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No. 23AP1399-OA

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*In the Supreme Court of Wisconsin*

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REBECCA CLARKE, RUBEN ANTHONY, TERRY DAWSON, DANA GLASSTEIN, ANN GROVES-LLOYD, CARL HUJET, JERRY IVERSON, TIA JOHNSON, ANGIE KIRST, SELIKA LAWTON, FABIAN MALDONADO, ANNEMARIE MCCLELLAN, JAMES MCNETT, BRITTANY MURIELLO, ELA JOOSTEN (PARI) SCHILS, NATHANIEL SLACK, MARY SMITH-JOHNSON, DENISE SWEET and GABRIELLE YOUNG, PETITIONERS, GOVERNOR TONY EVERS, in his official capacity; NATHAN ATKINSON, STEPHEN JOSEPH WRIGHT, GARY KRENZ, SARAH J. HAMILTON, JEAN-LUC THIFFEAULT, SOMESH JHA, JOANNE KANE, and LEAH DUDLEY, INTERVENORS-PETITIONERS

*v.*

WISCONSIN ELECTIONS COMMISSION, DON MILLIS, ROBERT F. SPINDELL, JR., MARK L. THOMSEN, ANN S. JACOBS, MARGE BOSTELMANN, JOSEPH J. CZARNEZKI, in their official capacities as Members of the Wisconsin Election Commission, MEAGAN WOLFE, in her official capacity as the Administrator of the Wisconsin Elections Commission, ANDRE JACQUE, TIM CARPENTER, ROB HUTTON, CHRIS LARSON, DEVIN LEMAHIEU, STEPHEN L. NASS, JOHN JAGLER, MARK SPREITZER, HOWARD MARKLEIN, RACHAEL CABRAL-GUEVARA, VAN H. WANGGAARD, JESSE L. JAMES, ROMAINE ROBERT QUINN, DIANNE H. HESSELBEIN, CORY TOMCZYK, JEFF SMITH AND CHRIS KAPENGA, in their official capacities as Members of the Wisconsin Senate, RESPONDENTS, WISCONSIN LEGISLATURE; BILLIE JOHNSON, CHRIS GOEBEL, ED PERKINS, ERIC O'KEEFE, JOE SANFELIPPO, TERRY MOULTON, ROBERT JENSEN, RON ZAHN, RUTH ELMER and RUTH STRECK, INTERVENORS-RESPONDENTS.

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**EXPERT REPORT OF THOMAS BRUNELL IN SUPPORT OF MAPS  
PROPOSED BY THE JOHNSON INTERVENORS**

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## Report on Wisconsin Assembly and Senate Maps submitted by the Johnson Intervenors

Thomas L. Brunell, Ph.D.

### Executive Summary

Counsel for the Johnson Intervenors provided me with maps and asked me to provide an analysis of the factors identified by the Court and the Court's expert consultants. I did not participate in drawing the maps. I was informed that the maps were drawn with the primary goals of minimizing county splits, splitting zero towns, achieving a population deviation under 1% and contiguous districts, as this Court has defined contiguity, and then, after those goals were achieved, minimizing city and village splits and maximizing compactness. My review of the maps and the results of my scores confirms that the goals described are met by these maps. My understanding is that the maps were drawn without considering race or the partisan outcomes of districts.

The total number of splits in the maps is very low, compared to the current maps, and they also substantially improve compactness. Below is a summary chart of the main neutral criteria for the Assembly and Senate maps:

	Assembly			Senate	
	Proposed Map	Current Map		Proposed Map	Current Map
<b>Population Deviation</b>	.98%	.76%		.65%	.57%
<b>Splits</b>					
- Counties	37	53		29	42
- Towns	1	15		1	7
- Cities & Villages	34*	36		22*	23
- Wards	13*	N/A		9*	N/A
<b>Compactness</b>					
- Reock	.4128	.3582		.3877	.3684
- Polsby	.3472	.2450		.2793	.2268

\* See further discussion below

The map has a modest Republican bias due to the natural political geography in Wisconsin, but no more than would be expected due to that geography. One metric to estimate the effects of the natural political geography of a state, proposed by professor Jon Eguia at Michigan State University, is to treat counties as if they were districts with a fractional number of seats proportional to

their population, and then assign those seats to whichever party won that county.<sup>1</sup> Using a composite of six statewide elections from 2016-2020, that methodology estimates that Democrats would win 42.76 Assembly seats. Using that same composite election data, the Johnson Intervenors' map predicts 43 Assembly seats with a Democratic lean. Thus, the Johnson Intervenors' Assembly map is slightly more favorable to Democrats than the natural political geography would predict. For the Senate map, the same methodology predicts 14.25 Democratic seats (based on counties), and the Johnson Intervenors' map predicts 13 Democratic seats, so it is slightly more favorable to Republicans than the natural political geography would predict using this metric.

Regarding majority-minority districts, my understanding is that the Milwaukee area districts which are currently majority-minority were largely left alone (which can be confirmed by examining the maps side by side) since there are no contiguity issues with those districts, other than a few minor changes to eliminate some municipal splits. Even with those minor changes, the Johnson Intervenor maps have the same number of majority-minority districts as the current maps, with a similar makeup as the existing districts. The slight differences are shown in more detail below.

## I. Professional Background and Experience

I am a tenured Professor of Political Science at the University of Texas at Dallas. I received a Ph.D. in Political Science from the University of California, Irvine in 1997. Currently I serve as the program head for the Public Policy, Political Economy and Political Science program. Previously I served as Senior Associate Dean of Graduate Education for the School of Economic, Political, and Policy Sciences here at the University of Texas at Dallas. In 2020, I was appointed by the Director of the U.S. Census Bureau to serve a three-year term on the Census Scientific Advisory Committee. My teaching and research interests revolve around American elections. I study redistricting, representation, political parties, and the U.S. Congress. I teach classes on Election Law, Redistricting and Racial politics, Campaigns and Elections, and Congress. I have published a book on redistricting and dozens of peer-reviewed articles in the top journals in our field on redistricting, the Voting Rights Act, elections, and representation. I am lead author on two textbooks on American government – the first one is *An Introduction to American Government* (Brunell et al 2021), and the second is *An Introduction to State and Local Government* (Brunell et al 2022). I have testified in state and federal courts around the country over the last 20 years in lawsuits involving voting, redistricting, the Voting Rights Act, ballot integrity, absentee ballots, election administration, and signature matching. My most recent work is a book with two co-authors forthcoming with Oxford University Press entitled

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<sup>1</sup> The original paper contains a more detailed description of this method, which is available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3335967](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3335967).

*How Polarization Begets Polarization: Ideological Extremism in the US Congress.* For a full listing of publications and for cases that I have testified in either as an expert at trial or by deposition, please see my cv (attached as Appendix 1).

### 1. Population Equality

This map equalizes population across all 99 districts to within a tolerance of 0.51% to -0.47% for an overall deviation of 0.98% . The ideal population for these districts is 59,535; the largest deviation is 301 people in district 21 and the largest negative deviation in -283 in district 59.

**Table 1. Wisconsin State Assembly Districts Population and Deviations**

District	Population	Deviation	Deviation %
1	59757	224	0.38%
2	59822	289	0.49%
3	59467	-66	-0.11%
4	59629	96	0.16%
5	59750	217	0.37%
6	59535	2	0.00%
7	59325	-208	-0.35%
8	59362	-171	-0.29%
9	59598	65	0.11%
10	59503	-30	-0.05%
11	59565	32	0.05%
12	59438	-95	-0.16%
13	59375	-158	-0.26%
14	59347	-186	-0.31%
15	59600	67	0.11%
16	59714	181	0.30%
17	59662	129	0.22%
18	59471	-62	-0.10%
19	59320	-213	-0.36%
20	59469	-64	-0.11%
21	59834	301	0.51%
22	59275	-258	-0.43%
23	59366	-167	-0.28%
24	59397	-136	-0.23%

25	59661	128	0.22%
26	59802	269	0.45%
27	59672	139	0.23%
28	59688	155	0.26%
29	59628	95	0.16%
30	59469	-64	-0.11%
31	59457	-76	-0.13%
32	59605	72	0.12%
33	59704	171	0.29%
34	59601	68	0.12%
35	59426	-107	-0.18%
36	59321	-212	-0.36%
37	59497	-36	-0.06%
38	59399	-134	-0.22%
39	59338	-195	-0.33%
40	59500	-33	-0.05%
41	59753	220	0.37%
42	59449	-84	-0.14%
43	59544	11	0.02%
44	59723	190	0.32%
45	59297	-236	-0.40%
46	59794	261	0.44%
47	59284	-249	-0.42%
48	59786	253	0.43%
49	59805	272	0.46%
50	59611	78	0.13%
51	59361	-172	-0.29%
52	59265	-268	-0.45%
53	59707	174	0.29%
54	59368	-165	-0.28%
55	59643	110	0.19%
56	59432	-101	-0.17%
57	59323	-210	-0.35%
58	59376	-157	-0.26%
59	59250	-283	-0.47%
60	59659	126	0.21%
61	59821	288	0.48%
62	59390	-143	-0.24%
63	59448	-85	-0.14%
64	59553	20	0.03%
65	59522	-11	-0.02%

66	59490	-43	-0.07%
67	59453	-80	-0.13%
68	59500	-33	-0.05%
69	59272	-261	-0.44%
70	59640	107	0.18%
71	59288	-245	-0.41%
72	59460	-73	-0.12%
73	59659	126	0.21%
74	59567	34	0.06%
75	59309	-224	-0.38%
76	59456	-77	-0.13%
77	59778	245	0.41%
78	59527	-6	-0.01%
79	59646	113	0.19%
80	59514	-19	-0.03%
81	59410	-123	-0.21%
82	59589	56	0.09%
83	59796	263	0.44%
84	59390	-143	-0.24%
85	59570	37	0.06%
86	59333	-200	-0.34%
87	59429	-104	-0.17%
88	59658	125	0.21%
89	59746	213	0.36%
90	59798	265	0.45%
91	59400	-133	-0.22%
92	59707	174	0.29%
93	59546	13	0.02%
94	59379	-154	-0.26%
95	59694	161	0.27%
96	59654	121	0.20%
97	59755	222	0.37%
98	59500	-33	-0.05%
99	59292	-241	-0.40%

## 2. Political Subdivision Splits

This map splits 37 counties a total of 133 times. The full list is below.

### Counties (37 splits a total of 133 times):

1. Barron (3) - 28, 67, 75, 93

2. Bayfield (1) - 73, 74
3. Brown (7) - 1, 2, 4, 5, 6, 88, 89, 90
4. Chippewa (3) - 67, 70, 74, 93
5. Crawford (1) - 49, 96
6. Dane (12) - 37, 43, 46, 47, 48, 50, 51, 76, 77, 78, 79, 80, 81
7. Dodge (5) - 37, 38, 39, 53, 58, 98
8. Eau Claire (1) - 68, 91
9. Fon du Lac (3) - 52, 53, 58, 59
10. Iowa (1) - 49, 51
11. Jackson (1) - 68, 69
12. Jefferson (4) - 31, 33, 37, 39, 98
13. Kenosha (4) - 32, 63, 64, 65, 66
14. La Crosse (2) - 69, 94, 95
15. Lafayette (1) - 49, 51
16. Lincoln (1) - 85, 87
17. Manitowoc (3) - 2, 3, 25, 26
18. Marathon (5) - 6, 70, 72, 85, 86, 87
19. Milwaukee (16) - 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 23, 82, 84
20. Oconto (2) - 6, 35, 36
21. Oneida (1) - 34, 35
22. Outagamie (6) - 4, 5, 6, 40, 53, 55, 57
23. Ozaukee (3) - 23, 24, 59, 60
24. Pierce (2) - 30, 92, 93
25. Polk (1) - 28, 29
26. Portage (4) - 40, 41, 71, 72, 86
27. Racine (4) - 61, 62, 63, 64, 83
28. Rock (5) - 31, 32, 43, 44, 45, 47
29. St. Croix (3) - 28, 29, 30, 93
30. Sauk (3) - 38, 50, 51, 96
31. Sheboygan (1) - 26, 27
32. Walworth (4) - 31, 32, 33, 63, 83
33. Washington (4) - 22, 24, 58, 59, 60
34. Waukesha (8) - 13, 14, 15, 22, 33, 83, 97, 98, 99
35. Waupaca (2) - 6, 40, 53
36. Winnebago (3) - 53, 54, 55, 56
37. Wood (3) - 42, 69, 70, 72

The map splits 23 cities a total of 54 times.

**Cities – 21 cities split a total of 53 times.**

1. Appleton (4) - 3, 4, 5, 55, 57
2. Eau Claire (2) - 67, 68, 91
3. Elkhorn (1) - 32, 33
4. Green Bay (2) - 88, 89, 90
5. Janesville (2) - 31, 44, 45
6. Jefferson City (1) - 31, 37
7. Kenosha (2) - 64, 65, 66

8. La Crosse (1) - 94, 95
9. Madison (8) - 46, 47, 48, 76, 77, 78, 79, 80, 81
10. Menasha (1) - 3, 55
11. Mequon (1) - 23, 24
12. Middleton (1) - 80, 81
13. Milwaukee (15) - 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 24, 82
14. Muskego (1) - 15, 83
15. Oshkosh (1) - 54, 56
16. Racine (2) - 61, 62, 64
17. Sheboygan (1) - 26, 27
18. Stanley (1) - 67, 70
19. Waukesha (1) - 97, 99
20. West Allis (3) - 7, 15, 18, 82
21. Wisconsin Dells (2) - 38, 42, 50

**Town Splits** – There is just one town split three times

1. Madison (3) - 48, 76, 78, 80

**Village Splits** – 13 split villages, 14 times.

1. Ashwaubenon (1) - 2, 88
2. Cottage Grove (1) - 46, 47
3. Germantown (1) - 22, 24
4. Howard (1) - 4, 89
5. McFarland (1) - 47, 48
6. Menomonee Falls (1) - 13, 22
7. Mount Pleasant (2) - 61, 62, 64
8. North Prairie (1) - 33, 83
9. Oregon (1) - 43, 47
10. Randolph (1) - 38, 39
11. Salem Lakes (1) - 63, 66
12. Slinger (1) - 24, 58
13. Summit (1) - 33, 98

\*\* Note: One additional city (Kaukauna) and village (Ontario) show up on a splits report, but, in each case, only one block, with zero people in it, is contained in a different district. Those blocks are in different counties from the rest of the municipality and were kept with their county. Because these blocks contain no people, these two were not counted as splits.

**Ward Splits** – 13 wards are split, a total of 13 times

1. 55009359500005 - Howard, Village - Ward 5
2. 55025480000021 - Madison, City - Ward 21
3. 55025480000023 - Madison, City - Ward 23
4. 55025480000026 - Madison, City - Ward 26
5. 55025480000037 - Madison, City - Ward 37
6. 55025480000105 - Madison, City - Ward 105
7. 55025480000106 - Madison, City - Ward 106



8. 55079530000312 - Milwaukee, City - Ward 312
9. 55079853000015 - West Allis, City - Ward 15
10. 55117729750023 - Sheboygan, City - Ward 23
11. 55117729750024 - Sheboygan, City - Ward 24
12. 55131744000001 - Slinger, Village - Ward 1
13. 55133584000002 - North Prairie, Village - Ward 2

Another 21 wards show up on a wards splits report, but for each of these, the only blocks in a different district the parties have agreed by stipulation are erroneously labeled and do not count for purposes of wards splits.

1. 55025171750003 - Cottage Grove, Village - Ward 3
2. 55025480000001 - Madison, City - Ward 1
3. 55025480000003 - Madison, City - Ward 3
4. 55025480000004 - Madison, City - Ward 4
5. 55025480250003 - Madison, Town - Ward 3
6. 55035223000001 - Eau Claire, City - Ward 1
7. 55035223000003 - Eau Claire, City - Ward 3
8. 55035223000004 - Eau Claire, City - Ward 4
9. 55035223000005 - Eau Claire, City - Ward 5
10. 55035223000006 - Eau Claire, City - Ward 6
11. 55035223000007 - Eau Claire, City - Ward 7
12. 55059392250002 - Kenosha, City - Ward 2
13. 55059392250006 - Kenosha, City - Ward 6
14. 55105378250005 - Janesville, City - Ward 5
15. 55105378250009 - Janesville, City - Ward 9
16. 55117729750001 - Sheboygan, City - Ward 1
17. 55117729750002 - Sheboygan, City - Ward 2
18. 55117729750004 - Sheboygan, City - Ward 4
19. 55133783750001 - Summit, Village - Ward 1
20. 55133842500009 - Waukesha, City - Ward 9
21. 55139605000005 - Oshkosh, City - Ward 5

### **3. Contiguity**

All 99 districts are contiguous. There are various islands that are water contiguous to the following districts: 1, 21, 36, 56, 73, 74, 89, and 90.

### **4. Compactness**

The average Reock score for compactness for these districts is 0.4128, with a standard deviation of 0.104. The range for the Reock scores are from 0.147 to 0.645 with a median score of 0.401. The average Polsby-Popper score for these districts is 0.3471, with a standard deviation of 0.1253. The range for the Polsby-Popper scores are from 0.1176 to 0.6945 with a median score of 0.3262.

**Table 2.** Reock and Polsby-Popper Compactness Scores by District

District	Reock	Polsby-Popper
1	0.147	0.1176
2	0.3662	0.2709
3	0.408	0.4927
4	0.3009	0.343
5	0.3415	0.4352
6	0.3245	0.3729
7	0.5358	0.2953
8	0.5885	0.3623
9	0.4328	0.2353
10	0.3775	0.1621
11	0.3803	0.2403
12	0.4675	0.2701
13	0.5101	0.4082
14	0.4244	0.241
15	0.4664	0.4778
16	0.4728	0.3586
17	0.3445	0.2259
18	0.2794	0.1918
19	0.2472	0.1388
20	0.5471	0.5099
21	0.5301	0.5411
22	0.3632	0.4334
23	0.3568	0.2259
24	0.3909	0.3901
25	0.3339	0.2832
26	0.4012	0.4495
27	0.5752	0.6211
28	0.513	0.3902
29	0.39	0.3326
30	0.5408	0.5081
31	0.6161	0.5059
32	0.299	0.3079
33	0.5902	0.3576
34	0.5249	0.4893
35	0.2926	0.2492
36	0.362	0.318
37	0.3795	0.3573
38	0.4139	0.3976
39	0.5422	0.4416
40	0.2286	0.3103
41	0.6367	0.6945
42	0.6453	0.6846
43	0.5405	0.4996
44	0.4777	0.3111

45	0.4927	0.4559
46	0.4175	0.3033
47	0.4495	0.2577
48	0.4385	0.1947
49	0.4785	0.5323
50	0.3609	0.2862
51	0.5701	0.5579
52	0.3468	0.3156
53	0.3696	0.287
54	0.4414	0.3735
55	0.2827	0.2876
56	0.4163	0.2916
57	0.4264	0.3896
58	0.3028	0.3167
59	0.4713	0.4267
60	0.3858	0.4568
61	0.3418	0.2017
62	0.3568	0.3676
63	0.295	0.2063
64	0.5022	0.3752
65	0.4631	0.1833
66	0.3378	0.3262
67	0.4223	0.2674
68	0.269	0.2323
69	0.3922	0.2994
70	0.5455	0.4265
71	0.3982	0.3918
72	0.3874	0.2419
73	0.3637	0.3108
74	0.351	0.1697
75	0.5389	0.588
76	0.3233	0.1445
77	0.3571	0.2233
78	0.3602	0.2092
79	0.3998	0.4176
80	0.4678	0.3367
81	0.3049	0.2982
82	0.2853	0.2226
83	0.3892	0.3429
84	0.6162	0.6733
85	0.3615	0.2388
86	0.4251	0.3661
87	0.4647	0.4116
88	0.1729	0.2023
89	0.4019	0.2033
90	0.283	0.2155
91	0.5468	0.3642
92	0.2292	0.293
93	0.4089	0.3456

94	0.4028	0.3271
95	0.2944	0.2734
96	0.4849	0.4912
97	0.5559	0.5882
98	0.4564	0.314
99	0.354	0.2984

## 5. Federal Law Compliance

There are eight majority-minority districts in the Milwaukee area (8, 9, 10, 11, 12, 16, 17, and 18). There are five majority Black districts (11, 12, 16, 17, and 18), two majority Hispanic districts (8 and 9) and one coalition districts (10). The boundaries of five of these districts are identical to those in the current map (8, 9, 10, 11, 16). Three districts (12, 17, 18) were adjusted slightly to eliminate splits for Brown Deer and Wauwatosa. As shown below, these changes create no material difference in the racial composition of these districts:

District	Proposed Map			Current Map		
	Minority	Black	Hispanic	Minority	Black	Hispanic
8	80.16%	11.02%	65.9%	80.16%	11.02%	65.9%
9	69.03%	9.59%	52.97%	69.03%	9.59%	52.97%
10	56.42%	47.19%	5.05%	56.42%	47.19%	5.05%
11	85.52%	73.28%	4.46%	85.52%	73.28%	4.46%
12	72.84%	59.36%	5.25%	70.31%	57.01%	5.24%
16	67.97%	54.13%	7.08%	67.97%	54.13%	7.08%
17	67.36%	58.51%	4.59%	70.9%	61.81%	4.45%
18	67.7%	53.21%	9.61%	63.93%	52.57%	6.32%

## 6. Political Neutrality

The Assembly map modestly favors Republicans, due to the concentration on keeping communities whole and splits to a minimum.

**Table 3. Political Neutrality Measures from DRA for House Districts**

Proportional	7.22%	The simple deviation from proportionality using fractional seat shares
Efficiency gap	7.90%	The relative two-party difference in wasted votes
Gamma	8.20%	The fair difference in seats at the map-wide vote share

Seats bias	8.12%	Half the difference in seats at 50% vote share
Votes bias	3.06%	The excess votes required for half the seats
Partisan bias	8.11%	The difference in seats between the map-wide vote share and the symmetrical counterfactual share
Global symmetry	3.82%	The overall symmetry of the seats-votes curve
Partisan bias rating	37	The combined rating of seats bias & votes bias
Declination	16.53°	A geometric measure of packing & cracking
Mean–median	3.26%	The average vote share across all districts minus the median vote share
Turnout bias	-0.56%	The difference between the map-wide vote share and the average district share
Lopsided outcomes	5.78%	The relative two-party difference in excess vote shares
Proportional seats	50.17	The fractional Democratic seats for the map-wide vote share
Geographic seats	42.76	The fractional Democratic seats implied by county political geography
Geographic bias	7.48%	The bias due to county political geography
Map seats	43.02	The fractional Democratic seats for the map
Boundary bias	-0.26%	The bias due to district lines

## Senate Districts

### 1. Population Equality

This map equalizes population across all 33 districts to within a tolerance of 0.34% to -0.31% for an overall deviation of 0.65%. The ideal population for these districts is 178,598; the largest deviation is 604 people in district 30 and the largest negative deviation is -560 in district 8.

**Table 4. Wisconsin State Senate Districts Population and Deviations**

District	Population	Deviation	Deviation %
1	179046	448	0.25%
2	178914	316	0.18%
3	178285	-313	-0.17%
4	178506	-92	-0.05%
5	178322	-276	-0.15%
6	178847	249	0.14%
7	178623	25	0.01%
8	178038	-560	-0.31%
9	179135	537	0.30%
10	178785	187	0.10%
11	178766	168	0.09%
12	178348	-250	-0.14%
13	178234	-364	-0.20%
14	178702	104	0.06%
15	178564	-34	-0.02%
16	178864	266	0.15%
17	178777	179	0.10%
18	178340	-258	-0.14%
19	178398	-200	-0.11%
20	178285	-313	-0.17%
21	178659	61	0.03%
22	178565	-33	-0.02%
23	178225	-373	-0.21%
24	178388	-210	-0.12%
25	178535	-63	-0.04%
26	178761	163	0.09%
27	178570	-28	-0.02%
28	178775	177	0.10%
29	178332	-266	-0.15%

30	179202	604	0.34%
31	178653	55	0.03%
32	178727	129	0.07%
33	178547	-51	-0.03%

## 2. Political Subdivision Splits

**County Splits** - The Senate map splits 29 counties a total of 60 times.

1. Barron (3) – 10, 23, 25, 31
2. Brown (2) – 1, 2, 30
3. Chippewa (3) – 23, 24, 25, 31
4. Crawford (1) – 17, 32
5. Dane (5) – 13, 15, 16, 17, 26, 27
6. Dodge (3) – 13, 18, 20, 33
7. Eau Claire (1) – 23, 31
8. Fon du Lac (1) – 18, 20
9. Jefferson (2) – 11, 13, 33
10. Kenosha (2) – 11, 21, 22
11. La Crosse (1) – 23, 32
12. Manitowoc (1) – 1, 9
13. Marathon (2) – 2, 24, 29
14. Milwaukee (6) – 3, 4, 5, 6, 7, 8, 28
15. Oconto (1) – 2, 12
16. Outagamie (3) – 2, 14, 18, 19
17. Ozaukee (1) – 8, 20
18. Pierce (1) – 10, 31
19. Portage (2) – 14, 24, 29
20. Racine (2) – 21, 22, 28
21. Rock (2) – 11, 15, 16
22. St. Croix (1) – 10, 31
23. Sauk (2) – 13, 17, 32
24. Walworth (2) – 11, 21, 28
25. Washington (1) – 8, 20
26. Waukesha (4) – 5, 8, 11, 28, 33
27. Waupaca (2) – 2, 14, 18
28. Winnebago (1) – 18, 19
29. Wood (2) – 14, 23, 24

**City Splits** – 13 cities are split a total of 25 times.

1. Appleton (2) – 1, 2, 19
2. Eau Claire (1) – 23, 31
3. Janesville (1) – 11, 15
4. Jefferson (1) – 11, 13
5. Madison (2) – 16, 26, 27
6. Menasha (2) – 1, 19
7. Milwaukee (6) – 3, 4, 5, 6, 7, 8, 28

8. Muskego (1) – 5, 28
9. Oshkosh (1) – 18, 19
10. Racine (1) – 21, 22
11. Stanley City (2) - 23, 24
12. West Allis (3) – 3, 5, 6, 28
13. Wisconsin Dells (2) – 13, 14, 17

**Town Splits** – There is just one town split, split two times.  
Madison (2) – 16, 26, 27

**Village Splits** – 9 are split a total of 9 times.

1. Ashwaubenon (1) – 1, 30
2. Howard (1) – 2, 30
3. Menomonee Falls (1) – 5, 8
4. Mount Pleasant (1) – 21, 22
5. North Prairie (1) - 11, 28
6. Oregon (1) – 15, 16
7. Salem Lakes (1) – 21, 22
8. Slinger (1) – 8, 20
9. Summit (1) – 11, 33

\*As with the Assembly map, a splits report also shows splits for the City of Kaukauna and the Village of Ontario. These were not counted for the same reasons described above.

**Ward Splits** – 9 wards are split.

1. 55009359500005 - Howard, Village - Ward 5
2. 55025480000021 - Madison, City - Ward 21
3. 55025480000023 - Madison, City - Ward 23
4. 55025480000026 - Madison, City - Ward 26
5. 55025480000037 - Madison, City - Ward 37
6. 55079530000312 - Milwaukee, City - Ward 312
7. 55079853000015 - West Allis, City - Ward 15
8. 55131744000001 - Slinger, Village - Ward 1
9. 55133584000002 - North Prairie, Village - Ward 2

An additional 12 wards show up on a wards splits report, but for each of these, the only blocks in a different district the parties have agreed by stipulation are erroneously labeled and do not count for purposes of wards splits.

1. 55025480000001 - Madison, City - Ward 1
2. 55025480000003 - Madison, City - Ward 3
3. 55025480000004 - Madison, City - Ward 4
4. 55025480250003 - Madison, Town - Ward 3
5. 55035223000001 - Eau Claire, City - Ward 1
6. 55035223000003 - Eau Claire, City - Ward 3
7. 55035223000004 - Eau Claire, City - Ward 4



8. 55035223000005 - Eau Claire, City - Ward 5
9. 55035223000006 - Eau Claire, City - Ward 6
10. 55035223000007 - Eau Claire, City - Ward 7
11. 55133783750001 - Summit, Village - Ward 1
12. 55139605000005 - Oshkosh, City - Ward 5

### 3. Contiguity

All 33 districts are contiguous. There are several water contiguous islands throughout the state connected to districts 1, 7, 12, 19, 25, and 30.

### 4. Compactness

The average Reock score for compactness for these districts is 0.3877, with a standard deviation of 0.0908. The range for the Reock scores are from 0.1417 to 0.5893 with a median score of 0.3866. The average Polsby-Popper score for these districts is 0.2793, with a standard deviation of 0.0832. The range for the Polsby-Popper scores are from 0.0988 to 0.4575 with a median score of 0.2664.

**Table 5. Compactness Scores for Senate Districts**

District	Reock	Polsby-Popper
1	0.1417	0.0988
2	0.2978	0.2424
3	0.3657	0.2235
4	0.3341	0.2052
5	0.5893	0.3469
6	0.4051	0.1978
7	0.3187	0.2531
8	0.401	0.3328
9	0.2943	0.3342
10	0.4037	0.3878
11	0.5822	0.344
12	0.378	0.3455
13	0.3787	0.2393
14	0.3742	0.4182
15	0.3879	0.4575
16	0.4785	0.227
17	0.4532	0.3367
18	0.4275	0.251
19	0.3607	0.2545
20	0.4478	0.2971
21	0.2385	0.1776
22	0.4777	0.3548
23	0.3046	0.1748
24	0.298	0.3134

25	0.5375	0.1765
26	0.3651	0.2028
27	0.4161	0.2664
28	0.3489	0.2395
29	0.4232	0.4015
30	0.4295	0.1563
31	0.3866	0.2763
32	0.4124	0.3449
33	0.3347	0.3384

## 5. Federal Law Compliance

There are two majority Black districts (4 and 6) in the Milwaukee area. As noted above, three of the component Assembly districts were unchanged from the current map, while three were adjusted slightly to eliminate splits. These changes do not meaningfully change the racial composition of these districts, as shown below:

District	Proposed Map				Current Map		
	Minority	Black	Hispanic		Minority	Black	Hispanic
4	71.13%	59.54%	4.93%		70.29%	58.76%	4.93%
6	67.68%	55.27%	7.09%		67.6%	56.13%	5.97%

## 6. Political Neutrality

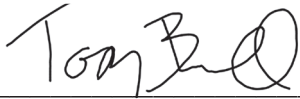
The map moderately favors Republicans due to the goals of keep communities whole and minimizing the number of splits.

**Table 6. Political Neutrality Measures from DRA for Senate Districts**

Proportional	10.78%	The simple deviation from proportionality using fractional seat shares
Efficiency gap	11.46%	The relative two-party difference in wasted votes
Gamma	12.09%	The fair difference in seats at the map-wide vote share
Seats bias	11.93%	Half the difference in seats at 50% vote share

Votes bias	3.53%	The excess votes required for half the seats
Partisan bias	11.88%	The difference in seats between the map-wide vote share and the symmetrical counterfactual share
Global symmetry	4.59%	The overall symmetry of the seats-votes curve
Partisan bias rating	27	The combined rating of seats bias & votes bias
Declination	21.34°	A geometric measure of packing & cracking
Mean–median	4.73%	The average vote share across all districts minus the median vote share
Turnout bias	-0.38%	The difference between the map-wide vote share and the average district share
Lopsided outcomes	6.63%	The relative two-party difference in excess vote shares
Proportional seats	16.72	The fractional Democratic seats for the map-wide vote share
Geographic seats	14.25	The fractional Democratic seats implied by county political geography
Geographic bias	7.48%	The bias due to county political geography
Map seats	13.17	The fractional Democratic seats for the map
Boundary bias	3.30%	The bias due to district lines

Dated: January 11, 2024

A handwritten signature in black ink, appearing to read "Tom Brunell", written over a horizontal line.

Thomas Brunell, Ph.D.

## Appendix 1 – Brunell CV

Thomas L. Brunell  
Professor of Political Science  
School of Economic, Political and Policy Sciences  
The University of Texas at Dallas  
800 W. Campbell Road  
Richardson, TX 75080  
972-883-4963  
tbrunell@utdallas.edu

### **Education**

Ph.D., 1997 Political Science, University of California, Irvine

M.A., 1993 Political Science, University of California, Irvine

B.A., 1991 Political Science, University of California, Irvine

### **Employment History**

The University of Texas at Dallas, Program Head for Political Science and Public Policy Political Economy, 2019-present.

The University of Texas at Dallas. Professor, 2009-present.

The University of Texas at Dallas, Senior Associate Dean, 2010-2012.

The University of Texas at Dallas, Director of Graduate Studies, Political Science Program 2007-2010.

The University of Texas at Dallas. Associate Professor, 2005-2009.

Northern Arizona University. Assistant Professor of Political Science, 2003-2005.

Binghamton University, SUNY. Assistant Professor of Political Science, Fall 1999–2003.

American Political Science Association Congressional Fellow, 1998–1999.

### **Grants and Awards**

“Nursing in the Field: Vector-borne Illness Prevention and Detection Among Migrant and Seasonal Farmworkers.” Co-PIs: Sarah Maxwell and Thomas Brunell. \$50,000 from the Rita & Alex Hillman Foundation.

Visiting Fellowship, Australian National University, \$10,000, Summer 2014

Visiting Fellowship, University of Sydney, United States Studies Centre and The Election Integrity Project, \$10,000, Winter 2013.

EPPS Advisory Board Grant, \$5,000 for research on Redistricting. 2014.

Intramural Grants Program, Northern Arizona University. \$5,000 for a study on the impact of redistricting on House elections. Summer 2004.

Deans Workshop Grant, “Methods and Politics,” \$3000, 2002-2003, with David Clark, David Rueda and Wendy Martinek.

Deans Workshop Grant, “Democratic Institutions, Preference Aggregation and World Politics,” \$4000, 2001-2002, with David Clark and Patrick Regan.

Dean’s Research Semester Award. Binghamton University, 2001-2002.

American Political Science Association Congressional Fellowship, 1998–99

Order of Merit. Outstanding Graduate Scholarship. School of Social Sciences, University of California, Irvine, 1996-1997

University of California Regents Dissertation Fellowship, Spring 1997.

Scaife Foundation Fellowship to attend ICSPR summer statistical program, 1993.

### **Books**

Merrill, Samuel III, Bernard Grofman, and Thomas L Brunell. 2023. *How Polarization Begets Polarization: Ideological Extremism in the US Congress*. Oxford: Oxford University Press.

Brunell, Thomas, Robert Lowry, Banks Miller, and Thomas Gray. 2021. *Introduction to American Government*. Toronto: TopHat.

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### **Journal Articles**

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Bowler, Shaun, Thomas Brunell, Todd Donovan, and Paul Gronke. 2015. "Election Administration and perception of Fair Elections." *Electoral Studies* 38(June): 1-9.

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Smith, David and Thomas L. Brunell. 2010. “Are Special Elections to the U.S. House a General Election Barometer?” *Legislative Studies Quarterly* 35(2): 283-297.

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Brunell, Thomas L., Christopher J. Anderson, and Rachel Cremona. 2008 "Descriptive Representation, District Demography, and Attitudes Toward Congress Among African Americans." *Legislative Studies Quarterly*. 33(2): 223-244.

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Reprinted in the *Journal of Irreproducible Results* 1999. 44(5-6): 25-26.

Koetzle, William, and Thomas L. Brunell. 1996. "Lip-Reading, Draft-Dodging, and Perot-noia: The 1992 Presidential Campaign in Editorial Cartoons." *Harvard International Journal of Press/Politics* 1(4): 94-115.

### **Book Chapters and Other Articles**

Brunell, Thomas L. 2020. "Congress," In *An Introduction to American Government*, Toronto: TopHat.

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Grofman, Bernard and Thomas L. Brunell. 2001. "Explaining the Ideological Differences Between the Two U.S. Senators Elected from the Same State: An Institutional Effects Model." Galderisi, Peter F., Marni Ezra, and Michael Lyons, eds. *Congressional Primaries and the Politics of Representation*. Lanham, MD: Rowman and Littlefield Press.

### **Other Publications and Community Involvement**

Op-ed "Democrats should focus on state races this year and save their chips for 2020." Dallas Morning News, July 7, 2018. Co-authored with Paul Diehl.

Quoted in DMN "At 85, Rep. Sam Johnson has rivals' respect — but still has rivals" by Elizabeth Koh, Feb 15, 2016.

Quoted in:

<http://www.foxbusiness.com/politics/2016/02/25/last-stand-in-texas-for-cruz-before-super-tuesday.html>

Interview for WRLD on Feb 27, March 1, March 2 and throughout march and april

Interview KRLD on Oct 18 about vote rigging and presidential election

KRLD Oct 25 interview early turnout

Oct 26 Interviewed on Channel 8 news about future of GOP

Appeared on McQuisition television show. May 20, 2012. "Redistricting: Do you Know Who Your Congressman is?"

Newsweek story on special elections



<http://www.thedailybeast.com/articles/2011/09/12/david-weprin-vs-bob-turner-the-race-to-replace-anthony-weiner.html>

Nate Silver story on special elections, NY Times

<http://fivethirtyeight.blogs.nytimes.com/2011/09/13/a-guide-to-cutting-through-special-election-spin/>

Appeared on McQuisition TV Show; local PBS talk show. Two episodes, one on the Tea Party and one on the 2010 Election.

Quoted in an Associate Press article “Vulnerable House Dems declare their independence,” by Cristina Silva, September 25, 2010.

Appeared on *Think* with Krys Boyd on KERA Channel 13 (Dallas) talking about my book.

I wrote the feature op-ed for the Dallas Morning News on June 3, 2008.

[http://www.dallasnews.com/sharedcontent/dws/dn/opinion/viewpoints/stories/DN-brunell\\_o3edi.ART.State.Edition1.45fe223.html](http://www.dallasnews.com/sharedcontent/dws/dn/opinion/viewpoints/stories/DN-brunell_o3edi.ART.State.Edition1.45fe223.html)

Quoted extensively in a Huffington Post story by Tom Edsall on political cycles.

[http://www.huffingtonpost.com/2008/06/24/obama-rides-the-wave\\_n\\_108848.html](http://www.huffingtonpost.com/2008/06/24/obama-rides-the-wave_n_108848.html)

Appeared on local radio station (KRLD 1080 am) as a guest political commentator for a 3 hour election wrap up program for the Texas presidential primary election, March 4, 2008.

Was one of four invited speakers, including one member of Congress, at North Central Texas College’s 2nd Annual Conference on American Leadership, April 12, 2008, where I spoke about redistricting and representation.

My research on cycles in American electoral politics was featured on Discovery's website <http://dsc.discovery.com/news/2008/03/13/political-cycles.html>

Quoted in Pittsburgh Tribune Review on Thursday March 27 about jury deliberations. [http://www.pittsburghlive.com/x/pittsburghtrib/news/cityregion/s\\_559258.html](http://www.pittsburghlive.com/x/pittsburghtrib/news/cityregion/s_559258.html)

Quoted in Philadelphia Inquirer on Wednesday April 2 about jury deliberations. <http://www.philly.com/philly/news/local/17215627.html>

My research with Patrick Brandt involving predicting the 2006 Congressional elections was quoted extensively in an article U.S. News and World Report.

Wrote an op-ed for Newsday (New York) on the impact of timing of events for presidential elections. Published 1/4/04. This was reprinted in the Dodge City Daily Globe (Kansas) on 1/8/04 and in the Chattanooga Times Free Press (Tennessee) on 1/25/04.

Spoke to Pi Sigma Alpha meeting on the Presidential Primary Process, February 2004.

Delivered a speech to the League of Women Voters of Broome and Tioga Counties entitled "Redistricting after Census 2000: Playing Political Hardball." September 25, 2001

Appeared as an hour long guest on NPR's "Talk of the Nation" to discuss the decennial census. March 7, 2001.

Stone Sweet, Alec and Thomas L. Brunell. 2000. "The European Court, National Judges, and Legal Integration: A Researcher's Guide to the Data Set on Preliminary References in EC Law, 1958–98." Working paper. Robert Schuman Centre for Advanced Studies. European University Institute.

Brunell, Thomas L. and Amihai Glazer. 1999. "Evidence for the Irrationality of Governmental Policy." Working paper, Center for the Study of Democracy, U.C. Irvine.

Stone Sweet, Alec and Thomas L. Brunell. 1997. "The European Court and the National Courts: A Statistical Analysis of Preliminary References, 1961-95." Working paper 14/97, Jean Monnet Center, Harvard Law School.

Appeared on News Channel 34 (ABC) on 11/12/00 discussing the process by which we amend the constitution.

Appeared on Fox 40 on election night 11/7/00 as an analyst discussing the election.

Appeared on WBNG TV (CBS) on 11/2/00 discussing voter fatigue.

Appeared on News Channel 34 (ABC) on 11/2/00 discussing the Electoral College.

Quoted in Press and Sun-Bulletin on 10/14/00 in an article about the 26th district Congressional election in New York.

Appeared on WBNG TV (CBS) with students in my class discussing the second Clinton/Lazio debate, 10/8/00.

Appeared on News Channel 34 (ABC) discussing Presidential debate, 10/4/00

Appeared on News Channel 34 (ABC) discussing Presidential debate, 10/3/00

Appeared on News Channel 34 (ABC) discussing the 2000 NY Senatorial primary, 9/12/00.

Appeared on WBNG TV (CBS) News discussing the 2000 presidential primaries. March 7, 2000.

Appeared on WBNG TV (CBS) News discussing Census 2000 and its likely impact on

New York. January 20, 2000.

Appeared on WBNG TV (CBS) and News Channel 34 (FOX) talking about turnout in local elections. October 2, 1999.

Brunell, Thomas L. "Accurate Census Count Vital for New York." The Press & Sun-Bulletin. July 25, 1999. Page 6E.

### **Invited Talks**

Census 2020

Triple Play: Election 2018, Census 2020, and Redistricting 2021. Conference at University of Houston, Dec. 7 2018

Census 2020 and Redistricting

Common Cause Democracy Works Summit

Philadelphia, May 21, 2018

Keynote on Redistricting

North Carolina State Political Science Associate Meeting. Raleigh, NC Feb 23, 2018

Reforming Redistricting

Political Discourse Conference, University of Iowa, December 4, 2015

"The Impact of Competitiveness on Attitudes Towards Government, a Comparative Perspective." Australian National University, August 21, 2015.

"Asymmetrical Polarization in the U.S. Congress" Australian National University, July 14<sup>th</sup>, 2015.

"Population Deviations: A Subtle Form of Gerrymandering in the U.S. States" March 2014, The University of Sydney, Electoral Integrity Project.

“The Uses and Abuses of Population Deviations in State Legislative Redistricting.” Case Western Law School, November 4, 2011.

Why Electoral Competition is Bad for America

Political Science Department at Duke University. February 10, 2009.

“Why We Need Fewer Competitive Elections in the U.S. House of Representatives.” Department of Government, University of Texas, Austin, January 27, 2006.

“Why Fewer Competitive Elections are Better in Single Member District Electoral Systems.” May 27, 2005, Nuffield College, Oxford University.

”Parsing Sincere Versus Strategic Interest Group Behavior: Explaining Patterns of Hard Money Contributions to Candidates for the U.S. Congress.” January 9, 2003, Dept. of Political Science UC Riverside.

“Party Polarization and Divided Government.” American Politics Research Group, University of North Carolina, Chapel Hill. December 1, 2000.

“The Politics of Census Taking in the United States. Nuffield College, Oxford University, September 28, 1999.

“The Statistical Adjustment of the 2000 U.S. Census. The George Washington University, June, 1999.

### **Conference Activity**

“Assessing Proportionality as a Standard for Redistricting” Presented at the Annual Meeting of the Western Political Science Association, San Diego, CA, April 2019.

“Assessing Proportionality as a Standard for Redistricting” Presented at the Annual Meeting of the Southern Political Science Association, Austin, TX, January 2019.

“Do Environmental State Policies Impact National Legislators’ Voting Behavior?”

T. Brunell and B. Cease. Presented at American Political Science Association, San Francisco, August 3-September 3, 2017

“Democratic Renewal: The Positive Effects of Elections on Voters Attitudes Towards Government.” T. Brunell, S. Bowler, T. Donovan, J. Karp

Presented at Southern Political Science Association, San Juan, Puerto Rico, January 7-10, 2016.

“State Election Administration and Voters’ Perceptions of Electoral Integrity.”

T. Brunell, S. Bowler, T. Donovan, P. Gronke

Presented at State Politics and Policy Conference, Sacramento, CA

“Electoral Engineering and the Representation of Underrepresented Groups”

Elin Bjarnegard, Thomas L. Brunell, and Par Zetterberg

Annual Meeting of American Political Science Association, San Francisco, August 2015

“Median and Supermajoritarian Pivots in Congress and Conditional Party Government”

Thomas L. Brunell and Samuel Merrill, III

Annual Meeting of American Political Science Association, San Francisco, August 2015

“Election Reforms and Perceptions of Fair Elections.”

Shaun Bowler, Thomas Brunell, Todd Donovan, and Paul Gronke

State Politics and Policy Conference, Sacramento CA, May 2015.

“Replacement Effects and the Slow Cycle of Ideological Polarization in the U.S. House.”

Presented at the Annual Meeting of the American Political Science Association, Washington D.C., September 2010.

“Putting Critical Elections in Historical Perspective”

Thomas L. Brunell, Samuel Merrill III, and Bernard Grofman

Midwest Political Science Association Annual Meeting. Chicago, IL April 2-5, 2009.

“Do Special Elections Foretell the Results of General Election Outcomes in the U.S. House of Representative.” Thomas L. Brunell and David Smith

Midwest Political Science Association Annual Meeting. Chicago, IL April 2-5, 2009.

“Who Wants Electoral Competition and Who Wants to Win?” With Harold Clarke. Presented at the Annual Meeting of the Midwestern Political Science Association, Chicago, April, 2008.

“The Impact of Electoral Competitiveness on Voters’s Attitudes Toward Government: Evidence from the U.S., Great Britain, and Canada.” With Elizabeth Clausen.

Presented at the Annual Meeting of the Western Political Science Association, Las Vegas, NV, March 2007.

“The Impact of Electoral Competitiveness on Voters’s Attitudes Toward Government: Evidence from the U.S., Great Britain, and Canada.” With Elizabeth Clausen

Presented at the Annual Meeting of the Midwestern Political Science Association, Chicago IL, April 2007.

“Time to Deliberate: Factors Affecting the Length of Jury Deliberations” With Chetan Dave and Nicolas Morgan. Presented at the Annual Conference on Empirical Legal Studies, New York Law School, November 2007.

“Move to the Center or Mobilize the Base? Effects of Political Competition, Voter Turnout, and Partisan Loyalties on the Ideological Convergence of Vote-Maximizing Candidates in Two-Party Competition.” With Bernard Grofman, Sam Merrill, and Jim Adams. Presented at the Annual Meeting of the American Political Science Association, Philadelphia, PA August 30 - September 3, 2006.

“Rethinking Redistricting: How Drawing Districts Packed with Partisans Improves

Representation and Attitudes Towards Congress.” Presented at the Annual Meeting of the American Political Science Association, Washington, DC, September 1-4, 2005.

“Evaluating the Political Effects of Partisan Gerrymandering.” With Bernard Grofman. Presented at the Annual Meeting of the American Political Science Association, Washington, DC, September 1-4, 2005.

“The Impact of Primary Type on Competitiveness of U.S. Congressional Primary Elections.” Presented at the Annual Meeting of the American Political Science Association, Chicago, IL, September 1-5, 2004.

“The Relationship Between Descriptive Representation of African Americans in Congress and Attitudes Toward Government.” With Rachel Cremona and Chris Anderson, presented at The Annual Meeting of the Midwestern Political Science Association, Chicago, IL, April 14-17, 2004.

“Do National Tides Affect Governors?: Midterm Loss in Gubernatorial Elections .” With Robin Best, presented at The Annual Meeting of the Midwestern Political Science Association, Chicago, IL, April 14-17, 2004.

“The Relationship Between Parties and Interest Groups: Explaining Interest Group Donations.” Presented at the Annual Meeting of the American Political Science Association, Boston, MA August 26-September 1, 2002.

“The Entrance of Women into the U.S. Congress: The Widow Effect.” with Lisa Solowiej. Presented at the Annual Meeting of the Southern Political Science Association. Atlanta, GA November 7-10, 2001.

“Before Election Day: The Effect of Timing of Elections in U.S. Presidential and Congressional Elections.” Presented at the Annual Meeting of the American Political Science Association, San Francisco, CA August 30-September 2, 2001.

“Ideological Swing Districts in the U.S. House of Representatives,” with A.J. Quackenbush. Presented at the Annual Meeting of the American Political Science



Association, San Francisco, CA August 30-September 2, 2001.

”The Effect of District Diversity on Party Loyalty Voting in the U.S. Congress.” Presented at the Annual Meeting of the Western Political Science Association, Las Vegas, March 15-17, 2001.

“Explaining the Proportion of Split House-President Outcomes, 1900-1996,” with Bernard Grofman and Samuel Merrill. Presented at the Annual Meeting of the Public Choice Society, San Antonio, Texas, March 9-11, 2001.

“Congress and the Courts: The Strange Case of the Census.” Florida International University, Miami, Florida. April 7-9, 2000. Conference on Congress and the Courts.

“The Link Between Primary Type and Representation in the U.S. Senate.” Presented at the 1999 Annual Meeting of the American Political Science Association, Atlanta GA.

“The Power of Ideologically Concentrated Electorates.” Presented at the 1997 Annual Meeting of the American Political Science Association, Washington D.C, August 28-31.

“Rethinking the Link Between District Diversity and Electoral Competitiveness.” Presented at the 1997 Annual Meeting of the American Political Science Association, Washington D.C, August 28-31.

“Comparing Electoral Competition, Responsiveness, and Change in the House and Senate: The Senate Really is Different.” Presented at the 1997 Annual Meeting of the Southwestern Social Science Association, New Orleans, March 26-30.

“Explaining the Ideological Differences Between the Two U.S. Senators Elected from the Same State: An Institutional Effects Model,” with Bernard Grofman. Presented at the 1997 Annual Meeting of the Public Choice Society, San Francisco, March 21-23.

“The Power of Concentrated Ideological Minorities,” with Bernard Grofman and William Koetzle. Presented at the 1997 Annual Meeting of the Public Choice Society, San Francisco, March 21-23.

“Why Do Voters Split Their Tickets? A Comparative Midpoints Approach,” with Bernard Grofman, Michael McDonald, and William Koetzle. Presented at the 1997 Annual Meeting of the Public Choice Society, San Francisco, March 21-23.

“Explaining Divided Senate Delegations 1788-1994, A Realignment Approach.” Presented at the 1996 Annual Meeting of the American Political Science Association, San Francisco, August 28 - September 1, 1996.

“Toward a Realignment-Based Theory of Divided Senate Delegations” presented at 1995 Western Political Science Association Meeting, San Francisco, March 1996. And at the 1996 Annual Meeting of the Public Choice Society, Houston, Texas, April 1996.

“Split-ticket Voting and Divided Government” with Bernard Grofman, Michael McDonald, and William Koetzle. Presented at the Conference on Strategy & Politics, Center for the Study of Collective Choice, University of Maryland, April 14, 1996.

“Comparing Midterm Elections in the U.S. House and Senate,” with William Koetzle and Bernard Grofman. Presented at the 1996 Annual Meeting of the Public Choice Society, Houston, Texas, April, 1996.

“Explaining Seat Change in the United States Senate, 1922-1994,” with William Koetzle. Presented at the 1995 Midwestern Political Science Association Annual Meeting in Chicago, Illinois, April 1995.

“Lip-Reading, Draft-Dodging, and Perot-noia: The 1992 Presidential Campaign in Editorial Cartoons,” with William Koetzle. Presented at the 1994 Western Political Science Association Annual Meeting in Albuquerque, New Mexico, March 1994.

### **Teaching Experience**

Introduction to U.S. and Texas Government

Political Parties and Interest Groups

American Political Institutions

Race and Redistricting

Congress

Campaigns and Elections

Statistics

Computer Based Research in Social Science

Graduate seminar in American Politics

Graduate seminar in Electoral Systems

Graduate seminar in American Political Institutions

Graduate seminar in Comparative Institutions

Graduate seminar in Election Law and Electoral Systems

### **Service & Professional Activities**

2013-14 Executive Committee, Political Science, UT Dallas

2010-2012 Senior Associate Dean, in charge of graduate studies for the School of Economic, Political, and Policy Sciences.

2007-2010 Associate Program Head and Director of Graduate Studies, Political Science, UT Dallas.

2005-2007 Executive Committee, Political Science, UT Dallas.

2006 American Politics search committee, UT Dallas.

2003-2005 Faculty Senate, Northern Arizona University.

2000-2001 Faculty Senate, Binghamton University.

2000-2001 Graduate Committee, Department of Political Science, Binghamton University.

2000-2001 American Politics Search Committee, Binghamton University.

1999-2000 American Politics Search Committee, Binghamton University.

1999-2000 Graduate Committee, Department of Political Science, Binghamton University.

Reviewer, National Science Foundation, American Political Science Review, American Journal of Political Science, Journal of Politics, Legislative Studies Quarterly, Journal of Theoretical Politics, American Politics Review, National Science Foundation, Public Choice, Political Research Quarterly, Electoral Studies, British Journal of Political Science, Journal of European Public Policy, European Journal of Political Research, and Party Politics.

### **Ph.D Students**

Patrick Muenks, faculty at UT Dallas

Misty Parker, faculty at Del Mar College

Paul Collins, faculty at University of North Texas

Billy Monroe, faculty at Stephen F. Austin State College

Walt Borges, faculty at UNT Dallas

David Smith

Whitney Manzo, faculty at Meredith College

Adrianna Smith

### **Redistricting and Litigation Experience**

Texas Congressional, 2001, testified in state court

Pennsylvania Congressional, 2002, testified in state and federal court

Alabama Congressional, 2002, testified in federal court

Alaska State Legislative, 2002 testified in state court  
Virginia State Legislative (wrote a report but did not testify), 2001  
Nevada State Legislative (Guy v. Miller), 2011 testified in state court  
New Mexico State Legislative (Egolf v. Duran), 2011 testified in state court  
Colorado Congressional (Moreno v. Gessler), 2011  
South Carolina Congressional (Backus v. South Carolina), 2012 testified in federal court  
North Carolina Congressional and Legislative (Dickson v. Rucho), 2012  
Florida Congressional (Romo v. Detzner)  
Alabama Legislative (ALBC v. Alabama), 2013 testified in federal court  
South Dakota Voting Rights Act case (Brooks et al. v. Gant et al.), 2014  
Galveston County Texas (Petteway et al. v. Galveston County), 2016  
Kern County Districting (Luna v. County of Kern), 2017  
Ohio Congressional (Ohio A. Philip Randolph Institute v. Smith), 2018  
Michigan Congressional (League of Women Voters Michigan v. Johnson), 2018  
Florida Signature Matching (DNC Servs. Corp., v. Lee), 2019  
North Carolina Congressional (Common Cause v. Lews), 2019  
Oregon Congressional (Clarno et al v. Fagan), 2021  
Maryland Congressional (Parrot v. Lamone), 2022  
Arkansas Absentee Ballot (League of Women Voters of Arkansas v. Thurston), 2023