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The Carter Petitioners respectfully submit the following proposed findings of fact, proposed conclusions of law, and proposed order recommending the adoption of the proposed Carter Plan for congressional redistricting.

INTRODUCTION

This Court is faced with a weighty task: choosing which of the 13 congressional redistricting plans submitted by seven parties and four amici (the “Submitted Plans”) should govern Pennsylvania’s congressional elections for the next ten years. Thankfully, it does not need to reinvent the wheel.

Four years ago, in *League of Women Voters of Pennsylvania v. Commonwealth*, 181 A.3d 1083 (Pa. 2018) (“*LWV II*”), the Pennsylvania Supreme Court invalidated the 2011 congressional map as a partisan gerrymander and adopted a remedial congressional map that reflected the physical and political geography of the Commonwealth (the “2018 Remedial Plan”). In its accompanying opinion, the Court articulated several redistricting principles the Pennsylvania Constitution demands of any valid congressional redistricting plan: Plans should contain congressional districts that are compact, contiguous, equal in population, and do not divide political subdivisions except where necessary to ensure equality of population. The Court further explained how the 2018 Remedial Plan best reflected those criteria.

Now, in 2021, the Carter Plan best reflects those criteria. It is the map that hews closest to the court-approved 2018 Remedial Plan, building on that plan and preserving the cores and lines of current districts to the greatest extent possible, while accounting for changes in the Commonwealth's population over the past decade. In fact, the Carter Plan *improves* upon the 2018 Remedial Plan's compliance with the traditional redistricting criteria articulated in *League of Women Voters*, as well as and historical considerations like preserving communities of interest. The Carter Plan is composed of equally populated and contiguous districts, and its compactness scores are superior or comparable to the 2018 Remedial Plan and the other Submitted Plans presently before this Court. With respect to maintaining the integrity of political subdivision boundaries, the Carter Plan is in the top two submissions for least splits of counties and vote tabulation districts, two of the most important subdivisions to keep whole according to both expert testimony and the Pennsylvania Supreme Court's precedent. *Mellow v. Mitchell*, 607 A.2d at 218, (Pa. 1992).

The Carter Plan's expert map-drawer Dr. Rodden testified that he did not consider partisan performance or racial data while drawing the map. Nevertheless, according to Dr. DeFord, the Carter Plan is the *best* among those submitted to this Court at treating Democrats and Republicans equally.

Because the Carter Plan hews most closely to the court-approved 2018 Remedial Plan, meets or surpasses the 2018 Remedial Plan's and the other Submitted Plans' performance on traditional redistricting criteria, and simultaneously best reflects the political preferences of Pennsylvania voters, the Court should recommend that the Carter Plan be adopted in full.

PROPOSED FINDINGS OF FACT

Having reviewed the full evidentiary record submitted by eight parties and four amici, and having considered all evidence without limitation (including 13 separate and unique redistricting plans, 14 expert reports, extensive testimony from six experts) as well as the parties' written and oral arguments, the Court makes the following findings of fact:

I. Petitioners

1. Petitioner Carol Ann Carter is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Carter Aff. at 1. Under the current plan, Ms. Carter resides in the 1st congressional district. *Id.* Pennsylvania's 1st district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. Carter intends to vote in the upcoming 2022 congressional election. *Id.*

2. Petitioner Monica Parilla is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Under the current plan, Ms. Parilla resides in the 1st congressional district. Pennsylvania's 1st district is currently

overpopulated relative to other districts in the state. Ms. Parilla intends to vote in the upcoming 2022 congressional election.

3. Petitioner Rebecca Poyourow is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Poyourow Aff. at 1. Under the current plan, Ms. Poyourow resides in the 3rd congressional district. *Id.* Pennsylvania's 3rd district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. Poyourow intends to vote in the upcoming 2022 congressional election. *Id.*

4. Petitioner William Tung is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Tung Aff. at 1. Under the current plan, Mr. Tung resides in the 3rd congressional district. *Id.* Pennsylvania's 3rd district is currently overpopulated relative to other districts in the state. *Id.* at 2. Mr. Tung intends to vote in the upcoming 2022 congressional election. *Id.*

5. Petitioner Roseanne Milazzo is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Milazzo Aff. at 1. Under the current plan, Ms. Milazzo resides in the 4th congressional district. *Id.* Pennsylvania's 4th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. Milazzo intends to vote in the upcoming 2022 congressional election. *Id.*

6. Petitioner Burton Siegel is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Siegal Aff. at 1. Under the current plan, Mr. Siegel resides in the 4th congressional district. *Id.* Pennsylvania's 4th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Mr. Siegel intends to vote in the upcoming 2022 congressional election. *Id.*

7. Petitioner Susan Cassanelli is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. S. Cassanelli Affidavit at 1. Under the current plan, Ms. Cassanelli resides in the 5th congressional district. *Id.* Pennsylvania's 5th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. Cassanelli intends to vote in the upcoming 2022 congressional election. *Id.*

8. Petitioner Lee Cassanelli is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. L. Cassanelli Aff. at 1. Under the current plan, Mr. Cassanelli resides in the 5th congressional district. *Id.* Pennsylvania's 5th district is currently overpopulated relative to other districts in the state. *Id.* at 1-2. Mr. Cassanelli intends to vote in the upcoming 2022 congressional election. *Id.* at 2.

9. Petitioner Lynn Wachman is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Wachman Aff. at 1. Under

the current plan, Ms. Wachman resides in the 6th congressional district. *Id.* Pennsylvania's 6th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. Wachman intends to vote in the upcoming 2022 congressional election. *Id.*

10. Petitioner Michael Guttman is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Guttman Aff. at 1. Under the current plan, Mr. Guttman resides in the 6th congressional district. *Id.* Pennsylvania's 6th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Mr. Guttman intends to vote in the upcoming 2022 congressional election. *Id.*

11. Petitioner Maya Fonkeu is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Fonkeu Aff. at 1-2. Under the current plan, Ms. Fonkeu resides in the 7th congressional district. *Id.* Pennsylvania's 7th district is currently overpopulated relative to other districts in the state. *Id.* at 1-2. Ms. Fonkeu intends to vote in the upcoming 2022 congressional election. *Id.* at 2.

12. Petitioner Brady Hill is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Hill Aff. at 1. Under the current plan, Mr. Hill resides in the 7th congressional district. *Id.* Pennsylvania's 7th district is

currently overpopulated relative to other districts in the state. *Id.* Mr. Hill intends to vote in the upcoming 2022 congressional election. *Id.*

13. Petitioner Mary Ellen Balchunis is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Balchunis Aff. at 1. Under the current plan, Ms. Balchunis resides in the 10th congressional district. *Id.* Pennsylvania's 10th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. Balchunis intends to vote in the upcoming 2022 congressional election. *Id.*

14. Petitioner Tom DeWall is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. DeWall Aff. at 1. Under the current plan, Mr. DeWall resides in the 10th congressional district. *Id.* Pennsylvania's 10th district is currently overpopulated relative to other districts in the state. *Id.* at 1-2. Mr. DeWall intends to vote in the upcoming 2022 congressional election. *Id.* at 2.

15. Petitioner Stephanie McNulty is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. McNulty Aff. at 1. Under the current plan, Ms. McNulty resides in the 11th congressional district. *Id.* Pennsylvania's 10th district is currently overpopulated relative to other districts in the state. *Id.* at 2. Ms. McNulty intends to vote in the upcoming 2022 congressional election. *Id.*

16. Petitioner Janet Diaz Temin is a citizen of the United States and a qualified elector in the Commonwealth of Pennsylvania. Temin Aff. at 1. Under the current plan, Ms. Diaz Temin resides in the 11th congressional district. *Id.* Pennsylvania's 11th district is currently overpopulated relative to other districts in the state. *Id.* at 1-2. Ms. Temin intends to vote in the upcoming 2022 congressional election. *Id.* at 2.

II. Pennsylvania's Current Congressional Plan

17. Pennsylvania's current congressional redistricting map, the 2018 Remedial Plan, was adopted by the Pennsylvania Supreme Court after thorough and careful judicial review in *LWV II*. See Joint Stip. 2.

18. The 2018 Remedial Plan has 18 districts. Rodden Initial Rep. at 6 (Jan. 24, 2022).

19. Before adopting the 2018 Remedial Plan, the Court carefully reviewed the record developed before the Commonwealth Court as to each proposed plan's compliance with the state's traditional and historical redistricting factors. *LWV II*, 181 A.3d at 1086-87. The Supreme Court judged the 2018 Remedial Plan to best balance these factors of the plans before it. *Id.*

20. In support of adoption of the 2018 Remedial Plan, the Pennsylvania Supreme Court cited the proposed map's superiority with respect to four traditional

redistricting criteria: (1) population equality; (2) compactness; (3) contiguity; and (4) respect for political subdivisions. *See id.* at 1087. These principles are a measure by which to assess whether the guarantee to our citizenry of “free and equal” elections promised by the state’s constitution in the selection of their congressional representative has been violated. *Id.* at 816. The Pennsylvania Supreme Court also identified “other factors that have historically played a role in the drawing of legislative districts, such as the preservation of prior district lines, protection of incumbents, or the maintenance of the political balance which existed after the prior reapportionment,” which may be considered after a plan complies with the four neutral principles identified above. *Id.* at 817.

21. The 2018 Remedial Plan stands out relative to those of many other U.S. states in that its districts are relatively compact and respectful of county and municipal boundaries. Rodden Initial Rep. at 3 (Jan. 24, 2022).

22. The 2018 Remedial Plan has been especially fair: Pennsylvania’s 2018 and 2020 elections have demonstrated that the current map produces a congressional delegation that mirrors the partisan preferences of Pennsylvania’s voters. *Id.*

23. These elections also demonstrate that the current map produces relatively competitive elections. *Id.* at 6.

24. The 2018 Remedial Plan reflects a careful balancing of the state's historical and traditional redistricting factors and is responsive to Pennsylvanian voters.

25. Accordingly, the 2018 Remedial Plan provides an invaluable starting point to draw a new court-adopted congressional plan. Hr'g Tr. at 87:22-89:7 (Jan. 27, 2022) [Dr. Rodden].

III. Demographic Changes in Pennsylvania

26. Pennsylvania has experienced demographic changes over the past decade that require the drawing of a new congressional plan. Rodden Initial Rep. at 6 (Jan. 24, 2022).

27. According to the 2020 Census, Pennsylvania's population is 13,002,700. Joint Stip. 4.

28. The 2010 Census reported that Pennsylvania's population was 12,702,379. Joint Stip. 5.

29. Pennsylvania's population has grown slower than the rest of the Country's over the past decade, resulting in the 2020 Census apportioning the Commonwealth one fewer congressional districts.

30. Pennsylvania now has 17, instead of 18, congressional districts. Joint Stip. 1; Joint Stip. 2.

31. The ideal district population for Pennsylvania's 17 congressional districts is 764,864. Joint Stip. 6.

32. Three of Pennsylvania's counties—Philadelphia, Allegheny, and Montgomery—have total populations that exceed the ideal district population of 764,864. Joint Stip. 7.

33. Pennsylvania's population changes have been asymmetric: while metropolitan and relatively densely populated areas of the state, like Southeastern Pennsylvania and Allegheny County, gained population and grew denser, rural and relatively sparsely populated areas of the state generally lost population. *Id.*

34. As a result, major reconfigurations of existing districts are unavoidable in rural Pennsylvania, whereas the districts in metropolitan areas need only be fine-tuned based on localized variations in the rate of population growth. *Id.* at 8.

35. Notably, areas of the state that have gained population are largely Democratic, and the places that have lost population are largely Republican. *Id.* at 9.

36. Areas that gained population were not only more Democratic to begin with, but have also become more Democratic as they gained population. *Id.* at 10.

37. Areas that have lost population were not only relatively Republican to begin with, but have also become more Republican. *Id.*

IV. Expert Evidence

38. The parties offered a total of six experts to opine on the Submitted Plans, each with varying degrees of experience and qualifications.

A. Dr. Jonathan Rodden

39. *Carter* Petitioners offered Dr. Jonathan Rodden to testify on the drawing of redistricting maps in Pennsylvania based on his expertise in redistricting, political geography, and other types of data analytics related to census, spatial, and political data. Hr’g Tr. at 83:5-15; 84:13-23 (Jan. 27, 2022) [Dr. Rodden].

40. Dr. Rodden is qualified to render the opinions he offers here. He is a professor of political science at Stanford University, *id.* at 82:14-17, and has published extensively on issues of political representation, geographic location of demographic and partisan groups, and the drawing of electoral districts. Rodden Initial Rep. at 2 (Jan. 24, 2022).

41. Dr. Rodden has also been accepted and testified as an expert witness in six election law and redistricting cases, including most recently in two redistricting cases in Ohio in January 2022, where the Ohio Supreme Court credited his map and analysis. *Id.*

42. Dr. Rodden’s methodology of drawing a map based on the 2018 Remedial Plan is reliable. The 2018 Remedial Plan has a reputation as a fair plan in the community of people who study redistricting, and Dr. Rodden has personally

examined the plan in his prior academic work. Hr’g Tr. at 88:2-89:7 (Jan. 27, 2022) [Dr. Rodden].

43. Additionally, Dr. Rodden is the only testifying expert who can make a legitimate claim about the lack of partisan consideration in the drawing of a map because no other testifying expert was responsible for drawing the plan on which they provided testimony.

44. Gressman Petitioners’ expert Dr. Duchin found Dr. Rodden’s methodology responsible. Hr’g Tr. at 403:10-23.

45. The Court finds Dr. Rodden credible, his expert analysis methodologically sound, and his conclusions reliable. The Court thus credits Dr. Rodden’s testimony and conclusions.

B. Dr. Daryl DeFord

46. *Gressman* Petitioners offered Dr. Daryl DeFord as an expert in redistricting and data analysis to opine on redistricting maps drawn by the Gressman Math and Science Petitioners. Hr’g Tr. at 200:15-17, 201:20-202 (Jan. 27, 2022) [Dr. DeFord].

47. Dr. DeFord is qualified to render the opinions he offers here, as his academic research has focused on studying mathematical and computational

methods for evaluating redistricting plans. *Id.* at 199:4-17. This includes publishing peer-reviewed academic publications and practical work with redistricting maps. *Id.*

48. Dr. DeFord previously submitted expert reports in various court cases, including as a collaborator on an amicus brief to the United States Supreme Court in *Rucho v. Common Cause* and on behalf of intervenors in a redistricting matter pending in the Supreme Court of Wisconsin. DeFord Expert Rep. at 2 (Jan. 24, 2022).

49. Dr. DeFord's methodology for quantitative analysis is reliable as his redistricting work has been published in various academic journals and was cited in the final report put out by the 2021 Colorado Independent Legislative Commission. *Id.* at 1-2.

50. The Court finds Dr. DeFord credible, his expert analysis methodologically sound, and his conclusions reliable. The Court thus credits Dr. DeFord's testimony and conclusions.

C. Dr. Moon Duchin

51. Intervenor Tom Wolf, Governor of the Commonwealth of Pennsylvania, offered Dr. Moon Duchin as an expert in analyzing redistricting and systems of election. Hr'g Tr. at 325:10-17 (Jan. 27, 2022) [Dr. Duchin].

52. Dr. Duchin is qualified to render the opinions she offers here. Her research focuses on techniques to analyze topics related to redistricting. *Id.* And in this redistricting cycle, Dr. Duchin has worked with various line-drawing bodies such as independent and bipartisan redistricting commissions around the country to analyze maps in the context of redistricting metrics. *Id.* at 325:25-236:15.

53. Dr. Duchin's methodology for quantitative analysis is reliable. She has been published in several peer-reviewed journals including the Election Law Journal, Political Analysis, Statistics in Public Policy, and others. *Id.* at 325:18-24.

54. The Court finds Dr. Duchin credible, her expert analysis methodologically sound, and her conclusions reliable. The Court thus credits Dr. Duchin's testimony and conclusions.

D. Dr. Devin Caughey

55. Intervenor Senate Democrats offered Dr. Devin Caughey as an expert in analyzing redistricting maps for partisan fairness. Caughey Expert Rep. at 2 (Jan. 24, 2022).

56. Dr. Caughey is qualified to render the opinions he offers here. His research focuses on American politics and statistical methods, with a particular focus on public opinion, election, and representation. Hr'g Tr. at 894:14-19 (Jan. 28, 2022) [Dr. Caughey]. Dr. Caughey has served as an expert in redistricting cases,

specifically a case in Oregon that required analysis of partisan bias of districting maps. *Id.* at 895:8-16.

57. Dr. Caughey’s methodology for quantitative analysis is reliable, as he has been published in several peer-reviewed journals and has a forthcoming book that focuses on partisan gerrymandering at the state level and how that fits into the representational process. *Id.* at 894:19-895:4.

58. The Court finds Dr. Caughey credible, his expert analysis methodologically sound, and his conclusions reliable. The Court thus credits Dr. ’s testimony and conclusions.

E. Dr. Michael Barber

59. Intervenor House Republicans offered Dr. Michael Barber to opine on the Pennsylvania House of Representatives Republican Caucus’ proposed congressional redistricting plan (“HB 2146”) and compare it to other proposed plans that have been submitted in this case. *See* Barber Expert Rep. (Jan. 24, 2022). In particular, Dr. Barber was offered to testify about the use of simulated districting plans through algorithms. Hr’g Tr. at 512:7-22 (Jan. 27, 2022) [Dr. Barber].

60. Dr. Barber is not qualified to render the opinions he offers here.

61. Dr. Barber has limited experience using an algorithm to generate simulated plans prior to January 2022, and he has never published in the areas of

redistricting, partisan influence in the redistricting process, or simulated redistricting analyses. Hr'g Tr. at 561:4-563:24 (Jan. 27, 2022) [Dr. Barber].

62. Multiple courts have concluded that Dr. Barber's testimony should be given little weight or no credit. *Id.* at 563:25-564:17.

63. For example, in a 2019 North Carolina case, *Common Cause v. Lewis*, the court identified several shortcomings in Dr. Barber's analysis and, in light of those findings, gave little weight to his testimony. *Id.* at 564:18-565:14.

64. Dr. Barber's methodology is also unsound because the techniques that he has relied on are unsound. For example, his method for analyzing partisan fairness, which averages election results across time, rather than considering elections as individual data points, is "extremely misleading" because the process of collapsing the data into a single data point like that leads to the systematic loss of information. *Id.* at 366:21-367:5 [Dr. Duchin].

65. Dr. Barber's execution of his methodology of simulated redistricting is also suspect because there were "clear errors of calculation" that call into question the accuracy of his analyses, including, for instance, partisan fairness. *Id.* at 368:12-18.

66. The Court finds Dr. Barber not credible, his analysis methodologically unsound, and his conclusions unreliable. The Court thus does not credit Dr. Barber's testimony and conclusions.

F. Dr. Keith Naughton

67. Congressional Republican Intervenors offered Dr. Keith Naughton to opine on Pennsylvania's redistricting maps as a campaign consultant. Hr'g Tr. at 687:17-688:1 (Jan. 28, 2022) [Dr. Naughton].

68. Dr. Naughton is not qualified to render opinions about redistricting plans. He is not a computer scientist or mathematician. *Id.* at 688:22-23. Instead, Dr. Naughton's claim of expertise is rooted in his "over 15 years of Pennsylvania politics" and his work for various candidates on the Republican side. *Id.* at 767:25-768:9.

69. Dr. Naughton has not appeared as an expert witness in redistricting litigation before, has no particular experience in redistricting, and has never tried to draw a redistricting plan for Pennsylvania. *Id.* at 777:17-778:20.

70. Dr. Naughton is also unable to offer any objective insight into the critical topics of redistricting. His career has largely been devoted to helping Republican political candidates win races, and he was retained by Republican

politicians in this litigation to offer an opinion about their proposed map. *Id.* at 769:24-770:9.

71. The Court finds Dr. Naughton not credible, his analysis methodologically unsound, and his conclusions unreliable. The Court thus does not credit Dr. Naughton's testimony and conclusions.

V. The Carter Plan

72. Dr. Rodden drew the Carter Plan using as a starting point the 2018 Remedial Plan, which is widely acknowledged as a successful plan on both traditional redistricting criteria and partisan fairness. Hr'g Tr. at 87:22-89:7 (Jan. 27, 2022) [Dr. Rodden]; *see also id.* at 247:11-248:12 (Jan. 27, 2022) [Dr. DeFord].

73. The Carter Plan takes a least-change approach to the 2018 Remedial Plan, which is a reasonable approach. *See* Hr'g Tr. at 89:9-16 (Jan. 27, 2022) [Dr. Rodden]; *id.* at 410:9-411:15 (Jan. 27, 2022) [Dr. Duchin].

74. Dr. Rodden made changes to the 2018 Remedial Plan to account for population changes and to maintain or improve the 2018 Remedial Plan's adherence to traditional redistricting criteria. Rodden Initial Rep. at 1 (Jan. 24, 2022).

75. Dr. Rodden did not consider partisan data when drawing the Carter Plan. Hr'g Tr. at 117:19-118:2 (Jan. 27, 2022) [Dr. Rodden]; Rodden Initial Rep. at 23 (Jan. 24, 2022).

76. Dr. Rodden did not consider racial data when drawing the Carter Plan. Hr’g Tr. at 117:18-24 (Jan. 27, 2022) [Dr. Rodden]; Rodden Initial Rep. at 23 (Jan. 24, 2022).

77. When making changes to the 2018 Remedial Plan to balance population in the Carter Plan, Dr. Rodden avoided splitting communities of interest. *See* Hr’g Tr. at 113:9-114:6 (Jan. 27, 2022) [Dr. Rodden].

78. To the extent the Carter Plan deviates from the configuration adopted by the Supreme Court in the 2018 Remedial Plan, it does so to account for shifts in the state’s population revealed by the 2020 Census and the Commonwealth’s loss of a congressional seat. Hr’g Tr. at 85:2-17 (Jan. 27, 2022) [Dr. Rodden].

79. Moreover, because the Carter Plan makes minor changes to most districts, incumbents have not been inadvertently removed from any existing districts. Because it was not possible to avoid placing Rep. Keller from District 12, which was lost due to population loss, with another rural representative, the Carter Plan placed Rep. Keller in District 15, along with incumbent Rep. Thompson. This had no impact on the Carter Plan’s satisfaction of traditional redistricting criteria. Rodden Initial Rep. at 23 (Jan. 24, 2022).

80. Where possible, Dr. Rodden reunited communities of interest that were previously split in the 2018 Remedial Plan. Hr’g Tr. at 107:5-23, 111:17-25 (Jan. 27, 2022) [Dr. Rodden].

81. The Carter Plan made these adjustments in a manner that aligns with the traditional and historical redistricting principles outlined below.

82. The Carter Plan is both reflective of and responsive to Pennsylvania voters’ political preferences. Hr’g Tr. at 129:1-130:21 (Jan. 27, 2022) [Dr. Rodden].

83. The Carter Plan is superior or comparable to all other Submitted Plans on traditional and historical redistricting principles.

84. The Carter Plan is best or tied for best on number of counties split and county splits. *See infra* section VI.D. Even the Resenthaler Plans, which purport to have fewer split counties, do not based on the *League of Women Voters* court’s guidance. *See id.*

85. The Carter Plan is one of the most politically fair maps submitted to this Court. In contrast, the HB 2146 Plan and both Resenthaler Plans are the least fair of the Submitted Plans. The Voters of PA Plan and Citizen Voters Plan are also unusually skewed to favor Republicans as compared to all other Submitted Plans, none of which are unusually skewed to favor Democrats.

VI. Traditional Redistricting Criteria

86. The Carter Plan complies with all four traditional redistricting principles articulated in *League of Women Voters*: population equality, compactness, contiguity, and respect for political subdivisions.

A. Population Equality

87. The Carter Plan complies with the *League of Women Voters* principle of population equality.

88. Based on the 2020 Census, the ideal population of each congressional district is 764,865. *Id.* at 21.

89. Each of the proposed maps, including the Carter Plan, create 17 districts where the population, based on 2020 Census data, is either precisely that number, one more, or one fewer. *Id.* at 2. Rodden Rebuttal Rep. at 2 (Jan. 26, 2022); *see* Hr’g Tr. at 231:24-25; 276:24-277:5 (Jan. 27, 2022) [Dr. Duchin].

90. The Carter Plan includes four districts with the ideal population and 13 districts with a deviation of plus or minus one person. Rodden Initial Rep. at 21 (Jan. 24, 2022).

B. Compactness

91. The Carter Plan complies with the *League of Women Voters* principle of compactness.

92. The Carter Plan is superior or comparable on the criteria of

compactness to both the 2018 Remedial Plan and all plans that have been submitted to this Court.

93. There is no bright-line test to determine whether a plan is sufficiently compact to satisfy the criterion, Hr’g Tr. at 404:25-405:6 (Jan. 27, 2022) [Dr. Duchin].

94. There is no widely accepted “best” measure of compactness, as each measure achieves something different. Rodden Rebuttal Rep at 3; Hr’g Tr. at 55:1-4 (Jan. 27, 2022). [Dr. Rodden]. Each method also has certain limitations, which is why it is important to consider how maps perform across multiple scores. Rodden Rebuttal Rep. at 3 (Jan. 26, 2022); Hr’g Tr. at 55:1-4 (Jan. 27, 2022). [Dr. Rodden].

95. The experts in this proceeding have identified several methodologically sound measures useful for comparing relative compactness: the Reock, Polsby-Popper, Schwartzberg, Population Polygon, and area/Convex Hull tests.

96. The Reock test is computed by dividing the area of the district by the area of the smallest circle that would completely enclose it. Rodden Rebuttal Rep. at 3 (Jan. 26, 2022).

97. The Polsby-Popper test is computed by measuring the area of a circle whose circumference is equal to the perimeter of the district. *Id.*

98. The Schwartzberg test is similar and its score can be derived by measuring the reciprocal of the square root of the Polsby-Popper score. DeFord Expert Rep. at 17 n.7 (Jan. 24, 2022).

99. The Area/Convex Hull test measures the ratio of the district's area to that of its convex hull, or "rubber-band enclosure." Duchin Expert Rep. at 5 (Jan. 24, 2022).

100. The Population Polygon test measures the ratio of the district's population to the state's population within the convex hull. *Id.*

101. The numerical result of each of these tests falls between zero and one, with one being the most compact. DeFord Expert Rep. at 17 (Jan. 24, 2022).

102. The Polsby-Popper and the Reock measures are most often relied upon by courts. *LWV II*, 178 A.3d 737, 771-72; Rodden Rebuttal Rep. at 3 (Jan. 26, 2022); Hr'g Tr. at 55:7-12 (Jan. 27, 2022).

103. The Carter Plan's Reock compactness score is the second-highest among the plans submitted to this Court and is higher than the Reock score for the 2018 Remedial Plan. Expert Rep. at 22 (Jan. 24, 2022). Expert Rep. at 22 (Jan. 24, 2022).

104. Compactness scores can be sensitive to individual redistricting decisions. *See* Hr'g Tr. at 398:24-399:3 (Jan. 27, 2022) [Dr. Duchin] (explaining that

complying with traditional redistricting factors is a balancing act). For example, the Carter Plan's Polsby-Popper score reflects Dr. Rodden's decision to keep the city of Pittsburgh whole, and if the Carter Plan instead split Pittsburgh, it would have achieved an even higher Polsby-Popper score. *See* Hr'g Tr. at 172:23-173:8 (Jan. 27, 2022) [Rodden]; Hr'g Tr. at 217:10-25 (Jan. 27, 2022) [Dr. DeFord] (explaining that maps that keep Pittsburgh whole obtain lower, though still compliant, Polsby-Popper scores than those maps that do not split Pittsburgh); Rodden Initial Rep. at 22 (Jan. 24, 2022).

105. The least compact districts in the Carter Plan are Districts 4 and 5, which had to become somewhat less compact in order to accommodate asymmetries in the rate of population growth between Montgomery, Delaware, and Bucks counties while minimizing county splits in Southeastern Pennsylvania. *Id.* at 23.

106. The Carter Plan is similarly compact to other plan proposals, which obtain comparable compactness scores. DeFord Rebuttal Rep. at ¶ 25 (Jan. 26, 2022); Duchin Rebuttal Rep. at 2 (Jan. 26, 2022).

107. The least compact plans are HB 2146 and the two Congressional Republican Intervenors' Plan. Hr'g Tr. at 234:16-19 (Jan. 27, 2022). [Dr. Duchin].

C. Contiguity

108. The Carter Plan complies with the *League of Women Voters* principle of contiguity.

109. Contiguity measures whether districts, as they are drawn, have non-contiguous fragments. Hr'g Tr. at 90:11-16 (Jan. 27, 2022) [Dr. Rodden].

110. The Carter Plan, like each of the plans proposed to this Court, is composed of contiguous districts. *See, e.g., id.* at 53:17-24.

D. Integrity of Political Subdivisions

111. The Carter Plan complies with the *League of Women Voters* principle of respect for political subdivisions.

112. The Carter Plan splits fewer political subdivisions than the 2018 Remedial Plan. Rodden Initial Rep. at 21-22 (Jan. 24, 2022).

113. The Carter Plan complies with the League of Women Voters principle of respect for political subdivisions. The Carter Plan splits fewer political subdivisions than the 2018 Remedial Plan. Rodden Initial Rep. at 21-22 (Jan. 24, 2022). The Carter Plan maintains the integrity of political subdivisions as well or better than the other plans submitted to this Court.

114. The Carter Plan does particularly well at maintaining the integrity of counties and voting tabulation districts.

115. There are two different ways to measure county splits.

116. The first is to measure the *number* of split counties in a plan, which is the number of counties that were not kept whole, regardless of how many times they were split. Rodden Rebuttal Rep. at 3 (Jan. 26, 2022); Hr’g Tr. At 58:9-18 (Jan. 27, 2022).

117. This measure does not capture multiple splits of a single county, such as where Philadelphia, Montgomery, or Berks Counties may be split among three rather than just two districts. Rodden Rebuttal Rep. at 3-4 (Jan. 26, 2022).

118. The second is to measure the *total* county splits in a plan, which captures not only the number of counties that were not kept whole, but rather captures more fully the number of *times* each county was split. For example, if a county is split between three districts, the non-contiguous splits of the county are counted as two splits rather than one. *Id.*; Hr’g Tr. At 58:9-18 (Jan. 27, 2022). [Dr. Rodden].

119. The Carter Plan is tied for both fewest number of split counties, 13, and total county splits, 17, among the Submitted Plans. Rodden Initial Rep. at 21; DeFord Rebuttal Rep. at 4-5, Table 2. Rodden Rebuttal Rep. at 4 (Jan. 26, 2022); Hr’g Tr. at 58:4-25 (Jan. 27, 2022). [Dr. Rodden].¹

¹ The counting of county splits varies depending on whether a small six-person non-contiguous fragment of Chester County is counted as a “split” if it is placed in a

120. The Carter Plan ties with the Reschenthaler Plans for fewest number of split counties, but the Reschenthaler Plans each have more *total* county splits than the Carter Plan. Rodden Rebuttal Rep. at 3-4, Table 2 (Jan. 26, 2022); DeFord Rebuttal Rep. at 4-5, Table 2 (Jan. 26, 2022).

121. When considering both metrics of county splits together, the Carter Plan best maintains the integrity of Pennsylvania counties. Rodden Initial Rep. at 21 (Jan. 24, 2022); Rodden Rebuttal Rep. at 3-4 (Jan. 26, 2022), Table 2; DeFord Rebuttal Rep. at 4-5, Table 2 (Jan. 26, 2022).

122. Another type of political subdivision is Vote Tabulation Districts (“VTDs”).

different district than the rest of Chester County. In calculating county splits in the plan it adopted, the *League of Women Voters* court did not count the separation of that fragment from Chester County because it was “appropriately placed inside the district that contains Delaware County” rather than the district containing Chester County. *LWV II*, 181 A.3d at 1087 n.10. Dr. Rodden maintained that aspect of the 2018 Remedial Plan, such that the Chester County fragment continues to be “appropriately placed” inside District 5 with Delaware County and is kept contiguous with its surrounding area, and to ensure contiguity of the districts than in District 6. [Rodden testimony 90:11—91:6] Dr. Rodden’s tabulation of county splits in his first report reflected that guidance and reported the number of split counties in the Carter Plan as 13. Rodden Initial Rep. at 21. In his response report, Dr. Rodden prepared a comparative table of county splits, but due to the time constraints, he was unable to fully assess all technicalities in each of the 13 other submitted plans, including their treatment of the Chester County fragment, so for illustrative purposes he counted any split, no matter its size and location, including the Chester County fragment. Rodden Rebuttal Rep. at 4 (Jan. 26, 2022).

123. For election administration, splitting VTDs can lead to mistakes for local election administrators, who must be sure to provide the right ballot for residents living in two different political districts, even though they might be voting at the same polling place. Hr’g Tr. at 57:10-25 (Jan. 27, 2022). [Dr. Rodden]; *Mellow*, 530 Pa. at 71-72 (explaining that “a serious election administration problem rises from requiring the voters in a single precinct to look to two different sets of congressional candidates,” and emphasizing that “this problem is not a minor one”).

124. When seeking to establish districts of equal population, VTDs are oftentimes split because they do not add up to precisely the right numbers, especially where map drawers are working within a very narrow allowable deviation, like plus or minus one person. Rodden Rebuttal Rep. at 6 (Jan. 26, 2022).

125. Nevertheless, it is possible to minimize these splits. *Id.* The Carter Plan, for instance, splits only 14 VTDs, the second lowest number of VTD splits among all the proposed plans. Rodden Initial Rep. at 22 (Jan. 24, 2022); Rodden Rebuttal Rep. at 6 (Jan. 26, 2022).

126. In contrast, the Reschenthaler plans have a total of 31 VTD splits each, and the Ali Plan has a total of 27 splits. *Id.*

127. Thus, the Carter Plan splits very few political subdivisions and thereby preserves the ease and accuracy of administering elections.

E. Historical Redistricting Principles

128. The Carter Plan complies with Pennsylvania's historical redistricting principles.

129. The Pennsylvania Supreme Court has identified several historical factors that should be considered in evaluating a redistricting plan, including protection of minority voting rights, respect for communities of interest, partisan fairness, retention of prior district lines, and incumbency protection. *LWV I*, 178 A.3d at 817; *Mellow*, 607 A.2d at 208.

1. Minority Voting Rights

130. The Carter Plan maintains minority voting rights.

131. One of the additional redistricting principles that is considered to be important by the Pennsylvania Supreme Court is minority voting rights.

132. Racial data was not considered in drawing districts or making adjustments for population changes in the Carter Plan. Rodden Initial Rep. at 23 (Jan. 24, 2022); Hr'g Tr. at 72:21-25 (Jan. 27, 2022).

133. The Carter Plan made minimal changes to the existing 2018 Remedial Plan, which the Supreme Court determined to be compliant with traditional redistricting criteria, including the protection of minority voting rights. *See infra* section V.

134. The Carter Plan’s least-change approach ensures that minority voting rights protected by the Supreme Court in 2018 remain protected. Because the Carter Plan closely follows the boundaries of the 2018 Remedial Plan with regard to those areas of the state with sizeable minority populations, it has inevitably preserved the minority opportunity districts that the Pennsylvania Supreme Court approved in 2018. DeFord Rebuttal Rep. at Table 14 (Jan. 26, 2022). To the extent the Carter Plan had to alter the boundaries of the 2018 Remedial Plan to account for population changes and the Commonwealth’s loss of a congressional seat, it did so with a focus on maintaining protections for minority voters.

2. Communities of Interest

135. The Carter Plan respects and protects Pennsylvania’s communities of interest.

136. Similarly, by generally retaining the boundaries of the 2018 Remedial Plan, which the Pennsylvania Supreme Court determined to comply with traditional redistricting factors, including the protection of communities of interest, and changing district lines where necessary to reflect variable population changes, the Carter Plan preserves communities determined to be important by the Supreme Court. *See infra* section V.

137. In applying a least-change approach, the Carter Plan follows natural and political subdivision boundaries with a focus on keeping communities together. *See* Rodden Initial Rep. at 14 (Jan. 24, 2022); Hr’g Tr. At 65:5-18 (Jan. 27, 2022)(the Carter Plan, unifies Carbon County with the Allentown-Bethlehem-Easton metropolitan statistical area consisting of the entirety of Northampton, Lehigh, and Carbon Counties to add population to District 7); Rodden Initial Rep. at 18 (under the Carter Plan, the new District 15, which had to change significantly due to population changes and the loss of what is District 12 under the 2018 Remedial Plan, now avoids a split of Centre County that had previously separated State College from some of its suburbs) *see also* 01/27/22 Hr’g Tr. at 65:5-18;01/27/22 Hr’g Tr. at 68:9-13

138. The Carter Plan respects communities of interest by, among other things, keeping Pittsburgh within one district, keeping Bucks County in one district and extending that district into Montgomery County, keeping the city of Harrisburg whole, and attaching the surplus population of Philadelphia to Delaware County. [Rodden Initial Rep. at 8; *LWV I*, 178 A.3d at 750; Naughton Response Rep. at 8-9 (Jan. 26, 2022); Hr’g Tr. At 101:19-104:15 (Jan. 28, 2022).²

² For the reasons set forth in section IV.F., Dr. Naughton’s testimony should be given little weight, if any. To the extent the Court credits his testimony about communities

3. Partisan Fairness

139. The Carter Plan is fair to both political parties and does not dilute the votes of Pennsylvania citizens.

1. The political and human geography of Pennsylvania does not limit the ability to draw a politically fair map in Pennsylvania, and one can be drawn “with no cost at all in terms of compactness, contiguity, political subdivisions, and so on.” 01/27/22 Hr’g Tr. at 265:24-266:5; 01/27/22 Hr’g Tr. at 267:13-21.

140. Partisan data was not considered in the drawing of the Carter Plan. Rodden Initial Rep. at 23 (Jan. 24, 2022); Hr’g Tr. At 73:1-3 (Jan. 27, 2022) [Dr. Rodden]. However, Dr. Rodden did analyze the partisanship of his and the other Submitted Plans after they were drawn. 01/27/22 Hr’g Tr. at 73:4-10.

141. The Carter Plan is among the fairest of the Submitted Plans and performs as well or better than the other Submitted Plans on various measures of partisan fairness. The Carter Plan is among the best maps on partisan fairness. 01/27/22 Hr’g Tr. at 260:23-261:10; Duchin Rebuttal Rep. at 5.

142. The anticipated number of Democratic seats in the Carter Plan is 9, which is consistent with the partisan breakdown in Pennsylvania. Rodden Rebuttal Rep. at 9-10 (Jan. 26, 2022). Consistent with its least-change approach, the Carter

of interest, however, it is additional evidence supporting the Carter Plan’s respect for communities of interest.

Plan retains 10 metropolitan districts that, under the 2018 Remedial Plan, saw an average Democratic vote share above 50 percent. Rodden Initial Rep. at 23 (Jan. 24, 2022). However, the Republican incumbent in District 1, Brian Fitzpatrick, typically outperforms his party by over 7 percentage points, causing what appears to be a reliable Democratic district to be more accurately be characterized as a safe Republican district. Accordingly, the true anticipated number of Democratic seats in the Carter Plan is 9. Rodden Rebuttal Rep. at 9-10 (Jan. 26, 2022). Under the Carter Plan, there are 8 districts where Democrats are expected to win, one of which (District 8) is potentially quite competitive; 8 districts where Republicans are quite likely to win, two of which are at least potentially competitive (1 and 10); and one district (District 7) that is a toss-up with a very slight Democratic lean. Rodden Initial Rep. at 25 (Jan. 24, 2022).

143. The Carter Plan is tied for the top position among all Submitted Plans on the “direct majority responsiveness” metric, which measures the number of times that the political party whose candidate won the statewide vote also carried most of the plans’ congressional districts. Under that metric, the Carter Plan had the fewest anti-majoritarian outcomes, and of those outcomes, more favored Republicans than Democrats, which is another indicator of partisan fairness. DeFord Rebuttal Rep. ¶¶ 30, 32 tbl. 9 (Jan. 26, 2022); Hr’g Tr. at 175:13-176:14 (Jan. 27, 2022) [Dr. DeFord].

144. The Carter Plan achieved the optimal score of 0, the best among all Submitted Plans, under the efficiency-gap metric, indicated that it treats voters from both parties equally. DeFord Rebuttal Rep. at 18 (Jan. 26, 2022); Hr’g Tr. at 177:19-178:21 (Jan. 27, 2022) [Dr. DeFord].

145. The Carter Plan has a score that matches the mean-median deviation of a plan that has identified as “unusually fair.” Hr’g Tr. at 960:9-961:24 (Jan. 28, 2022) [Dr. Caughey].

146. Some of the other Submitted Plans are similarly fair to the Carter Plan (*i.e.*, Draw the Lines PA Plan, Gressman Plan). Rodden Rebuttal Rep. at 9 (Jan. 26, 2022).

147. Other Submitted Plans are not fair and dilute Pennsylvanians’ votes by providing undue structural advantages and disadvantages to a political party. Hr’g Tr. at 85:18-21 (Jan. 27, 2022) [Rodden].

148. The HB 2146 Plan and Voters of PA Plan each produce a majority of Republican-leaning districts despite Democrats’ overall statewide majorities. Rodden Rebuttal Rep. at 10 (Jan. 26, 2022); Hr’g Tr. at 85:5-9 (Jan. 27, 2022) [Rodden]. The Reschenthaler 1 and Reschenthaler 2 plans similarly produce 8 comfortable Republican seats and an unusually low number of comfortable Democratic seats. Rodden Rebuttal Rep. at 10 (Jan. 26, 2022); Hr’g Tr. at 82:13-18,

85:12-14 (Jan. 27, 2022) [Rodden]. All four of these plans also unusually skew the distribution of Democratic vote share across districts. Rodden Initial Rep. at 10 (Jan. 24, 2022).

149. Senate Democratic Caucus Plan Number 1 also produces fewer comfortable Democratic seats than almost every other plan. Rodden Rebuttal Rep. at 9-10 (Jan. 26, 2022). The Pennsylvania House Democratic Caucus Plan is the only plan with 11 seats above the 50 percent Democratic threshold, and both Governor Wolf's Plan and Senate Democratic Caucus Plan 2 are unusual in that they produce only one tossup district for either political party. Rodden Rebuttal Rep. at 9-10 (Jan. 26, 2022); Hr'g Tr. At 82:22-83:8 (Jan. 27, 2022).

150. The HB 2146 Plan and the Reschenthaler Plans are the most biased plans and thus do the most to dilute Pennsylvanians' votes. The Reschenthaler Plans have the highest efficiency gap of all the plans, demonstrating that the plans clearly favor Republicans. DeFord Rebuttal Rep. at 18 (Jan. 26, 2022); Hr'g Tr. at 178:24-179:4 (Jan. 27, 2022). The Reschenthaler Plans and with the HB 2146 Plan, performed particularly poorly on a mean-median analysis of partisan fairness because they consistently produced outcomes favoring Republicans. 01/27/22 Hr'g Tr. at 176:16-177:13. The expert called to testify by the proponents of the HB 2146 plan admitted that under his analysis of mean-median scores, HB 2146 and the two

Reschenthaler Plans were the most biased of all the Submitted Plans, and all three were particularly biased in favor of the Republican party. Hr’g Tr. at 575:2-578:22]³

151. The HB 2146 Plan performed much like the enacted 2011 congressional plan in terms of partisan fairness metrics, Hr’g Tr. at 254:23-255:2 (Jan. 27, 2022) [Dr. Duchin], which was struck down as a partisan gerrymander. Hr’g Tr. at 254:23-255:2 (Jan. 27, 2022) [Dr. Duchin].

F. Core Preservation

152. The Carter Plan hews most closely to 2018 Remedial Plan and changes it the least.

153. The 2018 Remedial Plan is a useful benchmark for any plan evaluated by this Court because it is the product of a careful judicial process in this Court and the Supreme Court. *LWV I*, 178 A.3d at 817 (“We recognize that other factors have historically played a role in the drawing of legislative districts, such as the preservation of prior district lines”); *See Mellow v. Mitchell*, 607 A.2d 204 at 208 (“Slight departures from mathematical perfection have been justified by the federal courts only to advance the cause of equality in . . . not unduly departing from the useful familiarity of existing districts”).

³ For the reasons set forth in section IV.E., Dr. Barbers’s testimony should be given little weight, if any. But if any of his testimony should be credited, it should be his admissions about the high degree of partisan bias of HB 2146 and the Reschenthaler Plans.

154. The 2018 Remedial Plan serves as an effective baseline for drawing new redistricting plans, especially where that plan was extensively vetted and analyzed according to legal and traditional redistricting criteria. Hr’g Tr. At 168:6-9, 14-19 (Jan. 27, 2022) [Dr. DeFord].

155. It is reasonable to prefer a plan that is least disruptive to the 2018 Remedial Plan. Duchin Expert Report at 7 (Jan. 24, 2022).

156. Among the Submitted Plans, the Carter Plan makes the least changes to, and is least disruptive of the 2018 Remedial Plan. The Carter Plan retains 86.6 percent of Pennsylvania’s population in the same congressional districts to which they were apportioned in the 2018 Remedial Plan, which is more than 4 percentage points greater than the plan with the next-highest retention share. Rodden Rebuttal Rep. at 2 (Jan. 26, 2022); Hr’g Tr. At 72:15-20 (Jan. 27, 2022).

Table 1: Retained Population Share in 14 Submitted PA Congressional Plans

Plan	Retained Population Share
Carter	86.6
CCFD	76.1
Citizen Voters	82.4
HB2146	78.5
Draw the Lines PA	78.8

GMS	72.8
Governor Wolf	81.2
Ali	81.5
PA House Dem. Caucus	73.3
Reschenthaler 1	76.5
Reschenthaler 2	76.5
Senate Dem. Plan 1	72.5
Senate Dem. Plan 2	72.5
Voters of PA	80.6

Rodden Rebuttal Rep. at Table 1.

157. Because the Carter Plan’s districts retain more of their former populations than any other Submitted Plan, it is closest to the 2018 Remedial Plan. 1/27/22 Hr’g Tr. at 242:24-25; Hr’g Tr. at 407:24-408:1 (Jan. 27, 2022) [Dr. Duchin] (referencing the Carter Plan, Dr. Duchin stated that “[it] just laps had [sic] field when it comes to least change”).

158. The Carter Plan most closely resembles the 2018 Remedial Plan according to other key metrics as well.

1. Compactness

159. The Carter Plan is also comparable in compactness to the 2018 Remedial Plan.

160. Overall, the Carter Plan’s Reock score matches the 2018 Remedial Plan’s score; its Schwartzberg score is better than the 2018 Remedial Plan’s score; and it falls just shy of matching (each by 0.01) the 2018 Remedial Plan’s scores on the remaining measures. *Id.* at 22. The Carter Plan’s slight decrease along some compactness measures results from efforts to maintain population equality in certain districts. Rodden Initial Report at 22 (explaining that population deviations in the counties comprising these districts—specifically Bucks and Delaware Counties—as a result of the 2020 Census required the Carter Plan to reach outside of those subdivisions for additional population.); *id.* at 8 (the Carter plan opted to draw less compact districts centered on Bucks and Delaware Counties by including population tracts in neighboring Montgomery County instead of disrupting the 2018 Remedial Plan’s careful efforts not to split Chester, Lancaster, Lehigh, and Northampton Counties). *Id.*

2. Integrity of political subdivisions

161. The Carter Plan maintains and improves upon the 2018 Remedial Plan’s integrity of political subdivisions. In comparison to the 2018 Remedial Plan, the Carter Plan has the same or fewer county, county subdivision, and vote tabulation district splits. *See* Rodden Initial Rep. at 21- 22 (Jan. 24, 2022).

3. Partisan Fairness

162. Finally, the Carter Plan is also quite similar to the 2018 Remedial Plan in terms of partisan fairness. Rodden Initial Rep. at 23 (Jan. 24, 2022).

163. The Carter Plan retains the same 10 metropolitan districts as the 2018 Remedial Plan. Rodden Initial Rep. at 23 (Jan. 24, 2022).

4. Communities of Interest

164. In applying a least-change approach, the Carter Plan largely maintains on the 2018 Remedial Plan's respect for communities of interest and even improves on it in certain ways. *See supra* at section VI.F.

PROPOSED CONCLUSIONS OF LAW

I. The Carter Petitioners have standing.

165. The *Carter* Petitioners have standing to challenge the lawfulness of Pennsylvania's existing congressional plan because they have demonstrated injury to their constitutional rights.

166. The Pennsylvania Constitution's Free and Equal Elections Clause "provides the people of this Commonwealth an equally effective power to select the representative of his or her choice, and bars the dilution of the people's power to do so." *League of Women Voters v. Commonwealth* ("*LWV P*"), 178 A.3d 737, 814 (Pa. 2018).

167. Article 1, Section 2 of the U.S. Constitution requires states to “achieve population equality ‘as nearly as is practicable’” when drawing congressional districts. *Karcher v. Daggett*, 462 U.S. 725, 730 (1983) (quoting *Wesberry v. Sanders*, 376 U.S. 1, 7-8 (1964)).

168. Because Pennsylvania’s current congressional plan deviates in population by tens of thousands of people, and the *Carter* Petitioners live in significantly overpopulated congressional districts in which they intend to vote, that any future use of that plan would irreparably harm Petitioners by diluting their vote.

169. Because the General Assembly and Governor have reached an impasse over congressional redistricting, this threat of harm is no longer speculative.

II. None of the Submitted Plans merits special deference.

170. This Court owes no deference to any particular plan proposed in this litigation, including, but not limited to, the HB 2146 Plan. All Submitted Plans must be considered according to the same criteria, and “must be considered on the same footing.” *Mellow*, 607 A.2d at 67.

171. Under United States Supreme Court precedent, courts should defer only to redistricting plans that have been duly enacted by the state’s lawmaking process. *See, e.g., Upham v. Seamon*, 456 U.S. 37 (1982); *White v. Weiser*, 412 U.S. 783, 795

(1973). Because HB 2146 was vetoed by the Governor and thus was not duly enacted by the Commonwealth, it is not entitled to *Upham* deference.

172. HB 2146 is at most simply another proposal that this Court should consider with all of the other Submitted Plans before it. *See Johnson v. Wis. Elections Comm'n*, 2021 WI 87 ¶ 86, n.154, n.8 (Nov. 30, 2021) (describing Legislature’s submission of redistricting bill that was vetoed by governor as “mere proposals deserving no special weight”).

173. Under the Pennsylvania Constitution, the lawmaking process of the Commonwealth belongs to both the General Assembly and the Governor, who has veto power over proposed laws in the Commonwealth. *See Pa. Const. Art. IV, § 15*

174. Where a state constitution requires the participation of both the legislative and executive branches in the lawmaking process, a redistricting plan that the Governor has vetoed is not enforceable as a matter of law. *See Smiley v. Holm*, 285 U.S. 355, 373 (1932); *see also Ariz. State Legis. v. Ariz. Indep. Redistricting Comm’n*, 576 U.S. 787, 807 (2015).

175. Because Governor Wolf vetoed HB 2146, the plan did not become Pennsylvania law.

176. A legislative reapportionment plan that has been vetoed by the Governor represents the legislature’s “proffered” plan, and, where the Governor has

a contrary recommendation, does not reflect “the State’s policy.” *Sixty-Seventh Minn. State S. v. Beens*, 406 U.S. 187, 197 (1972); *see also Carstens v. Lamm*, 543 F. Supp. 68, 79 (D. Colo. 1982) (explaining that a vetoed legislative plan “cannot represent current state policy any more than the Governor’s proposal”).

177. Where, as here, the political branches have failed to enact redistricting plans, one government branch’s preferred plan is not due deference. *See, e.g., Smith v. Clark*, 189 F. Supp. 2d 529, 533-34 (S.D. Miss. 2002) (holding that where the state “failed to enact a congressional redistricting plan ... there is no expression, certainly no clear expression, of state policy on congressional redistricting to which we must defer”); *Carstens*, 543 F. Supp. at 79 (affording no deference because vetoed redistricting plan was only the “proffered current policy rather than clear expressions of state policy”) (internal citations omitted); *O’Sullivan v. Brier*, 540 F. Supp. 1200, 1202 (D. Kan. 1982) (“[W]e are not required to defer to any plan that has not survived the full legislative process to become law.”); *Essex v. Kobach*, 874 F. Supp. 2d 1069, 1084 (D. Kan. 2012) (“Regardless which option our constitutional analysis prompts us to choose, we owe no deference to any proposed plan, as none has successfully navigated the legislative process to the point of enactment.”).

178. Indeed, in impasse litigation, such as here, vetoed redistricting plans receive no deference. *See, e.g., Wis. State AFL-CIO v. Elections Bd.*, 543 F. Supp.

630, 632 (E.D. Wis. 1982) (three-judge panel) (court explaining in impasse litigation that “[t]he vetoed plan has been submitted to us for our consideration and, after reviewing it, we conclude that it is one of the worst efforts before us and for that reason we decline to adopt it. The plan has, in our opinion, no redeeming value.”); *Hippert v. Ritchie*, 813.N.W.2d 374, 379 n.6 (Minn. 2012) (court in impasse litigation refusing to adopt or show deference to the Minnesota Legislature’s redistricting plan because it “was never enacted into law”).

179. Recently, Wisconsin’s Legislature asked the Wisconsin Supreme Court to do the same thing the Pennsylvania General Assembly now asks of this court—to give their map special deference. But the Wisconsin Supreme Court, recognizing that the Legislature’s maps “did not survive the political process,” explicitly refused to give the Legislature’s plans any special status. *See Johnson v. Wis. Elections Comm’n*, 2021 WI 87 ¶ 39, n.8 (Nov. 30, 2021); *see also id.* at ¶ 86, n.154 (describing the Legislature’s submission as “mere proposals deserving no special weight”) (J. Hagedorn, concurring).

180. This Court is not aware of any court that has adopted a legislature’s vetoed map in impasse litigation since the 1970 redistricting cycle, and those decades-old cases are not comparable to the circumstances before the Court today. In *Skolnick v. State Electoral Bd. of Ill.*, 336 F. Supp. 839, 846 (N.D. Ill. 1971), the

court adopted a legislatively proposed plan only after explaining the superiority of that plan across a range of traditional redistricting criteria and highlighting that the plan had received “substantial bipartisan support” in the legislature, which, of course, is not the case here. In *Donnelly v. Meskill*, 345 F. Supp. 962 (D. Conn. 1972), the court similarly did not adopt the legislature’s map wholesale but instead made changes to the plan which addressed, in large part, the Governor’s reason for vetoing the plan. *See id.* at 964-65 (explaining the Governor’s veto because of the legislature’s significant and impermissible population deviations, and the court’s adjustment of the legislature’s plan to ensure it reached virtual population equality). The Court concludes that neither case stands for the proposition that courts should adopt a legislature’s plan in impasse litigation, nor that they should afford it any special deference.

181. In prior Pennsylvania impasse litigation, neither the Pennsylvania Supreme Court nor special masters appointed to assess the merits of proposed redistricting maps have given preferential treatment to reapportionment plans put forth by legislators. Specifically, in 1992, the Pennsylvania Supreme Court appointed a Special Master from the Pennsylvania Commonwealth Court to recommend a map for the court to adopt after the Pennsylvania’s political branches failed to successfully enact a redistricting plan on their own. *See Mellow*, 607 A.2d

at 205-06. In that proceeding, the Special Master received six different plans submitted by various groups, including by various lawmakers. *Id.* at 205. Before engaging in a detailed analysis comparing the maps before him, the Special Master specifically noted in his opinion to the court that all plans “must be considered on the same footing.” *Id.* at 215.

182. All plans must be considered on equal footing, just as this Court did in *Mellow*.

III. The Carter Plan complies with traditional redistricting principles.

183. The Carter Plan complies with the four traditional principles of redistricting identified by the Supreme Court, including (1) population equality, (2) compactness, (3) contiguity, and (4) integrity of political subdivisions.

184. The Carter Plan in particular is notable for performing among the best plans across all four criteria.

A. The Carter Plan has equal population.

185. The Carter Plan satisfies the principle of population equality.

186. A congressional redistricting plan “should consist of congressional districts . . . as nearly equal in population as practicable.” *LWV II*, 181 A.3d at 1085.

187. Under the “one person, one vote” principle, congressional districts within a state must have equally apportioned numbers of persons. *See Wesberry*, 376 U.S. at 7-8.

188. For federal congressional districts, the United States Constitution “permits only the limited population variances which are unavoidable despite a good-faith effort to achieve absolute equality.” *Kirkpatrick v. Preisler*, 394 U.S. 526, 531 (1969); *see also Mellow*, 607 A.2d at 207.

189. Therefore, population deviations, such as plus or minus one person, still satisfy the population equality standard as previously established by the Pennsylvania Supreme Court. *See id.* at 208 (upholding plan that had a total maximum deviation of “0.0111%”); *Colleton Cnty. Council v. McConnell*, 201 F. Supp. 2d 618, 664 (D.S.C. 2002) (“In keeping with our overriding concern, the court plan complies with the ‘as nearly as practicable’ population equality requirement of Article 1, § 2 of the Constitution, with a deviation of plus or minus one person.” (citing *Karcher v. Daggett*, 462 U.S. 725, 730 (1983))).

190. All Submitted Plans, including the Carter Plan, satisfy constitutional requirements as to population equality.

B. The Carter Plan is compact.

191. The Carter Plan satisfies the principle of compactness.

192. A congressional redistricting plan “should consist of congressional districts composed of compact . . . territory.” *LWV II*, 645 Pa. at 581; *see also Miller v. Johnson*, 515 U.S. 900, 916 (1995); *Brown v. Thomson*, 462 U.S. 835, 842 (1983).

193. The Carter Plan has compactness scores that closely mirror or exceed the respective compactness scores of the 2018 Remedial Plan, which was blessed by the Supreme Court. *See LWW I*, 178 A.3d at 771-72 (calling the Reock and Polsby-Popper metrics “widely-accepted standards”).

194. The Carter Plan not only satisfies the principle of compactness but is one of the superior plans when measured along this dimension.

C. The Carter Plan is contiguous.

195. The Carter Plan satisfies the principle of contiguity.

196. A congressional redistricting plan “should consist of congressional districts composed of . . . contiguous territory.” *LWW II*, 181 A.3d at 1085; *see also Miller*, 515 U.S. at 916.

197. Of particular concern are districts that contain shapes or formations, such as “isthmuses” or “tentacles” that destroy or strain the notion of contiguity of a district. *LWW I*, 178 A.3d at 819.

198. There is no dispute that the Carter Plan satisfies the criterion of contiguity.

D. The Carter Plan maintains political subdivisions.

199. The Carter Plan satisfies the principle of maintaining integrity of political subdivisions.

200. A congressional redistricting plan “should consist of congressional districts . . . which do not divide any county, city, incorporated town, borough, township, or ward, except where necessary to ensure equality of population.” *LWW II*, 181 A.3d at 1085; *see also Karcher*, 462 U.S. at 740–41; *Reynolds*, 377 U.S. at 580–81.

201. The Carter Plan splits fewer political subdivisions than the 2018 Remedial Plan and has the lowest total county splits of any of the Submitted Plans.

202. Therefore, the Court concludes that the Carter Plan maximizes the integrity of existing political subdivisions.

IV. The Carter Plan complies with other historical redistricting factors.

203. The Carter Plan complies with all other historical redistricting factors.

A. The Carter Plan protects minority voting rights.

204. The Carter Plan protects minority rights and maintains the protection of minority voting rights reflected in the 2018 Remedial Plan.

205. In *Mellow*, the Pennsylvania Supreme Court adopted the Commonwealth Court’s recommendation to approve a congressional redistricting plan in part because that plan achieved greater minority representation. 607 A.2d at 206-7.

206. Moreover, federal law requires that districts be drawn to protect the equal opportunity of racial, ethnic, and language minorities to participate in the political process and elect candidates of their choice, whether alone or in alliance with others. Voting Rights Act of 1965, 52 U.S.C. § 10301(b) (2018).

207. Finally, districts must not have the purpose or effect of denying or abridging the voting rights of any United States citizen on account of race, ethnicity, or membership in a language minority group. U.S. Const. Amend. XIV, XV; 52 U.S.C. § 10301(a).

208. The Carter Plan preserves the minority opportunity districts that the Pennsylvania Supreme Court approved in 2018.

B. The Carter Plan protects communities of interest.

209. The Carter Plan satisfies the principle of protecting communities of interest.

210. The Carter Plan maintains the protection of communities of interest reflected in the 2018 Remedial Plan.

211. In *LWW I*, the Supreme Court interpreted the state's constitution to provide "great[] emphasis on creating representational districts that . . . maintain the geographical and social cohesion of the communities in which people live." 178 A.3d. at 814-15.

212. The Carter Plan’s least-change approach ensures that the communities of interest protected by the Supreme Court in 2018 remain protected.

213. To the extent the Carter Plan had to alter the boundaries of the 2018 Remedial Plan to account for population changes and the Commonwealth’s loss of a congressional seat, it did so with a focus on maintaining natural and political subdivision boundaries and keeping communities whole.

C. The Carter Plan exhibits partisan fairness.

214. The Carter Plan reflects the partisan preferences of Pennsylvania voters, is fair, and does not dilute votes.

215. Partisan fairness has long been a key lodestar in Pennsylvania’s redistricting.

216. In *Mellow*, the Pennsylvania Supreme Court selected a map that resulted “in a politically fair balance in the Pennsylvania delegation between Democrats and Republicans.” 530 Pa. at 50, 58; *LWVI*, 178 A.3d at 817.

217. And most recently the state’s Redistricting Advisory Council adopted redistricting guidelines that require “partisan fairness and proportionality” and prohibit plans that create “structural advantage[s] . . . to allow one party to more efficiently translate votes into seats in the delegation.” Advisory Council

Redistricting Principles, available at <https://www.governor.pa.gov/wp-content/uploads/2021/11/Redistricting-Advisory-Council-Final-Principles.pdf>.

218. The Carter Plan achieves comparable partisan fairness to the 2018 Remedial Plan and is as fair or fairer than other Submitted Plans.

D. The Carter Plan is the least-change plan.

219. The Carter Plan makes the least changes to the 2018 Remedial Plan.

220. The 2018 Remedial Plan “[wa]s composed of congressional districts which follow the traditional redistricting criteria of compactness, contiguity, equality of population, and respect for the integrity of political subdivision.” *LWW II*, 181 A.3d at 1087.

221. Among the Submitted Plans, the Carter Plan undisputedly maintains the most voters within the districts to which they were assigned by the 2018 Remedial Plan, makes the least changes to the 2018 Remedial Plan and best preserves its district cores.

V. The Carter Plan is the superior plan.

222. The Carter Plan is the only one of the Submitted Plans that satisfies all redistricting criteria and undisputedly exceeds all other Submitted Plans on one of those criterion.

223. Based on the foregoing findings of fact and conclusions of law, the Carter Plan should be adopted as the Pennsylvania congressional redistricting plan.

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