCBC, Vancouver registry, No. S103975. McCarthy Tetrault LLP. Vancouver, British Columbia, Canada. 2013-2014.

Demographic Consultant, Kemp Communications, Las Vegas, Nevada. 2011.

Demographic Consultant, "Population Projections." Miller and Martin, PLLC. Nashville, TN. 2010.

Demographic Consultant, Third Wave Research, Madison, WI. "Agent-Based Population Projections. 2009-2010 .

Demographic Consultant, Third Wave Research, Madison, WI. "Population Projections for the Nine Census Divisions, 2010-2020, by Single Years of Age and Sex. 2009.

Demographic Consultant, Kemp Communications, Las Vegas, Nevada. 2009.

Demographic Consultant, McKibben Demographics. "Planning a Charter School in the Lagniappe Area of New Orleans, Louisiana," Grant funded by the Smart Foundation. 2009.

Demographic Consultant, "Quest Diagnostics, Inc. v. FMIC." Podvey, Meanor, Catenacci, Hildner, Cocoziello, and Chattman, P.C., Newark, NJ. 2008-2009

Demographic Consultant, "Socio-Economic Economic Resilience and Dynamic Micro-Economic Analysis for a Large-Scale Catastrophe, Grant funded by The Southeast Regional Research Initiative (SERRI), with R. Forgette and M. Van Boening, University of Mississippi, Principal Investigators, 2009-2010

Demographic Consultant, "Ochsner Clinical Foundation v. Continental Casualty Company." Fisher Kanaris P. C., Chicago, IL, 2007.

Demographic and Statistical Consultant, Hurricane Katrina: Its Impact on the Population and Candidates for Endovascular Surgery in the Primary and Secondary Service Areas of Garden Park Hospital," Lemle and Kelleher, PLLC, Shreveport, LA. 2007.

Demographic Consultant, "Population Projections." Miller and Martin, PLLC. Nashville, TN. 2006-2007.

Demographic Consultant. "Evaluation of Methods for Estimating the Foreign Born Population." U.S. Census Bureau. 2006-2008.

Demographic Consultant, "Estimated Number of Employees with Health Insurance by Employee Type (Private Sector and Government), Size of Establishment, and City:  Clark County, Nevada." 2004. Regulatory Economics, Inc. Henderson, NV.

Demographic Consultant, "Estimating and Forecasting the Size of U.S. Lifestyle Segments." Third Wave Research, Inc. Madison, Wisconsin, 2003; 2002; 1996.

Demographic Consultant, Nevada Consulting Alliance, "Evaluation of Population and Related Projections of Nevada." 2002.

Demographic Consultant, Nevada Consulting Alliance, "Critique of the State Demographer's 2002 Population Estimate for Clark County." 2002.

Consulting Scientist to Consulting Senior Scientist, Science Applications International Corporation, 1988-2002.

Demographic Consultant, Senecio Software, Inc. "Remote Sensing Estimates of Population." 1999-2002.

Demographic Consultant and Consulting Team Leader, Washoe County, Nevada, "Development of a Small Area Population Estimation System. 1999.

Consultant/Resource Faculty, "Applied Demographic Research in Migration." National Science Foundation (with L. M. Tedrow, Director), 1999.

Demographic Consultant, Parsons Brinckerhoff and SaudConsult, "Review and Revision of the Population Forecast for Jubail, Saudi Arabia."  1999.

Demographic Consultant, Nevada Consulting Alliance, "Revision of the Nevada County-level Economic and Demographic Forecasting Model," Nevada State Demographer's Office, 1998-99

Demographic and Statistical Estimation Consultant, "MetroMail Household Income/Asset Estimation Project," Third Wave Research, Inc. Madison, Wisconsin, 1996-97.

Demographic Consultant and Census Enumerator/Crew Leader Training Instructor, "American Community Survey Evaluation Project," Multnomah Progress Board, Portland, Oregon, 1997.

Demographic Consultant, "Initial Evaluation of the American Community Survey Portland Test Site Results," U.S. Bureau of the Census, 1996-97.

Enrollment and Demographic Consultant, "Enrollment Forecasts and Attendance Zone Adjustments," Hillsboro 1J School District, Oregon, 1995-1996

Enrollment and Demographic Consultant, "Enrollment Forecasts," Newberg School District Newberg School District, Oregon, 1996.

Demographic Consultant, "Higher Education Trends," NORED, Inc., Olympia, Washington, 1995

Demographic and Enrollment Consultant, "Enrollment and Market Area Profiles," Portland Community College, Portland, Oregon, 1995.

Consultant/Resource Faculty, "Applied Demographic Research in Migration" National Science Foundation (with L. M. Tedrow, Director), 1994.

Demographic Consultant, General Motors Research and Development Labs, GM North America Operations Center Michigan, 1988 to 1994.

Demographic Consultant, "Tribal Membership Forecasts," Lummi Tribal Business Council, Whatcom County, Washington, 1991.

Statistical Consultant, Iceberg Seafoods, Anchorage, Alaska, 1991-92, 1997-99, 2000.

Demographic Consultant, State of Connecticut Department of Health, "Small Area Population Estimation System" (with D. Pittenger and E. Schroeder), 1990.

Survey Research Consultant, Policy Division, Washington State Office of Financial Management, Olympia, Washington, 1990.

Demographic Consultant, Battelle Pacific Northwest Laboratories, Richland, Washington. "Hanford Environmental Dose Reconstruction Project," Subcontract No. 041581-A-K1. Richland, Washington, 1988-1990.

Survey Research Consultant, Choosing Our Future, Inc., Menlo Park, California, 1984.

Survey Research Consultant, "Household Characteristics and Residential Energy Use," Pacific Gas and Electric Company, San Francisco, California, 1983-1984.

Demographic Consultant, "Sub-county Estimation," U.S. Bureau of the Census, 1983.

Population and Enrollment Consultant, Anchorage Community College, 1983

Demographic Consultant, University of Phoenix, 1982.

Demographic Consultant, KVOS TV, Inc., Bellingham, WA., 1972, 1974.

Survey Research Consultant, Ewa Mental Health Clinic, Honolulu, Hawaii, 1975.

Information Systems Consultant, Hawaii Center for Environmental Education, Honolulu, HI. 1973.

Demographic Consultant, America Friends of Hebrew University of Jerusalem, Inc., New York, N. Y., 1973.

## XIII. **Memberships in Associations**

Academic Central, Casualty Actuarial Society (2016 to present)

American Statistical Association (1975 to present)

Canadian Population Society (Life Member)

European Association for Population Studies. (1999 to 2018)

Fulbright Academy for Science and Technology (2003 to 2009)

Fulbright Association (1994-97, 2002 to 2010)

Population Association of America (1975 to present)

Mississippi Academy of Sciences (Life member)

Southern Demographic Association (1992 to present)

Western Social Science Association (2015 to 2017)

## XIII. **Selected Awards and Honors**

*2023, Elected member, Washington State Academy of Sciences, a lifetime recognition*

*2023, Elected Fellow, Mississippi Academy of Sciences, a lifetime recognition.*

*2022, E. Walter Terrie Award for State and Local Demography*, for ""Boosted Regression Trees for Small-Area Population Forecasting." Selected as the best paper on an applied topic at the

2022 Conference of the Southern Demographic Association, Knoxville, TN (with J. Baker and J. Tayman).

*2020-21, Edward A. Dickson Emeritus Professor Award, University of California Riverside*

*2016  E. Walter Terrie Award for State and Local Demography*, for  "Using Modified Cohort Change and Child-Woman Ratios in the Hamilton-Perry Forecasting Method." Selected as the best paper on an applied topic at the 2016 Annual Meeting of the Southern Demographic Association, October 12th , 2016, Athens, Georgia. (with J. Tayman).

*Fulbright Specialist Roster (in Applied Demography, appointed March 2014 for a five year term).*

*Merit Increase to Professor VIII,* University of California Riverside, (June) 2013.

*Certificate of Appreciation,* US Census Bureau (for service on behalf of Census 2010). (September) 2010.

*Outstanding American Award 2006,* National Association of Medics and Corpsmen (for service on behalf of Hurricane Katrina victims).

*Research Fellow,* Social Science Research Center, Mississippi State University (appointed, October 2005).

*RAND "Research Summer Institute" Scholarship* (July), 2004,

*Fulbright "German Studies Seminar*," (June), 2003,

*1999  E. Walter Terrie Award for State and Local Demography*, for  " We are What We Measure: Toward A New Approach for Assessing Population Forecast Accuracy." Selected as the best paper on an applied topic at the 1999 Annual Meeting of the Southern Demographic Association, October 29th, 1999, San Antonio, Texas. (with J. Tayman and C. Barr).

*Hammer Award* (as part of a research team evaluating the American Community Survey, U.S. Bureau of the Census), Vice-President of the United States of America, July, 1999,

*Performance Award*, Science Applications International Corporation, 1999.

*Task Achievement Program Award*, U.S. Department of Energy, Yucca Mountain Project, 1998.

*Certificate of Appreciation*, Community Based Leadership Institute, Minority Affairs Division, American Association of Retired Persons, 1992.

*Fulbright Lecturing Award*, 1990-91, Department of Demography, University of Kerala, Trivandrum, India.

*Nominee, Outstanding Contributor to Graduate Education*, 1985-86, Graduate Student Senate, Bowling Green State University, 1986.

*East-West Center Fellowship, 1980. East-West Center, Honolulu, Hawai'i.*

*Graduate with honors (cum laude*), Western Washington State College, 1972.

*Alpha Kappa Delta, National Sociology Honorary Society*

*Phi Theta Kappa*, National Community College Honorary Society, Kappa Epsilon Chapter

### XIV.  <u>Languages</u>

English (US): Native Language
Swedish: Reading and Speaking, Good; Writing, Fair.
Finnish: Reading and Speaking, Poor; Writing, Very Poor.

# IN THE UNITED STATES DISTRICT COURT

# FOR THE MIDDLE DISTRICT OF LOUISIANA

|  |  |
|---|---|
| **PRESS ROBINSON, et al.,** | |
| *Plaintiffs,* | **Civil Action No. 3:22-cv-00211-SDD-SDJ** |
| **v.** | **Chief Judge Shelly D. Dick** |
| **KYLE ARDOIN, in his official capacity as Secretary of State for Louisiana,** | **Magistrate Judge Scott D. Johnson** |
| *Defendant.* | |
| **EDWARD GALMON, SR., et al.,** | |
| *Plaintiffs,* | **Consolidated with** |
| **v.** | **Civil Action No. 3:22-cv-00214-SDD-SDJ** |
| **R. KYLE ARDOIN, in his official capacity as Secretary of State for Louisiana,** | |
| *Defendant.* | |

# Supplemental Expert Report

## of

## David A Swanson, Ph.D.


Expert in Demography for the Defendant Secretary of State of Louisiana


January 11, 2024

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## I.    ASSIGNMENT

I have been engaged to evaluate the demographics of two plans proposed by the Plaintiffs in two reports served on December 22, 2023, which I term as Cooper Plan 5 and Fairfax Plan 4. Specifically, I have been asked to: (1) review the proposed congressional District 5 (CD5) plans found in Cooper Plan 5 and Fairfax Plan 4 to determine how different or similar they are to Remedial Congressional District 5 (RCD5), which I analyzed in my original report; (2) examine split parishes and places in Cooper Plan 5 and Fairfax Plan 4 in the context of race; and (3) determine if these two new plans force into a single district two sets of parishes I found in my original report to represent different Communities of Interest, namely East Baton Rouge Parish and Lafayette Parish and seven parishes found in northeast Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll).

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## II.    EXPERT QUALIFICATIONS

1.   I am an expert in demography with more than 50 years of experience.

2.  I graduated with a Bachelor of Science in Sociology (with a minor in mathematics) from Western Washington University in 1972.  I earned a graduate diploma in social sciences from the University of Stockholm in 1974, an M.A. in Sociology/Population Studies from the University of Hawai'i Mãnoa in 1976 and a Ph.D. in Sociology/Population Studies from the University of Hawai'i Mãnoa in 1985.

3.  I have served in a number of professional association roles, including: general editor for Springer's Applied Demography series; member of the mortality expert panel of the Society of Actuaries Research Institute (2022-current); Secretary-Treasurer (1995-7 and 2003-7) of the Southern Demographic Association; and editor of *Population Research and Policy Review* (2004-7).  I have been on the program committee for the 2022 annual meeting of the Population Association of America and also the program committees for the 2019 Conference on Population and Public Policy and both the 2020 and 2017 annual meetings of the Population Association of America.  I have produced 119 refereed sole- and co-authored journal articles, and nine books. I also have edited or co-edited four additional books, with another on the COVID-19 pandemic in press. Google Scholar shows more than 6,800 citations to my work (https://scholar.google.com/citations?user=t7P6qoYAAAAJ&hl=en&oi=ao ).

4.  My first demographic consulting job was in the spring and summer of 1972 with KVOS TV in Bellingham, Washington. While a graduate student at the Mãnoa campus of the University of Hawai'i, I was employed as a staff researcher with the East-West Population Institute, a unit of the Congressionally funded East-West Center, which adjoins the Mãnoa campus. In late 1976, I accepted a position with the Population, Economic, and Enrollment Studies Division of the Washington State Office of Financial Management in Olympia, Washington (The Governor's Budget Office), and in 1981, I became the first State Demographer of Alaska. This was followed by private sector, government, and academic positions, to include serving as the State Demographer of Arkansas, Senior Scientist at Science Applications International Corporation, Dean at the Helsinki School of Economics and Business Administration (now part of Aalto University), and Professor & Chair of the Sociology/Anthropology Department at the University of Mississippi. I retired as Emeritus Professor of Sociology at the University of California Riverside in 2018 and was recognized as a "Dickson Professor Emeritus" in 2020-21. I have received a number of awards for my work, including two Fulbright scholarships, and the 2022 "Terrie Award" for presenting the best paper (co-authored with two colleagues) on state and local demography at the annual meeting of the Southern Demographic Association (an award I also won in 1999 and 2016). I am an elected fellow of the Mississippi Academy of Sciences

and an elected member of the Washington State Academy of Sciences. I have testified before Congress and State Legislatures and served on the U.S. Census Bureau's Scientific Advisory Committee, 2004-10, chairing it for two years. I am currently a Research Associate (.25 FTE) with the Population Research Center, Portland State University and a Research Affiliate with the Center for Studies in Demography and Ecology, University of Washington.

5. I have worked on revising school (K-12) attendance zones, an activity, which while lacking the same legal underpinnings of legislative redistricting, shares similarities with the latter in terms of public consequences, analytical methods, GIS mapping, and variables such as age, race and socio-economic status as criteria of interest (Swanson et al., 1997; Swanson et al., 1998). Furthermore, as indicated in the dedication and acknowledgments, respectively (Morrison and Bryan, 2019: viii, xi), I also played an active role in the development of *Redistricting: A Manual for Practitioners, Analysts, and Citizens*.

6. I been involved in the following court cases as a testifying and/or deposed expert witness:

   o Testifying expert witness in *White, et al. v. Mississippi State Board of Election Commissioners*.  Deposition and testimony (forthcoming);

   o Deposed Expert Witness (testimony given in July, 2023). 2022.  Case No. CV 6417-300, Superior Court of Arizona in and for the County of Apache, General Adjudication of All Rights in the Little Colorado River System and Source, Phoenix, AZ (On behalf of the Hopi Tribe, Review of Population Forecasts done by a Demographer hired by the Navajo Nation). Osborne Maledon, P.A., Phoenix, AZ;

   o Deposed and Testifying Expert Witness. 2022. Case A-17-762364-C. Estate of Joseph P. Schrage Jr & Kristina. D. Schrage v. Allan Stahl. Eighth Judicial Court, Clark County, Las Vegas, Nevada (life expectancy, working life expectancy and present value of lost earnings and benefits). O'Reilly Law Group, Las Vegas, NV;

   o Deposed and Testifying Expert Witness. 2021.  Case No. CV 6417-203, Superior Court of Arizona in and for the County of Apache, General Adjudication of All Rights in the Little Colorado River System and Source, Phoenix, AZ (Forecast of Hopi Tribal Population). Osborne Maledon, P.A., Phoenix, AZ;

   o Deposed and Testifying Expert Witness. 2012. Board of Education, Shelby County, Tennessee et al. v. Memphis City Board of Education et al. / Board of County Commissioners, Shelby County, Tennessee (third party plaintiff) v. Robert E. Cooper et al (third party defendant)." (Constitutionality of a Tennessee state law). (School District Enrollment Forecasts). Baker, Donelson, Bearman, Caldwell and Berkowitz, PC. Memphis, TN;

   o Deposed Expert Witness. 2009. "Quest Medical Services v. FMIC." (Demographic Effects of Hurricane Katrina on New Orleans in a case involving a Medical Service Provider). Podvey, Meanor, Catenacci, Hildner, Cocoziello, and Chattman, P.C., Newark, NJ;

- o Deposed and Testifying Expert Witness. 2007. "Spring Hill Hospital, Inc. v. Williamson Medical Center and Maury Regional Hospital." (Evaluation of population forecasts in a case involving a proposed hospital). Miller and Martin, PLLC, Nashville, TN;

- o Deposed and Testifying Expert Witness. 1994. Arkansas Supreme Court. (Statistical evaluation of the accuracy of the number of qualified signatures on a public referendum as determined by a sample); and

- o Deposed Expert Witness. 1983. "Anchorage, et al., vs. J. Hammond et al." (Lawsuit brought by local governments against the state of Alaska on how populations are determined for purposes of state revenue sharing to local governments).

7. I have produced the following expert reports as a consultant/potential expert witness in other court cases:

- o Expert report: Demographers report submitted on behalf of Defendants in *White, et al. v. Mississippi State Board of Election Commissioners*;

- o Expert Report, Estimated Life Expectancy and Present Value of Household Costs, Z. Kirkson. O'Reilly Law Group, Las Vegas, Nevada. (2019); Expert Report, The Potential Number of Claimants in regard to the 2010 Gulf of Mexico Oils Spill and its Sequellae. Watts Guerra, LLC. San Antonio, TX. (2016);

- o Expert Report in the matter of Conseil scolaire francophone de la Colombie-Britannique, Fédération des parents francophones de Colombie-Britannique, et al. v. Her Majesty the Queen in Right of the Province of British Columbia, and the Minister of Education of the Province of British Columbia, Vancouver Registry S103975 in the Supreme Court of British Columbia. Prepared for the Office of the Attorney General, Ministry of Justice, Province of British Columbia, Canada (2014);

- o Expert Report re Title Insurance Loss Model, First American Title Insurance Company, Miller and Martin PLLC, Nashville, TN (2008);

- o Expert Report re Patient Population in the matter of Ochsner Clinical Foundation versus Continental Casualty Company. Fisher and Kanaris PC, Chicago, IL (2008); and

- o Expert Report re Hurricane Katrina: Its Impacts on the Population and Candidates for Endovascular Surgery in the Primary and Secondary Service Areas of Garden Park Hospital as Defined by Hospital Corporation of America. Salloum and Brawley LLP, Nashville, TN (2007).

8. Because of its expertise and experience, I use the services of Bryan Geodemographics, which under my direction assembles data, maps and other work products.

9. My full Curriculum Vitae, describing my 50 years of demography experience and my use of Cluster Analysis and a closely related method, Discriminant Analysis, is attached as Appendix 14.

10. I am being compensated at a rate of $450/hour.

### III.    EXECUTIVE SUMMARY

11. My review of proposed Congressional District 5 (CD5) in the new Cooper Plan 5 and the new Fairfax Plan 4 does not cause me to change any of the conclusions in my original report: Race remains the predominant factor used by Plaintiffs to draw CD5.  In these two new plans, Plaintiffs again split parishes and the same main cities where Black communities are located and once again proceed to assemble these fragments together with others into a single artificial "Community of Interest" that is comprised of distant and otherwise disconnected communities.

12. As was the case with the earlier "majority-minority" Remedial Plan Congressional District 5 plan (RCD5) proposed by Plaintiff, which I analyzed in my original report, CD5 in these two new plans proposed by Plaintiffs are both drawn from distant pieces of split parishes and place geographies that have never been included in the same legal congressional district before.  Race predominates and remains the only significant Community of Interest (COI) considered by Plaintiffs in drawing CD5 in their two new plans.  In regard to my initial analysis of COIs using a demographic technique called "cluster analysis" – which objectively showed that the seven parishes making up Northeastern Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are in a COI group that is distinct from the COI group in which East Baton Rouge Parish and Lafayette Parish are classified, I again find that Plaintiffs have placed these separate COIs into a single district either in whole or in large part.

13. Consistent with RCD5, CD5 in Cooper Plan 5 and Fairfax Plan 4 also links all or most of the seven Northeastern Louisiana Parishes with five or more geographically dispersed and split parishes that consistently include East Baton Rouge Parish and part of Lafayette Parish.  To do so, Cooper Plan 5 and Fairfax Plan 4 rely on splits of Alexandria, city, Arnaudville town, Baton Rouge city, Eunice city, Lafayette city, Monroe city, Pineville city, Scott city, West Monroe city, and Zachary city in each of their CD5 configurations.

14. As was the case with Plaintiffs' proposed RCD5, dispersed areas in the new plans are connected with each other and with the seven Northeastern Louisiana parishes in Plaintiffs' two new plans by using whole parishes that have relatively low total population and Black Voting Age Population ("BVAP") numbers and often include large areas of non-populous wetlands and swamps.  Historically, these dispersed split parishes have never before been included together in a lawful single member congressional district in the history of Louisiana.  Further, these dispersed split parishes are located in regions that have never been defined as representing a common COI.

15. As was the case in examining the geography and demography of the Plaintiffs' proposed RCD5, Plaintiffs' two new plans, Cooper Plan 5 and Fairfax Plan 4 continue to force two distinct COIs into a single congressional district.  In my earlier report I found that the seven

Northeastern Louisiana parishes have different cultural factors that place them into a COI that is distinct from East Baton Rouge Parish and Lafayette Parish. This finding is relevant because: (1) "drawing districts to respect COIs is key to effective political representation for individuals and the groups to which they belong, allowing for greater protection of identifiable common interest" (Chen et al., 2022: 108); and (2) "communities of interest provide a key legal criterion to guard against partisan and racial motives in redistricting" (Chen et al., 2022: 101). This finding is important because the Plaintiffs' two new plans force these two distinct COIs into a single congressional district.

16. The role of race and the fact that Plaintiffs' experts admit that they intended to draw their versions of CD5 in the new Cooper Plan 5 and Fairfax Plan 4 to ensure that their proposed district contained a majority of BVAP, leads me to retain my original opinion that race remains the predominant factor in the location of district lines found in these two new plans. As such, race is the only significant "COI" these geographically dispersed areas share under CD5 in the new Cooper Plan 5 and Fairfax Plan 4. This is also consistent with the definition of a COI proffered by Plaintiffs' expert William Cooper in the parallel legislative case, Nairne, et al. v. Ardoin, M.D. La. No. 3:22-CV-00178, namely that of the Brennan Center, whereby all communities who have similar legislative concerns and who might therefore benefit from cohesive representation in the legislature should at least be considered, not just a COI based on race.

17. Plaintiffs' expert Anthony Fairfax relied on subjective judgment in conjunction with ad hoc elements in an attempt to justify the inadequate "COI" he constructed in regard to Fairfax Plan 4. Instead of subjective judgement, I employed Cluster Analysis for this purpose (Landau and Chis Ster, 2010). It is an empirically- and scientifically-based method that I used in conjunction with data that represent relevant demographic, economic, and social characteristics of Louisiana's parishes. Cluster analysis is a numerical method that classifies things into groups (Landau and Chis Ster, 2010: 72). It is found not only in the field of general spatial analysis (Fritz et al., 2010: 195), but also, specifically, in spatial demography (Adamo, 2011; De Castro, 2007). I first used it 43 years ago (Swanson, 1980) and last used it in 2022 in my work as an expert witness in White, et al. v. Mississippi State Board of Election Commissioners. Cluster Analysis also has been used by others in the field of redistricting, as well (Chen et al., 2022; Hood, 2017; Rossiter et al, 2018).

18. The results of the Cluster Analysis (in conjunction with the parish data that represent the relevant demographic, economic, and social characteristics upon which a classification system such as a COI would be based) reveal that the seven Northeastern Louisiana parishes (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are in a different COI grouping than East Baton Rouge Parish and Lafayette Parish. This finding is consistent with the cultural and historical factors examined.

19. In conclusion, as was the case in Plaintiff's initial RCD5, race remains the predominant factor used by Plaintiffs to draw CD5 in the new Cooper Plan 5 and Fairfax Plan 4. Plaintiffs split parishes and places in their proposed CD5s where Black communities are located and then assemble these fragments together with others into a single artificial "COI" that is comprised of distant and otherwise disconnected communities.

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## IV. GEOGRAPHIC PLAN ANALYSIS

20. Turning to geographic and demographic factors, my analysis reveals that, as was the case for the Plaintiffs' RCD5 plan, the new CD5s in Cooper Plan 5 and Fairfax Plan 4 is based upon pockets of black populations connected by linking together entire parishes that often contain small populations separated by swamps and wetlands. Also, as was the case with the Plaintiffs' RCD5, the new CD5s in Cooper Plan 5 and Fairfax Plan 4 also link parishes together that my original report found are in different COIs: East Baton Rouge Parish and Lafayette Parish are not in the same Community of Interest (COI) with seven parishes found in northeast Louisiana (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll). As in my original report, these two sets of parishes are in different COIs. The former set of parishes, whether in whole or in part, should not be included with the latter set of parishes in proposed plans involving any CD5.

21. I've examined Remedial Congressional District 5 (RCD5), Cooper Plan 5, and Fairfax Plan 4. (see **Appendix Map 1b** and **Appendix Map 1C**). Unlike the Enacted Plan (shown as **Figure IV.1**), Plaintiffs' plans all rely on specific parish and place splits to draw a second majority-minority district: CD5. For example, in the proposed CD5s in Cooper Plan 5 and Fairfax Plan 4 - Alexandria, city, Arnaudville town, Baton Rouge city, Eunice city, Lafayette city, Monroe city, Pineville city, Scott city, West Monroe city, and Zachary city for a total of 10 incorporated, populated place splits in each of their CD5 configurations. The RCD5 plan also splits Central city and Independence town, but not Zachary city – for a total of 11 incorporated populated place splits of it's CD5. See **Table IV.B.1**.

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**Figure IV.1: HB1 / SB5 Enacted Congressional Plan of 2022 and Parishes**
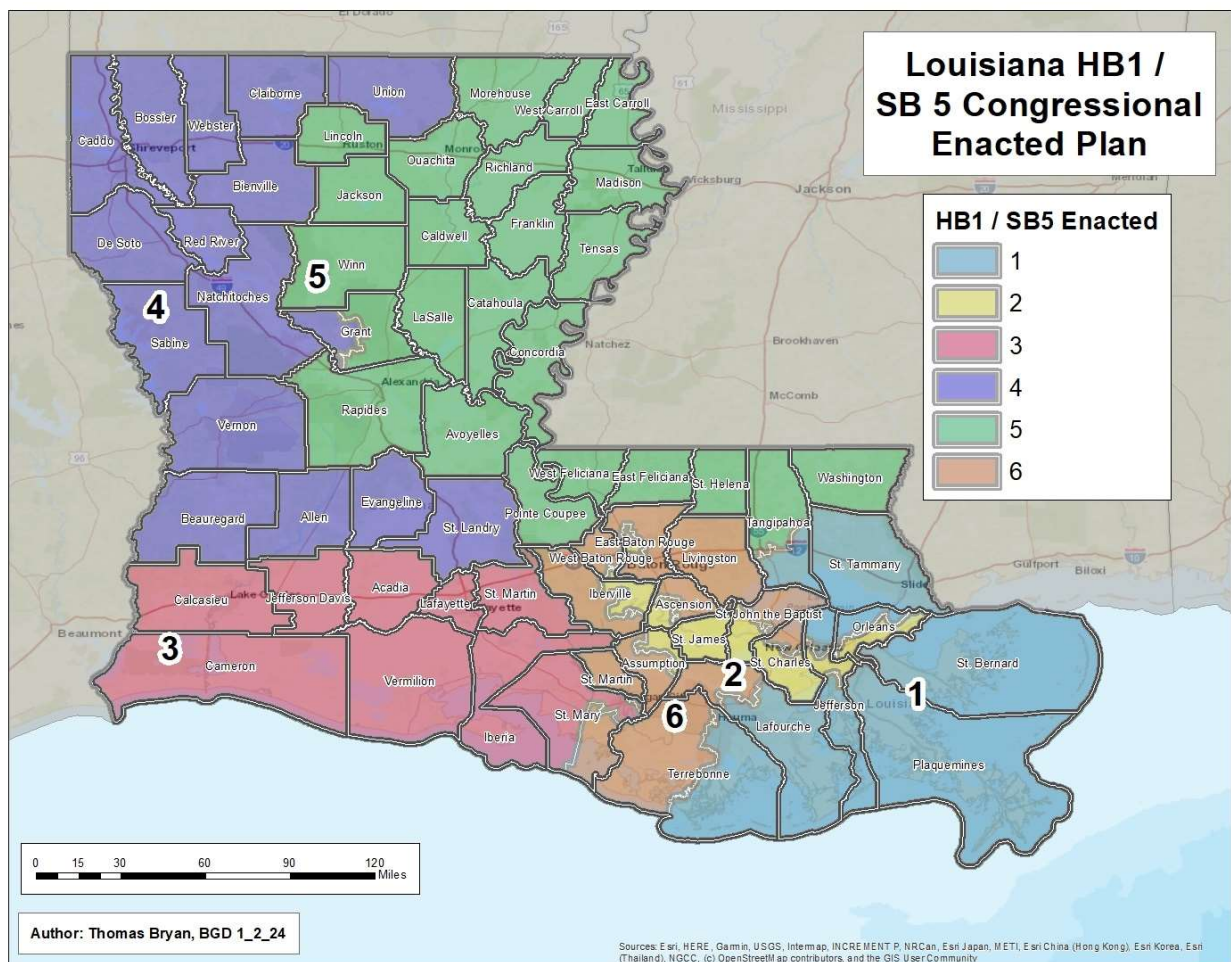


Source: Drawn by Bryan GeoDemographics (BGD) at the direction of Dr. David Swanson.

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## A. Difference in Cooper Plan 5 and Fairfax Plan 4 from Plaintiffs Remedial Plan

22. . **Figure IV.A.1** shows the difference between the Plaintiff's RCD5 Plan and the new Cooper Plan 5. The change for CD4 appears to be large geographically; however the population involved in this change is not. Notable differences are that (compared to the Plaintiff's Remedial Plan, RCD5) Cooper Plan 5 now includes Caldwell, LaSalle, Grant and Winn parishes, and excludes Morehouse Parish and the split portion of Vernon parish.

**Figure IV.A.1 Comparison of Cooper Plan 5 vs Plaintiff's Remedial Plan**
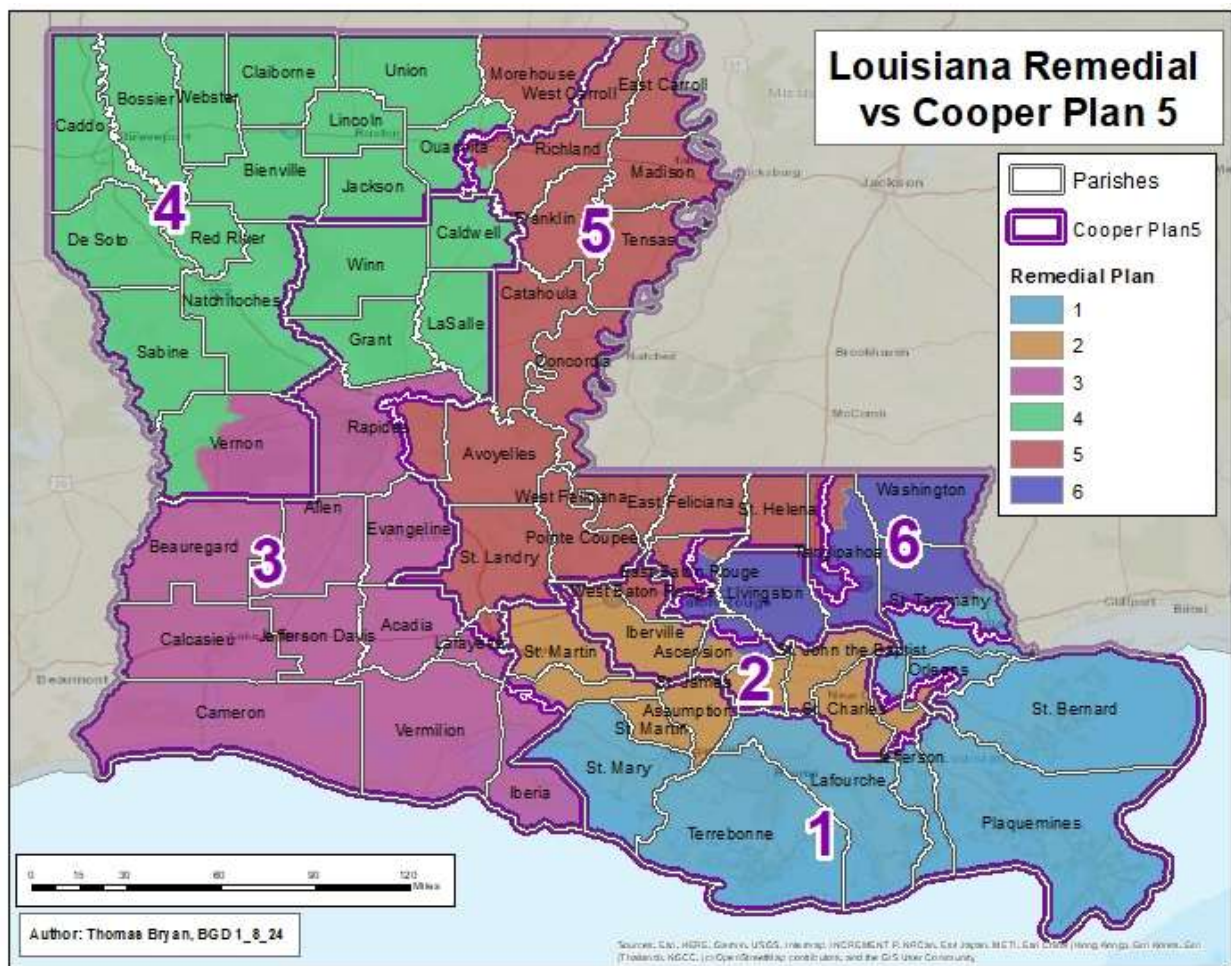


Source: Drawn by BGD at the direction of Dr. David Swanson with shapefiles provided by Plaintiffs' counsel to Defense counsel

23. . **Figure IV.A.2** shows the difference between the original Plaintiff's Remedial Plan and the new Fairfax Plan 4.  Unlike Cooper Plan 5, this plan does not show large geographic changes  In general, it is very similar to Plaintiffs' RCD5 geographically.

**Figure IV.A.2 Comparison of Fairfax Plan 4 vs Plaintiff's Remedial Plan**
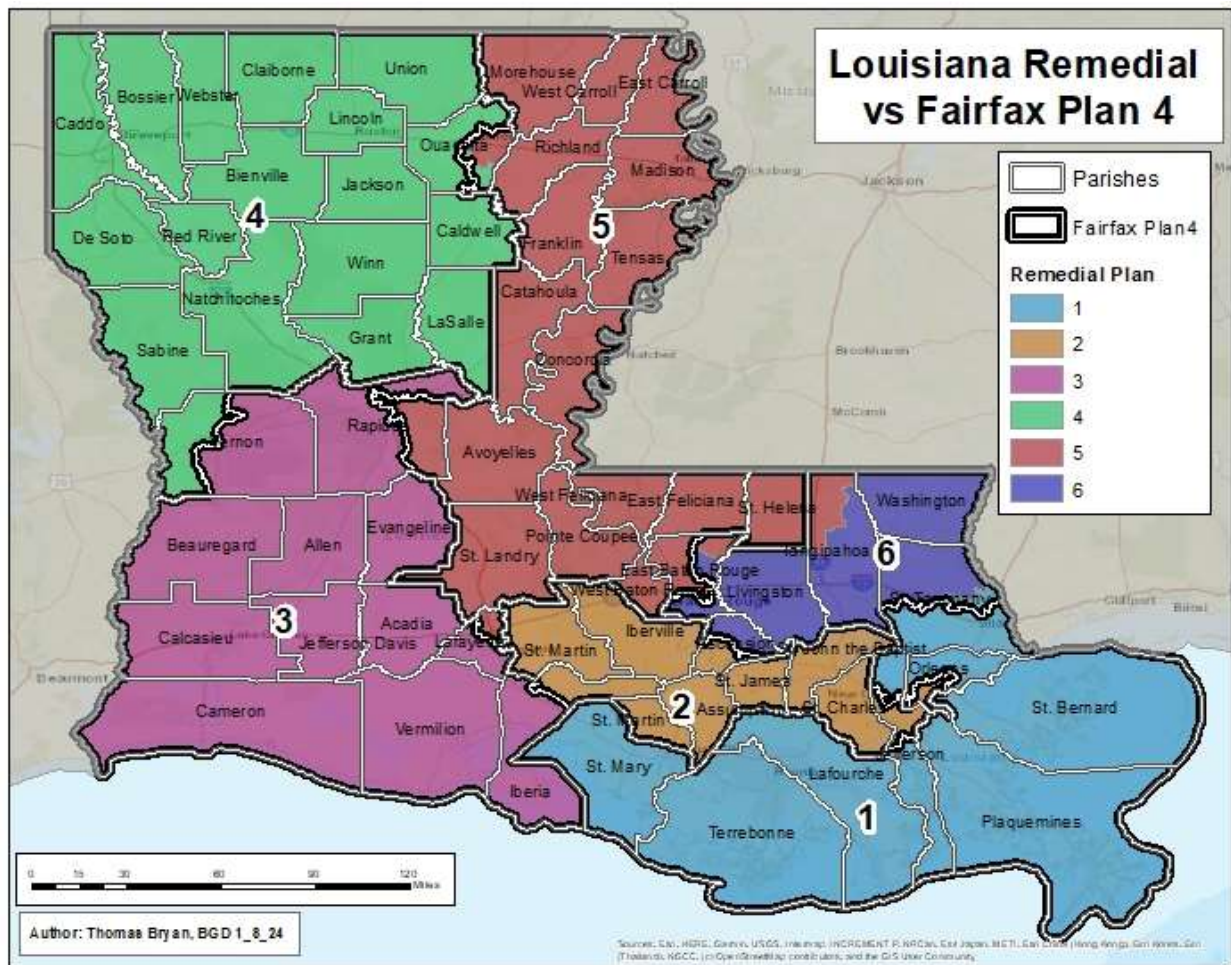


Source: Drawn by BGD at the direction of Dr. David Swanson with shapefiles provided by Plaintiffs' counsel to Defense counsel

**B. Place and Parish Splits Analysis by Source**

24.  The Enacted Plan has 15 parish splits (see **Appendix 12A**) two of which (13%) are split by CD5.  The Enacted plan has 19 incorporated place splits (see **Appendix 11A**).  Two of these split places (Basille town and White Castle town) have non-populous splits.  Meaning that while they are split geographically, their split pieces contain no population.  Only three incorporated places (18%) are split by the Enacted Plan's CD5 boundary (see **Table IV.B.1**).

25.  The Remedial (RCD) plan has 11 parish splits, five of which (45%) are split by CD5.  The RCD plan has 20 incorporated place splits.  One of these (Morgan city) has a non-populous split – leaving 19 incorporated populated place splits.  Of these, 11 places (58%) are split by RCD's CD5 boundary (see **Table IV.B.1).**

26.  Cooper Plan 5 has 10 parish splits (see **Appendix 12C**) five of which (50%) are split by CD5.  The plan has 20 incorporated place splits (see **Appendix 11C**).  Three of these split places (Baker city, Ponchatoula city and Tickfaw village) have non-populous splits – leaving 17 incorporated populated place splits.  Of these, 10 places (59%) are split by the Cooper Plan 5's CD5 boundary (see **Table IV.B.1**).

27.  Fairfax Plan 4 also has 10 parish splits (see **Appendix 12C**) four of which (40%) are split by CD5.  The plan has 20 incorporated place splits (see **Appendix 11C**).  One of these split places (Monroe City) is a non-populous splits – leaving 19 incorporated populated place splits.  Of these, 10 places (53%) are split by the Fairfax Plan 4's CD5 boundary (see **Table IV.B.1**).

**Table IV.B.1. Inventory of Parish and Place Splits**

| Plan | Parish Splits | Parish Splits of CD5 | % Parishes Split by CD5 | Incorporated Place Splits | Inc. Populated Place Splits | Inc. Pop Place Splits of CD5 | % Places Split by CD5 |
|---|---|---|---|---|---|---|---|
| Enacted | 15 | 2 | 13% | 19 | 17 | 3 | 18% |
| Remedial | 11 | 5 | 45% | 20 | 19 | 11 | 58% |
| Cooper 5 | 10 | 5 | 50% | 20 | 17 | 10 | 59% |
| Fairfax 4 | 10 | 4 | 40% | 20 | 19 | 10 | 53% |

Source: Assembled by BGD at the direction of Dr. David Swanson

28. In conclusion, 3 of the 17 place splits in the Enacted Plan; 10 of the 19 populated place splits in the RCD, 10 of the 17 place splits in Cooper Plan 5, and 10 of the 19 place splits in Fairfax Plan 4 are within CD5.

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## C. Cooper Plan 5

29. **Figure IV.C.1** illustrates the differences between the Fairfax Plan 4 and the Enacted Plan in CD5.

**Figure IV.C.1. Enacted Plan and Cooper Plan 5 District 5**
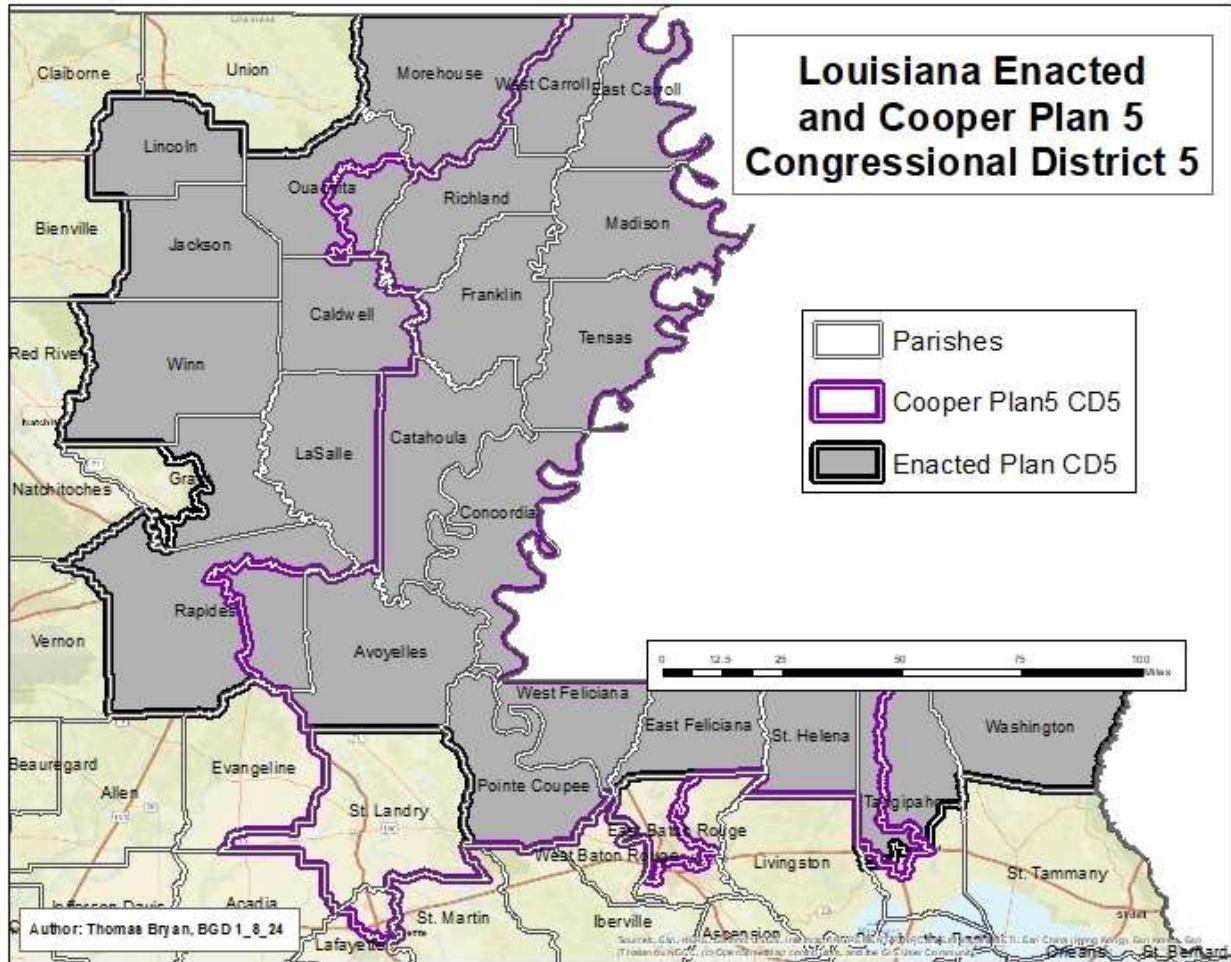


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

30. **Table IV.C.1** shows the population for each of the 5 parishes split by CD5 in Cooper Plan 5. The table contains the total population the split parish that is both in, and out of Cooper Plan 5 CD5.

- At (1), East Baton Rouge parish is split into two congressional districts under Cooper Plan 5: CD5 and CD6. Of the entire BVAP population in East Baton Rouge parish, 72.0% is in CD5 and the remaining 28.0% is in CD6. Of the entire WNH VAP population in East Baton Rouge parish, 23.9% is in CD5 and the remaining 76.1% is

in CD6.  The portion of East Baton Rouge parish that was drawn into CD5 contains 46.1% of the total voting age population (VAP) and the remaining 53.9% is in CD6.

- At (2), Lafayette parish is split into CD5 and CD3.  Of the entire BVAP population in Lafayette parish, 60.3% resides in CD5.  The remaining 39.7% is in CD3.

- At (3), Ouachita parish is split into CD5 and CD4.  Of the entire BVAP population in Ouachita parish, 74.9% is in CD5.  The remaining 25.1% is in CD4.

- At (4), Rapides parish is split into CD5 and CD3.  Of the entire BVAP population in Rapides parish, 72.9% resides in CD5.  The other 27.1% is in CD3.

- At (5), Tangipahoa parish is split into CD5 and CD6.  Of the entire BVAP population in Tangipahoa parish, 83.3% is in CD5 and the remaining 16.7% is in CD6.

**Table IV.C.1. Demographic Characteristics of CD5 Split Parish Pieces by Race Under Cooper Plan 5: WNH and APB VAP**

| Parish | Cooper 5 | VAP | | | VAP Percentage | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | White NH | Any Part Black | Total | White NH | Any Part Black | |
| East Baton Rouge | 5 | 163,885 | 38,347 | 112,958 | 46.1% | 23.9% | 72.0% | 1 |
| | 6 | 191,727 | 122,081 | 43,832 | 53.9% | 76.1% | 28.0% | |
| Lafayette | 3 | 129,559 | 96,484 | 18,225 | 70.5% | 80.6% | 39.7% | 2 |
| | 5 | 54,316 | 23,186 | 27,692 | 29.5% | 19.4% | 60.3% | |
| Ouachita | 4 | 70,208 | 54,275 | 10,612 | 58.4% | 78.4% | 25.1% | 3 |
| | 5 | 49,992 | 14,991 | 31,678 | 41.6% | 21.6% | 74.9% | |
| Rapides | 3 | 56,880 | 42,977 | 8,190 | 57.6% | 70.9% | 27.1% | 4 |
| | 5 | 41,912 | 17,616 | 22,015 | 42.4% | 29.1% | 72.9% | |
| Tangipahoa | 5 | 61,154 | 31,960 | 24,344 | 60.3% | 49.8% | 83.3% | 5 |
| | 6 | 40,337 | 32,238 | 4,873 | 39.7% | 50.2% | 16.7% | |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel. Total VAP includes White NH, Any Part Black, and all other census categories that are citizens of voting age in each parish.

31. Next, I examine the characteristics of these five split parishes in aggregate.  **Table IV.C.2**, shows the characteristics of the parish population that was split into CD5 versus the balance of the population in CD5.

- At (1) the VAP contained within CD5 in the five split parishes (East Baton Rouge, Lafayette, Ouachita, Rapides, and Tangipahoa) is aggregated, whereupon 72.9% of the total BVAP of CD5 is contained in the split parish pieces.  And 49.2% of the entire WNH VAP population of CD5 is contained in the split parish pieces.

- At (2) the population in the remainder of CD5 looks quite different.  Of the entire BVAP population in CD5, only 27.1% is in the remaining whole parishes within CD5.  The WNH VAP split has 50.8% of the entire WNH VAP population of CD5 contained in the remainder of CD5.

32. I conclude that the newly split parishes contain a population with characteristics that are materially different racially from the remaining whole parishes in Cooper Plan 5's CD5.

**Table IV.C.2. Demographic Characteristics of CD5 Split Parish Pieces by Race Under Cooper Plan 5: WNH and APB VAP**

| Cooper Plan 5 Parish Pieces | VAP | | | VAP Percentage | | | |
|---|---|---|---|---|---|---|---|
| CD5 Split and Remainder Geo | Total | White NH | Any Part Black | Total | White NH | Any Part Black | |
| Split Parish Pieces of CD5 | 371,259 | 126,100 | 218,687 | 62.6% | 49.2% | 72.9% | 1 |
| Remainder of CD5 | 221,750 | 130,226 | 81,396 | 37.4% | 50.8% | 27.1% | 2 |
| CD5 Total VAP | 593,009 | 256,326 | 300,083 | 100.0% | 100.0% | 100.0% | |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel. Total VAP includes White NH, Any Part Black, and all other census categories that are citizens of voting age in CD5.

33. The splits of parishes in the Plaintiffs two new plans not only manifest themselves in parishes, but also in individual places.[1] **Table IV.C.3** shows the population for each split place that is both in, and out of Cooper Plan 5.

- At (1), the city of Alexandria is split into two congressional districts in Cooper Plan 5: CD5 and CD3. Of the entire BVAP in the city of Alexandria, 83.5% is in CD5. The remaining 16.5% of the city of Alexandria's BVAP is in CD3.

- At (2), the city of Baton Rouge is split into CD5 and CD6. Of the entire BVAP of the city of Baton Rouge, 82.6% is in CD5. The remaining 17.4% is in CD6.

- At (3), the city of Lafayette is split into CD5 and CD3. Of the entire BVAP of the city of Lafayette, 68.8% is in CD5The remaining 31.2% is in CD3.

- At (4), the city of Monroe is split into CD5 and CD4. Of the entire BVAP of the city of Monroe, 91.9% is in CD5. The remaining 8.1% is in CD3.

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[1] The US Census Bureau provides useful details in understanding the number and characteristics of these geographic layers in Louisiana, as follows:
- 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.
https://www.census.gov/geographies/reference-files/2010/geo/state-local-geo-guides-2010/louisiana.html and
https://www.census.gov/geographies/reference-files/time-series/geo/gazetteer-files.html

**Table IV.C.3. Demographic Characteristics of CD5 Split Place Pieces by Race Under Cooper Plan 5: WNH and APB VAP**

| Place | Cooper 5 | VAP Total | VAP WNH | VAP APB | VAP Percentage Total | VAP Percentage WNH | VAP Percentage APB | |
|---|---|---|---|---|---|---|---|---|
| Alexandria city | 3 | 13,477 | 9,038 | 3,075 | 39.0% | 65.8% | 16.5% | 1 |
| | 5 | 21,046 | 4,698 | 15,551 | 61.0% | 34.2% | 83.5% | |
| Arnaudville town | 1 | 31 | 25 | 2 | 4.1% | 3.9% | 2.3% | |
| | 5 | 726 | 624 | 86 | 95.9% | 96.1% | 97.7% | |
| Baton Rouge city | 5 | 111,432 | 23,829 | 77,735 | 61.8% | 35.1% | 82.6% | 2 |
| | 6 | 68,808 | 44,075 | 16,326 | 38.2% | 64.9% | 17.4% | |
| Eunice city | 3 | 223 | 190 | 23 | 3.2% | 4.4% | 1.0% | |
| | 5 | 6,816 | 4,149 | 2,365 | 96.8% | 95.6% | 99.0% | |
| Lafayette city | 3 | 65,617 | 48,578 | 8,957 | 68.3% | 84.1% | 31.2% | 3 |
| | 5 | 30,411 | 9,209 | 19,777 | 31.7% | 15.9% | 68.8% | |
| Monroe city | 4 | 6,766 | 4,551 | 1,766 | 19.1% | 37.6% | 8.1% | 4 |
| | 5 | 28,692 | 7,565 | 19,918 | 80.9% | 62.4% | 91.9% | |
| Pineville city | 3 | 2,805 | 1,976 | 528 | 25.3% | 30.3% | 14.6% | |
| | 5 | 8,284 | 4,549 | 3,096 | 74.7% | 69.7% | 85.4% | |
| Scott city | 3 | 5,738 | 4,179 | 881 | 91.8% | 92.2% | 89.3% | |
| | 5 | 512 | 352 | 106 | 8.2% | 7.8% | 10.7% | |
| West Monroe city | 4 | 6,579 | 4,836 | 1,214 | 65.2% | 81.1% | 36.3% | |
| | 5 | 3,515 | 1,124 | 2,127 | 34.8% | 18.9% | 63.7% | |
| Zachary city | 5 | 13,603 | 6,653 | 6,093 | 99.9% | 99.9% | 100.0% | |
| | 6 | 10 | 6 | 0 | 0.1% | 0.1% | 0.0% | |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel. Total VAP includes White NH, Any Part Black, and all other census categories that are citizens of voting age in each city or town.

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## D. Fairfax Plan 4

34. **Figure IV.D.1** illustrates the differences between the Fairfax Plan 4 and the Enacted Plan in CD5.

**Figure IV.D.1. Enacted Plan and Cooper Plan 5 District 5**
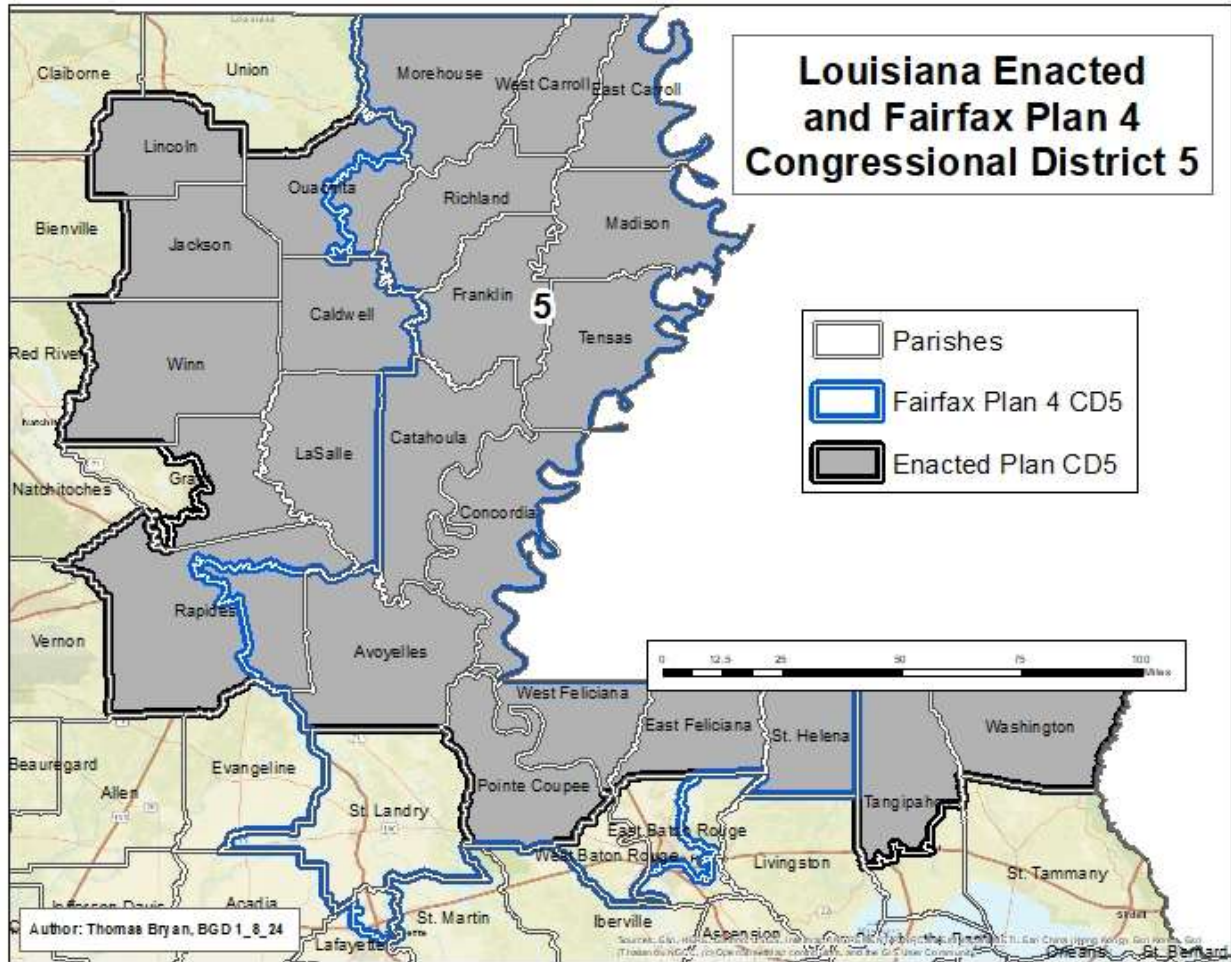


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

35. **Table IV.D.1** shows the population for each of the 4 parishes split by CD5 in Fairfax Plan 4. The table contains the total populations the split parish that is both in, and out of CD5.

- At (1), East Baton Rouge parish is split into two congressional districts under Fairfax Plan 4: CD5 and CD6. Of the entire BVAP population in East Baton Rouge parish, 76.6% is in CD5. The remaining 23.4% is in CD6.

- At (2), Lafayette parish is split into CD5 and CD3. Of the entire BVAP population in Lafayette parish, 58.9% resides in CD5. The remaining 41.1% is in CD3.

- At (3), Ouachita parish is split into CD5 and CD4. Of the entire BVAP population in Ouachita parish, 81.2% is in CD5. The remaining 18.8% is in CD4.

- At (4), Rapides parish is split into CD5 and CD3. Of the entire BVAP population in Rapides parish, 80.2% resides in CD5. The other 19.8% resides in CD3.

**Table IV.D.1. Demographic Characteristics of CD5 Split Parish Pieces by Race Under Fairfax Plan 4: WNH and APB VAP**

| Parish | Fairfax 4 | VAP | | | VAP Percentage | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | White NH | Any Part Black | Total | White NH | Any Part Black | |
| East Baton Rouge | 5 | 181,338 | 45,873 | 120,088 | 51.0% | 28.6% | 76.6% | 1 |
| | 6 | 174,274 | 114,555 | 36,702 | 49.0% | 71.4% | 23.4% | |
| Lafayette | 3 | 133,786 | 99,734 | 18,873 | 72.8% | 83.3% | 41.1% | 2 |
| | 5 | 50,089 | 19,936 | 27,044 | 27.2% | 16.7% | 58.9% | |
| Ouachita | 4 | 68,844 | 55,738 | 7,942 | 57.3% | 80.5% | 18.8% | 3 |
| | 5 | 51,356 | 13,528 | 34,348 | 42.7% | 19.5% | 81.2% | |
| Rapides | 3 | 53,146 | 41,880 | 5,966 | 53.8% | 69.1% | 19.8% | 4 |
| | 5 | 45,646 | 18,713 | 24,239 | 46.2% | 30.9% | 80.2% | |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel. Total VAP includes White NH, Any Part Black, and all other census categories that are citizens of voting age within each parish.

36. Next, I examine the characteristics of these four split parishes in aggregate. **Table IV.D.2** shows the characteristics of the parish population that were split off into CD5 versus the balance of the population in CD5.

- At (1) the VAP contained within CD5 in the four split parishes (East Baton Rouge, Lafayette, Ouachita, and Rapides) is aggregated. When done so, 67.5% of the total BVAP of CD5 is contained in the split parish pieces. And 39.3% of the entire WNH VAP population of CD5 is contained in the split parish pieces.

- At (2) the population in the remainder of CD5 looks quite different. Of the entire BVAP population in CD5, only 32.5% is in the remaining whole parishes within CD5. And 60.7% of the entire WNH VAP population of CD5 is contained in the remainder of CD5.

37. I conclude that the newly split parishes contain a population with characteristics that are materially different racially from the remaining whole parishes in Fairfax Plan 4.

**Table IV.D.2. Demographic Characteristics of CD5 Split Parish Pieces by Race Under Fairfax Plan 4: WNH and APB VAP**

| Fairfax Plan 4 Parish Pieces | VAP | | | VAP Percentage | | |
|---|---|---|---|---|---|---|
| CD5 Split and Remainder Geo | Total | White NH | Any Part Black | Total | White NH | Any Part Black |
| Split Parish Pieces of CD5 | 328,429 | 98,050 | 205,719 | 55.6% | 39.3% | 67.5% |
| Remainder of CD5 | 262,338 | 151,296 | 98,845 | 44.4% | 60.7% | 32.5% |
| CD5 Total VAP | 590,767 | 249,346 | 304,564 | 100.0% | 100.0% | 100.0% |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel. Total VAP includes White NH, Any Part Black, and all other census categories that are citizens of voting age within CD5.

38. The splits in Fairfax Plan 4 are also in individual places.[2]  In **Table IV.D.3**, I show the population for each split place that is both in, and out of CD5 in Fairfax Plan 4.

- At (1), the city of Alexandria is split into two congressional districts in Fairfax Plan 4: CD5 and CD3.  Of the entire BVAP of the city of Alexandria, 89.4% is in CD5.  The remaining 10.6% is in CD3.

- At (2), the city of Baton Rouge is split into two congressional districts: CD5 and CD3.  Of the entire BVAP population of the city of Baton Rouge, 85.1% is in CD5. The remaining 14.9% is in CD3.

- At (3), the city of Lafayette is split into CD5 and CD3. Of the entire BVAP population of the city of Lafayette, 67.6% is in CD5.  The remaining 32.4% is in CD3.

- At (4), the city of Monroe is split into CD5 and CD4.  Of the entire BVAP population of the city of Monroe, 93.8% is in CD5.  The remaining 6.2% is in CD4.

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[2] The US Census Bureau provides useful details in understanding the number and characteristics of these geographic layers in Louisiana, as follows:
- 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.
https://www.census.gov/geographies/reference-files/2010/geo/state-local-geo-guides-2010/louisiana.html and
https://www.census.gov/geographies/reference-files/time-series/geo/gazetteer-files.html

**Table IV.D.3. Demographic Characteristics of CD5 Split Place Pieces by Race Under Fairfax Plan 4: WNH and APB VAP**

| Place | Fairfax 4 | VAP Total | VAP White NH | VAP Any Part Black | VAP Percentage Total | VAP Percentage White NH | VAP Percentage Any Part Black | |
|---|---|---|---|---|---|---|---|---|
| Alexandria city | 3 | 10,636 | 7,489 | 1,973 | 30.8% | 54.5% | 10.6% | 1 |
| | 5 | 23,887 | 6,247 | 16,653 | 69.2% | 45.5% | 89.4% | |
| Arnaudville town | 2 | 31 | 25 | 2 | 4.1% | 3.9% | 2.3% | |
| | 5 | 726 | 624 | 86 | 95.9% | 96.1% | 97.7% | |
| Baton Rouge city | 5 | 116,583 | 25,952 | 80,037 | 64.7% | 38.2% | 85.1% | 2 |
| | 6 | 63,657 | 41,952 | 14,024 | 35.3% | 61.8% | 14.9% | |
| Eunice city | 3 | 223 | 190 | 23 | 3.2% | 4.4% | 1.0% | |
| | 5 | 6,816 | 4,149 | 2,365 | 96.8% | 95.6% | 99.0% | |
| Lafayette city | 3 | 68,128 | 50,485 | 9,314 | 70.9% | 87.4% | 32.4% | 3 |
| | 5 | 27,900 | 7,302 | 19,420 | 29.1% | 12.6% | 67.6% | |
| Monroe city | 4 | 9,220 | 7,327 | 1,334 | 26.0% | 60.5% | 6.2% | 4 |
| | 5 | 26,238 | 4,789 | 20,350 | 74.0% | 39.5% | 93.8% | |
| Pineville city | 3 | 3,822 | 2,752 | 661 | 34.5% | 42.2% | 18.2% | |
| | 5 | 7,267 | 3,773 | 2,963 | 65.5% | 57.8% | 81.8% | |
| Scott city | 3 | 5,738 | 4,179 | 881 | 91.8% | 92.2% | 89.3% | |
| | 5 | 512 | 352 | 106 | 8.2% | 7.8% | 10.7% | |
| West Monroe city | 4 | 7,405 | 5,197 | 1,606 | 73.4% | 87.2% | 48.1% | |
| | 5 | 2,689 | 763 | 1,735 | 26.6% | 12.8% | 51.9% | |
| Zachary city | 5 | 13,603 | 6,653 | 6,093 | 99.9% | 99.9% | 100.0% | |
| | 6 | 10 | 6 | 0 | 0.1% | 0.1% | 0.0% | |

Source: Assembled by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel. Total VAP includes White NH, Any Part Black, and all other census categories that are citizens of voting age within each city or town.

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## V.    COOPER PLAN 5 AND FAIRFAX PLAN 4 POPULATION DISPERSION

39. As was the case with the previous Plaintiff's Remedial Plan, RCD5, both Cooper Plan 5 and Fairfax Plan 4 create a proposed CD5 that is unlike any lawful Louisiana congressional district before them. Both of the two new plans by Plaintiffs are not only historically unprecedented, but also force into a single artificial COI with East Baton Rouge parish, either all (Fairfax Plan 4) or most of (Cooper Plan 5 excludes Morehouse Parish) the seven northeastern parishes ( East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll). In setting the table for the geodemographic analysis that follows, it is appropriate to start with an assessment of the state as a whole. **Figure V.1** shows the percent of the total 2020 state population by parish per the legend found in Figure V.1.

### Figure V.1. Total 2020 Population by Parish.



Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data

40. Cooper Plan 5 links, on the one hand, parts of East Baton Rouge Parish and parts of Lafayette Parish found in RCD5 to, on the other hand, heavily Black parishes in NE Louisiana.  This linkage consists of an intermittent thread of Black VAP across thinly populated parishes (including Avoyelles, Catahoula, Concordia, East Feliciana, Pointe Coupee, St. Helena, West Feliciana, as well as parts of other parishes and more populated parishes, per **Figure V.2**.  This linkage, which represents a geographically vast part of the center of the state effectively joins Black VAP from a split piece of East Baton Rouge parish to Black VAP from a split piece of Lafayette parish to all but one (Morehouse) of the seven NE Louisiana parishes.

**Figure V.2 Percent APB VAP by Parish under Cooper Plan 5**
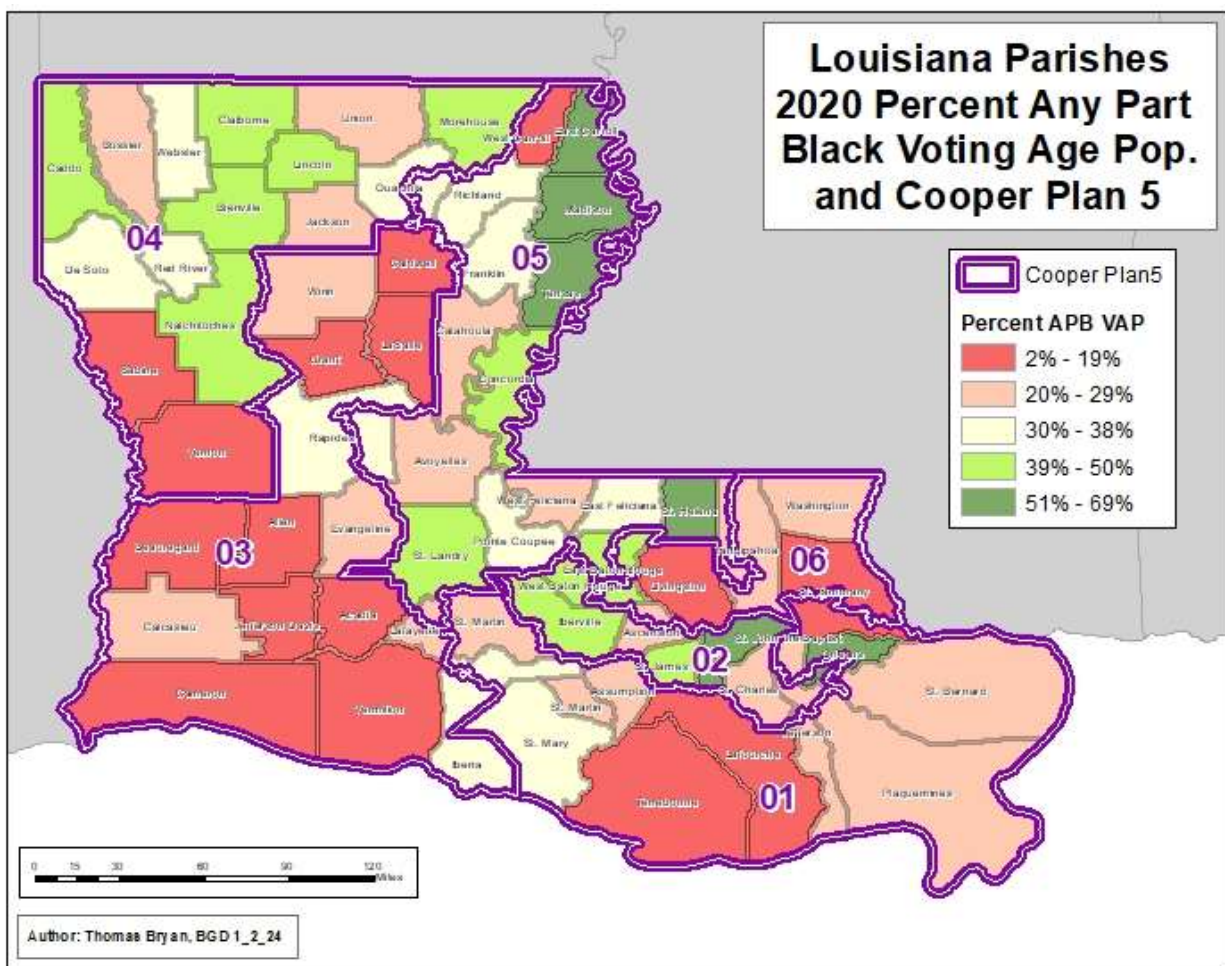


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel

40. Fairfax Plan 4 also links, on the one hand, parts of East Baton Rouge Parish and parts of Lafayette Parish found in RCD5 to, on the other hand, heavily Black parishes in NE Louisiana. This linkage consists of an intermittent thread of Black VAP across thinly populated parishes and more populated parishes similar to that found in Cooper Plan 5, per **Figure V.2**. This linkage, which represents a geographically vast part of the center of the state effectively joins Black VAP from a split piece of East Baton Rouge parish to Black VAP from a split piece of Lafayette parish to all of the seven NE Louisiana parishes.

**Figure V.3 Percent APB VAP by Parish under Fairfax Plan 4**
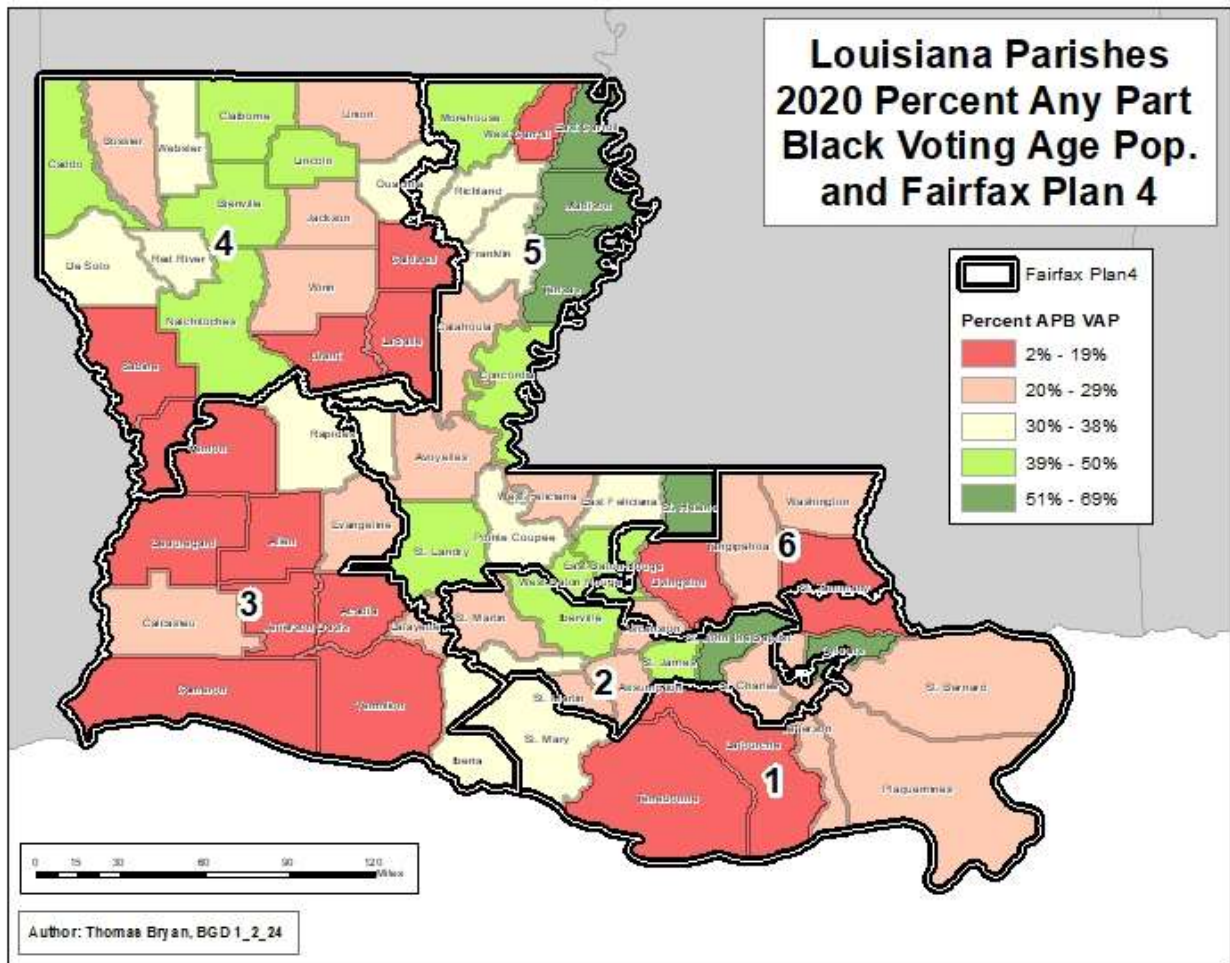


Source: Drawn by BGD at the direction of Dr. David Swanson using 2020 Census data and shapefiles provided by Plaintiffs' counsel to Defense counsel.

## VI. COMMUNITIES OF INTEREST (COI) ANALYSIS

41. What is a COI? Chen et al. (2022:108) offer the following definition.

> A community of interest is defined as an area for which the record before the entity responsible for developing and adopting the redistricting plan demonstrates the existence of broadly shared interests and representational needs, including shared interests and representational needs rooted in common ethnic, racial, economic, Indian, social, cultural, geographic, or historic identities, or arising from similar socioeconomic conditions. The term communities of interest may, if the record warrants, include political subdivisions such as counties, municipalities, Indian lands, or school districts, but shall not include common relationships with political parties or political candidates.

42. Chen et al. (2022: 108) continue by noting that Professor Nicholas Stephanopoulos, a leading expert on election law at Harvard Law School, has written about the conceptual importance of "territorial communities," his term for spatially bounded COIs.  In outlining the theoretical underpinnings that justify preserving territorial communities as a standard for redistricting, Professor Stephanopoulos argues that "communities arise along geographic lines and should be represented in the legislature." His first tenet is that geography does indeed hold subjective and objective relevance in identifying meaningful communities; people generally feel connected to those who live in the same area, and they often are connected, for instance, by socioeconomic status, cultural values, or local industries. This representational theory thus lies in the political significance of these communities, which in turn legitimates them as a basis for redistricting." (Chen et al. 2022: 108)

43. A key linkage between Plaintiffs' RCD5 and CD5 in Plaintiffs' two new plans, Cooper Plan 5 and Fairfax Plan 4, is that along with Lafayette, Rapides and Ouachita, they connect East Baton Rouge Parish to either the whole of  the seven NE Louisiana parishes (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) or to most of them.  As described in my original report, these seven NE Louisiana parishes are in a different COI than East Baton Rouge Parish. As an example, the results of the COI cluster analysis found in my initial report that employed seven variables is shown in **Appendix 13**.  It shows that the seven NE Louisiana parishes are placed by the Cluster Analysis I used in the COI identified as "DIST1" while East Baton Rouge parish is placed in the COI identified as "DIST2," as also is the case for Lafayette parish.

44. These facts and linkages suggest that race was the predominant motive for the location of district lines found in CD5 of Plaintiffs' Cooper Plan 5 and Fairfax Plan 4.  Specifically, East Baton Rouge Parish does not share any historical or recognized COI with any of the seven NE Louisiana parishes (East Carroll, Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) other than the race of black voters who they assign to their proposed CD5s.

45. Given the likelihood that that race represents *the* "community of interest" in both Cooper Plan 5 and Fairfax Plan 4, I return again here to the cluster analysis found in my initial report.

46. To determine whether this unprecedented combination of distant, urban split parishes with the seven NE Louisiana parishes can be justified by an impartial analysis, in my original report I used a "cluster analysis." Cluster analysis is a set of tools and algorithms used to classify different objects into groups in such a way that the similarity between two objects is maximal if they belong to the same group and minimal otherwise (Gallesty, 2020). It is the process of grouping individuals or entities with similar characteristics or similar variables (NCSS, 2022). Specifically, I used socio-demographic characteristics as the basis for clustering, an approach that Rossiter, Wong, and Delamater (2018) find to be a feasible method for defining a COI, as do Chen et al. (2022). It is an approach used by Mollenkopf, Pereira, and Romalewski (2013) to identify COIs within the city of New York.

47. In **Appendix 13**, I show the results of the COI cluster analysis found in my initial report that employed seven variables as an example of the my use of an objective, empirically- and scientifically-based, "ground-up" approach, which, can be contrasted with the COI analysis employed by Plaintiffs' expert Anthony Fairfax. In his original report, Mr. Fairfax employed subjective judgment and also ad hoc elements, namely "census designated places" and "major landmark areas," in looking at small areas in developing first his illustrative plans and then the "Remedial Congressional District Plan". In "Fairfax Plan 4, he again employs subjective elements in his flaw-filled attempt to create a COI.

## VII.    CONCLUSIONS
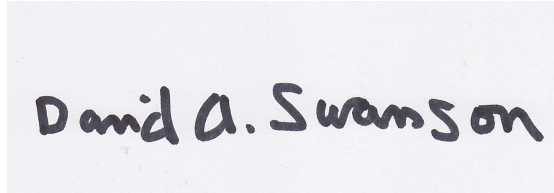
48. As I found in regard to Plaintiffs' RCD5, the two new plans, Cooper Plan 5 and Fairfax Plan 4, use race as a major component of the linkage they propose between heavily black parishes in NE Louisiana , on the one hand, to, on the other hand, East Baton Rouge Parish and part of Lafayette Parish.  This linkage is based upon parishes with relatively low population, low BVAP, and which, in many instances, as I found in my original report, includes large areas of swamp or wetlands.  In their attempt to justify their proposed district under a the "new" and inadequate COI construction found in Fairfax Plan 4, Plaintiffs fail to address the fact that their proposed CD5 includes numerous regions in Louisiana that historically have not been considered as being in the same COI.  In offering Fairfax Plan 4. Plaintiffs also continue to fail to use an empirically- and scientifically-based methodology in determining if there are different COIs within their proposed Congressional District 5.

49. The "cluster analysis" approach I describe in my original report provides an efficient, objective means of examining Cooper Plan 5 and Fairfax Plan 4 from a comprehensive perspective that is directly relevant to the main point just described.  Using this empirically- and scientifically-based method, I find that East Carroll Parish and its six neighboring parishes Franklin, Madison, Morehouse, Richland, Tensas, and West Carroll) are in a different COI grouping than East Baton Rouge Parish.  Moreover, from the COI perspective, as I found in my original report, East Baton Rouge Parish should not be included in the same CD as East Carroll Parish and its six neighboring parishes, which is the case in Fairfax Plan 4 and with the exception of Morehouse Parish, also the case in Cooper Plan 5.  Also consistent with my original report, this finding also applies to Lafayette Parish.  As I concluded in my original report, this finding is relevant because COIs are important in redistricting.  As Chen et al. (2022: 108) observe, they are a key legal criterion to guard against partisan and racial motives in redistricting.

## VIII.    REFERENCES

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## IX. SIGNATURE

On this day, I , David A. Swanson, acting in accordance with 28 U.S.C. § 1746, Federal Rule of Civil Procedure 26(a)(2)(B), and Federal Rules of Evidence 702 and 703, hereby declare that the foregoing is true and accurate to the best of my knowledge.

*David A. Swanson*

_____

David A. Swanson

**11 January 2024**

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## X. APPENDICES

Appendix 1: Plaintiffs Proposed Maps

    a)  Plaintiffs Proposed Remedial Plan Map

    b)  Plaintiffs Proposed Remedial Plan Map and New Cooper Plan 5

    c)  Plaintiffs Proposed Remedial Plan Map and New Fairfax Plan 4

Appendix 2: Plaintiffs Proposed Split of Lafayette Maps

    a)  Cooper Plan 5 Split of the City of Lafayette

    b)  Fairfax Plan 4 Split of the City of Lafayette

    c)  Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Lafayette

    d)  Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Lafayette

Appendix 3: Plaintiffs Proposed Split of Alexandria Maps

    a)  Cooper Plan 5 Split of the City of Alexandria

    b)  Fairfax Plan 4 Split of the City of Alexandria

    c)  Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Alexandria

    d)  Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Alexandria

Appendix 4: Plaintiffs Proposed Split of Monroe Maps

    a)  Cooper Plan 5 Split of the City of Monroe

    b)  Fairfax Plan 4 Split of the City of Monroe

    c)  Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Monroe

    d)  Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Monroe

Appendix 5: Plaintiffs Proposed Split of Baton Rouge Maps

    a)  Cooper Plan 5 Split of the City of Baton Rouge

    b)  Fairfax Plan 4 Split of the City of Baton Rouge

    c)  Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Baton Rouge

    d)  Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Baton Rouge

Appendix 6: Plaintiffs Proposed Split of Ouachita Parish Maps

    a)  Cooper Plan 5 Split of Ouachita Parish

    b)  Fairfax Plan 4 Split of Ouachita Parish

Appendix 7: Plaintiffs Proposed Split of Rapides Parish Maps

# Appendix 1

# Plaintiffs' Proposed Maps

a) **Plaintiffs Proposed Remedial Plan Map**

b) **Plaintiffs Proposed Remedial Plan Map and New Cooper Plan 5**

c) **Plaintiffs Proposed Remedial Plan Map and New Fairfax Plan 4**

**Appendix Map 1a: Plaintiffs Proposed Remedial Plan Map**
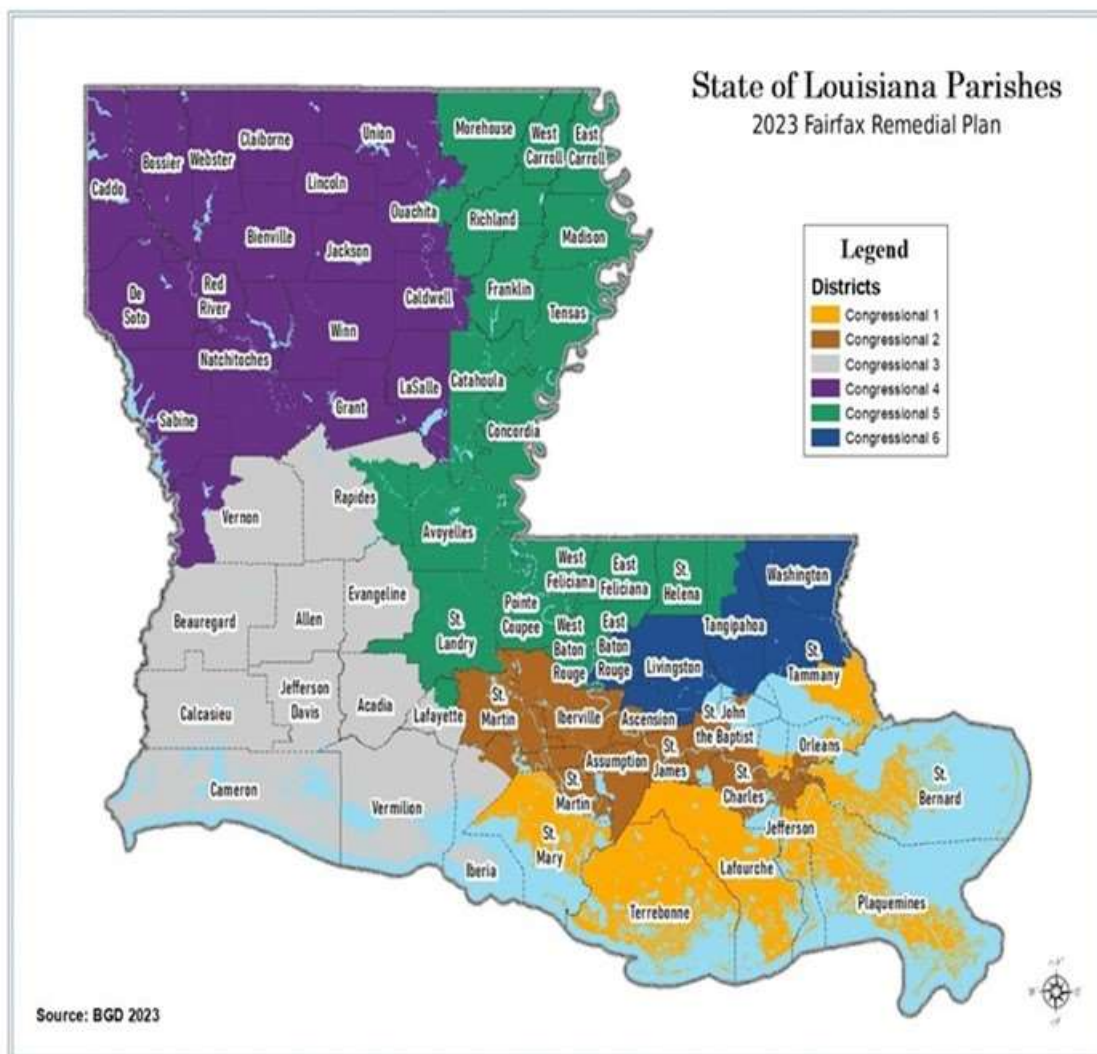


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix Map 1b: Plaintiffs Proposed Remedial Plan Map and New Cooper Plan 5**
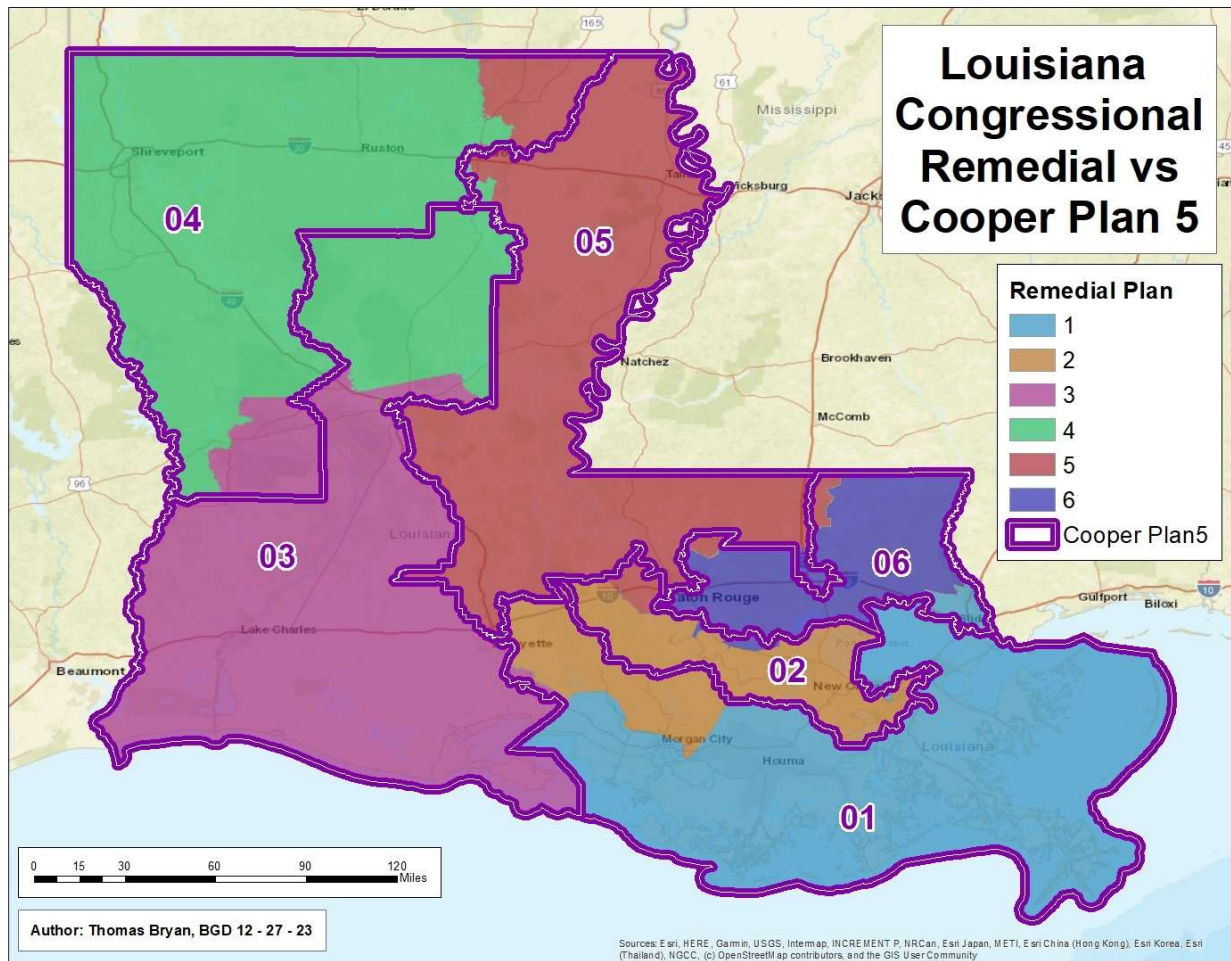


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix Map 1c: Plaintiffs Proposed Remedial Plan Map and New Fairfax Plan 4**
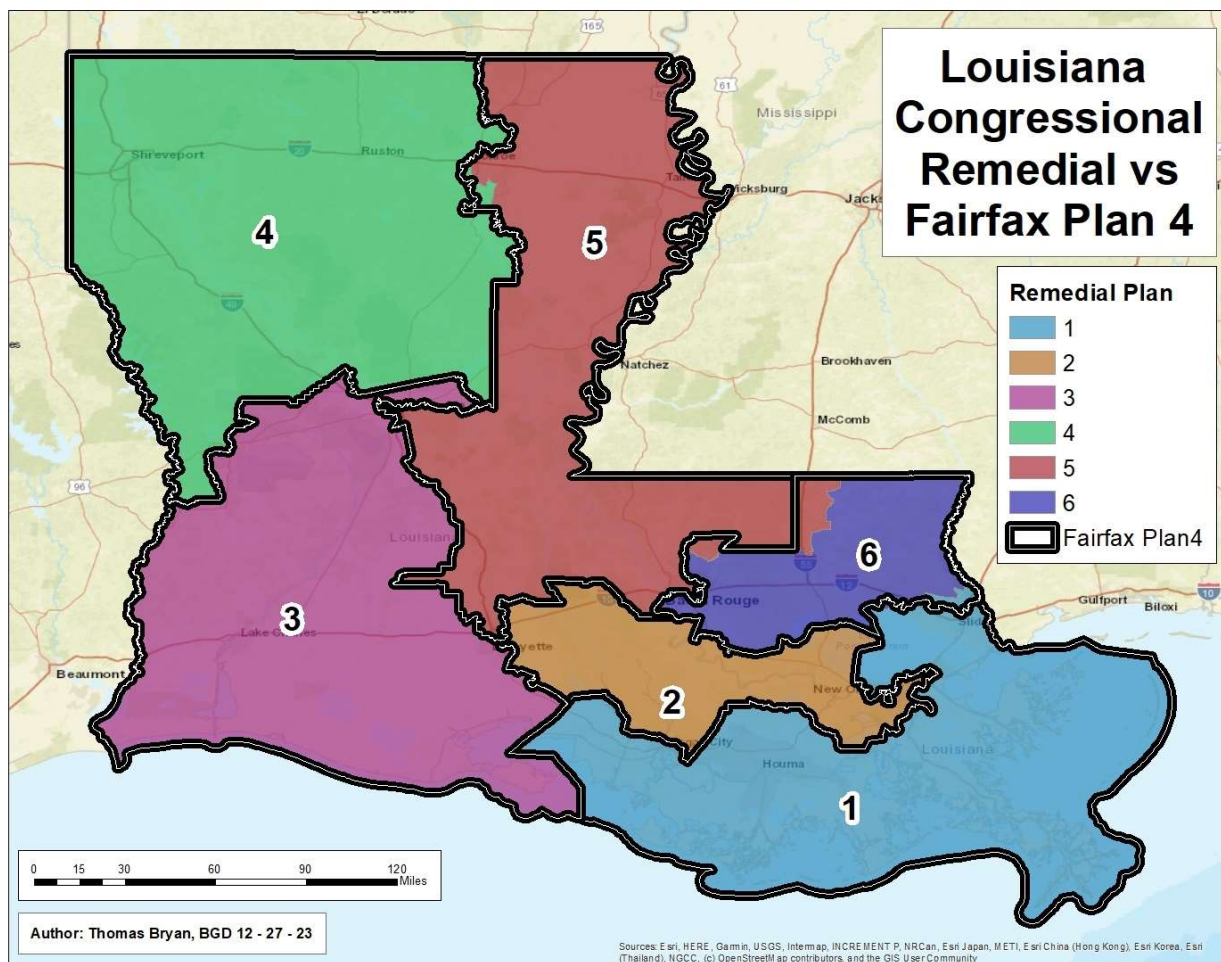


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 2

# Lafayette City Maps

a) **Cooper Plan 5 Split of the City of Lafayette**

b) **Fairfax Plan 4 Split of the City of Lafayette**

c) **Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Lafayette**

d) **Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Lafayette**

**Appendix 2a: Cooper Plan 5 Split of the City of Lafayette**
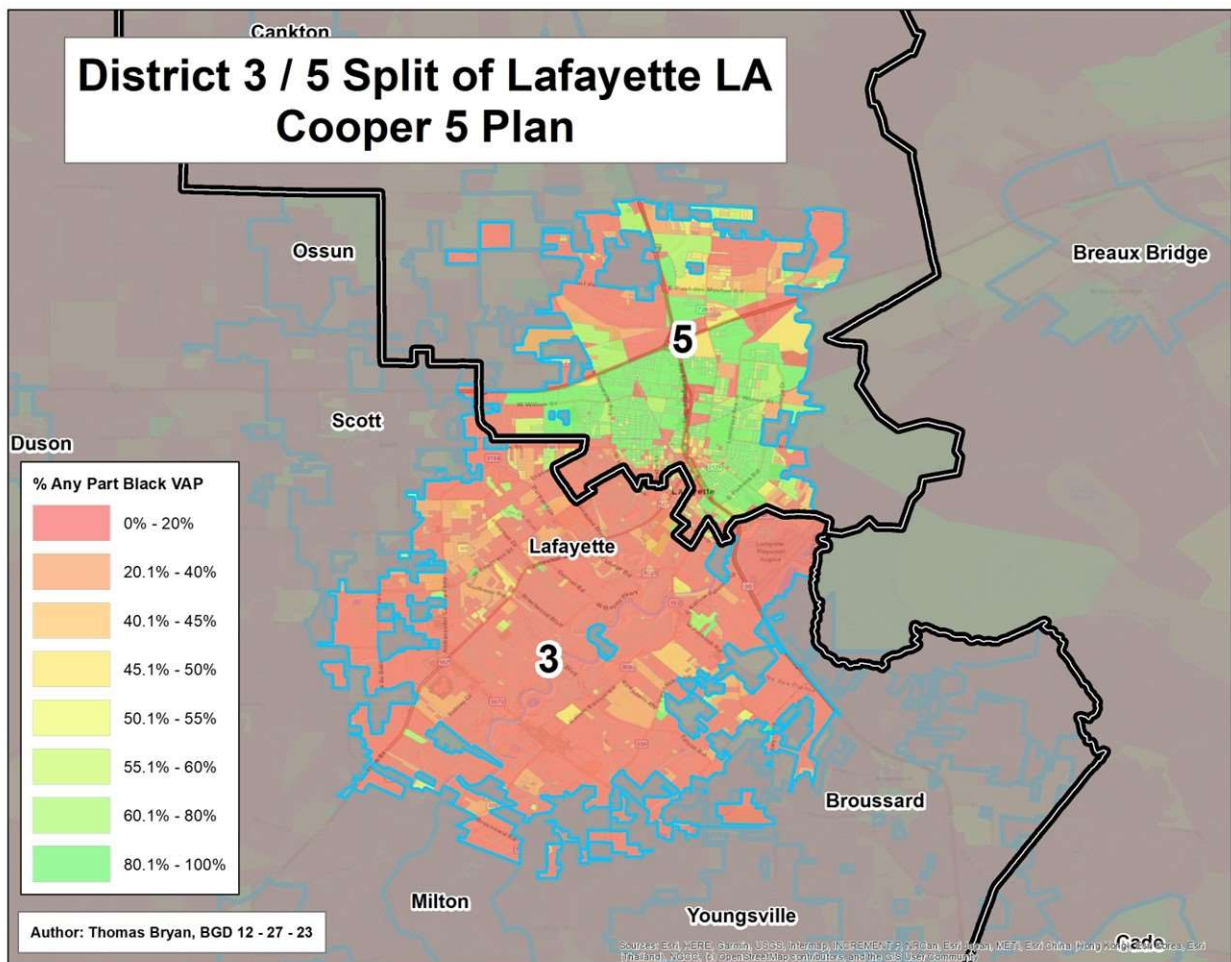


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 2b: Fairfax Plan 4 Split of the City of Lafayette**
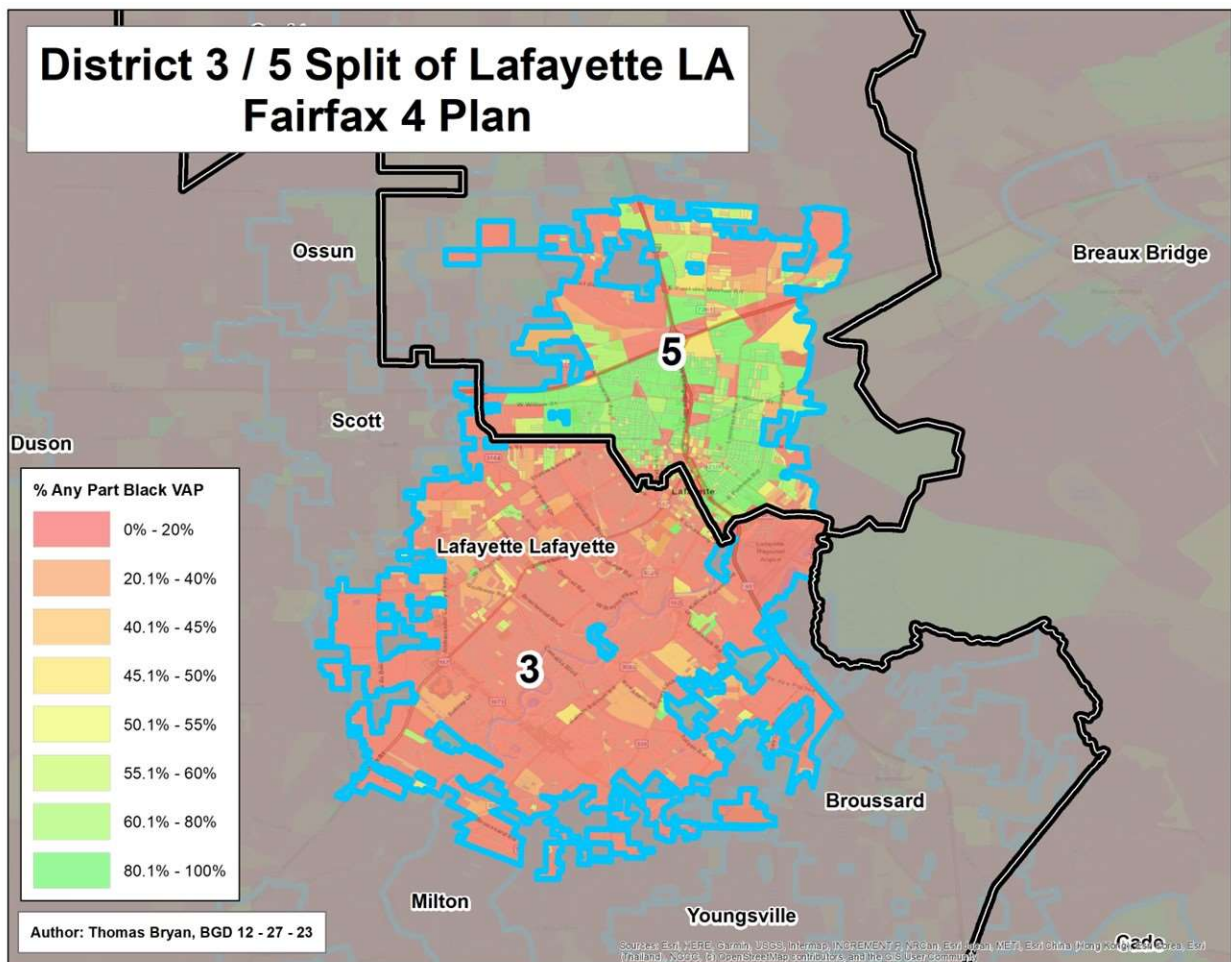


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 2c: Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Lafayette**
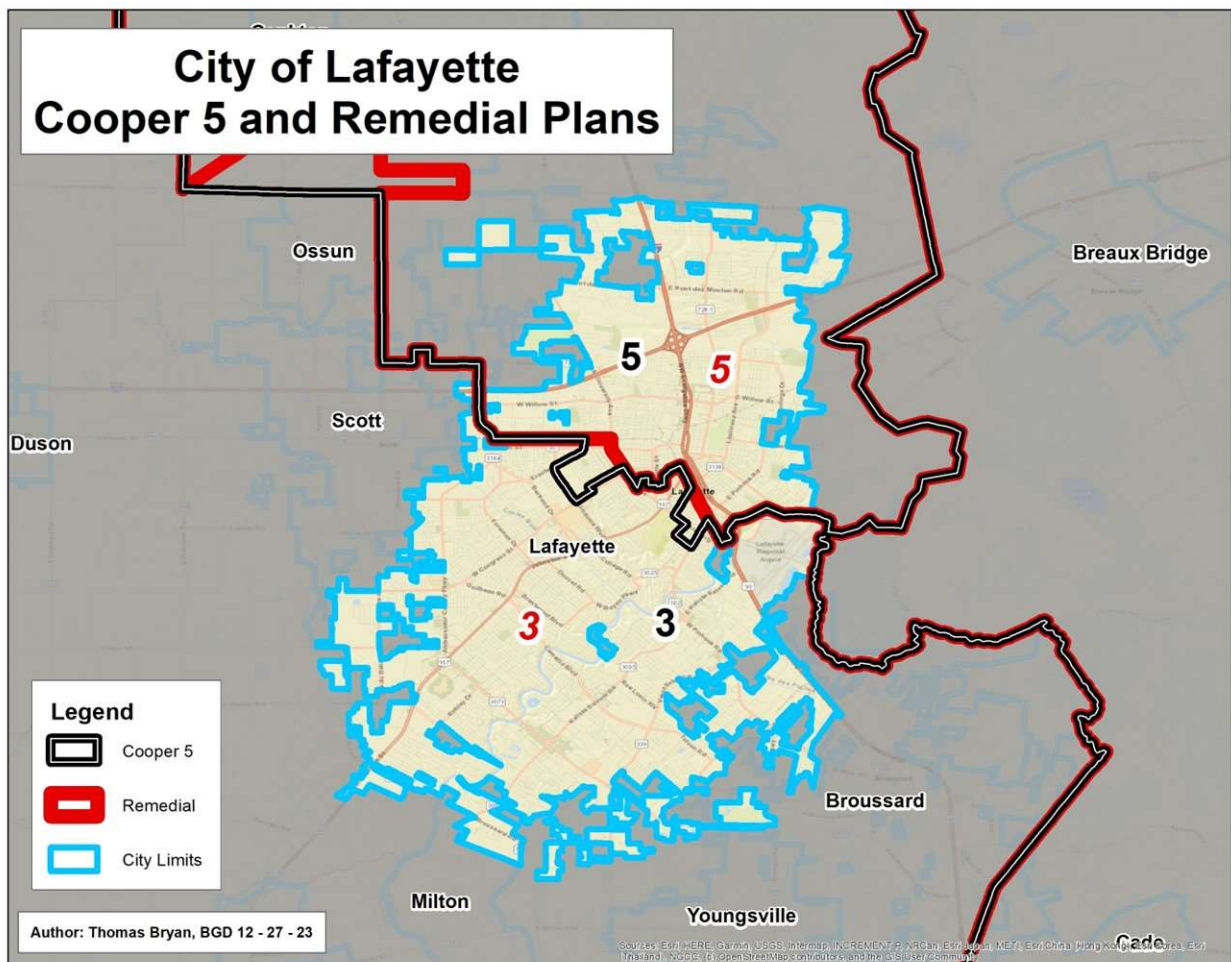


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 2d: Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Lafayette**
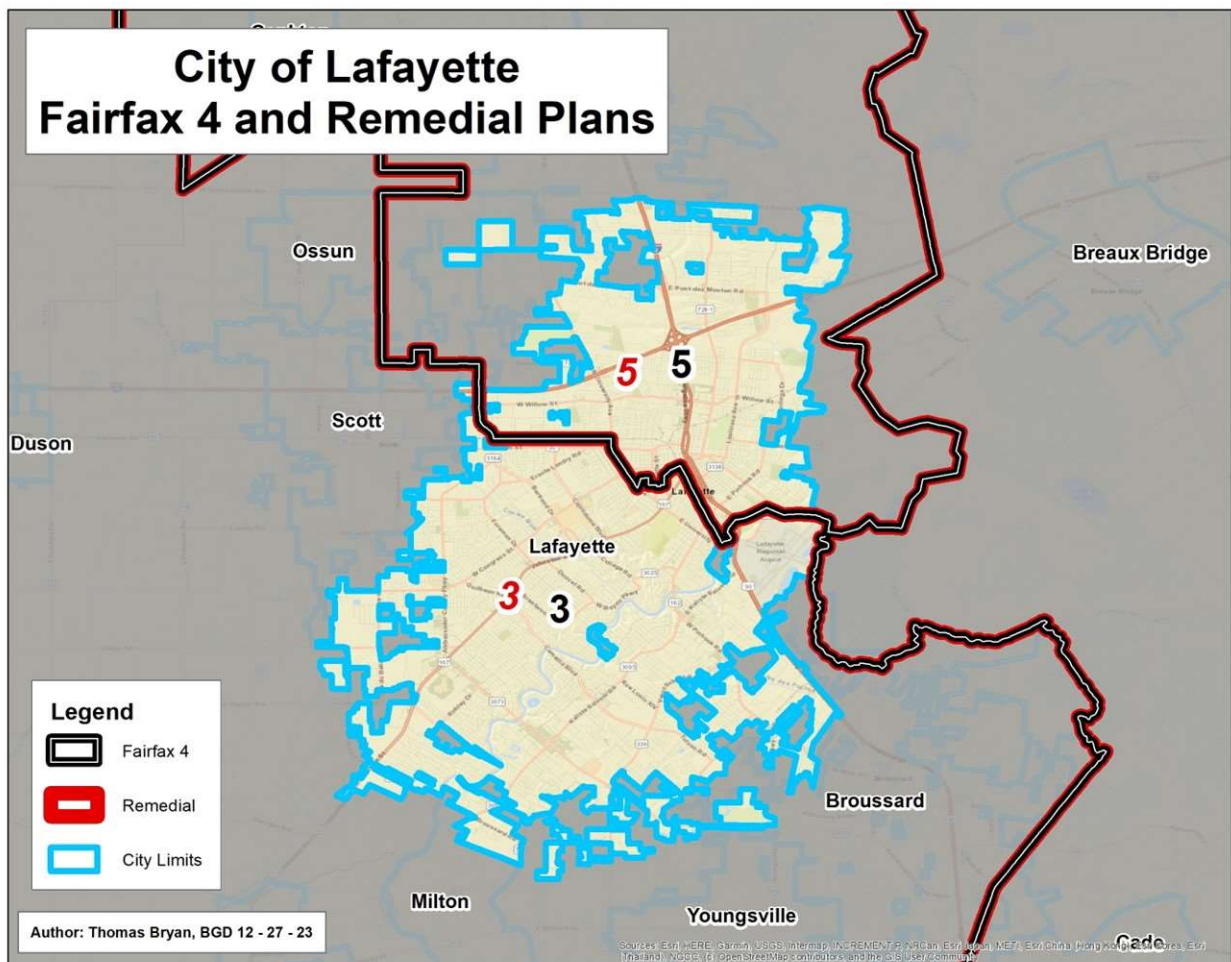


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 3

# Alexandria City Maps

a)  **Cooper Plan 5 Split of the City of Alexandria**

b)  **Fairfax Plan 4 Split of the City of Alexandria**

c)  **Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Alexandria**

d)  **Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Alexandria**

**Appendix 3a: Cooper Plan 5 Split of the City of Alexandria**
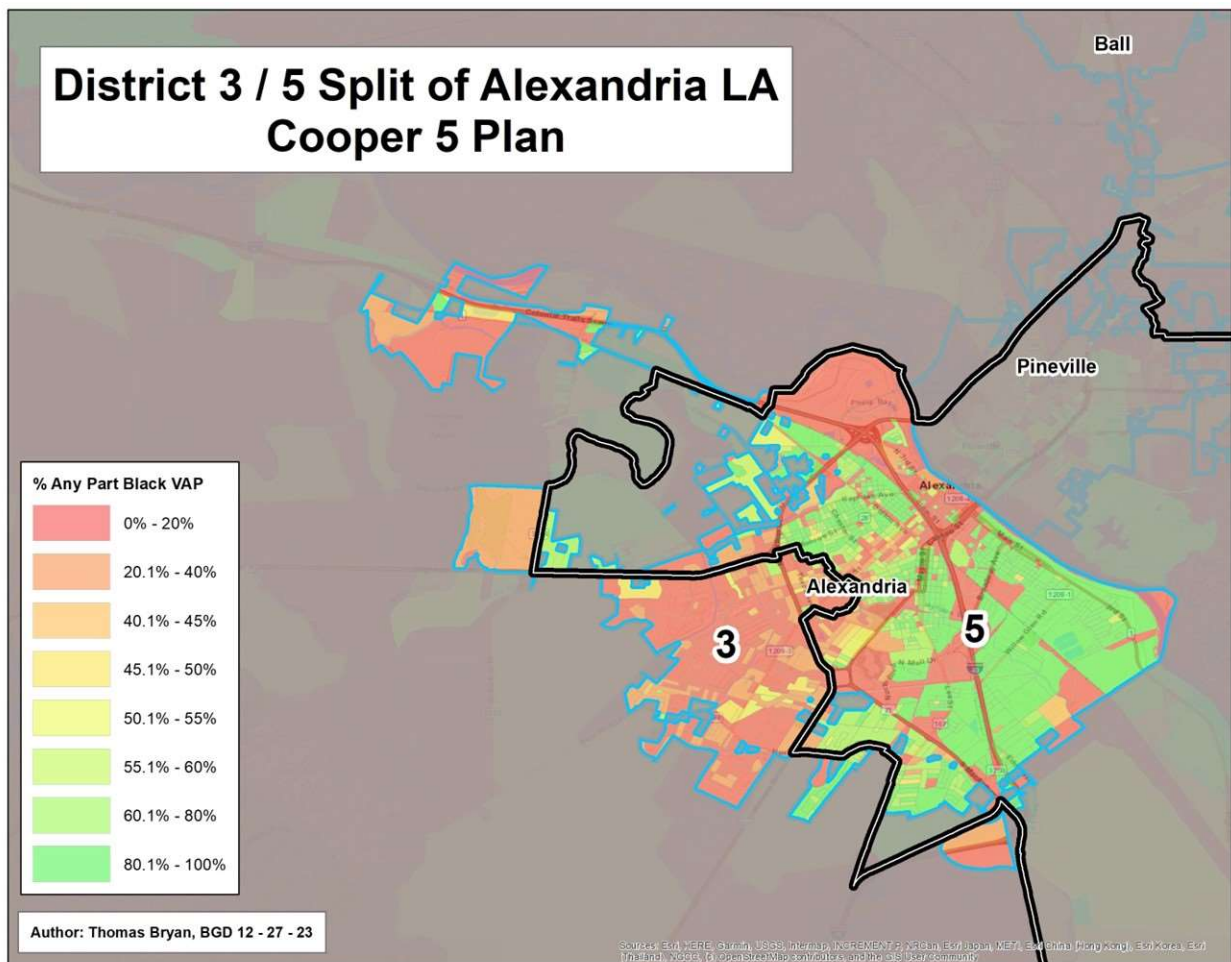


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 3b: Fairfax Plan 4 Split of the City of Alexandria**
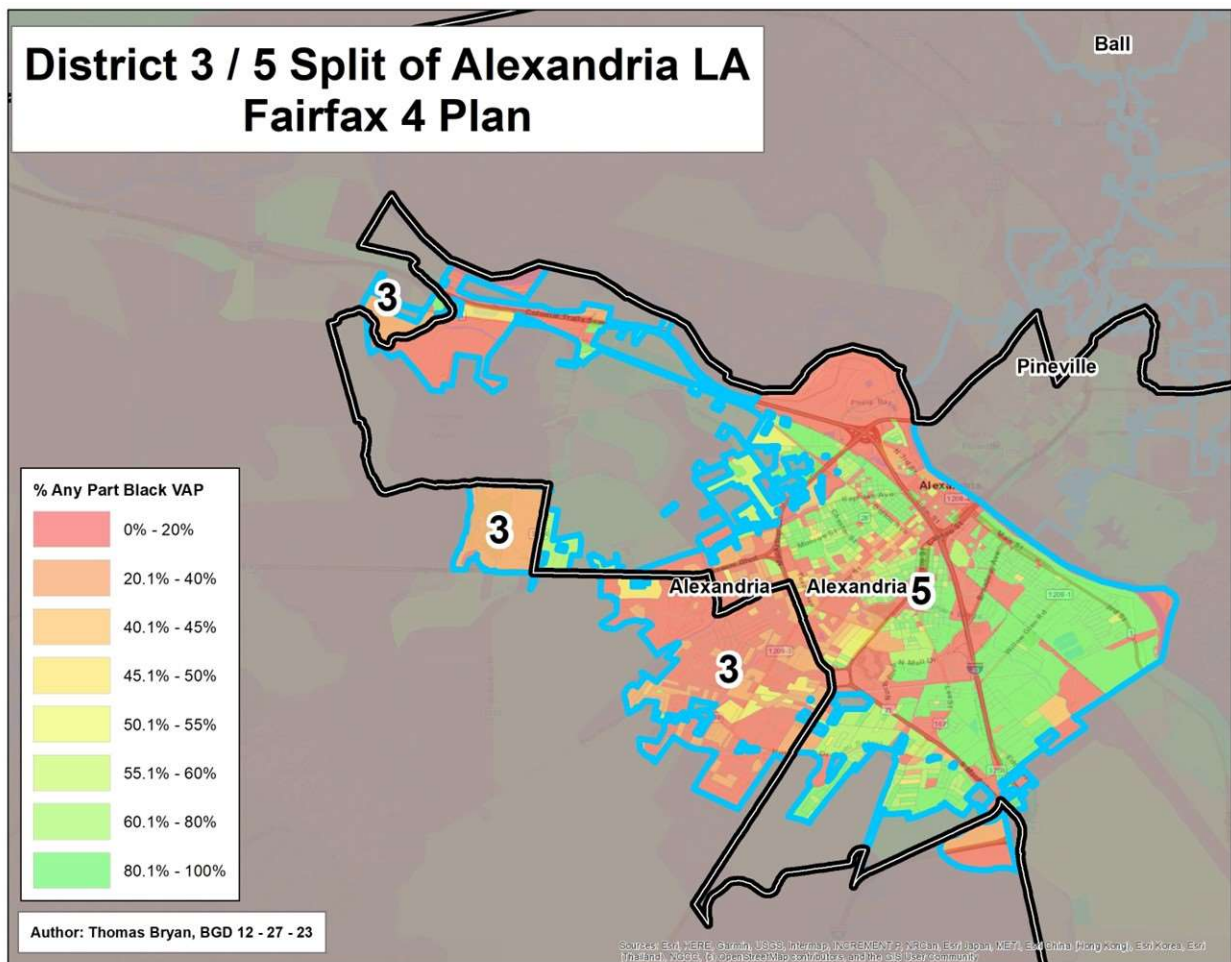


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

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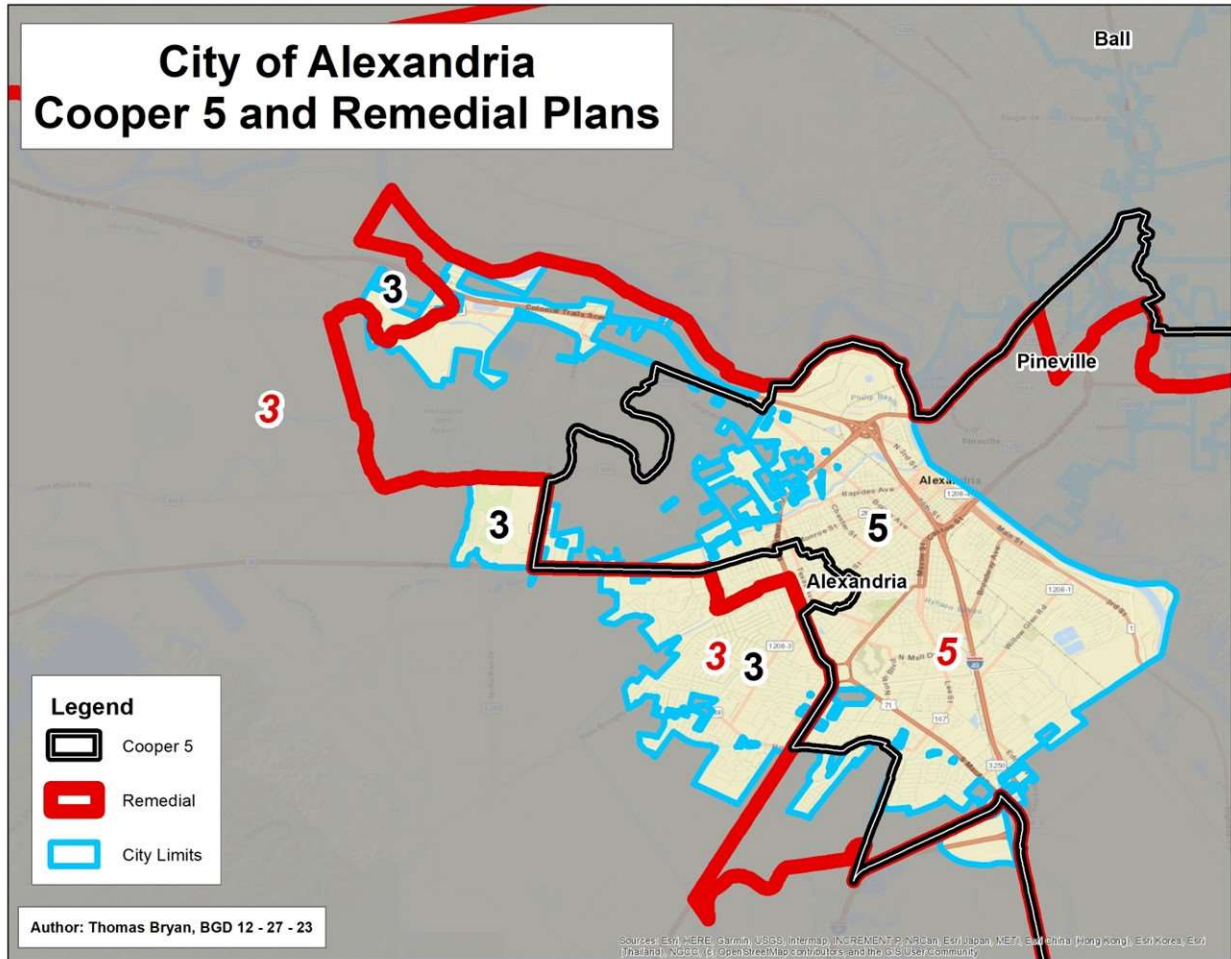


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 3d: Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Alexandria**
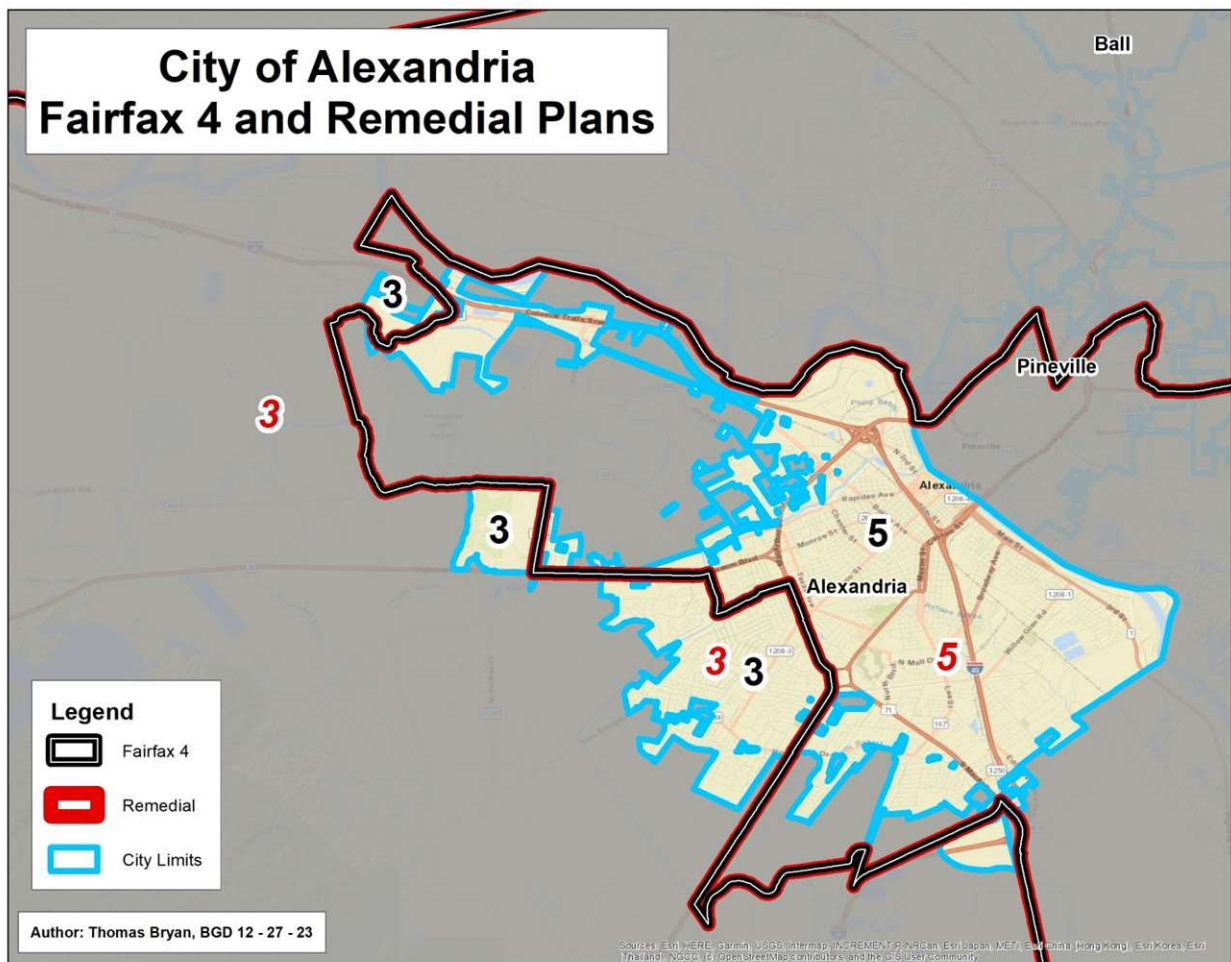


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 4

# Monroe City Maps

a)  **Cooper Plan 5 Split of the City of Monroe**

b)  **Fairfax Plan 4 Split of the City of Monroe**

c)  **Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Monroe**

d)  **Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Monroe**

**Appendix 4a: Cooper Plan 5 Split of the City of Monroe**
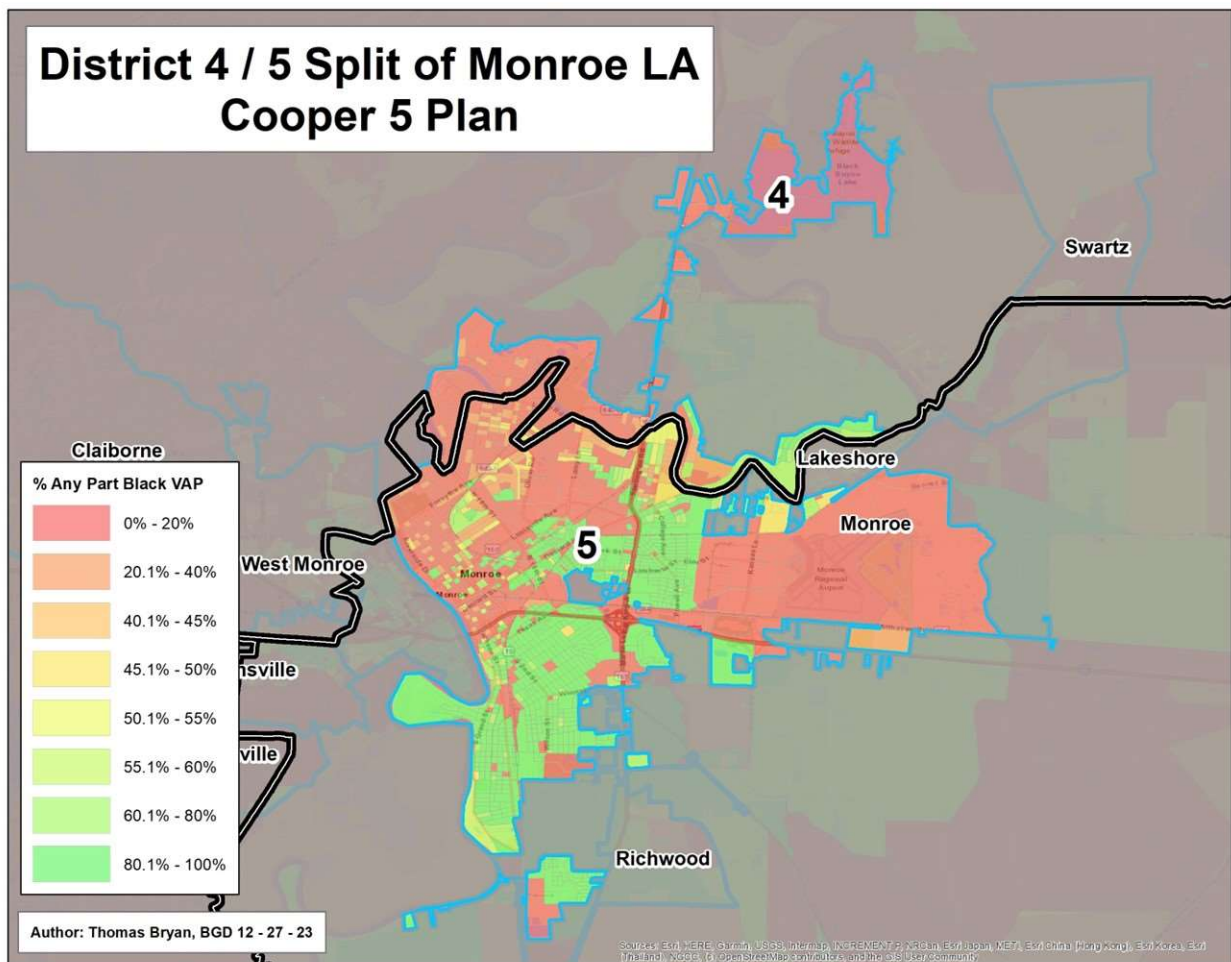


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 4b: Fairfax Plan 4 Split of the City of Monroe**
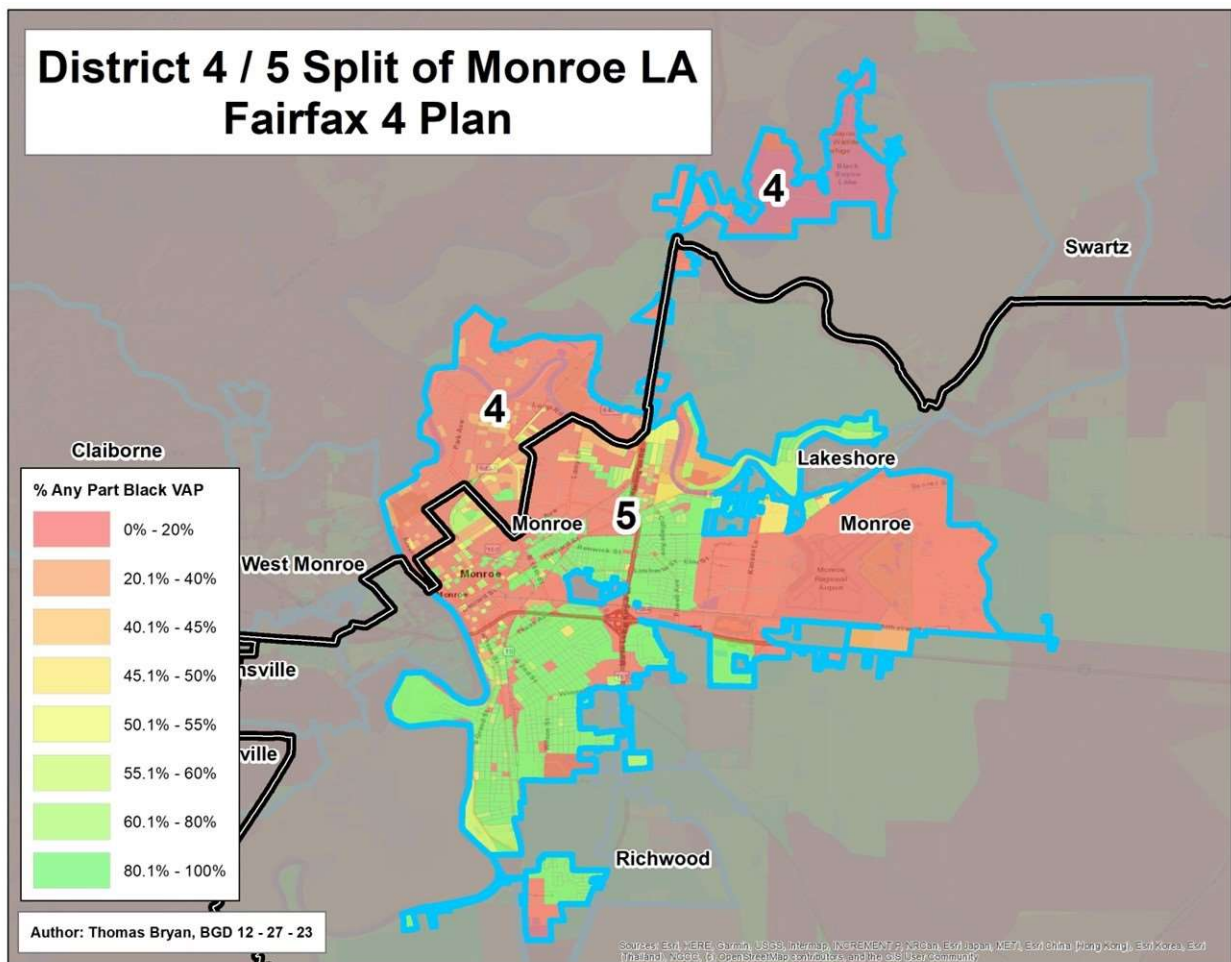


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 4c: Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Monroe**
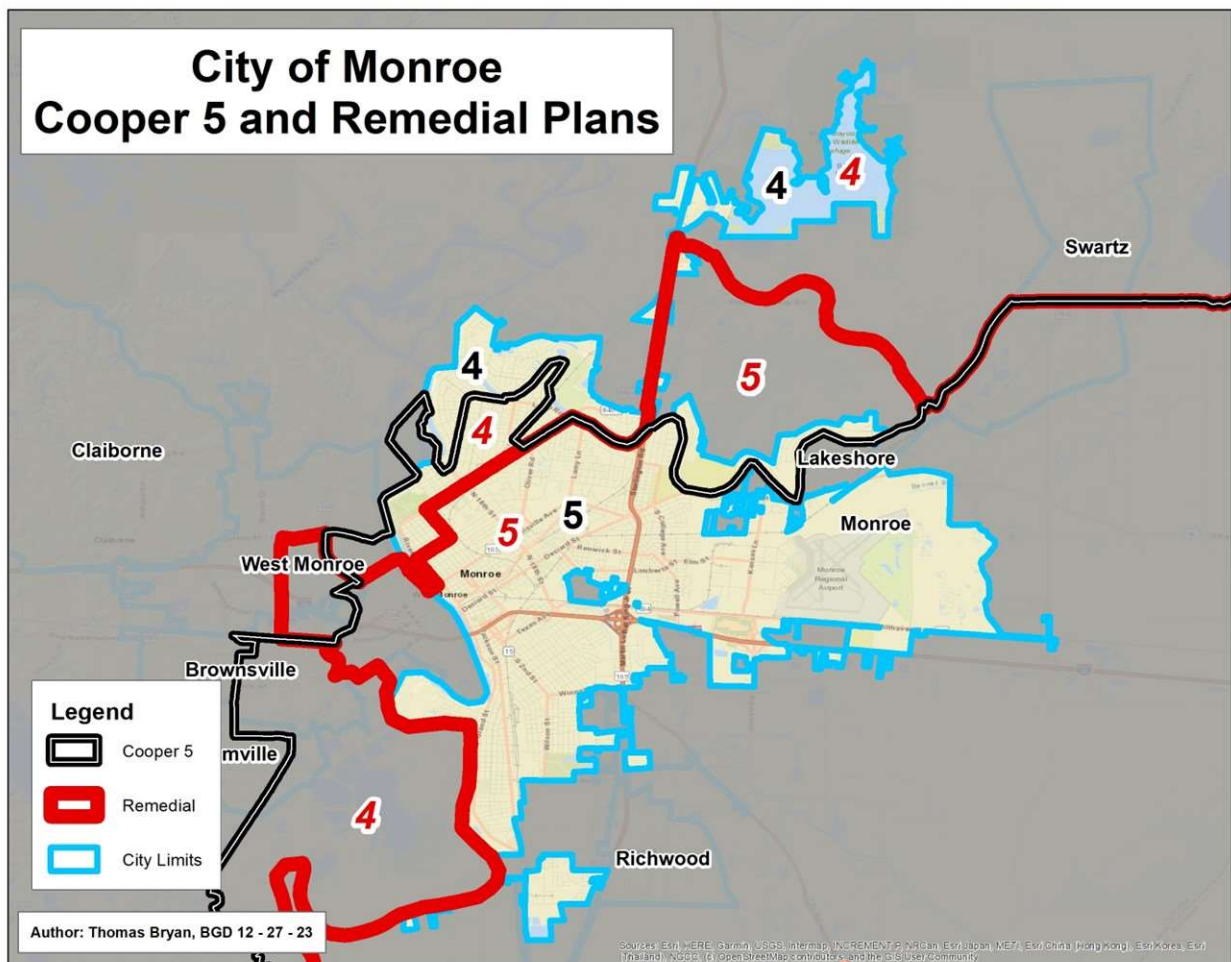


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 4d: Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Monroe**
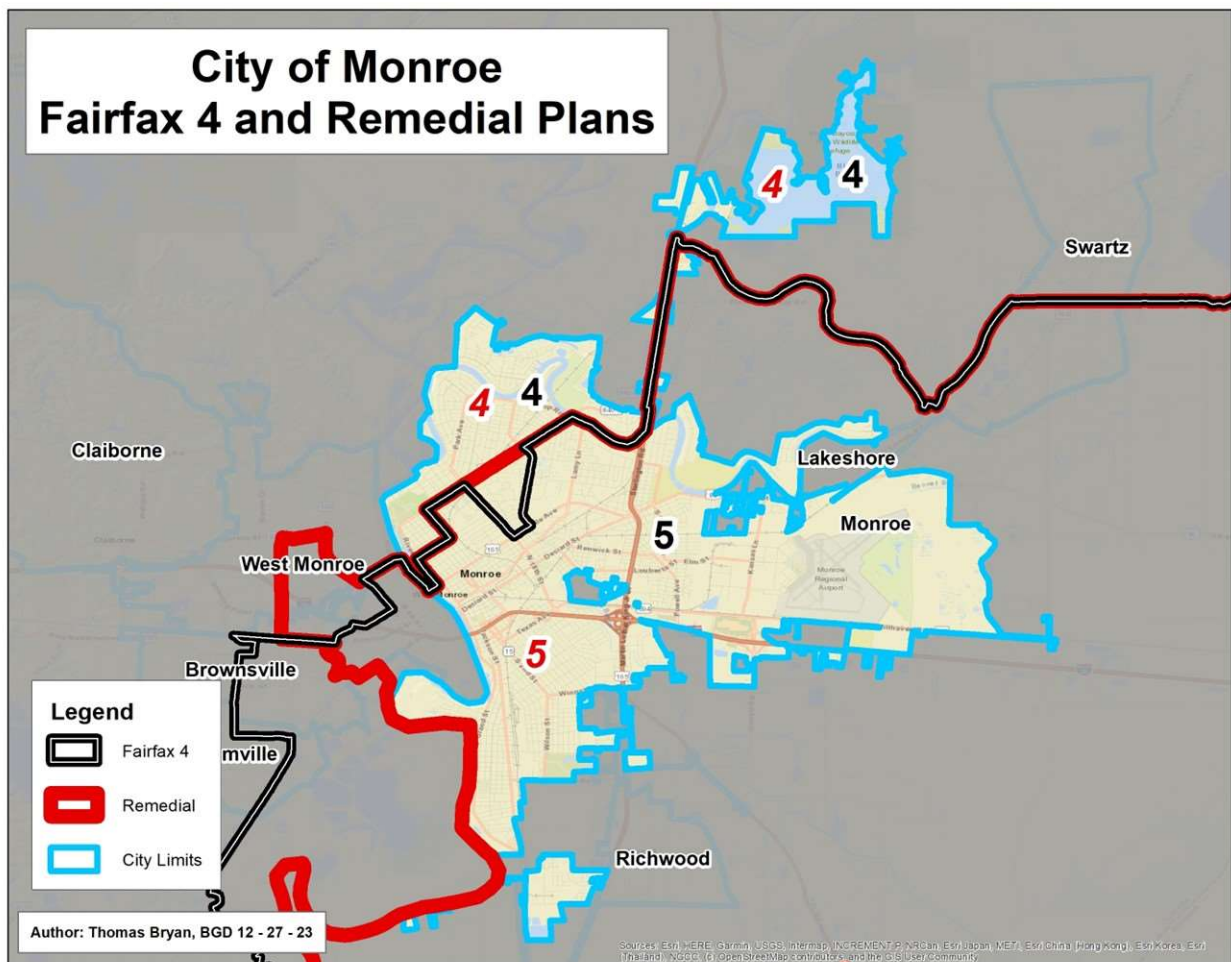


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 5

# Baton Rouge City Maps

a)  **Cooper Plan 5 Split of the City of Baton Rouge**

b)  **Fairfax Plan 4 Split of the City of Baton Rouge**

c)  **Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Baton Rouge**

d)  **Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Baton Rouge**

**Appendix 5a: Cooper Plan 5 Split of the City of Baton Rouge**
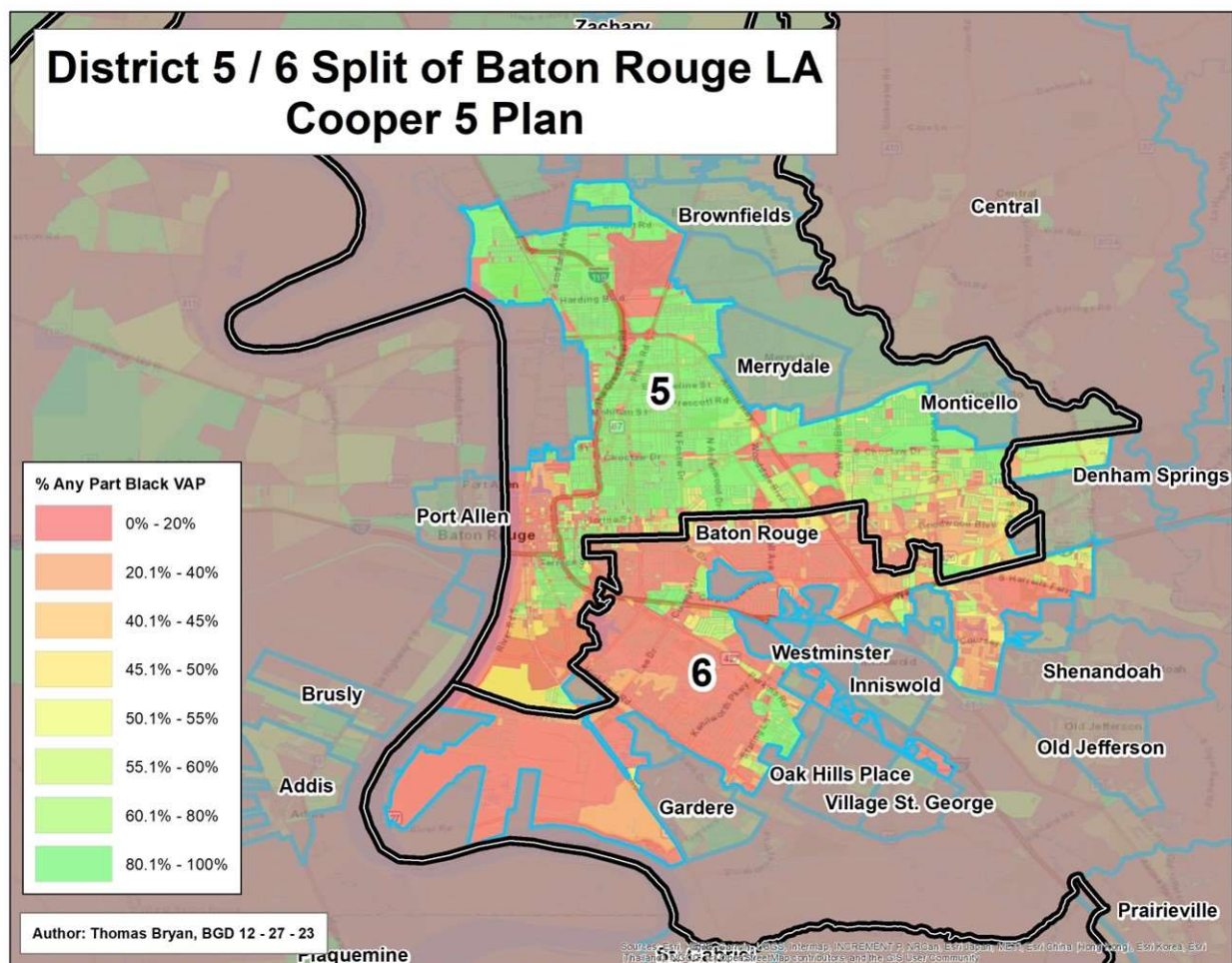


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 5b: Fairfax Plan 4 Split of the City of Baton Rouge**



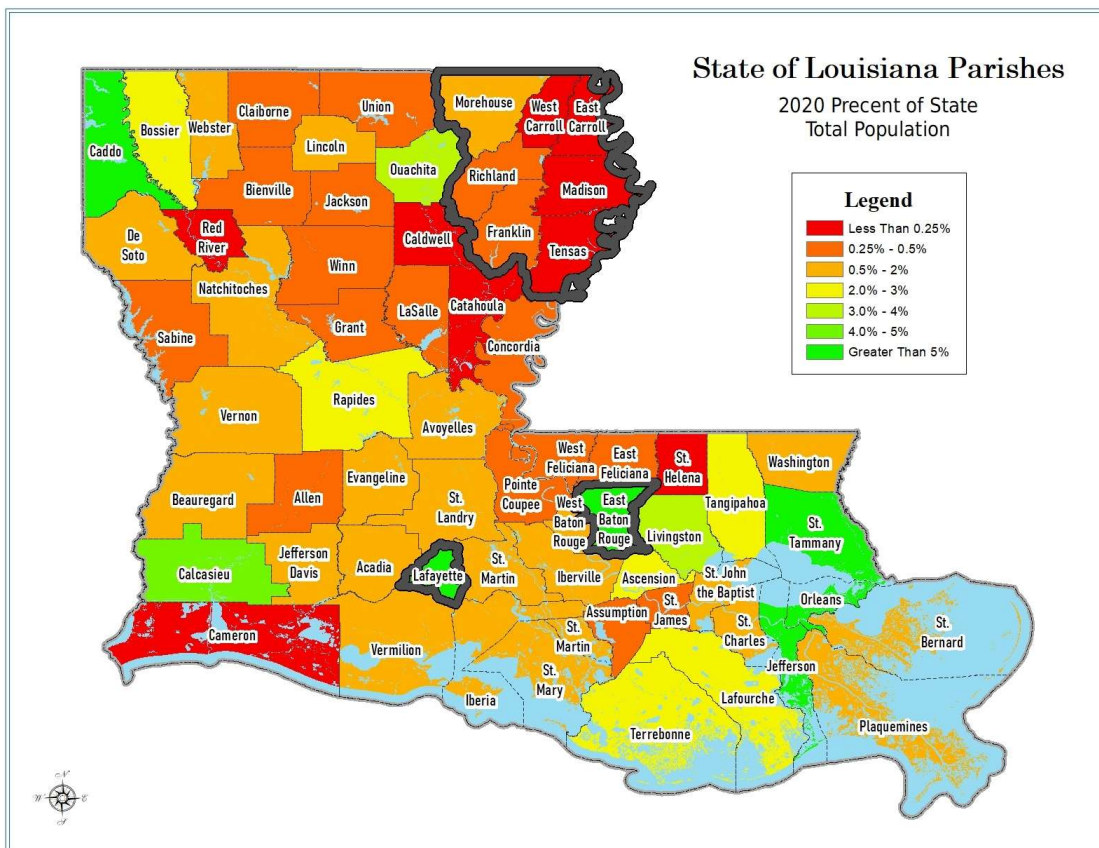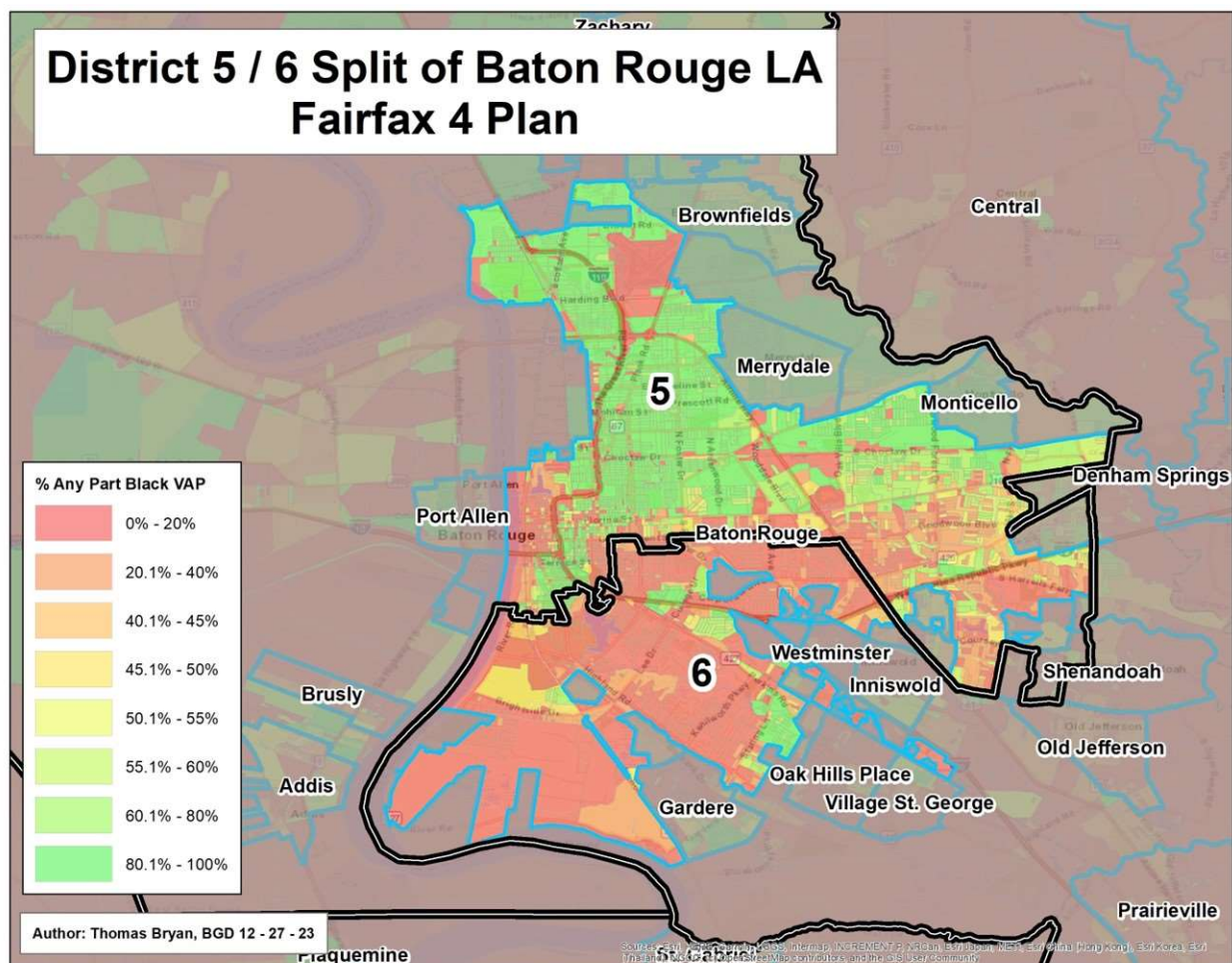Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 5c: Plaintiff Remedial Plan and Cooper Plan 5 Split of the City of Baton Rouge**
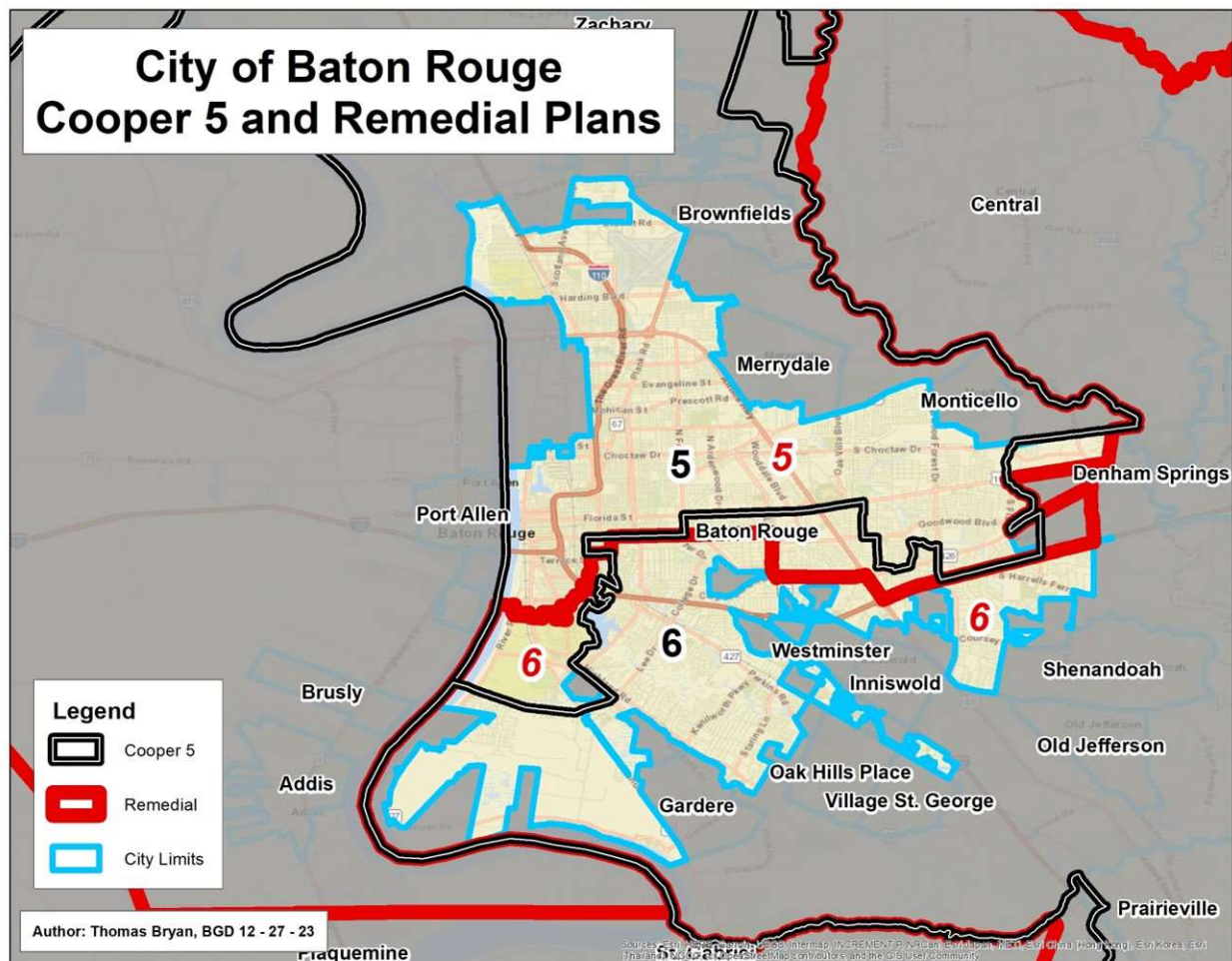


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 5d: Plaintiff Remedial Plan and Fairfax Plan 4 Split of the City of Baton Rouge**
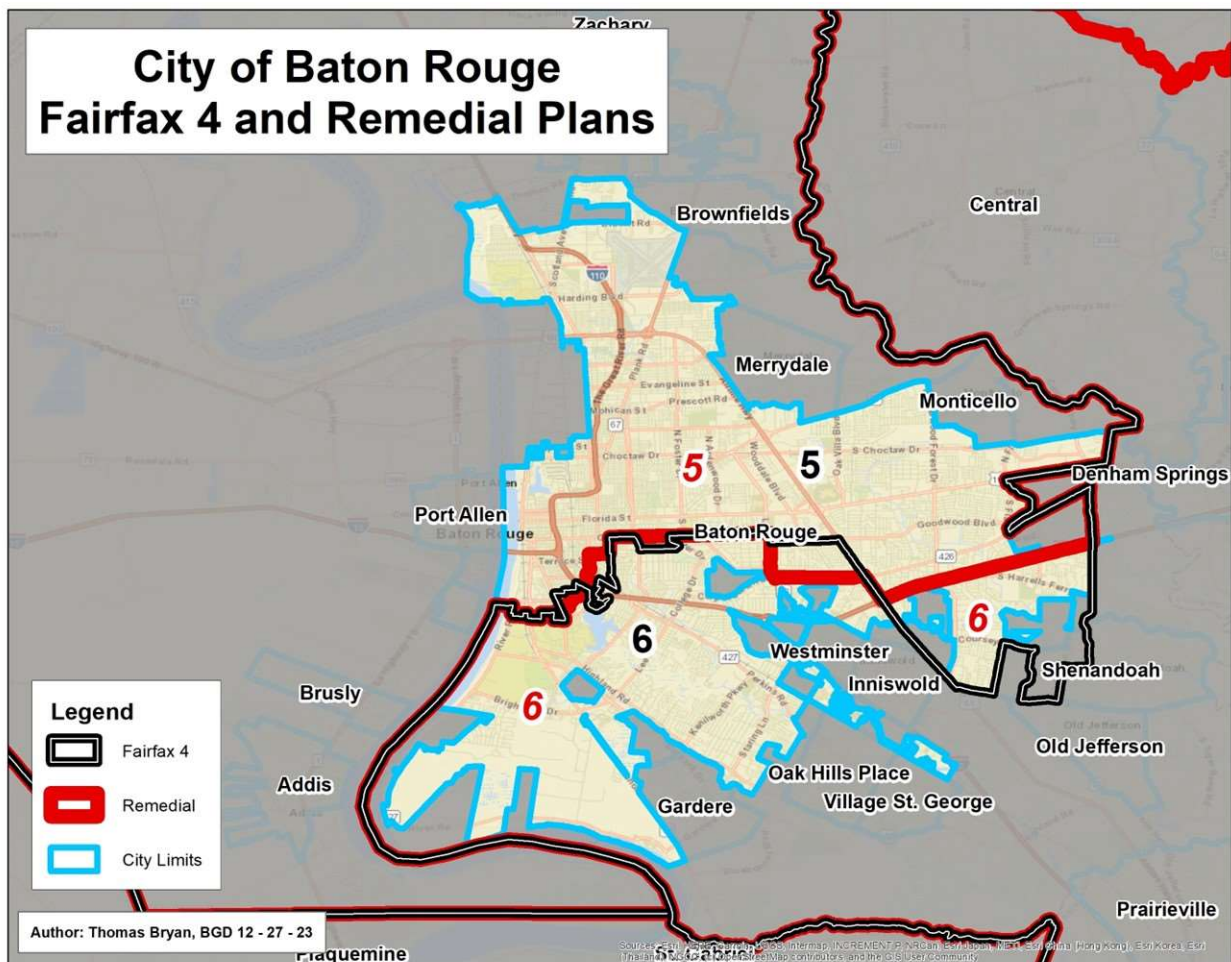


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 6

# Ouachita Parish Maps

**a)  Cooper Plan 5 Split of Ouachita Parish**

**b)  Fairfax Plan 4 Split of Ouachita Parish**

**Appendix 6a: Cooper Plan 5 Split of Ouachita Parish**
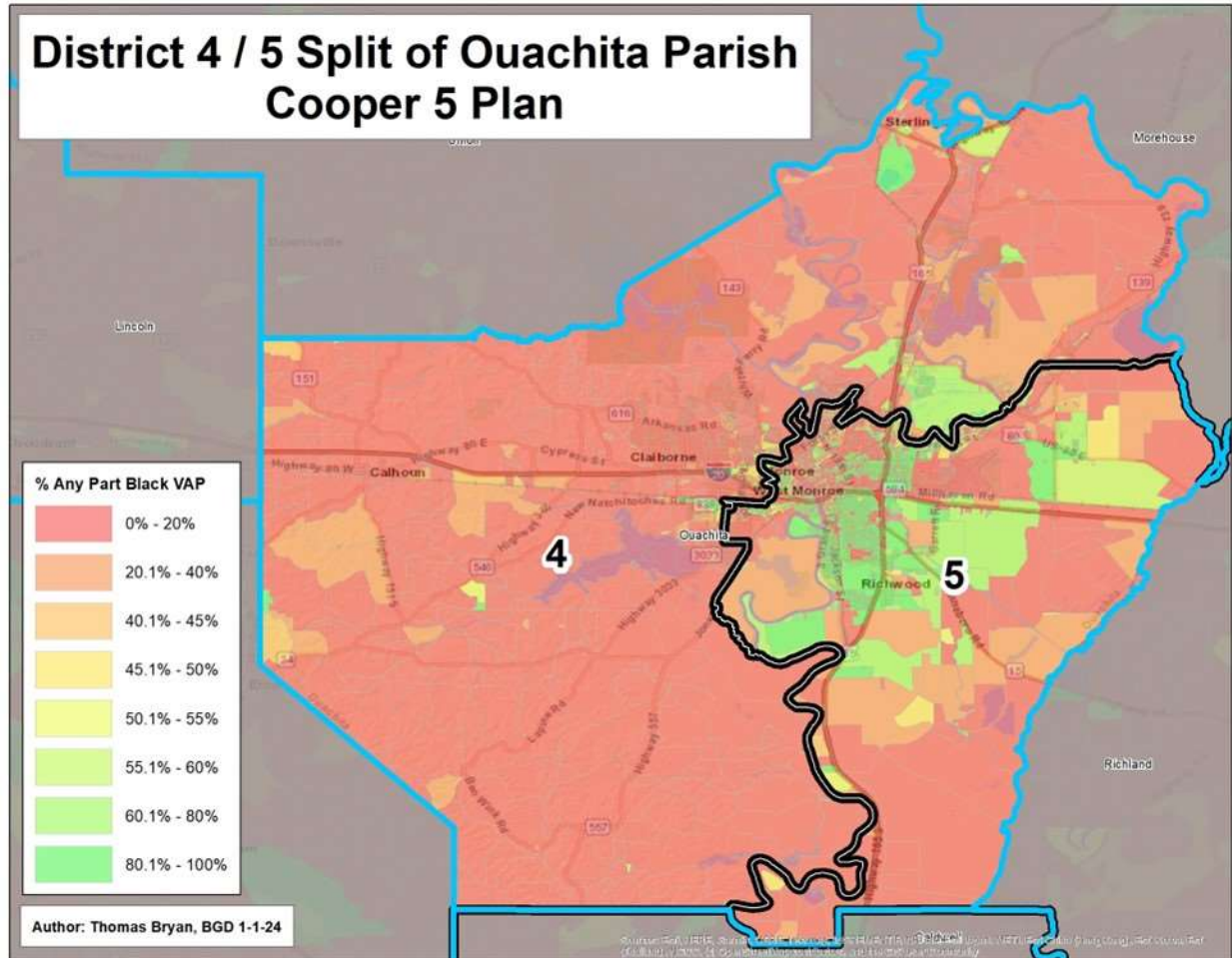


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 6b: Fairfax Plan 4 Split of Ouachita Parish**
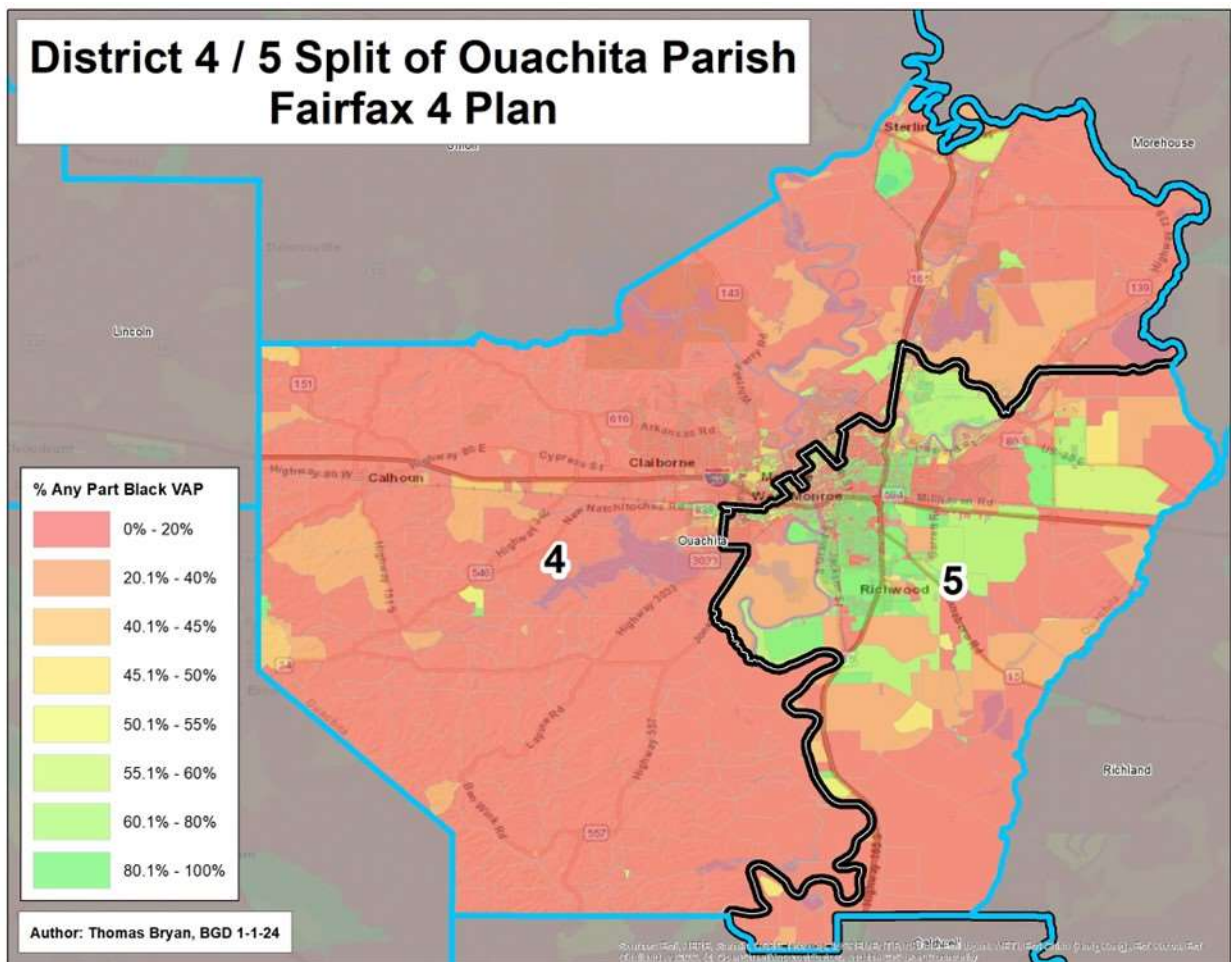


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 7

# Rapides Parish Maps

a)  **Cooper Plan 5 Split of Rapides Parish**

b)  **Fairfax Plan 4 Split of Rapides Parish**

**Appendix 7a: Cooper Plan 5 Split of Rapides Parish**
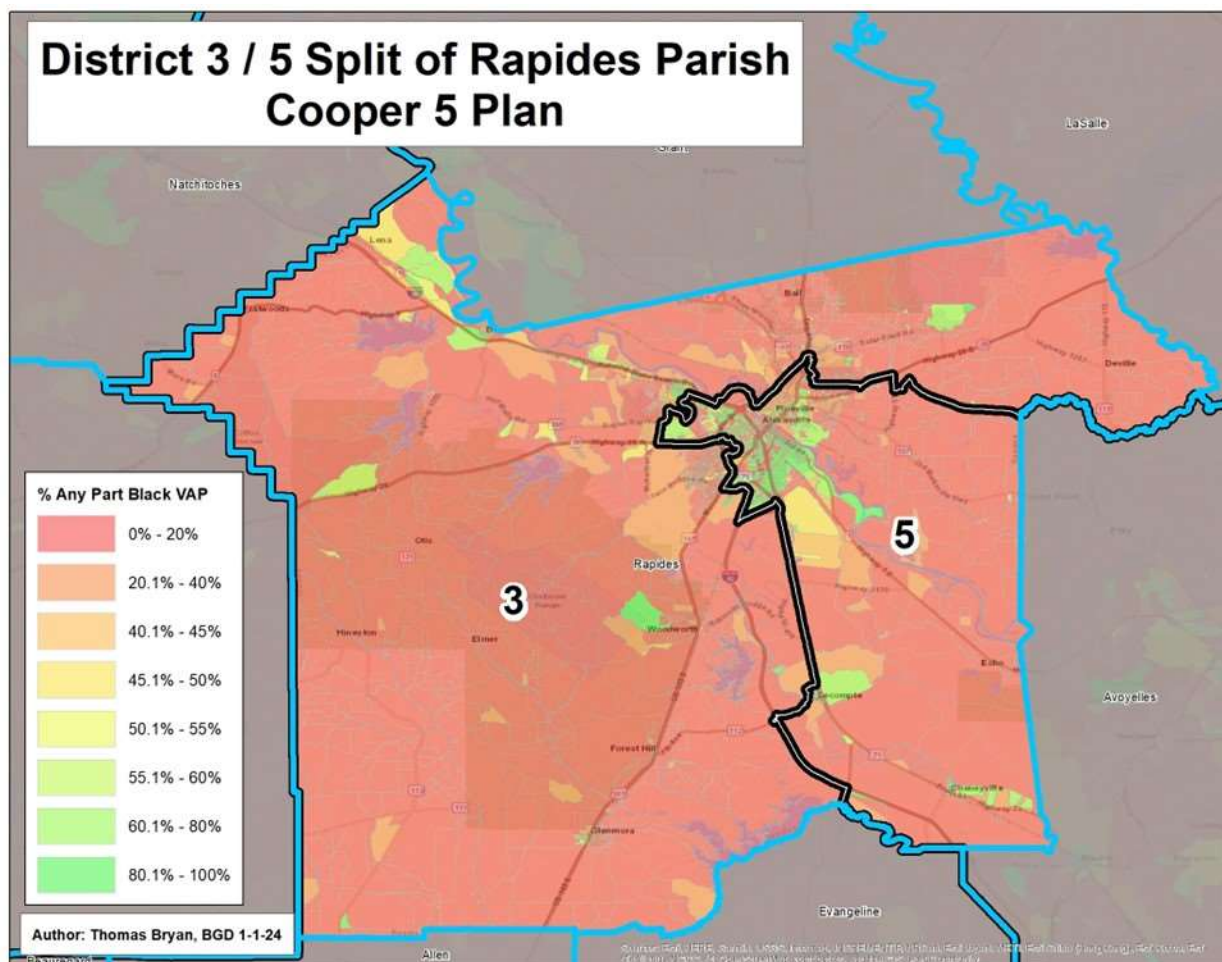


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 7b: Fairfax Plan 4 Split of Rapides Parish**
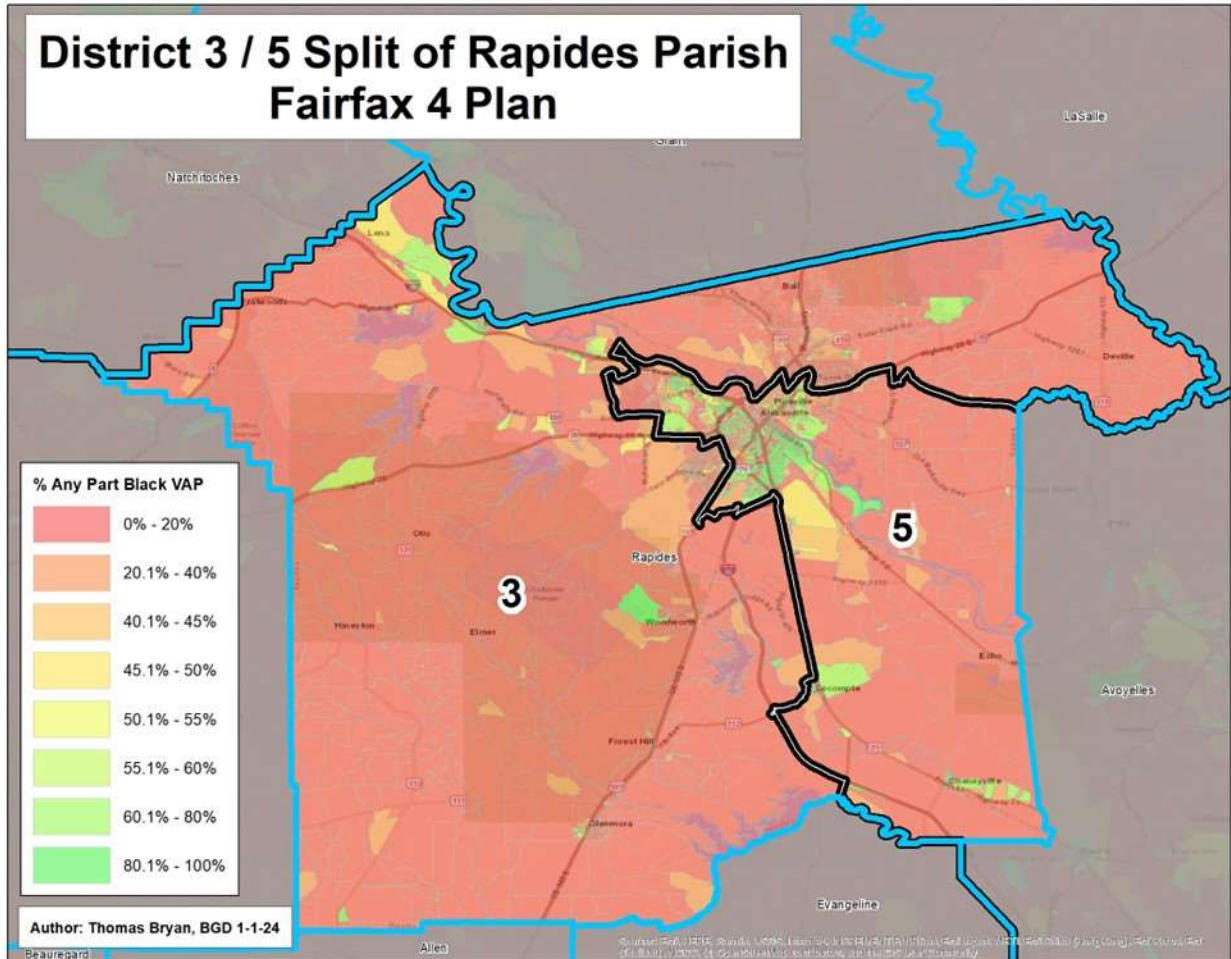


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 8

# Tangipahoa Parish Maps

a)  **Cooper Plan 5 Split of Tangipahoa Parish**

**Fairfax Plan 4 does not split Tangipahoa Parish**

**Appendix 8a: Cooper Plan 5 Split of Tangipahoa Parish**
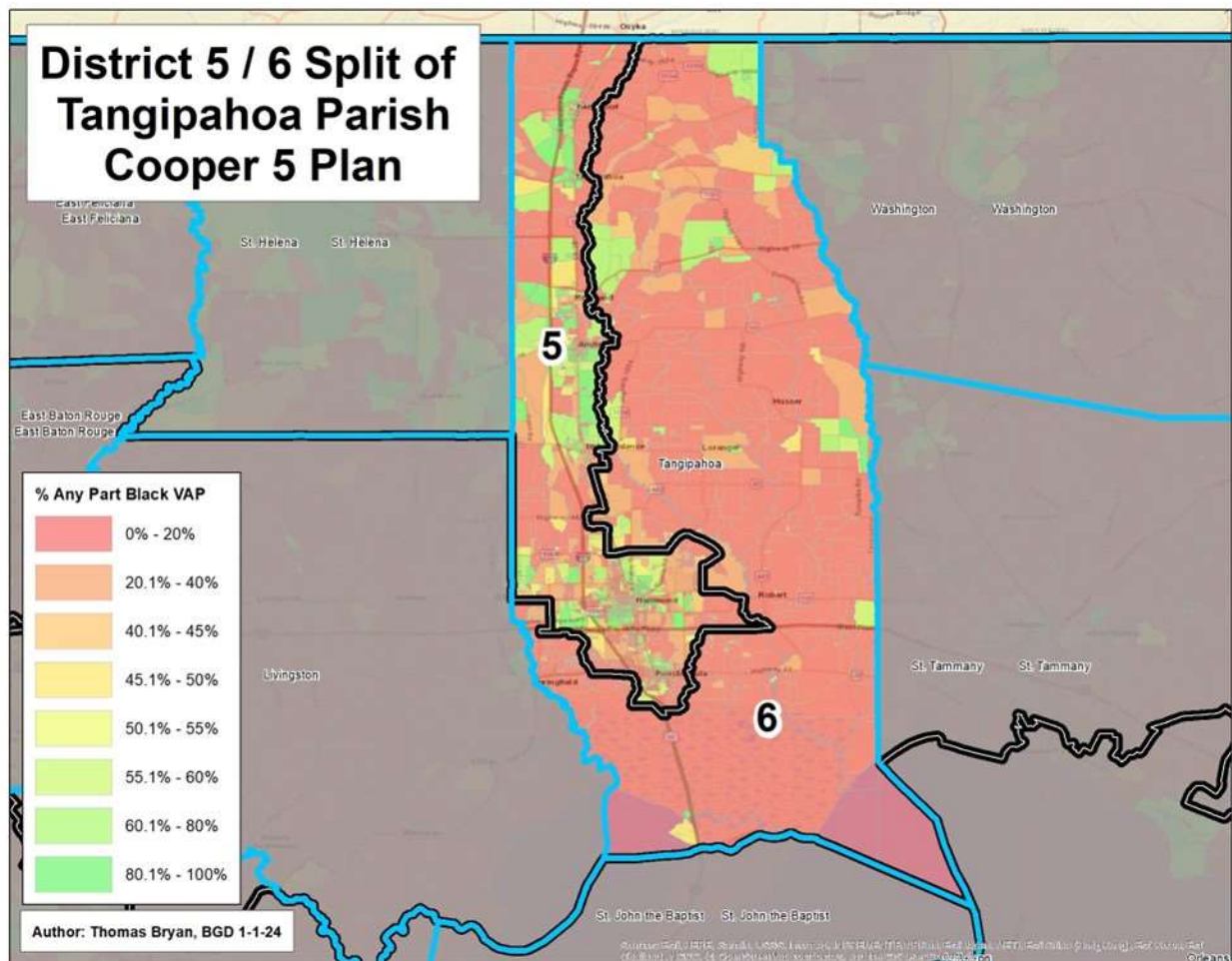


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 9

# Lafayette Parish Maps

a) **Cooper Plan 5 Split of Lafayette Parish**

b) **Fairfax Plan 4 Split of Lafayette Parish**

**Appendix 9a: Cooper Plan 5 Split of Lafayette Parish**
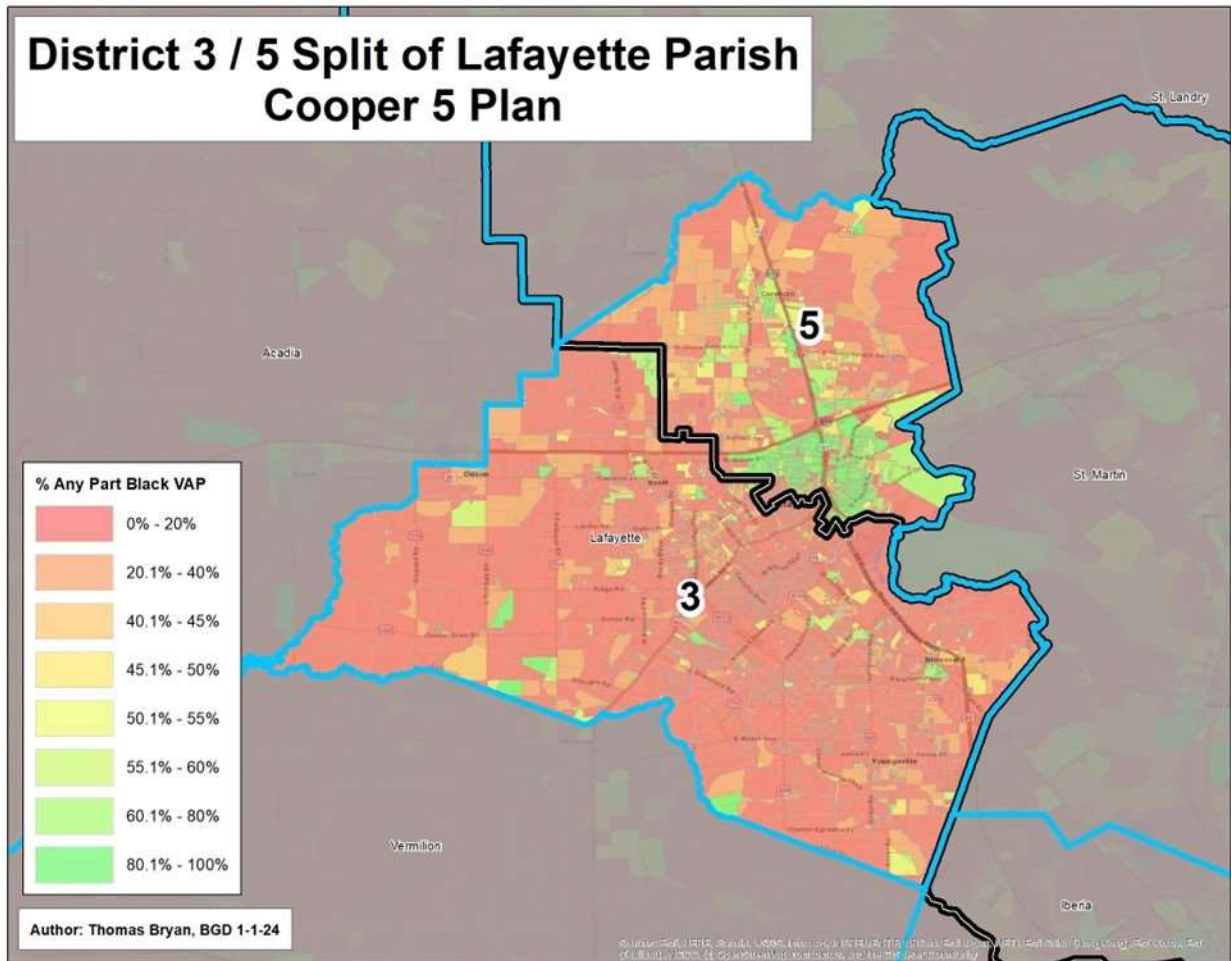


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 9b: Fairfax Plan 4 Split of Lafayette Parish**
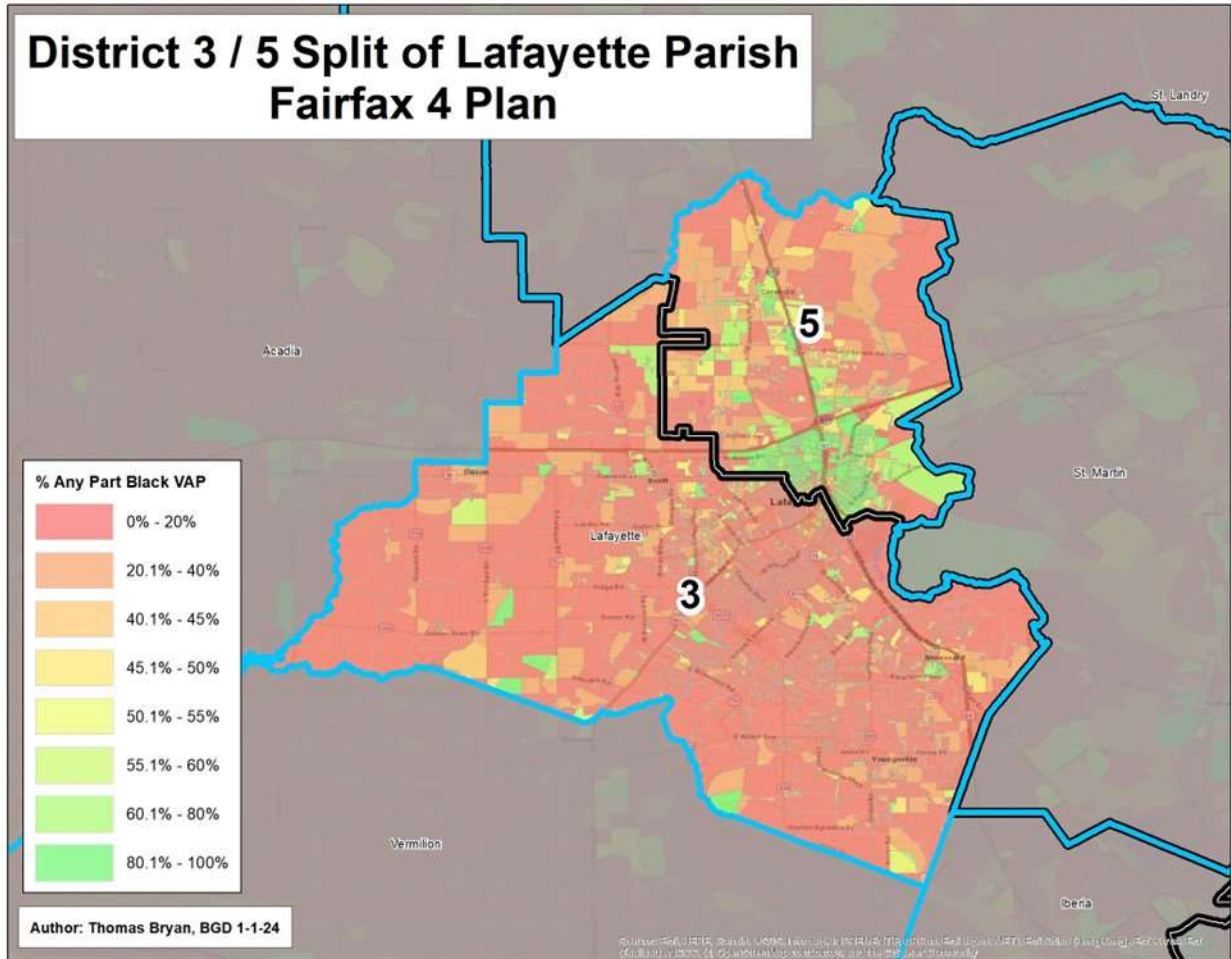


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 10

# East Baton Rouge Parish Maps

a) **Cooper Plan 5 Split of East Baton Rouge Parish**

b) **Fairfax Plan 4 Split of East Baton Rouge Parish**

**Appendix 10a: Cooper Plan 5 Split of East Baton Rouge Parish**
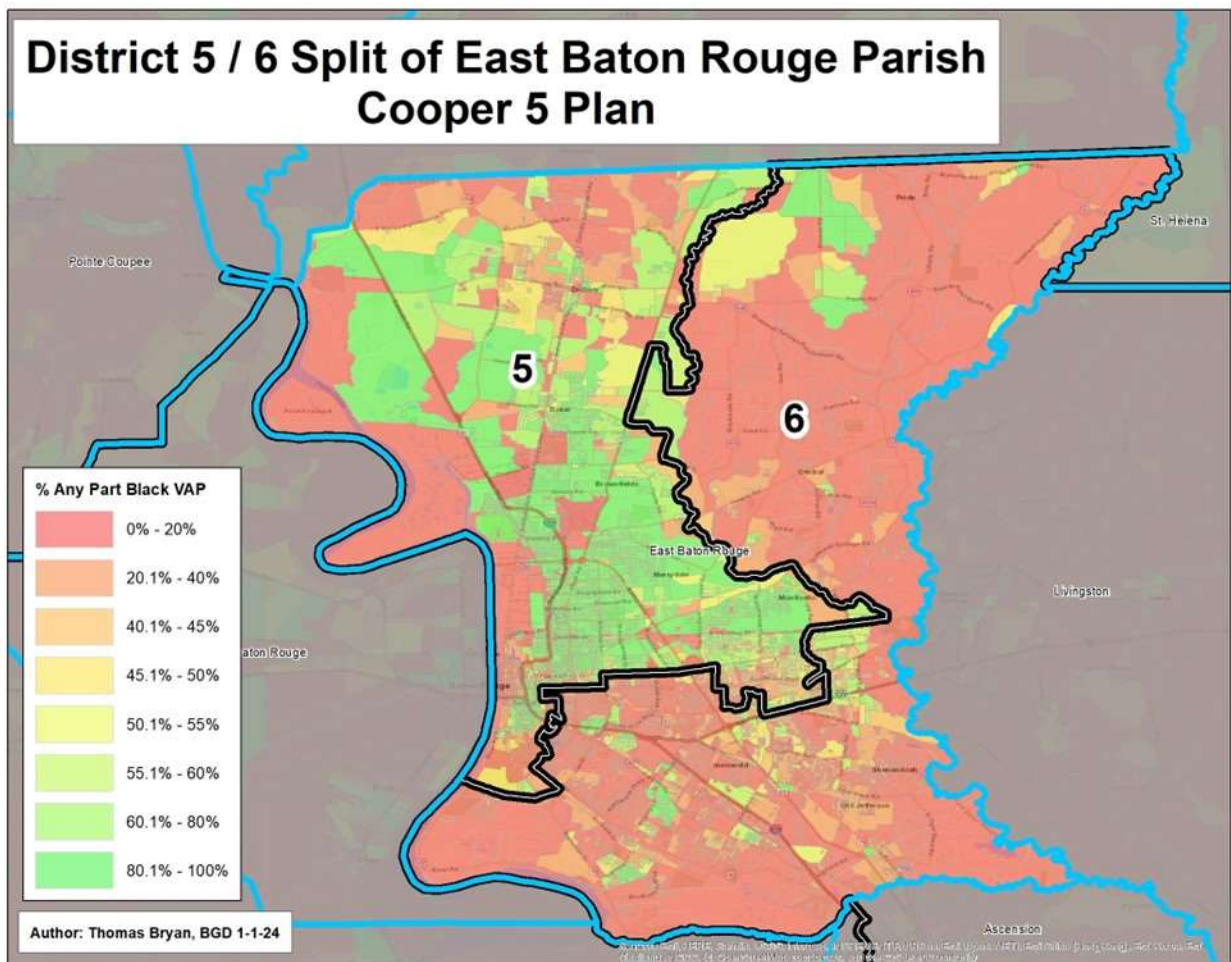


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

**Appendix 10b: Fairfax Plan 4 Split of East Baton Rouge Parish**
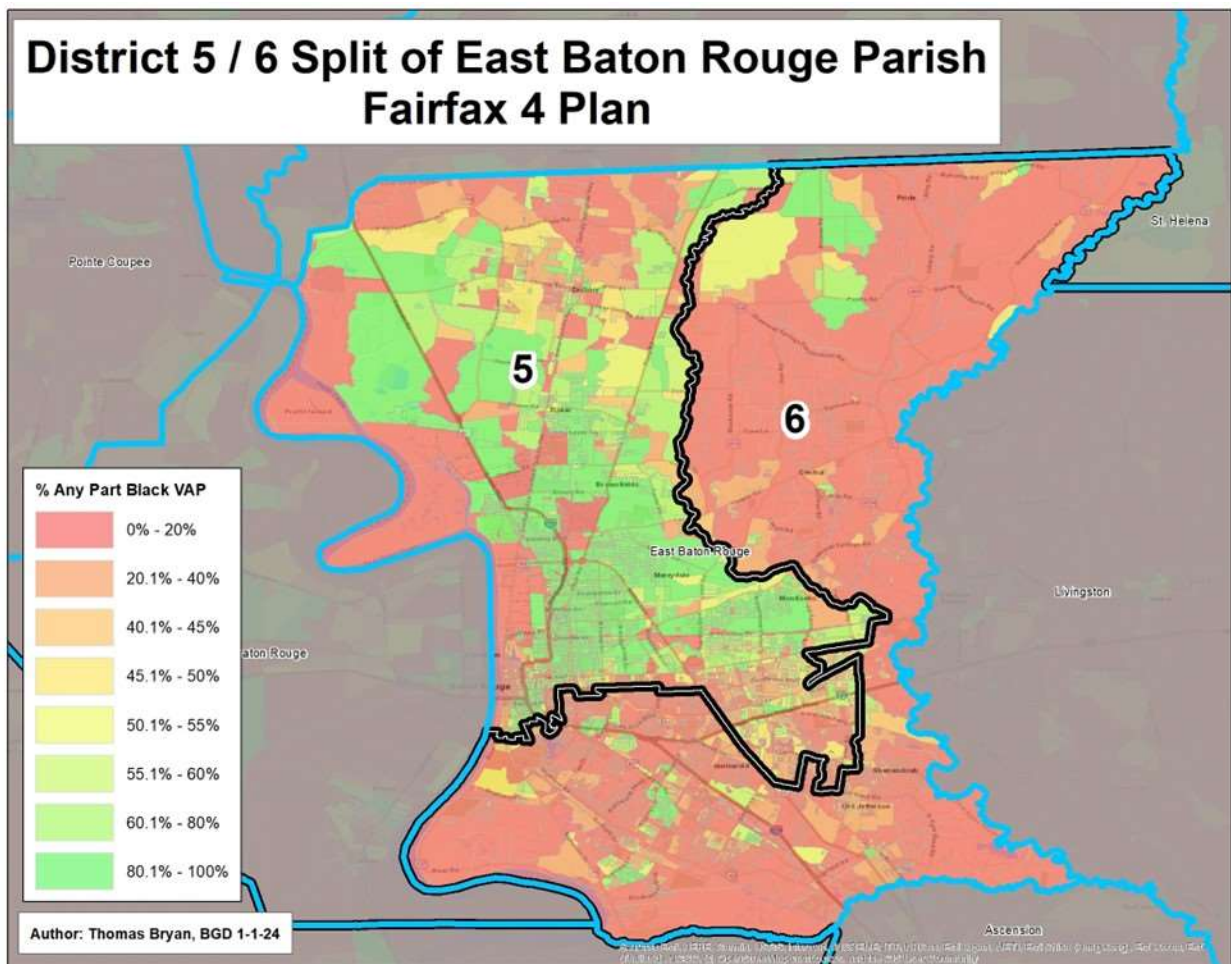


Source: Drawn by BGD at the direction of Dr. David Swanson using shapefiles provided by Plaintiffs' counsel to Defense counsel and 2020 Census shapefiles

# Appendix 11. Place Splits Analysis

A. Enacted Place Splits

B. Plaintiff's Remedial Plan Place Splits

C. Cooper Plan 5 Place Splits

D. Fairfax Plan 4 Place Splits

**Appendix 11A. Enacted Place Splits**

| Place | Enacted | VAP | | | VAP Percentage | | |
|---|---|---|---|---|---|---|---|
| | | Total | WNH | APB | Total | WNH | APB |
| Addis town | 2 | 4,692 | 2,471 | 1,854 | 99.5% | 99.8% | 99.4% |
| | 6 | 23 | 5 | 12 | 0.5% | 0.2% | 0.6% |
| Arnaudville town | 3 | 31 | 25 | 2 | 4.1% | 3.9% | 2.3% |
| | 4 | 726 | 624 | 86 | 95.9% | 96.1% | 97.7% |
| Baker city | 2 | 2,468 | 499 | 1,911 | 26.1% | 32.2% | 25.0% |
| | 6 | 6,998 | 1,049 | 5,738 | 73.9% | 67.8% | 75.0% |
| Basile town | 3 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| | 4 | 926 | 655 | 198 | 100.0% | 100.0% | 100.0% |
| Baton Rouge city | 2 | 59,305 | 3,853 | 53,448 | 32.9% | 5.7% | 56.8% |
| | 6 | 120,935 | 64,051 | 40,613 | 67.1% | 94.3% | 43.2% |
| Brusly town | 2 | 535 | 345 | 169 | 27.6% | 24.8% | 38.9% |
| | 6 | 1,402 | 1,047 | 265 | 72.4% | 75.2% | 61.1% |
| Downsville village | 4 | 74 | 65 | 0 | 78.7% | 79.3% | 0.0% |
| | 5 | 20 | 17 | 0 | 21.3% | 20.7% | 0.0% |
| Eunice city | 3 | 223 | 190 | 23 | 3.2% | 4.4% | 1.0% |
| | 4 | 6,816 | 4,149 | 2,365 | 96.8% | 95.6% | 99.0% |
| Gonzales city | 2 | 4,460 | 1,401 | 2,597 | 48.3% | 37.6% | 61.0% |
| | 6 | 4,765 | 2,322 | 1,658 | 51.7% | 62.4% | 39.0% |
| Hammond city | 1 | 2,401 | 1,412 | 788 | 15.2% | 18.9% | 11.3% |
| | 5 | 13,372 | 6,054 | 6,165 | 84.8% | 81.1% | 88.7% |
| Houma city | 1 | 23,886 | 14,673 | 5,868 | 94.1% | 93.3% | 96.1% |
| | 6 | 1,497 | 1,057 | 239 | 5.9% | 6.7% | 3.9% |
| Kenner city | 1 | 40,914 | 20,618 | 6,093 | 79.9% | 92.5% | 52.9% |
| | 2 | 10,285 | 1,661 | 5,420 | 20.1% | 7.5% | 47.1% |
| Morgan City city | 3 | 7,928 | 4,815 | 1,840 | 91.0% | 88.4% | 97.6% |
| | 6 | 788 | 629 | 45 | 9.0% | 11.6% | 2.4% |
| New Orleans city | 1 | 39,613 | 30,356 | 3,348 | 12.9% | 28.6% | 2.0% |
| | 2 | 266,583 | 75,777 | 162,720 | 87.1% | 71.4% | 98.0% |
| Patterson city | 3 | 3,287 | 1,472 | 1,577 | 74.6% | 68.2% | 83.4% |
| | 6 | 1,118 | 686 | 314 | 25.4% | 31.8% | 16.6% |
| Plaquemine city | 2 | 4,720 | 2,310 | 2,172 | 98.4% | 97.6% | 99.4% |
| | 6 | 75 | 58 | 13 | 1.6% | 2.4% | 0.6% |
| Ponchatoula city | 1 | 5,832 | 3,724 | 1,680 | 97.8% | 97.8% | 98.1% |
| | 5 | 130 | 82 | 32 | 2.2% | 2.2% | 1.9% |
| Port Allen city | 2 | 3,313 | 1,100 | 2,083 | 86.6% | 79.1% | 91.8% |
| | 6 | 514 | 291 | 185 | 13.4% | 20.9% | 8.2% |
| White Castle town | 2 | 1,230 | 118 | 1,101 | 100.0% | 100.0% | 100.0% |
| | 6 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

**Appendix 11B. Plaintiff's Remedial Plan Place Splits**

| Place | Remedial | VAP | | | VAP Percentage | | |
|---|---|---|---|---|---|---|---|
| | | Total | WNH | APB | Total | WNH | APB |
| Alexandria city | 3 | 10,636 | 7,489 | 1,973 | 30.8% | 54.5% | 10.6% |
| | 5 | 23,887 | 6,247 | 16,653 | 69.2% | 45.5% | 89.4% |
| Arnaudville town | 2 | 31 | 25 | 2 | 4.1% | 3.9% | 2.3% |
| | 5 | 726 | 624 | 86 | 95.9% | 96.1% | 97.7% |
| Baton Rouge city | 5 | 104,596 | 20,061 | 75,751 | 58.0% | 29.5% | 80.5% |
| | 6 | 75,644 | 47,843 | 18,310 | 42.0% | 70.5% | 19.5% |
| Broussard city | 2 | 123 | 99 | 15 | 1.2% | 1.3% | 0.9% |
| | 3 | 9,747 | 7,252 | 1,603 | 98.8% | 98.7% | 99.1% |
| Central city | 5 | 183 | 162 | 10 | 0.8% | 0.9% | 0.4% |
| | 6 | 22,032 | 17,915 | 2,421 | 99.2% | 99.1% | 99.6% |
| Eunice city | 3 | 223 | 190 | 23 | 3.2% | 4.4% | 1.0% |
| | 5 | 6,816 | 4,149 | 2,365 | 96.8% | 95.6% | 99.0% |
| Gonzales city | 2 | 3,716 | 1,167 | 2,223 | 40.3% | 31.3% | 52.2% |
| | 6 | 5,509 | 2,556 | 2,032 | 59.7% | 68.7% | 47.8% |
| Independence town | 5 | 1,189 | 590 | 528 | 99.4% | 99.0% | 100.0% |
| | 6 | 7 | 6 | 0 | 0.6% | 1.0% | 0.0% |
| Kenner city | 1 | 42,114 | 21,149 | 6,368 | 82.3% | 94.9% | 55.3% |
| | 2 | 9,085 | 1,130 | 5,145 | 17.7% | 5.1% | 44.7% |
| Lafayette city | 3 | 68,128 | 50,485 | 9,314 | 70.9% | 87.4% | 32.4% |
| | 5 | 27,900 | 7,302 | 19,420 | 29.1% | 12.6% | 67.6% |
| Leesville city | 3 | 1,522 | 861 | 437 | 36.3% | 41.3% | 29.5% |
| | 4 | 2,668 | 1,223 | 1,045 | 63.7% | 58.7% | 70.5% |
| Mandeville city | 1 | 5,638 | 4,632 | 322 | 54.3% | 53.7% | 64.0% |
| | 6 | 4,754 | 3,994 | 181 | 45.7% | 46.3% | 36.0% |
| Monroe city | 4 | 8,323 | 6,800 | 1,010 | 23.5% | 56.1% | 4.7% |
| | 5 | 27,135 | 5,316 | 20,674 | 76.5% | 43.9% | 95.3% |
| Morgan City city | 1 | 8,716 | 5,444 | 1,885 | 100.0% | 100.0% | 100.0% |
| | 2 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| New Iberia city | 2 | 14,499 | 6,656 | 6,708 | 67.7% | 63.9% | 73.5% |
| | 3 | 6,933 | 3,753 | 2,423 | 32.3% | 36.1% | 26.5% |
| New Llano town | 3 | 462 | 209 | 154 | 27.5% | 31.2% | 23.1% |
| | 4 | 1,220 | 461 | 514 | 72.5% | 68.8% | 76.9% |
| New Orleans city | 1 | 72,861 | 51,090 | 10,767 | 23.8% | 48.1% | 6.5% |
| | 2 | 233,335 | 55,043 | 155,301 | 76.2% | 51.9% | 93.5% |
| Pineville city | 3 | 3,822 | 2,752 | 661 | 34.5% | 42.2% | 18.2% |
| | 5 | 7,267 | 3,773 | 2,963 | 65.5% | 57.8% | 81.8% |
| Scott city | 3 | 5,738 | 4,179 | 881 | 91.8% | 92.2% | 89.3% |
| | 5 | 512 | 352 | 106 | 8.2% | 7.8% | 10.7% |
| West Monroe city | 4 | 6,225 | 4,603 | 1,129 | 61.7% | 77.2% | 33.8% |
| | 5 | 3,869 | 1,357 | 2,212 | 38.3% | 22.8% | 66.2% |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

**Appendix 11C. Cooper Plan 5 Place Splits**

| Place | Cooper 5 | VAP | | | VAP Percentage | | |
|---|---|---|---|---|---|---|---|
| | | Total | WNH | APB | Total | WNH | APB |
| Alexandria city | 3 | 13,477 | 9,038 | 3,075 | 39.0% | 65.8% | 16.5% |
| | 5 | 21,046 | 4,698 | 15,551 | 61.0% | 34.2% | 83.5% |
| Arnaudville town | 1 | 31 | 25 | 2 | 4.1% | 3.9% | 2.3% |
| | 5 | 726 | 624 | 86 | 95.9% | 96.1% | 97.7% |
| Baker city | 5 | 9,466 | 1,548 | 7,649 | 100.0% | 100.0% | 100.0% |
| | 6 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| Baton Rouge city | 5 | 111,432 | 23,829 | 77,735 | 61.8% | 35.1% | 82.6% |
| | 6 | 68,808 | 44,075 | 16,326 | 38.2% | 64.9% | 17.4% |
| Broussard city | 1 | 123 | 99 | 15 | 1.2% | 1.3% | 0.9% |
| | 3 | 9,747 | 7,252 | 1,603 | 98.8% | 98.7% | 99.1% |
| DeRidder city | 3 | 7,256 | 4,137 | 2,408 | 95.5% | 96.1% | 95.1% |
| | 4 | 344 | 169 | 124 | 4.5% | 3.9% | 4.9% |
| Eunice city | 3 | 223 | 190 | 23 | 3.2% | 4.4% | 1.0% |
| | 5 | 6,816 | 4,149 | 2,365 | 96.8% | 95.6% | 99.0% |
| Kenner city | 1 | 43,536 | 21,253 | 6,793 | 85.0% | 95.4% | 59.0% |
| | 2 | 7,663 | 1,026 | 4,720 | 15.0% | 4.6% | 41.0% |
| Lafayette city | 3 | 65,617 | 48,578 | 8,957 | 68.3% | 84.1% | 31.2% |
| | 5 | 30,411 | 9,209 | 19,777 | 31.7% | 15.9% | 68.8% |
| Mandeville city | 1 | 9,452 | 7,819 | 470 | 91.0% | 90.6% | 93.4% |
| | 6 | 940 | 807 | 33 | 9.0% | 9.4% | 6.6% |
| Monroe city | 4 | 6,766 | 4,551 | 1,766 | 19.1% | 37.6% | 8.1% |
| | 5 | 28,692 | 7,565 | 19,918 | 80.9% | 62.4% | 91.9% |
| New Iberia city | 1 | 21,108 | 10,246 | 9,019 | 98.5% | 98.4% | 98.8% |
| | 3 | 324 | 163 | 112 | 1.5% | 1.6% | 1.2% |
| New Orleans city | 1 | 24,644 | 19,201 | 1,884 | 8.0% | 18.1% | 1.1% |
| | 2 | 281,552 | 86,932 | 164,184 | 92.0% | 81.9% | 98.9% |
| Pineville city | 3 | 2,805 | 1,976 | 528 | 25.3% | 30.3% | 14.6% |
| | 5 | 8,284 | 4,549 | 3,096 | 74.7% | 69.7% | 85.4% |
| Ponchatoula city | 5 | 5,962 | 3,806 | 1,712 | 100.0% | 100.0% | 100.0% |
| | 6 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| Scott city | 3 | 5,738 | 4,179 | 881 | 91.8% | 92.2% | 89.3% |
| | 5 | 512 | 352 | 106 | 8.2% | 7.8% | 10.7% |
| Slidell city | 1 | 209 | 79 | 101 | 1.0% | 0.6% | 2.0% |
| | 6 | 21,706 | 13,961 | 5,053 | 99.0% | 99.4% | 98.0% |
| Tickfaw village | 5 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| | 6 | 470 | 339 | 75 | 100.0% | 100.0% | 100.0% |
| West Monroe city | 4 | 6,579 | 4,836 | 1,214 | 65.2% | 81.1% | 36.3% |
| | 5 | 3,515 | 1,124 | 2,127 | 34.8% | 18.9% | 63.7% |
| Zachary city | 5 | 13,603 | 6,653 | 6,093 | 99.9% | 99.9% | 100.0% |
| | 6 | 10 | 6 | 0 | 0.1% | 0.1% | 0.0% |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

## Appendix 11D. Fairfax Plan 4 Place Splits

| Place | Fairfax 4 | VAP | | | VAP Percentage | | |
|---|---|---|---|---|---|---|---|
| | | Total | White NH | Any Part Black | Total | White NH | Any Part Black |
| Alexandria city | 3 | 10,636 | 7,489 | 1,973 | 30.8% | 54.5% | 10.6% |
| | 5 | 23,887 | 6,247 | 16,653 | 69.2% | 45.5% | 89.4% |
| Arnaudville town | 2 | 31 | 25 | 2 | 4.1% | 3.9% | 2.3% |
| | 5 | 726 | 624 | 86 | 95.9% | 96.1% | 97.7% |
| Baton Rouge city | 5 | 116,583 | 25,952 | 80,037 | 64.7% | 38.2% | 85.1% |
| | 6 | 63,657 | 41,952 | 14,024 | 35.3% | 61.8% | 14.9% |
| Broussard city | 2 | 123 | 99 | 15 | 1.2% | 1.3% | 0.9% |
| | 3 | 9,747 | 7,252 | 1,603 | 98.8% | 98.7% | 99.1% |
| Eunice city | 3 | 223 | 190 | 23 | 3.2% | 4.4% | 1.0% |
| | 5 | 6,816 | 4,149 | 2,365 | 96.8% | 95.6% | 99.0% |
| Gonzales city | 2 | 3,716 | 1,167 | 2,223 | 40.3% | 31.3% | 52.2% |
| | 6 | 5,509 | 2,556 | 2,032 | 59.7% | 68.7% | 47.8% |
| Kenner city | 1 | 42,114 | 21,149 | 6,368 | 82.3% | 94.9% | 55.3% |
| | 2 | 9,085 | 1,130 | 5,145 | 17.7% | 5.1% | 44.7% |
| Lafayette city | 3 | 68,128 | 50,485 | 9,314 | 70.9% | 87.4% | 32.4% |
| | 5 | 27,900 | 7,302 | 19,420 | 29.1% | 12.6% | 67.6% |
| Leesville city | 3 | 1,522 | 861 | 437 | 36.3% | 41.3% | 29.5% |
| | 4 | 2,668 | 1,223 | 1,045 | 63.7% | 58.7% | 70.5% |
| Mandeville city | 1 | 9,169 | 7,619 | 444 | 88.2% | 88.3% | 88.3% |
| | 6 | 1,223 | 1,007 | 59 | 11.8% | 11.7% | 11.7% |
| Monroe city | 4 | 9,220 | 7,327 | 1,334 | 26.0% | 60.5% | 6.2% |
| | 5 | 26,238 | 4,789 | 20,350 | 74.0% | 39.5% | 93.8% |
| Morgan City city | 1 | 8,716 | 5,444 | 1,885 | 100.0% | 100.0% | 100.0% |
| | 2 | 0 | 0 | 0 | 0.0% | 0.0% | 0.0% |
| New Iberia city | 2 | 14,499 | 6,656 | 6,708 | 67.7% | 63.9% | 73.5% |
| | 3 | 6,933 | 3,753 | 2,423 | 32.3% | 36.1% | 26.5% |
| New Llano town | 3 | 462 | 209 | 154 | 27.5% | 31.2% | 23.1% |
| | 4 | 1,220 | 461 | 514 | 72.5% | 68.8% | 76.9% |
| New Orleans city | 1 | 72,861 | 51,090 | 10,767 | 23.8% | 48.1% | 6.5% |
| | 2 | 233,335 | 55,043 | 155,301 | 76.2% | 51.9% | 93.5% |
| Pearl River town | 1 | 173 | 142 | 15 | 8.7% | 8.4% | 18.5% |
| | 6 | 1,821 | 1,551 | 66 | 91.3% | 91.6% | 81.5% |
| Pineville city | 3 | 3,822 | 2,752 | 661 | 34.5% | 42.2% | 18.2% |
| | 5 | 7,267 | 3,773 | 2,963 | 65.5% | 57.8% | 81.8% |
| Scott city | 3 | 5,738 | 4,179 | 881 | 91.8% | 92.2% | 89.3% |
| | 5 | 512 | 352 | 106 | 8.2% | 7.8% | 10.7% |
| West Monroe city | 4 | 7,405 | 5,197 | 1,606 | 73.4% | 87.2% | 48.1% |
| | 5 | 2,689 | 763 | 1,735 | 26.6% | 12.8% | 51.9% |
| Zachary city | 5 | 13,603 | 6,653 | 6,093 | 99.9% | 99.9% | 100.0% |
| | 6 | 10 | 6 | 0 | 0.1% | 0.1% | 0.0% |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

# Appendix 12. Parish Splits Analysis

A. Enacted Parish Splits

B. Plaintiff's Remedial Plan Parish Splits

C. Cooper Plan 5 Parish Splits

D. Fairfax Plan 4 Parish Splits

**Appendix 12A. Enacted Parish Splits**

| Parish | Enacted | Total | WNH | APB | Total | WNH | APB |
|---|---|---|---|---|---|---|---|
| Ascension Parish | 2 | 15,426 | 4,553 | 9,766 | 16.8% | 7.6% | 44.1% |
|  | 6 | 76,531 | 55,668 | 12,373 | 83.2% | 92.4% | 55.9% |
| Assumption Parish | 2 | 5,270 | 2,310 | 2,764 | 31.7% | 20.9% | 58.7% |
|  | 6 | 11,346 | 8,728 | 1,943 | 68.3% | 79.1% | 41.3% |
| East Baton Rouge Parish | 2 | 70,960 | 4,910 | 63,632 | 20.0% | 3.1% | 40.6% |
|  | 6 | 284,652 | 155,518 | 93,158 | 80.0% | 96.9% | 59.4% |
| Grant Parish | 4 | 5,801 | 4,430 | 1,133 | 33.1% | 34.2% | 41.7% |
|  | 5 | 11,726 | 8,541 | 1,584 | 66.9% | 65.8% | 58.3% |
| Iberville Parish | 2 | 16,631 | 7,062 | 8,363 | 69.0% | 57.4% | 81.7% |
|  | 6 | 7,455 | 5,238 | 1,869 | 31.0% | 42.6% | 18.3% |
| Jefferson Parish | 1 | 196,104 | 126,134 | 23,683 | 56.9% | 71.9% | 25.7% |
|  | 2 | 148,550 | 49,178 | 68,492 | 43.1% | 28.1% | 74.3% |
| Lafourche Parish | 1 | 33,330 | 27,740 | 1,095 | 44.7% | 49.3% | 9.9% |
|  | 6 | 41,289 | 28,471 | 9,982 | 55.3% | 50.7% | 90.1% |
| Orleans Parish | 1 | 39,613 | 30,356 | 3,348 | 12.9% | 28.6% | 2.0% |
|  | 2 | 266,583 | 75,777 | 162,720 | 87.1% | 71.4% | 98.0% |
| St. Charles Parish | 2 | 26,288 | 16,039 | 7,957 | 66.5% | 62.6% | 80.5% |
|  | 6 | 13,253 | 9,567 | 1,933 | 33.5% | 37.4% | 19.5% |
| St. John the Baptist Parish | 2 | 24,826 | 7,149 | 15,831 | 76.4% | 63.3% | 85.9% |
|  | 6 | 7,677 | 4,139 | 2,606 | 23.6% | 36.7% | 14.1% |
| St. Martin Parish | 3 | 38,250 | 24,977 | 11,282 | 97.1% | 95.9% | 99.9% |
|  | 6 | 1,154 | 1,076 | 11 | 2.9% | 4.1% | 0.1% |
| St. Mary Parish | 3 | 34,054 | 19,404 | 11,013 | 90.8% | 91.5% | 95.6% |
|  | 6 | 3,467 | 1,811 | 507 | 9.2% | 8.5% | 4.4% |
| Tangipahoa Parish | 1 | 30,157 | 22,594 | 4,838 | 29.7% | 35.2% | 16.6% |
|  | 5 | 71,334 | 41,604 | 24,379 | 70.3% | 64.8% | 83.4% |
| Terrebonne Parish | 1 | 51,018 | 33,123 | 9,579 | 61.8% | 60.3% | 60.6% |
|  | 6 | 31,487 | 21,830 | 6,217 | 38.2% | 39.7% | 39.4% |
| West Baton Rouge Parish | 2 | 10,164 | 4,314 | 5,196 | 49.5% | 39.1% | 63.8% |
|  | 6 | 10,362 | 6,707 | 2,953 | 50.5% | 60.9% | 36.2% |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

**Appendix 12B. Plaintiff's Remedial Plan Parish Splits**

| Parish | Remedial | VAP | | | VAP Percentage | | |
|---|---|---|---|---|---|---|---|
| | | Total | WNH | APB | Total | WNH | APB |
| Ascension Parish | 2 | 18,078 | 6,544 | 10,347 | 19.7% | 10.9% | 46.7% |
| | 6 | 73,879 | 53,677 | 11,792 | 80.3% | 89.1% | 53.3% |
| East Baton Rouge Parish | 5 | 164,322 | 38,387 | 113,810 | 46.2% | 23.9% | 72.6% |
| | 6 | 191,290 | 122,041 | 42,980 | 53.8% | 76.1% | 27.4% |
| Iberia Parish | 2 | 24,501 | 14,020 | 8,709 | 46.4% | 45.4% | 51.0% |
| | 3 | 28,290 | 16,859 | 8,360 | 53.6% | 54.6% | 49.0% |
| Jefferson Parish | 1 | 189,536 | 121,965 | 22,100 | 55.0% | 69.6% | 24.0% |
| | 2 | 155,118 | 53,347 | 70,075 | 45.0% | 30.4% | 76.0% |
| Lafayette Parish | 3 | 133,786 | 99,734 | 18,873 | 72.8% | 83.3% | 41.1% |
| | 5 | 50,089 | 19,936 | 27,044 | 27.2% | 16.7% | 58.9% |
| Orleans Parish | 1 | 72,861 | 51,090 | 10,767 | 23.8% | 48.1% | 6.5% |
| | 2 | 233,335 | 55,043 | 155,301 | 76.2% | 51.9% | 93.5% |
| Ouachita Parish | 4 | 68,844 | 55,935 | 7,617 | 57.3% | 80.8% | 18.0% |
| | 5 | 51,356 | 13,331 | 34,673 | 42.7% | 19.2% | 82.0% |
| Rapides Parish | 3 | 53,146 | 41,880 | 5,966 | 53.8% | 69.1% | 19.8% |
| | 5 | 45,646 | 18,713 | 24,239 | 46.2% | 30.9% | 80.2% |
| St. Tammany Parish | 1 | 98,735 | 66,557 | 20,085 | 48.8% | 43.9% | 75.1% |
| | 6 | 103,493 | 85,117 | 6,676 | 51.2% | 56.1% | 24.9% |
| Tangipahoa Parish | 5 | 16,362 | 7,512 | 8,128 | 16.1% | 11.7% | 27.8% |
| | 6 | 85,129 | 56,686 | 21,089 | 83.9% | 88.3% | 72.2% |
| Vernon Parish | 3 | 24,477 | 17,195 | 3,320 | 67.5% | 66.6% | 64.7% |
| | 4 | 11,784 | 8,627 | 1,813 | 32.5% | 33.4% | 35.3% |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

**Appendix 12C. Cooper Plan 5 Parish Splits**

| Parish | Cooper 5 | VAP Total | VAP White NH | VAP Any Part Black | VAP Percentage Total | VAP Percentage White NH | VAP Percentage Any Part Black | |
|---|---|---|---|---|---|---|---|---|
| Ascension | 2 | 35,689 | 17,629 | 14,530 | 38.8% | 29.3% | 65.6% | |
| | 6 | 56,268 | 42,592 | 7,609 | 61.2% | 70.7% | 34.4% | |
| East Baton Rouge | 5 | 163,885 | 38,347 | 112,958 | 46.1% | 23.9% | 72.0% | 1 |
| | 6 | 191,727 | 122,081 | 43,832 | 53.9% | 76.1% | 28.0% | |
| Iberia | 1 | 44,778 | 24,851 | 16,025 | 84.8% | 80.5% | 93.9% | |
| | 3 | 8,013 | 6,028 | 1,044 | 15.2% | 19.5% | 6.1% | |
| Jefferson | 1 | 190,922 | 121,327 | 23,207 | 55.4% | 69.2% | 25.2% | |
| | 2 | 153,732 | 53,985 | 68,968 | 44.6% | 30.8% | 74.8% | |
| Lafayette | 3 | 129,559 | 96,484 | 18,225 | 70.5% | 80.6% | 39.7% | 2 |
| | 5 | 54,316 | 23,186 | 27,692 | 29.5% | 19.4% | 60.3% | |
| Orleans | 1 | 24,644 | 19,201 | 1,884 | 8.0% | 18.1% | 1.1% | |
| | 2 | 281,552 | 86,932 | 164,184 | 92.0% | 81.9% | 98.9% | |
| Ouachita | 4 | 70,208 | 54,275 | 10,612 | 58.4% | 78.4% | 25.1% | 3 |
| | 5 | 49,992 | 14,991 | 31,678 | 41.6% | 21.6% | 74.9% | |
| Rapides | 3 | 56,880 | 42,977 | 8,190 | 57.6% | 70.9% | 27.1% | 4 |
| | 5 | 41,912 | 17,616 | 22,015 | 42.4% | 29.1% | 72.9% | |
| St. Tammany | 1 | 39,311 | 27,408 | 6,902 | 19.4% | 18.1% | 25.8% | |
| | 6 | 162,917 | 124,266 | 19,859 | 80.6% | 81.9% | 74.2% | |
| Tangipahoa | 5 | 61,154 | 31,960 | 24,344 | 60.3% | 49.8% | 83.3% | 5 |
| | 6 | 40,337 | 32,238 | 4,873 | 39.7% | 50.2% | 16.7% | |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

**Appendix 12D. Fairfax Plan 4 Parish Splits**

| Parish | Fairfax 4 | VAP | | | VAP Percentage | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | White NH | Any Part Black | Total | White NH | Any Part Black | |
| Ascension Parish | 2 | 18,078 | 6,544 | 10,347 | 19.7% | 10.9% | 46.7% | |
| | 6 | 73,879 | 53,677 | 11,792 | 80.3% | 89.1% | 53.3% | |
| East Baton Rouge | 5 | 181,338 | 45,873 | 120,088 | 51.0% | 28.6% | 76.6% | 1 |
| | 6 | 174,274 | 114,555 | 36,702 | 49.0% | 71.4% | 23.4% | |
| Iberia | 2 | 24,501 | 14,020 | 8,709 | 46.4% | 45.4% | 51.0% | |
| | 3 | 28,290 | 16,859 | 8,360 | 53.6% | 54.6% | 49.0% | |
| Jefferson | 1 | 189,536 | 121,965 | 22,100 | 55.0% | 69.6% | 24.0% | |
| | 2 | 155,118 | 53,347 | 70,075 | 45.0% | 30.4% | 76.0% | |
| Lafayette | 3 | 133,786 | 99,734 | 18,873 | 72.8% | 83.3% | 41.1% | 2 |
| | 5 | 50,089 | 19,936 | 27,044 | 27.2% | 16.7% | 58.9% | |
| Orleans | 1 | 72,861 | 51,090 | 10,767 | 23.8% | 48.1% | 6.5% | |
| | 2 | 233,335 | 55,043 | 155,301 | 76.2% | 51.9% | 93.5% | |
| Ouachita | 4 | 68,844 | 55,738 | 7,942 | 57.3% | 80.5% | 18.8% | 3 |
| | 5 | 51,356 | 13,528 | 34,348 | 42.7% | 19.5% | 81.2% | |
| Rapides | 3 | 53,146 | 41,880 | 5,966 | 53.8% | 69.1% | 19.8% | 4 |
| | 5 | 45,646 | 18,713 | 24,239 | 46.2% | 30.9% | 80.2% | |
| St. Tammany Parish | 1 | 98,832 | 66,533 | 20,123 | 48.9% | 43.9% | 75.2% | |
| | 6 | 103,396 | 85,141 | 6,638 | 51.1% | 56.1% | 24.8% | |
| Vernon Parish | 3 | 24,477 | 17,195 | 3,320 | 67.5% | 66.6% | 64.7% | |
| | 4 | 11,784 | 8,627 | 1,813 | 32.5% | 33.4% | 35.3% | |

Source: 2020 Census, analysis performed by BGD at the direction and request of Dr. David Swanson

**Appendix 13. Louisiana Parish Community of Interest Cluster (COI) Variables and Cluster Analysis Classifications**

**Cluster Analysis:  COIs using 7 demographic and social characteristics Variables:**

1.   Persons under 5 years, percent

2.   Black or African American alone, percent

3.   Bachelor's degree or higher, percent of persons age 25 years+, 2017-2021

4.   Owner-occupied housing unit rate, 2017-2021

5.   Persons per household, 2017-2021

6.   Median household income (in 2021 dollars), 2017-2021

7.   Population per square mile, 2020

**Cluster Analysis: COIs using 7 demographic and social characteristics**
**Parish Assignments:**

| Row Label | Cluster | Dist1 | Dist2 |
|---|---|---|---|
| 1 Acadia | 1 | 1.6021 | 5.1077 |
| 2 Allen | 1 | 1.6889 | 5.1768 |
| 3 Ascension | 1 | 3.9393 | 5.1015 |
| 4 Assumption | 1 | 1.7715 | 5.4559 |
| 5 Avoyelles | 1 | 1.4906 | 4.9411 |
| 6 Beauregard | 1 | 2.2723 | 5.5731 |
| 7 Bienville | 1 | 2.1948 | 5.1783 |
| 8 Bossier | 1 | 2.0016 | 3.5773 |
| 9 Catahoula | 1 | 1.4552 | 4.9966 |
| 10 Cameron | 1 | 3.4513 | 6.4218 |
| 11 Caldwell | 1 | 1.4286 | 5.2213 |
| 12 Calcasieu | 1 | 1.8993 | 4.1973 |
| 13 Caddo | 1 | 2.6582 | 3.0509 |
| 14 Claiborne | 1 | 3.3229 | 5.548 |
| 15 Concordia | 1 | 1.5196 | 5.1878 |
| 16 De Soto | 1 | 0.6036 | 4.8316 |
| 17 East Baton Rouge | 2 | 4.4273 | 1.1159 |
| 18 East Carroll | 1 | 4.9376 | 6.0725 |
| 19 East Feliciana | 1 | 2.8769 | 5.3579 |
| 20 Evangeline | 1 | 2.1923 | 5.1288 |
| 21 Franklin | 1 | 1.2309 | 4.877 |
| 22 Grant | 1 | 2.318 | 6.0783 |
| 23 Iberia | 1 | 1.2383 | 4.444 |
| 24 Iberville | 1 | 1.775 | 4.6264 |
| 25 Jackson | 1 | 1.5248 | 5.0899 |
| 26 Jefferson | 2 | 4.8449 | 1.8734 |
| 27 Jefferson Davis | 1 | 1.7411 | 5.3986 |
| 28 Lafayette | 2 | 3.8904 | 2.003 |
| 29 Lafourche | 1 | 1.6176 | 5.0075 |
| 30 LaSalle | 1 | 3.0474 | 6.394 |
| 31 Lincoln | 2 | 4.0117 | 3.3557 |
| 32 Livingston | 1 | 3.2606 | 5.8848 |
| 33 Madison | 1 | 3.1663 | 5.2175 |
| 34 Morehouse | 1 | 1.9561 | 5.2284 |
| 35 Natchitoches | 1 | 2.9345 | 4.1988 |
| 36 Orleans | 2 | 7.7927 | 3.6175 |
| 37 Ouachita | 1 | 2.0275 | 3.1263 |
| 38 Plaquemines | 1 | 2.5254 | 5.4485 |
| 39 Pointe Coupee | 1 | 1.2923 | 4.7666 |

**Cluster Analysis: COIs using 7 demographic and social characteristics**
**Parish Assignments Continued:**

| | | | |
|---|---|---|---|
| 40 Rapides | 1 | 1.3448 | 3.805 |
| 41 Red River | 1 | 1.2015 | 5.22 |
| 42 Richland | 1 | 1.4283 | 4.5745 |
| 43 Sabine | 1 | 1.4372 | 5.1798 |
| 44 St. Bernard | 1 | 1.4046 | 5.0902 |
| 45 St. Charles | 1 | 2.938 | 4.7919 |
| 46 St. Helena | 1 | 2.0387 | 5.3988 |
| 47 St. James | 1 | 1.7749 | 4.9785 |
| 48 St. John the Baptist | 1 | 2.6787 | 5.2787 |
| 49 St. Landry | 1 | 1.7487 | 4.882 |
| 50 St. Martin | 1 | 0.8184 | 5.0157 |
| 51 St. Mary | 1 | 1.2528 | 4.7453 |
| 52 St. Tammany | 1 | 3.6653 | 4.2516 |
| 53 Tangipahoa | 1 | 1.2921 | 4.1819 |
| 54 Tensas | 1 | 2.9336 | 5.686 |
| 55 Terrebonne | 1 | 1.4058 | 4.7078 |
| 56 Union | 1 | 1.272 | 5.2815 |
| 57 Vermilion | 1 | 1.498 | 5.0711 |
| 58 Vernon | 1 | 3.7747 | 5.4419 |
| 59 Washington | 1 | 1.5907 | 4.8829 |
| 60 Webster | 1 | 2.2242 | 4.6731 |
| 61 West Baton Rouge | 1 | 2.4391 | 4.6908 |
| 62 West Carroll | 1 | 1.9007 | 5.6607 |
| 63 West Feliciana | 1 | 4.4009 | 6.2488 |
| 64 Winn | 1 | 1.9224 | 4.883 |

**Appendix 14. DAS Vitae**

David A. Swanson

email: david.swanson@ucr.edu

Webpage : https://profiles.ucr.edu/app/home/profile/dswanson

## I.    Education

| | | | |
|---|---|---|---|
| Ph.D. | 1985 | Sociology/Population Studies | University of Hawai`i |
| M.A. | 1976 | Sociology/Population Studies | University of Hawai`i |
| Graduate Studies Diploma | 1974 | Social Science/Swedish | University of Stockholm |
| B.Sc. | 1972 | Sociology/Mathematics | Western Washington State College |

(Credit courses also completed at the University of Puget Sound (9 semester hours) and Columbia Basin College (30 quarter hours).

## II.    Academic and Related Positions

A. **Primary Appointments**

| | | |
|---|---|---|
| Center for Population Research Portland State University | 2022-2023 | Research Associate |
| Aoyama Gakuin University, Tokyo, Japan | October 27 to November 11 2018 | Visiting Professor |
| University of California Riverside Department of Sociology | 2007 - 2018 | Professor of Sociology (emeritus, 2018) |

| University of Mississippi Department of Sociology & Anthropology | 2003-2007 | Professor of Sociology and Chair |
| Helsinki School of Economics Mikkeli Business Campus BScBA Program, BBA & MBA Program | 2000 to 2003 1999-2000 1997 to 1999 | Dean Acting Dean Visiting Faculty |
| Portland State University, Department of Urban Studies | 1995 to 1997 | Professor of Urban Studies |
| University of Arkansas at Little Rock, College of Business, Institute for Economic Advancement | 1992 to 1995 | Senior Demographic Specialist |
| Pacific Lutheran University, Department of Sociology | 1987 to 1992 | Associate Professor (Tenure Awarded) |
| Bowling Green State University, Department of Sociology | 1985 to 1987 1984 to 1985 | Assistant Professor Visiting Instructor |
| Alaska Department of Labor | 1981-1983 | State Demographer |
| Population, Enrollment, and Economic Studies Division, Washington State Office of Financial Management | 1977-1981 | Research Investigator |

| East-West Population Institute | 1975 to 1977 | Staff Researcher |

## B. Conjoint and Miscellaneous Appointments

| M.P.S in Applied Demography<br>Dept. of Sociology & Criminology<br>Penn State University | 2019 | Lecturer (On-line)<br>Appdem 804<br>Business Demography<br>Appdem 805<br>Demog & Public Policy |
| Center for Studies in Demography<br>& Ecology, University of Washington | 2017- | Faculty Affiliate |
| Demographic and Social Analysis<br>Program, Department of Sociology<br>University of California Irvine | 2007- 2019 | Affiliated Faculty |
| Blakely Center for Sustainable<br>Suburban Development<br>University of California Riverside | 2008 - 2009 | Interim Director |
| Blakely Center for Sustainable<br>Suburban Development<br>University of California Riverside | 2007-2018 | Research Associate |
| Social Science Research Center<br>Mississippi State University | 2004- | Research Fellow |
| Center for Population Studies<br>University of Mississippi | 2003-2007 | Director |

| | | |
|---|---|---|
| Theodore Roosevelt Institute | 2002-2011 | Senior Fellow |
| HELP University, Malaysia | April, 2003 | Guest Lecturer |
| Mikkeli Polytechnic College, International Business Program | Spring, 2001 | Guest Lecturer in Statistics |
| | Spring, 2000 | Guest Lecturer in Statistics |
| Portland State University Center for Population and Census | 1995 -1997 | Director |
| University of Arkansas at Little Rock, Institute for Economic Advancement | 1992 -1995 | Director, Demographic Research Unit |
| University of Arkansas for Medical Sciences, National Center for Rural Mental Healthcare Research | 1992-1995 | Research Scientist |
| Pacific Lutheran University, Center for Social Research And Public Policy | 1987 -1992 | Director |
| Pacific Lutheran University, Department of Sociology | 1990-1991 | Acting Chair |
| Bowling Green State University, Population and Society Research Center | 1984-1987 | Assistant Director for Population Research |

| | | |
|---|---|---|
| University of Alaska, Juneau<br>School of Business Administration | 1983 | Lecturer |
| National Science Foundation | Summer, 1994 | Workshop Instructor |
| "Research For Undergraduates" | Summer, 1991 | Workshop Instructor |
| Demographic Research Laboratory | Summer, 1989 | Workshop Instructor |
| Western Washington  University | Summer, 1988 | Workshop Instructor |
| ICPSR Summer Program in | July, 1989 | Guest Lecturer |
| Quantitative Methods, | July, 1988 | Workshop Instructor |
| University of Michigan | July, 1987 | Workshop Instructor |
| | July, 1986 | Workshop Instructor |
| Argonne National Laboratory, | Summer, 1987 | Faculty Research<br>Participant |

# III. Teaching Experience

A. Credit Courses

    1.    Undergraduate Courses

*Sociology Courses*
    Introductory Sociology
    Population, Poverty, and Hunger

    Introductory Statistics
    Research Methods
    Urban Sociology

*Population Studies/Demography Courses*
    Introduction to Population Studies

    Introduction to Applied Demography
    Demographic Analysis and International Business
    Market Demographics
    Population Analysis
    Population Forecasting
    The Baby Boom

World Population Issues

Business Administration Courses

Introductory Statistics for Business Administration

Business Mathematics

Demographic Methods and International Business
Quantitative Methods in Business
Business Forecasting

Market Demographics
Introduction to SPSS

2. Graduate Courses

*Sociology Courses*

Research Methods

Multivariate Analysis

*Population Studies/Demography Courses*

Business Demographics
Demographic Methods
Advanced Market Demographics
Applied Demography
Population Forecasting
Population Estimation Methods

*Business Administration Courses*

Business Forecasting
Refresher Mathematics for MBA Students
Quantitative Methods

## B. Non-Credit and Continuing Education Courses and Topics

| | |
|---|---|
| Census and Survey Administration | Population Estimation |
| Census and Survey Methods | Population Forecasting |
| Interviewer Training | Enrollment Forecasting |

## IV. Thesis Supervision

### A. Committees chaired

2014.   *Overcrowding as a Determinant of Violence in California State Prisons.* B. A. Honors
        Thesis by John Maldonado. Department of Sociology. University of California Riverside.

2011    *Demographic Analysis and the U.S. Hispanic Population.* Ph.D. Dissertation by Matt Kaneshiro, Department of Sociology, University of California Riverside.

2007.    *A Comparison of Housing Unit Estimates to the American Community Survey Master Address File*. Sociology M.A. Thesis completed by A. J. Reese. Department of Sociology and Anthropology, University of Mississippi.

2004    *Towards International Standardisation of Accounting: IAS and the Accounting Practises in Finland and Russia*. Senior (BScBA) Thesis completed by O. Nieminen, Mikkeli Business Campus, Helsinki School of Economics and Business Administration

2003    *The Impact of International Mergers and Acquisitions on Brand Strategies*. Senior (BScBA) Thesis completed by N. Yli-Pirilä, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

2003    *International Franchising and Investment.* Senior (BScBA) Thesis completed by M. Wainwright, Mikkeli Business Campus, Helsinki School of Economics and Business Administration

2002    *Mobile Commerce: Hype or Reality?* Senior (BScBA.) Thesis completed by P. Louko, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

2002    *Transport Perspectives within the European Union.* Senior (BScBA.) Thesis completed by O. Martychtchenko, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

2001    *Investing in African Economies: Inhibitions and Prospects – A General Overview*. Senior (BBA.) Thesis completed by P. Kalubi, Mikkeli Business Campus, Helsinki School of Economics and Business Administration.

1996    *Population Estimation Techniques Using the Housing Unit Method*. Master of Urban Science (M.U.S.) Research Paper completed by Tom Bryan, Department of Urban Studies, Portland State University (Co-chaired with George Hough).

1987    *Measuring Propensity:  The Association between Socioeconomic Variables and Differential Migration for Ohio, 1975-1980*. M.A. Thesis completed by K. A. Wright, Department of Sociology, Bowling Green State University.

1986    *Estimation of Net Migration among Major regions in Iraq, 1957- 1977,* M.A. Thesis completed by A. Al-Jiboury, Department of Sociology, Bowling Green State University.

1986    *An Interpretation of the Ratio-Correlation Method of Population Estimation.* M.A. Thesis completed by R. Prevost, Department of Sociology, Bowling Green State University.


## B. Committees of which a member


2017    A Descriptive Profile of the Multiracial Asian Population in the United States. Ph.D. Dissertation completed by Sooji Han, Department of Sociology,

   University of California Riverside

2014 A Spatial Examination of Residency Restriction Legislation: The Impact of Social Disorganization and Social Services. Ph.D. Dissertation completed by Erin Wolbeck, Department of Sociology, University of California Riverside

2012. Exploring the Decision-Making Process in Relation to Legitimacy Assignment. Ph.D. Dissertation completed by Adam Sanford, Department of Sociology, University of California Riverside.

2005 *Unique Competencies of International Non-Governmental Organizations (INGOs): Empirical Explorations from India*. Ph.D. Dissertation completed by Pranaya Kumar Swain, Department of Sociology, Indian Institute of Technology-Kanpur, Kanpur, Utter Pradesh, India (External Examiner).

1991 *The Influence of Parents on the Drinking Patterns of Their Teenage Children*. M.A. Thesis completed by R. D. Jacobsen, Division of Social Sciences, Pacific Lutheran University.

1990 *Austrian National Identity and the Dokumentationsarchis des Osterreichischen Widerstandes*. M.A. Thesis completed by F. Hornquist, Division of Social Science, Pacific Lutheran University.

1989 *A Model for Fertility Change*. Ph.D. Dissertation completed by N. Sugathan, Department of Demography, University of Kerala, (External Examiner).

1989 *The Spruce Program:  A Profile of the Participants*. M.A. Thesis completed by K. Roe, Division of Social Science, Pacific Lutheran University.

1986 *A Content Analysis of Music Videos*. M.A. Thesis completed by L. Olsen, Department of Radio, Television, and Film, Bowling Green State University.

1986 *Projection of Flexible Age-specific Migration Rates:  An Examination of Pittenger's Simplified Techniques*. M.A. completed by B. Bennett, Department of Sociology, Bowling Green State University.

1986. *Alienation Correlates of Marital Dissolution:  A Longitudinal Study*. Ph.D. Dissertation completed by Yvonne Woods, Department of Sociology, Bowling Green State University.

## V. Professional Development

Participant in (and Successful completion of) Records Management Training, ALCS, June, 2016

Participant in (and Successful completion of) Information Security Training, ALCS, June, 2016.

Participant, Population Projections Workshop, Association for Latin American Population

Studies, 16 November 2010.

Participant, U.S. Census Bureau Workshop, "The American Community Survey," 22 September 2010.

Participant, U.S. Census Bureau Webinar, "The American Community Survey: Tracking How We Change with Multi-Year Estimates," 18 November 2009.

Participant, Nielsen Claritas Webinar, "Small Area Population Estimates," 10 November 2009.

Special Sworn Status. US Census Bureau. 2007 (renewed, 2008).

Participant, "Title 13 Training, Confidentiality and Privacy." US Census Bureau, Completed, March, 2007 and renewed November 2008.

Participant, "The Basic Course in the Protection of Human Research Subjects," University of Mississippi, Completed, October, 2005.

Participant, RAND Summer Institute on Aging. RAND, Santa Monica, California. July,

2004.

Participant, Fulbright German Studies Seminar. Berlin, Rostock, and Bonn, Germany. June, 2003.

Participant in (and successful completion of), "Finnish for Foreigners II," Kuopio University, Kuopio, Finland, July-August, 2001

Participant in (and successful completion of), "Finnish for Foreigners I," Mikkeli Polytechnic College, Mikkeli, Finland, July, 2000

Participant in (and successful completion of), "Ethics in Business," Science Applications International Corporation, 1998, 1999

Participant in (and successful completion of), Regulatory and Licensing Training Program, U.S. Department of Energy, Yucca Mountain Project, Las Vegas, Nevada, November, 1998

Participant, "The American Community Survey," American Statistical Association, Los Angeles, California, August, 1997

Participant, "Marketing and Census 2000," Seattle, Washington, August, 1996

Participant in and successful completion of), "Refresher Swedish," Portland State University, Portland, Oregon, Fall, 1995.

Participant in (and successful completion of), "Introductory Finnish," Portland State University, Portland, Oregon, Fall, 1995

Participant, "Census 2000 Content and Access," Cincinnati, Ohio, April, 1993.

Participant, "Arkansas State Census Data Center Annual Meeting," Little Rock, Arkansas, October, 1992.

Participant, "The Strategic Planning Process," Pacific Lutheran University, January, 1992.

Participant, "1990 Census Content," U.S. Bureau of the Census (Seattle Regional Office), Pacific  Lutheran University, November, 1990.

Participant, "Programs and Products of the U.S. Bureau of the Census," U.S. Bureau of the Census (Detroit Regional Office) Bowling Green State University, April, 1987.

Participant, "Proposal Writing and Research Administration," College of Education, Bowling Green State University, Spring Semester, 1987.

Participant, "An Introduction to the Bootstrap," Continuing Education Session, American Statistical Association, Chicago, Illinois, August, 1986.

Participant, First Annual Research Conference, U.S. Bureau of the Census, April, 1985.

Participant in (and successful completion of),, "Performance Evaluation for Supervisory Personnel," Alaska Department of Labor, September, 1983.

Participant, "Planning for the 1990 Census," Continuing Education Session, American Statistical Association, Toronto, Ontario, Canada, August, 1983.

Participant, (and successful completion of), "Successful Project Management," Alaska Department of Personnel, Juneau, Alaska, October, 1981.

Participant in (and successful completion of), "MARK-IV Programming," Informatics, Inc., Olympia, Washington, 1980.

Participant in (and successful completion of), "IBM OS JCL" and "WYLBUR," Washington State University, Olympia, Washington, 1979.

Participant (and successful completion of), "Zero-Based Budgeting," Washington Office of Financial Management, Olympia, Washington, 1978.

Participant, "Funding Public Higher Education," Washington Office of Financial Management-Washington Higher education Coordinating Board, Olympia, Washington, 1977.

Participant, "Didactic Seminar on Causal Modeling," American Sociological Association, San Francisco, California, August, 1976.

Participant in (and successful completion of), "Swedish I," "Swedish II," and "Swedish III," Stockholm University, Stockholm, Sweden, 1973-74.

Participant, "1970 Census Products and Their Use,"  Hawaii Department of Administration, Honolulu, Hawaii, May, 1973.

Participant in (and successful completion of), "Introduction to Basic Assembly Language (BAL) Programming," University of Hawaii, Honolulu, Hawaii, Spring, 1973.

# VI. Research Projects and Grants

## A. Research Grants and Contracts Let and Administered

"Survey of Food Consumption and Lifestyles," Nye and Lincoln counties, Nevada, ($100,000). 1996-97, University of Nevada Las Vegas

"1984 Residential Energy Survey" ($250,000). 1983-84,  Walker Information, Inc.

"Cooperative Publication on Alaskan Native Demography" ($4,000). 1984, Alaska Department of Labor.

"Chloropleth Computer Mapping" ($3,500). 1983, Alaska Department of Labor.

"Public Opinion Survey", Washington State Board for Community College Education, ($25,000). 1981Gilmore Research Group.

"Revision to the Higher Education Enrollment Projection System (HEEPS)," ($5,000), 1980, Washington State Office of Financial Management.

"Population Forecasting System" ($30,000), 1980, Washington State Office of Financial Management.

## B. Research Contracts Awarded

Population forecast of the Coeur d'Alene Reservation ($50,000). Environmental and Natural Resources Division. U.S. Department of Justice.2023-

Population forecast of the Yurok Reservation ($50,000). Environmental and Natural Resources Division. U.S. Department of Justice.2023-

Population Health Impact of Reduced Risk Tobacco Products ($320,000). ALCS, Inc. (Principal Investigator). 2013-2018.

Hopi Tribal Population Dynamics and Forecast ($70,000). Hopi Tribe. 2017-2019.

Population Forecasting System Evaluation ($20,000) Washington State Office of Financial Management (Co-Principal Investigator with J. Tayman), 2015-2016

Accuracy Study ($228,000). ESRI (Co-Principal Investigator, Cropper GIS), 2011-2012.

Population Projections for Native Hawaiians.  ($16,078). Policy Analysis and System Evaluation, Kamehameha Schools, Honolulu, Hawaii. March, 2008 (Principal Investigator, McKibben Demographic Research).

Evaluation of methods used to estimate vacancy rates and average persons for households ($25,000), U. S. Bureau of the Census, Summer 2007- Fall 2008.

Multi-Year Estimates, American Community Survey, ($5,500). U. S. Bureau of the Census, Summer, 2007.

Evaluation of Methods used to Estimate the Size and Composition of the Foreign-Born Population ($27,000). U.S. Bureau of the Census, September, 2006  (through Sabre Systems, Inc.), Spring 2007 -  Fall 2007.

Enrollment Forecasting and Attendance Boundary Study. ($12,000). Harrison County School District, Biloxi, MS., Fall, 2006. (Principal Investigator, J. McKibben).

Small Area Labor Force and Population Projections. ($7,500). Southern Nevada Regional Planning Commission (Subcontract with Theodore Roosevelt Institute, Las Vegas, NV), Summer, 2006

Population Projections of the Chinese Population by Age and Sex for 22 Selected Counties. ($1,500). Third Wave Research, Inc. Madison, Wisconsin. November 2004.

Population Projections for Native Hawaiians.  ($9,871.24). Policy Analysis and System Evaluation, Kamehameha Schools, Honolulu, Hawaii. May 2004.

Forecasting Headcount Enrollment at the Southaven Satellite Campus, ($2,000). Office of Outreach and Continuing Education, University of Mississippi. December 2003.

Estimation and Forecasting of U.S. Lifestyle Segments, 2002 to 2012 ($6,500), Third Wave Research, Inc., Madison, Wisconsin. October, 2002.

Review and Revision of Demographic Forecasts for Jubail, Saudi Arabia ($20,000), Parsons Brinckerhoff, Inc., Jubail, Saudi Arabia, July, 1999.

Demographic Mentoring and Instruction ($3,000), Western Washington University, Bellingham, Washington, 1999.

Washoe County Population Estimation System Development ($24,900), Washoe County

Nevada. 1999.

Redesign of the Nevada State Population Forecasting Model ($12,000), Nevada Consulting Alliance/Nevada State Demographer's Office. 1998-99.

Census Enumerator, Crew Leader, and Supervisor Training, Neighborhood Census Project ($2,500), Portland Multnomah Progress Board (funded by a grant from the Anne E. Casey Foundation), Portland, Oregon. 1997.

Evaluating Response Rates for the American Community Survey, Portland Test Site, ($2,000) U.S. Bureau of the Census.  1997.

Estimating Household Income from Incomplete Data ($25,000), Metromail, Inc. 1997.

Liberal Education Profile, Portland State University ($70,000), Portland State University. 1997 (with D. Atkinson).

Forecasting Enrollment and Attendance Zone Changes for the Hillsboro 1J District ($77,000), Hillsboro1J School District, Oregon, 1995-1996 (with D. Lycan, G. Hough, and I. Sharkova).

Forecasting Enrollment for the Newberg School District ($5,000), Newberg School District, Oregon, 1996.

Estimating and Forecasting U.S. Lifestyle Segments, 1990 to 2010 ($5,000), Third Wave Research, Inc. (with T. Bryan and G. Hough)

Omnibus Contract for Income Surveys, Community Development Block Grants ($18,000), Oregon Department of Economic Development, 1996.

Tribal Membership Forecast ($1,400). The Confederated Tribes of the Grand Ronde Community of Oregon, 1995.

"Demographic Services" for Study included in ADAMNA Grant No. P50 MH48197-03, entitled "Center For Rural Mental Health Care Research" ($7,198). University of Arkansas for Medical Sciences, 1992-93.

"Kitsap County Open Space Poll." Consultation and Training of a Volunteer Organization to conduct Polling in support of a proposed open-space Bond Issue, Kitsap County, Washington ($3,000). Kitsap Citizens for Open Space, 1992.

"Pierce County Private Industry Council, Evaluation of Programs." ($25,000). Pierce County Private Industry Council. 1991. (with J. Schiller and K. McDade).

Pierce County Solid Waste Management Survey: ($12,000). Jacobsen Ray McLaughlin and Fillips, Inc., 1991.

"1991 Tacoma-Pierce County Quality of Life Survey." Module on Mental Health Issues ($3,000). Greater Lakes Mental Health Foundation, 1991.

"Implementation of the REMI Socioeconomic Forecasting Model in support of the SAIC/YMPO socioeconomic monitoring program and SCA model development." ($29,000).  Science Applications International Corporation, Yucca Mountain Project Office. U.S. Department of Energy, 1991.

"1990 Tacoma-Pierce County Quality of Life Survey." Module on health Issues ($6,000). Tacoma-Pierce   County Health Department,.

1990."Implementation of the REMI Socioeconomic Forecasting Model, in support of the SAIC/YMPO socioeconomic monitoring program and SCA model development." ($38,000). Science Applications International Corporation, Yucca Mountain Project Office. U.S. Department of Energy, 1990.

"Review and Analysis of the Demographic Module of the EDFS-S REMI Module." ($6,380). Science Applications International Corporation, Yucca, Mountain Project Office, U.S. Department of Energy, 1989-90.

"Small Area Model Development for the High Level Radioactive Waste Repository." ($10,000). Battelle Human Affairs Research Centers, 1989.

"1989 Tacoma-Pierce County Solid Waste Management Survey." module on hazardous and other household wastes ($6,000). Pierce County Waste Management Division, Pierce County, Washington, 1989.

"Pierce County Solid Waste Management Survey." ($17,000). Pierce County, Washington (Co-Investigator with J. Schiller), 1988.

1988 "Tacoma Area Quality of Life Survey," module on racial issues ($2,000). Tacoma Urban League (Co-Investigator with J. Schiller), 1988.

"Evaluation of the Demographic Component of the HARC/REMI Economic Demographic Model ($3,000). Battelle Human Affairs Research Centers, 1988.

'Survey of Applied Demographers." ($1,500). Population Association of America, 1986-87.

"Life Tables By Sex, 1980 and 1970 and Net Migration By Age and Sex, 1970-80 and 1960-70 For Ohio." ($750). Final Report submitted to the Ohio Data User's Center, Department of Development, December, 1984.

"Technical Data Services." ($2,500).  Alaska Reapportionment Board, 1981. 1980 Census Computer Tape Acquisition and Evaluation" ($3,000). Washington State Redistricting Board, 1979.


**C. Research Grants Awarded**

"Measuring Health Status for Populations with Incomplete Census & Vital Statistics Information: Estimating Life expectancy at Birth." ($9,861). COR Fellowship. University of California Riverside. 2017.

"Socio-Economic Status, Race, and Life Expectancy in Los Angeles County, 1970-1990: A Proof of Concept Proposal for $20,100 in Funds under Strategic Goal 1. ($20,100) College of Humanities, Arts, and Social Sciences, University of California (Principal Investigator). 2011-2012.

"Virtual Co-laboratory for Policy Analysis in Greater Los Angeles" ($2,300,000). UC Multicampus Research Program and Initiatives, University of California. (Co-Investigator with Richard Arnott et al.). 2010-2014.

"Perceptions of Disaster Relief and Recovery: Analyzing the Importance of Social and Kinship Networks Among Hurricane Katrina Refugees on the Mississippi Gulf Coast." ($96,212). National Science Foundation (Co-Principal Investigator with F. Forgette and M. Van Boening), 2005-6.

"Interdisciplinary Working Group to Develop a Strategy for the  Development of an NICHD Population and Health Research center in Mississippi." ($9,400). Office of Research and Sponsored Programs, University of Mississippi (Principal Investigator, with Co-Investigators, Fazlay Faruque and Peggy Hewlett). 2005-6.

"Applied Demographic Research in Migration" ($40,000). National Science Foundation (Co-Director with L.M. Tedrow), 1991.

"Applied Demographic Research in Migration" ($40,000). National Science Foundation (Co-Director with L.M. Tedrow), 1989.

"Applied Demographic Research in Migration" ($40,000). National Science Foundation (Co-Director with L.M. Tedrow), 1988.

"VCR Survey" ($1,500). Kaltenborn Foundation (with B. Klopfenstein), 1987.

VCR Survey" ($5,000). National Association of Broadcasters (with B. Klopfenstein), 1987.

"Pilot Survey of VCR Use" ($1,500). Kaltenborn Foundation, 1986.

 "Pilot Survey of VCR Use" ($2,730). Bowling Green State University, 1986.

"Socioeconomic Correlates of Infant Mortality: Ohio, 1980" ($90,000). U.S. Department of Health and Human Services. (Co-principal Investigator with E.G. Stockwell and J. Wicks), 1985-86.

**D. Program Grants Awarded**

"Transition Funding for the BScBA Degree Conversion, Phase II (€100,000), European Union Objective 1 Program (with V-P. Heiskanan). 2002

"Transition funding for the BScBA Degree Conversion, Phase I (€200,000), European Union Objective 1 Program (with V-P. Heiskanen), 2001

 "BBA Program Development" (€200,000) European Union Objective 1 Program (with J. Masalin), 2000.

"Academic Challenge:  Developing an Applied Demography Program, Bowling Green State University" ($121,336). Ohio Board of Regents (with M. Pugh et al.), 1986.


# VII. Publications

## A. Books and Monographs


Socio-demographic Perspectives on the COVID-19 Pandemic. (2023). Co-editor with Richard Verdugo. Information Age Publishing, Charlotte, NC.


Global Populations in Transition (2018). Co-author with Jo Martins and Fei Guo. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


Cohort Change Ratios and Their Applications. (2017). Co-author with Jack Baker, Jeff Tayman, and Lucky Tedrow. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


The Frontiers of Applied Demography. (2016) Editor. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


The Washington State Census Board and Its Demographic Legacy. (2016). Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


Methods of Demographic Analysis. (2014). Co-author with Farhat Yusuf and Jo Martins. Springer  B.V. Press. Dordrecht, Heidelberg, London, and New York.


A Practitioner's Guide to State and Local Population Projections. (2013). Co-author with Stanley K. Smith and Jeff Tayman. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


Subnational Population Estimates. (2012). Co-author with Jeff Tayman. Springer B.V. Press.  Dordrecht, Heidelberg, London, and New York.


Opportunities and Challenges for Applied Demography in the 21st Century. (2012). Co-Editor with Nazrul Hoque. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York .

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Learning Statistics: A Manual for Sociology Students.(2012). Cognella Academic Publishing/University Readers. San Diego, CA.


An Introduction to Consumer Demographics and Behaviour: Markets are People. (2011). Co-author with Farhat Yusuf and Jo Martins. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


Estimating Characteristics of the Foreign-Born by Legal Status: An Evaluation of Data and Methods (2011). Co-author with Dean Judson. Springer Briefs in Population Studies, Volume 2, Springer, B.V. Press. Dordrecht, Heidelberg, London, and New York.


CEMAF as a Census Method: A Proposal for a Re-Designed Census and an Independent Census Bureau. (2011). Co-author with Paula Walashek. Springer Briefs in Population Studies, Volume 1, Springer, B.V. Press. Dordrecht, Heidelberg, London, and New York


Applied Demography in the 21st Century. (2008). Co-Editor with Steve Murdock. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


Southern Nevada Regional Economic Study (2006). Co-author with Alan Schlottmann, Robert Schmidt, and Edward Feser.  Theodore Roosevelt Institute. Irvine, CA and Las Vegas, NV.


The Methods and Materials of Demography, 2nd Edition.. (2004). Co-Editor with Jacob Siegel. Academic/Elsevier Press:  Los Angeles.


Population Projections for States and Local Areas:  Methodology and Analysis. (2001). Co-author with Stanley K. Smith and Jeff Tayman. Kluwer Academic /Plenum Press: New York.


Issues In Applied Demography: Proceedings of the 1986 National Conference (1987) Co-Editor with Jerry Wicks. PSRC Press: Bowling Green, Ohio.


Socioeconomic Correlates of Infant Mortality-Ohio, 1980. Final Report for the Maternal and Child

Health and Crippled Service Program, Grant MCJ-390520-01 (1986) Co-author with Edward G. Stockwell and Jerry Wicks.


Alaska Population Overview: 1982. Alaska Department of Labor (1983). Editor.


Alaska Population Overview: 1981. Alaska Department of Labor (1982). Editor.

**B. Book and Monograph Chapters**

Swanson, D. R. Sewell and T. Bryan (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. pp. 2058-2062 in JSM 2021: Statistics, Data, and the Stories They Tell. American Statistical Association, Alexandria, VA.

"Estimating the underlying infant mortality rates for small populations: A case study of counties in Estonia." (2021), pp. 3-21 in R. Verdugo (Ed). The Demographic Crisis in Europe: Selected Essays. Information Age Publishing. Charlotte, NC.

"Constructing Life Tables from the Kaiser Permanente Smoking Study and Applying the Results to the Population of the United States." (2020)  pp.115-152 in B. Jivetti and M. N. Hoque (eds.). Population Change and Public Policy. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with S. Chow and T. Bryan).

"The Number of Native Hawaiians and Part-Hawaiians in Hawai'i, 1778 to 1900: Demographic Estimates by Age." (2020) pp. 345-356 in B. Jivetti and M. N. Hoque (eds.). Population Change and Public Policy. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

 "A Bio-demographic Perspective on Inequality and Life Expectancy: An Analysis of 159 Countries for the Periods 1970-90 and 1990-2010." (2018) pp. 577- 613 in C.R. Rao and A. Rao (eds.), Handbook of Statistics, Vol. 38. Elsevier Press (with L. Tedrow).

"Foreword." (2016). pp. v-vi in T. Wilson, E. Charles-Edwards, and T. Bell (eds.) Demography for Planning and Policy: Australian Case Studies. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.

"Demographics and Market Segmentation: China and India." (2016). pp. 3-19 in D. Swanson (ed.) The Frontiers of Applied Demography. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with J. Martins, F. Yusuf, and G. Brooks).

"Census Costs: Rationale for Re-designing Traditional Census Data Collection Methodology with the Census-Enhanced Master Address File" (2016). pp. 287-301 in D. Swanson (ed.) The Frontiers of Applied Demography. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with A. Yacyshyn).

"A Long Term Test of the Accuracy of the Hamilton-Perry Method for Forecasting State Populations by Age."(2016). pp, 491-513 in D. Swanson (ed.) The Frontiers of Applied Demography. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with J. Tayman).

"Exploring Stable Population Concepts from the Perspective of Cohort Change Ratios: Estimating the Time to Stability and Intrinsic $r$ from Initial Information and Components of Change." (2016) pp. 227-258 in R. Schoen (ed.).  Dynamic Demographic Analysis. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with L. Tedrow and J. Baker).

"An Exploratory Examination of Population and Stability in Afghanistan." (2015). pp. 305-322 in R. Sáenz, N. Rodríguez, and D. Embrick  (eds.). The International Handbook of the Demography of Race and Ethnicity. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with S. El-Badry).

"Applied Demography" (2015). pp. 839-844 in: James D. Wright (editor-in-chief). International Encyclopedia of the Social & Behavioral Sciences, 2nd edition, Vol 1. Oxford: Elsevier.

"On the Ratio-correlation Method of Population Estimation and Its Variants." (2014). pp. 93-118 in N. Hoque and L. Potter (eds.). Emerging Techniques in Applied Demography. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with J. Tayman).

"A Loss Function Approach to Examining ACS Estimates: A Case Study of 2010 "Person per Household" Estimates for California Counties" (2012). pp. 98-100 in   (D. Cork, Ed.) Case Studies/Agenda Book, Workshop on the Benefits (and Burdens) of the American Community Survey. National Research Council, National Academy of Sciences, Washington, DC. (with George Hough). http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_073124.pdf

"DOMICILE 1.0: An Agent-Based Simulation Model for Population Estimates at the Domicile Level." (2012). pp. 345-370  in N. Hoque and D. A. Swanson (eds.) Opportunities and Challenges for Applied Demography in the 21st Century. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with C. Griffith, M. Knight, and B. Long).

"Introduction." (2012) pp. 1-3 in N. Hoque and D. A. Swanson (eds.) Opportunities and Challenges for Applied Demography in the 21st Century. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York (with N. Hoque).

"Disappearing Hispanics? The Case of Los Angeles County, California: 1990-2000." (2011) pp. 95-122 in R. Verdugo (ed.). The Demography of the Hispanic Population: Selected Essays. Charlotte, NC: Information Age Publishing. Charlotte, NC. (with M. Kaneshiro and A. Martinez).

"Applied Demography: Its Business and Public Sector Components." (2008) in Yi Zeng (ed.)  The Encyclopedia of Life Support Systems, Demography Volume. UNESCO-EOLSS Publishers. Oxford, England. (with L. Pol).(Online at http://www.eolss.net/ ).


"Applied Demography at the Beginning of the 21st Century." (2008) pp. 3-12 in S. Murdock and D. Swanson (eds.).  Applied Demography in the 21st Century. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York. (with S. Murdock).


"Measuring Uncertainty in Population Data Generated by the Cohort-Component Method: A Report on Research in Progress." (2008) pp. 165-189 in S. Murdock and D. Swanson (eds.).  Applied Demography in the 21st Century. Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.


"Opportunities and Challenges for Applied Demography in the 21st Century" (2008). pp. 361-368 in S. Murdock and D. Swanson (eds.).  Applied Demography in the 21st Century.  Springer B.V. Press. Dordrecht, Heidelberg, London, and New York.. (with S. Murdock).


"Introduction."  pp. 1 - 8 in J. Siegel and D. Swanson (eds.) The Methods and Materials of Demography, Condensed Edition, Revised. (2004). Academic/Elsevier Press:  Los Angeles. (with J. Siegel).


"Internal and Short Distance Migration." pp. 493-522 in J. Siegel and D. Swanson (eds.) The Methods and Materials of Demography, Condensed Edition, Revised. (2004). Academic/Elsevier Press:  Los Angeles. (with T. Bryan and P. Morrison).


"Population Projections." pp. 561-601 in J. Siegel and D. Swanson (eds.) The Methods and Materials of Demography, Condensed Edition, Revised. (2004). Academic/Elsevier Press:  Los Angeles. (with M.V. George, S. Smith, and J. Tayman).


"Glossary and Demography Timeline" pp. 751-786 in J. Siegel and D. Swanson (eds.) The Methods and Materials of Demography, Condensed Edition, Revised. (2004). Academic/Elsevier Press:  Los Angeles. (with G.E. Stephan).


"Regional Survey."  pp. 3-151 to 3-155 in Viability Assessment for A Repository at Yucca Mountain, Nevada. 1998.  U.S. Department of Energy:  Washington, D.C.


"Evaluation Approach for the Arkansas Pilot Rural Enterprise Center."  pp. 114-119 in P. Shapira and J. Youtie (eds.)  Evaluating Industrial Modernization Programs:  Practices, Methods, and Results. 1995. Georgia Institute of Technology:  Atlanta, GA. (with J. Opitz, C. Franklin, S. Miller, and F. Fenix).


"Confidence Intervals for Net Migration that Incorporate Measurement Errors in Census Counts."

pp. 121-140 In K. V. Rao and J. Wicks (eds.) <u>Issues in Applied Demography: Proceedings of the</u>

<u>International Conference on Applied Demography</u>. 1994. PSRC Press:  Bowling Green, Ohio (with H. Kintner).

"Estimating Vital Rates from Corporate Databases:  How Long Will General Motors' Salaried Retirees Live?" pp. 265-297 in H. Kintner, T. Merrick, P. Morrison, and P. Voss (eds.)  <u>Demographics:  A Casebook For Business and Government</u>. 1994. Westview Press: Boulder, Colorado (with H. Kintner).

"Overview of Demography and Management Issues in Business." pp. 92-93 In J. Wicks and D.

Swanson (eds.) <u>Issues in Applied Demography:  Proceedings of the 1986 National Conference,</u>

1986.  PSRC Press:  Bowling Green, Ohio.
1987.

"Public Opinion," Chapter II in <u>A Report to the Governor and the Legislature: The Community</u>

<u>College System in Washington</u>. Washington State Board for Community College Education: Olympia, WA 1980. (with R. Bell).

### C.   Refereed Journal Articles

2024  "A statistical margin of error from a geometric perspective." <u>Communications in Applied Geometry</u> (forthcoming).

2023  "An Example of Combining Expert Judgment & Small Area Projection Methods: Forecasting for Water District Needs." <u>Spatial Demography</u>  11 (no. 8) https://doi.org/10.1007/s40980-023-00119-3 )  ( with T. Bryan, M. Hattendorf, K. Comstock, L. Starosta, and R. Schmidt).

2023    "Boosted Regression Trees for Small-Area Population Forecasting." <u>Population Research and Policy Review</u> online first, ( https://link.springer.com/article/10.1007/s11113-023-09795-x ). (with J. Baker and J. Tayman).

2023    "Forensic Demography: An overlooked area of practice among applied demographers."

*Review of Economics and Finance*  (https://refpress.org/ref-vol20-a94/#:~:text=Forensic%20demography%20is%20a%20term,%2C%20death%2C%20and%20employment%20loss  ) (with J. Tayman and T. Bryan)

2022    "Global Under-reporting of COVID-19 cases from January 1, 2020 to May 6, 2022."

<u>Current Science</u> (https://www.currentscience.ac.in/Volumes/123/06/0741.pdf )

(with S. Krantz and A Rao).

2022    "Using Taylor's Law to Estimate Variance in Annual Unemployment by State." <u>Review of Economics and Finance</u> (https://refpress.org/ref-vol20-a18/ ) (with J. Tayman).

2022    "Two New Mathematical Equalities in the Life Table." Canadian Studies in Population (https://doi.org/10.1007/s42650-022-00065-3) (with L.M. Tedrow).

2022    "Forecasting a Tribal Population using the Cohort-Component Method: A Case Study of the Hopi." <u>Population Research and Policy Review</u> (https://doi.org/10.1007/s11113-022-09715-5).

2022    "Forecasting a Tribal Population using the Cohort-Component Method: A Case Study of the Hopi." <u>Population Research and Policy Review</u> (https://doi.org/10.1007/s11113-022-09715-5).

2022    "Taylor's Law and the Relationship between Life Expectancy at Birth and Variance in Age at Death in a Period Life Table. <u>Population Review</u> 61 (1): 31-42. (with L. Tedrow).

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 Mississippi. <u>Journal of the Mississippi Academy of Sciences</u> 66 (3): 210-218. (with R. Cossman).

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*Demographic Forecasting*. Princeton University Press, 2009, by Frederico Girosi and Gary King. Invited review published by <u>Contemporary Sociology</u> 38 (July): 369-370.

## J. Papers under Review

A Statistical Margin of Error from a Linear Algebra Perspective (Submitted to *Hacettepe Journal of Mathematics and Statistics*).

Estimating the stochastic uncertainty underlying sample-based estimates of infant mortality in the Philippines (Submitted to *Asian Population Studies*).

Models for Estimating Intrinsic r and the Mean Age of a Population at Stability:  A Case Study of Canada's Provinces and Territories (Submitted to *Canadian Studies in Population*).

The Population of Hawai'i from Initial Settlement to Cook's Visits in 1778

and the Post-Contact Year of 1850 (Submitted to *Hūlili*) (co-authored with J. Tayman)

Using the Cohort Change Ratio Method to Assess an Estimate of the Demographic Impact of the Mexican Revolution (Submitted to *Journal of Economic and Social Measurement* (co-authored with R. Verdugo).

An Alternative Method for Estimating Variance in Age at Death for a Life Table (Submitted to *Romanian Journal of Population Studies*) (with L. Tedrow).

Indian Census Rolls: An Undertultized Source of Historical Demographic Information on Tribal Populations (Submitted to *Social Science History*) (with J. Tayman).

## VIII. Papers Read at Professional Conferences

### A. Contributed Refereed Papers

"Accuracy Evaluation of Two American Indian and Native Alaskan Forecasts: The American Indian and Alaskan Native Population of the Lummi Reservation and the Membership of the Confederated Tribes of the Grand Ronde." (to be) Presented at the 2024 Applied Demography Conference (Virtual), Population Association of America 6-8 February.

"Census Rolls: An Underutilized Source of Historical Information on Tribal Population." (to be) Presented at the 2024 Applied Demography Conference (Virtual), Population Association of America 6-8 February (with J. Tayman).

"Estimating Historical Age-Sex Distributions of a Tribal Population: A Case Study of the Hopi, 1900 to 1940." (to be) Presented at the 2024 Applied Demography Conference (Virtual), Population Association of America 6-8 February (with J. Tayman).

"The Population of Hawai'i from Initial Settlement to Cook's Visits in 1778 and the Post-Contact Year of 1850." (to be) Presented at the 2024 Applied Demography Conference (Virtual), Population Association of America 6-8 February (with J. Tayman).

"Using Cluster Analysis to Identify Communities of Interest for Purposes of Legislative Redistricting: A Case study of Parishes in Louisiana." (to be) Presented at the 2024 Applied Demography Conference (Virtual), Population Association of America 6-8 February (with T. Bryan).

"Boosted Regression Trees for Small-Area Population Forecasting." Presented at the 2022 Conference of the Southern Demographic Association, Knoxville, TN (with J. Baker and J. Tayman).

"Expert Judgment & Standard Small Area Projection Methods: Population Forecasting for Water District Needs." Presented at the 2022 Conference of the Southern Demographic Association, Knoxville, TN (with T, Bryan, M. Hattendorf, K. Comstock, L. Starosta, and R. Schmidt).

"Repurposing record matching algorithms to identify blocks and block groups affected by Differential Privacy: Progress Report on a Pilot Project." Presented at the 2022 Small Area Estimation Conference, Session on Challenging Problems from SAE and Modern Data Science, May 26 (with T. Bryan).

"Producing Summary Statistics of COVID-19 cases and deaths over time: The case for using geometric measures, not arithmetic ones. Presented at the 2022 Conference of the Canadian Population Association, Session on Covid-19 and Mortality, May 10 (with R. Verdugo, A. Rao, and S. Krantz).

"Boosted Regression Trees for Small-Area Population Forecasting." Presented at the Annual Meeting of the Population Association of America, Session on Challenges Facing Small Area Forecasting and Estimation. Atlanta, GA. February 1st, 2022. (with J. Baker and J. Tayman).

"Taylor's Law and the Relationship between Life Expectancy at Birth and Variance in Age at Death in a Period Life Table." Presented at the Annual Meeting of the Population Association of America, Session on Mathematical Demography. Atlanta, GA. April 9th, 2022. (with L. M. Tedrow).

"Forecasting a Tribal Population using the Cohort-Component Method: A Case Study of the Hopi." Presented at the Annual Meeting of the Population Association of America, Session on Old Wine in New Bottles: Tools for Applied Demographers, Atlanta, GA, April 8th, 2022.

"Boosted Regression Trees for Small-Area Population Forecasting." Presented at the 2022 Applied Demography Conference, February 1st. (with J. Baker)

"The American Community Survey: Would keeping the Long Form in conjunction with a Mid-Decade Census have been a better choice?" Presented at the 2022 Applied Demography Conference, February 1st.

"Broadband Access during a Pandemic: 2020 Census Results for the Hopi and Lummi Reservations. Presented at the 2022 Applied Demography Conference, February 2nd.

"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 Mississippi.." Presented at the Annual Conference of the American Statistical Association, Seattle, WA, August 11, 2021. (with R. Cossman).

"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." Presented at the Symposium on Data Sciences and Statistics, June 4th, 2021 (with T. Bryan and R. Sewell).

"Taylor's Law and the Relationship between Life Expectancy at Birth and Variance in Age at Death in a Period Life Table." Presented at the 2021 Conference of the Canadian Population Society, May 18-19.

A  Simple Method for Estimating the Number of Unconfirmed COVID-19 Cases in a Local Area that Includes a Confidence Interval: A Case Study of Whatcom County, Washington. Presented at the 2021 Conference of the Canadian Population Society, May 18-19, (with R. Cossman).

"An Example of Converting Clinical Study Data into a Life Table: A Life Table for the U.S. Population with Sickle Cell Disease." Presented at the 2021 Applied Demography Conference, February 1-4 (https://www.populationassociation.org/events-publications/adc-2021 ).

Modeling and the COVID‑19 Pandemic: A Local Area Perspective

David Swanson. Presented at the 2021 Applied Demography Conference, February 1-4 (https://www.populationassociation.org/events-publications/adc-2021 ).

"The End of the Census." Presented at the Annual Meeting of the American Statistical Association, Philadelphia, PA 1-6 August, 2020 (with P. Walashek).

"Estimating the underlying infant mortality rates for small populations: A case study of counties in Estonia." Presented at the Annual Meeting of the Population Association of America, Austin, Texas, 10-13 April, 2019

"Constructing Life Tables from the Kaiser Permanente Smoking Study and Applying the Results to Models Designed to assess the Population Health Impact of Reduced Risk Tobacco Products." Presented at the Population & Public Policy Conference,

Albuquerque, NM, 8-10 February, 2019 (with L. Wei, T. Hannel, R. Muhammad-Kah, T. Bryan and S. Chow).

"On Mathematical Equalities and Inequalities in the Life Table: Something Old and Something New." Presented at the Family and Population Conference of the International Sociological Association, Singapore, 17-19 May, 2018 (with L. Tedrow).

"Sources for publications and records of the Washington State Census Board and Its successor Agencies. Presented at the Conference of the Pacific Northwest Historians Guild, Seattle, Washington, March 2-3, 2018.

"Forecasting using Spatial Dependencies." Presented at the International Conference of Population Geographies, Seattle, Washington, June 29- July 1, 2017. (with J. Baker, J. Tayman, and L. Tedrow).

"Use of Demography in Public Sector Decision-Making." Presented at the 2017 Conference of the Population Association of America, Chicago, Il.

"The Number of Native and Part-Hawaiians in Hawaiʻi, 1778 to 1900: Demographic Estimates by Age, with Discussion." Presented at the 2016 Conference of the British Society for Population Studies." University of Winchester, Winchester, England.

"A New Estimate of the Hawaiian Population for 1778, the Year of First European Contact." Presented at the 2016 meeting of the American Sociological Association, Seattle, WA.

"Equality and Inequality in Stationary Populations." Presented at the 51st (2016) Actuarial Research Conference, Minneapolis, MN (with L. M. Tedrow).

"Forecasting with Modified Cohort Change Ratios and Child Woman Ratios." Presented at the 2016 Council of Governments/Metropolitan Planning Organizations Socio-economic Modeling Conference, San Diego, CA (with J. Tayman).

"Language in America: Diversity, Dominance, and Cultural Maintenance, 1910 – 2010." presented at the 2016 Conference of the Western Social Science Association, Reno, NV. (with R. Verdugo).

"The Top Ten Reasons to use the Cohort Change Ratio Method." Presented at the 2016 Conference of the Population Association of America, Washington, D.C. (with L. M. Tedrow).

"Exploring Stable Population Concepts from the Perspective of Cohort Change Ratios: Estimating Time to Stability and Intrinsic r." Presented at the 2014 Conference of the Population Association of America, Boston, MA (with L. M. Tedrow).

"Exploring Stable Population Concepts from the Perspective of Cohort Change Ratios." Presented at the 2013 Conference of the Canadian Population Society, Victoria, BC, Canada (with L. M. Tedrow).

"An Alternative Way to Estimate Life Expectancy from Census Survival Ratios: Examples and Comparisons for Native Hawaiians in the Early 20th Century." Presented at the 2012 Conference of the Social Science History Association, Vancouver, BC, Canada (with L. M. Tedrow).

"Socio-Economic Status and Life Expectancy in the United States, 1990-2010: Are We Reaching the Limits of Life Expectancy? Presented at the 2012 Conference of the American Statistical Association, San Diego, CA (with A. Sanford).

"A "Blind" Ex Post Facto Evaluation of Total Population and Total Household Forecast for Small Areas Made by Five Vendors for 2010: Results by Geography and Error Criteria." Presented at the 2012 Conference of the Canadian Population Society, Waterloo, Ontario, Canada.  (with M. Cropper, J. McKibben, and J. Tayman).

"MAPE-R: An Empirical Assessment." Presented at the 2011 Conference of the Population Association of American, Washington, D.C. (with J. Tayman and T. Bryan).

"Urban-Suburban Migration Patterns in the United States, 2004-2008: The Beginning of the End for Suburbanization?" Presented at the 2010 European Population Conference, 1-4 September, Vienna, Austria. (with J. McKibben).

"Disappearing Hispanics? The Case of Los Angeles County, California 1990-2000." Presented at the 2010 Conference of the American Statistical Association, 31 July – 5 August, Vancouver, BC, Canada (with M. Kaneshiro and A. Martinez).

"Using Cohort Change Ratios to Estimate Life Expectancy in Populations Closed to Migration." Presented at the 45th (2010) Actuarial Research Conference, Burnaby, British Columbia, July 26-28. (with L. M. Tedrow).

"MAPE-R: A Refined Measure of Accuracy for Ex Post Evaluation of Estimates and Forecasts." Presented at the 2010 International Symposium of Forecasting, 20-23 June, San Diego, California (with J. Tayman and T. Bryan).

"The American Community Survey from a User's Perspective." Presented at the 2010 Council of Governments/Metropolitan Planning Organizations Socio-economic Modeling Conference, San Diego, CA (with J. Tayman).

"The Methods and Materials used to Generate Two Key Elements of the Housing Unit Method of Population Estimation" Vacancy Rates (VR) and Persons per Household (PPH)." Presented at the 2010 Conference of the Population Association of America, 15-17 April, Dallas, Texas.

"DOMICLE 1.0: An Agent-Based Simulation Model for Population Estimates at the Domicile Level." Presented at the 2010 Applied Demography Conference, 10 -12 January, San Antonio, Texas (with Cameron Griffith, Bryon Long, and Mike Knight).

"Developing Annual Population Data in the United States: New Possibilities for the 21st Century." Presented at the 2009 Conference of the International Union for the Scientific Study of Population, 27 September – 2 October, Marrakech, Morocco (with J. McKibben).

"A Demographic Approach to Forecasting Groups Covered by Employer Health Insurance." Presented at the 44th Annual Actuarial Research Conference, 30 July – 1 August, 2009, Madison, Wisconsin. (with H. Kintner).

"Socio-Economic Status and Life Expectancy in Mississippi, 1970 to 1990." Presented at the 2009 Conference of the Canadian Population Society, 27-29 May, Ottawa, Ontario, Canada (with M. McGehee).

"An Evaluation of Data Generated By the American Community Survey." Presented at the 2008 Conference of the European Association for Population Studies, 9-12 July, Barcelona, Spain (with G. Hough).

"An Evaluation of Persons Per Household (PPH) Data Generated By the American Community Survey: A Demographic Perspective." Presented at the 2008 Conference of the Canadian Population Society, 4-6 June, Vancouver, British Columbia, Canada (with G. Hough).

"Assessing Katrina's Impact on the Mississippi Gulf Coast: A Report on Completed Research." Presented at the 2008 Conference of the Population Association of America, 17-19 April, New Orleans, LA (with R. Forgette and M. Van Boening).

"The Demographic Effects of Hurricane Katrina on the Mississippi Gulf Coast: An Analysis by Zipcode." Presented at the 2008 Conference of the Mississippi Academy of Sciences, 20-22 February, Olive Branch, Mississippi.

"Teaching Business Demography Using Case Studies with Demographic Cases." Presented at the 2007 special seminar on Business Demography, International Union for the Scientific Study of Population, 8-9 October, Sydney, Australia (with P. Morrison).

"New Directions in the Development of Population Estimates and Projections ." Presented at the 2007 Conference of the International Statistical Institute, Satellite Conference on Small Area Statistics, Pisa, Italy.  3-5 September. (with J. McKibben).

"Assessing Katrina's Demographic and Social Impacts on the Mississippi Gulf Coast: Preliminary Results ." Presented at the 2007 Conference of the American Statistical Association, 29 July – 3 August, Salt Lake City, UT (with M. Van Boening and R. Forgette).

"Assessing Katrina's Impact on the Mississippi Gulf Coast: Social Network Effects." Presented at the 2007 Applied Demography Conference, 7-9 January, San Antonio, Texas (with R. Forgette, M. Van Boening, and B. Dettrey).

"Forecasting the Population of Census Tracts by Age and Sex: An Example of the Hamilton-Perry Method in Action."  Presented at the 2007 Applied Demography Conference, 7-9 January, San Antonio, Texas (with A. Schlottmann and R. Schmidt).

"Measuring Uncertainty in Population Data Generated by the Cohort-Component Method: A Report on Research in Progress."   Presented at the 2007 Applied Demography Conference, 7-9 January, San Antonio, Texas.

"Toward Measuring Uncertainty in Population Data Generated by the Cohort-Component Method." Presented at the 2006 Annual Meeting of the British Society for Population Studies, 19-21 September, Southampton, England.

"Population Ageing and the Measurement of Dependency: The Case of Germany." Presented at the 2006 Meeting of the European Association for Population Studies. 20-24 June, Liverpool, England.

"Research on the Impacts of Hurricane Katrina on the Mississippi Gulf Coast." Presented at the Annual Meeting of the Southern Demographic Association, 3-5 November, 2005. Oxford, Mississippi.

"Contemporary Developments in Applied Demography within the United States." Presented at the 2005 Conference of the International Union for the Scientific Study of Population, 18-23 July, 2005. Tours, France. (with L. Pol).

"Controversy over Providing Special Census Tabulations to Government Security Agencies: the Case of Arab-Americans." Presented at the 2005 Conference of the International Union for the Scientific Study of Population, 18-23 July, 2005. Tours, France. (with S. El-Baldry).

"A Comparison of In-Class and On-line Student Evaluations." Presented at the Annual Meeting of the Mississippi Academy of Sciences, 16-18 February, 2005. Oxford, Mississippi.

"On MAPE-R as a Measure of Estimation and Forecast Accuracy." Presented at the Annual Meeting of the Southern Demographic Association. 14-16 October, 2004. Hilton Head. SC. (with C. Coleman).

"19th Century Roots of Contentious Litigation over Census Counts in the late 20th Century." Presented at the Hawaii International Conference on the Social Sciences, 16-19 June, 2004. Honolulu, HI (with P. Walashek).

"An Evaluation of the American Community Survey: Preliminary Results from a County Level Analysis of the Oregon Test Site." Presented at the Annual Meeting of the Mississippi Academy of Sciences, February 18th to 20th, 2004, Biloxi, Mississippi (with G. Hough).

"Advancing Methodological Knowledge within State and Local Demography: A Case Study."
Presented at the Annual Meeting of the Southern Demographic Association, October 23$^{rd}$ to 25$^{th}$,
2003, Alexandria, Virginia.

"Contemporary Developments in Applied Demography in the U.S." presented at the

European Population Conference, Warsaw, Poland, August 23-26, 2003 (with L. Pol).

"Using Cases in the Teaching of Statistics." presented at the annual meeting of the World
Association  for Case Method Research and Application, Bordeaux, France, June 29$^{th}$ to July 2$^{nd}$,
2003 (with R. Patten).

"MAPE-R: Its Features and Results from a National Block-Group Test." Presented at the Annual
Meeting of the American Statistical Association, New York City, New York, August 13, 2002. (with
T. Bryan, J. Tayman, and C. Barr).

"Applied Demography in Action: A Case Study of 'Population Identification'."  Presented at the
Annual Meeting of the Population Association of America, Atlanta, Georgia, May 10, 2002.

"New Directions in Population Forecasting."  Presented at the 4$^{th}$ International Conference on
Prediction and Non-Linear Dynamics, Tomas Bata University, Zlin, Czech Republic, September
25-26, 2001 (with S. Smith and J. Tayman).

"Leveraging Extant Data to Meet Local Information Needs:  A Case Study in Team Applied
Demography." Presented at the Annual Meeting of the Population Association of America, March,
2000, Los Angeles, California (with P. Morrison, C. Popoff, I. Sharkova, and J. Tayman).

" We are What We Measure:  Toward A New Approach for Assessing Population Forecast
Accuracy."  Presented at the Annual Meeting of the Southern Demographic Association, October
29$^{th}$, 1999, San Antonio, Texas. (with J. Tayman and C. Barr).

"On Measuring Accuracy in Subnational Demographic Forecasts."  Presented at the 52$^{nd}$
Congress of the International Statistical Institute, Helsinki, Finland, August 18, 1999 (with J.
Tayman and C. Barr).

"Population Estimates from Remotely Sensed Data:  A Discussion of Recent Technological
Developments and Future Research Plans."  Presented at the Annual Meeting of the Canadian
Population Society, Lennoxville, Quebec, Canada, June, 1999 (with J. Wicks, R. Vincent, and J.
Luiz Pereira De Almeida.

"Teaching Statistics to Non-Specialists in an Intercultural Setting:  Addressing Issues of Understanding and Retention in a Modern Learning Environment."  Presented at the Mid-Term Conference of the Sociology of Education Research Committee, International Sociological Association, Joensuu, Finland, June, 1997. (with J. McKibben).

"The "Biosphere" Food Consumption Survey. Presented at the Nuclear Regulatory Commission/Department of Energy Total System Performance Assessment Technical Exchange. Las Vegas, NV.

"A Computer-Based Curriculum For Service Courses In Statistics."  Presented at the

 International Conference On Problems of Statistical Education, St. Petersburg, Russia, July,1996 (with J. McKibben).

"In Defense of The Net Migrant." Presented at the 1996 Annual Meeting of the Population

Association of America, New Orleans, Louisiana (with S. Smith).

"What Is Applied Demography?"   Presented at the 1996 Annual Meeting of the Population Association of America, New Orleans, Louisiana (with T. Burch and L. Tedrow).

"Alternative Measures For Evaluating Population Forecasts:  A Comparison of State, County, and Sub-county Geographic Areas." Presented at the 1995 Annual Meeting of the Population Association of America, San Francisco, California (with J. Tayman).

"Changes in Factories, Changes in Accuracies:  On the Relationship Between Economic Structure and the Ratio-Correlation Method of Population Estimation." Presented at the 1994 Annual Meeting of the Southern Demographic Association, Atlanta, Georgia (with J. McKibben).

"Forecasting Health Benefits Populations." Presented at the XIVth International Symposium on Forecasting, Stockholm, Sweden, 1994 (with H. Kintner).

"Between A Rock and A Hard Place:  The Evaluation of Demographic Forecasts." Presented at the XIVth International Symposium on Forecasting, Stockholm, 1994, Sweden (with J. Tayman).

 "Construction of Confidence Intervals for Population Forecasts Generated by the Cohort-Component Method." Presented at the 1994 Annual Meeting of The Population Association of America, Miami, Florida (with D. Arnold, J. Carlson, H. Kintner, and C. Williams).

"Ties that Bind:  Families, Organizational Demography, and Health Benefits." Presented at the 1994 Annual Meeting of The Population of America, Miami, Florida (with H. Kintner).

"Measuring the Utility of Population Projections." Presented at the 1994 Annual Meeting of The Ohio Academy of Science. Toledo, Ohio (with J. Tayman).

"Mean Square Error Confidence Intervals for Intercensal Net Migration Estimates:  A Case Study of Arkansas 1980-1990." Presented at the 1993 Annual Meeting of the Southern Demographic Association, New Orleans, Louisiana (with H. Kintner and M. McGehee).

"Estimating Demographic Rates From Employer Administrative Database." Presented at the 1993 Annual Meeting of the International Union for the Scientific Study of Population, Montreal, Quebec (with H. Kintner).

"Evaluation of Ratio-Correlation and Difference-Correlation Methods for Estimating County Populations: The Case of Post-Industrial Indiana." Presented at the 1993 Annual Meeting of the American Statistical Association, San Francisco, California (with J. McKibben).

"Ratio-Correlation:  A Short-Term County Population Projection Method." Presented at the 1993 International Symposium on Forecasting. Pittsburgh, Pennsylvania (with D. Beck).

"The Relationship Between Life Expectancy and Socioeconomic Status In Arkansas, 1970 and 1990." Presented at the 1993 Annual Meeting of the Population Association of America, Cincinnati, Ohio.

"Measurement Errors in Census Counts and Estimates of Intercensal Net Migration." Presented at the 1993 Annual Meeting of the Population Association of the America, Cincinnati, Ohio (with H. Kintner).

"Ratio-Correlation as a Short-Term County Population Projection Method:  A Case Study for Washington State."  Presented at the 1992 Annual Meeting of the Southern Demographic Association, Charleston, South Carolina (with D. Beck).

"Adult Transfer Students:  Predicting Who Will Finish and Who Will Drop Out." Presented at the 1992 Annual Meeting of the Pacific Northwest Association of Institutional Researchers and Planners, Bellingham, Washington (with S. Hedman and L. Nelson).

"Measurement Errors in Census Counts and Estimates of Intercensal Net Migration." Presented at the 1992 Annual Meeting of the American Statistical Association, Boston, Massachusetts (with H. Kintner).

"The Disposal of Household Hazardous Waste:  Results From a Survey of Pierce County, Washington." Presented at the 1992 Annual Meeting of the Northwest Scientific Association, Bellingham, Washington.

"A Variation of the Housing Unit Method For Estimating the Population of Small, Rural Areas:  A Case Study of the Local Expert Procedure." Presented at the 1992 Annual Meeting of the Population Association of America, Denver, Colorado (with J. Carlson and L. Roe).

"A System for Placing Confidence Intervals Around Estimated the Population of Small, Rural Areas:  A Case Study of the Local Expert Procedure." Presented at the 1992 Annual Meeting of the Population Association of America, Denver, Colorado (with J. Carlson and L. Roe).

"Perspectives on Change in Employer Health Benefits Populations." Presented at the 1991 Annual Meeting of the Population Association of America, Washington, D.C. (with H. Kintner).

"Evaluating Socioeconomic Impact Models:  An Adoption of Winter's Method to the Yucca Mountain Project." Presented at the 1990 Annual Meeting of the American Statistical Association, Anaheim, California (with J. Carlson, J. Hollingsworth, and C. Williams).

"The Development of Small Area Socioeconomic Data to be Utilized for Impact Analysis:  Rural Southern Nevada." Presented at the 1990 International High Level Radioactive Waste Management Conference, Las Vegas, Nevada (with J. Carlson and C. Williams).

"Identifying Factors Associated with the Subjective Feelings of One's Quality of Health." Presented at the 1990 U.S. Uniformed Services Conference of Family Physicians, Richmond, Virginia (with W. F. Miser).

"Demographic Issues for Washington State." Session on Regional Demography, 1989 Annual Meeting of the Rural Sociological Society, Seattle, Washington.

"Intercensal Net Migration Among the Three Major Regions of Iraq, 1957-1977." Presented at the 1989 Annual Meeting of the Population Association of America, Baltimore, Maryland (with A. Al-Jiboury).

"VCR Households: A Comparison of Early and Recent Adopters." Presented at the 1988 Annual Meeting of the Broadcast Education Association, Las Vegas, Nevada (with B. Klopfenstein).

"Technical Skills and Training Needs of Applied Demography." Presented at the 1987 Annual Meeting for the American Statistical Association, San Francisco, California (with L. S. Rosen and H. J. Kintner).

"Causes of Death in Infancy and the Proposed Redefinition of the Neonatal Period." Presented at the 1987 Annual Meeting of the North Central Sociological Association, Cincinnati, Ohio (with E. G. Stockwell and J. Wicks).

"The Impact of Census Error Adjustments on Ohio Population Projections." Presented at the 1987 Annual Meeting of the North Central Sociological Association, Cincinnati, Ohio (with K. Vaidya, R. Yehya, B. Bennett and R. Prevost).

"Projecting Household VCR Penetration: A Demographic Approach." Presented at the 1987 Annual Meeting of the Population Association of America, Chicago, Illinois (with B. Klopfenstein).

"A State Based Regression Model for Estimating Substate Life Expectancy: Tests Using 1980 Data." Presented at the 1987 Annual Meeting of the American Statistical Association, San Francisco, California.

"An Analysis of VCR Adopter Characteristics and Behavior." Presented at the 1987 Annual Meeting of the International Communication Association, Montreal, Quebec, Canada (with B. Klopfenstein).

"Estimating Life Expectancy for Health Service Areas: A Test Using 1980 Data For Indiana." Presented at the 1986 Annual Meeting of the American Statistical Association, Chicago, Illinois.

"Converging Trends in the Relationship Between Infant Mortality and Socioeconomic Status." Presented at the 1986 Annual Meeting of the North Central Sociological Association, Toledo, Ohio (with E. Stockwell and J. Wicks).

"Geographic Variation of Longevity in Ohio, 1930 and 1980." Presented at the 1986 Annual Meeting of the North Central Sociological Association, Toledo, Ohio (with E. Stockwell).

"Identifying Extreme Errors in Ratio-Correlation Estimates of Population." Presented at the 1986 Annual Meeting of the Population Association of America, San Francisco, California (with R. Prevost).

"Missing Survey Data in End-Use Energy Models:  An Overlooked Problem." Presented at the 1985 Annual Meeting of the American Statistical Association, Las Vegas, Nevada.

"Fecundability Among Ethnic Groups in Hawaii." Presented at the 1985 Annual Meeting of the North Central Sociological Association, Louisville, Kentucky.

"Issues in Energy End-Use Survey Research." Presented at the 1985 Conference of the American Council for an Energy Efficient Society, San Cruz, California (with S. M. Buller, R. J. Canter, L. Guliasi, and R. M. Wong).

"Improving the Measurement of Temporal Change in Regression Models Used for County Population Estimates." Presented at the 1983 Annual Meeting of the Population Association of America, Pittsburgh, Pennsylvania (with B. Baker and J. Van Patten).

"Municipal Population Estimation:  Practical and Conceptual Features of the Housing Unit

Method." Presented at the 1983 Annual Meeting of the Population Association of America, Pittsburgh, Pennsylvania (with B. Baker and J. Van Patten).

"Getting at the Factors Underlying Trends Using Statistical Decomposition Techniques." Presented at the 1980 Annual Meeting of The College and University Systems Exchange, Phoenix, Arizona.

"Allocation Accuracy in Population in Estimates:  An Overlooked Criterion with Fiscal

Implications." Presented at the 1980 Annual Meeting of The American Statistical Association, Houston, Texas.

"Graphic Display of Demographic Data." Presented at the 1979 Annual Meeting of The

Population Association of America, Philadelphia, Pennsylvania (with L. M. Tedrow).

"A Method of Estimating Annual Age-Standardized Mortality Rates for Counties: Results of a Test Using Washington State Data." Presented at the 1978 Annual Meeting of The American Statistical Association, San Diego, California.

"Preliminary Results of an Evaluation of the Utility of Ridge Regression for Making County Population Estimates." Presented at the 1978 Annual Meeting of the Pacific Sociological Association.

**B. Contributed Non-Refereed Papers**

"Why Do Group Health Benefit Populations Change Size? A Case Study of General Motors Salaried Population, 1983-1990." Presented at the 1994 Applied Demography Conference, Bowling Green, Ohio (with H. Kintner).

"An Evaluation of the Demographic Components of a Proprietary Economic Forecasting and Simulation System:  The REMI Model as used by SAIC, Inc. for the Yucca Mountain Project in Nevada." Presented at the 1994 Applied Demography Conference, Bowling Green, Ohio (with Y. Zhao and J. Carlson).

"On the Utility of Lagged Ratio-Correlation as a Short-Term County Population Projection Method: A Case Study of Washington State." Presented at the 1994 Applied Demography Conference, Bowling Green, Ohio (with J. Tayman and D. Beck).

"The Producers Perspective." Presented at the 1994 Annual Meeting of Federal-State Cooperative Program for Population Projections, Session on The Utility of Population Projections, Miami, Florida.

"Confidence Intervals for Net Migration Estimates that Incorporate Measurement Errors in Census Counts." Presented at the 1992 Applied Demography Conference, Bowling Green, Ohio (with H. Kintner).

"Baseline Projections of Household Solid Waste Generation:  A Case Study of Pierce County, Washington." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio.

"Conference Intervals for Estimates of Intercensal Net Migration." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio (with H. Kintner).

"Estimating Migration in a Sparsely-Populated Specialized Economic Area:  The Yucca Mountain High-Level Nuclear Waste Repository." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio (with J. Carlson).

"Development of Demographic Data Utilizing Key Informants in Rural Incorporated Places." Presented at the 1990 Applied Demography Conference, Bowling Green, Ohio (with L. K. Roe and J. Carlson).

"Poverty and Infant Mortality." Presented at the June, 1989 Meeting of the Washington State Child Health Research and Policy Group, Seattle, Washington.

"Some Results of the 1988 'Research Experience for Undergraduates' Program in Demography." Poster Session at the 1988 Applied Demography Conference, Bowling Green, Ohio (with L. Tedrow).

"Overview of the Survey of Applied Demographers." Presented at the 1987 Annual Meeting of the Population of Association of America, Chicago, Illinois (with H. Kintner).

"Applied Demography." Presented to the Department of Sociology, Western Washington University, October, 1986.

"Preliminary Results From the 1986 Survey Demographers." Presented at the 1986 Annual Meeting of the Population Association of America, San Francisco, CA (with H. Kintner et al.).

"Survey Findings." Presented at the Public Hearing on Public Affairs Programming and Commercial Television, June, 1984 San Francisco, California.

"Comparative Analysis of Change in Average Household Size With Reference to IRS Data on Average Exemptions Per Return:  Census Results From Selected Municipalities in Washington, 1970, 1977, and 1978." Presented at the October, 1979 meeting of The Task Force on Sub-County Population Estimates Federal-State Cooperative Program for Population Estimates, Washington, D. C. (with T. J. Lowe).

"Recent Trends in Household Size for Rural, Predominantly White, Non-Hispanic Communities: Special Census Results From Three Towns in Washington, 1976 and 1979." Presented at the October, 1979 meeting of The Task Force on Sub-County Population Estimates, Federal-State Cooperative Program for Population Estimates, Washington, D. C. (with T. J. Lowe).

# IX. Invited Presentations

"Modeling and the Covid-19 Pandemic:  A Local Area Perspective." Presented at the Annual Meeting of the Federal-State Cooperative Program for Population Projections (Virtual), May 13-14, 2021.

"Cohort Change Ratios and Their Applications." Presented at the  U.S. Census Bureau under the auspices of its "Summer at Census" Visiting Scholar Program (18 -20 June 2019). Suitland, Maryland.

"Using a Simple Population Forecasting Method to Assess Economic and Health Characteristics of a Population of Interest." Presented at the Department of Public and Regional Economics, Aoyama Gakuin University, Tokyo, Japan, 7 November 2018

"Using a Population Forecasting Method to Assess the Demographic Impact of Natural and Man-made Disasters." Presented at the Department of Sociology, Kyoto University, Kyoto, Japan, 5 November 2018

"Cohort Change Ratios and Their Applications." Presented as part of the Open Seminar, Foreign Scholar Lecture Series, National Institute for Population and Social Security Research, Tokyo, Japan, 31 October 2018 (http://www.ipss.go.jp/int-sem/e/lec2.html )

"On Equality and Inequality in Stationary Populations." Presented at the 4th International Symposium on the Human Mortality Database, Berlin, Germany, May 23, 2017 (with Lucky Tedrow).

"Use of Demography in the Public Sector." presented in an invited session on demography and policy at the 2017 Conference of the Population Association of American, Chicago, IL.

"The Washington State Census Board and Its Demographic Legacy." Presented at the Center for Studies in Demography and Ecology, University of Washington. Seattle, Washington, January 8, 2016.

"Aging in the Western Hemisphere, 2015-2035." Presented at the analytic exchange on Demographic Change and Mobility in Aging Regions to 2035. Co-sponsored by the U.S. National Intelligence Council and the Bureau of Intelligence and Research, U.S. State Department. Arlington, VA. July 17. 2015.

"The Current Status of Applied Demography: A Four-Field View with an Eye toward the Future." Plenary Presentation.  8th International Conference on Population Geographies, University of Queensland, Brisbane, Australia. July 1-3, 2015.

"A New Estimate of the Hawaiian Population for 1778, the Year of First European Contact." Presented as part of the Colloquium Series, Department of Sociology, University of Hawai'i. February 13th, 2015.

"Measuring Uncertainty in Population Forecasts: A New Approach Employing the Hamilton-Perry Method." Presented at the Population Institute Methods Workshop, Penn State University, June 24th, 2014. State College, PA (with Jeff Tayman).

"Measuring Uncertainty in Population Forecasts: A New Approach Employing the Hamilton-Perry Method." Presented at the Annual Conference of the Federal-State Cooperative Program for Population Projections, Boston, MA, April 30th, 2014. (with Jeff Tayman).

"Measuring Uncertainty in Population Forecasts: A New Approach." Presented at the Joint Eurostat/UNECE Work Session on Demographic Projections, October 29-31, 2013. Rome, Italy (with Jeff Tayman).

"People of the Inland Empire: Changes in Ethnicity, Age and Race, Presented at the "Practically Speaking" Development Series, Center for Sustainable Suburban Development, University of California Riverside, June 11th, 2013. Riverside, CA.

"A Loss Function Approach to Examining ACS Estimates: A Case Study of 2010
"Persons Per Household" Estimates for California Counties." Presented at the Workshop on "The Benefits (and Burdens) of the American Community Survey" sponsored by the Committee on National Statistics, National Academies of Science. June 14-15, 2012, Washington, DC (with George Hough).

"Practical Demography." Keynote address presented at the Warren Kalbach Conference, March 18-19, 2011, Edmonton Society of Demographers, University of Alberta, Edmonton, Alberta, Canada.

"Developing Small Area Population Estimates for Use in Health Information Systems."

 Presented in the Introductory Plenary Session at the 19th International Conference of the Forum for Interdisciplinary Mathematics,18-20 December 2010, Patna University, Patna, India. (with J. McKibben and K. Faust).

"Perspectives on the American Community Survey." Presented in the session, Application and Evaluations of the American Community Survey,  IPUMS Latin America III Workshop**.** 2010 Conference of the Latin American Association for Population Studies, 16 November 2010, Havana, Cuba. (https://users.pop.umn.edu/~rmccaa/ipumsla/havana_2010/presentation.en.htm).

"New Directions for the Decennial Census?" Presented in the Invited Session, What if the 2020 Census Was the First Census: What Would We do?, 2010 Conference of the American Statistical Association, 31 July – 5 August, Vancouver, British Columbia, Canada.

"Demographics and Housing." Presented at the Randall Lewis Seminar, Blakely Center for Sustainable Suburban Development, Riverside, California, 17 June 2010.

"The Possibilities for using the Housing Unit method."  Presented at Statistics Canada, Ottawa, Ontario, 28 May, 2009.

"The Future of Suburbs." Presented at Pitney Bowles Business Decisions. Toronto, Ontario, 27 May 2009.

"Socio-economic Status and Life Expectancy in the United States: 1970 to 1990." Presented at the School of Public Policy, University of Texas- San Antonio, San Antonio, TX. 21 April 2009.

"Small Area Estimation and Health Information Systems" Presented at the Small Area Measurement Consultation Conference, Institute for Health Metrics and Evaluation, University of Washington. Seattle, WA,10 April 2009.

"Aging and other Population Trends and their Implications for Suburbs." Presented as part of the 'Leadership Lenexa' Seminar Series, Lenexa Chamber of Commerce. Lenexa, KS. 27 June 2008.

"How the Changing U.S. Census will Affect Decision-Making." Presented at the Randall Lewis Seminar, Blakely Center for Sustainable Suburban Development, Riverside, California, 15 May 2008.

"An Evaluation of Persons Per Household (PPH) Data Generated By the American Community Survey: A Demographic Perspective." Presented at the American Community Survey, Multi-Year Estimates Meeting, 15 November 2006, U.S. Census Bureau, Suitland, Maryland.

"Counting the Gulf Coast: A Demographer Gauges Katrina's Impact in Mississippi." Department of Sociology, University of California Irvine, 23 October 207, Irvine, CA.

"Assessing Katrina's Impact on the Mississippi Gulf Coast: A Report on Completed Research." Poster presented at the 2007 Post-Katrina Forum Gulf States Alliance:  Network Science and Recovery, 19-21 August, Biloxi, MS (with R. Forgette, M. Van Boening).

"The Needs of Researchers in Regard to Population Estimates." Conference on U.S. Census Bureau Population Estimates: Meeting User Needs." Sponsored by Council of Professional Associations on Federal Statistics.19 July 2006. Alexandria, VA.

The Impact of Hurricane Katrina on the Mississippi Gulf Coast." Annual Exhibition of the Coalition for National Science Funding, 7 June 2006. Washington, DC.

"The Impact of Hurricane Katrina on the Mississippi Gulf Coast." Annual CLARITAS Client Conference, 30-29 April, 2006, San Diego, CA.

"The Impact of Hurricane Katrina on the Mississippi Gulf Coast. Annual Meeting of the Population Association of America, Session of the Committee on Population Statistics.  30 March 2006. Los Angeles, CA.

"Demographic Changes Affecting Undergraduate Enrollment in Mississippi." College of Liberal Arts Faculty Forum, 22 March 2005. University of Mississippi.

"The Changing Demography of the CSGS Region." Plenary Keynote Address, Annual Meeting of the Conference of Southern Graduate Schools, 26 February 2005. Biloxi, MS.

"An Evaluation of the American Community Survey: Results from the Oregon Test Site." Presented at the Annual Meeting of the American Statistical Association, August 8th to 10th, 2004. Toronto, Ontario, Canada (with G. Hough).

"Evidence From Oregon."  Presented at the Annual Meeting of the Population Association of America, April 1st to 3rd, 2004. Boston, Massachusetts (with G. Hough).

"The Impact of Demographic Factors on Business: Selected Examples." Presented to Faculty of the H.E.L.P. Institute, Kuala Lumpur, Malaysia, 25 April 2003

"Results of the BScBA Program Self-Evaluation Study." Presented at the External Accreditation Peer Review Team's On-Site Visit, Finnish Ministry of Education, Valamo, Finland, October 8-9, 2002.

"Demographic Constraints on Regional Development."  Presented at the Technology and Economic Development in the Periphery (TEDIP) Dissemination Seminar, Joensuu University, Savonlinna, Finland, June 13th, 2002.

"International Education in Finland: Issues and Challenges." Presented to the Rural Studies Workshop, Institute for Rural Research Studies, Helsinki University, Mikkeli, Finland, February 1st, 2002.

"The International BBA Program of the Helsinki School of Economics and Business Administration." Presented to the President of Finland, Mikkeli, Finland, May 15th, 2001.

"Providing International Education:  A Finnish Example of the European Experience." Presented at the 4th Strategy Seminar on Strategic Alliances and Partnerships in International Education, Kuala Lumpur, Malaysia, April 7th, 2001.

"On Measuring Accuracy in Subnational Demographic Estimates."  Presented at the National Conference on Population Estimates Methods, Sponsored by the Population Estimates Branch, U.S. Bureau of the Census, June 8th, 1999. Suitland, Maryland (with J. Tayman and C. Barr).

"Census Errors and Census 2000:  The Role of Local Government."  Presented at the Public Stakeholders Meeting of the Southern Nevada Census 2000 Committee, March 23rd, 1999, Las Vegas, Nevada.

"The Food Consumption Survey."  Presented at the Total System Performance Assessment Technical Exchange, U.S. Department of Energy/ U.S. Nuclear Regulatory Commission. Las Vegas, Nevada, November 6th, 1997.

"Amargosa Valley Population Survey."  Presented to the U.S. National Advisory Committee on Nuclear Waste,  U.S. Nuclear Regulatory Commission.  94th Meeting, Las Vegas, Nevada, September 23rd, 1997.

"An ACS Performance Assessment."  Presented in the session "The American Community Survey – Uses and Issues."  Annual Meeting of the American Statistical Association, Anaheim, California, August 13th, 1997.

"The Region's Changing Demographics."  Presented at the International Council of Shopping Centers' 1996 Meeting, Skamania Lodge, Skamania, Washington, August, 1996.

"Local Population Trends."  Presented at the Chamber of Commerce Leadership Program." West Linn, Oregon, March, 1996.

"Oregon's Population Trends."  Presented  at the Strategic Budget Conference of Oregon  State Agency Directors, Salem, Oregon , March, 1996.

"Evaluation Plan for the Arkansas Network Based Technology Deployment Program." Presented at the Workshop on Manufacturing Modernization: Evaluation Practices, Methods and Results. National Institute of Standards and Technology, Atlanta, Georgia, September 18-20, 1994.

"Estimates of the Current Cost of Health Care in Arkansas." Presented to the Governor's Task Force on Health Care Reform. Little Rock, Arkansas, April 13, 1994.

"An Overview of Impact Analysis." Presented at the Local Development Association Meeting, Heber Springs, Arkansas 1993.

"Applied Demography for Urban Studies." Two-day workshop presented at Loyola University, Chicago, Illinois, 1993.

"Confidence Intervals for Net Migration Estimates that Incorporate Measurement Errors in Census." Presented at the Central Arkansas Chapter of the American Statistical Association, November, 1992 (with H. Kintner).

"Demographic Aspects of Labor Force Trends in Arkansas." Presented at the March 5th, 1993 Arkansas Business Leaders Symposium, Arkansas College, Batesville, Arkansas.

"Decennial Census Products and Their Use in Research." Presented in the Research Conference Series, Center for Mental Health Research, University of Arkansas for Medical Sciences, November 18th, 1992.

"Factor Analysis and Related Analytical Techniques." Presented to the Uniformed Services Physicians' Fellowship Program, Madigan Army Medical Center, April 17th, 1992.

"A Variation of the Housing Unit Method for Estimating the Age and Gender Distribution of Small, Rural Areas:  A Case Study of the Local Expert Procedure." Presented at the Invited Paper Session Methods of Small Area Population Estimation. Annual Meeting of the American Statistical Association, San Francisco, California, August, 1993 (with J. Carlson, L. Rowe and C. Williams).

"A First Bite in a Seven Course Meal:  Results from the 1990 Census." Presented to the City Club of Tacoma, June, 1991 (with W. Opitz).

"A New Method for Projecting Small Area Populations." Presented to the Center for Business and Economic Research, College of Business, University of Nevada, Las Vegas, March, 1991.

"Socio-Economic Impact Analysis for the Yucca Mountain Nuclear Waste Project:  Insights from Demography." Presented to the Department of Sociology, Michigan State University, February, 1991.

"Ratio-Correlation as a Short-Term, Subnational Population Forecasting Method:  A Case Study Using Washington State Data." Presented to the Demography Division, Statistics Canada, Ottawa, Ontario, February 11, 1991.

"Demographics! Demographics! Demographics!" Presented to members of the Private Industry Council, Pierce County, Washington, March, 1990.

"Marx vs. Malthus:  An Empirical Approach to Examining Orthodoxy." Presented in the Colloquium Series "Living In A Fragile Environment," Valparaiso University, January, 1990.

"Small Area Socio-Economic Forecasting," Presented to the Faculty Club, Valparaiso University, January,1990.

"Local, National, and International Demographic Trends." Presented to the Washington Agriculture and Forestry Leadership Program, Pacific Lutheran University, January, 1990.

"Some Problems in Small Area Forecasting." Presented at the ICPSR Summer Program in Quantitative Methods, University of Michigan, July, 1989.

"Washington State Population Issues." Presented at the Washington State Public School Social Studies Educators Retreat, Pilgrim Firs, Washington, October, 1987.

"Why are American Babies Dying Before Their First Birthday?' Presented at the October, 1987 Interdepartmental Colloquium, Pacific Lutheran University.

"Subnational Population Estimation and Its Relation to Emerging Legal Challenges in the United States." Presented at the November, 1986 Brown-bag session of The Population Studies Center, University of Michigan.

"Population Trends in North Central Ohio." Presented at the November, 1986 meeting of The Social Science Club, Firelands College.

"The Multiple Regression Approach to Deriving Local Area Population Estimates." Presented at the April, 1985 meeting of the Northwest Ohio Chapter of The American Statistical Association, Bowling Green, Ohio.

"Population and Enrollment Forecasting." Presented at the March, 1983 meeting of the Anchorage Demographic Group, Anchorage, Alaska.

"Trends in Washington's Population." Presented at the November, 1979 meeting of the Seattle Economists' Club, Seattle, Washington.

# X. Testimony

## A.  Legislative and Regulatory

Oral and written Testimony, "*Why 2+2 Should Never Equal 3: Getting Intercensal Population Estimates Right the First Time*," House Government Reform Subcommittee on Federalism and the Census oversight hearing, Washington, DC. September 6, 2006.

Oral and written Testimony, Nuclear Regulatory Commission, Advisory Committee On Nuclear Waste, September 25, 1997, Las Vegas, Nevada.

Oral Testimony on Oregon's Population Trends. Presented to the Interim Committee On Growth Management, Oregon House of Representatives, February, 1996.

Written Testimony on "The Proposed Options For Incorporating Information From The Post-Enumeration Survey into The Intercensal Population Estimates produced By the Bureau of the Census." Public Hearing Docket (No. 920895-2195) U.S. Bureau of the Census. August 31, 1992.

"Results From the 1988 Recycling Survey." Presented to the Subcommittee on Solid Waste Management, Pierce County Council, January, 1989.

Written Testimony on "Plans for Conducting the 1990 Census in Alaska." Subcommittee on Census and Population, Hearing Conducted in Anchorage, Alaska, August 19, 1987.

Written Testimony on "Federal Statistics and National Data Needs." <u>Subcommittee on Energy, Nuclear Proliferation and Government Processes of the Committee on Government Affairs, United States Senate, 98th Congress, 1st Session.</u> Committee Print (S. Print 98-191) Washington: 1984.

Oral and Written Testimony, Labor Committee, Alaska House of Representatives, 1981, 1982, 1983.

Oral and Written Testimony, Finance Committee, Alaska House of Representatives, 1981, 1982, 1983.

Oral and Written Testimony, Finance Committee, Washington State Senate, 1979.

Oral and Written Testimony, Finance Committee, Hawaii State House of Representatives, 1974.

**B.  Judicial**

Deposed and Testifying Expert Witness. 2023. Civil No. CV6417-300. In Re the General Adjudication of CV 6417 All Rights to Use Water in the Little Colorado River System and Source (evaluate population forecast done on behalf of the Navajo Nation). Phoenix, AZ.

Deposed and Testifying Expert Witness. 2022. Case A-17-762364-C. Estate of Joseph P. Schrage Jr & Kristina. D. Schrage v. Allan Stahl. (Wrongful death case on behalf of plaintiff) Eighth Judicial Court, Clark County, Las Vegas, Nevada.

Deposed and Testifying Expert Witness. 2012. Board of Education, Shelby County, Tennessee et al. v. Memphis City Board of Education et al. / Board of County Commissioners, Shelby County, Tennessee (third party plaintiff) v. Robert E. Cooper et al (third party defendant)." (Constitutionality of a Tennessee state law). Baker, Donelson, Bearman, Caldwell and Berkowitz, PC. Memphis, TN.

Deposed Expert Witness. 2009. "Quest Medical Services v. FMIC." (Demographic Effects of Hurricane Katrina on New Orleans in a case involving a Medical Service Provider). . Podvey, Meanor, Catenacci, Hildner, Cocoziello, and Chattman, P.C., Newark, NJ.

Deposed and Testifying Expert Witness. 2007. "Spring Hill Hospital, Inc. v. Williamson Medical Center and Maury Regional Hospital."  (Evaluation of population forecasts in a case involving a proposed hospital). Miller and Martin, PLLC, Nashville.

Deposed and Testifying Expert Witness. 1994. Arkansas Supreme Court. (Statistical evaluation of the accuracy of the number of qualified signatures on a public referendum as determined by a sample).

Deposed Expert Witness. 1983. "Anchorage, et al., vs. J. Hammond et al." (Lawsuit brought by local governments against the state of Alaska on how populations are determined for purposes of state revenue sharing to local governments).

# XI. Service

**A.  Professional**

Reviewer, four papers submitted to the 2024 Applied Demography Conference sponsored by the Population Association of America, November, 2023.

Co-editor, Special Issue on Population Forecasting, *Population Research and Policy Review* (2023) (with J. Baker, I. Grossman, and T. Wilson).

Mortality Expert Panel, Society of Actuaries Research Institute, February, 2022 -

Interview, "Census Bureau's use of Synthetic Data worries Researchers." A story that appears in Associate Press News. May 27, 2021 https://apnews.com/article/census-2020-technology-data-privacy-business-be938fa5db887a0ae6858dff0be217ef

External Advisory Board, Geo-Spatial and Population Studies Research Center, University of New Mexico, April 2019 -

Chair, Estimates and Projections Session I, 2022 Applied Demography Conference February 1st.

Interview: "Information for Real Estate Agents." Wallethub, April 24th, 2019. https://wallethub.com/edu/best-worst-cities-to-be-a-real-estate-agent/18713/#expert=david-a-swanson

Interview: "Demographic Formula Reveals Surprisingly Short Careers for MLB Pitchers." A story that appears in UPI's Science News, August 3rd, 2018 (https://www.upi.com/Demographic-formula-reveals-surprisingly-short-careers-for-MLB-pitchers/3841533304869/ ).

Editorial Board, *Population Research and Policy Review*, 2014-2021

Advisory Board, Online Program in Applied Demography, Pennsylvania State University, 2017-2021

Advisory Board, Nantucket Data Platform Project, Nantucket, Massachusetts, 2017-2020

Reviewer, Proposals for a special issue of *Population Research and Policy Review*, 2017.

Co-organizer, Conference on Applied Demography and Public Policy, University of Houston, Houston, TX, January, 2017.

Chair, Applied Demography Track Committee, 2017 Program Committee, Population Association of America. 2016-17.

2017 Program Committee, Population Association of America. 2016-2017.

Invited Commentary, "Compare Hawai'i and Mississippi," on the question, "Is Hawai'i a racial paradise?" Zocalo Public Square, September 15th, 2015 (http://www.zocalopublicsquare.org/2015/09/15/is-hawaii-a-racial-paradise/ideas/up-for-discussion/#David+A.+Swanson ).

Poster Session Judge, "8th International Conference on Population Geographies, Brisbane, Australia, June 30th to July 3rd, 2015.

Discussant, Session 1130, "Demographic and Statistical Approaches to Small Area Estimation." Population Association of American, April 30th to May 1st, 2014. Boston, MA.

Session Chair, "Mortality and Later Life Health." Social Science History Association, 1-4 November 2012, Vancouver, BC, Canada.

Grant Proposal Reviewer. "FR/38/2-220/11 - Defining the Demographic Prospects of Georgia and Providing their Software," Shosta Rustaveli National Science Foundation of Georgia, Republic of Georgia (December, 2011).

Session Organizer and Chair, "Population Projections," Applied Demography Conference, 8-10 January 2012, San Antonio, Texas.

Interview: "Experts Predict Bright Future." A story that appears in The Telegraph. (Calcutta, India) December 21, 2010.

Interview: "Census Bureau releases detailed statistics on smaller Inland areas." A story written by David Olson that appears in the Press-Enterprise, December 14, 2010

Interview: "Inland area lags behind state, nation in returning census forms." A story written by David Olson that appears in The Press-Enterprise, March 31, 2010

Interview: "Government 'a Counting: Does the U.S. Census Need a 21st-Century Makeover?." A story written by Katie Moisse that appears in Scientific American, March 25, 2010

Interview: "Some Hispanics puzzle over race question on census form." A story written by Randy Cordova that appears in the Arizona Republic, March 23, 2010.

Interview: "The census inspires a sense of civic duty, distrust and fear." A story written by Robert L. Smith that appears in The Cleveland Plain Dealer, March 16, 2010

Interview: "Campaign counts on snowbird surveys in Palm Springs." A story written by Kate McGinty that appears in The Desert Sun, March 13, 2010

Interview: "Census Bureau reaching out in Inland area to communities least likely to be counted." A story written by David Olson that appears in The Press-Enterprise, January 28, 2010

Interview: "Countdown to the Count-up." A story written by Bettye Miller that appears in UCR: The Magazine of UC Riverside Winter, 2010, pp. 22-23.

Session Chair, "The 2010 Census." Applied Demography Conference, 10-12 January 2010, San Antonio, Texas.

Session Organizer and Chair, "Expert Witness Work and the Applied Demographer," Applied Demography Conference, 10-12 January 2010, San Antonio, Texas.

Co-Program Organizer (with Nazrul Hoque and Lloyd Potter), Applied Demography Conference, 10-12 January 2010, San Antonio, Texas.

Discussant, Session 1704, "Using Demography in the Business and Public Sectors." 2009 Conference of the International Union for the Scientific Study of Population, Marrakech, Morocco, 27 September – 2 October 2009.

Associate Editor, Open Demography Journal, 2009-2010

Facilitator, Census Advisory Committee of Professional Associations, U.S. Census Bureau, 2009-10

Chair, Committee representing the Population Association of America, Census Advisory Committee of Professional Associations, U.S. Census Bureau. 2008-2009

Census Advisory Committee of Professional Associations, U.S. Census Bureau. 2004-2010

Member, Development Committee, Population Association of America, 2008-2013.

Chair and Conference Organizer, Psychology and Social Sciences Section, Mississippi Academy of Sciences, 2007-8.

Chair, Session on "Fertility: Social Issues and Reproduction." Annual Meeting of the Southern Demographic Association, 13 October 2007, Birmingham, Al.

Presenter and Discussant, "Symposium for School Districts that will be affected by the Toyota Assembly Plant near Tupelo. Mississippi." School of Education, University of Mississippi, 30 March 2007.

Organizer, Symposium:  "the Psychological and Social Impacts of Hurricane Katrina." 2007 Conference of the Mississippi Academy of Sciences 22 February. Starkville, Mississippi.

Program Organizer, Applied Demography Conference, 9-11 January 2007, San Antonio, TX.

Chair and Conference Organizer, Psychology and Social Sciences Section, Mississippi Academy of Sciences, 2006-7.

Reviewer, <u>Using the American Community Survey: Benefits and Challenges</u>, Committee on Functionality and Usability of Data from the American Community Survey, Committee on National Statistics, National Research Council. Washington, DC: National Academy of Sciences Press. 2007.

Chair, Session on "Anxiety, Ambiguity, and Multiculturalism in Statistical Education," Annual Meeting of the American Statistical Association, 10 August 2006, Seattle, WA

Vice-Chair, Psychology and Social Sciences Section, Mississippi Academy of Sciences, 2005-6.

Local Arrangements Coordinator, Annual Meeting of the Southern Demographic Association University of Mississippi, October, 2005.

Editor, <u>Population Research and Policy Review</u>, Official Journal of the Southern Demographic Association, July 1st, 2004- July 1st, 2007.

Member, Advisory Board, Fulbright Academy of Science and Technology, 2003-2008.

Participant, Users Perspective Meeting, Panel on the Functionality and Usability of Data from the American Community Survey, Committee on National Statistics of the National Academies, April 2005, Washington, DC.

Technical Review Panel Member, Small Business Innovative Initiative Grants, National Institutes of Health, 2002.

Chair, National Committee on Applied Demography, Population Association of America, 2001-2.

Publications Officer, Government Statistics Section, American Statistical Association, 2001-2.

Member, National Committee on Applied Demography, Population Association of America, 1999 to 2003.

Organizer and Moderator, "Population Controls for the American Community Survey,"

Annual Meeting of the Southern Demographic Association, University of Mississippi, Oxford, Mississippi, November, 2005.

Organizer and Chair, "New Directions in Local Area Estimation and Forecasting,"

Annual Meeting of the Population Association of America, New York,  New York. March, 1999

Technical Review Panel Member, Small Business Innovative Initiative Grants, National Institutes of Health, 1997.

Organizer and Chair, Panel Discussion on "Surf's Up! Building, Accessing, and Linking Demography's Internet Sites," Annual Meeting of the Southern Demographic

Association, Memphis, Tennessee, October, 1996.

Chair, Session on "Computer Support of Statistical Education," The International Conference On Statistical Education In The Modern World:  Ideas, Orientations, Technologies, St. Petersburg, Russia, July, 1996.

Chair, Membership Committee, Population Association of America, 1996 to 1998.

Technical Advisory Committee, Oregon Survey Research Laboratory, University of Oregon, 1996-97.

Textbook Reviewer, *Life in a Business Oriented Society* (by Richard Caston), Allyn and Bacon Publishers, 1996.

Member, Editorial Board, Population Research and Policy Review, 1995 to 1997, 2007-current.

Organizer and Chair, Session on "Estimates and Projection," 1996 Annual Meeting of the Population Association of America.

Co-Organizer, Sessions and Papers on State and Local Demography, 1995 Annual Meeting of the Population Association of America.

Member, Committee on Applied Demography, Population Association of America, 1994 to 1997.

Chair, Session on "Population, Environment and Development," 1994 Annual Meeting of The Southern Demographic Association, Atlanta, Georgia.

Secretary-Treasurer, Southern Demographic Association, 1994-1997 and 2004-2007.

Chair, Session on "Demographics of School and College Enrollment." 1994 Applied Demography Conference, Bowling Green, Ohio.

Organizer, Session on "Should Projections be Privatized?" and Session on "The Utility of Population Projections." 1994 Annual Meeting of the Federal-State Cooperative Program on Population Projections, Miami, Florida.

Member, Delegation to visit U.S. Senators RE the FY 1994 Budget for the U.S. Bureau of the Census, sponsored by The Population Association of American, July, 1993.

Member, Senior Council, Ohio Academy of Science, 1993-95.

Roundtable Discussion Leader on "School District Demography" 1993 Annual Meeting of the Population Association of America, Cincinnati, Ohio.

Organizer, Session on "Methods of Forecasting and Estimating," 1993 Annual Workshop of the National Association for Welfare Research and Statistics, Scottsdale, Arizona.

Arkansas State Representative to the Federal-State Cooperative Program for Population Projections, 1992 to 1995.

Member, National Peer Review Committee, Socio-economic Studies, High Level Radioactive Waste Repository, 1992, Yucca Mountain, Nevada.

Organizer and Chair, Session on "Projection and Forecasting Special Populations," 1990 North American Conference on Applied Demography, Bowling Green, Ohio.

National Chairman, Federal -State Cooperative Program for Population Projections, 1993-94.

Discussant, Session on "Survey Research to Support Social Statistics," 1990 Annual Meeting of the American Statistical Association, Anaheim, California.

Panelist, "Applied Demography and the Population Association of America," given at the 1990 Annual Meeting of the Population Association of America, Toronto, Ontario. May, 1990.

External Examiner, "A Model for Fertility Change," Ph.D. Dissertation submitted by N. Sugathan, Department of Demography, University of Kerala, 1989.

Participant, National Resource Persons Network, Office of Minority Health Resource Center, U.S. Public Health Service, 1989.

Member, Washington State Child Health Research and Policy Group, 1989-1993.

Discussant, Session on "Is the Non-Metropolitan Population Turnaround Over?" 1989 Annual Meeting of the Rural Sociological Society, Seattle, Washington.

Organizer and Chair, Session on "Demographic Issues and The Law," 1988 National Conference on Applied Demography, Bowling Green, Ohio.

Chair, State and Local Demography Interest Group, Population Association of America, 1988-90.

Organizer and Chair, Session on Methodological Advances In State and Local Demography. 1988 Annual Meeting of the Population Association of America, New Orleans, Louisiana.

Member, Subcommittee on Academic Outreach, Business Demography Committee, Population Association of America, 1987-1988.

Roundtable Discussion Leader, "Marketing Your Organization's Demographic Expertise and Resources." 1987 Annual Meeting of The Population Association of America, Chicago, Illinois.

Judge, North Central Sociological Association Undergraduate Student Paper Competition, 1987. Co-Organizer, 1st Biennial Conference on Applied Demography, held at Bowling Green State University, September 26-27, 1986.

Member, State Advisory Committee on Population Forecasts, Ohio Data Users Center, Ohio Department of Development, 1986-1987.

Discussant, Session on Estimating and Forecasting Demographic Characteristics of Small Areas, 1986 Annual Meeting of the Population Association of America, San Francisco, California.

Discussant, Session on Estimates and Projections for State and Local Areas, 1985 Annual Meeting of the Population Association of America, Boston, Massachusetts.

Speaker, Panel on Careers in Applied Demography, 1985 Annual Meeting of the Population Association of America, Boston, Massachusetts.

Discussant, Session on Issues in State and Legal Demography, 1984 Annual Meeting of the Population Association of America, Minneapolis, Minnesota.

Alaska State Representative to the Federal State Cooperative Program for Population Projections, 1981-1983.

Discussant, Session on Forecasting Energy Demand, Northwest Utilities Conference, 1980 Annual Meeting, Portland, Oregon.

Discussant, Session on Mathematical Models in Sociology, 1978 Annual Meeting of the Pacific Sociological Association, Spokane, Washington.

Member, Editorial Board, <u>Applied Demography</u>, Population Association of America, 1985 to 1993.

External Examiner, "Unique Competencies of International Non-Governmental Organizations (INGOs): Empirical Explorations from India." Sociology Dissertation by Pranaya Kumar Swain, Ph.D. Candidate, Indian Institute of Technology-Kanpur, Kanpur, Utter Pradesh, India. 1995.

Editorial Referee, <u>Population and Environment</u>, 2023 (1 paper)

Editorial Referee, <u>Canadian Studies in Population</u>, 2023 (1 paper)

Editorial Referee, <u>Population Research and Policy Review</u>, 2023 (1 paper)

Editorial Referee, <u>Population Research and Policy Review</u>, 2022 (2 papers)

Editorial Referee, <u>Demography</u>, 2022 (1 paper)

Editorial Referee, <u>Demographic Research</u> 2021 (1 paper)

Editorial Referee, <u>Population Research and Policy Review</u>, 2021 (1 paper)

Editorial Referee, <u>Spatial Demography,</u> 2020 (1 paper)

Editorial Referee, <u>Journal of Engineering and Applied Research</u>, 2019 (1 paper)

Editorial Referee <u>Spatial Demography</u>, 2019 (1 paper),

Editorial Referee, <u>Demography</u>, 2018 (1 paper)

Editorial Referee, <u>Canadian Studies in Population</u>, 2018 (1 paper)

Editorial Referee, <u>Journal of Mathematical Biology</u>, 2018 (1 paper)

Editorial Referee, <u>Demography</u>, 2017 (1 paper)

Editorial Referee, <u>Population, Space and Place</u>, 2017 (1 paper)

Editorial Referee, <u>Population Research & Policy Review</u>, 2017 (1 paper)

Editorial Referee, <u>Demography</u>, 2016 (1 paper).

Editorial Referee, <u>Review of Economics and Finance</u>, 2016 (1 paper)

Editorial Referee, <u>Journal of Population Research</u>, 2016 (1 paper)

Editorial Referee, <u>Population Studies</u>, 2015 (1 paper).

Editorial Referee, <u>The American Statistician,</u> 2914 (1 paper)

Editorial Referee, <u>Journal of Population Research</u>. 2014. (1 paper).

Editorial Referee, <u>Journal of Population Research</u>. 2013. (1 paper)

Editorial Referee, <u>Open Demography Journal</u>. 2012. (1 paper)

Editorial Referee, <u>Disasters Journal</u>. 2012 (1 paper)

Editorial Referee, <u>Population Research and Policy Review</u>, 2011 (2 papers)

Editorial Referee, <u>Canadian Journal of Sociology</u>, 2011 (1 paper).

Editorial Referee, <u>Journal of Population Research</u>, 2011 (1 paper).

Editorial Referee, <u>Journal of Population Research</u>, 2010 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 2010 (1 paper).

Editorial Referee, <u>American Sociological Review</u>, 2010 (1 paper).

Editorial Referee, <u>Demography</u>. 2010 (1 paper).

Editorial Referee, <u>Population Health Metrics</u>. 2010 (1 paper).

Editorial Referee, <u>Journal of Planning Education and Research</u>, 2009 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 2009 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 2008 (2 papers).

Editorial Referee, <u>Population Studies</u>, 2008 (1 paper).

Editorial Referee, <u>Journal of the Mississippi Academy of Sciences</u>, 2008 (2 papers) .

Editorial Referee, <u>Population Research and Policy Review</u>, 2007 (1 paper).

Editorial Referee, <u>Journal of Population Research</u>, 2007 (2 papers).

Editorial Referee, <u>City and Community</u>, 2006 (1 paper).

Editorial Referee, <u>Journal of Economic and Social Measurement</u>, 2005 (1 paper).

Editorial Referee, <u>International Journal of Forecasting</u>, 2004 (1 paper).

Editorial Referee, <u>Demography</u>, 2001 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u>, 1999 (1 paper).

Editorial Referee, <u>International Journal of Forecasting</u>, 1997 (1 paper).

Editorial Referee, <u>Population Research and Policy Review</u> 1996 (1 paper).

Editorial Referee, <u>Demography</u>, 1993 (1 paper).

Editorial Referee, <u>Demography</u>, 1991 (1 paper).

Editorial Referee, <u>Demography</u>, 1987 (1 paper).

Editorial Referee, <u>The Energy Journal</u>, 1987 (1 paper).

Editorial Referee, <u>Demography</u>, 1986 (1 paper).

Editorial Referee, <u>Human Biology</u>, 1985 (1 paper).

Editorial Referee, <u>Demography</u>, 1984 (1 paper).

Editorial Referee, <u>Demography</u>, 1981 (1 paper).

Editorial Referee, <u>Social Biology</u>, 1981 (1 paper).

Editorial Referee, <u>Demography</u>, 1980, (1 paper).

Reviewer, <u>Proceedings of the 1992 International Conference on Applied Demography</u>    (1 paper).

**B.  Academic**

Reviewer, Long range demographic and Enrollment projections for California," as part of the "Framework for UC's Growth and Support" project, at the request of the UC Provost, Aimee Dorr, 2017.

Faculty Chair, Graduate Student Awards Committee, Department of Sociology, University of California Riverside, 2016-2017

Faculty Chair, Technology Committee, Department of Sociology, University of California Riverside, 2016-2017.

Faculty Member, Undergraduate Studies Committee, Department of Sociology, University of California Riverside, 2010-2015.

Faculty Chair, Undergraduate Program Review Committee, Department of Sociology, University of California Riverside, 2010-2011.

Interim Director, Blakely Center for Sustainable Suburban Development, University of California Riverside, 2008-2009.

Member, Leadership Institute Steering Committee, University of Mississippi, 2006-7.

Chair, Provost's Task Force on Undergraduate Education, University of Mississippi, 2004-5.

Member, Faculty Grant Review Committee, College of Liberal Arts, University of Mississippi, 2004-5.

Member, Ad Hoc Committee on Off-Campus Programs, College of Liberal Arts, University of Mississippi, 2003-4.

Member, Curriculum and Policy Committee, College of Liberal Arts, University of Mississippi, 2003-7.

BScBA  Program Representative, Academic Council, Helsinki School of Economics, 2001-3.

International Summer Term Governing Board, Mikkeli Polytechnic College, 2001-3.

Campus Council, Mikkeli Business Campus, Helsinki School of Economics, 1999-2003.

Member, Dean's Executive Council, School of Urban and Public Affairs, Portland

State University, 1995-97.

Member, UALR 2000 Response Group, University of Arkansas at Little Rock, 1994-95.

Mentor in Demography, Arkansas Delta Research, Education and Development Foundation, West Memphis, Arkansas, 1992-93.

Member, Urban Demography Subcommittee, Master of Social Science Committee,

University of Arkansas at Little Rock, 1992-93.

Member, East Campus Facilities Usage Group, Pacific Lutheran University, 1991-92.

Member, Provost's Ad Hoc Committee for Faculty Research, Pacific Lutheran University, 1990-92.

Member, Center For Social Research Committee, Division of Social Sciences, Pacific Lutheran University, 1987-89.

Member, Graduate Studies Committee, Department of Sociology, Bowling Green State University, 1986-87.

Library Representative, Department of Sociology, Bowling Green State University, 1986-87.

Member, Search Committee for the Assistant Director of Research Services, the Graduate College, Bowling Green State University, 1985.

Representative, Washington Community College Computing Consortium, 1981.

President, Sociology Graduate Student Association, University of Hawaii, 1974-75

Member, Executive Committee, Department of Sociology, University of Hawaii, 1974-75

Member, Graduate Admission Committee, Department of Sociology, University of Hawaii, 1975-76.

## C.  Community

2022          Pro Bono Consulting, Department of City Planning (Kendra Taylor et al.), Atlanta, GA,

2018-         Member, Public Advisory Board, Caring Nurses Home Health Service, Las Vegas, NV.

2016 - 2022   President, University of Hawai'i Alumni Association, Las Vegas, NV Chapter

2016 - 2017    Secretary, Board, "Kimo Leads the Way," a non-profit organization in Las Vegas with a mission to ease the suffering of child cancer patients and their

Parents.

2015-2016    Vice-President, University of Hawai'i Alumni Association, Las Vegas

Chapter

1987-    As an annual donor and fund raiser, participate(d) in the endowment of the Demography Scholarship, Western Washington University Foundation, Bellingham, Washington.

2010    As a representative of the University of Hawai'i Alumni Association, represented the University of Hawai'i to prospective university students and their parents at the Laguna Beach High School Annual "College Round-up,"  6 October, Laguna Beach, CA,

2008    As a donor, established the David L. Swanson Endowed Scholarship for first generation college students, Eastern Washington University Foundation, Cheney, Washington.

2003-2007    As a donor and fund raiser, helped establish the E. Walter Terrie Endowed Graduate Student Award for the Southern Demographic Association, Florida State University Foundation, Tallahassee, Florida.

2007     Donor, Schiller Scholarship and Jobes Scholarship, Department of

Sociology, Pacific Lutheran University, Tacoma, Washington.

2006    Demographic Advisor, Town of Walls, Mississippi (Pro Bono Assistance)

2003-2005    Mississippi State Director, National Association of Medics and Corpsmen.

2001 -        As an annual donor and fund raiser, helped establish the Gary K. Sakihara
              Graduate Student Award, Department of Sociology, University of Hawai'i at Mānoa,
              University of Hawai'i Foundation, Honolulu, Hawai'i.


2003-2007   Annual donor, unrestricted funds for the Department of Sociology and Anthropology,
              University of Mississippi Foundation, Oxford, Mississippi


2001-2003    Representative, Savo Provincial Higher Education Council, Mikkeli, Finland


1999-2000   Member, Census 2000 Advisory Committee, City of Las Vegas, Las Vegas, Nevada


1996-1997   Member, Board of Directors, Mt. Hood Brewing Company, Portland, Oregon.


1994-1995   Member, Governor's Task Force on Hispanic Issues, State of Arkansas.


1994.         Technical Demographic Advisor, Evangelical Lutheran Church in America,

              Research and Planning Office, National Headquarters, Chicago, Illinois (Pro     Bono
              Assistance).


1992-1994.  Technical Demographic Advisor, Catholic Church Diocese Officer, Little Rock,
              Arkansas (Pro Bono Assistance).


1993.         Technical Coordinator, Governor's Task Force on Health Care Reform, State of
              Arkansas.


1988-1990.  Survey and Research Consultant, Prince of Peace Lutheran Church, Des Moines,
              Washington (Pro Bono Assistance).


Life Member, 101st Airborne Division Association.


Life Member, National Association of Corpsmen and Medics.


Life Member, Western Washington University Alumni Association

## XII. Research and Professional Consulting

Statistical Consultant, Peter Morrison and Associates, 2023.

Demographic Consultant, Environmental and Natural Resources Division. U.S. Department of Justice, 2023- .

Demographic Consultant, Bryan GeoDemographics, 2021-

Wrongful Death Loss Consultant, O'Reilly Law Group, Las Vegas, Nevada. 2019-2022.

Demographic Consultant, "Forecast of Hopi Tribal Members et al." The Hopi Tribe, Kykotsmovi, AZ, 2017-2022.

Demographic and Statistical Consultant, ALCS LLC, Richmond, VA, 2016 - 2018

Course Development Consultant, Department of Sociology, Penn State University, 2016-2017

Demographic Consultant, Watts Guerra, LLC. San Antonio, TX. 2016.

Demographic Consultant. "Conseil Scolaire Francophone de la Columbia-Britannique et al. v. Her Majesty the Queen et al." SCBC, Vancouver registry, No. S103975. McCarthy Tetrault LLP. Vancouver, British Columbia, Canada. 2013-2014.

Demographic Consultant, Kemp Communications, Las Vegas, Nevada. 2011.

Demographic Consultant, "Population Projections." Miller and Martin, PLLC. Nashville, TN. 2010.

Demographic Consultant, Third Wave Research, Madison, WI. "Agent-Based Population Projections. 2009-2010 .

Demographic Consultant, Third Wave Research, Madison, WI. "Population Projections for the Nine Census Divisions, 2010-2020, by Single Years of Age and Sex. 2009.

Demographic Consultant, Kemp Communications, Las Vegas, Nevada. 2009.

Demographic Consultant, McKibben Demographics. "Planning a Charter School in the Lagniappe Area of New Orleans, Louisiana," Grant funded by the Smart Foundation. 2009.

Demographic Consultant, "Quest Diagnostics, Inc. v. FMIC." Podvey, Meanor, Catenacci, Hildner, Cocoziello, and Chattman, P.C., Newark, NJ. 2008-2009

Demographic Consultant, "Socio-Economic Economic Resilience and Dynamic Micro-Economic Analysis for a Large-Scale Catastrophe, Grant funded by The Southeast Regional Research Initiative (SERRI), with R. Forgette and M. Van Boening, University of Mississippi, Principal Investigators, 2009-2010

Demographic Consultant, "Ochsner Clinical Foundation v. Continental Casualty Company." Fisher Kanaris P. C., Chicago, IL, 2007.

Demographic and Statistical Consultant, Hurricane Katrina: Its Impact on the Population and Candidates for Endovascular Surgery in the Primary and Secondary Service Areas of Garden Park Hospital," Lemle and Kelleher, PLLC, Shreveport, LA. 2007.

Demographic Consultant, "Population Projections." Miller and Martin, PLLC. Nashville, TN. 2006-2007.

Demographic Consultant. "Evaluation of Methods for Estimating the Foreign Born Population." U.S. Census Bureau. 2006-2008.

Demographic Consultant, "Estimated Number of Employees with Health Insurance by Employee Type (Private Sector and Government), Size of Establishment, and City:  Clark County, Nevada." 2004. Regulatory Economics, Inc. Henderson, NV.

Demographic Consultant, "Estimating and Forecasting the Size of U.S. Lifestyle Segments." Third Wave Research, Inc. Madison, Wisconsin, 2003; 2002; 1996.

Demographic Consultant, Nevada Consulting Alliance, "Evaluation of Population and Related Projections of Nevada." 2002.

Demographic Consultant, Nevada Consulting Alliance, "Critique of the State Demographer's 2002 Population Estimate for Clark County." 2002.

Consulting Scientist to Consulting Senior Scientist, Science Applications International Corporation, 1988-2002.

Demographic Consultant, Senecio Software, Inc. "Remote Sensing Estimates of Population." 1999-2002.

Demographic Consultant and Consulting Team Leader, Washoe County, Nevada, "Development of a Small Area Population Estimation System. 1999.

Consultant/Resource Faculty, "Applied Demographic Research in Migration." National Science Foundation (with L. M. Tedrow, Director), 1999.

Demographic Consultant, Parsons Brinckerhoff and SaudConsult, "Review and Revision of the Population Forecast for Jubail, Saudi Arabia."  1999.

Demographic Consultant, Nevada Consulting Alliance, "Revision of the Nevada County-level Economic and Demographic Forecasting Model," Nevada State Demographer's Office, 1998-99

Demographic and Statistical Estimation Consultant, "MetroMail Household Income/Asset Estimation Project," Third Wave Research, Inc. Madison, Wisconsin, 1996-97.

Demographic Consultant and Census Enumerator/Crew Leader Training Instructor, "American Community Survey Evaluation Project," Multnomah Progress Board, Portland, Oregon, 1997.

Demographic Consultant, "Initial Evaluation of the American Community Survey Portland Test Site Results," U.S. Bureau of the Census, 1996-97.

Enrollment and Demographic Consultant, "Enrollment Forecasts and Attendance Zone Adjustments," Hillsboro 1J School District, Oregon, 1995-1996

Enrollment and Demographic Consultant, "Enrollment Forecasts," Newberg School District Newberg School District, Oregon, 1996.

Demographic Consultant, "Higher Education Trends," NORED, Inc., Olympia, Washington, 1995

Demographic and Enrollment Consultant, "Enrollment and Market Area Profiles," Portland Community College, Portland, Oregon, 1995.

Consultant/Resource Faculty, "Applied Demographic Research in Migration" National Science Foundation (with L. M. Tedrow, Director), 1994.

Demographic Consultant, General Motors Research and Development Labs, GM North America Operations Center Michigan, 1988 to 1994.

Demographic Consultant, "Tribal Membership Forecasts," Lummi Tribal Business Council, Whatcom County, Washington, 1991.

Statistical Consultant, Iceberg Seafoods, Anchorage, Alaska, 1991-92, 1997-99, 2000.

Demographic Consultant, State of Connecticut Department of Health, "Small Area Population Estimation System" (with D. Pittenger and E. Schroeder), 1990.

Survey Research Consultant, Policy Division, Washington State Office of Financial Management, Olympia, Washington, 1990.

Demographic Consultant, Battelle Pacific Northwest Laboratories, Richland, Washington.

"Hanford Environmental Dose Reconstruction Project," Subcontract No. 041581-A-K1. Richland, Washington, 1988-1990.

Survey Research Consultant, Choosing Our Future, Inc., Menlo Park, California, 1984.

Survey Research Consultant, "Household Characteristics and Residential Energy Use," Pacific Gas and Electric Company, San Francisco, California, 1983-1984.

Demographic Consultant, "Sub-county Estimation," U.S. Bureau of the Census, 1983.

Population and Enrollment Consultant, Anchorage Community College, 1983

Demographic Consultant, University of Phoenix, 1982.

Demographic Consultant, KVOS TV, Inc., Bellingham, WA., 1972, 1974.

Survey Research Consultant, Ewa Mental Health Clinic, Honolulu, Hawaii, 1975.

Information Systems Consultant, Hawaii Center for Environmental Education, Honolulu, HI. 1973.

Demographic Consultant, America Friends of Hebrew University of Jerusalem, Inc., New York, N. Y., 1973.

## XIII. Memberships in Associations

Academic Central, Casualty Actuarial Society (2016 to present)

American Statistical Association (1975 to present)

Canadian Population Society (Life Member)

European Association for Population Studies. (1999 to 2018)

Fulbright Academy for Science and Technology (2003 to 2009)

Fulbright Association (1994-97, 2002 to 2019)

Population Association of America (1975 to present)

Mississippi Academy of Sciences (Life member)

Southern Demographic Association (1992 to present)

Washington Academy of Sciences (elected in 2023)

## XIV. Selected Awards and Honors

*2023, Elected member, Washington State Academy of Sciences, a lifetime recognition*

2023*, Elected Fellow, Mississippi Academy of Sciences, a lifetime recognition.*

*2022, E. Walter Terrie Award for State and Local Demography*, for ""Boosted Regression Trees for Small-Area Population Forecasting." Selected as the best paper on an applied topic at the 2022 Conference of the Southern Demographic Association, Knoxville, TN (with J. Baker and J. Tayman).

*2020-21, Edward A. Dickson Emeritus Professor Award, University of California Riverside*

2019. "Summer at Census" *Visiting Scholar*. U.S. Census Bureau. 18-20 June, 2019.

*2016  E. Walter Terrie Award for State and Local Demography*, for  "Using Modified Cohort Change and Child-Woman Ratios in the Hamilton-Perry Forecasting Method." Selected as the best paper on an applied topic at the 2016 Annual Meeting of the Southern Demographic Association, October 12th , 2016, Athens, Georgia. (with J. Tayman).

*Fulbright Specialist Roster (in Applied Demography, appointed March 2014 for a five year term).*

*Merit Increase to Professor VIII,* University of California Riverside, (June) 2013.

*Certificate of Appreciation,* US Census Bureau (for service on behalf of Census 2010).
 (September) 2010.

*Outstanding American Award 2006,* National Association of Medics and Corpsmen (for service on behalf of Hurricane Katrina victims).

*Research Fellow,* Social Science Research Center, Mississippi State University (appointed, October 2005).

*RAND "Research Summer Institute" Scholarship* (July), 2004,

*Fulbright "German Studies Seminar*," (June), 2003,

*1999  E. Walter Terrie Award for State and Local Demography*, for  " We are What We Measure: Toward A New Approach for Assessing Population Forecast Accuracy." Selected as the best paper on an applied topic at the 1999 Annual Meeting of the Southern Demographic Association, October 29th, 1999, San Antonio, Texas. (with J. Tayman and C. Barr).

*Hammer Award* (as part of a research team evaluating the American Community Survey, U.S. Bureau of the Census), Vice-President of the United States of America, July, 1999,

*Performance Award*, Science Applications International Corporation, 1999.

*Task Achievement Program Award*, U.S. Department of Energy, Yucca Mountain Project, 1998.

*Certificate of Appreciation*, Community Based Leadership Institute, Minority Affairs Division, American Association of Retired Persons, 1992.

*Fulbright Lecturing Award*, 1990-91, Department of Demography, University of Kerala, Trivandrum, India.

*Nominee, Outstanding Contributor to Graduate Education*, 1985-86, Graduate Student Senate, Bowling Green State University, 1986.

*East-West Center Fellowship, 1980. East-West Center, Honolulu, Hawai'i.*

*Graduate with honors (cum laude*), Western Washington State College, 1972.

*Alpha Kappa Delta, National Sociology Honorary Society*

*Phi Theta Kappa*, National Community College Honorary Society, Kappa Epsilon Chapter

## XV.  Research Impact

Google Scholar shows more than 6,800 citations to Swanson's work, with an H-Index of 29, an I10-Index of 74, and approximately 1,880 citations occurring since 2018 (https://scholar.google.com/citations?user=t7P6qoYAAAAJ&hl=en ).

The Exaly site shows that Swanson: (1) ranks in the top 10 percent of 4.9 million authors in terms of refereed journal articles and in terms of citations ranks in the top 16 percent (https://exaly.com/author/9233094/david-a-swanson/journals);   (2) is the most prolific author in regard to papers published in *Population Research &  Policy Review* (https://exaly.com/journal/21567/population-research-and-policy-review/prolific-authors) and the journal's 5th most cited author (https://exaly.com/journal/21567/population-research-and-policy-review/top-authorsm); (3)  is the second most prolific author in regard to articles published in *Journal of Economic and Social Measurement*              ( https://exaly.com/journal/27147/journal-of-economic-and-social-measurement/prolific-authors ) and has its 19th most cited article ( https://exaly.com/journal/27147/journal-of-economic-and-social-measurement/top-articles ); and (4) has the 9th most cited article in the *Journal of Population Research* ( https://exaly.com/journal/21567/population-research-and-policy-review/prolific-authors).

Academic Accelator shows that: (1)  "Estimating the underlying infant mortality rates for small populations: An historical study of US counties in 1970" (with Jack Baker)  is among the top five of the highly cited articles found in *Journal of Population Research* (https://academic-accelerator.com/Impact-of-Journal/de/Journal-of-Population-Research ); and (2) "Estimating the underlying infant mortality rates for small populations, including those reportng zero infant deaths: A case studiy of counties in California" (with Jack Baker and Augustine Kposowa) is among the top five of the highly cited artilces found in *Population Review* (https://academic-accelerator.com/5-Year-Impact-of-Journal/Population-Review ).

In February of 2022, a special issue of *Population Review*, a peer-reviewed journal of social demography first published in 1957, came to press featuring the 10 most-downloaded articles since the journal has been digitally available. One of these top-ten articles is co-authored by Swanson and his colleagues, Mary McGehee and Nazrul Hoque:  "Socio-Economic Status and Life Expectancy in the United States, 1970–1990," interrogates the connection between social inequality and population health outcomes (https://csde.washington.edu/news-events/swanson-featured-in-60th-anniversary-issue-of-population-review/ ).

## XVI.  Languages

English (US): Native Language

Swedish: Reading and Speaking, Good; Writing, Fair.

Finnish: Reading and Speaking, Poor; Writing, Very Poor.

**Page 1**

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 1

 2              UNITED STATES DISTRICT COURT

 3              MIDDLE DISTRICT OF LOUISIANA

 4                 Case No. 22:211-SDD-SDJ

 5     -------------------------------------x

       PRESS ROBINSON, et al.,

 6

                         Plaintiffs,

 7

                         vs.

 8

       KYLE ARDOIN, in his official capacity

 9     as Secretary of State for Louisiana

10     AND

11     EDWARD GALMON, SR., et al.,

12                  Plaintiffs,

13              vs.

14     KYLE ARDOIN, in his official capacity

15     as Secretary of State for Louisiana,

16                  Defendant.

       -------------------------------------x

17

18          REMOTE VIDEOTAPED DEPOSITION OF

19             DAVID A. SWANSON, PH.D.

20                September 22, 2023

21

22

23     Reported by:

24     KATHY S. KLEPFER

25     RMR, RPR, CRR, CLR
```

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1                    D.A. SWANSON - PH.D.

2                    September 22, 2023

3                         9:04 a.m.

4          REMOTE VIDEOTAPED deposition of

5     DAVID A. SWANSON, PH.D., before Kathy S.

6     Klepfer, a Registered Professional Reporter,

7     Registered Merit Reporter, Certified Realtime

8     Reporter, Certified Livenote Reporter, and

9     Notary Public of the State of New York.

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Page 3

1              D.A. SWANSON - PH.D.

2                A P P E A R A N C E S:

3               (All appearing remotely)

4

5        ELIAS LAW GROUP

6        Attorneys for Plaintiffs

7              11200 Rockville Pike, #405

8              Rockville, MD  20852

9        BY:   ALISON GE, ESQ.

10             DANIEL COHEN, ESQ.

11             JACOB SHELLY, ESQ.

12

13       NELSON MULLINS RILEY AND SCARBOROUGH

14       Attorneys for Defendant

15             301 Hillsborough Street

16             Suite 1400

17             Raleigh, NC  27603

18       BY:   THOMAS FARR, ESQ.

19             CASSIE HOLT, ESQ.

20

21

22

23

24

25

Page 4

1          D.A. SWANSON - PH.D.

2       A P P E A R A N C E S (Cont'd.)

3          (All appearing remotely)

4

5     SHOWS CALI & WALSH LLP

6     Attorneys for Defendant

7          628 St. Louis Street

8          Baton Rouge, LA  70802

9     BY:  JOHN C. CONINE, ESQ.

10

11

12

13     ALSO PRESENT:

14          ADRIENNE SCALO, Concierge Technician

15          JOE RAGUSO, Videographer

16

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1              D.A. SWANSON - PH.D.

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3    EXAMINATION OF D. SWANSON, PH.D.:              PAGE

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5

6

7    SWANSON EXHIBITS:                              PAGE

8    Exhibit 1, Notice of Deposition                 14

9    Exhibit 2, Expert Report of David A. Swanson,   29

     Ph.D.

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1                     D.A. SWANSON - PH.D.

2                THE VIDEOGRAPHER:  Good morning.  We

3        are going on the record at 9:04 a.m. PDT on

4        Friday, September 22, 2023.

5                Please note that the deposition is

6        being conducted virtually.  Quality of

7        recording depends on quality of camera and

8        internet connection of participants.  What

9        is seen from the witness and heard on-screen

10       is what will be recorded.  Audio and video

11       recording will continue to take place unless

12       all parties agree to go off the record.

13                This is media unit 1 of the

14       video-recorded deposition of Dr. David A.

15       Swanson being taken by counsel here in the

16       matter of Press Robinson, et al., versus

17       Edward Galmon, Sr., et al., filed in the

18       United States District Court for the Middle

19       District of Louisiana, Civil Action Number

20       22:211-SDD-SDJ.

21                My name is Joe Raguso with Veritext,

22       and I'm the videographer.  The court

23       reporter is Kathy Klepfer, also with

24       Veritext.

25                I am not authorized to administer an

Page 7

1                    D.A. SWANSON - PH.D.

2          oath, I am not related to any party in this

3          action, nor am I financially interested in

4          the outcome.

5                  Counsels' appearances have been noted

6          on the stenographic record, and the court

7          reporter will now swear in the witness.

8                            * * *

9           DAVID A. SWANSON, PH.D.,  called as a

10            witness, having been duly sworn by a Notary

11            Public, was examined and testified as

12            follows:

13       EXAMINATION BY

14       MS. GE:

15          Q.    Good morning, Dr. Swanson.  My name is

16       Alison Ge, and I represent the Galmon plaintiffs

17       in this matter.

18                  Will you please state your full name

19       for the record, please?

20          A.    David Arthur Swanson.

21          Q.    Thank you.

22                  Is anyone in the room with you today?

23          A.    My dog, Sophia.

24          Q.    Did you bring anything with you to the

25       deposition today, any documents, hard copy or

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 1                    D.A. SWANSON - PH.D.
 2        electronic?
 3             A.    I have a hard copy of my report.
 4             Q.    Anything else?
 5             A.    No.
 6             Q.    And how are you viewing this
 7        deposition?  By laptop or phone?
 8             A.    What was the question?
 9             Q.    How are you viewing this deposition?
10                   Are you on your laptop or are you on
11        your phone?
12             A.    I'm on a laptop.
13             Q.    And did you bring any other devices
14        like a phone or a laptop or a tablet with you?
15             A.    No, this is from my house so things
16        like that are in my house, so I didn't bring
17        them with me.  They're here with me.
18             Q.    Okay.  Well, if you have them, would
19        you please put them away at this time?
20             A.    My phone's away.
21             Q.    Okay.  Great.
22                   Do you have any other programs or tabs
23        open on your screen?
24             A.    No.
25             Q.    Great.
```

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1                    D.A. SWANSON - PH.D.

2         A.    One exception is, to access this, I

3    had to go through my e-mail account.  So

4    underlying this is my e-mail account, and that's

5    open.

6         Q.    Okay.  Would you please -- would you

7    be able to close that at this time?

8         A.    No; then I will lose this.

9         Q.    Okay.  Do you have --

10               Have you ever been deposed as an

11   expert witness before?

12        A.    I have.

13        Q.    Have you ever been deposed for any

14   other reason?

15        A.    Not that I can think of.

16        Q.    Have you testified at trial before?

17        A.    Yes.

18        Q.    How many times?

19        A.    Several.  I can't -- I don't know the

20   exact count.

21        Q.    Have you ever been asked to analyze a

22   proposed remedial map before?

23        A.    No.

24               Well, actually, that's not true.  I've

25   just been asked in the case of the Mississippi

1                    D.A. SWANSON - PH.D.

2      Supreme Court District that I worked on.

3           Q.    And what did you conclude in that

4      case?

5           A.    I concluded in -- in -- in my report

6      that the proposed boundaries affected some

7      things of interest, such as diversity of the

8      population in Supreme Court District 1, among

9      other findings.

10          Q.    Okay.  And was that the only case

11     where you were asked to look at a remedial map?

12          A.    Yes.

13          Q.    What were your other cases about where

14     you have testified at trial?

15          A.    One was about a statistical matter in

16     a trial about votes in Arkansas, another one was

17     about how population estimates are done in the

18     State of Alaska, but I was only deposed, didn't

19     go to trial on that one.

20                Another one that I have gone to trial

21     on recently in July was a Hopi water allotment

22     case, where I testified on my population

23     projections.  I've also done population

24     projections that related to the construction of

25     a hospital south of Nashville, Tennessee.  So it

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2          was on a needs basis, whether or not the

3          hospital met all the qualifications.  And there

4          are probably more.  I can't recall them all.

5                    Q.    Okay.  Thank you.

6                         And I would like to go over some

7          ground rules for today's deposition just to make

8          sure that we're all on the same page.  Okay?

9                         During this deposition, I will ask you

10         questions, and as you answer them, the court

11         reporter will be taking down my questions and

12         your answers.

13                        The court reporter is on Zoom with us

14         to write it all down so you will need to provide

15         clear verbal answers to make an accurate record,

16         especially given that we're not all in the same

17         room.  So no nodding or shaking of the head.

18                        Can you agree to do that?

19             A.    Yes.

20             Q.    I will do my very best not to

21         interrupt you today.

22                        Will you please try to also do the

23         same?

24             A.    Yes.

25             Q.    Your answers will be under oath,

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2       meaning that you are swearing to their

3       truthfulness and accuracy.  The oath that you

4       took today has the same effect as if you were

5       testifying in a court of law.

6                   Do you understand that?

7           A.    Yes.

8           Q.    If you do not understand or hear a

9       question, please ask me to rephrase or repeat

10      the question.  If you answer a question, I will

11      assume that you understood the question.

12                  Does that sound fair?

13          A.    Yes.

14          Q.    And can you please give complete

15      answers to -- to my questions throughout?

16                  When --

17          A.    Yes; I'll try to give you complete

18      answers.

19          Q.    Great.

20                  When answering, if you think of

21      something that might help you remember or give a

22      more accurate answer, for example, any

23      documents, please tell us.  We might be able to

24      get those documents, at least electronically.

25                  Your attorney may object to some of my

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2      questions.  These objections are for the judge

3      to consider later.  You must still answer my

4      questions unless you are specifically told not

5      to do so by your attorney.

6                    And just a reminder that you should

7      not speak to anyone, including your attorney,

8      through any other medium, for example, text or

9      e-mail, while we're on the record.

10                    Does that sound -- do you understand

11      that?

12          A.     I understand that.

13          Q.     And finally, if you need to take a

14      break, just please say so.  I will only ask that

15      if a question is pending, you answer my question

16      before we go on a break.  Okay?

17          A.     Yes.

18          Q.     Great.

19                    Okay.  I think we would like to start

20      by introducing Exhibit 1.

21                    Give us one moment to pull up this

22      document.

23                    (Swanson Exhibit 1, Notice of

24          Deposition, marked for identification as of

25          this date.)

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2              MR. COHEN:  We just tried to add it to

3         the folder to introduce it.

4              Do you -- does the court transcriber

5         see it?

6              THE CONCIERGE:  I see it.  This is the

7         concierge.  I see it in Marked Exhibits, and

8         then you would just want to share your

9         screen.

10             MR. COHEN:  Great.

11             THE VIDEOGRAPHER:  Counsel, if you're

12        going to share the screen -- this is the

13        videographer -- would you like the document

14        and the witness in view, or just the

15        witness?

16             MR. COHEN:  We can put the document in

17        the view.  I'm going to share my screen in a

18        second.

19             THE VIDEOGRAPHER:  Just for the final

20        video record purposes and the recordings, I

21        can do side-by-side or just the witness.

22             MR. COHEN:  Oh, side-by-side.

23             THE VIDEOGRAPHER:  Sure.

24             MS. GE:  And are you able to see the

25        witness and the screen share side-by-side?

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2              THE VIDEOGRAPHER:  Yes.

3              THE WITNESS:  Is that a question for

4     me?

5              THE VIDEOGRAPHER:  This is the

6     videographer.

7          That's the current view I have

8     cropped.  Everyone can personalize it how

9     they choose on their end.

10             MS. GE:  Okay.

11         I will ask the court reporter to

12    please mark this deposition notice as

13    Exhibit 1.

14    BY MS. GE:

15         Q.    Dr. Swanson, have you seen this

16    notice?

17         A.    Have I seen this document?

18         Q.    Yes.

19         A.    Yes.

20         Q.    And do you understand that you are

21    appearing today pursuant to this deposition

22    notice, Exhibit 1?

23         A.    Yes.

24         Q.    Great.

25             Okay.  I would like to turn to some

1                 D.A. SWANSON - PH.D.

2        general background questions at this time.

3                 And actually, I don't think that we

4        need this exhibit pulled up at this time.  Thank

5        you.

6                 Is it fair to say that your report in

7        this case discusses communities of interest in

8        Louisiana?

9        A.    Yes, it does.

10       Q.    And what do you understand the term

11       "communities of interest" to mean?

12       A.    There are different definitions, but

13       the consistent one is listed in my report.

14       Q.    Uh-huh.

15       A.    Following the research by Chen, we've

16       used work from Dr. Stephanopoulos.

17       Q.    And just in your own words, can you --

18       can you describe what that term means to you in

19       the context of your report?

20       A.    In the context of the report, it means

21       that there's a lot of common interests based on

22       a lot of different socio-demographic and other

23       variables.

24       Q.    Okay.  What is your basis for

25       understanding communities of interest in

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1                    D.A. SWANSON - PH.D.

2       Louisiana?

3            A.    Are you asking about the dataset I

4       used?

5            Q.    Just about your general interests for

6       addresses about communities in Louisiana.

7                  How did you come up with -- with

8       your -- with the communities of interest that

9       you found?

10           A.    I used data provided by the U.S.

11      Census Bureau in conjunction with a cluster

12      analysis.

13           Q.    Okay.  Have you ever lived in

14      Louisiana?

15           A.    No.

16           Q.    Have you ever published any articles

17      about Louisiana?

18           A.    Not that I can remember.

19           Q.    Have you taught any courses about

20      Louisiana demography?

21           A.    No.

22           Q.    Have you taught any courses about

23      Louisiana geography?

24           A.    No.

25           Q.    Have you ever been to Louisiana?

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1

2         A.     Yes.

3         Q.     When?

4         A.     More times than I can probably count.

5    I lived in Arkansas, I lived in Mississippi, so

6    I've crossed into Louisiana by road.  In both

7    those cases, I've also flown into New Orleans,

8    for example.

9         Q.     So are these contacts all personal

10   experiences traveling through Louisiana, without

11   necessarily visiting?

12        A.     No.

13        Q.     What is the longest amount of time

14   that you spent in Louisiana in any given trip?

15        A.     Probably three to four days.

16        Q.     Okay.  So would you agree that you are

17   not an expert in Louisiana demography?

18        A.     No.

19        Q.     Dr. Swanson, what's your current job?

20        A.     I'm a Professor Emeritus from the

21   University of California, Riverside.  I'm a

22   research associate with a 0.25 full-time

23   equivalent position with the Population Research

24   Center at Portland State University, and I'm an

25   affiliated faculty member of the Center for

1                    D.A. SWANSON - PH.D.

2        Studies in Demography and Ecology at the

3        University of Washington.

4            Q.    What do you consider to be your main

5        area of expertise?

6            A.    Demography.

7            Q.    Do you consider yourself to be an

8        expert in the field of redistricting electoral

9        maps?

10           A.    Would you specify what you mean by an

11       "expert"?

12           Q.    Do you consider yourself to be an

13       expert?

14                 I think that that would have to be

15       your own definition.

16           A.    Well, my own definition is I know

17       something about the field in both cases.

18           Q.    Okay.  And what is your basis for that

19       expertise?

20           A.    One of the fields in demography is --

21       that you look at when you study populations is

22       geographic distribution, and I have looked at

23       geographic distributions of populations among

24       the other four main focus issues in demography.

25           Q.    Okay.  Have you published any

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1                   D.A. SWANSON - PH.D.

2       peer-reviewed articles on redistricting

3       electoral maps?

4            A.    Not that I can recall specifically on

5       that issue.

6            Q.    Okay.  Do you teach any courses on

7       redistricting electoral maps?

8            A.    No.

9            Q.    Are you an expert in cluster analysis?

10           A.    I have a basic understanding of

11      cluster analysis.

12           Q.    Okay.  And where do you gain that

13      basic understanding?

14           A.    Experience in using it.

15           Q.    Okay.  Have you published any

16      peer-reviewed papers using cluster analysis to

17      evaluate redistricting maps?

18           A.    I'd have to think if they're

19      peer-reviewed papers I've published.  I have

20      published reports, and I don't recall offhand if

21      I have published ones on cluster analysis that

22      involve peer-reviewed journals.

23           Q.    Okay.  Were your papers on cluster

24      analysis evaluating redistricting maps?

25           A.    No.

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2           Q.    When were you first contacted about

3      this case?

4           A.    Sometime earlier this summer or late

5      in the spring.

6           Q.    Who contacted you?

7           A.    Tom Farr.

8           Q.    And what were you instructed to do?

9           A.    In terms of an assignment, it's the

10     assignment that's listed in the report I've

11     given.

12          Q.    Have you been asked to do anything

13     else in this matter?

14          A.    Not other that I can say other than

15     what's in the report.

16          Q.    Okay.  When did you begin working on

17     your report in this case?

18          A.    Sometime in the -- during the summer.

19          Q.    And how much time did you spend on

20     your reports in this case?

21          A.    I'd have to look back at the hours

22     worked on it.  I don't recall off the top of my

23     head the amount of time I've spent on it.

24          Q.    Did anyone help you prepare your

25     reports in this case?

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1              D.A. SWANSON - PH.D.

2        A.    Are you asking if someone helped do

3    data analysis or actually write the report?

4        Q.    I guess we can take those one-by-one.

5              Did anyone help you conduct data

6    analysis for your report?

7        A.    Yes.

8        Q.    And who was that?

9        A.    Tom Bryan of BryanGeoDemographics.

10        Q.    And who is BryanGeoDemographics?  What

11    kind of firm is it?

12        A.    Well, the name pretty much speaks for

13    itself.  They -- the firm does geodemographics

14    and works in -- with the redistricting data, the

15    94-171 data, for example, among other things,

16    and does mapping.

17        Q.    And what specifically did they help

18    with or in -- in doing the data analysis for

19    your report?

20        A.    You will see it in the report under

21    the tables and under the figures that are in

22    there where it says this is done under the

23    direction of David Swanson by geo- --

24    BryanGeoDemographics.

25        Q.    How did you provide instruction on the

Page 23

1                    D.A. SWANSON - PH.D.

2        work product they provided?

3            A.     The general instructions were, as an

4        example, to look at what might be the case with

5        the racial and other distributions of pieces of

6        geography that were used to do the proposed

7        congressional district by, as an example.

8            Q.     What did you do to verify that their

9        work is accurate?

10           A.     You mean if I asked -- had someone

11       separate from this conduct an analysis of it?

12           Q.     Did you have anyone separately conduct

13       an analysis of --

14           A.     No.

15           Q.     Would it have been possible for you to

16       verify that their work was accurate?

17           A.     It depends on what the -- the budget

18       was by the client that hired me, and that would

19       be up to them if they wanted to have that done

20       and -- and ascertain if they -- what kind of

21       budget and cost they want to go through and

22       whether or not they would want someone else to

23       review it.

24           Q.     And what is your personal experience

25       level with GIS and mapping tools?

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2        A.    I have used them before in the same

3    sense I'm using them now.  I'm not a GIS mapper

4    expert, but I have used them so I have some

5    understanding of how they're constructed and how

6    they're used.

7              For example, arc maps, arc infoshape

8    files, and the vectors that make up the datasets

9    that go into using locational geometric measures

10   and physical attributes.  So I have a basic

11   understanding of GIS and mapping.

12       Q.    Okay.  Would you have been able to

13   look at the work product or the code or the

14   underlying analysis done by BryanGeoDemographics

15   to verify that it was accurate and in line with

16   your instructions?

17       A.    I would have had to teach myself or go

18   through a lot of coursework with GIS in order to

19   do that.  There's probably not enough time left

20   in my life for that.

21       Q.    And so would you say that you did not

22   do anything in this matter to verify the work

23   that BryanGeoDemographics conducted?

24       A.    Other than looking at the maps and

25   making sure they looked reasonably consistent

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1                    D.A. SWANSON - PH.D.

2        and -- and data were consistent in tables and

3        maps and those kinds of issues.  So, in that

4        sense, I did verify them, but if you're asking

5        about the technical details and the boundaries,

6        no.

7             Q.    So just from eyeballing the map and

8        the analysis, were they in line with what you

9        were hoping they would produce in their work

10       product?

11            A.    They appeared to be.

12            Q.    Okay.  What did counsel provide to you

13       in this case for your analysis?

14            A.    I'm not sure what you're asking.

15                  In the form of data?

16            Q.    We can take each of those one at a

17       time.

18                  Did they provide you with any data?

19            A.    No, not specifically.

20            Q.    How did you gather the data that was

21       used in your analysis in your report?

22            A.    Part of the data was gathered through

23       BryanGeoDemographics and part of the data I

24       gathered based on where I knew data were at the

25       U.S. Census Bureau.

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1                    D.A. SWANSON - PH.D.

2         Q.    Do you know where BryanGeoDemographics

3    collected the data that they used?

4         A.    I believe they're listed in the

5    sources in -- along with the figures.  So the

6    population data and others obviously would be

7    from the P.L. 94-171 file.

8         Q.    Okay.  Did counsel provide you with

9    any assumptions in this case for your analysis?

10        A.    No.

11        Q.    Did they provide you with any

12   documents?

13        A.    They provided me with reports done by

14   other people; I believe the plaintiff reports.

15        Q.    Okay.  But you didn't review any other

16   documents pertaining to this case outside of

17   expert reports?

18        A.    I can't recall doing that.

19        Q.    Did you review the pleadings in this

20   case?

21        A.    And what would be the pleading?

22        Q.    Any of the complaint, any of the

23   motions, any of the -- the briefing?

24        A.    If it's included in the expert

25   documents I looked at, then I did.  If not, I

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1                    D.A. SWANSON - PH.D.

2       didn't.

3            Q.    Okay.  And you said that you reviewed

4       other expert reports, correct?

5            A.    Of -- from the plaintiffs' side, yes.

6            Q.    Do you recall which ones?

7            A.    The names of the people?  I think they

8       were Cooper, Fairfield.  There may have been

9       others and -- and -- and the like, but that's

10      what I recall.

11           Q.    And did you read -- did you review

12      those reports as you were preparing your expert

13      report, or was this just general information for

14      your understanding of the case?

15           A.    Probably more the latter than the

16      former, but I looked at the reports as I would

17      go along to see, if I wrote something down in

18      response to the reports, that it was accurate.

19           Q.    Have you talked to anyone else about

20      this case other than counsel?

21           A.    Tom Bryan.

22           Q.    Anyone else?

23           A.    No.

24           Q.    Did you speak with Mr. Trendy?

25           A.    I don't know who Mr. Trendy is.

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1                    D.A. SWANSON - PH.D.

2          Q.     Did you speak with any of the other

3     defendant experts?

4          A.     Not that I can recall.

5          Q.     What opinions do you offer in your

6     report?

7          A.     Well, the final opinion is that the

8     seven northeast Louisiana parishes that included

9     East Carroll are in a different community of

10    interest than East Baton Rouge and the Lafayette

11    Parishes.

12         Q.     And what sources do you rely upon in

13    reaching those opinions?

14         A.     I rely upon the cluster analysis and

15    the data I retrieved from the U.S. Census Bureau

16    that served as input into the cluster analysis.

17         Q.     And are these sources that you

18    normally -- normally relied upon in your area of

19    expertise?

20         A.     Census Bureau data is obviously a set

21    of data that I rely upon in the normal course of

22    demographic work in the United States.

23         Q.     Is there anything that you wish you

24    had done in your work for this case but haven't

25    done?

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2          A.     No.

3          Q.     Let's pull up your expert report at

4     this time.

5                 At this time, I would like to mark

6     this as Exhibit 2.

7                 (Swanson Exhibit 2, Expert Report of

8          David A. Swanson, Ph.D., marked for

9          identification as of this date.)

10    BY MS. GE:

11         Q.     Dr. Swanson, are you familiar with

12    this exhibit?

13         A.     That's the report I did, yes.

14         Q.     Great.

15                And so if I refer to "your report" or

16    "this report" in my questions, will you

17    understand that I'm referring to this exhibit?

18         A.     Yes.

19         Q.     Can you ask -- can you tell me what

20    you were asked to do in your report?

21         A.     Essentially, what's listed in the

22    assignment.  If you want to the turn to that --

23    that portion of the report, I can read it to

24    you.

25         Q.     I believe that would be on page 9,

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1                      D.A. SWANSON - PH.D.

2        perhaps.

3                  Does that help, Dr. Swanson?

4        A.      I don't see the Assignment.  I see the

5        Executive Summary.

6        Q.      I apologize.  It would be on page 4.

7                  Is that accurate, Dr. Swanson?  Would

8        you like to read --

9        A.      I see that's the Assignment page now,

10       and that's what I wrote so that's the

11       assignment.

12       Q.      Okay.  Were you asked to do anything

13       else in your report?

14       A.      Other than what's in the Assignment?

15       Q.      Yes.

16       A.      I don't recall being asked anything

17       else.

18       Q.      All right.  Let's now turn to your

19       cluster analysis, and I think we can turn to

20       page 34.  And I will admit that I'm not super

21       familiar, so bear with me.

22                  What is cluster analysis?

23       A.      It's basically a system for

24       classifying sets of objects into groups.

25       Q.      Okay.  And what is cluster analysis

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1                    D.A. SWANSON - PH.D.

2       typically used for?

3           A.    Classifying sets of objects into

4       groups.

5           Q.    Okay.  What types of objects?

6           A.    Anything from innate objects to people

7       to wildlife to stars in the universe probably.

8                 I list some of the areas where it's

9       used in different fields there in paragraph 47.

10          Q.    And whose idea was to it employ a

11      cluster analysis in this case, yours or

12      counsel's?

13          A.    Mine.

14          Q.    And have you ever used it in the

15      context of evaluating redistricting maps?

16          A.    As I responded earlier, I believe I

17      have used it in the context of the Supreme Court

18      District case in Mississippi.

19          Q.    And you have not used it any other

20      cases?

21          A.    In redistricting cases, no, I have

22      not.

23          Q.    And those were not congressional maps,

24      correct?

25          A.    The Mississippi Supreme Court case is

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 1                    D.A. SWANSON - PH.D.
 2       not a congressional map.
 3            Q.    Have you ever employed cluster
 4       analysis to evaluate congressional districts?
 5            A.    No.
 6            Q.    Are you aware of any other experts who
 7       have employed cluster analysis in redistricting
 8       cases?
 9            A.    They're listed there under paragraph
10       47 some of the uses of it, and in 48 and
11       elsewhere in the report.
12            Q.    And do you understand how they used
13       it?
14            A.    I understand how cluster analysis is
15       used.
16            Q.    Are you aware of any other experts who
17       have employed cluster analysis to evaluate
18       congressional districts?
19            A.    Other than the ones I have cited here,
20       no, I'm not.
21            Q.    Of the ones you have cited there, do
22       they employ it to evaluate congressional
23       districts?
24            A.    You know, I'm not sure if they
25       employed it specifically to evaluate
```

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2        congressional districts.  It may be that they

3        looked at the state districts, other sorts of

4        things.  So I would have to go back and look at

5        the reports, but they did use it in a

6        redistricting-type atmosphere.

7             Q.    Okay.  And is it possible to verify

8        that the results of your cluster analysis are

9        accurate?

10            A.    Sure.  I provided the dataset that I

11       input into the statistical software package I

12       used and the name of the type of clustered

13       analysis I used.  So given that there are maybe

14       slight differences if someone uses a different

15       statistical package, such as SAS or SPSS, than

16       the one I used, which is NCSS, there may be

17       slight differences, but in essence, one can

18       verify and run the cluster analysis and will

19       come up with the same results.  So it's

20       replicable.

21            Q.    Okay.  And I think what you're telling

22       me is that someone can take the technical

23       analysis you ran and run something that follows

24       the assumptions that you made and get the same

25       results; is that correct?

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1                    D.A. SWANSON - PH.D.

2          A.    Using the same data, the 64 parishes

3     in Louisiana and a cluster analysis routine

4     that's a K-Means cluster analysis routine, they

5     should come up with the same results.

6          Q.    Did you do anything to verify that the

7     results that your cluster analysis generated

8     were in fact accurate results?

9          A.    The cluster analysis routine does that

10    largely internally based on statistical measures

11    and other processes.  It optimizes what are

12    determined to be the clusters.

13         Q.    So is your answer that the results --

14    you know, you get -- you get some assumptions,

15    you get some data through the cluster analysis,

16    and whatever results the cluster analysis spits

17    out is accurate?

18         A.    Well, in the -- what sense do you mean

19    "accuracy"?

20               You mean would it repeat and put the

21    same parishes into the same clusters with the

22    same K-Means clustering routine and the same set

23    of data?  In that sense, yes, it's replicable.

24         Q.    I definitely mean more in the sense

25    of, did you do anything to verify that the

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1                    D.A. SWANSON - PH.D.

2       results of your cluster analysis generated

3       reasonable results or results that -- that

4       looked correct?

5           A.    As I said before, the cluster analysis

6       routine handles much of that internally when

7       you're doing it.  So it optimizes what are the

8       clusters that take place.

9               If you want to turn to a portion of my

10      report where I show what the cluster analysis

11      results are, which is in the Appendix 7.1, I can

12      give you an example of that.

13          Q.    Okay.  But just so that we're -- we're

14      clear on this, you did not do anything after the

15      cluster analysis ended to verify that that was

16      accurate?

17              You relied on the cluster analysis to

18      verify the accuracy of the analysis?

19          A.    I think the question you're asking is

20      if -- do people use statistical routines and

21      then attempt to use some other means to look at

22      the statistical routines, for example, in a

23      classic T-test.

24              Once you have done a classic T-test,

25      is there any reason to go repeat that using

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1                    D.A. SWANSON - PH.D.

2        other types and tests, and people generally do

3        not do that in the statistical field.  So I

4        didn't do that here.

5              Q.    Got it.

6                    So you just accepted the results of

7        the cluster analysis?

8              A.    Yes.

9              Q.    Okay.  And another expert without, you

10       know, reading your report closely, but

11       understanding that you used cluster analysis on

12       the parishes in Louisiana, so without getting

13       the exact same list of variables that you used,

14       would another expert be able to replicate your

15       analysis?

16             A.    Yes.

17             Q.    Is it possible that another expert

18       would have used different variables?

19             A.    There might be different variables

20       that people would use, and it may result in a

21       different answer to a cluster analysis, of

22       course.

23             Q.    Okay.  Redistricting scholars

24       generally consider the demographic similarity of

25       geographically proximate or adjacent

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1                     D.A. SWANSON - PH.D.

2      communities; is that correct?

3           A.    I would assume that's the case.  I

4      can't speak to redistricting scholars in

5      general.

6           Q.    Are you saying that you're not

7      familiar with what redistricting scholars

8      generally do as they're -- as they're drawing

9      maps?

10          A.    I'm not as familiar with them as I am

11     in other areas of demography.

12          Q.    I understand.

13                So from your limited understanding of

14     redistricting scholars, would you say that they

15     generally perform statistical analyses of

16     communities of interest with their measurements

17     focused on a geographically-based conception of

18     communities of interest; is that right?

19          A.    Again, I'm not able to speak to what

20     they generally use, if they use statistical

21     procedures, they use judgment.

22          Q.    Okay.  And -- and that's done because

23     your area of expertise is in the broad area of

24     demography, not necessarily the discrete area of

25     redistricting?

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1                    D.A. SWANSON - PH.D.

2        A.    Correct.

3        Q.    Okay.  I understand.

4              Let's turn to page 33, paragraph 46 of

5     your report.  I believe that's one page up from

6     where we are now.

7              Are you able to see the text of your

8     report, Dr. Swanson?

9        A.    I can see paragraph 44, 45, and 46.

10       Q.    Okay.  Are you able to read the text?

11       A.    I can.

12       Q.    Okay.  Great.

13             And in paragraph 46, you contrast your

14    "objective, empirically- and

15    scientifically-based" cluster analysis with Mr.

16    Fairfax's "subjective judgment and also ad hoc

17    elements," such as "'census designated places'

18    and 'major landmark areas'" in developing his

19    communities of interest analysis.

20             Did I read that correctly?

21       A.    You did.  You summarized it correctly.

22       Q.    Okay.  Is your position that

23    recognized landmarks are not an objective

24    measure?

25       A.    Let me ask you the question:  What

1                    D.A. SWANSON - PH.D.

2        would a -- what would a statue in a town square

3        represent in terms of a common community of

4        interest?

5             Q.    I, unfortunately, am not a

6        redistricting expert, but I would be interested

7        to hear your opinion about how you view

8        landmarks.

9             A.    Well, landmarks such as

10       human-constructed landmarks are probably not

11       going to be as efficient or as useful in

12       identifying communities of interest by

13       themselves.

14                  In conjunction with other data that

15       represent social, economic, racial, and other

16       forms of stratification and differences, then

17       they might be useful.

18                  If you look at natural landmarks, it

19       would be the same issue there.  Natural

20       landmarks may be useful, but I would not use

21       them alone.

22            Q.    Would you say that recognized

23       landmarks are -- continue to be informative if

24       they are paired with other variables?

25            A.    They have the potential to be

1                    D.A. SWANSON - PH.D.

2        informative, just like all variables do.

3             Q.    Okay.  Let's actually go back to page

4        34, paragraph 47 of your report, where you

5        explain "using cluster analysis" -- and I'm

6        quoting -- "Using cluster analysis in a spacial

7        demography approach allows for an examination of

8        the potential classification of aggregates of

9        people (for example, by parish) into groups (for

10       example, communities of interest)."

11                  Did I read that correctly?

12            A.    You did.

13            Q.    Okay.  So a geo-spacial clustering

14       analysis takes into account geography, right?

15            A.    Well, it's bounded by the parishes.

16       So that would be the administrative areas that

17       represent the geography, in this case, the

18       spacial aspect.

19            Q.    Okay.  So is your understanding of a

20       geo-spacial clustering analysis that, as long as

21       you are doing things on a parish level, you

22       don't have to figure out where parishes are in

23       relationship to each other?

24            A.    If you're asking me about proximity

25       measures of parishes?

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1                    D.A. SWANSON - PH.D.

2          Q.     That's right.

3          A.     That's the question you're asking?

4          Q.     Yes.

5          A.     It might be useful.  Again, it's --

6    there are a lot of variables that have the

7    potential to be useful that, in some cases, may

8    turn out not to be or turn out to be.

9              Proximity as a measure is not one that

10   I used in this cluster analysis approach.

11         Q.     Okay.  So is your understanding of a

12   geo-spacial clustering analysis that the only

13   geographic measure is the parish itself?

14         A.     That's correct.

15         Q.     Did you employ a geo-spacial

16   clustering analysis in your report?

17         A.     Would you ask that again?

18         Q.     Did you employ a geo-spacial

19   clustering analysis in your report?

20         A.     The cluster analysis is geo-spacial.

21   Since it covers parishes, the variables that are

22   contained by the parishes that I used, and then

23   moves the parishes into two -- one of two

24   groups.

25         Q.     Did you include any variables that

**Page 42**

1                    D.A. SWANSON - PH.D.

2     address geography?

3               And I understand that parish is not a

4     variable because it is a discrete object that

5     you are grouping together; is that right?

6        A.    Could you give me an example about

7     what you mean by "geography"?

8        Q.    I think my understanding of

9     "geography" is its -- its location in a state.

10       A.    So here's how I'm interpreting your

11    question.

12               You're asking again about proximity,

13    say, of the centroid of a certain parish to the

14    centroid of another parish.

15               Is that basically what you're asking

16    me?

17       Q.    That is the only example that comes to

18    mind for me, but I wanted to ask it broadly so

19    that -- to give you an opportunity to think of

20    any other geographic variables that you might

21    have considered.

22       A.    Well, in a sense, your question is too

23    broad for me to answer other than me trying to

24    make an example and interpret what you're asking

25    me.

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1                    D.A. SWANSON - PH.D.

2         Q.    Okay.  I'll try again, then, and give

3    you a very specific question.

4         A.    Thank you.

5         Q.    In employing your geo-spacial

6    clustering analysis, you did not take into

7    account the centroid or the -- the exact

8    location of each parish as a variable; is that

9    correct?

10        A.    And -- and specifically, the distance

11   to the other centroids of the parishes?

12        Q.    That's correct, yes.

13        A.    No, I did not.

14              And would you like me to tell you why?

15        Q.    Sure.

16        A.    One of the reasons is, if you looked

17   at East Carroll Parish and looked at East Baton

18   Rouge Parish, what's roughly the distance

19   between them?  Just by distance alone, it says

20   there's a difference here compared to Tensas

21   Parish, which is much closer, say, to East

22   Carroll Parish.

23              So right away, if you use proximity

24   measures, you're going to start saying, why

25   would these two sets of parishes be together?

Page 44

1              D.A. SWANSON - PH.D.

2      So in a sense, by not doing that, I gave it a --

3      more of a chance using the variables I did that

4      the potential was that, for example, East Baton

5      Rouge Parish and East Carroll Parish might turn

6      out to be in the same cluster together.

7          Q.    Okay.  But would you agree that,

8      generally, proximity is a useful thing to

9      consider as you're drawing maps, as you're

10     drawing the redistricting maps?

11         A.    Well, I'm not sure necessarily about

12     drawing maps, but proximity of variables can be

13     useful in a lot of spacial-demographic and other

14     types of geographic analysis, absolutely.

15         Q.    I understand.

16              And we're on page 34.  I would like to

17     point you to paragraph 48 of your report, and

18     I'm quoting:  "Cluster analysis is aimed at

19     uncovering as-yet-unknown groups of objects.

20     This is the approach I used here in examining

21     the 'Community of Interest' grouping in regards

22     to Louisiana's parishes."

23              Did I read that correctly?

24         A.    You did.

25         Q.    Does this mean that each cluster

Page 45

1                    D.A. SWANSON - PH.D.

2       represents a community of interest?

3            A.    No.   The clusters represent groups of

4       sets of objects, in this case, parishes, that

5       would fall into one group or the other.

6            Q.    Is a group a community of interest?

7            A.    In this sense, the way I used a

8       cluster analysis and how it's stated here, yes,

9       the groupings are aimed at identifying

10      communities of interest.

11           Q.    Got it.

12                 Does this mean that cluster analysis

13      can reveal new communities of interest that

14      weren't previously recognized, for example, by

15      previous maps?

16           A.    Yes.

17           Q.    Okay.  And this might reveal new

18      communities of interest that weren't previously

19      recognized by the people of Louisiana; is that

20      correct?

21           A.    Yes.

22           Q.    Okay.  Jumping down to paragraph 49 of

23      your report, you "use a cluster analysis

24      approach to ascertain if the addition of East

25      Baton Rouge Parish to the set of seven northeast

Page 46

1              D.A. SWANSON - PH.D.

2       Louisiana parishes found in existing CD 5 as

3       proposed by plaintiff joins these parishes in

4       the same COI group or does not."

5              Did I read that correctly?

6       A.     Yes.

7       Q.     So it sounds like your task was to

8       analyze one specific pairing and determine

9       whether they belonged in the same community of

10      interest, correct?

11      A.     If you go back and look at the

12      assignment, I believe that's pretty much what

13      the assignment that listed says.

14      Q.     Okay.  Great.

15             On the other hand, you were not tasked

16      with affirmatively figuring out what the

17      communities of interest in Louisiana are,

18      correct?

19      A.     You mean defining them?

20      Q.     Yes.

21      A.     By definition, I'd have to have a

22      definition of what community of interests are if

23      I'm going to see if they're in the same one.

24      Q.     But was your task to kind of figure

25      out, you know, what are, roughly, the

Page 47

1                    D.A. SWANSON - PH.D.

2        communities of interest in Louisiana?

3             A.    I'm not sure what you're asking me

4        here.

5             Q.    Okay.  Let's move on, and maybe we'll

6        come back to it later if it makes sense.

7                    How does cluster analysis tell you if

8        parishes are in fact in the same community of

9        interest?

10            A.    Cluster analysis is an iterative

11       procedure, so it's a numerical solution to the

12       issue of classifying sets of objects into

13       groups.  It takes and it tries to do that using

14       a lot of the standard measures that you see

15       scattered well throughout the area of

16       inferential and descriptive statistics -- means,

17       for example, arithmetic averages, standard

18       deviations.

19                    So it takes the variables that you

20       have included and constructs means of them.  It

21       looks at the standard deviations of those, and

22       standard deviations basically boil down to the

23       Euclidian measure of distance between two

24       vectors.  So you can look at the sets of

25       variables as vectors, and the standard

Page 48

1                D.A. SWANSON - PH.D.

2        deviations would be the Euclidian distance

3        between the vectors.

4                So once it's constructed those, then

5        it tries to iterate to a solution through, okay,

6        are these -- if I put them into this group, what

7        is the average distance between the observations

8        for that particular object, in this case, a

9        parish, and the mean for that group?

10               And what it does, essentially, is it

11       then, if it can lower the overall variance, the

12       overall differences, it keeps moving till it

13       thinks it's got to a solution where that's as

14       minimal as you can go, and then it defines that

15       as being in one cluster or one group as -- as

16       opposed to another.

17          Q.    So that, at the end of all of this, we

18       can say there's -- let's say there's two

19       clusters, and we'll say these two clusters are

20       different communities of interest -- are the two

21       different communities of interest in this case;

22       is that right?

23          A.    Correct.

24               And the process, if you recall,

25       earlier when I said it does internal

Page 49

1                    D.A. SWANSON - PH.D.

2        verification, what it does then is it produces

3        an F-test of the variables, which is, is the

4        within-group variance less than the

5        between-group variance?

6                    And again, for all the variables, the

7        F-test results are probably not going to be

8        statistically significant for all of them, but

9        you kind of look at the overall issue and see

10       what they are.

11            Q.    Okay.  Great.

12            A.    And again, if you want to, if you want

13       to turn to the appendix, I can give you a

14       description of what's going on in the two groups

15       and pick any one of the cluster analyses that I

16       did.

17            Q.    Yes, we will definitely get to your

18       appendix in short order.

19                    On -- but for now, let's turn to page

20       33, paragraph 45, so that's the previous page.

21                    And we talked a little bit about this

22       previously, but now that we have your report in

23       front of us, it looks like you, on page -- on

24       paragraph 45, you cite to three papers -- Chen

25       (2022), Rossiter (2018), and Mollenkopf

1              D.A. SWANSON - PH.D.

2      (2013) -- as examples of cluster analyses; is

3      that correct?

4           A.    Yes.

5           Q.    Do you know if any of them assessed

6      congressional districts?

7           A.    The last one, the Mollenkopf, et al.,

8      paper did not, I think, look at congressional

9      districts.  I believe the Rossiter ones may

10     have, but I would have to go back and look at

11     the actual papers to recall.

12          Q.    Okay.  And these papers were trying to

13     identify communities of interest, correct?

14          A.    Yes; I believe that's the case.

15          Q.    Okay.

16          A.    Because that says right there

17     "defining the COI."

18          Q.    Great.

19                And their objective was to basically

20     identify groups that map drawers should try to

21     avoid splitting, direct?

22          A.    They tried to identify communities of

23     interest using cluster analysis.

24          Q.    But is the takeaway from that that

25     these are the communities of interest map

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                    D.A. SWANSON - PH.D.

1
2       drawers should preserve as they are drawing

3       their maps?

4            A.     Would you repeat that question?  I'm

5       not understanding exactly what you're asking.

6       I'm sorry.

7            Q.     Let me try -- let me try rephrasing

8       this.

9                   The objective of these three papers is

10      to identify communities of interest and, in

11      using that information, basically say we need to

12      keep these communities of interest together so

13      as you're drawing a map, you should avoid

14      splitting up these communities of interest,

15      correct?

16           A.     Okay.  Now understand what you're

17      asking.

18                  They may or may not use maps in what

19      they defined as "community of interest."  That

20      may not have been the purpose.

21           Q.     You're not aware if that was what the

22      intent was?

23           A.     In some cases, I believe at least

24      there is probably some mapping process involved,

25      but that doesn't necessarily mean that they were

Page 52

1                    D.A. SWANSON - PH.D.

2      mapping things as being communities of interest.

3      I would have to go back and look at the reports

4      again.

5          Q.    From your understanding of

6      redistricting, do map drawers tend to want to

7      keep communities -- identify communities of

8      interest together?

9          A.    Yeah; I believe that's one of the

10     issues that's important based on some of the

11     literature I cite here, along with compactness,

12     core retention, and other issues that are

13     typically found in redistricting cases.

14         Q.    Okay.  And focusing on these three

15     papers that you cite in this paragraph, none of

16     these papers were using clustering to argue that

17     certain groups do not belong in the same

18     district, correct?

19         A.    I'd have to go back and look at the

20     papers.  I can't answer that off the top of my

21     head since it's now been a while since I've read

22     the papers.

23         Q.    Okay.  And you don't have general

24     familiarity within your expertise in this area;

25     is that correct?

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```
 1                    D.A. SWANSON - PH.D.
 2         A.    I do not have general familiarity with
 3    what?
 4         Q.    With what redistricting scholars tend
 5    to do when they use cluster analysis.
 6              MR. FARR:  I'll just object to the
 7         form of that question.
 8              You may answer, Dr. Swanson.
 9              THE WITNESS:  First of all, I don't
10         think cluster analysis is routinely used by
11         redistricting people, and so to the extent
12         that they use cluster analysis, I would make
13         the -- probably the well-verified assumption
14         that it's done for mapping purposes.
15    BY MS. GE:
16         Q.    All right.  Are these the only three
17    papers you are aware of that use cluster
18    analysis for this kind of analysis?
19         A.    They are the ones that I found in
20    doing searches of looking through the literature
21    for them.
22         Q.    Okay.  Let's turn back to page 36,
23    which I believe is the next page, or a couple
24    pages.
25              Let's look at paragraph 51 of your
```

Page 54

1                    D.A. SWANSON - PH.D.

2        report.

3                    You select the two cluster options for

4        your cluster analysis, correct?

5             A.    Yes.

6             Q.    Why did you use the minimum number of

7        clusters possible?

8             A.    Because it's sufficient in terms of

9        running the cluster routine.  If I picked, say,

10       63 clusters, it may not have been able to

11       iterate to a solution because the intensity of

12       going through the numerical solution of this may

13       have been too high, and two clusters basically

14       was all I needed.

15                   The assignment was, are -- is East

16       Carroll Parish in a different community of

17       interest than East Baton Rouge Parish and/or

18       Lafayette Parish.  I mean, essentially, that's

19       the assignment.  So the immediate answer to that

20       is I need to look at two clusters.

21            Q.    So because your assignment was to

22       separate out two communities of interest, you

23       felt like you did not need to have additional

24       clusters; is that correct?

25            A.    Yes, I would say that's fairly

Page 55

1                    D.A. SWANSON - PH.D.

2      obvious.  You don't need additional clusters for

3      that.

4           Q.    Okay.  And help me understand this

5      paragraph.  If cluster analysis groups things

6      that are alike -- and let's take another

7      example.  Let's say that we take a group of

8      people and assign them a score based on their

9      political affiliation from 1 to 100.  Right?

10               If there are two clusters, everyone

11     would either be a Democrat or a Republican,

12     right?  Even if they were assigned a score

13     around 50; is that correct?

14          A.    If the cluster analysis iterated to a

15     satisfactory solution, that would be the attempt

16     of it.

17          Q.    Okay.

18          A.    But not all cluster analysis iterate

19     to a satisfactory solution.

20          Q.    Right.

21          A.    You need to keep that in mind.

22               There are a lot of statistical

23     procedures that -- you know, one you may be

24     familiar with would be regression analysis.  If

25     you get a low coefficient of determination in a

1                    D.A. SWANSON - PH.D.

2        regression analysis, it indicates you don't want

3        to use the model because conditional information

4        of the independent variables is not giving you

5        any more information about what the means are

6        under those conditional independent variables,

7        and it will be the overall mean of the dependent

8        variable in general.

9              Q.    Understood.

10                   Just turning back to this -- this

11        example, I'm just trying to wrap my head around

12        this.

13                   If, for example, this cluster analysis

14        lists two groups with two clusters are able to

15        arrive at -- at a sufficient answer --

16              A.    Yes.

17              Q.    -- but if we have three clusters, in

18        that example of everyone arranged by the

19        partisan score, if we have three clusters now,

20        there might be people in the middle with a --

21        with a score of, say, 40 to 60, let's say like

22        the independents or the undecideds, they would

23        be suddenly grouped together, right, if we were

24        to increase from two clusters to three clusters?

25                   MR. FARR:  Objection to the form.

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1                    D.A. SWANSON - PH.D.

2        BY MS. GE:

3            Q.    You may answer.

4            A.    That may be the case, depending on the

5        variables used and whether or not cluster

6        analysis iterated to a satisfactory solution.

7            Q.    Okay.

8            A.    So, in general, it's a hard question

9        to answer, but I return to the answer I gave you

10       earlier:  If the assignment is to see if East

11       Carroll Parish and East Baton Rouge are in the

12       same community of interest or not, why would you

13       use more than two clusters?

14           Q.    So returning back to my example for

15       one more -- for one more question, and then I'll

16       move on.

17                 Is it possible for people who were

18       previously in different clusters under a

19       2-cluster analysis be put into the same cluster

20       under a 3-cluster analysis or even a 63-cluster

21       analysis?

22           A.    I would have to look at the specifics

23       of the dataset and what the question is to

24       answer that question satisfactorily.

25           Q.    Would it be possible if you are

Page 58

1                    D.A. SWANSON - PH.D.

2      running a cluster analysis with testing out

3      different numbers of clusters?

4           A.    Well, the sense is that -- what you're

5      asking, is the potential there?  And the answer

6      would likely be yes.  I mean, people never

7      thought there were black swans until they were

8      discovered in Australia and wouldn't have

9      thought of it.

10               So if you look at those rare events

11      like that, the potential is there for all sorts

12      of things.  So, in principle, yes, it's

13      possible.  Specifically, I don't know.

14           Q.    In your experience with cluster

15      analysis, do you typically test out a different

16      number of clusters to see if that changes your

17      results?

18           A.    It -- it depends on what you're trying

19      to do with the cluster analysis.  If it's a

20      completely exploratory analysis and you don't

21      know how things are going to cluster, you might.

22               If it's clearly the case that what

23      you're looking for is, do two objects fall under

24      the same cluster or not, you don't need to do

25      that.

1                    D.A. SWANSON - PH.D.

2        Q.    I understand.

3        A.    And there are also situations where,

4    in advance, a priori, you might be given

5    information about clusters.  Then you're trying

6    to see if something else fits into one or more

7    of the different clusters, and that's a

8    variation of cluster analysis called

9    discriminate analysis.

10       Q.    Got it.

11             So would you say that for your

12   analysis you made decisions about the number of

13   clusters you would need based off of your task

14   in this case?

15       A.    Yes.

16       Q.    Okay.  And so just -- just to be

17   clear, you did not test your results with a

18   different number of clusters in this analysis?

19       A.    No.

20       Q.    And are there more than two

21   communities of interest in Louisiana?

22       A.    There may be.

23             Again, I refer to the black swan

24   issue.  We don't know until you start examining

25   it and have some sort of a hypothesis, you know,

Page 60

1                    D.A. SWANSON - PH.D.

2        guiding your research.

3                 There's a reason why people use

4        research hypotheses or constructions in the case

5        of assignment because you can end up looking at

6        something forever and not coming to a

7        satisfactory conclusion.

8        Q.     And that was your -- that wasn't your

9        task in this case; it was not to identify the

10       total number of communities of interest in

11       Louisiana?

12       A.     That's correct.

13       Q.     Do you have a sense of how many

14       communities of interest are in Louisiana?

15       A.     No.

16       Q.     Do you have any basis for

17       understanding the number of communities of

18       interest in Louisiana?

19       A.     The other basis that would be in there

20       are the figures and examples I cite in the

21       report drawn from different sources.

22       Q.     Understood.

23       A.     The Louisiana Folklore Source.

24       Q.     Yes, we will get to that.

25                 But those are the only two bases that

1                  D.A. SWANSON - PH.D.

2      you have for understanding communities of

3      interest in Louisiana?

4          A.    Yes.

5          Q.    Okay.  Let's turn to page 37,

6      paragraph 54 of your report, and this is first

7      focused on your cluster analysis for your

8      variable methodology, and it looks like you

9      selected 14 variables, correct?

10         A.    Yes.

11         Q.    How did you choose those variables?

12         A.    I used my judgment in the sense of

13     what provides the basic 97 variables that were

14     available from the Census Bureau's dataset for,

15     in this case, Parish or county equivalent,

16     what -- which of them would probably provide

17     kind of a robust characterization of communities

18     of interest.

19              So I can see the first one:  Percent

20     of persons under age 5.  That can represent

21     several things, including what's the fertility

22     rate of the population.  And fertility rates are

23     likely to vary by parish.

24              The second:  Black or African-American

25     alone.  It reflects the racial dimension.

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2            Bachelor's degree or higher.  It's one

3      of the measurements that people standardly use

4      to look at social stratification.

5            Owner-occupied housing unit rates,

6      another one that can look at social

7      stratification, but also other issues.  So, for

8      example, if there's a low degree of

9      owner-occupied housing in an area, it may mean

10     that it's low-income and that most of the people

11     there are renting.

12            Persons per household is another one.

13     There's some correlation with the persons under

14     five in the sense of, does it reflect fertility?

15     It could also reflect aging.

16            So, for example, there may be one

17     parish where a lot of migrants moved in, and

18     there -- there are multi-generational family

19     households.  In another parish, it might be a

20     population that's aging in place, and so the

21     persons-per-household number is low.

22            Median household income, another one

23     that indicates socioeconomic status because it

24     provides the income information, and income is

25     one of the social stratification bedrocks in the

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2           United States.

3                    Population per square mile, that

4           reflects the differences, a rural area is going

5           to have less population density than an urban

6           area, and that can affect how people interact.

7                    Living -- foreign born persons, that's

8           another one, again, reflects migration, language

9           issues, all sorts of things that could reflect

10          different communities of interest.

11                   If you have a high proportion of

12          people speaking Spanish as the native tongue in

13          one parish versus another, that's clearly going

14          to be one of the dimensions on which a community

15          of interest might be defined.

16                   Living in the same house one year ago;

17          persons under one year of age.  Again, that

18          reflects mobility.  How stable is the population

19          in the area?  Is it a population that's been

20          there or is it an area that has a lot of new

21          migrants?

22                   Same with the one preceding that:

23          Foreign born persons.  Again, that's going to

24          affect it.

25                   Language other than English spoken at

1                    D.A. SWANSON - PH.D.

2        home.  Obviously that is going to impact issues

3        about communities of interest.

4                    Households with a broadband internet

5        subscription reflects not only income but it

6        reflects communication issues, and so people

7        that are in an area that do not have access to

8        broadband may have different sources of

9        information than those who have access to

10       broadband.

11                   Are you -- what percent of the

12       population is in the civilian labor force?

13       Again, another socioeconomic kind of issue, and

14       it also reflects other issues such as, is the

15       population aging.  There -- in a really extreme

16       aged population, you won't have a lot of people

17       in the -- in the civilian labor force.

18                   And the last one is another one,

19       persons in poverty.

20           Q.    Got it.

21           A.    So does that help answer your question

22       about why I selected them?

23           Q.    Absolutely.

24           A.     They reflect demographic, economic,

25       and social characteristics of the parishes.

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2        Q.     Absolutely.  It's helpful to

3    understand your thought process as you selected

4    these variables.

5              And I want to return to something you

6    said at the very beginning about you selecting

7    those 14 variables out of -- I think you said 95

8    census variables that were available, correct?

9        A.     I think it's 97, but I would have to

10   go look.

11       Q.     And you said -- you just said, I think

12   it's also in your report, that you kind of

13   selected the variables that, in your judgment,

14   represent the right selection of variables?

15       A.     Correct.

16       Q.     Would you --

17       A.     But again, trying to keep it somewhat

18   parsimonious, if I selected 97 variables, the

19   cluster analysis may have difficulty dealing

20   with them.  And then, even here, there's some

21   correlation among the different variables.

22              For example, you're going to find

23   broadband access has some degree of correlation

24   with the persons in poverty and other variables.

25   But as long as the correlations aren't to the

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2        point that they're co-linear, that is, one is

3        100 percent correlated with the other, they do

4        provide aspects and information that's useful.

5             Q.    And when you say that you selected

6        these variables in your -- in your best

7        judgment, does that mean that your selection of

8        these 14 variables was subjective?

9             A.    Absolutely.  Based on my experience.

10            Q.    Okay.  Based on your experience in

11       demography; is that right?

12            A.    Yeah, and actually, today based --

13       this would be based on my -- there's different

14       types of demography.  There's formal

15       mathematical demography, there's methodological

16       demography, and then there's social demography,

17       and that largely deals with issues of

18       inequality, social stratification, and stems

19       directly from sociology, as you're probably

20       familiar with.

21                  So in that case, this reflects a lot

22       of the social dimensions, I think, about

23       inequality measures in the United States that

24       would then lend themselves to form communities

25       of interest among the other variables that are

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2       in here in addition to that.

3            Q.    But you drew from your expertise in

4       social demography to select these 14 variables?

5            A.    In my experience, yes.

6            Q.    In your experience, okay.

7                  And earlier in your report, I think we

8       quoted this already, but you basically kind of

9       contrast your objective, empirical cluster

10      analysis with Mr. Fairfax's subjective judgment.

11                 Do you recall that?

12           A.    I do.

13           Q.    So did both you and Mr. Fairfax use

14      your subjective judgment and prior experience to

15      determine which were the appropriate variables

16      to use?

17           A.    I can't speak to what Mr. Fairfax used

18      in terms of his selected judgment, and I have

19      described to you what formed the basis of mine.

20           Q.    All right.  Can you think -- when you

21      picked the 14, I would really appreciate you

22      kind of running through your thought process in

23      selecting them.

24                 Can you think of any others that might

25      have informed the analysis?

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2          A.    There may have been, but some of the

3      ones that I examined available from the Census

4      Bureau, again, were -- would start to run the

5      issue of too high a correlation with other

6      variables.  So that was one reason to exclude

7      them.  Some of them, when I looked at them,

8      didn't reflect what I thought would be a

9      community of interest variable.

10         Q.    And why did you determine that 14

11     variables, all from the Census, was the correct

12     or likely maximum needed to form two clusters?

13              (Court reporter interrupted for

14         clarification.)

15         Q.    Apologies.

16              Why did you -- I'll try to repeat.

17              Why did you determine that 14

18     variables was the correct or likely maximum

19     number of variables needed to form two clusters?

20         A.    I wouldn't call it "correct."  I would

21     say it's the maximum number of variables that I

22     thought fit given other variables available that

23     represented the dimensions that I looked at

24     without having other variables in there that are

25     highly correlated with an existing one.

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2        Q.    So you did determine that some of the

3    variables you selected are correlated to some

4    extent; is that right?

5        A.    Yes.

6        Q.    But you still kept them in because

7    they weren't perfectly correlated; is that

8    right?

9        A.    That's correct.

10       Q.    Did you map or visualize any of these

11   variables on their own just to determine whether

12   it made sense to include them in your analysis?

13       A.    Yes.  In essence, I -- I used my

14   judgment initially to look at them, and then, in

15   the performance of the cluster analysis, it

16   started to reveal those issues as well.

17       Q.    What sorts of issues does the

18   analysis, as its running through its internal

19   algorithm, highlight for you?

20       A.    One of the things that would come out

21   of it is that you can -- you can see, in doing

22   what's called the F-test, is the variance

23   between the groups smaller or larger than within

24   the groups; and the F-test starts to tell you if

25   there -- if there's a lot of variance within the

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2       group, some of the variables in there may not be

3       as -- as well-formed as others so the -- that

4       you're -- in one way, if it collapsed entirely,

5       you would have sets of what are called collinear

6       variables and it wouldn't be able to do that,

7       and I didn't experience that in the cluster

8       analysis.

9            Q.    Are all the variables you selected

10      equally important?

11           A.    They probably vary in terms of their

12      importance.

13           Q.    Did you weight any of the variables?

14           A.    No.

15           Q.    Why not?

16           A.    I -- because I just took them as is.

17                 Weighting would involve finding

18      something to weight the variables to, and in a

19      sense, by looking at, for example, percent, when

20      you're looking at percents, it's a dimensionless

21      variable.

22                 You follow me?

23           Q.    Could you explain?

24           A.    Yes; it's dimensionless.  You know,

25      you can compare a -- you can make comparisons of

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2       percent of people who are under five years of

3       age from place to place, whereas if I looked at

4       the actual number of people, Baton Rouge Parish

5       is probably going to have a lot more people that

6       are under the age of five than will East Carroll

7       Parish simply because the size of the parishes

8       are very different.  And so by -- by creating a

9       percent, you have made it dimensionless.  Now

10      they're comparable.

11          Q.    I understand.

12                Did you consider any other variables,

13      either in the sense of -- well, you said you

14      considered all the Census variables.

15                Did you consider any non-Census

16      variables?

17          A.    I didn't go beyond Census variables to

18      look at that.  That could have been a task that

19      would have taken forever to assemble them for

20      all 64 parishes in Louisiana, and it would have

21      been from maybe disparate sources.

22                The Census Bureau I trust.  You know,

23      it's -- it's the go-to source for information

24      like this, so I stayed with the Census Bureau.

25          Q.    Did you consider media markets?

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 2        A.    Did I consider what?

 3        Q.    Media markets.

 4        A.    Media market?

 5        Q.    Yes.

 6        A.    I don't know what media market is.

 7        Q.    Okay.  Did you consider school

 8   districts?

 9        A.    Okay.  Now I understand what you're

10   saying with "media markets."  I thought you were

11   asking me if I went to a data site called Media

12   Market.

13        Q.    Oh.  No.  No.  The concept of media

14   markets.

15              You want to return back to the

16   question about media markets?

17        A.    No, again, but the -- I would have to

18   turn to other sources of data to try to assemble

19   them for this, and I wanted to keep a consistent

20   set of data from an organization that I have

21   a -- a high level, not a hundred percent level,

22   of trust in, just like anybody else who produces

23   data.  And that wasn't readily available, I

24   don't think, on -- on the Census Bureau website,

25   was media market, how it was identified, and
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2        that would be sort of a classification system

3        right there.

4                And if you're asking about school

5        districts, that's not on the site here again,

6        and while there is a site of the Census Bureau,

7        SAIPE, S-A-I-P-E, that does have information on

8        it, it's a different disparate data source, and

9        school districts may or may not transcend parish

10       boundaries in Louisiana.  I don't know that

11       offhand.  So I get information about the -- the

12       people in school based on persons under five

13       years of age, for example.

14            Q.    Okay.  Did you consider major

15       roadways?

16            A.    Consider?

17            Q.    Did you consider major roadways in

18       Louisiana?

19            A.    No.

20            Q.    And sorry, one last question about

21       variables:

22                Did you consider educational

23       institutions and kind of the areas that flowed

24       into higher education institutions?

25            A.    To some extent, the -- the bachelor's

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1

2    degree or higher percent of population for the

3    population age 25 and older reflects that to

4    some extent.

5         Q.    Okay.  Did you consider utilities or

6    other public service commissions?

7         A.    No.

8         Q.    So you limited yourself to the data

9    that was readily available to you from the

10   Census and did not attempt to reconcile other

11   data sources even if they would have been

12   helpful; is that correct?

13             MR. FARR:  Objection to form.

14             THE WITNESS:  I wouldn't use the term

15        to "reconcile."  I would use the term

16        "search" for other data sources.  And in my

17        judgment, when I looked at the variables

18        available, these appeared to me to be

19        adequate in terms of defining communities of

20        interest.

21   BY MS. GE:

22        Q.    And when you say "adequate," that's

23   drawing from your expertise in social

24   demography; is that correct?

25        A.    Yes.

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1                    D.A. SWANSON - PH.D.

2          Q.    Why did you choose to cluster at the

3    parish level?

4          A.    Well, the clustering is -- in the

5    assignment is:  Is East Baton Rouge Parish in

6    the same community of interest as East Carroll

7    Parish?  That kind of forms the dimensions and

8    what the cluster analysis would be by defining a

9    piece of geography right there.

10         Q.    Okay.  And so the way that you chose

11   to run your cluster analysis was informed by the

12   assignment and the assumptions of that

13   assignment; is that correct?

14         A.    Well, it's informed by the assignment.

15         Q.    Okay.  Did you consider choosing to

16   cluster on, say, the Census block or VTD or

17   another unit of geography?

18         A.    You Google all the sub-parish -- you

19   Google all the Parish locally, you're going to

20   have difficulty getting data and assembling it.

21   so that's one reason, and that wasn't the

22   assignment.

23              The assignment -- I looked at the

24   assignment like this.  It's basically a research

25   hypothesis.  And as I said earlier, you want to

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2          have a research hypothesis always to guide your

3          research because, otherwise, you're going to be

4          looking at all sorts of things.

5                    So using the assignment as a -- as a

6          proxy, basically, for a research hypothesis, it

7          was clear to me that I should look at the parish

8          level.

9               Q.    Understood.

10                   In your experience with Louisiana

11         parishes and communities, are parishes always

12         comprised of a homogeneous population?

13              A.    No.

14              Q.    Is it possible for a parish to be

15         comprised of multiple communities of interest?

16              A.    If you look at subareas of the parish,

17         it's highly likely you would find -- again, the

18         potential is there to find different communities

19         of interest within the parish.

20              Q.    Okay.  Did you run analyses or

21         otherwise consider whether a parish may have

22         multiple communities of interest, or did you

23         limit yourself to the parish level?

24              A.    Again, the answer is something I

25         already provided to you, and that is the

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2      difficulty with getting data that are consistent

3      at the parish -- below the parish level would be

4      another task.  The data sets may be very

5      different.

6           Q.    It looks like you have some individual

7      and some household variables.

8                 Would it have been possible for you to

9      run that kind of analysis?

10          A.    At the sub-parish level?

11          Q.    That's correct.

12          A.    It -- it's possible that I could have

13     done that, and it may have turned out to be

14     communities of interest, but again, if you're

15     just looking at persons per household, that to

16     me by itself would not be an adequate indicator

17     of a community of interest, just one of several

18     that could define what a community of interest

19     is.

20          Q.    I understand.

21                So you were, to some extent, limited

22     by the variables that were in front of you; is

23     that right?

24          A.    To some extent.  And keep in mind

25     there's a broader set that I chose these from.

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2        Q.    Okay.  Let's take a moment to drill

3    down on some of the variables you selected, and

4    let's start with population per square mile.

5              Are you familiar with any literature

6    suggesting that population density is essential

7    to identifying a community of interest?

8        A.    I wouldn't say essential, but it's

9    likely that it would.

10        Q.    Is that something --

11        A.    And in answer to the question you

12    asked me earlier about, and my response was the

13    population density in the rural area is going to

14    be lower than it is in an urban area.

15              So right there is a symptomatic

16    indicator.  Rural versus urban are -- are

17    generally two constructs used by geographers and

18    others to say, you know, there's differences

19    between these two sets of areas, and population

20    density is one of several ways you can help

21    define that.

22        Q.    I understand.

23              In selecting the variables, did you

24    intend to group kind of these dense urban areas

25    together and then sparse rural places together?

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2         A.    Well, I didn't know how it would turn
3     out, but it seemed like an obvious one to use,
4     and not knowing necessarily all the parishes,
5     whether or how urbanized they were or how rural
6     they were in advance, I had some indication that
7     East Carroll Parish, which I believe I have
8     actually been in, is very different than East
9     Baton Rouge Parish.
10        Q.    I understand.
11              But does including population per
12    square mile of a variable tend to group together
13    cities?
14        A.    It would.  Absolutely, it would.
15        Q.    Okay.
16        A.    Or parishes that are heavily
17    urbanized.  That's probably another way to look
18    at it.
19        Q.    Right.  From your experience running
20    redistricting analysis, is it always necessary
21    to group together urban areas and then group
22    together all rural areas?
23        A.    Well, what's the research question?
24    That's the -- or the assignment?  That would be
25    the answer to that.

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2              So it would vary depending on what a

3     research question someone had, if they're doing

4     an academic research project or what's an

5     assignment if someone's engaged to look at

6     something.

7          Q.    But that was not your assignment here?

8          A.    My assignment is clearly specified in

9     the report.

10         Q.    I understand.

11              And just from your experience, cities

12     within a state are not always very close to one

13     another, correct?

14         A.    Say that again.

15         Q.    Cities within a state are not always

16     very close to one another, correct?

17              MR. FARR:  Objection to the form.

18              Go ahead, Dr. Swanson.

19              THE WITNESS:  Well, it depends.

20         There's a -- in metropolitan statistical

21         areas, there could be a lot of cities

22         clustered around a much larger central city.

23         Other states, it may vary.

24              So, again, I would look at that as a

25         research question where you go out and

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2        empirically look at what the answer is.  I

3        can't answer that offhand off the top of my

4        head other than anecdotal information about

5        geographic areas I'm familiar with.

6             If you look at Alaska, where I once

7        lived, Anchorage does not have very many

8        large cities very close to it.  If you look

9        at California, where I once lived, Los

10       Angeles has a lot of cities that are pretty

11       highly populated very close within the --

12       the area.

13   BY MS. GE:

14       Q.    Are you familiar with that answer in

15   Louisiana?

16       A.    I'm somewhat familiar, given the time

17   I've spent in Louisiana and plus looking at data

18   from Louisiana.

19       Q.    Would you say that sometimes cities in

20   Louisiana are relatively small such that their

21   population is not large enough to make up a

22   congressional district; is that right?

23       A.    I don't -- I don't -- I don't know the

24   answer to that offhand without doing the

25   research on it.  So I can't say if a city -- are

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1                    D.A. SWANSON - PH.D.

2        you asking me is a city so small that it's not

3        going to be -- meet the requirements of being in

4        a congressional district all by itself?  Is that

5        the question you're asking?

6             Q.    That's correct.

7             A.    I'm sure there are cities that would

8        probably be so small they're not going to meet

9        whatever the standards are for a congressional

10       district.

11            Q.    So would you agree that it's not

12       unnatural or unusual for these isolated small

13       cities to be connected to perhaps other small

14       cities with a lot of sparsely territory --

15       sparsely populated territory in between?

16            A.    To some extent --

17                  MR. FARR:  Objection --

18                  Objection to the form.

19                  Go ahead.

20                  THE WITNESS:  To some extent, the

21          enacted plan reflects that.

22       BY MS. GE:

23            Q.    Would you say that, generally, many

24       plans -- well, scratch that.

25                  Would you say that the remedial plan

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1                    D.A. SWANSON - PH.D.

2       also reflects that?

3            A.    With extensions, yes.

4            Q.    With your inclusion of population

5       density as a variable in your cluster analysis,

6       is it your claim that anytime a district is

7       composed of sparse places in the corner of a

8       state, with more densely populated areas that

9       are a few hours' drive away, we can conclude

10      that race predominated in the drawing of that

11      district?

12           A.    I think you would have to have more

13      variables and more analysis other -- to -- to

14      state that claim other than what you just

15      stated.

16           Q.    Let's discuss another variable that

17      you included.

18                 It looks like you included median

19      household income, correct?

20           A.    Yes.

21           Q.    Did you run any analysis on whether

22      median household income correlates with urban or

23      rural status?

24           A.    Not specifically.

25           Q.    In your experience, would median

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1                    D.A. SWANSON - PH.D.

2        income figures capture significant income

3        inequality within parishes?

4            A.    They could.

5            Q.    It also looks like you included

6        owner-occupied housing unit rates, correct?

7            A.    Correct.

8            Q.    Did you run any analysis on whether

9        owner-occupied housing unit rates correlates

10       with urban or rural status?

11           A.    Not specifically.

12           Q.    Okay.  Let's now run through your

13       different scenarios.

14                 You produced a number of variables

15       included from your list of 14, correct?

16           A.    Yes.

17           Q.    And you didn't add in any new

18       variables.

19                 The original 14 was the entire

20       universe of variables considered, correct?

21           A.    Correct.

22           Q.    How did you choose which variables to

23       eliminate in each of the various scenarios?

24           A.    Scroll down and start reading some --

25       from the paragraphs that precede the selection.

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2        Q.    Would you like us to scroll, or do you

3   want to explain to us --

4        A.    You could go down and start -- compare

5   the next set, which would be the 12-variable set

6   to the 14-variable set, and I believe I have a

7   description of what I eliminated and why.

8        Q.    Okay.  Did you calculate any scenarios

9   that you did not publish in your report?

10       A.    No.

11       Q.    And in each of these four scenarios,

12  population per square mile stayed in each of

13  them, correct?

14       A.    I believe that's the case, yes.

15       Q.    And so did median household income and

16  owner-occupied housing unit rate; is that

17  correct?

18       A.    I believe that's the case.

19       Q.    What led you to the conclusion that

20  these are the core variables to inform your

21  cluster analysis?

22       A.    I would again point you to the

23  discussion I have when I precede each of the

24  different scenarios and why I excluded or

25  eliminate certain variables.

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2          Q.    Would you be able to kind of explain

3     that in your own words?

4          A.    Yeah; in general, what they did is

5     they captured different dimensions of what might

6     be a community of interest, and so I would

7     eliminate sets of them at a time to see how

8     robust the cluster procedure would be using --

9     eliminating some that I thought were probably

10    reasonably good indicators of a community of

11    interest.

12         Q.    Okay.  And the variables that you

13    chose to eliminate in each scenario, you chose

14    to eliminate those based on your expertise in

15    social demography; is that right?

16         A.    Yeah; my experience.  I -- I like the

17    fact that you use "expertise."  I use

18    "experience."  I don't know if any of us could

19    call ourselves an expert in any field.

20         Q.    You ultimately conclude that East

21    Baton Rouge Parish and the seven parishes of

22    East Carroll, Franklin, Madison, Morehouse,

23    Richland, Tensas, and West Carroll are not part

24    of the same cluster in each scenario, correct?

25         A.    Correct.

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2          Q.    Did you analyze whether the use of any

3    variables not included in your report could

4    result in East Baton Rouge Parish sharing a

5    cluster with any of the northeastern parishes?

6          A.    No.

7          Q.    Would you agree that it is possible

8    that the use of different variables could result

9    in East Baton Rouge and one of these seven

10   parishes being placed in the same cluster?

11         A.    Again, I would look at your question

12   as a research hypothesis, and it's a research

13   hypothesis that could be investigated.

14         Q.    Okay.

15               MR. FARR:  Excuse me.  Can we take a

16        five-minute break when it's convenient for

17        you?

18               MS. GE:  Sure.  Let me finish maybe

19        two or three questions, and then we can take

20        a five-minute break.

21               Does that work?

22               MR. FARR:  Thank you very much.

23               MS. GE:  Okay.

24   BY MS. GE:

25         Q.    And sorry, just to clarify, you didn't

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2      investigate that hypothesis, correct, of using

3      different variables to see if it would place --

4           A.    Yeah, I believe you asked me that

5      question before, and my answer was the same.

6      So, no, I didn't.

7           Q.    Okay.  So as soon as your analysis

8      kind of revealed the results that seemed

9      adequate to you, you were kind of done

10     investigating; that was the end of your

11     analysis; is that right?

12          A.    Other than going through the four

13     scenarios to see if it would maintain it through

14     dropping the number of variables down that I

15     ended up using, yes.

16               MS. GE:  Okay.  I think that we're in

17          a place to take a five-minute break.

18               MR. FARR:  Thank you.

19               THE VIDEOGRAPHER:  We are going off

20          the record.  The time is 10:32 a.m.

21               (Recess.)

22               THE VIDEOGRAPHER:  We are back on the

23          record.  The time is 10:41 a.m.

24     BY MS. GE:

25          Q.    Could we pull Exhibit 2 back up to

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1             D.A. SWANSON - PH.D.

2      where we just were.  I believe you were

3      discussing the various scenarios.

4              Between your four scenarios, did any

5      of the parish clusters change when they were --

6      A.     Yes, they did.

7      Q.     -- when they were -- sorry, between

8      the 14 and the 12 variables and between the 9

9      and the 7?

10     A.     Yeah, they did.

11     Q.     Do you know which ones changed?

12             We can look at the appendix shortly.

13     A.     Not offhand because I wasn't -- you

14     know, I was focused on the seven northeast

15     Louisiana parishes in East Baton Rouge.  So some

16     of them may have moved in and out.  I could see

17     that they were doing that.

18     Q.     Okay.  I think we'll turn to the

19     appendix shortly, but it would be good to

20     confirm which ones changed.

21             And can you just help me understand

22     this exercise of running through the different

23     scenarios?  What new information did each

24     scenario provide?

25     A.     What it's based on is the robustness

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1                    D.A. SWANSON - PH.D.

2        of doing this.  Starting off with a fair number

3        of variables that I thought would differentiate

4        a community of interest, what would happen if I

5        started eliminating some of them so that there

6        was less descriptive of what community of

7        interest may be, and that would indicate to me

8        is it pretty certain or not that the two groups

9        of interest, specifically, the seven northeast

10       Louisiana parishes and, particularly, East

11       Carroll, would -- would or would not be in a

12       different community of interest than East Baton

13       Rouge and then, say, Lafayette Parish as well.

14            Q.    Okay.

15            A.    And I stress, when I started this, I

16       didn't know what the answer would be.

17            Q.    All right.  But it was -- it was a

18       yes-or-no question?  It was a yes-or-no

19       hypothesis?

20            A.    Yes.

21            Q.    Turning -- let's turn to page 40,

22       paragraph 65.

23                  Okay.  You conclude that "the

24       likelihood is very high" that East Baton Rouge

25       Parish is in fact in a different community of

1                    D.A. SWANSON - PH.D.

2        interest group than the other seven parishes you

3        had identified, correct?

4             A.    Yes.

5             Q.    What likelihood are you referring to?

6             A.    My judgmental likelihood.  You never

7        want to say, hardly ever, that something's a

8        hundred percent.  There's -- you know, I tend to

9        look at the world from a probabilistic basis,

10       and there's very few things that are either zero

11       or a hundred percent.  So I tend to use terms

12       like "likelihood" or "probability."

13            Q.    Okay.  So this is based on you, in

14       your experience, running cluster analyses

15       that --

16            A.    Or even more broader than that.

17                  Based on my experience in general

18       dealing with inferential statistics and related

19       areas.

20            Q.    Okay.  Is there an objective way to

21       measure this likelihood that a specific parish

22       is either in or out of a community of interest

23       group than other parishes?

24            A.    Well, the cluster analysis essentially

25       does that.  It does provide an objective measure

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1                    D.A. SWANSON - PH.D.

2         of that.

3                    And if -- again, whenever you're ready

4         to turn to the appendix where it is, I will

5         point out to you exactly where that is.

6              Q.    But when you say "likelihood" here,

7         you're basically saying, I ran these -- this

8         cluster analysis through these four scenarios,

9         and in my experience, this seems like there is a

10        strong likelihood?

11             A.    Essentially, that would be correct.

12             Q.    Okay.  And this conclusion, this

13        overarching conclusion, that is predicated on

14        the 14 variables that you selected in your

15        subjective judgment; is that right?

16             A.    And in conjunction with the reduction

17        down to the seven variables and the consistency

18        with the other definitions of what constituted

19        cultural regions and economic regions in

20        Louisiana.

21             Q.    When you say that, do you mean that,

22        after you ran your cluster analysis, you took a

23        look at some of the regional, cultural maps --

24             A.    Yes.

25             Q.    -- to verify that that confirmed?

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2        Okay.

3                When you were doing that verifying,

4        did you limit yourself to the four regional maps

5        you introduced in your report?

6        A.    Yes; those are the ones I found pretty

7        quickly, so I used them.

8        Q.    Did you look at any other regional

9        maps?

10       A.    I can't recall.  There -- there may

11       have been others around, but these seemed --

12       they're easy to find, and -- and once I had

13       several of them, that's what I stayed with.

14       Q.    How did you know how many maps to find

15       to confirm your understanding?

16       A.    Well, I -- I didn't know in advance.

17       I just thought if I have several of them,

18       that -- that provides some confirmation.

19       Q.    Okay.  And if someone, another expert,

20       were to run a similar cluster analysis but

21       choose different variables, is it possible that

22       they would arrive at a different conclusion?

23       A.    It's possible.

24       Q.    Okay.  Now let's turn to page 61 of

25       your report, the Appendix 7.4.

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2              And again, it looks like there are two

3         clusters, correct, 1 and 2?

4              A.    Yes.

5              Q.    So it looks like most of the clus- --

6         most of the parishes are in Cluster 1 and just a

7         couple are in Cluster 2, correct?

8              A.    Under this -- under this initial

9         scenario, that's correct.

10             Q.    Got it.

11                   Can you tell me which parishes are

12        grouped in Cluster 2?

13             A.    Well, from the page, I can see it's

14        East Baton Rouge, Jefferson Parish, and

15        Lafayette Parish right there on this page.

16        Lincoln Parish is one of them too.

17             Q.    Okay.

18             A.    The remainder of this --

19             Q.    Can we scroll down to the second page

20        just to verify the number of ones in Cluster 2.

21                   I think there are only a few.

22             A.    Orleans Parish.

23             Q.    Okay.

24             A.    And that looks like the list.

25             Q.    Okay.  So I think, by my count, that

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1                    D.A. SWANSON - PH.D.

2        was five parishes in Cluster 2, correct?

3            A.    I believe that's correct.

4            Q.    Is your analysis telling us that these

5        five parishes are a community of interest?

6            A.    In the sense of doing the cluster

7        analysis, yes.

8            Q.    Okay.  And the rest of the parishes

9        are in a different community of interest?

10           A.    Yes.

11           Q.    So is your opinion that a

12       congressional district that failed to include

13       these five parishes together would split a

14       community of interest?

15           A.    I hadn't thought about that, whether

16       or not it includes the five of them together

17       would split it.  So I don't have an opinion

18       about that at this time.

19           Q.    Okay.  That's just not something you

20       considered?

21           A.    Correct.

22           Q.    Just based on your familiarity with

23       Louisiana geography, are these parishes close

24       together?

25           A.    The ones in the same cluster, not

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1                    D.A. SWANSON - PH.D.

2        necessarily.

3            Q.    Could these five parishes conceivably

4        be joined together in a district, or would you

5        have to leave some of them out?

6            A.    Again, I haven't considered that issue

7        so I don't -- I can't answer that question.

8            Q.    Did you, I guess, map your clusters

9        after you were done with your cluster analysis

10       and just kind of eyeball, think about whether

11       they could be joined together?

12           A.    Well, it just never occurred to me.  I

13       don't do congressional redistricting, so that

14       wasn't the task I'm -- I was asked to do, and

15       it's not what I do.  You know, I don't

16       redistrict.  That's done by other people,

17       correct?

18           Q.    I understand.  So it seems like you

19       were not thinking about this with congressional

20       districts in mind; you were merely --

21           A.    No.

22           Q.    -- focused on your -- on your

23       hypothesis?

24           A.    Yes.

25           Q.    Okay.  And just to be clear, my

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1                    D.A. SWANSON - PH.D.

2        understanding of the conclusion, your claim is

3        that certain places, for example, East Carroll

4        and East Baton Rouge, simply do not go together

5        because they're not part of the same community

6        of interest, correct?

7             A.    Correct.

8             Q.    Have you identified any specific

9        policy interests that might be different in East

10       Carroll and East Baton Rouge?

11            A.    Policy interests?

12            Q.    Yes.

13            A.    No.

14            Q.    So I'm just curious.  What variables

15       do you think make these places so different?

16            A.    Well, there is like 74, in my

17       judgment, what I believe to be a reasonable set

18       of indicators of communities of interest based

19       on the 14 variables I selected as a starting

20       point.

21                 Those clearly indicate that, for

22       example, East Orleans, East Baton Rouge Parish,

23       and East Carroll Parish are in different

24       communities of interest based on those

25       variables.

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1                    D.A. SWANSON - PH.D.

2          Q.    But you don't have a specific -- you

3     don't have a sense of which specific variable is

4     kind of driving that difference; is that right?

5                You're just taking the cluster

6     analysis results as is?

7          A.    To -- that's correct.

8                And when you look in the internal

9     indications of it, it's kind of -- it's kind of

10    put together.

11               So let's -- let's -- if you want, I'll

12    go through and tell you what the -- those

13    numbers beside the clusters mean.  That will

14    probably give you an indication or -- or answer

15    your question, in part.

16         Q.    Sure.  Do you mean the -- so, in

17    addition to the cluster, there's like Dist. 1

18    and Dist. 2?

19         A.    Right.  So if you go back up the page,

20    we can look directly at East Orleans and East

21    Baton Rouge.

22         Q.    Sure.

23         A.    Let me know when you're ready.

24         Q.    Sure.  Would you like to explain what

25    Dist. 1 and Dist. 2 are labeled here?

1              D.A. SWANSON - PH.D.

2        A.     Would you like me to explain what

3   those measures mean, and that, in part, would

4   answer one of your previous questions about how

5   the cluster analysis is kind of internally

6   verified?

7        Q.     Yes, please.

8        A.     So if you look at East Baton Rouge

9   Parish, which, in this case, is placed in

10  Cluster No. 2 -- keep in mind that the cluster

11  numbers are -- are -- are just artifacts.  You

12  know, I could have easily said this is Cluster 1

13  and the other ones are in Cluster 2.  Okay?

14             So what it says right there, looking

15  at East Baton Rouge Parish, that number under

16  "Dist. 1" is the average distance between its

17  average scores and the average of all the 14

18  variables inside that cluster.  So that, again,

19  is like a variance issue.  It's a Euclidian

20  distance of measure when you're looking at

21  vectors.

22             So it says the average distance for

23  East Baton Rouge Parish from the center of

24  Cluster 1 is 4.427 units.  It's not in Cluster

25  1.  It's in Cluster 2.

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2                Now look across the other column.

3     What's the number there?  1.1159.  So it's

4     saying, on average, its set of variables is much

5     closer to the mean of Cluster 1 than -- or, mean

6     of Cluster 2 than it is of Cluster 1.  1.1159

7     units of measure is far less than 4.4273 units

8     of measure.

9                So it's saying that's part of the

10    reason it's based in Cluster 2 and not in

11    Cluster 1.  Because it's a better fit.  It's

12    closer to the mean.

13         Q.    And what is the difference between the

14    variable or the output Dist. 2 versus Dist. 1?

15         A.    I just explained it.  It's the -- it's

16    the distance, on average, of all the variables

17    in that cluster to that cluster's mean of all

18    those variables.

19         Q.    Okay.

20         A.    And so you have to look at this,

21    it's -- you know, there's -- there's 14

22    dimensions in this, so you can't -- you can't,

23    you know, display 14-space.  You can display

24    2-space easily on a -- on a 2-dimensional

25    surface, but not 14-space.

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1              D.A. SWANSON - PH.D.

2                    So what it's saying is that there

3        are -- these are vectors, and that's a Euclidian

4        distance from the point of these vectors, and

5        that corresponds to what variance is, in point

6        of fact, if you look at the formula for looking

7        what the distance is between two vectors.

8                    So what it's saying is, on average,

9        all -- all the units that make up the variables

10       for East Baton Rouge are closer to the center of

11       Cluster 2 than they are to Cluster 1.

12            Q.    Got it.  Okay.  So you kind of take

13       all the 14 variables in aggregate and a mean,

14       and it doesn't -- and there is no way for you to

15       go back and verify this is the one variable that

16       is making these two clusters so different?

17       It'll kind of all of them?

18            A.    There are -- there are other

19       procedures, such as the F-test I mentioned

20       earlier, that looks at each individual variable

21       and determines whether or not it's statistically

22       significant.  That's another way you can do it,

23       but the sig- -- statistical significance is

24       nulls correspond with substantive significance.

25                    Do you follow me?

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1              D.A. SWANSON - PH.D.

2        Q.    If you could explain.

3        A.    Yeah, for example, someone might do a

4   T-test and say, I started off with a preset

5   alpha level of 0.05.  If the probability that

6   the null hypothesis that the two means are -- or

7   the two populations have the same mean is

8   rejected, it means I've got to get a probability

9   less than 0.05 to make that decision to reject

10  the null hypothesis.  Otherwise, I won't.

11       Q.    And that was not a test that you ran

12  here?

13       A.    Yeah.  But do you follow generally

14  what I'm saying?

15       Q.    Yes.

16       A.    Well, in one instance, it could be

17  that the difference between the two means is

18  like $1, if you're looking at money.  If you got

19  a large enough sample, the -- a sample size of

20  huge amounts will say, yes, there's this

21  statistically significant difference between

22  $220 in this unit and $221 in the other one.

23            So that's what I mean by statistical

24  significance is not always the indicator.  In

25  most cases, you would say, so what?  One city

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1                    D.A. SWANSON - PH.D.

2        has or one group of people have a dollar more in

3        average income than another group?  It's not

4        substantive.

5                  So then you have got to apply your

6        judgment in -- in addition to the statistical

7        significance to say, what makes this a

8        substantive difference?  And I think most

9        people, including you and others listening,

10       would say $1 is not going to make a huge

11       difference.  Does 10?  Does 20?  Does 200?  Does

12       200,000?

13                  200,000 probably does, so we have

14       narrowed the range down.  So somewhere in

15       between $1 and 200,000, say, that is going to be

16       a substantive difference.  And what may

17       determine that is exactly what the research

18       question is.  For example, if the federal

19       definitions of the percent of people in poverty

20       were used, that's a way you could say is it a

21       substantive difference.

22                  So that's what I'm stressing about the

23       difference between statistical significance and

24       the difference between substantive significance.

25       You've got to -- you've got to be able to look

1              D.A. SWANSON - PH.D.

2     at both, and I think that requires some

3     experience.

4              Most people I have encountered in

5     their lives, when they -- they took statistical

6     significance as -- as a golden rule, and they

7     really didn't understand what underlies it.  So

8     I --

9        Q.    I understand.

10       A.    The -- the cluster analysis does do a

11    series of F-tests, which would be like T-tests.

12    If you're doing multiple T-tests, it accounts

13    for some of the problems you would have with

14    that.

15              And so a couple of the variables at

16    different times -- and I would have to go back

17    and look -- showed up as not being statistically

18    significant, but my judgment, looking at the

19    differences, it was again bassed on a sample

20    size of 64, and the differences still, you know,

21    looked to me fairly large.  So I used judgment

22    and to say, yeah, I'm not going to eliminate

23    them and rerun it without it.

24              I know that it's a lot to absorb, and

25    I sounded like I'm lecturing, but I -- and I

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1                    D.A. SWANSON - PH.D.
2        apologize for that, but it --
3            Q.    That's definitely helpful.
4            A.    -- it's just the way you have to look
5        at statistical inference and related factors:
6        Substance/statistical difference.
7            Q.    So some explanation it seems like your
8        cluster analysis might reveal things that are
9        not observable -- are not observable in a -- in
10       a non-statistical fashion.
11                 Like it's -- it's hard to point to a
12       specific thing that caused the result that your
13       cluster analysis produced; is that right?
14           A.    Yeah.  And you know, different people
15       would have a different procedure.  Some people
16       may have pulled out -- when they looked at the
17       F-test, pulled one of the variables out, but
18       again, I would stress you have to look very
19       closely at it and are you falling into what's,
20       by some statistical authors called "the cult of
21       statistical significance trap"; that is, simply,
22       because it's statistically significant, they
23       would pull it, and it may not be substantively a
24       big difference, as I said earlier.
25                 If you have a sample size that's

1                    D.A. SWANSON - PH.D.

2         really large, it could be you're looking at one

3         group of people and another group of people, and

4         the mean income difference is $1.  Is that

5         substantive or not?  You have got to make those

6         decisions.

7              Q.    Okay.

8              A.    So do you want me to turn now to East

9         Carroll Parish and look at the numbers under

10        "Dist. 1" and "Dist. 2"?

11             Q.    Sure, why don't you explain to us how

12        you --

13             A.    Sure.  As you can see, East Carroll

14        Parish is in district -- in Cluster 1 in this

15        case, and notice it says the distance from the

16        mean of all the variables to the mean of the

17        cluster is 4.9 units.

18                   And that's a much lower distance, on

19        the order of 1 whole unit, than what the

20        distance is to the mean of the second cluster,

21        the first one, that East Baton Rouge.  There the

22        distance is 6.

23                   So on that basis, you're looking at

24        this is one of the reasons it's -- the primary

25        reason it's placed into Cluster 2 is because all

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1                    D.A. SWANSON - PH.D.

2        the variables, the means, the distance from them

3        to the mean of the cluster of that variable is

4        smaller than it would be if it was placed in the

5        other cluster and vice-versa.  The same thing

6        goes for East Baton Rouge.

7                    So those statistic measures are saying

8        this is the closest -- this is what it's closest

9        to in terms of the cluster means.

10            Q.    I understand.

11                   So the right variable to kind of see

12       how far apart two different parishes are is to

13       look at Dist. 2 to see how far apart both of

14       them are from the -- the mean?

15            A.    Well, you've got -- you don't want to

16       kind of look at it that way.  Since East Carroll

17       Parish is located in Cluster 2, you can look

18       under distance in 2, and that tells you how far

19       the mean of all those variables is from the mean

20       of the cluster.

21                   If you look at the distance in Cluster

22       1, it shows you how far it is to the mean of

23       that one.  So you've got to look at both of them

24       simultaneously and then you see which one is the

25       smallest.

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1                D.A. SWANSON - PH.D.

2            In the case of East Baton Rouge

3    Parish, the distance is smaller when it's placed

4    in Cluster 2, and East Carroll Parish, the

5    distance is smaller when it's placed in Cluster

6    1.

7        Q.    Got it.  Okay.

8            Can we use your cluster analysis to

9    criticize any map that groups any of the

10   parishes in Cluster 1 in different districts?

11       A.    Could you ask that again?  I'm not

12   sure what you're asking.

13       Q.    Sure.

14            Can we use the results of your cluster

15   analysis and its appendix to say any map that

16   groups together parishes in Cluster 1 but

17   separates them into different districts, can we

18   say that those maps are -- you know, don't group

19   together communities of interest?

20       A.    It's possible it's used as basis for

21   that.  I wouldn't use this as the sole basis for

22   doing that.

23       Q.    And why is that?

24       A.    Well, some of these clusters other --

25   these other parishes, there may be different

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1                        D.A. SWANSON - PH.D.

2           reasons why they're in different congressional

3           parishes.

4                        And keep in mind, I was not asked to

5           look at that question.  I was asked simply, the

6           research question that I was given is, are they

7           in the same community of interest.

8                Q.    And so your analysis is very limited

9           to, you know, a couple -- like looking at two

10          pairs of parishes, not any evaluation of

11          communities of interest as a whole in Louisiana?

12               A.    Yeah, that's correct.

13               Q.    Okay.

14               A.    And I just decided that was better to

15          use all of the parishes of Louisiana in this

16          exercise than simply parishes that were in --

17          either included in Enabled District 1 or

18          Proposed district -- 5, I mean, and Proposed

19          District 5.  So I used all of them.

20               Q.    Okay.  But you agree that your cluster

21          analysis could be informative to assess a map

22          that groups the parishes in Cluster 1 in

23          different configurations?

24               A.    It could be.

25               Q.    Okay.  Let's maybe run through that

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1                    D.A. SWANSON - PH.D.

2          exercise and -- let me see -- and I'll kind of

3          refer you to the enacted map and the remedial

4          map, which I think -- I think Dan will be able

5          to kind of navigate them so that we can look at

6          them together.

7                    So let's look at Jackson Parish.  Do

8          you see that in --

9                    Actually, sorry.  Can you stay with

10         the appendix just so we can verify which cluster

11         it's in?

12                   So Jackson Parish, which cluster is

13         that in?

14              A.   Jackson is in Cluster 1.

15              Q.   In Cluster 1, okay.

16                   And then let's scroll down to Union

17         Parish.

18                   What cluster is that in?

19              A.   1.

20              Q.   Okay.  So both of them are in Cluster

21         1.

22                   Can we go to the enacted map?

23                   And is Jackson Parish and Union Parish

24         in different districts in the enacted map?

25              A.   I can't see the enacted map to tell

1                    D.A. SWANSON - PH.D.

2        you if that's the case.  This is a -- it's

3        not --

4             Q.    Yeah, it's the one -- it's the one

5        that's pulled up.

6             A.    I can see the map, but I can't read

7        it.  It's too small of print '.

8                    MS. GE:  Dan, is there any way we can

9             make that bigger?

10       BY MS. GE:

11            Q.    Are you able to see the parishes now?

12            A.    It's better.  It's still not perfect.

13                    So I can see Union is in Enacted 4.

14            Q.    Uh-huh.  And where is Jackson?

15            A.    I'm looking for it.

16                    I'm probably -- I'm probably scanning

17       right over it.  Where is it located?

18                    I see it.  Yeah, it's in 5, yeah.

19            Q.    So just from the results of your

20       cluster analysis, could we use that to criticize

21       this grouping of splitting apart Jackson and

22       Union?

23                    MR. FARR:  Objection to the form.

24                    Go ahead.

25                    THE WITNESS:  It's possible that

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2          someone wanted to do that.

3       BY MS. GE:

4          Q.    Okay.  And let's do -- let's do one

5       more example just so that I understand how to --

6       how to take the results of your cluster

7       analysis.

8                    Can we go back to the appendix?

9                    Okay.  Great.  And let's take a look

10      at Bossier.

11                   Can you see which cluster that's in?

12         A.    I couldn't hear what you said.

13                   Which parish?

14         Q.    Bossier.

15         A.    Bossier?

16         Q.    Bossier.

17         A.    Yes.

18         Q.    Which cluster is that in?

19         A.    That's in 1.

20         Q.    That's in 1, okay.

21                   And how about -- how about Caddo?

22         A.    Caddo is in -- this is the 7-variable

23      grouping, okay.

24                   Caddo is in Cluster 1.

25         Q.    Is in Cluster 1.

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2           MS. GE:  Sorry.  Give me one second.

3      I apologize.  Could we take a five-minute

4      break?

5           MR. FARR:  Sure.  No problem.  Take

6      your time.

7           THE VIDEOGRAPHER:  We're going off the

8      record.  The time is 11:08 a.m.

9           (Recess.)

10          THE VIDEOGRAPHER:  We are back on the

11     record.  The time is 11:17 a.m.

12   BY MS. GE:

13     Q.    Okay. Apologies.  I think that I

14   directed us to maybe the wrong page.  I think

15   that we wanted to look at page 55, so the

16   cluster analysis with the 14 variables to start.

17          Okay.  According to your cluster

18   analysis, what cluster is Bossier Parish is?

19     A.    It's in 2.

20     Q.    It's in 2.  Okay.

21          And Caddo is in 1, correct?

22     A.    It is.

23     Q.    Okay.  And so is your analysis telling

24   us that they should be in different districts?

25     A.    No.

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2              MR. FARR:  Objection.

3              THE WITNESS:  No, that's not the

4        purpose of it.  As I -- the research

5        question, the assignment I'm given is, are

6        the seven -- basically, is East Carroll

7        Parish in the same community of interest as

8        East Baton Rouge Parish.

9              So that -- that's -- that's not within

10       the scope of what I was asked to do so I'm

11       not able to answer your question.

12   BY MS. GE:

13       Q.    You're not able to compare two

14   parishes in two different clusters that are not

15   East Carroll and East Baton Rouge?

16       A.    I can compare, but the question you're

17   asking about whether or not they should be in

18   two different districts is another question, and

19   that's not what I was asked to do in terms of

20   performing this task.

21       Q.    Okay.  Are you familiar with where

22   Bossier and -- and Caddo are?

23       A.    Bossier, yeah.  I was in the U.S. Army

24   with a kid from Bossier Parish, and he used to

25   talk about it when I was stationed at Ft.

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1               D.A. SWANSON - PH.D.

2        Campbell, Kentucky.

3            Q.    Okay.

4            A.    And I'm somewhat familiar with it, so

5        I can't remember if I have been through Caddo

6        Parish or not.  It's up in that Red River

7        District area, I believe.  So some of them I

8        can't recall if I have driven through there.

9        Other ones I can or been on the ground there.

10           Q.    Okay.  Could we just quickly look at

11       the enacted map on page 12, so on the same page

12       about where the two -- where the two parishes

13       are.

14                 Do you mind zooming in?

15                 Dr. Swanson, can you -- can you see

16       where the two parishes are?

17           A.    Yeah, I can see them.

18           Q.    Okay.  Are they in the same

19       congressional district in the enacted map?

20           A.    They're in 4.

21           Q.    Okay.  And are they next to each

22       other?

23           A.    Yes, they are.

24           Q.    From your personal experience, would

25       you agree that these are similar parishes?

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2           MR. FARR:  Objection.

3           THE WITNESS:  Well, from my personal

4      experience, I'm not able to answer that

5      question.  I -- I've looked at this issue in

6      terms of the variables that I used in the

7      cluster analysis.

8    BY MS. GE:

9      Q.    I understand.

10          So your analysis can result in similar

11   parishes or parishes next to each other being

12   put into different clusters, is that right, just

13   looking at the results of your -- of your

14   analysis?

15     A.    Yes.

16     Q.    Okay.  And is there any reason to

17   believe that the results of your cluster

18   analysis is more accurate when it comes to

19   comparing East Carroll and East Baton Rouge than

20   when it comes to comparing Bossier and Caddo?

21          MR. FARR:  Objection.

22          THE WITNESS:  Yeah, I -- I don't think

23      that's the right way to form the question in

24      the sense of "more accurate."

25

1                     D.A. SWANSON - PH.D.

2        BY MS. GE:

3             Q.    Okay.  Well, let's --

4             A.    It's what the -- as I went through and

5        explained the cluster analysis would do, it's

6        where it placed them in terms of bringing the

7        cluster analysis procedure and the methods and

8        the processes that it uses.

9             Q.    Okay.  Let me take a step back and

10       just to make sure that I understand this

11       correctly.

12                  Your hypothesis is focused on

13       comparing East Baton Rouge with East Carroll and

14       those surrounding parishes, and that was your

15       research question in formulating your cluster

16       analysis, correct?

17            A.    Yes.

18            Q.    And so you're not really focused on,

19       you know, Bossier and Caddo or any of the other

20       parishes in Louisiana, correct, when you're

21       running your cluster analysis?

22            A.    Correct.

23            Q.    And so, to some extent, it doesn't

24       really matter where the clusters place Bossier

25       and Caddo and Union, Jackson, or any of these

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2          other parishes that we have looked at, right?

3                    MR. FARR:  Objection.

4                    THE WITNESS:  The assignment I was

5               given --

6                    MR. FARR:  Objection.

7                    THE WITNESS:  In terms of my

8               assignment, it doesn't matter to me.  It may

9               matter to other people that had other

10              assignments or other reasons to look at

11              them.

12          BY MS. GE:

13              Q.    Does it inform the accuracy of your

14          cluster analysis where these other parishes are

15          placed?

16              A.    Again, I wouldn't use the term

17          "accuracy" of where they are placed.  The

18          cluster analysis did what it did.

19              Q.    And it was not part of your assignment

20          to kind of throw these clusters onto a map and

21          verify that they made sense; is that right?

22                    MR. FARR:  Objection.

23                    THE WITNESS:  And again, I wouldn't

24              use the term "verify" where they were.

25                    I mean, you're talking about in terms

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1
2          of these congressional districts?  Is that

3          what you're asking?  Verify where they were

4          in terms of congressional districts?  Is

5          that your question?

6     BY MS. GE:

7          Q.    Well, where they are in relation to

8     each other, either in district or just by

9     regional familiarity.

10         A.    Or other processes that might be of

11    interest to someone else for another purpose?

12         Q.    But that was not part of your

13    assignment; that was not something that you did?

14         A.    That's correct.

15         Q.    Were there any inputs in your cluster

16    analysis that were specific to East Baton Rouge

17    or East Carroll and the surrounding parishes

18    that would allow us to trust the results of the

19    cluster analysis more?  Like was your cluster

20    analysis fine-tuned to these parishes?

21         A.    The cluster analysis uses all 64

22    parishes in Louisiana under the variables that I

23    have described in the report.

24         Q.    So it doesn't really distinguish the

25    amount of information that you're feeding the

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1                    D.A. SWANSON - PH.D.

2        algorithm?  You're --

3                    I'm sorry, let me rephrase that.

4                    The -- the kind of information and the

5        amount of information that you are feeding the

6        algorithm are the same for each parish in

7        Louisiana regardless of whether that was your --

8        the parishes you were focused on to reach your

9        hypothesis or not?

10            A.    Correct.

11            Q.    Is that right?

12                    Okay.  I understand.

13                    And I believe that, after you ran your

14       cluster analysis in the different scenarios, you

15       did not visualize your results and kind of map

16       out the clusters on a -- overlay the districts

17       or anything else; is that right?

18            A.    Well, in the sense that -- yeah, no, I

19       didn't.

20            Q.    Okay.  So do you have a sense of if

21       your analysis results -- results in clusters of

22       different parishes kind of all over Louisiana

23       that are not contiguous with each other?

24            A.     It would put some parishes in

25       Louisiana together that are not contiguous.

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1                 D.A. SWANSON - PH.D.

2          Q.    Okay.  If we visualize your results,

3     would we find something that looked like

4     districts?

5          A.    I don't know.

6          Q.    And you don't know if geographically

7     similar proximate parishes would be clustered

8     together; is that right?

9          A.    That would be a research question to

10    look at.

11         Q.    So that was not part of your research

12    question here?

13         A.    That's correct.

14         Q.    Okay.  Okay.  Let's now turn to your

15    communities of interest analysis using the

16    cultural map, and I believe that it would be

17    helpful to maybe look at page 25 to 29.

18              It's possible I have the wrong page

19    numbers.  Okay.  So the proper page is page 26,

20    and we can take one of these at a time, but just

21    generally, how did you find these four regional

22    maps?

23         A.    A Google search.

24         Q.    And you just picked the first four

25    maps that popped up?

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2         A.    Essentially.  I think there may have

3    been more, but I don't recall them, but I was

4    looking for something more than one but not 200

5    different maps.  I didn't know how many I would

6    find to begin with, but essentially, that's it.

7    Once I got to several maps, I thought, okay,

8    this -- this is reasonable.

9         Q.    Okay.  Did you review any other

10   regional maps?

11        A.    I can't recall seeing others.  I think

12   these are -- I think I saw a Google site showing

13   other maps.  They may have been lower down on my

14   screen, and when I clicked on some of these,

15   these are basically the ones that I found.

16        Q.    Did -- did you find any maps that you

17   decided not to include in your report?

18        A.    There may have been maps that were

19   less complete.  You follow me?  They didn't

20   cover the whole state.

21        Q.    Okay.

22        A.    I can't recall expressly, but that may

23   have been the case; that I saw some that were

24   partial maps.

25        Q.    Okay.  Let's take these maps one at a

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2         time, and I believe that we are on page 26 where

3         we have Figure 4-1.

4                   And this is a map from the Louisiana

5         Regional Folklore Program; is that correct?

6              A.    Correct.

7              Q.    Do you know when this map was drawn?

8              A.    No, I don't recall when it was drawn.

9              Q.    Do you know if the Louisiana Regional

10        Folklore Program updates this map with the

11        latest data?

12             A.    No, I don't.

13             Q.    Do you know how this map was drawn?

14             A.    No.  Other than the description that I

15        think was at the website.  I can't recall how

16        detailed it was.

17             Q.    But you don't have any indication that

18        they took into account, you know, racial,

19        ethnic, geographic, or governmental interests;

20        is that right?

21             A.    That's correct.

22             Q.    And you don't have any indication that

23        they took into account, you know, social,

24        partisan, or historical interests; is that

25        right?

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2          A.    Well, beyond what they described, I --

3     I, in terms of, you know, Regional Folklore

4     Program Maps, I don't know exactly all the

5     details that went into it.

6          Q.    Sure.

7                And you don't know if these regions,

8     as they draw them, have individuals who are

9     likely to have similar legislative concerns and

10    who might benefit from cohesive representation

11    or legislature; is that right?

12         A.    That's correct.

13         Q.    So this map wasn't drawn to identify

14    communities of interest for redistricting

15    purposes; is that right?

16         A.    That appeared to me to be the case.

17         Q.    Okay.  And it seems likely that this

18    map is how the Louisiana Regional Folklore

19    Program decided to divide -- divide up Louisiana

20    for their organizational purposes, right?

21         A.    Whatever the organizational purposes

22    might be, if they're educational in nature or

23    whatever it is, yes.

24         Q.    Let's turn to Figure 4-2 on page 27,

25    and this is a map from the Smithsonian Museum

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1                          D.A. SWANSON - PH.D.

2           Magazine; is that right?

3                A.    That's correct.

4                Q.    Do you know when this map was drawn?

5                A.    I don't remember the date.

6                Q.    Do you know if the Smithsonian Museum

7           Magazine updates this map with the latest data?

8                A.    I don't know.

9                Q.    Do you know how this map was drawn?

10               A.    I believe there is a description of

11          the magazine, but exactly the variables and

12          the -- the choices that went into it, I do not

13          know.

14               Q.    So you don't have any indication that

15          they took into account, you know, racial,

16          ethnic, geographic, or governmental interests;

17          is that right?

18               A.    That's correct.

19               Q.    And you don't know if these regions

20          have individuals who are likely to have similar

21          legislative concerns and might benefit from

22          cohesive representation; is that right?

23               A.    That's correct.

24               Q.    And again, this map was also not drawn

25          to identify communities of interest for

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1                    D.A. SWANSON - PH.D.
2         redistricting purposes, right?
3              A.    As far as I know.
4              Q.    And it actually seems like this map is
5         directed at tourists who are planning a trip to
6         Louisiana; is that correct?
7              A.    It looks that way to me.  It looks
8         that way to you too, right?  That's how I
9         interpreted it.  It looked like a -- kind of a
10        marketing tourism map.
11             Q.    Right.
12                   And would you agree that tourists who
13        are visiting a region and might look at this map
14        are not residents of that region?
15             A.    It may be the case, but I don't know
16        exactly.  It may be it's aimed at people who
17        live down in the greater New Orleans area to
18        tell them about the Sportsman's Paradise that's
19        up there in north Louisiana.  I don't know.
20             Q.    But likely, if they're looking at
21        Sportsman's Paradise, tourists don't tend to
22        live in Sportsman's Paradise who are looking at
23        this map of that region; is that right?
24             A.    I don't know the answer to that.  I
25        really don't.  There might be people who live

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2          there that look at it.  I just don't know.

3               Q.    Sure.

4               A.    But I would agree with you it looks --

5          it has the hallmarks of kind of a map you would

6          provide to tourists, but the tourists may not

7          all be from out of state.

8               Q.    Sure.

9                     Let's now turn to the next map, which

10         I believe is on page 28, and this is Figure 4-3.

11                    And this map is a map of Parishes by

12         Folklife Region by the Louisiana Department of

13         Culture, Recreation, and Tourism; is that right?

14              A.    I believe that's correct.

15              Q.    Do you know when this map was drawn?

16              A.    No.

17              Q.    Do you know if the Louisiana

18         Department of Culture, Recreation, and Tourism

19         updates this map with the latest data?

20              A.    No.

21              Q.    Do you know how this map was drawn?

22              A.    Not exactly.  Again, beyond whatever

23         description was associated with this map when I

24         found it online.

25              Q.    Right.  But you don't have any

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1

2    indication that they took into account racial,

3    ethnic, geographic, or governmental interests;

4    is that right?

5         A.    That's correct.

6         Q.    And you don't know if these regions,

7    as they draw them, have individuals who are

8    likely to have similar legislative concerns and

9    who can benefit from cohesive representation; is

10   that right?

11        A.    I don't know the answer; that's

12   correct.

13        Q.    Okay.  And this map was also not drawn

14   to identify communities of interest for

15   redistricting purposes, correct?

16        A.    I believe that's the case.

17        Q.    And it looks to me that this is also a

18   map directed at tourists who are planning a trip

19   to Louisiana, correct?

20        A.    I wouldn't be as certain about that as

21   I think there's a higher likelihood the prior

22   map was.  This may be directed for educational

23   purposes to people that live in Louisiana, too,

24   to give them more of the history of their state.

25             I -- I don't know the answer, but to

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2       me, if you're asking my judgment, it looks less

3       so a tourism map than the previous one.

4            Q.    Sure.

5                  It just seemed to me that the map was

6       from the Louisiana Department of Culture,

7       Recreation, and Tourism so --

8            A.    Yeah, that's an indication as opposed

9       to the Smithsonian Magazine.

10           Q.    Right.

11                 And let's take a look at the final map

12      that you included, which is on page 29, and this

13      is Figure 4-4, and this appears to be a map of

14      the Louisiana Parishes by Economic Development

15      Region drawn by the Louisiana --

16           A.    Correct.

17           Q.    -- Economic Development Agency, right?

18           A.    Correct.

19           Q.    Do you know when this map was drawn?

20           A.    No.

21           Q.    Do you know if the Louisiana Economic

22      Development Agency updates this map with the

23      latest data?

24           A.    I don't know.

25           Q.    Do you know how this map was drawn?

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2        A.     No; not the details, other than

3   general descriptions that are probably -- are in

4   one of the department's economic reports.

5        Q.     So you don't have any indication that

6   they took into account racial, ethnic,

7   geographic, or governmental interests, correct?

8        A.     Generally, that's the -- that's

9   correct.

10       Q.     And you don't know if these regions

11  have individuals who are likely to have similar

12  legislative interests or have similar

13  legislative concerns, correct?

14       A.     That's correct.

15       Q.     And this map was also not drawn to

16  identify communities of interest for

17  redistricting purposes; is that right?

18       A.     I believe that's the case.

19       Q.     And it seems like this map is directed

20  at potentially external investments into

21  Louisiana, right?

22            MR. FARR:  Objection.  Objection to

23       the form.

24            THE WITNESS:  It's probably used for

25       that purpose, but it may not be the only

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2           purpose.

3      BY MS. GE:

4           Q.    Sure.

5                 And it seems like this map is how

6      Louisiana Economic Development Agency decided to

7      divide up Louisiana for their organizational

8      purposes; is that right?

9                 MR. FARR:  Objection.

10                THE WITNESS:  I don't know the answer

11          as to why they -- they produced this.

12     BY MS. GE:

13          Q.    Sure.

14                Taken altogether, is it fair to say

15     that these four cultural maps are all pretty

16     different from each other?

17          A.    In the sense of how they're organized?

18          Q.    Yes.

19          A.    There's -- the parishes they include

20     or don't include for different reasons?

21          Q.    That's correct.  Uh-huh.

22          A.    There clearly are differences among

23     them.

24          Q.    Okay.  Let's take a moment maybe to

25     talk about some of those differences, and let's

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1               D.A. SWANSON - PH.D.

2      start with -- I'll direct us back to the first

3      figure on page 26.

4               Apologies.  We're going to go back and

5      forth a little bit.

6               Okay.  So, for example, let's look in

7      the northern part of Louisiana, and it -- which

8      it roughly follows the river as the dividing

9      line between regions, right?

10              Do you see that in the northern -- in

11     the northern part?

12         A.    Of the eastern boundary?

13         Q.    On the --

14         A.    When you say "the river," you're

15     talking about the eastern side of it and the

16     Mississippi River, correct?

17         Q.    Well, there's also another river; is

18     that right?

19         A.    What's -- what other river besides --

20         Q.    Do you see --

21         A.    Pardon me?

22         Q.    Dividing of regions, I believe, 1 and

23     2.

24         A.    Oh, okay.  So you're looking at both

25     Region 2.  I think one of the rivers up there,

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2       the Sabine River maybe, the Red River, but on

3       the eastern side of Region 1, if that's what

4       you're asking me, the boundary is up against

5       Mississippi, and that would be largely the

6       Mississippi River.

7            Q.    Uh-huh.  But would you -- would you

8       agree that, you know, Region 1 and 2 it seems to

9       also kind of follow that river dividing line?

10                 MR. FARR:  Objection.

11                 THE WITNESS:  Are you asking me if --

12            if the -- the Region 2 and Region 1 is split

13            because of whether it's the Sabine River or

14            the Red River, whichever one it is, and

15            there it's dividing them?

16      BY MS. GE:

17           Q.    Yeah, it's roughly where the different

18      regions are split in -- in this first map.

19           A.    Yeah, I don't know the answer to that

20      question.

21           Q.    Okay.

22           A.    You could look at -- the red lines

23      represent highways, the interstates.  So one way

24      you could say is, along with the river, it might

25      be the interstates are doing some of it too.

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2          Q.     Okay.  But we'll -- we'll hold that

3     kind of in mind --

4          A.     Again, I don't know the answer to that

5     question either.

6          Q.     Right.  So we'll hold that in mind,

7     and let's go to Figure 2 or the second map on

8     page 27.

9                 Again, in the northern part of the

10    state, that northern part of the state is

11    divided horizontally, correct?

12         A.     Yes.

13         Q.     Which is different from the way that

14    it was done in that first map?

15         A.     Yes; somewhat.

16         Q.     Okay.  And let's go down to the map on

17    page 28.

18                And here, once again looking at the

19    northern part of the state, it looks like that

20    part of the state is divided into three separate

21    regions; is that right?

22         A.     You're talking about the green area,

23    the red area, and the blue area?

24         Q.     Yeah.

25         A.     Yes.

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2           Q.     And so just looking at these maps,

3      they all recognize slightly different

4      communities of interest, correct?

5           A.     Well, I --

6                  MR. FARR:  Objection.

7                  THE WITNESS:  No, I haven't done a

8           community of interest analysis along the

9           borders of these maps.  So that's a question

10          that -- that's a research question:

11                 I can say that they, as I said

12          earlier, that the area that's culturally

13          identified in the red area, which includes

14          East Carroll Parish, is certainly not in the

15          same area that's identified as -- as what

16          East Baton Rouge Parish is in.

17     BY MS. GE:

18          Q.     Okay.  Are these maps more trustworthy

19     to identify the seven parishes that -- that you

20     just specified versus any of the other regions

21     in Louisiana?

22          A.     More trustworthy?

23          Q.     Right.  So it sounds like you rely on

24     these maps to say that the northeast -- the

25     seven northeastern parishes that you identify

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2      should be grouped together as the communities of

3      interest; is that right?

4          A.    I -- the -- the four maps here I have

5      selected indicate that there are differences

6      based on however these are defined between East

7      Carroll Parish and East Baton Rouge Parish

8      that -- that I found using the cluster analysis.

9      That's the long and short of it.

10         Q.    Okay.  And once again, you are not

11     looking at any of the other divisions of regions

12     in Louisiana other than that one section in

13     northeastern Louisiana?

14         A.    For my assignment, that's what -- what

15     I'm looking at.

16         Q.    Okay.  And considering these four maps

17     side-by-side, are any of these maps more valid

18     in identifying communities of interest than the

19     others?

20         A.    That's a question that I can't answer.

21         Q.    Do these maps identify communities of

22     interest?

23         A.    Again, I think I responded to that

24     question earlier.

25              I would -- I would do something to

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1              D.A. SWANSON - PH.D.

2      perform a community of interest analysis on

3      these maps to see what they did.

4          Q.    Okay.

5          A.    It's a research question, not

6      something you can answer offhand.

7          Q.    Okay.  So is it your understanding

8      that these different maps can't really tell us

9      what constitutes a racial gerrymander; is that

10     right?

11         A.    I hadn't --

12              MR. FARR:  Objection.

13              THE WITNESS:  I hadn't thought of it

14         in those terms.

15     BY MS. GE:

16         Q.    Okay.

17         A.    So, again, that's a research question,

18     I would say, that do they or do they not.  I

19     don't know the answer to that.  It would be a

20     research question.

21         Q.    So that was not something that you

22     investigated in performing your analysis?

23         A.    That's correct.

24         Q.    Let's turn to page 47, and this is

25     where the remedial map is.

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1                    D.A. SWANSON - PH.D.

2                    So is it your claim that District 5 in

3          the remedial plan is a racial gerrymander

4          because it disagrees with the cultural regions

5          identified in the four maps that we just

6          discussed from the Louisiana Regional Folklore

7          Program, Smithsonian Museum, and the other two

8          as well?

9                    MR. FARR:  Objection.

10         BY MS. GE:

11             Q.     Is that what you're claiming here?

12                    MR. FARR:  Objection to the form.

13                    THE WITNESS:  It's not because they're

14             in different communities of interest.  The

15             other analysis I performed putting things

16             together indicated that to me as opposed to

17             the community of interest analysis.

18         BY MS. GE:

19             Q.     Was taking a look at those four maps

20         that we just went through --

21                    Apology.  Can you hear me now?

22             A.     I can hear you.

23             Q.     Okay.  Great.  Thank you.

24                    Was taking a look at those four maps

25         that we just discussed informative to your

1              D.A. SWANSON - PH.D.

2     conclusion about District 5 being a racial

3     gerrymander in -- in conjunction with your

4     cluster analysis?

5              MR. FARR:  Objection to the form.

6              I don't think he's ever said there was

7         any "racial gerrymander."  That's a legal

8         issue.

9              THE WITNESS:  So my answer to that

10        question would be it -- it -- these -- these

11        tended to support the identification of East

12        Carroll Parish being in a different

13        community of interest than East Baton Rouge

14        Parish.

15    BY MS. GE:

16        Q.    And once again, you are just looking

17    kind of at that northeast slice of the state as

18    validated by -- by the regional map that you

19    chose, is that right?

20        A.    That's correct; they supported what

21    the cluster analysis did.

22        Q.    Now, we've talked a bit about how much

23    these different regional cultural maps disagree,

24    but they all do agree on a Baton Rouge region;

25    is that right?

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1                    D.A. SWANSON - PH.D.

2         A.    They all -- they all agree with the

3    fact that East Baton Rouge is not included in

4    any of those same districts that East Carroll is

5    included in.

6         Q.    And maybe we can just take a quick

7    look through the different maps again on page

8    26 -- starting on page 26 as an example.

9              So on page 26, this has -- has a

10   Region 4 that includes East Baton Rouge, right?

11        A.    Yes.

12        Q.    And then on page 27, this map has a

13   Plantation Country, which includes Baton Rouge;

14   is that right?

15        A.    Yes.

16        Q.    And then on page 28, it looks like

17   Region 8, I believe, includes Baton Rouge,

18   correct?

19        A.    I believe that East Baton Rouge is in

20   Region 2.

21        Q.    Oh.

22        A.    Region 8 would be East Carroll Parish.

23        Q.    Oh, you're right.  That is Region 2,

24   not Region 8.

25              And then for the map on page 29, it

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D.A. SWANSON - PH.D.

1

2     looks like it's in that rough capital region in

3     blue; is that right?

4          A.     Yes.

5          Q.     And when every single map that you

6     selected and put into your report agreed on the

7     definition of a cultural region, does that give

8     us greater confidence that this grouping is

9     significant?

10         A.     Well, it helps support it; that the --

11    the findings of the cluster analysis that it's

12    consistent with something else.

13         Q.     Okay.  And would you agree that in

14    each of these maps, the parishes of East and

15    West Feliciana and St. Helena are part of the

16    Baton Rouge region?

17               Can you see on this -- on this map?

18    We can scroll through the rest of them if it

19    would be helpful.

20         A.     I know where they are.  You're talking

21    about the Florida parishes areas.

22               I can see that, looking at this map,

23    Washington and Tangipahoa, which I think would

24    be considered in the Florida area parishes, are

25    separated under this map, the economic

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1                    D.A. SWANSON - PH.D.

2        development map, from the others ones, East and

3        West Feliciana and St. Helena.

4             Q.    Okay.  And -- and I believe that this

5        is the case in every map that you include except

6        for the Cooper map, but Pointe Coupee is also

7        part of Baton Rouge region; is that correct?

8             A.    I don't know.  I'd have to look at the

9        maps.  I don't recall off the top of my head if

10       that's the case.

11            Q.    Okay.  Would it be helpful to look at

12       the maps?

13            A.    Sure.  Let's bring them up.

14            Q.    Okay.  Great.  They start on page 26.

15                  Does it look like Pointe Coupee and

16       East and West Feliciana and St. Helena are part

17       of that Baton Rouge --

18            A.    Yes.

19            Q.    -- region?

20                  And on page 27, does it all -- also

21       look like those parishes are grouped together?

22            A.    Well, they're -- there are some of

23       grouped together in the Plantation Country, and

24       then the far -- ones over on the far west of the

25       Florida area parishes are grouped into Greater

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1              D.A. SWANSON - PH.D.

2      New Orleans.

3           Q.    Right.  But that's not where the

4      parishes that I think we were just discussing

5      of --

6           A.    That's correct.

7           Q.    -- East and West Feliciana, St.

8      Helena, and Pointe Coupee?

9           A.    That's correct.

10          Q.    Okay.  Great.

11                And -- and then can you verify that

12     the same grouping is -- is also here?

13          A.    Correct.

14          Q.    Okay.  So if we were trying to

15     preserve a Baton Rouge community of interest, it

16     would be better to put those parishes together

17     with Baton Rouge, correct?

18          A.    It's a research question.  It would

19     take analysis to answer that question fully.

20          Q.    So would you have any opinion --

21     scratch that.

22          A.    Not at this time.

23          Q.    Do you -- do you know if the enacted

24     map put these parishes together with Baton

25     Rouge?

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1                    D.A. SWANSON - PH.D.

2          A.    I don't know.  I would have to look in

3      the enacted map.

4                MS. GE:  Could we pull up the enacted

5          map, please?

6                I believe it's on page 12.  Great.

7      BY MS. GE:

8          Q.    Can you see that map?  Should we zoom

9      in a little bit?

10         A.    I can see it.

11               I believe that, basically, the Florida

12     parishes in one, including the -- is that

13     Tangipahoa that looks like it might be split,

14     but they're not included with East Baton Rouge.

15         Q.    Right.  And of the ones that we just

16     talked about and looked at in all of your

17     different regional, cultural maps of, you know,

18     East and West Feliciana, St. Helena, Pointe

19     Coupee, are all of those parishes grouped

20     together with Baton Rouge in this map?

21         A.    No.

22         Q.    So you would agree then that the

23     remedial map does a better job than the enacted

24     map of preserving a Baton Rouge community of

25     interest, correct?

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1                    D.A. SWANSON - PH.D.

2          A.    No.

3          Q.    And why is that?

4          A.    Well, that's not what the cluster

5    analysis shows.

6                    I used these -- I used the other maps

7    to support or look at, you know, independent

8    evidence that supports what the cluster analysis

9    shows.

10         Q.    And so you would construct the

11   analysis -- the results of your cluster analysis

12   even if they disagreed with the regional,

13   cultural map that you include in your

14   communities of interest citation?

15         A.    The only district -- the only point of

16   interest to me was, are East Baton Rouge and

17   East Carroll included in any of them?  And they

18   weren't.  That's the issue, and that's what they

19   said to me; that they weren't.

20         Q.    So you have no opinion based on your

21   observation of these four regional maps that you

22   include on whether East Feliciana -- East and

23   West Feliciana and St. Helena and Pointe Coupee

24   should be grouped together with Baton Rouge?

25         A.    My answer to that again is, as I said

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1          D.A. SWANSON - PH.D.

2      before, it's a research question.

3          Q.    Okay.  And is it your opinion that

4      these four maps that you introduced here are not

5      useful in determining whether East and West

6      Feliciana, St. Helena, and Pointe Coupee should

7      be group together with Baton Rouge?

8          A.    And again, my answer to that, it's a

9      research question.  Just off the top of my head,

10     whether they're useful or not is -- is not the

11     issue.  It would be a question to research.

12         Q.    Okay.  So you have no opinion on -- on

13     that -- on that issue?

14         A.    Not at this time.

15         Q.    Okay.  Thank you.

16              MS. GE:  Would this be a good time for

17         a ten-minute break?  Any objections to that?

18              MR. FARR:  No problem.

19              MS. GE:  Okay.

20              THE VIDEOGRAPHER:  We're going off the

21         record.  The time is 11:52 a.m.

22              (Recess.)

23              THE VIDEOGRAPHER:  We are back on the

24         record.  The time is 12:04 p.m.

25

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1                    D.A. SWANSON - PH.D.

2        BY MS. GE:

3            Q.    Dr. Swanson, I just have a handful

4        more questions, and then we'll release you from

5        this.

6                  Do you -- do you have in mind an

7        alternative map that does a better job of

8        keeping these cultural regions together than the

9        remedial map?

10           A.    You mean some other map that I might

11       create?

12           Q.    Or are you aware of any other map?

13           A.    The maps I'm aware of are the remedial

14       map and the enacted map.

15           Q.    Okay.  Have you produced such a map

16       that might do a better job of keeping these

17       regional -- cultural regions together?

18           A.    No.

19           Q.    Do you know if the legislature has

20       produced a map that does a better job of keeping

21       these cultural regions together?

22           A.    I don't know.

23           Q.    Do you know of anyone who has produced

24       such a map?

25           A.    I do not.

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1                    D.A. SWANSON - PH.D.

2          MS. GE:  I believe that's all the

3     questions that I have for now.  I don't know

4     if there are...

5          MR. FARR:  Thank you.  We have no

6     questions.

7          Thank you, counsel, for a very

8     professional deposition.  We appreciate it.

9          MS. GE:  Okay.  Thank you so much for

10    your time, Dr. Swanson.

11         THE WITNESS:  Yeah, thank you for the

12    questions also.

13         MS. GE:  Take care.

14          (Continued on the next page to include

15    the jurat.)

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D.A. SWANSON - PH.D.

1

2          THE VIDEOGRAPHER:  If it's okay with

3    counsel, I'll close up the video record.

4          We are going off the record at 12:06

5    p.m. PDT, and this concludes today's

6    testimony given by Dr. David A. Swanson.

7          The total number of media units used

8    was 4 and will be retained by Veritext.

9          (Whereupon, the deposition concluded

10    at 12:06 p.m.)

11                         oOo

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1              D.A. SWANSON - PH.D.

2                  CERTIFICATE

3        STATE OF NEW YORK )

                          :  ss
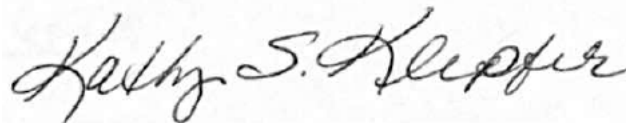
4        COUNTY OF NEW YORK)

5              I, Kathy S. Klepfer, a Registered

6        Merit Reporter and Notary Public within and

7        for the State of New York, do hereby

8        certify:

9              That DAVID A. SWANSON, PH.D., the

10       witness whose deposition is herein before

11       set forth, was duly sworn by me and that

12       such deposition is a true record of the

13       testimony given by such witness.

14             I further certify that I am not

15       related to any of the parties to this action

16       by blood or marriage and that I am in no way

17       interested in the outcome of this matter.

18             In witness whereof, I have hereunto

19       set my hand this 23rd day of September 2023.

20

21

         KATHY S. KLEPFER, RPR, RMR, CRR, CLR

22

23

24

25

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1    ALISON GE, ESQ.

2    age@elias.law

3                    September 24, 2023

4    RE:    Press Robinson, Et Al. v. Galmon, Edward Sr., Et Al.

5        9/22/2023, Dr. David A. Swanson (#6113988)

6        The above-referenced transcript is available for

7    review.

8        Within the applicable timeframe, the witness should

9    read the testimony to verify its accuracy. If there are

10    any changes, the witness should note those with the

11    reason, on the attached Errata Sheet.

12        The witness should sign the Acknowledgment of

13    Deponent and Errata and return to the deposing attorney.

14    Copies should be sent to all counsel, and to Veritext at

15    cs-ny@veritext.com

16

17     Return completed errata within 30 days from

18    receipt of testimony.

19     If the witness fails to do so within the time

20    allotted, the transcript may be used as if signed.

21

22                Yours,

23            Veritext Legal Solutions

24

25

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                                                    Page 152

 1     Press Robinson, Et Al. v. Galmon, Edward Sr., Et Al.

 2     Dr. David A. Swanson (#6113988)

 3                    E R R A T A   S H E E T

 4     PAGE_____ LINE_____ CHANGE_____

 5     _____

 6     REASON_____

 7     PAGE_____ LINE_____ CHANGE_____

 8     _____

 9     REASON_____

10     PAGE_____ LINE_____ CHANGE_____

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16     PAGE_____ LINE_____ CHANGE_____

17     _____

18     REASON_____

19     PAGE_____ LINE_____ CHANGE_____

20     _____

21     REASON_____

22

23     _____     _____

24     Dr. David A. Swanson                             Date

25
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1    Press Robinson, Et Al. v. Galmon, Edward Sr., Et Al.

2    Dr. David A. Swanson (#6113988)

3                ACKNOWLEDGEMENT OF DEPONENT

4        I, Dr. David A. Swanson, do hereby declare that I

5    have read the foregoing transcript, I have made any

6    corrections, additions, or changes I deemed necessary as

7    noted above to be appended hereto, and that the same is

8    a true, correct and complete transcript of the testimony

9    given by me.

10

11    _____    _____

12    Dr. David A. Swanson                        Date

13    *If notary is required

14                    SUBSCRIBED AND SWORN TO BEFORE ME THIS

15    _____ DAY OF _____, 20___.

16

17

18                    _____

19                    NOTARY PUBLIC

20

21

22

23

24

25

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**write** 11:14
22:3
**wrong** 113:14
121:18
**wrote** 27:17
30:10

**x**

**x** 1:5,16

**y**

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88:4 89:10
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133:19 134:24
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**year** 63:16,17
**years** 71:2
73:13
**york** 2:9 150:3
150:4,7

**z**

**zero** 91:10
**zoom** 11:13
144:8
**zooming**
115:14

Federal Rules of Civil Procedure

Rule 30

(e)  Review By the Witness; Changes.

(1)  Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A)  to review the transcript or recording; and

(B)  if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2)  Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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**Expert Report of Dr. Jonathan Rodden**

*Robinson, et al., v. Ardoin, et al.*
*Galmon, et al., v. Ardoin, et al.*

United States District Court for the Middle District of Louisiana

Jonathan Rodden

September 28, 2023

## I.    Introduction and Summary

I have been asked to examine the reports of David A. Swanson and Sean P. Trende in this case. Each of these reports is critical of the Remedial Louisiana Congressional Redistricting Plan offered by the plaintiffs, with special attention to District 5. The central claim of Dr. Swanson's report is that "race was the predominant factor used by plaintiffs to draw RCD5" (page 10). He comes to this conclusion largely by discussing a notion of "communities of interest," which leads him to assert that it is inappropriate for seven parishes in northeast Louisiana to be placed in the same district as urban residents further to the south. Mr. Trende's report picks up on the same theme, making the claim that Congressional District 5 in the Remedial Plan combines Black residents from distant population centers, which he suggests makes it similar to districts deemed inadmissible by courts in *Miller v. Georgia* and *LULAC v. Perry*.

I have been asked to evaluate whether the analytical approaches used by the two authors can support their conclusions. My central findings are as follows:

- Dr. Swanson's efforts to use existing maps of cultural and economic regions to determine which parishes should not be placed in the same district are deeply flawed.
    - The maps he selects present a variety of different competing notions of regional "communities of interest," each of which tells a different story about which parishes "belong" together, and as a result, cannot possibly serve as a reliable guide to identifying districts that should be viewed with suspicion.
    - Dr. Swanson promotes the idea that districts should not include multiple cultural or economic "communities of interest." This decision rule is untenable: Purely because of population size and geographic arrangement, rural districts *must* include multiple cultural or economic zones, and urban cultural/economic zones must be divided across multiple districts. As a result, every single district in both the Enacted and Remedial Plan fails Dr. Swanson's test.
    - If anything, Dr. Swanson's proposed cultural and economic zones would appear to make a case *in favor* of District 5 in the Remedial Plan, because the Remedial Plan keeps the northeastern parishes together while pulling a much larger share of the Baton Rouge region into the same district than the Enacted Plan or other recent plans, while also out-performing them in terms of overall compactness.

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- Dr. Swanson criticizes CD 5 in the Remedial Plan for crossing sparsely populated wetlands, but it is not possible to draw districts that do not cross these wetlands, and indeed, every version of CD 5 over the last 20 years, including the Enacted Plan, has crossed those same wetlands.

- Dr. Swanson's efforts to create his own "communities of interest" via a clustering algorithm are deeply flawed and cannot generate useful conclusions about parishes that do or do not belong together.

  - His selection of variables is arbitrary and discretionary, allowing him to create virtually any clusters he likes, and he conducts no robustness checks to test the validity of his conclusions.

  - He again promotes an untenable decision rule that a district should not include territory from more than one "cluster." No matter which of his approaches to clustering is consulted, most of the districts in the Enacted Plan fail his test, including Enacted District 5.

  - Dr. Swanson's clustering analysis is of limited value, but, according to its own logic, Lafayette and Baton Rouge *should*, in fact, be included in the same district. The Remedial Plan includes this pairing, while the Enacted Plan does not.

- Mr. Trende's report contains very little analytical content and does not support any conclusions about whether race was improperly considered in the construction of District 5 in the Remedial Plan.

  - He reports that Remedial CD 5 combines Black voters from different population centers. But the same is true of many districts in the Enacted Plan and prior plans. His report contains no analysis that would allow for the conclusion that these populations are especially or inappropriately dispersed in CD 5.

  - He implies that Remedial CD 5 is non-compact but provides no comparative data. I demonstrate that on each of four measures of compactness, it is broadly in the middle of the distribution of compactness scores of all congressional districts enacted in the last 50 years. Further, I demonstrate that the Remedial Plan, if implemented, would be the most compact redistricting plan in Louisiana in the last 50 years.

o Mr. Trende does not provide sufficient data or analysis to support his claim that CD 5 is "similar" to districts in Texas and Georgia that have been overturned in the past.

## II.    Qualifications and Experience

I am currently a tenured Professor of Political Science at Stanford University and the founder and director of the Stanford Spatial Social Science Lab—a center for research and teaching with a focus on the analysis of geo-spatial data in the social sciences. I am engaged in a variety of research projects involving large, fine-grained geo-spatial data sets including ballots and election results at the level of polling places, individual records of registered voters, census data, and survey responses. I am also a senior fellow at the Stanford Institute for Economic Policy Research and the Hoover Institution. Prior to my employment at Stanford, I was the Ford Professor of Political Science at the Massachusetts Institute of Technology. I received my Ph.D. from Yale University and my B.A. from the University of Michigan, Ann Arbor, both in political science. A copy of my current C.V. is included as Exhibit A. I am being compensated at my usual rate of $550 per hour.

In my current academic work, I conduct research on voting, demographics, geography, and aspects of election administration, including registration, the structure of precincts, redistricting, and methods of voting. Recent papers and books focus on the relationship between the patterns of political representation, geographic location of demographic and partisan groups, and the drawing of electoral districts. I have published papers using statistical methods to assess political geography, balloting, and representation in a variety of academic journals including *Statistics and Public Policy, Proceedings of the National Academy of Science, Science Advances*, *American Economic Review Papers and Proceedings*, the *Journal of Economic Perspectives*, the *Virginia Law Review*, the *American Journal of Political Science*, the *British Journal of Political Science*, the *Annual Review of Political Science*, and the *Journal of Politics.* One of these papers was selected by the American Political Science Association as the winner of the Michael Wallerstein Award for the best paper on political economy, and another received an award from the American Political Science Association section on social networks.

In 2021, I received a John Simon Guggenheim Memorial Foundation Fellowship, and received the Martha Derthick Award of the American Political Science Association for "the best

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book published at least ten years ago that has made a lasting contribution to the study of federalism and intergovernmental relations."

I have written a series of papers, along with my co-authors, using automated redistricting algorithms to assess partisan gerrymandering. This work has been published in the *Quarterly Journal of Political Science*, *Election Law Journal*, and *Political Analysis*, and it has been featured in more popular publications like the *Wall Street Journal*, the *New York Times*, and *Boston Review*. I recently authored a book, published by *Basic Books* in June of 2019, on the relationship between political districts, the residential geography of social groups, and their political representation in the United States and other countries that use winner-take-all electoral districts. The book was reviewed in *The New York Times*, *The New York Review of Books*, *Wall Street Journal*, *The Economist*, and *The Atlantic*, among others.

I have expertise in the use of large data sets and geographic information systems (GIS), and conduct research and teaching in the area of applied statistics related to elections. I frequently work with geo-coded voter files and other large administrative data sets, including in recent papers published in the *Annals of Internal Medicine* and *The New England Journal of Medicine*. I have developed a national data set of geo-coded precinct-level election results that has been used extensively in policy-oriented research related to redistricting and representation.

I have been accepted and testified as an expert witness in a number of election law and redistricting cases: *Romo v. Detzner,* No. 2012-CA-000412 (Fla. Cir. Ct. 2012); *Mo. State Conference of the NAACP v. Ferguson-Florissant Sch. Dist.,* No. 4:2014-CV-02077 (E.D. Mo. 2014); *Lee v. Va. State Bd. of Elections,* No. 3:15-CV-00357 (E.D. Va. 2015); *Democratic Nat'l Committee et al. v. Hobbs et al.*, No. 16-1065-PHX-DLR (D. Ariz. 2016); *Bethune-Hill v. Virginia State Board of Elections*, No. 3:14-cv-00852-REP-AWA-BMK (E.D. Va. 2014); *Jacobson et al. v. Lee*, No. 4:18-cv-00262 (N.D. Fla. 2018), *Rivera v. Schwab*, No. 2022-cv-89 (Kan. Dist. Ct. 2022), *Carter v. Chapman*, No. 464 MD 2021, 465 MD 2021 (Pa. Commw. Ct. 2021); *Bennet v. Ohio Redistricting Comm'n*, No. 2021-1198 (Ohio 2021); *Adams v. DeWine*, No. 2021-1428 (Ohio 2021); *Neiman v. LaRose*, No. 2022-0298 (Ohio 2022). In *Carter v. Chapman*, I prepared a congressional redistricting plan for the state of Pennsylvania, which was selected by the Pennsylvania Supreme Court for implementation in 2021 and is currently in use. I also worked

with a coalition of academics to file Amicus Briefs in the Supreme Court in *Gill v. Whitford*, No. 16-1161, and *Rucho v. Common Cause*, No. 18-422. Much of the testimony in these cases had to do with geography, electoral districts, voting, ballots, and election administration.

## III.     Data Sources

I obtained block-level census data and accompanying shapefiles from the redistricting data produced by the U.S. Census Bureau. I obtained geographic boundaries (shapefiles) of the Remedial Plan from counsel, and of the Enacted Plan and the most recent preceding plan from the redistricting data hub (redistrictingdatahub.org). I obtained digital historical geographic boundary files from a team of researchers at UCLA,[1] and Louisiana parish boundaries and population totals from the United States Census, downloaded from the National Historical GIS (nhgis.org). Assignments of parishes to specific cultural and economic regions and clusters were obtained from Dr. Swanson's report.

## IV.     Swanson Report

The bulk of Dr. Swanson's report is concerned with the notion of "communities of interest" (COI). Among the traditional criteria often considered by district-drawers is the idea that there are groups with "broadly shared interests and representational needs, including … common ethnic, racial, economic, Indian, social, cultural, geographic, or historic identities, or arising from similar socioeconomic conditions."[2] As Dr. Swanson notes, citing the work of Nicholas Stephanopoulos, these communities are "territorial," and "arise along geographic lines" (page 25). A common approach in the redistricting community is that when one has identified such a group with common representational interests, one should take care to avoid undermining the group's representation when possible. For instance, sensitivity to communities of interest in redistricting might involve making efforts to avoid slicing a Native American reservation or military base or college campus in two, or by avoiding drawing a district line through the middle of a well-known urban

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[1] Jeffrey B. Lewis, Brandon DeVine, Lincoln Pitcher, and Kenneth C. Martis. (2013) *Digital Boundary Definitions of United States Congressional Districts, 1789-2012*. [Data file and code book]. Retrieved from https://cdmaps.polisci.ucla.edu on September 22, 2023.

[2] Chen, S., S.-H. Wang, B. Grofman, R. Ober, K. Barnes, and J. Cervas, (2022). Turning Communities of Interest into a Rigorous Standard for Fair Districting. *Stanford Journal of Civil Rights and Civil Liberties*. 18: 101-190. (https://law.stanford.edu/publications/turning-communities-of-interest-into-a-rigorous-standard-for-fair-districting/). Cited in paragraph 34, page 25 in the Swanson report.

neighborhood—especially one with a distinctive ethnic identity (e.g., Chinatown, Little Italy, etc.). One might attempt to keep a corridor of small cities with a similar industrial base, or a pair of neighboring college towns, in the same district.

Dr. Swanson identifies communities of interest in two ways. First, he assembles a series of cultural and economic maps of Louisiana culled from the internet. Second, he leaves aside the geographic aspect of communities of interest and employs a clustering algorithm that divides Louisiana's parishes into two groups based on their similarity on a set of variables culled from the United States Census. Let us consider each in turn.

**Maps of Cultural and Economic Regions**

Dr. Swanson attempts to identify regional communities of interest by assembling a series of maps that correspond to various efforts to divide Louisiana into regional groupings. These include:

1. Louisiana Regional Folklore Program (5 regions, p. 26)
2. Tourist regions identified in an advertisement in the Smithsonian Museum Magazine (5 regions, p. 27)
3. Folklife Cultural Regions from the Louisiana Department of Culture, Recreation, and Tourism (8 regions, p. 28)
4. Economic Development Regions according to the Louisiana Economic Development Department (8 regions, p. 29)
5. Cultural regions identified in an earlier expert report filed by Mr. Cooper in a different case challenging Louisiana's state legislative districts (6 regions and 3 sub-regions, p. 31-32).

Dr. Swanson appears to have assembled these maps from a google search for Louisiana regions. However, such a search also reveals many other regional configurations. He does not explain how he selected some configurations for inclusion in his report and not others. Notably, some of these configurations include northeast Louisiana and Baton Rouge in the same region. For example, one of the highest-ranked results of a Google search for "map Louisiana regions,"

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displayed in Figure 1, comes from https://www.louisianafolklife.org/lt/creole_maps.html.[3] Another example is a map from the Louisiana Department of Wildlife and Fisheries.[4]

**Figure 1: Louisiana Folk Regions**
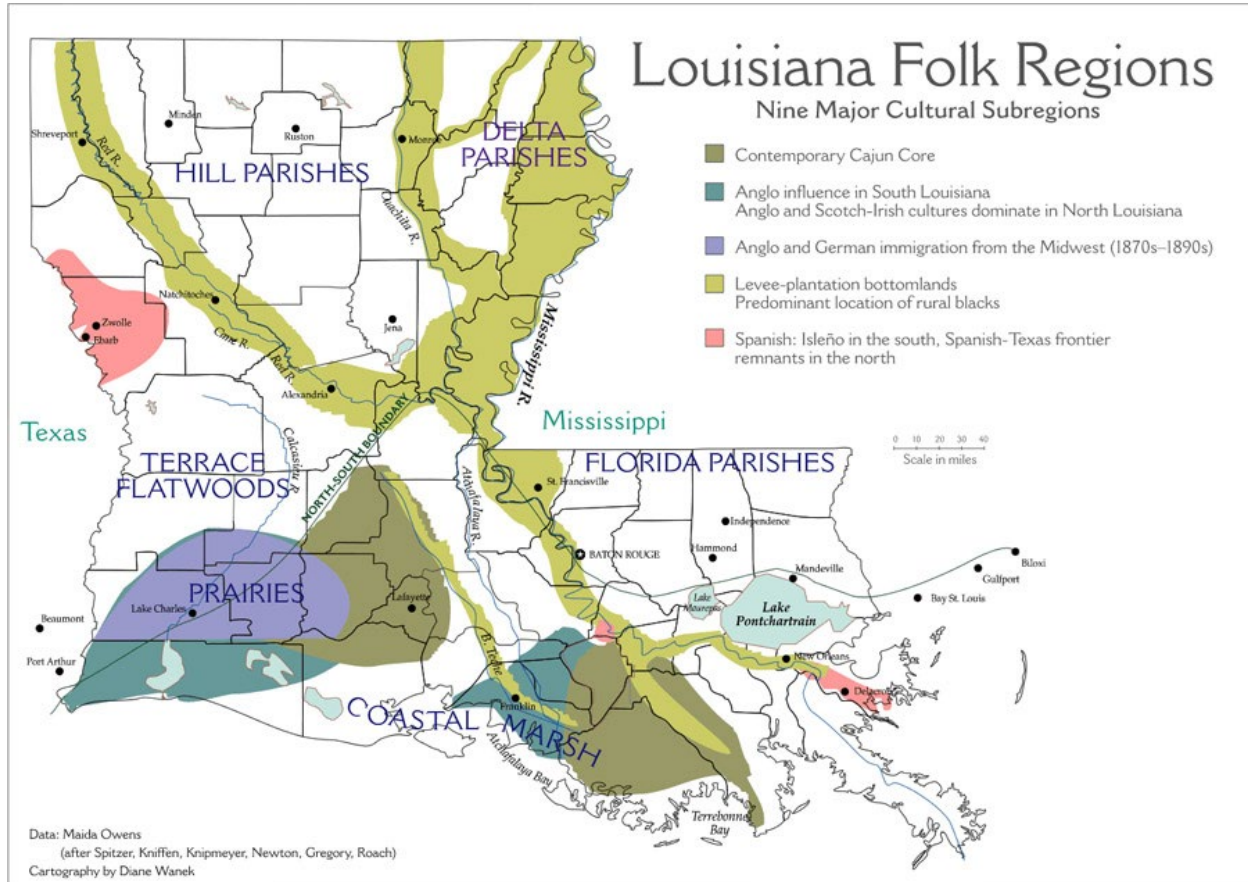


Dr. Swanson's claim is that it is inappropriate to draw congressional districts that combine different regional communities of interest. However, one need only examine the variety of notions portrayed in these maps to begin to understand the futility of this approach. For example, consider the seven Northeast Louisiana parishes that take center stage in Dr. Swanson's report: Morehouse, East and West Carroll, Richland, Franklin, Madison, and Tensas, which are displayed in Figure 2 below to provide a point of reference.

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[3] Accessed on September 26, 2023.

[4] https://www.wlf.louisiana.gov/page/deer-research-and-management. Accessed on September 26, 2023.

**Figure 2: Northeast Louisiana Parishes in Dr. Swanson's Report**



Northeast Louisiana Parishes

I have ascertained the parish assignments from the visual displays in Dr. Swanson's report, and I reproduce each of his cultural or economic regions in Figure 3. I also overlay the boundaries of CD 5 in the Remedial Plan (in black) and in the Enacted Plan (in red).

In the Louisiana Folklore Program map, the Northeast Louisiana parishes that are the focus of his report are part of a region that extends west almost to the Red River. In the tourist regions from the Smithsonian Museum Magazine, these parishes are part of a region that extends all the

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way to the western border, but no further south than Tensas Parish. In the Folklife approach, their cultural region also stops at Tensas Parish, but extends no further west than Jackson Parish. With the Economic Development approach, their cultural region extends only to Union Parish, whereas with the cultural regions identified by Mr. Cooper, their cultural region does not include Union Parish, but extends much further south.

Agreement on the designation of regions is no better in the southern part of the state. As a result, these maps cannot possibly provide a guide about which parishes do not "go together." One would draw completely different conclusions about what types of districts should draw suspicion depending on which notion of communities of interest one was drawing from. There are simply too many competing notions in these maps, and Dr. Swanson makes no effort to argue that one approach is a more important guide than another.

**Figure 3: Cultural and Economic Maps of Louisiana from Dr. Swanson's Report, with Overlays of CD 5 Boundary from Remedial and Enacted Plans**
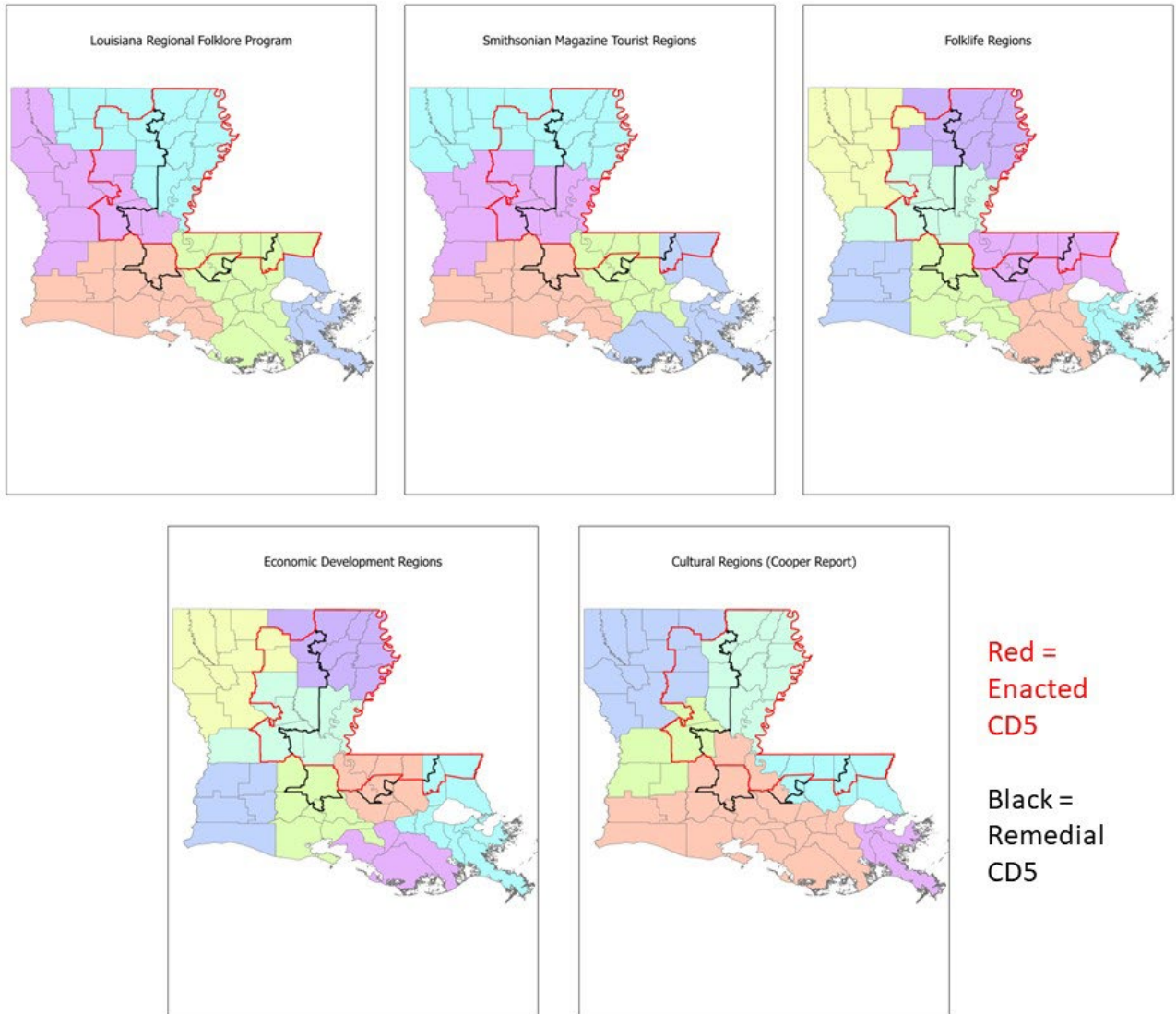


More importantly, some of the regions are so small that they *must* be combined with multiple additional regions in order to create a congressional district, and others—above all, those covering the southeastern part of the state—are far too large to create a single district, and must be subdivided, with the remaining portions joining other districts. In fact, every single district in both

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the Enacted Plan and the Remedial Plan contains multiple cultural or economic regions according to most of Dr. Swanson's proposed community of interest maps.[5]

Dr. Swanson argues that "East Baton Rouge Parish should not be included in proposed plans involving proposed RCD5 that include East Carroll Parish and its six neighboring parishes" (page 42) because they are not part of the same "COI grouping." But according to Dr. Swanson's classification rule, District 5 in the Enacted Plan also fails; District 5 in the Enacted Plan contains four folklore regions, four tourist regions, three folklife regions, four economic development regions, and three of the cultural regions identified in the Cooper report. In sum, Dr. Swanson's approach would cast suspicion on virtually any congressional redistricting plan, including the Enacted Plan that he appears to endorse. The maps presented in Dr. Swanson's report simply cannot be used to identify any specific combinations of parishes as inappropriate.

In spite of their disagreements, these maps do agree on some places that are always viewed as part of the same regional community. For instance, in each of these five maps, the seven northeast parishes identified by Dr. Swanson are placed in the same region. These seven parishes are also kept together in both Enacted District 5 and Remedial District 5. But the combined population of these parishes amounts to around 93,000—only 12 percent of what is necessary to create a congressional district. No matter how one draws the districts in Louisiana, these parishes will need to be combined with other regions, and in order to reach the population threshold, the district will need to include some urban areas. For instance, Enacted CD 5 combines the northeastern parishes with cities to the west (Monroe and Ruston), south (Alexandria) and far southeast (Hammond).

Another set of parishes that is always together in each of the cultural and economic maps highlighted by Dr. Swanson is Pointe Coupee, West Feliciana, East Feliciana, St. Helena and both of the Baton Rouge parishes (displayed in Figure 4 for reference). Each of the cultural or economic groupings displayed in Figure 3 above envisions these parishes as part of a greater Baton Rouge region.[6]

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[5] Every district in the Enacted Plan contains multiple folklife and economic development regions. All of the districts of the Enacted Plan contain multiple folklore, tourist, and Cooper cultural regions except for District 3.

[6] The only exception is the Cooper cultural map, which draws a dividing line at the Mississippi River.

**Figure 4: Baton Rouge Area Parishes**



These parishes together account for around 544,000 people, which is 71 percent of the population necessary to create a district. Except for a part of East Baton Rouge Parish, the Remedial Plan keeps these parishes together. In fact, back when Louisiana had seven districts and prior to significant rural population loss, this region was kept together in a single district from 1997 to 2012 (see the first two panels of Figure 5 below). The remedial plan is consistent with Louisiana's earlier tradition of keeping much of the Baton Rouge region together, while also holding together the seven parishes of the northeast identified by Dr. Swanson.

**Figure 5: Louisiana Congressional Districts, 1997 to Present**
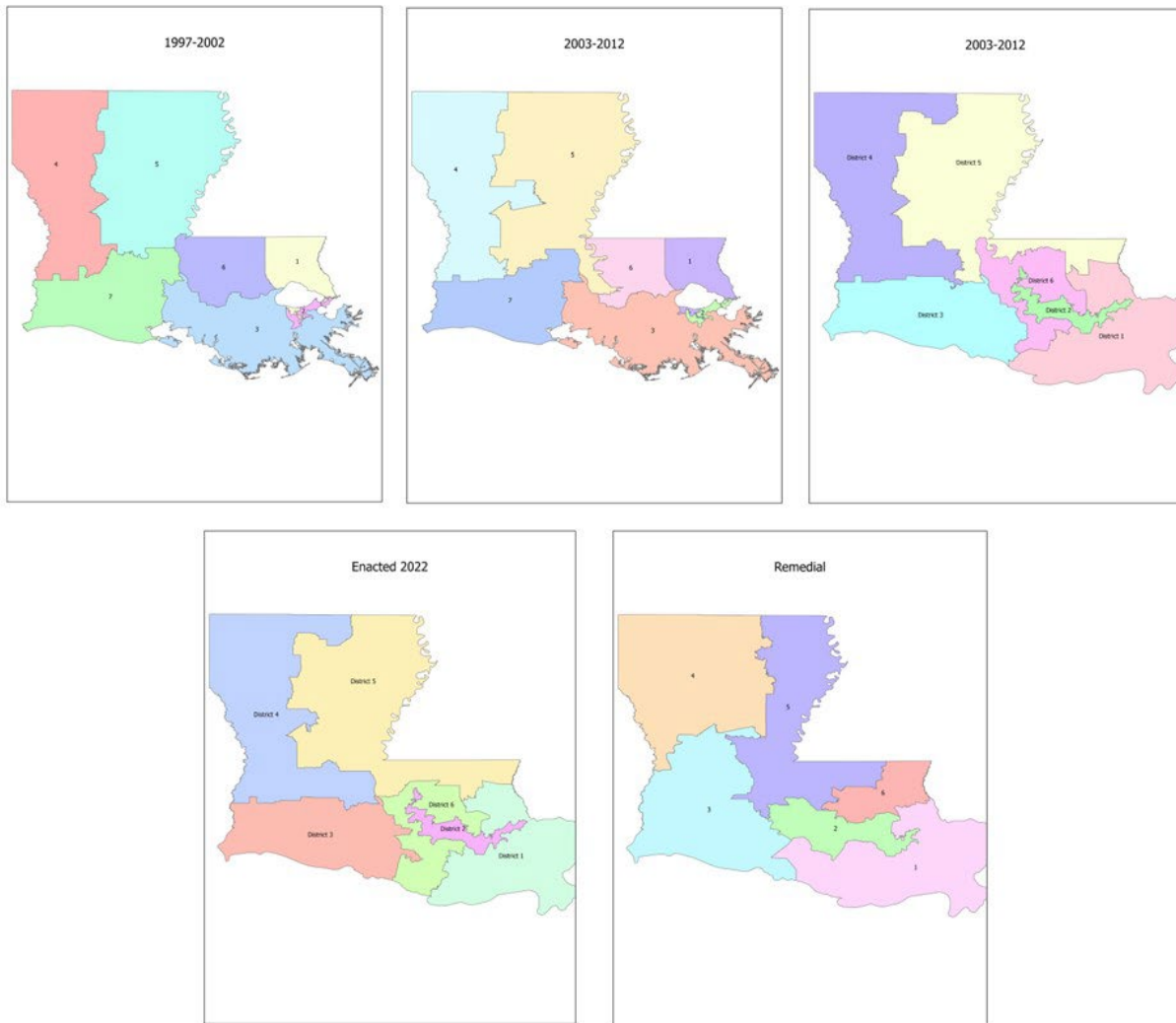


In contrast, the Enacted Plan carves Baton Rouge out from its cultural or economic community of interest and combines it with New Orleans via a narrow corridor. It is unclear why Dr. Swanson objects to the bulk of Lafayette and Baton Rouge being in the same district, since these cities are closer together than Baton Rouge and New Orleans, whose pairing in the Enacted Plan Dr. Swanson seems to endorse.

In fact, Dr. Swanson's analysis provides no basis for his apparent preference for the Enacted Plan over the Remedial Plan. Already in the 2002 round of redistricting, the Northeast Louisiana-based District 5 started to expand southward into more densely populated areas to

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compensate for population loss (see Figure 4 above). This continued in the 2012 round of redistricting, when the district ventured further south and included a narrow strip extending all the way to the eastern border. The Enacted 2022 plan kept the same configuration again but extended this strip a little further to the south to account for further population loss. Remedial District 5 keeps this same basic structure, but it does not extend quite so far to the west, and not quite so far to the east. Rather, it extends a bit further to the south, and in so doing, not only keeps the northeast parishes together, but also keeps much more of the Baton Rouge region intact. Dr. Swanson does not explain why he believes it is superior to extend the district all the way east to Washington Parish and the Mississippi border rather than south in a way that keeps more of the Baton Rouge region together.

It is also worthwhile to consider the implications of configurations of District 5 for surrounding districts. By picking up population from the south rather than west, and keeping more of the Baton Rouge area together than District 5 in the Enacted Plan, the configuration of District 5 in the Remedial Plan is roughly similar to the Enacted Plan in terms of the compactness of District 5, while allowing for a more compact arrangement of Districts 3 and 4 to the west, and a more compact plan overall (see the bottom two panels of Figure 5 for a visual comparison, and Table 1 below for compactness calculations).

In Section V of his report, Dr. Swanson discusses "population dispersion." He criticizes Congressional District 5 in the Remedial Plan for connecting populated areas via non-populous water and wetland areas without "logical demographic or geographic connective tissues" (page 23, paragraph 32). However, given the large size of U.S. congressional districts and the sparse and relatively small population of Northern Louisiana, it is not possible to draw district lines that do not cross over non-populous wetland areas. Not only does District 5 in the Enacted Plan cross over the same wetland areas, these wetlands have been traversed in every version of District 5 since the 2002 round of redistricting.

Finally, Dr. Swanson uses history to bolster his claim that Baton Rouge, Lafayette, and the northeast parishes do not belong together, pointing out that these specific places have not previously been part of the same congressional district.

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But in Louisiana, as the northeast corner of the state depopulates, every new redistricting plan must unavoidably combine this region with other parts of the state and include some more densely populated areas. For instance, District 5 in the Enacted Plan not only includes the cities of Alexandria, Ruston, and Monroe, but it also reaches to the east and includes Hammond with the northeast parishes for the first time in history. Hammond is 45 miles further east than Baton Rouge and adds part of yet another economic development and tourist COI (see Figure 3 above). It was necessary to add significant population to District 5, and it is not clear why it would be superior to reach further east and extract part of Hammond than to do so with the more proximate city of Baton Rouge (see Figure 6 below).

**Figure 6: Baton Rouge and Hammond, Louisiana and Enacted and Remedial CD 5**
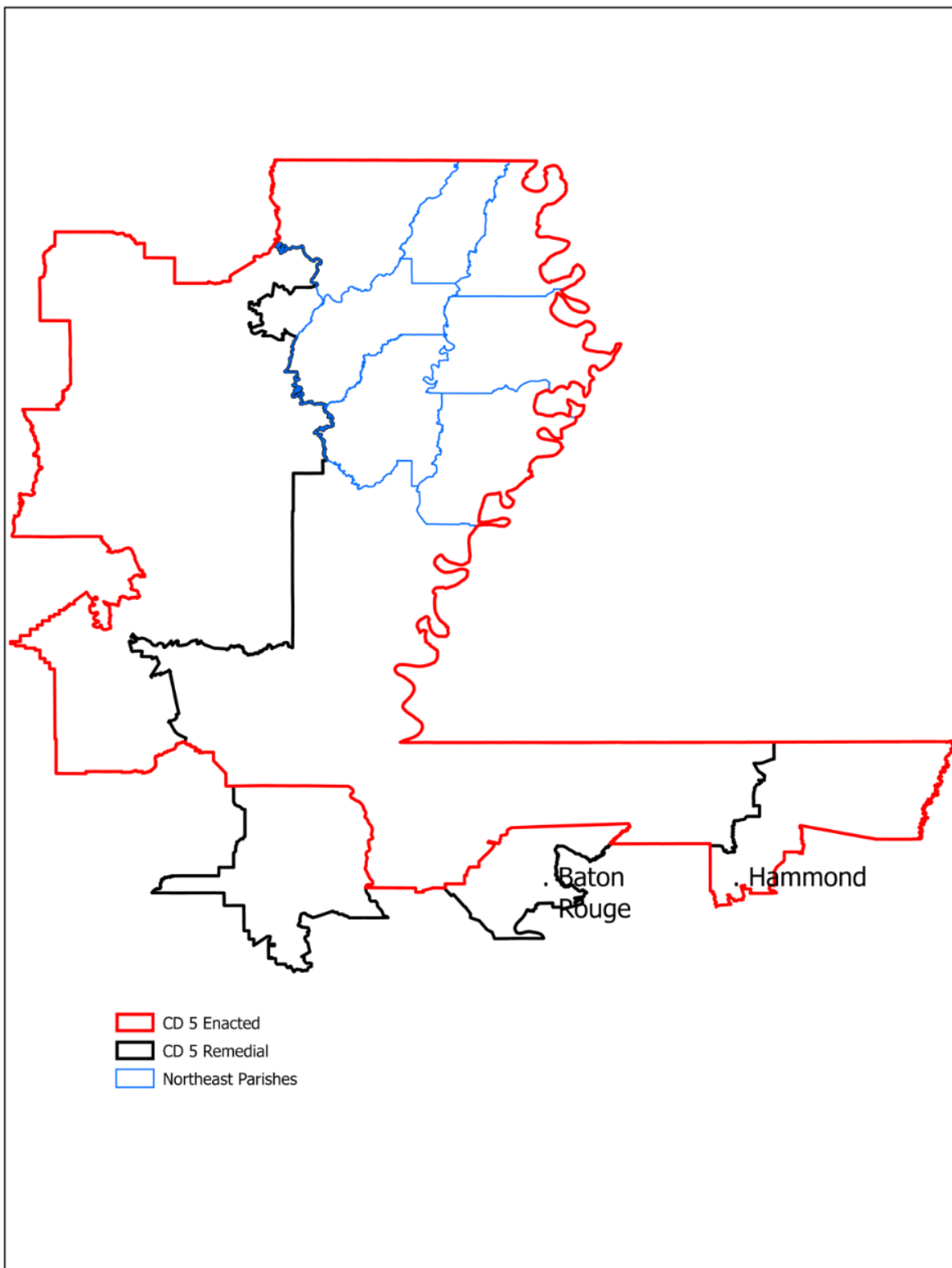
**Communities of Interest Based on Clustering Algorithm**

In addition to his exploration of economic and cultural maps produced by others, Dr. Swanson experiments with drawing his own communities of interest. To do so, he draws inspiration from recent academic work in which scholars use spatial social and demographic data to find clusters of voters with similar characteristics that can be viewed as "communities of interest" that district-drawers might attempt to keep together. For instance, in a study of New York City, Mollenkopf et al. identify clusters of Afro-Caribbean voters in Queens and Puerto Rican voters in the Bronx.[7] However, Dr. Swanson does something quite different than existing studies. He generates only two clusters for a state with six congressional districts, and claims that any district that includes parts of two clusters should be viewed with suspicion. As noted above, early in his report, he includes territory and geography in his definition of "communities of interest," but here he ignores geography altogether, creating non-contiguous clusters, and ignores the fact that district-drawers attempt to draw compact, contiguous districts.

Dr. Swanson's reasoning for generating only two clusters is perplexing. He claims (paragraph 51) that if two parishes are not in the same cluster with only two clusters, they would also not be in the same cluster if he generated a larger number of clusters that more closely resembles the task of drawing congressional districts. This is not the case. For example, simply arrange 12 parishes in order of population and divide into two clusters. The 6th and 7th most populous parishes will be in different clusters. But if we divide into three clusters based on population, the 6th and 7th most populous parishes would be in the *same* cluster. This logic applies to any type of variable. Dr. Swanson presents no robustness checks to examine whether his claims hold up with different numbers of clusters.

To generate his clusters, Dr. Swanson chose a set of 14 variables from the census and used a k-means clustering algorithm to find the two clusters of parishes that minimized the within-cluster sum of squared deviations. That is, his approach attempts to find two groupings of parishes that are as similar to one another based on this group of 14 variables. As an initial matter, his basis for choosing these 14 variables over any others is unclear. Additionally, he appears not to have

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[7] Mollenkopf, J, J. Pereira, and S. Romalewski (2013). Communities of Interest and City Council Districting in New York, 2012-2013. A Report Prepared for the New York City Districting Commission by the Center for Urban Research at the Graduate Center, City University of New York.

instructed the algorithm to pay attention to geographic proximity or population equality, both of which are generally considered traditional districting principles. For reasons that he does not explain, Dr. Swanson then repeats this exercise with 12 variables, dropping two variables related to employment. Next, without explanation, he drops some additional variables, leaving him with nine variables. Finally, he drops two additional variables related to migration, again without explanation, leaving him with seven. Using the parish assignments to clusters outlined in Appendix 7 in his report (p. 54-62), in Figure 7, I present maps of his clusters.

The maps produced with 14 variables and 12 variables are identical. This indicates that employment variables were not very important in determining the clusters in the initial map, most likely because these variables were highly correlated with other variables, and hence provided little additional information. Likewise, the maps using nine and seven variables are identical, indicating that the dropped migration variables were highly correlated with other variables that determined the parish assignments in the nine-variable exercise.

However, by comparing the 14- and 12-variable maps with the 9- and 7-variable maps, one can appreciate the discretion involved in selecting variables and generating clusters. Different variables generate completely different maps. By deciding what variables to include, Dr. Swanson can create virtually any clusters he likes. Without a principled and rigorous way of deciding which variables to include, his approach is arbitrary and without meaning. His selection of variables also preordains certain outcomes. For instance, he included population density in each of these exercises. That is, he asked the algorithm to find places that are as similar as possible in terms of population density. That choice guarantees that the algorithm will not classify the cities of Lafayette and Baton Rouge as belonging to the same cluster as the more sparsely populated northeast parishes.

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**Figure 7: Maps of Swanson's Clusters**
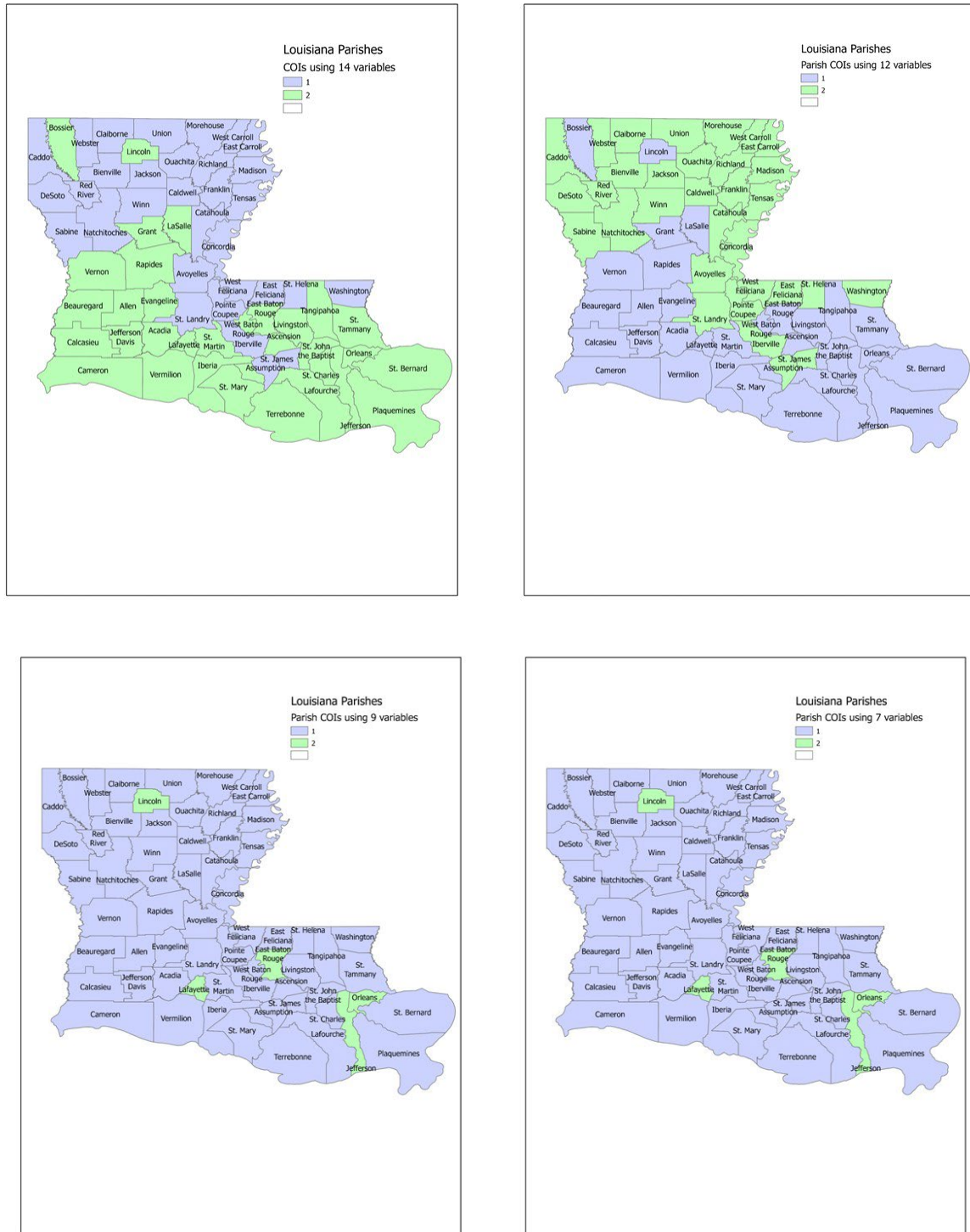


The same is true of his inclusion of education (percent with a Bachelor's degree or higher) in each of his clustering approaches. The most educated parishes are Orleans (38% of population

25 years and older with a Bachelor's degree or higher), East Baton Rouge (37%), Lincoln (35%), St. Tammany (34%), and Lafayette (33%). The northeastern parishes are among those with the lowest levels of college attendance. The importance of population density and education are laid bare in the 7- and 9-variable clusters, where one cluster is simply a group of five disconnected, far-flung, but relatively dense and educated parishes (Orleans, Jefferson, East Baton Rouge, Lafayette, and Lincoln), and the other cluster is the rest of the state.

As with the cultural and economic regions discussed above, Dr. Swanson adopts an untenable decision rule: districts spanning more than one cluster should be viewed with suspicion. Because his approach pays no attention to district size or geography, most districts in most realistic redistricting plans would not pass his test. For instance, with his 14- and 12-variable approaches, Enacted District 5 is a mishmash containing some parishes of his rural, less college-educated cluster, and three non-contiguous fragments of the more urban cluster. Likewise, Enacted Districts 2, 4, and 6 contain fragments of both clusters. With the 9- and 7-variable approaches, only a single district in the Enacted Plan passes Dr. Swanson's test (CD 4).

Dr. Swanson's report focuses primarily on the question of whether East Baton Rouge "belongs" with the parishes of the northeast. It should be noted that his analysis does nothing special to focus on those parishes. It simply examines data for all 64 parishes, and there is no reason to believe that the clustering for any set of parishes is more accurate or appropriate for one set of parishes than any other set.

Dr. Swanson's clustering exercise is of little value and contains no objective analysis that can serve as a guide for which cities or parishes belong together in the same congressional district. However, if we *do* take his clusters seriously, it is not at all clear that they bolster the central claims in his report. In contrast with claims made elsewhere in the report that Lafayette and Baton Rouge do not belong together, each of his clustering approaches places them in the same cluster.

## V.    Trende Report

Mr. Trende's report provides a series of descriptive observations about the boundaries of District 5 in the Remedial Plan. Like Dr. Swanson, Mr. Trende provides no alternative Louisiana congressional plans for comparison, and no discussion of the geographic and demographic

constraints facing a district-drawer in Louisiana. As a result, it is difficult to ascertain whether Mr. Trende's observations reveal something about the geography of Louisiana or the specific intentions of those drawing the districts. Mr. Trende does not offer any analysis or opinions beyond description.

Mr. Trende concludes: "The Proposed Remedial Fifth District is not centered on a single concentration of Black voters," but rather, combines "Black residents of voting age from geographically distant population centers" (page 45). Mr. Trende does not provide any quantitative measures of dispersion or engage in any analysis of what a set of districts with "less dispersed" Black populations might look like.

Next, Mr. Trende reports Polsby-Popper and Reock compactness scores for District 5. He seems to imply that these numbers indicate that District 5 in the Remedial Plan is non-compact, but he does not place the numbers in any relevant context. In order to more comprehensively assess compactness, I have assembled shapefiles (spatial boundary files) for the Remedial Plan, the Enacted Plan, and every redistricting plan that has been implemented in Louisiana over the last 50 years (since the 1972 round of redistricting). This provides me with nine redistricting plans and a total of 64 districts.[8] In addition to the Polsby-Popper and Reock scores, for each enacted congressional district since 2003, I also calculate two additional commonly used compactness metrics: the Convex Hull and Schwartzberg scores.[9] These scores are all presented in the appendix to this report.

With this comparison set, the compactness of District 5 in the Remedial Plan is clearly in the middle of the pack. For the Polsby-Popper score and the Schwarzberg measures, the value for District 5 in the Remedial Plan is around the 40th percentile of the values for all the districts in all

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[8] The enacted redistricting plans include those in place from 1973 to 1982, 1983 to 1984, 1985 to 1992, 1993 to 1994, 1995 to 1996, 1997 to 2002, 2003 to 2012, 2013 to 2020, and the current Enacted Plan. Note that from 1973 to 1992, these plans contained 8 districts. From 1993 to 2012, they contained 7 districts, and thereafter, they contained 6 districts.

[9] The Polsby-Popper score is the ratio of the area of the district to the area of a circle whose circumference is equal to the perimeter of the district. The Reock score is the ratio of the area of the district to the area of a minimum bounding circle that encloses the district's geometry. The Convex Hull score is the ratio of the area of the district to the area of the minimum convex polygon that can enclose the district's geometry. The Schwartzberg score is the ratio of the perimeter of the district to the circumference of a circle whose area is equal to the area of the district. Each of these scores falls within a range of 0 to 1, and a score closer to 1 indicates a more compact district.

these plans. For the Convex Hull measure, it is around the 30th percentile value. The Reock score of Remedial District 5 is almost exactly the median value for this comparison set. In short, there is no basis for characterizing Remedial District 5 as an especially non-compact district.

In Table 1 below, I present the average compactness score for each plan according to each metric, with the average score for the Remedial Plan displayed at the bottom. For the entire period since the early 1970s, I have highlighted the most compact plan according to each measure.

**Table 1: Average Compactness Scores for Louisiana Redistricting Plans, 1973-2023**

|  | Polsby-Popper | Reock | Convex Hull | Schwartzberg |
|---|---|---|---|---|
| 1973-1982 | 0.166 | 0.358 | 0.684 | 0.366 |
| 1983-1984 | 0.131 | 0.338 | 0.662 | 0.320 |
| 1985-1992 | 0.144 | 0.337 | 0.641 | 0.350 |
| 1993-1994 | 0.066 | 0.311 | 0.552 | 0.230 |
| 1995-1996 | 0.106 | 0.310 | 0.618 | 0.297 |
| 1997-2002 | 0.219 | 0.393 | 0.708 | 0.424 |
| 2003-2012 | 0.153 | 0.365 | 0.651 | 0.362 |
| 2013-2020 | 0.145 | 0.356 | 0.610 | 0.365 |
| Current Enacted | 0.144 | 0.370 | 0.621 | 0.367 |
|  |  |  |  |  |
| Remedial Plan | 0.199 | 0.399 | 0.712 | 0.441 |

Not only is the Remedial Plan more compact than the Enacted Plan on every measure, on three of the four measures, it is in fact more compact than *any* plan enacted in Louisiana in the last 50 years. Only on the Polsby-Popper metric did the Remedial Plan come in second, surpassed only by the 1997-2002 plan.

Mr. Trende implies that District 5 in the Remedial Plan is unusually elongated, remarking that it takes four hours to drive from the northeast corner of the state to Lafayette. But to get from the northeast corner of the state to the eastern reaches of Louisiana in Enacted CD5 without leaving the state, one needs to drive four hours south to Baton Rouge, and then another two hours east to the Mississippi border. Moreover, the drive from one end of Enacted District 4 to the other is also around four hours.[10]

Finally, Mr. Trende concludes his report with an abrupt turn away from Louisiana. He provides some descriptive information about District 25 in the 2004 Texas Redistricting Plan, as well as District 11 in the 1992 Georgia Redistricting Plan. He has selected these plans, it appears, because they were struck down by courts as racial gerrymanders. He suggests that these maps are "similar" to District 5 in the Louisiana Remedial Plan.

It is not clear how he draws this conclusion, however, as he conducts no quantitative or qualitative analysis beyond his impressionistic descriptions of maps. And the compactness scores he does examine do not support his conclusion that Remedial District 5 (.38 Reock score) is equivalent to the Texas's District 25 (.13 Reock score) or Georgia's District 11 (Mr. Trende does not report compactness scores for Georgia, but I have calculated a .17 Reock score). It is difficult to compare compactness scores of specific districts in different states in different years, but even if we were to engage with this analysis, the Reock score for Remedial District 5 in Louisiana is more than twice as high as the Reock scores of the other districts. Additionally, the Texas and Georgia districts involve longer, narrower corridors, and as Mr. Trende points out, longer distances and drive times. Mr. Trende makes no comparisons of county, municipal, or vote tabulation district (VTD) splits, violations of traditional redistricting principles, or other factors typically examined in considerations of racial gerrymandering.

## VI.    Conclusion

The key claims in these reports cannot be supported by the analyses presented therein. Neither Dr. Swanson's cultural and economic maps, his clustering exercise, nor other assorted critiques and observations in his report generate any basis for his sweeping conclusion that race

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[10] I obtain estimated drive times using Google Maps during periods of normal traffic.

was the "predominant factor used by plaintiffs to draw RCD5" (page 10). Likewise, Mr. Trende's largely descriptive analysis provides no compelling reasons to conclude that District 5 in the Remedial Plan can be compared in any meaningful way with districts that have been ruled unlawful by federal courts in the past.

**Appendix A**
**Compactness Scores for Louisiana Congressional Districts,1972-Present**

| | District: | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

**Polsby-Popper**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1973-1982 | 0.003 | 0.171 | 0.008 | 0.212 | 0.208 | 0.333 | 0.236 | 0.157 |
| 1983-1984 | 0.003 | 0.036 | 0.008 | 0.204 | 0.213 | 0.242 | 0.209 | 0.133 |
| 1985-1992 | 0.149 | 0.058 | 0.003 | 0.243 | 0.253 | 0.250 | 0.071 | 0.126 |
| 1993-1994 | 0.092 | 0.043 | 0.004 | 0.013 | 0.061 | 0.052 | 0.196 | |
| 1995-1996 | 0.158 | 0.042 | 0.005 | 0.040 | 0.214 | 0.097 | 0.188 | |
| 1997-2002 | 0.181 | 0.050 | 0.004 | 0.266 | 0.282 | 0.507 | 0.241 | |
| 2003-2012 | 0.171 | 0.055 | 0.004 | 0.207 | 0.130 | 0.235 | 0.271 | |
| 2013-2020 | 0.161 | 0.057 | 0.316 | 0.160 | 0.100 | 0.074 | | |
| Adopted | 0.159 | 0.058 | 0.291 | 0.157 | 0.124 | 0.075 | | |
| Remedial | 0.220 | 0.170 | 0.210 | 0.285 | 0.097 | 0.212 | | |

**Convex Hull**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1973-1982 | 0.394 | 0.679 | 0.613 | 0.685 | 0.823 | 0.861 | 0.761 | 0.652 |
| 1983-1984 | 0.393 | 0.616 | 0.646 | 0.681 | 0.829 | 0.721 | 0.748 | 0.664 |
| 1985-1992 | 0.528 | 0.516 | 0.489 | 0.679 | 0.837 | 0.711 | 0.711 | 0.658 |
| 1993-1994 | 0.599 | 0.456 | 0.528 | 0.248 | 0.652 | 0.584 | 0.798 | |
| 1995-1996 | 0.642 | 0.464 | 0.535 | 0.451 | 0.821 | 0.606 | 0.810 | |
| 1997-2002 | 0.643 | 0.480 | 0.507 | 0.783 | 0.884 | 0.875 | 0.783 | |
| 2003-2012 | 0.633 | 0.493 | 0.515 | 0.712 | 0.693 | 0.755 | 0.754 | |
| 2013-2020 | 0.673 | 0.383 | 0.802 | 0.614 | 0.573 | 0.618 | | |
| Adopted | 0.709 | 0.383 | 0.791 | 0.609 | 0.599 | 0.636 | | |
| Remedial | 0.715 | 0.662 | 0.750 | 0.845 | 0.556 | 0.743 | | |

**Reock**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1973-1982 | 0.182 | 0.262 | 0.354 | 0.325 | 0.602 | 0.425 | 0.431 | 0.285 |
| 1983-1984 | 0.182 | 0.184 | 0.350 | 0.321 | 0.607 | 0.334 | 0.416 | 0.309 |
| 1985-1992 | 0.310 | 0.196 | 0.223 | 0.320 | 0.610 | 0.326 | 0.401 | 0.307 |
| 1993-1994 | 0.432 | 0.184 | 0.251 | 0.128 | 0.388 | 0.293 | 0.503 | |
| 1995-1996 | 0.377 | 0.183 | 0.271 | 0.126 | 0.369 | 0.299 | 0.542 | |
| 1997-2002 | 0.376 | 0.190 | 0.254 | 0.372 | 0.552 | 0.566 | 0.437 | |
| 2003-2012 | 0.423 | 0.213 | 0.258 | 0.383 | 0.414 | 0.457 | 0.405 | |
| 2013-2020 | 0.461 | 0.179 | 0.400 | 0.344 | 0.369 | 0.380 | | |
| Adopted | 0.502 | 0.179 | 0.376 | 0.336 | 0.377 | 0.450 | | |
| Remedial | 0.374 | 0.269 | 0.486 | 0.562 | 0.338 | 0.364 | | |

**Schwartzberg**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1973-1982 | 0.050 | 0.413 | 0.091 | 0.460 | 0.456 | 0.577 | 0.485 | 0.396 |
| 1983-1984 | 0.050 | 0.188 | 0.092 | 0.451 | 0.461 | 0.492 | 0.457 | 0.364 |
| 1985-1992 | 0.385 | 0.242 | 0.054 | 0.493 | 0.503 | 0.500 | 0.266 | 0.355 |
| 1993-1994 | 0.304 | 0.208 | 0.067 | 0.112 | 0.246 | 0.228 | 0.443 | |
| 1995-1996 | 0.397 | 0.204 | 0.068 | 0.200 | 0.463 | 0.311 | 0.434 | |
| 1997-2002 | 0.426 | 0.223 | 0.066 | 0.516 | 0.531 | 0.712 | 0.491 | |
| 2003-2012 | 0.413 | 0.234 | 0.067 | 0.455 | 0.360 | 0.484 | 0.521 | |
| 2013-2020 | 0.401 | 0.238 | 0.562 | 0.401 | 0.316 | 0.272 | | |
| Adopted | 0.399 | 0.241 | 0.539 | 0.396 | 0.353 | 0.273 | | |
| Remedial | 0.469 | 0.413 | 0.459 | 0.534 | 0.311 | 0.461 | | |

**Appendix B**
**Jonathan Rodden**
**Curriculum Vitae**

# Jonathan Rodden

Stanford University
Department of Political Science
Encina Hall Central
616 Jane Stanford Way
Stanford, CA 94305

Phone:       (650) 723-5219
Email:       jrodden@stanford.edu
Homepage:    http://www.jonathanrodden.com

## Education

Ph.D. Political Science, Yale University, 2000.

Fulbright Scholar, University of Leipzig, Germany, 1993–1994.

B.A., Political Science, University of Michigan, 1993.

## Academic Positions

Professor, Department of Political Science, Stanford University, 2012–present.

Senior Fellow, Stanford Institute for Economic Policy Research, 2020–present.

Senior Fellow, Hoover Institution, Stanford University, 2012–present.

Director, Spatial Social Science Lab, Stanford University, 2012–present.

W. Glenn Campbell and Rita Ricardo-Campbell National Fellow, Hoover Institution, Stanford University, 2010–2012.

Associate Professor, Department of Political Science, Stanford University, 2007–2012.

Fellow, Center for Advanced Study in the Behavioral Sciences, Palo Alto, CA, 2006–2007.

Ford Career Development Associate Professor of Political Science, MIT, 2003–2006.

Visiting Scholar, Center for Basic Research in the Social Sciences, Harvard University, 2004.

Assistant Professor of Political Science, MIT, 1999–2003.

Instructor, Department of Political Science and School of Management, Yale University, 1997–1999.

## Publications

*Books*

*Why Cities Lose: The Deep Roots of the Urban-Rural Divide*. Basic Books, 2019.

*Decentralized Governance and Accountability: Academic Research and the Future of Donor Programming*. Co-edited with Erik Wibbels, Cambridge University Press, 2019.

*Hamilton's Paradox: The Promise and Peril of Fiscal Federalism*, Cambridge University Press, 2006. Winner, Gregory Luebbert Award for Best Book in Comparative Politics, 2007; Martha Derthick Award for lasting contribution to the study of federalism, 2021.

*Fiscal Decentralization and the Challenge of Hard Budget Constraints*, MIT Press, 2003. Co-edited with Gunnar Eskeland and Jennie Litvack.

*Peer Reviewed Journal Articles*

The Great Recession and the Public Sector in Rural America, 2023, *Journal of Economic Geography* https://doi.org/10.1093/jeg/lbad015.

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Viral Voting: Social Networks and Political Participation, 2020, *Quarterly Journal of Political Science* 163: 265-284, (with Nick Eubank, Guy Grossman, and Melina Platas). Winner, *Political Ties Award* for the best paper on the subject of political networks.

It Takes a Village: Peer Effects and Externalities in Technology Adoption, 2020, *American Journal of Political Science* 64(3): 536-553, (with Romain Ferrali, Guy Grossman, and Melina Platas). Winner, 2020 Best Conference Paper Award, American Political Science Association Network Section.

Assembly of the LongSHOT Cohort: Public Record Linkage on a Grand Scale, 2019, *Injury Prevention* 26: 153-158 (with Yifan Zhang, Erin Holsinger, Lea Prince, Sonja Swanson, Matthew Miller, Garen Wintemute, and David Studdert).

Crowdsourcing Accountability: ICT for Service Delivery, 2018, *World Development* 112: 74-87 (with Guy Grossman and Melina Platas).

Geography, Uncertainty, and Polarization, 2018, *Political Science Research and Methods* doi:10.1017/psrm.2018.12 (with Nolan McCarty, Boris Shor, Chris Tausanovitch, and Chris Warshaw).

Handgun Acquisitions in California after Two Mass Shootings, 2017, *Annals of Internal Medicine* 166(10):698-706. (with David Studdert, Yifan Zhang, Rob Hyndman, and Garen Wintemute).

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The Achilles Heel of Plurality Systems: Geography and Representation in Multi-Party Democracies, 2015, *American Journal of Political Science* 59(4): 789-805 (with Ernesto Calvo). Winner, Michael Wallerstein Award for best paper in political economy, American Political Science Association.

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*Working Papers*

Elections, Political Polarization, and Economic Uncertainty, NBER Working Paper 27961 (with Scott Baker, Aniket Baksy, Nicholas Bloom, and Steven Davis).

Federalism and Inter-regional Redistribution, Working Paper 2009/3, Institut d'Economia de Barcelona.

Representation and Regional Redistribution in Federations, Working Paper 2010/16, Institut d'Economia de Barcelona (with Tiberiu Dragu).

Changing the Default: The Impact of Motor-Voter Reform in Colorado (with Justin Grimmer), 2022.

*Chapters in Books*

Urbanization, in *Oxford Handbook of Historical Political Economy*, edited by Jeffery A. Jenkins and Jared Rubin, 2023, Oxford University Press.

Political Geography and Representation: A Case Study of Districting in Pennsylvania (with Thomas Weighill), in *Political Geometry*, edited by Moon Duchin and Olivia Walch, 2022, Springer.

Keeping Your Enemies Close: Electoral Rules and Partisan Polarization, in *The New Politics of Insecurity*, edited by Frances Rosenbluth and Margaret Weir, 2022, Cambridge University Press.

Decentralized Rule and Revenue, 2019, in Jonathan Rodden and Erik Wibbels, eds., *Decentralized Governance and Accountability*, Cambridge University Press.

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Federalism and Bailouts in Brazil (Chapter 7), 2003, in Rodden, et al., *Fiscal Decentralization and the Challenge of Hard Budget Constraints* (see above).

Lessons and Conclusions (Chapter 13), 2003, in Rodden, et al., *Fiscal Decentralization and the Challenge of Hard Budget Constraints* (see above).

## *Online Interactive Visualization*

Stanford Election Atlas, 2012 (collaboration with Stephen Ansolabehere at Harvard and Jim Herries at ESRI)

## *Other Publications*

Supporting Advanced Manufacturing in Alabama, Report to the Alabama Innovation Commission, Hoover Institution, 2021.

How America's Urban-Rural Divide has Shaped the Pandemic, 2020, *Foreign Affairs*, April 20, 2020.

An Evolutionary Path for the European Monetary Fund? A Comparative Perspective, 2017, Briefing paper for the Economic and Financial Affairs Committee of the European Parliament.

Amicus Brief in *Rucho et al. v. Common Cause*, 2019, Supreme Court of the United States, with Wesley Pegden and and Samuel Wang.

Amicus Brief in *Gill et al. v. Whitford et al.*, 2017, Supreme Court of the United States, with Jowei Chen and Wesley Pegden.

Representation and Regional Redistribution in Federations: A Research Report, 2009, in *World Report on Fiscal Federalism*, Institut d'Economia de Barcelona.

On the Migration of Fiscal Sovereignty, 2004, *PS: Political Science and Politics* July, 2004: 427–431.

Decentralization and the Challenge of Hard Budget Constraints, *PREM Note* 41, Poverty Reduction and Economic Management Unit, World Bank, Washington, D.C. (July).

Decentralization and Hard Budget Constraints, *APSA-CP* (Newsletter of the Organized Section in Comparative Politics, American Political Science Association) 11:1 (with Jennie Litvack).

Book Review of *The Government of Money* by Peter Johnson, *Comparative Political Studies 32,7: 897-900.*

# Fellowships, Honors, and Grants

John Simon Guggenheim Memorial Foundation Fellowship, 2021.

Martha Derthick Award of the American Political Science Association for "the best book published at least ten years ago that has made a lasting contribution to the study of federalism and intergovernmental relations," 2021.

National Science Foundation, funding for study "Segregation, Suburbanization, and Representation," 2023.

National Institutes of Health, funding for "Relationship between lawful handgun ownership and risk of homicide victimization in the home," 2021.

National Collaborative on Gun Violence Research, funding for "Cohort Study Of Firearm-Related Mortality Among Cohabitants Of Handgun Owners." 2020.

Fund for a Safer Future, Longitudinal Study of Handgun Ownership and Transfer (LongSHOT), GA004696, 2017-2018.

Stanford Institute for Innovation in Developing Economies, Innovation and Entrepreneurship research grant, 2015.

Michael Wallerstein Award for best paper in political economy, American Political Science Association, 2016.

Common Cause Gerrymandering Standard Writing Competition, 2015.

General support grant from the Hewlett Foundation for Spatial Social Science Lab, 2014.

Fellow, Institute for Research in the Social Sciences, Stanford University, 2012.

Sloan Foundation, grant for assembly of geo-referenced precinct-level electoral data set (with Stephen Ansolabehere and James Snyder), 2009-2011.

Hoagland Award Fund for Innovations in Undergraduate Teaching, Stanford University, 2009.

W. Glenn Campbell and Rita Ricardo-Campbell National Fellow, Hoover Institution, Stanford University, beginning Fall 2010.

Research Grant on Fiscal Federalism, Institut d'Economia de Barcelona, 2009.

Fellow, Institute for Research in the Social Sciences, Stanford University, 2008.

United Postal Service Foundation grant for study of the spatial distribution of income in cities, 2008.

Gregory Luebbert Award for Best Book in Comparative Politics, 2007.

Fellow, Center for Advanced Study in the Behavioral Sciences, 2006-2007.

National Science Foundation grant for assembly of cross-national provincial-level dataset on elections, public finance, and government composition, 2003-2004 (with Erik Wibbels).

MIT Dean's Fund and School of Humanities, Arts, and Social Sciences Research Funds.

Funding from DAAD (German Academic Exchange Service), MIT, and Harvard EU Center to organize the conference, "European Fiscal Federalism in Comparative Perspective," held at Harvard University, November 4, 2000.

Canadian Studies Fellowship (Canadian Federal Government), 1996-1997.

Prize Teaching Fellowship, Yale University, 1998-1999.

Fulbright Grant, University of Leipzig, Germany, 1993-1994.

Michigan Association of Governing Boards Award, one of two top graduating students at the University of Michigan, 1993.

W. J. Bryan Prize, top graduating senior in political science department at the University of Michigan, 1993.

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## Other Professional Activities

Selection committee, best paper award, American Journal of Political Science.

Selection committee, best paper award, American Political Economy

International Advisory Committee, Center for Metropolitan Studies, Sao Paulo, Brazil, 2006–2010.

Selection committee, Mancur Olson Prize awarded by the American Political Science Association Political Economy Section for the best dissertation in the field of political economy.

Selection committee, Gregory Luebbert Best Book Award.

Selection committee, William Anderson Prize, awarded by the American Political Science Association for the best dissertation in the field of federalism and intergovernmental relations.

## Courses

*Undergraduate*

Politics, Economics, and Democracy

Introduction to Comparative Politics

Introduction to Political Science

Political Science Scope and Methods

Institutional Economics

Spatial Approaches to Social Science

*Graduate*

Political Economy

Political Economy of Institutions

Federalism and Fiscal Decentralization

Politics and Geography

## Consulting

2017. Economic and Financial Affairs Committee of the European Parliament.

2016. Briefing paper for the World Bank on fiscal federalism in Brazil.

2013-2018: Principal Investigator, SMS for Better Governance (a collaborative project involving USAID, Social Impact, and UNICEF in Arua, Uganda).

2022. Expert witness in *Rivera v. Schwab* No. 2022-cv-89 (Kan. Dist. Ct. 2022)

2022. Drew Pennsylvania Congressional redistricting plan that was chosen by the Pennsylvania Supreme Court for implementation in *Carter v. Chapman* No. 7 MM 2022, 2022WL 549106 (Pennsylvania Supreme Court).

2022. Written expert testimony in *Benninghoff v. 2021 Legislative Reapportionment Commission* (Pennsylvania Supreme Court).

2022 Expert witness in *Bennett v. Ohio Redistricting Commission*, No. 2012-1198 (Ohio Supreme Court).

2022 Expert witness in *Adams v. DeWine* No. 2012-1428 (Ohio Supreme Court).

2022 Expert witness in *Neiman v. LaRose* No. 2022-0298 (Ohio Supreme Court)

2019: Written expert testimony in *McLemore, Holmes, Robinson, and Woullard v. Hosemann*, United States District Court, Mississippi.

2019: Expert witness in *Nancy Corola Jacobson v. Detzner*, United States District Court, Florida.

2018: Written expert testimony in *League of Women Voters of Florida v. Detzner* No. 4:18-cv-002510, United States District Court, Florida.

2018: Written expert testimony in *College Democrats of the University of Michigan, et al. v. Johnson, et al.*, United States District Court for the Eastern District of Michigan.

2017: Expert witness in *Bethune-Hill v. Virginia Board of Elections*, No. 3:14-CV-00852, United States District Court for the Eastern District of Virginia.

2017: Expert witness in *Arizona Democratic Party, et al. v. Reagan, et al.*, No. 2:16-CV-01065, United States District Court for Arizona.

2016: Expert witness in *Lee v. Virginia Board of Elections*, 3:15-cv-357, United States District Court for the Eastern District of Virginia, Richmond Division.

2016: Expert witness in *Missouri NAACP v. Ferguson-Florissant School District*, United States District Court for the Eastern District of Missouri, Eastern Division.

2014-2015: Written expert testimony in *League of Women Voters of Florida et al. v. Detzner, et al.*, 2012-CA-002842 in Florida Circuit Court, Leon County (Florida Senate redistricting case).

2013-2014: Expert witness in *Romo v Detzner*, 2012-CA-000412 in Florida Curcuit Court, Leon County (Florida Congressional redistricting case).

2011-2014: Consultation with investment groups and hedge funds on European debt crisis.

2011-2014: Lead Outcome Expert, Democracy and Governance, USAID and Social Impact.

2010: USAID, Review of USAID analysis of decentralization in Africa.

2006–2009: World Bank, Independent Evaluations Group. Undertook evaluations of World Bank decentralization and safety net programs.

2008–2011: International Monetary Fund Institute. Designed and taught course on fiscal federalism.

1998–2003: World Bank, Poverty Reduction and Economic Management Unit. Consultant for *World Development Report*, lecturer for training courses, participant in working group for assembly of decentralization data, director of multi-country study of fiscal discipline in decentralized countries, collaborator on review of subnational adjustment lending.

Last updated: September 28, 2023