

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Richmond Division

GLORIA PERSONHUBALLAH,
et al.,

Plaintiffs,

v.

Civil Action No. 3:13cv678

JAMES B. ALCORN,
et al.,

Defendants.

REPORT OF THE SPECIAL MASTER

November 15, 2015

Bernard Grofman*
Special Master

*Bernard Grofman is Professor of Political Science and Jack W. Peltason Endowed Chair of Democracy Studies at the University of California, Irvine, and former Director of the UCI Center for the Study of Democracy. His research deals with topics such as voting rights, electoral rules, theories of representation, behavioral social choice, and political science methodology. He is co-author of five books (four from Cambridge University Press and one from Yale University Press), and co-editor of 23 other books; with over 300 research articles and book chapters, including ten in the *American Political Science Review*. A member of the American Academy of Arts and Sciences since 2001, he has been a scholar-in-residence at universities and research centers in the U.S., Canada, France, Germany, Italy, Japan, the Netherlands, Spain, and the UK, and he has an honorary Ph.D. from the University of Copenhagen (Denmark) for his research on comparative electoral systems. He has previously been involved as a consultant or expert witness for federal courts, the U.S. Department of Justice, both major political parties at a state or national level, and civil rights groups such as the NAACP Legal Defense and Educational Fund and the Mexican-American Legal Defense and Educational Fund. As a specialist on redistricting, his own research, or chapters in books he has edited, has been cited in more than a dozen U.S. Supreme Court decisions, most recently in *Arizona State Legislature v. Arizona Independent Redistricting Commission* (2015) and, perhaps most notably, in *Thornburg v. Gingles*, 478 US 30 (1986).

REPORT OF THE SPECIAL MASTER

EXECUTIVE SUMMARY

The eight plans/maps offered pursuant to the Court's September 18 deadline are fatally flawed in either not remedying the constitutional infirmities in the present CD3, e.g., re issues of discontiguity and city and county splits that appear race related, and/or by failing to offer a remedy that is narrowly tailored, e.g., modifying congressional districts that did not need to be changed to deal with the constitutional problems in CD3. I cannot recommend any of them to the Court.

The two plans/maps I have created to offer for review by the Court (labeled as NAACP Plan Modification 6, and Current Congressional Plan Modification 16) are intended to illustrate versions of CD3 that might remedy the constitutional violation identified in the majority opinion in *Page v. Virginia State Board of Elections* in a narrowly tailored fashion. Both illustrative remedial plans locate CD3 entirely in the Newport News-Hampton-Portsmouth-Norfolk area of the state. Both plans place all of Newport News and all of Portsmouth in CD3. The two plans differ slightly in how CD3 is configured, primarily in whether the cities of Norfolk and Hampton are split between CD3 and CD2, but both place either all or the predominant part of each city's population in CD3. In one plan the two cities are split so as to assure contiguity by bridge between separated pieces of CD2; in the other both Hampton and Norfolk are wholly within CD3 and contiguity is

established in CD2 by the link between Poquoson and the eastern shore created by the intersection of the water boundaries of Poquoson and Northampton. In the plan in which Norfolk is kept wholly within CD3, for population equality purposes, the Isle of Wight is split between CD3 and CD4. In the plan where the city of Norfolk is split between CD3 and CD2, the Isle of Wight is wholly within CD2, and population equality balancing occurs within the city of Norfolk. In one plan the City of Franklin is wholly within CD3; in the other, the City of Franklin is wholly within CD4.

Each illustrative map I wish to propose to the court has been drawn according to good government criteria, such as limiting splits of existing cities and counties between two or more districts, achieves an average higher level of compactness than the current plan, and follows the legal guidance provided to me by the Court. For example, while the current CD3 splits six cities or counties between CD3 and other congressional districts, one of the two plans I propose splits only four cities between CD3 and another congressional district; while in the other, the version in which the city of Norfolk is entirely within CD3, only two cities or counties are split between CD3 and another congressional district. In both versions, by both the Polsby-Popper and the Reock measure of compactness, the compactness scores of CD3 are between twice as large and over four times as large as the corresponding compactness scores of the current CD3.

Both illustrative plans fully remedy identified constitutional infirmities in the current CD3, avoid retrogression in the realistic opportunity of the minority community to elect candidates of choice, and do not use race as a predominant criterion. Both are narrowly tailored to achieve constitutional goals. For example, subject to the overriding requirement of constructing a constitutional map, the two illustrative configurations I have drawn provide a “least change” plan in the various appropriate meanings of that term identified in the body of the Report. First, they make no changes in a majority of the present districts, and confine all changes to the district in which the constitutional defect has been found and the districts immediately adjacent to that district -- districts in which changes would be required for purposes of population adjustment. Second, they maintain the residences of present incumbents in their districts. Third, once we take into account the need for a major redrawing of CD3 to address constitutional defects in the current version of that district, redrawn districts other than CD3 generally reflect the present shape of the equivalent districts in the current map.

In the process of rectifying the constitutional violations found in current CD3, and without using race as a predominant factor, but simply taking into account the demography and geography and present political subunits of the State in terms of standard good government districting criteria, the two illustrative remedial maps create a second district (CD4) in which African-American voters now possess a realistic opportunity to elect candidates of choice. This is an opportunity that

minority voters have been denied in the current CD4 due to the ways in which the present congressional map fragments minority voting strength in south central and southeastern Virginia. These two illustrative versions of CD4 include the cities of Richmond and Petersburg in their entirety, as well as either ten or eleven other whole cities or counties. One of the county splits in each of the illustrative plans was due to the need to insure that each of the homes of the current incumbents was located within a district that corresponded in number to their present district. The two versions of CD4 offered in the two maps that illustrate remedial versions of CD3 are more compact than the current CD4.

Overall, the two illustrative maps are drawn according to good government criteria. For example, in the five modified districts as a whole, in both illustrative plans, the number of city and county splits is less than in the current plan. When we compare compactness on a district by district basis for each of the five modified districts in the NAACP Mod 6 version as compared to the current plan, using both the Polsby-Popper measure and the Reock Measure, in 9 of the 10 comparisons, the illustrative plan achieves superior compactness. When we compare compactness on a district by district basis for each of the five modified districts in my Modification 16 version as compared to the current plan, using both the Polsby-Popper measure and the Reock Measure, in 8 of the 10 comparisons, the illustrative plan achieves superior compactness, and in the other two comparisons we have a tie.

Full information on each of these two illustrative plans is attached as an Appendix to this Report. Key elements of each plan are discussed in more detail in the sections below.

FINAL REPORT OF THE SPECIAL MASTER

I. BACKGROUND

1. Pursuant to my responsibilities as a special master in *Personhuballah v. Alcorn* to assist and advise the Court, I have

(a) reviewed the present congressional plan for the State of Virginia, and all of the plans submitted on September 18, 2015, and the responses submitted on October 7, 2015.¹

(b) reviewed demographic information on total population and the racial and ethnic composition of population at various levels of census geography as well as basic geographic data for the State (county and city boundaries; location of highways, bridges and tunnels), with a focus on areas of the state contained in or proximate to the present 3rd Congressional district.

(c) familiarized myself with the Court opinions in *Page v. Virginia State Board of*

¹ There were seven submissions that contained plans and maps that could be analyzed, which I reference in short form as Defendant-Intervenors, Plaintiffs, Governor of Virginia, NAACP, Petersen, Rapoport, and Richmond First. The Bull Elephant submission did not contain the shape file required for detailed analysis and was dropped from further consideration. The submission by One Virginia did not include a map. One submission, that by Defendant-Intervenors, contained two plans and accompanying maps. Thus, there were eight proposed maps/plans whose features I reviewed.

Elections, 2015 WL 3604029 (E.D. Va. June 5, 2015), especially with respect to the majority opinion's identification of constitutional infirmities in the present configuration of the 3rd Congressional district that need to be remedied.

(d) obtained (pursuant to an Order of the Court) technical assistance in map creation from staff of the Division of Legislative Services of the Virginia State Legislature (Jack Austin, Kent Stigall, and Julie Smith), each of whom has signed an oath of confidentiality drafted by the Court in consultation with the parties.

(e) created a large number of illustrative congressional maps in an iterative fashion to allow me to explore options for drawing CD3 in a fashion that might remedy its present constitutional defects. I have considered modifications of the present map and modifications of maps presented by plaintiffs, defendant intervenors, and others, such as the NAACP.

2. There are a number of different criteria that can be used to evaluate a (congressional) redistricting plan as a whole, or used to evaluate the configuration of one or more individual districts. These include

(a) conformity to a standard of one person, one vote;

(b) avoiding either fragmentation or packing of geographically concentrated minority populations that might have the effect or purpose of minimizing or

diluting the voting strength of constitutionally protected minorities, and/or lead to retrogression in the ability of minority communities to realistically have an "equal opportunity" to elect candidates of choice;

(c) avoiding use of race as a predominant criterion for redistricting;

(d) avoiding the creation of districts which are divided into two or more discontinuous parts;²

(e) avoiding splits (partition into two or more congressional districts) of long standing political subunits such as cities or counties,³ unless these splits become obligatory or near obligatory by the need to satisfy other criteria such as population equality;

(f) avoiding unnecessarily ill-compact districts, i.e., ones which are elongated or have irregularly shaped perimeters. ⁴

² See below for further elaboration.

³ In Reports prepared by the State of Virginia's Division of Legislative Services, political entities which are either cities or counties are described as *localities*. Note also that some political entities that have 'city' in the title, such as Charles City more closely resemble what in other states would be labeled as counties.

⁴ See below for further elaboration.

3. In situation such as that applying in *Personhuballah v. Alcorn*, where a court is drawing a map to remedy a constitutional infirmity, there is a seventh criterion that may be relevant:

(g) avoiding changes in existing district boundaries that are not required to create a constitutional map, i.e., what is sometimes referred to a “least change” criterion.

4. Considerations that enter into line-drawing:

(a) In drawing illustrative maps for consideration by the Court that in my view would serve to remedy the constitutional infirmities identified in the majority opinion in *Page v. Virginia State Board of Elections*, I have sought to take into account all of the criteria enumerated above.

(b1) In general, however, there are tradeoffs among the various criteria. In practice, when there are so many distinct criteria to be balance off against one another, it may be impossible to satisfy all criteria fully. For example, strict adherence to a population equality standard may lead to the necessity to split some political subunits, while undue deference to existing district lines may lead to fragmentation of minority voting strength.

(b2) The first three of the criteria listed in Section 2. above, 2.(a), 2.(b), and 2.(c), I

treated as of highest priority since they are grounded in provisions of the U.S. Constitution, as these have been interpreted by the U.S. Supreme Court. However, because the indicia used by the majority in the *Page* opinion to infer predominant racial motive included discontinuities in district boundaries that picked up isolated pockets of minority population, the stretch of CD3 between separated areas of the state in a fashion that did not appear in any way compelled by the demography of the state, disregard of city and county lines that appeared linked to race, and the ill-compactness of CD3, I was especially attentive to issues of contiguity, compactness and maintenance of existing political subunit boundaries within the district in drawing illustrative remedial configurations of CD3.

5. I now discuss briefly how I dealt with each of the seven criteria in my preliminary illustrative map drawing:

(a). Since the present map and all of the maps offered in briefs submitted on or before October 7 specified district configurations which were either exactly at ideal district size, 727,366, or plus or minus one person, the illustrative maps I have offered to the Court also provide this level of strict population equality.⁵

⁵ In 2016, because of births, deaths, and migration in and out of the districts, the 2010 census figures can only be regarded as approximations to the present population in the various congressional districts in Virginia. Nonetheless, the 2010 Census provides the best information available about Virginia's population demography and is the appropriate data to use.

(b1) In seeking to reach professional judgments as a political scientist in redistricting concerning issues of potential retrogression, the realistic opportunity for the minority community to elect candidates of choice, and potential issues of minority fragmentation or packing, a necessary starting point is a review of the demography and geography of the State of Virginia, especially in areas of the state proximate to the present Congressional District 3. I found that there are two areas of eastern Virginia with substantial black population concentrations:

i. one encompassing the area in the southeastern area of the state around Newport News, Hampton, Portsmouth, and Norfolk;

ii. one encompassing the cities of Richmond, Petersburg, and Hopewell, each of which is a majority black city, along with immediately proximate black population concentrations in Henrico County and Chesterfield County that are also substantial.

(b2) Neither of these areas of concentrated minority population concentration standing alone is sufficient to make up the necessary population for a congressional district. However, the geographically proximate cities of Newport News (189, 719 persons), Hampton (137,436 persons), Portsmouth (95,535 persons), and Norfolk (242,803 persons), taken as a whole, do already contain 90% of ideal congressional district population. These cities in whole or part form the basis for

the illustrative remedial plans for constitutional infirmities in the current CD3 discussed in the recommendation section below

(b3a) As shown in the plan submitted by Mr. Rapoport, it is possible to draw an ideal-sized congressional district that is majority black in voting age population (labeled District 3 in that plan) based around Newport News, Hampton, Portsmouth, and Norfolk, that does not include areas such as Richmond or Petersburg. However, the configuration of the plan that includes this district makes changes in districts beyond those immediately proximate to the current CD3.

(b3b) As shown in the plan submitted by the NAACP, it is possible to draw an ideal-sized congressional district that is majority black in voting age population (labeled District 4 in that plan) that incorporates area around Richmond and Petersburg and then picks up additional population needed to attain ideal district size by largely extending south and east, and which does not include Newport News, or Hampton or Portsmouth or Norfolk. However, the configuration of the plan that includes this district makes changes in districts beyond those immediately proximate to the current CD3.

(b4) Because there is some overlap among the areas included in District 3 in the Rapoport configuration and those included in District 4 in the NAACP configuration it is impossible to draw both districts simultaneously within the same plan.⁶

(b5) I reserve for later in this report the discussion of the implications of these geographic and demographic facts for the potential to draw a non-retrogressive plan that provides minority voters in CD3 a realistic opportunity to elect candidates of choice, and also neither fragments nor packs minority population concentrations elsewhere in central or southeastern Virginia. Here I simply note that it is my professional judgment that configurations for a CD3 that remedies the

⁶ I have been able to draw within a single illustrative plan two districts whose voting age population is majority-minority in composition, though not majority black in voting age population. One of these districts picks up population from areas such as Richmond and Petersburg and does not include any part of Newport News, Hampton, Portsmouth, or Norfolk (it is labeled District 4 in an illustrative plan I have labeled as “Modification 13” to the current map); and one is based around Newport News, Hampton, Portsmouth, and Norfolk, and does not include any part of Richmond or Petersburg (it is labeled District 3 in my illustrative Modification 13 to the current map). However, because Modification 13 to the current map modifies district boundaries in districts that are not directly contiguous to the current CD3, and also results in the pairing of two incumbents (the home of the incumbent in CD4 and the home of the incumbent in CD3 are both located within CD2 in this plan), and because it provides minority populations in excess of what are necessary to create a “minority opportunity to elect” district in CD3, I have not considered this plan further, and do not wish to recommend it to the attention of the Court. Because of that fact, I have not included further information about Modification 13 to the current map in this Report. It was merely drawn to demonstrate what might be possible in a situation where no form of “least change” constraint was legally relevant. However, as discussed below, even when a least change constraint is operative and even when there is no incumbency pairing, it is possible to provide constitutionally drawn and narrowly tailored remedial configurations of CD3 that realistically provide the African-American community with an equal opportunity to elect candidates of choice.

constitutional defects found in current CD3 do not require the creation of a CD3 that is 55% black in voting age population, or even one that is majority black in voting age population. (See discussion below.)

(c1A) In drawing illustrative maps for a federal court to remedy constitutional defects identified in the current CD3, because of my concerns for contiguity and the avoidance of unnecessary splitting of existing political subunit boundaries, and my attention to compactness, the various illustrative maps I have drawn that create a heavily minority district, CD3, in the Newport News/Portsmouth area do not reflect in any way a predominant concern for race. Rather, these maps naturally reflect the underlying demography of the state, i.e., the fact that there are two distinct minority population concentrations in central and southeastern Virginia: one involving a compact contiguous minority population concentration around Newport News, Hampton, Portsmouth, and Norfolk that is already almost large enough for a congressional district; and one involving a minority population concentration anchored at one end by Richmond and Petersburg that can add population south and east to pick up the additional population needed to constitute an ideally sized congressional district.

(c1B) Once a decision has been made to remedy the constitutional defects in the present CD3 in the most obvious way, vis-a-vis locating CD3 in the Newport News area, the substantial minority population we find in CD4 in the two plans that I

wish the Court to consider seriously arises virtually automatically. In particular, in each of the two plans, between twelve and thirteen cities and counties, including the City of Richmond and the City of Petersburg, have been maintained wholly within CD4. Despite the fact that CD4 has been drawn largely as a “residual” district, when lines are drawn as described above, the demography of the state assures that the compact contiguous minority population bloc in the Richmond-Petersburg area and eastward and south does not have its voting strength minimized or cancelled out; it is neither being fragmented nor being “packed.” Rather, a more substantial minority population is found in CD4 in these plans than in CD4 in the current plan because the fragmentation of minority population in the Richmond area and eastward and south, due in large part to the tortuous way CD3 is presently configured, is remedied when CD3 is redrawn in a constitutional way and the remaining districts are drawn to reflect this change. Thus, the way in which CD4 is configured in the two illustrative maps I present to the Court in no way reflects race as a predominant motive. (See further discussion below about how a decision to draw CD3 in the Newport News area affects other congressional districts in the state.)

(c2) It is my professional judgment that there are alternative ways to reconfigure current CD3 that fully address the constitutional violations in that district without in any way raising issues of undue reliance on race as a predominant motive in line drawing. (See further discussion below.)

(d) As noted above, in my illustrative line drawing I have been attentive to issues of contiguity because this issue was important in *Page*. For redistricting, the standard (mathematical) way to define contiguity is in terms of the ability of voters to move from any one part of the district to any other part of the district without leaving the district. Special issues of interpretation of this definition arise when district boundaries include substantial bodies of water in whole or in part. In such cases, sometimes contiguity is interpreted in pragmatic terms as connection from any land part of the district to any other land part of the district via land, bridge or tunnel. Alternatively, when the boundaries of political, voting, or census units encompass water areas along with land areas, contiguity by water might also be established when legal boundaries touch, even if the areas that are joined in this way have water at each edge of the boundary. In Virginia, contiguity has also been interpreted as occurring when there is a direct line of sight connection over a body of water between two pieces of land. To avoid any possible dispute about whether the district, CD3, that has been found to be unconstitutional has been drawn in a contiguous fashion, in the two illustrative maps I have drawn, the land parts of CD3 are contiguous to one another by land, bridge or tunnel.

(e) In the two illustrative maps I have drawn that I believe deserve consideration by the Court, I have been able to minimize city and county splits in CD3 to an equal or greater extent than in the present congressional plan. In particular, CD3 in one of

the two illustrative maps discussed in my recommendation below has only 2 cities or counties split between CD3 and another district, and the other illustrative plan has only 4 cities or counties split between CD3 and another district, while the current map splits 6 cities or counties between CD3 and another district.

(f) Compactness numbers are very difficult to interpret without some context, and it is virtually impossible to compare compactness values across jurisdictions in different states, or sometimes even within a single state across different parts of the state. Because the feasibility of drawing compact districts varies with the geography (e.g., the density of populations, and the degree to which the political or other subunits which are being aggregated are themselves compact, and the existence of natural boundaries such as state lines or large bodies of water), compactness is best understood by comparing plans both for the same geography and for the same types of districts (e.g., congressional, lower chamber, upper chamber).⁷ However, even here a note of caution is required. The two main types of compactness, areal compactness (e.g., Polsby-Popper) and perimeter irregularity (Reock), measure two rather different things and they do not necessarily move in parallel when district lines are changed.⁸ Nonetheless, in each of the illustrative

⁷The potential to draw compact districts needs to be understood in the light of the average population size of the type of districts that need to be drawn.

⁸ See Richard Niemi, Bernard Grofman, Carl Carlucci & Thomas Hofeller, Measuring Compactness and the Role of a Compactness Standard in a Test for Partisan and Racial Gerrymandering, 52 J. Pol. 1155 (1990).

maps I have drawn that I believe deserve consideration by the Court (see below), CD3 is far more compact than the current CD3, and the average compactness of the set of changed districts (CDs 1, 2, 3, 4, 7) is higher in these maps than in the current map. Indeed, as shown later, by both the Polsby-Popper and the Reock measure of compactness, the compactness scores of CD3 in my illustrative remedial maps are between twice as large and over four times as large as the corresponding scores of the current CD3 – with higher numbers representing more compact districts.

(g1A) In the context of a plan that is being drawn to remedy a constitutional violation found within a particular district, here CD 3, the concept of “least change” has potentially five meanings.

(g1B) The most direct of the five possible meanings of “least change” would be to say that a plan is a “least change” plan to the extent that changes in the map are restricted to the set of districts in which changes are required to remedy the constitutional violation.⁹ In all my illustrative line drawing, the plans have clearly been “least change” plans in that sense. It is my professional judgment as a political scientist that the need to address the constitutional infirmities identified by the decision in *Page* does not require any changes in district lines that extend

⁹ See, e.g., *Upham v. Seamon*, 456 U.S. 37, 43 (1982).

beyond the population and the geography now contained in current CD3 and the districts immediately contiguous to it that would be most affected by changes in the configuration of present CD3. In other words, the only plans I recommend to the Court are "least change" plans in the sense of making no changes in the present configurations and populations of the majority of the present congressional districts, namely Districts 5, 6, 8, 9, 10, and 11, while confining changes to the areas and populations in current congressional districts 1, 2, 3, 4 and 7.

(g2A) A second potential meaning of "least change" is that the changes in CD3 itself be minimal. That definition I reject as inappropriate. As Special Master I am making a recommendation to a federal court and, as Defendant-Intervenors note, "faced with the necessity of drawing district lines by judicial order, a court, as a general rule, should be guided by the legislative policies underlying' a state plan—even one that was itself unenforceable—to the extent those policies do not lead to violations of the Constitution or the Voting Rights Act." (Intervenor-Defendants' Brief in Support of their Proposed Remedial Plans ("Intervenors' Br. in Supp.") (ECF No. 232), at 2) (citing *Perry v. Perez*, 132 S. Ct. 934, 941 (2012) (quoting *Abrams v. Johnson*, 521 U.S. 74, 79 (1997))). It is the last clause of this statement that is critical. Other criteria must bow to the need for a constitutional plan, and such a plan must avoid using race as a predominant consideration, and avoid minority vote dilution in violation of the Equal Protection Clause of the Constitution or the still relevant portions of the Voting Rights Act.

(g2B) Given the demography and geography of the State of Virginia discussed in 5.(b) above, as political scientist and expert on redistricting, in my view, although other options (such as redrawing CD3 as a Richmond area based district) might be possible, the obvious way to remedy the constitutional violation in CD3 is to redraw CD3 as a Newport News-Hampton-Portsmouth-Norfolk based district that is contiguous, highly compact, and has few city splits. Such a district begins already well on its way toward having the necessary population for an ideally sized congressional district and incorporates a substantial portion of the population found in the current CD3. This is certainly a major change from the current configuration, but it is a change needed to craft a narrowly tailored remedy for the constitutional violation identified in the majority opinion in *Page*.

(g3A) A third way to think about “least change” has to do with the nature of the reconfiguration of the districts that must be changed in some fashion because of the constitutionally mandated changes in CD3, which cause “spillover” effects in the proximate districts (here, CDs 1, 2, 4, and 7). In the two illustrative maps I have presented, I began by drawing a Newport News-Hampton-Portsmouth-Norfolk based CD3 that is already very nearly large enough to constitute an ideal size district, and I then added proximate population to create a compact contiguous CD3 with a minimal number of city or county splits. That is, I began with the congressional district where a constitutional violation has been found and remedied

that violation before I moved any further. Beginning with CD3 as a Newport News-Hampton-Portsmouth-Norfolk based district that is contiguous, highly compact, and has few city splits means that the four other congressional districts in the eastern portion of the state (1, 2, 4, 7) need to be reconfigured for population purposes, and should be drawn in a fashion that is generally reflective of the geographic configurations of the current form of these districts.

(g3B) Of course, when the configuration of CD3 is so substantially changed, with nearly half of the population removed from the district and the district redrawn to assure both contiguity and compactness and the avoidance of unnecessary city/county splits, there are obvious limits to how similar the remaining four changed districts can be to their present exact geographic configurations.

Nonetheless, in the two plans that I have presented to the Court, CD2, as in the present plan, continues to be configured to run from the eastern shore (Accomack and Northampton) to Virginia Beach, including these cities/counties in their entirety, and then adding some additional proximate population for one person, one vote purposes; CDs 1 and 7 continue to be configured, as in the present plan, as somewhat more northern and western districts, with CD1 generally above CD7; while District 4 is largely drawn as a “residual” district after the other four districts have been redrawn, and it includes a substantial portion of current CD4 as well as a significant portion of current CD3 (the part outside the Newport News/Portsmouth area).

(g4A) A fourth meaning of “least change” has to do with how incumbents in the current congressional districts are treated. In particular, in alternative maps, are the homes of all incumbents retained within the districts whose numbers correspond to those of the incumbents’ present districts? In my initial exploratory map drawing, though I was fully aware of the present configuration of congressional districts, I deliberately operated in ignorance of the location of the home of the present incumbents so as to examine how map drawing would proceed without such considerations, simply following good government criteria. I also alerted the Court to the possibility that, in so doing, I might inadvertently pair some incumbents. Having completed the drawing of illustrative maps that did not take incumbency into account, I have now been instructed by the Court (as noted in the Order filed October 22, 2015 (ECF No. 263)) to take into consideration the residences of incumbents in assessing alternative plans.

(g4B) In some of the earlier illustrative maps I drew, Congressman Forbes, the present incumbent in District 4, who resides in Chesapeake, and Congressman Rigell, the present incumbent in District 2, who resides in Virginia Beach, were paired in District 2. Though living in different political entities, these two members of Congress have homes that are only 17.4 miles apart, and they reside in an area of the state where redistricting options are constrained by proximity to Chesapeake Bay and the North Carolina border. In the two illustrative plans that I have

redrawn following the Court's Order, I have been able to redraw the plans to eliminate the pairing without substantial change to the prior iterations of these plans, drawn considering only good government criteria. In general, except for remedying the pairing, which required a slight adjustment in lines (primarily in Chesapeake and Suffolk), the differences in configuration are minimal between illustrative plans that paired two incumbents and the revisions of those same illustrative plans that did not pair any incumbents, although in one of the illustrative plans there is a very slight reduction in compactness and an increase of one in the number of city cuts, as compared to the version of the plan that did not pair incumbents.

(g5) A fifth approach to "least change" was offered by Defendant-Intervenors in their brief submitted for the Court's September 18 deadline. They proposed that a new plan should "faithfully adhere to the Legislature's undisputed—and 'inarguabl[e],' ... "political goals" of implementing "an 8/3 incumbency protection plan," and thus preserve a plan that elected "8 Republicans and 3 Democrats to Congress." (Intervenors' Br. in Supp. at 12-13).¹⁰ While protecting incumbent seniority may be a legitimate goal, it is one that must give way to the need to draw

¹⁰ From my perspective as Special Master, the only aspect of this case that is indeed, undisputed and inarguable is that federal courts have an obligation to choose policies that do not "lead to violations of the Constitution or the Voting Rights Act." *Perez*, 132 S. Ct. at 941 (quoting *Abrams*, 521 U.S. at 79). The characterization of the motivation of the legislature in creating the current map has already been argued and litigated and decided in *Page*. I also note that I have neither reviewed the trial evidence bearing on the question of legislative intent nor formed an opinion about this issue.

a constitutional plan. As indicated above, I have addressed the incumbency issue by assuring that the homes of all present incumbents are located within the district in the new illustrative plans that has the same number as their current district. I have addressed state preferences for least change by drawing plans in which a majority of the congressional districts in the state were left unchanged, and others changed only as a result of a constitutionally needed reconfiguration of CD3, which impacted four other districts. Moreover, given the fact that the major changes in CD3 required substantial changes in all proximate districts, as discussed above, the changes made in the impacted districts in the illustrative plans I present, nonetheless preserved, roughly, the same general configurations in these impacted districts as in the current plan. I gave no weight to the notion that it was obligatory for me to propose to the Court plans that were intended to freeze into place partisan political outcomes such as an 8-3 Republican to Democratic ratio in Virginia's congressional delegation. I have addressed considerations of electability or of partisan politics only in areas of the state where this issue could not be avoided because of the need to assess the potential for the creation of a district in which the minority community realistically had an equal opportunity to elect candidates of choice. Elsewhere I have drawn districts in a fashion that was blind to the partisan politics, while cognizant of the shape of the current districts.¹¹

¹¹ In *Gaffney v. Cummings*, 412 U.S. 735 (1973), the Supreme Court did allow for consideration of partisan impact in a plan that was "otherwise acceptable" and where the political purpose achieved "is to provide districts that would achieve 'political fairness' between the political parties." On the one hand, the present plan has been declared constitutionally invalid and, on the other hand, there has been

6. Assessment of submitted plans in the light of the criteria enumerated above (but with discussion of issues connected to the creation of a district that avoids retrogression and provides the African-American community a “minority opportunity to elect candidates of choice” largely postponed until a later section):

(a) The revised plan proposed by Plaintiffs (ECF Nos. 229, 230) in the September 18 round of briefs fails to satisfy the first and most minimal definition of “least change” given above, as do most of the other submissions. Given the population and demography of central and eastern Virginia, I cannot recommend any plans to the Court that make changes in districts beyond the four districts contiguous to CD3 and CD3 itself, since any such plans do not offer a remedy for the constitutional infirmities of CD3 that is narrowly tailored. This failure to offer a narrowly tailored remedy immediately rules out six of the eight submitted plans, namely plans submitted by Plaintiffs, the Governor of Virginia (ECF No. 231), the NAACP (ECF

absolutely no evidence presented that it would achieve “political fairness” between the political parties. Support for a plan by incumbents elected in the past under very similar configurations, who can thus anticipate the high likelihood of their reelection under the plan, is, in my professional judgment, not evidence of “political fairness” between the parties. As McGann et al. note in their forthcoming 2016 book, *Gerrymandering in America: The House of Representatives, the Supreme Court and the Future of Popular Sovereignty*, “[I]n general it is difficult to get politicians to vote against the system that elected them.” (Cambridge University Press (unpublished manuscript) p. 252).

No. 227), Senator Petersen (ECF No. 219), Mr. Rapoport (ECF No. 228) and Richmond First (ECF No. 218).

(b) The plans introduced by Defendant-Intervenors, which make only minimal changes in the present configuration of CD3, continue to split Newport News, involving a three way split of the city in ways that appear race related,¹² and they do not satisfactorily address contiguity issues in CD3 in terms of providing a justification for the arbitrary splitting of that city. Thus, from a political science standpoint, the question of whether these versions of CD3 in their still tortuous form are anything other than gerrymanders inextricably linked to race is not satisfactorily dealt with. Moreover, the brief in support of these plans does not provide justification for the choices made about minority population/voting age population share in CD3 vis-à-vis potential for the African-American community's realistic opportunity to elect a candidate of choice, and my own analyses, described in detail below, demonstrate that these plans, which have a 50.2% and 50.1% African-American voting age percentage, respectively, do not deal with the constitutional infirmities in CD3 via a narrowly tailored remedy. Either one of

¹² We may think of the three pieces of Newport News that are split between congressional districts 2 and 3 in each of the Defendant Intervenors' two maps as a leftmost piece, a rightmost piece, and a middle piece. The leftmost piece and the rightmost piece are placed in the district labeled CD3; the middle piece is placed in the district labeled CD2. The pieces that are retained in CD3 are the portions with greater black voting age population (44.6% in the leftmost piece of the city, and 74.6% in the rightmost piece of the city). *In toto*, they are majority black in voting age population (56.4%). The population that is moved into CD2 is only 24.1% African-American in voting age.

these defects, standing alone, would make the plan unacceptable, and so I cannot recommend the Court adopt either of Defendant-Intervenors' (very similar) plans.¹³

(c) In dealing with all the various criteria identified above, my recommendation is that the Court adopt a plan of its own that draws on the best elements of plans that have been submitted to the Court.

¹³ Moreover, the plans proposed by the Defendant-Intervenors remain highly ill-compact in the ways in which CD3 is configured, and have a relatively large number of total city/county splits in that proposed congressional district in comparison, for example, to the NAACP plan for CD3. These are among the kind of potential indicia of predominant racial intent to which the decision in *Page* called attention. Furthermore, configuring CD3 in the general form that is configured in the present plan, and in Defendant-Intervenors' plans, and in some other submitted plans, arguably fragments some minority population concentrations in central and eastern Virginia in ways that raise "equal protection" concerns.

II. REALISTIC OPPORTUNITY TO ELECT MINORITY CANDIDATES OF CHOICE

7. Measurement issues in ascertaining the realistic opportunity of a minority community to elect candidates of its choice, i.e., to create what is sometimes referred to as a “minority opportunity district” or a “minority opportunity to elect” district.

(a1) As previously noted, the starting point for any inquiry into the potential to create a district offering the minority community an equal opportunity to elect candidates of choice is the demography and geography of areas where such a district might be constructed. I have done such analyses (see discussion above and further discussion below).

(b) The second element in considering the potential to create a “minority opportunity to elect” district involves the study of elections in the relevant areas of the state.¹⁴ I have also done such analyses (see further discussion below).

¹⁴ For a more general discussion of this and related issues involving measurement of aspects of elections related to minority representation, see Bernard Grofman, Lisa Handley & Richard Niemi, Minority Representation and the Quest for Voting Equality. (Cambridge Univ. Press, 1992). Though the discussion in that volume of relevant court cases is now largely outdated, its discussion of social science methodology remains pertinent.

(c) In looking to specify the set of elections that it useful to analyze, there are several principles of “best practice:”

(c1) The elections analyzed should be ones where a viable minority candidate is a contestant.¹⁵ Usually we examine election results involving contests where there are both minority and non-minority candidates, and where there is a least one viable candidate of each race.¹⁶ Information can, however, also be gleaned from contests where only minority candidates are involved, or where there is an election involving a minority candidate in which that candidate wins uncontested.

(c2) The elections analyzed should be recent.

(c3) The elections analyzed should be in the parts of the state where the proposed remedial district or districts are to be created or, if the election being analyzed is statewide, it needs to be possible to report results of that election for areas of the state that (in whole or part) comprise actual or hypothetical districts, i.e., what are commonly called “recompiled” elections. The nature of the districts sufficient to provide the minority community a realistic opportunity to elect candidates of choice

¹⁵ Looking at contests where there is no minority candidate can be misleading if white voters are less likely to vote for a minority candidate (of a given party) than they are to vote for a non-minority candidate (of that same party).

¹⁶ Election results where candidates of one race are not viable can be misleading if projected into contexts where we might expect there to be viable candidates of more than one race. However, essentially uncontested contests can still be useful sources of information.

can vary across different areas of a state. Looking at data on “recompiled” elections across different potential districts allows us to take into account local variations in voting behavior and demography.

(c4) The elections analyzed should be of the same or very similar type as the type of elections at legal issue. Here a particularly important distinction is between partisan and non-partisan elections: Partisan elections offer voters a partisan cue, and are more likely to trigger partisan attitudes and loyalties on the part of voters to the candidate of whichever party they are most attached to. Another difference is that partisan elections are typically a two stage process in which there is a contest for party nomination and then a general election.

(c5) If elections are of a partisan nature, then the realistic analysis of potential to elect minority candidates of choice must consider both the likely outcomes at the primary election phase and at the general election phase of the election process. To put it simply: in a partisan election contest, to win, you must first be nominated (in a party primary) and, once nominated by a party, be able to go on to win the general election.¹⁷

¹⁷ A more formal way to express this insight is in terms of what statisticians refer to as the *Law of Conditional Probability*. That Law states that the probability of the joint outcome (A and B) equals the probability of the outcome A if the outcome B has occurred, multiplied by the probability of obtaining the outcome B. In the partisan election context, what this means is that the probability of a (minority) candidate of choice of the minority community being elected is the product of the probability that a (minority) candidate of choice of the minority community wins the

(c6) Analyses should be attentive to whether or not there is an incumbent in the election contest, and to the race or ethnicity of that incumbent and, for partisan contests, they should be attentive to the party of the incumbent.

(c7) Sometimes limitations in terms of the availability of data on elections of an appropriate type will not make it possible to follow all the rules of best practice identified above. In such cases, decisions as to choice of elections to analyze requires an intense appraisal of local circumstances.¹⁸

(d) I have also reviewed data on general and Democratic primary elections in CD3, and also on recent Democratic primary and general election outcomes in CD4.

(d1) For all elections, for voting rights purposes, analyses must usually be attentive to the (expected) racial composition of the districts; for partisan contests it is important to be attentive to the expected racial composition of the electorate at both phases of the election process, primary and general.

general election if that candidate is the nominee of a given political party multiplied by the probability that a (minority) candidate of choice of the minority community wins the primary of that party, summed over all parties.

¹⁸ For further discussion of this and related issues see Grofman, Bernard, Lisa Handley and Richard Niemi. Minority Representation and the Quest for Voting Equality, (Cambridge Univ. Press, 1992).

(d2A) In the contemporary U.S., based on survey data, exit poll data, and ecological inference techniques of aggregate election returns, the vast majority of African voters tend to support Democratic Party candidates. This is especially true in contests where the Democratic candidate is himself or herself African-American. For example, in the 2012 Presidential election, based on *New York Times* exit polls,¹⁹ a majority of white Virginia voters (61%) voted for former Massachusetts Governor Romney, while the vast majority of African-American voters (93%) voted for President Obama.²⁰

(d2B) *Ceteris paribus*, voters who vote for Democratic (Republican) candidates in general elections are more likely to vote in the Democratic (Republican) primary than those who do not support Democratic (Republican) party candidates in general elections, if they do vote in a party primary. Because African-American voters are more likely to vote Democrat than Republicans in general elections, while white voters are considerably more likely to be Republican voters in general elections than is the case for African-American voters, *ceteris paribus*, the expected proportion of African-American voters is going to be higher among voters in Democratic primaries

¹⁹ Elections.nytimes.com

²⁰ Lower proportions of the Hispanic and Asian-American voters in Virginia voted for President Obama in 2012 than was the case for black voters, but Obama support among these groups was still well above 60%.

than the proportion of African-American voters among all voters in a general election. Conversely, the expected proportion of white voters is going to be lower among voters in Democratic primaries than the proportion of white voters among all voters.

(e1A) For studying the realistic opportunity of an African-American candidate of choice to win elections in different congressional district configurations I have made use of election data at the voter tabulation unit (precinct) level that can be projected into alternative district configurations to create a “recompiled” election within any given proposed congressional district in the State. For recomputations to examine the realistic opportunity of an African-American candidate to win a general election in some particular hypothetical (remedy) district I have made use of data from both the 2008 and 2012 general elections for U.S. President, where an African-American candidate (Barack Obama) faced a non-African candidate. For recomputations to examine the realistic opportunity of an African-American candidate to win a Democratic primary election in some particular hypothetical (remedy) district I have made use of data from the 2013 Democratic primary to select a candidate for Attorney General of the State of Virginia. In this biracial contest, the African-American candidate, Justin Fairfax, was not an incumbent, and his principal opponent was a white candidate with a strong background who went on to win the Democratic primary, statewide, and to subsequently be elected Attorney General of the State of Virginia.

(e1B) In studying elections in order to assess the realistic opportunity for the minority to elect a candidate of choice, I have followed best practices as indicated above. (1) I have looked only at contests involving an African-American candidate; (2) I have looked at recent elections, with the oldest from 2008 and most considerably more recent; (3) I have looked at contests taking place in the area of the state where there is substantial black population in or proximate to current CD3; (4) I have looked only at partisan contests; (5) I have looked at both primary election contests and general elections, (6) I have been attentive in my analyses to whether or not there was an incumbent in the contest and to the party of that incumbent. Finally, while I have examined elections in congressional districts 3 and 4 involving an African-American candidate, in order to consider the realistic opportunity to elect potential in hypothetical districts whose configurations are quite different from current CD3, of mathematical necessity I have examined outcomes in compiled (statewide) elections projected into these hypothetical districts. In so doing I have been attentive to what we can learn from such compiled elections about potential congressional elections within the same geography.

(e2A) For election contests chosen in line with the best practices above, to the extent made possible by the limitations of available evidence, data from compiled elections can allow us to decide whether or not a given proposed congressional district offers the minority community an equal opportunity to elect a candidate of choice. It is my

professional judgment that, to put it straightforwardly, if a minority candidate of choice wins a “compiled” Democratic primary election in a proposed remedial district by an overwhelming margin, at or above 60%, using actual election data; and in that same district a minority candidate of choice can also be shown to win a “compiled” general election by an overwhelming margin in the general election, at or above 60%, again using actual election data, unless that election can be shown to be unrepresentative of usual voting patterns, we can be confident that the district gives minorities in realistic terms, an equal opportunity to the minority community elect a candidate of choice. In such a district the minority candidate of choice can be expected to have a realistic opportunity to win the Democratic primary and then go on to win the general election as the nominee of that party.

(e2B) Note that this 60% figure for the compiled results I mention above is an upper bound in that, once we are at or above 60% in projected results of appropriate elections for both the primary and the general election, we can be confident beyond any reasonable doubt that the district in question provides minority voters a realistic opportunity to elect candidates of choice, and thus creates what is often called a “minority opportunity district” or a “minority opportunity to elect” district. I did not use this 60% figure as a bright line test. It may well be the case that a realistic opportunity to elect district could be created in which compiled relevant election results from actual elections for the Democratic Party primary and for the general election projected into the district were each between 50% and 60%. What I

have done by examining a large set of alternative configurations of CD3 is to first establish that a 55% black voting age population was not necessary to create an “opportunity to elect district” in CD3, and then to establish that even a 50% black voting age population was not necessary to create a “opportunity to elect district” in CD3, and then to establish that a district with somewhat above a 40% black voting age population would provide a “opportunity to elect district” in CD3. The illustrative districts I drew to remedy the constitutional infirmities in CD3 were drawn as very compact contiguous districts incorporating whole cities to the extent feasible, as part of a plan that is drawn along good government lines, and the percentage of black voting age population that is found in these illustrative districts is already eleven to fourteen percentage points lower than the black voting age population percentage in the present CD3. As a consequence of these facts, I did not find it necessary to seek to determine the absolute minimum percentage of African-American voting age population needed to create an “opportunity to elect district” for minority voters, since my illustrative versions of CD3 and of the overall plan are already narrowly tailored to remedy the constitutional violation in CD3.²¹

²¹ In general, there will be a many parameters whose expected values affect the likelihood that a minority candidate of choice might win both the Democratic primary and the general election in a given district for a given type of election. These parameters include black Democratic share of the eligible electorate, white Democratic share of the eligible electorate, Republican share of the eligible electorate, white Democratic support levels for minority candidates of choice in a Democratic primary among those who vote in the primary, black Democratic support levels for minority candidates of choice in a Democratic primary among those who vote in the primary, white Democratic support levels for minority candidates of choice running as Democrats in a general election among those who vote in the general election, black Democratic support levels for minority candidates

Moreover, in seeking to craft a constitutional remedy, recognition of uncertainty and the need for caution are called for, since election candidates and contests do differ.²²

(f) I have also reviewed the analyses provided by Dr. Lisa Handley in her expert witness report attached as an Appendix to the Governor of Virginia's filing with the

of choice running as Democrats in a general election among those who vote in the general election, white turnout rates in the Democratic primary, black turnout rates in the Democratic party primary, white turnout rates in the general election, and black turnout rates in the general election. As discussed further below, Dr. Handley's analyses in her Report attached as an Appendix to the Governor's September 18 brief deals with exactly such factors. A realistic appraisal of local circumstances might also include yet other factors, e.g., investigating the pool of available minority candidates and the campaign resources open to them. Here I simply note that there are viable minority candidate who have already won the Democratic Party nomination in CD3 or in CD4 or in state legislative districts in the same or proximate areas of the state.

²² Also, even if it were to be determined beyond any reasonable doubt that, for some particular district, a lower black voting age percentage, say with black voting age population below 40%, would still create a realistic "opportunity to elect" district, in that a minority candidate of choice had a realistic chance to win the primary and, if winning the primary, to go on to win the election, it is highly like that drawing a district with exactly that black voting age population percentage would require violating other criteria, such as seeking to avoid city and county splits. Finally, I note that, while configuring CD3 with a black voting age population slightly above 40% as a "minority opportunity to elect" district also allowed for the creation of a reconfigured CD4 becoming a second "minority opportunity to elect" district, further reducing the black voting age population in either CD3 or CD4 would not make possible the creation of a third "minority opportunity to elect" district in the relevant part of the state. In my judgment, based on an extensive consideration and analysis of alternative plans, given the demography and geography of the area immediately proximate to the present CD3, it is not possible to draw three "minority opportunity to elect" districts in that part of the state. In contrast, drawing two such "minority opportunity to elect" districts follows naturally from the population demography and geography of minority population concentrations in that part of Virginia and from the decision to remedy the constitutional violation in current CD3.

Court pursuant to its September 18, 2015 deadline. These analyses are done using methods that have become standard in political science analyses of cases involving voting rights issues.²³ Most of her analyses focus on the potential for providing minorities an equal opportunity to elect candidates of choice by drawing CD3 in the area around Hampton, Newport News, Portsmouth and Norfolk. She looks at issues such as minority political cohesion and minority turnout. I find her analyses to be complementary to my own analyses, and leading to very similar conclusions.

(g1A) My expectation that black voters would be disproportionately represented among the voters in Democratic primaries in Virginia relative to the overall African-American share of the potential electorate (those of voting age) is confirmed by Dr. Handley's analyses. She finds that, in the Democratic primary for U.S. President in 2008, blacks "opted to vote in the Democratic primary at a much higher percentage than whites did: approximately 18% of the black voting age population compared to approximately 11% of white voting age population cast a vote in the Democratic Primary in 2008" (Handley Report p.11). As she correctly notes: "The implication of this analysis is that "the percent black voting age population needed to produce an effective black district tends to be lower for Democratic primary elections than for general elections" (Handley Report p.11). *Ceteris paribus*, this

²³ Some of those methods are ones that I have myself developed, or adapted from the work of others to make them better applicable to the redistricting context. These methods, e.g., ecological inference to infer turnout levels and levels of political cohesion of African-American and white voters (or of Hispanic and non-Hispanic voters) are discussed in my own published research, including the work that I have done jointly with Dr. Handley that she cites in her Report.

finding clearly indicates that there can be a realistic opportunity for a minority candidate of choice to win the Democratic Party nomination even in a district that, overall, is less than majority black (majority minority) in voting age population.

(g1B) The likelihood that a minority candidate of choice will win an election depends in part upon relative turnout levels of minority and non-minority voters in that election. Dr. Handley's analyses (Table 4 in her Report) demonstrate that African-American turnout in general elections is only slightly below white turnout in the general election in the current CD3 (34% versus 37%). *Ceteris paribus*, relatively similar levels of white and black turnout make it more likely that a minority candidate of choice has a realistic opportunity to be elected.

(g1C) The likelihood that a minority candidate of choice will win an election depends in part and upon the degree of cohesion of minority voters in their voting support for the minority candidate of choice, and the willingness of non-minority voters to vote for the candidate of choice of the minority community (what is often called "cross-over voting"). Dr. Handley's analyses demonstrate that, in the current CD3, black voters are almost perfect cohesive in their voting behavior (giving an average of over 97% of their votes to a particular candidate (the Democrat) in partisan statewide and congressional contest on candidate choice, and are much more homogenous in voting patterns than white voters in the current CD3 (see Table 5 in her Report). In particular, even when whites and blacks support

different candidates, a substantial proportion of white voters vote for the minority candidate of choice. For example, Dr. Handley finds that, in the current CD3, a (bare) majority of white voters supported Barack Obama in the 2012 presidential general election, while white support for him in the 2008 general election was also high, somewhere between 43 and 46% (see Table 5 in her Report). Even in the 2008 Democratic primary election she estimates white support in (then) CD3 was 60.1%. In the primary election for the Democratic Party nomination for the Office of Attorney General, where white cross-over voting was low, she estimates that at least 32% of the white voters in that primary cast a vote for Justin Fairfax, the African-American candidate (Handley Report, p. 13). *Ceteris paribus*, high levels of minority political cohesion and substantial levels of white cross-over voting make it much more likely that a minority candidate of choice has a realistic opportunity to be elected, even in contests in Virginia where voting is polarized along racial lines, as long as minority population is large enough to allow for a party nomination and subsequent election with cross-over support from non-minority supporters of that party.

III. ILLUSTRATIVE MAPS OF POTENTIAL CONFIGURATIONS OF REMEDIAL DISTRICTS

8. Illustrative maps

(a1A) As indicated earlier, I have drafted two illustrative maps to show how the constitutional defects in the present CD3 can be remedied. Those plans draw CD3 as a contiguous, highly compact district, with few city splits, and with a substantial minority population. Also noted earlier, once CD3 has been redrawn in this fashion as a constitutional district, there is no need for changes to any districts other than the four districts directly contiguous to CD3, namely CD1, CD2, CD4 and CD7. In each of these plans, CD2, as in the present plan, is a district drawn beginning in the eastern shore and picking up the bulk of its proximate population in the city of Virginia Beach. Similarly, as in the present plan, CD1 and CD7 are districts further to the west, with CD7 below CD1, with changes in configuration from the current plans being ones necessary for population equality. Also, as noted earlier, the illustrative maps both place the homes of all present incumbents in districts that bear the same number as their present districts.

(a1B) Furthermore, the major change in the configuration of District 3, concern for avoiding unnecessary splits of cities and counties, and the mathematics of population equality balancing, has led me, virtually automatically, to create the remaining district whose boundaries have been changed, CD4, as a district that

includes the whole cities of Richmond and Petersburg and which then moves south and east for population equality purposes. CD4 as so drawn, with a substantial minority population, neither packs nor fragments minority voting strength in the eastern portion of the state. Indeed, appropriate remediation of the constitutional infirmities identified in CD3 has had the additional benefit of creating a second “minority opportunity to elect” district in CD4 that remedies previous fragmentation of the black population in eastern central Virginia.

(b) The two illustrative maps are labeled (using my original mnemonics for the iterative line drawing process), as NAACP plan Modification 6, and Current Congressional Plan Modification 16. The key difference between them vis-à-vis CD3 is that NAACP plan Modification 16 keeps whole in CD3 the cities of Newport News, Hampton, Portsmouth and Norfolk, and splits the Isle of Wight; while Current Congressional Plan Modification 16 keeps whole in CD3 the cities of Newport News, Portsmouth, and the Isle of White, with splits in the city of Norfolk that largely follow the lines of the split of that city between CD2 and CD3 found in the current congressional map, and splits in Hampton to assure contiguity by bridge between northern and southern shore components of CD2. In one illustrative map the Franklin City is entirely in CD3; in the other it is entirely in CD4.²⁴

²⁴ Both illustrative remedial maps keep the entire eastern shore and the Virginia Beach whole, and in the same district, CD2. In one illustrative plan keeping Virginia Beach whole forces a split in Gloucester for population purposes. In the other illustrative plan, keeping Virginia Beach whole creates population balancing issues that affect the nature of the split in Norfolk. Both illustrative plans keep

(c1) Table 1 below shows key data for CD3 in each of the illustrative plans. A portion of the current CD3 becomes the largest component of the newly configured CD3 in each of the illustrative remedial plans I have proposed (NAACP plan Modification 6, and Current Congressional Plan Modification 16). To facilitate comparisons, similar data for the current plan, the Defendant Intervenor's plans, and the Plaintiffs' September 18 plan are also shown in Table 1. These three additional plans are shown only as indicative of the types of maps that have been proposed by parties and Amici, not as maps that I am proposing for consideration by the Court as remedial plans. For reasons previously indicated in this report, I do not regard these three maps, nor any of the other eight maps that were submitted with full supporting data on September 18 pursuant to the Court's Order, as appropriate remedies for the constitutional violations in CD3 identified in the majority opinion in *Page*.

whole Richmond, Petersburg, and the Tri-Cities area in CD4 and also keep whole in CD4 almost all of the cities and counties of southeastern Virginia from Richmond to Chesapeake. However, both illustrative maps split Suffolk in the process of making a connection to Chesapeake, where the home of Congressman Forbes is located, in order to place him in his home district of CD4 -- with the exact nature of the splits related to population balancing issues. One of the illustrative remedy maps also splits Chesapeake into two congressional districts (CD3 and CD4) for population balancing purposes, with the part of Chesapeake in CD4 including the home of Congressman Forbes. Given the changes in the configuration of CD3 to remedy the constitutional violation, avoiding the pairing of Congressman Forbes (CD4) and Congressman Rigell (CD2) in the same district requires CD2, for population purposes, to extend into Poquoson and elsewhere on the northern shore so as to avoid an extension of CD2 into Chesapeake in a way that would include Congressman's Forbes' home.

Table 1
 Comparisons of CD3 Among Illustrative/ Proposed Remedial Plans

Plan (district 3)	White VAP	Black VAP	Hispanic VAP	2012 Dem. President	2008 Dem. President	2013 Dem A.G. Primary J. Fairfax	Split localities	Polsby-Popper	Reock-Ehrenberg
Current	37.30%	56.30%	4.50%	79.50%	77.60%	62.4%	6	0.08	0.12
Plaintiff's	42.20%	51.50%	4.90%	72.70%	70.00%	63.8%	2	0.12	0.16
Intervenor Plan 1	43.10%	50.20%	5.00%	75.60%	74.10%	59.9%	5	0.08	0.12
Intervenor Plan 2	43.00%	50.10%	5.00%	75.10%	73.60%	60.6%	6	0.10	0.16
NAACP Plan modification 6	50.6%	42.3%	5.2%	67.5%	64.8%	60.5%	2	0.36	0.36
Modified Current Congressional plan modification 16	48.3%	45.3%	4.3%	67.6%	65.4%	63.0%	4	0.22	0.31

(c2A) In what I have called illustrative NAACP Plan Modification 6, the reconfigured CD3 is contiguous by land, bridge or tunnel. As demonstrated in Table 1, it is far more compact than CD3 in the current plan, and far more compact than CD3 in any of the submitted plans provided in Table 1 solely for comparison purposes, whether we look at the Polsby-Popper measure (based on the area of a circumscribing circle relative to the area of the district) or at the Reock measure (based on the degree of irregularity/jaggedness in the district perimeter). The current CD3 scores .08 on Polsby-Popper and .12 on the Reock measure; the comparable scores for CD3 in my illustrative modification 16 of the present map are .36 and .36 – i.e., between three and four times as high in each case. Moreover, in the NAACP modification reconfiguration of the current map, the reconfigured CD3 splits only 2 cities or counties, as compared to 6 that are in the current map.

(c2B) In what I have called illustrative modification 16 to the current map, the reconfigured CD3 is contiguous by land, bridge or tunnel. As demonstrated in Table 1, it is far more compact than CD3 in the current plan, and far more compact than CD3 in any of the submitted plans shown in Table 1 for comparison purposes, whether we look at the Polsby-Popper measure (based on the area of a circumscribing circle relative to the area of the district) or at the Reock measure (based on the degree of irregularity/jaggedness in the district perimeter). The current CD3 scores .08 on Polsby-Popper and .12 on the Reock measure; the

comparable scores for CD3 in my illustrative modification 16 of the present map are .22 and .31 – i.e., about two and a half time times as high in each case. Moreover, in illustrative Modification 16 to the current map, the reconfigured CD3 splits only 4 cities or counties, two fewer than are split in the current map.

(c3A1) As shown in Table 1, the black voting age population in CD 3 in both NAACP plan Modification 6 and Current Congressional Plan Modification 16 is in excess of 40% but still below 50% (42.3% and 45.3%, respectively), and the white voting age population in CD3 in each plan is very close to 50% (slightly above in one plan, slightly below in the other).

(c3A2) As also shown in Table 1, projecting into these illustrative configurations of CD3 the vote share for Barack Obama in his 2008 statewide contest in the general election, when President Obama was not yet an incumbent, we find that (now President) Obama would have carried each of these districts in 2008 with about 65% of the vote.²⁵ Thus, there can be no doubt that, if a viable African-American candidate wins the Democratic congressional primary in districts configured as shown in these two illustrative plans, then that candidate of the Democratic party has a realistic opportunity to win election in CD3 due to cohesive voting from within the African-American community and cross-over voting from non-black Democrats -- even if that candidate is not an incumbent.

²⁵ In 2012, Obama won in the general election with about 67% of the vote in each district.

(c3A3) The best evidence we have available to us for determining whether or not we should expect that an African-American candidate has a realistic opportunity to win the Democratic party nomination in these reconfigured versions of CD3 is to project into these districts the 2013 vote share of the African-American candidate, Justin Fairfax, in his quest for the Democratic party's nomination to be that party's candidate for statewide office of Attorney General. Mr. Fairfax was not an incumbent, and his principal opponent was a white candidate with a strong background who went on to win the Democratic primary, statewide, and to subsequently be elected Attorney General of the State of Virginia. Thus, evidence that Mr. Fairfax would have won the 2013 Attorney General Democratic primary within the boundaries of the illustrative remedial CD3 districts I have drawn for the Court, despite the fact that these districts are not majority black in voting age population, provides very strong evidence that a viable black candidate, even if not an incumbent, who achieves cohesive support from the minority community and perhaps also some cross-over support from white Democrats, has a realistic opportunity to win the Democratic primary within these districts. In fact, as Table 1 demonstrates in both these illustrative configurations of a remedial CD3, Mr. Fairfax wins easily, with between 60.5% and 63% of the vote.

(c3A41) Indeed, Mr. Fairfax receives more votes in the Democratic primary in the illustrative Modification 14 of the current version of CD3 than he did in the actual

current CD3 (63.0% versus 62.4%), despite the fact that the black voting age population in the current CD3 is 11.0 percentage points higher than in the illustrative Modification 16 of the current version of CD3.²⁶ Similarly, Mr. Fairfax does almost as well in the Democratic primary in the NAACP modification 6 version of CD3 as he did in the current CD3 (60.5% versus 62.4%), despite the fact that the black voting age population in the current CD3 is 14.0 percentage points higher than in the NAACP 6 version of CD3.²⁷

(c3A42) When we look at the 2008 Democratic primary results for Barack Obama, we find that Mr. Obama ran rather well throughout the state but he runs especially well in all of central and southeastern Virginia, even in areas where African-American voting strength was limited, and even though he had strong white opponents such as Hillary Clinton. In a compiled election projected into district CD3 in either of the illustrative plans, Obama would easily, indeed overwhelmingly, win the Democratic primary.

(c3A5) In sum, the combination of the evidence we have examined demonstrates that in a situation where there is no incumbent white Democratic candidate, an

²⁶ For a theoretical explanation of this seemingly counterintuitive result see Bernard Grofman, Lisa Handley & David Lublin, Drawing Effective Minority Districts: A Conceptual Framework and Some Empirical Evidence, 79 N.C. L. Rev. 1383 (2001).

²⁷ See previous footnote.

African-American candidate who is the candidate of choice of the African-American community clearly has a realistic opportunity to win district in CD3 either in the version of that district drawn in NAACP plan Modification 6, or in the version of that district drawn in Current Congressional Plan Modification 16.

(c3A6) The fact there is presently an African-American incumbent whose home is located in CD3 in both the NAACP plan Modification 6 configuration and in the version of that district drawn in Current Congressional Plan Modification 16 adds even more confidence to my assessment that, beyond any reasonable doubt, the versions of CD3 shown in these illustrative plans will avoid any retrogression and provide the African-American community a realistic opportunity to elect a candidate of their choice in CD3.²⁸ Similarly, the evidence reviewed above, based on primary contests involving non-incumbents (Obama in 2008; Fairfax in 2013) shows that that a viable black candidate, even if not an incumbent, who achieves cohesive support from the minority community and perhaps also some cross-over support from white Democrats, has a realistic opportunity to win the Democratic primary in CD3 as reconfigured in the two illustrative remedial plans.

²⁸ Between 2002 and 2014, in general elections, the African-American incumbent in CD3 has never received less than 68.7% of the vote, and in five elections during the decade he received over 94% of the vote in essentially uncontested election. Even if that incumbent were to retire, the seat would still be open seat. While the black voting age population in the district he ran in is higher than that in the reconfigured remedial versions of CD3 in my illustrative maps, even if we were to cut his expected vote share by a dozen or so percentage points, he would still be expected to win the general election in the district. And, of course we have projections from the vote shares of Obama in the district that, in fact, we would expect him to still win very handily by a comfortable margin.

(d1) Table 2 below shows key data for CD4 in each of the illustrative plans. The next-largest portion of the current CD3 becomes the second largest portion of CD4 in each of the two illustrative plans. Once again, simply to facilitate comparisons, similar data for the current plan, the Defendant-Intervenors' plans, and the Plaintiffs' September 18 plan are also shown in Table 2, even though these plans are not ones which I would recommend to the Court.

Table 2
Comparisons of CD4 among Illustrative /Proposed Remedial Plans

Plan (district 4)	White VAP	Black VAP	Hispanic VAP	2012 Dem. President	2008 Dem. President	2013 Dem A.G. Primary J. Fairfax	Split localities	Polsby-Popper	Reock-Ehrenberg
Current	63.3%	31.3%	4.0%	48.8%	48.0%	66.0%	4	0.20	0.20
Plaintiff's	63.1%	30.7%	4.3%	53.1%	52.2%	62.2%	5	0.19	0.22
Intervenor Plan 1	63.3%	31.2%	4.2%	49.1%	48.3%	66.0%	3	0.19	0.20
Intervenor Plan 2	63.2%	31.2%	4.2%	49.2%	48.3%	66.0%	3	0.19	0.20
NAACP Plan modification 6	52.0%	42.0%	4.4%	63.2%	62.2%	62.5%	5	0.22	0.25
Modified Current Congressional plan modification 16	53.6%	40.9%	3.9%	60.9%	60.1%	61.1%	4	0.20	0.26

(d2A) In what I have called illustrative NAACP Plan modification 6, the reconfigured CD4 is contiguous in that you can move from one land portion of the district to all other land portions of the district without the need to rely on contiguity via water. As demonstrated in Table 2, it is more compact than any of the submitted plans provided for comparison purposes in Table 2, both with respect to the Polsby-Popper measure -- based on the area of a circumscribing circle relative to the area of the district, and the Reock measure -- based on the degree of irregularity/jaggedness in the district perimeter. The current CD4 scores .20 on Polsby-Popper and .20 on the Reock measure; the comparable scores for CD4 in NAACP modification 6 are .22 and .25. This reconfigured CD4 splits one more city or county than the current map and two more splits than in some alternative proposals. In part the number of city/county splits in this configuration is related to issues of incumbency pairing in terms of the split in Suffolk to pick up the incumbent's home. Earlier versions of the same plan that paired two incumbents had one less city/county split.²⁹

²⁹ The incumbent in CD4 lives in Chesapeake and the incumbent in CD2 lives in Virginia Beach, but they live less than 18 miles apart and they live in the southeastern corner of the state, where redistricting options are limited by Chesapeake Bay to the east and the North Carolina border to the south. Once major changes have been made to the configuration of CD3 to create a constitutional district, and choices have been made about the shape of CD2 and other districts, if no incumbents are to be paired, there are constraints on redistricting options for CD4 that will require some splitting of cities or counties to insure that the home of the present incumbent of CD4 remains within that district in the reconfigured plans.

(d2B) In what I have called illustrative modification 16 to the current map, the reconfigured CD4 is contiguous in that you can move from one land portion of the district to all other land portions of the district without the need to rely on contiguity via water. As demonstrated in Table 2 it is as compact on one measure and more compact than current CD4 on the other, and more compact than the 4th congressional district in any of the submitted plans provided for comparison purposes in Table 2. The current CD4 scores .20 on Polsby-Popper and .20 on the Reock measure; the comparable scores for CD3 in my illustrative modification 14 of the present map are .20 and .26. The reconfigured CD4 splits the same number of cities or counties as the current CD4. In part, the number of city/county splits in this configuration is related to issues of incumbency pairing. Earlier versions of each plan that paired two incumbents had one less city/county split.

(d3A) As shown in Table 2, the black voting age population in CD 4 in both NAACP plan Modification 6 and Current Congressional Plan Modification 16 is above 40%, and the white voting age population in CD3 in each plan is above 50% (52.0% and 53.6%, respectively).

(d3B) As also shown in Table 2, projecting into these illustrative configurations of CD4 the actual vote share for Barack Obama in his 2008 statewide contest in the general election, when President Obama was not yet an incumbent, we find that (now President) Obama would have carried CD4 in the general election in 2008 in

each of these illustrative plans with between 60.1% and 62.2% of the vote. This give rise, in my professional judgment, to a conclusion that, if a viable African-American candidate wins the Democratic congressional primary in districts configured as shown in these two illustrative plans, then, *ceteris paribus*, that candidate of the Democratic party has a realistic opportunity to win election in CD4 due to cohesive voting from within the African-American community and cross-over voting from non-black Democrats. However because there is a white Republican incumbent whose home is also in the district, this may be a somewhat closely contested general election, but the previous level of vote success of the African-American candidate of the Democratic party in the 2012 general election in CD4, is a 42.9% vote share, in a district where, in 2012, the incumbent President Obama won only 48.8% of the vote. If you reconfigure the district to not fragment compact and contiguous minority population, then CD4 has an Obama vote in the general election in 2012 of between 60.9% and 62.5% of the vote in the two illustrative plans. Since this vote share is around 12 to 14 percentage points higher than Obama's vote share in the current CD4, although we cannot directly project Ms. Ward's 2012 vote in the current CD4 into the reconfigured CD4 districts, it seems a very high probability, posed as a hypothetical, that were she to have run as the Democratic party nominee in 2012 in a CD4 whose black voting age population share is around ten percentage points higher than in the current CD4 where she ran and lost, and where the new

district has an Obama vote share above 60%, she would have had a realistic opportunity to win election.³⁰

(d4A) An important piece of evidence that an African-American candidate has a realistic opportunity to win the Democratic Party's congressional nomination in these reconfigured versions of CD4 is that, in the most recent election (2012) where a Democrat contested the current 4th congressional district, an African-American candidate, Ella Ward, won the Democratic Party's congressional nomination. Since the current district CD4 has a much lower African-American voting age population than the proposed versions of CD4 (31.3% versus 42.0%; 31.3% versus 40.9%), it seems clear *a fortiori* that there is a realistic chance that an African-American who is the candidate of choice of the African-American community can be nominated by the Democratic party from either of the reconfigured versions of CD4, since the district is gaining, and substantially so, in African-American population.

(d4B.) Further evidence we have available to us for determining whether or not we should expect that an African-American candidate has a realistic opportunity to win the nomination in these reconfigured versions of CD4 is to project into these districts the 2013 vote share of the African-American candidate, Justin Fairfax, in his quest for the Democratic party's nomination to be that party's candidate for

³⁰ A realistic opportunity to be elected does not mean a 100% certainty. With elections nothing is certain until the ballots have been counted and certified (or until the outcome has successfully sustained court challenge).

statewide office of Attorney General. As noted earlier, Mr. Fairfax was not an incumbent, and his principal opponent was a white candidate with a strong background who went on to win the Democratic primary, statewide, and to subsequently be elected Attorney General of the State of Virginia. Thus, evidence that Mr. Fairfax would have won the 2013 Attorney General Democratic primary within the boundaries of the CD4 districts in the two illustrative districts I have drawn for the Court, despite the fact that these districts are not majority black in voting age population, provides strong evidence that a viable black candidate, even if not an incumbent, who achieves cohesive support from the minority community and perhaps also some cross-over support from white Democrats, has a realistic opportunity to win the Democratic primary within these districts. In fact, as Table 2 demonstrates, in both illustrative configurations of a remedial CD4, Mr. Fairfax wins easily, with over 60% of the vote (62.5% and 61.1%, respectively).

(d4C). In a compiled election projected into CD4 in either of the illustrative plans, Barack Obama would easily win the Democratic primary in 2008.

(e) As noted above African-American candidate of choice, Ella Reed, won the Democratic Party nomination in CD4 in 2012, in the first election held under those new district lines, but she rather lost the general election with a vote share of only 42.9% vote. Ms. Reed chose not to seek the Democratic nomination in CD4 in 2014. Indeed, no Democrat chose to seek the Democratic Party nomination in CD4 in

2014. I conclude from this latter fact, and the fact that President Obama failed to carry CD4 in 2012, even though he was then already an incumbent president, that the perception of voters in CD4 who identify with the Democratic party, including African-American voters, is that CD4, as presently configured after the 2010 census, given that it has a sitting Republican incumbent, is not a district where a Democrat can win election to congress and thus, *a fortiori*, not a congressional district where an African-American candidate of choice can win election, even though an African-American candidate can win the Democratic party nomination.³¹

When we turn from specific consideration of individual districts, first CD3 and then CD4, to the overall features of the two illustrative remedial maps in the full set of five districts that have been modified (CD1, CD2, CD3, CD4, and CD7) we find that not only do the illustrative maps resolve the constitutional defects in current CD3 in a narrowly tailored fashion, and pay respect to the demography and geography of

³¹ In some circumstances, it may be easier for a minority candidate of choice to win the Democratic primary than to win the general election (e.g., when there are few white Democrats relative to the number of African-American Democrats, and the combined African-American and non-African-American vote for the Democratic candidate is not large enough to win a general election); while in other circumstances it may be harder for a minority candidate of choice to win the Democratic primary than to win the general election (e.g., when there are many more white Democrats than black Democrats, but the combined African-American and non-African-American vote for the Democratic candidate is large enough for a Democrat to win a general election). But, as emphasized earlier, to have a realistically drawn “minority opportunity district” it is necessary to have a realistic chance to win both a party primary and a general election, running in the latter as the official candidate of that party. For further discussion of this and related issues see Bernard Grofman, Lisa Handley & David Lublin, Drawing Effective Minority Districts: A Conceptual Framework and Some Empirical Evidence, 79 N.C. L. Rev. 1383 (2001).

the state that results in plans that are far superior to the current map in their treatment of minority population concentrations, but we also find that the two illustrative maps, which are drawn according to good government criteria, are clearly overall superior to the current plan on the criteria of city splits and compactness. These comparisons are shown in Tables 3 and 4.

Table 3. Compactness Comparisons in the Modified Districts (1, 2, 3, 4, 7)

DISTRICT	current map Polsby- Popper	NAACP Mod 6 Polsby- Popper	Mod 16 of current map Polsby- Popper	current map Reock	NAACP Mod 6 Reock	Mod 16 of current map Reock
1	0.18	0.2	0.23	0.21	0.25	0.25
2	0.21	0.2	0.22	0.21	0.22	0.21
3	0.08	0.36	0.22	0.12	0.36	0.31
4	0.2	0.22	0.2	0.2	0.25	0.26
7	0.13	0.17	0.2	0.2	0.25	0.26

Table 4. Locality Split Comparisons in the Modified Districts (1, 2, 3, 4, 7)

DISTRICT	current map locality splits	NAACP Mod 6 locality splits	Mod 16 of current map locality splits
1	5	4	4
2	3	2	3
3	6	2	4
4	4	5	4
7	4	3	3

IV. FINDINGS AND RECOMMENDATIONS

For reasons elaborated in the text, I cannot recommend to the Court any of the eight full plans presented to the Court as of September 18, 2015. Six of the eight plans, by making changes in the current congressional plan that extend into districts that are not immediately contiguous to current CD3, are making changes in more districts that we need to modify for the purpose of being able to create a fully satisfactory remedial version of CD3. These six plans can be eliminated immediately on grounds of lack of narrow tailoring. Two others (the two plans offered by Defendant Intervenors), which do limit changes to only five districts, and which make relatively minimal changes in the current boundaries of CD3, still fail, in my judgment, to provide a constitutional plan. First, the brief justifying these plans does not provide satisfactory responses to issues of contiguity, unnecessary city and county splits, and lack of compactness in CD3. These issues were among the key issues in the finding that the current CD3 was unconstitutional. Second, and even more importantly, the plans fail to pay adequate attention to the nature of a district that would be needed to provide to achieve a non-retrogressive district that provided minority voters equal opportunity to elect a candidate of choice. The minority population placed in CD3 in these plans is far in excess of what is needed for a minority opportunity district. Thus the plan fails the narrow tailoring test.³²

³² Furthermore, by configuring CD3 in the same general form that it is configured in the present plan, the Defendant-Intervenors' plans (as well as the Plaintiffs' plan and some other submitted plans), arguably pack minority voting strength in CD3, which then has the effect of fragmenting a potential compact minority population concentration elsewhere that could form the basis of a reconfigured CD4.

For these reasons, I cannot recommend the Court adopt either of Defendant-Intervenors (very similar) plans. Thus, my recommendation is that the Court adopt a plan of its own that draws on the best elements of plans that have been submitted to the Court.

As described in *Page*, one justification offered by some individual Virginia legislators for the way in which the present CD3 was configured, was that such a configuration was required because only a district with a 55% black voting age majority could provide African-American voters with a realistic opportunity to elect candidates of choice. That assertion is unsupported by any empirical evidence. Moreover, in my view as a political scientist specialist on redistricting, not only does talismanic reliance on a figure of 55% black voting age population impose a “bright line” test rejected by the Supreme Court in *Alabama Legislative Black Caucus et al. v. Alabama*, 135 S. Ct. at 1270,³³ but analyses specific to the eastern part of Virginia demonstrate that the claim that a 55% minority voting age population is

³³ In *Alabama Legislative Black Caucus*, the Supreme Court discussed the concept of retrogression and asserted that avoiding retrogression “does not require a covered jurisdiction to maintain a particular numerical minority percentage,” but instead “requires the jurisdiction to maintain a minority’s ability to elect a preferred candidate of choice.” 135 S. Ct. at 1272 (2015). The Court specifically rejected reliance on “a mechanically numerical view as to what counts as forbidden retrogression” *Id.* at 1273–74. (This language is quoted in the *Page* majority opinion).

needed in a district to assure African-American voters a realistic opportunity to elect candidates of choice in CD3 is, factually, flatly wrong.

I have reached the empirical conclusion at the end of the paragraph immediately above by my own independent conceptual analyses of the basic elements of elections, such as the two-stage nature of partisan contests, and by my own independent empirical analyses of demographic and electoral data from eastern Virginia. In these empirical analyses I have drawn heavily on state wide races involving biracial contests where there are viable African-American candidates and viable white candidates, but I have also looked at recent election outcomes in the present CD3 and CD4. In addition, I have also reviewed data analyzed by Dr. Handley on the voting cohesion of white and black voters in elections involving a black candidate, and on estimated turnout levels of minority and non-minority voters in primaries and generals. I found her work fully supportive of the conclusion stated in the paragraph above, and her modes of analysis complementary to my own. Indeed, either her analyses, standing alone, or my analyses, standing alone, fully support the conclusion that, in parts of central and southeastern Virginia in the area of the present CD3, an African American voting age population percentage considerably less than 50% could be the basis for a “minority opportunity to elect” district.

Given the demography and geography of the State of Virginia, it is my professional judgment that the most appropriate way to remedy the constitutional violation

identified in CD3 is to redraw CD3 as a Newport News-Hampton-Portsmouth-Norfolk based district that is contiguous, highly compact, and with the few city or county splits that are found in the reconfigured district motivated by population equality concerns, and/or a desire to assure contiguity by land bridge, or tunnel. As discussed in detail earlier in this Report, such a remedial district can be drawn with a substantial minority population that is sufficient to provide minority voters an equal opportunity to elect candidates of choice. Doing so does not require that the district have a black voting age majority. Rather it requires that voting be such that, when the African-American community votes in a cohesive fashion, a candidate of choice of the minority community can be expected to have a realistic opportunity to win both a primary and a general election -- with success in the general election occurring because the minority candidate of choice wins the support of white voters who share that candidate's partisan preferences (i.e., the minority candidate of choice receives some white "cross-over" voting support). As demonstrated by my empirical analyses, and as confirmed by Dr. Hadley's analyses using in some cases, a different methodology, the minority vote age percentages shown in the illustrative CD3 districts discussed in this Report realistically offer African voters an equal opportunity to elect candidates of choice, i.e., create a "minority opportunity district," as part of a map that is, overall, constitutionally drawn, and does not in any way have race as predominant motive, and where the remedial district is narrowly tailored to achieve constitutional objectives. Moreover in my view they are non-retrogressive.

It is my professional judgment that the present configuration of CD4 makes it essentially impossible for the African-American population in central Virginia and eastward (the Richmond to Chesapeake area) to have a realistic opportunity to elect a candidate of choice, because that minority population has been fragmented by the current congressional map. In contrast, the configuration of CD4 in the two illustrative maps (NAACP 6 and Modified Current Map 16) each provide the African-American community that would be located in a reconfigured CD4 a “minority opportunity district.”

I took as my goal the drawing of a non-retrogressive compact contiguous “minority opportunity to elect” district based on good government principles that was designed to fix the constitutional infirmities in the current CD3 – infirmities that include the packing of minority voting strength into a single district in a fashion not required to avoid retrogression or to create a “minority opportunity to elect” district. The current configurations of CD3 and CD4 reflect a combination of packing of minority voting strength in central and southeastern Virginia, in CD3, and fragmentation of minority voting strength in central and southeastern Virginia, in CD4, that can and should be remedied. Packing and cracking, i.e., fragmentation, are two sides of the same coin. Once I drew CD3 to address the constitutional violations in the present CD3 and located it in the Newport News-Hampton-Portsmouth-Norfolk area, I found that the geography and demography of the remaining portions of central and southeastern Virginia were such that the

fragmentation of minority voting strength in the southeastern and central part of the state existing in the current CD4 was remedied simply by including whole in the reconfigured CD4 the cities of Richmond and Petersburg that previously had been contained in whole or in part in current CD3, and then naturally extending CD4 south and east for population purposes until it reached the border of the newly reconfigured CD3.

While the two plans I submitted to the Court are illustrative, and there may well be ways of improving them further, it is my professional judgment that each provides an appropriate and narrowly tailored means of remedying the constitutional infirmities in the present CD3 in the context of a good government map that does not have race as a predominant motive, and that is attentive to the legal issues in this case to which the Court has called attention.

Encs. DLS Reports on NAACP plan Modification 6 and Current Congressional Plan Modification 14, along with maps of these two plans showing boundaries and locations of the homes of present congressional incumbents.