MEMORANDUM

To: Virginia Redistricting Commission

From: Kareem Crayton and Gerry Hebert

Re: Congressional Districting Map Proposals

Date: October 19, 2021

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We write to offer analysis and observations to accompany our submitted maps to the Commission for the Commonwealth's 11 Congressional Districts. It is our hope that this information helps you to understand the merits of this pair of proposals and to focus on the key elements that should guide your consideration of all mapping proposals as you work your way toward a final selection.

As you know, we previously submitted partial maps per your instructions to develop a draft in which we developed proposals for select districts in the Northern Virginia area, along with our approach to balancing populations in the two Voting Rights Act related districts (CD's 3 and 4) that had been set by the federal courts on the recommendation of a special master in recent litigation. You elected to use certain elements of those districts alongside certain other proposals from the Republican mapping consultant (specifically, CD's 5, 6, 9), harmonized remaining territory and develop a combined proposal called C-1. The draft proposal has been the cause of great interest and public input during the last week.

Having received a robust amount of public input, we have reviewed the many suggestions and comments from citizens as well as the Commission's thoughts expressed in our last meeting about how specific criteria like communities of interest and partisan fairness ought to be applied in a working map. This presentation reflects the summation of that thinking.

We note that the directions from the co-chairs (as summarized by Meg Lamb of DLS) request that our presentation include two maps:

(1) **Each mapdrawer present their "best version of the most fair congressional map"**

(2) **Each mapdrawer present their version of C-1 in response to key citizen concerns (these areas are 1) Lynchburg; 2) Henrico; 3) Charllotesville; 4) Prince William and 5) Dulles**

Or assessment includes two maps: one starting from our treatment of significant changes to the C-1 draft (which we believe answers both the co-chairs requests) and a citizen-inspired map, which reflects an alternative configuration that includes many (though not all) of the recommendations from the Commission in its directions. While we prefer the plan containing our adjustments to C-1, we believe both these maps could stand as "fair" configurations of the eleven congressional districts and are therefore worth your close review in this process.

These renderings represent our best thinking about how the criteria from the Commission ought to be applied in crafting the districts. We show in attached files the statistics that summarize the performance on many of the same metrics you've becoming familiar with during our process; both create districts

that meet the standards in state and federal law for the opportunity for protected classes to elect candidates (a total of five coalition/opportunity districts exist); both of our recommendations perform quite comparably on the number of split counties (both have 12), on average compactness, (average Polsby-Popper scores of 0.31 and 0.30) and partisan fairness (addressed in a section below). The narrative offered below focuses on the key features of the maps that are worth additional attention, given the public input.

Our "C-1 Adjusted" Map

Starting with our proposal for adjustments in the C-1 map, we note that the public feedback has been quite pointed about the shortcomings of the map as construed. Putting aside for the moment the very serious concerns raised by Commissioners and the public about the origins of the western district of the C-1 map that appear tied to Congressman Tom Davis' submission, the substance of this proposal has received the most negative comments among all the map's regions.

- Specifically, the criticism relates to the decision to straddle CD-6 over the mountains to incorporate counties near Lynchburg and Charlottesville. While this district does need to recover population, citizens were concerned that the proposed CD-6 disrupted communities of interest in the Valley (which closely tracks concerns expressed during the state legislative mapping process), established a district that would be difficult to travel, and posed some rather troubling political effects by bridging areas like Charlottesville and Albermale County with both culturally and politically different parts of Virginia.
- Relatedly, there are serious Voting Rights Act concerns (both state and federal) with the handling of Lynchburg, which was curiously divided in this area of the mapping proposal. As several commenters reminded the Commission in their live testimony on Monday, there was no apparent reason why the mapping proposal made divided the city between two Congressional districts. And in doing so, the district seemed to mirror proposals that set the line in the middle of a majority black local voting district.
- The Commission also heard concerns from the citizens from Henrico County, who were unhappy with the multiple divisions of their area in C-1. The issues here ranged from the distaste for being separated from the Richmond area suburbs, being grouped with certain rural counties, and being unable to discern which parts of the area fit into specific congressional districts (which reflects some of the same upset about the current districts in place).
- The issue of division and separation also informed the comments to the Commission from Prince William County residents, how noted that their county is the most diverse in Virginia. As with the Henrico area commentary, these citizens were unhappy with the way that Prince William was divided and left a significant share of its residents in a district with parts of the state quite different from the demographic and political profile of the county's residents. They noted that the division interfered with their ability to organize and participate.
- Finally, the major cause of concern expressed from residents of Northern Virginia focused on the "Dulles Corridor," which citizens noted was a key community of interest that hadn't been fully reflected in the map. Because this area includes business and residential areas with distinct economic growth concerns, speakers argued that the present lines prevented them from pursuing initiatives and programs that reflected their continued development. Speakers

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requested a new configuration that respected the close linkages between the Tysons Corner and Reston areas, which they identified the major features of this corridor.

Our adjustments address each of these concerns in the map by (1) Redrafting CD 6 to follow Interstate 81, taking territory on the west side of the mountains up to Frederick; (2) Setting a new CD 5 in the Southside and east of the mountain that includes the whole of Lynchburg and surrounding areas; (3) Placing Charlottesville and the northern end of the Valley in a refashioned CD 7, which allows for a less divided Henrico County and (4) refashioning the Northern Virginia districts to reflect the Dulles Corridor area in a single district and reduces (but does not eliminate) the division of Prince William County.

Alternate Citizen-Based Map: Submission #315 (with changes)

As we mentioned, we also recommend for consideration a map (based on map submission #315) that illustrates an alternate approach to our adjusted C-1 configuration described above. By making a few adjustments to the submission, we believe that this second configuration could also address some (though not all) of the criticisms of the uploaded C-1 draft.

The key difference in this approach from our proposed adjustment to C-1 is in the look of CD 6. Rather than follow I-81 from the south, this alternate version of CD-6 rests in the more rural counties near the "top" of the state – its southern edges would be Greene, Orange, and Augusta Counties along with Waynesboro. Albermarle County and Charlottesville would be part of a more centralized CD-7 the ends near the Richmond suburbs of Chesterfield, along with Cumberland, Goochland, Buckingham, Powhatan, Louisa, and Fluvanna Counties. And CD-5 would cross the mountain to join the areas that had been in CD 6 (including Bath, and Covington Counties with areas in the Southside (including Campbell, Bedford, and Nottaway Counties).

This approach does not wholly resolve the "over the mountain" concerns, but it creates sensible regional divisions that keep culturally similar counties (as they've been described in the public comment) grouped together. Charlottesville anchors a Central Valley district, the City of Lynchburg remains whole in a district to the south that bridges parts of the west with Southside and a CD 6 in the outer edge of Northern Virginia keeps the more rural and exurb counties in that region of the state together. Henrico and Prince William Counties are not free from divisions, but there are fewer splits that can be more readily identified than before. And finally, the Northern Virginia issues with the Dulles Corridor have also been addressed.

<div align="center">About Partisan Fairness</div>

As has been noted, the interpretation Virginia's law directing the Commission to assure that district plans when reviewed on a statewide bases do not cause "undue advantage or disadvantage" to a political party is a matter of first impression. We want to state on the record our views about how that provision ought to be applied, which is reflected in our recommended maps.

In the Commission's October 18 meeting, we asserted that what is "due" or "undue" is not a purely subjective standard nor does it likely include a blind commitment to a notion of "parity" (i.e., creating equal numbers of districts for each party). Rather, as is the practice in states where similar "undue advantage" language applies (the National Conference of State Legislatures notes 15 states in this group), at least some attention must be paid to past electoral performance in determining about what (if any) advantage is "due." We note that the State of Ohio, cited in our colleagues' memo as a similar

"undue advantage" provision to Virginia, expressly relies upon past statewide election performance to determine whether proposed maps meet their political fairness provision. There, Republicans decided to assure than more than 80% of districts advantage their party because the party had won 80% of recent elections. See Susan Tebben, "Republican Majority Gerrymanders Ohio for Another Four Years" Ohio Capitol Journal, (Sept. 17, 2021).

We would not endorse such a strict adherence to past performance because it (taken literally) would mean that Democrats should be entitled to control all eleven of districts because they have won 100% of the statewide contests for more than a decade. This strained interpretation of the principle would also interfere with the future opportunity to compete, which should also inform an understanding of partisan advantage. Similarly, though, we would reject a blind adherence to the arbitrary view that parties should be assured equal numbers of districts. That approach would completely ignore past performance, which we think also misses the mark in understanding political fairness.

We therefore offer conceptions of two concepts that we think ought to inform your understanding of the political fairness principle as expressed in Virginia Law: Past Performance and Future Opportunity.

Past Performance

Our recommended approach has been to use multiple recent elections dating back to 2012 to develop a measure to evaluate the likely future performance of the two major parties a proposed district. This approach is sensible for multiple reasons: (1) Past performance is an objective, data driven measure of the expressed preferences of the public; (2) Ignoring a consistent trend of one party's stronger electoral performance could qualify as posing an "undue disadvantage" in a map (3) Reviewing multiple races helps account for years with exceptionally high or low turnout among specific voters (whether 2016 or 2018) that might otherwise confound a measure of typical performance and (4) The measure helps capture variation where certain districts shift parties multiple times during a decade.

We have consistently reported summary statistics of every submitted plan (including our own) to the Commission, including its likely political performance of a proposed map. We think this information helps to evaluate the likely partisan fairness of the map. We show not only the simple division of districts by whether they are Democrat or Republican but also the extent to which districts rate as "strong" or "lean". The difference between "strong" and "lean" should not be undervalued; both of our recommended maps include multiple competitive districts that may fit the "lean" category but are subject to change with relatively small shifts in the public sentiment.

In both recommended maps, this measure suggests that four of the eleven districts would likely be safe Republican seats, while five of them would be safe Democratic seats. The remaining two seats lean Democratic, but they are competitive in nature (in the proposed CD 2, for instance, a majority of voters in the proposed district supported the Republican in the contest for Lieutenant Governor in 2017). This slight advantage for Democrats in the number of safe districts is not out of line with the facts that voters have chosen Democrats in statewide contests consistently during the last decade, averaging a 54% vote share.

Similarly, Democrats have been elected in seven of the eleven Congressional districts in the last two contests. Taking all other factors into account, the slight edge of Democrats in the number of safe seats

is a reasonable approximation for what is "due." And the competitiveness of the remaining districts (CD's 2 and 7) offers an opportunity for Republican gains with small shifts in public sentiment.

Future Opportunity: The tipping point calculation

As an additional way to compare how the parties might fare under a proposed map, we want to present a measure we will call "the tipping point," which is a means of evaluating a party's future opportunity to gain seats.   The tipping point is the percent a statewide candidate or party would need to win in order to carry a majority of Virginia's congressional districts.

This assessment is consistent with the basic democratic principle that majorities should rule. In a perfectly balanced map, that tipping point as a matter of mathematics would be 50%. If the performance of a party's statewide candidates average more than 50%, we should expect them to carry a majority of the state's congressional districts -- all else equal.

Where that figure is significantly higher than 50%, we would find that the party faces more difficulty converting even a larger majority of votes cast into a majority of available seats. Where the measure is significantly lower than 50%, the party has a relative advantage because it can more easily win a majority of the seats – even when it wins fewer than a majority of the voters statewide. The important point to bear in mind is that this measure is a comparative way to show from one plan to another how much "extra effort" a given political party needs to put into getting its voters to the polls in order to win a majority of the available seats.

Methodology

For any proposed congressional districts, it is possible to estimate the percentage of the vote cast for Democrats and Republicans in statewide races in the territory comprising the proposed district.   For several reasons, this is an estimate, not an exact number:

- Election results are reported at the Voting Tabulation District (VTD) level. VTD are often split by new proposed lines. In fact, they have to be split in order to achieve +/- 1 person population deviation.
- When VTDs are split, the election results are disaggregated to the Census Block level. This disaggregation is done based on the precented of the VTD voting age population that comes from each Census Block in the VTD. This is standard methodology that has been widely accepted by courts and the Department of Justice in reviewing redistricting plans.
- VTD lines have changed over the last decade. 2018 election results generally appear to have been reported on the same VTD lines as defined in the Census TIGER 2020 geography files. However, going back farther in the decade there is the possibility that VTD lines have changed from the time of the election to the time the lines were defined for the 2020 Census. If an entire county or independent city is in a new congressional district, these VTD line changes will not matter, as the votes cast will be in the new district regardless of whether or not the lines have changed. However, it is worth noting that there may be issues with VTDs on the edge of a new district.

Even accounting for the data issues involved in reconstituting past election results on new district lines, we know that the past statewide results do not necessarily mirror congressional results. Democratic candidates can win in Republican leaning districts, and Republican candidates can win in Democratic leaning districts. Also, we know that the two major parties can do better or worse from year to year. Saying that a district performed at a certain level in a given year has to do both with the district's geography, and with the fortunes of the statewide candidates. Therefore, we have calculated the RDI, or Relative Democratic Index of each district. That is the measure of how well statewide Democratic candidates did in the proposed district vs. how well they did statewide. For example, a district with an RDI of +1 for 2017 would indicate that the average performance of statewide candidates in that district in 2017 was 1% higher than the statewide average.

Using the RDI, we are able to simulate how a district would perform in future election scenarios. In a year when statewide Democratic candidates were winning 55% of the vote, a district with a +1 RDI would be expected to show an average performance of 56%. If, on the other hand, Republican statewide candidates had a strong showing and won 54% of the vote, meaning that the Democrats won 46% of the vote, we would expect the Democratic vote in the +1 RDI district to be 47% (46% +1%).

Using this simple calculation, we can estimate the statewide average performance of candidates in a proposed district under any hypothetical statewide outcome. For any statewide outcome from 0% to 100%, we can calculate the number of congressional districts the statewide candidates would be expected to carry. The point at which a party goes from winning five seats to winning six of the state's eleven seats is the tipping point.

The RDI, and hence the tipping point can be calculated using multiple races and years. For this analysis, we have used an average of all statewide elections from 2012 through 2018. Because the RDI is a relative measure, the tipping point for each map is fairly consistent, regardless of which races are used.

All calculations are done using a 2-way precent. That is the precent the Democratic or Republican candidate got out of the votes cast for the two major parties, not counting minor party votes. Because of this, the calculations for the Democratic and Republican candidates are inverses of each other. If the tipping point for a map is 51% Democratic that is the same as saying that the tipping point is 49% Republican.

Assessment of Plans Using the Tipping Point

We are including a summary of the tipping point for every submitted congressional plan the Commission has received during this process so that you can assess how they compare. To remind, a point that is at 50% represents the near mathematically ideal point, where a party receiving half the statewide vote share converts to winning half the available seats on the map. All reported measures here relate to the assessment for Democratic Party (but note that the Republican measure is inversely related, meaning that the easier it is for Democrats to win a majority, the harder for Republicans to win a majority – and vice versa).

There are a total of 42 distinct plans that are included in this analysis, and the tipping point figure that is lowest among these is Map #397 with a measure of 45.5%. Generally, Democrats could control six of the eleven seats under this configuration with only 45% of the statewide vote, which is less than a majority. Conversely, Republicans would need to overperform to win a majority, since they would need

to win 55% of the vote to secure six of the eleven available seats. One can conclude that this map has the effect of tilting the table significantly toward Democratic candidates.

At the other end of the spectrum, with the greatest disadvantage to Democratic candidates, is a map with a tipping point measure of 54.5%. Democrats would need to overperform as Republicans did under Map #397 to secure a majority of the available seats. That map is #323, which we note is the submission from Congressman Davis.   Republicans have a significantly easier time than Democrats under this map, which raises a strong concern that this configuration would pose an undue disadvantage to the party – particularly given their present standing and past political performance. Regardless of the origins or the intentions that inform this map, the measure falls well short of the reasonable range of competition that one would expect in a map that poses no undue advantage to a political party. Coupled with the map's lack of attention to the past performance of the parties, we cannot recommend it.

Our preferred maps, by contrast both of our recommendations rate quite close to the 50%. The tipping point for our C-1 adjustment is 51.5% while the adjusted #315 rates at 50.5%. In both cases, the Democrats face a slight (though not unreasonable) disadvantage in having to win more than a majority to secure a majority of the seats. Conversely, Republicans under both maps have the ability to secure six of the congressional seats with a statewide vote that is <u>slightly under</u> half the statewide vote, which is further evidence that the maps entrench a fair share of competition for the parties.

In all, we would strongly recommend both the mapping configurations and the methodology described herein to support the Commission's review of all proposals.

Plan Name	VRA consideration		Elections - 2012 to 2018						Splits		Compactness Polsby-Popper			Compactness Schwartzberg			Compactness Reock			Tipping Point
	Coalition	Opp+	Any Dem	Any GOP	Strong Dem	Lean Dem	Lean GOP	Strong GOP	Whole Cou	Split Cou Count	Worst	Best	Avg	Worst	Best	Avg	Worst	Best	Avg	Avg 2012 to 2018
va_cd_364_c1_statewide	3	2	6	5	5	1	0	5	119	14	0.21	0.38	0.28	0.46	0.62	0.53	0.22	0.51	0.40	52.5
va_cd_haystaq_congressional_7_v2	3	2	7	4	5	2	0	4	121	12	0.2	0.51	0.30	0.45	0.71	0.54	0.22	0.63	0.41	51.5
va_cd_haystaq_congressional_8_v2	3	2	7	4	5	2	0	4	121	12	0.22	0.51	0.31	0.47	0.71	0.55	0.22	0.53	0.43	50.5
jm_cd_combined_1	3	2	6	5	5	1	0	5	119	14	0.21	0.38	0.28	0.46	0.62	0.53	0.22	0.51	0.40	52.5
va_cd_a4	3	2	5	6	5	0	1	6	120	13	0.21	0.38	0.29	0.46	0.62	0.53	0.22	0.56	0.42	53.5
va_cd_249_most_compet_dists_bristow	2	2	8	3	4	4	1	3	123	10	0.15	0.49	0.27	0.39	0.7	0.52	0.18	0.61	0.37	52.5
va_cd_244_most_prop_rep_bristow	2	3	7	4	5	2	0	4	119	14	0.21	0.38	0.28	0.46	0.62	0.53	0.21	0.6	0.38	50.5
va_cd_220_szymanski	4	2	6	5	5	1	1	5	118	15	0.12	0.39	0.23	0.35	0.62	0.47	0.21	0.49	0.34	50.5
va_cd_164_zimermann	2	4	7	4	6	1	0	4	109	24	0.16	0.57	0.32	0.4	0.75	0.56	0.2	0.59	0.45	47.5
va_cd_153_crossing_the_bay_2_jordan	4	1	6	5	4	2	1	5	131	2	0.19	0.39	0.28	0.44	0.62	0.53	0.21	0.57	0.40	52.5
va_cd_148_rework_jordan	4	2	6	5	5	1	1	5	131	2	0.19	0.37	0.28	0.44	0.61	0.53	0.21	0.57	0.42	48.5
va_cd_121_nakhle	4	2	6	5	6	0	1	5	124	9	0.18	0.31	0.25	0.43	0.56	0.50	0.22	0.56	0.39	47.5
va_cd_7_competitive_west	1	4	5	6	3	2	5	6	118	15	0.11	0.31	0.19	0.34	0.55	0.42	0.15	0.58	0.30	53.5
va_cd_323_davis	3	2	5	6	5	0	1	6	123	10	0.2	0.57	0.32	0.45	0.75	0.56	0.22	0.64	0.42	54.5
va_cd_97_wright	2	3	7	4	5	2	0	4	127	6	0.21	0.39	0.31	0.46	0.62	0.55	0.24	0.58	0.40	50.5
va_cd_73_bueche	2	4	8	3	4	4	1	3	127	6	0.12	0.53	0.29	0.35	0.73	0.53	0.16	0.59	0.41	49.5
virginia_cd_57_killey	3	3	7	4	4	3	1	4	120	13	0.2	0.28	0.24	0.44	0.53	0.49	0.21	0.57	0.38	51.5
va_cd_39_bueche	2	5	8	3	5	3	0	3	124	9	0.16	0.34	0.24	0.4	0.58	0.49	0.22	0.61	0.39	48.5
va_cd_315_joels_compact_vra_gallowa	3	2	7	4	5	2	0	4	123	10	0.23	0.35	0.29	0.48	0.59	0.54	0.22	0.65	0.43	51.5
va_cd_312_compact_districts_harrison	2	4	6	5	5	1	1	5	123	10	0.12	0.39	0.27	0.35	0.63	0.51	0.19	0.61	0.34	51.5
va_cd_310_fair_congressional_vishwan	2	3	7	4	5	2	0	4	121	12	0.2	0.39	0.29	0.45	0.62	0.54	0.24	0.51	0.41	50.5
va_cd_49_samanta	3	2	6	5	5	1	1	5	121	12	0.11	0.37	0.23	0.34	0.61	0.47	0.22	0.6	0.38	52.5
va_cd_351_szymanski	4	1	5	6	5	0	2	6	121	12	0.14	0.35	0.21	0.38	0.59	0.46	0.22	0.53	0.36	53.5
va_cd_current	2	2	6	5	4	2	2	5	119	14	0.09	0.26	0.19	0.31	0.51	0.43	0.2	0.48	0.32	52.5
va_cd_361_harrison_existing_districts	4	1	6	5	5	1	2	5	120	13	0.18	0.37	0.29	0.43	0.61	0.54	0.22	0.65	0.38	52.5
va_cd_362_harrison_from_scratch	3	2	6	5	5	1	1	5	123	10	0.21	0.45	0.31	0.46	0.67	0.55	0.24	0.52	0.39	51.5
va_cd_363_bristow_metro_based	3	2	7	4	5	2	0	4	118	15	0.17	0.37	0.30	0.41	0.61	0.54	0.17	0.54	0.39	50.5
va_cd_277_portanova	3	2	5	6	6	0	1	5	121	12	0.17	0.43	0.27	0.41	0.65	0.51	0.22	0.6	0.37	52.5
va_cd_365_rogers	3	2	6	5	5	1	2	5	123	10	0.18	0.38	0.26	0.42	0.62	0.50	0.22	0.5	0.38	52.5
va_cd_377_nakhle_revised	1	5	6	5	6	0	2	5	126	7	0.18	0.32	0.26	0.43	0.56	0.51	0.22	0.58	0.39	47.5
va_cd_375_trimmer	3	2	7	4	5	2	2	4	123	10	0.18	0.38	0.29	0.42	0.62	0.54	0.18	0.57	0.34	50.5
va_cd_253_compact_southside_dist_bri	2	4	7	4	5	2	0	4	122	11	0.16	0.39	0.30	0.4	0.62	0.54	0.17	0.6	0.41	49.5
va_cd_379_knoll	3	2	5	6	5	0	2	6	120	13	0.18	0.35	0.25	0.42	0.59	0.50	0.19	0.52	0.37	53.5
va_cd_380_bloechle	1	5	8	3	5	3	1	3	125	8	0.1	0.26	0.18	0.32	0.51	0.42	0.18	0.51	0.31	49.5
va_cd_386_bloechle	3	3	7	4	6	1	1	4	112	21	0.14	0.39	0.25	0.37	0.62	0.49	0.16	0.62	0.36	46.5
va_cd_389_seaman	3	2	6	5	5	1	1	5	117	16	0.09	0.38	0.26	0.29	0.62	0.50	0.19	0.55	0.40	51.5
va_cd_374_wright	3	2	6	5	5	1	2	5	117	16	0.15	0.38	0.25	0.39	0.62	0.50	0.22	0.64	0.39	52.5
va_cd_393_berner	2	4	6	5	4	2	2	5	119	14	0.21	0.42	0.30	0.46	0.65	0.54	0.22	0.64	0.43	51.5
va_cd_397_candeto	2	4	6	5	6	0	1	5	130	3	0.15	0.44	0.29	0.39	0.66	0.53	0.18	0.62	0.39	45.5
va_cd_400_candeto	2	3	5	6	5	0	2	6	128	5	0.13	0.45	0.25	0.36	0.67	0.50	0.18	0.51	0.34	53.5
va_cd_252_most_minority_rep_brist	3	3	7	4	5	2	1	4	119	14	0.14	0.4	0.26	0.37	0.63	0.50	0.17	0.56	0.34	49.5
va_cd_391_tuck	3	3	7	4	5	2	1	4	124	9	0.19	0.38	0.29	0.43	0.62	0.53	0.18	0.62	0.36	51.5

Dr. Crayton has provided a memo to address "a specific set of questions that Co-chair Babichenko and Commissioner Abrenio posed in our session on October 20."

Per Dr. Crayton, "[w]e elaborate on the judicial treatment of measures related to the "tipping point" methodology that we presented for discussion. As we stated, these measures are well established in social science and have been endorsed by state courts in their exploration of ways to assess political fairness. We would recommend your consideration of them here as well."

Additionally, he provided a link below to a copy of the opinion from the PA Supreme Court on partisan gerrymandering that is referenced in the memo, to the extent that anyone on the Commission is curious about all the details of the case or anyone deems it helpful to include it among the materials that are posted.

https://www.pacourts.us/Storage/media/pdfs/manual_uploads/file-6790.pdf?cb=451944

MEMORANDUM

To: Virginia Redistricting Commission

From: Kareem Crayton and Gerry Hebert

Re: Congressional Districting Map Proposals

Date: October 25, 2021

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In our memorandum of October 19 to the Commission, we reviewed ways to define and to measure partisan fairness in the proposed maps for U.S. Congress. We explained that the legal definition for undue advantage contained in the Virginia Code, to some degree, should include attention to a pair of distinct concepts: past electoral performance and future electoral opportunity. These concepts are related, but they also address different features that we believe are crucial to a complete understanding of political fairness as it has been expressed in Virginia Law.

Past performance focuses on how the current political landscape is informed by the record each political party has amassed in winning elections. Examined elections might include statewide contests as well as those contests more directly linked to the redistricting process at hand (in the present case, Congress). Further, past performance need not be focused on campaigns from a single year but instead may utilize a series of elections (within the last decade) to provide the best assessment of a party's performance over time. In redistricting parlance, these past election results as measured in proposed new districts are commonly described as "reconstituted" or "projected" election results.

Taking account of past performance is far from an arbitrary choice – it shows respect for the past expression of the public's voting preferences in recent years and can serve as a starting point for determining the relative strength of the political parties.

The relevant provision of Virginia law prohibits maps that pose "undue" advantage or disadvantage to a political party, which requires attention to a baseline comparison for assessing what advantage or disadvantage is "due". We can offer no other reasonable metric for the "due" advantage a party might receive than the level of consistent support they have enjoyed from the voters.[1] To be sure, those preferences may shift over time, and we would endorse a map that features some level of dynamism. However, even in the states that Republican counsel have cited favorably for its partisan fairness principles, the record of performance over a sustained period provides a key, fact-centered starting point that should be considered in determining a fair allocation of seats.

As stated in our October 19 memo, an arbitrary rule demanding an equal number of seats for each party would unduly grant the minority party seats that is not based on past performance. Whatever might be claimed to justify that system, there are serious issues that Virginia law does not support this policy

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[1] In states that use party-based registration, the level of change in the share of voters who identify with a given party may also be a relevant consideration. However, Virginia does not register voters by party so this measure is unavailable.

since it would undermine a "due advantage" the majority party ought to enjoy due to their established pattern of success in winning a greater share of the seats (and votes) in the existing map.

Similarly, one should note that considering past performance does not in fact require a strict adherence to a theory of proportional representation. Properly defined, proportional representation would require a frequent change in the allocation of seats that tracks changes each election in the share of votes a party receives. That system is wholly inapt to a winner-take-all single-member district system, particularly where the particulars of individual candidates and a host of external factors can sway an election notwithstanding the constituency's political makeup. The approach we have recommended for understanding past performance requires only that the allocation of seats should not be wholly out of line with the relative strength evident in the electorate for each party.[2]

Future opportunity is a second, prospective concept that draws attention to the extent that changing trends will be reflected (to some degree) in each party's ability to gain more seats. Commissioners largely expressed displeasure for the notion of "locking in" all safe seats for a given party because it stifled competition. Co-chair Babichenko, for example, encouraged maps that would improve the opportunity to compete for each party.

We note that while it may a laudable goal that may inform an analysis of fairness, competition should be considered in concert with data on past political performance. We recommend this balanced approach for two important reasons. Virginia's law does not (as only five states do) expressly endorse the principle of creating competitive districts as a goal in redistricting. The state law might leave room for some attention to draw competitive districts, but the state law does not support allowing competition per se above all else based on text alone.[3] And second, a sole focus on creating competitive districts could ignore existing majority electoral preferences where it presents an "undue" disadvantage to the party statewide – which the Virginia Code expressly prohibits. We therefore think the best approach to understanding fairness in this context is to consider both features of fairness in harmony.

We also presented a proposed approach for the Commission to assess future opportunity, a simple comparative measure we referred to as the "tipping point."[4] That figure takes the series of elections

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[2] Senator Mc Dougal, for example, suggested an approach during the October 20 Commission meeting that purports to consider past performance, but it fails to consider all the facts. He claimed that the Tom Davis map approximates a fair allocation, since the average Democratic share of statewide contests during the last decade was 54%, so securing five seats plus a swing district would be appropriate. Aside from the serious questions that have been raised about the origins of the Tom Davis map, the Senator's approach ignores the fact that awarding the same number of secure seats to both parties (which Tom Davis explicitly conceded was a goal) would not adequately account for the consistent Democratic advantage both in statewide contests and in congressional races (where Democrats have won 7 of the 11 seats for two successive cycles). As we stated in our earlier memorandum, our analysis shows that The Tom Davis map provides Republicans with what appear to be undue advantages, with the greatest share of secure and competitive seats of all proposals presented to the Commission.
[3] We note that no plan submitted takes the approach of creating all districts to fit a competitive electoral profile (e.g., districts ranging from 48% to 52% for each party's likely support).
[4] As our Republican colleagues noted in the session, the term "tipping point" has not been formally cited by courts, but the methodological approach that the term stands for (analyzing the relative effect that a certain vote share has on seats won by a party) has indeed been reviewed and endorsed by state courts in gerrymandering cases that worth noting. Given the time allotted to this Commission, we offered a simplified version of the method that would be both more intuitive and feasible. Later sections of this memo describe examples of courts that have endorsed this method in greater detail.

between 2012 and 2018 that the Commission has used throughout the process to assess partisan strength and projects the those results on a draft map. Given this data, the "tipping point" is the statewide vote share at which a party can secure the majority of available seats (that is, the six of the eleven available seats) in a proposed map. Generally, one would expect that figure to rest around 50% - - which would mean that the threshold is about the same for both parties. Higher percentages would mean that one party would need a greater share of the vote than their opponents to secure six seats. This figure also provides a helpful means of comparing the relative partisan "skew" across maps, which is the kind of "apples to apples" analysis that several Commissioners have sought in this process.

State Courts & Measures of Political Fairness

Commissioner Abrenio and Co-Chair Babichenko requested information during the October 20 meeting about whether courts have applied methods for assessing partisan fairness. State courts have utilized methods closely tied to the "tipping point" approach that we have presented; while these other methods are more methodologically complex, they are similar insofar as they provide a comparative way to assess partisan bias or skew based upon the effect that election results would have on securing seats.[5] Notwithstanding what the U.S. Supreme Court and federal courts have said about assessing partisan fairness in its own jurisprudence, state courts have been quite active in policing partisan fairness by endorsing measures rooted in past political performance and future opportunity.

The best example of the state court practice is from the Supreme Court of Pennsylvania, which roundly rejected the post-2010 Congressional maps crafted by the state legislature.[6] There, the Court concluded that the Republican majority had grossly exceeded reasonable parameters in drawing maps, in violation of the state's constitutional standards of free and fair elections.[7] The Court struck down the maps and ordered remedial drafts that applied in two of the contests for Congress during the last decade.

Of the different methodologies endorsed by the Court to measure partisan bias, two are worthy of attention here because of their close connection to the relationship between past performance and future opportunity – the mean-median gap and the efficiency gap. These methods were offered by expert witnesses who are respected scholars and specialists in both redistricting and quantitative social science. While different approaches, these measures both explore how a map can skew the ability of one political party or another in competing for seats.

Mean-Median Gap

One of the credited expert witnesses in this case, Dr. Jowei Chen, provided an analysis that contributed to the court's decision to reject the State's argument that its map was a reasonable allocation of voters geographically. Dr. Chen's analysis examined the relationship between the mean vote share for each

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[5] As noted during the October 20 meeting, these measures have a long and established history in respected political science publications in addition to leading sites designed for the public to assess partisan fairness. See, for example, McGann, A. J., Smith, C. A., Latner, M., & Keenan, A. (2016). *Gerrymandering in America: The House of Representatives, the Supreme Court, and the future of popular sovereignty.* Cambridge: Cambridge University Press; Princeton Gerrymandering Project "Methodology for Dashboard Metrics," found at https://gerrymander.princeton.edu/redistricting-report-card-methodology (October 24, 2021).

[6] See *League of Women Voters v. Commonwealth of Pennsylvania*, No. 159 MM 2017 (January 22 and February 7, 2018).

[7] Id.

party in the challenged districts and compared them to the party's share of the vote in the median district on the map. Where the average (or mean) party share for all districts lags behind the median (or, using the share of Republican strength, the "middle" district), one can assess the level of partisan bias in the map. In the Pennsylvania challenge, the court accepted Dr. Chen's view that:

> [a] 6% gap "is a very statistically extreme outcome that cannot be explained by voter geography or by traditional districting principles alone." N.T. Trial, 12/11/17, at 263-64. Dr. Chen noted that … the 2011 Plan's "extreme partisan skew of voters is not an outcome that naturally emerges from Pennsylvania's voter geography combined with traditional districting principles and an effort to protect 17 incumbents in a nonpartisan manner.[8]

As with the "tipping point" approach, the mean median gap examines vote shares in concert with each party's ability to gain seats. The analysis of the mean-median gap rests on the view that the average share of a party's support overall should sit reasonably close in range with the party's vote share that is present in most districts (since the "median" sits at the middle of all available districts). Where the difference between the two figures is substantially different, the gap indicates some level of partisan skew that might need to be examined more carefully.

Efficiency Gap

A second expert in the Pennsylvania case, Dr. Christopher Warshaw, reviewed a different measure that attempts to capture the difference between votes that are essential to winning a district and those that are "wasted" either because they increase the size of a victory or they are cast for a candidate who loses. Where there is partisan skew (and, to a greater degree, in a classic gerrymander), the maps tend to "waste" more votes of one party than the other, on average. By comparison, the favored party will have relatively fewer "wasted" votes, since every vote is needed to maximize control over the largest number of available districts.

As Dr. Warshaw explained the underlying concept:

> The efficiency gap is just a way of translating this intuition that what gerrymandering is ultimately about is efficiently translating votes into seats by wasting as many of your opponent's supporters as possible and as few as possible -- as possible of your own. So it's really just a formula that captures this intuition that that's what gerrymandering is at its core.[9]

Dr. Warshaw's method involved calculating the number of each party's "wasted" votes (cast for a losing candidate) as a ratio of the total votes cast. That figure was subtracted from the opposing party's efficiency score, which produces a "gap." As Dr. Warshaw testified, states with more than six congressional districts tend to have a gap of zero. The 2011 maps in Pennsylvania, even compared to its own maps from prior decades, was exceedingly high:

> Dr. Warshaw confirmed that, prior to the 2011 Plan, Pennsylvania never had an efficiency gap of 15% in favor of either party, and only once had there been an efficiency gap of even 10%. Thus, Dr. Warshaw concluded that the efficiency gaps that occurred after the 2011 Plan were "extreme" relative to the prior plans in Pennsylvania. Indeed, he noted that the efficiency gap in

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[8] Opinion at 47.
[9] Opinion at 54.

Pennsylvania in 2012 was the largest in the country for that year, and was the second largest efficiency gap in modern history "since one-person, one-vote went into effect in 1972."[10]

Like the mean-median gap, the efficiency gap illustrates the level of asymmetry in the parties ability to pursue election wins given the allocation of voters with a given district map. The measure also can help to demonstrate when a party that wins less than a majority of votes cast statewide nevertheless can manage to secure more than a majority of available seats.

In both cases, it is worth noting that the Pennsylvania Supreme Court credited both the methodologies as well as their applications to prove that partisan bias existed in a Congressional map. The experts used the measures standing alone and by comparing these with measures of competing plans and plans across time. Accordingly, we would encourage the Commission to take note that a future court would likely view this information as quite probative in how it might apply the Virginia standard that sounds in similar notes of partisan fairness.

How both scores apply in Virginia

One might also wonder what these measures might reveal if we used them in the Virginia proposals. We thought it would be important to include information on this score as well. While we did not present findings using these two specific methods at the Commission meeting on October 20 due to time considerations, it is worth noting that an external source that did so found substantial bias in favor Republicans in almost all competing plan drafts under consideration by the Commission. The public website "538" which specializes in compounding and analyzing electoral data from a non-partisan perspective, has reported the mean-median gap as well as the efficiency gap scores for all seven Commission-sponsored Congressional plans (including those each set of consultants produced).[11]

The two plans with the smallest mean-median gaps, which only slightly favored Democrats 1.1 and Republicans at 3.4, were our recommended plans.[12] These figures are well within a reasonable range compared to the remaining plans with significantly larger gaps ranging from 6.5 to 10.6 all of them, giving Republicans a major advantage. Indeed, the current Congressional map favors Republicans with a score of 6.5.

Similarly, two smallest efficiency gap measures among all congressional plans sponsored by the Commission were the ones that we recommended in our October 19 memo. According to the 538 website, the two maps we reported favorably both produced a gap of 2.4 and 2.0 (the current congressional map has an efficiency gap of 3.8). All of the mapping submissions that utilize some part of the Tom Davis map produce an efficiency gap in favor of Republicans that ranges from than 7.0 to 7.3 – all of which are in favor of the Republican Party.

On these facts, it is terribly difficult to conclude that maps connected to Congressman Davis's configuration are free from significant partisan skew. Indeed, these measures all point in one direction.

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[10] Opinion at 52 (citations omitted).

[11] See "What Redistricting Looks Like in Each State" https://projects.fivethirtyeight.com/redistricting-2022-maps/virginia/commission_plan_c1_b/

[12] Note that the recommended plans from our October 19 memo are C1-B (or "adjusted C1") and B5, which correspond to the plans described on the Commission's website as #421 and #423.

Taken as they are presented, the appearance of "fairness" may obscure a very seriously biased result that is apparent from a close examination of the effects of this map.

We continue to express our grave concerns about the Tom Davis map, based on what have learned about the questionable origins of this map along with what we know about the serious disruptions to communities of interest as they have been expressed in the public comment and our review of the history of configurations in Virginia.[13] It is difficult to escape the proposition that both its intent and effect should be treated with a great deal of skepticism for anyone who takes the political fairness consideration in Virginia law seriously. We again emphasize that we do not conclude that any interpretation of Virginia law would justify maps with such a consistently biased set of measures.

Review of Findings

Having provided a response with further background on the legal moorings of the methodological approach we have presented to the Commission, we note again our findings from applying these measures to the submitted maps on the record during the Commission's October 20 meeting.

Taking the "tipping point" measure as a guide, our two recommended draft maps (our "C1 Adjusted" or C1-B map #421 and the map based on the citizen submission #315) both have measures of approximately 50% and 51%, and they rest at the roughly symmetrical point at which both political parties would need about the same vote share statewide to win a majority of congressional seats (in both maps, however, Democrats would need to win slightly more votes than Republicans would). Moreover, both figures sit roughly in the middle of the pack among the measures of all submitted plans – with some tilting in favor of Democrats and others tilting in favor of Republicans.

Tellingly, the figures we have reported to the Commission on October 20 also reveal that the plans with the most skewed maps favoring Republicans are almost all linked to the Tom Davis map (Map #323 and associated submissions #337, #339, #341, #358). According to the analysis, the tipping point for Democrats under this map would be 54% -- significantly higher than the figure for almost every other plan submitted to the Commission Republicans would need only 46% of the statewide vote share to achieve a majority of available seats, which appears to be a significant advantage insofar as it would make it considerably more difficult for one political party to win a majority of seats than the other (which could do so even with a minority of statewide vote). Particularly given the current standing of the parties, purposefully crafting this configuration would seem inconsistent with the standard expressed in Virginia law.

We respectfully encourage your consideration of the above points as you determine the next steps in this process.

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[13] As we noted in the hearing on October 20, we found that the Commission website included the most significant negative comments to the "Combined" C-1 Commission map focused on proposed CD6, which was largely taken from the Tom Davis map. The most common of the objections was the inclusion of Charlottesville and Albermarle County. Our review of all prior Congressional districts since the 1970s (the modern one-person-one-vote era) reveals that Charlottesville and Albermarle have not been joined in a Western-facing Congressional district with communities over the mountain. Moreover, we have not found a district during this period that joined the cities Charlottesville and Lynchburg, both of which the Tom Davis map combines. See Kenneth Martis, "The Historical Atlas of Congressional Districts 1789-1983" (1982).