EXHIBIT B

Report on New York Legislature's Proposed Remedial Congressional Redistricting Plan

Dr. Michael Barber

Brigham Young University

724 Spencer W. Kimball Tower

Provo, UT 84604

barber@byu.edu

Introduction and Qualifications

I have been asked by counsel for the New York State Assembly and New York State Senate to evaluate the Legislature's proposed remedial map along a number of traditional criteria used in redistricting. I have worked as an expert witness in a number of redistricting cases in which I have been asked to analyze and evaluate various political and geographic-related data and maps.

I am an associate professor of political science at Brigham Young University and faculty fellow at the Center for the Study of Elections and Democracy in Provo, Utah. I received my PhD in political science from Princeton University in 2014 with emphases in American politics and quantitative methods/statistical analyses. In my position as a professor of political science, I have conducted research on a variety of election- and voting-related topics in American politics and public opinion. Much of this research has been published in my discipline's top peer-reviewed journals. I have published more than 20 peer-reviewed articles. I have previously provided expert reports in a number of redistricting, voting, and election-related cases. I have also recently testified before the Pennsylvania Legislative Reapportionment Commission regarding the Commission's proposed map for the Pennsylvania House of Representatives.

The analysis and opinions I provide below are consistent with my education, training in statistical and quantitative analysis, and knowledge of the relevant academic literature. These skills are well-suited for this type of analysis in political science and quantitative analysis more generally. A full description of my education, training, and qualifications is contained in my CV, which was appended to my initial report in this case, is attached to this memo.

Contiguity and Population

The Legislature's Map contains 26 contiguous districts that are as close to equal population as is possible. Table 1 below shows that only 3 districts vary by one person from the target district population according to 2020 US Census P.L. 94-171 population data.

District	Population	Deviation
1	776971	0
2	776971	0
3	776972	1
4	776971	0
5	776971	0
6	776971	0
7	776971	0
8	776971	0
9	776971	0
10	776971	0
11	776971	0
12	776971	0
13	776971	0
14	776971	0
15	776971	0
16	776971	0
17	776971	0
18	776971	0
19	776971	0
20	776972	1
21	776971	0
22	776971	0
23	776971	0
24	776971	0
25	776972	1
26	776971	0

Table 1: Population of NY Legislature's Proposed Remedial Map

Core Retention

The New York Constitution states that any redistricting plan shall consider the maintenance of cores of existing districts. The following section reports the composition of the Legislature's proposed remedial districts in term of how they are composed from pieces of the previous special-master drawn 2012-2020 districts. For each of the Legislature's proposed remedial districts, I note the percent of the old 2012-2020 districts that are retained within the new proposed districts. In all cases, the new districts retain greater than 60% of the old district population with an average retention of 81%. This is very high, and is especially impressive because New York lost a congressional district following the 2020 reapportionment despite growing in population over the same time period. This means that any new districting plan containing 26 districts must "absorb" the population of the now-eliminated 27th district while at the same time also adjusting to uneven population growth and shifts in the population of the state over the last decade. Table 2 below reports the specific retention values for the Legislature's proposed remedial map.

District	Core Retention	
1	89%	
2	82%	
3	69%	
4	100%	
5	95%	
6	97%	
7	68%	
8	80%	
9	81%	
10	67%	
11	76%	
12	80%	
13	87%	
14	86%	
15	78%	
16	77%	
17	89%	
18	72%	
19	62%	
20	86%	
21	84%	
22	62%	(old CD24)
23	78%	
24	66%	(old CD27)
25	100%	
26	100%	
Average:	81%	

Table 2: Core Retention of 2012-2020 districts by Legislature's Proposed Remedial Map - New District 22 retains old District 24 and New District 24 retains old District 27. Because New York is going from 27 to 26 districts following the 2020 reapportionment, no new proposed district retains the core of old District 22.

Political Splits

To obtain exact population equality, some counties must be divided when creating a map with 26 districts. The Legislature's proposed remedial map splits only 20 counties a total of 38 different times. This is comparable to the number of county splits in the 2012-2020 special master-drawn map, which contained 19 counties, split a total of 36 times.

Compactness

To measure the geographic compactness of the districts I rely on three commonly used measures - Polsby-Popper, Convex Hull, and Schwartzberg. All three measures range from 0-1 with 0 being perfectly geographically non-compact and 1 being perfectly compact. The Legislature's proposed remedial plan has an average Polsby-Popper score of 0.303, an average Convex Hull score of 0.726, and an average Schwartzberg score of 0.538. This is comparable to the old 2012-2020 special master-drawn districts, which had an average Polsby-Popper score of 0.348, an average Convex Hull score of 0.757, and an average Schwartzberg score of 0.579. In Mr. Trende's original expert report in this case he reported compactness measures for a set of 5,000 simulated maps he produced. In that report he measured compactness using the Polsby-Popper score. The simulated districts had Polsby-Popper scores that ranged from 0.210 to 0.318, with the largest group falling between 0.258 and 0.280. Without crediting the particular methodology used by Mr. Trende to produce those simulations, the Legislature's proposed plan's Polsby-Popper score of 0.303 sits at the high end of this distribution.

In both the Legislature's proposed remedial plan and the 2012-2020 special master-drawn districts, District 10 is by far the least compact district by all three measures. In both cases, District 10 has a non-compact shape due to the special reason for which it was drawn. By linking Jewish communities on the Upper West Side of Manhattan and in Borough Park in Brooklyn, the district must run the narrow length of the western half of Manhattan, stretch south across New York Bay, bend east into Brooklyn, and finally incorporate the areas around Borough Park in Brooklyn.

Rank	District #	Polsby-Popper	District #	Convex Hull	District #	Schwartzberg
26	10	0.064	10	0.452	10	0.253
25	14	0.142	7	0.530	14	0.377
24	15	0.163	14	0.540	15	0.404
23	16	0.164	16	0.550	16	0.406
22	7	0.167	20	0.605	7	0.409
21	24	0.212	8	0.607	24	0.460
20	22	0.220	15	0.646	22	0.469
19	20	0.251	5	0.669	20	0.501
18	8	0.253	3	0.693	8	0.503
17	13	0.257	22	0.701	13	0.507
16	23	0.258	13	0.708	23	0.508
15	17	0.259	17	0.717	17	0.509
14	19	0.281	24	0.724	19	0.530
13	5	0.285	19	0.749	5	0.534
12	3	0.288	23	0.761	3	0.536
11	6	0.318	9	0.772	6	0.564
10	12	0.327	6	0.783	12	0.572
9	21	0.330	12	0.786	21	0.574
8	18	0.336	18	0.790	18	0.580
7	9	0.345	26	0.803	9	0.587
6	11	0.398	11	0.813	11	0.631
5	26	0.431	2	0.853	26	0.657
4	4	0.488	21	0.862	4	0.699
3	2	0.508	4	0.870	2	0.713
2	1	0.531	1	0.948	1	0.729
1	25	0.591	25	0.953	25	0.769
	Average:	0.303	Average:	0.726	Average:	0.538

Table 3: Compactness Measures of Legislature's Proposed Remedial Districts - Districts are ranked from least compact at the top to most compact at the bottom for each measure.

Measures of Race

In this section I report the racial composition of the districts in the Legislature's proposed remedial plan. Table 4 below shows for each district the percent of the voting age population (VAP) who are non-White, Black, Hispanic, and Asian. Because individuals can identify with multiple races and ethnicities in the US Census data, I consider someone to be Black if they identify as "Black Alone" or as Black in addition to any other racial categories, regardless of their response to the separate question of ethnicity. The same is true of the calculations for Asian individuals. For Hispanic calculations I include all respondents who identified as Hispanic in the Census data, regardless of their response to the separate questions on race. To calculate the non-White VAP I take the total voting age population minus only those individuals who identify as "White Alone", non-Hispanic. In the Legislature's proposed remedial map there are 9 districts that have a majority non-White voting age population. There is one majority Black district (District 5), two majority Hispanic districts (Districts 15 & 13), and one district that contains greater than 45% Asian VAP (District 6, 45.81% Asian VAP). This is similar to the 2012-2020 districts where there were also 9 majority minority districts and two majority Hispanic districts (Districts 15 & 13).

Rank	District	% Non-White VAP	District	% Black VAP	District	% Hispanic VAP	District	% Asian VAP
26	24	10.25%	24	3.13%	23	3.16%	23	1.19%
25	23	10.60%	23	3.22%	24	3.20%	24	1.24%
24	21	11.93%	21	3.90%	21	3.22%	21	1.30%
23	19	16.71%	6	5.06%	19	4.99%	19	3.45%
22	20	23.09%	3	5.13%	22	5.12%	18	3.84%
21	22	23.11%	19	5.80%	20	5.52%	1	4.57%
20	1	27.04%	1	6.42%	26	6.06%	15	4.69%
19	25	29.22%	10	6.45%	25	7.89%	25	4.92%
18	26	31.46%	12	6.51%	12	11.09%	16	5.36%
17	12	34.79%	20	9.27%	9	12.02%	13	5.46%
16	18	35.12%	11	9.93%	10	13.13%	20	5.84%
15	3	35.41%	22	9.93%	8	14.53%	22	5.92%
14	17	39.02%	2	10.23%	1	15.13%	26	5.92%
13	2	41.92%	17	11.27%	3	15.88%	17	7.56%
12	4	44.79%	14	11.52%	18	16.96%	2	8.90%
11	11	44.94%	18	13.06%	5	18.08%	4	8.99%
10	10	48.53%	25	15.48%	6	18.55%	8	10.05%
9	16	62.30%	4	15.49%	17	19.91%	9	13.06%
8	7	65.04%	7	15.79%	4	20.13%	3	13.78%
7	6	69.21%	26	18.38%	11	20.94%	11	14.63%
6	8	70.71%	16	33.88%	2	22.70%	7	14.93%
5	9	71.51%	13	34.84%	16	25.05%	12	16.52%
4	14	75.46%	15	37.46%	7	35.87%	5	17.08%
3	13	85.45%	9	48.02%	14	45.08%	14	20.53%
2	5	88.53%	8	48.60%	13	53.31%	10	28.46%
1	15	91.73%	5	51.02%	15	58.54%	6	45.81%

Table 4: Racial Composition of Legislature's Proposed Remedial Map Districts - Districts are sorted from lowest percent at the top to highest percent at the bottom for each category. Percentages are based on the voting age population numbers provided by the 2020 US Census P.L. 94-171 dataset. Percent Black includes Hispanic and non-Hispanic "any part Black". Percent Asian includes Hispanic and non-Hispanic "any part Asian". Hispanic includes individuals of any race who identified as Hispanic.

Conclusion

The Legislature's proposed remedial map is similar in many ways to the 2012-2020 special master-drawn map. It contains a similar number of county splits, measures similarly on multiple compactness metrics, and retains an extremely high proportion of the 2012-2020 district cores, despite the fact that the new plan must accomplish this with one fewer district than the previous plan in a state whose population has grown substantially over the last decade. The two plans are very similar on measures of race.

Dated: April 29, 2022

Michael Barber

Michael Jay Barber

CONTACT INFORMATION	Brigham Young University Department of Political Science 724 KMBL Provo, UT 84602	barber@byu.edu http://michaeljaybarber.com Ph: (801) 422-7492

ACADEMIC
APPOINTMENTS

Brigham Young University, Provo, UT

August 2020 - present   Associate Professor, Department of Political Science
2014 - July 2020   Assistant Professor, Department of Political Science
2014 - present   Faculty Scholar, Center for the Study of Elections and Democracy

EDUCATION

Princeton University Department of Politics, Princeton, NJ

Ph.D., Politics, July 2014

- Advisors: Brandice Canes-Wrone, Nolan McCarty, and Kosuke Imai

- Dissertation: "Buying Representation: the Incentives, Ideology, and Influence of Campaign Contributions on American Politics"

- 2015 Carl Albert Award for Best Dissertation, Legislative Studies Section, American Political Science Association (APSA)

M.A., Politics, December 2011

Brigham Young University, Provo, UT

B.A., International Relations - Political Economy Focus, April, 2008

- *Cum Laude*

RESEARCH
INTERESTS

American politics, congressional polarization, political ideology, campaign finance, survey research

PUBLICATIONS

19. **"Ideological Disagreement and Pre-emption in Municipal Policymaking"**
with Adam Dynes
Forthcoming at *American Journal of Political Science*

18. **"Comparing Campaign Finance and Vote Based Measures of Ideology"**
Forthcoming at *Journal of Politics*

17. **"The Participatory and Partisan Impacts of Mandatory Vote-by-Mail"**, with John Holbein
Science Advances, 2020. Vol. 6, no. 35, DOI: 10.1126/sciadv.abc7685

16. **"Issue Politicization and Interest Group Campaign Contribution Strategies"**, with Mandi Eatough
Journal of Politics, 2020. Vol. 82: No. 3, pp. 1008-1025

15. **"Campaign Contributions and Donors' Policy Agreement with Presidential Candidates"**, with Brandice Canes-Wrone and Sharece Thrower
Presidential Studies Quarterly, 2019, 49 (4) 770–797

14. **"Conservatism in the Era of Trump"**, with Jeremy Pope
Perspectives on Politics, 2019, 17 (3) 719–736

13. **"Legislative Constraints on Executive Unilateralism in Separation of Powers Systems"**, with Alex Bolton and Sharece Thrower
Legislative Studies Quarterly, 2019, 44 (3) 515–548
Awarded the Jewell-Loewenberg Award for best article in the area of subnational politics published in *Legislative Studies Quarterly* in 2019

12. **"Electoral Competitiveness and Legislative Productivity"**, with Soren Schmidt
American Politics Research, 2019, 47 (4) 683–708

11. **"Does Party Trump Ideology? Disentangling Party and Ideology in America"**, with Jeremy Pope
American Political Science Review, 2019, 113 (1) 38–54

10. **"The Evolution of National Constitutions"**, with Scott Abramson
Quarterly Journal of Political Science, 2019, 14 (1) 89–114

9. **"Who is Ideological? Measuring Ideological Responses to Policy Questions in the American Public"**, with Jeremy Pope
The Forum: A Journal of Applied Research in Contemporary Politics, 2018, 16 (1) 97–122

8. **"Status Quo Bias in Ballot Wording"**, with David Gordon, Ryan Hill, and Joe Price
The Journal of Experimental Political Science, 2017, 4 (2) 151–160.

7. **"Ideologically Sophisticated Donors: Which Candidates Do Individual Contributors Finance?"**, with Brandice Canes-Wrone and Sharece Thrower
American Journal of Political Science, 2017, 61 (2) 271–288.

6. **"Gender Inequalities in Campaign Finance: A Regression Discontinuity Design"**, with Daniel Butler and Jessica Preece
Quarterly Journal of Political Science, 2016, Vol. 11, No. 2: 219–248.

5. **"Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate"**
Public Opinion Quarterly, 2016, 80: 225–249.

4. **"Donation Motivations: Testing Theories of Access and Ideology"**
Political Research Quarterly, 2016, 69 (1) 148–160.

3. **"Ideological Donors, Contribution Limits, and the Polarization of State Legislatures"**
Journal of Politics, 2016, 78 (1) 296–310.

2. **"Online Polls and Registration Based Sampling: A New Method for Pre-Election Polling"** with Quin Monson, Kelly Patterson and Chris Mann.
Political Analysis 2014, 22 (3) 321–335.

1. **"Causes and Consequences of Political Polarization"** In *Negotiating Agreement in Politics.* Jane Mansbridge and Cathie Jo Martin, eds., Washington, DC: American Political Science Association: 19–53. with Nolan McCarty. 2013.

- Reprinted in *Solutions to Political Polarization in America*, Cambridge University Press. Nate Persily, eds. 2015

- Reprinted in *Political Negotiation: A Handbook*, Brookings Institution Press. Jane Mansbridge and Cathie Jo Martin, eds. 2015

AVAILABLE
WORKING PAPERS

"Misclassification and Bias in Predictions of Individual Ethnicity from Administrative Records" (Revise and Resubmit at *American Political Science Review*)

"Taking Cues When You Don't Care: Issue Importance and Partisan Cue Taking"
with Jeremy Pope (Revise and Resubmit)

"A Revolution of Rights in American Founding Documents"
with Scott Abramson and Jeremy Pope (Conditionally Accepted)

"410 Million Voting Records Show the Distribution of Turnout in America Today"
with John Holbein (Revise and Resubmit)

"Partisanship and Trolleyology"
with Ryan Davis (Under Review)

"Who's the Partisan: Are Issues or Groups More Important to Partisanship?"
with Jeremy Pope (Revise and Resubmit)

"Race and Realignment in American Politics"
with Jeremy Pope (Revise and Resubmit)

"The Policy Preferences of Donors and Voters"

"Estimating Neighborhood Effects on Turnout from Geocoded Voter Registration Records."
with Kosuke Imai

"Super PAC Contributions in Congressional Elections"

WORKS IN
PROGRESS

"Collaborative Study of Democracy and Politics"
with Brandice Canes-Wrone, Gregory Huber, and Joshua Clinton

"Preferences for Representational Styles in the American Public"
with Ryan Davis and Adam Dynes

"Representation and Issue Congruence in Congress"
with Taylor Petersen

"Education, Income, and the Vote for Trump"
with Edie Ellison

INVITED
PRESENTATIONS

"Are Mormons Breaking Up with Republicanism? The Unique Political Behavior of Mormons in the 2016 Presidential Election"

- Ivy League LDS Student Association Conference - Princeton University, November 2018, Princeton, NJ

"Issue Politicization and Access-Oriented Giving: A Theory of PAC Contribution Behavior"

- Vanderbilt University, May 2017, Nashville, TN

"Lost in Issue Space? Measuring Levels of Ideology in the American Public"

- Yale University, April 2016, New Haven, CT

"The Incentives, Ideology, and Influence of Campaign Donors in American Politics"

- University of Oklahoma, April 2016, Norman, OK

"Lost in Issue Space? Measuring Levels of Ideology in the American Public"

- University of Wisconsin - Madison, February 2016, Madison, WI

"Polarization and Campaign Contributors: Motivations, Ideology, and Policy"

- Hewlett Foundation Conference on Lobbying and Campaign Finance, October 2014, Palo Alto, CA

"Ideological Donors, Contribution Limits, and the Polarization of State Legislatures"

- Bipartisan Policy Center Meeting on Party Polarization and Campaign Finance, September 2014, Washington, DC

"Representing the Preferences of Donors, Partisans, and Voters in the U.S. Senate"

- Yale Center for the Study of American Politics Conference, May 2014, New Haven, CT

CONFERENCE PRESENTATIONS

Washington D.C. Political Economy Conference (PECO):

- 2017 discussant

American Political Science Association (APSA) Annual Meeting:

- 2014 participant and discussant, 2015 participant, 2016 participant, 2017 participant, 2018 participant

Midwest Political Science Association (MPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2018 participant

Southern Political Science Association (SPSA) Annual Meeting:

- 2015 participant and discussant, 2016 participant and discussant, 2017 participant

TEACHING EXPERIENCE

Poli 315: Congress and the Legislative Process

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

Poli 328: Quantitative Analysis

- Winter 2017, Fall 2017, Fall 2019, Winter 2020, Fall 2020, Winter 2021

Poli 410: Undergraduate Research Seminar in American Politics

- Fall 2014, Winter 2015, Fall 2015, Winter 2016, Summer 2017

AWARDS AND GRANTS	2019 BYU Mentored Environment Grant (MEG), American Ideology Project, $30,000

2017 BYU Political Science Teacher of the Year Award

2017 BYU Mentored Environment Grant (MEG), Funding American Democracy Project, $20,000

2016 BYU Political Science Department, Political Ideology and President Trump (with Jeremy Pope), $7,500

2016 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Hayden Galloway, Jennica Peterson, Rebecca Shuel

2015 BYU Office of Research and Creative Activities (ORCA) Student Mentored Grant x 3

- Michael-Sean Covey, Hayden Galloway, Sean Stephenson

2015 BYU Student Experiential Learning Grant, American Founding Comparative Constitutions Project (with Jeremy Pope), $9,000

2015 BYU Social Science College Research Grant, $5,000

2014 BYU Political Science Department, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), $3,000

2014 BYU Social Science College Award, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), $3,000

2014 BYU Center for the Study of Elections and Democracy, 2014 Washington DC Mayoral Pre-Election Poll (with Quin Monson and Kelly Patterson), $2,000

2012 Princeton Center for the Study of Democratic Politics Dissertation Improvement Grant, $5,000

2011 Princeton Mamdouha S. Bobst Center for Peace and Justice Dissertation Research Grant, $5,000

2011 Princeton Political Economy Research Grant, $1,500

OTHER SCHOLARLY ACTIVITIES

Expert Witness in Nancy Carola Jacobson, et al., Plaintiffs, vs. Laurel M. Lee, et al., Defendants. Case No. 4:18-cv-00262 MW-CAS (U.S. District Court for the Northern District of Florida)

Expert Witness in Common Cause, et al., Plaintiffs, vs. LEWIS, et al., Defendants. Case No. 18-CVS-14001 (Wake County, North Carolina)

Expert Witness in Kelvin Jones, et al., Plaintiffs, v. Ron DeSantis, et al., Defendants, Consolidated Case No. 4:19-cv-300 (U.S. District Court for the Northern District of Florida)

Expert Witness in Community Success Initiative, et al., Plaintiffs, v. Timothy K. Moore, et al., Defendants, Case No. 19-cv-15941 (Wake County, North Carolina)

Expert Witness in Richard Rose et al., Plaintiffs, v. Brad Raffensperger, Defendant, Civil Action No. 1:20-cv-02921-SDG (U.S. District Court for the Northern District of Georgia)

5

Georgia Coalition for the People's Agenda, Inc., et. al., Plaintiffs, v. Brad Raffensberger, Defendant. Civil Action No. 1:18-cv-04727-ELR (U.S. District Court for the Northern District of Georgia)

Expert Witness in Alabama, et al., Plaintiffs, v. United States Department of Commerce; Gina Raimondo, et al., Defendants. Case No. CASE No. 3:21-cv-00211-RAH-ECM-KCN (U.S. District Court for the Middle District of Alabama Eastern Division)

Expert Witness in League of Women Voters of Ohio, et al., Relators, v. Ohio Redistricting Commission, et al., Respondents. Case No. 2021-1193 (Supreme Court of Ohio)

Expert Witness in Regina Adams, et al., Relators, v. Governor Mike DeWine, et al., Respondents. Case No. 2021-1428 (Supreme Court of Ohio)

Expert Witness in Rebecca Harper, et al., Plaintiffs, v. Representative Destin Hall, et al., Defendants (Consolidated Case). Case No. 21 CVS 500085 (Wake County, North Carolina)

ADDITIONAL   EITM 2012 at Princeton University - Participant and Graduate Student Coordinator
TRAINING

COMPUTER   Statistical Programs: R, Stata, SPSS, parallel computing
SKILLS

Updated January 7, 2022