

Final Report of the



MARYLAND CITIZENS REDISTRICTING COMMISSION

January 2022



MARYLAND CITIZENS REDISTRICTING COMMISSION

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Dear Governor Hogan:

On November 5, 2021, the Maryland Citizens Redistricting Commission (Citizens Commission) presented you with our recommended plans for Maryland congressional and legislative districts. In your Executive Order of January 12, 2021 creating the Citizens Commission, you asked us to prepare a report explaining the basis for our decisions, and defining the terms and standards underlying each plan.

We are proud of the work of our Commission and of the plans and maps that resulted. The Citizens Commission believes its maps embody good redistricting principles, including compactness, minimal splits of counties and municipalities, and a highly understandable layout for congressional representation. Additionally, they offer better adherence to the principle of “one person, one vote” through a closer approach than in past maps to population equality among legislative districts. We are also proud of the transparent and publicly accessible procedures we followed, and the large amount of public participation that resulted from our outreach.

The Citizens Commission followed the directives of your Executive Order. The lines were drawn without regard to the interests of any party or candidate and without taking into account the place of residence of any incumbent officeholder or other potential candidate, nor did we consider how residents of any community may have voted in the past, or with what political party they may be registered.

We are proud that our proposed congressional and senate maps earned a rating of "A" for partisan fairness from the Princeton Gerrymandering Project.

Background

By law, each state must redraw district lines every 10 years following the collection of new Census data. In Maryland, as part of this process, the Governor traditionally prepares maps and proposes them to the legislature for their consideration. You chose to delegate this power to our independent commission, composed of nine members from across the state, including three registered Democrats, three Republicans, and three Independents. Having appointed the three co-chairs, you then allowed them to select the remaining commissioners. The co-chairs selected the Citizens Commission's remaining six members from more than 400 applicants. In line with your Executive Order, the selection of members was intended to produce a commission that is "independent from legislative influence, impartial, and reasonably representative of the State's diversity and geographical, racial, and gender makeup." EO 01.01.2021.02(B)(4).



Dr. Kathleen Hetherington, Maryland Citizens Redistricting Commission Co-chair, presents Governor Larry Hogan with the Citizens Commission's proposed congressional and legislative maps.

Our task was complicated by the lateness of final figures from the 2020 Census, which arrived at the end of summer 2021 rather than spring as in previous cycles. Like other redistricting panels across the nation, we accordingly needed to compress a significant amount of work into a relatively short period of time. We were greatly assisted by our experienced consultant, Professor Nathaniel Persily of Stanford Law School, a leading expert on the Voting Rights Act (VRA) and American election law. Professor Persily worked diligently to explain map possibilities and turn commissioners' ideas into draft maps. We used final Census data adjusted per Maryland law to redistribute incarcerated persons to their last place of residence before incarceration prior to drafting maps.¹

¹ No Representation Without Population Act of 2010.

Minority Communities And The Voting Rights Act

Along with population equality between districts, complying with the VRA, and other provisions of federal law, was another top-level requirement taking priority over other districting criteria. Your Executive Order specified that “the plans shall...Comply with all State and federal constitutional and legal requirements, including the Voting Rights Act,” as well as all applicable judicial rulings. EO 01.01.2021.02(C)(1)(a). We are confident our maps comply with all such requirements, and fairly recognize and respect the representational interests of minority communities protected by the VRA.

The Citizens Commission worked diligently to reach out to diverse communities. We are particularly proud of our outreach to the Hispanic/Latino community, led by our advisor Gloria Aparicio Blackwell, Founder and Director of the University of Maryland Office of Community Engagement, who helped our Commission spread the word about meetings to countless Marylanders. She played an invaluable role in connecting us to Hispanic/Latino community opinion across the state. She also provided a presentation to the Citizens Commission concerning matters of significance to Hispanic/Latino communities specifically focused on areas in Prince George’s and Montgomery counties. We also appreciate the Spanish Department at the University of Maryland, College Park for partnering with us to provide live Spanish translation during our public testimony meetings.

Principles Underlying Congressional Maps

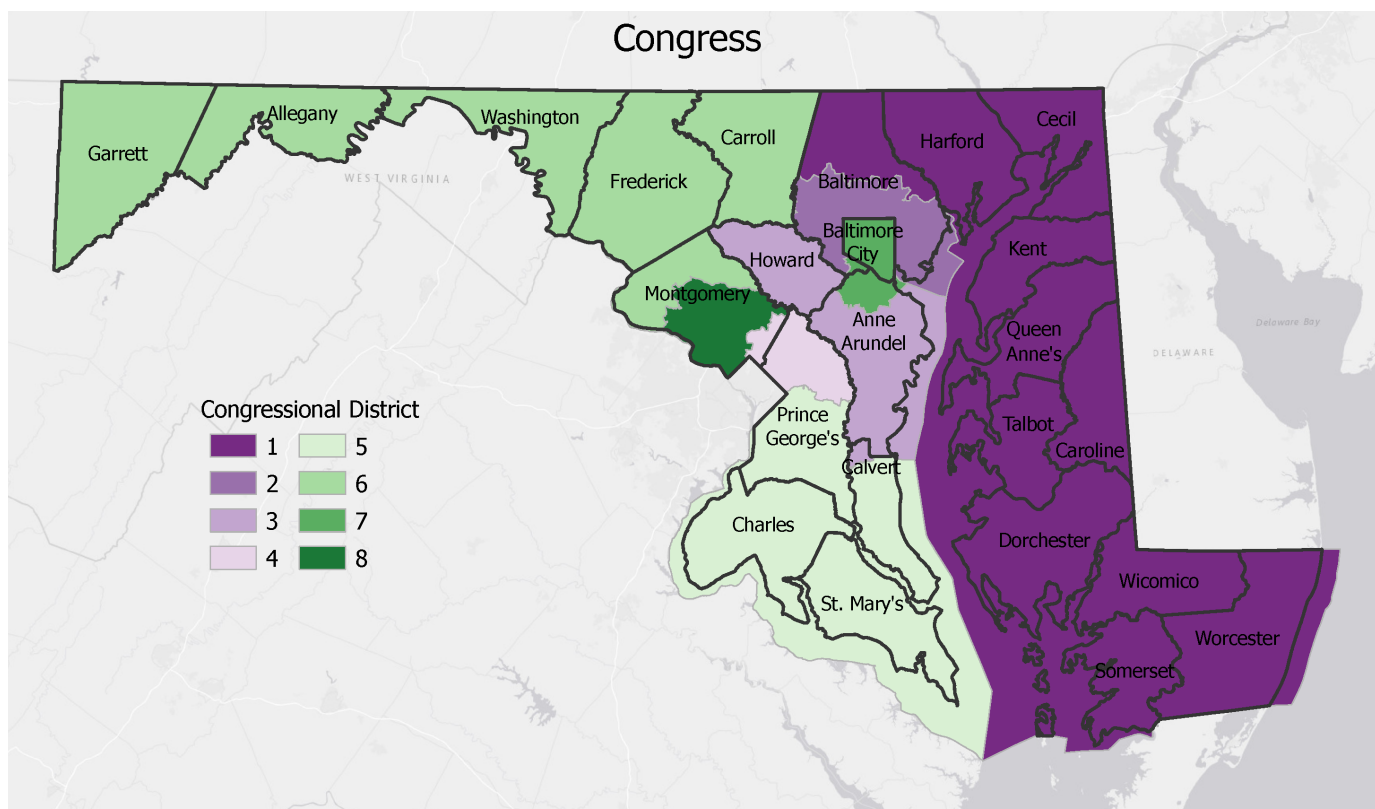
Court precedents direct that the congressional districts in a state should be drawn to a standard of exact population equality. In Maryland's case that means eight districts each with a population of either 771,925 or 771,926.

An important issue the Citizens Commission confronted at an early point was whether a district, including the Eastern Shore, should cross the Chesapeake Bay, at the Chesapeake Bay Bridge or elsewhere, to meet population requirements. The alternative was to complete the needed district population by adding territory at the north end of the Chesapeake Bay in Harford and Baltimore counties. Commissioners expressed views on both sides of this issue, and on the related issue of which portions of the state share the closest community of interest with the Eastern Shore. It was noted that maps in past cycles have sometimes crossed the Bay to include some or all of Anne Arundel, Calvert, and St. Mary’s counties. Several commissioners cited the Executive Order’s instruction that the plan “respect natural boundaries” and noted that the Chesapeake Bay is by far the state’s most significant natural boundary. EO 01.01.2021.02(C)(1)(a)(iii). After discussion, the predominant consensus was in favor of a plan that did not cross the Chesapeake Bay.

Also following the instructions of the Executive Order, the Citizens Commission made county integrity a leading criterion in developing our congressional maps. Three of Maryland’s counties (Prince George’s, Montgomery, and Baltimore) have populations that exceed the required number of persons in a congressional district. The minimum number of splits achievable in Maryland’s congressional map is seven. Once that figure is reached, ending

any one split requires creating a different split somewhere else on the map. We kept to this minimum number, assigning six of the seven splits to the four most populous counties - two each to Montgomery and Baltimore counties and one each to Prince George's and Anne Arundel counties. Facing a choice of imperfect alternatives, the commission accepted a small split of Calvert County in the northernmost (Dunkirk) area. The Citizens Commission believed there were significant communities of interest between that area and adjacent portions of Anne Arundel County, and observed that the map kept the great majority of Calvert County together in one district.

The Citizens Commission's proposed congressional map would once again restore to Western Maryland to a single coherent district in the U.S. House of Representatives, which it has not had for the past 10 years. It would remove existing breaks in Frederick and Carroll counties, and combine those two counties with the three westernmost counties (Garrett, Allegany, and Washington). To bring the district up to its needed population of 771,926, the district would also take in a portion of northernmost Montgomery County (population 82,086), including the communities of Damascus, Clarksburg, Laytonsville, and Poolesville. The Citizens Commission viewed these areas as having some communities of interest with nearby Frederick County.



The Maryland Citizens Redistricting Commission's proposed Maryland Congressional map.

The Citizens Commission chose to keep Baltimore City entirely together in one district, combining it with nearby suburban portions of Anne Arundel County. The Citizens Commission considered, but decided not to pursue other options, such as one that would establish east and west side districts, each combining a portion of the city with nearby suburbs. Commissioner William Thomas of Baltimore City noted the absence of public testimony on these options. Due to a lack of testimony specific to Baltimore City on this issue, he believed the Citizens Commission's public record had not adequately developed one way or the other as to the question of which arrangement would work best to advance the representational interests of Baltimore City residents. He cited that reason in voting against adoption of the congressional map. All of the other commissioners approved the map, which accordingly passed by a vote of eight to one, seven affirmative votes being required under the executive order.

Principles Underlying Legislative Maps

Commissioners agreed at an early point to use existing election precincts as the building blocks in constructing districts. Among the advantages of this method were speed, efficiency, and ease of administration by county election administrators. A corresponding drawback is that the boundaries of existing precincts are often jagged, which means district lines at the most local level will sometimes appear jagged as well. Considerations such as equality of population and respect for natural boundaries made it necessary or advisable to divide precincts into smaller units such as Census blocks. These considerations also applied in the drawing of congressional maps, but were less significant there as a relatively large share of those boundaries followed county lines.

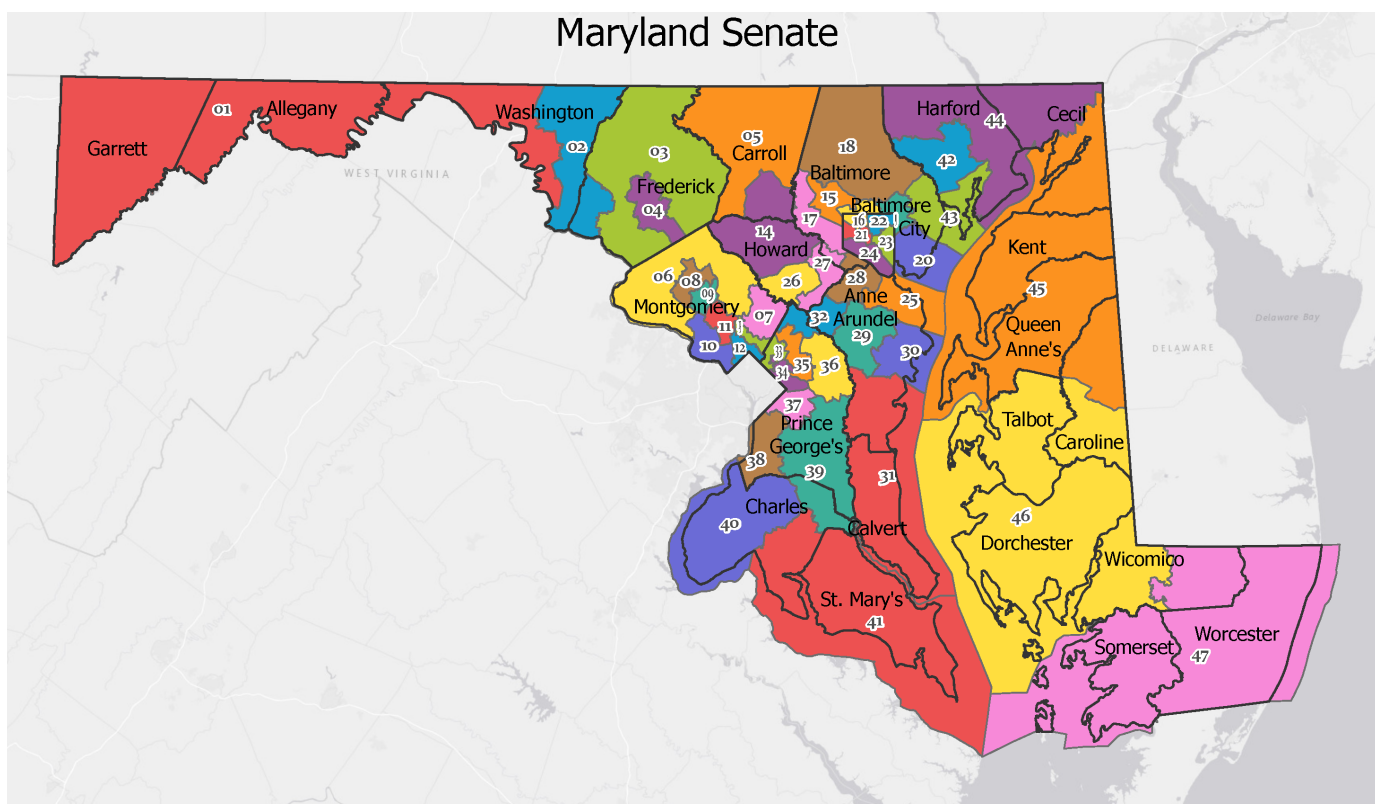
In respecting natural boundaries as directed by the Executive Order, it was agreed that legislative districts should not cross the Chesapeake Bay. Professor Nathaniel Persily noted a Maryland Court of Appeals case from 2002, "Matter of Legislative Redistricting" (370 Md. 312) that raised questions about whether drawing legislative districts to cross the Chesapeake Bay might even violate the state constitutional prohibition regarding "adjoining territory."² This case and other matters of importance regarding this topic were discussed in depth prior to the Citizens Commission ultimately agreeing not to cross the Chesapeake Bay in our legislative maps.

The Executive Order directs that legislative districts be "as nearly equal in population as is feasible given due regard for natural boundaries and the boundaries of political subdivisions." While courts have required essentially exact equality of population among congressional districts, they have tolerated population variations of as much as plus or minus 5% among legislative districts. Past Maryland legislative maps have occasionally taken advantage of that looseness to create many districts with a near-maximum population deviation, without a clear explanation as to why.

² 2002 Md. LEXIS 560, p. 27, 46, 60

Our Commission made a point of insisting on lower variances, opting to use a figure of less than 2% for senate districts and 3% for delegate districts to better put into practice the principle of “one person, one vote.” Working within this constraint, it proved possible to stay within the target population variance range while avoiding some county breaks by placing some legislative districts or groups of districts entirely within county lines. For example, it was possible without breaching population variance goals, to assign exactly eight senate districts to Montgomery County. It was also possible to create a coextensive delegate boundary along the Kent-Cecil line. Similarly, the four westernmost senate districts were able to be contained exactly within the four western Maryland counties, and the division of delegate districts within Senate District 14 was made coextensive with the Carroll-Howard line.

The Executive Order directed the Citizens Commission to respect “the geographic integrity and continuity of any municipal corporation, county, or other political subdivision to the extent practicable.” In general, we succeeded at keeping municipal splits to the barest minimum. In Mount Airy, where parts of the town fall in both Frederick and Carroll counties, the Citizens Commission was obliged to choose between a county split and a municipal split. Taking into account arguments on both sides of the question, the commission decided to avoid the county split, and drew its line in conformance with the Frederick-Carroll line.



The Maryland Citizens Redistricting Commission’s proposed Maryland Senate map.

Single- Vs. Multi-Member Districts

Maryland is unusual among states in having retained extensive use of multi-member districts in its House of Delegates. Three delegate districts “nest” within each senate district, meaning the arrangement can be that of a single district electing three delegates, three districts electing one delegate each, or a combination of a two-member with a one-member district. Past deployment of these options has been criticized as lacking in any obvious or principled basis. In the current legislature there are 31 multi-member districts with three delegates, 12 two-member, and 24 single-member districts. The final Citizen Commission maps have 87 single-member districts and 18 multi-member districts with three delegates each.

The Executive Order provides that legislative districts shall be: “To the extent possible and consistent with the Commission’s other duties and responsibilities, subdivided into single-member delegate districts.” The issue of multi-member districts was the one on which the public testimony heard by the Citizens Commission was most copious and among the most polarized, and proved the most difficult one on which to reach consensus. Some commissioners held that good policy, as well as the language of the Executive Order, called for a drawing of a delegate map composed entirely of single-member districts. Others held that testimony and public sentiment showed that some parts of the state consider themselves well-served with three-member districts. None of the commissioners favored the use of triple-member districts throughout all parts of the state. Separately, it was clear that in certain particular situations the use of single-member districts might be indicated to assure compliance with the VRA.

The Citizens Commission began to make progress toward consensus when it considered formulas that assigned single or triple-member districts to different parts of the state to reflect measures of density. Commissioner Walter Olson of Frederick County proposed two alternative ideas. The first was to adopt triple-member districting for districts with more than 2,000 residents per square mile. The other option was to adopt triple-member districting in a county when the density of a county exceeded that level, whether or not individual districts did. It had been noted that public support for triple-member districts often came from more densely populated parts of the state, including Baltimore City, and Montgomery and Prince George’s counties. On the other hand, commenters from less densely populated parts of the state were more likely to champion single-member districts. Commissioner Cheryl Brooks of Baltimore County suggested combining the two proposed density formulas into a hybrid model. This idea proved the basis of a compromise plan that proved workable and acceptable to all.

In the compromise agreed upon, subject to the exceptions, exclusions, and constraints listed further below, certain high-density areas of Maryland were drawn as triple-member districts using a hybrid formula calculated as follows:

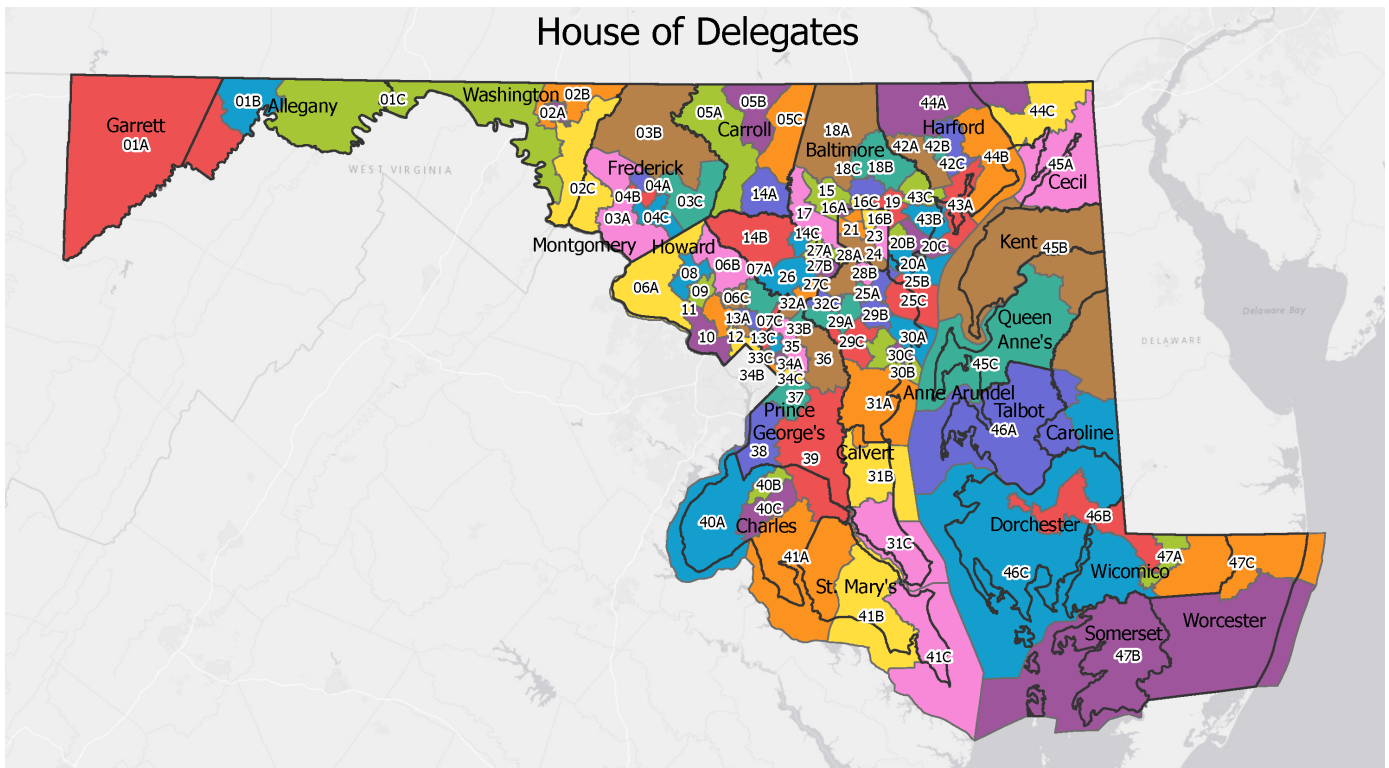
- All districts with more than 2,000 population per square mile in the district itself, and also
- All districts contained within counties that have more than 2,000 population per square mile, EXCEPT that a district within such a county would be excluded if it had a density below 500 persons per square mile. That exclusion would affect the senate district that the Citizens Commission had drawn in northern Montgomery County to reflect some of the county's least dense areas, including the Agricultural Reserve.

The following would be designated as single-member districts:

- Districts not designated as high-density under the criteria above.
- All county crossover districts would be single-member except for #39 (Prince George's County/Charles County), exempted from this provision because the population on the Charles County side is too low to make up the core of a single delegate district.
- Districts in which single member status may better enable recognition of certain minority communities following discussion in past meetings of the Citizens Commission. This affected four relatively dense districts that are highly ethnically diverse, two in western Prince George's County and two in eastern Montgomery County. In some other situations, districts containing distinct minority communities were already being designated as single-member based on other criteria.

The Citizens Commission strove to be responsive to public testimony and reaction. Public map submission was one important part of this process. Commissioners reviewed all publicly submitted maps and discussed many of them at working sessions. Strong public reactions to the Citizens Commission's early proposed draft maps resulted in substantial revisions of the Senate map, notably in St. Mary's County and adjoining counties of southern Maryland, and in Baltimore County and Baltimore City, where an initial plan combining parts of the city with southeastern Baltimore County displeased many residents. In response to public requests for change, the Citizens Commission redrew its maps to place the city-county crossing in the Pikesville and Towson areas, which also allowed for better accommodation of the Orthodox Jewish community on both sides of the city-county line within a single district.

On a smaller scale the Citizens Commission revised its initial senate and delegate lines in many different areas of the state, including southern Montgomery County near the D.C. line, suburban Hagerstown, the Eldersburg/Sykesville area of Carroll County, and the Loch Hill area of Baltimore County. Further, it responded to testimony asking that the Belair-Edison neighborhood in Baltimore City be kept whole.



The Maryland Citizens Redistricting Commission’s proposed Maryland House of Delegates map.

Unfortunately, it did not prove possible to adjust map lines in response to all public objections. The Citizens Commission noted with regret that inland Caroline County on the Eastern Shore was left to shoulder a disproportionate burden as part of a situation in which population shifts obliged five Eastern Shore counties to share approximately four delegate districts. Alternate plans, which would have shifted rather than avoided county splits, involved combinations of difficult splits over water and drastic last-minute changes in areas like Talbot County without time to give adequate notice to affected residents.

District Numbering

The Executive Order provided that legislative districts shall be “numbered consecutively commencing at the northwestern boundary of the state and ending at the southeastern boundary of the state.” The commission carried out this plan, which rationalized the overall map while inevitably changing many district numbers with which residents were familiar. The previous map had grown over time to include quite a few districts whose numbering was completely out of geographical sequence. However, the Executive Order did not require a renumbering of congressional districts. Responding to what it believed to be public preference, the Citizens Commission’s adopted congressional map preserves traditional numbering in which the Eastern Shore district is numbered #1, the Western Maryland district is #6, and so forth.

The resulting legislative maps met with a consensus among the Citizens Commission and were adopted unanimously by a vote of nine to zero, with seven votes needed for passage.

Community Engagement

The mission of the Citizens Commission was deeply rooted in an open and transparent process that included significant community and public engagement of Marylanders. We would not have been able to produce our final work product without the remarkable amount of input we received from concerned citizens across the state. We began a series of public meetings and working sessions on May 5, 2021, and continued through November 3, 2021. The working sessions allowed for Commission members to learn about the process, discuss the data, and draft maps. The public session meetings allowed for the public to provide live and written testimony. Further, the Citizens Commission allowed the public to comment on its draft maps as well as submit their own suggested maps for review. Despite challenging time constraints arising from the late arrival of Census data we were able to accomplish these goals in a timely fashion and with input from the public.

To accomplish this, the Citizens Commission held three rounds of public meetings. Due to the continuing issues with the COVID-19 pandemic, we held these meetings virtually through Zoom. Closed-captioning was available for the hearing-impaired. We were truly impressed with the response and engagement from the public, and had over 230 separate testimony accounts from members of the public throughout the process.

Round One occurred between June 9 and July 28, 2021, and included eight regional meetings during which members of the public could share their thoughts and concerns regarding redistricting in advance of the release of 2020 Census data. During Round One we heard 163 separate testimonies from members of the public as well as elected officials. Our viewership on Zoom and YouTube was over 2,100 people.



The Maryland Citizens Redistricting Commission during one of their virtual public meetings.

Round Two was held from September 9 and September 20, 2021. It included four statewide virtual meetings during which time Marylanders were able to submit their own maps and present them to the Citizens Commission with live testimony; written testimony was also accepted. We had 21 separate testimonies during this session and more than 1,000 people viewed the sessions on either Zoom or YouTube. During Round Two, the Citizens Commission received 70 citizen map submissions. Each map was reviewed by the Citizens Commission, and each was posted to our website so that other members of the public could comment on them as well. Additionally, the Citizens Commission held six public working sessions during the month of September to draft their maps for public review and comment. This was done in concert with the Citizens Commission's expert, Professor Nathaniel Persily.

Round Three was held each Wednesday evening between October 6 and October 27. It included four public meetings during which Marylanders could present testimony regarding the maps drawn by the Citizens Commission, maps submitted by citizens or their own map submissions. The Citizens Commission received an additional 16 public map submissions during Round Three. We heard 46 separate testimonies during our public meetings and had a total viewership of nearly 1,000.

In total, the Citizens Commission received 86 public map submissions via the public portal and email. Commissioners also held public working sessions at the completion of public testimony in order to suggest and address modifications to maps, including discussions regarding the VRA, communities of interest and other matters of importance to district boundaries. Many preliminary and concept maps discussed at working sessions were posted to the website and as the Citizen Commission voted upon "final proposed draft maps," each map was posted as well. For these final proposals, the website included a map viewer allowing street level inspection, and also allowing visitors to enter an address and determine in which district it was located. We were extremely impressed with the engagement from residents across the state with more than 4,127 attendees at our public meetings. Our social media posts resulted in more than 100,061 impressions on Twitter and a reach of more than 92,607 on Facebook.

We were able to carry out successful outreach to the community because of the assistance of our support team at the Maryland Department of Planning. For each meeting, notifications were sent out via press release to more than 46,000 contacts, including the media, local, county, and state elected officials, and many other organizations and individuals. Our promotional materials were translated in Spanish and distributed to the Hispanic/Latino community by our Hispanic/Latino advisor. We worked hard to engage the public and make certain that our work was transparent and open. The feedback we received as to our process was very positive and we would recommend keeping a similar format for future redistricting matters.

Perhaps one of the biggest compliments was from our advisor, Professor Persily, a nationally renowned expert in redistricting law and the democratic process. At the end of the final meeting, he told our group that our Commission should be held out as a national model for the way things should be done. Coming from someone who works with numerous states across the nation on their redistricting efforts, this speaks volumes as to the importance of a non-partisan approach to redistricting. It was obvious from the testimony we received from Marylanders that they are tired of the flagrant gerrymandering of our state by career bureaucrats and entrenched politicians. It was our hope to provide you with maps free from the elements that create such boundaries and we believe we accomplished that mission.

Commission Members

Dr. Kathleen Hetherington - Co-Chair
Walter Olson - Co-Chair
Judge Alexander Williams, Jr. - Co-Chair
Jay V. Amin
Cheryl Brooks
Mary G. Clawson
Kimberly Rose Cummings
Jonathan Fusfield
William Tipper Thomas



The Maryland Citizens Redistricting Commission presented their proposed redistricting maps to Governor Larry Hogan on December 5, 2021.

Addendum One

Written testimony submitted by Professor Nathaniel Persily regarding Senate Bill 1/
House Bill 1 of Maryland General Assembly Special Session December 2021

Addendum Two

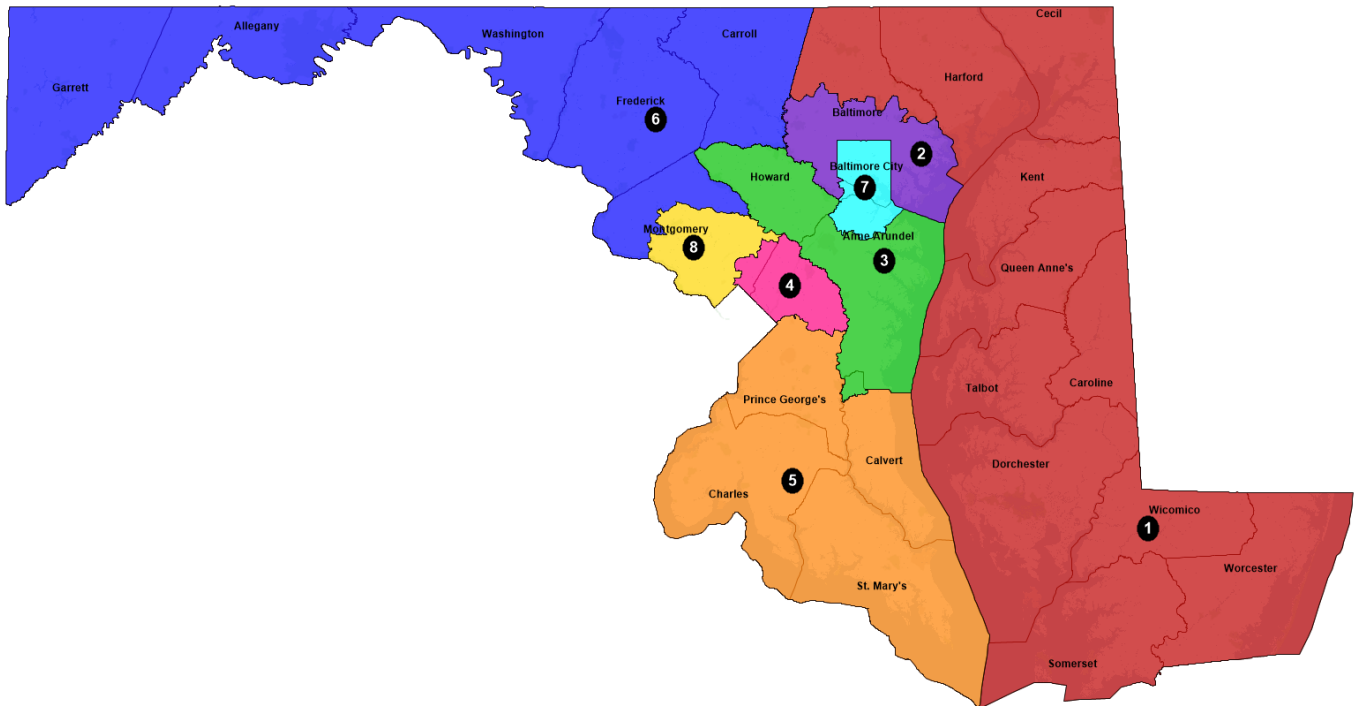
Written testimony submitted by Professor Nathaniel Persily regarding Senate Joint
Resolution 3/House Joint Resolution 1 of Maryland General Assembly, January 18, 2022
"To Be Updated on January 18, 2022"

Addendum 1

**Written testimony submitted by Professor Nathaniel Persily
regarding Senate Bill 1/House Bill 1 of
Maryland General Assembly Special Session
December 2021**

Hearing Date: December 6, 2021 - 12:30 p.m.
Bill No: HB0002/SB0002
Committees: Senate Reapportionment and Redistricting Committee
House Rules and Executive Nominations Committee

Testimony from: Nathaniel Persily, Ph.D.
Consultant to the Maryland Citizens Redistricting Commission
James B. McClatchy Professor of Law
Stanford Law School¹



¹ Affiliation for identification purposes only; appearing in personal capacity and not lobbying for or endorsing any legislation.

Chairs King and Healey, Vice-Chairs Hayes and Holmes, and Members of the Committee:

I am Nathaniel Persily, the James B. McClatchy Professor at Stanford Law School and the consultant hired to assist the Maryland Citizens Redistricting Commission (hereinafter “the Commission”). Over the past twenty years, I have assisted numerous courts and commissions throughout the nation with their redistricting processes. Most relevant for present purposes, I was appointed by the Maryland Court of Appeals, along with Karl Aro (who currently assists the Legislative Redistricting Commission), to draw a state legislative plan for Maryland following the Court’s decision in *In re Legislative Redistricting of State*, 805 A.2d 292 (Md. 2002).

My testimony today will explain how the Congressional redistricting plan proposed by the Commission complies with the applicable law and the Governor’s Executive Order 01.01.2021.02. I will also explain the principles that shaped the districts beyond those required by law.

I. Satisfaction of the Legal Constraints on the Commission’s Congressional Redistricting Plan

A. Federal Law

1. One Person, One Vote

Article I of the U.S. Constitution requires that congressional districts be “as nearly equal as is practicable.”² *Reynolds v. Sims*, 377 U.S. 533 (1964); *Wesberry v. Sanders*, 376 U.S. 1 (1964). Although departures from perfect population equality may be tolerated, they must be necessary to further certain legitimate redistricting principles. *See Tennant v. Jefferson County*, 567 U.S. 758 (2012), *Karcher v. Daggett*, 462 US 725 (1983). To avoid any hint of legal vulnerability, most congressional plans attempt to achieve perfect population equality. The Maryland Commission’s plan does exactly that.

According to the 2020 Census as modified by the prisoner adjustment done for redistricting purposes, the adjusted population for Maryland is 6,175,403.³ Therefore, perfect equality among eight districts would require 771,925.375 people per district, or more precisely, five districts with 771,925 people and three districts with 771,926 people. The Commission’s plan does precisely that, with a deviation of no more than one person between districts.

² This phrasing also appears in Section 1(c) of the Governor’s Executive Order (“Congressional districts shall ... [b]e equal in population to the extent practicable.”).

³ The unadjusted figure was 6,177,224 people, according to the Census P.L. 94-171 datafile.

2. Prohibitions on Intentional Race-based Vote Dilution or Use of Race as the Predominant Factor

The Equal Protection Clause of the Fourteenth Amendment of the U.S. Constitution limits the use of race as a criterion in drawing district lines. Mapmakers may not intentionally dilute the voting power of a racial group, *Mobile v. Bolden*, 446 U.S. 55 (1980), nor may they use race as the predominant factor in the construction of a district, unless necessary to comply with the dictates of the Voting Rights Act. *Shaw v. Reno*, 509 U.S. 630 (1993); *Virginia House of Delegates v. Bethune Hill*, 139 S. Ct. 1945 (2019).

The Commission's plan complies with Equal Protection. As will be discussed below in reference to the Voting Rights Act, the plan does not dilute the voting power of racial minorities. On the contrary, Black voters constitute a majority of the voting age population (VAP) in two districts and a near-majority in a third. Half of the districts (four of the eight) have Non-Hispanic White majorities of their voting age population, and half have voting age populations in which the majorities are not Non-Hispanic White (mirroring the population which, according to the 2020 Census is 49.9% Non-Hispanic White).

The majority-minority districts emerged, however, as a consequence of respecting political subdivision (particularly county) lines. Proposed District 7, for example, is majority Black VAP because it fully contains and respects the borders of Baltimore City, which is a majority Black city. Similarly, the other majority Black district, Proposed District 5, is a compact district in Southern Maryland with boundaries determined by the Chesapeake on the east, Washington, D.C. on the west, and an effort not to split Anne Arundel county (to the north) more than once. In short, race was not the predominant factor in the construction of any of these districts.

3. Section 2 of the Voting Rights Act

Although the plan does not use race as the predominant factor in the construction of districts, it succeeds in preventing race-based vote dilution, which is prohibited under Section 2 of the Voting Rights Act (VRA), 52 U.S.C. § 10301. As mentioned above, half of the districts are majority minority, and two (almost three) are majority Black VAP. These shares are in proportion to the population, which is a factor the Supreme Court has explained is one to be weighed in favor of the legality of a plan under section 2 of the VRA. *Johnson v. DeGrandy*, 512 U.S. 997 (1994).

The plan accurately represents minority communities in Maryland. Blacks constitute 31 percent of the voting age population in Maryland. The Commission's plan has two majority-

Black VAP districts (i.e., 25 percent of districts), as well as one more that is also likely to “perform” for Black voters (meaning they have an “equal opportunity to elect their candidates of choice”). As seen in the tables below, the voting age population of Proposed District 5 is 58.4 percent Black, for Proposed District 7 it is 50.4 percent Black, and for Proposed District 4, it is 47.1 percent Black.

No other racial minority group is large enough to constitute a majority in a single member congressional district. As seen below, although Hispanics constitute 10.2 percent of the state’s voting age population, they are too dispersed to be able to be joined into a compact majority-Hispanic district (which exists as a threshold requirement for a Section 2 district, *Thornburg v. Gingles*, 478 U.S. 30 (1986); *Bartlett v. Strickland*, 556 U.S. 1 (2009)). Asian-Americans, as well, are too small a share of the state’s voting age population (7.8%) to constitute a majority in a single member district.

Table 1. Demographic Breakdown of Proposed Congressional Districts

District	Adjusted Population	Deviation	VAP	% NH White VAP	% Black VAP	% Asian VAP	% Hispanic VAP
1	771,925	0	608,119	75.5%	15.2%	2.8%	4.5%
2	771,926	1	603,809	52.8%	32.8%	7.1%	6.0%
3	771,925	0	593,909	60.9%	18.5%	11.8%	7.4%
4	771,925	0	596,181	21.0%	47.1%	8.2%	24.1%
5	771,926	1	598,574	30.2%	58.4%	3.5%	7.3%
6	771,926	1	604,357	76.3%	9.8%	5.3%	6.8%
7	771,925	0	612,598	35.8%	50.4%	5.4%	7.5%
8	771,925	0	597,655	46.0%	15.7%	18.6%	18.6%
TOTAL	6,175,403		4,815,202	49.9%	31.0%	7.8%	10.2%

B. Additional Criteria in the Governor’s Executive Order

Beyond the requirements of federal law, Governor Hogan’s order adds other criteria that constrain available options for the congressional redistricting process. In particular, Section 1(a) of the order requires the Commission to “[r]espect natural boundaries and the geographic integrity and continuity of any municipal corporation, county, or other political subdivision to the extent practicable” and “[b]e geographically compact and include nearby areas of population to the extent practicable.” The Commission plan complies with these requirements.

1. Respecting Natural Boundaries and Political Subdivisions

The Commission's Plan respects natural boundaries and the borders of political subdivision lines. Most notably, no district crosses the Chesapeake Bay: Proposed District 1 groups together all of the counties on the Eastern Shore. The plan attempts to keep counties and municipalities together to the extent consistent with one person, one vote. No municipalities, besides counties, are split in the proposed congressional plan.

The Commission's plan only splits five counties. Three of these counties – Baltimore County, Montgomery County, and Prince George's County – have total populations exceeding the limit for a congressional district so they must be split to satisfy one person, one vote. The only other counties that are split are Calvert County and Anne Arundel County. Calvert County is barely split – 92 percent of the county's population is placed in Proposed District 5, and only 8 percent in Proposed District 3. Anne Arundel is split with 74 percent of its population in Proposed District 3 and 26 percent in Proposed District 7 (in which it is added to the district completely encompassing Baltimore City). Both of these county splits are necessary to comply with the Constitution's equal population requirement. Moreover, Montgomery County and Baltimore County, each of which contains a single district wholly within its borders, are the only counties that are split more than once, again to prevent malapportionment.

2. Compactness

The districts in the proposed plan are about as geographically compact as possible, while abiding by the other legal considerations. The strange shape of Maryland and some of its counties will necessarily affect the contours of any district that respects political subdivision lines. For example, placing the counties in Western Maryland together will inevitably create a long east-west district, and connecting the counties on the Eastern Shore together will create a long north-south district. Moreover, by respecting the boundary between Baltimore City and Baltimore County, Proposed District 2 wraps around Baltimore City. However, by both the mathematical measures of compactness presented in the chart below, as well as a more aesthetically grounded "eyeball test," the districts are much more compact than the districts in the existing Congressional plan for Maryland.

Table 2. Compactness Analysis for Commission’s Proposed Congressional Districts⁴

	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
Sum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,886.45	N/A
Min	0.17	1.38	1.49	0.12	0.29	0.51	0.14	0.23	N/A	1.99
Max	0.57	2.40	2.91	0.45	0.95	0.86	0.80	0.51	N/A	98.92
Mean	0.40	1.73	1.94	0.30	0.71	0.74	0.47	0.35	N/A	19.37
Std. Dev.	0.13	0.35	0.48	0.11	0.24	0.13	0.25	0.11	N/A	32.99

District	Reock	Schwartzberg	Alternate Schwartzberg	Polsby-Popper	Population Polygon	Area/Convex Hull	Population Circle	Ehrenburg	Perimeter	Length-Width
1	0.34	1.68	1.74	0.33	0.29	0.66	0.14	0.23	462.47	25.03
2	0.38	2.05	2.32	0.19	0.53	0.68	0.37	0.24	162.95	7.28
3	0.30	1.82	2.06	0.24	0.50	0.66	0.18	0.28	205.28	1.99
4	0.48	1.48	1.63	0.38	0.91	0.86	0.67	0.49	83.91	2.14
5	0.42	1.38	1.55	0.41	0.95	0.86	0.80	0.42	249.86	10.09
6	0.17	2.40	2.91	0.12	0.72	0.51	0.31	0.26	554.37	98.92
7	0.57	1.45	1.49	0.45	0.87	0.83	0.67	0.39	67.98	4.34
8	0.52	1.58	1.78	0.31	0.87	0.83	0.65	0.51	99.63	5.20

⁴ Caliper Mapping and Transportation Glossary, What Are Measures of Compactness?, at <https://www.caliper.com/glossary/what-are-measures-of-compactness.htm>:

- **Reock** – an area-based measure that compares each district to a circle, which is considered to be the most compact shape possible. The measure is always between 0 and 1, with 1 being the most compact.
- **Schwartzberg** – a perimeter-based measure that compares a simplified version of each district to a circle. The measure is usually greater than or equal to 1, with 1 being the most compact.
- **Alternate Schwartzberg** -- For each district, this Schwartzberg test computes the ratio of the perimeter of the district to the perimeter of a circle with the same area as the district. This measure is always greater than or equal to 1, with 1 being the most compact. The alternate Schwartzberg test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan
- **Perimeter** – a test that lets you compare plans where the plan with the smallest perimeter is the most compact. The Perimeter test computes one number for the whole plan. If you are comparing several plans, the plan with the smallest total perimeter is the most compact.
- **Polsby-Popper** – a measure of the ratio of the district area to the area of a circle with the same perimeter. The measure is always between 0 and 1, with 1 being the most compact.
- **Length-Width** – computes the absolute difference between the width (east-west) and the height (north-south) of each district. A lower number indicates better length-width compactness.
- **Population Polygon** – computes the ratio of the district population to the approximate population of the convex hull of the district (minimum convex polygon which completely contains the district). The measure is always between 0 and 1, with 1 being the most compact.
- **Minimum Convex Polygon** – similar to the Population Polygon, but without regard to population within the areas. The measure is always between 0 and 1, with 1 being the most compact.
- **Population Circle** – computes the ratio of the district population to the approximate population of the minimum enclosing circle of the district. The measure is always between 0 and 1, with 1 being the most compact.
- **Ehrenburg** – computes the ratio of the largest inscribed circle divided by the area of the district. The measure is always between 0 and 1, with 1 being the most compact.

3. Prohibited Considerations – Partisanship and Incumbency

Section C(1)(b) of the Governor’s Executive Order delineates factors the Commission may not consider in the construction of the redistricting plans. In particular, the Order prohibits considering “[h]ow individuals are registered to vote, how individuals voted in the past, or the political party to which individuals belong” and “[t]he domicile or residence of any individual, including an incumbent officeholder or a potential candidate for office.” The Commission’s plan abides by these restrictions and did not account for the prohibited criteria as part of the line drawing process.

II. Plan Description

The legal requirements spelled out above greatly dictated the shape of the proposed districts. Once certain natural boundaries were respected and decisions were made regarding splits of the largest counties, the options for the map became quite limited.

Two initial decisions placed a “frame” around the plan. The first was the decision, flowing from the Executive Order’s requirement of respecting natural boundaries, to avoid having a district cross the Chesapeake. As a result, Proposed District 1 extends up the Eastern Shore from Somerset to Harford and enters Baltimore County from the north (as the district currently does) to achieve the requisite population to achieve equality. The second was the decision to join in Proposed District 6 the five counties (Garrett, Allegany, Washington, Frederick, and Carroll) in Western Maryland together, which grew from similar community of interest considerations. To maintain compactness, the remainder of Proposed District 6’s population comes from Montgomery County.

A third decision in this vein involved Southern Maryland. The three counties there – Charles, St. Mary’s and Calvert, or at least 92 percent of it) – were similarly considered to constitute a cohesive community. They are joined with the southern half of Prince George’s County (basically, everything south of Bowie) to form a compact district (Proposed District 5) in Southern Maryland. Proposed District 4 fills out the rest of Prince George’s County and picks up the necessary population in Montgomery County to achieve equality. 73 percent of the population in Proposed District 4 is in Prince George’s County.

Proposed Districts 2 and 8 were drawn to be fully contained within Baltimore County and Montgomery County, respectively. The arching shape of Proposed District 2 is determined by the desire to respect the border between Baltimore County and Baltimore City, while keeping Proposed District 2 wholly within Baltimore County. Similarly, Proposed District 8 begins in

Montgomery County where Proposed District 6 ends. It is drawn to be a compact district that includes the large municipalities in the County (particularly, Gaithersburg and Rockville).

Proposed District 7 is a Baltimore City-based district. It fully contains the city (which constitutes 76 percent of the district) and acquires the necessary population from the remainder of Baltimore County and Anne Arundel County in order to make it as compact as possible. As a result, it seemingly takes a “bite” out of the Anne Arundel portion of Proposed District 3. However, entering in Anne Arundel allows District 3 to keep Howard County whole and to create what is basically a two-county district between Anne Arundel and Howard County. 99 percent of the population in the district lives in those two counties, with just one percent coming from Calvert to make up the necessary population.

Conclusion

The Commission’s Congressional District Plan complies with all the applicable legal criteria and provides a reasoned basis for the districts even beyond what was legally required. It complies with one person one vote, avoids race-based vote dilution or use of race as a predominant factor, and complies with the Voting Rights Act. It also abides by the natural boundary, political subdivision, and compactness requirements of the Executive Order. It does all this while ignoring partisan or incumbency-related considerations.

In many respects, this congressional district map, in both substance and the procedure that led to it, could serve as a model for the nation. As is known to this Committee, I have worked with many commissions and courts, serving as a nonpartisan expert. Commissions around the country are falling apart due to partisan division, but the Maryland Citizens Redistricting Commission stands in stark contrast. Republicans, Democrats, and Independents worked together, with public input, to draw consensus maps. There were few, if any, points of significant contention, and when there were, compromise was readily sought and achieved. At a time when bipartisan and independent institutions like this Commission become an endangered species, it is worth highlighting and celebrating this rare instance of successful negotiation and commitment to serve the public interest.

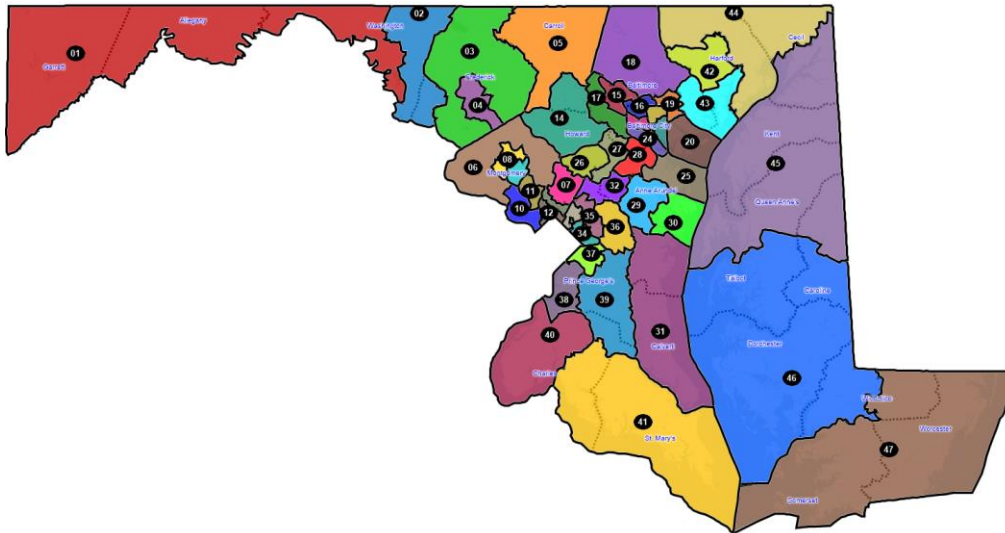
Addendum 2

**Written testimony submitted by Professor Nathaniel Persily
regarding Senate Joint Resolution 3/House Joint Resolution
1 of Maryland General Assembly, January 18, 2022**

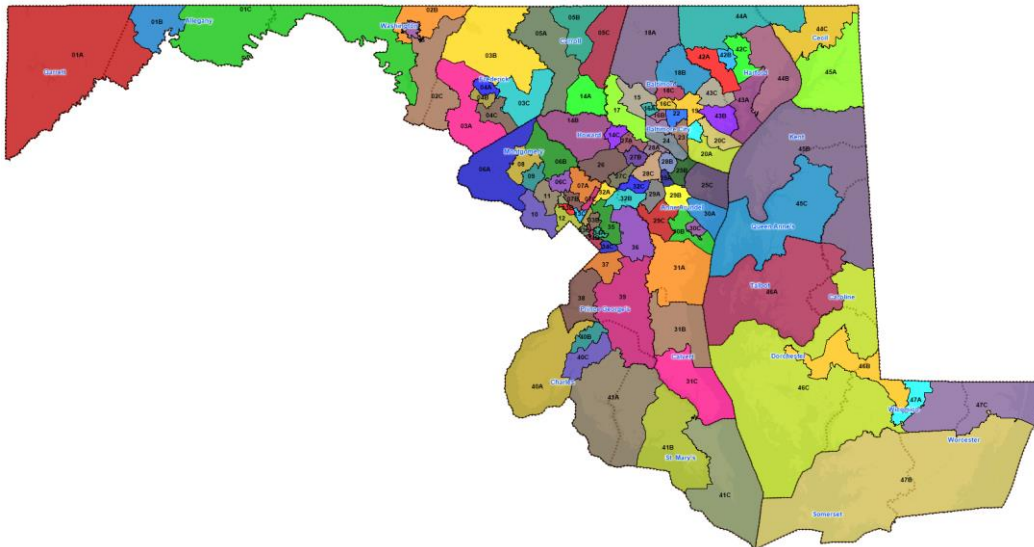
Hearing Date: January 18, 2022
Bill No: SJ3/HJ1
Committees: Senate Reapportionment and Redistricting Committee
House Rules and Executive Nominations Committee

Testimony from: Nathaniel Persily, Ph.D.
Consultant to the Maryland Citizens Redistricting Commission
James B. McClatchy Professor of Law
Stanford Law School¹

Maryland Citizens Redistricting Commission Senate Map



Maryland Citizens Redistricting Commission House of Delegates Map



¹ Affiliation for identification purposes only; appearing in personal capacity and not lobbying for or endorsing any legislation.

Chairs King and Healey, Vice-Chairs Hayes and Holmes, and Members of the Committee:

I am Nathaniel Persily, the James B. McClatchy Professor at Stanford Law School and the consultant hired to assist the Maryland Citizens Redistricting Commission (hereinafter “the Commission”). Over the past twenty years, I have assisted numerous courts and commissions throughout the nation with their redistricting processes. Most relevant for present purposes, I was appointed by the Maryland Court of Appeals, along with Karl Aro (who currently assists the Legislative Redistricting Advisory Commission), to draw a state legislative plan for Maryland following the Court’s decision in *In re Legislative Redistricting of State*, 805 A.2d 292 (Md. 2002).

My testimony today will explain how the Senate and House of Delegates redistricting plans proposed by the Commission comply with the applicable law and the Governor’s Executive Order 01.01.2021.02. I will also explain the principles that shaped the districts beyond those required by law. In describing these plans, I shall also compare them to the draft plan released by the Legislative Redistricting Advisory Commission (“LRAC Plan”).

I. Satisfaction of the Legal Constraints on the Commission’s Congressional Redistricting Plan

A. Federal Law

1. One Person, One Vote

The Equal Protection Clause of the 14th Amendment to the U.S. Constitution requires that state legislative districts comply with “one person, one vote.” This rule has meant that states must “make an honest and good faith effort to construct [legislative] districts . . . as nearly of equal population as is practicable.” *Reynolds v. Sims*, 377 U.S. 533, 577 (1964).² As a general rule, though, the strict population equality standard applied to congressional districts is relaxed for state legislative districts. As the Supreme Court has made clear, “‘minor deviations from mathematical equality’ do not, by themselves, ‘make out a prima facie case of invidious discrimination under the Fourteenth Amendment so as to require justification by the state.’”³ Minor deviations have been defined as those under ten percent, which usually means no district departs from the ideal population of a district by more than plus-or-minus five percent. *Brown v. Thomson*, 462 U. S. 835, 842 (1983).

² See also Section 1(d) of the Governor’s Executive Order (“Legislative districts shall be . . . [a]s nearly equal in population as is feasible given due regard for natural boundaries and the boundaries of political subdivisions.”).

³ *Harris v. Ariz. Indep. Redistricting Comm’n*, 578 U.S. ___, 137 S.Ct. 1301 (2016) (2016).

The Commission's plan also operated under a stricter population equality restriction than required by federal law. Section 1(d) of the Governor's Executive Order establishing the Commission specifies that "[l]egislative districts shall be . . . [a]s nearly equal in population as is feasible given due regard for natural boundaries and the boundaries of political subdivisions." Following these guidelines, the Commission set as its goal for the State Senate Districts that no district would vary from the ideal adjusted population of a district by more than plus-or-minus two percent and no House of Delegates district by more than plus-or-minus three percent.

According to the 2020 Census as modified by the prisoner adjustment done for redistricting purposes, the adjusted population for Maryland is 6,175,403.⁴ Therefore, perfect equality among 47 state Senate districts would require 131,391.553 people per district and among 141 House of Delegates districts, 43,797.1844 people per district. In the Commission's Senate Plan, the largest district has 133,871 people (1.89% over ideal value) and the smallest district has 128,867 people (1.92% under ideal value). In the Commission's House of Delegates plan, the largest district has 45,092 people (2.96% over ideal value) and the smallest district has 42,545 people (2.86% under ideal value).

In contrast, the LRAC plans appear to take greater advantage of permissible deviations allowed for state legislative plans, abiding by a plus-or-minus 4 percent constraint. For the LRAC Senate plan, the most overpopulated district is District 47 with 136,516 people (3.99% over ideal value) and the most underpopulated district is District 3 with 126,149 (3.99% under ideal value). For the LRAC House of Delegate plan, the most overpopulated district is three-member District 28 with 136,503 (3.89% over ideal value) and the most underpopulated district is three-member District 46 with 126,149 people (3.99% under ideal value).

⁴ The unadjusted figure was 6,177,224 people, according to the Census P.L. 94-171 datafile.

Table 1. Absolute Deviation from Equal Population

	MCRC Senate Plan	LRAC Senate Plan
Mean	1,615 (1.2%)	3,322 (2.5%)
Standard Deviation	721 (0.5%)	1,690 (1.3%)
Minimum	124 (0.09%)	110 (0.08%)
Maximum	2,525 (1.92%)	5,243 (3.99%)

	MCRC House Plan	LRAC House Plan
<i>All districts (calculations weighted by # of Delegates representing each district)</i>		
Mean %	1.4%	2.7%
Standard Deviation %	0.7%	1.2%
Minimum %	0.02%	0.08%
Maximum %	2.96%	3.99%
<i>Single-member districts</i>	87 districts	30 districts
Mean (%)	669 (1.5%)	1,273 (2.9%)
Standard Deviation (%)	362 (0.8%)	479 (1.1%)
Minimum (%)	9 (0.02%)	94 (0.21%)
Maximum (%)	1,295 (2.96%)	1,729 (3.95%)
<i>Two-member districts</i>	0 districts	12 districts
Mean (%)		2,425 (2.8%)
Standard Deviation (%)	N/A	1,149 (1.3%)
Minimum (%)		295 (0.34%)
Maximum (%)		3,475 (3.97%)
<i>Three-member districts</i>	18 districts	29 districts
Mean (%)	1,685 (1.3%)	3,409 (2.6%)
Standard Deviation (%)	689 (0.5%)	1,690 (1.3%)
Minimum (%)	295 (0.22%)	109 (0.08%)
Maximum (%)	2,513 (1.91%)	5,242 (3.99%)

2. Prohibitions on Intentional Race-based Vote Dilution or Use of Race as the Predominant Factor

The Equal Protection Clause of the Fourteenth Amendment of the U.S. Constitution limits the use of race as a criterion in drawing district lines. Mapmakers may not intentionally dilute the voting power of a racial group, *Mobile v. Bolden*, 446 U.S. 55 (1980), nor may they use race as the predominant factor in the construction of a district, unless necessary to comply with the dictates of the Voting Rights Act. *Shaw v. Reno*, 509 U.S. 630 (1993); *Virginia House of Delegates v. Bethune Hill*, 139 S. Ct. 1945 (2019).

The Commission's plans comply with Equal Protection. As will be discussed below in reference to the Voting Rights Act, the plan does not dilute the voting power of racial minorities. The plans also comply with *Shaw v. Reno*. The only district arguably implicating *Shaw* is Commission District 46B in Dorchester and Wicomico Counties. However, the predecessor to this district was ordered drawn by the District Court in *Marylanders for Fair Representation, Inc. v. Schaefer*, 849 F. Supp. 1022, 1056 (D. Md. 1994), pursuant to a successful lawsuit under Section 2 of the Voting Rights Act. The Commission's proposed district is more compact than both the LRAC proposal and the existing district, while still achieving a Black Voting Age Population share of 54.1%.

3. Section 2 of the Voting Rights Act and Representation of Racial Minorities

The Commission's plans comply with Section 2 of the Voting Rights Act, 52 U.S.C. § 10301. Both the Senate and House of Delegates plans avoid diluting the vote of racial minorities either through packing or cracking. Of course, given patterns of racial segregation in Maryland, several districts will have high concentrations of African Americans, particularly in Prince George's County. Moreover, because of the use of multimember districts, in evaluating minority representation it is appropriate to consider the number of minority opportunity seats, as opposed to opportunity districts, to reflect the fact that a three-member opportunity district is functionally the same as three single-member opportunity districts.

The Commission's plan accurately represents minority communities in Maryland. Blacks constitute 31 percent of the voting age population in Maryland. The Commission's Senate plan has 14 districts out of 47 in which Blacks are a majority of the voting age population in a district (BVAP), amounting to 30.0% of the Senate seats. The Commission's House plan has 43 seats out of 141 (30.5% of seats) in which Blacks constitute a majority of the voting age population of a district. Although proportionality is not required by the Voting Rights Act, the fact that a plan achieves near proportionality is a factor weighed in favor of a plan. *Johnson v. DeGrandy*, 512 U.S. 997 (1994).

The LRAC plan has many fewer majority-BVAP districts. The LRAC Senate Plan has 9 majority BVAP districts (19.1% of Senate districts). The LRAC House of Delegates plan demonstrates the same pattern with only 36 out of 141 seats (25.5%) coming from majority BVAP districts.

The story for Latinos is similar, although they are dispersed throughout Maryland such that they rarely can form a majority-minority HVAP (Hispanic Voting Age Population) district. Although they constitute 10.2% of the state's voting age population, they are not compact enough to form a majority in a Senate seat (although the HVAP in two of the Commission's Senate districts – 13 and 33 – exceed 40%). The Commission's plan avoids gratuitously breaking up compact Latino communities, even if they constitute a district minority. Consequently, the Commission's House map contains four majority HVAP districts, with one that (like the LRAC House plan) has an HVAP of nearly 65%. The difference between the plans in this regard, though, is that the Commission plan has three other House districts between 50% and 55%, whereas the next highest district for the LRAC plan is 35.9% HVAP.⁵

B. Additional Criteria in the Governor's Executive Order

Beyond the requirements of federal law, Governor Hogan's order adds other criteria that constrain available options for the congressional redistricting process. In particular, Section 1(a) of the order requires the Commission to “[r]espect natural boundaries and the geographic integrity and continuity of any municipal corporation, county, or other political subdivision to the extent practicable” and “[b]e geographically compact and include nearby areas of population to the extent practicable.” The Commission plan complies with these requirements.

1. Respecting Natural Boundaries and Political Subdivisions

The Commission's plan respects natural boundaries and the borders of political subdivision lines. Most notably, no district crosses the Chesapeake Bay. The plan attempts to keep counties and municipalities together to the extent consistent with the goal of keeping low population deviations throughout the plan. The plan narrative, below, goes into greater detail how each district respects natural boundaries and political subdivision lines.

⁵ Asian-Americans, as well, are too small a share of the state's voting age population (7.8%) to constitute a majority in a single member district. However, the Commission plan, like the LRAC plan, attempts to keep the Asian Community in Ellicott City largely in one House district that is 31% Asian Voting Age Population.

Given that the Commission plan obeys a stricter population equality rule than either the LRAC plan or existing districts, one would expect it to break up a greater number of political subdivisions. However, despite the lower deviations, the Commission's plans split fewer counties than the LRAC Senate plan and roughly the same number as the LRAC Delegate Plan. The Commission's Senate plan splits 14 counties, whereas the LRAC Senate plan splits 15 counties. The Commission's House plan splits 20 counties, whereas the LRAC plan splits 19.

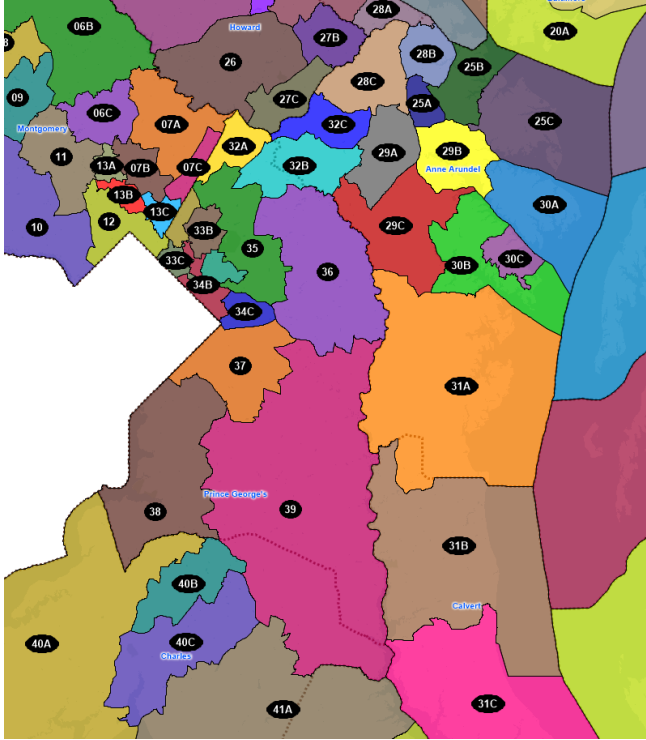
Of course, unlike the Congressional plan, most counties must be split up in order to comply with one person, one vote. Their population exceeds that of an ideal Senate or House district. However, to the extent possible, the Commission's plan minimizes traversal of county and municipal boundaries to the extent possible. This can be seen, for example, in the placing of eight complete Senate districts inside the borders of Montgomery County or four complete delegate districts within Carroll County.

2. Compactness

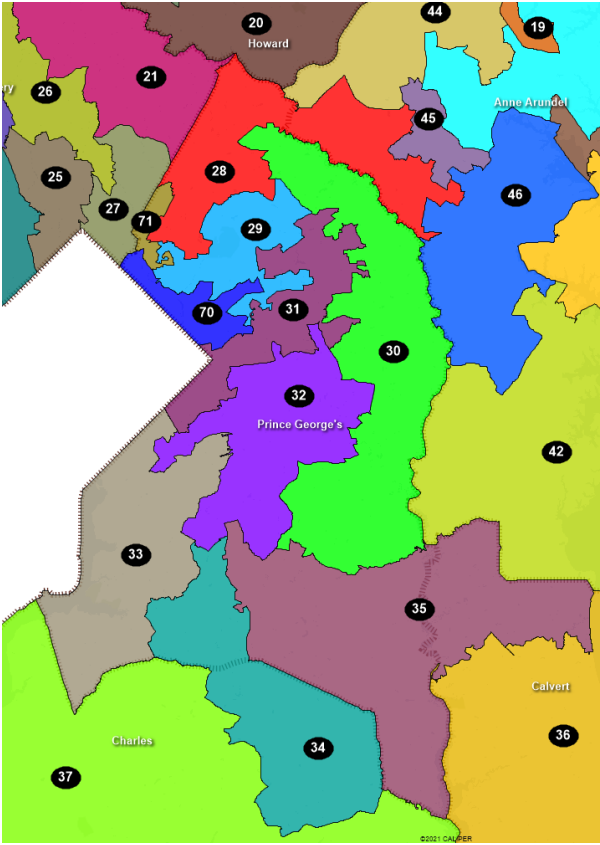
The districts in the proposed plan are about as geographically compact as possible, while abiding by the other legal considerations. The strange shape of Maryland and some of its counties will necessarily affect the contours of any district that respects political subdivision lines. For example, placing the counties in Western Maryland together will inevitably create a long east-west district, and connecting the counties on the Eastern Shore together will create a long north-south district. However, by both the mathematical measures of compactness presented in the chart below, as well as a more aesthetically grounded "eyeball test," the districts are much more compact than the districts in the existing Congressional plan for Maryland or in the LRAC proposal.

As can be seen below on every mathematical measure of compactness, the Commission's plans for the House and Senate are superior to the LRAC plan. The differences are significant and confirm what is obvious from the images of the districts. Maps of the Delegate plans in Prince George's, Baltimore, and Howard Counties are provided below. They depict coherent, compact districts in the Commission plan, as compared to what are often wandering, contorted, and stringy districts in the LRAC plan.

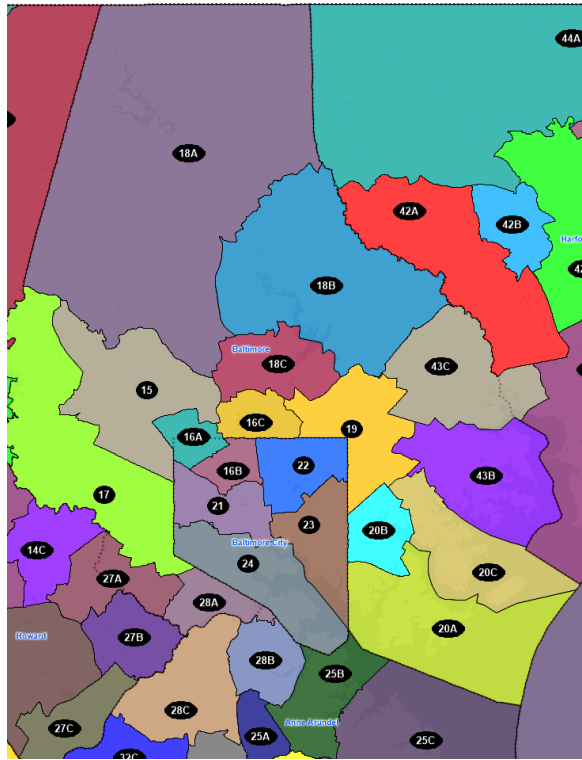
MCRC Proposed Delegate Plan for Prince George's County



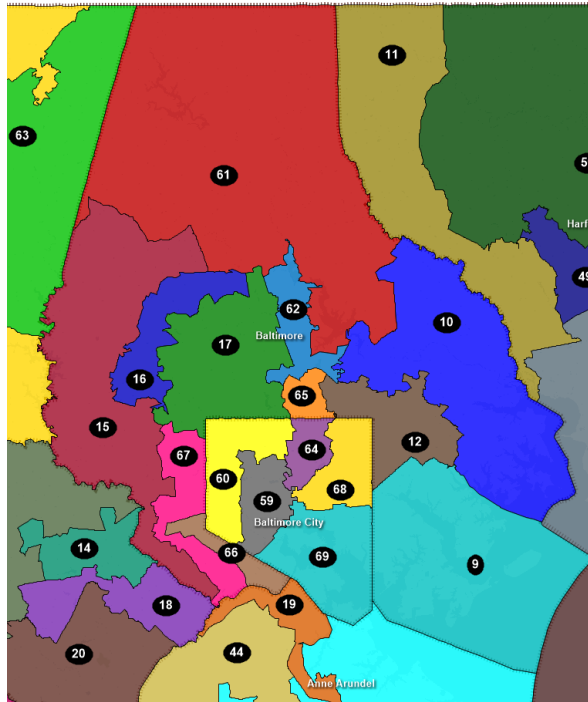
LRAC Delegate Plan for Prince George's County



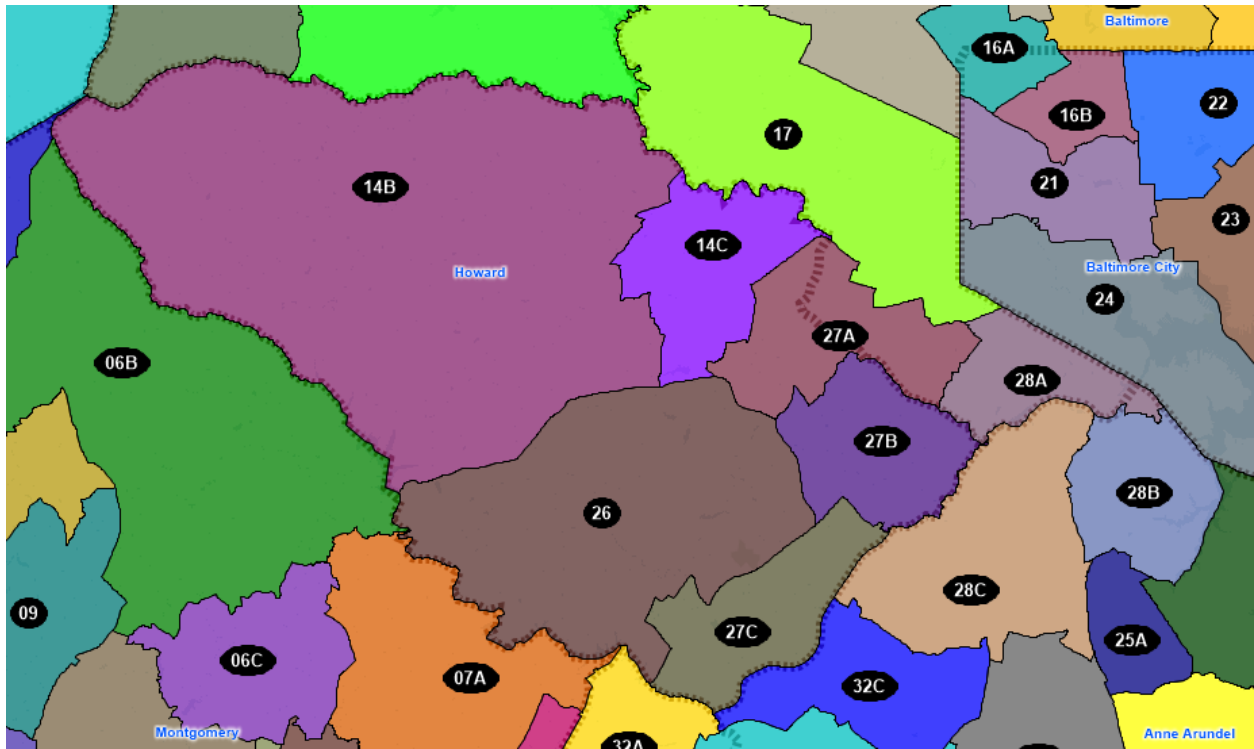
MCRC Proposed House Plan for Baltimore County



LRAC Proposed House Plan for Baltimore County



MCRC Proposed House Plan for Howard County



LRAC Proposed House Plan for Howard County

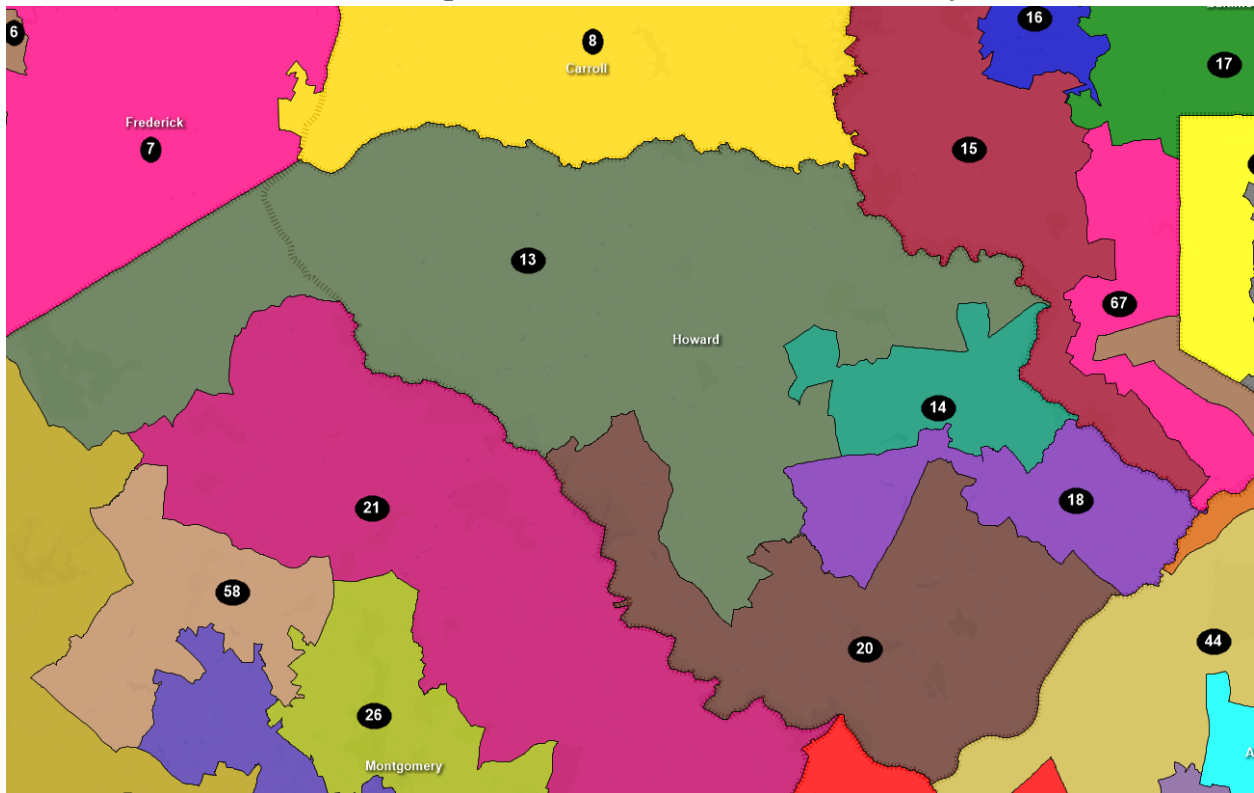


Table 2. Compactness Analysis for Commission’s Proposed Senate Districts⁶

	MCRC Senate Plan	LRAC Senate Plan
Reock (higher values → more compact)		
Mean	0.44	0.39
Standard Deviation	0.10	0.12
Minimum	0.17	0.14
Maximum	0.62	0.63
Schwartzberg (lower values → more compact)		
Mean	1.62	1.92
Standard Deviation	0.26	0.43
Minimum	1.15	1.15
Maximum	2.35	3.18

⁶ Caliper Mapping and Transportation Glossary, What Are Measures of Compactness?, at <https://www.caliper.com/glossary/what-are-measures-of-compactness.htm>:

- **Reock** – an area-based measure that compares each district to a circle, which is considered to be the most compact shape possible. The measure is always between 0 and 1, with 1 being the most compact.
- **Schwartzberg** – a perimeter-based measure that compares a simplified version of each district to a circle. The measure is usually greater than or equal to 1, with 1 being the most compact.
- **Alternate Schwartzberg** -- For each district, this Schwartzberg test computes the ratio of the perimeter of the district to the perimeter of a circle with the same area as the district. This measure is always greater than or equal to 1, with 1 being the most compact. The alternate Schwartzberg test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan
- **Perimeter** – a test that lets you compare plans where the plan with the smallest perimeter is the most compact. The Perimeter test computes one number for the whole plan. If you are comparing several plans, the plan with the smallest total perimeter is the most compact.
- **Polsby-Popper** – a measure of the ratio of the district area to the area of a circle with the same perimeter. The measure is always between 0 and 1, with 1 being the most compact.
- **Length-Width** – computes the absolute difference between the width (east-west) and the height (north-south) of each district. A lower number indicates better length-width compactness.
- **Population Polygon** – computes the ratio of the district population to the approximate population of the convex hull of the district (minimum convex polygon which completely contains the district). The measure is always between 0 and 1, with 1 being the most compact.
- **Minimum Convex Polygon** – similar to the Population Polygon, but without regard to population within the areas. The measure is always between 0 and 1, with 1 being the most compact.
- **Population Circle** – computes the ratio of the district population to the approximate population of the minimum enclosing circle of the district. The measure is always between 0 and 1, with 1 being the most compact.
- **Ehrenburg** – computes the ratio of the largest inscribed circle divided by the area of the district. The measure is always between 0 and 1, with 1 being the most compact.

	MCRC Senate Plan	LRAC Senate Plan
Alternate Schwartzberg (lower values → more compact)		
Mean	1.76	2.08
Standard Deviation	0.33	0.50
Minimum	1.18	1.16
Maximum	2.92	3.46
Polsby-Popper (higher values → more compact)		
Mean	0.35	0.27
Standard Deviation	0.12	0.13
Minimum	0.12	0.08
Maximum	0.72	0.74
Population Polygon (higher values → more compact)		
Mean	0.77	0.68
Standard Deviation	0.13	0.15
Minimum	0.25	0.37
Maximum	0.94	0.98
Area/Convex Hull (higher values → more compact)		
Mean	0.77	0.71
Standard Deviation	0.09	0.12
Minimum	0.48	0.43
Maximum	0.92	0.94
Population Circle (higher values → more compact)		
Mean	0.48	0.40
Standard Deviation	0.16	0.18
Minimum	0.06	0.06
Maximum	0.84	0.81
Ehrenburg (higher values → more compact)		
Mean	0.39	0.33
Standard Deviation	0.11	0.13
Minimum	0.17	0.10
Maximum	0.64	0.67
Perimeter (lower values → more compact)		
Sum	3,805.46	4,347.28

Table 3. Compactness Analysis for Commission’s Proposed House of Delegate Districts

	MCRC House Plan	LRAC House Plan
Reock (higher values → more compact)		
Mean	.43	.39
Standard Deviation	.098	.118
Minimum	.17	.17
Maximum	.67	.66
Schwartzberg (lower values → more compact)		
Mean	1.59	1.92
Standard Deviation	.296	.448
Minimum	1.20	1.15
Maximum	3.23	3.97
Alternate Schwartzberg (lower values → more compact)		
Mean	1.71	2.09
Standard Deviation	.370	.542
Minimum	1.22	1.16
Maximum	4.11	4.64
Polsby-Popper (higher values → more compact)		
Mean	.37	.27
Standard Deviation	.12	.13
Minimum	.06	.05
Maximum	.68	.74
Population Polygon (higher values → more compact)		
Mean	.77	.67
Standard Deviation	.13	.15
Minimum	.20	.37
Maximum	.98	.98
Area/Convex Hull (higher values → more compact)		
Mean	.78	.71
Standard Deviation	.08	.11
Minimum	.45	.38
Maximum	.95	.94
Population Circle (higher values → more compact)		
Mean	.44	.40
Standard Deviation	.15	.18
Minimum	.09	.06
Maximum	.84	.81

	MCRC House Plan	LRAC House Plan
Ehrenburg (higher values → more compact)		
Mean	.40	.33
Standard Deviation	.11	.13
Minimum	.16	.10
Maximum	.72	.64
Perimeter (lower values → more compact)		
Sum	7,173.58	10,781.97

3. Prohibited Considerations – Partisanship and Incumbency

Section C(1)(b) of the Governor’s Executive Order delineates factors the Commission may not consider in the construction of the redistricting plans. In particular, the Order prohibits considering “[h]ow individuals are registered to vote, how individuals voted in the past, or the political party to which individuals belong” and “[t]he domicile or residence of any individual, including an incumbent officeholder or a potential candidate for office.” The Commission’s plan abides by these restrictions and did not account for the prohibited criteria as part of the line drawing process.

4. Use of Multimember Districts

Section C(1)(d)(ii) of the Governor’s Executive Order expresses a preference for the use of single-member districts in the Commission’s legislative plan. Specifically, it provides that “[t]o the extent possible and consistent with the Commission’s other duties and responsibilities, [legislative districts shall be] subdivided into single-member delegate districts.” The degree to which multimember delegate districts would be used in the Commission’s plan for the House of Delegates provoked considerable public comment and deliberation among the Commissioners. In the end, the Commission adopted a hybrid model, in which certain densely populated Senate districts would be retained as three-member delegate districts. This meant that most (but not all) districts in Baltimore City, Prince George’s County, and Montgomery County would be three-member districts, along with three others in Baltimore County that adjoined the City.

Although the Commission’s plan makes use of multimember districts, it employs them much less frequently than does the LRAC plan. The LRAC plan contains 30 single-member districts, 12 two-member districts and 29 three-member districts. In contrast, the Commission’s plan features 87 single-member districts, zero two-member districts, and 18 three-member districts.

II. Plan Description

The legal requirements and principles in the Executive Order spelled out above greatly dictated the shape of the proposed districts in the Commission’s Plan. Within those constraints, though, the plan responded to feedback the Commission heard in the many public hearings that were held. The plans went through several dozen iterations, as both Commissioners and the public offered suggestions on how best to represent all regions in Maryland. What follows below is a narrative description of the Legislative plan, which depicts the House of Delegates districts but discusses the Senate districts when relevant.⁷ As the Governor’s Order required a numbering of the districts beginning in the northwestern corner of the state, the following description begins with Western Maryland.

A. Western Maryland

Beginning in Western Maryland, the counties of Garrett, Allegany, Washington, Frederick, and Carroll include Senate Districts 1 through 5. Each Senate district is broken up into three single-member Delegate districts. The lines are drawn to maximize compactness, to the extent possible given the irregular boundary of the Potomac River. Senate District 1 extends from Garrett through Allegany into Washington County. Delegate District 1A contains the Garrett County municipalities of Oakland, Mountain Lake Park, Deer Park, Accident, Friendsville, plus the Allegany municipalities of Luke, Westernport, Barton, Lonaconing, Midland, and parts of Frostburg. Delegate District 1B is centered around the municipal lines of Cumberland and extends west to Frostburg. 1C does not include any incorporated municipalities but straddles the border between Allegany and Washington Counties.

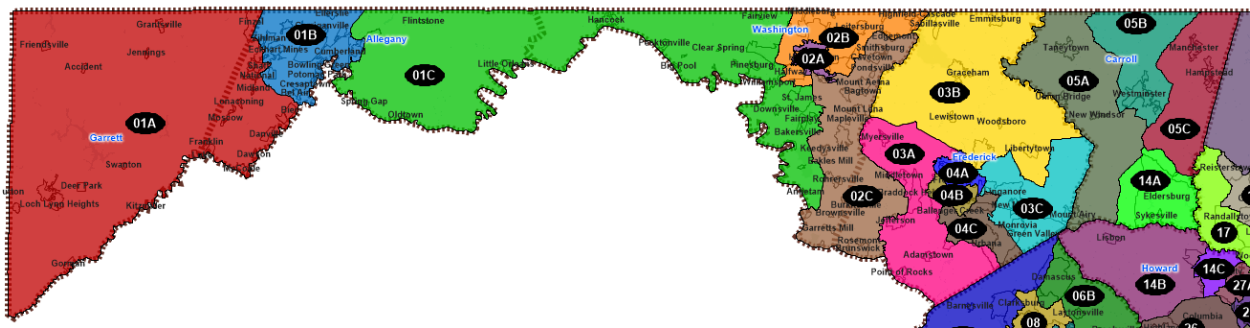
Senate District 2 is largely contained within Washington County, but extends into Frederick County, picking up Rosemont, Brunswick and Burkittsville to achieve population equality. Most notably and consistent with the current district, Delegate District 2A fully encompasses Hagerstown – its irregular shape is due to the district following the municipal lines. District 2B covers the areas immediately around Hagerstown, while 2C moves north-south along the border with Frederick County.

Senate Districts 3 and 4 are fully contained within Frederick County. Senate District 3 wraps around the city of Frederick, picking up most of the smaller municipalities in the county. Delegate District 3A includes Middletown and Myersville, 3B includes Thurmont, Emmitsburg, Woodsboro, and Walkersville. 3C covers the southeastern corner of Frederick County. Because District 3 is fully contained within Frederick County, it necessarily splits the municipality of Mount Airy, which sits on the border of Frederick and Carroll County.

⁷ Because the House districts are nested within the Senate districts (or in the case of multimember districts are coterminous with them), the principles that undergird the House districts apply to the Senate as well.

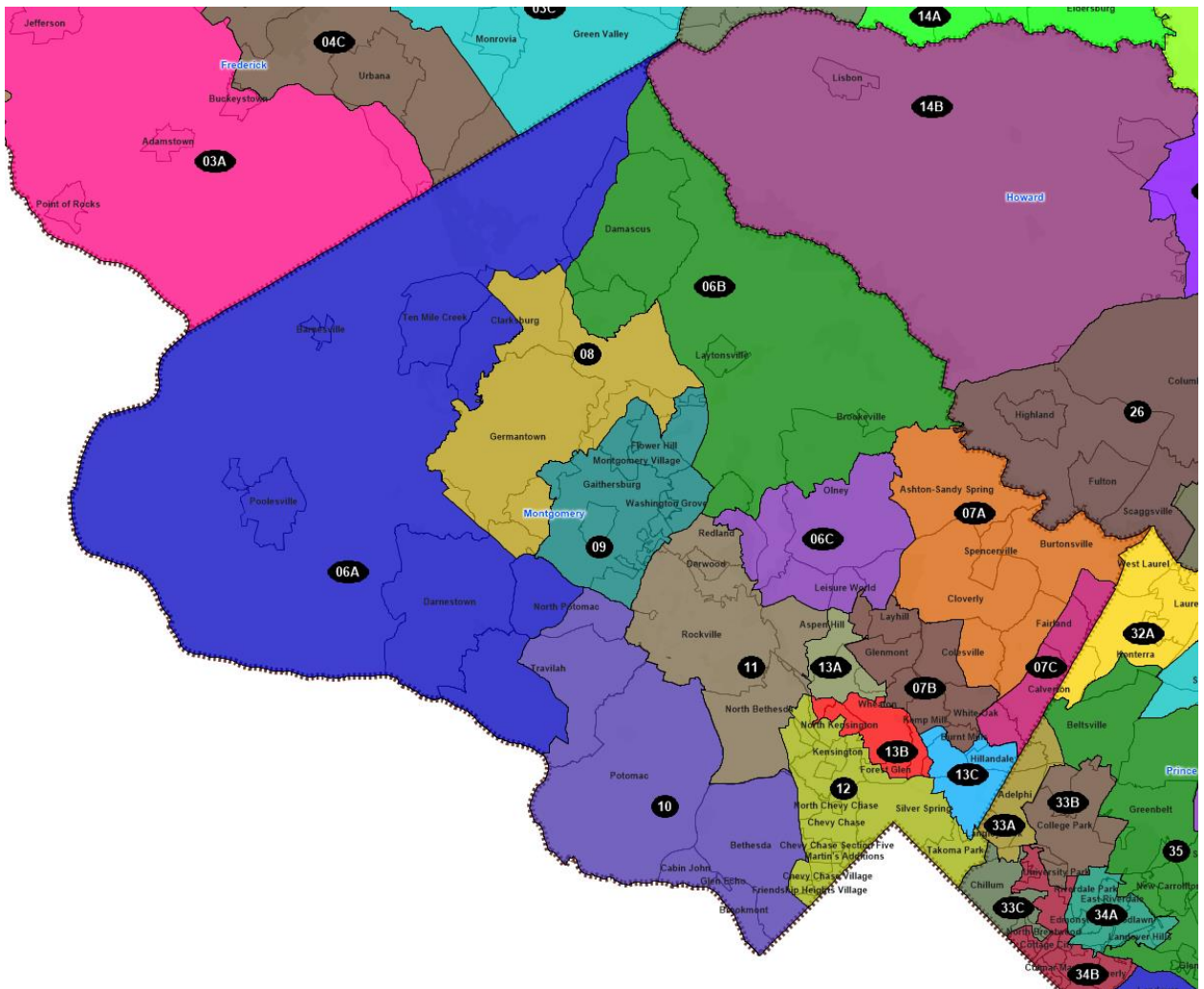
Senate District 4 contains the municipality of Frederick. Delegate Districts 4A and 4B share the municipality, which is split into northern and southern halves. Delegate District 4C extends southward from Frederick to the border with Montgomery County.

Senate District 5 is fully contained within Carroll County. Each delegate district within it is centered on a particular municipality – 5A (Taneytown), 5B (Westminster), 5C (Manchester and Hampstead). Four single member delegate districts can be placed fully within Carroll County. As a result, in addition to Senate District 5, Delegate District 14A is also fully within Carroll County centered around Eldersburg and Sykesville.



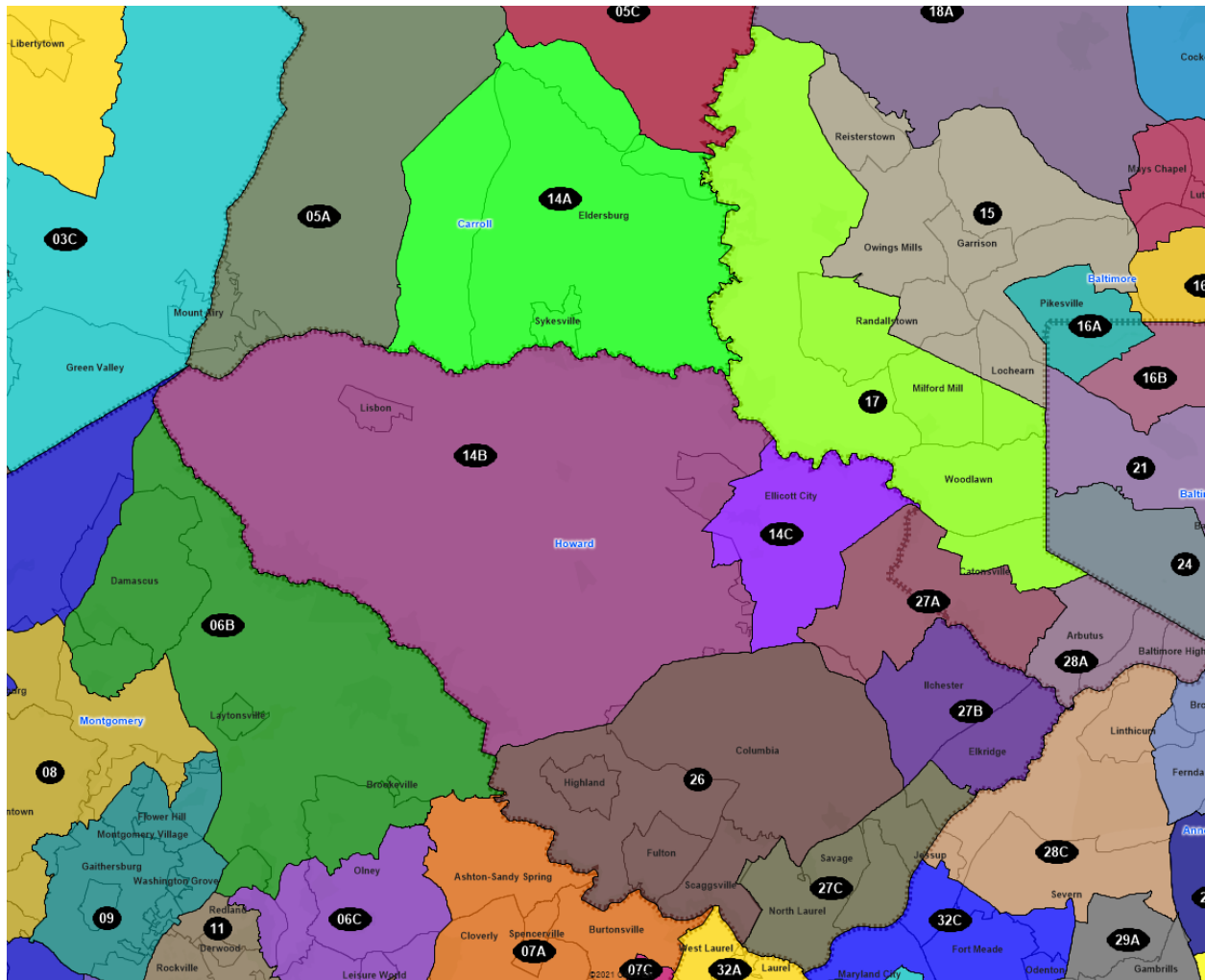
B. Montgomery County

Montgomery County fully contains eight Senate districts – Districts 6 through 13. Of those, only Districts 6, 7, and 13 are split into single-member Delegate districts. District 6 contains the more rural areas of Montgomery County, wrapping around the major urban/suburban areas. It also includes the municipalities of Poolesville, Barnesville, and Laytonsville. District 8 is centered in Germantown, District 9 in the municipality of Gaithersburg, District 10 in Potomac/Bethesda, District 11 in the municipality of Rockville and North Bethesda, and District 12 contains the municipalities of Takoma Park, North Chevy Chase, Somerset, Kensington and Garrett Park, as well as the areas of Chevy Chase and Silver Spring. Delegate District 13A is a compact district that includes the large Latino population of the Wheaton/Aspen Hill areas in a majority HVAP district; whereas 7C is a compact majority Black district positioned between Columbia Pike and the border with Prince George’s County.



C. Howard County

All of the Senate Districts in Howard County, except District 26, are split into three single-member Delegate districts. District 26 encompasses Columbia, as well as the suburbs to its west extending to the Prince George's County border. As mentioned earlier, Delegate District 14A is fully within Carroll County so the other two Delegate Districts from Senate District 14 cover northern Howard County. Like its analog in the LRAC plan, 14C captures most of Ellicott City and has the highest Asian Voting Age Population share (31%) of any district in the plan. Senate District 27 extends from Baltimore County to the border with Prince George's County, running along Howard County's border with Anne Arundel County. Delegate District 27A is the only Delegate district crossing the border between Howard County and Baltimore County.



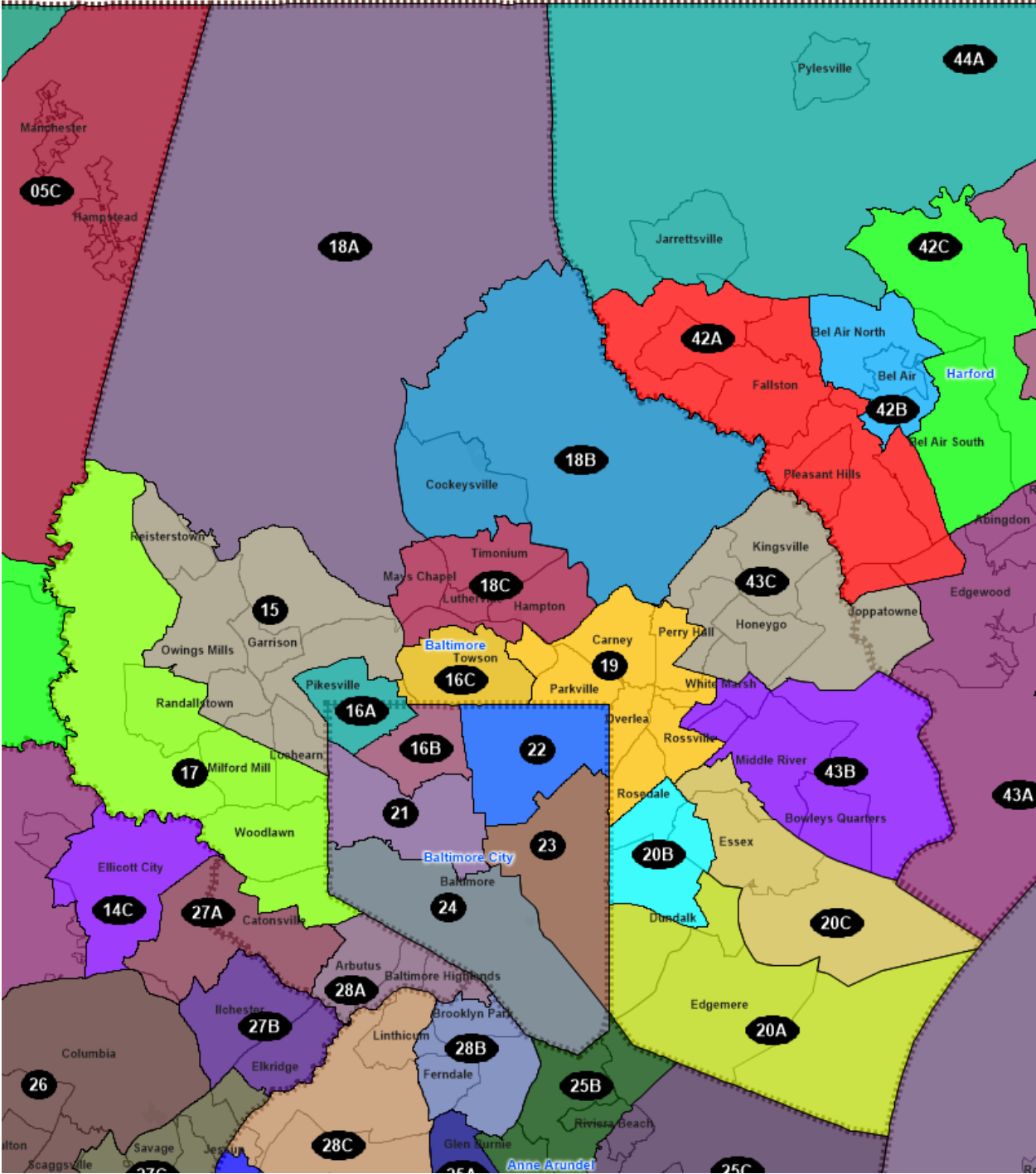
D. Baltimore City and Baltimore County

Baltimore City contains four full Senate Districts with one shared on its northern border with Baltimore County. In addition, in the crossover Senate District (District 16), one of the Delegate districts (16B) is fully within the city. The configuration of the Delegate District (16A) that crosses over into Baltimore County was heavily influenced by testimony the Commission received about the location of the Jewish Community on the City-County Border (which is split under the existing legislative districts). District 16A largely tracks the location of the “eruv” – a physically delineated boundary of religious significance to the Jewish community, which captures the area in Baltimore and Pikesville where observant Jews can carry objects on the Sabbath. In earlier version of the plan the “crossover” district went to the southeast into Dundalk. However, based on input from the community, arguing both that the community in Pikesville should be joined with the community just over the border into Baltimore and others who voiced great concern over joining Dundalk with southeastern Baltimore, the crossover district was moved to the northwest boundary. Each of the districts within the City of Baltimore, though, are compact, majority African American districts. The boundary for the districts in southern Baltimore is determined by the harbor, with Senate District 23 occupying the area northeast of the harbor and Senate District 24 running along the west. The border between District 23 and District 22 to its north generally follows Belair Road, and the border between 22 and the districts to its west follows North Charles Street.

Baltimore County contains a mixture of multimember and single-member delegate districts. Senate Districts 15 and 17 (majority Black districts just to the west of the city) and 19 (attached to the northeastern boundary of Baltimore City) are all three-member delegate districts, and the rest in the county are single-member delegate districts. As mentioned above, one delegate district (27A) crosses over from Howard County. Two other Senate districts cross the county boundary as well: Senate District 28 crosses into the southwest of Baltimore County from Anne Arundel, and Senate District 43 crosses the eastern border from Harford County. Senate District 18 covers the northern half of the land area of Baltimore County, but it is broken up into delegate districts that cover Cockeysville (18B) and Timonium, Hampton, and Mays Chapel (18C). 16C, just south of Senate District 18, covers most of Towson. The Commission had heard public testimony raising concerns in an earlier plan that had separated the neighborhood of Loch Hill from those to its west. 16C now unites all of those neighborhoods together – with the border between 16C and Senate District 19 following Loch Raven Road.

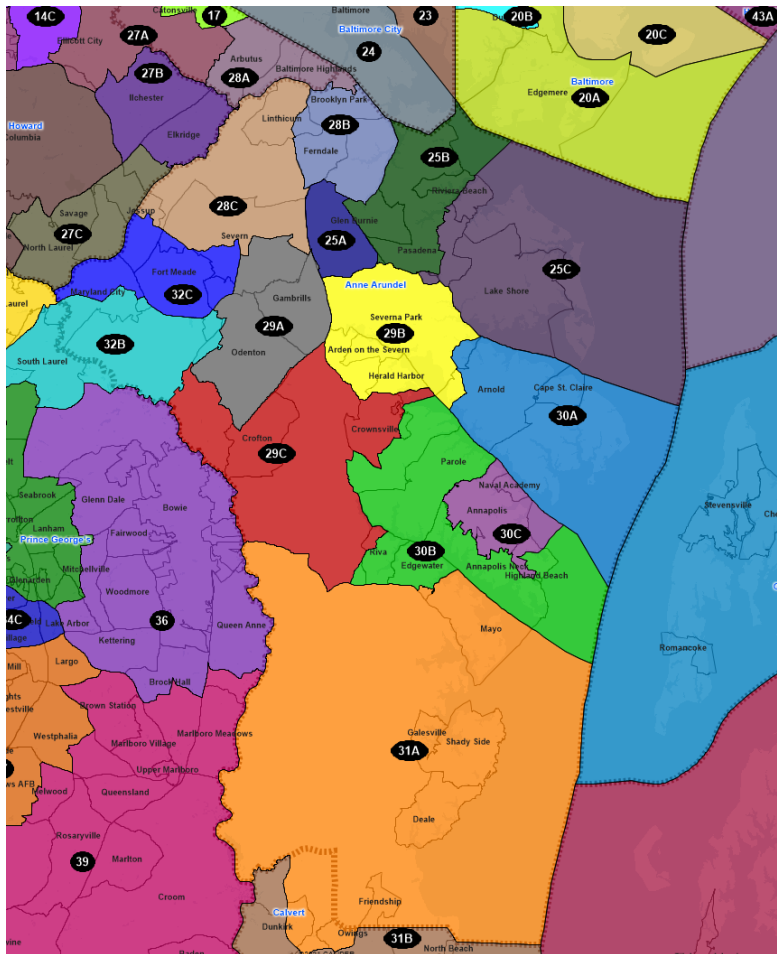
The districts in southeastern Baltimore County were the subject of considered public comment, with the Commission receiving over a hundred filed statements. The gist of those concerns was a desire to keep the areas of Edgemere, Dundalk, and Essex in one Senate district and not to cross over into Baltimore City. The Commission’s plan does exactly that. The component delegate districts have 20A as Edgemere and Dundalk, 20C as covering Essex, and

20B including parts of Dundalk, Essex and Rosedale. (None of these are incorporated municipalities.)



E. Anne Arundel County

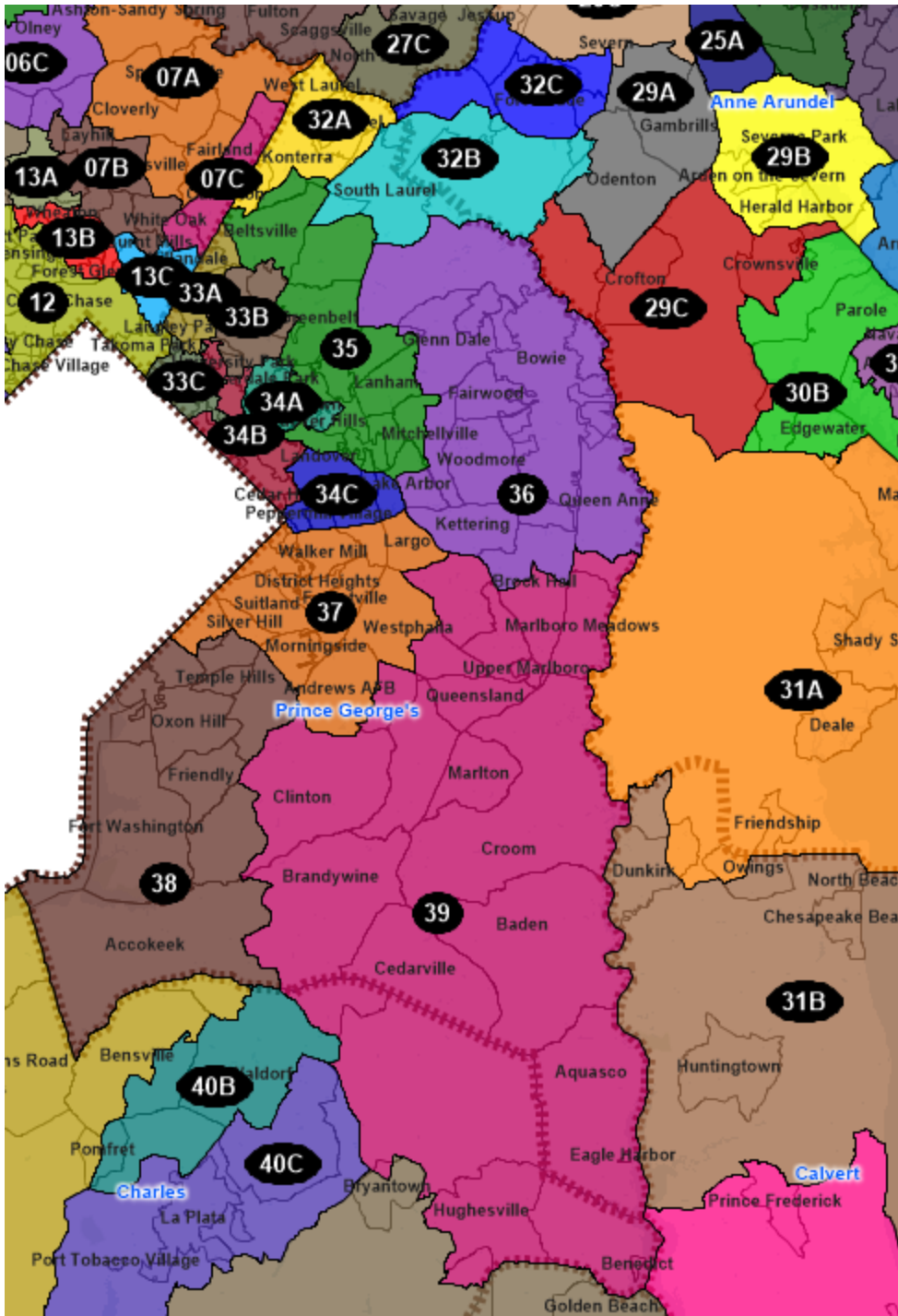
All of the Senate Districts in Anne Arundel County are broken up into three single-member delegate districts. Three districts cross over into Anne Arundel from other counties: one from the north (28 from Baltimore County), another from the South (31 from Calvert County), and a third from the west (32 from Prince George’s County). Given that Anne Arundel is in the center of the state, the number of crossovers is to be expected, as outlying districts converge to get adequate population to comply with one-person, one vote. Several of the borders of the Anne Arundel districts largely track the Census Designated Places in the county. For example, Senate District 30 is an Annapolis-based district with Delegate District 30C fully encapsulating the municipality of Annapolis, 30A covering the areas of Arnold and Cape St. Claire, and 30B containing the Annapolis suburbs. Senate District 25 starts at the Baltimore City border and covers the southern half of Glen Burnie extending eastward to Lake Shore on the Chesapeake Bay. Senate District 29 covers the center of the County, with the component delegate districts covering Odenton and Gambrills (29A), Severna Park, Arden on Severn, and Herald Harbor (29B), and Crownsville and Crofton (29C). One delegate district (32C) of the crossover district into Prince George’s County (Senate District 32) is drawn to cover all of Fort Meade.



F. Prince George's County

In the Commission's plan, Prince George's County is home to eight Senate districts (in whole or in part): five of those are three-member delegate districts and the remainder are broken into seven single-member delegate districts. Two Senate Districts – 32 and 39 – cross over the Prince George's County border: Delegate District 32A crosses from Anne Arundel, and 39 from Charles County. All of the districts in Prince George's County are majority African American, except Delegate District 33A (which is 64.9% Hispanic VAP), 33C (which is just over 50% Hispanic VAP), District 34A (which is 54.6% Hispanic VAP), and 33B and 32A (in which no racial group constitutes a majority).

The districts in Prince George's County were drawn largely around the municipalities, which are quite contorted in shape and overlapping. Despite the strange shapes of the underlying municipalities, the districts are generally compact and follow physical and political boundaries. Beginning with the crossover district (32) from Anne Arundel, Delegate District 32B encompasses South Laurel and Delegate District 32A captures most of the municipality of Laurel and West Laurel and Konterra. Senate District 33 in the northwest corner of the County (adjoining Montgomery County and Washington, DC) is broken into three distinct delegate districts. 33A is a compact district centered in Adelphi, 33B encompasses all of College Park, University Park, and Berwyn Heights, and 33C occupies the corner where the Montgomery County border meets the DC border. 34A is a compact district encompassing Landover Hills, Woodlawn, East Riverdale, Edmonston and most of Riverdale Park, and Bladensburg. 34B contains the municipalities of Cheverly, Colmar Manor, Cottage City and Fairmont Heights, as well as most of Hyattsville, Brentwood and Mount Rainier. 34C contains the municipality of Seat Pleasant and the areas of Peppermill Village, Summerfield and Landover. District 35 is a large multimember district with its core comprised of the municipalities of New Carrollton and Greenbelt. Likewise, District 36 encompasses all of Bowie. 37 and 38 cleave to the D.C. border, with 37 covering the municipalities of Capitol Heights, District Heights and Morningside (as well as Joint Base Andrews Naval Air Facility) and 38 extending from Glassmanor all the way to Accokeek (including the municipality of Forest Heights). 39 is the large multimember district that covers all of southeastern Prince George's County and crosses over into Charles County. It extends from the municipality of Upper Marlboro (and its surroundings) southward all the way to Hughesville in Charles County.



G. Southern Maryland

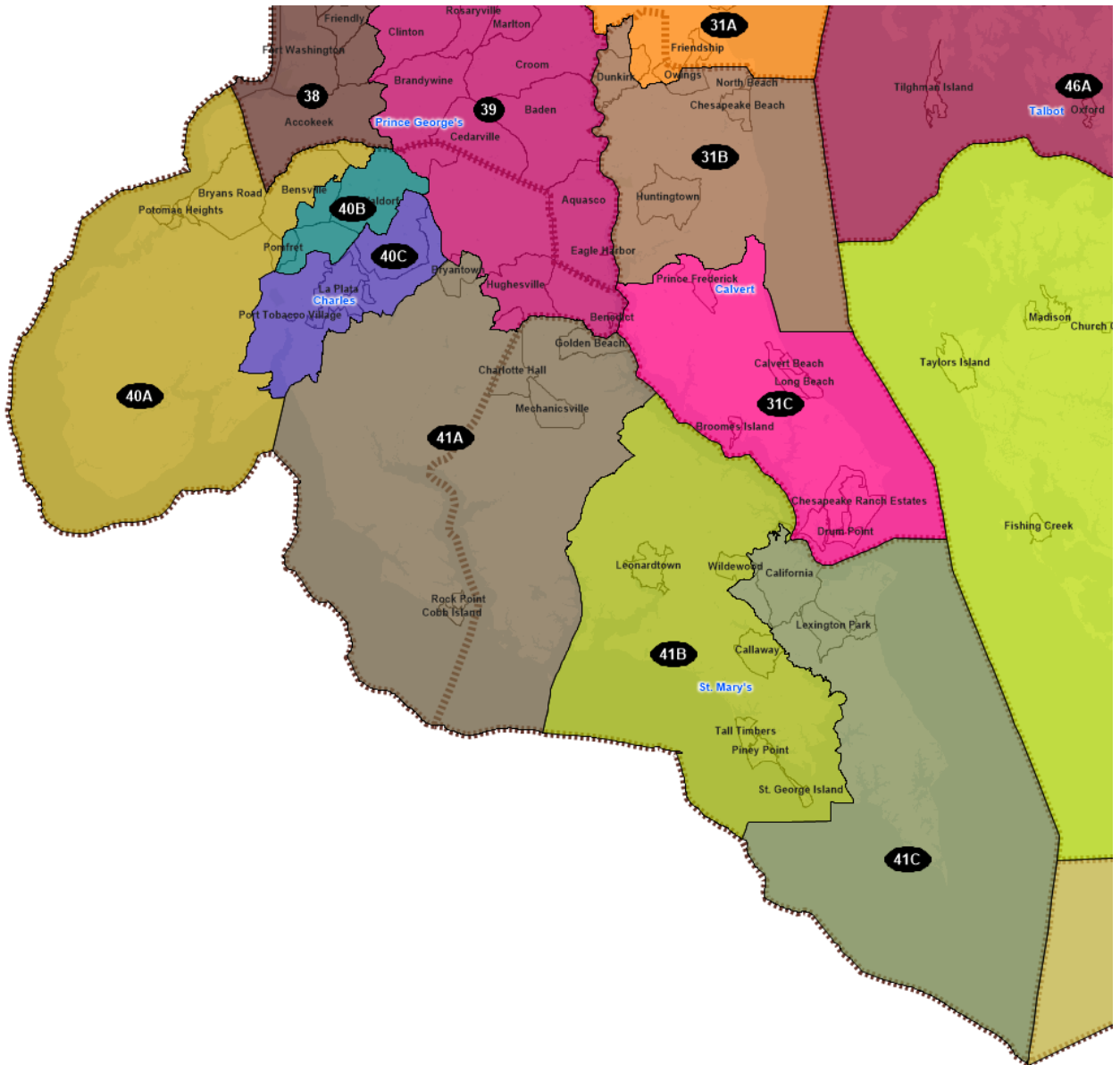
All of the districts in Southern Maryland (defined here as Charles, Calvert, and St. Mary's Counties) are broken into single-member Delegate districts. The Commission received spirited testimony regarding initial drafts of districts in Southern Maryland. Originally, in order to achieve population equality, District 31 dipped into St. Mary's County just over the Patuxent

River to access sufficient population. To address the public criticism for this move, the final plan does not have any crossover districts between Calvert and St. Mary's County. The decision to eliminate the crossover district into Calvert is what causes the crossover district (39) from Charles to Prince George's County, which is necessary to pick up the excess population caused by moving the Southern Maryland districts to the east.

The Districts in Charles County separate the county into east and west portions with the Delegate districts running north-south. Senate District 40, along with its component Delegate districts, is majority Black VAP. 40A occupies the westernmost portion of the county alongside the Potomac River, with 40C centered around the LaPlata municipality and 40B covering the geography in between.

Senate District 41 covers all of St. Mary's County and the remaining part of Charles County. The Delegate districts generally follow the geographic boundaries created by the three peninsulas in the south. District 41C stretches from the Patuxent River Airfield to the southernmost part of the county with the St. Mary's River Sanctuary and Route 471 as the border to the west. 41B then covers the next peninsula to the west, moving from St. George Island to the municipality of Leonardtown and up to the Patuxent River. 41A then covers the area straddling the Charles County – St. Mary County border.

Calvert County is too small to contain its own Senate district. District 31 covers all of Calvert County. The component Delegate districts proceed as a ladder up the county and into Anne Arundel County. Districts 31C and 31B almost fully cover Calvert with just a single precinct adjoined to 31A, which covers southern Anne Arundel County.



H. Harford County and Eastern Shore

All of the Senate districts in Harford County and the Eastern Shore are broken up into three single-member Delegate districts each. The topography of the Chesapeake Bay creates significant challenges to redistricting in this area. In particular, although water contiguity is inevitable for some parts of a plan in this region given the number of islands and inlets along the Chesapeake, travel contiguity (i.e., the ability to get from one part of a district to another through roads, bridges, or ferries) was one of the goals of the plan wherever possible.

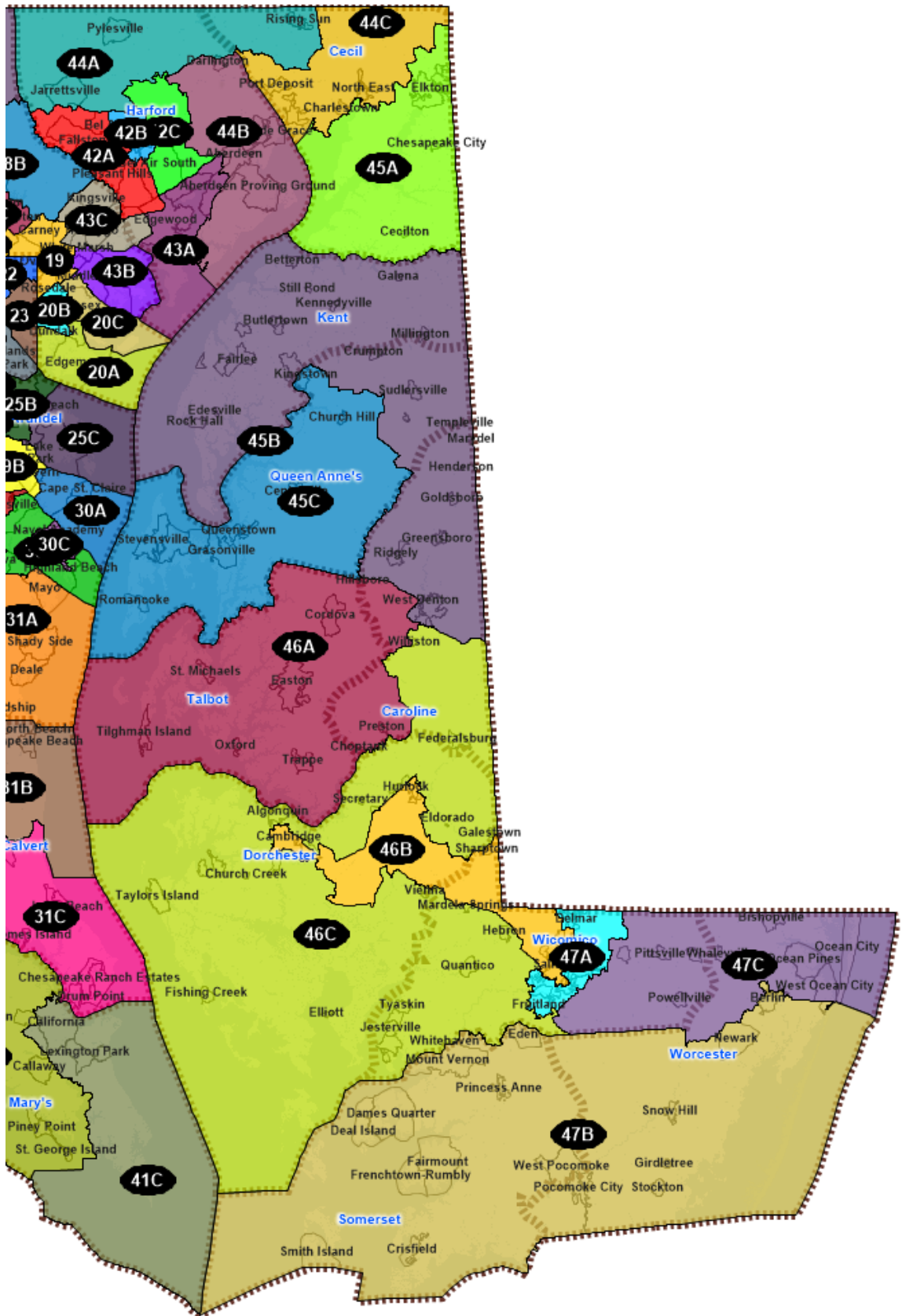
The Harford County districts can be easily explained by the geographical features there and the municipalities. Senate District 43 straddles the border between Baltimore County and Harford County, with Delegate District 43A fully contained within Harford and covering the areas along the Chesapeake (Edgewood, Abingdon, Riverside and Perryman). Senate District 42 is centered around Bel Air, with Delegate District 42A fully covering the municipality of Bel Air and 42A and 42C covering the areas to the west and east respectively. Senate District 44 stretches over the border between Harford and Cecil County, covering Aberdeen and the rural areas to the north. Delegate District 44B includes the municipalities of Aberdeen and Havre de Grace, and Delegate District 44C in Cecil includes the municipalities of Port Deposit, Perryville, Charlestown and North East.

Senate District 45 covers parts of Cecil and Caroline Counties and all of Kent and Queen Anne's County. Delegate District 45A is full within southern Cecil County, 45B covers all of Kent and the eastern portions of Queen Anne's and Caroline Counties. 45C covers all of western Queen Anne's County.

The Commission received some understandable criticism for the way districts split Caroline County. Under the plan, Caroline County is split between Senate Districts 45 and 46 and between Delegate Districts 45B, 46A, and 46C. Several forces lead to the splits. First, to maintain travel contiguity within Districts 45C and 46A, each of those districts begins at the Chesapeake and then moves east within their respective counties (Queen Anne's and Talbot). Therefore, there is nowhere else for Delegate District 45B to go, except into Caroline County. The same is true for 46C. If it were to move into and split Talbot County, the effect on 46A would be to convert it into a horseshoe-shaped district going from the Chesapeake over (or perhaps splitting) the municipality of Easton and then into southern Caroline County. Because Caroline County is landlocked, the districts surrounding it enter into Caroline County to achieve population equality because they have nowhere else to go. They are bounded either by county lines or by the Chesapeake. The Commission considered various options, but all were inferior to the final plan in some respect.

Senate District 46 is centered in Talbot and Dorchester Counties but contains portions of Caroline and Wicomico. 46A, as mentioned above is a Talbot County district that moves into Caroline just enough to pick up the requisite population while not splitting the municipality of Denton. The shape of the other component Delegate districts is determined by the need to create a majority-Black Delegate district stretching from Salisbury to Cambridge. As mentioned above, a predecessor to this district was created pursuant to a successful lawsuit under Section 2 Voting Rights Act. Nevertheless, the Commission's version of 46B is more compact than the existing configuration while maintaining a voting age population that is 54.1% Black. 46C wraps around 46B to cover the rest of Dorchester and into Caroline and Wicomico in order to achieve population equality.

Senate District 47 rounds out the plan and captures the southeast corner of Maryland. 47A contains the parts of Salisbury not in 46B, as well as the municipality of Fruitland. 47C covers the rest of Wicomico County, moving eastward all the way to Ocean City. Finally, 47B contains the municipality of Berlin (which determines its northern border) and then the rest of Worcester County and all of Somerset County, including the municipalities of Snow Hill, Pocomoke City, Princess Anne, and Crisfield.



Conclusion

The Commission's Legislative District Plan complies with all the applicable legal criteria and provides a reasoned basis for the districts even beyond what was legally required. It complies with one person one vote, avoids race-based vote dilution or use of race as a predominant factor, and complies with the Voting Rights Act. It also abides by the natural boundary, political subdivision, and compactness requirements of the Executive Order. It does all this while ignoring partisan or incumbency-related considerations.

Appendices: District Details

Table A1. MCRC Senate Plan Demographics

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
01	129,054	-2,338	-1.8%	87.2%	7.7%	1.8%	1.3%
02	129,713	-1,679	-1.3%	76.4%	13.0%	6.1%	2.5%
03	129,566	-1,826	-1.4%	83.6%	5.1%	5.5%	3.6%
04	128,867	-2,525	-1.9%	57.6%	17.7%	15.2%	8.4%
05	129,299	-2,093	-1.6%	87.5%	4.2%	3.7%	2.3%
06	133,628	2,236	1.7%	59.9%	13.1%	10.5%	15.2%
07	132,259	867	0.7%	28.2%	40.5%	15.8%	15.3%
08	133,738	2,346	1.8%	31.2%	24.5%	19.8%	24.1%
09	133,554	2,162	1.6%	31.8%	19.9%	28.6%	19.1%
10	133,258	1,866	1.4%	63.4%	5.9%	7.1%	22.2%
11	132,797	1,405	1.1%	49.6%	12.3%	15.7%	21.1%
12	133,506	2,114	1.6%	56.1%	21.8%	12.0%	9.3%
13	129,970	-1,422	-1.1%	24.9%	21.7%	41.1%	12.0%
14	130,563	-829	-0.6%	69.8%	7.0%	3.4%	18.2%
15	130,862	-530	-0.4%	32.9%	54.1%	7.0%	5.9%
16	133,517	2,125	1.6%	53.1%	34.4%	4.6%	7.0%
17	131,686	294	0.2%	25.6%	60.4%	5.3%	8.3%
18	133,568	2,176	1.7%	78.0%	7.9%	4.6%	8.0%
19	132,736	1,344	1.0%	55.1%	29.7%	5.3%	8.6%
20	133,533	2,141	1.6%	66.5%	19.3%	8.7%	2.6%
21	129,686	-1,706	-1.3%	22.6%	67.4%	3.7%	6.0%
22	128,957	-2,435	-1.9%	26.2%	64.3%	3.8%	5.3%
23	128,984	-2,408	-1.8%	28.6%	54.3%	13.4%	3.4%
24	128,878	-2,514	-1.9%	34.7%	53.3%	7.3%	3.9%
25	131,218	-174	-0.1%	66.9%	18.7%	7.3%	4.8%
26	129,420	-1,972	-1.5%	49.7%	25.1%	7.9%	16.4%
27	133,871	2,479	1.9%	48.1%	22.6%	8.2%	20.0%
28	133,732	2,340	1.8%	57.8%	21.6%	9.7%	9.1%
29	132,631	1,239	0.9%	73.0%	13.0%	5.4%	6.6%
30	131,110	-282	-0.2%	74.0%	11.3%	9.4%	3.6%

Figures in **bold** indicate majority-minority VAP and majority Black VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
31	133,471	2,079	1.6%	77.7%	13.0%	4.2%	2.5%
32	130,948	-444	-0.3%	23.7%	52.2%	15.7%	8.5%
33	130,594	-798	-0.6%	21.9%	27.8%	41.0%	9.9%
34	130,738	-654	-0.5%	10.2%	57.7%	29.6%	3.0%
35	133,072	1,680	1.3%	13.1%	57.4%	22.8%	7.3%
36	130,113	-1,279	-1.0%	18.7%	70.4%	6.3%	4.9%
37	129,598	-1,794	-1.4%	4.1%	87.1%	7.7%	1.6%
38	129,346	-2,046	-1.6%	7.4%	74.0%	13.6%	5.3%
39	130,955	-437	-0.3%	15.9%	74.9%	6.6%	2.7%
40	129,781	-1,611	-1.2%	31.4%	56.7%	6.0%	5.0%
41	129,120	-2,272	-1.7%	73.1%	15.9%	4.7%	4.0%
42	131,268	-124	-0.1%	82.5%	7.0%	3.8%	4.8%
43	132,707	1,315	1.0%	60.1%	26.8%	5.2%	6.2%
44	133,548	2,156	1.6%	81.7%	9.6%	3.9%	2.1%
45	133,417	2,025	1.5%	80.1%	10.5%	5.4%	1.9%
46	129,613	-1,779	-1.4%	65.7%	25.7%	5.4%	1.7%
47	132,953	1,561	1.2%	71.4%	19.8%	4.1%	2.9%

Figures in **bold** indicate majority-minority VAP and majority Black VAP districts.

Table A2. MCRC House Plan Demographics

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
01A	42,775	-1,022	-2.3%	93.5%	2.6%	1.0%	0.9%
01B	43,158	-639	-1.5%	84.8%	10.3%	1.4%	1.4%
01C	43,121	-676	-1.5%	83.6%	10.0%	3.0%	1.5%
02A	43,882	85	0.2%	66.2%	21.4%	7.9%	2.7%
02B	42,923	-874	-2.0%	80.5%	8.6%	6.0%	3.0%
02C	42,908	-889	-2.0%	82.0%	9.4%	4.4%	1.9%
03A	42,750	-1,047	-2.4%	80.7%	6.4%	6.7%	4.4%
03B	42,994	-803	-1.8%	86.6%	4.6%	4.5%	2.0%
03C	43,822	25	0.1%	83.5%	4.3%	5.3%	4.4%
04A	42,676	-1,121	-2.6%	64.3%	17.6%	10.4%	6.4%
04B	43,025	-772	-1.8%	47.4%	21.3%	23.7%	6.8%
04C	43,166	-631	-1.4%	61.0%	14.1%	11.3%	12.2%
05A	42,619	-1,178	-2.7%	89.3%	3.3%	3.3%	1.8%
05B	43,206	-591	-1.3%	83.1%	6.6%	5.2%	3.1%
05C	43,474	-323	-0.7%	90.2%	2.8%	2.6%	1.9%
06A	44,179	382	0.9%	60.0%	9.4%	9.2%	20.3%
06B	45,057	1,260	2.9%	64.1%	11.1%	11.4%	11.8%
06C	44,392	595	1.4%	55.8%	18.5%	10.9%	13.8%
07A	45,092	1,295	3.0%	35.7%	30.4%	14.6%	18.5%
07B	44,082	285	0.7%	33.6%	33.9%	17.5%	14.5%
07C	43,085	-712	-1.6%	14.1%	58.8%	15.4%	12.7%
08	133,738	2,347	1.8%	31.2%	24.5%	19.8%	24.1%
	133,738	2,347	1.8%	31.2%	24.5%	19.8%	24.1%
	133,738	2,347	1.8%	31.2%	24.5%	19.8%	24.1%
09	133,554	2,163	1.6%	31.8%	19.9%	28.6%	19.1%
	133,554	2,163	1.6%	31.8%	19.9%	28.6%	19.1%
	133,554	2,163	1.6%	31.8%	19.9%	28.6%	19.1%
10	133,258	1,867	1.4%	63.4%	5.9%	7.1%	22.2%
	133,258	1,867	1.4%	63.4%	5.9%	7.1%	22.2%
	133,258	1,867	1.4%	63.4%	5.9%	7.1%	22.2%
11	132,797	1,406	1.1%	49.6%	12.3%	15.7%	21.1%
	132,797	1,406	1.1%	49.6%	12.3%	15.7%	21.1%
	132,797	1,406	1.1%	49.6%	12.3%	15.7%	21.1%
12	133,506	2,115	1.6%	56.1%	21.8%	12.0%	9.3%
	133,506	2,115	1.6%	56.1%	21.8%	12.0%	9.3%
	133,506	2,115	1.6%	56.1%	21.8%	12.0%	9.3%

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
13A	44,650	853	1.9%	14.1%	17.6%	55.2%	11.7%
13B	42,775	-1,022	-2.3%	33.6%	23.0%	30.3%	12.9%
13C	42,545	-1,252	-2.9%	27.0%	24.7%	37.5%	11.2%
14A	43,341	-456	-1.0%	85.3%	5.3%	3.3%	4.1%
14B	43,077	-720	-1.6%	68.9%	6.6%	3.0%	19.9%
14C	44,145	348	0.8%	54.7%	9.1%	3.9%	31.1%
15	130,862	-529	-0.4%	32.9%	54.1%	7.0%	5.9%
	130,862	-529	-0.4%	32.9%	54.1%	7.0%	5.9%
	130,862	-529	-0.4%	32.9%	54.1%	7.0%	5.9%
16A	44,863	1,066	2.4%	58.2%	31.0%	5.3%	3.7%
16B	43,667	-130	-0.3%	34.9%	51.5%	3.7%	9.5%
16C	44,987	1,190	2.7%	66.3%	20.7%	5.0%	7.5%
17	131,686	295	0.2%	25.6%	60.4%	5.3%	8.3%
	131,686	295	0.2%	25.6%	60.4%	5.3%	8.3%
	131,686	295	0.2%	25.6%	60.4%	5.3%	8.3%
18A	44,650	853	1.9%	85.9%	4.8%	2.7%	4.7%
18B	44,863	1,066	2.4%	70.5%	12.0%	7.3%	8.7%
18C	44,055	258	0.6%	77.5%	7.0%	3.8%	10.7%
19	132,736	1,345	1.0%	55.1%	29.7%	5.3%	8.6%
	132,736	1,345	1.0%	55.1%	29.7%	5.3%	8.6%
	132,736	1,345	1.0%	55.1%	29.7%	5.3%	8.6%
20A	44,781	984	2.2%	72.0%	15.7%	7.1%	2.2%
20B	44,512	715	1.6%	70.0%	10.6%	13.0%	3.0%
20C	44,240	443	1.0%	57.3%	31.8%	6.0%	2.6%
21	129,686	-1,705	-1.3%	22.6%	67.4%	3.7%	6.0%
	129,686	-1,705	-1.3%	22.6%	67.4%	3.7%	6.0%
	129,686	-1,705	-1.3%	22.6%	67.4%	3.7%	6.0%
22	128,957	-2,434	-1.9%	26.2%	64.3%	3.8%	5.3%
	128,957	-2,434	-1.9%	26.2%	64.3%	3.8%	5.3%
	128,957	-2,434	-1.9%	26.2%	64.3%	3.8%	5.3%
23	128,984	-2,407	-1.8%	28.6%	54.3%	13.4%	3.4%
	128,984	-2,407	-1.8%	28.6%	54.3%	13.4%	3.4%
	128,984	-2,407	-1.8%	28.6%	54.3%	13.4%	3.4%
24	128,878	-2,513	-1.9%	34.7%	53.3%	7.3%	3.9%
	128,878	-2,513	-1.9%	34.7%	53.3%	7.3%	3.9%
	128,878	-2,513	-1.9%	34.7%	53.3%	7.3%	3.9%

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
25A	42,595	-1,202	-2.7%	51.2%	30.2%	10.9%	6.2%
25B	43,906	109	0.2%	62.1%	21.8%	8.2%	5.8%
25C	44,717	920	2.1%	86.3%	5.0%	3.1%	2.6%
26	129,420	-1,971	-1.5%	49.7%	25.1%	7.9%	16.4%
	129,420	-1,971	-1.5%	49.7%	25.1%	7.9%	16.4%
	129,420	-1,971	-1.5%	49.7%	25.1%	7.9%	16.4%
27A	44,514	717	1.6%	61.3%	12.0%	4.0%	21.3%
27B	44,371	574	1.3%	52.1%	17.8%	9.0%	20.1%
27C	44,986	1,189	2.7%	30.6%	38.2%	11.8%	18.7%
28A	44,509	712	1.6%	60.0%	16.9%	11.2%	9.7%
28B	44,810	1,013	2.3%	63.3%	20.1%	9.1%	5.1%
28C	44,413	616	1.4%	50.1%	27.4%	8.8%	12.6%
29A	45,080	1,283	2.9%	62.2%	20.6%	7.2%	8.1%
29B	44,034	237	0.5%	85.6%	4.6%	3.2%	4.6%
29C	43,517	-280	-0.6%	71.7%	13.6%	5.9%	7.2%
30A	44,499	702	1.6%	82.4%	6.2%	5.1%	4.0%
30B	43,019	-778	-1.8%	82.3%	6.7%	5.7%	3.4%
30C	43,592	-205	-0.5%	57.0%	21.0%	17.6%	3.4%
31A	44,703	906	2.1%	81.4%	8.6%	5.3%	2.2%
31B	44,137	340	0.8%	77.9%	12.9%	3.6%	3.1%
31C	44,631	834	1.9%	73.8%	17.6%	3.7%	2.3%
32A	43,759	-38	-0.1%	22.7%	47.7%	18.0%	11.4%
32B	43,421	-376	-0.9%	20.6%	53.0%	20.2%	6.5%
32C	43,768	-29	-0.1%	27.5%	55.7%	9.3%	7.5%
33A	43,333	-464	-1.1%	5.8%	25.4%	64.9%	4.9%
33B	44,134	337	0.8%	48.5%	16.9%	14.0%	20.2%
33C	43,127	-670	-1.5%	5.5%	43.3%	50.1%	2.6%
34A	44,157	360	0.8%	7.1%	36.1%	54.6%	2.8%
34B	43,927	130	0.3%	20.6%	52.5%	22.5%	4.8%
34C	42,654	-1,143	-2.6%	2.1%	84.2%	13.0%	1.4%
35	133,072	1,681	1.3%	13.1%	57.4%	22.8%	7.3%
	133,072	1,681	1.3%	13.1%	57.4%	22.8%	7.3%
	133,072	1,681	1.3%	13.1%	57.4%	22.8%	7.3%
36	130,113	-1,278	-1.0%	18.7%	70.4%	6.3%	4.9%
	130,113	-1,278	-1.0%	18.7%	70.4%	6.3%	4.9%
	130,113	-1,278	-1.0%	18.7%	70.4%	6.3%	4.9%

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
37	129,598	-1,793	-1.4%	4.1%	87.1%	7.7%	1.6%
	129,598	-1,793	-1.4%	4.1%	87.1%	7.7%	1.6%
	129,598	-1,793	-1.4%	4.1%	87.1%	7.7%	1.6%
38	129,346	-2,045	-1.6%	7.4%	74.0%	13.6%	5.3%
	129,346	-2,045	-1.6%	7.4%	74.0%	13.6%	5.3%
	129,346	-2,045	-1.6%	7.4%	74.0%	13.6%	5.3%
39	130,955	-436	-0.3%	15.9%	74.9%	6.6%	2.7%
	130,955	-436	-0.3%	15.9%	74.9%	6.6%	2.7%
	130,955	-436	-0.3%	15.9%	74.9%	6.6%	2.7%
40A	42,681	-1,116	-2.5%	34.5%	53.8%	5.5%	4.9%
40B	44,137	340	0.8%	24.4%	62.1%	7.2%	5.9%
40C	42,963	-834	-1.9%	35.5%	54.1%	5.2%	4.3%
41A	42,692	-1,105	-2.5%	80.1%	12.6%	2.6%	1.7%
41B	42,893	-904	-2.1%	81.4%	8.6%	3.5%	4.1%
41C	43,535	-262	-0.6%	58.1%	26.1%	7.8%	6.2%
42A	42,711	-1,086	-2.5%	82.0%	7.7%	3.7%	4.7%
42B	44,650	853	1.9%	84.9%	5.3%	3.7%	4.2%
42C	43,907	110	0.3%	80.6%	7.9%	3.9%	5.5%
43A	44,587	790	1.8%	47.9%	39.9%	7.0%	3.7%
43B	44,027	230	0.5%	58.9%	28.3%	5.4%	5.6%
43C	44,093	296	0.7%	73.0%	12.8%	3.2%	9.1%
44A	44,366	569	1.3%	91.9%	1.7%	2.2%	1.2%
44B	44,383	586	1.3%	68.1%	20.4%	5.9%	3.5%
44C	44,799	1,002	2.3%	85.2%	6.6%	3.6%	1.5%
45A	44,537	740	1.7%	77.5%	12.4%	5.4%	2.4%
45B	44,583	786	1.8%	76.6%	12.8%	7.2%	1.5%
45C	44,297	500	1.1%	86.2%	6.3%	3.5%	1.9%
46A	43,173	-624	-1.4%	78.8%	11.9%	6.2%	1.6%
46B	42,652	-1,145	-2.6%	36.2%	54.1%	7.2%	1.8%
46C	43,788	-9	0.0%	79.1%	14.0%	3.0%	1.8%
47A	44,637	840	1.9%	64.8%	22.1%	6.1%	5.3%
47B	44,408	611	1.4%	60.7%	32.8%	3.4%	1.5%
47C	43,908	111	0.3%	88.9%	4.1%	3.0%	2.1%

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

Table A3. LRAC Senate Plan Demographics

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
01	132,581	1,189	0.9%	88.3%	6.4%	2.1%	1.2%
02	128,391	-3,001	-2.3%	75.9%	14.0%	5.6%	2.6%
03	126,161	-5,231	-4.0%	57.8%	18.3%	15.3%	7.5%
04	126,536	-4,856	-3.7%	82.5%	4.9%	5.7%	4.6%
05	133,491	2,099	1.6%	85.9%	5.0%	4.0%	3.0%
06	131,282	-110	-0.1%	66.5%	19.4%	8.7%	2.6%
07	129,596	-1,796	-1.4%	77.5%	10.7%	3.2%	6.5%
08	128,487	-2,905	-2.2%	50.8%	33.4%	6.0%	8.5%
09	130,281	-1,111	-0.8%	57.6%	9.4%	5.2%	26.5%
10	126,173	-5,219	-4.0%	32.5%	54.2%	6.0%	6.9%
11	126,486	-4,906	-3.7%	57.9%	28.9%	5.0%	7.5%
12	131,907	515	0.4%	51.8%	25.8%	8.9%	12.3%
13	131,054	-338	-0.3%	44.1%	27.7%	9.9%	17.4%
14	127,947	-3,445	-2.6%	43.5%	28.5%	11.9%	15.6%
15	130,414	-978	-0.7%	47.7%	13.6%	9.8%	27.9%
16	132,983	1,591	1.2%	68.3%	6.5%	8.3%	15.4%
17	134,714	3,322	2.5%	41.7%	14.9%	20.5%	22.0%
18	127,768	-3,624	-2.8%	45.2%	16.0%	25.7%	12.3%
19	128,638	-2,754	-2.1%	37.7%	21.0%	24.7%	15.3%
20	130,259	-1,133	-0.9%	33.0%	35.5%	21.9%	9.7%
21	133,497	2,105	1.6%	34.4%	32.1%	19.7%	13.5%
22	136,451	5,059	3.9%	15.5%	48.9%	29.2%	6.9%
23	135,983	4,591	3.5%	19.9%	68.3%	7.5%	4.6%
24	135,504	4,112	3.1%	5.9%	81.0%	10.7%	3.1%
25	136,069	4,677	3.6%	5.1%	85.6%	7.7%	2.1%
26	135,704	4,312	3.3%	7.1%	75.2%	13.0%	5.0%
27	136,291	4,899	3.7%	50.5%	39.8%	5.1%	3.1%
28	136,503	5,111	3.9%	38.3%	50.3%	5.5%	4.8%
29	135,606	4,214	3.2%	73.0%	16.0%	4.7%	3.9%
30	126,540	-4,852	-3.7%	73.2%	12.4%	9.6%	3.0%

Figures in **bold** indicate majority-minority VAP and majority Black VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
31	130,883	-509	-0.4%	77.9%	10.2%	4.9%	4.5%
32	135,064	3,672	2.8%	43.8%	35.9%	10.7%	8.6%
33	131,878	486	0.4%	72.9%	13.8%	5.7%	5.7%
34	131,935	543	0.4%	63.6%	24.4%	6.0%	4.4%
35	134,794	3,402	2.6%	87.2%	4.7%	2.9%	2.5%
36	134,994	3,602	2.7%	81.0%	9.6%	5.3%	1.8%
37	135,428	4,036	3.1%	66.8%	24.7%	5.3%	1.8%
38	134,250	2,858	2.2%	70.7%	20.5%	4.2%	2.9%
39	133,983	2,591	2.0%	28.2%	24.5%	26.7%	20.1%
40	126,162	-5,230	-4.0%	23.5%	67.2%	4.0%	4.9%
41	126,149	-5,243	-4.0%	25.7%	66.3%	3.8%	3.7%
42	127,603	-3,789	-2.9%	81.2%	7.2%	4.2%	5.5%
43	127,154	-4,238	-3.2%	38.0%	48.2%	4.8%	8.8%
44	132,982	1,590	1.2%	38.5%	44.4%	7.0%	9.1%
45	126,182	-5,210	-4.0%	17.4%	75.1%	5.2%	1.9%
46	126,149	-5,243	-4.0%	51.7%	26.1%	15.0%	6.1%
47	136,516	5,124	3.9%	7.0%	45.9%	44.9%	3.1%

Figures in **bold** indicate majority-minority VAP and majority Black VAP districts.

Table A4. LRAC House Plan Demographics

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
01A	42,868	-929	-2.1	93.4	2.6	1.0	1.0
01B	44,733	936	2.1	85.3	9.9	1.4	1.3
01C	44,980	1,183	2.7	86.5	6.3	3.9	1.4
02A	84,500	-3,094	-3.5	80.3	10.7	4.5	2.5
	84,500	-3,094	-3.5	80.3	10.7	4.5	2.5
02B	43,891	94	0.2	66.2	21.3	8.0	2.8
03	126,161	-5,230	-4.0	57.8	18.3	15.3	7.5
	126,161	-5,230	-4.0	57.8	18.3	15.3	7.5
	126,161	-5,230	-4.0	57.8	18.3	15.3	7.5
04	126,536	-4,855	-3.7	82.5	4.9	5.7	4.6
	126,536	-4,855	-3.7	82.5	4.9	5.7	4.6
	126,536	-4,855	-3.7	82.5	4.9	5.7	4.6
05	133,491	2,100	1.6	85.9	5.0	4.0	3.0
	133,491	2,100	1.6	85.9	5.0	4.0	3.0
	133,491	2,100	1.6	85.9	5.0	4.0	3.0
06	131,282	-109	-0.1	66.5	19.4	8.7	2.6
	131,282	-109	-0.1	66.5	19.4	8.7	2.6
	131,282	-109	-0.1	66.5	19.4	8.7	2.6
07A	84,123	-3,471	-4.0	74.5	12.5	3.1	7.8
	84,123	-3,471	-4.0	74.5	12.5	3.1	7.8
07B	45,473	1,676	3.8	83.2	7.2	3.4	4.0
08	128,487	-2,904	-2.2	50.8	33.4	6.0	8.5
	128,487	-2,904	-2.2	50.8	33.4	6.0	8.5
	128,487	-2,904	-2.2	50.8	33.4	6.0	8.5
09A	85,573	-2,021	-2.3	61.0	8.6	5.6	23.5
	85,573	-2,021	-2.3	61.0	8.6	5.6	23.5
09B	44,708	911	2.1	51.3	11.0	4.3	32.2
10	126,173	-5,218	-4.0	32.5	54.2	6.0	6.9
	126,173	-5,218	-4.0	32.5	54.2	6.0	6.9
	126,173	-5,218	-4.0	32.5	54.2	6.0	6.9
11A	42,367	-1,430	-3.3	34.0	51.2	7.3	7.5
11B	84,119	-3,475	-4.0	69.9	17.7	3.8	7.5
	84,119	-3,475	-4.0	69.9	17.7	3.8	7.5
12A	86,473	-1,121	-1.3	50.6	25.2	7.7	15.7
	86,473	-1,121	-1.3	50.6	25.2	7.7	15.7
12B	45,434	1,637	3.7	53.9	27.0	11.4	5.7

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
13	131,054	-337	-0.3	44.1	27.7	9.9	17.4
	131,054	-337	-0.3	44.1	27.7	9.9	17.4
	131,054	-337	-0.3	44.1	27.7	9.9	17.4
14	127,947	-3,444	-2.6	43.5	28.5	11.9	15.6
	127,947	-3,444	-2.6	43.5	28.5	11.9	15.6
	127,947	-3,444	-2.6	43.5	28.5	11.9	15.6
15	130,414	-977	-0.7	47.7	13.6	9.8	27.9
	130,414	-977	-0.7	47.7	13.6	9.8	27.9
	130,414	-977	-0.7	47.7	13.6	9.8	27.9
16	132,983	1,592	1.2	68.3	6.5	8.3	15.4
	132,983	1,592	1.2	68.3	6.5	8.3	15.4
	132,983	1,592	1.2	68.3	6.5	8.3	15.4
17	134,714	3,323	2.5	41.7	14.9	20.5	22.0
	134,714	3,323	2.5	41.7	14.9	20.5	22.0
	134,714	3,323	2.5	41.7	14.9	20.5	22.0
18	127,768	-3,623	-2.8	45.2	16.0	25.7	12.3
	127,768	-3,623	-2.8	45.2	16.0	25.7	12.3
	127,768	-3,623	-2.8	45.2	16.0	25.7	12.3
19	128,638	-2,753	-2.1	37.7	21.0	24.7	15.3
	128,638	-2,753	-2.1	37.7	21.0	24.7	15.3
	128,638	-2,753	-2.1	37.7	21.0	24.7	15.3
20	130,259	-1,132	-0.9	33.0	35.5	21.9	9.7
	130,259	-1,132	-0.9	33.0	35.5	21.9	9.7
	130,259	-1,132	-0.9	33.0	35.5	21.9	9.7
21	133,497	2,106	1.6	34.4	32.1	19.7	13.5
	133,497	2,106	1.6	34.4	32.1	19.7	13.5
	133,497	2,106	1.6	34.4	32.1	19.7	13.5
22	136,451	5,060	3.9	15.5	48.9	29.2	6.9
	136,451	5,060	3.9	15.5	48.9	29.2	6.9
	136,451	5,060	3.9	15.5	48.9	29.2	6.9
23	135,983	4,592	3.5	19.9	68.3	7.5	4.6
	135,983	4,592	3.5	19.9	68.3	7.5	4.6
	135,983	4,592	3.5	19.9	68.3	7.5	4.6
24	135,504	4,113	3.1	5.9	81.0	10.7	3.1
	135,504	4,113	3.1	5.9	81.0	10.7	3.1
	135,504	4,113	3.1	5.9	81.0	10.7	3.1

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
25	136,069	4,678	3.6	5.1	85.6	7.7	2.1
	136,069	4,678	3.6	5.1	85.6	7.7	2.1
	136,069	4,678	3.6	5.1	85.6	7.7	2.1
26	135,704	4,313	3.3	7.1	75.2	13.0	5.0
	135,704	4,313	3.3	7.1	75.2	13.0	5.0
	135,704	4,313	3.3	7.1	75.2	13.0	5.0
27A	45,471	1,674	3.8	24.1	64.9	6.9	3.5
27B	45,304	1,507	3.4	51.8	38.9	5.0	2.9
27C	45,516	1,719	3.9	75.5	15.7	3.5	2.7
28	136,503	5,112	3.9	38.3	50.3	5.5	4.8
	136,503	5,112	3.9	38.3	50.3	5.5	4.8
	136,503	5,112	3.9	38.3	50.3	5.5	4.8
29A	45,464	1,667	3.8	82.1	10.5	2.6	2.2
29B	44,663	866	2.0	58.0	26.0	7.9	6.4
29C	45,479	1,682	3.8	78.5	11.8	3.7	3.3
30A	84,165	-3,429	-3.9	69.3	14.4	11.5	3.4
30A	84,165	-3,429	-3.9	69.3	14.4	11.5	3.4
30B	42,375	-1,422	-3.2	81.3	8.3	5.7	2.2
31	130,883	-508	-0.4	77.9	10.2	4.9	4.5
	130,883	-508	-0.4	77.9	10.2	4.9	4.5
	130,883	-508	-0.4	77.9	10.2	4.9	4.5
32	135,064	3,673	2.8	43.8	35.9	10.7	8.6
	135,064	3,673	2.8	43.8	35.9	10.7	8.6
	135,064	3,673	2.8	43.8	35.9	10.7	8.6
33A	42,189	-1,608	-3.7	54.9	28.2	7.4	8.1
33B	45,469	1,672	3.8	80.3	8.1	4.8	4.8
33C	44,220	423	1.0	82.5	5.9	5.0	4.4
34A	86,564	-1,030	-1.2	55.5	32.4	6.6	3.8
34A	86,564	-1,030	-1.2	55.5	32.4	6.6	3.8
34B	45,371	1,574	3.6	78.8	9.4	4.7	5.4
35A	89,285	1,691	1.9	87.9	4.0	2.7	3.0
35A	89,285	1,691	1.9	87.9	4.0	2.7	3.0
35B	45,509	1,712	3.9	85.7	6.3	3.4	1.6
36	134,994	3,603	2.7	81.0	9.6	5.3	1.8
	134,994	3,603	2.7	81.0	9.6	5.3	1.8
	134,994	3,603	2.7	81.0	9.6	5.3	1.8

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

District	Population	Deviation	Deviation %	% Non-Hispanic White VAP	% Black VAP	% Hispanic VAP	% Asian VAP
37A	44,467	670	1.5	38.6	51.9	7.0	1.7
37B	90,961	3,367	3.8	79.5	12.5	4.5	1.8
	90,961	3,367	3.8	79.5	12.5	4.5	1.8
38A	45,483	1,686	3.8	61.6	31.9	3.3	1.6
38B	44,005	208	0.5	62.1	24.7	6.3	5.4
38C	44,762	965	2.2	88.3	4.7	3.1	1.9
39	133,983	2,592	2.0	28.2	24.5	26.7	20.1
	133,983	2,592	2.0	28.2	24.5	26.7	20.1
	133,983	2,592	2.0	28.2	24.5	26.7	20.1
40	126,162	-5,229	-4.0	23.5	67.2	4.0	4.9
	126,162	-5,229	-4.0	23.5	67.2	4.0	4.9
	126,162	-5,229	-4.0	23.5	67.2	4.0	4.9
41	126,149	-5,242	-4.0	25.7	66.3	3.8	3.7
	126,149	-5,242	-4.0	25.7	66.3	3.8	3.7
	126,149	-5,242	-4.0	25.7	66.3	3.8	3.7
42A	42,855	-942	-2.2	89.1	2.5	2.3	3.9
42B	42,068	-1,729	-3.9	64.3	16.4	7.7	10.6
42C	42,680	-1,117	-2.6	90.1	2.8	2.6	2.0
43A	84,937	-2,657	-3.0	25.9	60.1	4.4	9.3
43A	84,937	-2,657	-3.0	25.9	60.1	4.4	9.3
43B	42,217	-1,580	-3.6	62.4	23.9	5.5	7.7
44A	45,093	1,296	3.0	54.8	21.7	10.5	11.4
44B	87,889	295	0.3	30.5	55.5	5.3	8.1
44B	87,889	295	0.3	30.5	55.5	5.3	8.1
45	126,182	-5,209	-4.0	17.4	75.1	5.2	1.9
	126,182	-5,209	-4.0	17.4	75.1	5.2	1.9
	126,182	-5,209	-4.0	17.4	75.1	5.2	1.9
46	126,149	-5,242	-4.0	51.7	26.1	15.0	6.1
	126,149	-5,242	-4.0	51.7	26.1	15.0	6.1
	126,149	-5,242	-4.0	51.7	26.1	15.0	6.1
47A	91,043	3,449	3.9	7.8	54.7	35.9	2.5
47A	91,043	3,449	3.9	7.8	54.7	35.9	2.5
47B	45,473	1,676	3.8	5.3	28.2	63.3	4.4

Figures in **bold** indicate majority-minority VAP, majority Black VAP, and majority Hispanic VAP districts.

Table A5. MCRC Senate Plan Compactness Statistics

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
01	0.17	2.35	2.92	0.12	0.84	0.48	0.73	0.28	377.48
02	0.36	1.78	1.97	0.26	0.80	0.65	0.41	0.29	116.43
03	0.51	1.98	2.24	0.20	0.48	0.78	0.33	0.25	184.09
04	0.38	1.74	1.94	0.27	0.90	0.75	0.71	0.30	56.98
05	0.45	1.53	1.72	0.34	0.81	0.75	0.45	0.51	119.51
06	0.44	2.01	2.21	0.21	0.25	0.70	0.17	0.27	130.01
07	0.56	1.55	1.73	0.33	0.82	0.81	0.51	0.55	45.28
08	0.49	1.77	2.01	0.25	0.72	0.69	0.52	0.33	42.52
09	0.49	1.46	1.52	0.43	0.90	0.83	0.64	0.46	25.79
10	0.41	1.51	1.61	0.38	0.82	0.79	0.38	0.36	41.75
11	0.48	1.59	1.67	0.36	0.80	0.77	0.51	0.40	31.94
12	0.38	1.87	1.92	0.27	0.75	0.65	0.43	0.36	29.96
13	0.26	2.20	2.30	0.19	0.73	0.60	0.37	0.17	31.74
14	0.57	1.38	1.61	0.38	0.83	0.80	0.45	0.43	84.51
15	0.40	1.71	1.76	0.32	0.71	0.73	0.54	0.40	41.85
16	0.46	1.55	1.56	0.41	0.75	0.79	0.55	0.37	27.89
17	0.26	1.77	2.17	0.21	0.55	0.69	0.21	0.23	63.16
18	0.60	1.30	1.39	0.52	0.80	0.86	0.43	0.55	88.99
19	0.51	1.69	1.73	0.33	0.68	0.69	0.48	0.34	32.80
20	0.62	1.16	1.18	0.72	0.94	0.92	0.79	0.58	42.40
21	0.37	1.55	1.60	0.39	0.73	0.76	0.42	0.33	21.95
22	0.55	1.31	1.32	0.58	0.85	0.90	0.53	0.46	18.70
23	0.34	1.49	1.50	0.45	0.91	0.89	0.47	0.42	23.54
24	0.29	1.49	1.52	0.43	0.78	0.84	0.24	0.28	29.69
25	0.44	1.39	1.41	0.51	0.84	0.84	0.47	0.46	51.92
26	0.53	1.34	1.45	0.48	0.93	0.86	0.62	0.46	39.13
27	0.36	1.77	1.86	0.29	0.64	0.67	0.38	0.31	48.41
28	0.56	1.51	1.57	0.40	0.72	0.80	0.47	0.38	42.24
29	0.57	1.53	1.63	0.38	0.79	0.81	0.50	0.38	58.45
30	0.58	1.37	1.41	0.50	0.93	0.85	0.80	0.59	52.12
31	0.30	1.46	1.54	0.42	0.92	0.80	0.26	0.29	125.87
32	0.37	1.70	1.81	0.30	0.73	0.74	0.38	0.40	50.17
33	0.44	1.97	2.07	0.23	0.80	0.76	0.50	0.32	30.95
34	0.34	2.10	2.22	0.20	0.73	0.75	0.42	0.25	37.90
35	0.35	2.09	2.18	0.21	0.65	0.68	0.37	0.19	47.58

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
36	0.51	1.42	1.57	0.40	0.78	0.84	0.42	0.43	50.90
37	0.48	1.50	1.55	0.41	0.82	0.79	0.54	0.56	35.14
38	0.40	1.48	1.60	0.39	0.83	0.76	0.55	0.34	51.58
39	0.44	1.64	1.79	0.31	0.79	0.80	0.38	0.43	100.73
40	0.53	1.15	1.39	0.52	0.93	0.89	0.84	0.48	94.07
41	0.36	1.41	1.50	0.45	0.85	0.86	0.65	0.40	166.12
42	0.46	1.59	1.82	0.30	0.87	0.75	0.65	0.43	70.48
43	0.48	1.67	1.94	0.26	0.66	0.74	0.46	0.40	85.94
44	0.35	1.96	2.24	0.20	0.43	0.72	0.34	0.28	179.32
45	0.34	1.57	1.68	0.35	0.86	0.84	0.06	0.53	216.70
46	0.61	1.42	1.52	0.43	0.77	0.86	0.38	0.64	231.58
47	0.31	1.57	1.68	0.35	0.78	0.85	0.62	0.39	229.20

Table A6. MCRC House Plan Compactness Statistics

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Populatio n Polygon	Populatio n Circle	Area/ Convex Hull	Ehrenberg	Perimeter
01A	0.44	1.33	1.56	0.41	0.87	0.88	0.77	0.50	150.7
01B	0.59	1.42	1.64	0.37	0.89	0.84	0.84	0.47	57.0
01C	0.18	2.31	2.90	0.12	0.56	0.51	0.42	0.26	228.1
02A	0.36	3.23	4.11	0.06	0.78	0.62	0.63	0.32	50.9
02B	0.27	2.58	2.88	0.12	0.44	0.73	0.37	0.25	90.1
02C	0.31	1.94	2.21	0.20	0.53	0.62	0.15	0.27	107.4
03A	0.36	1.82	1.98	0.25	0.28	0.67	0.19	0.26	88.5
03B	0.55	1.55	1.74	0.33	0.80	0.78	0.24	0.41	103.6
03C	0.49	1.63	1.77	0.32	0.80	0.78	0.52	0.38	62.1
04A	0.46	1.58	1.79	0.31	0.94	0.76	0.53	0.48	25.6
04B	0.47	1.62	1.71	0.34	0.70	0.72	0.50	0.33	23.0
04C	0.40	1.72	1.86	0.29	0.83	0.66	0.56	0.26	40.7
05A	0.34	1.74	1.96	0.26	0.63	0.63	0.27	0.31	94.1
05B	0.41	1.52	1.56	0.41	0.89	0.75	0.60	0.33	51.7
05C	0.35	1.40	1.51	0.44	0.79	0.84	0.33	0.34	57.0
06A	0.36	1.62	1.76	0.32	0.20	0.74	0.09	0.41	83.7
06B	0.42	1.54	1.69	0.35	0.55	0.77	0.26	0.42	52.1
06C	0.57	1.52	1.64	0.37	0.80	0.84	0.52	0.45	25.9
07A	0.44	1.63	1.84	0.30	0.62	0.73	0.29	0.36	38.4
07B	0.38	1.72	1.83	0.30	0.59	0.74	0.27	0.36	22.7
07C	0.23	1.60	1.62	0.38	0.87	0.80	0.40	0.23	15.9
08	0.49	1.77	2.01	0.25	0.72	0.69	0.52	0.33	42.5
09	0.49	1.46	1.52	0.43	0.90	0.83	0.64	0.46	25.8
10	0.41	1.51	1.61	0.38	0.82	0.79	0.38	0.36	41.8
11	0.48	1.59	1.67	0.36	0.80	0.77	0.51	0.40	31.9
12	0.38	1.87	1.92	0.27	0.75	0.65	0.43	0.36	30.0

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Populatio n Polygon	Populatio n Circle	Area/ Convex Hull	Ehrenberg	Perimeter
13A	0.46	1.76	1.80	0.31	0.80	0.70	0.62	0.47	13.1
13B	0.32	1.72	1.81	0.30	0.79	0.77	0.42	0.39	14.7
13C	0.46	1.54	1.60	0.39	0.84	0.82	0.44	0.43	13.5
14A	0.58	1.23	1.56	0.41	0.95	0.85	0.80	0.61	45.7
14B	0.49	1.28	1.44	0.48	0.74	0.87	0.30	0.51	58.7
14C	0.52	1.47	1.62	0.38	0.82	0.77	0.58	0.47	24.8
15	0.40	1.71	1.76	0.32	0.71	0.73	0.54	0.40	41.8
16A	0.50	1.27	1.28	0.61	0.89	0.88	0.63	0.51	12.7
16B	0.50	1.38	1.39	0.52	0.78	0.80	0.51	0.52	13.3
16C	0.55	1.28	1.29	0.60	0.89	0.93	0.52	0.51	14.7
17	0.26	1.77	2.17	0.21	0.55	0.69	0.21	0.23	63.2
18A	0.55	1.32	1.37	0.53	0.67	0.88	0.29	0.53	72.6
18B	0.59	1.40	1.59	0.40	0.81	0.81	0.50	0.42	51.8
18C	0.52	1.42	1.52	0.43	0.78	0.83	0.36	0.35	24.8
19	0.51	1.69	1.73	0.33	0.68	0.69	0.48	0.34	32.8
20A	0.41	1.50	1.53	0.43	0.72	0.74	0.37	0.31	40.8
20B	0.56	1.23	1.25	0.64	0.92	0.90	0.50	0.68	16.0
20C	0.30	1.50	1.55	0.42	0.78	0.79	0.37	0.35	31.8
21	0.37	1.55	1.60	0.39	0.73	0.76	0.42	0.33	22.0
22	0.55	1.31	1.32	0.58	0.85	0.90	0.53	0.46	18.7
23	0.34	1.49	1.50	0.45	0.91	0.89	0.47	0.42	23.5
24	0.29	1.49	1.52	0.43	0.78	0.84	0.24	0.28	29.7
25A	0.53	1.24	1.24	0.65	0.94	0.92	0.63	0.54	12.3
25B	0.47	1.49	1.55	0.42	0.66	0.70	0.51	0.35	25.8
25C	0.58	1.20	1.22	0.68	0.89	0.95	0.42	0.64	38.2

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Populatio n Polygon	Populatio n Circle	Area/ Convex Hull	Ehrenberg	Perimeter
26	0.53	1.34	1.45	0.48	0.93	0.86	0.62	0.46	39.1
27A	0.41	1.60	1.68	0.35	0.75	0.74	0.32	0.38	26.0
27B	0.61	1.29	1.42	0.49	0.87	0.85	0.71	0.55	21.0
27C	0.35	1.50	1.54	0.42	0.80	0.76	0.35	0.33	22.9
28A	0.36	1.52	1.60	0.39	0.86	0.76	0.43	0.42	19.2
28B	0.67	1.24	1.27	0.62	0.90	0.91	0.73	0.70	17.5
28C	0.47	1.45	1.52	0.43	0.72	0.84	0.30	0.45	30.0
29A	0.46	1.34	1.41	0.50	0.82	0.87	0.42	0.52	25.3
29B	0.58	1.25	1.30	0.60	0.90	0.85	0.67	0.72	23.7
29C	0.46	1.73	1.88	0.28	0.64	0.66	0.35	0.36	47.4
30A	0.45	1.24	1.25	0.64	0.98	0.92	0.39	0.57	31.5
30B	0.33	2.08	2.25	0.20	0.46	0.65	0.35	0.16	54.6
30C	0.52	1.56	1.80	0.31	0.93	0.80	0.83	0.48	21.8
31A	0.57	1.28	1.38	0.53	0.72	0.88	0.30	0.71	67.9
31B	0.40	1.53	1.62	0.38	0.77	0.78	0.60	0.48	73.0
31C	0.38	1.37	1.42	0.49	0.95	0.84	0.44	0.34	66.8
32A	0.37	1.50	1.57	0.41	0.84	0.78	0.37	0.56	20.4
32B	0.34	1.52	1.63	0.38	0.82	0.80	0.29	0.34	31.6
32C	0.35	1.50	1.54	0.42	0.75	0.74	0.44	0.35	22.7
33A	0.27	1.59	1.61	0.39	0.90	0.77	0.35	0.30	12.9
33B	0.55	1.43	1.53	0.43	0.86	0.83	0.61	0.42	15.8
33C	0.42	1.86	1.94	0.27	0.67	0.69	0.51	0.36	14.2
34A	0.52	1.60	1.74	0.33	0.77	0.79	0.58	0.45	14.9
34B	0.24	2.35	2.44	0.17	0.49	0.61	0.26	0.22	25.6
34C	0.55	1.24	1.25	0.64	0.93	0.91	0.64	0.51	13.1
35	0.35	2.09	2.18	0.21	0.65	0.68	0.37	0.19	47.6
36	0.51	1.42	1.57	0.40	0.78	0.84	0.42	0.43	50.9
37	0.48	1.50	1.55	0.41	0.82	0.79	0.54	0.56	35.1
38	0.40	1.48	1.60	0.39	0.83	0.76	0.55	0.34	51.6

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Populatio n Polygon	Populatio n Circle	Area/ Convex Hull	Ehrenberg	Perimeter
39	0.44	1.64	1.79	0.31	0.79	0.80	0.38	0.43	100.7
40A	0.43	1.30	1.59	0.40	0.60	0.80	0.31	0.47	93.3
40B	0.35	1.61	1.70	0.35	0.76	0.79	0.42	0.28	32.4
40C	0.35	1.67	1.75	0.32	0.82	0.77	0.43	0.25	48.0
41A	0.62	1.30	1.41	0.51	0.87	0.89	0.51	0.55	97.9
41B	0.46	1.44	1.66	0.36	0.57	0.81	0.36	0.33	94.3
41C	0.36	1.47	1.62	0.38	0.78	0.80	0.60	0.37	105.3
42A	0.30	1.60	1.80	0.31	0.73	0.76	0.21	0.30	48.8
42B	0.48	1.51	1.59	0.40	0.85	0.82	0.69	0.47	21.9
42C	0.40	1.62	1.82	0.30	0.62	0.70	0.33	0.29	43.4
43A	0.27	1.71	2.06	0.24	0.87	0.70	0.34	0.21	63.6
43B	0.51	1.32	1.39	0.52	0.81	0.87	0.40	0.60	31.5
43C	0.51	1.38	1.47	0.46	0.77	0.85	0.44	0.52	32.4
44A	0.29	1.65	1.78	0.31	0.77	0.79	0.18	0.35	90.8
44B	0.40	1.51	1.74	0.33	0.66	0.79	0.19	0.31	80.0
44C	0.38	1.79	2.03	0.24	0.78	0.75	0.46	0.38	83.4
45A	0.45	1.50	1.68	0.35	0.74	0.83	0.42	0.65	91.3
45B	0.44	1.79	1.95	0.26	0.70	0.71	0.48	0.21	179.9
45C	0.35	1.63	1.86	0.29	0.92	0.73	0.22	0.33	132.4
46A	0.46	1.43	1.58	0.40	0.84	0.80	0.43	0.45	131.1
46B	0.17	2.84	3.02	0.11	0.64	0.45	0.39	0.17	127.9
46C	0.42	2.24	2.41	0.17	0.39	0.69	0.19	0.31	292.0
47A	0.32	2.19	2.42	0.17	0.62	0.66	0.53	0.24	57.5
47B	0.28	1.49	1.61	0.39	0.90	0.84	0.25	0.30	192.1
47C	0.31	1.60	1.69	0.35	0.78	0.83	0.37	0.35	102.3

Table A7. LRAC Senate Plan Compactness Statistics

District	Reock	Schwartz-berg	Alternate Schwartz-berg	Polsby-Popper	Population Polygon	Population Circle	Area/Convex Hull	Ehrenberg	Perimeter
1	0.16	2.18	2.70	0.14	0.93	0.61	0.63	0.29	343.39
2	0.28	2.13	2.51	0.16	0.76	0.60	0.32	0.20	165.03
3	0.54	1.66	1.87	0.29	0.93	0.81	0.81	0.54	53.15
4	0.62	1.94	2.20	0.21	0.47	0.82	0.39	0.19	178.34
5	0.41	2.23	2.67	0.14	0.74	0.61	0.49	0.26	171.60
6	0.61	1.15	1.16	0.74	0.98	0.94	0.77	0.58	41.64
7	0.24	2.15	2.30	0.19	0.49	0.65	0.13	0.24	115.37
8	0.40	1.96	2.03	0.24	0.65	0.65	0.42	0.35	37.33
9	0.27	1.86	2.05	0.24	0.59	0.67	0.13	0.29	99.92
10	0.21	2.21	2.60	0.15	0.37	0.55	0.11	0.22	92.49
11	0.63	1.53	1.58	0.40	0.69	0.87	0.42	0.67	47.95
12	0.14	2.87	3.01	0.11	0.49	0.43	0.15	0.17	70.78
13	0.32	1.94	2.11	0.22	0.67	0.65	0.36	0.36	61.80
14	0.32	1.78	1.97	0.26	0.59	0.72	0.15	0.20	75.82
15	0.45	1.48	1.58	0.40	0.47	0.81	0.28	0.42	75.68
16	0.54	1.54	1.68	0.36	0.78	0.73	0.69	0.30	38.29
17	0.34	2.08	2.25	0.20	0.75	0.70	0.49	0.21	39.80
18	0.41	1.64	1.76	0.32	0.80	0.83	0.45	0.43	28.27
19	0.27	2.06	2.28	0.19	0.66	0.69	0.26	0.22	50.93
20	0.42	1.65	1.72	0.34	0.73	0.76	0.46	0.30	26.60
21	0.29	2.56	2.83	0.13	0.42	0.50	0.20	0.14	82.78
22	0.45	2.80	2.94	0.12	0.61	0.64	0.48	0.24	56.98
23	0.24	2.38	2.76	0.13	0.44	0.55	0.15	0.22	104.10
24	0.22	3.18	3.46	0.08	0.58	0.57	0.25	0.10	76.13
25	0.44	2.25	2.36	0.18	0.58	0.67	0.38	0.38	67.70
26	0.32	1.81	1.94	0.27	0.78	0.77	0.47	0.32	60.08
27	0.46	1.65	1.82	0.30	0.69	0.79	0.42	0.39	135.19
28	0.50	1.50	1.76	0.32	0.75	0.72	0.59	0.36	151.34
29	0.40	1.47	1.56	0.41	0.90	0.83	0.81	0.32	160.57
30	0.49	1.54	1.66	0.36	0.88	0.84	0.50	0.42	89.77
31	0.41	1.93	1.96	0.26	0.55	0.72	0.33	0.39	78.82
32	0.36	1.80	1.88	0.28	0.79	0.75	0.41	0.29	48.93
33	0.34	2.50	2.67	0.14	0.50	0.57	0.29	0.18	106.47
34	0.44	1.63	1.74	0.33	0.76	0.76	0.59	0.38	89.25
35	0.41	1.66	1.76	0.32	0.65	0.85	0.46	0.36	120.72

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
36	0.32	1.57	1.66	0.36	0.86	0.86	0.06	0.51	211.28
37	0.56	1.49	1.61	0.39	0.79	0.85	0.45	0.62	248.53
38	0.31	1.60	1.73	0.33	0.79	0.86	0.63	0.39	235.40
39	0.46	2.06	2.17	0.21	0.62	0.63	0.52	0.22	41.46
40	0.46	1.74	1.78	0.32	0.81	0.81	0.51	0.44	23.84
41	0.38	1.71	1.73	0.33	0.68	0.73	0.31	0.18	28.00
42	0.46	2.15	2.39	0.18	0.46	0.69	0.20	0.37	162.08
43	0.35	1.76	1.82	0.30	0.82	0.78	0.45	0.29	24.80
44	0.26	1.88	1.94	0.27	0.58	0.58	0.22	0.20	37.45
45	0.47	1.51	1.52	0.43	0.82	0.82	0.45	0.39	21.75
46	0.59	1.32	1.33	0.57	0.79	0.90	0.50	0.61	26.61
47	0.27	2.72	2.81	0.13	0.52	0.47	0.37	0.23	43.07

Table A8. LRAC House Plan Compactness Statistics

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
01A	0.43	1.49	1.74	0.33	0.82	0.85	0.74	0.51	166.72
01B	0.37	1.71	1.97	0.26	0.88	0.80	0.80	0.40	74.69
01C	0.17	2.04	2.59	0.15	0.77	0.66	0.43	0.30	191.74
02A	0.27	2.32	2.72	0.13	0.51	0.58	0.22	0.17	175.65
02B	0.37	3.22	4.07	0.06	0.78	0.63	0.63	0.32	50.90
3	0.54	1.66	1.87	0.29	0.93	0.81	0.81	0.54	53.15
4	0.62	1.94	2.20	0.21	0.47	0.82	0.39	0.19	178.34
5	0.41	2.23	2.67	0.14	0.74	0.61	0.49	0.26	171.60
6	0.61	1.15	1.16	0.74	0.98	0.94	0.77	0.58	41.64
07A	0.37	1.83	2.01	0.25	0.52	0.76	0.19	0.25	70.97
07B	0.19	2.05	2.24	0.20	0.43	0.59	0.11	0.27	79.86
8	0.40	1.96	2.03	0.24	0.65	0.65	0.42	0.35	37.33
09A	0.25	2.03	2.23	0.20	0.52	0.65	0.11	0.24	102.57
09B	0.36	1.93	2.06	0.24	0.66	0.65	0.34	0.23	32.61
10	0.21	2.21	2.60	0.15	0.37	0.55	0.11	0.22	92.49
11A	0.25	2.28	2.46	0.17	0.65	0.55	0.27	0.21	41.65
11B	0.52	1.73	1.84	0.30	0.63	0.79	0.38	0.49	46.17
12A	0.25	1.96	2.13	0.22	0.62	0.62	0.31	0.27	39.83
12B	0.23	2.44	2.55	0.15	0.51	0.44	0.26	0.24	36.40

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
13	0.32	1.94	2.11	0.22	0.66	0.65	0.36	0.36	61.80
14	0.32	1.78	1.97	0.26	0.59	0.72	0.15	0.20	75.82
15	0.45	1.48	1.58	0.40	0.47	0.81	0.28	0.42	75.68
16	0.54	1.54	1.68	0.36	0.78	0.73	0.69	0.30	38.29
17	0.34	2.08	2.25	0.20	0.75	0.70	0.49	0.21	39.80
18	0.41	1.64	1.76	0.32	0.80	0.83	0.45	0.43	28.27
19	0.27	2.06	2.28	0.19	0.66	0.69	0.26	0.22	50.93
20	0.42	1.65	1.72	0.34	0.73	0.76	0.46	0.30	26.60
21	0.29	2.56	2.83	0.13	0.42	0.50	0.20	0.14	82.78
22	0.45	2.80	2.94	0.12	0.61	0.64	0.49	0.24	56.98
23	0.24	2.38	2.76	0.13	0.44	0.55	0.15	0.22	104.10
24	0.22	3.18	3.46	0.08	0.58	0.57	0.25	0.10	76.13

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
25	0.44	2.25	2.36	0.18	0.58	0.67	0.38	0.38	67.70
26	0.32	1.81	1.94	0.27	0.78	0.77	0.47	0.32	60.08
27A	0.33	1.75	1.85	0.29	0.55	0.67	0.29	0.40	58.70
27B	0.38	1.95	2.22	0.20	0.52	0.61	0.27	0.30	92.09
27C	0.51	1.54	1.72	0.34	0.78	0.87	0.64	0.55	91.13
28	0.50	1.50	1.76	0.32	0.75	0.72	0.59	0.36	151.34
29A	0.46	1.44	1.56	0.41	0.76	0.75	0.52	0.51	87.92
29B	0.36	1.46	1.53	0.43	0.77	0.80	0.63	0.42	99.00
29C	0.37	2.06	2.27	0.19	0.44	0.63	0.34	0.25	129.14
30A	0.44	1.50	1.61	0.39	0.87	0.79	0.60	0.44	45.31
30B	0.65	1.42	1.52	0.43	0.76	0.86	0.53	0.57	70.16
31	0.41	1.93	1.96	0.26	0.55	0.72	0.33	0.39	78.82
32	0.36	1.80	1.88	0.28	0.80	0.75	0.41	0.29	48.93
33A	0.39	1.87	2.01	0.25	0.84	0.64	0.70	0.24	25.33
33B	0.40	1.77	1.91	0.27	0.59	0.77	0.20	0.28	58.39
33C	0.28	1.76	1.84	0.29	0.76	0.78	0.29	0.45	40.80
34A	0.41	1.40	1.47	0.46	0.88	0.86	0.40	0.41	72.21
34B	0.41	1.60	1.72	0.34	0.71	0.76	0.55	0.48	25.84
35A	0.66	1.47	1.57	0.41	0.73	0.89	0.52	0.52	86.12
35B	0.55	1.57	1.64	0.37	0.85	0.82	0.59	0.64	67.73
36	0.32	1.57	1.66	0.36	0.86	0.86	0.06	0.51	211.28

District	Reock	Schwartz- berg	Alternate Schwartz- berg	Polsby- Popper	Population Polygon	Population Circle	Area/ Convex Hull	Ehrenberg	Perimeter
37A	0.18	3.97	4.64	0.05	0.63	0.38	0.40	0.11	202.88
37B	0.52	2.27	2.55	0.15	0.57	0.80	0.30	0.21	378.55
38A	0.29	1.60	1.85	0.29	0.78	0.81	0.31	0.35	203.79
38B	0.28	2.67	3.04	0.11	0.64	0.60	0.53	0.14	58.95
38C	0.41	1.84	2.13	0.22	0.74	0.70	0.41	0.21	164.43
39	0.46	2.06	2.17	0.21	0.62	0.63	0.52	0.22	41.46
40	0.46	1.74	1.78	0.32	0.81	0.81	0.50	0.44	23.84
41	0.38	1.71	1.73	0.33	0.68	0.73	0.31	0.18	28.00
42A	0.50	1.63	1.72	0.34	0.48	0.79	0.26	0.59	92.12
42B	0.23	2.60	2.85	0.12	0.59	0.49	0.41	0.17	39.30
42C	0.36	2.09	2.38	0.18	0.52	0.73	0.31	0.23	94.16
43A	0.43	1.62	1.66	0.36	0.86	0.83	0.49	0.51	17.15
43B	0.58	1.40	1.45	0.47	0.82	0.81	0.58	0.60	12.84
44A	0.17	1.88	1.90	0.28	0.61	0.58	0.21	0.20	19.44
44B	0.22	2.22	2.27	0.19	0.53	0.57	0.20	0.26	37.24
45	0.47	1.51	1.52	0.43	0.81	0.82	0.45	0.39	21.75
46	0.59	1.32	1.33	0.57	0.79	0.90	0.51	0.61	26.61
47A	0.28	2.10	2.13	0.22	0.55	0.59	0.38	0.30	28.45
47B	0.24	2.27	2.43	0.17	0.72	0.58	0.33	0.20	18.20



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