COLORADO SUPREME COURT

Ralph L. Carr Judicial Center 2 East 14th Avenue Denver, Colorado 80203

Original Proceeding Pursuant to Article V, Section 44.5 of the Colorado Constitution

In Re: Colorado Independent Congressional Redistricting Commission

Attorneys for Interested Party Colorado Latino Leadership, Advocacy & Research **Organization:**

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Case No.: 2021SA208

COLORADO LATINO LEADERSHIP, ADVOCACY & RESEARCH ORGANIZATION'S SUPPLEMENTAL AUTHORITY

Interested party Colorado Latino Leadership, Advocacy & Research Organization (CLLARO), pursuant to C.A.R. 28(i), respectfully provides the following supplemental authority:

The Commission argues that Section 44.3(4)(b) is redundant of Section 44.3(1)(b) insofar as it provides no more protection against vote dilution than that provided under the Voting Rights Act of 1965. (See 10.8.2021 Commission Br., pp. 41-50; 10.11.2021 Commission Reply Br., pp. 7-19.) The Commission further argues that its interpretation is consistent with the text and "the people's understanding" of Section 44.3(4)(b). (Commission Reply Br., pp. 8-10.)

The Independent Legislative Redistricting Commission met on October 10, 2021. The Commissioners understood Section 48.1(4)(b) (which is identical to Section 44.3(4)(b)) to be a distinct inquiry, requested data to determine vote dilution independent of its VRA analysis, and talked about vote dilution and race as a factor to be considered in selecting among the final maps. See https://sg001-harmony.sliq.net/00327/Harmony/en/PowerBrowser/PowerBrowserV 2/20210401/155/12391, beginning at time stamp 6:47:48 P.M. and

concluding at time stamp 7:14:28 P.M.

Further, the Independent Legislative Commission provided, as part of its Final Plan to this Court, the following: (1) Policy #9 (concerning Voting Rights Act Compliance); (2) Dr. Lisa Handley's Voting Patterns by Race/Ethnicity in Recent State Legislative Elections in Colorado report (carrying out a racial bloc voting analysis of recent state legislative elections in select areas of Colorado); and (3) Application of Voting Rights Act Compliance Policy to Final Senate and House Plans (analyzing Final Senate and House Plan to determine instances of racially polarized voting), each attached as Attachment A-C hereto.

Dated: October 22, 2021

MESSNER REEVES LLP

s/ Kendra N. Beckwith

Kendra N. Beckwith, #40154 Bruce A. Montoya, # 14233 Darren D. Alberti, #52741 Benjamin Brittain, #55299

Attorneys for Interested Party Colorado Latino Leadership, Advocacy & Research Organization

CERTIFICATE OF COMPLIANCE

I hereby certify that this brief complies with all requirements of C.A.R. 28(i). Specifically, the undersigned certifies that:

This notice of supplemental authority complies with the applicable word limit set forth in C.A.R. 28(i), exclusive of items set forth in C.A.R. 28(g)(1).

It contains 245 words (does not exceed 350 words).

Dated: October 22, 2021

MESSNER REEVES LLP

s/ Kendra N. Beckwith

Kendra N. Beckwith, #40154 Bruce A. Montoya, # 14233 Darren D. Alberti, #52741 Benjamin Brittain, #55299

Attorneys for Interested Party Colorado Latino Leadership, Advocacy & Research Organization

CERTIFICATE OF SERVICE

I certify that on October 22, 2021, I filed the foregoing in the Colorado Supreme Court and served a true and accurate copy on all counsel of record via the Colorado E-file System.

/s/ Kendra N. Beckwith

Attachment A

DATE FILED: October 15, 2021 4:08 PM

FILING ID: 716984E21A2E4 CASE NUMBER: 2021SA305

In re Colorado Independent Legislative Redistricting Commission

Exhibit 8

Commission Policy No. 9

Colorado Independent Legislative Redistricting Commission

Policy #9

Voting Rights Act Compliance

Draft date	October 5, 2021
Approval date	October 6, 2021
Revision date(s)	
Constitutional authority for this policy	Section 48.1(1)(b)
Requires section 48.2(3) supermajority approval?	☐ Yes ☑ No

The Colorado Constitution requires the Colorado Independent Legislative Redistricting Commission (commission) to comply with the Voting Rights Act (VRA) in creating legislative redistricting plans. This policy outlines how the commission's nonpartisan redistricting staff (staff) and the commission's outside counsel will review staff plans, amendments, and additional plans for compliance with the VRA.

Compliance with the VRA

Among other things, the VRA prohibits the drawing of districts that dilute the voting power of members of a racial or language minority group. The Supreme Court established the analysis that is applied to determine if such dilution occurs in *Thornburg v. Gingles*, 478 U.S. 30 (1968). As explained by the U.S. Department of Justice:

Analysis begins by considering whether three <u>Gingles</u> preconditions exist. First, the minority group must be sufficiently large and geographically compact to constitute a majority of the voting-age population in a single-member district. Second, the minority group must be politically cohesive. And third, the majority must vote sufficiently as a bloc to enable it — in the absence of special circumstances, such as the minority candidate running unopposed — usually to defeat the minority group's preferred candidate.

If all three Gingles preconditions are present, consideration proceeds to an analysis of the totality of circumstances in a jurisdiction. ²

The commission analyzed the first prong of this test: whether there were minority groups large enough and compact enough to constitute a majority of the voting age population of a district. The commission's outside counsel retained a VRA expert to assist in the determination of whether the second and third prongs of this test could be satisfied. In other words, whether voting was racially polarized, that is whether minority voters vote cohesively for one candidate and the white majority voters vote cohesively for a different candidate, and whether minority voters were unable to elect their preferred candidates.

¹ The Colorado Constitution cites to the "'Federal Voting Rights Act of 1965' at 52 U.S.C. sec 50301, as amended." The citation in the Colorado Constitution is incorrect. Section 2 of the Voting Rights Act is now 52 U.S.C. 10301, which can be accessed through the following link: https://bit.ly/3f52VWm.

² Guidance under Section 2 of the Voting Rights Act, 52 U.S.C. 10301, for redistricting and methods of electing government bodies, U.S. Department of Justice, September 1, 2021.

VRA Expert Analysis

The VRA expert retained by the commission's outside counsel analyzed past elections to identify minority preferred candidates, determine whether there was racially polarized voting, and provide an estimate of the percentage of the minority voting age population that would be necessary in a district to elect the minority preferred candidate.³

The VRA expert was not able to identify a suitable recent statewide race that would allow her to analyze the entire state at once. Therefore, the expert analyzed State House and State Senate races from the 2018 and 2020 election cycles that occurred within areas of the state that were identified as potential areas of concern for VRA compliance by the members of the commission.

After the VRA expert conducted her analysis of past elections, staff presented her analysis in two different formats that would assist in applying the analysis in the drafting of staff plans, amendments, and additional plans.

Geographic Overlap

The first format the staff shall use to apply the VRA expert's analysis is a measure of geographic overlap.

Due to population growth across Colorado, the proposed districts in staff plans, amendments, and additional plans cannot align with the existing State House and State Senate districts. Therefore, it is not immediately clear how the existing districts that held elections analyzed by the VRA expert relate to proposed districts. To assist in determining this relationship, staff shall measure the geographic area of certain existing districts contained in proposed districts. This is a measure of geographic overlap.

Along with the measure of geographic overlap, staff shall compare the percentage of minority voting age population in the proposed districts with the percentage of minority voting age population needed for a minority candidate of choice to be elected.⁴

This analysis allows two primary determinations. First, how relevant those elections analyzed by the VRA expert were to the proposed districts: an election in an existing district that does not share any geographic area with a proposed district has limited relevance for that proposed district. Second, whether a proposed district likely has enough of a minority voting age population to allow the minority preferred candidate to be elected. In a proposed district that has a significant geographic overlap with an existing district, if the minority voting age population in the proposed district either meets or exceeds the minority voting age population the VRA expert determined would be necessary for a minority preferred candidate to be elected in past elections, it would be reasonably likely that the minority preferred candidate could be elected in that proposed district.

If a minority preferred candidate could be elected in a proposed district, it would be difficult to prove under the *Gingles* analysis that the proposed district violates the VRA and dilutes the voting power of members of a racial or language minority group. Such an argument would not be able to demonstrate that the majority voted in a way that usually defeated the minority's preferred candidate.

³ A more comprehensive explanation of the methods used by the VRA expert can be found here: https://www.ncsl.org/documents/legismgt/vote_dilusion.pdf.

⁴ The percentage of minority voting age population needed for a minority candidate of choice to be elected was determined by the VRA expert in those races she analyzed that had racially polarized voting and a numerically adequate or significant number of votes cast by minority voters.

Voter Overlap

As noted above, staff shall consider the VRA expert's analysis in two different formats that would assist in the drafting of staff plans, amendments, and additional plans. The second of these formats is a measure of voter overlap.

Although the geographic overlap of existing districts and proposed districts allows an application of the VRA expert's analysis to proposed districts, there are two principle limitations to this approach. First, geographic overlap between districts does not necessarily mean that those districts share a large number of voters. Put differently, existing and proposed districts could share large amounts of sparsely populated land while not having overlapping population centers and thus have significant geographic overlap while not having many overlapping voters. This is a problem because the VRA is concerned with voters and not land. Secondly, some existing districts share significant geographic area with multiple proposed districts. These existing districts therefore have limited geographic overlap with any particular proposed district. The geographic analysis based on these existing districts would be of limited use.

To address these limitations, staff shall also analyze the voter, rather than just geographic, overlap between existing and proposed districts. Staff shall identify the approximate location of the voters who cast votes in elections analyzed by the VRA expert. This allows staff to determine the proposed districts that would contain the voters who cast votes in such elections and how many such voters exist in a proposed district. As an example, if a proposed district covered three existing districts of equal size, and two of the existing districts had held an election with a minority preferred candidate, two thirds of the votes cast in the proposed district would have been cast in an election with a minority preferred candidate. Next, staff shall use the votes cast for minority preferred candidates in areas covered by proposed districts to determine whether a minority preferred candidate would have won an election. In other words, staff shall determine whether the number of votes cast for minority preferred candidates in an area covered by a proposed district exceed the number of votes cast for the alternative candidates.

This voter overlap analysis allows for both a determination of whether a minority preferred candidate would be reasonably likely to be elected in the proposed district and how relevant this prediction was based on how many votes in a proposed district had been cast in an election with a minority preferred candidate. Again, if a minority preferred candidate could be elected in a proposed district, it would be difficult to prove under the *Gingles* analysis that the proposed district violates the VRA and dilutes the voting power of members of a racial or language minority group.

Comparison of Voting Age Populations

Finally, the staff shall compare the voting age populations of the proposed districts to the voting age population in existing districts. This assists in determining whether current minority voter representation was diluted by a proposed district in a staff plan, amendment, or additional plan.

Application

Attached to this memo is the application of these policies to the third House and Senate Staff Plans.

Attachments A, B, C, D, and E: Application of Voting Rights Act Compliance Policy to the Third Staff House Plan

The table in Attachment A shows the application of the "Geographic Overlap" analysis to the third Staff House Plan. This table shows that it is unlikely there is racially polarized voting in proposed House Districts 5, 7, 23, and 32. Also, as can be seen by comparing the "Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD [X]" column to the "Hispanic Voting Age Population Percentage" column, proposed House Districts 17 and 62 exceed the minority voting age population numbers that must be met for the minority candidate of choice to be elected. This is not the case with proposed House Districts 56, 46, and 47. This can be explained for proposed House District 56 because although current House District 30 shares a large amount of geographic area with House District 56, it does not share a large number of voters. Similarly proposed House Districts 46 and 47 cover a large amount of the geographic area of current House Districts 46 and 47, but do not contain a large number of the voters in current House Districts 46 and 47.

The tables in Attachment B and Attachment C show the application of the "Voter Overlap" analysis to the third Staff House Plan based on 2018 and 2020 State House races. Looking at the "Share of Votes Vast in Elections with Minority Preferred Candidates in the Proposed House District" column, only House Districts 5, 7, 17, 28, 32, 40, 42, 47, 61, and 62 had more than fifty percent of their votes cast in elections with minority preferred candidates. Among these House Districts, looking at the "Share of Votes Received by Minority Candidates in Elections in the Proposed House District" column, minority preferred candidates could reasonably be predicted to be elected in House Districts 5, 7, 17, 28, 32, 40, 42, 61, and 62, but not in House District 47. This can be explained by the fact that proposed House District 47 no longer includes parts of Pueblo, instead proposed House Districts 61 and 62 contain a large amount of the Hispanic voting age population (both are either have a majority minority voting age population or are close to it) in the area and both are likely to elect a minority preferred candidate.

Finally, the Voting Age Population tables for the current districts in Attachment D shows that there are currently seven majority minority voting age population House Districts, including one majority Hispanic voting age population district. The Voting Age Population table for the third House Staff Plan in Attachment E shows that there are ten majority minority House Districts in the third Staff House Plan.

Attachments F, G, H, and I: Application of Voting Rights Act Compliance Policy to the Third Staff Senate Plan

The table in Attachment F shows first attached table shows the application of the "Geographic Overlap" analysis to the third Staff Senate Plan. This table shows that it is unlikely there is racially polarized voting in proposed Senate District 3. Also, as can be seen by comparing the "Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in SD [X]" column to the "Hispanic Voting Age Population Percentage" column, proposed Senate District 21 exceeds the minority voting age population numbers that must be met for the minority candidate of choice to be elected. This is not the case with proposed Senate Districts 23, 24, 25, and 35. This can be explained for proposed Senate District 23 because in order to have sufficiently high Hispanic voting age population this proposed district would need to gain approximately thirty-two percent Hispanic voting age population, which suggests that the first *Gingles* factor could not be satisfied in this district. Proposed Senate Districts 24 and 25 each only cover approximately half of the geographic area of current Senate District 24. A large number of the voters in proposed Senate Districts 24 and 25 are majority voters who are likely to vote for the minority candidate of choice. Thus, the minority candidate of choice is reasonably likely to be elected in proposed Senate Districts 24 and 25. Finally, although current Senate District 35 shares a relatively large amount of area with proposed Senate District 35, it does not share a large number of voters.

The table in Attachment G shows the application of the "Voter Overlap" analysis to the third Staff Senate Plan based on 2018 and 2020 House Senate races. Looking at the "Share of Votes Cast in Elections with Minority Preferred Candidates in the Proposed Senate District" column, only Senate Districts 3, 21, 23, 24, and 25 had more than fifty percent of their votes cast in elections with minority preferred candidates. Among these Senate Districts, looking at the "Share of Votes Received by Minority Candidates in Elections in the Proposed Senate District" column, minority preferred candidates could reasonably be predicted to be elected in Senate Districts 3, 21, 24, and 25, but not in the Senate District 23. Senate District 23 was discussed above.

Finally, the Voting Age Population tables for the current districts in Attachment H shows there are currently four majority minority voting age population Senate Districts. The Voting Age Population table for the third Senate Staff Plan in Attachment I shows that there are four majority minority Senate Districts in the third Staff Senate Plan.

Attachment A

roposed House District #	Hispanic Voting Age Population Percentage	Hispanic Citizen Voting Age Papulation Percentage	S of Geographic Area of Current HD S in Proposed District	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in HD 5 in 2018	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in HD 5 in 2020	N of Geographic Area of Current HD 7 in Proposed District	Percent Hispanic VAP must exceed for Hispanic professed candidate to win in HD 7	% of Geographic Area of Current HD 17 in Proposed p District	Percent minority VAP must exceed for Hispanic orxferred candidate to win in HD 17 in 2018	Persent minority VAP must exceed for Hispanic preferred candidate to win in HD 17 in 2020	% of Geographic Area of Current HG 28 in Proposed District	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in HD 28	% of Geographic Area of Current HD 30 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HO 30	% of Geographic Area of Current HD 32 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to Win in HD 32	N of Geographic Area of Current HD 46 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HO 46 in 2018	Percent Hispanic /AP must exceed for Hispanic Preferred Candidate to win in HD 46 in 2020	% of Geographic Area of Current HD 47 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 47 in 2018	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 47 in 2020	Si of Geographic Area of Current HD 62 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 62 in 2018	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win HD 62 to 2020
6.5	28.63%	29.325	84.42%	NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	5860.00%		4230.00%	5160.00
	44.19%	33.801		NOT POLARIZED	NOT POLARIZED	88.02%	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	5860.00%		4230.00%	5160.00
.17	*52.97%	24.225		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED	89.58%	63.20%	46.00%		NOT POLARIZED		30,70%		NOT POLARIZED		43.80%	51.60%		49.60%	5860.00%		4230.00%	5160.000
23	13.49%	12,799		NOT POLARIZED	NOT POLARIZED	- 3	NOT POLARIZED		63.20%	46.00%	52,595	NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	5860,00%		4230.00%	5160.00
9.2	48.90%	41.069		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%	46,00%		NOT POLARIZED		30.70%	89,453	NOT POLARIZED		43.80%	51.60%		49.60%	58.60%		42,30%	41.90
46	10.02%	11.579		NOT POLARIZED	NOT POLARIZED	- 9	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%	77000	NOT POLARIZED	50,98%	43,80%	51.60%		49.60%	58.60%		42,30%	41.90
43	29.61%	28.899		NOT POLARIZED	NOT POLARIZED	33	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%	(-82.81)	49.60%	58.60%		42.30%	41.90
SE	12.66%	8.631		NOT POLARIZED	NOT POLARIZED	- 3	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED	77.63%	30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	58.60%		42.30%	41.90
62	46.56%	46.279		NOT POLARIZED	NOT POLARIZED	- 3	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	58,60%	99 885	42,30%	41.90

"total VAP excluding Nonhispanic Whites

Attachment B

	Share of Votes Received by	
	Minority Candidates in	Elections with Minority
Proposed House	Elections in the Proposed	Preferred Candidates in the
District	House District	Proposed House District
1	74.0%	9.8%
3	63.8%	1.4%
4	76.6%	4.3%
5	79.4%	85.9%
6	75.0%	1.5%
7	83.5%	100.0%
8	84.4%	29.8%
17	59.2%	85.4%
18	54.2%	4.2%
22	50.4%	4.0%
23	56.5%	34.2%
28	61.0%	57.2%
30	68.1%	0.0%
37	64.0%	0.7%
40	62.8%	87.8%
41	71.6%	10.6%
42	73.3%	83.6%
46	37.0%	23.7%
47	44.6%	55.5%
61	61.7%	100.0%
62	60.4%	100.0%

Attachment C

Proposed House District	Share of Votes Received by Minority Candidates in Elections in the Proposed House District	Share of Votes Cast in Elections with Minority Preferred Candidates in the Proposed House District
1	72.5%	10.0%
3	61.5%	1.9%
4	78.1%	4.7%
5	79.6%	85.9%
6	76.4%	1.8%
8	82.2%	3.7%
17	57.3%	85.6%
18	50.2%	4.8%
22	51.1%	4.2%
23	56.1%	34.9%
24	63.1%	3.8%
28	59.1%	58.5%
31	54.0%	24.2%
32	56.0%	95.1%
34	48.0%	9.5%
35	67.9%	31.3%
36	72.3%	35.9%
37	61.6%	1.1%
40	58.9%	87.0%
41	62.0%	4.1%
46	41.2%	18.4%
47	71.4%	31.8%
48	32.8%	0.6%
56	42.0%	5.2%
61	71.0%	80.7%
62	60.2%	100.0%

Attachment D

		100 PA 100	
District No.	Non-H Hispanic VAP VAP	ispanic Black	Minority VAP
-			
1	43.51%	1.59%	51.89%
2	9.42%	2.94%	17.39%
3	13.19%	2.01%	21.02%
4	46.43%	1.95%	52.21%
5	44.39%	4.85%	54.56%
6 7	9.41% 36.43%	9.88% 28.30%	25.33% 70.85%
8	15.69%	20.16%	40.28%
9	13.41%	8.92%	29.26%
10	8.26%	1.24%	16.89%
11	15.53%	0.76%	20.57%
12	15.08%	0.88%	20.91%
13	4.37%	0.64%	8.45%
14	8.19%	3.81%	18.98%
15	12.22%	6.79%	26.08%
16	11.72%	4.45%	20.93%
17	28.06%	14.65%	49.66%
18	11.69%	4.26%	20.27%
19	5.77%	1.71%	11.20%
20	8.65%	3.47%	17.90%
21	14.86%	10.21%	31.93%
22	7.98%	0.77%	12.66%
23 24	15.58% 13.06%	1.48% 1.06%	21.34% 18.33%
25	4.50%	0.48%	7.32%
26	19.30%	0.56%	21.79%
27	8.64%	0.71%	12.37%
28	20.54%	1.59%	27.92%
29	13.80%	1.15%	20.50%
30	35.50%	9.26%	50.90%
31	30.01%	1.75%	37.15%
32	50.88%	1.86%	56.77%
33	8.64%	1.01%	18.26%
34	29.00%	1.93%	36.99%
35	25.90%	1.49%	34.25%
36	18.74%	15.90%	43.96%
37	7.45%	5.31%	22.08%
38	5.86%	1.09%	10.16%
39 40	4.82% 13.30%	0.73% 11.51%	9.96% 33.69%
41	16.00%	15.55%	39.32%
42	36.82%	19.80%	63.47%
43	6.49%	1.28%	14.04%
44	7.04%	1.75%	14.79%
45	6.87%	1.18%	11.48%
46	35.78%	1.76%	39.75%
47	30.35%	1.77%	35.01%
48	17.85%	0.50%	20.65%
49	6.63%	0.42%	9.18%
50	38.22%	1.85%	43.10%
51	8.86%	0.51%	11.72%
52 52	10.59%	0.93%	15.88%
53	8.34%	1.48%	14.71%
54 55	11.90%	0.64%	14.90%
55 56	11.26% 19.98%	0.74% 2.25%	14.73% 26.77%
57	20.18%	0.53%	22.91%
58	12.37%	0.30%	18.00%
59	10.35%	0.45%	16.24%
60	9.66%	3.26%	15.69%
61	10.78%	0.57%	13.47%
	46.38%	0.78%	49.72%
62			
63	19.15%	0.69%	23.64%
	AND THE PARTY OF T	The second secon	23.64% 24.99%

Attachment E

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District No.	Non-l Hispanic VAP VAP	Hispanic Black	Minority VAP
140.	Phopathic VAL VAL		wintority var
1	43.39%	2.77%	55.19%
2	7.63% 16.66%	2.08% 7.00%	17.02% 32.84%
4	35.36%	2.78%	44.45%
5	28.63%	4.85%	41.05%
6	11.26%	6.99%	26.36%
7 8	44.19% 16.67%	23.04% 16.29%	77.92% 40.25%
9	16.08%	14.03%	38.92%
10	9.03%	1.70%	21.87%
11	7.31%	0.99%	16.46%
12 13	10.96% 22.10%	1.23% 1.27%	20.96% 30.36%
14	8.04%	2.90%	20.16%
15	13.48%	6.04%	29.26%
16	16.16%	6.39%	31.34%
17	30.57%	13.13%	52.97%
18 19	14.75% 11.61%	5.14% 4.50%	27.29% 25.36%
20	10.36%	3.96%	22.57%
21	19.72%	11.27%	41.04%
22	10.69%	1.17%	19.42%
23 24	13.49% 15.10%	1.91% 1.42%	23.84% 23.20%
25	5.30%	0.74%	12.26%
26	17.71%	0.77%	22.78%
27	12.36%	1.10%	20.07%
28	26.14%	2.40%	36.75%
29 30	15.11% 10.88%	1.86% 8.13%	26.95% 33.98%
31	42.55%	2.39%	53.71%
32	48.90%	3.57%	58.89%
33	11.07%	1.65%	25.02%
34	25.71%	2.17%	37.94%
35 36	47.19% 35.16%	1.86%	57.05% 60.67%
37	8.00%	3.60%	24.38%
38	9.86%	1.55%	17.86%
39	7.21%	1.74%	19.21%
40 41	17.35% 21.28%	12.56% 17.63%	42.69% 49.50%
42	39.39%	21.06%	69.99%
43	8.01%	1.54%	19.96%
44	9.01%	2.31%	22.49%
45	9.22% 10.02%	1.74%	17.65%
46 47	29.61%	2.75% 2.13%	18.83% 36.94%
48	34.98%	1.29%	41.60%
49	8.73%	0.69%	15.01%
50	44.08%	3.16%	52.75%
51 52	10.69% 9.99%	1.00% 1.56%	17.28% 19.64%
53	12.69%	2.07%	22.67%
54	12.78%	0.75%	19.14%
55	12.93%	0.99%	20.32%
56 57	12.66%	2.65%	21.27%
57 58	24.05% 12.38%	0.71% 0.55%	29.48% 18.13%
59	11.28%	0.52%	22.63%
60	11.80%	1.02%	17.85%
61	38.38%	2.50%	46.13%
62 63	46.56% 21.41%	1.55% 2.18%	52.89% 27.29%
64	17.49%	0.90%	25.07%
65	17.69%	1.08%	23.79%

Attachment F

Proposed Senate District #	Hispanic Voting Age Population Percentage	Hispanic Citizen Voting Age Population Percentage	% of Geographic VAP must Area of Current SD 3 for Hi in Proposed District preferred	ipsanic Area of	eographic Current SD Proposed istrict	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in SD 21	% of Geographic Area of Current SD 23 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to Win in SD 23	% of Geographic Area of Current SD 24 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to Win in SD 24	% of Geographic Area of Current SD 35 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to Win in SD 35
1	37.98%	38.779	6 100.00% NOT POLA	ARIZED		9.00%		45.20%		37.40%		60.40%
2:	1 45.55%	38.399	6 NOT POLA	ARIZED	94.50%	9.00%		45.20%		37.40%		60.40%
23	3 13.07%	10.919	6 NOT POLA	ARIZED		9.00%	70.10%	45.20%		37.40%		60.40%
24	4 34.40%	26.339	6 NOT POLA	ARIZED		9.00%		45.20%	52.50%	37.40%		60.40%
25	5 18.57%	15.479	6 NOT POLA	ARIZED		9.00%		45.20%	47.50%	37.40%		60.40%
35	5 18.70%	17.99%	6 NOT POLA	ARIZED		9.00%		45.20%		37.40%	59.40%	60.40%

Attachment G

Proposed Senate District	Share of Votes Received by Minority Candidates in Elections in the Proposed Senate District	Share of Votes Cast in Elections with Minority Preferred Candidates in the Proposed Senate District
3	66.77%	100.00%
19	66.61%	2.00%
21	62.85%	78.48%
25	57.28%	100.00%
24	52.27%	57.09%
14	49.32%	2.80%
6	46.41%	29.87%
17	46.00%	0.78%
23	38.03%	82.16%
35	37.77%	40.52%
13	30.47%	0.09%
4	29.22%	3.52%
1	27.79%	8.65%

Attachment H

District No.	Hispanic VAP	Non-Hispanic Black VAP	Minority VAP
D1	18.71%	1.79%	24.75%
D2	11.27%	4.01%	22.30%
D3	40.20%	2.41%	47.87%
D4	8.61%	1.86%	18.42%
D5	17.03%	0.85%	22.59%
D6	12.55%	0.52%	21.62%
D7	12.77%	0.91%	19.76%
D8	17.12%	0.76%	22.62%
D9	9.01%	3.28%	21.10%
D10	13.90%	5.39%	28.09%
D11	23.65%	9.67%	41.65%
D12	16.15%	7.99%	33.82%
D13	36.36%	2.16%	43.73%
D14	11.22%	1.89%	21.23%
D15	10.14%	0.86%	16.52%
D16	10.14%	1.21%	19.17%
D17	17.32%	1.31%	26.81%
D18	8.17%	1.41%	19.35%
D19	13.99%	1.44%	22.88%
D20	12.38%	1.36%	21.12%
D21	48.41%	2.71%	58.37%
D22	19.82%	2.00%	30.05%
D23	12.77%	1.13%	21.94%
D24	25.17%	2.07%	36.93%
D25	39.10%	5.52%	53.03%
D26	14.23%	7.38%	30.64%
D27	9.12%	4.66%	26.21%
D28	18.63%	13.98%	45.10%
D29	30.05%	16.83%	57.07%
D30	8.02%	1.81%	21.36%
D31	13.13%	9.01%	30.47%
D32	24.63%	2.77%	35.43%
D33	29.19%	19.43%	57.67%
D34	30.84%	4.25%	42.14%
D35	32.34%	1.54%	38.77%

Attachment I

District No.	Hispanic VAP	Non-Hispanic Black VAP	Minority VAP
D1	21.24%	1.64%	27.12%
D2	9.32%	2.04%	19.45%
D3	37.98%	2.20%	45.37%
D4	8.61%	1.91%	16.31%
D5	19.00%	0.64%	24.63%
D6	19.04%	0.65%	28.10%
D7	12.51%	0.88%	19.44%
D8	15.41%	0.78%	20.73%
D9	8.96%	3.33%	21.50%
D10	14.07%	5.73%	28.91%
D11	25.63%	11.20%	46.10%
D12	14.89%	6.96%	30.46%
D13	41.18%	2.41%	49.09%
D14	11.83%	1.85%	21.76%
D15	9.95%	0.98%	16.60%
D16	9.42%	1.41%	17.72%
D17	17.29%	1.29%	26.56%
D18	8.31%	1.41%	20.12%
D19	13.78%	1.38%	22.57%
D20	10.43%	1.18%	19.10%
D21	45.55%	2.57%	54.71%
D22	20.32%	2.15%	30.24%
D23	13.07%	0.83%	20.49%
D24	34.40%	2.30%	45.81%
D25	18.57%	1.88%	31.27%
D26	15.43%	7.63%	33.03%
D27	11.74%	8.08%	34.50%
D28	37.15%	16.66%	64.62%
D29	22.82%	17.72%	51.20%
D30	7.82%	1.77%	21.27%
D31	10.68%	5.84%	24.02%
D32	26.39%	6.36%	41.45%
D33	31.30%	20.40%	60.76%
D34	34.09%	3.54%	44.50%
D35	18.70%	2.19%	26.74%

Attachment B

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In re Colorado Independent Legislative Redistricting Commission

Exhibit 9

Report of Dr. Lisa Handley

Voting Patterns by Race/Ethnicity in Recent State Legislative Elections in Colorado Dr. Lisa Handley

I. Scope of Project

I was retained by outside legal counsel to the Colorado Independent Legislative Redistricting Commission to carry out a racial bloc voting analysis of recent state legislative elections in select areas of Colorado. I have conducted similar analyses on behalf of the Colorado Reapportionment Commission in 1991, 2001 and 2011. If I concluded voting is racially/ethnically polarized in specific areas of the State, I was to assist in a district-specific, functional analysis to ascertain whether proposed districts would provide minority voters with an opportunity to elect their candidates of choice to legislative office.

II. Professional Experience

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 and have served as an expert in dozens of voting rights cases. My clients have included state and local jurisdictions, independent redistricting commissions, the U.S. Department of Justice, national civil rights organizations, and such international organizations as the United Nations.

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*

¹ My understanding is that the areas of the State selected for analysis were identified by legal counsel in collaboration with the Commissioners and staff as localities that contained a sufficiently large and geographically concentrated minority population to satisfy the first precondition of *Thornburg v. Gingles*. See footnote 3, below.

² My conclusion that voting was racially polarized in 1991 was later confirmed by the Tenth Circuit Court of Appeals in Sanchez v. State of Colorado (97 F.3d 1303 (10th Cir. 1996) which, in addition to my analysis, also considered data from subsequent elections. The existence of racially polarized voting, along with other factors, led the Sanchez court to conclude that the failure to create a majority minority district in the San Luis Valley constituted a violation of Section 2 of the Voting Rights Act of 1965.

(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.

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.

III. Analyzing Voting Patterns by Race/Ethnicity

An election is racially polarized if minorities and whites, considered separately, would have elected different candidates – this is referred to as the "separate electorates test" in the seminal Supreme Court decision *Thornburg v. Gingles*, 478 U.S. 30 (1986). An analysis of voting patterns by race serves as the foundation of two of the three elements of the "results test" as outlined in *Gingles*: a racial bloc voting analysis is needed to determine whether the minority group is politically cohesive; and the analysis is required to determine if whites are voting sufficiently as a bloc to usually defeat minority-preferred candidates.³

Standard Statistical Techniques The voting patterns of white and minority voters must be estimated using statistical techniques because direct information about how individuals have voted is simply not available. To estimate vote choices by race/ethnicity, I used two standard statistical techniques: ecological regression and ecological inference.⁴

³ The "results test" as interpreted by the Supreme Court in *Thornburg v. Gingles* requires plaintiffs to demonstrate three threshold factors to establish a §2 violation:

The minority group must be sufficiently large and geographically compact to constitute a majority in a single member district;

The minority group must be politically cohesive;

The minority group must be able to demonstrate that the white majority votes sufficiently as a bloc to enable it – in the absence of special circumstances, such as the minority candidate running unopposed – usually to defeat the minority's preferred candidate.

⁴ One commonly used check on the estimates derived from ecological regression and ecological inference is to compare these percentages to the actual voting percentages derived from racially/ethnically homogeneous precincts where the race/ethnicity of the voters is known. The general practice is to label a precinct as homogeneous if at least 90 percent of the voting age population or, in the case of Hispanics, 90 percent of the citizen voting age population, is composed of a single race/ethnicity. However, there are

Ecological regression was employed by the plaintiffs' expert in *Thornburg v. Gingles* and has the benefit of the Supreme Court's approval in this as well as many subsequent voting rights cases. The second technique, ecological inference, was developed after the Court decided *Gingles* and was designed, in part, to address the issue of out-of-bounds estimates (estimates that exceed 100 percent or are less than zero percent), which can arise in ecological regression analysis. Ecological inference analysis has been introduced and accepted in numerous district court proceedings.

Ecological regression (ER) is a technique for determining if there is a pattern across election precincts between the percentage minority and the percentage of votes cast for the candidates competing in a given election contest. If there is a strong linear relationship across precincts, this relationship can be used to estimate the percentage of minority and white voters supporting each of the candidates in the election contest being examined.

Ecological inference (EI) was developed by Professor Gary King. 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 information available from the precinct returns than simply their demographic composition and candidate vote percentages.⁵ The method of bounds also precludes the estimates from exceeding the possible limits. However, unlike ecological regression, EI does not guarantee that the estimates add to 100 percent of each racial/ethnic group in the elections examined.⁶

not a sufficient number of homogeneous Hispanic precincts in Colorado to report homogeneous precinct percentages. For further explanation of homogeneous precinct analysis and ecological regression see Bernard Grofman, Lisa Handley and Richard Niemi, *Minority Representation and the Quest for Voting Equality* (Cambridge University Press, 1992). See Gary King, *A Solution to the Ecological Inference Problem* (Princeton University Press, 1997) for a more detailed explanation of ecological inference.

⁵ The following is an example of how the method of bounds works: if a given precinct has 100 voters, of which 75 are Hispanic and 25 are white, and the Hispanic candidate received 80 votes, then at least 55 of the Hispanic voters voted for the Hispanic 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.

⁶ While EI places a constraint on each choice (e.g., the estimate of the percentage of Hispanic voters that voted for any individual candidate will always fall between zero and 100 percent), it places no such constraint on the sum of all of the choices (e.g., the estimates of the percentage of Hispanic voters for all candidates need not sum to 100 percent).

Estimates derived using both of these methodological approaches, ER and EI, are reported in the summary racial bloc voting tables found at the end of this report. The state legislative contests analyzed are all recent (2018 and 2020) and all included candidates of color. ⁷

IV. Results of Racial Bloc Voting Analysis

Western Adams County I analyzed five recent state legislative elections in the western portion of Adams County that included Hispanic candidates. The results of my analysis can be found in the table labeled "Western Adams County" at the end of this report. Four of these contests were clearly polarized, with the majority of Hispanic voters supporting a different candidate than the majority of non-Hispanic white voters. The polarization is less pronounced when all non-Hispanic voters are considered together because this category includes non-Hispanic Black voters who tend to support the same candidates as Hispanic voters. For example, the first contest listed in the Western Adams County table is the 2020 general election in State House District 30. An overwhelming majority of Hispanic voters – 87.2% according to the ER estimate and 90.4% according to the EI estimate – supported Dafna Michaelson Jenet, the Democratic candidate. A majority of non-Hispanic white voters supported Hispanic Republican Kerrie Gutierrez – 90.9% according the ER estimate and 81.4% according to the EI estimate. But when all non-Hispanic voters are considered together, voting is still polarized, although the percentage of voters supporting Gutierrez is lower.

Despite racially/ethnically polarized voting, the Hispanic-preferred candidate won the contest to represent House District 30 seat with 56.9% of the vote. This is because the district has a substantial (albeit not a majority) Hispanic voting age population (VAP). In fact, the Hispanic-preferred candidate won all five of the elections analyzed in western Adams County. The

⁷ In the context of determining if voting is racially polarized, election contests that include minority candidates are more probative than contests in which all of the candidates are white. This is because it is not sufficient for Hispanic or Black voters, for example, 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 Hispanic or Black candidates are the preferred candidates of Hispanic or Black voters.

⁸ The fifth election contest, House District 32 in 2020, was polarized according to the ER estimates but not the EI estimates.

⁹ In this election contest, the Hispanic candidate was not the candidate of choice of Hispanic voters.

Hispanic VAP is at least 35% in four of the districts examined: House Districts 30, 31 and 32; and Senate District 21.¹⁰ Senate District 24 is approximately 25% Hispanic in voting age population, but Hispanic voters in this district also successfully elected their candidate of choice in a racially/ethnically polarized contest in 2018.

Weld County Three recent state legislative contests were analyzed: Senate District 23 in 2020 and House Districts 48 and 50 in 2018. The results can be found in the table labeled "Weld County" at the end of this report. All three contests were racially/ethnically polarized. The Hispanic-preferred candidate lost two of these contests (House District 48, 21.9% Hispanic VAP; Senate District 23, 12.8% Hispanic VAP), but won in House District 53, which has a Hispanic VAP of approximately 43%.

San Luis Valley and Pueblo County Eight recent state legislative election contests were examined in this area of the State: House Districts 46, 47 and 62 in both 2018 and 2020; Senate District 3 in 2018 and Senate District 35 in 2020. The table labeled "San Luis Valley and Pueblo County" appended at the end of this report lists the results of this analysis. Table 1, below, organizes the outcome by the Hispanic percentage VAP in the district.

Table 1: Summary of Results for San Luis Valley and Pueblo County

State Legislative District	Hispanic VAP	2018	2020
House District 62	43.9%	Polarized; Hispanic-preferred candidate won	Polarized; Hispanic- preferred candidate won
Senate District 3	40.2%	Not polarized	
House District 46	36.8%	Polarized; Hispanic-preferred candidate won	Polarized; Hispanic- preferred candidate won
House District 47	32.3%	Polarized; Hispanic-preferred candidate won	Polarized; Hispanic- preferred candidate lost
Senate District 35	32.3%		Polarized; Hispanic- preferred candidate lost

¹⁰ State House District 32 is the only district I examined that had a majority Hispanic VAP (54.3%). Senate District 21 is not majority Hispanic, but it is majority minority in composition.

5

¹¹ There were no contested election for Senate District 3 in 2020 or Senate District 35 in 2018.

Seven of the eight contests were racially/ethnically polarized but the Hispanic-preferred candidate won five of these seven contests – all in districts in which the Hispanic VAP exceeds 36%. On the other hand, the Hispanic-preferred candidate lost polarized elections in House District 47 and Senate District 35, both of which have Hispanic VAPs of approximately 32%.

Southern El Paso County The 2018 and 2020 contests in House District 17 included an African American candidate, Thomas Exum, Sr., who won in 2018 with 58.8% of the vote and in 2020 with 56.5% of the vote. These two contests were racially/ethnically polarized, with a majority of non-Hispanic whites supporting Exum's opponent in both instances. The district is 31.3% Hispanic and 12.6% Black in voting age population and the combined minority support for Exum was high.

Portion of Denver County The winning candidates in House Districts 5 and 7 in 2018 and 2020 were minority candidates: Latino Democrat Alex Valdez in House District 5 in 2018 and 2020, African American Democrat James Coleman in House District 7 in 2018, and African American Democrat Jennifer Bacon who ran unopposed in House District 7 in 2020. None of these elections was racially/ethnically polarized and the Hispanic-preferred candidates all won with at least 79% of the vote.

Lakewood I analyzed House District 28 election contests in 2018 and 2020. Neither of these contests were racially/ethnically polarized. The Hispanic-preferred candidate, Democrat Kerry Tipper, won both with over 57% of the vote.

Aurora Districts 40, 41 and 42, and Senate Districts 28 and 29 are all currently represented by Hispanic-preferred minority state legislators. All were elected in contests that were racially/ethnically polarized, ¹² with Hispanic and Black voters supporting the winning Democratic candidates and the majority of non-Hispanic whites supporting their Republican opponents in these contests. In 2018, elections in House Districts 40, 41 and 42 were racially/ethnically polarized but the Hispanic and Black-preferred African American Democrats won all three contests with sizeable majorities. ¹³ House District 42 and Senate District 29 are majority minority in

¹² African American Democrat Dominique Jackson ran unopposed in House District 42 in 2020 but was elected in 2018 in a racially/ethnically polarized election contest.

¹³ There were no elections in Senate Districts 28 and 29 in 2018.

composition;¹⁴ minorities make up over 37% of the voting age population in House Districts 40 and 41 and Senate District 28.

Conclusion Voting in most of the areas of the State I have examined is racially/ethnically polarized. The exceptions to this pattern are the election contests in House Districts 5 and 7 in the Denver area and House District 28 in Lakewood. Even where voting is polarized, however, Hispanic or Hispanic and Black voters combined have been able to elect their candidates of choice if the Hispanic VAP is significant, though not necessarily at least 50%. For example, in western Adams County, Hispanic-preferred candidates were elected in House Districts 30 (39.1 % Hispanic VAP) and 31 (35.3% Hispanic VAP). In the San Luis Valley and Pueblo County area, House Districts 46 and 62 (36.8 and 43.9% Hispanic, respectively), and Senate District 3 (40.2% Hispanic) all elected Hispanic-preferred Hispanic candidates to the state legislature. However, districts with slightly fewer Hispanics of voting age are unsuccessful at consistently electing their preferred candidates.

V. Calculating the Hispanic VAP Needed to Elect Hispanic-Preferred Candidates

As the discussion above illustrates, it is possible for districts with less than a majority Hispanic VAP to elect Hispanic voters' candidates of choice to the Colorado state legislature. But the percentage needed varies – there is no single universal or statewide demographic target that can be applied for Hispanic voters to elect their candidates of choice. 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. This analysis will produce different minority population percentages depending upon the location of the district and the participation rates and voting patterns of Hispanic and non-Hispanics in that specific area.

Using the estimates produced from the racial bloc voting analysis, I calculated the Hispanic VAP percentage needed to elect Hispanic-preferred candidates in each of the elections I examined. This calculation takes into account the relative participation rates of Hispanics and non-Hispanics, as well as the level of Hispanic support for the Hispanic-preferred candidates (the "cohesiveness" of Hispanic voters), and the level of non-Hispanics "crossing over" to vote for the Hispanic-preferred candidates.

¹⁴ House District 42 is 39.0% Hispanic, 20.4% Black, and 5.2% Asian in VAP. Senate District 29 is 30.0% Hispanic, 16.3% Black, and 5.7% Asian in VAP.

Equalizing minority and white turnout Because Hispanics who are eligible to vote often turn out to vote at lower rates than non-Hispanic voters in Colorado, the Hispanic VAP needed to ensure that Hispanic voters comprise at least half of the voters in an election is often higher than 50%. Once the respective turnout rates of Hispanic and non-Hispanic voters have been estimated using the two statistical techniques described above, the percentage needed to equalize Hispanic and non-Hispanic voters can be calculated mathematically. But equalizing turnout is only the first step in the process – it does not take into account the voting patterns of Hispanic and non-Hispanic voters. If voting is racially polarized but a significant number of non-Hispanic voters typically "crossover" to vote for Hispanic voters' preferred candidate, it may be the case that crossover voting can more than compensate for depressed Hispanic turnout.

Incorporating Minority Cohesion and White Crossover Voting Even if Hispanic voters are turning out at lower rates than non-Hispanics, and voting is racially polarized, if a relatively consistent percentage of non-Hispanic voters support Hispanic-preferred candidates, the candidates preferred by Hispanic voters can be elected even in districts that are less than majority Hispanic. As a consequence, a district-specific, functional analysis should take into account not

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 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.)

¹⁵ The equalizing percentage is calculated mathematically by solving the following equation:

only differences in turnout rates, but also the voting patterns of Hispanic and non-Hispanic voters. 16

To illustrate this mathematically, consider a district that has 1000 persons of voting age, 50% of who are Hispanic and 50% of who are non-Hispanic. Let us begin by assuming that Hispanic turnout is lower than non-Hispanic turnout in a two-candidate general election. In our hypothetical election example, 50% of the Hispanic VAP turn out to vote and 60% of the non-Hispanic VAP vote. This means that, for our illustrative election, there are 250 Hispanic voters and 300 non-Hispanic voters. Further suppose that 96% of the Hispanic voters supported their candidate of choice and 30% of the non-Hispanic voters cast their votes for this candidate (with the other 70% supporting her opponent in the election contest). Thus, in our example, Hispanic voters cast 240 of their 250 votes for the Hispanic-preferred candidate and their other 10 votes for her opponent; non-Hispanic voters cast 90 of their 300 votes for the Hispanic-preferred candidate and 210 votes for their preferred candidate. The two candidates in our example will receive the following number of votes under these conditions:

		Votes for Hispanic	Votes for non-Hispanic
	Voters	Preferred Candidate	Preferred Candidate
Hispanic	$500 \times .50 = 250$	250 x .96 = 240	$250 \times .04 = 10$
Non-Hispanic	$500 \text{ x } .60 = \underline{300}$	$300 \text{ x} . 30 = \underline{90}$	$300 \text{ x} . 70 = \underline{210}$
Votes	550	330	220

The candidate of choice of Hispanic voters received a total of 330 votes (240 from Hispanic voters and 90 from non-Hispanic voters), while the candidate preferred by non-Hispanic voters received only 220 votes (10 from Hispanic voters and 210 from non-Hispanic voters). The Hispanic-preferred candidate won the election with 60% (330/550) of the vote in this hypothetical 50% Hispanic VAP district. And the Hispanic-preferred candidate won the election

9

¹⁶ 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.

despite the fact that the election was racially/ethnically polarized and Hispanics turned out to vote at a lower rate than non-Hispanics. 17

In a district that is 45% Hispanic VAP rather than 50% Hispanic VAP, the Hispanicpreferred candidate still wins with 56.8% (315/555) of the vote, as shown below.

		Votes for Hispanic-	Votes for non-Hispanic
	Voters	Preferred Candidate	Preferred Candidate
Hispanic	450 x .50 = 225	$225 \times .96 = 216$	$225 \times .04 = 9$
Non-Hispanic	$550 \text{ x } .60 = \underline{330}$	$330 \times .30 = 99$	$303 \text{ x} .70 = \underline{231}$
Votes	555	315	240

Table 2, below, incorporates the estimates of turnout and votes by race/ethnicity (based on the EI analysis) listed in the tables at the end of this report and calculates the percentage Hispanic VAP needed for the Hispanic-preferred candidate to win each specific election contest. However, if voting is not polarized, no Hispanic percentage is calculated because the non-Hispanic voters would have elected the Hispanic-preferred candidate regardless of the Hispanic VAP. In addition, there were a number of election contests for which the turnout disparity between Hispanic and non-Hispanic voters was so high that the estimated percentage of Hispanics of voting age turning out to vote was too low and was not used to calculate the percent Hispanic needed to win.

¹⁷ In the illustrative example, VAP and voting patterns are known and the equation solves for percentage of votes received by the Hispanic-preferred candidate. In determining the percentage of Hispanic VAP needed to provide Hispanic 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 Hispanic-preferred candidate.

Table 2: Percent Hispanic VAP Needed to Win

								noreant of	normant of	noment of	noment of	nament of		
		turnou	t rate for	office and	nd percent vote for Hispanic-			percent of vote B-P						
Colorado				pre	eferred ca	ndidates	cand would	cand would			cand would	percent		
Percent Hispanic VAP	ate							have	have	have	have	have	Hispanic	
needed to win	candidate							received if	VAP must					
Contests with Hispanic			Hispan	ic voters	INC.	n-Hispan	ic voters	district was	exceed for					
Candidates	랖	votes			votes			55%	50%	45%	40%	35%	H-P	
	jo e	cast for		all	cast for		all	Hispanic	Hispanic	Hispanic	Hispanic	Hispanic	candidate to	
	race	office	H-P	others	office	H-P	others	VAP	VAP	VAP	VAP	VAP	win	comments
Western Adams														
County														
2020 House District 30	W	19.2	90.4	9.6	73.2	45.3	54.7	56.2	54.7	53.3	52.0	50.9	30.7	polarized
2020 House District 32	Н	14.8	77.1	22.9	81.9	52.1	47.9	56.6	55.9	55.3	54.8	54.3		not polarized
2020 Senate District 21	Н	15.0	87.6	12.4	79.4	49.3	50.7	56.5	55.4	54.4	53.6	52.8	9.0	polarized but high crossover
2018 House District 31	Н													polarized, Hisp turnout est too low
2018 Senate District 24	W	10.8	72.0	28.0	67.5	47.9	52.1	51.8	51.2	50.7	50.2	49.8	37.4	polarized
Weld County														
2020 Senate District 23	Н	32.3	77.0	23.0	85.8	41.6	58.4	52.8	51.3	49.9	48.7	47.6	45.2	polarized
2018 House District 48	В													polarized, Hisp turnout est too low
2018 House District 50	Н													polarized, Hisp turnout est too low
San Luis Valley and														
Pueblo County		20.0	00.4	40.0	04.0	20.4	67.0	F4.7	40.0	40.0	44.0	40.0	54.0	- dedead
2020 House District 46 2020 House District 47	Н	38.9	89.4	10.6 9.8	91.3	32.1 25.4	67.9 74.6	51.7	49.2	46.9	44.8	42.8 37.7		polarized
	Н	36.6	90.2 91.8	8.2	84.5		66.0	47.8 56.7	45.0	42.4	39.9	46.9		polarized
2020 House District 62	H	44.5			83.8	34.0			54.0	51.5	49.1			polarized
2020 Senate District 35	Н	48.1	81.9	18.1	80.4	20.9	79.1	46.7	43.7	40.9	38.3	35.8		polarized
2018 House District 46	Н	27.4	98.6	1.4	73.6	35.9	64.1	55.5	52.9	50.5	48.4	46.4		polarized
2018 House District 47	Н	28.8	90.9	9.1	63.6	31.8	68.2	52.9	50.2	47.8	45.5	43.4		polarized
2018 House District 62	H	34.8	89.9	10.1	66.0	34.6	65.4	56.3	53.7	51.3	49.0	46.8	42.3	polarized
2018 Senate District 3	Н	25.1	99.9	0.1	65.2	56.5	43.5	70.4	68.6	66.9	65.4	64.0		not polarized
Southern El Paso County														
2020 House District 17	В	40.5	80.2	19.8	52.1	30.0	70.0	54.5	52.0	49.5	47.1	44.8	46.0	all minority voters combined
2018 House District 17	В	16.1	82.8	17.2	48.7	31.4	68.6	46.2	44.2	42.3	40.7	39.2		all minority voters combined
2010 House District 17	0	10.1	02.0	11.2	40.7	31.4	00.0	40.2	44.2	42.3	40.7	39.2	03.2	all millotty voters combined

Table 2 (continued)

Colorado		turnout	t rate for	office and	d percent pre	vote for la eferred ca		percent of vote B-P cand would	percent					
Percent Hispanic VAP needed to win			Hispan	ic voters	Non-Hispanic voters			have received if	Hispanic VAP must					
Contests with Hispanic Candidates	race of H-P (votes cast for		all	votes cast for		all	district was 55% Hispanic	district was 50% Hispanic	district was 45% Hispanic	district was 40% Hispanic		exceed for H-P candidate to	
	ĕ	office	H-P	others	office	H-P	others	VAP	VAP	VAP	VAP	VAP	win	comments
Portion of Denver														
County														
2020 House District 5	Н	44.0	87.5	12.5	62.3	75.8	24.2	81.2	80.6	80.1	79.5	79.0		not polarized
2018 House District 5	Н	41.4	89.0	11.0	44.1	75.0	25.0	82.5	81.8	81.1	80.4	79.7		not polarized
2018 House District 7	В	1.0	90.8	9.2	74.5	80.8	19.2	81.0	80.9	80.9	80.9	80.9		not polarized
Lakewood														
2020 House District 28		32.6	70.6	29.4	77.7	54.4	45.6	59.9	59.2	58.5	57.9	57.4		not polarized
2018 House District 28		0.5	83.2	16.8	72.4	52.7	47.3	53.0	52.9	52.9	52.8	52.8		not polarized
Aurora: Hispanic -						02.1			02.0	02.0	02.0	02.0		not positive
nonHIspanic														
2020 House District 40		36.4	63.2	36.8	61.8	58.2	41.8	60.3	60.1	59.8	59.6	59.4		Hisp & nonHisp not polarized
2020 House District 41		0.7	92.9	7.1	69.5	62.3	37.7	62.7	62.6	62.6	62.5	62.5		Hisp & nonHisp not polarized
2020 Senate District 28		15.2	87.8	12.2	76.2	87.8	12.2	87.8	87.8	87.8	87.8	87.8		Hisp & nonHisp not polarized
2020 Senate District 28		5.8	99.2	0.8	67.8	62.5	37.5	66.0	65.4	64.9	64.5	64.1		Hisp & nonHisp not polarized
2018 House District 40		20.2	77.7	22.3	57.5	60.7	39.3	65.8	65.1	64.5	63.9	63.4		Hisp & nonHisp not polarized
2018 House District 41		1.2	97.3	2.7	54.8	60.3	39.7	61.3	61.1	61.0	60.8	60.7		Hisp & nonHisp not polarized
2018 House District 42		11.2	77.3	22.7	58.2	71.9	28.1	72.9	72.8	72.6	72.5	72.4		Hisp & nonHisp not polarized
Aurora: Hispanic - NHWhite														
2020 House District 40		36.4	63.2	36.8	92.5	43.0	57.0	49.6	48.7	47.9	47.2	46.5	57.4	Hisp & NHWhite polarized
2020 House District 41		0.7	92.9	7.1	91.3	46.1	53.9	46.5	46.5	46.4	46.3	46.3	01.4	Hisp & NHW polarized, low H turno
2020 Senate District 28		15.2	87.8	12.2	94.6	42.5	57.5	49.9	48.8	47.8	46.9	46.1	55.3	Hisp & NHWhite polarized
2020 Senate District 28		5.8	99.2	0.8	90.7	38.1	61.9	42.5	41.8	41.1	40.6	40.1	5010	Hisp & NHW polarized, low H turno
2018 House District 40		20.2	77.7	22.3	84.3	45.6	54.4	52.9	51.8	50.9	50.0	49.3	39.9	Hisp & NHWhite polarized
2018 House District 41		1.2	97.3	2.7	84.1	42.2	57.8	43.1	43.0	42.8	42.7	42.6		Hisp & NHW polarized, low H turno
2018 House District 42		11.2	77.3	22.7	89.3	42.7	57.3	47.3	46.6	45.9	45.4	44.9	68.1	Hisp & NHWhite polarized

I analyzed five recent state legislative elections in *western Adams County*. One of the contests was not polarized based on the EI estimates (2020 House District 32). In another contest, the estimates Hispanic turnout percentage was unrealistically low (.7% in the 2018 contest in House District 31). The Hispanic VAP needed for the Hispanic-preferred candidate to win election with at least 50% of the vote had to exceed 30.7% in the 2020 House District 30 contest and 37.4% in the 2018 Senate District 24 contest. The very high percentage of non-Hispanic vote for the Hispanic candidate of choice in the 2020 state senate election in District 21 meant that very few Hispanics were needed for this candidate to win that election.

Two of the contests in *Weld County* yielded Hispanic turnout estimates that were unrealistically low, hence the Hispanic percent needed to win could be calculated for only one contest: the 2020 election in Senate District 23. This contest produced a percentage needed to win of 45.2% Hispanic VAP. However, the Hispanic-preferred candidate won House District 50, which is 43.3% Hispanic VAP, in 2018.

Only one election contest in the *San Luis Valley and Pueblo County* area was not racially/ethnically polarized. The other seven contests produced a wide range of Hispanic VAP percentages needed to win, from 41.9% (2020 House District 62) to 60.4% (2020 Senate District 35). The Hispanic-preferred candidate easily won House District 62 (43.9% Hispanic VAP) in both 2018 and 2020. But Hispanic-preferred candidates also won House District 46, which has only a 36.8% Hispanic VAP. For this reason, it is important to consider both the estimated percentages and the actual Hispanic VAP percentages of districts in which Hispanic-preferred candidates are successful.

Because the estimates of Hispanic turnout for the two elections in House District 17, in southern El Paso County, are unrealistically low, and the Black percentage of the district is not insubstantial (and Hispanic and Black voters supported the same candidate in both elections), I combined all minority voters together and calculated the percentage minority VAP needed to win based on comparing the voting patterns of non-Hispanic whites and all minorities combined. But this produced percentage estimates that were higher than the combined minority percentage of District 17 (43.9% Hispanic and Black together), and the minority-preferred candidate actually won the district in both 2018 and 2020.

Because the state legislative elections in the *Denver* area and *Lakewood* (House Districts 5 and 7; House District 28) were not polarized, no Hispanic VAP needed to win was calculated – non-Hispanics voting alone would have elected the Hispanic-preferred candidates without any support needed from Hispanic voters.

The seven contests analyzed in *Aurora* are complicated by the relatively high number of Black voters that are combined with non-Hispanic white voters when Hispanic voters are compared to non-Hispanic voters. Because Black voters support the same candidates as Hispanic voters in these elections, the contests appear to not be polarized when all non-Hispanics are considered together. However, when Hispanic voters and non-Hispanic white voters are compared, all of the contests are polarized and the Hispanic percentage needed to win can be calculated. The calculated percentage therefore reflects the percent Hispanic VAP compared to non-Hispanic white VAP and not all non-Hispanic VAP that might be combined to make a district. In other words, while the first set of calculations - comparing Hispanics and non-Hispanics – suggests no Hispanics are needed because voting is not polarized, the second set of calculations - Hispanic and non-Hispanic whites - is only useful if the only groups to be included in the proposed districts are Hispanics and non-Hispanic whites. The second set of estimates are overestimates if Black voters are also included in the proposed districts. As noted above House District 42 is 39% Hispanic VAP and Senate District 29 is 30% Hispanic VAP and both elect Hispanic-preferred candidates, but both are actually majority minority districts when all minority groups are considered. While Hispanics make up less than 20% of the VAP in House Districts 40 and 41 and Senate District 28, all minorities combined comprise over 37% of the voting age population in each instance and the Hispanic-preferred candidate wins the elections analyzed.

VI. Conclusion

Voting in recent state legislative elections in several areas of the State of Colorado that I examined is racially/ethnically polarized. The exceptions to this are recent legislative elections in House Districts 5 and 7 in the Denver area and House District 28 in Lakewood. Despite this pattern of polarized voting in several areas of Colorado, Hispanic voters or, in Aurora, Hispanic and Black voters combined, have been able to elect their candidates of choice in many of these districts. This is because a sufficient number of eligible Hispanics of voting age have been combined with

enough crossover non-Hispanic voters to provide Hispanic voters with an opportunity to elect their preferred candidates to the state legislature in these districts, even though most of these districts are not majority Hispanic in voting age population. As noted above, in western Adams County, Hispanic-preferred candidates are elected in House Districts 30 (39.1 % Hispanic VAP) and 31 (35.3% Hispanic VAP). In the San Luis Valley and Pueblo County area, House Districts 46 and 62 (36.8 and 43.9% Hispanic, respectively), and Senate District 3 (40.2% Hispanic) all elect Hispanic-preferred Hispanic candidates to the state legislature.

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¹⁸ There are no majority Hispanic VAP senate districts in the State – the highest concentration of Hispanics can be found in Senate District 21, which has a 48.4% Hispanic VAP. There in only one majority Hispanic VAP state house district, District 32. This district easily elected Hispanic-preferred Hispanic candidate, Adrienne Benavidez, with 63.7% of the vote in a three-candidate race in 2020.

Western Adams Count	ty				Estima NonHispar		Estima Hispanio		Estimates for NonHispanic White Voters		
	Percent Hispanic VAP	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI	
2020 General Election											
House District 30	39.1										
Michealson Jenet		D		56.9	22.3	45.3	87.2	90.4	9.1	18.6	
Gutierrez		R	Н	43.2	77.7	54.5	12.8	10.4	90.9	81.4	
Turnout of VAP					87.9	73.2	16.3	19.2	100.0	97.7	
House District 32	54.3										
Benavidez		D	Н	63.7	44.0	52.1	71.9	77.1	41.2	51.4	
Caputo		R		30.4	49.8	39.8	23.8	18.7	52.7	39.6	
Chapman		L		5.9	6.2	6.3	4.3	5.4	6.0	5.6	
Turnout of VAP					84.9	81.9	3.7	14.8	100.0	<i>95.3</i>	
Senate District 21	48.4										
Moreno		D	Н	63.6	39.8	49.3	77.0	87.6	31.1	40.4	
Mendez		R	Н	36.5	60.2	50.6	23.0	14.0	68.9	59.7	
Turnout of VAP					86.6	79.4	17.1	15.0	100.0	94.9	
2018 General Election											
House District 31	35.3										
Caraveo		D	Н	55.0	39.5	43.9	88.5	88.2	34.1	35.9	
Figueroa		R	Н	38.6	53.8	50.2	4.3	4.0	58.0	58.1	
Owens		L		6.4	6.7	6.1	7.2	7.2	7.9	6.6	
Turnout of VAP					62.7	65.7	0.0	0.7	83.4	85.1	
Senate District 24	25.2										
Winter		D		52.3	43.4	47.9	69.1	72.0	38.6	42.4	
Martinez Humenik		R	Н	39.8	49.4	45.6	17.1	14.4	56.6	52.5	
Others				7.9	7.2	6.9	13.7	12.5	4.8	4.6	
Turnout of VAP					58.4	67.5	0.0	10.8	86.7	82.9	

Weld County					Estima NonHispar		Estima Hispanio	tes for Voters	Estimates for NonHispanic White Voters		
	Percent Hispanic VAP	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI	
2020 General Election											
Senate District 23	12.8										
Boccella		D	Н	44.9	35.9	41.6	75.2	77.0	26.9	34.0	
Kirkmeyer		R		55.1	64.1	58.3	24.8	23.3	73.1	65.8	
Turnout of VAP					88.2	85.8	3.6	32.3	100.0	89.3	
2018 General Election											
House District 48	21.9										
Ajiboye		D		32.2	29.4	27.4	63.0	56.2	25.0	20.8	
Humphrey		R		67.8	70.6	72.6	37.0	43.8	75.0	79.2	
Turnout of VAP					74.2	70.4	2.9	0.1	82.4	77.9	
House District 50	43.3										
Galindo		D	Н	53.4	na	40.5	79.2	79.7	na	35.5	
Thuener		R		46.6	na	59.4	20.8	20.0	na	64.5	
Turnout of VAP					51.9	55.6	0.0	0.8	62.9	66.7	

San Luis Valley and Pu	eblo Coun	ity			Estimat NonHispar		Estima Hispanio		Estimates for NonHispanic White Voters		
	Percent Hispanic VAP	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI	
2020 General Election											
House District 46	36.8										
Esgar		D	Н	53.2	37.2	32.1	100.0	89.4	32.5	26.4	
Ambler		R		43.1	58.3	67.3	0.0	5.4	63.5	71.1	
Pickerill		L		3.7	4.5	3.9	3.7	3.5	4.0	3.1	
turnout of VAP					73.1	91.3	32.8	38.9	80.8	94.4	
House District 47	32.3										
Buentello		D	Н	45.9	23.1	25.4	100.0	90.2	6.2	15.9	
Luck		R		54.1	76.9	74.6	0.0	10.1	93.8	84.2	
turnout of VAP					69.0	84.5	21.1	36.6	83.0	90.5	
House District 62	43.9										
Valdez		D	Н	57.8	35.1	34.0	87.4	91.8	32.1	30.1	
Taggart		R		42.2	64.9	65.6	12.6	8.0	67.9	69.9	
turnout of VAP					80.6	83.8	55.6	44.5	84.7	87.9	
Senate District 35	32.3										
Lopez		D	Н	39.9	15.1	20.9	80.2	81.9	9.6	17.8	
Simpson		R		60.1	84.9	78.8	19.8	18.0	90.4	82.3	
turnout of VAP					71.3	80.4	52.3	48.1	77.8	85.9	
2018 General Election											
House District 46	36.8										
Esgar		D	Н	58.7	38.9	35.9	100.0	98.6	32.3	32.5	
Ambler		R		41.3	61.1	64.0	0.0	0.9	67.7	67.6	
turnout of VAP					53.0	73.6	20.4	27.4	61.5	80.1	
House District 47	32.3										
Buentello		D	Н	50.5	31.4	31.8	100.0	90.9	13.3	24.1	
Bendell		R		49.5	68.6	68.2	0.0	9.2	86.7	75.9	
turnout of VAP					52.1	63.6	10.7	28.8	63.9	76.6	
House District 62	43.9										
Valdez		D	н	56.8	33.2	34.6	92.7	89.9	29.7	27.3	
Honeycutt		R	<u> </u>	43.2	66.8	65.5	7.3	10.2	70.3	72.7	
turnout of VAP				.512	65.1	66.0	40.2	34.8	69.5	75.1	
Senate District 3	40.2				05.1	00.0	70.2	54.0	05.5	, 5.1	
Garcia	10.2	D	н	73.6	60.6	56.5	100.0	99.9	51.0	52.1	
Pickerill		L	<u> </u>	26.4	39.4	43.5	0.0	0.1	49.0	47.9	
turnout of VAP		-		2017	42.2	65.2	22.6	25.1		73.0	

Southern El Paso Cour	nty				Estima NonHispar		Estima Hispanio		Estima NonHispa Vot	nic White	Estimates for All Minority Voters Combined		
	Percent Hispanic VAP	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI	ER	EI	
2020 General Election													
House District 17	31.3% HV	AP; 12.6	% BVAP										
Exum, Sr.	D B 56.8				46.2	54.8	56.9	64.6	27.0	30.0	74.4	80.2	
Blancken		R		37.4	49.5	40.1	28.8	29.3	66.5	64.6	18.9	13.7	
Quilleash		L		5.8	4.3	3.8	14.3	12.1	6.5	5.9	6.7	5.8	
Turnout of VAP					54.8	58.4	0.0	1.1	54.3	52.1	15.0	40.5	
2018 General Election													
House District 17	31.3% HV	AP; 12.6	% BVAP										
Exum	D B 58.8				46.2	56.3	72.7	66.4	29.0	31.4	79.2	82.8	
Roupe	R 41.2		53.8	43.8	27.3	33.4	71.0	68.5	20.8	16.5			
Turnout of VAP	•						0.0	0.1	38.9	48.7	3.9	16.1	

Portion of Denver Cou	nty				Estima nonHispai		Estima Hispanio	tes for Voters	Estimates for NonHispanic White Voters		
	Percent Hispanic VAP	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI	
2020 General Election											
House District 5											
Valdez	30.5	D	Н	79.1	78.0	75.8	88.0	87.5	79.6	75.1	
Woodley		R		19.5	19.5	22.9	9.4	11.5	18.4	23.8	
Richardson		U		1.4	2.5	1.1	2.6	2.0	2.0	0.8	
Turnout of VAP					61.3	62.3	43.2	44.0	71.1	69.4	
2018 General Election											
House District 5	30.5										
Valdez		D	Н	79.0	79.7	75.0	92.9	89.0	80.7	74.2	
Whitney		R		17.9	17.4	21.6	4.8	8.9	16.4	21.8	
Lamberton		L		3.1	2.9	3.4	2.3	5.1	2.9	3.4	
Turnout of VAP					43.7	44.1	35.6	41.4	53.9	51.2	
					Estima Hispanio		Estimates Vot		Estimat NonHispar Vote	nic White	
	Percent Hispanic VAP	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	ER EI		EI	
2018 General Election											
House District 7	37.4 H/	20.6 B									
Coleman		D	В	83.6	91.9	90.8	95.2	92.9	88.6	80.8	
Kucera		R		16.4	8.1	8.9	4.8	9.8	11.4	19.3	
Turnout of VAP					0.0	1.0	0.0	41.9	92.4	74.5	

Lakewood				Estima NonHispa		Estimates for Vot		Estimates for NonHispanic White Voters			
	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI		
2020 House District 28											
Hildebrand	L		5.5	5.2	5.1	7.1	7.1	5.3	5.1		
Tipper	D		57.6	59.4	54.4	71.7	70.6	56.0	51.6		
Roybal	R		36.9	35.4	39.7	21.3	24.0	38.7	41.9		
turnout of VAP				50.6	77.7	18.7	32.6	63.0	84.5		
2018 House District 28											
Tipper	D		58.7	53.9	52.7	83.6	83.2	50.3	51.2		
Joy Alley	R 3				45.1	8.1	8.5	47.9	46.2		
Kloof	of L 3.				0.7	8.4	9.1	1.8	2.2		
turnout of VAP			49.4	72.4	0.0	0.5	64.2	77.2			

Aurora				Estimate nonHispan Vote	ic White	Estimat nonHis Vote	panic	Estima: Hispanio		Estimates for Black Voters		
	Party	Race/ Ethnicity	Percent of Vote	ER	EI	ER	EI	ER	EI	ER	EI	
2020 General Election												
2020 House District 40												
Ricks	D	В	59.2	37.8	43.0	49.3	58.2	60.8	63.2	100.0	99.4	
Bassett	R		36.7	60.6	51.5	48.2	38.2	31.8	28.1	0.0	0.2	
Harrison	L		4.2	1.6	1.0	2.5	3.7	7.5	6.7	0.0	8.5	
turnout of VAP				90.8	92.5	72.2	61.8	39.3	36.4	0.0	1.0	
2020 House Distrtict 41												
Jodeh	D	M.E.	66.0	40.7	46.1	47.2	62.3	92.4	92.9	100.0	99.6	
Andrews	R		34.0	59.3	53.5	52.8	37.6	7.6	4.0	0.0	0.4	
turnout of VAP				95.1	91.3	86.9	69.5	0.0	0.7	0.0	0.3	
2020 Senate District 28						-						
Buckner	D	В	61.9	46.3	42.5	59.4	87.8	88.0	87.8	100.0	99.6	
Stecher	R		38.1	53.7	57.7	40.6	11.5	12.0	11.5	0.0	0.2	
turnout of VAP				92.3	94.6	73.1	76.2	9.0	15.2	0.0	0.3	
2020 Senate District 29												
Poague	R		31.3	65.4	62.0	32.7	37.6	0.0	0.6	0.0	0.9	
Fields	D	В	68.7	34.6	38.1	67.3	62.5	100.0	99.2	100.0	98.8	
turnout of VAP				85.7	90.7	53.8	67.8	0.0	5.8	0.0	0.3	
2018 General Election												
2018 House District 40	_											
Buckner	D	В	63.1	45.4	45.6	56.9	60.7	74.0	77.7	100.0	98.6	
Bassett	R		36.9	54.6	54.5	43.1	39.3	26.0	22.9	0.0	0.1	
turnout of VAP				72.1	84.3	52.0	57.5	7.1	20.2	0.0	4.2	
2018 House District 41												
Melton	D	В	64.4	39.6	42.2	49.3	60.3	100.0	97.3	100.0	98.1	
Myers	R		35.6	60.4	57.9	50.7	39.7	0.0	2.6		0.2	
turnout of VAP			55.3	82.7	84.1	69.5	54.8	0.0	1.2	0.0	0.8	
2018 House District 42												
Jackson	D	В	73.3	44.1	42.7	73.0	71.9	80.8	77.3	100.0	100.0	
Donald	R		26.7	55.9	57.7	27.0	27.9	19.2	21.7	_	0.4	
turnout of VAP				98.9	89.3	31.7	58.2	0.0	11.2		15.6	

Attachment C

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In re Colorado Independent Legislative Redistricting Commission

Exhibit 10

Staff Analysis Regarding Voting Rights Act

Attachments A, B, C, and D: Application of Voting Rights Act Compliance Policy to Final Senate Plan

The table in Attachment A shows the application of the "Geographic Overlap" analysis to the final Senate plan adopted by the commission. This table shows that it is unlikely there is racially polarized voting in proposed Senate District 3. Also, as can be seen by comparing the "Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in SD [X]" column to the "Hispanic Voting Age Population Percentage" column, proposed Senate District 21 exceeds the minority voting age population numbers that must be met for the minority candidate of choice to be elected. This is not the case with proposed Senate Districts 23, 24, 25, and 35. This can be explained for proposed Senate District 23 because in order to have sufficiently high Hispanic voting age population this proposed district would need to gain approximately thirty-two percent Hispanic voting age population, which suggests that the first Gingles v. Thornburg, 478 U.S. 30 (1986), factor could not be satisfied in this district. If the boundaries of the surrounding proposed districts were able to be redrawn to place a sufficient amount of Hispanic voting age population in proposed Senate District 23 to allow the Hispanic voters to elect their candidate of choice, the additional Hispanic voting age population would most likely need to be drawn from proposed Senate District 13. This would likely result in the Hispanic voting age population in proposed Senate District 13 no longer residing in a competitive district where there was a reasonable chance that their preferred candidate would be elected. Proposed Senate Districts 24 and 25 only cover approximately sixty percent of the geographic area of current Senate District 24. A large number of the voters in proposed Senates District 24 and 25 are majority voters who are likely to vote for the minority candidate of choice. Thus, as described below, the minority candidate of choice is reasonably likely to be elected in proposed Senate Districts 24 and 25. Finally, although current Senate District 35 shares a relatively large amount of area with proposed Senate District 35, it does not share a large number of voters. More specifically, proposed current Senate District 35 does not cover the San Luis Valley, but instead covers a large portion of the Eastern Plains.

The table in Attachment B shows the application of the "Voter Overlap" analysis to the Final Senate Plan based on 2018 and 2020 State Senate races. Looking at the "Share of Votes Cast in Election with Minority Preferred Candidates in the Proposed Senate District" column, only Senate Districts 3, 21, 23, 24, 25, and 29 had more than fifty percent of their votes cast in elections with minority preferred candidates. Among these Senate Districts, looking at the "Share of Votes Received by Minority Preferred Candidates in the Proposed Senate District" column, minority preferred candidates could reasonably be predicted to be elected in Senate Districts 3, 21, 24, 25 and 29, but not in the Senate District 23. Senate District 23 was discussed above.

Finally, the Voting Age Population tables for the current districts in Attachment C shows there are currently four majority minority voting age population Senate Districts. The Voting Age Population table for the Final Senate Plan in Attachment D shows that there are four proposed majority minority Senate Districts in the Final Senate Plan.

Accordingly, staff believes that the Final Senate Plan complies with the federal Voting Rights Act because there are no districts that meet all of the three preconditions described in *Gingles*.

Attachment A

Proposed Senate District #	Hispanic Voting Age Population Percentage	Hispanic Citizen Voting Age Population Percentage	P. Wof Geographic VAF Area of Current SD 3 His in Proposed District car	ispanic preferred	% of Geographic Area of Current SD 21 in Proposed District	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in SD 21	% of Geographic Area of Current SD 23 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to Win in SD 23	% of Geographic Area of Current SD 24 in Proposed District			Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to Win in SD 35
3	37.98%	38.77%	99.99% NO	OT POLARIZED		9.00%		45.20%		37.40%		60.40%
21	44.94%	37.99%	NO	OT POLARIZED	95.08%	9.00%		45.20%		37.40%		60.40%
23	13.77%	11.14%	NO ⁷	OT POLARIZED		9.00%	72.04%	45.20%		37.40%		60.40%
24	34.29%	26.10%	NO ⁷	OT POLARIZED		9.00%		45.20%	54.63%	37.40%		60.40%
25	19.22%	15.91%	NO ⁻	OT POLARIZED		9.00%		45.20%	45.37%	37.40%		60.40%
35	18.70%	17.97%	NO ⁻	OT POLARIZED		9.00%		45.20%		37.40%	59.38%	60.40%

Attachment B

	Share of Votes Received by	Share of Votes Cast in
	Minority Preferred Candidates	Elections with Minority
Proposed Senate	in Elections in the Proposed	Preferred Candidates in the
District	Senate District	Proposed Senate District
	1 27.79	% 7.6%
;	66.89	% 100.0%
4	1 29.29	% 3.4%
(46.49	% 29.9%
1	5 27.39	% 0.1%
17	7 50.99	% 13.1%
19	9 66.69	% 2.0%
2	1 63.39	% 83.9%
23	36.19	% 76.5%
24	51.69	% 53.5%
2	56.99	% 100.0%
2	7 58.09	% 24.9%
28	60.79	% 26.3%
29	64.39	% 60.5%
3	37.89	% 40.5%

Attachment C

District No.	Hispanic VAP	Non-Hispanic Black VAP	Minority VAP
D1	18.71%	1.79%	24.75%
D1	11.27%	4.01%	22.30%
D3	40.20%	2.41%	47.87%
D4	8.61%	1.86%	18.42%
D5	17.03%	0.85%	22.59%
D6	12.55%	0.52%	21.62%
D7	12.77%	0.91%	19.76%
D8	17.12%	0.76%	22.62%
D9	9.01%	3.28%	21.10%
D10	13.90%	5.39%	28.09%
D11	23.65%	9.67%	41.65%
D12	16.15%	7.99%	33.82%
D13	36.36%	2.16%	43.73%
D14	11.22%	1.89%	21.23%
D15	10.14%	0.86%	16.52%
D16	10.14%	1.21%	19.17%
D17	17.32%	1.31%	26.81%
D18	8.17%	1.41%	19.35%
D19	13.99%	1.44%	22.88%
D20	12.38%	1.36%	21.12%
D21	48.41%	2.71%	58.37%
D22	19.82%	2.00%	30.05%
D23	12.77%	1.13%	21.94%
D24	25.17%	2.07%	36.93%
D25	39.10%	5.52%	53.03%
D26	14.23%	7.38%	30.64%
D27	9.12%	4.66%	26.21%
D28	18.63%	13.98%	45.10%
D29	30.05%	16.83%	57.07%
D30	8.02%	1.81%	21.36%
D31	13.13%	9.01%	30.47%
D32	24.63%	2.77%	35.43%
D33	29.19%	19.43%	57.67%
D34	30.84%	4.25%	42.14%
D35	32.34%	1.54%	38.77%

Attachment D

District No.	Hispanic VAP	Non-Hispanic Black VAP	Minority VAP
D1	21.39%	1.66%	27.30%
D2	9.32%	2.04%	19.45%
D3	37.98%	2.20%	45.37%
D4	8.45%	1.86%	16.07%
D5	19.00%	0.64%	24.63%
D6	19.04%	0.65%	28.10%
D7	12.51%	0.88%	19.44%
D8	15.41%	0.78%	20.73%
D9	8.96%	3.33%	21.50%
D10	14.07%	5.73%	28.91%
D11	25.63%	11.20%	46.10%
D12	14.89%	6.96%	30.45%
D13	41.24%	2.41%	49.16%
D14	11.40%	1.86%	20.91%
D15	9.12%	0.85%	15.51%
D16	9.42%	1.41%	17.72%
D17	17.79%	1.30%	27.25%
D18	8.52%	1.50%	20.82%
D19	13.78%	1.38%	22.57%
D20	10.59%	1.19%	19.43%
D21	44.94%	2.67%	54.48%
D22	20.32%	2.15%	30.24%
D23	13.77%	0.85%	21.11%
D24	34.29%	2.11%	45.91%
D25	19.22%	1.97%	31.41%
D26	15.43%	7.63%	33.03%
D27	11.74%	8.08%	34.50%
D28	37.15%	16.66%	64.62%
D29	22.82%	17.72%	51.20%
D30	7.82%	1.77%	21.27%
D31	10.69%	5.86%	24.06%
D32	26.39%	6.36%	41.45%
D33	31.31%	20.40%	60.76%
D34	34.09%	3.54%	44.50%
D35	18.70%	2.19%	26.74%

Attachments A, B, C, D, and E: Application of Voting Rights Act Compliance Policy to the Final House Plan

The table in Attachment A shows the application of the "Geographic Overlap" analysis to the Final House Plan. This table shows that it is unlikely there is racially polarized voting in proposed House Districts 5, 7, 28, and 32. Also, as can be seen by comparing the "Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD [X]" column to the "Hispanic Voting Age Population Percentage" column, proposed House Districts 17 and 62 exceed the minority voting age population numbers that must be met for the minority candidate of choice to be elected. This is not the case with proposed House Districts 46, 47, and 56. This can be explained for proposed House District 56 because only approximately half of the geographic area of current House District 30 is contained within proposed House District 56 and current House District 30 does not share a large number of voters with proposed House District 56. Similarly, although proposed House District 47 covers a large amount of the geographic area of current House District 47, it does not contain a large number of the voters in current House Districts 47. Most notably, the population center of Pueblo is in current House District 47, but not proposed House District 47. Proposed House District 46, although not a majority minority district, is relatively close to being one and, according to the analysis described below, is reasonably likely to elect a minority preferred candidate.

The tables in Attachment B and Attachment C show the application of the "Voter Overlap" analysis to the Final House Plan based on 2018 and 2020 State House races. Looking at the "Share of Votes Cast in Election with Minority Preferred Candidates in the Proposed House District" column, only House Districts 5, 7, 17, 30, 32, 40, 42, 46, 47, and 62 had more than fifty percent of their votes cast in elections with minority preferred candidates. Among these House Districts, looking at the "Share of Votes Received by Minority Preferred Candidates in Elections in the Proposed House District" column, minority preferred candidates could reasonably be predicted to be elected in the following House Districts 5, 7, 17, 30, 32, 40, 42, 46, and 62, but not in House District 47. As discussed above, this can be explained by the fact that proposed House District 47 no longer includes parts of Pueblo, instead proposed House Districts 46 and 62 contain a large amount of the Hispanic voting age population in the Pueblo area and, as shown in Attachments B and C, are both likely to elect a minority preferred candidate.

The Voting Age Population tables for the current districts in Attachment D shows that there are currently seven majority minority voting age population House Districts, including one majority Hispanic voting age population district. The Voting Age Population table for the Final House Plan in Attachment E shows that there are ten majority minority proposed House Districts in the Final House Plan.

Accordingly, staff believes that the Final House Plan complies with the federal Voting Rights Act because there are no districts that meet all of the three preconditions described in *Gingles v. Thornburg*, 478 U.S. 30 (1986), except House District 62 that has been drawn to create a district in which the Hispanic preferred candidate has a reasonable chance of being elected.

Attachment A

Proposed House District #	Hispanic Voting Age Population Percentage	Hispanic Citizen Voting Age Population Percentage	% of Geographic Area of Current HD 5 in Proposed District	VAP must exceed for Hispanic preferred candidate to win in HD 5 in 2018	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in HD 5 in 2020	Area of Current HD 7 in Proposed District	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in HD 7	% of Geographic Area of Current HD 17 in Proposed District	Percent minority VAP must exceed for Hispanic preferred candidate to win in HD 17 in 2018	Percent minority VAP must exceed for Hispanic preferred candidate to win in HD 17 in 2020	% of Geographic Area of Current HD 28 in Proposed District	Percent Hispanic VAP must exceed for Hispanic preferred candidate to win in HD 28	% of Geographic Area of Current HD 30 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 30	% of Geographic Area of Current HD 32 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 32	% of Geographic Area of Current HD 46 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 46 in 2018	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 46 in 2020	% of Geographic Area of Current HD 47 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 47 in 2018	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 47 in 2020	% of Geographic Area of Current HD 62 in Proposed District	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 62 in 2018	Percent Hispanic VAP must exceed for Hispanic Preferred Candidate to win in HD 62 in 2020
9	28.63%	29.34%			NOT POLARIZED		NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%			49.60%	58.60%		42.30%	
7	44.19%	33.77%		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%			NOT POLARIZED		30.70%		NOT POLARIZED		43.80%			49.60%	58.60%		42.30%	
17	*53.02%	24.23%		NOT POLARIZED	NOT POLARIZED	,	NOT POLARIZED	87.80%	63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	58.60%		42.30%	
28	12.34%	12.05%		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%	46.00%	58.17%	NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	58.60%		42.30%	
32	48.90%	41.12%		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%	89.45%	NOT POLARIZED		43.80%			49.60%	58.60%		42.30%	41.90%
46	36.10%	37.21%		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED	94.66%	43.80%			49.60%	58.60%		42.30%	
47	29.82%	29.65%		NOT POLARIZED	NOT POLARIZED		NOT POLARIZED		63.20%			NOT POLARIZED		30.70%		NOT POLARIZED		43.80%		81.34%	49.60%	58.60%		42.30%	41.90%
56	11.12%	8.15%		NOT POLARIZED	NOT POLARIZED	,	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED	47.06%	30.70%		NOT POLARIZED		43.80%			49.60%	58.60%		42.30%	
62	48.00%	47.99%		NOT POLARIZED	NOT POLARIZED	,	NOT POLARIZED		63.20%	46.00%		NOT POLARIZED		30.70%		NOT POLARIZED		43.80%	51.60%		49.60%	58.60%	89.79%	42.30%	41.90%

*total VAP excluding

Attachment B

Proposed House District	Share of Votes Received by Minority Preferred Candidates in Elections in the Proposed House District	Share of Votes Cast in Elections with Minority Preferred Candidates in the Proposed House District
1	74.00%	9.77%
3	63.84%	1.43%
4	76.55%	4.29%
5	79.44%	85.89%
6	74.95%	1.52%
7	83.47%	100.00%
8	84.43%	29.83%
16	54.53%	5.56%
17	59.25%	85.17%
23	53.29%	3.52%
28	56.07%	34.12%
30	60.99%	57.18%
36	66.32%	5.41%
37	64.00%	0.69%
40	62.70%	84.04%
41	71.64%	10.59%
42	73.31%	83.64%
46	59.21%	100.00%
47	46.21%	56.02%
60	36.53%	21.26%
61	68.07%	0.02%
62	61.75%	100.00%

Attachment C

Proposed House District	Share of Votes Received by Minority Preferred Candidates in Elections in the Proposed House District	Share of Votes Cast in Elections with Minority Preferred Candidates in the Proposed House District
1	72.52%	10.04%
3	63.59%	1.81%
4	78.06%	4.72%
5	79.65%	85.86%
6	76.44%	1.89%
8	82.22%	3.67%
16	50.94%	6.37%
17	57.41%	85.38%
23	52.86%	3.93%
24	63.11%	3.85%
28	55.76%	33.12%
30	59.11%	58.49%
31	53.97%	24.22%
32	56.00%	95.13%
34	47.95%	9.77%
35	67.93%	31.44%
36	70.92%	47.08%
37	63.44%	1.04%
40	61.39%	78.81%
41	65.22%	3.89%
46	54.87%	100.00%
47	41.64%	57.48%
48	31.70%	0.88%
56	25.69%	2.74%
60	31.23%	21.64%
61	67.02%	0.03%
62	61.33%	100.00%

Attachment D

District No.	Hispanic VAP	Non-Hispanic Black VAP	Minority VAP
1	43.51%	1.59%	51.89%
2	9.42%	2.94%	17.39%
3	13.19%	2.01%	21.02%
4	46.43%	1.95%	52.21%
5	44.39%	4.85%	54.56%
6	9.41%	9.88%	25.33%
7	36.43%	28.30%	70.85%
8 9	15.69% 13.41%	20.16% 8.92%	40.28% 29.26%
10	8.26%	1.24%	16.89%
11	15.53%	0.76%	20.57%
12	15.08%	0.88%	20.91%
13	4.37%	0.64%	8.45%
14	8.19%	3.81%	18.98%
15	12.22%	6.79%	26.08%
16	11.72%	4.45%	20.93%
17	28.06%	14.65%	49.66%
18 19	11.69%	4.26%	20.27%
20	5.77% 8.65%	1.71% 3.47%	11.20% 17.90%
21	14.86%	10.21%	31.93%
22	7.98%	0.77%	12.66%
23	15.58%	1.48%	21.34%
24	13.06%	1.06%	18.33%
25	4.50%	0.48%	7.32%
26	19.30%	0.56%	21.79%
27	8.64%	0.71%	12.37%
28	20.54%	1.59%	27.92%
29 30	13.80%	1.15%	20.50%
31	35.50% 30.01%	9.26% 1.75%	50.90% 37.15%
32	50.88%	1.86%	56.77%
33	8.64%	1.01%	18.26%
34	29.00%	1.93%	36.99%
35	25.90%	1.49%	34.25%
36	18.74%	15.90%	43.96%
37	7.45%	5.31%	22.08%
38	5.86%	1.09%	10.16%
39 40	4.82% 13.30%	0.73% 11.51%	9.96% 33.69%
41	16.00%	15.55%	39.32%
42	36.82%	19.80%	63.47%
43	6.49%	1.28%	14.04%
44	7.04%	1.75%	14.79%
45	6.87%	1.18%	11.48%
46	35.78%	1.76%	39.75%
47	30.35%	1.77%	35.01%
48	17.85%	0.50%	20.65%
49 50	6.63% 38.22%	0.42% 1.85%	9.18% 43.10%
51	8.86%	0.51%	11.72%
52	10.59%	0.93%	15.88%
53	8.34%	1.48%	14.71%
54	11.90%	0.64%	14.90%
55	11.26%	0.74%	14.73%
56	19.98%	2.25%	26.77%
57	20.18%	0.53%	22.91%
58	12.37%	0.30%	18.00%
59 60	10.35%	0.45%	16.24% 15.60%
60 61	9.66% 10.78%	3.26% 0.57%	15.69% 13.47%
62	46.38%	0.78%	49.72%
63	19.15%	0.69%	23.64%
64	19.87%	2.81%	24.99%
65	19.28%	2.73%	23.67%

Attachment E

District No.	Hispanic VAP	Non-Hispanic Black VAP	Minority VAP
1	43.39%	2.77%	55.19%
2	7.37%	2.03%	16.71%
3	16.66%	7.00%	32.84%
4	35.36%	2.78%	44.45%
5	28.63%	4.85%	41.05%
6	12.52%	9.14%	29.62%
7	44.19%	23.04%	77.92%
8	16.67%	16.29%	40.25%
9	14.94%	11.72%	35.60%
10	10.17%	1.77%	23.30%
11	22.10%	1.31%	31.11%
12 13	10.03% 11.82%	1.29%	21.05%
14	9.11%	1.02% 3.50%	17.90% 22.67%
15	16.75%	7.96%	35.59%
16	16.48%	5.60%	29.50%
17	30.46%	13.20%	53.02%
18	11.29%	3.97%	23.18%
19	14.91%	1.01%	23.92%
20	8.49%	3.00%	19.14%
21	19.70%	11.24%	40.98%
22	12.99%	5.16%	26.80%
23	15.38%	1.77%	24.47%
24	13.51%	1.22%	21.36%
25	6.37%	0.72%	13.14%
26	17.49%	0.78%	22.57%
27	9.88%	1.15%	18.14%
28	12.34%	1.48%	22.19%
29	15.12%	1.86%	26.97%
30	26.14%	2.40%	36.75%
31	42.55%	2.39%	53.72%
32	48.90%	3.57%	58.89%
33	12.25%	1.65%	25.11%
34	25.76%	2.19%	37.94%
35 36	46.86% 37.21%	1.87% 15.42%	56.80% 63.54%
37	8.00%	3.60%	24.36%
38	9.87%	1.55%	17.86%
39	7.20%	1.74%	19.32%
40	17.18%	12.41%	42.63%
41	21.28%	17.63%	49.50%
42	39.39%	21.06%	69.99%
43	8.01%	1.54%	19.96%
44	8.87%	2.30%	22.13%
45	9.36%	1.74%	17.79%
46	36.10%	2.35%	43.66%
47	29.82%	2.11%	37.15%
48	35.18%	1.30%	41.81%
49	5.37%	0.66%	12.16%
50	44.10%	3.16%	52.75%
51	10.66%	1.00%	17.23%
52	9.97%	1.56%	19.65%
53 54	12.78%	2.09%	22.76%
54 55	12.90% 12.93%	0.76% 0.99%	19.25%
55 56	12.93%	1.76%	20.32% 19.21%
50 57	24.26%	0.71%	29.68%
58	12.18%	0.53%	17.93%
59	11.34%	0.53%	22.74%
60	10.30%	2.76%	19.20%
61	10.84%	7.97%	33.44%
62	48.00%	1.68%	54.39%
63	21.42%	2.17%	27.30%
64	19.13%	0.97%	25.33%
65	10.88%	0.85%	17.21%