

EXHIBIT Q

Opening Expert Report of Prof. Michael P. McDonald, PhD

Introduction

My name is Michael P. McDonald. I am Associate Professor of Political Science at the University of Florida. I received my undergraduate degree in Economics at the California Institute of Technology and my PhD in Political Science from the University of California, San Diego. I held a one-year post-doctoral position at Harvard University and have taught previously at Vanderbilt University; University of Illinois, Springfield; and George Mason University.

My expertise is documented in my attached curriculum vitae. I am widely regarded as a leading expert on United States elections. I have published extensively on elections in peer-reviewed journals and I produce what many consider to be the most reliable turnout rates for the nation and the states. In the course of my election work, I have consulted for the United States Election Assistance Commission, the Department of Defense's Federal Voting Assistance Program, the media's National Exit Poll organization, the Associated Press, ABC News, and NBC News.

I have practical map drawing experience, have testified in redistricting litigation, and have an extensive redistricting publishing record (please see my attached curriculum vitae), beginning in the late 1980s. I served as an instructor for the National Conference of State Legislatures' redistricting training seminars for state legislators and their staff leading into the 2000 and 2010 rounds of redistricting.

I served as a redistricting consultant to the California Assembly in 1991, to the Arizona Independent Redistricting Commission in 2001, to Republican Virginia Governor McDonnell's Independent Bipartisan Advisory Redistricting Commission in 2011, and to the Democratic members of New Jersey's State Legislative Commission in 2012.

I have been an expert witness in numerous election-related cases. With respect to redistricting, I was an expert witness in *In Re 2001 Redistricting Cases* (Case No. S-10504), working for Alaska's commission defending allegations of state constitutional violations; *Rodriguez v. Pataki*, 308 F. Supp. 2d 346 (S.D.N.Y. 2004), working for plaintiffs alleging federal voting rights violations of New York's state Senate districts; *Minority Coalition for Fair Redistricting, et al. v. Arizona Independent Redistricting Commission*, CV2002-004380 (2003) working for the commission defending allegations of state constitutional violations of state legislative districts; *Wilson v. Fallin*, No. O-109652 (Okla. Sup. Ct.) working for plaintiffs alleging state constitutional violations of state Senate districts; *Perez v. Texas*, No. 5:11-cv-00360 (W.D. Tex.) working for plaintiffs alleging partisan gerrymandering of Texas congressional districts; *Backus v. South Carolina*, No. 3:11-cv-03120 (D.S.C.) working for plaintiffs alleging federal voting rights violations of South Carolina's congressional and state legislative districts; *Page v. Virginia State Board of Elections*, No. 3:13-cv-678 (E.D.VA) working for plaintiffs alleging voting rights violations of Virginia's congressional districts; and I am currently engaged as an expert for plaintiffs in *Vesilind, et al v. Virginia State Board of Elections*, (Case No. CL15003886) working for plaintiffs alleging state constitutional violations of Virginia's legislative districts. I have also worked as a consulting expert in California and Michigan cases.

During the previous round of redistricting, my colleagues and I developed open-source, web-accessible redistricting software called DistrictBuilder.¹ We deployed this software in Arizona, Minnesota, Michigan, Ohio, New York, Virginia, and the city of Philadelphia to support redistricting advocacy. As an open-source application others were free to use it, which occurred in Contra Costa County, California and Burlington, Vermont.

I am compensated at a rate of \$280 an hour for my work on this report. I have no financial interest in the outcome of this litigation and the opinions that I offer here are in no way dependent upon my compensation.

Materials Considered In This Report

The opinions expressed in this report are based on my review of this information as well as my training and experience. In the production of this report, I have reviewed the following information:

- The Census Bureau's geographic boundary files, which include the census block assignments of the prior, benchmark congressional districts.²
- The block assignments for the adopted Maryland congressional districts.
- 2010 census population data adjusted by Maryland for the location of prisoners.³
- 2010 voter registration data by precinct and corresponded to census geography, produced in discovery for this case.
- A map of Montgomery County's 2007 precincts to address unassigned census geography in the 2010 voter registration data.⁴
- County and precinct results for the following elections: 2016 President, 2016 U.S. Senate, 2016 U.S. House, 2014 Governor, 2014 Comptroller, 2014 Attorney General, 2014 U.S. House, 2012 President, 2012 U.S. Senate, 2012 U.S. House.
- To apportion voter registration data to census blocks, I use the National Land Coverage Database to improve allocation by identifying where dwellings are located.⁵

Details of how these data were combined to produce statistics and maps presented in this report are provided in the methodology appendix. I understand that certain materials bearing on my conclusions may be produced at later stages of this case. I expect to have the opportunity to review those materials and reserve the right to revise my report and opinions, if necessary.

¹ See: www.districtbuilder.org

² See: https://www.census.gov/rdo/about_the_program/public_law_94-171_requirements.html

³ For census block assignments for Maryland's congressional districts and Maryland's prison-adjusted population data are available see: <http://planning.maryland.gov/redistricting/2010/dataDownload.shtml>.

⁴ See: <http://web.archive.org/web/20100528043305/http://www.montgomerycountymd.gov/eletmpl.asp?url=/Content/Elections/electionMapsNEW.asp>.

⁵ See: <https://www.mrlc.gov/nlcd2011.php>.

Summary

I have been retained by the Plaintiffs in this action to address the following questions:

- 1) Whether Maryland's 2011 Congressional Plan resulted in vote dilution that was sufficiently serious to produce a demonstrable and concrete adverse effect on a group of voters?
- 2) Whether the Maryland General Assembly or its mapmakers specifically intended to burden the representational rights of certain citizens because of how they voted in the past and the political party with which they had affiliated?
- 3) Whether the lines of the Sixth Congressional District would have been drawn as they were but for the map drawer's and General Assembly's consideration of partisan goals to the detriment of traditional redistricting principles?

With respect to the first question, the evidence is incontrovertible that Maryland's adopted Sixth Congressional District was drawn in a manner that has the effect of diminishing the ability of registered Republican voters to elect candidates of their choice compared to the previous, benchmark district. This vote dilution had a concrete impact on electoral outcomes because Republican voters in the adopted district have, as a consequence, been unable to elect a candidate of their choice.

With respect to the second question, it is my opinion that Maryland's adopted Sixth Congressional District was drawn in an intentional manner to affect the ability of registered Republicans to elect candidates of their choice compared to the previous, benchmark district.

With respect to the third question, it is my opinion that paying due respect to traditional redistricting principles, a clearly superior alternative district exists that would produce a Sixth Congressional District that would not impair as greatly the ability of registered Republicans to elect candidates of their choice. It is my opinion that, but for consideration of partisan goals – aided by map drawers' use of party registration and voting history data—the lines of the adopted district would not have been drawn as they were, and the ability of registered Republican voters to elect candidates of their choice would not have been so substantially diminished.

Methodology

I determine whether vote dilution of Republicans occurred with respect to Maryland's manipulation of the Sixth Congressional District in a manner similar to that used in voting rights litigation. This approach is drawn from my previous experience as an expert witness in voting rights litigation. Most recently, I was the plaintiff's only expert witness in *Page v. Virginia State Board of Elections*, where a federal three-judge panel found Virginia's Third Congressional District to be an unconstitutional racial gerrymander. The U.S. Supreme Court affirmed this decision.

The approach typically used in voting rights litigation includes the following steps, which closely mirror the questions Plaintiff's counsel has asked me to address:

- 1) First, establish the presence of racially polarized voting. Do individuals of one group reliably vote against the candidate of choice of another group?
- 2) Second, determine if the disfavored group's ability to elect a candidate of their choice was diminished by district lines that had an effect of diluting their vote. When assessing patterns of polarized voting and vote dilution, experts typically give more weight to *endemic* elections—those held for the office under examination, in this case the U.S. House elections to the Sixth Congressional District—than other *exogenous* elections.
- 3) Third, probe a redistricting authority's intent by determining whether any other reasonable discretionary criteria explain the shape of the district.

I apply this methodology to assess the effect of the 2011 redistricting on the Sixth Congressional District:

- 1) I find that Republican and Democratic voters have different preferences over candidates running as Republicans and Democrats. This is unsurprising given the United States' current polarized political environment.
- 2) I find that on balance, the current Sixth Congressional District has the effect of diluting the vote of Republicans. In the ten recent elections that I analyzed, Republicans were able to elect a candidate of their choice in only one election. For the endemic elections, Republicans were unable to elect a candidate of their choice in any congressional election in the current Sixth Congressional District.
- 3) I explore the intentionality by examining how well the Sixth Congressional District followed traditional redistricting principles of minimizing county splits and compactness. I find multiple violations of these traditional redistricting principles that appear to be politically motivated. Districts are not drawn in isolation to others. The adopted Sixth Congressional District is bordered by only one other district, the Eighth Congressional District. I further analyze the detrimental impact of configuring the Sixth Congressional District on traditional redistricting principles to the Eighth Congressional District. I show how the Sixth and Eighth Congressional Districts can better follow traditional redistricting principles in a manner that does not dilute Republican votes and does not affect any other congressional districts.

Factual Background

The U.S. House of Representatives has 435 members. Seats in the U.S. House of Representatives are apportioned according to population after each U.S. Census. After the 2000 Census, Maryland was entitled to eight representatives in the U.S. House of Representatives; after the 2010 Census, Maryland was again entitled to eight representatives.⁶

On July 4, 2011, Maryland Governor Martin O'Malley appointed the five members of the Governor's Redistricting Advisory Committee, or GRAC. The members of the GRAC were: (1) Jeanne D. Hitchcock, the Governor's Appointments Secretary; (2) Democratic Delegate and

⁶ My recitation of the factual background is taken from the parties' Joint Stipulations of Law and Fact, Dkt. No. 104.

Speaker of the Maryland House of Delegates, Michael E. Busch; (3) Democratic Senator and President of the Maryland Senate, Thomas V. Mike Miller, Jr.; (4) Richard Stewart, a private business owner who chaired Governor O'Malley's 2010 reelection campaign in Prince George's County, Maryland; and (5) former Maryland Delegate James J. King, who was the only Republican appointed to the GRAC. The GRAC announced its proposed congressional map on October 4, 2011.

On October 15, 2011, Governor O'Malley announced that he would submit to the Maryland Legislature a congressional map that was the same as the map proposed by the GRAC. On October 17, 2011, Senate President Miller introduced Senate Bill 1 on behalf of the governor at a special legislative session. The Maryland Senate passed Senate Bill 1 on October 18, 2011. After technical amendments, the Maryland House of Delegates passed the bill on October 19, 2011. The Senate concurred in the House of Delegates' technical amendments, and the Governor signed Senate Bill 1 into law on October 20, 2011. No Republican member of the Maryland Senate or Maryland House of Delegates voted for Senate Bill 1 in committee or on the floor in recorded roll call votes.

The Benchmark and Adopted Sixth Congressional District

Before addressing directly the questions I pose, I wish to provide context by describing the political and geographic character of the Sixth Congressional District as it existed prior to the prior redistricting—what I call the benchmark district—and how it exists currently.

The facts are that Maryland's benchmark Sixth Congressional District was a predominantly Republican district, and composed of predominantly rural communities located along Maryland's Pennsylvania border. The adopted district is a predominantly Democratic district that subsumes Republican rural communities in Maryland's panhandle by swapping some Republican rural communities previously in the district with predominately Democratic urban portions of Montgomery County not previously in the district.

Party Registration of the Benchmark and Adopted Sixth Congressional District

	<u>Benchmark</u>		<u>Adopted</u>		<u>Change</u>
	Number	Percent	Number	Percent	Number
Democrats	159,661	35.8%	184,120	44.8%	+24,460
Republicans	207,966	46.7%	141,548	34.4%	-66,417
No Party	77,892	17.5%	85,535	20.8%	+7,643
Total	445,518	100.0%	411,203	100.0%	-34,315

Table One. Party Registration in Maryland's Sixth Congressional District

The changing political character of the Sixth Congressional District is described in Table One, where I present party registration statistics as of the 2010 general election for the benchmark and adopted Sixth Congressional District. The summary statistics in Table One were generated using party registration data provided by Maryland to Plaintiffs in the course of discovery for the case.

In the first and second columns of Table One, I present party registration statistics for the benchmark Sixth Congressional District. The benchmark district was predominantly Republican in character, with 46.7% of the voters registering with the Republican Party, 35.8% registered with the Democratic Party, and 17.5% registered with neither party.

In the third and fourth columns of Table One, I present party registration statistics for the adopted Sixth Congressional District. The adopted district is predominantly Democratic in character, with 34.4% of voters registered with the Republican Party, 44.8% registered with the Democratic Party, and 20.8% registered with neither party.

The fifth column reveals how this dramatic change to the Sixth Congressional District occurred. In the course of redrawing the district, 66,417 registered Republicans were removed from the district and 24,460 registered Democrats were added to the district. These changes were wrought on a district that could have reasonably been immune to substantial changes: the benchmark district was located in the northwest corner of the state and needed only to shed 10,189 total population—among whom are children and other unregistered voters—in order to reach population equality.

The Benchmark Sixth Congressional District

In Figure One, I present a map of Maryland's Sixth Congressional District as it existed prior to the post-2010 redistricting. (All Figures are provided at the end of my report.) The district was located in the northwest portion of Maryland. The benchmark district included all of Maryland's panhandle, including the counties of Garrett, Allegany, Washington, Frederick, and Carroll. The district included a small portion of northeast Montgomery County, and the northern portions of Baltimore and Harford counties. The benchmark Sixth Congressional District was largely rural in character, with the largest population centers being the cities of Frederick, Hagerstown, and Cumberland.⁷

The shape of any Western Maryland district is heavily influenced by the non-compact shape of the panhandle. That said, the boundary of the benchmark Sixth Congressional District adjacent to other districts followed a relatively regular division of the state, composed primarily of the northwest portion of the state.

Figure Two shows how partisans were distributed across Maryland and its benchmark congressional districts, using the 2010 party registration data provided by Maryland to Plaintiffs. The lowest level of geography available to display party registration is the voting-tabulation district (VTD). Voting-tabulation district is a term used by the Census Bureau to describe precincts, wards, and election districts, among the many names used by states and localities. I use the term VTD to describe Maryland's precincts since this is the most accurate term to describe the data presented in Figure Two and elsewhere. Please see the methodology appendix for more information.

In Figure Two, VTDs are represented by light grey lines, and the benchmark districts are represented by thick black lines. VTDs are shaded by the partisan registration of 2010 general

⁷ The Census Bureau identifies cities as census places, which are highlighted in grey in Figure 1.

election voters. VTDs that are shaded darker red are more Republican-leaning and those shaded darker blue are more Democratic-leaning by lighter colors, with least Republican-leaning areas shaded yellow and Democratic-leaning areas shaded light blue.

Figure Two illustrates the rural and Republican character of the Sixth Congressional District. Because VTDs are roughly of equal population size, larger VTDs are generally indicative of rural areas, and smaller VTDs are indicative of urban areas. The benchmark Sixth Congressional District was largely rural in character, encompassing the mountainous panhandle and rural areas along the state's northern border with Pennsylvania. These rural areas are also predominantly Republican. There were three Democratic-leaning areas of the benchmark Sixth Congressional District: the cities of Cumberland (where there are a couple of slightly leaning Democratic VTDs), Hagerstown, and Frederick.

The Adopted Sixth Congressional District

Figure Three presents the adopted Sixth Congressional District. The adopted Sixth Congressional District retained Garret, Allegany, and Washington counties, largely located in the panhandle. The adopted Sixth Congressional District no longer includes predominantly rural portions of Carroll, Baltimore, and Horford counties. The district now splits Frederick County, by removing the predominantly rural portions of the county. The district continues to split Montgomery County, although the small predominantly rural portion of northeast Montgomery County formerly in the benchmark Sixth Congressional District is removed and the adopted district extends further southeast into urban areas that include Gaithersburg and its surrounding environs.

Party registration statistics for the adopted Sixth Congressional District are presented in the third and fourth columns of Table One. The adopted district is predominantly Democratic in character, with 34.4% of the voters registering with the Republican Party, 44.8% registered with the Democratic Party, and 20.8% registered with neither party.

Is Voting in Maryland's Sixth Congressional District Partisan Polarized?

The typical approach to addressing the question of racially polarized voting in the voting rights context is to conduct what is known as a racial bloc voting analysis, which essentially correlates populations and election outcomes within precincts. In the context of partisan polarized voting, I might correlate party registration statistics with election outcomes. This option is challenged due to lack of data availability. I only have precinct-level party registration statistics for the 2010 general election voters, which Maryland provided through discovery; I do not have statistics for subsequent elections for which I might wish to correlate party registration and election results.

Fortunately, there is another approach that can be used to analyze patterns of politically polarized voting: survey data. In voting rights cases, survey data is typically unavailable for the various elections of interest. Here, a large-sample academic election survey, called the Cooperative Congressional Election Study (CCES), sheds light on the partisan polarized voting within the Sixth Congressional District.⁸

⁸ The Cooperative Congressional Election Study data and codebooks are available at: <http://projects.iq.harvard.edu/cces/data>.

Versions of the CCES are available for the 2012 and 2014 general elections. I analyze questions asking respondents' pre-election candidate preferences for President, U.S. Senate, Governor, and U.S. House. The reported percentages do not sum to 100% since I do not report percentages for respondents who are uncertain, have no candidate preference, or prefer an unlisted candidate.

This is a challenging approach to determine partisan polarized voting since the estimates are pre-election candidate preferences and not post-election vote choice. Those who are ambivalent, expressing no candidate preference, are more likely to abstain from the election. The percentages of registered Democrats and Republicans voting for their candidate is likely higher. Furthermore, these are relatively small-sample survey estimates with a relatively high margin of errors, on the order of +/- 6 percentage points or lower.

I cross-tabulate candidate choice by self-reported party registration to present a measure consistent with the party registration statistics presented in Table One. I present two endemic U.S. House elections in 2012 and 2014 and three exogenous statewide elections: 2012 President, 2012 U.S. Senate, and 2014 Governor.

	Registered Democrats	No Party Registration	Registered Republicans
Endemic Elections			
2012 U.S. House			
Survey <i>John Delaney (D)</i>	69%	28%	23%
N = 133 <i>Roscoe Bartlett (R)</i>	8%	15%	64%
2014 U.S. House			
Survey <i>John Delaney (D)</i>	66%	28%	2%
N = 124 <i>Dan Bongino (R)</i>	6%	54%	82%
Exogenous Elections			
2012 President			
Survey <i>Barack Obama (D)</i>	91%	68%	14%
N = 108 <i>Mitt Romney (R)</i>	8%	14%	70%
2012 U.S. Senate			
Survey <i>Ben Cardin (D)</i>	71%	38%	15%
N = 132 <i>Dan Bongino (R)</i>	5%	10%	61%
<i>S. Rob Sobhani (I)</i>	3%	8%	12%
2014 Governor			
Survey <i>Anthony Brown (D)</i>	64%	24%	2%
N = 124 <i>Larry Hogan (R)</i>	8%	58%	84%

Table Two. Election Results and Candidate Preferences Among Registered Voters in the Sixth Congressional District

The CCES estimates presented in Table Two reveal that in all five elections for which data are available, Democrats and Republicans have distinct candidate preferences in that at least a majority of registered Democrats prefer the Democratic candidate and at least a majority of

registered Republicans prefer the Republican candidate. These survey estimates are different from 50% at conventional levels of statistical significance.⁹ I am thus highly confident within prevailing professional standards that registered Democrats in the Sixth Congressional District prefer Democratic candidates and registered Republicans prefer Republican candidates. This common sense conclusion should be of no surprise. Since a seminal 1960 book called *The American Voter* scholars have repeatedly found party identification is a strong predictor of vote choice.¹⁰

Can Republicans in the Sixth Congressional District Elect a Candidate of Their Choice?

To address whether registered Republicans in the adopted Sixth Congressional District are able to elect candidates of their choice, I examine ten elections within the district. Three are the endemic U.S. House elections in 2012, 2014 and 2016. Seven are exogenous statewide elections, for which I report the portion of the statewide vote cast within the adopted Sixth Congressional District.¹¹

The election results within the adopted Sixth Congressional District are reported in Table Three.

In the three endogenous U.S. House election, registered Democrats' preferred candidate prevailed in all three elections.

In the seven exogenous statewide elections, registered Democrats' preferred candidate prevailed in six of seven elections.

The average margin of victory for the Democratic candidate over the Republican candidate in all ten elections was ten percentage points.

⁹ The worst-case election in terms of not finding a preference among registrants of a party is different than 50% is in the 2014 Governor election. Here, 64.1% of registered Democrats expressed a preference for the Democratic candidate, Anthony Brown. The margin of error for this estimate is +/- 6.4%, which means that the true population value could range from 57.7% to 70.5%. Thus, in all five instances, the registered Democrats and Republicans express a preference for their party's candidate that is different from 50% at conventional levels of statistical significance.

¹⁰ See Campbell, Converse, Miller, and Stokes. 1960. *The American Voter*. New York: John Wiley & Sons, Inc. Evidence in this case supports the same conclusion. Eric Hawkins, a mapmaker at NCEC Services, testified that his consulting firm tracked the voting history of Maryland voters in order to draw the map that became the Congressional Plan. See, e.g., Hawkins Dep. at 84:17-86:1 (noting that NCEC Services tracked two-way voting percentages); Hawkins Dep. Exs. 55-57, 59, 66, 68.

¹¹ I did some estimation to construct statewide election results within the adopted Sixth Congressional District. Maryland reports complete election results by county and election results for early voters only by precinct. Election results are thus available for Allegany, Garrett, and Washington counties, which are entirely contained within the Sixth Congressional District. I estimated precinct-level Election Day candidate tallies for the parts of the Sixth Congressional District contained in Frederick and Montgomery counties. I apportioned the county total Election Day vote for the candidates by the proportion of the early vote a candidate received within a given precinct, relative to the county. I added the known early vote total and estimated Election Day vote total for each precinct, and sum the votes across Frederick and Montgomery counties' precincts assigned to the Sixth Congressional District. I then summed the votes for all counties to produce district-wide totals for the Sixth Congressional District.

It is my opinion based on the preponderance of this evidence that registered Republicans are disfavored in electing a candidate of their choice.

	Election Result
Endemic Elections	
2012 U.S. House	
<i>John Delaney (D)</i>	59%
<i>Roscoe Bartlett (R)</i>	38%
2014 U.S. House	
<i>John Delaney (D)</i>	50%
<i>Dan Bongino (R)</i>	48%
2016 U.S. House	
<i>John Delaney (D)</i>	56%
<i>Amy Hoeber (R)</i>	40%
Exogenous Elections	
2012 President	
<i>Barack Obama (D)</i>	55%
<i>Mitt Romney (R)</i>	43%
2012 U.S. Senate	
<i>Ben Cardin (D)</i>	50%
<i>Dan Bongino (R)</i>	35%
<i>S. Rob Sobhani (I)</i>	14%
2014 Governor	
<i>Anthony Brown (D)</i>	42%
<i>Larry Hogan (R)</i>	56%
2014 Attorney General	
<i>Brian Frosh (D)</i>	49%
<i>Jeffery Pritzker (R)</i>	48%
2014 Comptroller	
<i>Peter Franchot (D)</i>	54%
<i>William Campbell (R)</i>	46%
2016 President	
<i>Hillary Clinton (D)</i>	58%
<i>Donald Trump (R)</i>	39%
2016 U.S. Senate	
<i>Chris Van Hollen (D)</i>	57%
<i>Kathy Szeliga (R)</i>	40%

Table Three. Election Results Within the Sixth Congressional District

Was Vote Dilution of Registered Republicans Intentional?

To assess if the vote dilution of registered Republicans was intentional, I examine how Maryland's General Assembly affected the Sixth Congressional District through redistricting. I note how the changes made to the benchmark district produced an adopted district of distinctly different geography with distinctly different political character. I assess the intentionality of these changes by showing how the district could have been drawn while better respecting the traditional redistricting principles of compactness and respect for county boundaries.

Changes to Maryland's Sixth Congressional District

The 2010 census revealed that Maryland had a total population of 5,773,552 people. State law requires the 2010 census to be adjusted for the location of prison populations for the purposes of redistricting, which yielded a statewide population of 5,772,231. The ideal equal population congressional district was the state's adjusted total population divided by eight, which yields 721,529 people (with one district needing one less person due to rounding).

Using the prison-adjusted numbers, the benchmark Sixth Congressional District had 731,718 people, which was 10,189 more than the ideal equal population congressional district. Since the Sixth Congressional District was located in a corner of the state and it needed to shed only 1.4% of its population to achieve population equality, it should have been reasonably immune to major boundary disruptions during redistricting.

This is not what happened. As is clear from Table One, the Sixth Congressional District had a major transformation from a predominantly Republican district to a predominantly Democratic district. Such a transformation is only possible through substantial shifts of people and geography.

The population changes from the benchmark to the adopted Sixth Congressional District that occurred during redistricting are presented in Table Four. The first column identifies the district in the benchmark plan, the second column identifies the district in the adopted plan, and the third column presents the prison-adjusted total population that was moved from the benchmark plan to the target adopted district. *Continuing portions* are those populations that were in the benchmark and adopted Sixth Congressional District. *Shed portions* are those populations that were removed from the benchmark Sixth Congressional District to a different adopted district. *Gained portions* are populations that were removed from different benchmark districts and added to the adopted Sixth Congressional District.

Only 371,350 people in the benchmark Sixth Congressional district (just 50.75% of the benchmark population) are also in the adopted district. The panhandle portion of the Sixth Congressional District—comprising Garrett, Allegany, and Washington counties, with a total adjusted population of 245,249 persons—is effectively locked into the district. While it is technically possible to split these three panhandle counties, doing so would raise glaring concerns that traditional redistricting principles were being subverted for some other goal. Thus,

within the constrained options available to Maryland, only 126,101 (371,350 minus 245,249) people of whom Maryland had a reasonable option of continuing in the district actually did so.

<u>Continuing Portions</u>					
Benchmark District	Adopted District	Total Reg.	Dem Reg.	Rep Reg.	Other Reg.
6	6	213,565	82,902	92,983	37,680
<u>Shed Portions</u>					
Benchmark District	Adopted District	Total Reg.	Dem Reg.	Rep Reg.	Other Reg.
6	1	68,764	21,980	36,153	10,631
6	2	3	1	1	0
6	7	17,203	6,557	7,908	2,738
6	8	145,984	48,221	70,921	26,842
6	All	231,953	76,759	114,983	40,212
<u>Gained Portions</u>					
Benchmark District	Adopted District	Total Reg.	Dem Reg.	Rep Reg.	Other Reg.
4	6	68,646	34,578	17,711	16,358
8	6	128,992	66,641	30,855	31,497
All	6	197,638	101,218	48,565	47,855

Table Four. Party Registration Changes to the Maryland Sixth Congressional District

Maryland's General Assembly respected few people who it had a discretion of continuing in the district: 360,368 people were moved out of the district and 350,179 people were moved in. All of this activity occurred for a district that needed to only shed 10,189 people.

The political effect of these moves is clear. Maryland's Sixth Congressional District experienced substantial changes in its partisan character during the last redistricting. As reported in Table One, the benchmark district changed a district with a margin of 10.8 percentage points favoring the Republican Party to an adopted district with a 10.4 percentage favoring the Democratic Party. A change of the partisan character of this magnitude would not have been possible by merely removing 10,189 people from the Sixth Congressional District. Massive population shifts as documented in Table Four were needed. The changes from the benchmark to the adopted Sixth Congressional District—presented in the fifth and sixth columns of Table One—further illustrate that the population shifts had a profound effect on the partisan character of the district. A net of 66,417 registered Republicans were removed from the district; 24,460 registered Democrats were added; and 7,643 persons with no party registration were added. That more Republicans were removed than Democrats added is also indicative of the partisan effect, in that Democratic communities, compared to Republican communities, tend to have greater number of ineligible populations, such as under age youth and noncitizens.

Respect for Traditional Redistricting Principles

I rule out that respecting traditional redistricting principles, such as minimizing splits of local political boundaries and improving compactness, were the guiding principles behind the crafting of the adopted Sixth Congressional District. It is my opinion that but for the consideration of partisan goals—aided by map drawers, use of party registration and voting history data – the lines of the Sixth District would not have been drawn as they were, and Republican votes would not have been so diluted.

It is true that the adopted Sixth Congressional District has fewer county splits than the benchmark district. The benchmark Sixth Congressional District contributed to (three) splits of Carroll, Harford, and Montgomery counties, while the adopted Sixth Congressional District contributes to (two) splits of Frederick and Montgomery counties. However, if minimizing county splits was a priority, there is a simple solution to reduce the split of Frederick County, and to reduce the overall number of county splits in the entire plan.

The adopted Eighth Congressional District, presented in Figure Five, is the only congressional district that borders the Sixth Congressional District. These two districts split Frederick County and the Eighth Congressional District splits Carroll County with the First Congressional District. Maryland could have assigned all of Frederick County to the Sixth Congressional District, and the portion of Carroll County split by the Eighth Congressional District to the Sixth. The balance of the population lost from the Eighth Congressional District to the Sixth could be given back in from the Sixth's population located in Montgomery County. This simple solution would have reduced the number of counties split in the overall redistricting plan by one. I can thus rule out minimizing county splits as a rationale for the creation of the adopted Sixth Congressional District.

Why this solution was not pursued is clear from the partisan character of the Eighth Congressional District's registered voters in the Frederick and Carroll county areas assigned to it. The Frederick and Carroll county VTDs assigned to the adopted Eighth Congressional District are visible in Figure Four. These are predominantly rural, heavily Republican areas. A zoomed-in map of the Frederick area—Figure Six—shows how Frederick was retained within the adopted Sixth Congressional District. The figure illustrates two important points.

First, the panhandle portion of the adopted Sixth Congressional District is joined to the remainder by way of a neck hugging the Virginia border that is composed of a string of single VTDs joined together. When this string reaches the VTDs to the south of Frederick, another narrow neck extends upward to encompass Frederick. It is these narrow necks that join Frederick in a non-compact and unnecessary manner. In my map drawing experience, it would have been easy to add additional VTDs to the Sixth Congressional District to round off its shape in a more compact manner and trade back population with the Eighth Congressional District elsewhere. I can thus eliminate creating compact districts as a rationale for the drawing of the Sixth Congressional District.

Second, the effect of including Frederick is to increase the Democratic registration in the Sixth Congressional District, as the city and VTDs to the immediate south are generally Democratic

leaning. Three VTDs are split around Frederick in such a manner that neighborhoods further away from Frederick—and presumably more Republican in character—are removed from the adopted Sixth Congressional District. Adding the portions of these split VTDs, and indeed more VTDs to improve the compactness of the Sixth Congressional District would have meant adding more Republicans to the district and, given where population could be swapped with the Eighth Congressional District in Montgomery County, Democrats removed from the district.

After looping in Frederick, the adopted Sixth Congressional District crosses the Montgomery County line and continues into heavily Democratic areas in the suburbs of the District of Columbia. The environs of Gaithersburg and Rockville are presented in Figures Seven. The city of Gaithersburg is included in its entirety in the adopted Sixth Congressional District and the district hugs two arms around Rockville. Trading the portions of Frederick and Carroll counties located in the adopted Eighth Congressional District to the adopted Sixth Congressional District would require giving some of these Democratic areas located in the Sixth to the Eighth District. This could be accomplished in a more compact manner than currently exists, thus again providing evidence that Maryland was not seeking compactness when drawing the Sixth Congressional District.

While the focus of Plaintiffs' claims are the Sixth Congressional District, it is important to reflect again on how the geography and population of the Sixth Congressional District affected its only neighbor, the Eighth Congressional District. Table Four presents the party registration shed from the benchmark Sixth Congressional District to other adopted districts, and party registration gained to the adopted Sixth Congressional District from other benchmark districts. The Sixth District gained a net of 18,420 registered Democrats (66,642 minus 48,221) from the Eighth Congressional District and gave a net of 40,067 registered Republicans (70,921 minus 30,855) to the Eighth District.

The party registration trades between the Sixth and Eighth Congressional Districts are indicative of a classic gerrymandering strategy known as *cracking*. In cracking, a district that leans towards one political party is cut into two or more pieces so that the influence of the party that was the former majority is diminished. As mentioned previously, the Eighth Congressional District was given much of the former rural and Republican portions of the benchmark Sixth District in Frederick and Carroll counties. As evident in Figure Four, these areas bordering Pennsylvania were combined with heavily Democratic areas in the areas immediately bordering the District of Columbia. As evident in Figure Five, at a point along Olney Laytonsville Road, the Eighth Congressional District narrows to a neck less than a half a mile wide, traversing the Oaks Landfill, to join the two geographically and politically disparate portions of the district. The result of these trades, and others, with the Eighth District reduced the Democratic registration advantage from a 38.8 point Democratic margin (58.4% to 19.6%), to a 23.2 point Democratic margin (51.4% to 28.3%).

An Alternative Approach to the Sixth and Eighth Congressional Districts

Since the adopted Sixth Congressional District is contiguous only with the Eighth Congressional District, a simple alternative exists that avoids diluting the votes of registered Republicans, better

adheres to redistricting principles, and does not affect any choices made when the Maryland General Assembly constructed the other districts.

A Sixth Congressional District can be constructed that is more compact and results in fewer county splits in the entire plan by assigning to the Sixth District portions of Frederick County and the split portion of Carroll County, which are currently assigned to the Eighth Congressional District. Population traded to the Sixth can be easily balanced back in Montgomery County, where the Sixth and Eighth Congressional Districts also share a common border. These trades could reduce the number of split VTDs between the Sixth and Eight districts in Frederick and Montgomery counties, in a compact manner. As a by-product, the shape of the Eighth Congressional District can also be greatly improved.

Figure Eight presents an alternative configuration of the Sixth and Eighth Congressional Districts that affects only the boundaries of these two districts. A simple comparison to a map of the adopted district in Figure 3 shows the alternative Sixth District is visually more compact than the adopted district. Most notably, whereas the adopted district has contorted boundaries in Frederick County, this district assigns all of Frederick to the district. Furthermore, this configuration has a beneficial effect on the Eighth Congressional District. In comparison to Figure Five, the Eighth Congressional District is now entirely contained within Montgomery County and no longer has a narrow neck connecting portions of Montgomery County with portions of Carrol and Frederick counties.

Figure Nine illustrates how the alternative Sixth Congressional District no longer subsumes predominantly Republican rural portions of Western Maryland into the predominantly Democratic urban areas of Montgomery County.

In Table Five, I present 2010 party registration statistics for this alternative Sixth Congressional District, using the same underlying party registration data in Table One. The statistics for this alternative district confirm that this district is now slightly Republican leaning; 42.6% of registered voters registering with the Republican Party and 38.4% registering with the Democratic Party, for a difference of 4.2 percentage points. In comparison, the benchmark district had a 10.8 percentage point Republican Party registration advantage and the adopted district has a 10.6 percentage point Democratic Party registration advantage.

	<u>Alternative</u>	
	Number	Percent
Democrats	162,616	38.4%
Republicans	180,226	42.6%
No Party	80,405	19.0%
Total	423,246	100.0%

Table Five. Party Registration in Maryland Alternative Sixth Congressional District

I examined elections within the alternative Sixth Congressional District to determine if Republicans would more often be able to elect a candidate of their choice. I did not examine U.S. House races since the district now extends across two U.S. House districts that did not have similar electoral circumstances.

	Election Results
Exogenous Elections	
2012 President	
<i>Barack Obama (D)</i>	44%
<i>Mitt Romney (R)</i>	53%
2012 U.S. Senate	
<i>Ben Cardin (D)</i>	38%
<i>Dan Bongino (R)</i>	43%
<i>S. Rob Sobhani (I)</i>	16%
2014 Governor	
<i>Anthony Brown (D)</i>	30%
<i>Larry Hogan (R)</i>	68%
2014 Attorney General	
<i>Brian Frosh (D)</i>	38%
<i>Jeffery Pritzker (R)</i>	58%
2014 Comptroller	
<i>Peter Franchot (D)</i>	46%
<i>William Campbell (R)</i>	54%
2016 President	
<i>Hillary Clinton (D)</i>	42%
<i>Donald Trump (R)</i>	51%
2016 U.S. Senate	
<i>Chris Van Hollen (D)</i>	44%
<i>Kathy Szeliga (R)</i>	51%

Table Six. Election Results Within the Alternative Sixth Congressional District

Election results for the seven statewide offices in 2012, 2014, and 2016 for the portions contained within the alternative Sixth Congressional District are presented in Table Six. The Table shows that in all seven exogenous statewide elections the Republican candidate of choice received more votes than the Democratic candidate. The average margin of victory for the Republican candidate is 13%.

Conclusion

Given the current high levels of political polarization in the United States, it should come as no surprise that party registrants within Maryland's Sixth Congressional District disagree over their candidates of choice, with registered Democrats preferring Democratic candidates and registered Republicans preferring Republican candidates.


Maryland's adopted Sixth Congressional District's geography and political composition are a clear result of a classic partisan gerrymandering strategy known as cracking. A district that was predominantly rural and Republican in character was transformed into a district where the political strength of Democratic suburbs of the Washington, D.C. suburbs outweighs the Republican rural areas, predominantly in the panhandle.

As a consequence of the configuration of the adopted Sixth Congressional District, registered Republicans do not have an opportunity to elect a candidate of their choice. Their preferred candidate lost all three endemic U.S. House elections within the district and received less than the Democratic candidate in six of seven exogenous statewide elections. It is extremely unlikely that this would have happened if Republicans' voter histories and party affiliation had not been taken into account while drawing the adopted district's lines.

The gerrymandering strategy that was executed to produce this political outcome had a detrimental effect on traditional redistricting principles. The Republican rural communities along the Pennsylvania border were fragmented in a classic cracking gerrymandering strategy, by transferring registered Republicans in Carroll and Franklin counties to the Eighth Congressional District in exchange for Democratic urban areas in Montgomery County formerly in the Eighth Congressional District.

An alternative map approach exists that better respects traditional redistricting principles by reducing the overall number of counties split by districts, doing so in a more compact manner for both the Sixth and Eighth congressional districts. It is my opinion this approach would have been easily discoverable to the Maryland General Assembly, if they wished to pursue it. I envisioned this configuration following a brief inspection of the district. Notably, this alternative Sixth Congressional District would affect the political character of the district, making it more Republican. Thus, the violation of traditional redistricting principles serves as an indicator that politics, not good government goals, was a major motivating factor behind the creation of the adopted Sixth Congressional District.

Date: April 7, 2017



Prof. Michael P. McDonald, PhD

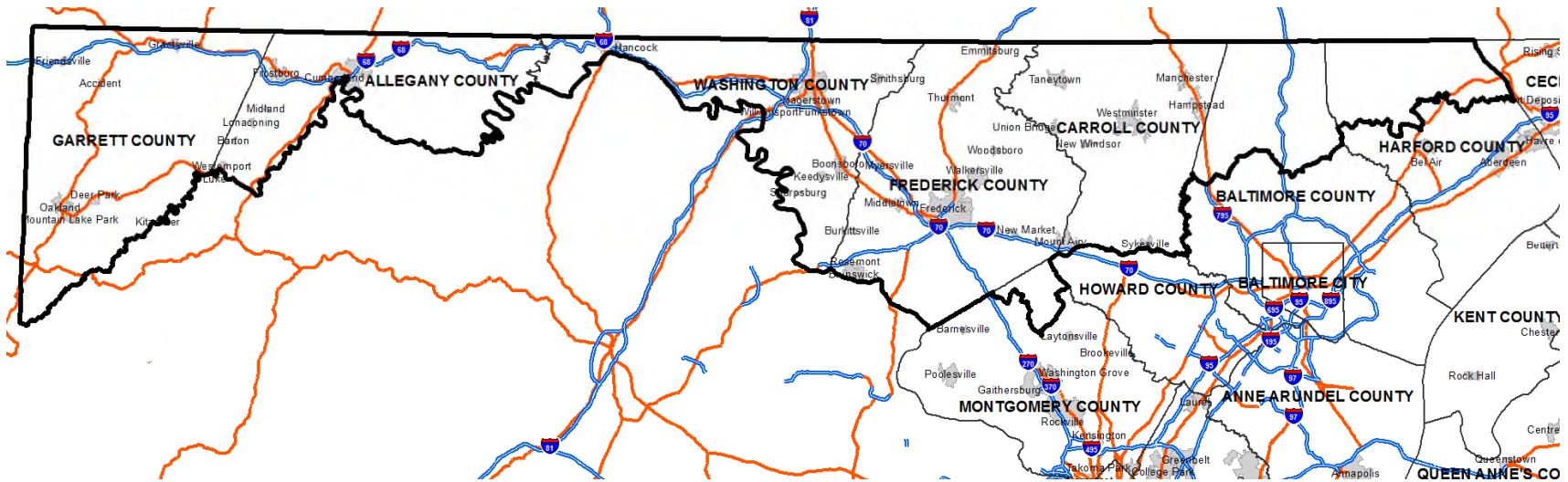


Figure One. Benchmark Maryland Sixth Congressional District

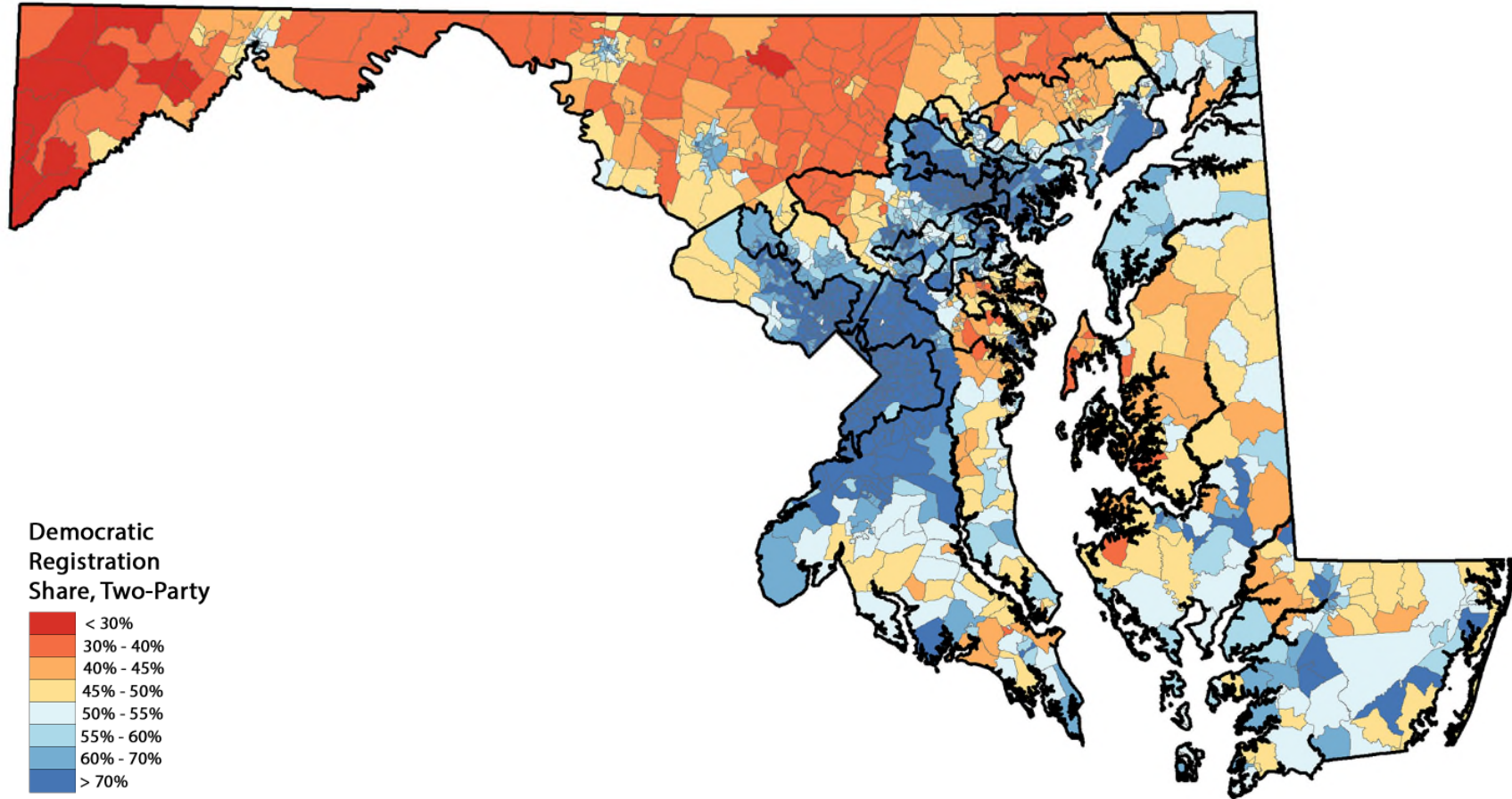


Figure Two. Party Registration in Maryland’s benchmark Congressional Districts

Note: Congressional districts are represented by thick black lines and VTDs boundaries are represented by light grey lines. VTDs are shaded by their partisan registration, with Republican areas shaded in red and Democratic areas shaded in blue.

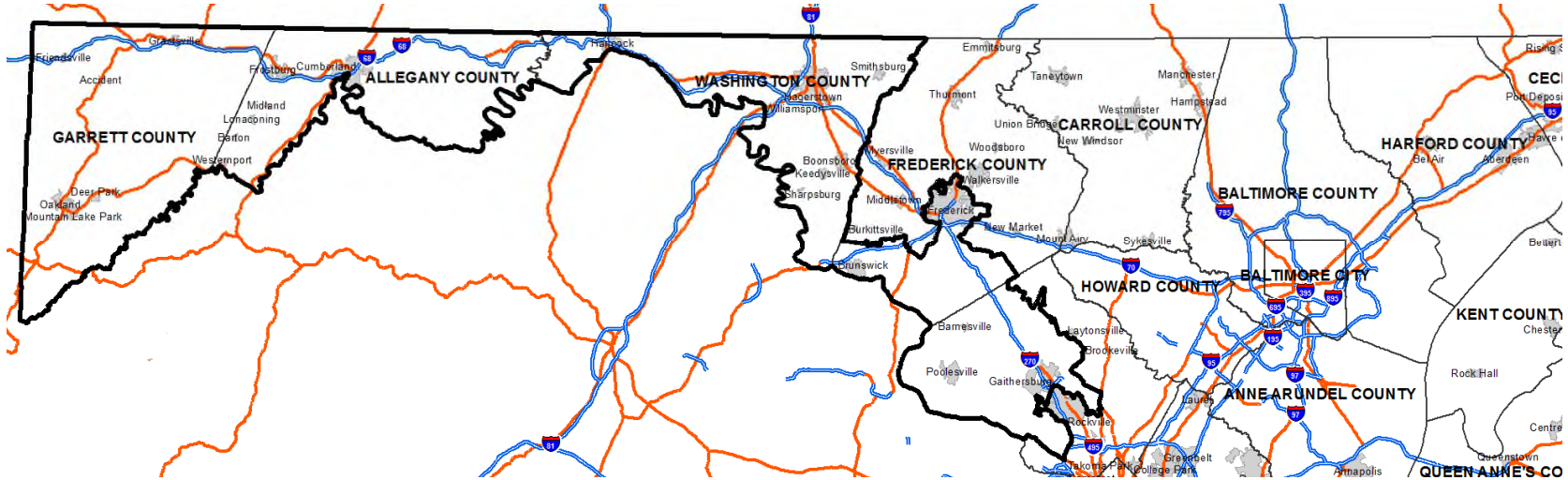


Figure Three. Adopted Sixth Congressional District

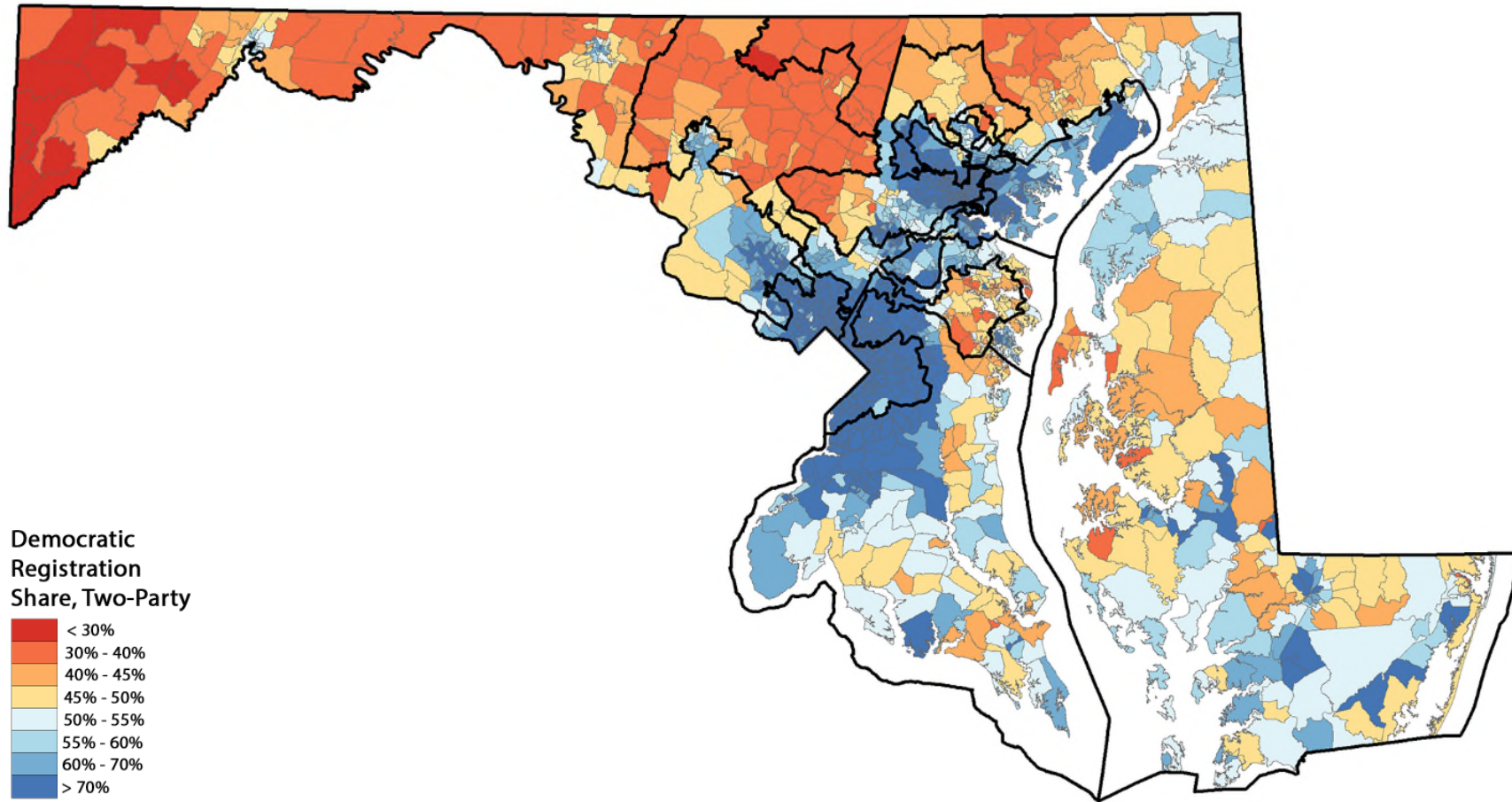


Figure Four. Party Registration in Maryland’s benchmark Congressional Districts

Note: Congressional districts are represented by thick black lines and VTDs boundaries are represented by light grey lines. VTDs are shaded by their partisan registration, with Republican areas shaded in red and Democratic areas shaded in blue.

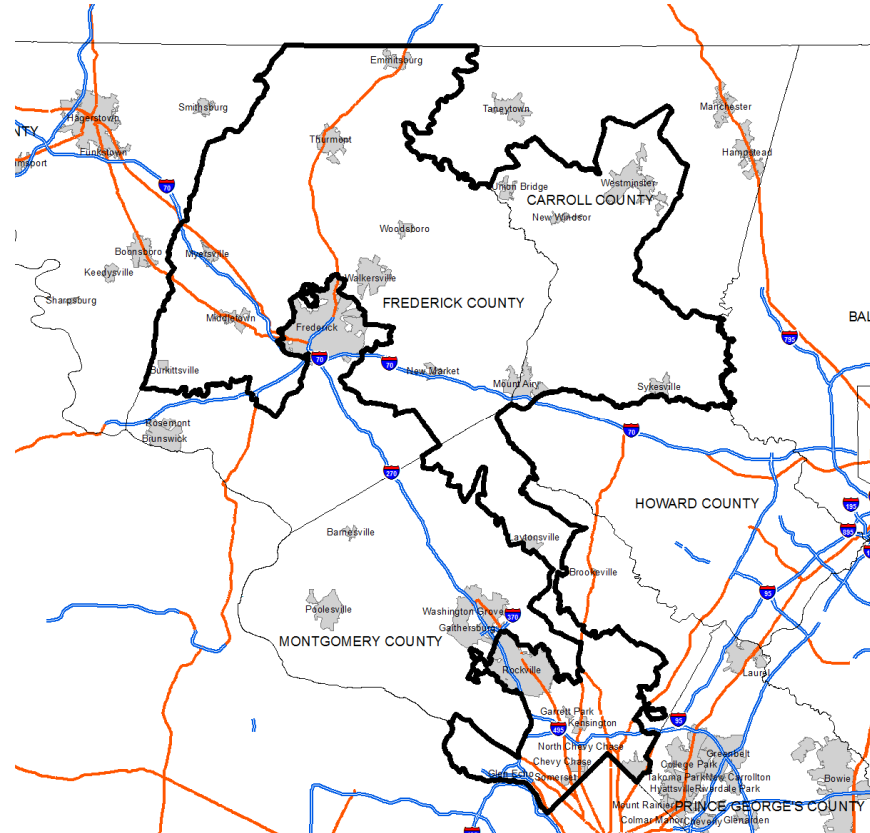


Figure Five. Adopted Eighth Congressional District

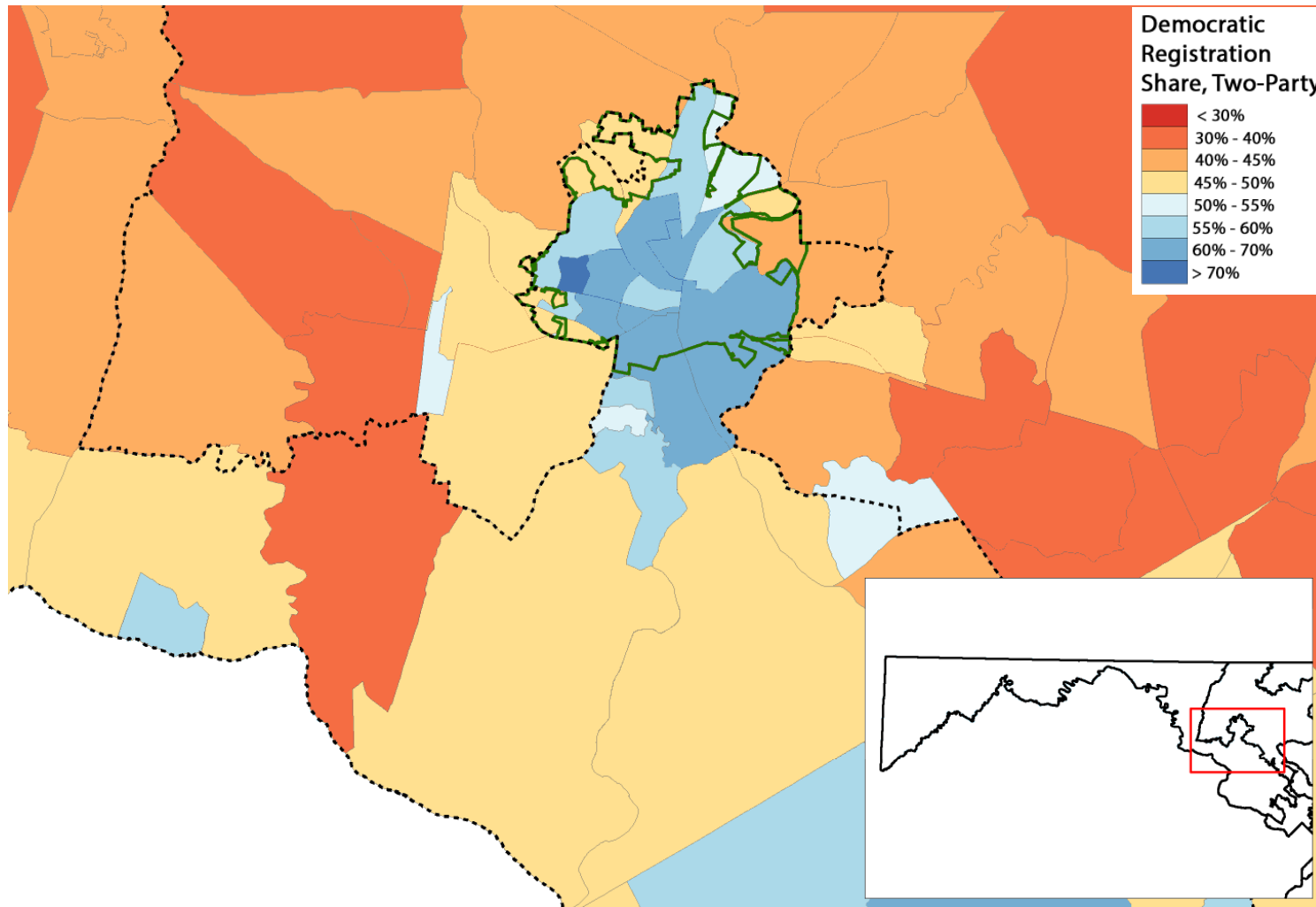


Figure Six. Zoom of City of Frederick with Current Congressional Sixth District

Note: Congressional district boundaries are represented by dotted black lines, the city of Frederick is represented by a dark green line, and VTDs boundaries are represented by light grey lines. VTDs are shaded by their partisan registration, with Republican areas shaded in red (most Republican) to yellow and Democratic areas shaded in dark blue (most Democratic) to light blue.

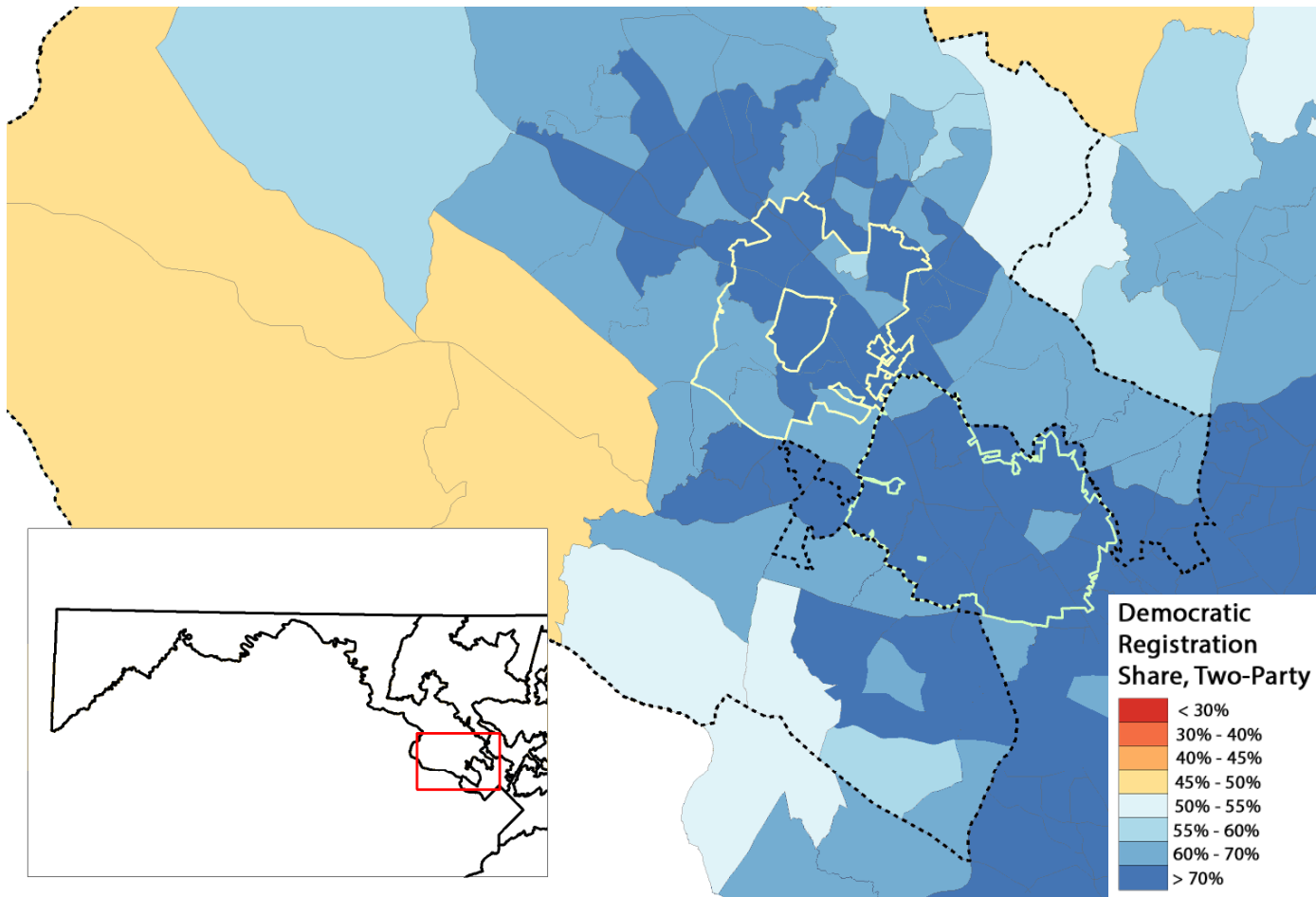


Figure Seven. Zoom of Gaithersburg and Rockville with Current Sixth Congressional District

Note: Congressional district boundaries are represented by dotted black lines, the cities of Gaithersburg and Rockville are represented by light yellow and green lines (respectively), and VTDs boundaries are represented by light grey lines. VTDs are shaded by their partisan registration, with Republican areas shaded in red (most Republican) to yellow and Democratic areas shaded in dark blue (most Democratic) to light blue.

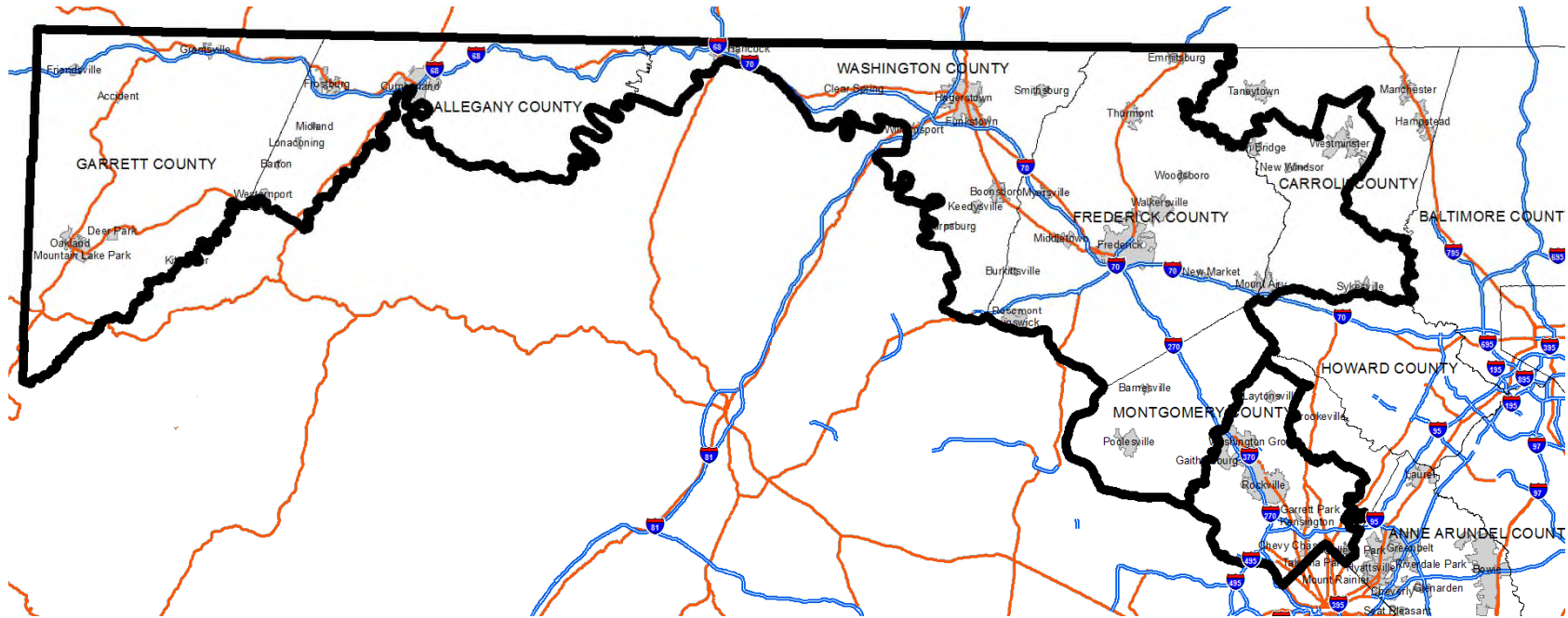


Figure Eight. Alternative Sixth and Eighth Congressional Districts

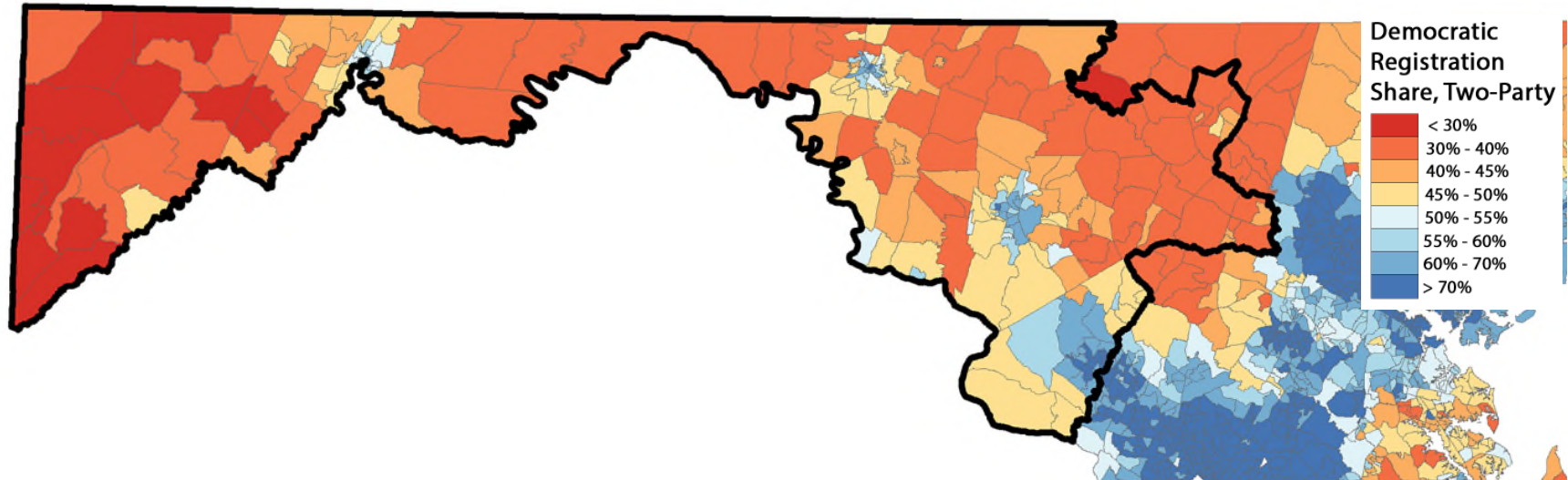


Figure Nine. Alternative Sixth Congressional District

Note: Congressional districts are represented by thick black lines and VT Ds boundaries are represented by light grey lines. VT Ds are shaded by their partisan registration, with Republican areas shaded in red and Democratic areas shaded in blue.

Appendix 1: Methodology

Voting-tabulation districts is a term used by the Census Bureau to describe precincts, wards, and election districts, among the many names used by states and localities. States transmit these boundaries to the Census Bureau circa a year ending in ‘7’ for inclusion in the next census.

I obtained from counsel Maptitude (a commercial redistricting software) data files that contained 2010 voter registration information for Maryland’s precincts. These precincts were assigned to VTDs. In the course of merging these data with the Census Bureau’s PL-94-171 redistricting data file for Maryland, I identified eleven Montgomery County VTDs that were not assigned a precinct from the Maptitude data files. I obtained from 2007 a map of the Maryland’s 2007 precincts via an internet archive. From this map I deduced where two precincts were consolidated into one between 2007—when precinct boundaries were transmitted to the Census Bureau—and 2010. I assigned the geography to the parent VTD from which it was consolidated. These orphaned precincts were combined as follows:

02-009 and 02-002 into 02-002
02-010 and 02-003 into 02-003
02-011 and 02-006 into 02-006
04-026 and 04-016 into 04-016
05-022 and 05-005 into 05-005
05-024 and 05-012 into 05-012
06-014 and 06-005 into 06-005
09-032 and 09-020 into 09-020
09-038 and 09-026 into 09-026
13-041 and 13-002 into 13-002
13-062 and 13-049 into 13-049

In some cases two or more districts share or split a precinct. I use a method known as “dasymetric mapping” to assign party registration numbers to census blocks, and then aggregate party registration data from census blocks to compute party registration statistics presented in this report.¹²

¹² See: Brian Amos, Michael P. McDonald, and Russell Watkins. Forthcoming. “When Boundaries Collide: Constructing a Database of Election and Census Data.” *Public Opinion Quarterly*.

Appendix 2: Curriculum Vitae

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Education

Post-Doctoral Fellow. Harvard University. August 1998 – August 1999.
Ph.D. Political Science. University of California, San Diego. February, 1999.
BS Economics. California Institute of Technology. June, 1989.

Awards

Tides Pizzigati Prize. 2013. Public interest software for DistrictBuilder.

Strata Innovation Award. 2012. Data Used for Social Impact for DistrictBuilder.

American Political Science Association, Information and Technology Politics Section. 2012.
Software of the Year for DistrictBuilder.

Politico. 2011. Top Ten Political Innovations for DistrictBuilder.

GovFresh. 2011. 2nd Place, Best Use of Open Source for DistrictBuilder.

Virginia Senate. 2010. Commendation for Virginia Redistricting Competition.

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Michael P. McDonald. 2006. "5 Myths About Turning Out the Vote." *The Washington Post*. Oct. 29, 2006, p. B3.

Michael P. McDonald. 2006. "Supreme Court Lets the Politicians Run Wild." *Roll Call*. June 29, 2006.

Michael P. McDonald. 2006. "Re-Redistricting Redux." *The American Prospect*. March 6, 2006.

Michael P. McDonald and Kimball Brace. "EAC Survey Sheds Light on Election Administration." *Roll Call*. Oct. 27, 2005.

Michael P. McDonald. 2004. "The Numbers Prove that 2004 May Signal More Voter Interest." *Milwaukee Journal Sentinel*. Milwaukee, WI.

Michael P. McDonald. 2004. "Democracy in America?" *La Vanguardia*. Barcelona, Spain.

Michael P. McDonald. 2003. "Enhancing Democracy in Virginia." *Connection Newspapers*. March 24.

Michael P. McDonald. 2001. "Piecing Together the Illinois Redistricting Puzzle." *Illinois Issues*. March, 2001.

Samuel Popkin and Michael P. McDonald. 2000. "Turnout's Not as Bad as You Think." *The Washington Post*. Nov. 5: B-1.

Samuel Popkin and Michael P. McDonald. 1998. "Who Votes? A Comparison of NES, CPS, and VNS Polls." *Democratic Leadership Council Bluebook*. Sept., 1998.

Software Packages

Micah Altman, Michael P. McDonald, and Azavea. 2012. "DistrictBuilder." Open source software to enable public participation in redistricting. Source code available at Github. Project website, <http://www.districtbuilder.org>.

Micah Altman and Michael P. McDonald. 2007. "BARD: Better Automated Redistricting." R package available through CRAN. Source code available at Sourceforge.

Micah Altman, Jeff Gill, and Michael P. McDonald. 2004. "Accuracy: Tools for testing and improving accuracy of statistical results." R package available through CRAN.

Grants and Contracts

U.S. Election Project. 2016. (\$50,000). Hewlett Foundation support for U.S. Election Project Activities.

UF Informatics Institute Seed Fund Award. 2016. (\$48,000). Project funded by the UF Informatics Institute to explore the reliability of Florida's voter registration file.

Election Forum. 2016. (\$20,000). Project funded by the Pew Charitable Trusts for an election forum held at the University of Florida.

Survey of Voter File Accessibility. 2016. (\$1,650). Contract from the Institute for Money in State Politics to survey costs and accessibility of states' voter files.

Florida Election Reform. 2015. (\$13,000). Project funded by Democracy Fund for an election reform forum held in Tallahassee, FL. Pew Charitable Trusts independently provided travel support for some speakers.

New York Redistricting. 2011. (\$379,000). Project funded by the Sloan Foundation to provide for public redistricting in New York and continued software development.

Citizen Redistricting Education, Software Supplemental. 2011. (\$50,000). Project funded by Joyce Foundation to provide continued redistricting software development for use by advocacy groups in six Midwestern states.

National Redistricting Reform Coordination. 2009-10. (\$100,000). With Thomas Mann and Norman Ornstein. Project funded by Joyce Foundation to support coordination of national redistricting reform efforts by the Brookings Institution and the American Enterprise Institute.

Citizen Mapping Project. 2009-10. (\$124,000 & \$98,000). With Micah Altman, Thomas Mann, and Norman Ornstein. Project funded by the Sloan Foundation. An award to George Mason University enables development of software that, essentially, permits on-line redistricting through commonly used internet mapping programs. A second award to the Brookings Institution and American Enterprise Institute provides organizational support, including the convening of an advisory board.

Citizen Redistricting Education. 2010. (\$104,000). Project funded by the Joyce Foundation. Provides for redistricting education forums in five Midwestern state capitals in 2010 and other continuing education efforts.

Pre-Registration Programs. 2008-9. (\$86,000). Project funded by the Pew Charitable Trusts' Make Voting Work Initiative to examine pre-registration programs (voter registration for persons under age 18) in Florida and Hawaii.

Sound Redistricting Reform. 2006-9. (\$405,000). Project funded by the Joyce Foundation, conducted jointly with the Brennan Center for Justice at NYU to investigate impacts of redistricting reform in Midwestern states.

Electoral Competition Project. 2005-6. (\$200,000) Project funded by The Armstrong Foundation, the Carnegie Corporation of New York, the JEHT Foundation, The Joyce Foundation, The Kerr Foundation, Inc., and anonymous donors. Jointly conducted by the Brookings Institution and Cato Institute to investigate the state of electoral competition in the United States.

George Mason University Provost Summer Research Grant. 2004. (\$5,000).

ICPSR Data Document Initiative. 1999. Awarded beta test grant. Member, advisory committee on creation of electronic codebook standards.

Academic Experience

Courses Taught: Public Opinion and Voting Behavior, Parties and Campaigns, Comparative Electoral Institutions, Intro to American Politics, American Politics Graduate Field Seminar,

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Congress, Legislative Politics, Research Methods (undergraduate), Advanced Research Methods (graduate), Freshman Seminar: Topics in Race and Gender Policies, and Legislative Staff Internship Program.

University of Florida

- Associate Professor. August 2014- Present.

George Mason University

- Associate Professor. May 2007 – May, 2014.
- Assistant Professor. Aug 2002 – May, 2007.

The Brookings Institution

- Non-Resident Senior Fellow. January 2006 – June 2016.
- Visiting Fellow. June 2004 – December 2006.

University of Illinois, Springfield. Assistant Professor. Aug 2000 – June 2002.
Joint appointment in Political Studies Department and Legislative Studies Center.

Vanderbilt University. Assistant Professor. Aug 1999 – Aug 2000.

Harvard-MIT Data Center. Post-Doctoral Research Fellow. Sept. 1998 – Aug 1999.
Developed Virtual Data Center, a web-based data sharing system for academics. Maintained Record of American Democracy (U.S. precinct-level election data).

University of California-San Diego

- Assistant to the Director for University of California, Washington DC program. Sept 1997 – June 1998.
- Instructor for research methods seminar for UCSD Washington interns.
- Visiting Assistant Professor. Spring Quarter 1997.
- Visiting Assistant Professor. Summer Session, Aug 1996 and Aug 1997.
- Teaching Assistant/Grader. Aug 1991 – March 1997.

Professional Service

Election Sciences Conference-in-a-conference at the 207 Southern Political Science Association Conference. Organizer. 2016.

State Politics and Policy Quarterly, Editorial Board Member 2004-2011

State Politics and Policy Quarterly, Guest Editor. Dec 2004 issue.

Non-Profit Voter Engagement Network, Member, Advisory Board. 2007 – present.

Overseas Vote Foundation, Member, Advisory Board. 2005 – 2013.

National Capital Area Political Science Association, Member, Council, 2010 – 2012.

Virginia Public Access Project, Member, Board of Directors. 2004 – 2006.
Fairfax County School Board Adult and Community Education Advisory Committee, Member.
2004 – 2005.

Related Professional Experience

Media Consultant

- Associated Press. Nov. 2016 and Nov. 2010. Worked “Decision Desk.”
- Edison Media Research/Mitofsky International. Nov. 2004; Nov. 2006; Feb. 2008; Nov. 2008. Worked national exit polling organization's “Decision Desk.”
- ABC News. Nov. 2002. Worked “Decision Desk.”
- NBC News. Aug 1996. Analyzed polls during the Republican National Convention.

Redistricting/Elections Consultant.

- Expert Witness. 2016-2017. *Vesilind v. Virginia State Board of Elections*. Case No. CL15003886 (Virginia).
- Expert Witness. 2016-2017. *Fish v. Kobach*. Case No. 2:16-cv-02105 (Kansas).
- Expert Witness. 2016. *Arizona Libertarian Party v. Reagan*. Case No.: 2:16-cv-01019-DGC (Arizona).
- Expert Witness. 2016. *Georgia State Conf. of the NAACP, et al. v. Brian Kemp*. No. 2:16-cv-00219-WCO (Georgia).
- Consultant. Federal Voting Assistance Program. 2014-2015. Analyzed voting experience of military and overseas voters.
- Expert Witness. 2013-2014. *Page v. Virginia State Board of Elections*. No. 3:13-cv-678 (E.D.VA).
- Expert Witness. 2013-2014. *Delgado v. Galvin*. (D. MA).
- Beaumont Independent School District. 2013. Prepared response to DOJ data request.
- Federal Voting Assistance Program. 2012-13. Analyzed voting experience of military and overseas voters.
- Gerson Lehrman Group. 2012. Provided election analysis to corporate clients.
- Expert Witness. 2011-2012. *Backus v. South Carolina*. No. 3:11-cv-03120 (D.S.C.).
- Expert Witness. 2012. *Wilson v. Kasich*. No. 2012-0019 (Ohio Sup. Ct.).
- Consulting Expert. 2011-2012. Bondurant, Mixson, and Elmore, LLP. (Review of Georgia's state legislative and congressional redistricting Section 5 submission).
- Consultant. 2012. New Jersey Congressional Redistricting Commission.
- Expert Witness. 2011. *Perez v. Texas*. No. 5:11-cv-00360 (W.D. Tex.).
- Expert Witness. 2011. *Wilson v. Fallin*. No. O-109652 (Okla. Sup. Ct.).
- Consultant. 2011. United States Federal Voting Assistance Program.
- Consultant. 2011. Virginia Governor's Independent Bipartisan Advisory Redistricting Commission.
- Consultant. 2011. New Jersey State Legislative Redistricting Commission.
- Expert Witness. 2010. *Healey v. State, et al.* C.A. No. 10-316--S (USDC-RI).

- Research Triangle Institute. 2008-2009. Consultant for Election Assistance Commission, 2008 Election Day Survey.
- U.S. State Department. 2008. Briefed visiting foreign nationals on U.S. elections.
- Expert Witness. 2008. *League of Women Voters of Florida v. Browning* (08-21243-CV-ALTONAGA/BROWN)
- Pew Center for the States. 2007. Consultant for Trends to Watch project.
- Expert Witness. 2007. *Washington Association of Churches v. Reed* (CV06-0726).
- Electoral Assistance Commission. 2005. Analyzed election administration surveys.
- Arizona Independent Redistricting Commission. 2001-2003. Consultant.
- Expert Witness. 2003. *Minority Coalition for Fair Redistricting, et al. v. Arizona Independent Redistricting Commission* CV2002-004380 (2003).
- Expert Witness. 2003. *Rodriguez v. Pataki* 308 F. Supp. 2d 346 (S.D.N.Y. 2004).
- Consulting Expert. 2002. *O'Lear v. Miller* No. 222 F. Supp. 2d 850 (E.D. Mich.).
- Expert Witness. 2001-2002. *In Re 2001 Redistricting Cases* (Case No. S-10504).
- Expert Witness. 2001. *United States v. Upper San Gabriel Valley Municipal Water District* (C.D. Cal. 2000).
- California State Assembly. 1991. Consultant.
- Pactech Data and Research. Research Associate. Aug 1989 - June 1991.

Campaign/Political Consultant.

- Ron Christian for Virginia State Senate. June – November, 2003.
- Theresa Martinez for Virginia House of Delegates. May, 2003.
- Senior Consultant. California State Assembly. Nov. – Dec 1998.
- California Assembly Democrats. June – November 1998.
- Susan Davis & Howard Wayne for CA State Assembly '96. 1996.
- Intern. June – Sept 1995. UC-San Diego, Science and Technology Policy and Projects.

Polling Consultant.

- Hickman-Brown. July, 2000. Analyzed national and state level exit and CPS polls for use in various campaigns. Analyzed surveys for congressional, state, and local political campaigns.
- Decision Research. Aug 1994 – Dec 1994. Conducted and analyzes surveys for congressional and statewide campaigns.
- Speaker Jose de Venecia of the Philippines. Feb, 1997.
- Joong-Ang Ilbo/RAND. Oct, 1996. Analyzed survey of Korean attitudes on national security issues.
- UCSD. Nov. 1991. Conducted and analyzed survey of student attitudes.

Appendix 3: Prior Testimony

In the past four years, I have testified in or been deposed in the following cases:

- 2016-2017. *Vesilind v. Virginia State Board of Elections*. Case No. CL15003886 (Virginia);
- 2016-2017. *Fish v. Kobach*. Case No. 2:16-cv-02105 (Kansas). and
- 2013-2014. *Page v. Virginia State Board of Elections*. No. 3:13-cv-678 (E.D.VA).