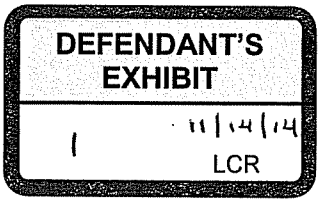
Report of Frederick G. McBride

My name is Frederick G. McBride. I have a PhD in Political Science from Clark Atlanta University. The focus of my work for the past 12 years has been quantitative and qualitative research in redistricting and voting rights law. I have extensive education and experience in alternative election systems, geographic information systems applications and demographic analysis, electoral politics, public policy, and civil rights and civil liberties.

I served as the Redistricting Coordinator/Research Analyst for the Voting Rights Project of the American Civil Liberties Union 2001-2013. I analyzed and drew redistricting plans, reviewed election returns, and performed statistical analyses to determine voting behavior patterns and minority vote dilution. To date, I have drawn and evaluated redistricting plans, performed racially polarized voting studies, performed demographic analysis, and presented at redistricting hearings for over 100 jurisdictions in 22 states, and the District of Columbia.

Most of my work has involved local redistricting matters, although I have drawn statewide and congressional plans. These plans were produced at the request of elected officials, citizens' groups, activists, voters, and national organizations like the American Civil Liberties Union, NAACP, NAACP LDF, and Common Cause. In 2011, several statewide plans that I drew, in part with another organization, were presented on behalf of the Georgia Black Legislative Caucus, but the Caucus' plan received little consideration during the redistricting process. I presented an analysis of a proposed plan at the Atlanta City Council redistricting hearing in December 2011, and was successful in altering the city council plans which would've diluted minority voting strength in a district held by a minority-elected official.



I recently completed redistricting plans and a socio-demographic analysis for a Montana school board case involving Native American vote dilution, *Jackson v. Board of Trustees of Wolf Point, Montana School District No. 45-45A*; et. al. CV-13-65-GF-DLC-RKS (D Mont.). Most of my recent experience has involved electoral practices in state and local government. I have over 14 years of undergraduate and graduate level teaching experience, and several publications coauthored with colleagues. I have not testified at trial, or by deposition. Additional information regarding my education and work experience is attached as Appendix A. Curriculum Vitae. My compensation for work on this case is $100 per hour.

I. Purpose of Report

The attorneys for the plaintiffs requested that I prepare a report on the following:

1) The socio-economic data for Sumter County, GA and the Sumter County School District as it specifically relates to the Black alone or African American alone population,[1]
2) The current redistricting plan for the Sumter County School District comprised within the Sumter County, Georgia School District,
3) A proposed illustrative plan for the Sumter County School District,
4) Racial polarized voting analyses for selected Sumter County School Board elections 2002-2014.

II. Geographic Profile of Sumter County and Sumter County School District

Sumter County, created from Lee County by the Georgia Legislature on December 26, 1831, is named for General and US Senator Thomas Sumter of South Carolina. Sumter County is

[1] Data on the African American population includes census demographic characteristics designation as African American or Black Alone and for this report black is used interchangeably with African American..

located in the southwest portion of Georgia. The county is 482.7 square miles comprised primarily of land (see Figure 1 Sumter County). The following 8 counties are adjacent to Sumter County: Macon, Dooly, Crisp, Lee, Terrell, Webster, Marion, and Schley. Americus, GA, designated a micropolitan area from the US Census Bureau, is the county seat.[2] Additional cities and communities include: Andersonville, Cobb, DeSoto, Leslie, and Plains. Flint River and the Chattahoochee River border Sumter County on the east and farther west, respectively, and Muckalee Creek flows through Sumter County.[3]

Sumter County's rich soil and waterway access allowed for economic opportunities in agriculture with the growth and production of cotton, wheat, peanuts, and corn. There were nearly 4,000 slaves by 1850.[4] The county remains largely rural with cotton as its major crop. Sumter County houses Civil War landmark Andersonville National Historic Site and the Jimmy Carter National Historic Site.

The Sumter County School District services all communities within Sumter County with 8 schools: 1 primary school, 2 elementary schools, 2 middle schools, 1 ninth-grade academy, 1 high school, and 1 alternative school program.[5]

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[2] Metropolitan and micropolitan statistical areas (metro and micro areas) are geographic entities delineated by the Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. The term "Core Based Statistical Area" (CBSA) is a collective term for both metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

[3] See Georgiagov at http://georgia.gov/cities-counties/sumter-county (last visited August 5, 2014).

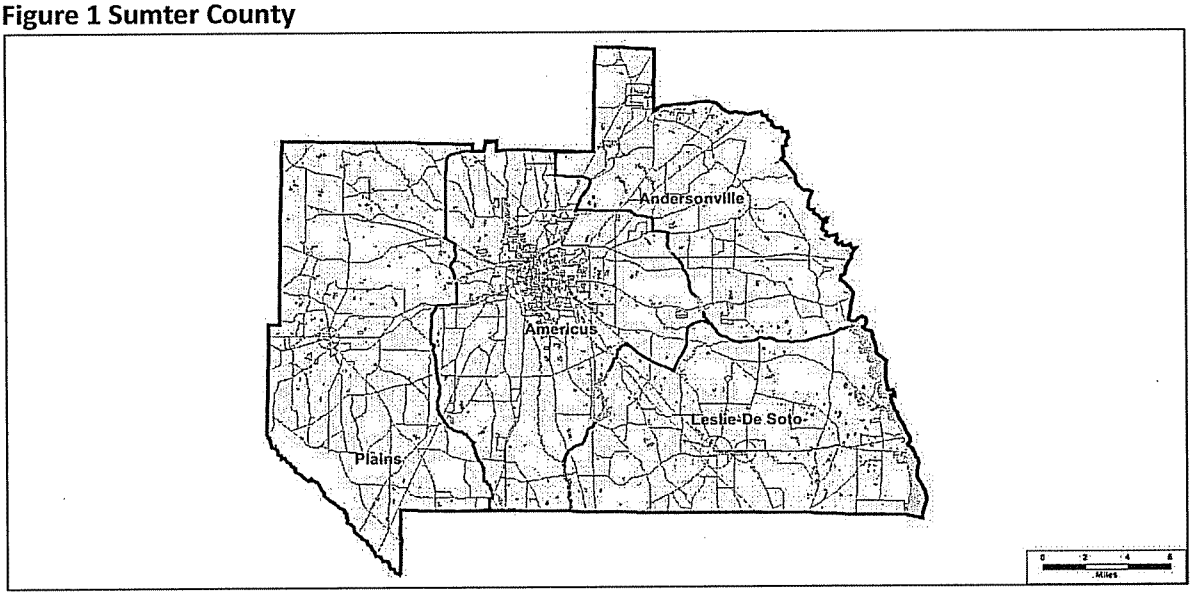
[4] For more information on the history of Sumter County, GA see New Georgia Encyclopedia at http://www.georgiaencyclopedia.org/articles/counties-cities-neighborhoods/sumter-county (last visited August 5, 2014)

[5] The high school is divided between two schools, Americus Sumter High North and Americus Sumter High South.

III. Census 2010 Profile of Sumter County

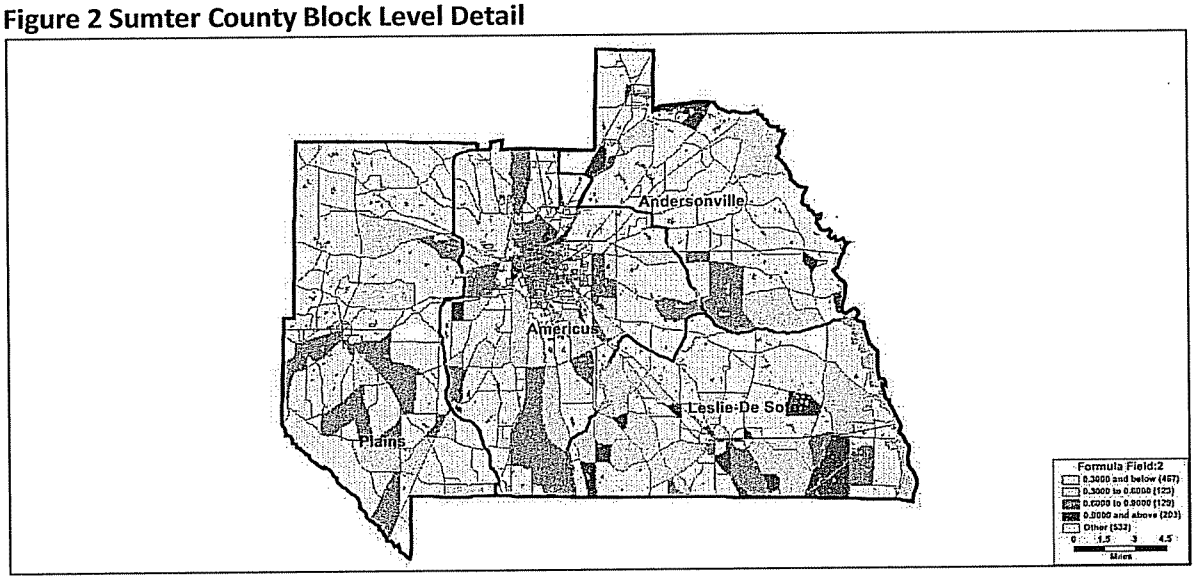
According to the US Census, Sumter County has a total population of 32,819. Of that population 51.8 percent of persons identified themselves as Black or African American (alone), with 48.1 percent Black 18 years and over. See Figure 2 Sumter County Block Level Detail for the African American population. Figure 2 displays the African American population throughout the county within the census block layer. Census blocks with heavier concentration of African American population have varying degrees of color shading. The Hispanic or Latino (of any race) total population is 5.2 percent. Other race and multiple race categories have extremely small population counts.

Figure 1 Sumter County



Source: Caliper Corporation, Maptitude for Redistricting 6.0

Figure 2 Sumter County Block Level Detail



Source: Caliper Corporation, Maptitude for Redistricting 6.0

The population in Sumter County has remained relatively consistent between the 2000 and 2010 census. There was a slight decrease with 32,819 persons in 2010, compared to 33,200 in 2000. The African American voting age population increased from 44.7 percent in 2000, to 48.1 percent in 2010 (see Figure 3 Sumter County Total Population Change From 2000-2010).

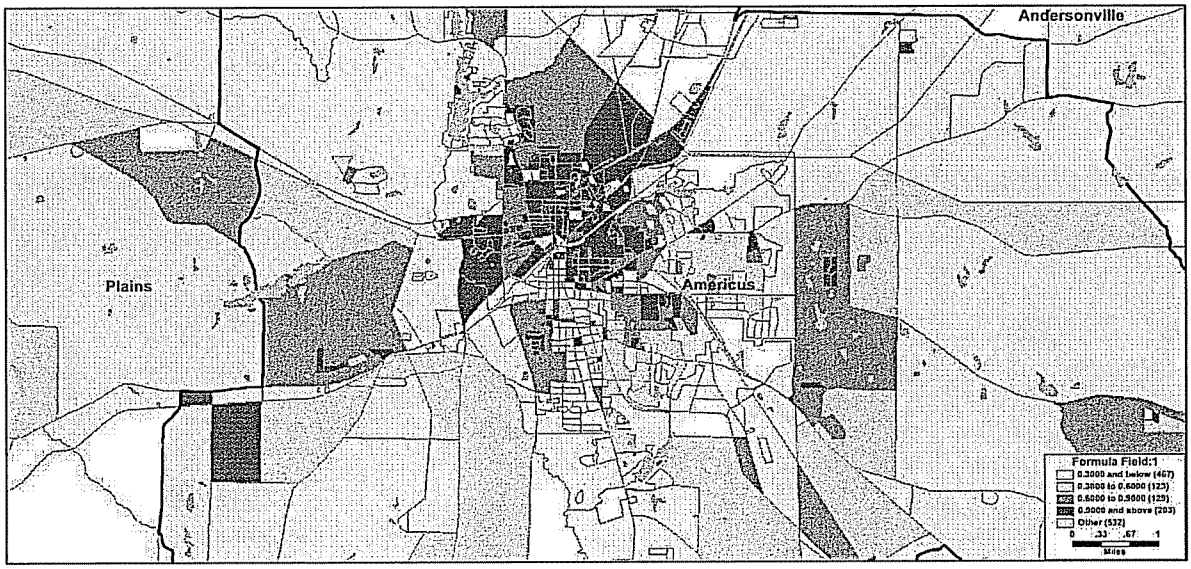
Figure 3 Sumter County Total Population Change From 2000-2010

	2000		2010	
	NUMBER	PERCENT	NUMBER	PERCENT
TOTAL POPULATION	33,200	100	32,819	100
AF. AMERICAN VAP	10,715	44.7	11,790	48.1

Source: US Census Bureau

Americus, GA is the most populated Sumter County subdivision with 51.9 percent of the county's population. Americus, GA also has a significant African American population with 63.5 percent total black population, 58.4 percent African American voting age population (see Figure 4 Americus, Georgia Block Level Detail).

Figure 4 Americus, Georgia Block Level Detail



Source: Caliper Corporation, Maptitude for Redistricting 6.0

The US Census Bureau estimates a decrease in the Sumter County total population by 4.4 percent from April 1, 2010 to July 1, 2013. Only a slight increase to 52.5 percent is estimated for the total African American population.[6] The population estimate for Americus, GA is 16,359 persons, a 4.2 percent decrease from the 2010 census.

IV. Socio-Economic Profile of Sumter County

The following details examination of data found in the American Community Survey (ACS) 2008-2012 Five Year Estimates for Sumter County, GA. Data found in the 2008-2012 ACS shows that there are significant socio-economic disparities between African American or Black (alone) and white (alone) in Sumter County. The contrast charts and tables comparing socio-

[6] See http://quickfacts.census.gov/qfd/states/13/13261.html (last visited August 5, 2014). The estimates are based on U.S. Census Bureau: State and County Quick Facts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits

economic characteristics of African Americans and whites in Sumter County was used to formulate the accompanying graphs for each dataset. For complete charts see Appendix D. Selected Socio-Economic Data Sumter County, Georgia African American or Black (alone) and White (alone): Data Set: 2008-2012 American Community Survey 5-Year Estimates.[7]

(a) Education

- Of African Americans 25 years of age and over, 28.3 percent had not finished high school, compared to 17.5 percent for the white population.
- Within this same age category, 8.6 percent of African Americans had a Bachelor's degree or higher, compared to 29.7 percent of whites.

(b) Employment

- Of the population 16 years and over with 12 months of work experience, 31.1 percent of African Americans had earnings for at least the previous year of the survey, compared to 39.5 percent of whites.
- 68.9 percent of African Americans had no earnings or had earnings, but less than full time for the previous year, compared to 60.5 percent of whites with no earnings or earnings but less than full time for the previous year.

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[7] U.S. Census Bureau; generated by Fred McBride; using American FactFinder; <http://factfinder2.census.gov>; (4 August 2014).

- The unemployment rate for African Americans (16 years and over) is twice the rate for whites in Sumter County. The estimated unemployment rate for African Americans was 11.2 percent, compared to 5.2 percent for whites.[8]
- The unemployment of working age African Americans and whites 16 to 64 (as a percent of 16-64 civilian labor force) was 11.1 percent for African Americans, compared to 5.0 percent for whites.
- Service occupations had the greatest number of African Americans with 27 percent of African Americans employed in this area while 13.2 percent of whites were in service occupations. Whites had the greatest number of workers employed in the management, business, science, and arts occupations at 39.2 percent, compared to 24 percent of African Americans employed in these occupations.

(c) Income

- The largest percentage of African American households in Sumter County, 24 percent, earned less than $10,000, compared to 8 percent of white households earning less than $10,000. Slightly less than 19 percent (18.6) of African American households earned over $50,000, compared to 45.4 percent of white households earning over $50,000. These figures are similar when comparing family income as 15 percent of African American families earned less than

[8] The category designating population 16 years and over includes individuals over 64 years old, whereas population categories designating 16-64 do not include this subset of the population.

$10,000 compared to 5.3 percent of whites, and 23.9 percent of African American families earned over $50,000, compared to 59.1 percent of whites.[9]

- The median household income for African Americans was $25,294 compared to $47,066 for the white population. The median family income for African Americans was $29,464, compared to $56,606 for whites. For the median nonfamily household income, African Americans had a median nonfamily household income of $14,205, compared to $27, 818 for whites.
- The African American per capita income was $11,795 and $25,232 for whites.
- African Americans in Sumter County experienced a poverty rate over twice that of whites. Slightly more than 40 percent (40.4) of African Americans had incomes below the poverty level while 18.5 percent of whites had income below the poverty level.[10]
- 16.3 percent of African American children (under 18 years of age) live in poverty, compared to 5.1 percent of white children (under 18 years of age).
- The median earnings level of African Americans was 58.2 percent of their white counterparts, $16,762 compared to $28,805.

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[9] US Census Bureau. 2010 Census Summary File 1: 2010 Census of Population and Housing: Technical Documentation. Retrieved from http://www.census.gov/prod/cen2010/doc/sf1.pdf#page=504. A household includes all the people who occupy a housing unit. People not living in households are classified as living in group quarters. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. A family consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder's family in tabulations. Thus, the number of family households is equal to the number of families, but family households may include more members than do families. A household can contain only one family for purposes of tabulations.

[10] Based on income in the past 12 months below poverty level

- 38.3 percent of African American households received the Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program, within the past 12 months of the survey. Only 9.3 percent of whites indicated receipt of SNAP within a 12 month period.

(d) Housing

- Single-parent female households (no husband present) comprise 26.2 percent of African American family households in Sumter County, compared to 5.8 percent of white family households.[11]
- Renters comprise 52.9 percent of African American households, compared to 28.9 percent of white households.[12]
- 3.7 percent of African American households have 1.01 or more occupants per room (crowding), compared to 1.7 percent for whites.

(e) Mobility/Access

- 79.7 percent of African American and white workers 16 years and over drove to work alone (car, truck, van), while only the African American population used public transportation, 0.3 percent.
- With reference to mobility (living in the same house for the previous year), the estimates for African American households and white households was similar at 83.6 percent and 87.7 percent, respectively. A move within the same county

[11] Category is referenced as Poverty Status In the Past 12 Months of Families By Family Type By Presence of Related Children Under 18 years and includes those families at or above/below poverty level.

[12] US Census Bureau. General Housing Characteristics 201: 2010 Census Summary File 1. Retrieved from http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?fpt=table. Renter Occupied includes all occupied housing units which are not owner-occupied, whether they are rented or occupied without payment of rent, are classified as renter-occupied.

was also relatively similar as 10.4 percent of African Americans moved within Sumter County over the previous year, compared to 6.0 percent of whites.

Rates for the African American population in Sumter County remain significantly lower than rates for white counterparts of the county in the following: education, employment, income, and housing. This is particularly evident in income and employment.

V. Sumter County Board of Education Existing Plan

Georgia House Bill 836 was passed by the Georgia legislature and signed by the governor February 5, 2014. As stated by the Americus Times Recorder: "Under HB 836, seven board members will be elected to Districts 1, 2, 3, 4, 5 and two at-large members during the nonpartisan General Election in 2014. The new school districts mirror the current Sumter County Board of Commissioners' districts."[13] New elections were to be held March 18, 2014 for Districts 1, 2, 4, and 6 as they existed on December 31, 2013. Candidates elected would immediately take office and serve through December 31, 2014.

The reconstituted BOE would be elected in 2014, with Districts 1, 3, 5, and 1 at-large seat to serve terms of four years beginning in January 2015. Districts 2, 4, and the other at-large seat will be elected for terms of two years beginning in January 2015.

Ideal district size is determined by dividing the total population by the number of seats involved. Deviation is determined by calculating the extent to which an actual district is larger (has a "+" deviation) or smaller (has a "-" deviation) than the ideal district size. Plans with a

[13] Gilbert, K (March 1, 2014). Election legislation HB 836 officially Georgia state law. Americus Times-Rcorder. (Retrieved from http://www.americustimesrecorder.com/local/x129175220/Election-legislation-HB-836-officially-Georgia-state-law).

total population deviation (the sum of the largest plus and minus deviations) under 10 percent are presumptively regarded as complying with the one person, one vote principle.[14]

Based on the 2010 Census, the total population of the Sumter County Board of Education is 32,819 resulting in an ideal district size of 6,563.8 persons. The reconstituted plan allows for 2 additional seats elected at-large. Population figures were derived using the Maptitude for Redistricting 6.0 Geographic Information System software (Caliper Corporation) with the U.S. Census Bureau 2010 Topologically Integrated Geographic Encoding and Referencing product (TIGER) census block shape files, and the 2010 Census Redistricting Data PL 94-171 Summary File data for Sumter County, Georgia.

A total plan deviation is calculated by the sum (absolute value) of the deviation from the most populated and least populated district. The Sumter County Board of Education has a plan deviation of 3.8 percent with 2 majority-minority districts in the 5 single member district portion of the 7-member plan.[15] See Figure 5 Sumter County BOE Population Summary and Figure 6. Sumter County Existing Plan.

Figure 5 Sumter County BOE Population Summary

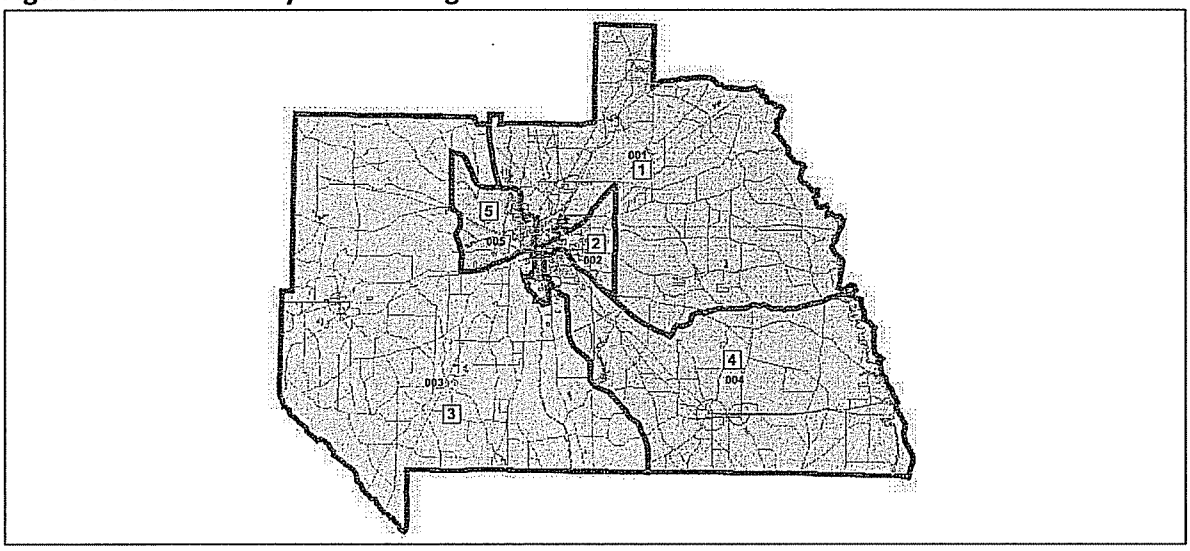
DISTRICT	POP	DEV	% DEV	% WHITE	% BLACK	% 18+ WHITE	% 18+ BLACK
1	6432	-132	-2.0%	31.1%	65.9%	34.4%	62.7%
2	6654	90	1.4%	56.4%	34.6%	62.2%	30.3%
3	6546	-18	-0.3%	54.1%	38.8%	57.8%	36.2%
4	6679	115	1.8%	44.8%	47.7%	49.1%	43.9%
5	6508	-56	-0.9%	24.1%	72.8%	27.0%	70.6%

Source: Caliper Corporation, Maptitude for Redistricting 6.0

[14] White v. Regester, 412 U.S. 755, 764 (1973); Brown v. Thompson, 462 U.S. 835, 842-43 (1983); Cox v. Larios, 542 U.S. 947 (2004).

[15] The county population summary for the two at-large districts are not included in Figure 5.

Figure 6 Sumter County BOE Existing Plan



Source: Caliper Corporation, Maptitude for Redistricting 6.0

VI. Plaintiffs' Illustrative Plan

The Plaintiffs' Illustrative Plan was prepared using the geographic information system software package, *Maptitude for Redistricting 6.0*, developed by the Caliper Corporation. This redistricting software is used by many local and state governing bodies across the country.

The U.S. Census Bureau 2010 Topologically Integrated Geographic Encoding and Referencing product (TIGER) census block shape files were joined to the Census 2010 Redistricting Data PL 94-171 Summary File for Sumter County, Georgia. The block-level population data used is based on the PL 94-171 data file. The PL 94-171 data file is published in electronic format and is the complete count population file designed by the Census Bureau for use in redistricting. The file contains basic data on the population for all ages and voting age population found in units of census geography such as states, counties, municipalities, townships, reservations, school districts, census tracts, census block groups, and census blocks.

Once joined, the program generated census block level geography detailing geographic and population data for the entire county. Additional data and information relevant to the Sumter County existing plan was received from the Georgia Legislative Reapportionment Office. After obtaining the necessary geographic files (shape files) for the Sumter County school district layer, the boundaries were placed onto the census block layer designating the geographic areas for the districts. The census blocks aligned with their respective districts for the Sumter County School District and the actual 2010 Census population for the district was obtained along with data regarding: count of all persons by race, population 18 years and over by race, African American or Black (alone), and White (alone) for all persons 18 years and over.

The plan was then drawn at the census block level. A census block is the smallest geographic tabulation area from the decennial census. A block may be as small as a regular city block bounded by four streets, or as large as several square miles in a rural area. Generally, a census block is bounded on all sides by visible features such as streets, rivers, and railroad tracks.

The current Sumter County Board of Education plan consists of 5 members elected from single member districts and 2 members elected at-large. A seven single-member district plan complying with the one-person, one-vote principle, and traditional redistricting criteria including compactness, contiguity, respect for communities of interest, respect for political boundaries, and the Voting Rights Act was constructed. Every attempt was made to create a "least change" plan where efforts to maintain, to the extent possible, existing district boundaries was considered. The change from 2 at-large seats to an additional 2 single-member seats/districts allowed for considerable changes to maintain population equality and other

redistricting principles. Detailed maps for the plaintiffs' illustrative plan are attached as Appendix B. Plaintiffs' Illustrative Plan.

The Plaintiff's Illustrative Plan complies with the one-person, one-vote requirement and has an overall deviation of 1.26 percent and a population range of 4,663 to 4,722. The least populated district is minus 25 persons below the ideal district size of 4,688, and the most populated district is 34 persons above the ideal district size. See Figure 7 Plaintiffs' Illustrative Plan Population Summary for select race categories.

Figure 7 Plaintiffs' Illustrative Plan Population Summary

DISTRICT	POP	DEV	% DEV	WHITE	% WHITE	BLACK	% BLACK	18+ POP	% 18+ POP	18+ WHITE	%18+ WHITE	18+ BLACK	%18+ BLACK
1	4663	-25	-0.5%	1367	29.3%	3170	68.0%	3290	70.6%	1083	32.9%	2120	64.4%
2	4686	-2	0.0%	2871	61.3%	1448	30.9%	3636	77.6%	2446	67.3%	957	26.3%
3	4675	-13	-0.3%	2361	50.5%	2029	43.4%	3575	76.5%	1924	53.8%	1476	41.3%
4	4677	-11	-0.2%	2336	49.9%	1873	40.0%	3797	81.2%	1999	52.6%	1457	38.4%
5	4703	15	0.3%	896	19.1%	3642	77.4%	3279	69.7%	717	21.9%	2472	75.4%
6	4693	5	0.1%	1583	33.7%	2769	59.0%	3336	71.1%	1293	38.8%	1818	54.5%
7	4722	34	0.7%	2438	51.6%	2070	43.8%	3605	76.3%	1975	54.8%	1490	41.3%

Source: Caliper Corporation, Maptitude for Redistricting 6.0

The Plaintiffs' Illustrative Plan creates three districts with a majority of the African American population 18 years and over in Districts 1, 5, and 6. The plan deviation is well below the 10 percent threshold.[16] See Appendix B. Plaintiff's Illustrative Plan.

The decision to draw 7 single member districts with three majority-African American districts with 64.4 percent, 75.4 percent, and 54.5 percent African American voting age population was motivated by the following considerations: (1) the existing plan for the Sumter County Board of Education has a plan deviation of 3.8 percent with two majority African-American districts where the opportunity to create an additional majority African-American district is demonstrated in the plaintiff's illustrative plan, (2) Section 2 of the Voting Rights Act

[16] White v. Regester, 412 U.S. at 764; Brown v. Thomson, 462 U.S. at 842-43; Cox v. Larios, 542 U.S. 947 (2004).

provides that a voting practice is unlawful if it "results" in discrimination, that is, if, based on the totality of circumstances, it provides minorities with "less opportunity than other members of the electorate to participate in the political process and to elect representatives of their choice," 42 U.S.C. § 1973(b) (2006), and (3) creating African American-majority districts in response to evidence of racially polarized voting and political cohesion among the minority group is supported by Thornburg v. Gingles, and reflects the tenets of the Voting Rights Act, because such districts give minority groups a realistic opportunity to elect candidates of their choice.[17]

Compactness and contiguity relate to the shape of districts. Definitions of compactness include: (1) having the minimum distance between all the parts of a constituency (a circle or hexagon is the most compact district), (2) the relative geographic dispersion of a district, (3) all parts connected and touching, and (4) the extent to which a district's geography is dispersed around its center (*i.e.*, extend too far from the center of the district).[18] No one method is used or accepted by the courts as a standard by which to determine whether a district is compact. In Bush v. Vera, an "eyeball test" was used to evaluate compactness.[19] As Richard Engstrom writes, "Despite the ready availability of quantitative scores for compactness in districting software, and even an emerging focus on two such indicators, some courts continue to be satisfied with a visual inspection.[20]

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[17] Thornburg v. Gingles, 478 U.S. 30 (1986); Growe v. Emison, 507 U.S. 25 (1993).
[18] For discussion regarding compactness see AMERICAN CIVIL LIBERTIES UNION, *Everything You Always Wanted To Know About Redistricting: But Were Afraid To Ask*. (American Civil Liberties Union, April, 2001).
[19] *See* Bush v. Vera, 517 U.S. 952, 959-60 (1996).
[20] Richard Engstron, "The Post 2000 Round of Redistricting: An Entangled Thicket Within the Federal System," Publius (Fall 2002).

Contiguity can be defined as all parts of a district being connected at some point with the rest of the district. The Plaintiffs' Illustrative Plan is contiguous as all parts of a district are connected at some point with the rest of the district. Both compactness and contiguity were adhered in the drawing of the Plaintiffs' Illustrative Plan.

Sumter County, designated a rural county by the US Census Bureau, has a concentrated area of the African American population as demonstrated in Americus, GA with a total African American population of 63.5 percent, 58.4 percent African American voting age population.[21] Areas outside of Americus, GA have fewer persons per square mile resulting in larger geographic district area. This concentrated area of African American population results in significantly higher African American populations in Districts 1 and 5. Neither district has unusually high or low deviations to suggest any attempts to pack these districts, and the overall plan deviation is well below 2.0 percent.

With reference to communities of interest, core areas of Andersonville, Leslie-DeSoto, Americus, and Plains remain intact within respective districts allowing for splits only to accommodate population equality and other redistricting principles. Regarding particular communities and areas that attract certain groups and may be identified within the communities of interest concept: 1) the Andersonville Civil War Village remains intact within District 1; 2) Brickyard Plantation and RV Park remains intact within District 4; the Jimmy Carter National Historic Site remains whole within the core area of Plains; Habitat for Humanity Global Village and Discovery Center remains situated in District 5, north of West Church Street;

[21] United States Census Bureau. (n.d). APPENDIX A.1: NSHAPC's Primary Sampling Areas Arrayed Alphabetically Within Types. Retrieved from http://www.census.gov/prod/www/nshapc/datadocu/appsatod.pdf.

Koinonia Farm, a Christian community established in 1942 and which challenged racism, militarism, and materialism remains whole and within District 3.[22]

VII. Racially Polarized Voting Analysis

Section 2 of the Voting Rights Act, as amended in 1982 was first applied by the Supreme Court in Thornburg v. Gingles. In Gingles, the Supreme Court identified three factors (the "Gingles factors") that must be established to prove that multi-member districts or at-large election schemes diluted minority voting strength. The factors are (1) that the minority group is geographically compact, i.e., sufficiently large to comprise a majority in a single member district, (2) the minority group is politically cohesive or tends to vote as a bloc, and (3) whites sufficiently vote as a bloc usually to defeat minority voting preferences. Bernard Grofman writes, "The Thornburg Test offers a clear and manageable standard for vote dilution, and American politics is the better for the gains in minority representation it has brought."[23]

Endogenous elections are those elections that actually involve the challenged office. For this study the endogenous elections would be the Sumter County Board of Education races. Racial polarization would be determined by review of Sumter County Board of Education election returns for selected school board races 2002-2014. Only these endogenous races between African American and white candidates were analyzed. Minority candidates were identified by the Sumter County NAACP. The demographic analysis based on 2010 census data is described herein.

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[22] For more information on Koinonia Farm see http://www.koinoniapartners.org/index.html (last visited August 8, 2014), and for a discussion of white opposition to Koinonia's racial equality advocacy, see Laughlin McDonald, A Voting Rights Odyssey: Black Enfranchisement in Georgia (Cambridge U. Press, 2003) 63-4.

[23] Bernard Grofman, "Expert Witness Testimony and the Evolution of Voting Rights Case Law," Bernard GROFMAN, CHANDLER DAVIDSON, EDS., CONTROVERSIES IN MINORITY VOTING: THE VOTING RIGHTS ACT IN PERSPECTIVE. WASHINGTON, DC: THE BROOKINGS INSTITUTE, 1996. 229.

Racial polarization means "a consistent relationship between [the] race of the voter and the way in which the voter votes, or to put it differently, where black voters and white voters vote differently."[24] Statistical measures used to explore this relationship may infer that white voters voted as a bloc and prevented the minority group from electing their candidate of choice.[25]

As stated in Gingles, "A showing that a significant number of minority group members usually vote for the same candidates is one way of proving the political cohesiveness necessary to a vote dilution claim, ... and consequently establishes minority bloc voting within the meaning of 2."[26] Further, if a majority or significant portion of the minority voters voted for the minority candidate, for example, one could infer that the minority group in this election is cohesive in their voting preferences. The existence of minority vote cohesion and racial polarization satisfy the second and third prong of the Gingles test. Also in Gingles, Justice Brennan states "It is the status of the candidate as the chosen representative of a particular group, not the race of the candidate that is important."[27] The meaning of minority preferred candidate(s) of choice is taken from Lewis v. Almance County as those "who received substantial support from black voters."[28]

Approved social science methods used in this analysis to determine racially polarized voting were the following: 1) Goodman Single-Equation Ecological Regression, 2) double-

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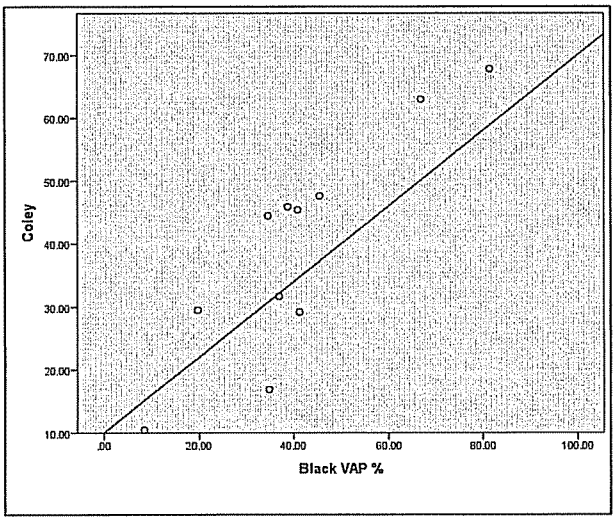
[24] United States v. Charleston County, 318 F. Supp. 2d 302, 308 (D.S.C. 2002).
[25] Also referred to as minority preferred candidate.
[26] Thornburg v. Gingles, 478 U.S. 30, 56 (1986).
[27] Id. at 68.
[28] Lewis v. Almance County, 99 F.3d 600 (1996).

equation regression analysis, and 3) EI (Ecological Inference often referred to as King's Method).[29]

Goodman Single-Equation Ecological Regression analysis is a statistical measure used to determine statistical relationship between two variables using a linear function. Regression analysis uses a squared regression coefficient (R^2) that estimates the effect of an independent variable on a dependent variable, i.e. the effect of black voting age population of precinct(s) on votes for particular candidates. Values range from 0 to 1 indicating how much variation in one variable can be explained by the other variable. The relationship between two variables may be summarized by a line. See Figure 8 Regression Line - Sumter County July 22, 2014 BOE At-Large.

Figure 8 Regression Line - Sumter County July 22, 2014 BOE At-Large



[29] For further review of social science methods used in voting rights litigation see: James Loewen and Bernard Grofman, "Recent Developments in Methods Used in Voting Rights Litigation," Urban Lawyer (1989); Bernard Grofman, Lisa Handley, and Richard G. Neimi, Minority Representation and the Quest for Voting Equality, Cambridge: Cambridge University Press, (1992); Gary King, A Solution to the Ecological Inference Problem, Princeton: Princeton University Press (1997); J. Morgan Kousser, "Ecological Inference from Goodman to King," Historical Methods, (Summer 2001); Gary King, Ori Rosen, and Martin A. Tanner, Ecological Inference: New Methodological Strategies, Cambridge: Cambridge University Press (2004)

The closer the value is to 1 the more consistent the relationship and likelihood that the data fits a line. In this example detailing the African American (Black) voting age population of precincts and the votes for African American candidate Michael Coley, the data points gather tightly in a line showing that variation of votes for Michael Coley can be explained statistically by the voting age population of precincts. A P-value is used to test how well the model fits the data and helps to make more precise inferences about the relationship between the variables. P-values less than .05 are deemed statistically significant and reject the possibility that observed results would occur too frequently by chance.

See Figure 9 R^2 Values Sumter County BOE Elections. The R^2 values for African American

Figure 9 R^2 Values Sumter County BOE Elections

R^2 Values Sumter County BOE Elections		
	R^2	P-Value
May 18, 2014 BOE #6:		
Michael Mock	0.6	0.124
Sarah Pride [African American]	0.44	0.222
May 20, 2014 BOE #1:		
Alice Green [African American]	0.97	0.000
Elaina Lockhart	0.22	0.284
Allen Smith	0.03	0.901
May 20, 2014 #2:		
Everette Byrd	0.14	0.627
Meda Krenson	0.02	0.867
Sarah Pride [African American]	0.76	0.130
May 20, 2014 #3:		
Willa Fitzpatrick [African American]	0.82	0.002
J.C. Reid	0.28	0.174
May 20, 2014 #5:		
Edith Green [African American]	0.99	0.072
Mark Griggs	0.59	0.443
May 20, 2014 (2 Year) At-Large:		

Michael Coley [African American]	0.88	0.000
David Kitchens	0.18	0.197
Sylvia Roland	0.16	0.229
Patricia Taft [African American]	0.45	0.023
May 20, 2014 (4 Year) At-Large:		
Michael Busman	0.17	0.213
Kelvin Pless [African American]	0.91	0.000
July 22, 2014 (2 Year) At-Large Runoff:		
Michael Coley [African American]	0.9	0.000
Sylvia Roland	0.14	0.254
2010 BOE GE #3:		
Donna Minich	0.02	0.840
Kelvin Pless [African American]	0.93	0.008
2008 BOE GE #1:		
Stephanie McCook	0.99	0.022
Carolyn Whitehead [African American]	0.99	0.024
2006 BOE GE #3:		
Darius Harris [African American]	0.9	0.203
Donna Minich	0.99	0.058
Carolyn B. Seay [African American]	0.58	0.452
2002 BOE GE #3:		
Darius Harris [African American]	0.99	0.028
Donna Minich	0.99	0.032
Carolyn B. Seay [African American]	0.99	0.030

candidates tend to have higher R^2 values demonstrating the likelihood that data points are linear and statistically significant. For this study, R^2 determines the proportion of the variation in votes for candidates that is explained by the black voting age population of precincts. This measure does not adequately measure levels of support for candidates, but instead is useful to determine strength of relationship between the race of voters and votes for candidates. To add, lower values do not necessarily indicate that there is no relationship. Small sample sizes,

outliers, and other factors may result in spuriously high or low correlations; further analysis must not be abandoned and other contributing factors should also be considered.[30]

In double-equation regression analysis two equations are used to predict voting behavior (support for African American and white candidates): 1) African American voting age population (VAP) as a percentage of the total voting age population to predict votes for black candidates, and 2) African American VAP as a percentage of the total voting age population to predict votes for white candidates. This procedure also provides estimates of turnout by race.

Ecological Inference (EI), developed by Gary King, uses a maximum likelihood technique to estimate turnout and support for candidates based on simulations derived from specified parameters of interest. EI addresses the problem of drawing inferences about individual behavior based on evidence gathered from groups, commonly known as the ecological fallacy. Unlike regression analysis where estimates can range above 100 and below 0, EI produces turnout estimates between 0 and 100. EI has been accepted by courts as a reliable method of analysis and an improvement on ecological regression.[31] In many instances regression analysis and EI produce similar estimates.

Results of measures used in this analysis are presented in Appendix C. Racially Polarized Voting Analysis and Findings. Endogenous and interracial contests are the most probative. Election returns were obtained from the Elections Division of the Georgia Secretary of State website. It is important to note that elections prior to 2010 do not contain

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[30] For a discussion of *R* see Laura D. Goodwin, and Nancy L. Leech, "Understanding Correlation: Factors That Affect the Size of r," The Journal of Experimental Education (2006, 74 (3)).
[31] Rodrigues v. Pataki, 308 F Supp 2d 346, 388 (S.D. N.Y. 2004).

absentee/early/advance vote totals for candidates reallocated to their proper districts. Therefore, those totals cannot be included in the analysis. Races analyzed are 2002-2014, with 2002 races based on 2000 census data and all other races post 2004 based on 2010 census data.

(a) May 18,2014 General Election BOE 6 [28% BVAP]

- African American candidate loses
- EI demonstrates racially polarized voting
- White candidate has some support from African Americans

(b) May 20, 2014 General Election BOE 1 [62.7% BVAP]

- African American and minority preferred candidate wins
- Contest racially polarized

(c) May 20, 2014 General Election BOE 2 [30.3% BVAP]

- African American candidate loses
- Contest racially polarized

(d) May 20, 2014 General Election BOE 3 [36.2% BVAP]

- African American candidate loses
- EI shows significant African American support for both candidates
- EI shows overwhelming support for white candidate by white voters

(e) May 20, 2014 General Election BOE 5 [70.6% BVAP]

- African American and minority preferred candidate wins
- Contest racially polarized

(f) May 20, 2014 General Election BOE At-Large 2 year [48.1% BVAP]

- African American and minority preferred candidate in runoff with white candidate
- Contest racially polarized

(g) May 20, 2014 General Election BOE At-Large 4 year [48.1% BVAP]

- African American and minority preferred candidate loses
- Contest racially polarized

(h) July 22, 2014 General Election BOE At-Large 2 year (Runoff) [48.1% BVAP]

- African American and minority preferred candidate loses
- Contest racially polarized

(i) 2010 General Election BOE 3 [48.4% BVAP]

- African American and minority preferred candidate wins
- Contest racially polarized

(j) 2008 General Election BOE 1 [49.5% BVAP]

- African American and minority preferred candidate wins
- Contest racially polarized

(k) 2006 General Election BOE 3 [33% BVAP]

- African American and minority preferred candidate loses
- Contest racially polarized

(l) 2002 GE BOE 3 [44.5% BVAP]

- Both African American candidates lose
- One African American candidate receives significant white support

- White candidate and winner of election has significant black support

Results from measures applied indicate significant patterns of racially polarized voting where minority candidates lose in elections where white voters overwhelmingly support white candidates and defeat the minority preferred candidate. There are three instances where black voters demonstrate some level of support for white candidates, though this is rare in elections analyzed and ecological regression and EI results sometimes are inconsistent.

African American candidates won in 4 elections. After the 2010 redistricting and subsequent litigation, the two successful African American candidates have won in districts with 62.7 percent African American VAP (District 1), and 70.6 percent VAP (District 5). Furthermore, African American candidates lose in the newly devised at-large election contests where racially polarized voting is evident. In most instances, white turnout is higher than black turnout, but overall turnout in Sumter County Board of Education races is dismal.

VIII. Conclusion

As Laughlin McDonald writes, "The analysis in White v. Register and the legislative history is still relevant, but proof of the Gingles factors is ordinarily enough to establish a violation of section 2."[32] There is significant evidence of racially polarized voting in Sumter County, Georgia. African Americans are cohesive and white voters typically support white candidates, leading to the defeat of the minority preferred candidate. African American voters are cohesive as evident in overwhelming minority support for certain candidates and other

[32] Laughlin McDonald, "The 1982 Amendments of Section 2 and Minority Representation," Bernard GROFMAN, CHANDLER DAVIDSON, EDS., CONTROVERSIES IN MINORITY VOTING: THE VOTING RIGHTS ACT IN PERSPECTIVE. WASHINGTON, DC: THE BROOKINGS INSTITUTE, 1996. 66.

statistical measures that demonstrate a relationship between racial composition of precincts and voter preferences.

Based on data reported from the 2008-2012 U.S. Census Bureau American Community Survey for Sumter County, Georgia, African Americans are significantly behind their white counterparts in many selected socio-economic measures: education, employment, income, and housing. Over 25 categories were analyzed detailing the disparities between the African American population and their white counterparts.

Plaintiff's Illustrative Plan demonstrates that alternative plans that allow African Americans a chance to elect candidates of choice can be drawn that comply with all redistricting principles and satisfy the tenets of the Voting Rights Act.

This expert witness report of Frederick G. McBride,
Submitted this 12th day of August, 2014

Frederick G. McBride