

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

PAMELA DWIGHT, et al.,

Plaintiffs,

v.

**BRAD RAFFENSPERGER¹, in his
official capacity as Secretary of State
of the State of Georgia,**

Defendant.

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CA No. 1:18cv02869-RWS

DEFENDANT'S RULE 26(a)(2) EXPERT DISCLOSURES

In compliance with FED. R. CIV. P. 26(a)(2), Fed. R. Civ. Proc., and this Court's scheduling order, Defendants designate the following individuals who may be used at trial to present expert testimony:

1. Gina H. Wright, Executive Director of the Legislative and Congressional Reapportionment Office, whose report is attached hereto as Exhibit A.
2. Dr. John Alford, whose report is attached hereto as Exhibit B.

¹ Brad Raffensperger was sworn in as Georgia's Secretary of State on January 14, 2019. Pursuant to Fed. R. Civ. P. 25(d), Secretary Raffensperger is automatically substituted as the party defendant

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on January 25, 2019 I filed the foregoing with the Clerk of the Court using the CM/ECF system, which will send notification to all counsel of record in this case.

/s/Cristina M. Correia
Cristina M. Correia
Senior Assistant Attorney General

EXPERT REPORT OF GINA H. WRIGHT

My name is Gina H. Wright. I have been asked to review the Declaration of William S. Cooper filed in this case and give my expert opinion on the redistricting plans he created. Specifically, I was asked to comment on: 1) whether Bill Cooper's plans increase the total number of majority African-American congressional districts for Georgia's congressional redistricting plan; 2) whether Bill Cooper's plans follow traditional redistricting principles; and 3) whether the African-American population in and around Congressional District 12 is sufficiently numerous and geographically compact to constitute a majority of the population in the district without reducing the African-American population in Congressional District 2 below 50%.

I am the Executive Director of the Legislative and Congressional Reapportionment Office (LCRO), a joint office of the Georgia General Assembly. The LCRO is responsible for providing redistricting services to legislators using data obtained from the United States Census Bureau. The LCRO assists members of the General Assembly in drawing the districts of the State Senate and State House of Representatives, as well as the fourteen (14) United States Congressional districts. Through sponsorship from a legislator, the LCRO also assists local County Commission, Boards of Education, and City Councils in adjusting their districts. Finally, the LCRO also provides an array of maps and data reports to both legislators and the public at large.

As Executive Director, I oversee and direct a staff of four (4) in providing redistricting and other mapping services to all members of the Georgia General Assembly. These services may include drawing maps for statewide legislative districts, local redistricting plans, city creation boundaries, annexations and de-annexations, as well as precinct boundary changes. All local redistricting bills through the House Committee on Intragovernmental Coordination require my signature following a technical review of the bill. I am the official state liaison for Georgia for the 2020 Census Redistricting Data Program. I oversee the creation of our statewide voting precinct mapping layer through my work with all county election officials throughout the state. I assist the Office of the Attorney General in candidate qualification challenges related to issues

regarding a candidate's residency. I regularly assist federal courts as an expert or technical advisor in redistricting matters. I participate in the Redistricting and Elections Standing Committee of the National Conference of State Legislatures and contribute to their databases and publications. Finally, I participate as a presenter in statewide forums such as the Voter Registrars Association of Georgia, the Georgia Elections Officials Association, and the Georgia Legislative CLE class.

I began work with the LCRO in December of 2000 as a Redistricting Services Specialist. I became Executive Director of the LCRO in June 2012. I am a 2000 summa cum laude graduate from Georgia State University. I have a Bachelor of Arts degree in Political Science and a minor in Spanish.

I have been appointed as an expert or technical advisor for redistricting by federal courts in the following cases:

- *Ga. State Conf. of the NAACP v. Fayette County Bd. of Comm'rs*, 996 F. Supp. 2d 1353, 1359 (N.D. Ga. 2014) (appointed as the Court's "independent technical advisor."); *see also* *Ga. State Conf. of the NAACP v. Fayette County Bd. of Comm'rs*, 118 F. Supp. 3d 1338, 1340 (N.D. Ga. 2015) ("Court-appointed expert or technical advisor.")
- *Crumly v. Cobb County Bd. of Elections & Voter Registration*, 892 F. Supp. 2d 1333, 1344 (N.D. Ga 2012) (appointed as the "Court's technical advisor and consultant.")
- *Martin v. Augusta-Richmond County*, 2012 U.S. Dist. LEXIS 85113, *2-3 (S.D. Ga 2012) (appointed by Court as "advisor and consultant.")
- *Walker v. Cunningham*, 2012 U.S. Dist. LEXIS 178337, *5 (S.D. Ga. 2012) (appointed by Court "as its independent technical advisor.") (3 judge panel).
- *Bird v. Sumter County Board of Educ.*, CA No. 1:12cv76-WLS (M.D. Ga. 2013), ECF 70 p. 5 (appointing Gina Wright as the Court's "independent technical advisor.")

- *Adamson v. Clayton County Elections and Reg. Bd.*, CA No. 1:12cv1665-CAP (N.D. Ga. 2012), ECF 23 p. 2 (appointing Gina Wright as the Court's "independent technical advisor.")

In the past four years I have testified, either at trial or by deposition, in

- *NAACP v. Kemp*, CA No. 1:17cv1427 (N.D. Ga.) (3 judge court) (consolidated with *Thompson v. Kemp*).
- *Ga. State Conf. of the NAACP v. Fayette County Bd. Of Comm'rs*.

I am not being compensated separately for my work in this matter.

In preparing my analysis, I considered the following facts and data: The Declaration of William S. Cooper, the block equivalency files of his Illustrative Plans, the 2010 PL-94-171 Census Data and Geography files for the state of Georgia, current and past United States Congressional district maps for the state of Georgia maintained by my office, and my personal knowledge of the facts regarding redistricting in Georgia.

Based on my analysis, as discussed below, I have concluded that it is not possible to draw an additional majority-minority district as proposed by Mr. Cooper's Illustrative Plans without (1) making race the predominant factor in creating the district, (2) reducing the African-American population in Congressional District 2 below 50%, (3) subjugating all traditional redistricting principles used in Georgia to race, and (4) causing massive disruption in the representation of individuals in the affected districts.

History of Georgia Congressional Maps and Representation

Following the decennial Census in the year 2000, the state of Georgia gained two (2) additional congressional districts due to significant population growth in the state. During a special legislative session in 2001, the Georgia General Assembly, with the Democratic Party holding majorities in both state House and Senate, adopted a map for these 13 U.S. congressional

districts. Democratic Governor Roy Barnes signed the legislation. The plan was granted preclearance by the U.S. district court of the District of Columbia (*Georgia v. Ashcroft*, 195 F.Supp.2d 25 (D. D.C. 2002), *aff'd sub nom. King v. Georgia*, 537 U.S. 1100 (No. 02-125) (2003)). This map was used for elections in Georgia in 2002 and 2004.

After preclearance, the map was referred to in the Legislative and Congressional Reapportionment Office by the plan name "Cong02". This plan contained two majority AP (all persons)¹ black districts, District 4 (54.69% AP black, 50.02% AP black VAP) and District 5 (56.92% AP black, 52.04% AP BVAP). Both districts were in the metro Atlanta area. The third highest percentage of AP black population and AP black VAP was in District 2 in southwest Georgia (45.22% AP black and 41.45% AP black VAP). (See Exhibits 1, 1A, 1B)

In the General Election of 2004, the voters of Georgia elected a Republican majority in both the state House and Senate. Governor Sonny Perdue, a Republican elected in 2002, was the Governor at that time. The Georgia General Assembly under new leadership, decided to redraw the Congressional district map. This map was adopted (HB 499) in 2005, was signed by Governor Perdue (Act 146), and was precleared by the U.S. Department of Justice. Referred to by plan name "Cong05" after its preclearance, this was the map for elections in 2006, 2008, and 2010. (See Exhibits 2, 2A, 2B)

Like the preceding map from 2002, this new version also contained the same two majority AP black and AP black VAP districts 4 and 5 in metro Atlanta. District 4 had a 54.19% AP black total and a 50.31% AP BVAP. District 5 had a 56.85% AP black total and a 52.05% AP BVAP. As before, the third highest percentage of AP black population was in District 2 in southwest Georgia (48.32% AP black and 44.83% AP BVAP). This map would be the benchmark map when new Census data arrived in 2011.

From 2002 through 2011, four of the thirteen Congressional districts in Georgia elected African-American representatives under the maps mentioned above. These districts are 2, 4, 5, and 13. District 5 elected Congressman John Lewis in 1986 and he continues to represent the seat today. District 4 has elected three African Americans since 1996- Congresswoman Cynthia

¹ The AP (all persons) category includes persons self-identifying themselves as belonging to more than one race. For example, a person that self-identified as both white and black would be included both in the number of persons "AP Black" and those "AP White."

McKinney, Congresswoman Denise Majette, and Congressman Hank Johnson, who presently represents this district. District 2 elected Congressman Sanford Bishop in 1992 and he continues to represent this district. District 13, added after the 2000 Census, elected Congressman David Scott in 2002. This district elected an African-American representative although the district was not majority AP black in population at that time. Congressman Scott has been reelected to serve this district in every election since 2002, including the most recent in 2018.

2010 Census Information

The 2010 Census showed that as of April 1, 2010, Georgia had 9,687,653 people, which resulted in Georgia gaining a fourteenth congressional district. Dividing this population into 14 districts yields an ideal district size of 691,975. The population of the state as a whole is 31.53% AP black population (those identifying as single race black population make up 30.46%). Of Georgia's 159 counties, 20 counties had an overall population of majority AP black population (over 50%). All of these counties except two (Clayton and DeKalb) are located outside of the metro Atlanta area.

On the benchmark plan "Cong05", 10 of the 18 majority AP black counties, outside of metro Atlanta, were located within the Congressional District 2. Additionally, six of the next seven counties with the highest concentration of AP black population are also located in District 2. These 16 counties are compact, contiguous to one another, and within the same region of the state. They also make up most of current State Senate districts 12 and 15. This is shown on the attached map Exhibit 3.

On the current map "Congress12", 17 of the 28 counties with the highest percentage AP black population are completely or primarily within Congressional District 2. (72.42% of the population of Bibb County is in District 2 and 76.62% of the population of Muscogee County is in District 2). This is shown on the attached map Exhibit 4.

2010 Benchmark Congressional Map

The Legislative and Congressional Reapportionment Office received the 2010 Census data for Georgia in early 2011. This data was applied to the benchmark 2005 Congressional district map. (*See* Exhibit 2C) The statewide existing plan showed two districts that had higher than 50% AP black total population and AP black VAP. These were Districts 4 (57.5% AP black and 55.69% AP black VAP) and 13 (58.55% AP black and 55.7% AP black VAP) in metro Atlanta. In addition, District 5 had over 50% AP black total population but less than 50% VAP. This is an increase from the 2005 map, which had only two districts with AP black population and AP black VAP over 50%. The fourth highest percentage of AP black population and AP black VAP was in District 2 in southwest Georgia. (49.32% AP black and 46.84% AP black VAP)

It is important to note however, that in reviewing the 2010 data as applied to the benchmark map (Cong05) and setting a new ideal district size, the districts needed to be adjusted to balance the population among districts. For instance, districts 2, 4, and 5 were all under populated while all of the remaining districts were overpopulated. Additionally, a district that may be close to the ideal size will have to adjust to account for surrounding districts that are significantly higher or lower in population size. The addition of a fourteenth district also affected all districts on the plan, as they had to shift geographically to accommodate a new district. This means that although a district may have had close to an ideal size, it may not be able to maintain all parts of the existing district as others need to gain or lose population.

Current Congressional District Map

In a special legislative session in August of 2011, the Georgia General Assembly passed a new redistricting map for its Congressional districts (HB 20EX). The United States Department of Justice precleared this map in December of 2011. This map was effective for elections in 2012, 2014, 2016, and 2018.

As noted above, the current map contains 14 districts, due to an increase of one district after the reapportionment of the 435 U.S. House districts following the 2010 Census. Population

growth in Georgia was highest in the metro Atlanta area and in north Georgia so it was logical that the new district would be in this area. The four largest counties in Georgia- Fulton, Gwinnett, DeKalb, and Cobb counties- are located in metro Atlanta and are each larger than, or almost the size, of a single Congressional district.

The map in use today is labeled as plan name Congress12. (*See* Exhibit 5) It contains four districts that have over 50% AP Black population, Districts 4, 5, and 13 in metro Atlanta and District 2 in southwest Georgia. Districts 4, 5, and 13 have over 50% AP Black voting age population also. District 2 has an AP Black VAP of 49.46%, but has consistently been above 50% African-American in voter registration. Despite the fact that three out of these four districts were extremely underpopulated when reviewing the 2010 data on the benchmark map, the new map increased the number of majority total AP black population districts to four (Districts 2, 4, 5, and 13). Three of these four districts (4, 5, and 13) also have a majority AP Black VAP. All four districts were and are majority black in voter registration.

The LCRO obtains voter information from the Office of the Secretary of State and builds a statewide voting precinct layer. Numbers of registered voters match to these precincts and are completely accurate when the precinct is whole. The computer program will estimate the numbers of registered voters proportionately when a precinct is split between two districts.

Applying the most recent voter registration data from 2016² to the current plan (Congress12), there are four districts that have over 50% black voter registration as of November 2016 as there were when the map was adopted in 2011.

	%Black Reg. Voters 2016	%Black Reg. Voters 2010	%18+ _AP_Bl	%AP_Bl
District 4	58.76%	56.74%	56.41%	59.04%
District 13	58.00%	54.29%	53.93%	56.96%
District 5	54.97%	56.62%	57.61%	60.45%
District 2	51.22%	50.11%	49.46%	52.28%

² My office is currently building the 2018 precinct boundary layer. Until that layer is complete, the 2018 precinct registration numbers will not line up perfectly with precinct boundary lines.

The current Georgia Congressional delegation has five (5) incumbent African-American representatives elected from the districts on the Congress12 map. Most recently, Representative Lucy McBath was elected on November 6, 2018 to represent District 6 in north metro Atlanta. Representative McBath is African American although the district is not a majority AP black district. District 6 actually has one of the lowest percentages of AP black population out of all 14 districts.

Alternative Maps Considered by the General Assembly

During the special session of the Georgia General Assembly in 2011, the House Minority Leader Rep. Stacey Abrams presented an alternate Congressional map. This option (HB 60EX) included 3 districts that had greater than 50% AP Black population and greater than 50% AP black VAP in districts 4, 5, and 13. There was an additional district on the proposal that had an AP black total over 50% and an AP Black VAP at 49.37%. This was District 2 in southwest Georgia. The map was introduced in the House and assigned to committee but no further action was taken.

Senator Vincent Fort also from the Democratic Party proposed a bill to change the boundaries of the Congressional districts (SB 9EX). This version made changes in several counties but still maintained the same number of majority AP black districts. The same three districts were drawn with over 50% AP black and over 50% AP Black VAP- districts 4, 5, and 13. This proposal did not create a fourth district that had over 50% AP black. The next highest percentage of AP black population was drawn in District 2 which was 49.78% AP black and 47.14% AP Black VAP. This bill was introduced in the Senate and assigned to committee but no further action was taken.

Bibb County was not included in Congressional District 12 on either of these two proposed Democratic alternative maps.

Review of the Plaintiffs' Analysis

I reviewed the two Illustrative Plans submitted with the Expert Report of William Cooper. To review his plans, I obtained electronic versions of his maps that can be imported into my redistricting software, Maptitude for Redistricting. I then analyzed the plans using Census data and other data available to me on my state databases, such as precinct boundaries and political data.

As redistricting maps are based on official Census data, I do not utilize the population estimates from the American Community Survey (ACS) or its reports of citizen data. The ACS is a random sampling and does not provide a complete, accurate count. It has also not always been an accurate predictor of the future Census count for some areas, including the City of Atlanta in 2010.

In reviewing the report submitted by Mr. Cooper, there was much focus on his 71 county region. When creating district maps, I do not limit analysis of a statewide plan to a particular region. I also do not consider metropolitan statistical areas (MSAs) when determining where a district may go. To consider only a select grouping of counties or to invent arbitrary limits on where districts exist, leaves out the full impact of how all of the districts fit together in a statewide plan.

Mr. Cooper selects his grouping of 71 counties and gives statistics about that area, but does not consider that the changed districts in his Illustrative maps overlap many more counties than just those 71. In fact, the six (6) districts that he changes on both of the Illustrative Plans span 121 of the 159 counties in Georgia. Even a county where no specific district change occurred can see an effect since the total body of the electorate in the district is different and the areas added or taken away from a congressional district may influence whom the district elects.

Most of the standard map packets produced by my office contain detailed maps of the four (4) primary population centers outside of the metro Atlanta area- Macon-Bibb County, Columbus-Muscogee County, Augusta-Richmond County, and Chatham County (Savannah). These four counties are the largest counties outside of the metro Atlanta area, ranking 5th (Chatham), 9th (Richmond), 10th (Muscogee), and 13th (Bibb) in terms of highest county

population in the state. Mr. Cooper only considers three (3) of these and fails to acknowledge Muscogee County as part of his designated 71 county region.

Muscogee County is the third largest county in the state of Georgia that is outside of the metro Atlanta area. It is larger in total population than Bibb County and has a higher percentage of AP Black population (47.34%) than Chatham County (41.27%). In paragraph 42 of his report, Mr. Cooper mentions that each of the population centers he names has a majority-black state Senate district in them. Muscogee County also has a majority-black population district- SD 15 at 54.82% AP BVAP. It also borders another majority AP black Senate district just to its south that encompasses many of the highest percentage AP black counties. This is SD 12, which has a BVAP of 59.13%. (See Exhibit 6) Cooper ignores these demographics with no explanation. Of the state Senate districts Cooper identifies (SD 26 in Macon, SD 22 in Augusta, and SD 2 in Savannah), none border any of the other majority AP black Senate districts in the state.

Not only does Cooper's selected 71-county region leave out the population center of Muscogee County, it also strategically leaves out the counties in southwest Georgia that have high percentages of AP black population. Cooper does not explain why he fails to include these counties, which are also impacted by any change that would be made to the districts across South Georgia. The counties he does not include are the exact 28 counties that make up Congressional District 2, minus Bibb County, which Cooper removes from Congressional District 2. (See Exhibit 7)

As Mr. Cooper states in his report, the district to which Bibb County is assigned makes it geographically difficult to create a majority black district near District 12. (Cooper ¶ 53). If Macon-Bibb County remains in Congressional District 2, Mr. Cooper would be unable to create the District 12 he proposes.

Bibb County bordered District 2 on the benchmark "Cong05" map and has sufficient population to bring District 2 into balance. Its inclusion in District 2 makes the district over 50% AP black, without dividing any smaller counties. The only two (2) counties in the current District 2 that are split are Bibb County and Muscogee County. There was no need to seek out additional population as District 2 already met the Gingles 1 precondition of "sufficiently

numerous and geographically compact”. Slight adjustments to District 2 plus its addition of 72.42 % of Bibb County was sufficient. Further, Bibb County has never been in the same Congressional district as Richmond and Chatham counties at any time over the last 40 years.

Mr. Cooper fails to explain what happens to the demographics of District 2 once he creates the new District 12 he proposes on his Illustrative Plans. In short, to increase the AP black population and BVAP in District 12, you must reduce it in District 2. This results in an exchange of one majority AP black district for another. The tables of statistics in his report do not include the impact on either District 2 or District 3, both of which are significantly changed. Below are the changes to the overall black population in District 2 on the benchmark map and the Illustrative Plans.

<i>Congress12 Current Plan</i>	%AP Black	%18+ _AP Black	%Black Reg. Voters 2016
District 2	52.28%	49.46%	51.22%
<i>Illustrative Plan 1</i>	%AP Black	%18+ _AP Black	%Black Reg. Voters 2016
District 2	49.72%	46.92%	48.31%
<i>Illustrative Plan 2</i>	%AP Black	%18+ _AP Black	%Black Reg. Voters 2016
District 2	49.81%	47.03%	48.44%

Mr. Cooper states that he calculated registered voter data using a geocoded voter file. Having studied and utilized geocoding for over 15 years, there are many potential problems in relying upon this information. Successful geocoding depends greatly on the quality of the street file you use and the accuracy and uniformity of the address database you geocode. I assume that Mr. Cooper geocoded the voter file against the TIGER street file that is a part of the 2010 Census data information. If so, this file is almost ten years old and it would not include the most recent street names and updated geography.

There is also a great deal of variance in the naming conventions of streets. A given street may have multiple recognized names, but only one that shows up in the street file. This means

that voters using an alternate street name for their address would not be located. There is a possibility that street ranges assigned to a street file may not be accurate. This means that the numbers of addresses in the file that are assigned to one side of the street or the other could be inaccurate, may not include all actual address numbers, or may not even be present. It is highly complex and time consuming to attempt to standardize street names in order to achieve a more accurate geocode. To geocode an entire statewide file would produce many errors and voters that would not be assigned or located. Even a single Congressional district would be a large undertaking that most likely would result in a broad estimate.

Cooper states that he compares a December 2017 statewide voter registration file to November 2018 voter registration summary statistics. He correctly states that there have been voting precinct changes since 2016. These changes vary by county and over that time period. By using a list of voters that is one year older (Dec. 2017) than the registration totals (Nov. 2018) that he attempts to allocate by district, Cooper necessarily makes broad assumptions about the accuracy of the data over time and with the knowledge that the data may not accurately match the precincts listed. Mr. Cooper does not provide information on the number of records that did not locate or the percentage of voters he found to base his data. I would not expect this type of analysis to give a true and accurate picture of the actual numbers and demographics of the registered voter data by district.

The most recent complete precinct layer my office has corresponds to the voting precincts and data used for the November 2016 General Election. The data is provided as of that specific date and is matched to the geography for the voting precincts used in that election which is verified by all county elections officials. It is accurate for every whole precinct in the state and is proportionately estimated when a precinct is split between districts. From this 2016 precinct layer which includes voter registration numbers by race, I find differences in the numbers put forth by Mr. Cooper. On Congressional District 12 in Illustrative Plan 1, he shows as 55.4% black registered voters as of December 2017 (Cooper Figure 15). Illustrative Plan 2 has a 55.27% black registered voter number. My data shows this same figure to be 51.26% (2016 data) on his Illustrative Plan 1. I would not expect there to be a change of over 4% in just one year and, based on my experience, it appears that Mr. Cooper's method of geocoding overstates the total number of black registered voters.

Mr. Cooper states that his Illustrative Plans comply with traditional redistricting principals, but his maps increase the number of split counties, are less compact, and divide counties, precincts, and cities in unnecessary and unnatural ways. It is not necessary to consider incumbency, as members of Congress do not have to reside in the district they represent.

Illustrative Plan 1

As drawn, Illustrative Plan 1 would make changes to six current Congressional districts. This includes districts 1, 2, 3, 8, 10, and 12. There are 40 counties that would have to make a change to their voter assignments and ballot combinations. Illustrative Plan 1 would affect the district assignment and representation of approximately 1,165,325 people across the state. This is just under the size of two Congressional districts.

The plan shifts the fourth majority AP black district from District 2 to be District 12 by stretching across the state to piece together populations in Macon-Bibb, Augusta-Richmond, and Chatham counties to create its majority. As explained below, it focuses on the use of race alone to achieve the goal of the plan, which is for District 12 to have an AP BVAP just over 50%.

County Splits

When drawing a Congressional map for the state of Georgia, you build districts by combining counties in order to achieve the ideal district size. Since only four (4) counties are as large as or larger than a Congressional district, it is the combination of counties together that give the ability to create a district of the correct size. It does become necessary at times to divide counties in order to reach the desired population size, but such divisions should be as few as possible and should be done in larger counties which are typically divided on other redistricting plans such as the State Senate or State House.

Mr. Cooper states that his map, Illustrative Plan 1, divides 17 counties, which is more than the existing plan that divides 16 counties. The choice of which counties to split and how to split them is also important. Illustrative Plan 1 splits Butts County (total population 23,655) by

removing all but 3,405 people from District 10 and assigning them to District 3. Butts County was not split on the last two Congressional District maps and has only been split once on a Congressional district map in the last 40 years. Cooper mentions that neighboring Henry County is now only split into two districts rather than three, but with a population of 203,922, all three portions of Henry County that are currently in District 3 (60,521 people), District 10 (45,768 people), and District 13 (97,633 people) are significantly larger than the size of Butts County in its entirety. Dividing Butts County also splits the city of Jackson (total population 5,045) into two (2) districts. (See Exhibit 8)

Other county splits such as Macon-Bibb, Chatham, and Lowndes appear to have fingers reaching through the county to take out specific populations. (See Exhibit 9). The total population (212,113) assigned to District 12 from Macon-Bibb and Chatham counties combined is 67.79% AP Black. It is 63.15% AP Black VAP. To break this down further, the portion of Macon-Bibb County assigned to District 12 is 75.52% AP black population and 71.27% AP black VAP. The portion of Chatham County (Savannah) assigned to District 12 is 62.32% AP black and 57.73% AP BVAP. It is clear that Mr. Cooper selected the people to be included in District 12 based on their race.

Lowndes County (population 109,233), is split on the current plan (Congress12) but follows the county line on its eastern side. On Illustrative Plan 1, Lowndes has a thin finger across its middle in District 2 and the top and bottom parts of the county in District 8. The portion of the county split into District 2 is 42,675 people and is 64.19% AP black population and 59.58% AP black VAP. (See Exhibit 9A)

Mr. Cooper also chose to move Lee County from District 2 into District 8. Lee County has been in District 2 as far back as the 1970s. Only for two (2) election cycles was the southern portion of Lee County in District 8, before the *Miller v Johnson* decision invalidated that Congressional map. 515 U.S. 900 (1995). In 2010, Lee County had a 78.03% AP white population. Cooper's Plan moves this county out of District 2 and into District 8 in an attempt to lessen the dilution of black voting strength in District 2 that results from his transfer of Bibb County from District 2 to District 12.

For the same reason, Illustrative Plan 1 moves Crawford County out of District 2 to District 8 although most of it borders counties in District 2. Crawford County also had a 75.76% AP white population as of the 2010 Census.

It is obvious that lines were drawn moving counties, or parts of counties, in and out of districts based solely on the race of the population being moved and without regard to making districts more compact or to keeping communities of interest together.

Voting Precincts

In Georgia, voting precincts are a significant building block used in creating districts. Voting precincts are small geographic areas with clearly defined boundaries that are determined locally by each county election supervisor. Keeping precincts whole allows greater ease of voter assignments to ballot combinations as well as understanding amongst voters as to which district they reside in. The Official Code of Georgia describes the geographic features that can be used as precinct boundary lines. Precincts combine voters who live in the same communities and neighborhoods. Election officials assign polling places for precincts often at local schools and churches that are central to the area where these voters live. Voting precincts are also a continuous feature to match between redistricting plans at different levels to assist county elections officials with the assignments of voters to various different districts (e.g. Congressional maps, Senate maps, House maps, Commissions and School Boards). Voting precincts do, at times, have to be divided on Congressional maps to achieve a deviation of zero, but reducing splits to as few as possible is a priority. By keeping precincts and counties whole, communities remain together.

Mr. Cooper states in his report that Illustrative Plan 1 divides 38 precincts, which is an increase from the number that originally existed when the plan "Congress12" was adopted. At that time, only 34 populated precincts were split between districts. From my analysis, Illustrative Plan 1 divides 39 populated precincts in the 2016 precinct layer. As the 2016 precinct layer is the most current precinct layer and is the precinct guideline to follow when drawing a map presently, this plan increases the number of split voting precincts by five (5). To draw a Congressional map with zero deviation, it is often necessary to divide some voting

precincts. However, Illustrative Plan 1 not only splits more voting precincts, it divides local residential neighborhoods and uses irregular geographical features to do so.

In Muscogee County, several residential neighborhoods are split using a street or a water feature that runs through a residential neighborhood. Splitting a precinct on a prominent street feature is not uncommon, but to choose a residential, neighborhood street to divide congressional districts, thus dividing neighbors into different congressional districts, causes voter confusion and frustration. Water features make reasonable district boundary lines also, but not when that feature flows directly through an area of homes in a residential neighborhood. (*See Exhibit 10*)

In Effingham County, the small town of Guyton, population 1,684 is cut in half. The 2010 Census lists 618 people in Guyton as AP black (36.7%). Illustrative Plan 1 puts 467 of those 618 (75.57%) into District 12. The portion of Guyton he carves into District 12 is 72.18% AP black and has an AP BVAP of 73.49%. To split a town so small is problematic enough, but here Cooper not only splits this small town, but does so strictly along racial lines. (*See Exhibit 11*)

In Lowndes County, there are only nine (9) voting precincts. Mr. Cooper splits four of these nine precincts, opting to cut across the city of Valdosta rather than taking compact precincts and dividing fewer in the process. The district lines here look like a zigzag jumping up and down features from a creek, to a city limit line, to streets, to a railroad line, and back to a creek. The portion of Lowndes County placed in District 2 was an attempt to mitigate the dilutive effect on black population totals of District 2 after moving Bibb County from District 2 to District 12. The population in Lowndes County that Mr. Cooper puts into District 2 is 64.19% AP black and 59.58% AP BVAP. The remainder of the county that is in District 8 is 19.37% AP black and 18.36% AP BVAP. It is clear here that Mr. Cooper split the county the way he did based solely on race. (*See Exhibit 9B*)

Compactness

As stated in the report of Mr. Cooper, “District 12 under the two illustrative plans scores slightly less compact...” I recreated the two compactness tests to which Mr. Cooper refers. The scores on both the Reock and Polsby-Popper tests show Illustrative Plan 1 to be less compact than the current Congressional map “Congress12”. To read the scores for both type of tests, the closer the score is to one (1), the more compact the district is. (See Exhibits 12, 12A, 13, 13A)

Compactness Score for all districts- Reock

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>
Min.	0.33	0.26
Max.	0.55	0.54
Mean	0.45	0.42
Std. Deviation	0.07	0.08

Compactness Score for Congressional District 12- Reock

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>
District 12	0.41	0.35

Compactness Scores for all districts- Polsby-Popper

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>
Min.	0.16	0.14
Max.	0.37	0.37
Mean	0.26	0.24
Std. Deviation	0.06	0.07

Compactness Score for Congressional District 12- Polsby-Popper

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>
District 12	0.18	0.16

From my reports, the mean score for the Reock test on Illustrative Plan 1 is different from what Mr. Cooper reports. I found that the Reock test gave a 0.42 mean instead of 0.44 as Cooper reports. Mr. Cooper's Reock analysis of Congressional District 12 alone shows that the modified District 12 scores lower and less compact (Illustrative Plan 1= 0.35) than the current map (Congress12= 0.41). The same can be said of District 12 under Polsby-Popper analysis. (Illustrative Plan 1= 0.16 and Congress 12= 0.18)

Overall, the scores for compactness on both tests show lower scores than what the current map has. This means the proposed districts on Illustrative Plan 1 are less compact.

Illustrative Plan 2

Like Illustrative Plan 1, Cooper's Illustrative Plan 2 makes changes to six (6) Congressional districts- 1, 2, 3, 8, 10, and 12. Changes to district boundaries in Illustrative Plan 2 differ from Plan 1 in ten (10) counties (Bibb, Butts, Jasper, Jones, Lowndes, Monroe, Muscogee, Peach, Putnam and Taliaferro). Five of these ten counties (Bibb, Butts, Lowndes, Muscogee and Peach) are split in Illustrative Plan 2. Butts County remains split between Districts 3 and 10, but the division is in a different area than it was on Illustrative Plan 1. Bibb County, Lowndes County, and Muscogee County are still split between two districts, but that split is on a different boundary than it was on Illustrative Plan 1. Peach County is now split between two districts where it was not split in Illustrative Plan 1.

Illustrative Plan 2 would require 38 counties to make changes to their voter assignments and ballot combinations. This would affect the district assignment of approximately 1,143,037 people across the state

County Splits

Mr. Cooper states that his map, Illustrative Plan 2, divides 18 counties, which is more than the existing plan (16) and his Illustrative Plan 1 (17). As mentioned before, counties are the building blocks of Congressional districts across most of Georgia. Although it is necessary to split some counties to achieve an ideal district size, such divisions should be as few as possible. The same can be said for voting precincts.

Illustrative Plan 2, like Plan 1, splits Butts County (total population 23,655) by removing all but 5,889 people from District 10 and assigning them to District 3. (*See Exhibit 14*). Butts County was not split on the last two Congressional District maps and has only been split once on a Congressional district map in the last 40 years. Cooper mentions that neighboring Henry County is now only split into two districts rather than three, but with a population of 203,922, all three portions of Henry County that are currently in District 3 (60,521 people), District 10 (45,768 people), and District 13 (97,633 people) are significantly larger than the size of Butts

County in its entirety. Dividing Butts County as it is on this map also splits the tiny city of Jenkinsburg (total population 370) by placing five (5) people into District 3.

The specific population (212,113 people) placed in District 12 from Macon-Bibb and Chatham counties combined is 67.79% AP Black and 63.15% AP Black VAP. To break this down further, the portion of Macon-Bibb County assigned to District 12 is 74.71% AP black population and 70.54% AP black VAP. The boundary lines for District 12 in Bibb County include all of the same area as in Plan 1, but add some additional population. Plan 2 makes one voting precinct that was split in Plan 1 whole, but now splits two additional precincts in the same area. The portion of Chatham County (Savannah) assigned to District 12 is the same on Plan 2 as it was on Plan 1- 62.32% AP black and 57.73% AP BVAP. (See Exhibit 15)

Lowndes County (population 109,233), is split on the current plan but follows the county line on its eastern side. On Illustrative Plan 2, a larger portion of Lowndes County is in District 2 than on Plan 1. There is still a large thumb running across the city of Valdosta to take in specific population based on their racial makeup. (See Exhibit 16) Plan 2 adds an additional voting precinct and splits others. The portion of the county split into District 2 is 53,624 people and is 55.95% AP black population and 52.8% AP black VAP. The remainder of Lowndes County has a population of 55,609 and is 18.5% AP black and 17.62% AP BVAP.

Peach County (population 27,695) on Illustrative Plan 2 is split into District 2 and District 8. Peach County has been whole in one Congressional district as far back as the 1970s, with the exception of two (2) election cycles (1992 and 1994) when some portions of Peach County were in two districts before the *Miller v Johnson* decision invalidated that Congressional map. On Illustrative Plan 2, Mr. Cooper opts to take 12,665 people from Peach County and place them in District 8. This population is 78.81% AP white and has an AP white VAP percentage of 79.54%. The portion of Peach County that would remain in District 2 (15,030 people) is 71.16% AP black and 71.02% AP Black VAP. Rather than keep the county whole in either district, Mr. Cooper chose to divide it along racial boundaries. (See Exhibit 17)

In the same way as Plan 1, Illustrative Plan 2 also moves both Lee County and Crawford County into District 8. Both of these counties have high AP white populations (Lee- 78.03% AP white and Crawford- 75.76% AP white) and were taken out of District 2 to attempt to minimize

the dilution of black voting strength in District 2 resulting from the transfer of Bibb County from District 2 to District 12.

Like Plan 1, it is obvious that lines were drawn moving counties, or parts of counties, in and out of districts based solely on the race of the population being moved and without regard to making districts more compact or to keeping communities of interest together.

Voting Precincts

Mr. Cooper states in his report that Illustrative Plan 2 divides 39 precincts, which is an increase from the number that originally existed when the plan "Congress12" was adopted, which had only 34 populated precincts split between districts. From my analysis, Illustrative Plan 2 divides 40 populated precincts in the 2016 precinct layer, one more than Illustrative Plan 1. As the 2016 precinct layer is the most current precinct layer and is the precinct guideline to follow when drawing a map now, this plan increases the number of split precincts by six (6). To draw a Congressional map with zero deviation, it is necessary to divide some voting precincts. However, Illustrative Plan 2 not only splits more voting precincts, it divides local residential neighborhoods and uses irregular geographical features in a similar way as Plan 1.

In Bibb County, Illustrative Plan 2 nearly follows the same boundary line of the existing map in one area. Yet three (3) census blocks are changed resulting in a different division of the Howard 2 voting precinct. It now runs through the middle of a cul-de-sac on a residential street and changes the district assignment of 30 people. (Exhibit 15)

In Effingham County, the same split of the small town of Guyton exists as previously described on Illustrative Plan 1. (Exhibit 11)

In Lowndes County, there are only nine (9) voting precincts. Mr. Cooper takes two precincts in their entirety into District 2 (precincts Clyattville and Mildred). He splits five additional precincts, cutting out parts of the city of Valdosta. The district lines in this area follow random features and divide local residential neighborhoods. The portion of Lowndes County cut out for District 2 was an attempt to reduce the effect on black population numbers in District 2 when he removed Bibb County. The population in Lowndes County that Mr. Cooper puts into District 2 is 55.95% AP black and 52.18% AP BVAP. The remainder of the county

that is in District 8 is 19.37% AP black and 18.36% AP BVAP. It is clear here that Mr. Cooper chose the population specifically due to their race. (Exhibit 16)

Compactness

Illustrative Plan 2 does not improve on compactness from either Congress12 or Illustrative Plan 1. The charts below show that on the Reock test, Illustrative Plan 2 scores slightly more compact than Mr. Cooper's Plan 1, but still less compact than the current map, Congress12. (See Exhibits 12B and 13B)

Compactness Score for all districts- Reock

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>	<i>Illustrative Plan 2</i>
Min.	0.33	0.26	0.34
Max.	0.55	0.54	0.54
Mean	0.45	0.42	0.44
Std. Deviation	0.07	0.08	0.07

Compactness Score for Congressional District 12- Reock

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>	<i>Illustrative Plan 2</i>
District 12	0.41	0.35	0.34

For the Polsby-Popper analysis, Illustrative Plan 2 has slightly more compact scores than Illustrative Plan 1, but does not show more compactness than the existing map. This is also true for District 12 alone, which still scores lower on Plan 2 than the existing map Congress12.

Compactness Scores for all districts- Polsby-Popper

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>	<i>Illustrative Plan 2</i>
Min.	0.16	0.14	0.15
Max.	0.37	0.37	0.37
Mean	0.26	0.24	0.25
Std. Deviation	0.06	0.07	0.06

Compactness Score for Congressional District 12- Polsby-Popper

	<i>Congress12 Current Plan</i>	<i>Illustrative Plan 1</i>	<i>Illustrative Plan 2</i>
District 12	0.18	0.16	0.17


Conclusion

Based on the foregoing analysis, I conclude that the districts, as modified from the current plan, in Illustrative Plans 1 and 2 are not based on any traditional redistricting principles. Rather, districts 2 and 12 in Illustrative Plans 1 and 2 are drawn with a complete and total focus on the race of those individuals that are moved in and out of those districts. In contrast, the current congressional plan (Congress12) considered all traditional redistricting principles and drew majority-minority districts that gave African-American voters the opportunity to elect their candidates of choice. Further, the Plaintiffs' illustrative district plans do not demonstrate that the African-American population is geographically compact enough to

allow for the creation of an *additional* majority-minority district. Even after Cooper's use of race as a predominant factor in redistricting, he was only able to make District 12 majority African-American by reducing the African-American population in District 2 below majority status. Cooper's plans would have a detrimental effect on all affected voters, communities, and election officials across the state of Georgia.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed this 25th day of January, 2019.


Gina Harbin Wright
Executive Director
Legislative and Congressional
Reapportionment Office

Georgia Congressional Districts 2002

EXHIBIT 1

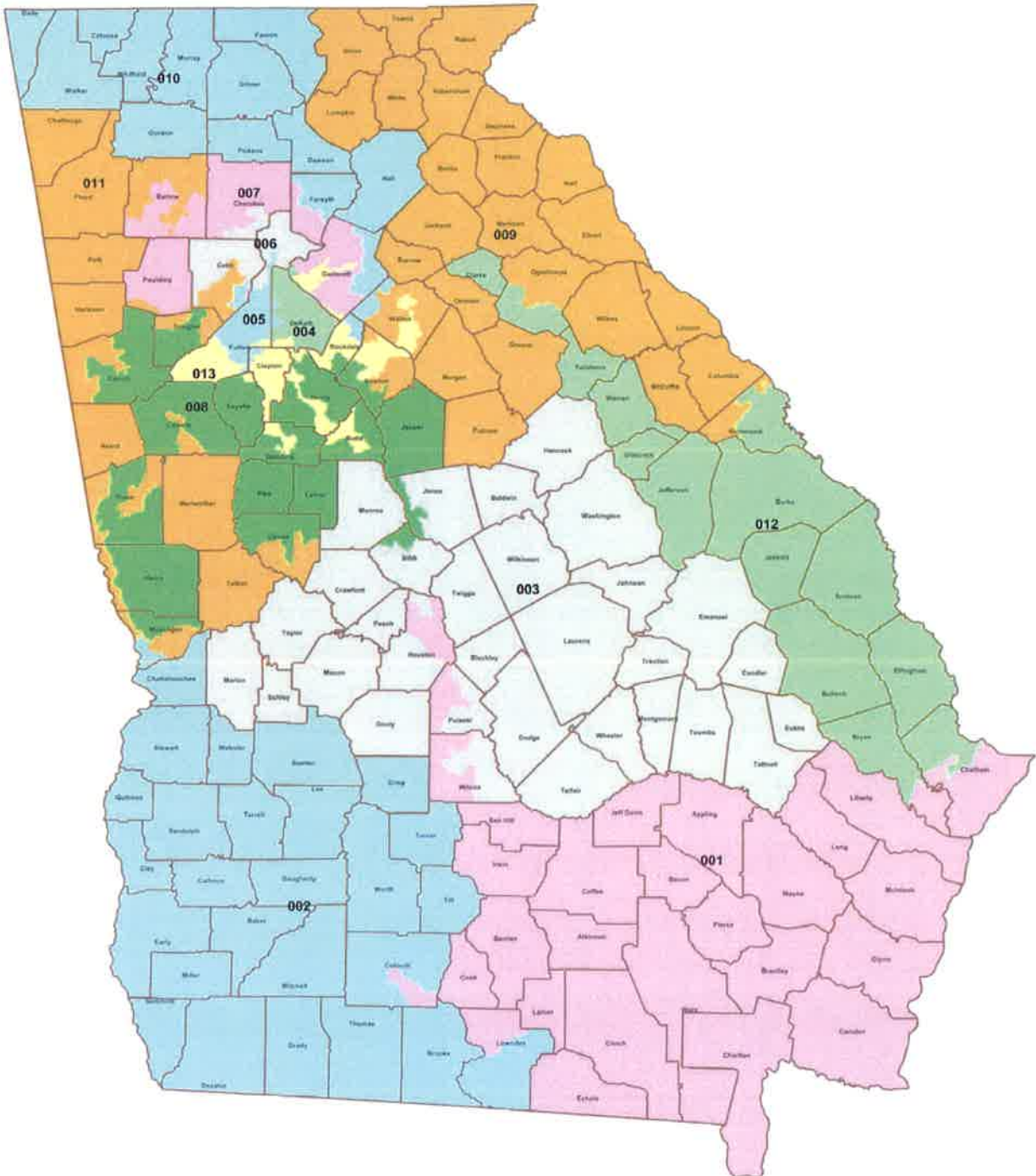


EXHIBIT 1A

State of Georgia Congressional Districts

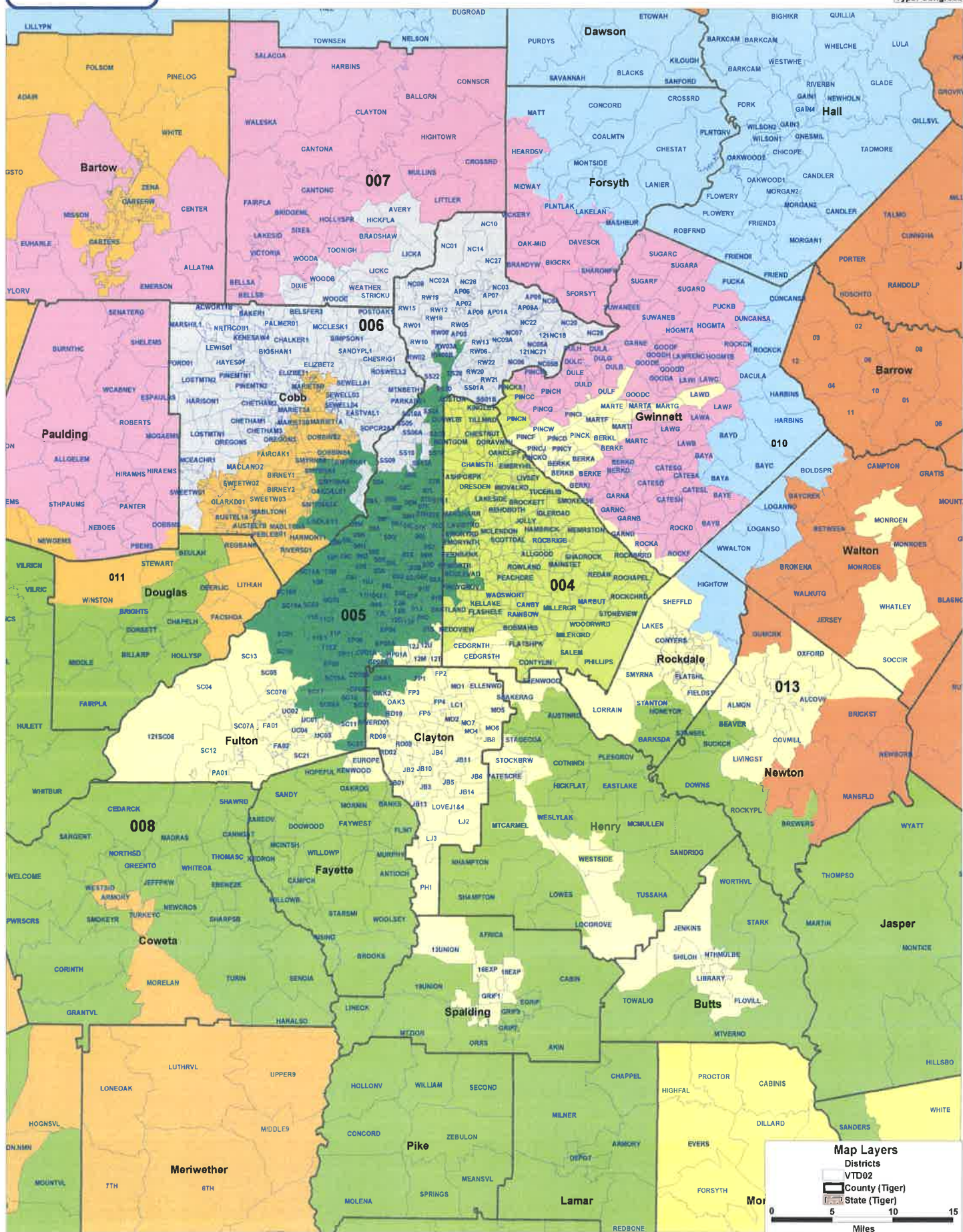
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Plan: Cong02
Type: Congress

EXHIBIT 1B

Plan Name: Cong02

Plan Type : Congress

User: staff

Administrator: State

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
001	629,761	34	0.01%	143,017	22.71%	3,149	146,166	23.21%	25,831	4.10%
VAP	456,300			94,914	20.80%	1,104	96,018	21.04%	16,696	3.66%
002	629,735	8	0.00%	281,832	44.75%	2,933	284,765	45.22%	21,902	3.48%
VAP	455,164			187,367	41.16%	1,314	188,681	41.45%	14,700	3.23%
003	629,748	21	0.00%	251,792	39.98%	2,133	253,925	40.32%	16,140	2.56%
VAP	464,632			173,520	37.35%	947	174,467	37.55%	10,834	2.33%
004	629,690	-37	-0.01%	337,146	53.54%	7,203	344,349	54.69%	53,836	8.55%
VAP	472,785			232,274	49.13%	4,211	236,485	50.02%	40,046	8.47%
005	629,727	0	0.00%	353,540	56.14%	4,908	358,448	56.92%	38,191	6.06%
VAP	492,438			253,078	51.39%	3,204	256,282	52.04%	29,021	5.89%
006	629,725	-2	0.00%	43,856	6.96%	2,484	46,340	7.36%	28,359	4.50%
VAP	455,805			30,186	6.62%	1,144	31,330	6.87%	19,884	4.36%
007	629,706	-21	0.00%	44,474	7.06%	2,292	46,766	7.43%	34,011	5.40%
VAP	444,493			29,384	6.61%	871	30,255	6.81%	22,697	5.11%
008	629,700	-27	0.00%	79,413	12.61%	2,106	81,519	12.95%	13,480	2.14%
VAP	457,971			54,564	11.91%	721	55,285	12.07%	8,973	1.96%
009	629,762	35	0.01%	86,571	13.75%	2,015	88,586	14.07%	16,379	2.60%
VAP	467,232			60,059	12.85%	644	60,703	12.99%	10,599	2.27%
010	629,702	-25	0.00%	21,620	3.43%	1,349	22,969	3.65%	59,240	9.41%
VAP	463,958			15,177	3.27%	412	15,589	3.36%	37,895	8.17%
011	629,730	3	0.00%	179,296	28.47%	3,967	183,263	29.10%	45,433	7.21%
VAP	465,484			121,117	26.02%	1,600	122,717	26.36%	31,026	6.67%
012	629,735	8	0.00%	268,207	42.59%	3,807	272,014	43.19%	18,112	2.88%
VAP	470,201			181,648	38.63%	1,719	183,367	39.00%	12,699	2.70%
013	629,732	5	0.00%	258,778	41.09%	5,537	264,315	41.97%	64,313	10.21%
VAP	450,756			169,697	37.65%	2,602	172,299	38.22%	44,188	9.80%

Plan Name: Cong02

Plan Type : Congress

User: staff

Administrator: State

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
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Total Population: 8,186,453

Ideal Value: 629,727

Summary Statistics

Population Range: 629,690 to 629,762

Absolute Overall Range: 72

Relative Range: -0.01% to 0.01%

Relative Overall Range: 0.01%

EXHIBIT 2

Georgia Congressional Districts- Adopted 2005

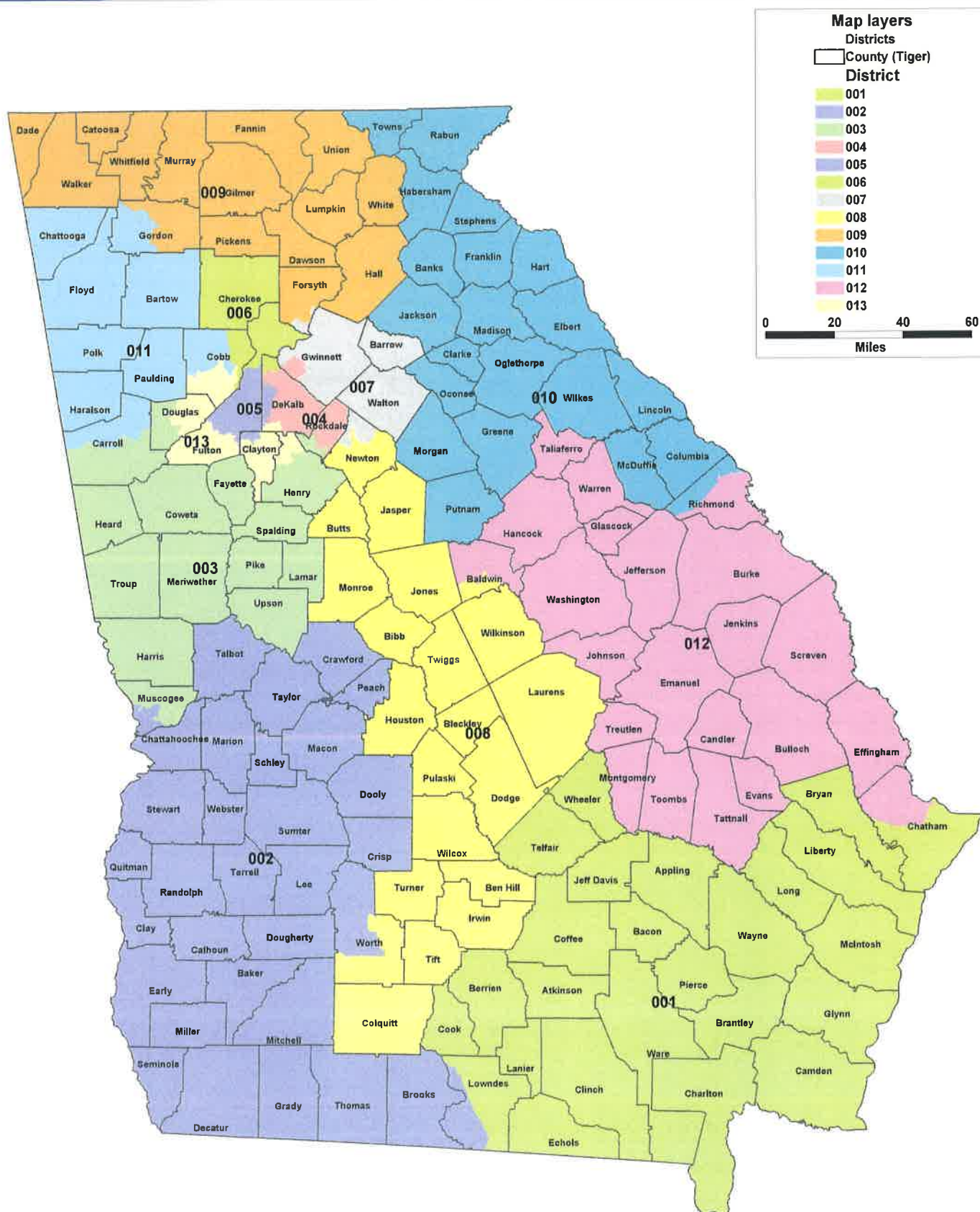
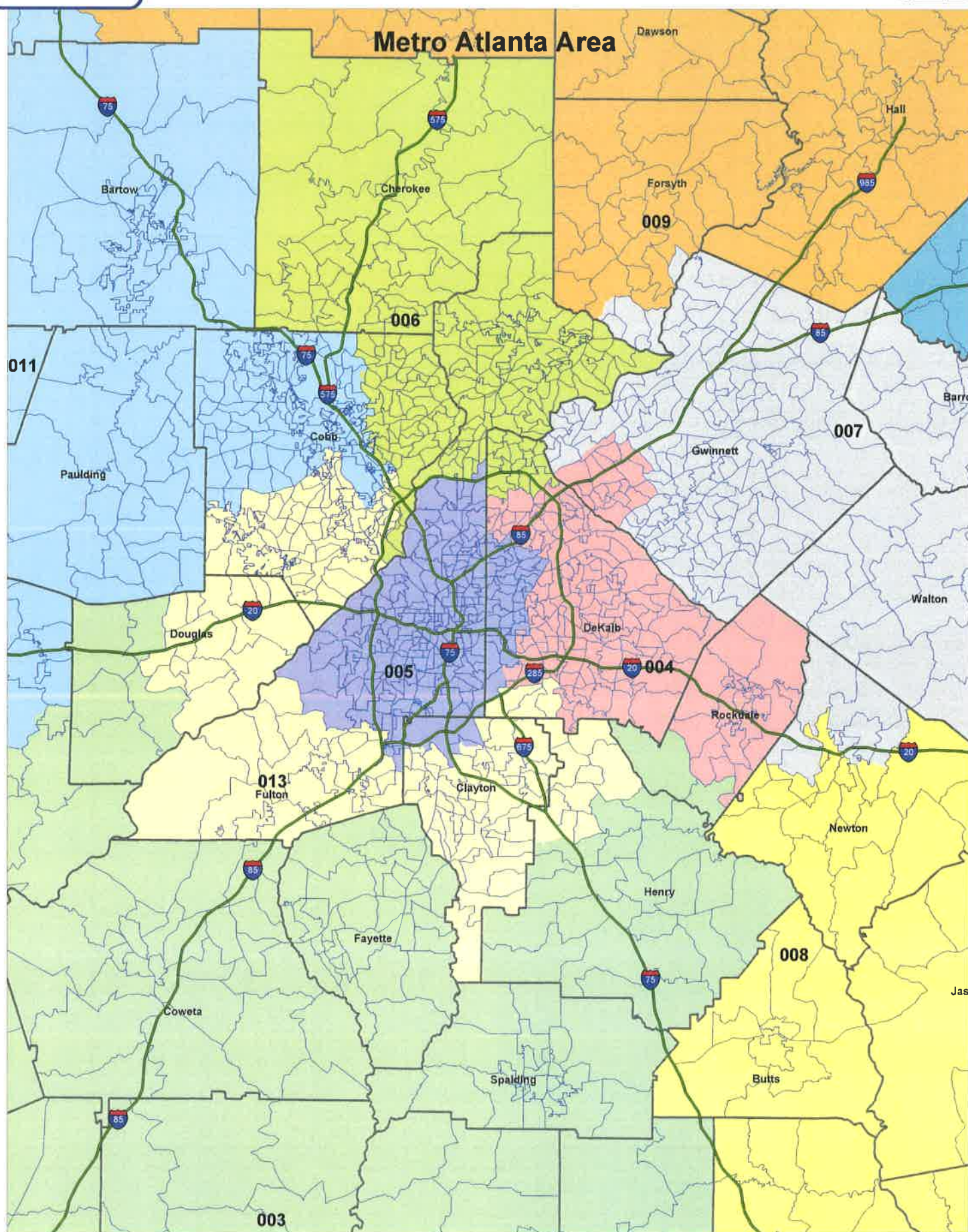
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Plan: Cong05
Type: Congress

EXHIBIT 2A

Georgia Congressional Districts- Adopted 2005Client: State
Plan: Cong06
Type: Congress

Plan Name: Cong05

Plan Type: Congress

User: staff

Administrator: State

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP.OR LATINO	%HISP.
001	629,727	0	0.00%	158,066	25.10%	3,308	161,374	25.63%	24,035	3.82%
VAP	457,934			105,349	23.01%	1,208	106,557	23.27%	15,552	3.40%
002	629,727	0	0.00%	301,120	47.82%	3,171	304,291	48.32%	18,867	3.00%
VAP	455,548			202,775	44.51%	1,427	204,202	44.83%	12,735	2.80%
003	629,727	0	0.00%	120,612	19.15%	2,133	122,745	19.49%	13,963	2.22%
VAP	457,200			81,885	17.91%	748	82,633	18.07%	9,483	2.07%
004	629,726	-1	0.00%	333,897	53.02%	7,382	341,279	54.19%	67,666	10.75%
VAP	461,692			228,096	49.40%	4,168	232,264	50.31%	48,709	10.55%
005	629,728	1	0.00%	353,437	56.13%	4,563	358,000	56.85%	38,955	6.19%
VAP	488,824			251,457	51.44%	2,978	254,435	52.05%	29,547	6.04%
006	629,726	-1	0.00%	43,087	6.84%	2,566	45,653	7.25%	39,199	6.22%
VAP	466,289			31,236	6.70%	1,324	32,560	6.98%	28,533	6.12%
007	629,727	0	0.00%	73,400	11.66%	3,052	76,452	12.14%	38,711	6.15%
VAP	449,377			49,193	10.95%	1,231	50,424	11.22%	26,188	5.83%
008	629,728	1	0.00%	205,312	32.60%	2,217	207,529	32.96%	17,555	2.79%
VAP	459,579			138,245	30.08%	858	139,103	30.27%	11,697	2.55%
009	629,728	1	0.00%	18,749	2.98%	1,221	19,970	3.17%	58,356	9.27%
VAP	466,819			13,113	2.81%	369	13,482	2.89%	37,251	7.98%
010	629,728	1	0.00%	125,591	19.94%	2,557	128,148	20.35%	20,871	3.31%
VAP	477,825			87,687	18.35%	1,003	88,690	18.56%	14,074	2.95%
011	629,727	0	0.00%	74,164	11.78%	2,638	76,802	12.20%	32,335	5.13%
VAP	459,803			50,932	11.08%	981	51,913	11.29%	22,031	4.79%
012	629,727	0	0.00%	281,965	44.78%	3,173	285,138	45.28%	16,937	2.69%
VAP	460,719			191,307	41.52%	1,429	192,736	41.83%	11,437	2.48%
013	629,727	0	0.00%	260,142	41.31%	5,902	266,044	42.25%	47,777	7.59%
VAP	455,610			171,710	37.69%	2,769	174,479	38.30%	32,021	7.03%

Total Population: 8,186,453

Ideal Value: 629,727

Summary Statistics

Population Range: 629,726 to 629,728

Absolute Range: -1 to 1

Absolute Overall Range: 2

Relative Range: 0.00% to 0.00%

Relative Overall Range: 0.00%

EXHIBIT 2C

Plan Name: CONG05-TIGER2010-EDATA Plan Type :

User: staff

Administrator: admin

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
001	722,068	30,093	4.35%	182,703	25.30%	7,900	190,603	26.40%	46,428	6.43%
VAP	539,387			129,773	24.06%	2,696	132,469	24.56%	29,439	5.46%
002	631,973	-60,002	-8.67%	305,953	48.41%	5,736	311,689	49.32%	29,025	4.59%
VAP	473,245			219,331	46.35%	2,345	221,676	46.84%	19,050	4.03%
003	817,247	125,272	18.10%	200,413	24.52%	8,488	208,901	25.56%	40,003	4.89%
VAP	602,082			139,910	23.24%	2,939	142,849	23.73%	25,424	4.22%
004	665,541	-26,434	-3.82%	373,326	56.09%	9,361	382,687	57.50%	107,294	16.12%
VAP	491,317			268,506	54.65%	5,131	273,637	55.69%	70,639	14.38%
005	630,462	-61,513	-8.89%	317,168	50.31%	7,641	324,809	51.52%	50,167	7.96%
VAP	502,193			241,214	48.03%	5,034	246,248	49.03%	35,026	6.97%
006	767,798	75,823	10.96%	78,905	10.28%	6,989	85,894	11.19%	71,779	9.35%
VAP	567,076			57,271	10.10%	3,082	60,353	10.64%	46,929	8.28%
007	903,191	211,216	30.52%	202,154	22.38%	11,700	213,854	23.68%	118,860	13.16%
VAP	642,070			133,875	20.85%	4,584	138,459	21.56%	74,110	11.54%
008	715,599	23,624	3.41%	249,953	34.93%	6,174	256,127	35.79%	34,843	4.87%
VAP	530,981			175,335	33.02%	2,143	177,478	33.42%	21,531	4.05%
009	823,583	131,608	19.02%	27,508	3.34%	4,177	31,685	3.85%	111,467	13.53%
VAP	609,141			19,728	3.24%	1,160	20,888	3.43%	65,538	10.76%
010	738,248	46,273	6.69%	143,121	19.39%	6,560	149,681	20.28%	44,248	5.99%
VAP	567,614			103,905	18.31%	2,380	106,285	18.72%	27,806	4.90%
011	794,969	102,994	14.88%	123,977	15.60%	8,554	132,531	16.67%	68,054	8.56%
VAP	583,126			85,977	14.74%	2,828	88,805	15.23%	41,678	7.15%
012	692,529	554	0.08%	299,534	43.25%	6,850	306,384	44.24%	31,703	4.58%
VAP	523,257			214,419	40.98%	2,736	217,155	41.50%	20,820	3.98%
013	784,445	92,470	13.36%	445,720	56.82%	13,533	459,253	58.54%	99,818	12.72%
VAP	564,612			308,226	54.59%	6,261	314,487	55.70%	61,012	10.81%

Plan Name: CONG05-TIGER2010-EDATA Plan Type :

User: staff

Administrator: admin

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
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Total Population: 9,687,653

Ideal Value: 691,975

Summary Statistics

Population Range: 630,462 to 903,191

Absolute Overall Range: 272,729

Relative Range: -8.89% to 30.52%

Relative Overall Range: 39.41%

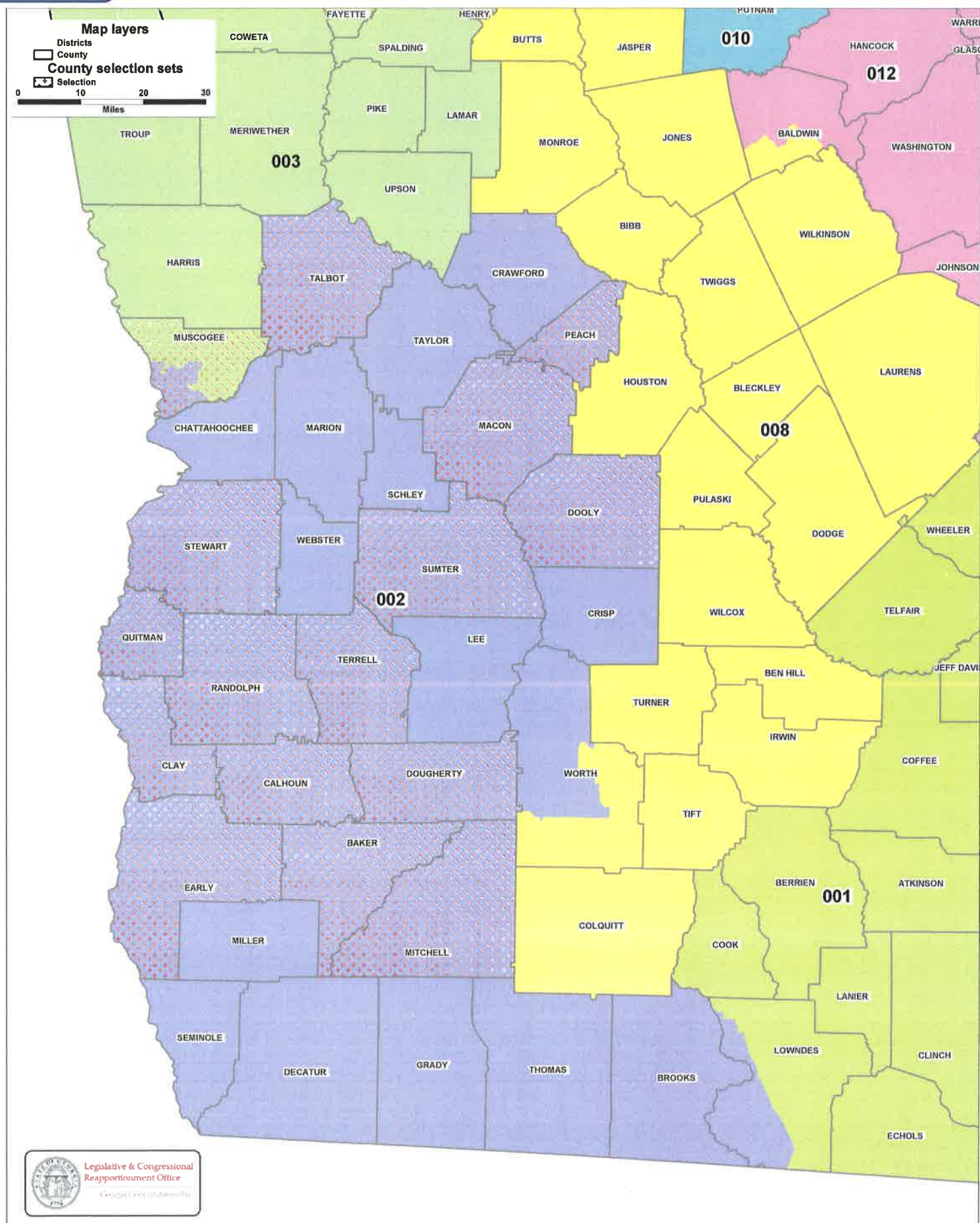
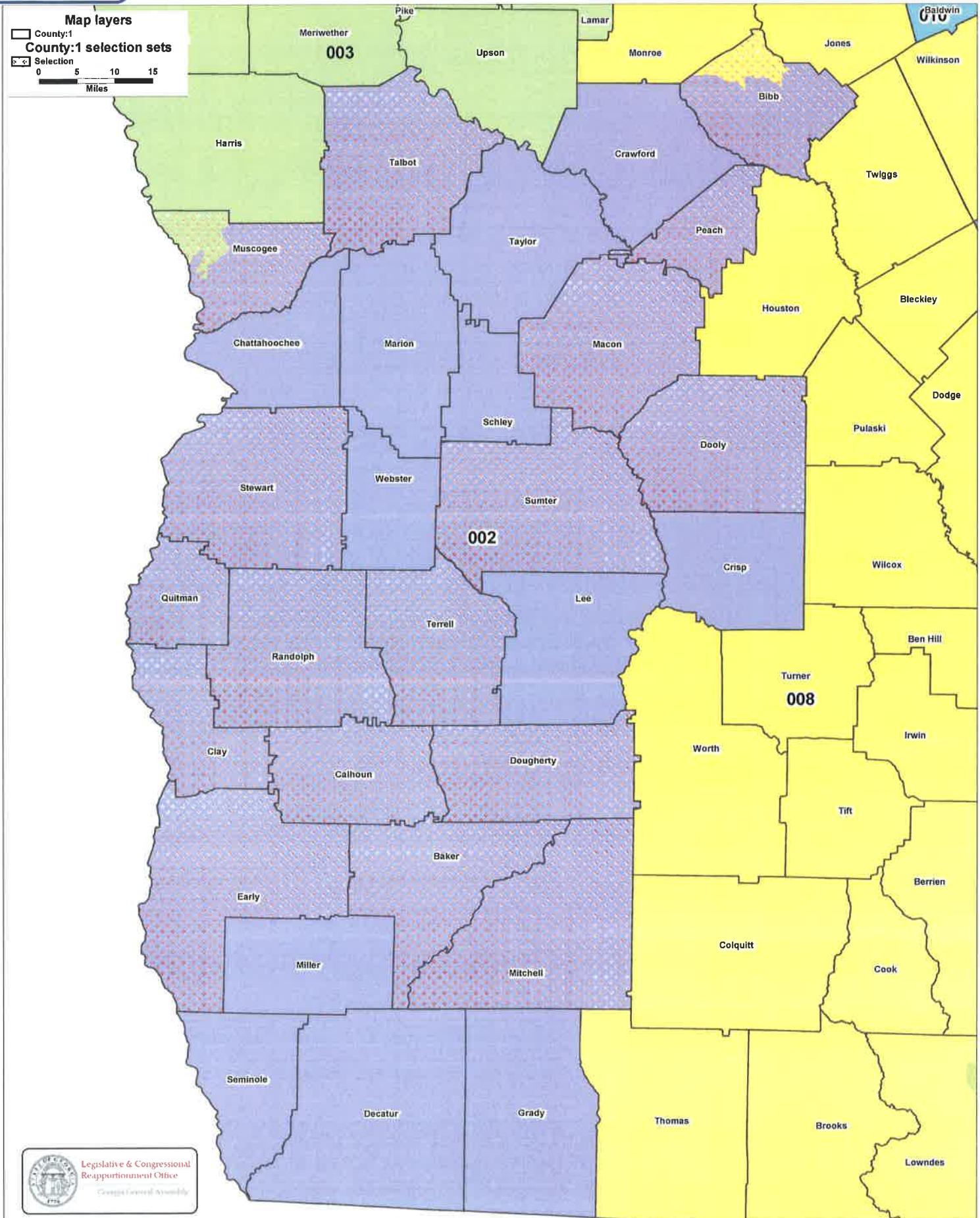
EXHIBIT 3**16 Majority AP Black counties out of top 28- Benchmark Congressional Map**Client: State
Plan: Cong05
Type: Congress

EXHIBIT 4

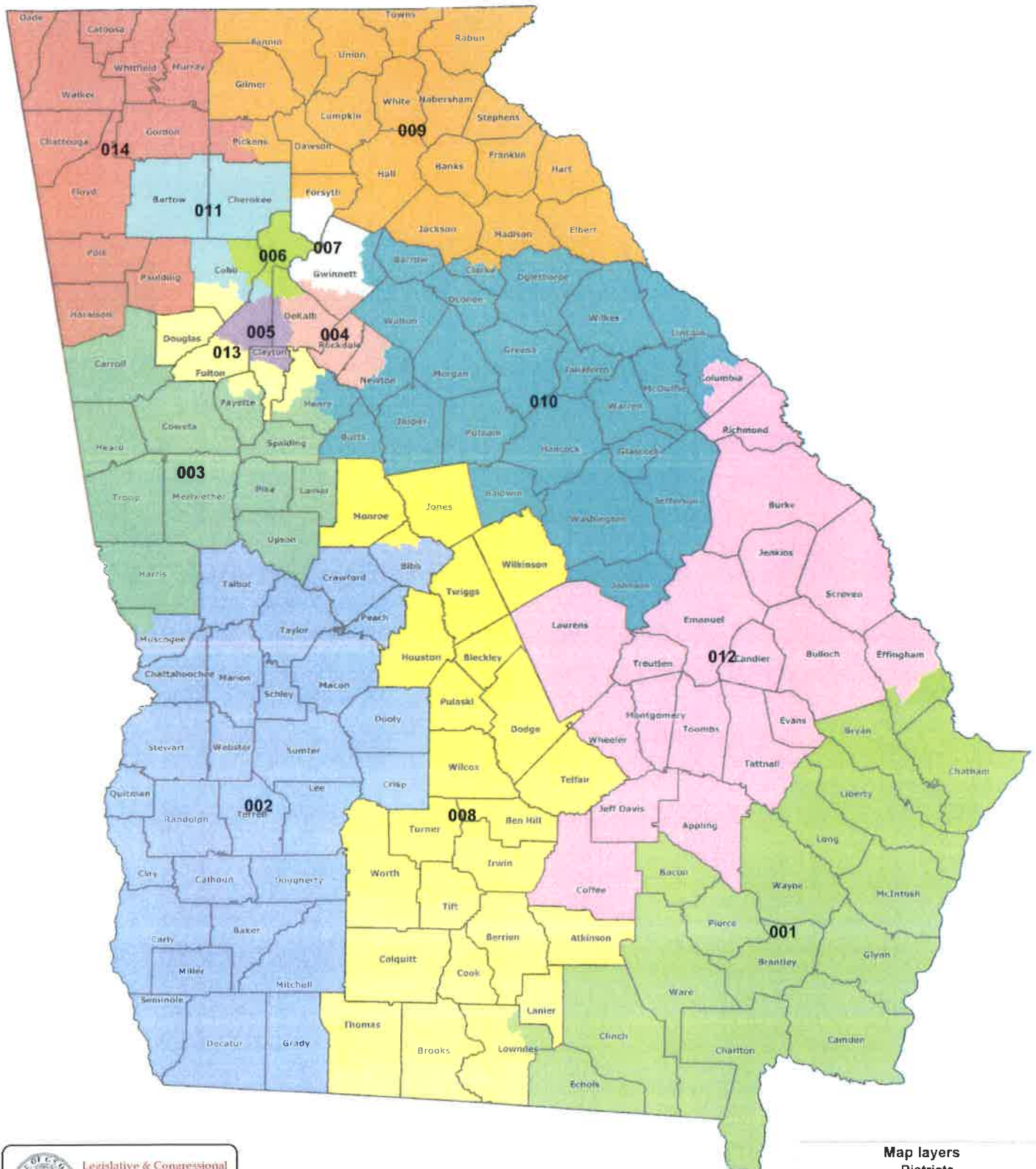
17 Majority AP Black counties out of top 28- Current Congressional Map

Client: State
Plan: Congress12
Type: Congress

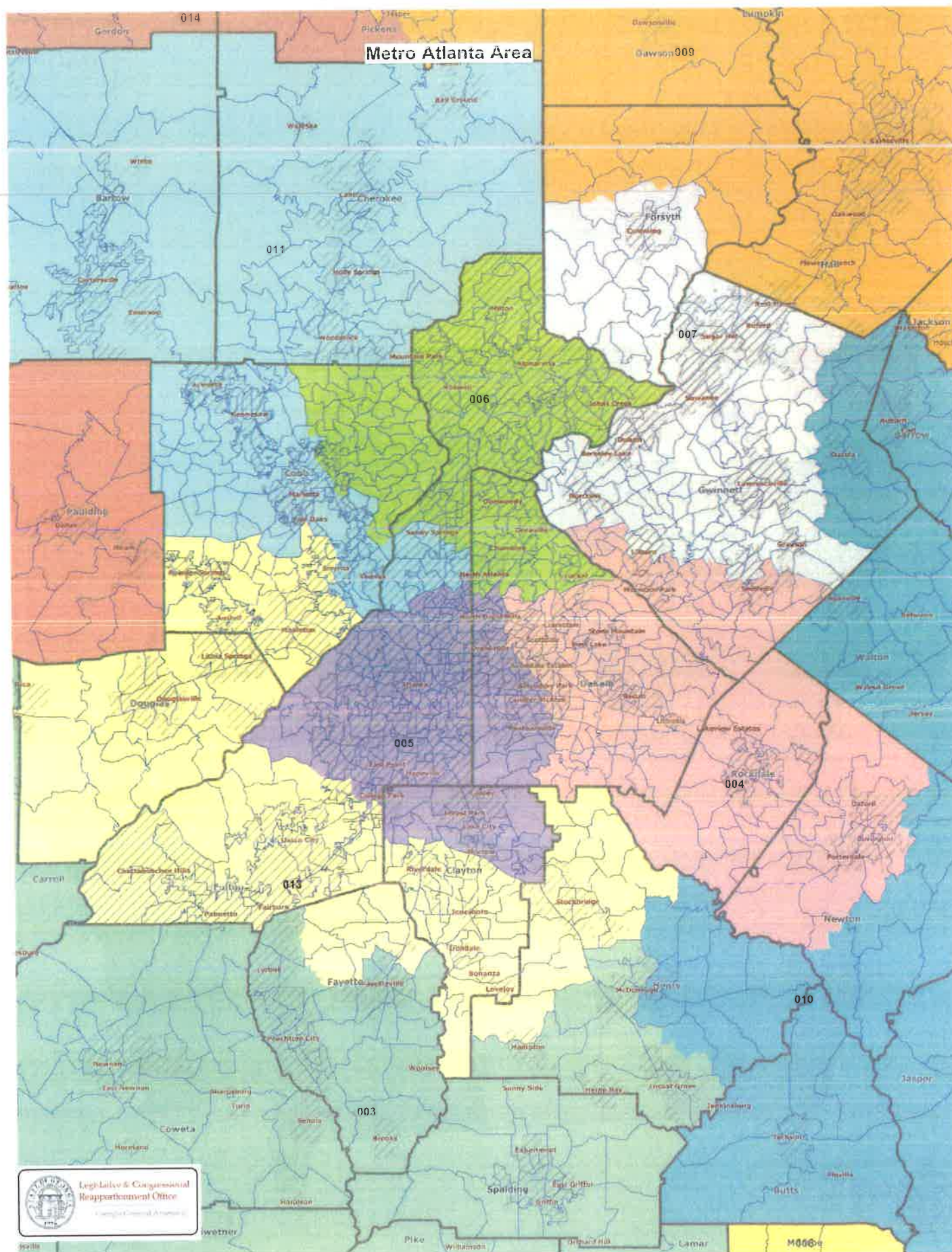
Georgia Congressional Districts

Client: State
Plan: Congress12
Type: Congress

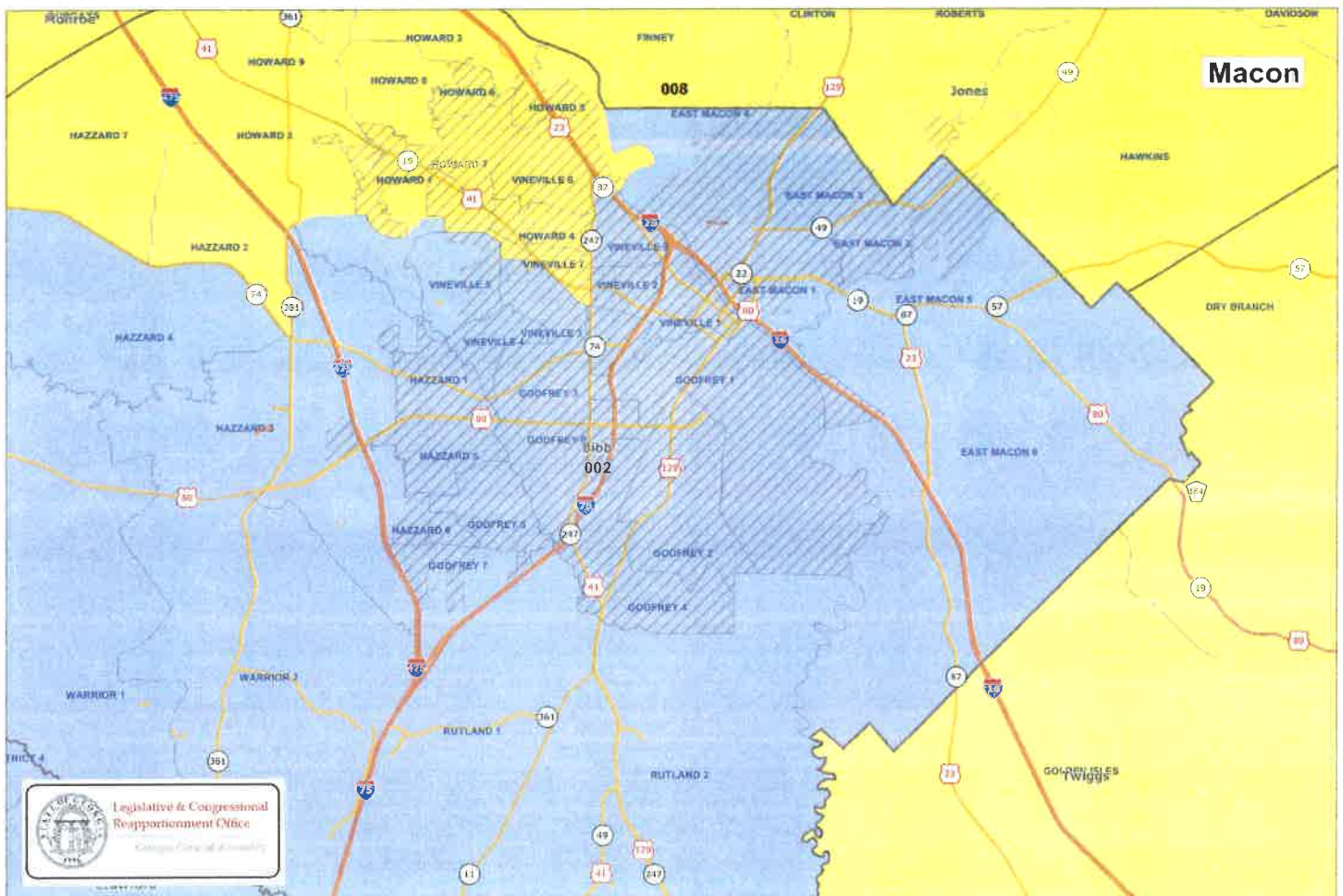
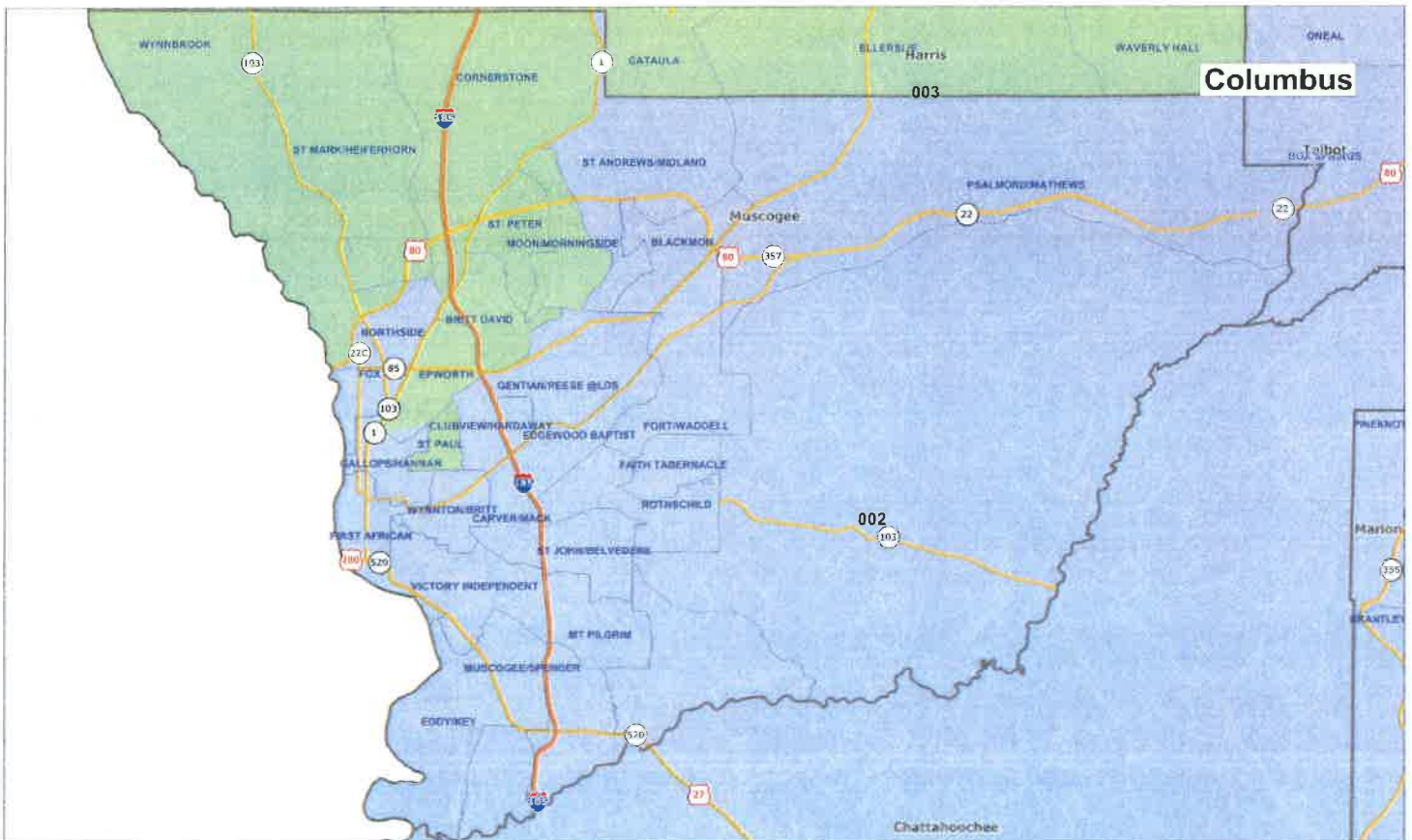
EXHIBIT 5



Metro Atlanta Area



Georgia Congressional Districts



Plan Name: Congress12

Plan Type : Congress

User: staff

Administrator: State

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
001	691,974	-1	0.00%	207,711	30.02%	8,443	216,154	31.24%	39,767	5.75%
VAP	518,743			147,082	28.35%	3,105	150,187	28.95%	25,656	4.95%
002	691,976	1	0.00%	354,925	51.29%	6,835	361,760	52.28%	31,577	4.56%
VAP	516,392			252,570	48.91%	2,847	255,417	49.46%	20,824	4.03%
003	691,974	-1	0.00%	159,378	23.06%	7,034	166,612	24.08%	34,910	5.04%
VAP	511,518			112,315	21.96%	2,247	114,562	22.40%	22,243	4.35%
004	691,976	1	0.00%	397,911	57.50%	10,608	408,519	59.04%	64,605	9.34%
VAP	503,508			278,767	55.36%	5,240	284,007	56.41%	41,041	8.15%
005	691,976	1	0.00%	409,269	59.14%	9,031	418,300	60.45%	54,614	7.89%
VAP	541,900			306,497	56.56%	5,708	312,205	57.61%	37,210	6.87%
006	691,975	0	0.00%	86,265	12.47%	6,771	93,036	13.44%	92,409	13.35%
VAP	519,046			64,149	12.36%	3,330	67,479	13.00%	62,253	11.99%
007	691,975	0	0.00%	125,010	18.07%	8,298	133,308	19.26%	129,930	18.78%
VAP	489,868			83,770	17.10%	3,453	87,223	17.81%	82,112	16.76%
008	691,976	1	0.00%	204,995	29.62%	5,455	210,450	30.41%	39,578	5.72%
VAP	518,240			145,966	28.17%	1,898	147,864	28.53%	25,129	4.85%
009	691,975	0	0.00%	46,065	6.66%	3,675	49,740	7.19%	79,413	11.48%
VAP	520,856			33,384	6.41%	1,014	34,398	6.60%	46,597	8.95%
010	691,976	1	0.00%	172,398	24.91%	5,577	177,975	25.72%	32,589	4.71%
VAP	521,343			123,759	23.74%	1,963	125,722	24.12%	20,668	3.96%
011	691,975	0	0.00%	107,707	15.57%	7,554	115,261	16.66%	75,109	10.85%
VAP	512,598			76,732	14.97%	3,130	79,862	15.58%	47,452	9.26%
012	691,975	0	0.00%	238,190	34.42%	7,297	245,487	35.48%	36,890	5.33%
VAP	518,253			169,848	32.77%	2,741	172,589	33.30%	23,384	4.51%
013	691,976	1	0.00%	382,493	55.28%	11,657	394,150	56.96%	71,303	10.30%
VAP	495,652			262,130	52.89%	5,163	267,293	53.93%	43,142	8.70%
014	691,974	-1	0.00%	57,918	8.37%	5,428	63,346	9.15%	70,995	10.26%
VAP	508,184			40,501	7.97%	1,480	41,981	8.26%	41,291	8.13%

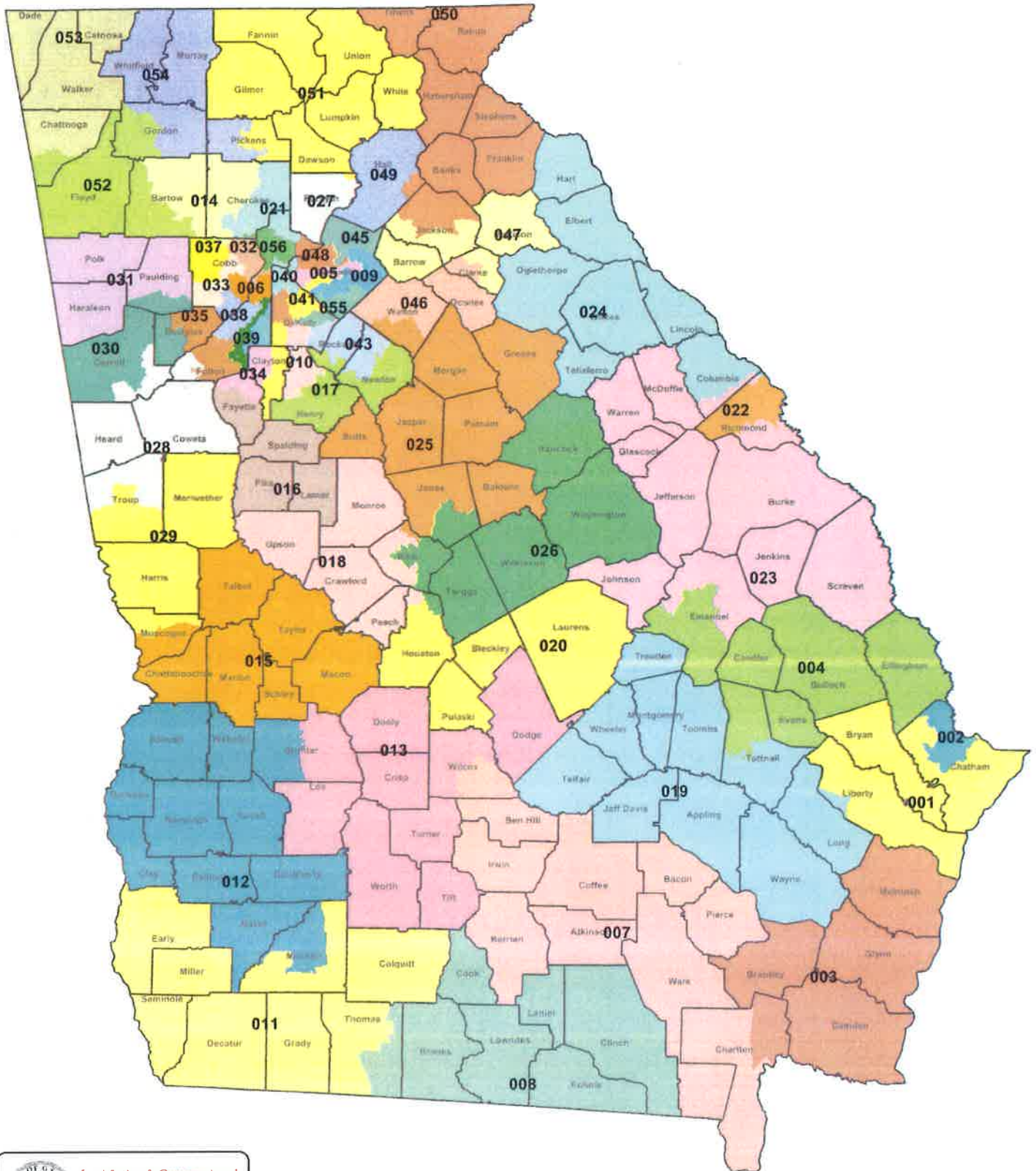
Plan Name: **Congress12**Plan Type : **Congress**User: **staff**Administrator: **State**

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
<hr/>										
Total Population:	9,687,653									
Ideal Value:	691,975									
<u>Summary Statistics</u>										
Population Range:	691,974	to	691,976							
Absolute Overall Range:	2									
Relative Range:	0.00%	to	0.00%							
Relative Overall Range:	0.00%									

Georgia Senate Districts- effective for 2014 election

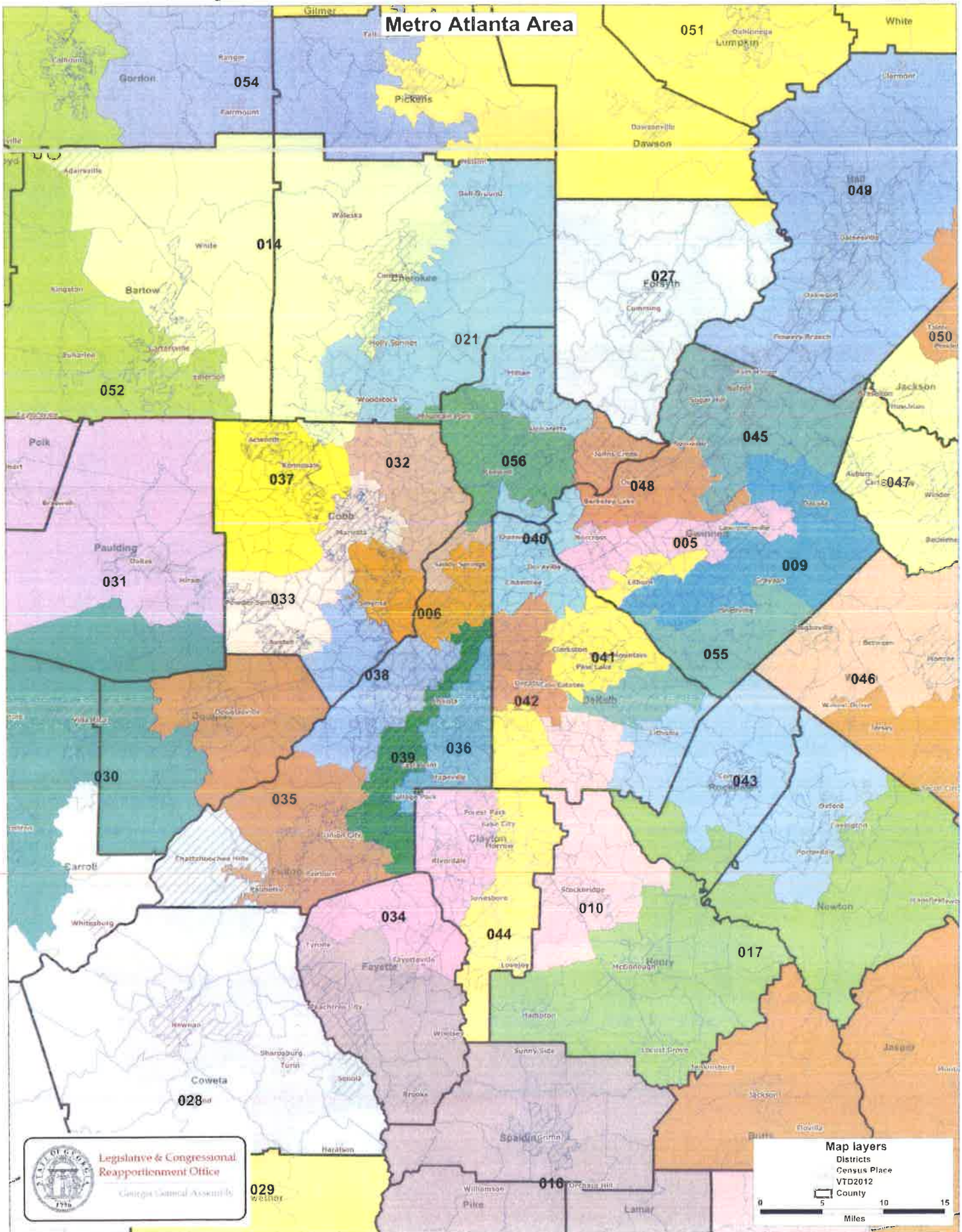
Client: State
Plan: Senate14
Type: Senate

EXHIBIT 6



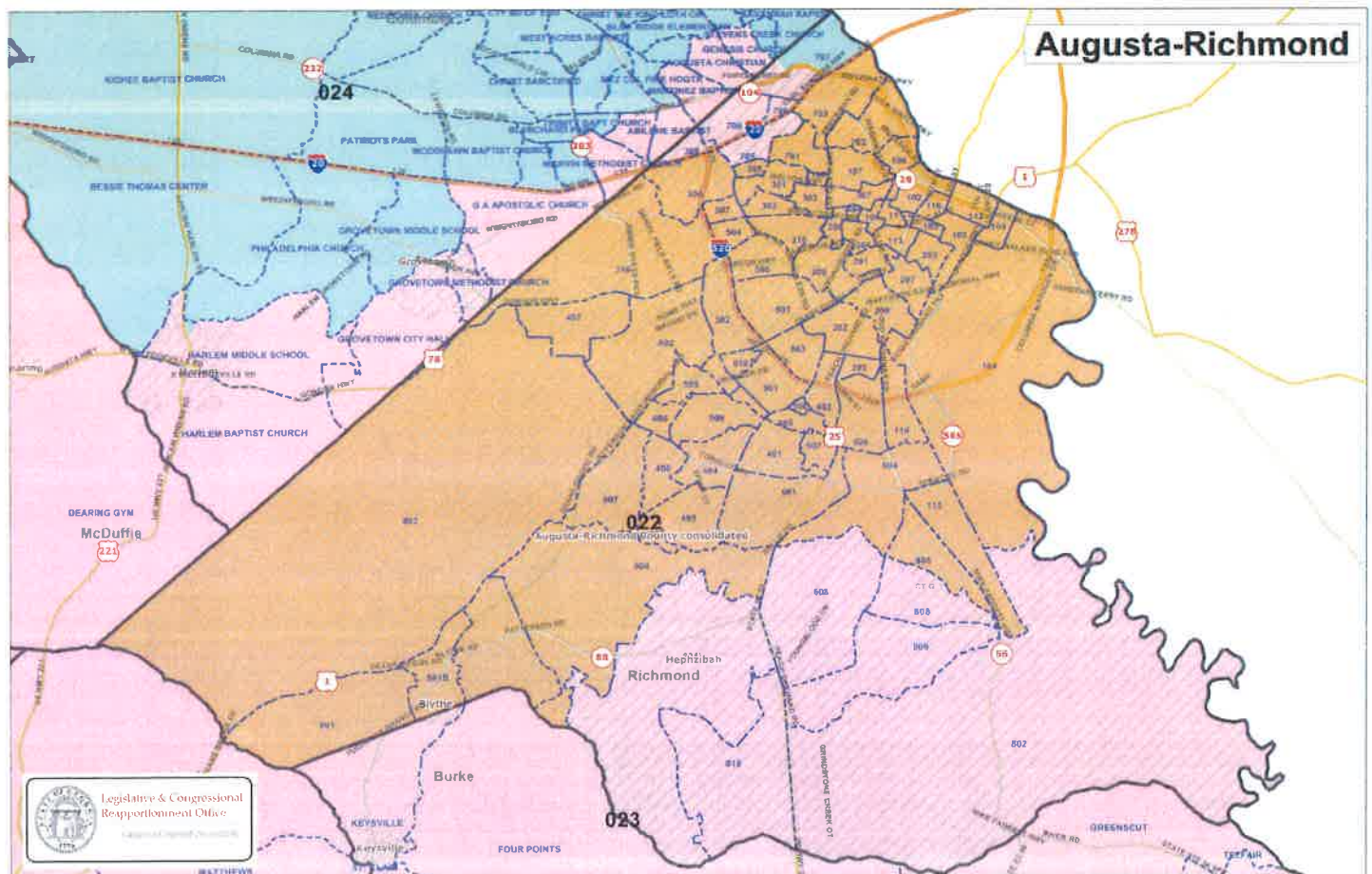
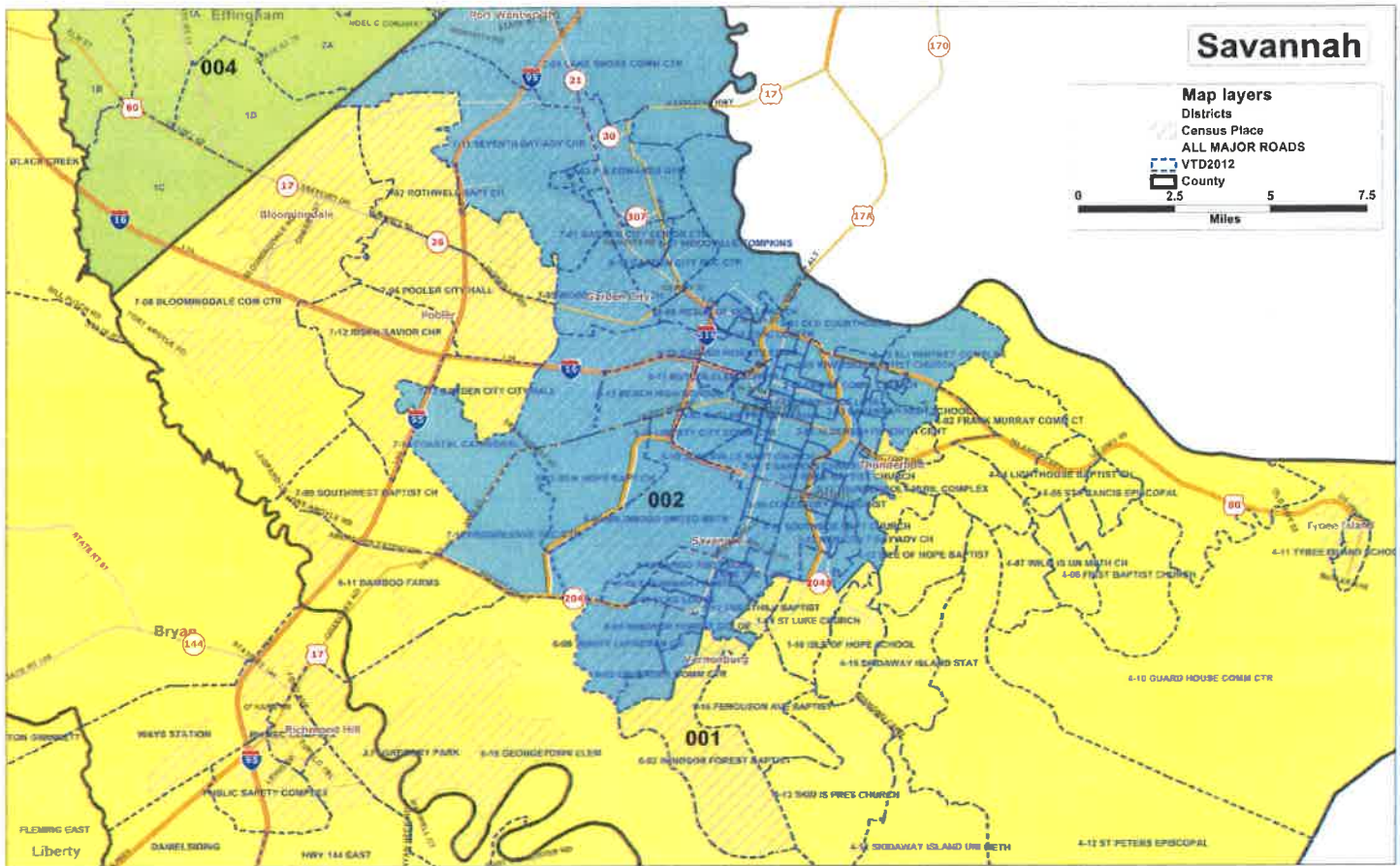
Georgia Senate Districts- effective for 2014 election

Client: State
Plan: Senate14
Type: Senate

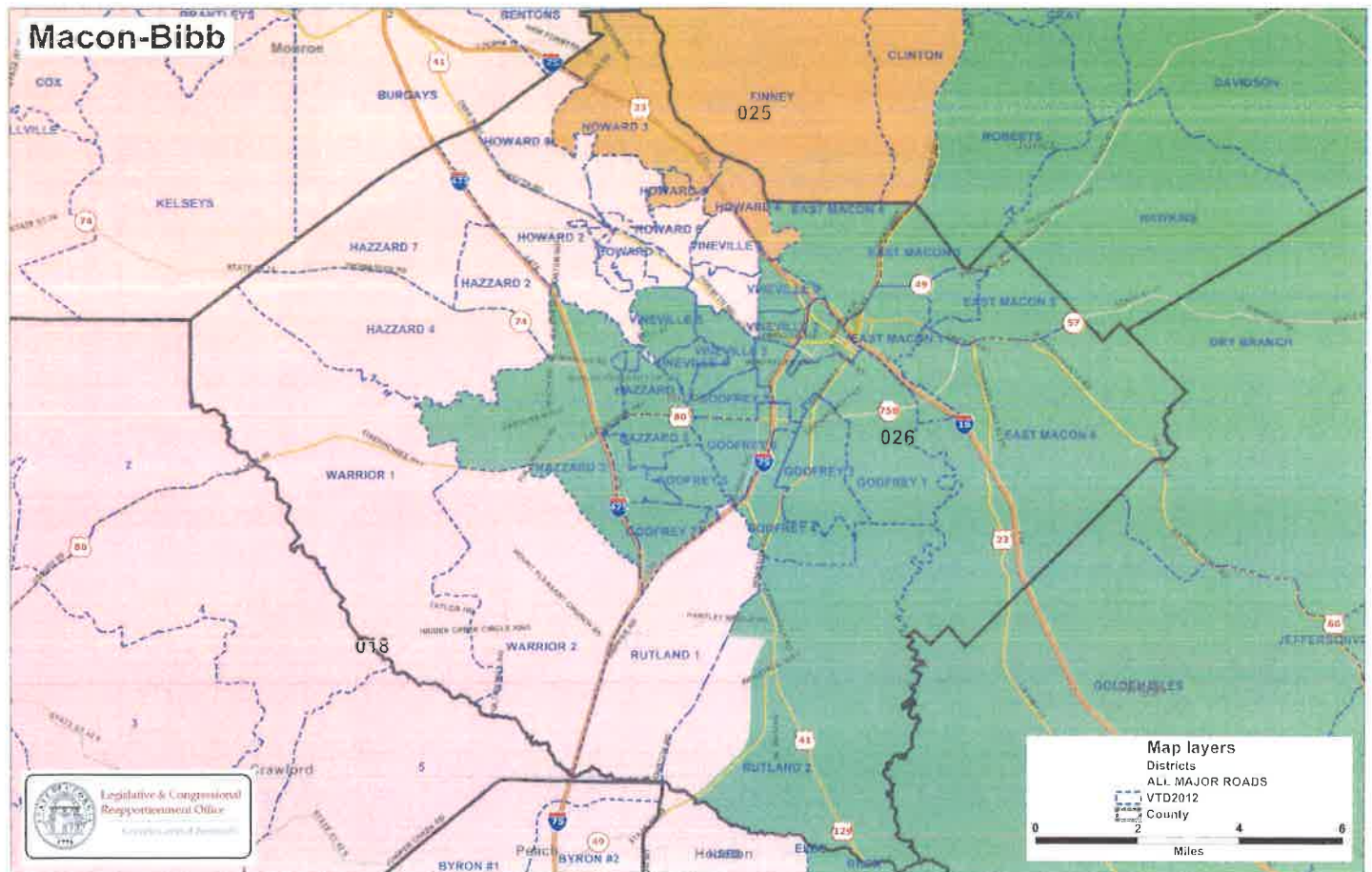
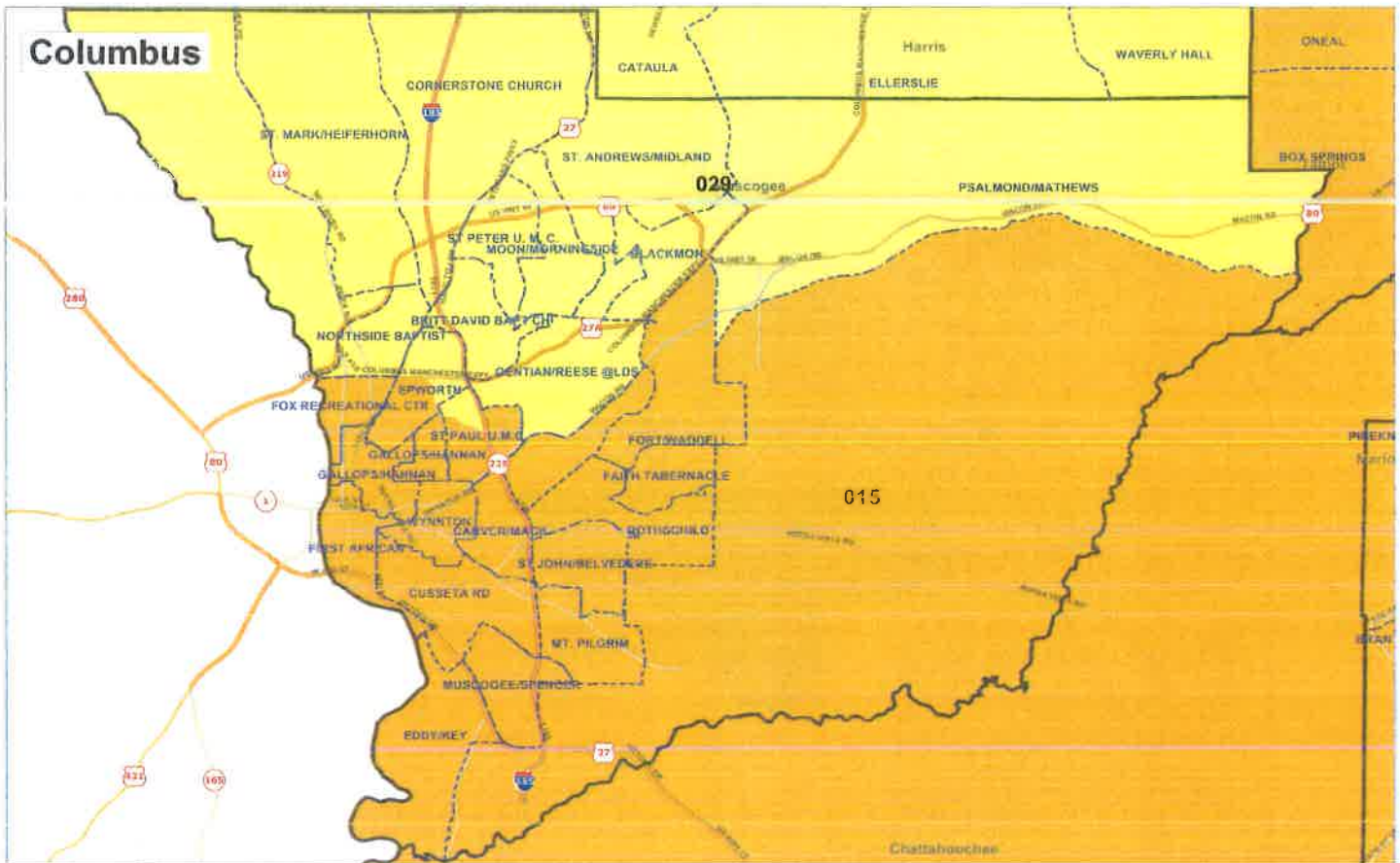


Georgia Senate Districts- effective for 2014 election

Client: State
Plan: Senate14
Type: Senate



Georgia Senate Districts effective for 2014 election

Client: State
Plan: Senate 14
Type: Senate

Plan Name: **Senate14**Plan Type : **Senate**User: **Gina**Administrator: **State**

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
001	171,350	-1,644	-0.95%	37,852	22.09%	2,493	40,345	23.55%	10,252	5.98%
VAP	127,614			26,202	20.53%	878	27,080	21.22%	6,353	4.98%
002	172,067	-927	-0.54%	92,824	53.95%	2,226	95,050	55.24%	9,860	5.73%
VAP	132,543			66,470	50.15%	1,050	67,520	50.94%	6,981	5.27%
003	171,952	-1,042	-0.60%	39,606	23.03%	1,755	41,361	24.05%	8,534	4.96%
VAP	129,192			28,065	21.72%	585	28,650	22.18%	5,463	4.23%
004	173,075	81	0.05%	41,571	24.02%	1,245	42,816	24.74%	8,958	5.18%
VAP	131,149			30,454	23.22%	468	30,922	23.58%	5,691	4.34%
005	172,513	-481	-0.28%	49,881	28.91%	2,901	52,782	30.60%	71,815	41.63%
VAP	119,904			33,732	28.13%	1,292	35,024	29.21%	45,746	38.15%
006	173,708	714	0.41%	39,863	22.95%	2,400	42,263	24.33%	24,754	14.25%
VAP	137,161			30,590	22.30%	1,349	31,939	23.29%	16,160	11.78%
007	171,498	-1,496	-0.86%	39,294	22.91%	1,115	40,409	23.56%	11,685	6.81%
VAP	128,245			28,401	22.15%	309	28,710	22.39%	6,972	5.44%
008	171,383	-1,611	-0.93%	56,380	32.90%	1,515	57,895	33.78%	9,198	5.37%
VAP	128,253			40,080	31.25%	592	40,672	31.71%	5,852	4.56%
009	173,867	873	0.50%	34,699	19.96%	2,110	36,809	21.17%	18,207	10.47%
VAP	125,254			22,663	18.09%	832	23,495	18.76%	11,604	9.26%
010	172,386	-608	-0.35%	118,775	68.90%	2,614	121,389	70.42%	7,140	4.14%
VAP	125,304			84,709	67.60%	1,289	85,998	68.63%	4,386	3.50%
011	172,584	-410	-0.24%	57,123	33.10%	959	58,082	33.65%	13,703	7.94%
VAP	127,856			39,947	31.24%	352	40,299	31.52%	8,305	6.50%
012	173,031	37	0.02%	107,565	62.17%	1,262	108,827	62.89%	6,147	3.55%
VAP	130,495			76,605	58.70%	556	77,161	59.13%	4,550	3.49%
013	171,539	-1,455	-0.84%	55,521	32.37%	951	56,472	32.92%	8,156	4.75%
VAP	128,351			39,341	30.65%	314	39,655	30.90%	5,009	3.90%
014	173,151	157	0.09%	15,505	8.95%	1,636	17,141	9.90%	18,976	10.96%
VAP	126,557			10,603	8.38%	465	11,068	8.75%	11,707	9.25%
015	173,280	286	0.17%	96,128	55.48%	2,958	99,086	57.18%	10,633	6.14%
VAP	128,462			69,203	53.87%	1,220	70,423	54.82%	6,935	5.40%

Plan Name: **Senate14**Plan Type : **Senate**User: **Gina**Administrator: **State**

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP OR LATINO	%HISP
016	172,012	-982	-0.57%	35,797	20.81%	1,478	37,275	21.67%	7,128	4.14%
VAP	127,450			25,465	19.98%	519	25,984	20.39%	4,552	3.57%
017	171,822	-1,172	-0.68%	51,053	29.71%	2,106	53,159	30.94%	7,980	4.64%
VAP	121,373			33,663	27.74%	747	34,410	28.35%	4,852	4.00%
018	172,982	-12	-0.01%	48,323	27.94%	1,242	49,565	28.63%	6,126	3.54%
VAP	132,567			35,668	26.91%	447	36,115	27.24%	3,906	2.95%
019	173,261	267	0.15%	45,980	26.54%	1,751	47,731	27.55%	15,524	8.96%
VAP	128,915			33,460	25.96%	529	33,989	26.37%	10,084	7.82%
020	173,859	865	0.50%	50,174	28.86%	1,700	51,874	29.84%	7,596	4.37%
VAP	128,979			35,317	27.38%	567	35,884	27.82%	4,759	3.69%
021	174,508	1,514	0.88%	11,300	6.48%	1,358	12,658	7.25%	11,742	6.73%
VAP	125,212			7,721	6.17%	489	8,210	6.56%	7,457	5.96%
022	171,645	-1,349	-0.78%	101,076	58.89%	2,998	104,074	60.63%	7,217	4.20%
VAP	129,039			71,660	55.53%	1,337	72,997	56.57%	4,982	3.86%
023	171,559	-1,435	-0.83%	62,136	36.22%	1,544	63,680	37.12%	5,511	3.21%
VAP	128,048			43,718	34.14%	496	44,214	34.53%	3,559	2.78%
024	172,595	-399	-0.23%	33,638	19.49%	1,599	35,237	20.42%	6,943	4.02%
VAP	129,147			24,539	19.00%	470	25,009	19.36%	4,236	3.28%
025	174,016	1,022	0.59%	52,329	30.07%	1,171	53,500	30.74%	5,684	3.27%
VAP	134,483			38,282	28.47%	378	38,660	28.75%	3,698	2.75%
026	171,351	-1,643	-0.95%	103,229	60.24%	1,561	104,790	61.16%	5,003	2.92%
VAP	126,588			72,782	57.50%	626	73,408	57.99%	3,298	2.61%
027	172,726	-268	-0.15%	4,490	2.60%	778	5,268	3.05%	16,179	9.37%
VAP	120,121			2,998	2.50%	277	3,275	2.73%	10,177	8.47%
028	172,358	-636	-0.37%	28,697	16.65%	1,436	30,133	17.48%	9,562	5.55%
VAP	126,140			20,138	15.96%	414	20,552	16.29%	6,218	4.93%
029	173,911	917	0.53%	45,511	26.17%	1,733	47,244	27.17%	7,317	4.21%
VAP	131,011			32,576	24.87%	552	33,128	25.29%	4,795	3.66%
030	172,531	-463	-0.27%	33,612	19.48%	2,207	35,819	20.76%	10,302	5.97%
VAP	125,663			23,275	18.52%	700	23,975	19.08%	6,291	5.01%

Plan Name: **Senate14**Plan Type : **Senate**User: **Gina**Administrator: **State**

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP. OR LATINO	%HISP
031	174,298	1,304	0.75%	23,616	13.55%	1,798	25,414	14.58%	10,762	6.17%
VAP	124,828			15,799	12.66%	511	16,310	13.07%	6,220	4.98%
032	174,271	1,277	0.74%	14,817	8.50%	1,334	16,151	9.27%	9,811	5.63%
VAP	130,854			10,791	8.25%	542	11,333	8.66%	6,539	5.00%
033	174,114	1,120	0.65%	62,936	36.15%	3,058	65,994	37.90%	33,571	19.28%
VAP	128,718			43,422	33.73%	1,379	44,801	34.81%	20,775	16.14%
034	173,063	69	0.04%	108,169	62.50%	2,853	111,022	64.15%	24,642	14.24%
VAP	123,516			75,265	60.94%	1,375	76,640	62.05%	15,146	12.26%
035	173,728	734	0.42%	107,338	61.79%	3,013	110,351	63.52%	13,774	7.93%
VAP	122,650			72,472	59.09%	1,309	73,781	60.16%	8,213	6.70%
036	172,083	-911	-0.53%	103,348	60.06%	2,338	105,686	61.42%	12,232	7.11%
VAP	137,631			78,481	57.02%	1,630	80,111	58.21%	8,800	6.39%
037	172,832	-162	-0.09%	30,548	17.67%	1,919	32,467	18.79%	13,258	7.67%
VAP	126,053			20,606	16.35%	802	21,408	16.98%	8,429	6.69%
038	174,530	1,536	0.89%	110,537	63.33%	2,421	112,958	64.72%	17,411	9.98%
VAP	129,186			80,556	62.36%	1,289	81,845	63.35%	10,835	8.39%
039	173,809	815	0.47%	110,761	63.73%	2,303	113,064	65.05%	9,651	5.55%
VAP	139,465			83,562	59.92%	1,557	85,119	61.03%	6,962	4.99%
040	173,539	545	0.32%	26,747	15.41%	1,754	28,501	16.42%	36,807	21.21%
VAP	133,946			20,482	15.29%	1,010	21,492	16.05%	25,354	18.93%
041	173,452	458	0.26%	90,037	51.91%	2,732	92,769	53.48%	23,281	13.42%
VAP	127,577			64,136	50.27%	1,444	65,580	51.40%	14,850	11.64%
042	172,447	-547	-0.32%	42,913	24.88%	1,779	44,692	25.92%	24,229	14.05%
VAP	138,757			33,570	24.19%	1,094	34,664	24.98%	16,922	12.20%
043	172,105	-889	-0.51%	105,035	61.03%	2,631	107,666	62.56%	12,251	7.12%
VAP	123,175			71,792	58.28%	1,213	73,005	59.27%	7,461	6.06%
044	174,464	1,470	0.85%	122,966	70.48%	2,787	125,753	72.08%	14,561	8.35%
VAP	127,853			87,966	68.80%	1,378	89,344	69.88%	9,051	7.08%
045	173,558	564	0.33%	24,226	13.96%	1,927	26,153	15.07%	22,225	12.81%
VAP	120,526			15,902	13.19%	691	16,593	13.77%	13,760	11.42%

Plan Name: **Senate14**Plan Type : **Senate**User: **Gina**Administrator: **State**

DISTRICT	POPULATION	DEVIATION	% DEVIATION	BLACK	% BLACK	BLACK COMBO	TOTAL BLACK	%TOTAL BLACK	HISP OR LATINO	%HISP
046	174,230	1,236	0.71%	30,244	17.36%	1,313	31,557	18.11%	8,606	4.94%
VAP	135,912			21,845	16.07%	563	22,408	16.49%	5,673	4.17%
047	174,417	1,423	0.82%	25,803	14.79%	1,534	27,337	15.67%	16,455	9.43%
VAP	129,264			18,117	14.02%	489	18,606	14.39%	9,911	7.67%
048	171,240	-1,754	-1.01%	25,398	14.83%	1,929	27,327	15.96%	21,232	12.40%
VAP	122,833			17,133	13.95%	794	17,927	14.59%	13,645	11.11%
049	173,823	829	0.48%	12,877	7.41%	1,070	13,947	8.02%	44,504	25.60%
VAP	125,571			9,143	7.28%	322	9,465	7.54%	25,911	20.63%
050	171,792	-1,202	-0.69%	9,219	5.37%	1,099	10,318	6.01%	13,621	7.93%
VAP	131,117			6,960	5.31%	256	7,216	5.50%	7,940	6.06%
051	173,593	599	0.35%	1,471	0.85%	498	1,969	1.13%	7,454	4.29%
VAP	136,858			1,128	0.82%	148	1,276	0.93%	4,570	3.34%
052	172,494	-500	-0.29%	19,604	11.37%	1,418	21,022	12.19%	18,234	10.57%
VAP	128,253			13,936	10.87%	368	14,304	11.15%	10,849	8.46%
053	173,151	157	0.09%	7,102	4.10%	1,091	8,193	4.73%	3,905	2.26%
VAP	132,044			5,563	4.21%	239	5,802	4.39%	2,345	1.78%
054	173,417	423	0.24%	4,520	2.61%	968	5,488	3.16%	38,990	22.48%
VAP	125,379			3,377	2.69%	250	3,627	2.89%	22,395	17.86%
055	174,196	1,202	0.69%	114,253	65.59%	3,254	117,507	67.46%	11,564	6.64%
VAP	123,203			78,012	63.32%	1,571	79,583	64.60%	6,951	5.64%
056	174,487	1,493	0.86%	26,018	14.91%	2,040	28,058	16.08%	22,826	13.08%
VAP	129,856			19,127	14.73%	996	20,123	15.50%	14,917	11.49%

Total Population: 9,687,653

Ideal Value: 172,994

Summary Statistics

Population Range: 171,240 to 174,530

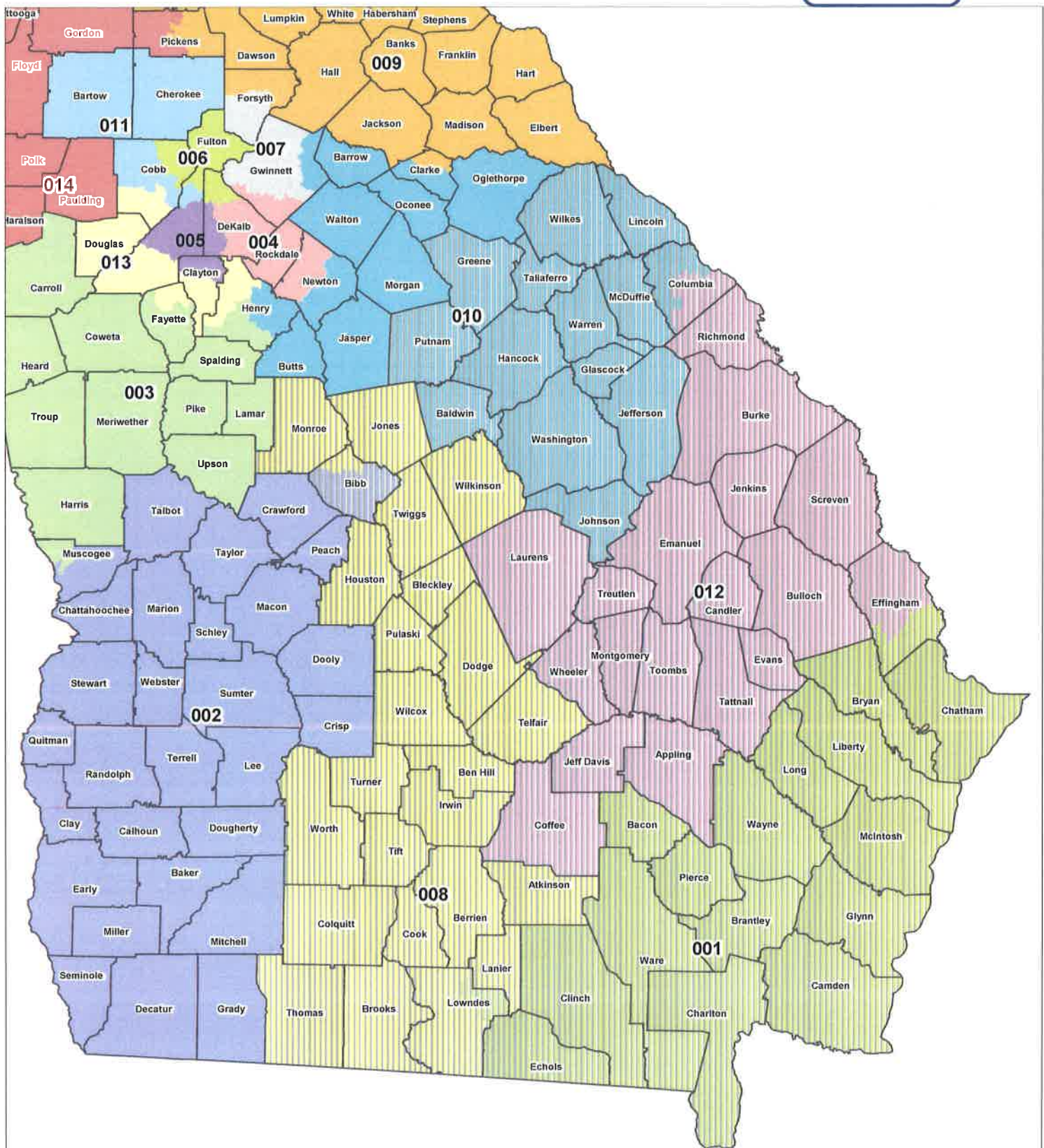
Absolute Overall Range: 3,290

Relative Range: -1.01% to 0.89%

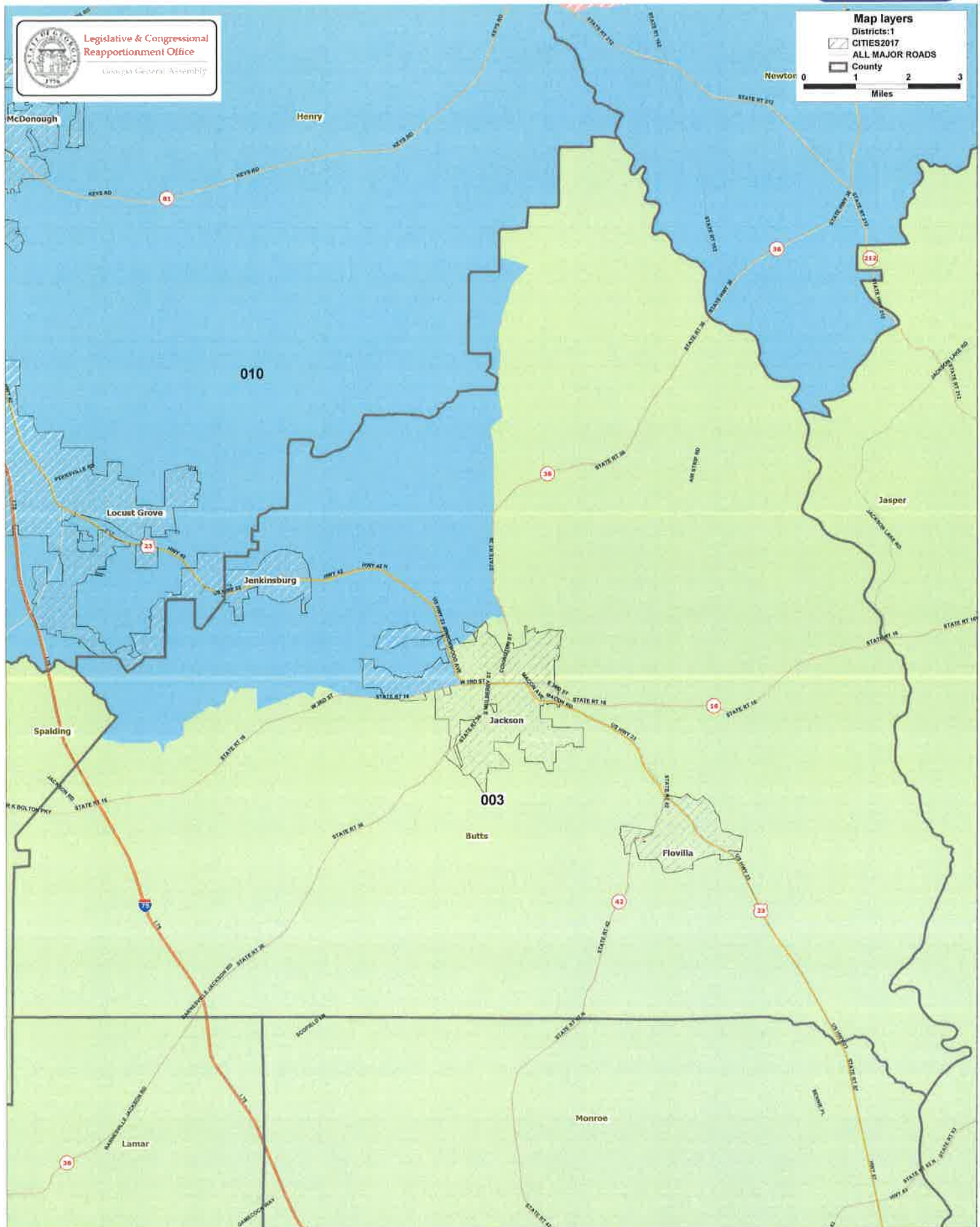
Relative Overall Range: 1.90%

71 County Region over Current Congressional Map

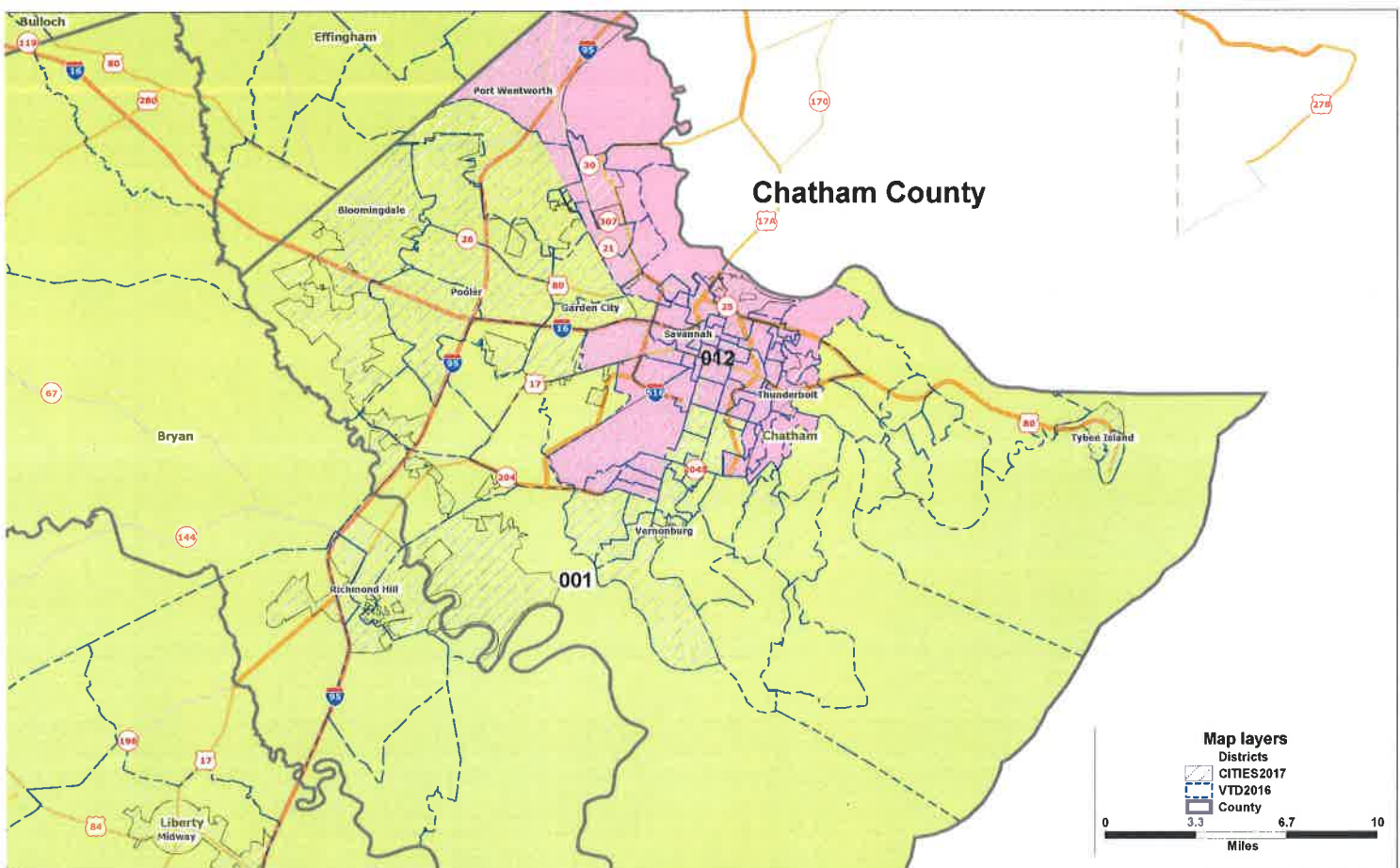
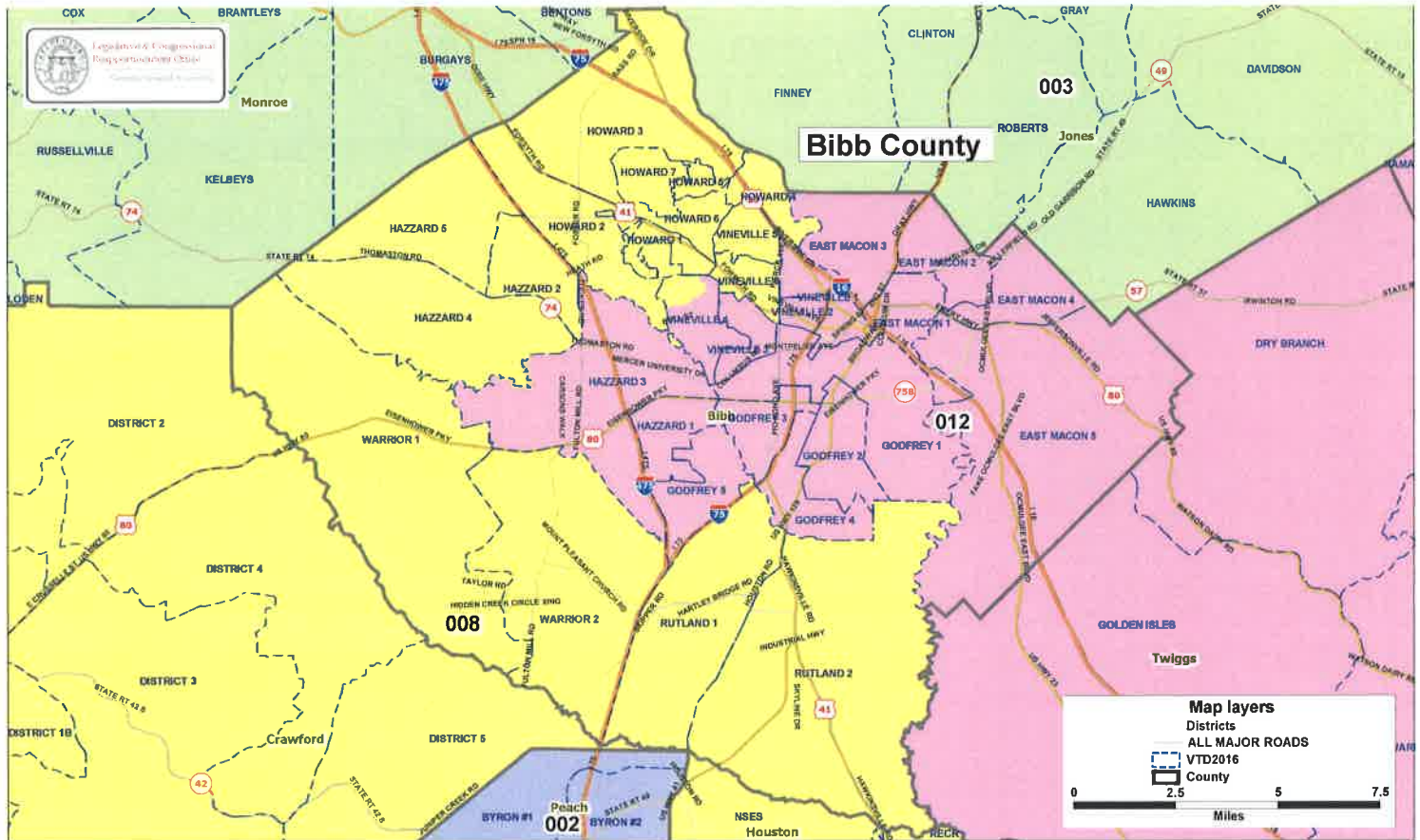
EXHIBIT 7

Client: State
Plan: Congress12
Type: Congress

Illustrative Plan 1- Split County- Butts County

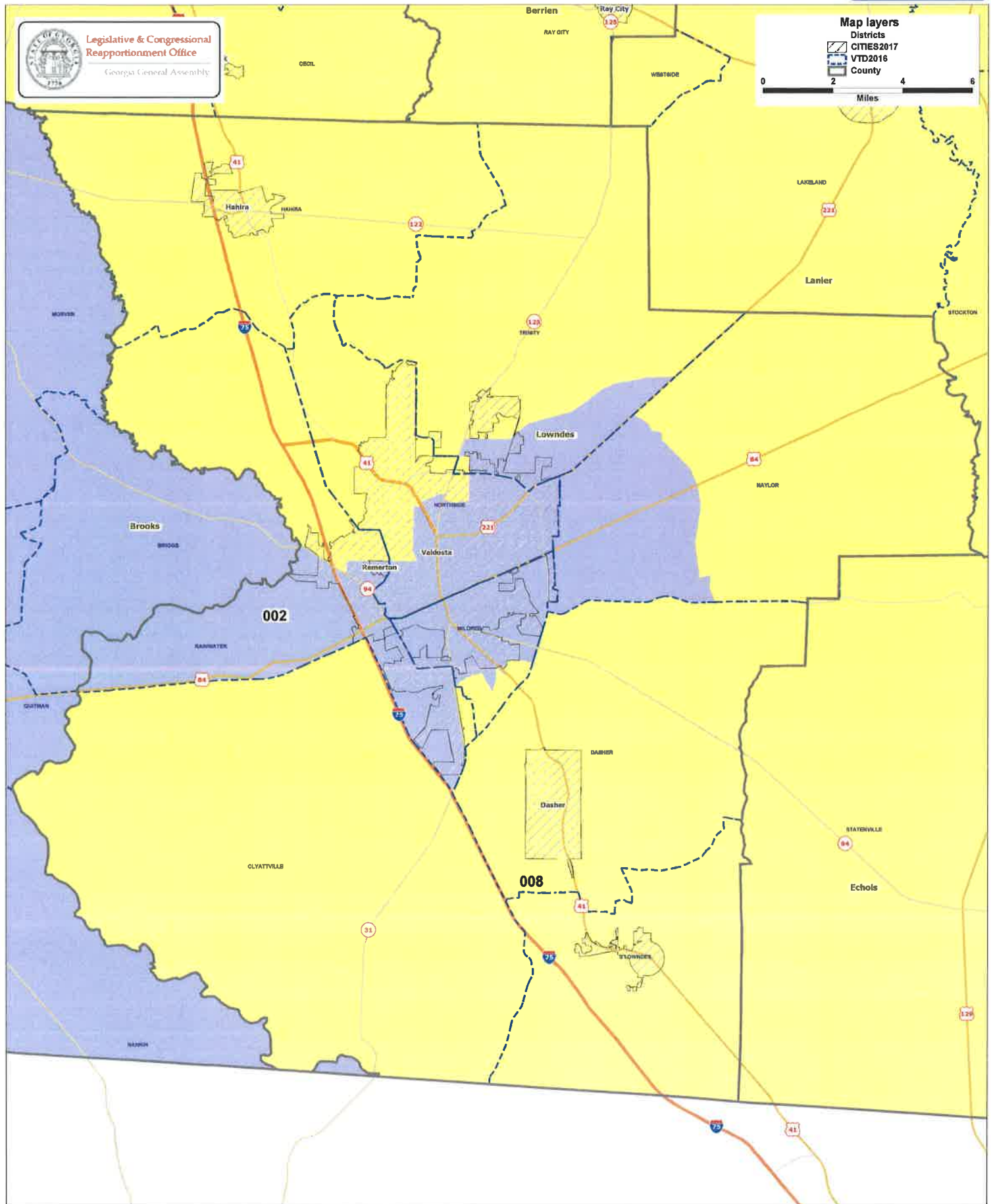


Illustrative Plan 1- Split Counties- Bibb and Chatham Counties



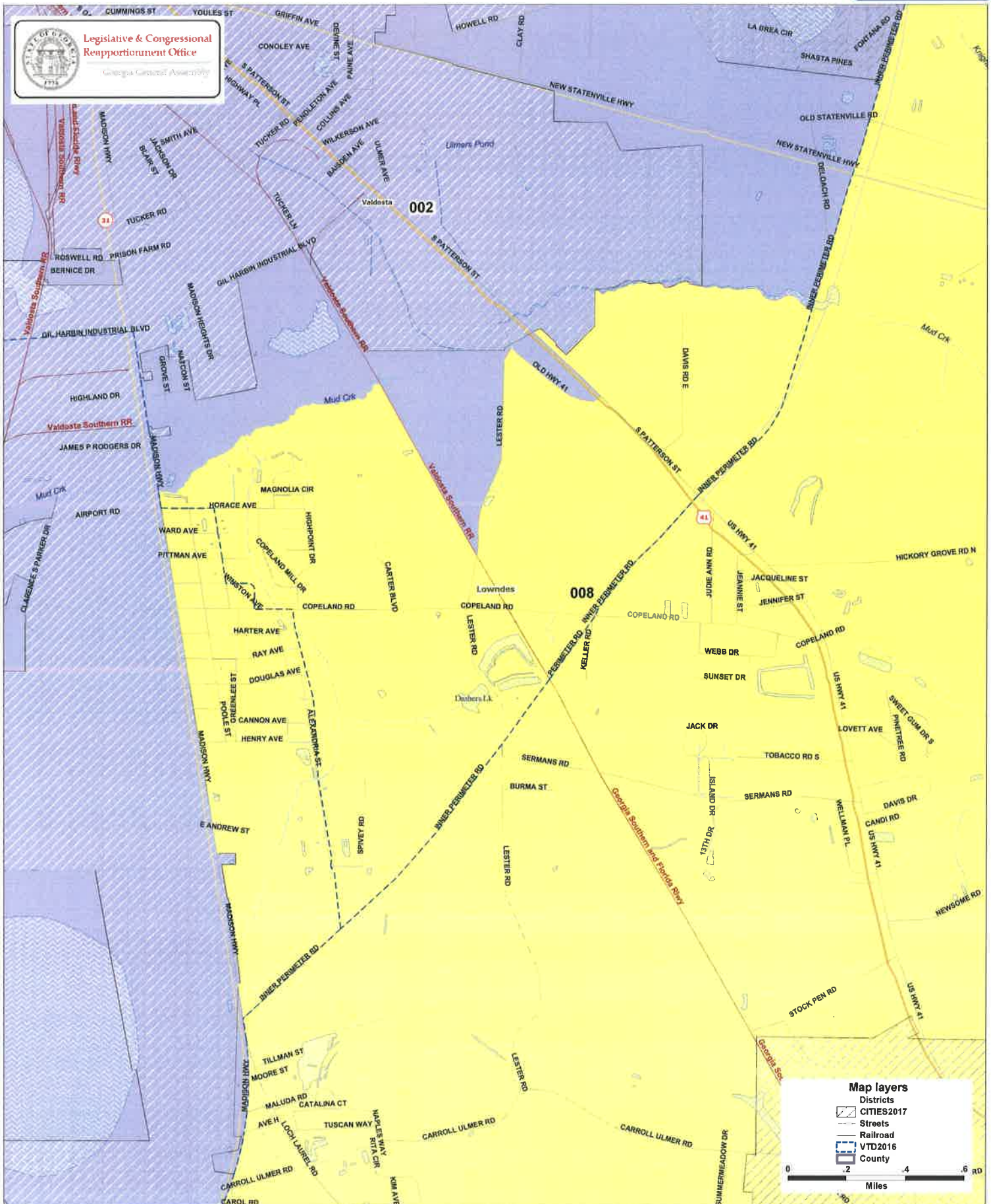
Illustrative Plan 1- Split County- Lowndes County

EXHIBIT 9A



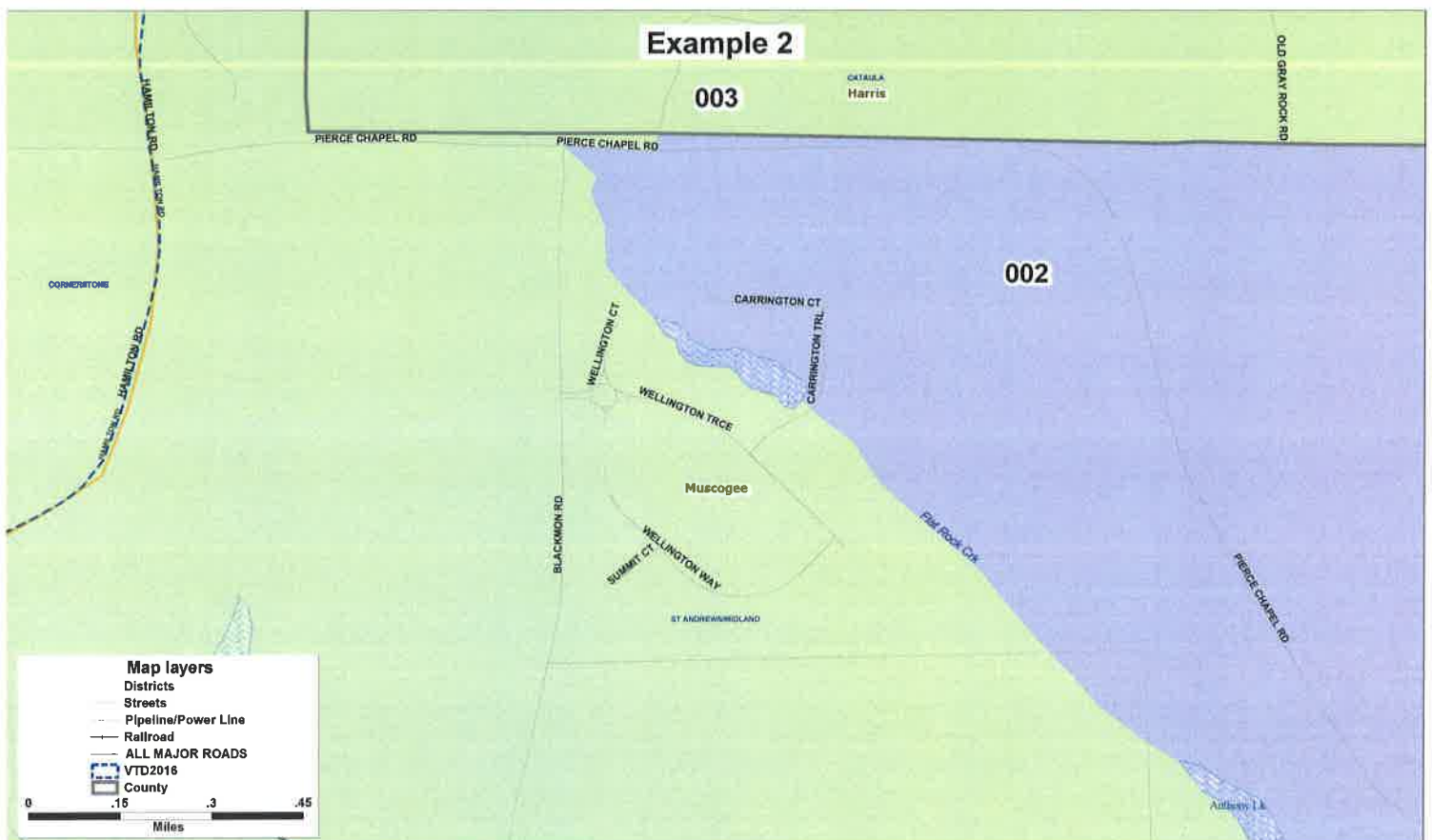
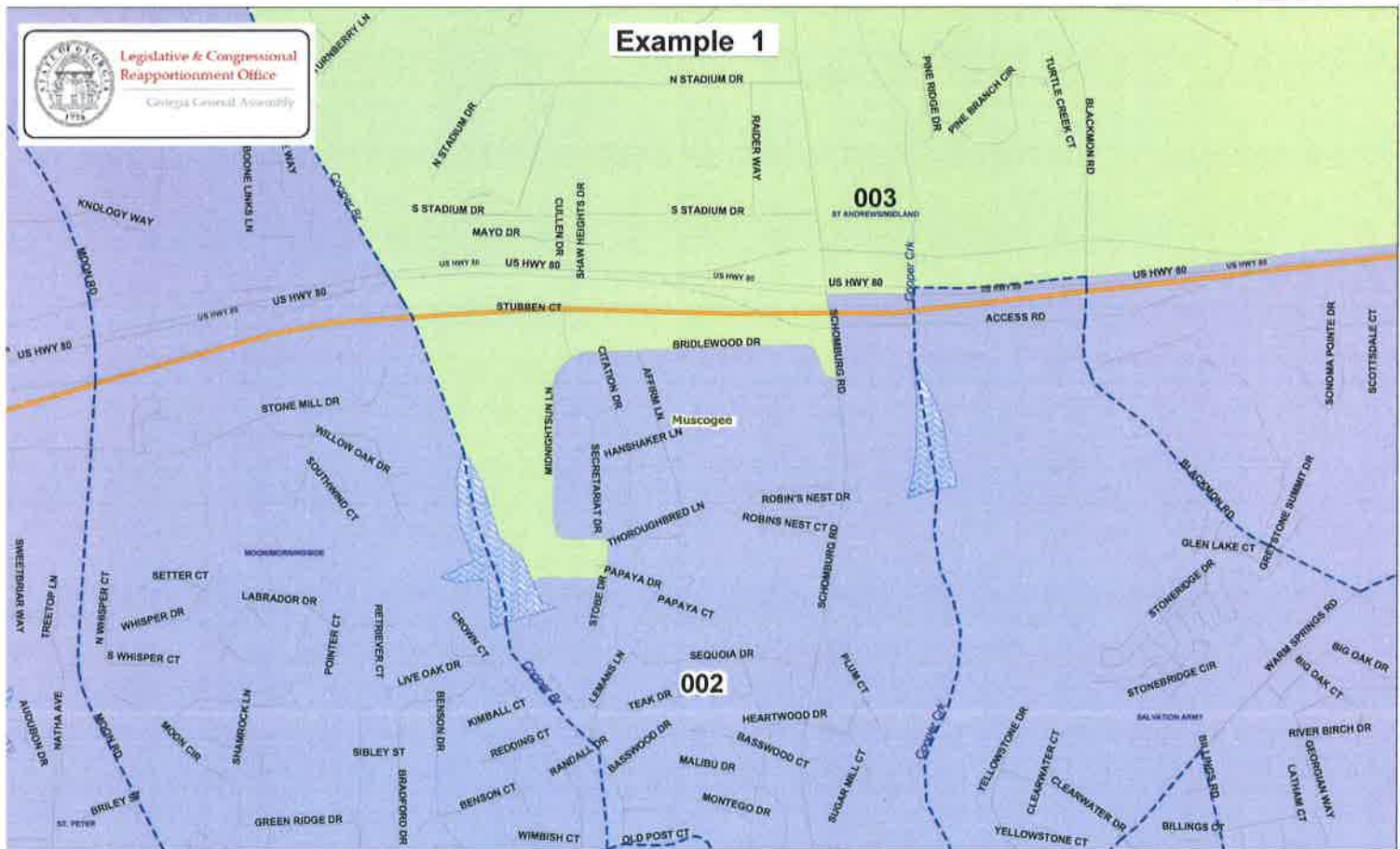
Illustrative Plan 1- Split County- Lowndes County Detail

EXHIBIT 9B



Illustrative Plan 1- Split Neighborhoods- Muscogee County

EXHIBIT 10



Illustrative Plan 1- Split City of Guyton

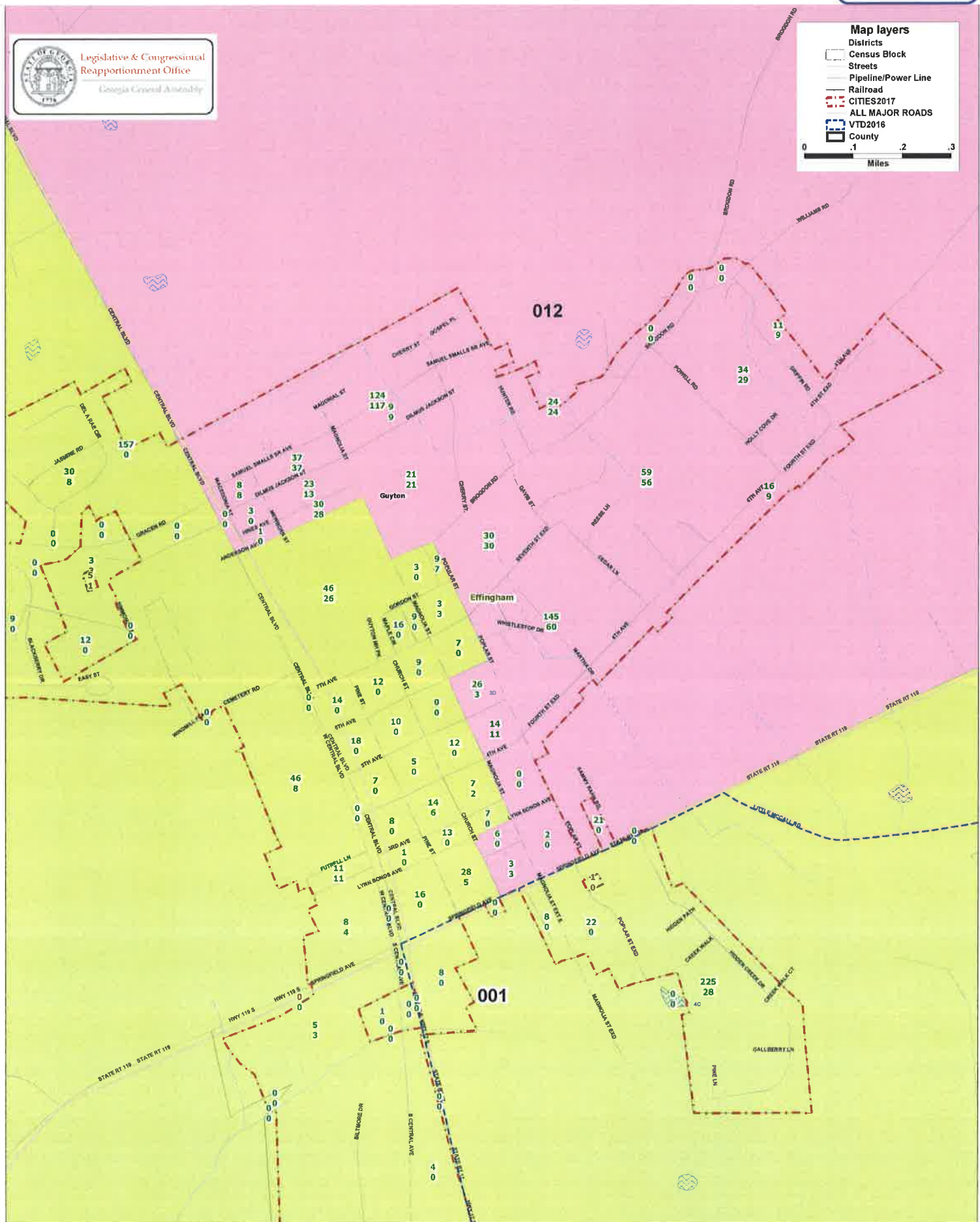


EXHIBIT 12

User: State
Plan Name: Congress12
Plan Type: Congress

Measures of Compactness Report

Friday, December 14, 2018

4:26 PM

Sum	N/A
Min	0.33
Max	0.55
Mean	0.45
Std. Dev.	0.07

District	Reock
001	0.39
002	0.44
003	0.55
004	0.54
005	0.52
006	0.49
007	0.45
008	0.33
009	0.36
010	0.52
011	0.50
012	0.41
013	0.38
014	0.45

EXHIBIT 12A

User: State

Plan Name: Illus_1Dwight

Plan Type: Congress

Measures of Compactness Report

Friday, December 14, 2018

4:12 PM

Sum	N/A
Min	0.26
Max	0.54
Mean	0.42
Std. Dev.	0.08

District	Reock
----------	-------

001	0.48
002	0.42
003	0.37
004	0.54
005	0.52
006	0.49
007	0.45
008	0.35
009	0.36
010	0.26
011	0.50
012	0.35
013	0.38
014	0.45

EXHIBIT 12B

User: State

Plan Name: Illus_2Dwight

Plan Type: Congress

Measures of Compactness Report

Tuesday, December 18, 2018

11:58 AM

Sum	N/A
Min	0.34
Max	0.54
Mean	0.44
Std. Dev.	0.07

District	Reock
----------	-------

001	0.48
002	0.41
003	0.49
004	0.54
005	0.52
006	0.49
007	0.45
008	0.35
009	0.36
010	0.39
011	0.50
012	0.34
013	0.38
014	0.45

User: State

Plan Name: Congress12

Plan Type: Congress

Measures of Compactness Report

Friday, December 14, 2018

4:27 PM

Sum	0.00	N/A
Min	N/A	0.16
Max	N/A	0.37
Mean	N/A	0.26
Std. Dev.	N/A	0.06

District	Perimeter	Polsby-Popper
001		0.22
002		0.31
003		0.28
004		0.27
005		0.37
006		0.27
007		0.26
008		0.16
009		0.30
010		0.27
011		0.28
012		0.18
013		0.16
014		0.31

EXHIBIT 13A

User: State

Plan Name: Illus_1Dwight

Plan Type: Congress

Measures of Compactness Report

Friday, December 14, 2018

4:13 PM

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Min	N/A	0.14
Max	N/A	0.37
Mean	N/A	0.24
Std. Dev.	N/A	0.07

District	Perimeter	Polsby-Popper
001		0.25
002		0.19
003		0.22
004		0.27
005		0.37
006		0.27
007		0.26
008		0.14
009		0.30
010		0.16
011		0.28
012		0.16
013		0.16
014		0.31

User: State

Plan Name: Illus_2Dwight

Plan Type: Congress

Measures of Compactness Report

Tuesday, December 18, 2018

12:12 PM

Sum	0.00	N/A
Min	N/A	0.15
Max	N/A	0.37
Mean	N/A	0.25
Std. Dev.	N/A	0.06

District	Perimeter	Polsby-Popper
001		0.25
002		0.22
003		0.26
004		0.27
005		0.37
006		0.27
007		0.26
008		0.15
009		0.30
010		0.24
011		0.28
012		0.17
013		0.16
014		0.31

EXHIBIT 14

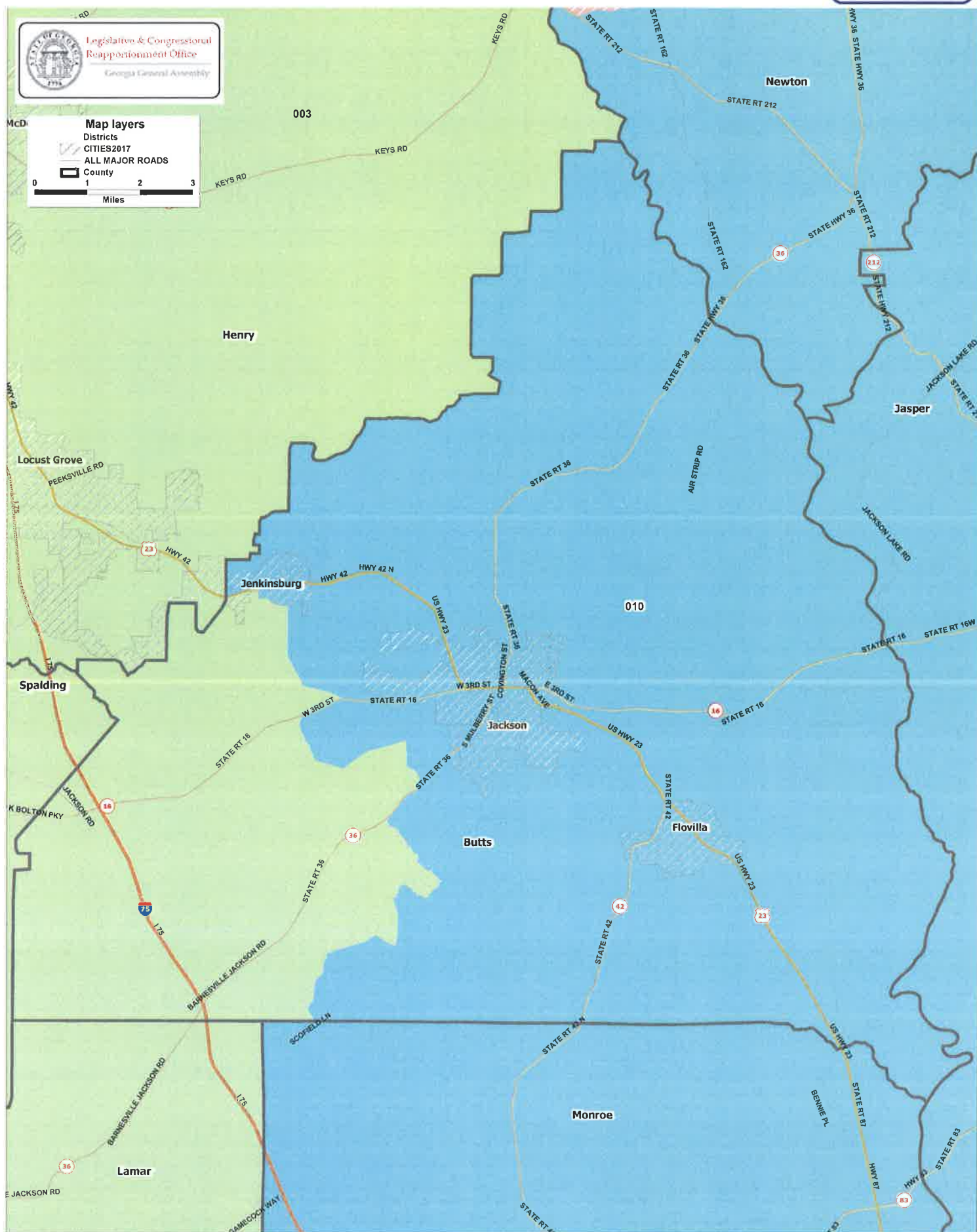


EXHIBIT 15

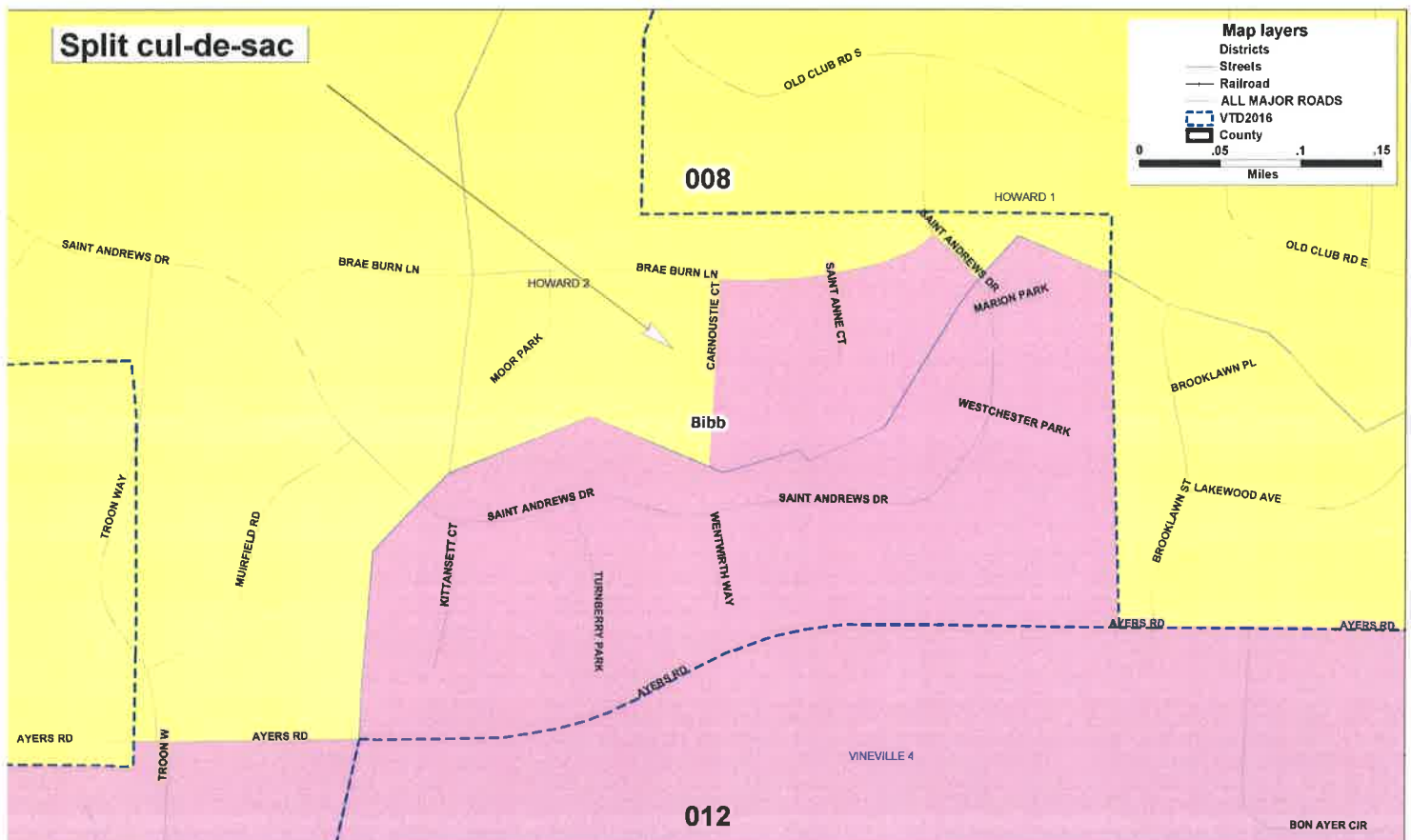
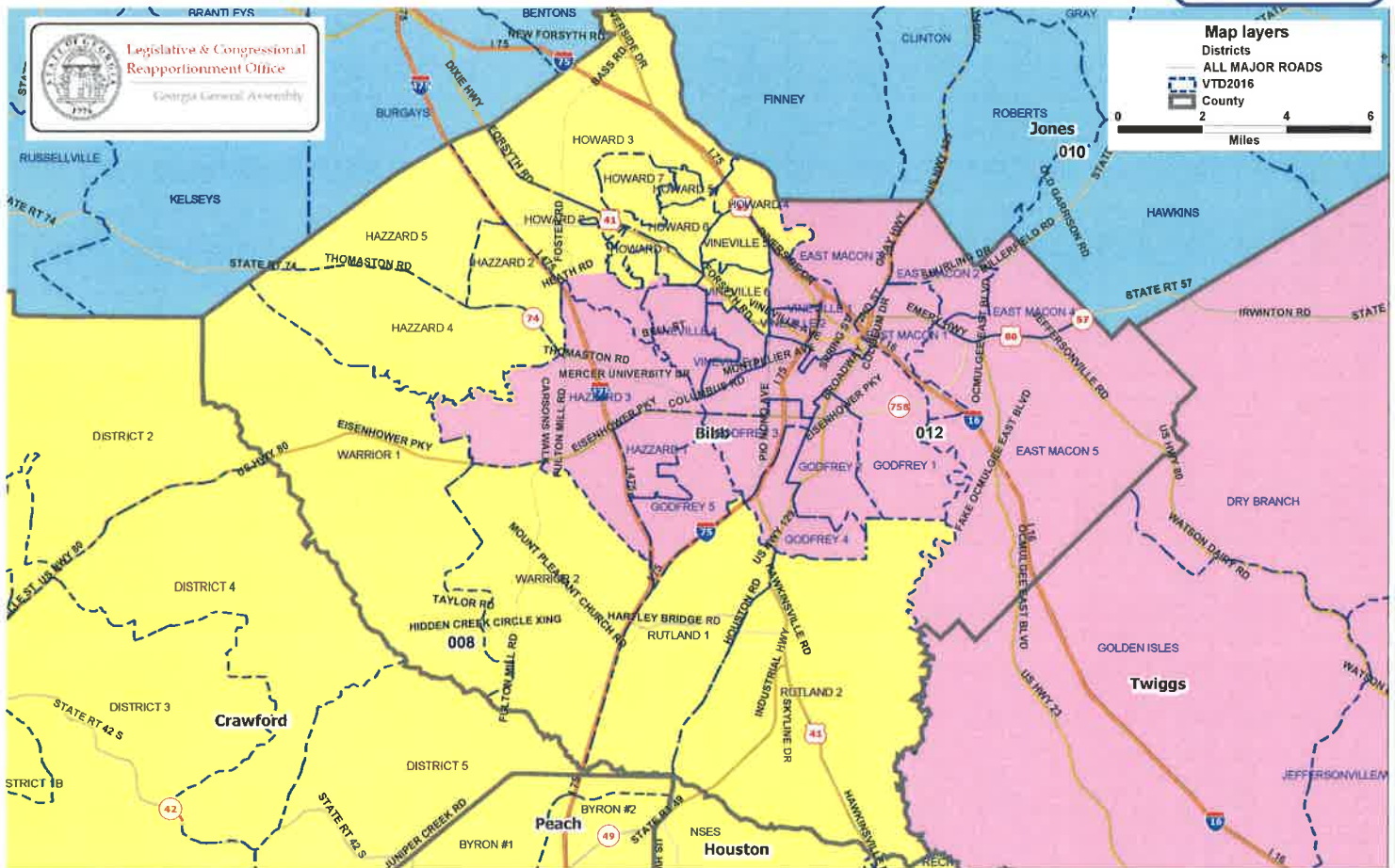


EXHIBIT 16

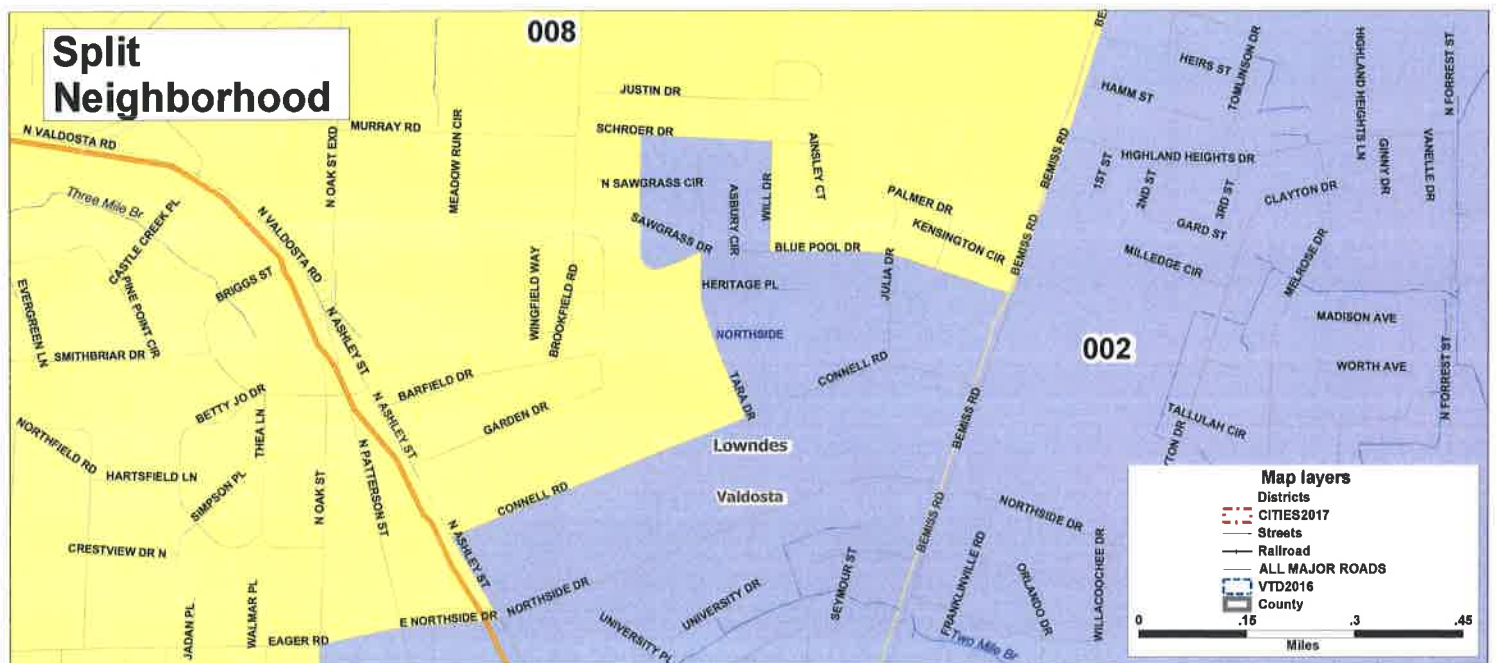
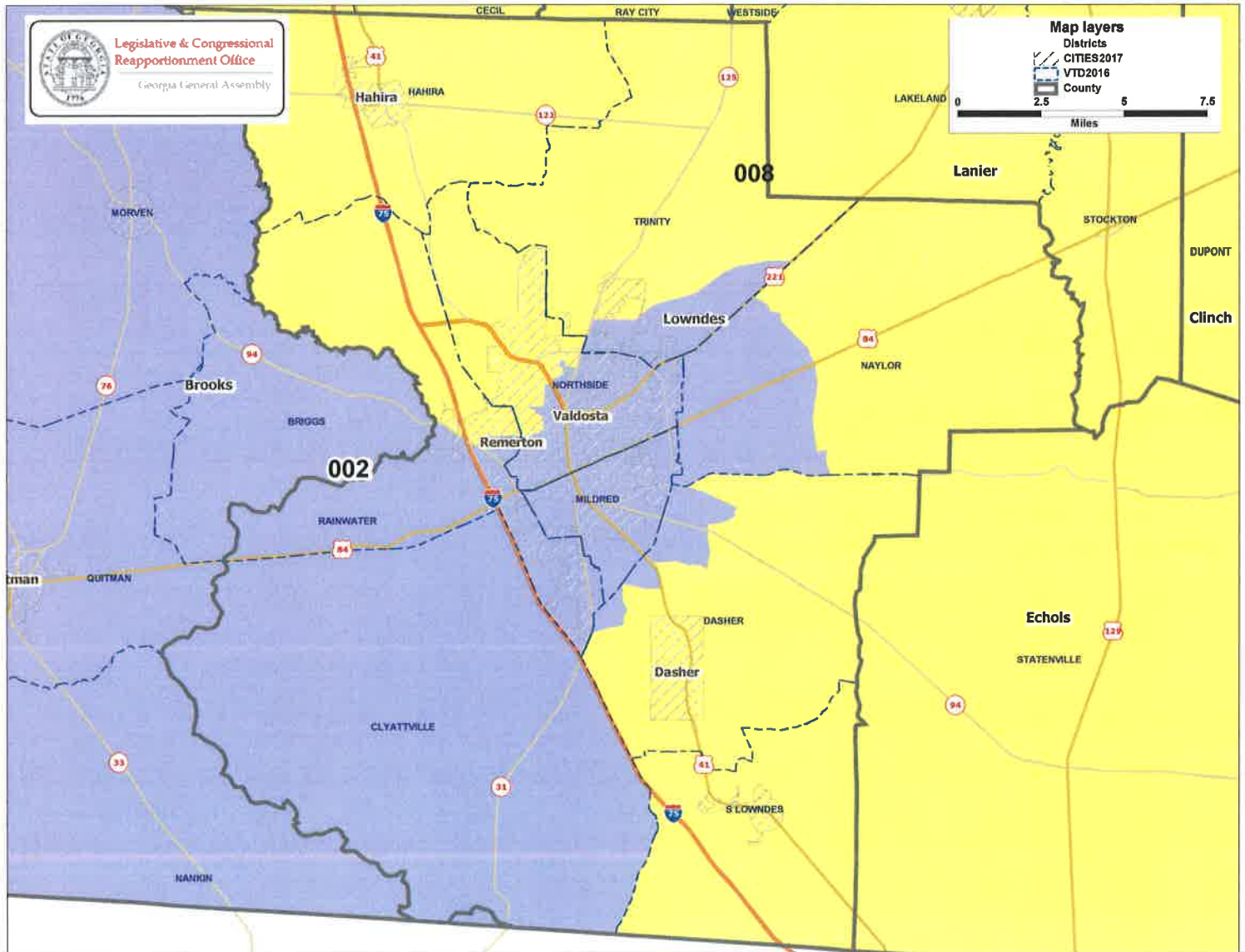
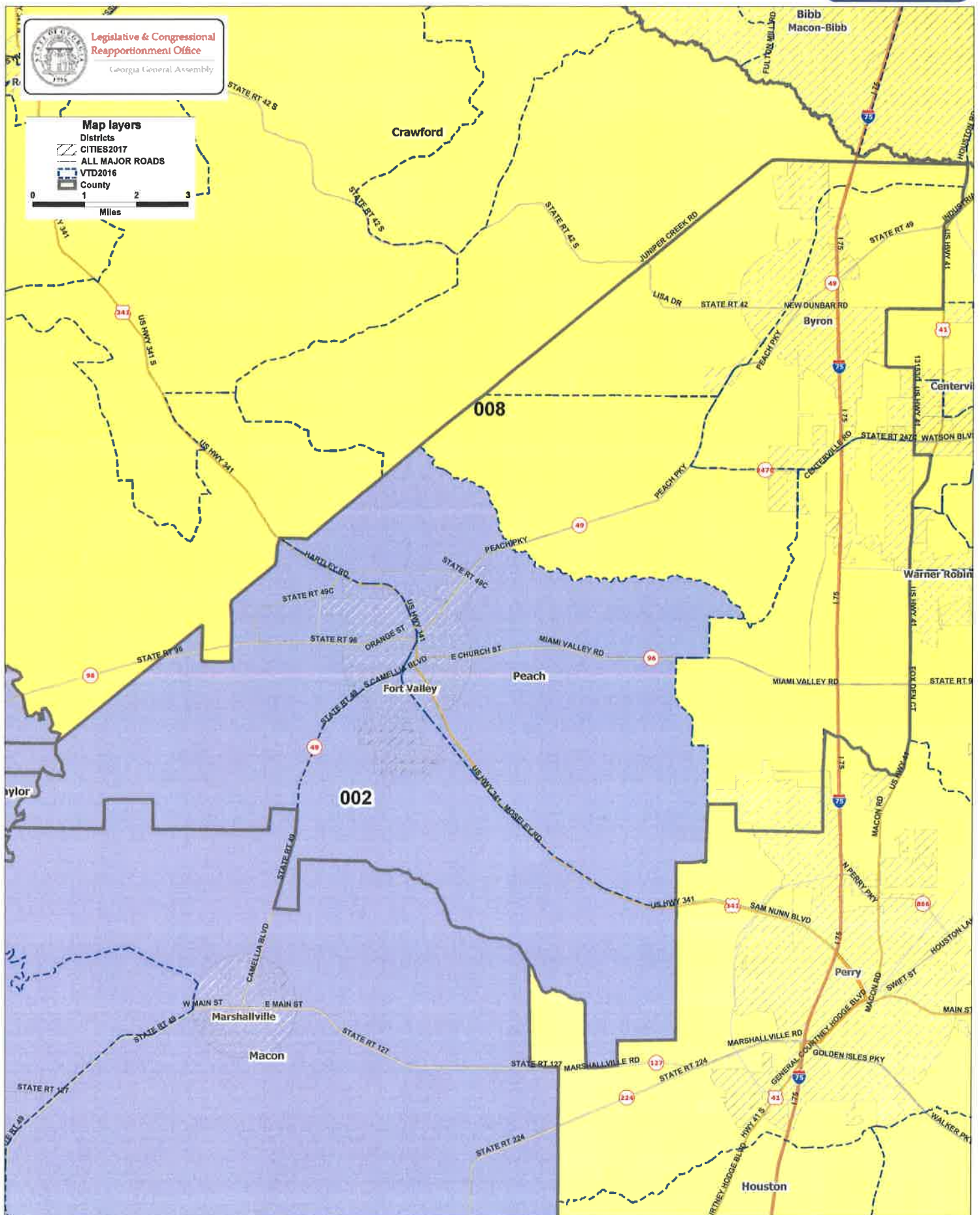


EXHIBIT 17



**United States District Court
for the Northern District of Georgia**

***Dwight, et al. v. Kemp,*
No. 1:18-cv-2869-RWS**

EXPERT REPORT OF JOHN R. ALFORD, Ph.D.

Scope of Inquiry

I have been retained by the Georgia Secretary of State as an expert to provide analysis related to *Dwight, et al. v. Kemp*, a Voting Rights Act challenge related to the current U.S. Congressional districts in Georgia. I have examined the various reports provided by plaintiffs' experts Dr. Maxwell Palmer and Dr. Kenneth Mayer in this case. The analysis here includes a replication of the Ecological Inference analysis of past elections included in Dr. Palmer's report in this case. There is also an update of that analysis to include a similar analysis of the recent 2018 elections. In addition, I address a limited set of the issues raised by Dr. Mayer in his report in this case. My rate of compensation in this matter is \$400 per hour.

Qualifications

I am a tenured full professor of political science at Rice University. At Rice, I have taught courses on redistricting, elections, political representation, voting behavior and statistical methods at both the undergraduate and graduate level. Over the last thirty years, I have worked with numerous local governments on districting plans and on Voting Rights Act issues. I have previously provided expert reports and/or testified as an expert witness in voting rights and

statistical issues in a variety of court cases, working for the U.S. Attorney in Houston, the Texas Attorney General, a U.S. Congressman and various cities and school districts.

In the 2000 round of redistricting, I was retained as an expert to provide advice to the Texas Attorney General in his role as Chair of the Legislative Redistricting Board. I subsequently served as the expert for the State of Texas in the state and federal litigation involving the 2001 redistricting for U.S. Congress, the Texas Senate, the Texas House of Representatives, and the Texas State Board of Education. I have also worked as an expert on redistricting and voting rights cases in Louisiana, New Mexico, Mississippi, Wisconsin, Florida, Georgia, Michigan, New York, and Alabama. The details of my academic background, including all publications in the last ten years, and work as an expert, including all cases in which I have testified by deposition or at trial in the last four years, are covered in the attached CV (Appendix 2).

Data and Sources

In preparing my report, I have reviewed the reports filed by the plaintiffs' experts in this case. I have relied on precinct level data, including election results, and voter turnout data available publicly from the Georgia Secretary of State's web site, data provided by Dr. Palmer related to his report in this case, as well as additional 2018 election data provided by the Georgia Secretary of State.

Dr. Mayer's Analysis of Voter Participation

Dr. Mayer, in his report in this case, offers an analysis of Black and white socioeconomic conditions and voter participation in Georgia and in the 'focus area' of this case. He states that

for Blacks in Georgia “these socioeconomic disadvantages translate directly into a diminished ability to participate in the political process” (page 6, Mayer report). However, when he turns to actual participation the differences between Blacks and whites in terms of the rates at which they participate are often very modest. As his Table 3 indicates, the gap in turnout as a proportion of eligible population has in some elections been almost zero. In 2008, Black turnout was 60.6% of Black CVAP and non-Hispanic white turnout was 60.9% of non-Hispanic white CVAP. In 2012, Black turnout was 55.0% of Black CVAP and non-Hispanic white turnout was 56.5 % of non-Hispanic white CVAP. The turnout gap was modestly higher in the other elections, but the point is that whatever the potential barriers, socioeconomic or otherwise, to Black voter participation, Black voter participation rates in Georgia are very similar to white voter participation rates, and Black voters have demonstrated the ability to essentially match white voter participation rates in more than one previous election cycle.

The comparisons cited above are in terms of what proportion of the eligible population actually turns out to vote. This measure incorporates any differential in registration, as only registered voters are allowed to vote. Dr. Mayer focuses on the proportion of registered voters that turned out, as reported in his Table 2 and the remaining Tables. There are somewhat larger gaps in participation in his Table 2, where in 2008, for example, Black turnout was 75.8% of Black registrants and non-Hispanic white turnout was 77.4 % of non-Hispanic white registrants. While there is a modest gap, essentially three-quarters of both groups of registered voters turned out, again despite whatever socioeconomic difference existed. In addition, focusing on share of registrants, rather than share of the eligible population (CVAP), is problematic in part because the proportion of registered voters that turnout does not capture any differences in the rates of registration among white and Black voters.

Election Analysis Replication 2012, 2014, and 2016

To assess the degree of racially polarized voting Dr. Palmer analyzes three recent election cycles (2012, 2014, and 2016) in what he defines as the ‘focus area’ region around Congressional District 12. This focus area includes District 12 and the adjacent area of District 1 and District 8, as well as the southern portion of District 10, excluding the northern counties that are included in the Atlanta or Athens MSAs. In each election year he includes an Ecological Inference analysis of the voting patterns of groups of voters that have self-identified on their voter registration forms as Black, white, or other. The statewide elections analyzed include elections for U.S. President, U.S. Senate, Governor, Lieutenant Governor, Secretary of State, Attorney General, Commissioner of Agriculture, Commissioner of Insurance, Commissioner of Labor, and School Superintendent, in the respective years in which those offices are on the ballot and include a major party contest – that is both a Democratic and a Republican candidate.

The scripts and data provided by Dr. Palmer allow for an independent replication of the EI analysis that provides the results he reports in Tables 1 through Table 5, and his Figure 2 through Figure 6 (pages 10-19 of his report). That replication matches his reported estimates for each election contest and each racial category. Given that, I will discuss these estimates using the validated numerical results provided in those tables in Dr. Palmer’s report.

This analysis of the statewide (exogenous) elections is reported in Dr. Palmer’s Table 5 for the entire combined geography and yields a total of 12 individual contests. In Table 1 through Table 4 of his report, Dr. Palmer includes analysis for this same set of statewide exogenous elections along with analysis for the U.S. House contest, but here the analysis is based

on only the geography of each of the four congressional districts, and there is a separate table for each district.

This district level analysis yields a total of 15 contests in Dr. Palmer's Table 1 for CD 12 (where the House seat was contested in each of the three years). Dr. Palmer's Table 2 for CD 1 has a total of 14 contests (the Republican incumbent had no Democratic opponent in 2016). Dr. Palmer's Table 3 for CD 8 has a total of 13 contests (the Republican incumbent had no Democratic opponent in 2012 or in 2014). Dr. Palmer's Table 4 for CD 10 has a total of 13 contests (the Republican candidate had no Democratic opponent in 2012 or in 2016). Taken together Dr. Palmer's Table 1 through Table 5 yield a total of 67 individual contests.

Dr. Palmer proceeds by using his EI election analysis to identify the candidate of choice of Black voters in each of these 67 contests. The race of each candidate is indicated in Dr. Palmer's Tables 1 through 5 with an asterisk by the name of each Black candidate. Beyond this labeling, there is no discussion of the impact, if any, that the race of the candidate might have on the behavior of Black or white voters in these contests. While he indicates the race of candidates, Dr. Palmer provides no indication at all of the party affiliation of the candidates in these contests, provides no party labels in any of his tables, and does not mention the party of candidates in his discussion of the results of his analysis.

Dr. Palmer does recognize that the party affiliation of candidates is important here, as he excludes contests that do not include both a Republican and a Democratic candidate. In addition, he excludes any votes cast for third party or write-in candidates from his analysis. If we do consider the party affiliation of the candidates, the pattern over these election contests is stark. In all 67 contests, the candidate of choice of Black voters is the Democrat and the candidate of choice of white voters is the Republican.

In contrast, the race of the candidates does not appear to be particularly influential. Black voter support for Black Democratic candidates is certainly high, as Dr. Palmer's Figure 2 through Figure 6 clearly show, but those same figures also show Black voter support in the same high range for white Democratic candidates as it is for Black Democratic candidates. Similarly, white voter support for Black Democratic candidates is very low, but white voter support for white Democratic candidates is also very low.

Election Analysis 2018

Dr. Palmer's report covered elections up to the 2016 cycle. The 2018 elections occurred after his report was produced, and provide an additional set of contests that can be added here. The tables below in Appendix 1 provide results of a series of EI estimations that were conducted using the same script that Dr. Palmer utilized for his analysis of 2012-2016 elections. In addition, in order to simplify comparison, the tables below are formatted to match those for the 2012-2016 elections in Dr. Palmer's report. Table 1 provides the EI estimates for the 2018 elections in CD 1, including the statewide contests and the CD 1 House contest. Table 2 provides the EI estimates for the 2018 elections in CD 8, here there are only the statewide contests as the CD 8 House contest was uncontested in 2018. Table 3 provides the EI estimates for the 2018 elections in CD 10, including the statewide contests and the CD 10 House contest. Table 4 provides the EI estimates for the 2018 elections in CD 12, including the statewide contests and the CD 12 House contest. Table 5 provides the EI estimates for the 2018 elections in to 'focus area' as defined by Dr. Palmer to include all of CD1, CD 8, CD 12, and the southern portion of CD 10. Because it combines multiple House districts, Table 5 includes only the statewide contests. In addition to the 2018 tables that mirror the tables that Dr. Palmer produced for 2012-

2016, I have provided one additional 2018 table here that covers all of the State of Georgia. The full statewide results for the 2018 statewide elections are provided in Table 6 below.

Taken together, the 2018 results produced in Tables 1-6 add an additional 51 sets of EI estimates to add to the 67 sets of estimates provided by the elections in 2012, 2014, and 2016. Like those earlier estimates, in 51 of the 2018 estimates the candidate of choice of Black voters is the Democrat and the candidate of choice of white voters is the Republican. Taken together, the results for 2012-2018 election provide a total of 118 sets of estimates and in all 118 the candidate of choice of Black voters is the Democrat and the candidate of choice of white voters is the Republican.

Again, in contrast, the race of the candidates does not appear to be particularly influential. Black voter support for Black Democratic candidates is certainly high, in 2018 just as it was in 2012-2016, but Black voter support is in the same high range for white Democratic candidates as it is for Black Democratic candidates. Similarly, white voter support for Black Democratic candidates is low, in 2018 just as it was in 2012-2016, but white voter support for white Democratic candidates is also low.

We can see this pattern clearly when we compare the results for the two statewide contests at the top of the statewide ballot in 2018 – the contests for Governor and Lt. Governor. Stacy Abrams, the Democratic candidate for Governor, was Black, while Sarah Amico, the Democratic candidate for Lt. Governor, was white. Based on the EI estimates, Black voter support for both Abrams and Amico was in the range of 97-98%, with support for Abrams slightly higher in each case. In the combined area analysis reported in Table 5, Abrams' share of the Black vote was higher than Amico's share of the Black vote by .5% (one half of one percent). White voters support for Abrams and Amico was also very similar, and as was the

case for Black voters, white voter support for Abrams was slightly higher than white voter support for Amico in each case, with white support for Abrams in the combined area analysis reported in Table 5 higher than white support for Amico by .6% (six-tenths of one percent).

Similarly, in the full state analysis reported in Table 6, Abrams' share of the Black vote was higher than Amico's share of the Black vote by .4% (four-tenths of one percent). White voters support for Abrams and Amico was also very similar, and as was the case for Black voters, white voter support for Abrams was slightly higher than white voter support for Amico in each case, with white support for Abrams in the full state analysis reported in Table 6 higher than white support for Amico by 1.3% (one and three-tenths percent).

We see a similar pattern at the bottom of the statewide ballot in the contests for School Superintendent, Labor Commissioner, and Insurance Commissioner. Otha Thornton, the Democratic candidate for School Superintendent, was Black, as was Janice Laws, the Democratic candidate for Insurance commissioner. Between them on the ballot was Richard Keatley, the white Democratic candidate for Labor Commissioner. Black voter support for the all three Democrats was very high. In the combined area analysis reported in Table 5, Thornton's share of the Black vote was almost identical to Keatley's share of the Black vote, only slightly lower by .1% (one tenth of one percent), and in turn Laws' share of the Black vote was only slightly higher than Keatley's share of the Black vote by .2% (two-tenths of one percent). White voter support for Thornton and Keatley was also very similar, with white voter support for Thornton in the combined area analysis reported in Table 5 only slightly lower than white support for Keatley by .5% (five tenths of one percent), and in turn Laws' share of the white vote was only slightly higher than Keatley's share of the white vote by .4% (four-tenths of one percent).

Similarly, in the full state analysis reported in Table 6, Thornton's share of the Black vote was actually identical to Keatley's share of the Black vote, and Laws' share of the Black vote was only slightly higher than Keatley's by .5% (one-half of one percent). White voter support for Thornton and Keatley was also very similar, with white voter support for Thornton in the combined area analysis reported in Table 5 only slightly lower than white support for Keatley by .7% (seven tenths of one percent), and in turn Laws' share of the white vote was only slightly higher than Keatley's share of the white vote by 1.1% (one and one-tenth percent).

In his report Dr. Palmer summarizes his conclusion about racially polarized vote by stating that "these results demonstrate high levels of racially polarized voting in CD 12 and its surroundings. The average difference in support for the African American candidate of choice in each district was 86.5 percentage points in CD 12, 82.2 percentage points in CD 1, 87.7 percentage points in CD 8, 88.4 percentage points in CD 10, and 87.7 percentage points in the focus area" (page 7). These are indeed large differences in levels of support, and the differences in levels of support in the 2018 contests is in the same 80% range. However, as the discussion above indicates these are differences tied to the party of the candidate, not the race of the candidate. Party polarization, in response to the party labels on the ballot, is in the 80% range across all these elections, regardless of whether the contest involves a Black candidate versus a white candidate, or two white candidates. In contrast, the response of both Black and white voters to the race of the candidates is extremely modest and often inconsistent with a racial explanation.

Summary Conclusions

Dr. Mayer provides information about relative socioeconomic differences between Blacks and non-Hispanic whites in Georgia. However, the fact that in both 2008 and 2012 the proportion of eligible Blacks that participated in the election was at near parity with the proportion of eligible whites that participated suggests that these differences have not prevented Blacks from voting at rates similar to those of whites in more than one election over the last ten years.

Both the election analysis report by Dr. Palmer for 2012-2016, and the 2018 election analysis provided here show that Black voters cohesively support Democratic candidates, regardless of whether those candidates are Black or white. Similarly, white voters cohesively vote for Republican candidates, and in opposition to Democratic candidates, regardless of whether those Democratic candidates are Black or white. Thus it is cohesive Black voter support for *Democratic* candidates, and white voter support for *Republican* candidates that the election analysis reveals, not cohesive Black voter support for *Black* candidates and white voter support for *white* candidates. In short, the election analysis provided here and in Dr. Palmer's report demonstrates that *party* polarization, rather than *racial* polarization, is the best explanation for the voting patterns in these House districts.

January 24, 2019


John R. Alford, Ph.D.

APPENDIX 1
2018 Election Tables

Table 1: 2018 Ecological Inference Estimates, CD 1

Year	Contest	Black Cand.	White Cand.	% Voting for Black Candidate of Choice		
		of Choice	of Choice	Black	White	Other
2018	Governor	Abrams* -D	Kemp -R	0.973 (0.959, 0.983)	0.163 (0.153, 0.175)	0.882 (0.834, 0.919)
	Lt. Governor	Amico - D	Duncan -R	0.969 (0.954, 0.980)	0.156 (0.144, 0.171)	0.858 (0.790, 0.906)
	Sec. of State	Barrow -D	Raffensperger -R	0.971 (0.956, 0.983)	0.201 (0.190, 0.213)	0.883 (0.827, 0.927)
	Attorney General	Bailey - D	Carr -R	0.986 (0.980, 0.991)	0.073 (0.064, 0.083)	0.919 (0.873, 0.954)
	Com. Agriculture	Swann -D	Black -R	0.970 (0.955, 0.981)	0.141 (0.129, 0.154)	0.811 (0.741, 0.871)
	Com. Insurance	Laws* -D	Beck -R	0.973 (0.958, 0.984)	0.148 (0.136, 0.162)	0.859 (0.798, 0.908)
	Com. Labor	Keatley -D	Butler -R	0.972 (0.957, 0.982)	0.141 (0.130, 0.152)	0.854 (0.798, 0.905)
	School Super.	Thorton* -D	Woods -R	0.972 (0.958, 0.982)	0.140 (0.128, 0.153)	0.842 (0.779, 0.895)
	U.S. House	Ring -D	Carter -R	0.970 (0.956, 0.981)	0.152 (0.141, 0.165)	0.829 (0.764, 0.882)

* indicates Black candidates.

Table 2: 2018 Ecological Inference Estimates, CD 8

Year	Contest	Black Cand.	White Cand.	% Voting for Black Candidate of Choice		
		of Choice	of Choice	Black	White	Other
2018	Governor	Abrams* -D	Kemp -R	0.976 (0.963, 0.984)	0.065 (0.059, 0.073)	0.916 (0.868, 0.952)
	Lt. Governor	Amico - D	Duncan -R	0.971 (0.957, 0.981)	0.060 (0.054, 0.068)	0.903 (0.843, 0.948)
	Sec. of State	Barrow -D	Raffensperger -R	0.972 (0.958, 0.982)	0.086 (0.080, 0.094)	0.932 (0.881, 0.964)
	Attorney General	Bailey - D	Carr -R	0.973 (0.961, 0.983)	0.066 (0.060, 0.074)	0.922 (0.859, 0.960)
	Com. Agriculture	Swann -D	Black -R	0.969 (0.955, 0.979)	0.043 (0.037, 0.049)	0.925 (0.869, 0.962)
	Com. Insurance	Laws* -D	Beck -R	0.972 (0.960, 0.982)	0.058 (0.052, 0.065)	0.917 (0.859, 0.958)
	Com. Labor	Keatley -D	Butler -R	0.972 (0.960, 0.982)	0.051 (0.046, 0.058)	0.925 (0.862, 0.963)
	School Super.	Thorton* -D	Woods -R	0.974 (0.963, 0.983)	0.044 (0.039, 0.050)	0.911 (0.857, 0.949)
	U.S. House (uncontested)					

* indicates Black candidates.

Table 3: 2018 Ecological Inference Estimates, CD 10

Year	Contest	Black Cand.	White Cand.	% Voting for Black Candidate of Choice		
		of Choice	of Choice	Black	White	Other
2018	Governor	Abrams* -D	Kemp -R	0.971 (0.954, 0.983)	0.153 (0.145, 0.162)	0.830 (0.769, 0.883)
	Lt. Governor	Amico - D	Duncan -R	0.965 (0.945, 0.979)	0.148 (0.140, 0.158)	0.808 (0.739, 0.869)
	Sec. of State	Barrow -D	Raffensperger -R	0.964 (0.938, 0.980)	0.187 (0.177, 0.201)	0.796 (0.699, 0.872)
	Attorney General	Bailey - D	Carr -R	0.963 (0.943, 0.978)	0.149 (0.141, 0.159)	0.847 (0.780, 0.899)
	Com. Agriculture	Swann -D	Black -R	0.965 (0.944, 0.979)	0.125 (0.118, 0.135)	0.792 (0.719, 0.853)
	Com. Insurance	Laws* -D	Beck -R	0.971 (0.951, 0.984)	0.143 (0.135, 0.153)	0.813 (0.740, 0.869)
	Com. Labor	Keatley -D	Butler -R	0.962 (0.943, 0.977)	0.141 (0.132, 0.151)	0.795 (0.718, 0.860)
	School Super.	Thorton* -D	Woods -R	0.966 (0.948, 0.980)	0.135 (0.127, 0.144)	0.792 (0.724, 0.854)
	U.S. House	Johnson-Green* -D	Hice -R	0.964 (0.945, 0.978)	0.145 (0.137, 0.155)	0.813 (0.741, 0.869)

* indicates Black candidates.

Table 4: 2018 Ecological Inference Estimates, CD 12

Year	Contest	Black Cand.	White Cand.	% Voting for Black Candidate of Choice		
		of Choice	of Choice	Black	White	Other
2018	Governor	Abrams* -D	Kemp -R	0.982 (0.974, 0.988)	0.063 (0.057, 0.069)	0.956 (0.933, 0.974)
	Lt. Governor	Amico - D	Duncan -R	0.978 (0.969, 0.985)	0.055 (0.049, 0.061)	0.951 (0.921, 0.970)
	Sec. of State	Barrow -D	Raffensperger -R	0.979 (0.968, 0.987)	0.137 (0.130, 0.144)	0.952 (0.926, 0.973)
	Attorney General	Bailey - D	Carr -R	0.979 (0.969, 0.986)	0.064 (0.058, 0.071)	0.946 (0.914, 0.967)
	Com. Agriculture	Swann -D	Black -R	0.974 (0.965, 0.982)	0.041 (0.036, 0.047)	0.940 (0.906, 0.965)
	Com. Insurance	Laws* -D	Beck -R	0.980 (0.971, 0.986)	0.048 (0.043, 0.054)	0.954 (0.932, 0.971)
	Com. Labor	Keatley -D	Butler -R	0.977 (0.968, 0.984)	0.049 (0.044, 0.056)	0.934 (0.901, 0.959)
	School Super.	Thorton* -D	Woods -R	0.980 (0.972, 0.987)	0.043 (0.037, 0.049)	0.930 (0.899, 0.954)
	U.S. House	Johnson* -D	Allen -R	0.975 (0.966, 0.983)	0.047 (0.042, 0.054)	0.919 (0.881, 0.949)

* indicates Black candidates.

Table 5: 2018 Ecological Inference Estimates, All CDs in the Focus Area

Year	Contest	Black Cand. of Choice	White Cand. of Choice	% Voting for Black Candidate of Choice		
				Black	White	Other
2018	Governor	Abrams* -D	Kemp -R	0.986 (0.982, 0.989)	0.104 (0.101, 0.108)	0.924 (0.907, 0.939)
	Lt. Governor	Amico - D	Duncan -R	0.981 (0.976, 0.985)	0.098 (0.095, 0.102)	0.907 (0.884, 0.927)
	Sec. of State	Barrow -D	Raffensperger -R	0.983 (0.978, 0.988)	0.145 (0.141, 0.150)	0.917 (0.894, 0.939)
	Attorney General	Bailey - D	Carr -R	0.982 (0.977, 0.986)	0.101 (0.098, 0.104)	0.929 (0.912, 0.944)
	Com. Agriculture	Swann -D	Black -R	0.978 (0.972, 0.983)	0.083 (0.079, 0.087)	0.883 (0.855, 0.908)
	Com. Insurance	Laws* -D	Beck -R	0.983 (0.978, 0.986)	0.093 (0.090, 0.096)	0.919 (0.900, 0.935)
	Com. Labor	Keatley -D	Butler -R	0.981 (0.977, 0.985)	0.089 (0.086, 0.093)	0.903 (0.880, 0.923)
	School Super.	Thorton* -D	Woods -R	0.980 (0.975, 0.984)	0.084 (0.081, 0.088)	0.904 (0.884, 0.922)

* indicates Black candidates.

Table 6: 2018 Ecological Inference Estimates, Entire State of Georgia

Year	Contest	Black Cand. of Choice	White Cand. of Choice	% Voting for Black Candidate of Choice		
				Black	White	Other
2018	Governor	Abrams* -D	Kemp -R	0.992 (0.991, 0.994)	0.165 (0.162, 0.168)	0.959 (0.953, 0.964)
	Lt. Governor	Amico - D	Duncan -R	0.988 (0.986, 0.990)	0.152 (0.149, 0.155)	0.945 (0.938, 0.952)
	Sec. of State	Barrow -D	Raffensperger -R	0.991 (0.989, 0.992)	0.173 (0.170, 0.176)	0.954 (0.948, 0.961)
	Attorney General	Bailey - D	Carr -R	0.987 (0.985, 0.989)	0.153 (0.150, 0.156)	0.947 (0.939, 0.954)
	Com. Agriculture	Swann -D	Black -R	0.979 (0.977, 0.982)	0.129 (0.126, 0.132)	0.938 (0.929, 0.945)
	Com. Insurance	Laws* -D	Beck -R	0.990 (0.988, 0.992)	0.147 (0.145, 0.150)	0.949 (0.943, 0.955)
	Com. Labor	Keatley -D	Butler -R	0.985 (0.983, 0.987)	0.136 (0.134, 0.139)	0.939 (0.931, 0.946)
	School Super.	Thorton* -D	Woods -R	0.985 (0.983, 0.987)	0.129 (0.126, 0.132)	0.929 (0.920, 0.938)

* indicates Black candidates.

APPENDIX 2

John R. Alford

Curriculum Vitae

January, 2019

Dept. of Political Science
Rice University - MS-24
P.O. Box 1892
Houston, Texas 77251-1892
713-348-3364
jra@rice.edu

Employment:

Full Professor, Rice University, 2015 to present.
Associate Professor, Rice University, 1985-2015.
Assistant Professor, University of Georgia, 1981-1985.
Instructor, Oakland University, 1980-1981.
Teaching-Research Fellow, University of Iowa, 1977-1980.
Research Associate, Institute for Urban Studies, Houston, Texas, 1976-1977.

Education:

Ph.D., University of Iowa, Political Science, 1981.
M.A., University of Iowa, Political Science, 1980.
M.P.A., University of Houston, Public Administration, 1977.
B.S., University of Houston, Political Science, 1975.

Books:

Predisposed: Liberals, Conservatives, and the Biology of Political Differences. New York: Routledge, 2013. Co-authors, John R. Hibbing and Kevin B. Smith.

Articles:

"Intuitive ethics and political orientations: Testing moral foundations as a theory of political ideology." with Kevin Smith, John Hibbing, Nicholas Martin, and Peter Hatemi. **American Journal of Political Science**. (April, 2017).

"The Genetic and Environmental Foundations of Political, Psychological, Social, and Economic Behaviors: A Panel Study of Twins and Families." with Peter Hatemi, Kevin Smith, and John Hibbing. **Twin Research and Human Genetics**. (May, 2015.)

"Liberals and conservatives: Non-convertible currencies." with John R. Hibbing and Kevin B. Smith. **Behavioral and Brain Sciences** (January, 2015).

"Non-Political Images Evoke Neural Predictors Of Political Ideology." with Woo-Young Ahn, Kenneth T. Kishida, Xiaosi Gu, Terry Lohrenz, Ann Harvey, Kevin Smith, Gideon Yaffe, John Hibbing, Peter Dayan, P. Read Montague. **Current Biology**. (November, 2014).

“Cortisol and Politics: Variance in Voting Behavior is Predicted by Baseline Cortisol Levels.” with Jeffrey French, Kevin Smith, Adam Guck, Andrew Birnie, and John Hibbing. **Physiology & Behavior**. (June, 2014).

“Differences in Negativity Bias Underlie Variations in Political Ideology.” with Kevin B. Smith and John R. Hibbing. **Behavioral and Brain Sciences**. (June, 2014).

“Negativity bias and political preferences: A response to commentators Response.” with Kevin B. Smith and John R. Hibbing. **Behavioral and Brain Sciences**. (June, 2014).

“Genetic and Environmental Transmission of Political Orientations.” with Carolyn L. Funk, Matthew Hibbing, Kevin B. Smith, Nicholas R. Eaton, Robert F. Krueger, Lindon J. Eaves, John R. Hibbing. **Political Psychology**, (December, 2013).

“Biology, Ideology, and Epistemology: How Do We Know Political Attitudes Are Inherited and Why Should We Care?” with Kevin Smith, Peter K. Hatemi, Lindon J. Eaves, Carolyn Funk, and John R. Hibbing. **American Journal of Political Science**. (January, 2012)

“Disgust Sensitivity and the Neurophysiology of Left-Right Political Orientations.” with Kevin Smith, John Hibbing, Douglas Oxley, and Matthew Hibbing. **PlosONE**, (October, 2011).

“Linking Genetics and Political Attitudes: Re-Conceptualizing Political Ideology.” with Kevin Smith, John Hibbing, Douglas Oxley, and Matthew Hibbing. **Political Psychology**, (June, 2011).

“The Politics of Mate Choice.” with Peter Hatemi, John R. Hibbing, Nicholas Martin and Lindon Eaves, **Journal of Politics**, (March, 2011).

“Not by Twins Alone: Using the Extended Twin Family Design to Investigate the Genetic Basis of Political Beliefs” with Peter Hatemi, John Hibbing, Sarah Medland, Matthew Keller, Kevin Smith, Nicholas Martin, and Lindon Eaves, **American Journal of Political Science**, (July, 2010).

“The Ultimate Source of Political Opinions: Genes and the Environment” with John R. Hibbing in **Understanding Public Opinion**, 3rd Edition eds. Barbara Norrander and Clyde Wilcox, Washington D.C.: CQ Press, (2010).

“Is There a ‘Party’ in your Genes” with Peter Hatemi, John R. Hibbing, Nicholas Martin and Lindon Eaves, **Political Research Quarterly**, (September, 2009).

“Twin Studies, Molecular Genetics, Politics, and Tolerance: A Response to Beckwith and Morris” with John R. Hibbing and Cary Funk, **Perspectives on Politics**, (December, 2008). This is a solicited response to a critique of our 2005 APSR article “Are Political Orientations Genetically Transmitted?”

“Political Attitudes Vary with Physiological Traits” with Douglas R. Oxley, Kevin B. Smith, Matthew V. Hibbing, Jennifer L. Miller, Mario Scalora, Peter K. Hatemi, and John R. Hibbing, **Science**, (September 19, 2008).

“The New Empirical Biopolitics” with John R. Hibbing, **Annual Review of Political Science**, (June, 2008).

“Beyond Liberals and Conservatives to Political Genotypes and Phenotypes” with John R. Hibbing and Cary Funk, **Perspectives on Politics**, (June, 2008). This is a solicited response to a critique of our 2005 APSR article “Are Political Orientations Genetically Transmitted?”

"Personal, Interpersonal, and Political Temperaments" with John R. Hibbing, **Annals of the American Academy of Political and Social Science**, (November, 2007).

"Is Politics in our Genes?" with John R. Hibbing, **Tidsskriftet Politik**, (February, 2007).

"Biology and Rational Choice" with John R. Hibbing, **The Political Economist**, (Fall, 2005)

"Are Political Orientations Genetically Transmitted?" with John R. Hibbing and Carolyn Funk, **American Political Science Review**, (May, 2005). (The main findings table from this article has been reprinted in two college level text books - Psychology, 9th ed. and Invitation to Psychology 4th ed. both by Wade and Tavis, Prentice Hall, 2007).

"The Origin of Politics: An Evolutionary Theory of Political Behavior" with John R. Hibbing, **Perspectives on Politics**, (December, 2004).

"Accepting Authoritative Decisions: Humans as Wary Cooperators" with John R. Hibbing, **American Journal of Political Science**, (January, 2004).

"Electoral Convergence of the Two Houses of Congress" with John R. Hibbing, in **The Exceptional Senate**, ed. Bruce Oppenheimer, Columbus: Ohio State University Press, (2002).

"We're All in this Together: The Decline of Trust in Government, 1958-1996." in **What is it About Government that Americans Dislike?**, eds. John Hibbing and Beth Theiss-Morse, Cambridge: Cambridge University Press, (2001).

"The 2000 Census and the New Redistricting," **Texas State Bar Association School Law Section Newsletter**, (July, 2000).

"Overdraft: The Political Cost of Congressional Malfeasance" with Holly Teeters, Dan Ward, and Rick Wilson, **Journal of Politics** (August, 1994).

"Personal and Partisan Advantage in U.S. Congressional Elections, 1846-1990" with David W. Brady, in **Congress Reconsidered** 5th edition, eds. Larry Dodd and Bruce Oppenheimer, CQ Press, (1993).

"The 1990 Congressional Election Results and the Fallacy that They Embodied an Anti-Incumbent Mood" with John R. Hibbing, **PS** 25 (June, 1992).

"Constituency Population and Representation in the United States Senate" with John R. Hibbing. **Legislative Studies Quarterly**, (November, 1990).

"Editors' Introduction: Electing the U.S. Senate" with Bruce I. Oppenheimer. **Legislative Studies Quarterly**, (November, 1990).

"Personal and Partisan Advantage in U.S. Congressional Elections, 1846-1990" with David W. Brady, in **Congress Reconsidered** 4th edition, eds. Larry Dodd and Bruce Oppenheimer, CQ Press, (1988). Reprinted in *The Congress of the United States, 1789-1989*, ed. Joel Silby, Carlson Publishing Inc., (1991), and in *The Quest for Office*, eds. Wayne and Wilcox, St. Martins Press, (1991).

"Can Government Regulate Fertility? An Assessment of Pro-natalist Policy in Eastern Europe" with Jerome Legge. **The Western Political Quarterly** (December, 1986).

"Partisanship and Voting" with James Campbell, Mary Munro, and Bruce Campbell, in **Research in Micropolitics. Volume 1 - Voting Behavior**. Samuel Long, ed. JAI Press, (1986).

"Economic Conditions and Individual Vote in the Federal Republic of Germany" with Jerome S. Legge. **Journal of Politics** (November, 1984).

"Television Markets and Congressional Elections" with James Campbell and Keith Henry. **Legislative Studies Quarterly** (November, 1984).

"Economic Conditions and the Forgotten Side of Congress: A Foray into U.S. Senate Elections" with John R. Hibbing, **British Journal of Political Science** (October, 1982).

"Increased Incumbency Advantage in the House" with John R. Hibbing, **Journal of Politics** (November, 1981). Reprinted in *The Congress of the United States, 1789-1989*, Carlson Publishing Inc., (1991).

"The Electoral Impact of Economic Conditions: Who is Held Responsible?" with John R. Hibbing, **American Journal of Political Science** (August, 1981).

"Comment on Increased Incumbency Advantage" with John R. Hibbing, Refereed communication: **American Political Science Review** (March, 1981).

"Can Government Regulate Safety? The Coal Mine Example" with Michael Lewis-Beck, **American Political Science Review** (September, 1980).

Awards and Honors:

CQ Press Award - 1988, honoring the outstanding paper in legislative politics presented at the 1987 Annual Meeting of the American Political Science Association. Awarded for "The Demise of the Upper House and the Rise of the Senate: Electoral Responsiveness in the United States Senate" with John Hibbing.

Research Grants:

National Science Foundation, 2009-2011, "Identifying the Biological Influences on Political Temperaments", with John Hibbing, Kevin Smith, Kim Espy, Nicolas Martin and Read Montague. This is a collaborative project involving Rice, University of Nebraska, Baylor College of Medicine, and Queensland Institute for Medical Research.

National Science Foundation, 2007-2010, "Genes and Politics: Providing the Necessary Data", with John Hibbing, Kevin Smith, and Lindon Eaves. This is a collaborative project involving Rice, University of Nebraska, Virginia Commonwealth University, and the University of Minnesota.

National Science Foundation, 2007-2010, "Investigating the Genetic Basis of Economic Behavior", with John Hibbing and Kevin Smith. This is a collaborative project involving Rice, University of Nebraska, Virginia Commonwealth University, and the Queensland Institute of Medical Research.

Rice University Faculty Initiatives Fund, 2007-2009, "The Biological Substrates of Political Behavior". This is in assistance of a collaborative project involving Rice, Baylor College of Medicine, Queensland Institute of

Medical Research, University of Nebraska, Virginia Commonwealth University, and the University of Minnesota.

National Science Foundation, 2004-2006, "Decision-Making on Behalf of Others", with John Hibbing. This is a collaborative project involving Rice and the University of Nebraska.

National Science Foundation, 2001-2002, dissertation grant for Kevin Arceneaux, "Doctoral Dissertation Research in Political Science: Voting Behavior in the Context of U.S. Federalism."

National Science Foundation, 2000-2001, dissertation grant for Stacy Ulbig, "Doctoral Dissertation Research in Political Science: Sub-national Contextual Influences on Political Trust."

National Science Foundation, 1999-2000, dissertation grant for Richard Engstrom, "Doctoral Dissertation Research in Political Science: Electoral District Structure and Political Behavior."

Rice University Research Grant, 1985, Recent Trends in British Parliamentary Elections.

Faculty Research Grants Program, University of Georgia, Summer, 1982. Impact of Media Structure on Congressional Elections, with James Campbell.

Papers Presented:

"The Physiological Basis of Political Temperaments" 6th European Consortium for Political Research General Conference, Reykjavik, Iceland (2011), with Kevin Smith, and John Hibbing.

"Identifying the Biological Influences on Political Temperaments" National Science Foundation Annual Human Social Dynamics Meeting (2010), with John Hibbing, Kimberly Espy, Nicholas Martin, Read Montague, and Kevin B. Smith.

"Political Orientations May Be Related to Detection of the Odor of Androstenone" Annual meeting of the Midwest Political Science Association, Chicago, IL (2010), with Kevin Smith, Amanda Balzer, Michael Gruszczynski, Carly M. Jacobs, and John Hibbing.

"Toward a Modern View of Political Man: Genetic and Environmental Transmission of Political Orientations from Attitude Intensity to Political Participation" Annual meeting of the American Political Science Association, Washington, DC (2010), with Carolyn Funk, Kevin Smith, and John Hibbing.

"Genetic and Environmental Transmission of Political Involvement from Attitude Intensity to Political Participation" Annual meeting of the International Society for Political Psychology, San Francisco, CA (2010), with Carolyn Funk, Kevin Smith, and John Hibbing.

"Are Violations of the EEA Relevant to Political Attitudes and Behaviors?" Annual meeting of the Midwest Political Science Association, Chicago, IL (2010), with Kevin Smith, and John Hibbing.

"The Neural Basis of Representation" Annual meeting of the American Political Science Association, Toronto, Canada (2009), with John Hibbing.

"Genetic and Environmental Transmission of Value Orientations" Annual meeting of the American Political Science Association, Toronto, Canada (2009), with Carolyn Funk, Kevin Smith, Matthew Hibbing, Pete Hatemi, Robert Krueger, Lindon Eaves, and John Hibbing.

"The Genetic Heritability of Political Orientations: A New Twin Study of Political Attitudes" Annual Meeting of the International Society for Political Psychology, Dublin, Ireland (2009), with John Hibbing, Cary Funk, Kevin Smith, and Peter K Hatemi.

"The Heritability of Value Orientations" Annual meeting of the Behavior Genetics Association, Minneapolis, MN (2009), with Kevin Smith, John Hibbing, Carolyn Funk, Robert Krueger, Peter Hatemi, and Lindon Eaves.

"The Ick Factor: Disgust Sensitivity as a Predictor of Political Attitudes" Annual meeting of the Midwest Political Science Association, Chicago, IL (2009), with Kevin Smith, Douglas Oxley, Matthew Hibbing, and John Hibbing.

"The Ideological Animal: The Origins and Implications of Ideology" Annual meeting of the American Political Science Association, Boston, MA (2008), with Kevin Smith, Matthew Hibbing, Douglas Oxley, and John Hibbing.

"The Physiological Differences of Liberals and Conservatives" Annual meeting of the Midwest Political Science Association, Chicago, IL (2008), with Kevin Smith, Douglas Oxley, and John Hibbing.

"Looking for Political Genes: The Influence of Serotonin on Political and Social Values" Annual meeting of the Midwest Political Science Association, Chicago, IL (2008), with Peter Hatemi, Sarah Medland, John Hibbing, and Nicholas Martin.

"Not by Twins Alone: Using the Extended Twin Family Design to Investigate the Genetic Basis of Political Beliefs" Annual meeting of the American Political Science Association, Chicago, IL (2007), with Peter Hatemi, John Hibbing, Matthew Keller, Nicholas Martin, Sarah Medland, and Lindon Eaves.

"Factorial Association: A generalization of the Fulker between-within model to the multivariate case" Annual meeting of the Behavior Genetics Association, Amsterdam, The Netherlands (2007), with Sarah Medland, Peter Hatemi, John Hibbing, William Coventry, Nicholas Martin, and Michael Neale.

"Not by Twins Alone: Using the Extended Twin Family Design to Investigate the Genetic Basis of Political Beliefs" Annual meeting of the Midwest Political Science Association, Chicago, IL (2007), with Peter Hatemi, John Hibbing, Nicholas Martin, and Lindon Eaves.

"Getting from Genes to Politics: The Connecting Role of Emotion-Reading Capability" Annual Meeting of the International Society for Political Psychology, Portland, OR, (2007.), with John Hibbing.

"The Neurological Basis of Representative Democracy." Hendricks Conference on Political Behavior, Lincoln, NE (2006), with John Hibbing.

"The Neural Basis of Representative Democracy" Annual meeting of the American Political Science Association, Philadelphia, PA (2006), with John Hibbing.

"How are Political Orientations Genetically Transmitted? A Research Agenda" Annual meeting of the Midwest Political Science Association, Chicago Illinois (2006), with John Hibbing.

"The Politics of Mate Choice" Annual meeting of the Southern Political Science Association, Atlanta, GA (2006), with John Hibbing.

"The Challenge Evolutionary Biology Poses for Rational Choice" Annual meeting of the American Political Science Association, Washington, DC (2005), with John Hibbing and Kevin Smith.

"Decision Making on Behalf of Others" Annual meeting of the American Political Science Association, Washington, DC (2005), with John Hibbing.

"The Source of Political Attitudes and Behavior: Assessing Genetic and Environmental Contributions" Annual meeting of the Midwest Political Science Association, Chicago Illinois (2005), with John Hibbing and Carolyn Funk.

"The Source of Political Attitudes and Behavior: Assessing Genetic and Environmental Contributions" Annual meeting of the American Political Science Association, Chicago Illinois (2004), with John Hibbing and Carolyn Funk.

"Accepting Authoritative Decisions: Humans as Wary Cooperators" Annual Meeting of the Midwest Political Science Association, Chicago, Illinois (2002), with John Hibbing

"Can We Trust the NES Trust Measure?" Annual Meeting of the Midwest Political Science Association, Chicago, Illinois (2001), with Stacy Ulbig.

"The Impact of Organizational Structure on the Production of Social Capital Among Group Members" Annual Meeting of the Southern Political Science Association, Atlanta, Georgia (2000), with Allison Rinden.

"Isolating the Origins of Incumbency Advantage: An Analysis of House Primaries, 1956-1998" Annual Meeting of the Southern Political Science Association, Atlanta, Georgia (2000), with Kevin Arceneaux.

"The Electorally Indistinct Senate," Norman Thomas Conference on Senate Exceptionalism, Vanderbilt University; Nashville, Tennessee; October (1999), with John R. Hibbing.

"Interest Group Participation and Social Capital" Annual Meeting of the Midwest Political Science Association, Chicago, Illinois (1999), with Allison Rinden.

"We're All in this Together: The Decline of Trust in Government, 1958-1996." The Hendricks Symposium, University of Nebraska, Lincoln. (1998)

"Constituency Population and Representation in the United States Senate," Electing the Senate; Houston, Texas; December (1989), with John R. Hibbing.

"The Disparate Electoral Security of House and Senate Incumbents," American Political Science Association Annual Meetings; Atlanta, Georgia; September (1989), with John R. Hibbing.

"Partisan and Incumbent Advantage in House Elections," Annual Meeting of the Southern Political Science Association (1987), with David W. Brady.

"Personal and Party Advantage in U.S. House Elections, 1846-1986" with David W. Brady, 1987 Social Science History Association Meetings.

"The Demise of the Upper House and the Rise of the Senate: Electoral Responsiveness in the United States Senate" with John Hibbing, 1987 Annual Meeting of the American Political Science Association.

"A Comparative Analysis of Economic Voting" with Jerome Legge, 1985 Annual Meeting of the American Political Science Association.

"An Analysis of Economic Conditions and the Individual Vote in Great Britain, 1964-1979" with Jerome Legge, 1985 Annual Meeting of the Western Political Science Association.

"Can Government Regulate Fertility? An Assessment of Pro-natalist Policy in Eastern Europe" with Jerome Legge, 1985 Annual Meeting of the Southwestern Social Science Association.

"Economic Conditions and the Individual Vote in the Federal Republic of Germany" with Jerome S. Legge, 1984 Annual Meeting of the Southern Political Science Association.

"The Conditions Required for Economic Issue Voting" with John R. Hibbing, 1984 Annual Meeting of the Midwest Political Science Association.

"Incumbency Advantage in Senate Elections," 1983 Annual Meeting of the Midwest Political Science Association.

"Television Markets and Congressional Elections: The Impact of Market/District Congruence" with James Campbell and Keith Henry, 1982 Annual Meeting of the Southern Political Science Association.

"Economic Conditions and Senate Elections" with John R. Hibbing, 1982 Annual Meeting of the Midwest Political Science Association. "Pocketbook Voting: Economic Conditions and Individual Level Voting," 1982 Annual Meeting of the American Political Science Association.

"Increased Incumbency Advantage in the House," with John R. Hibbing, 1981 Annual Meeting of the Midwest Political Science Association.

Other Conference Participation:

Roundtable Participant – Closing Round-table on Biopolitics; 2016 UC Merced Conference on Bio-Politics and Political Psychology, Merced, CA.

Roundtable Participant "Genes, Brains, and Core Political Orientations" 2008 Annual Meeting of the Southwestern Political Science Association, Las Vegas.

Roundtable Participant "Politics in the Laboratory" 2007 Annual Meeting of the Southern Political Science Association, New Orleans.

Short Course Lecturer, "What Neuroscience has to Offer Political Science" 2006 Annual Meeting of the American Political Science Association.

Panel chair and discussant, "Neuro-scientific Advances in the Study of Political Science" 2006 Annual Meeting of the American Political Science Association.

Presentation, "The Twin Study Approach to Assessing Genetic Influences on Political Behavior" Rice Conference on New Methods for Understanding Political Behavior, 2005.

Panel discussant, "The Political Consequences of Redistricting," 2002 Annual Meeting of the American Political Science Association.

Panel discussant, "Race and Redistricting," 1999 Annual Meeting of the Midwest Political Science Association.

Invited participant, "Roundtable on Public Dissatisfaction with American Political Institutions", 1998 Annual Meeting of the Southwestern Social Science Association.

Presentation, "Redistricting in the '90s," Texas Economic and Demographic Association, 1997.

Panel chair, "Congressional Elections," 1992 Annual Meeting of the Southern Political Science Association.

Panel discussant, "Incumbency and Congressional Elections," 1992 Annual Meeting of the American Political Science Association.

Panel chair, "Issues in Legislative Elections," 1991 Annual Meeting of the Midwest Political Science Association.

Panel chair, "Economic Attitudes and Public Policy in Europe," 1990 Annual Meeting of the Southern Political Science Association

Panel discussant, "Retrospective Voting in U.S. Elections," 1990 Annual Meeting of the Midwest Political Science Association.

Co-convener, with Bruce Oppenheimer, of Electing the Senate, a national conference on the NES 1988 Senate Election Study. Funded by the Rice Institute for Policy Analysis, the University of Houston Center for Public Policy, and the National Science Foundation, Houston, Texas, December, 1989.

Invited participant, Understanding Congress: A Bicentennial Research Conference, Washington, D.C., February, 1989.

Invited participant--Hendricks Symposium on the United States Senate, University of Nebraska, Lincoln, Nebraska, October, 1988

Invited participant--Conference on the History of Congress, Stanford University, Stanford, California, June, 1988.

Invited participant, "Roundtable on Partisan Realignment in the 1980's", 1987 Annual Meeting of the Southern Political Science Association.

Professional Activities:

Other Universities:

Invited Speaker, Annual Lecture, Psi Kappa -the Psychology Club at Houston Community College, 2018.

Invited Speaker, Annual Allman Family Lecture, Dedman College Interdisciplinary Institute, Southern Methodist University, 2016.

Invited Speaker, Annual Lecture, Psi Sigma Alpha – Political Science Dept., Oklahoma State University, 2015.

Invited Lecturer, Department of Political Science, Vanderbilt University, 2014.

Invited Speaker, Annual Lecture, Psi Kappa -the Psychology Club at Houston Community College, 2014.

Invited Speaker, Graduate Student Colloquium, Department of Political Science, University of New Mexico, 2013.

Invited Keynote Speaker, Political Science Alumni Evening, University of Houston, 2013.

Invited Lecturer, Biology and Politics Masters Seminar (John Geer and David Bader), Department of Political Science and Biology Department, Vanderbilt University, 2010.

Invited Lecturer, Biology and Politics Senior Seminar (John Geer and David Bader), Department of Political Science and Biology Department, Vanderbilt University, 2008.

Visiting Fellow, the Hoover Institution, Stanford University, 2007.

Invited Speaker, Joint Political Psychology Graduate Seminar, University of Minnesota, 2007.

Invited Speaker, Department of Political Science, Vanderbilt University, 2006.

Member:

Editorial Board, Journal of Politics, 2007-2008.

Planning Committee for the National Election Studies' Senate Election Study, 1990-92.

Nominations Committee, Social Science History Association, 1988

Reviewer for:

American Journal of Political Science
American Political Science Review
American Politics Research
American Politics Quarterly
American Psychologist
American Sociological Review
Canadian Journal of Political Science
Comparative Politics
Electoral Studies
Evolution and Human Behavior
International Studies Quarterly

Journal of Politics
 Journal of Urban Affairs
 Legislative Studies Quarterly
 National Science Foundation
 PLoS ONE
 Policy Studies Review
 Political Behavior
 Political Communication
 Political Psychology
 Political Research Quarterly
 Public Opinion Quarterly
 Science
 Security Studies
 Social Forces
 Social Science Quarterly
 Western Political Quarterly

University Service:

Member, University Parking Committee, 2016-2018.

Member, University Benefits Committee, 2013-2016.

Internship Director for the Department of Political Science, 2004-2018.

Member, University Council, 2012-2013.

Invited Speaker, Rice Classroom Connect, 2016.

Invited Speaker, Glasscock School, 2016.

Invited Speaker, Rice Alumni Association, Austin, 2016.

Invited Speaker, Rice Alumni Association, New York City, 2016.

Invited Speaker, Rice TEDxRiceU , 2013.

Invited Speaker, Rice Alumni Association, Atlanta, 2011.

Lecturer, Advanced Topics in AP Psychology, Rice University AP Summer Institute, 2009.

Scientia Lecture Series: "Politics in Our Genes: The Biology of Ideology" 2008

Invited Speaker, Rice Alumni Association, Seattle, San Francisco and Los Angeles, 2008.

Invited Speaker, Rice Alumni Association, Austin, Chicago and Washington, DC, 2006.

Invited Speaker, Rice Alumni Association, Dallas and New York, 2005.

Director: Rice University Behavioral Research Lab and Social Science Computing Lab, 2005-2006.

University Official Representative to the Inter-university Consortium for Political and Social Research, 1989-2012.

Director: Rice University Social Science Computing Lab, 1989-2004.

Member, Rice University Information Technology Access and Security Committee, 2001-2002

Rice University Committee on Computers, Member, 1988-1992, 1995-1996; Chair, 1996-1998, Co-chair, 1999.

Acting Chairman, Rice Institute for Policy Analysis, 1991-1992.

Divisional Member of the John W. Gardner Dissertation Award Selection Committee, 1998

Social Science Representative to the Educational Sub-committee of the Computer Planning Committee, 1989-1990.

Director of Graduate Admissions, Department of Political Science, Rice University, 1986-1988.

Co-director, Mellon Workshop: Southern Politics, May, 1988.

Guest Lecturer, Mellon Workshop: The U.S. Congress in Historical Perspective, May, 1987 and 1988.

Faculty Associate, Hanszen College, Rice University, 1987-1990.

Director, Political Data Analysis Center, University of Georgia, 1982-1985.

External Consulting:

Expert Witness, Flores et al. v. Town of Islip, NY, racially polarized voting analysis, 2018.

Expert Witness, Tyson v. Richardson ISD, racially polarized voting analysis, 2018.

Expert Witness, Dwight v. State of Georgia, racially polarized voting analysis, 2018.

Expert Witness, NAACP v. East Ramapo Central School District, racially polarized voting analysis, 2018.

Expert Witness, Thompson v. Kemp, racially polarized voting analysis, 2018.

Expert Witness, Georgia NAACP v. State of Georgia, racially polarized voting analysis, 2018.

Expert Witness, Arismendez v. Coastal Bend College, racially polarized voting analysis, 2017.

Expert Witness, United States v. City of Eastpoint, racially polarized voting analysis, 2017.

Expert Witness, Georgia NAACP v. Gwinnett County, racially polarized voting analysis, 2017.

Expert Witness for the State of Texas, Lopez, et al v. Abbott, a challenge to the current system of statewide at-large elections for the Texas Supreme Court and the Texas Court of Criminal Appeals, including election analysis, and racially polarized voting analysis, 2017.

Expert witness for the State of Texas, Perez, et al v State of Texas (and consolidated cases), challenge to adopted Texas election districts for the US Congress and the Texas House of Representatives, 2011-2017.

Expert Witness for Coppell ISD, Jain v. Coppell ISD, racially polarized voting analysis, 2016.

Consultant, City of Clute, Texas – Demographic analysis and redrawing of election districts, 2015.

Expert Witness for Carrollton-Farmers Branch ISD, Ramos v. Carrollton-Farmers Branch ISD, racially polarized voting analysis, 2015.

Expert Witness for Coahoma County, Columbus Partee, et al. v. Coahoma County, Mississippi, racially polarized voting analysis, 2015.

Expert Witness for the State of Louisiana, Terrebonne Parish NAACP v. Jindal, racially polarized voting analysis, 2015.

Expert Witness for the City of Pasadena, Patino v. City of Pasadena, racially polarized voting analysis, 2015.

Expert Witness for the City of St. Gabriel, York v. City of St. Gabriel, racially polarized voting analysis, 2014.

Consultant, Houston ISD – Incorporation of North Forest ISD, and the consequent redrawing of all nine board member election districts including demographic analysis, board and public hearing presentations and support for pre-clearance submission, 2014.

Expert Witness for Grand Prairie ISD, Rodriguez v. Grand Prairie ISD, racially polarized voting analysis, 2014.

Expert Witness for Irving ISD, Benevides, v Irving ISD, racially polarized voting analysis, 2014.

Expert Witness for Pasadena ISD, Garcia-Sonnier et al v., racially polarized voting analysis, 2013.

Expert witness for the City of Yakima, Montes v. City of Yakima, challenge to Yakima, Washington At-Large City Council Elections, 2012.

Consultant, Lamar ISD – redrawing of all board member election districts including demographic analysis and redrawing of election districts, board and public hearing presentations, and support for pre-clearance submission, 2012.

Expert witness for Harris Co, Rodriguez, et. al. v., challenge to adopted Harris County Commissioners' Court precincts, 2011.

Consultant, City of Baytown – redrawing of all board member election districts including demographic analysis and redrawing of election districts, board and public hearing presentations, and support for pre-clearance submission, 2011.

Consultant, Goose Creek ISD – redrawing of all board member election districts including demographic analysis and redrawing of election districts, board and public hearing presentations, and support for pre-clearance submission, 2011.

Consultant, San Antonio Water System – Analysis of preclearance issues related to merger with BexarMet Water Authority, 2011.

Expert witness for the State of Texas, Texas v US, preclearance suit for Texas statewide districts, 2011.*

Expert witness for the State of Texas, Davis v Perry (and consolidated cases), challenge to adopted Texas Senate districts, 2011.

Expert witness for the State of Texas, Perez, et al v State of Texas (and consolidated cases), challenge to adopted Texas statewide districts, 2011-2017.

Expert witness, Fabela, et al. v City of Farmers Branch, Farmers Branch city council at large district challenge, 2011.

Expert Witness, El Paso Apartment Owners Assoc. v City of El Paso, analysis of racial patterns in housing occupancy, 2009.

Expert Witness, Benevides, v Irving ISD, racially polarized voting analysis, 2008-2009.

Expert Witness, Benevides, v City of Irving, racially polarized voting analysis, 2008-2009.