Supreme Court of Ohio Clerk of Court - Filed October 22, 2021 - Case No. 2021-1193

IN THE SUPREME COURT OF OHIO

LEAGUE OF WOMEN VOTERS OF OHIO, *et al.*, *Relators*, *v.* OHIO REDISTRICTING COMMISSION, *et al.*, *Respondents*.	Case No. 2021-1193

AFFIDAVIT OF DR. LISA HANDLEY

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Affidavit of Lisa Handley.pdf

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IN THE SUPREME COURT OF OHIO

LEAGUE OF WOMEN VOTERS OF OHIO, et al.,	
Relators	**Case No. 2021-1193**
v.	**Original Action Pursuant to Ohio Const., Art. XI**
OHIO REDISTRICTING COMMISSION, et al.,	
Respondents.	

AFFIDAVIT OF LISA HANDLEY

Franklin County
/ss
State of Ohio

Now comes affiant Lisa Handley, having been first duly cautioned and sworn, deposes and states as follows:

1. I am over the age of 18 and fully competent to make this declaration. I have personal knowledge of the statements and facts contained herein.
2. For the purposes of this litigation, I have been asked by counsel for LWV Relators to analyze relevant data and provide my expert opinions.
3. To that end, I have personally prepared the report attached to this affidavit as Exhibit A, and swear to its authenticity and to the faithfulness of the opinions expressed and, to the best of my knowledge, the accuracy of the factual statements made therein.

FURTHER AFFIANT SAYETH NAUGHT.

Executed on 10/22/2021, 2021.

Lisa Handley
Signed on 2021/10/22 07:01:47 -8:00

Lisa Handley

Sworn and subscribed before me this 10/22/2021 day of _____, 2021.

Signed on 2021/10/22 07:01:47 -8:00

Notary Public

Theresa Michelle Sabo
Commission # 2016-re-619622
Electronic Notary Public
State of Ohio
My Comm Exp. Nov 28, 2021

Notary Stamp 2021/10/22 07:01:47 PST F15204A411DA

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EXHIBIT A

Draft Affidavit of Dr. Lisa Handley

PROVIDING BLACKVOTERS WITH AN OPPORTUNITY TO ELECT: A DISTRICT-SPECIFIC, FUNCTIONAL ANALYSIS OF OHIO VOTING BY RACE

Summary.

1. I was retained by counsel for Relators in this matter to conduct a district-specific, functional analysis of voting patterns by race in areas of Ohio with significant Black populations to ascertain the Black voting age population necessary to provide Black voters with an opportunity to elect their candidates of choice in state legislative elections.[1]
2. A district-specific, functional analysis is required to determine whether a district is likely to provide minority voters with an opportunity to elect their candidates of choice. There is no single universal or statewide demographic target that can be applied for Black voters to elect their candidates of choice – the population needed to create an "effective minority district" varies by location and depends upon the participation rates and voting patterns of Black and white voters in that specific area.
3. An analysis of voting patterns is required to estimate voter participation rates by race, as well as the level of support from Black and white voters for each of the candidates competing in the examined elections. This information can then be used to calculate the Black population concentration required for the Black voters' preferred candidates to win election to office in a specific district. Drawing districts informed by this percentage avoids creating districts that either fail to provide Black voters with the opportunity to elect their candidates of choice or unnecessarily pack minority voters into districts to reduce the number of minority opportunity districts.
4. My analysis of voting patterns in recent statewide and state legislative elections indicate that voting in Hamilton County is consistently racially polarized. For example, in every one of the 13 statewide general elections analyzed, Black voters provided overwhelming support for their preferred candidates and white voters strongly favored the opponents of these candidates. Incorporating the estimates of turnout and votes by race produced by the racial bloc voting analysis, I calculated the Black voting age population that would be

[1] I am being compensated at a rate of $300 per hour.

needed for the Black-preferred candidate to win each of these racially polarized elections. This analysis led me to conclude that a district with a 50 percent Black voting age population would be sufficient to provide Black voters with an opportunity to elect their candidates of choice in the Cincinnati area of Hamilton County.

Professional Experience.

5. I have over thirty-five years of experience as a voting rights and redistricting expert. I have advised scores of jurisdictions and other clients on minority voting rights and redistricting-related issues. I have served as an expert in dozens of voting rights cases. My clients have included state and local jurisdictions, independent redistricting commissions (Arizona, Colorado, Michigan), the U.S. Department of Justice, national civil rights organizations, and such international organizations as the United Nations.
6. I have been actively involved in researching, writing, and teaching on subjects relating to voting rights, including minority representation, electoral system design, and redistricting. I co-authored a book, *Minority Representation and the Quest for Voting Equality* (Cambridge University Press, 1992) and co-edited a volume, *Redistricting in Comparative Perspective* (Oxford University Press, 2008), on these subjects. In addition, my research on these topics has appeared in peer-reviewed journals such as *Journal of Politics*, *Legislative Studies Quarterly*, *American Politics Quarterly*, *Journal of Law and Politics*, and *Law and Policy,* as well as law reviews (e.g., *North Carolina Law Review*) and a number of edited books. I hold a Ph.D. in political science from The George Washington University.
7. I have been a principal of Frontier International Electoral Consulting since co-founding the company in 1998. Frontier IEC specializes in providing electoral assistance in transitional democracies and post-conflict countries. In addition, I am a Visiting Research Academic at Oxford Brookes University in Oxford, United Kingdom. Attached to the end of this report is a copy of my *curriculum vitae*.

Calculating the Black Voting Age Population Needed to Elect Black-Preferred Candidates.

8. The Black voting age population (BVAP) percentage needed to elect Black-preferred candidates is calculated by taking into account the relative participation rates of Black and white Ohioans, as well as the expected level of Black support for the Black-preferred candidates (their "cohesiveness"), and the expected level of white voters' "crossover" voting for the Black-preferred candidates. This analysis requires constructing a database that combines demographic information and election results, then analyzes the data for patterns and uses these patterns to produce estimates of participation rates and voting patterns by race.
9. **Database.** To analyze voting patterns in Ohio requires a database that combines election returns and population data by race (or registration or turnout by race if this information is available). To build this dataset in this instance, 2016, 2018, and 2020 precinct-level shapefiles were acquired from the Voting and Election Science Team. These shapefiles were joined to precinct-level election returns from the Ohio Secretary of State's office, which were processed and cleaned by OpenElections. In addition, 2012 and 2014 election returns pro-rated to the 2010 voting district ("VTD") level, were acquired from Bill Cooper. The 2020 Census Block shapefiles, and total and voting age population by race and ethnicity, were obtained from the Census FTP portal. The election returns data was disaggregated down to the level of the 2020 Census block and, for the 2016, 2018, and 2020 election cycles separately, re-aggregated up to the level of the voting precincts used in those years, accounting for splits of precincts by state house and senate districts. For the 2012 and 2014 election cycles, the block-level election results were re-aggregated up to the level of the 2010 VTDs, taking into account splits of VTDs by state legislative districts.
10. **Elections Analyzed.** Using these data, I analyzed all statewide contested elections held between 2012 and 2020 for which I had data: the 2020 Presidential election; the 2018 elections for U.S. Senate, Governor, Attorney General, Secretary of State, Treasurer, and Auditor; the 2016 elections for President and U.S. Senate; the 2014 elections for Governor and Secretary of State;[2] and the 2012 elections for President and U.S. Senate. Only three of these elections included Black candidates: Barack Obama in the 2012 Presidential election;

[2] Data on the other statewide elections held in 2014 (Attorney General, Treasurer, and Auditor) was not readily available. No minority candidates competed in these three statewide election contests.

Nina Turner, the Democratic candidate for Secretary of State in 2014; and Rob Richardson, the Democratic candidate for Treasurer in 2018.[3] In addition to these statewide contests, I analyzed recent state legislative contests in select areas of the State, as described below.

11. **Primary Elections.** As is usually the case in the United States, there is a two-stage election process in Ohio – a primary election and a general election. Black-preferred candidates must win both elections to gain office. The overwhelming majority of Black voters in Ohio vote in the Democratic primary rather than the Republican primary. As a consequence, it is not possible to estimate Black voting behavior in Republican primaries and, in any case, Black voters' candidates of choice are found in Democratic primaries. In the past ten years, there were two statewide Democratic primaries that included African American candidates: the 2018 Democratic primary for Governor and the 2016 Democratic primary for U.S. Senate. I analyzed both of these elections. (Although both contests included African American candidates, these candidates were not, in fact, the candidates preferred by Black voters.) In addition, I analyzed recent Democratic primaries for state legislative office in areas of the state with significant Black populations.
12. **Racial Bloc Voting Analysis.** Direct information on how Black and white voters cast their votes is not available; voters' race is not included in their voter registration in Ohio and the race of the voter is not, of course, obtainable from a ballot. To estimate vote choices by race, I used three standard statistical techniques: homogeneous precinct analysis, ecological regression, and ecological inference.
13. Two of these analytic procedures – homogeneous precinct analysis and ecological regression – were employed by the plaintiffs' expert in *Thornburg v. Gingles*, 478 U.S. 30 (1986), and have the benefit of the Supreme Court's approval in that case, and other courts' approval in most subsequent voting rights cases. The third technique, ecological inference, was developed after the *Gingles* decision, and was designed, in part, to address the issue of out-of-bounds estimates (estimates that exceed 100 percent or are less than

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[3] The three elections that included Black candidates are more probative in the context of determining if voting is racially polarized than contests in which all of the candidates are white. This is because it is not sufficient for Black voters to be able to elect their candidates of choice only if these candidates are white. On the other hand, it is important to recognize that not all Black candidates are the preferred candidates of Black voters.

zero percent), which can arise in ecological regression analysis. Ecological inference analysis has been introduced and accepted in numerous federal and state court proceedings.

14. Homogeneous precinct (HP) analysis is the simplest technique: it involves comparing the percentage of votes received by each of the candidates in precincts that are racially homogeneous. The general practice is to label a precinct as homogeneous if at least 90 percent of the voting age population is composed of a single race. In fact, the homogeneous results reported are not estimates – they are the actual precinct results. However, most voters in Ohio do not reside in homogeneous precincts, and voters who reside in homogeneous precincts may not be representative of voters who live in more integrated precincts. For this reason, I refer to these percentages as estimates.
15. The second statistical technique I employed, ecological regression (ER), uses information from all of the precincts, not simply the homogeneous ones, to derive estimates of the voting behavior of Black and white Ohioans. If there is a strong linear relationship across precincts between the percentage of Blacks (or whites) and the percentage of votes cast for a given candidate, this relationship can be used to estimate the percentage of Blacks and whites voting for each of the candidates in the election contest being examined.
16. The third technique, ecological inference (EI), was developed by Professor Gary King. This approach also uses information from all precincts but, unlike ecological regression, it does not rely on an assumption of linearity. Instead, it incorporates maximum likelihood statistics to produce estimates of voting patterns by race. In addition, it utilizes the method of bounds, which uses more of the available information from the precinct returns and provides more information about the voting behavior being estimated.[4] The method of bounds also precludes the estimates from exceeding the possible limits. (Ecological regression can produce estimates of less than 0 percent or more than 100 percent of the voters supporting a given candidate, especially when voting is very

[4] The following is an example of how the method of bounds works: if a given precinct has 100 voters, of which 75 are Black and 25 are white, and the Black candidate received 80 votes, then at least 55 of the Black voters voted for the Black candidate and at most all 75 did. (The method of bounds is less useful for calculating estimates for white voters, as anywhere between none of the whites and all of the whites could have voted for the candidate.) These bounds are used when calculating EI estimates but not when using ecological regression.

polarized.) However, unlike ecological regression, EI does not guarantee that the candidate estimates add to 100 percent of each racial group in the elections examined.

17. In addition, I utilized a more recently developed version of ecological inference which I have labeled "EI RxC" in the summary tables found in the Appendix. EI RxC expands the analysis so that differences in the relative rates of minority and white turnout can be taken into account in deriving the estimates of minority and white support for the candidates.
18. Estimates using all four methodological approaches, homogeneous precinct analysis, ecological regression, and the two approaches to ecological inference, are reported in the summary racial bloc voting table included in the Appendix.
19. **Equalizing Black and white turnout.** Because Black Ohioans who are eligible to vote often turn out to vote at lower rates than white Ohioans (this is consistently the case in Hamilton County, as indicated by the summary table of voting patterns in Hamilton County found in the Appendix), the Black voting age population ("BVAP") needed to ensure that Black voters comprise at least half of the voters in an election is often higher than 50 percent. Once I estimated the respective turnout rates of Black and white voters using the statistical techniques described above, I could mathematically calculate the percentage needed to equalize minority and white voters.[5] But equalizing turnout is only

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[5] The equalizing percentage is calculated mathematically by solving the following equation:

Let

M	=	the proportion of the district's voting age population that is Black
W = 1-M	=	the proportion of the district's voting age population that is white
A	=	the proportion of the Black voting age population that turned out to vote
B	=	the proportion of the white voting age population that turned out to vote

Therefore,

M(A)	=	the proportion of the population that is Black and turned out to vote (1)
(1-M)B	=	the proportion of total population that is white and turned out to vote (2)

To find the value of M that is needed for (1) and (2) to be equal, (1) and (2) are set as equal and we solve for M algebraically:

$$M(A) = (1 - M)\,B$$
$$M(A) = B - M(B)$$
$$M(A) + M(B) = B$$
$$M\,(A + B) = B$$
$$M = B/\,(A+B)$$

Thus, for example, if 39.3% of the black population turned out and 48.3% of the white population turned out, B= .483 and A = .393, and M = .483/ (.393+.483) = .483/.876 = .5513, therefore a

the first step in the process – is does not take into account the voting patterns of Black and white voters. If voting is racially polarized but a significant number of white voters typically "crossover" to vote for Black voters' preferred candidate, it may be the case that this crossover voting can compensate for depressed Black turnout relative to white turnout. If this is the case, Black voters need not make up at least 50 percent of the voters in an election for the Black-preferred candidate to win.

20. **Incorporating Minority Cohesion and White Crossover Voting.** Even if Black voters are turning out at lower rates than whites, and voting is racially polarized, if a relatively consistent percentage of white voters support Black-preferred candidates, these candidates can be elected despite the lower Black turnout. This is especially true if Black voters are very cohesive in supporting their preferred candidates. A district-specific, functional analysis should take into account not only differences in the turnout rates of Black and white voters, but also voting patterns by race.[6]

21. To illustrate this mathematically, consider a district that has 1000 persons of voting age, 50% of who are Black and 50% of who are white. Let us begin by assuming that Black turnout is lower than white turnout in a two-candidate general election. In our hypothetical election example, 42% of the Black voting age population (VAP) turn out to vote and 60% of the white VAP vote. This means that, for our illustrative election, there are 210 Black voters and 300 white voters. Further suppose that 96% of the Black voters supported their candidate of choice and 25% of the white voters cast their votes for this candidate (with the other 75% supporting her opponent in the election contest). Thus, in our example, Black voters cast 200 of their 210 votes for the Black-preferred candidate and their other 8 votes for her opponent; white voters cast 75 of their 300 votes for the Black-preferred candidate and 225 votes for their preferred candidate:

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black VAP of 55.1% would produce an equal number of black and white voters. (For a more in-depth discussion of equalizing turnout see Kimball Brace, Bernard Grofman, Lisa Handley and Richard Niemi, "Minority Voting Equality: The 65 Percent Rule in Theory and Practice," *Law and Policy*, 10 (1), January 1988.)

[6] For an in-depth discussion of this approach to creating effective minority districts, see Bernard Grofman, Lisa Handley and David Lublin, "Drawing Effective Minority Districts: A Conceptual Framework and Some Empirical Evidence," *North Carolina Law Review*, volume 79 (5), June 2001.

	VAP	turnout	voters	support for Black-preferred candidate	votes for Black-preferred candidate	support for white-preferred candidate	votes for white-preferred candidate
Black	500	0.42	210	0.96	202	0.04	8
White	500	0.60	300	0.25	75	0.75	225
			510		277		233

The candidate of choice of Black voters would receive a total of 277 votes (202 from Black voters and 75 from white voters), while the candidate preferred by white voters would receive only 233 votes (8 from Black voters and 225 from white voters). The Black-preferred candidate would win the election with 55.4% (277/500) of the vote in this hypothetical 50% Black VAP district. And the Black-preferred candidate would be successful despite the fact that the election was racially polarized and that Blacks turned out to vote at a lower rate than whites.

22. The candidate of choice of Black voters would still win the election by a very small margin (50.9%) in a district that is 45% Black with these same voting patterns:

	VAP	turnout	voters	support for Black-preferred candidate	votes for Black-preferred candidate	support for white-preferred candidate	votes for white-preferred candidate
Black	450	0.42	189	0.96	181	0.04	8
White	550	0.60	330	0.25	83	0.75	248
			519		264		255

In a district with a 40% BVAP, however, the Black-preferred candidate would garner only 47.5% of the vote. [7]

[7] In the illustrative examples, VAP and voting patterns are known and the equation solves for percentage of votes received by the Black-preferred candidate. In determining the percentage of Black VAP needed to provide Black voters with an opportunity to elect their candidates of choice, voting patterns and the percentage of votes are known and we are solving for the VAP needed to produce at least 50 percent of the votes for the Black-preferred candidate.

Hamilton County

23. My analysis of voting patterns in recent elections in Hamilton County indicate that voting is consistently racially polarized – in every one of the 13 statewide general elections analyzed, Black voters voted overwhelmingly for their preferred candidate and white voters strongly favored the opponent of this candidate. For example, in the 2018 election contest for State Treasurer (the most recent statewide election contest to include a Black candidate), at least 94. 5% of Black voters supported African American Rob Richardson. (The percentage estimates vary depending on the statistical approach used.) However at least 61.8% of white voters cast their vote for his opponent, Robert Sprague. The Appendix provides a table for Hamilton County indicating the estimates for Black and white voters for all 13 of the statewide elections, using the four approaches discussed above, as well as the two recent statewide Democratic primaries that included African American candidates.
24. Table 1, below, incorporates the estimates of turnout and votes by race reported in the Appendix,[8] and calculates the percent BVAP needed for the Black-preferred candidate to win the election. An important election to examine is the 2014 contest for Secretary of State, which included a Black candidate, Nina Turner, who was strongly supported by Black voters. The EI estimates for turnout (labeled "votes cast for office") are 29.0% for Black residents of voting age and 46.4% for voting age white residents. Black voters were very cohesive in their support for Turner – 95.5% of Black voters cast a vote for her according to the EI estimate. In addition, 25.6% of White voters supported Turner. Using these estimates, I calculated the percentage of vote she would have received if a district had a 35% BVAP (43.2%), a 40% BVAP (46.2%), a 45% BVAP (49.3%), a 50% BVAP (52.5%) and a 55% BVAP (55.9%). It is not until the district has a 50% BVAP that Turner wins the election.

[8] The EI estimate that controls for differential turnout – labeled "EI RxC" in the summary racial bloc voting results table – was used to calculate the percent Black VAP needed to win.

25. This exercise was repeated for all 13 general elections analyzed.[9] Looking down the columns of Table 1, it is apparent that the Black-preferred candidate would fail to win several contests if the district was 35%, 40% or 45% BVAP. It is only at 50% BVAP that the Black-preferred candidate wins all but one election, the 2014 contest for Governor won by popular Republican incumbent, John Kasich.
26. Recent state legislative elections (2016, 2018, and 2020) in Hamilton County are less useful for determining the BVAP needed to elect Black voters' candidates of choice. Two of the seven state house districts in Hamilton County do not have a sufficient number of Black voters to analyze voting patterns by race (State House Districts 27 and 30). There were no contested elections in a third Hamilton County state house district, State House District 31, in 2018 or 2020 and in 2016 voting in this district was not polarized. Voting in State House District 28 was polarized in 2016, 2018 and 2020; in State House District 29 voting was polarized in 2018 and the election was uncontested in both 2016 and 2020. Voting in majority Black State House District 32 was not polarized in 2016 or 2018 and the Black incumbent, Catherine Ingram, was unopposed in 2020. Recent election contests in the other majority Black house district, State House 33, may have been polarized (the ER and EI estimates indicate it was, but the EI RxC estimates suggests it was not), but the candidate preferred by Black voters easily won with approximately 75 percent of the vote in 2016, 2018 and 2020. Recent state senate elections in Hamilton County yielded similar results. In the 2016 and 2020 elections in State Senate District 8 voting was racially polarized and the candidate preferred by Black voters was easily defeated. The state senate election in State Senate District 9 in 2018 was not polarized and Black candidate Cecil Thomas easily won with over 76 percent of the vote. The BVAP needed for the candidate to win the racially polarized state legislative elections varies widely, from less than 35 to over 60 percent.[10]
27. On the basis of my analysis of statewide elections over the past decade, and an examination of recent state legislative contests, I conclude that a district with a 50 percent

[9] Neither of the statewide Democratic primaries that I analyzed were racially polarized in Hamilton County. Therefore, it is the general election that is determinative to the success of Black-preferred candidates.

[10] If voting is not racially polarized, calculating a percent Black VAP needed to win produces nonsense since a 0 percent BVAP district would still elect the Black-preferred candidate.

Black population is sufficient to provide Black voters with an opportunity to elect their candidates of choice in the Cincinnati area of Hamilton County.

Table 1: Percent Black VAP Needed to Win Election in Hamilton County

Hamilton County Percent Black VAP needed to win	race of B-P candidate	turnout rate for office and percent vote for black-preferred candidates						percent of vote B-P cand would have received if district was 55% black VAP	percent of vote B-P cand would have received if district was 50% black VAP	percent of vote B-P cand would have received if district was 45% black VAP	percent of vote B-P cand would have received if district was 40% black VAP	percent of vote B-P cand would have received if district was 35% black VAP	comments
		Black votes			White votes								
		votes cast for office	B-P	all others	votes cast for office	B-P	all others						
GENERAL ELECTIONS													
2020 President	W	48.3	94.0	6.0	81.3	44.0	56.0	65.0	62.6	60.4	58.2	56.1	polarized
2018 Governor	W	37.1	94.0	6.0	66.3	39.7	60.3	61.8	59.2	56.8	54.5	52.3	polarized
2018 Treasurer	AA	37.5	96.8	3.2	64.3	38.2	61.8	62.6	59.8	57.1	54.6	52.2	polarized
2018 Attorney General	W	37.2	96.6	3.4	65.5	41.7	58.3	64.2	61.6	59.1	56.8	54.6	polarized
2018 Auditor	W	37.3	94.1	5.9	64.4	36.7	63.3	60.5	57.8	55.2	52.7	50.3	polarized
2018 Secretary State	W	37.4	94.9	5.1	65.1	40.4	59.6	62.9	60.3	57.8	55.5	53.3	polarized
2018 U.S. Senate	W	37.6	96.6	3.4	65.7	46.3	53.7	67.0	64.6	62.3	60.2	58.1	polarized
2016 President	W	50.9	96.1	3.9	74.5	35.9	64.1	63.3	60.3	57.5	54.7	52.1	polarized
2016 U.S. Senate	W	49.1	92.8	7.2	74.3	23.2	76.8	54.3	50.9	47.6	44.5	41.5	polarized
2014 Governor	W	27.8	93.9	6.1	47.6	22.8	77.2	52.4	49.0	45.8	42.7	39.8	polarized
2014 Secretary State	AA	29.0	95.5	4.5	46.4	25.6	74.4	55.9	52.5	49.3	46.2	43.2	polarized
2012 President	AA	65.5	97.9	2.1	73.0	35.6	64.4	68.2	65.1	62.0	58.9	55.9	polarized
2012 U.S. Senate	W	63.7	97.9	2.1	70.1	38.7	61.3	69.9	66.9	63.9	61.0	58.1	polarized
DEMOCRATIC PRIMARIES													
2018 Governor	W	12.2	55.5	44.5	10.0	70.4	29.6	61.5	62.2	63.0	63.7	64.5	not polarized (6 cand)
2016 U.S. Senate	W	30.2	44.9	55.1	11.1	50.3	49.7	46.1	46.4	46.6	46.8	47.1	not polarized (3 cand)

Appendix

LH_013

County: Hamilton			Estimates for Black Voters				Estimates for White Voters			
	Party	Race	HP	ER	EI 2x2	EI RxC	HP	ER	EI 2x2	EI RxC
General Elections										
2020 General										
U.S. President										
Joseph Biden	D	W/AA*		106.8	95.4	94.0	33.4	36.5	40.3	44.0
Donald Trump	R	W/W		-8.1	2.7	3.3	65.0	61.8	58.0	55.0
others				1.3	1.5	2.7	1.6	1.7	1.5	1.0
votes for office				*45.3*	*48.3*	*48.3*	*82.9*	*80.7*	*81.3*	*81.3*
2018 General										
Governor										
Richard Cordray	D	W/W	93.2	106.4	96.9	94.0	29.7	32.1	36.7	39.7
Mike Dewine	R	W/W	5.7	-8.5	2.9	2.7	67.6	64.8	60.6	58.2
others			1.1	2.2	2.0	3.3	2.7	3.1	3.0	2.1
votes for office			*48.5*	*34.9*	*37.1*	*37.1*	*66.9*	*65.5*	*66.3*	*66.3*
Treasurer										
Rob Richardson	D	AA	94.5	109.7	97.1	96.8	29.0	31.2	35.7	38.2
Robert Sprague	R	W	5.5	-9.5	3.0	3.2	71.0	68.8	64.3	61.8
votes for office			*48.5*	*35.3*	*37.5*	*37.5*	*65.0*	*63.6*	*64.3*	*64.3*
Attorney General										
Steve Dettelbach	D	W	94.4	109.2	97.2	96.6	31.8	34.4	38.7	41.7
Dave Yost	R	W	5.6	-9.2	2.8	3.4	68.2	65.6	61.3	58.3
votes for office			*48.5*	*35.0*	*37.2*	*37.2*	*66.1*	*64.7*	*65.5*	*65.5*
Auditor										
Zack Space	D	W	93.6	106.8	96.8	94.1	27.4	29.5	33.1	36.7
Keith Faber	R	W	4.8	-10.2	2.8	2.4	67.5	64.9	60.0	57.8
Robert Coogan	Lib	W	1.6	3.4	3.2	3.5	5.1	5.6	5.6	5.5
votes for office			*48.1*	*35.0*	*37.3*	*37.3*	*65.1*	*63.7*	*64.4*	*64.4*
Secretary of State										
Kathleen Clyde	D	W	94.2	108.1	97.2	94.9	30.3	32.9	36.8	40.4
Frank LaRose	R	W	4.5	-9.6	2.8	2.5	67.2	64.5	59.9	57.6
Dustin Nanna	Lib	W	1.3	1.6	3.2	2.6	2.4	2.7	2.7	2.0
votes for office			*48.5*	*35.5*	*37.4*	*37.4*	*65.7*	*64.3*	*65.1*	*65.1*

County: Hamilton			Estimates for Black Voters				Estimates for White Voters			
	Party	Race	HP	ER	EI 2x2	EI RxC	HP	ER	EI 2x2	EI RxC
2018 General (cont)										
U.S. Senate										
Sherrod Brown	D	W	95.8	109.6	97.5	96.6	36.2	38.9	43.5	46.3
Jim Renacci	R	W	4.2	-9.6	2.5	3.4	63.8	61.1	56.5	53.7
votes for office			*48.2*	*35.2*	*37.6*	*37.6*	*66.2*	*64.8*	*65.7*	*65.7*
2016 General										
U.S. President										
Hillary Clinton	D	W	95.2	108.3	96.5	96.1	28.2	29.8	33.5	35.9
Donald Trump	R	W	3.5	-9.7	2.9	1.8	67.1	64.6	60.2	58.9
others			1.3	1.4	1.1	2.2	4.7	5.6	57.0	5.2
votes for office			*65.9*	*49.6*	*50.9*	*50.9*	*76.9*	*74.2*	*74.5*	*74.5*
U.S. Senate										
Ted Strickland	D	W	90.1	100.5	94.7	92.8	18.8	18.4	20.1	23.2
Rob Portman	R	W	7.5	-5.3	4.4	1.9	77.9	78.0	75.3	74.2
others			2.4	4.8	4.5	5.2	3.3	3.6	3.6	2.7
votes for office			*63.4*	*47.2*	*49.1*	*49.1*	*76.5*	*74.0*	*74.3*	*74.3*
Democratic Primaries										
2018 Primary										
Governor										
Richard Cordray	D	W/W	56.5	54.1	55.6	55.5	69.5	69.1	70.3	70.4
Dennis Kucinich	D	W/AA*	19.5	21.6	21.3	21.6	17.4	18.5	18.9	17.9
Bill O'Neill	D	W/AA*	10.5	12.1	11.3	11.2	3.4	2.8	2.4	2.6
Paul Ray	D	W/W	4.8	3.5	0.6	2.9	1.2	1.1	1.4	1.5
Joe Schiavoni	D	W/W	4.7	5.3	4.0	6.4	7.9	8.2	7.6	6.6
Larry Ealy	D	AA/W	3.9	3.4	1.9	2.4	0.6	0.2	0.5	1.1
votes for office			*10.0*	*9.9*	*12.2*	*12.2*	*7.0*	*7.2*	*10.0*	*10.0*
2016 Primary										
U.S. Senator										
Kelli Prather	D	AA	18.8	23.1	22.5	21.1	12.6	11.9	11.5	7.2
P.G. Sittenfeld	D	W	27.2	32.8	33.8	34.0	35.1	36.7	38.8	42.6
Ted Strickland	D	W	54.0	44.1	43.9	44.9	52.4	51.3	49.6	50.3
votes for office			*26.2*	*27.2*	*30.2*	*30.2*	*9.8*	*9.4*	*11.1*	*11.1*

Lisa R. Handley
CURRICULUM VITAE

Professional Experience

Dr. Handley has over thirty years of experience in the areas of redistricting and voting rights, both as a practitioner and an academician, and is recognized nationally and internationally as an expert on these subjects. She has advised numerous clients on redistricting and has served as an expert in dozens of redistricting and voting rights court cases. Her clients have included the U.S. Department of Justice, civil rights organizations, independent redistricting commissions and scores of state and local jurisdictions. Internationally, Dr. Handley has provided electoral assistance in more than a dozen countries, serving as a consultant on electoral system design and redistricting for the United Nations, UNDP, IFES, and International IDEA. In addition, Dr. Handley served as Chairman of the Electoral Boundaries Commission in the Cayman Islands.

Dr. Handley has been actively involved in research, writing and teaching on the subjects of redistricting and voting rights. She has co-written a book, Minority Representation and the Quest for Voting Equality (Cambridge University Press, 1992) and co-edited a volume (Redistricting in Comparative Perspective, Oxford University Press, 2008) on these subjects. Her research has also appeared in peer-reviewed journals such as *Journal of Politics*, *Legislative Studies Quarterly*, *American Politics Quarterly*, *Journal of Law and Politics*, and *Law and Policy,* as well as law reviews and edited books. She has taught political science undergraduate and graduate courses related to these subjects at several universities including the University of Virginia and George Washington University. Dr. Handley is a Visiting Research Academic at Oxford Brookes University in the United Kingdom.

Dr. Handley is the President of Frontier International Consulting, a consulting firm that specializes in providing electoral assistance in transitional and post-conflict democracies. She also works as an independent election consultant both in the United States and internationally.

Education

Ph.D. The George Washington University, Political Science, 1991

Present Employment

President, Frontier International Electoral Consulting LLC (since co-founding company in 1998).

Senior International Electoral Consultant Technical assistance for clients such as the UN, UNDP and IFES on electoral system design and boundary delimitation

Visiting Research Academic, Centre for Development and Emergency Practice (CENDEP), Oxford Brookes University

U.S. Clients since 2000

American Civil Liberties Union (expert testimony in Ohio partisan gerrymander challenge and challenge to Commerce Department inclusion of citizenship question on 2020 census form)

Lawyers Committee for Civil Rights Under Law (expert testimony in challenges to statewide judicial elections in Texas and Alabama)

US Department of Justice (expert witness testimony in several Section 2 and Section 5 cases)

Alaska: Alaska Redistricting Board (redistricting consultation, expert witness testimony)

Arizona: Arizona Independent Redistricting Board (redistricting consultation, expert witness)

Arkansas: expert witness for Plaintiffs in Jeffers v. Beebe

Colorado: Colorado Redistricting Board (redistricting consultation)

Connecticut: State Senate and State House of Representatives (redistricting consultation)

Florida: State Senate (redistricting consultation)

Kansas: State Senate and House Legislative Services (redistricting consultation)

Louisiana: Louisiana Legislative Black Caucus (expert witness testimony)

Massachusetts: State Senate (redistricting consultation)

Maryland: Attorney General (redistricting consultation, expert witness testimony)

Miami-Dade County, Florida: County Attorney (redistricting consultation)

Nassau County, New York: Redistricting Commission (redistricting consulting)

New Mexico: State House (redistricting consultation, expert witness testimony)

New York: State Assembly (redistricting consultation)

New York City: Redistricting Commission and Charter Commission (redistricting consultation and Section 5 submission assistance)

New York State Court: Expert to the Special Master (drew congressional lines for state court)

Ohio: State Democratic Party (redistricting litigation support, expert witness testimony)

Pennsylvania: Senate Democratic Caucus (redistricting consultation)

Rhode Island: State Senate and State House (litigation support, expert witness testimony)

Vermont: Secretary of State (redistricting consultation)

International Clients since 2000

United Nations

- Afghanistan – electoral system design and district delimitation expert
- Bangladesh (UNDP) – redistricting expert
- Sierra Leone (UNDP) – redistricting expert
- Liberia (UNMIL, UN peacekeeping mission) – redistricting expert
- Democratic Republic of the Congo (MONUC, UN peacekeeping mission) – election feasibility mission, electoral system design and redistricting expert
- Kenya (UN) – electoral system design and redistricting expert
- Haiti (UN) – election feasibility mission, electoral system design and redistricting expert
- Zimbabwe (UNDP) – redistricting expert
- Lead Writer on the topic of boundary delimitation (redistricting) for ACE (Joint UN, IFES and IDEA project on the Administration and Cost of Elections Project)

International Foundation for Election Systems (IFES)

- Afghanistan – district delimitation expert
- Sudan – redistricting expert
- Kosovo – electoral system design and redistricting expert
- Nigeria – redistricting expert
- Nepal – redistricting expert
- Georgia – electoral system design and district delimitation expert
- Yemen – redistricting expert
- Lebanon – electoral system design and redistricting expert
- Malaysia – electoral system design and redistricting expert
- Myanmar – electoral system design and redistricting expert
- Ukraine – electoral system design and redistricting expert
- Pakistan – consultant for developing redistricting software
- Principal consultant for the Delimitation Equity Project – conducted research, wrote reference manual and developed training curriculum
- Writer on electoral boundary delimitation (redistricting), Elections Standards Project
- Training – developed training curriculum and conducted training workshops on electoral boundary delimitation (redistricting) in Azerbaijan and Jamaica

International Institute for Democracy and Electoral Assistance (International IDEA):

- Consultant on electoral dispute resolution systems
- Technology consultant on use of GIS for electoral district delimitation
- Training – developed training material and conducted training workshop on electoral boundary delimitation (redistricting) for African election officials (Mauritius)
- Curriculum development – boundary delimitation curriculum for the BRIDGE Project

Other international clients have included The Cayman Islands; the Australian Election Commission; the Boundary Commission of British Columbia, Canada; and the Global Justice Project for Iraq.

Publications

***Books**:*

Does Torture Prevention Work? Liverpool University Press, 2016 (served as editor and author, with Richard Carver)

Comparative Redistricting in Perspective, Oxford University Press, 2008 (first editor, with Bernard Grofman).

Delimitation Equity Project: Resource Guide, Center for Transitional and Post-Conflict Governance at IFES and USAID publication, 2006 (lead author).

Minority Representation and the Quest for Voting Equality, Cambridge University Press, 1992 (with Bernard Grofman and Richard Niemi).

***Academic Journal Articles**:*

"Drawing Electoral Districts to Promote Minority Representation" Representation, forthcoming, published online DOI:10.1080/00344893.2020.1815076.

"Evaluating national preventive mechanisms: a conceptual model," Journal of Human Rights Practice, Volume 12 (2), July 2020 (with Richard Carver).

"Minority Success in Non-Majority Minority Districts: Finding the 'Sweet Spot'," Journal of Race, Ethnicity and Politics, forthcoming (with David Lublin, Thomas Brunell and Bernard Grofman).

"Has the Voting Rights Act Outlived its Usefulness: In a Word, "No," Legislative Studies Quarterly, volume 34 (4), November 2009 (with David Lublin, Thomas Brunell and Bernard Grofman).

"Delimitation Consulting in the US and Elsewhere," Zeitschrift für Politikberatung, volume 1 (3/4), 2008 (with Peter Schrott).

"Drawing Effective Minority Districts: A Conceptual Framework and Some Empirical Evidence," North Carolina Law Review, volume 79 (5), June 2001 (with Bernard Grofman and David Lublin).

"A Guide to 2000 Redistricting Tools and Technology" in The Real Y2K Problem: Census 2000 Data and Redistricting Technology, edited by Nathaniel Persily, New York: Brennan Center, 2000.

"1990s Issues in Voting Rights," Mississippi Law Journal, 65 (2), Winter 1995 (with Bernard Grofman).

"Minority Turnout and the Creation of Majority-Minority Districts," American Politics Quarterly, 23 (2), April 1995 (with Kimball Brace, Richard Niemi and Harold Stanley).

"Identifying and Remedying Racial Gerrymandering," Journal of Law and Politics, 8 (2), Winter 1992 (with Bernard Grofman).

"The Impact of the Voting Rights Act on Minority Representation in Southern State Legislatures," Legislative Studies Quarterly, 16 (1), February 1991 (with Bernard Grofman).

"Minority Population Proportion and Black and Hispanic Congressional Success in the 1970s and 1980s," American Politics Quarterly, 17 (4), October 1989 (with Bernard Grofman).

"Black Representation: Making Sense of Electoral Geography at Different Levels of Government," Legislative Studies Quarterly, 14 (2), May 1989 (with Bernard Grofman).

"Minority Voting Equality: The 65 Percent Rule in Theory and Practice," Law and Policy, 10 (1), January 1988 (with Kimball Brace, Bernard Grofman and Richard Niemi).

"Does Redistricting Aimed to Help Blacks Necessarily Help Republicans?" Journal of Politics, 49 (1), February 1987 (with Kimball Brace and Bernard Grofman).

***Chapters in Edited Volumes**:*

"Effective torture prevention," Research Handbook on Torture, Sir Malcolm Evans and Jens Modvig (eds), Cheltenham: Edward Elgar, 2020 (with Richard Carver).

"Redistricting" in Oxford Handbook of Electoral Systems, Erik Herron Robert Pekkanen and Matthew Shugart (eds), Oxford: Oxford University Press, 2018.

"Role of the Courts in the Electoral Boundary Delimitation Process," in International Election Remedies, John Hardin Young (ed.), Chicago: American Bar Association Press, 2017.

"One Person, One Vote, Different Values: Comparing Delimitation Practices in India, Canada, the United Kingdom, and the United States," in Fixing Electoral Boundaries in India, edited by Mohd. Sanjeer Alam and K.C. Sivaramakrishman, New Delhi: Oxford University Press, 2015.

"Delimiting Electoral Boundaries in Post-Conflict Settings," in Comparative Redistricting in Perspective, edited by Lisa Handley and Bernard Grofman, Oxford: Oxford University Press, 2008.

"A Comparative Survey of Structures and Criteria for Boundary Delimitation," in Comparative Redistricting in Perspective, edited by Lisa Handley and Bernard Grofman, Oxford: Oxford University Press, 2008.

"Drawing Effective Minority Districts: A Conceptual Model," in Voting Rights and Minority Representation, edited by David Bositis, published by the Joint Center for Political and Economic Studies, Washington DC, and University Press of America, New York, 2006.

"Electing Minority-Preferred Candidates to Legislative Office: The Relationship Between Minority Percentages in Districts and the Election of Minority-Preferred Candidates," in Race and Redistricting in the 1990s, edited by Bernard Grofman; New York: Agathon Press, 1998 (with Bernard Grofman and Wayne Arden).

"Estimating the Impact of Voting-Rights-Related Districting on Democratic Strength in the U.S. House of Representatives," in Race and Redistricting in the 1990s, edited by Bernard Grofman; New York: Agathon Press, 1998 (with Bernard Grofman).

"Voting Rights in the 1990s: An Overview," in Race and Redistricting in the 1990s, edited by Bernard Grofman; New York: Agathon Press, 1998 (with Bernard Grofman and Wayne Arden).

"Racial Context, the 1968 Wallace Vote and Southern Presidential Dealignment: Evidence from North Carolina and Elsewhere," in Spatial and Contextual Models in Political Research, edited by Munroe Eagles; Taylor and Francis Publishing Co., 1995 (with Bernard Grofman).

"The Impact of the Voting Rights Act on Minority Representation: Black Officeholding in Southern State Legislatures and Congressional Delegations," in The Quiet Revolution: The Impact of the Voting Rights Act in the South, 1965-1990, eds. Chandler Davidson and Bernard Grofman, Princeton University Press, 1994 (with Bernard Grofman).

"Preconditions for Black and Hispanic Congressional Success," in United States Electoral Systems: Their Impact on Women and Minorities, eds. Wilma Rule and Joseph Zimmerman, Greenwood Press, 1992 (with Bernard Grofman).

***Electronic Publication**:*

"Boundary Delimitation" Topic Area for the Administration and Cost of Elections (ACE) Project, 1998. Published by the ACE Project on the ACE website (www.aceproject.org).

***Additional Writings of Note**:*

Amicus brief presented to the US Supreme Court in Gill v. Whitford, Brief of Political Science Professors as Amici Curiae, 2017 (one of many social scientists to sign brief)

Amicus brief presented to the US Supreme Court in Shelby County v. Holder, Brief of Historians and Social Scientists as Amici Curiae, 2013 (one of several dozen historians and social scientists to sign brief)

Amicus brief presented to the US Supreme Court in Bartlett v. Strickland, 2008 (with Nathaniel Persily, Bernard Grofman, Bruce Cain, and Theodore Arrington).

Recent Court Cases

In the past ten years, Dr. Handley has served as an testifying expert or expert consultant in the following cases:

Ohio Philip Randolph Institute v. Larry Householder (2019) – partisan gerrymander challenge to Ohio congressional districts; testifying expert for ACLU on minority voting patterns

State of New York v. U.S. Department of Commerce/ New York Immigration Coalition v. U.S. Department of Commerce (2018-2019) – challenge to inclusion of citizenship question on 2020 census form; testifying expert on behalf of ACLU

U.S. v. City of Eastpointe (settled 2019) – minority vote dilution challenge to City of Eastpointe, Michigan, at-large city council election system; testifying expert on behalf of U.S. Department of Justice

Alabama NAACP v. State of Alabama (decided 2020) – minority vote dilution challenge to Alabama statewide judicial election system; testifying expert on behalf of Lawyers Committee for Civil Rights Under Law

Lopez v. Abbott (2017-2018) – minority vote dilution challenge to Texas statewide judicial election system; testifying expert on behalf of Lawyers Committee for Civil Rights Under Law

Personhuballuah v. Alcorn (2015-2017) – racial gerrymandering challenge to Virginia congressional districts; expert for the Attorney General and Governor of the State of Virginia; written testimony on behalf of Governor

Perry v. Perez (2014) – Texas congressional and state house districts (Section 2 case before federal court in San Antonio, Texas; testifying expert for the U.S. Department of Justice)

Jeffers v. Beebe (2012) – Arkansas state house districts (testifying expert for the Plaintiffs)

State of Texas v. U.S. (2011-2012) – Texas congressional and state house districts (Section 5 case before the Circuit Court of the District of Columbia; testifying expert for the U.S. Department of Justice)

In RE 2011 Redistricting Cases (2011-2012) – State legislative districts for State of Alaska (testifying expert for the Alaska Redistricting Board)

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CERTIFICATE OF SERVICE

I, Freda J. Levenson, hereby certify that on October 22, 2021, I caused a true and correct copy of the following documents to be served by email upon the counsel listed below:

1. **Affidavit of Dr. Lisa Handley**
2. **Report and Exhibits of Dr. Lisa Handley (pages 1 - 23)**

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