foreseeable future, including the scheduled primary and general elections in 2002. He believes that his vote is diluted in by Ad Astra 2. Declaration of Darrell Lea, PX 759.

E. Defendant Jamie Shew is the County Clerk for Douglas County. In that capacity, he is the official primarily responsible for administering elections in Douglas County. Frick Petition, paragraph 19, and Defendant Shew's Answer, paragraph 19.

F. The Senate Redistricting Committee was chaired by Senator Rick Wilborn. The vice-chair of the Committee was Senate President Ty Masterson. The ranking member, representing the Democratic Party, was Senator Dinah Sykes. Senator Ethan Corson was the other Democratic member of the Committee. PX 194, page 3.

G. At no stop during the listening tours was there any testimony, for or against, the possibility of moving the City of Lawrence from the Second Congressional District to the First Congressional District. At no time during the Senate Redistricting Committee's discussions concerning redistricting was the possibility of moving the City of Lawrence from the Second District to the First District ever raised by any member. Testimony of Ethan Corson, p. 229 l. 21 – p. 231 l. 7.

H. The Legislature's Redistricting Committees adopted redistricting guidelines for the redistricting process in December, 2021. Legislative leadership expressed the intent that the Guidelines were intended to be followed and applied in the redistricting process.

Petition, paragraph 24, and Answer, paragraph 24; PX 137; Testimony of Ethan Corson, p. 213 ll. 3-23.

I. At the Lawrence stop on the listening tour, Senator Marci Francisco, who as the Senator for District 2 represents much of Lawrence, came prepared to testify but the Republicans on the Redistricting Committees refused to allow her to testify. They told her that she would be able to testify before the Senate Redistricting Committee at its hearings later in the process. But when those hearings occurred much later in the process, she was not permitted to testify. Testimony of Ethan Corson, p. 216 l. 6 – 217 l. 11.

J. When asked by Senator Corson whether he had applied the Guidelines in drafting the Ad Astra map, Senator President Ty Masterson, who was also co-chair of the Senate Redistricting Committee, stated that he had applied the Guidelines as he "perceived them." The Court credits Senator Corson's testimony concerning the conversation, as Senator Masterson did not testify. Testimony of Ethan Corson, p. 257 l. 23 – p. 258 l. 9.

K. The results of the census showed that the Congressional districts in Kansas had the following populations before redistricting:

      a. First District: 700,773

      b. Second District: 713,007

      c. Third District: 792, 286

      d. Fourth District: 731,814

PX 138, Plan Comparison, Racial Composition and Hispanic Population, page 1.

L. As each of the Congressional Districts were required to have a population of 734,470, the population in each district had to be changed as follows:

a. First District: increase by 33,855

b. Second District: increase by 21,803

c. Third District: decrease by 58,334

d. Fourth District: increase by 2,676

Declaration of Michael Smith, PX 135, page 11.

M. Thus, a net total of 116,668 people, or 3.9% of the population of Kansas had to be moved to meet the population requirements. To meet that requirement, the Ad Astra 2 map moves 394,325 people, or 13.4% of the state population. In other words, Ad Astra 2 moves 337% more Kansans to different congressional districts than necessary to meet district population requirements. The number of counties and people moved to new congressional districts is credibly set forth in PX 139, a summary demonstrative exhibit offered by Plaintiffs. PX 139.

N. Finally, the Court finds as a matter of fact that the Legislature's adoption of the Ad Astra 2 map has a direct and substantial *effect* on voters in the City of Lawrence.

FINDINGS OF FACT RIVERA AND ALONZO

I.   **Ad Astra 2 was created in secret and pushed through the Legislature on party-line votes following departures from regular legislative processes.**

1. Republicans won supermajorities in both chambers of the Kansas Legislature in the 2020 election, securing unilateral control over the decennial congressional redistricting process. They used this power to rush a congressional redistricting plan through the Legislature in an unprecedented departure from ordinary legislative process.

> **A. The "listening sessions" conducted by the House and Senate Redistricting Committees in 2021 were inconvenient, brief, and unheeded.**

2. In August 2021, the House and Senate Redistricting Committees—both controlled by Republican majorities—conducted a "listening tour," purportedly to collect public input on the redistricting process. The evidence demonstrates, however, that this tour was neither intended nor designed to obtain public input.

3. The first issue is one of timing: The Committees announced the dates for the tour only a week in advance of its start and without consulting the Committees' Democratic members. Hr'g Tr. Day 1 Vol. 2 at 205:21-23, 206:21-207:18 (Corson); PX 194 at 4-6 (listing sessions); Hr'g Tr. Day 2 Vol. 1 at 8:14-19, 9:8-10 (Burroughs). Indeed, Senator Ethan Corson learned of the sessions only when they were announced to the

public. Hr'g Tr. Day 1 Vol. 2 at 207:8-12 (Corson). Senator Corson testified that the Committees' short notice made it challenging for members of the public who wanted to attend the sessions to obtain time off work, secure childcare, and get up to speed on redistricting. Hr'g Tr. Day 1 Vol. 2 at 208:3-9, 209:4-8 (Corson); *see also* Hr'g Tr. Day 3 Vol. 1 at 56:18-20 (Sullivan). As Senator Corson explained, this late scheduling suggests that Republican Committee members did not intend the tour to be a meaningful exercise. Hr'g Tr. Day 1 Vol. 2 at 208:11-17 (Corson).

4. Issues of notice were compounded by the tour's schedule. Hr'g Tr. Day 1 Vol. 2 at 209:1-4, 209:11-19 (Corson). The 2012 tour took place over a period of four months; the 2022 tour made fourteen stops in just five days. Hr'g Tr. Day 1 Vol. 2 at 209:1-4 (Corson). And while sessions in 2012 were each two-and-a-half hours long, the August 2012 sessions each lasted only 75 minutes, and in densely populated areas like Johnson County individuals were only given two minutes to testify. Hr'g Tr. Day 1 Vol. 2 at 209:11-210:13 (Corson). As Senator Corson explained, two minutes is "not nearly enough time" for a member of the public "to adequately explain" their views and is "at the far, far short end" of time allotments for witnesses at legislative hearings. Hr'g Tr. Day 1 Vol. 2 at 209:25-210:13, 267:3-14 (Corson).

5. In addition, the sessions were also scheduled largely at inconvenient times, with ten of the fourteen sessions taking place during working hours. Hr'g Tr. Day 1 Vol. 2 at 209:8-10 (Corson); PX 194 at 4-6 (listing sessions' dates and times). Community members were

unable to attend the sessions for these reasons. Hr'g Tr. Day 3 Vol. 1 at 56:21-57:2 (Sullivan); Hr'g Tr. Day 1 Vol. 2 at 266:5-18 (Corson); PX 194 at 5 (showing Overland Park session scheduled for 1:45-3 PM on Thursday, August 12, when school was letting out).

6. Moreover, the tour was scheduled, and most tour stops were completed, *before* the census data governing the 2020 redistricting process became available. Hr'g Tr. Day 1 Vol. 2 at 210:22-24 (Corson); Hr'g Tr. Day 2 Vol. 1 at 9:14-15 (Burroughs). This was a serious obstacle to meaningful public input in the state's redistricting process. *E.g.*, Hr'g Tr. Day 1 Vol. 2 at 210:22-211:11 (Corson). By contrast, during the 2012 redistricting cycle, the Legislature conducted listening sessions *after* the release of census data. Hr'g Tr. Day 1 Vol. 2 at 210:18-21 (Corson). Senator Corson testified that without the census data it was impossible for the public provide relevant comments on the decisions the Committees would be called upon to make or to address the data points Republican legislators would later cite as justifications for those decisions once the data was released. Hr'g Tr. Day 1 Vol. 2 at 210:22-211:11 (Corson). As just one example, before the census data was released, the public could not have known that the combined populations of Johnson and Wyandotte Counties would be too large to fit in one congressional district. Hr'g Tr. Day 2 Vol. 1 at 9:20-23 (Burroughs). The choice not to wait a few weeks for the data to become available this cycle was never explained. Hr'g Tr. Day 1 Vol. 2 at 211:11-14, 214:7-12 (Corson).

7. Unlike the 2012 tour, the 2021 tour also took place before the Committees adopted any guidelines for

the redistricting process, which also limited the public's ability to provide testimony on the topics that would be most helpful to the Committees. Hr'g Tr. Day 1 Vol. 2 at 212:21-213:23 (Corson). This choice has likewise never been explained. Hr'g Tr. Day 1 Vol. 2 at 214:7-12 (Corson).

8. Even when a member of public was able to overcome these hurdles, the Committees were indifferent to the testimony they heard. Representative Tom Burroughs and Senator Corson both indicated that the public testimony offered at the August hearings favored keeping the Kansas City metro area whole within a single congressional district. Representative Burroughs testified that a "large majority of the testimony" argued in favor of keeping "the Johnson County and Wyandotte County metropolitan area collectively together." Hr'g Tr. Day 2 Vol. 1 at 10:7-11 (Burroughs). Senator Corson agreed that the testimony in favor of "keeping the . . . urban suburban part of Wyandotte County in the same congressional district as the urban suburban part of Johnson County" was "overwhelming." Hr'g Tr. Day 1 Vol. 2 at 224:24-225:8 (Corson).

9. But the Republican legislators at the listening sessions were not attentive to this public feedback. Hr'g Tr. Day 1 Vol. 2 at 214:17-22 (Corson). In what Senator Corson described as "one of the more disrespectful acts [he had] ever seen from elected officials toward members of the public," Republican Committee members routinely "play[ed] on their phones right in front of" individuals offering testimony. Hr'g Tr. Day 1 Vol. 2 at 214:22-215:11 (Corson).

10. Senator Corson explained that Plaintiffs' Exhibit 751 shows Senate President Masterson, who ultimately introduced Ad Astra 2, and his Republican colleagues looking at their phones during a listening session in Overland Park, and that Senator Masterson did so "for almost the entire hearing." Hr'g Tr. Day 1 Vol. 2 at 215:12-216:4 (Corson).

11. The Committees' Republican majorities also limited opportunities for input by legislators during the August tour. Hr'g Tr. Day 1 Vol. 2 at 216:5-217:11 (Corson). After allowing a legislator to testify at a sparsely attended initial hearing, Republican Committee leadership chose to prohibit testimony by

legislators at subsequent stops. Hr'g Tr. Day 1 Vol. 2 at 216:5-16 (Corson). Leadership justified this decision by indicating that legislators would have ample opportunity to discuss redistricting once the legislative session began in January—but "that opportunity just never materialized." Hr'g Tr. Day 1 Vol. 2 at 216:16-217:11 (Corson); *see also* PX 169 at 26:21-29:20 (discussing decision to limit legislator testimony).

12. After the August tour, the Committees conducted four virtual listening sessions on November 22 and November 30, 2021—shortly before and after the Thanksgiving holiday. PX 195 at 1-2 (listing dates); Hr'g Tr. Day 2 Vol. 1 at 10:12-14 (Burroughs). At the time, the Committees still had not adopted any guidelines governing redistricting. Hr'g Tr. Day 1 Vol. 2 at 213:3-9 (Corson). Representative Burroughs testified that the public testimony offered at these listening sessions did not meaningfully differ from that submitted in August. Hr'g Tr. Day 2 Vol. 1 at 10:20-23 (Burroughs).

13. On the whole, Senator Corson characterized the Committees' listening sessions as a "box-checking exercise," conducted to give the appearance of consistency with past practice after Republican legislators had in fact already decided to enact a gerrymandered congressional map. Hr'g Tr. Day 1 Vol. 2 at 217:24-218:5, 266:15-22 (Corson).[2]

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[2] The Court credits the testimony of Senator Corson and Representative Burroughs, both of whom credibly testified about the legislative process.

B. The Legislature belatedly implemented guidelines to govern redistricting.

14. At their initial meetings on January 12, 2022, the Senate and House Redistricting Committees received presentations from the Legislature's staff on a set of Guidelines and Criteria for 2022 Congressional and State Legislative Redistricting ("Guidelines") that had been adopted by the bipartisan Legislature's Redistricting Advisory Group. Hr'g Tr. Day 2 Vol. 1 at 11:7-11 (Burroughs); PX 164 at 16:11-18:18 (Jan. 12, 2022 House Redistricting Committee Hearing); PX 165 at 4:23-7:7 (Jan. 12, 2022 Senate Redistricting Committee Hearing).

15. The Guidelines enumerated several traditional redistricting criteria and were substantively very similar to those used in the previous redistricting cycle; Senator Corson described the changes as "small stylistic tweaks." Hr'g Tr. Day 1 Vol. 2 at 249:11-12 (Corson); *see also* Hr'g Tr. Day 2 Vol. 1 at 11:12-17 (Burroughs). Several of Plaintiffs' experts explained that the Guidelines were a "very typical list of traditional redistricting criteria." Hr'g Tr. Day 1 Vol. 2 at 17:10-17 (Rodden); *accord* Hr'g Tr. Day 1 Vol. 2 at 120:24-121:1 (Chen).

16. The Guidelines provided that:

1. The basis for congressional redistricting is the 2020 U.S. Decennial Census. The "building blocks" to be used for drawing district boundaries shall be Kansas counties and voting districts (VTDs) as described on the official 2020 Redistricting U.S. Census maps.

2. Districts are to be as nearly equal to 734,470 population as practicable.

3. Redistricting plans will have neither the purpose nor the effect of diluting minority voting strength.

4. Subject to guideline No. 2 above:

a. Districts should be as compact as possible and contiguous.

b. There should be recognition of communities of interest. Social, cultural, racial, ethnic, and economic interests common to the population of the area, which are probable subjects of legislation should be considered.

c. The core of existing congressional districts should be preserved when considering the communities of interest to the extent possible.

d. Whole counties should be in the same congressional district to the extent possible while still meeting guideline No. 2 above. County lines are meaningful in Kansas and Kansas counties historically have been significant political units. Many officials are elected on a countywide basis, and political parties have been organized in county units. Election of the Kansas members of Congress is a political process requiring political organizations which in Kansas are developed in county units. To a considerable degree most counties in Kansas are economic, social, and cultural units, or parts of a larger socioeconomic

unit. These communities of interest should be considered during the creation of congressional districts.

PX 137 at 2 (Guidelines).

17. Representative Burroughs and Senator Corson testified that members of both the House and Senate treated the Guidelines as authoritative principles governing the redistricting process. Hr'g Tr. Day 2 Vol. 1 at 11:7-21 (Burroughs); Hr'g Tr. Day 1 Vol. 2 at 256:21-257:6, 257:23-258:9 (Corson).

18. The House Redistricting Committee formally adopted the Guidelines at its January 12 meeting. Hr'g Tr. Day 2 Vol. 1 at 11:7-11 (Burroughs); PX 164 at 23:15-24:2 (Jan. 12, 2022 House Redistricting Committee Hearing). Representative Burroughs testified that he understood that legislators should follow the Guidelines, anticipated that legislators would do so, and never heard legislators from either side of the aisle suggest that the Guidelines could be disregarded. Hr'g Tr. Day 2 Vol. 1 at 11:12-21 (Burroughs). True to Representative Burroughs' understanding, House members from both parties subsequently discussed proposed maps, including Ad Astra 2, in terms of their compliance with the Guidelines. *E.g.*, PX 172 at 59:1-60:10, 97:16-97:10 (statements by Reps. Croft, Miller, and Probst during January 25 House floor debate).

19. Senators also treated the Guidelines as authoritative. Senator Corson testified that members of both parties sought to justify their proposed maps under the Guidelines; Senate President Masterson, for

example, had a lengthy debate with Senator Corson in the Senate Redistricting Committee in which he asserted that the original Ad Astra map[3] complied with the Guidelines. Hr'g Tr. Day 1 Vol. 2 at 256:21-257:3, 257:23-258:9 (Corson); *see, e.g.*, PX 168 at 31:24-33:4, 36:21-37:16, 40:18-22 (Jan. 20, 2022 Senate Redistricting Committee Hearing). During floor debate on Ad Astra 2, Senators, including Senator Masterson, continued to discuss whether the plan complied with the Guidelines and sought to justify the map's features by reference to the Guidelines. *E.g.*, PX 169 at 52:10-21 (statement of Sen. Masterson during January 21, 2022 Senate floor debate). Senator Corson testified that no Senator ever suggested it was not necessary to follow the Guidelines. Hr'g Tr. Day 1 Vol. 2 at 257:23-258:9 (Corson).

C. Ad Astra 2 was rushed through the House and Senate on largely party-line votes, with no Democratic support.

20. The plan that became Ad Astra 2—then known simply as Ad Astra—was initially introduced in both the House and Senate Redistricting Committees on Tuesday, January 18. Hr'g Tr. Day 1 Vol. 2 at 220:14-19 (Corson); Tr. Day 2 Vol. 1 at 12:24-13:4 (Burroughs). Both Representative Burroughs and Senator Corson testified that they became aware of the bill on the same day it was introduced to the public. Hr'g Tr. Day 1 Vol.

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[3] As discussed below, *see infra* FOF § I.C, Ad Astra 2 revised the original Ad Astra map to avoid splitting the Kickapoo Tribe. The revision did not affect the map's treatment of Wyandotte County or Johnson County.

2 at 220:8-13 (Corson); Hr'g Tr. Day 2 Vol. 1 at 13:2-4 (Burroughs).

21. Ad Astra 2's map-drawers remain a mystery; Republican sponsors of the map never publicly revealed who drew the plan, Hr'g Tr. Day 2 Vol. 1 at 13:5-6 (Burroughs), despite being asked for that information on multiple occasions during Committee proceedings, *see* PX 168 at 34:22-35:7 (transcript of January 20, 2022 Senate Redistricting Committee hearing); PX 171 at 12:23-13:10 (transcript of January 24, 2022 House Redistricting Committee hearing).

22. After its introduction, both the Senate and House Redistricting Committees set Ad Astra 2, alongside a small number of other proposed maps, for simultaneous hearings on Thursday, January 20—just two days after the maps' introduction. Hr'g Tr. Day 1 Vol. 2 at 220:17-221:3 (Corson); Hr'g Tr. Day 2 Vol. 1 at 13:18-25 (Burroughs); PX 166 at 16:1-4 (transcript of January 18, 2022 House Redistricting Committee hearing); PX 167 at 4:18-5:3 (transcript of January 18, 2022 Senate Redistricting Committee hearing).

23. The Senate Redistricting Committee required members of the public who wanted to testify regarding the plan to sign up to testify in person or submit written testimony by 10 a.m. on Wednesday, January 19—the day after the map's introduction and before the map's underlying data was made publicly available. Hr'g Tr. Day 1 Vol. 2 at 220:19-221:2 (Corson). Moreover, the House and Senate Committees scheduled their respective public testimony periods for the same time, forcing potential witnesses to choose between the two proceedings or "bounc[e] between the

two." Hr'g Tr. Day 2 Vol. 1 at 13:18-25 (Burroughs). Several members of the public objected to the rushed nature of the proceedings and difficulty of submitting testimony. *E.g.*, PX 168 at 22:16-23:1, 26:1-21 (transcript of January 20, 2022 Senate Redistricting Committee hearing).

24. Of the members of public who were able to overcome these hurdles to attend one or both hearings, Senator Corson testified that all but one testified in opposition to Ad Astra. Hr'g Tr. Day 1 Vol. 2 at 221:3-6 (Corson). Representative Burroughs agreed, offering that a "large majority" opposed the bill. Hr'g Tr. Day 2 Vol. 1 at 14:17-21 (Burroughs).

25. At the January 20 Senate Redistricting Committee hearing, several Senators, including Senator Corson, expressed deep concerns about the bill, particularly its likely impact on minority communities. Hr'g Tr. Day 1 Vol. 2 at 221:6-8 (Corson); *e.g.*, PX 168 at 31:24-38:18 (transcript of January 20, 2022 Senate Redistricting Committee hearing). Nevertheless, after adopting an amendment to address Ad Astra's splitting the Kickapoo Native American Tribe—and renaming the amended plan Ad Astra 2—the Senate Redistricting Committee voted the bill out of committee. Hr'g Tr. Day 1 Vol. 2 at 221:8-9 (Corson); *see* PX 168 at 99:14-101:10 (introducing and adopting amendment to Ad Astra 2). Senator Corson testified that it "is not common" for a bill to move so quickly out of committee. Hr'g Tr. Day 1 Vol. 2 at 221:8-9 (Corson).

26. The next day, January 21, Republican Senators rejected several proposed amendments to the plan introduced on the Senate floor. DX 1007-14 to -15. A

number of Democratic members objected that Ad Astra 2 was a partisan gerrymander, would dilute the power of minority votes, and had reached the floor through a rushed process. *E.g.*, PX 169 at 7:18-22, 8:5-10, 8:14-22, 8:24-9:1. 10:2-20, 19:21-20:11, 22:4-10, 22:23-25, 23:6-8, 23:16-25, 39:11-25, 46:18-47:3, 53:9-14, 65:5-66:21, 68:21-74:6, 106:21-107:2, 110:2-12 (transcript of January 21, 2022 Senate floor debate).

27. Despite these objections, the full Senate passed Ad Astra 2, after designating the bill an emergency measure, *see* DX 1007-11, on a largely party-line vote on Friday, January 21, Hr'g Tr. Day 1 Vol. 2 at 221:9-11 (Corson); DX 1007-11. Not one Democrat voted for the map. DX 1007-11.

28. A period of roughly 72 hours passed between the introduction of the map and its passage. Hr'g Tr. Day 1 Vol. 2 at 220:14-221:18 (Corson). Senator Corson testified that this timeline was "not at all typical"; the only bill he could recall moving with comparable speed was an emergency measure to help municipalities pay unexpectedly large heating bills during a cold snap in February 2021. Hr'g Tr. Day 1 Vol. 2 at 221:25-222:9 (Corson). Senator Corson further testified that he never received an explanation for why it was necessary to pass the plan so quickly. Hr'g Tr. Day 1 Vol. 2 at 223:1-13 (Corson).

29. The plan moved with similar speed in the House. Representative Burroughs testified that the measure was "greased to go" in committee: it was "quite clear" that "the bill was set to hit the floor in a very short amount of time." Hr'g Tr. Day 2 Vol. 1 at 17:14-24 (Burroughs). The bill passed the House

Redistricting Committee on January 24, PX 171 at 48:17-49:3 (transcript of January 24, 2022, House Redistricting Committee hearing), and reached the House floor on January 25, *see generally* PX 172 (transcript of January 25, 2022, House floor debate).

30. The House considered several amendments to Ad Astra 2, including Mushroom Rock 2, a plan that like Ad Astra 2, would have kept Johnson County intact along with the eastern part of Wyandotte County and most of Kansas City, Kansas. Hr'g Tr. Day 2 Vol. 1 at 18:4-16, 19:2-8. The House, including Republican leadership, rejected these amendments. Hr'g Tr. Day 2 Vol. 1 at 18:11-12, 19:7-10 (Burroughs).

31. During floor debate in both chambers, numerous representatives noted that the process by which Ad Astra 2 came to the floor was highly irregular, rushed, nontransparent, and unfair. *E.g.*, PX 172 at 14:14-15:11, 31:19-21, 54:13-22, 57:3-10, 121:5-13, 121:23-122:5; (House debate); PX 169 at 20:22-21:4, 21:24-23:25; 26:3-18; 27:12-28:22, 36:21-37:14, 128:4-129:9, 145:19-146:3 (Senate debate). Representatives also called attention to the fact that the map split known communities of interest, ignored public input, diluted minority votes, and constituted "textbook gerrymandering." *See, e.g.*, PX 172 at 16:6-9, 18:7-12, 19:10-18, 26:16-21, 27:19-28:11, 29:7-15, 30:8-14, 30:18-22, 32:2-10, 32:19-21, 33:19-19-34:2, 36:1-15, 37:8-18, 37:20-25, 38:4-14, 39:15-21, 45:10-15, 54:22-25, 55:2-10, 56:8-10, 89:14-18, 106:6-13 (House debate); PX 169 at 23:1-25:13, 26:3-18, 27:12-28:22, 46:16-47:6, 68:9-74:13, 75:8-78:9, 128:4-134:7, 141:2-19 (Senate debate).

32. In response to accusations that Ad Astra 2 was a partisan gerrymander and would dilute minority votes, *e.g.*, PX 172 at 27:19-28:24, 30:18-25, 34:12-13, 56:15-16 (transcript of January 25, 2022 House floor debate), Republican Representative Steve Huebert opined that redistricting "is a political process" and that "[g]errymandering" and "partisan politics . . are just things that happen. They always have and they always will." PX 172 at 20:10-21:8 (transcript of January 25, 2022 House floor debate).

33. Ad Astra 2 ultimately passed the House on a largely party-line vote on January 26. Hr'g Tr. Day 2 Vol. 1 at 20:212-17 (Burroughs); DX 1007-5. Not one Democrat voted for the map. DX 1007-5. Representative Burroughs described the schedule on which it passed as "quite . . . compressed" and not consistent with the House's usual way of passing important legislation. Hr'g Tr. Day 2 Vol. 1 at 20:18-21:4 (Burroughs).

34. Both Representative Burroughs and Senator Corson testified that the enactment of Ad Astra 2 was highly partisan. Representative Burroughs stated that there was no attempt at bipartisanship or collaboration between the parties. Hr'g Tr. Day 2 Vol. 1 at 21:10-13 (Burroughs). Senator Corson similarly indicated that to the best of his knowledge, no Republican member ever reached out to Democratic members to work on congressional redistricting. Hr'g Tr. Day 1 Vol. 2 at 217:13-19 (Corson). No negotiations occurred between the parties; rather, it was "very clear" from the "very, very early days of the redistricting listening tour" that Republicans had already decided to draw a plan with

four Republican districts. Hr'g Tr. Day 1 Vol. 2 at 217:20-218:5 (Corson).

35. On February 3, Governor Kelly vetoed Ad Astra 2, explaining:

Senate Bill 355, known as Ad Astra 2, does not follow [the Legislature's] guidelines and provides no justification for deviation from those guidelines. Wyandotte County is carved into two separate congressional districts. Without explanation, this map shifts 46% of the Black population and 33% of the Hispanic population out of the third congressional district by dividing the Hispanic neighborhoods of Quindaro Bluffs, Bethel-Welborn, Strawberry Hill, Armourdale and others from Argentine, Turner and the rest of Kansas City, Kansas south of I-70. To replace lost population in the third district, this map adds in counties that are more rural to the south and west of the core of the Kansas City metropolitan area.

Ad Astra 2 also separates the city of Lawrence from Douglas County and inserts urban precincts of Lawrence into the largely rural Big First Congressional District, reducing the strength of communities of interest in Western Kansas and unnecessarily dividing communities of interest in Eastern Kansas.

Several alternatives would allow for the same deviation as Ad Astra 2 while protecting the core of the existing congressional districts and without diluting minority communities' voting

strength. I am ready to work with the Legislature in a bipartisan fashion to pass a new congressional map that addresses the constitutional issues in Senate Bill 355. Together, we can come to a consensus and pass a compromise that empowers all people of Kansas.

Press Release, Office of the Governor, Governor Laura Kelly Vetoes Congressional Redistricting Map, Senate Bill 355 (Feb. 3, 2022), https://governor.kansas.gov/gove rnor-laura-kelly-vetoes-congressional-redistricting-map-senate-bill-355; Hr'g Tr. Day 2 Vol. 1 at 21:5-6 (Burroughs).

D. Republican supermajorities overrode the Governor's veto on largely party-line votes.

36. On February 7, 2022, the Senate convened to seek to override Governor Kelly's veto. *See generally* PX 162 (recordings of February 7-8, 2022, Senate veto override sessions). The affirmative vote of 27 senators is necessary to override a veto. *See* Kan. Const. art. 2, § 14(a).

37. After failing to obtain the required 27 votes on the initial roll call, the Senate's Republican leadership instituted a call of the Senate, confining Senators to their seats for roughly two-and-a-half hours while holding the vote open. *See* PX 162 at 54:00-3:24:55 (recording of February 7, 2022, Senate veto override session). Leadership ultimately closed the vote without obtaining the necessary support, and the override failed by a 24-15 vote. DX 1007-4. No Democrat voted

to override the veto. DX 1007-4. At the last moment, Senate President Masterson switched his vote to "no" as a procedural strategy which would allow him to re-open the vote the next day, and the Senate adjourned. PX 162.

38. The next day, on February 8, Senate President Masterson moved to reconsider the prior day's vote, and following that motion, the Senate voted to override the Governor's veto on a largely party-line vote. DX 1007-2, 1007-3. Again, not one Democrat voted to override the veto. DX 1007-2.

39. Senator Corson described the Senate override process as "thuggish." Hr'g Tr. Day 1 Vol. 2 at 231:20-22 (Corson); *see also* Hr'g Tr. Day 1 Vol. 2 at 253:21-25 (Corson) ("[O]bviously, the Republican super majority wanted to ram through this map very quickly."). On the chamber floor, Senator Dinah Sykes characterized the result of the Senate's second override vote as the product of "backroom deals," PX 760 at 7, and Senator David Haley commented that he "hope[d] whomever [sic] got . . . [senators] to change their mind[s] will get what it is they bargained for," PX 760 at 8.

40. The House voted to override the Governor's veto on February 9, also on a largely party-line vote, Hr'g Tr. Day 1 Vol. 2 at 231:20-22 (Burroughs); DX 1007-1, and again after a substantial delay as several Republican Representatives initially voted no before reversing course, *see* PX 174 at 18 (noting vote changes); PX 163 at 43:00-1:45:00 (recording of February 9, 2022 House veto override session) (showing hour-long delay from calling of override vote to conclusion of vote, during which Representatives were

confined to their seats). Not one Democrat voted to override the veto. DX 1007-1.

II. Ad Astra 2 was designed intentionally and effectively to maximize Republican advantage in the state's congressional delegation.

41. Using distinct evidence and analyses, Plaintiffs' experts have each concluded that Ad Astra 2 intentionally and successfully gerrymanders Kansas's congressional districts to ensure that Republican candidates will likely win all four of the state's congressional seats. As set forth below, the Court credits and agrees with these conclusions.

A. Evidence presented by Dr. Jowei Chen demonstrates that Ad Astra 2 is an intentional, effective partisan gerrymander.

42. Plaintiffs' expert Dr. Jowei Chen, Ph.D., is a tenured Associate Professor in the Department of Political Science at the University of Michigan, Ann Arbor. PX 31 ¶ 2 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 114:18-21 (Chen).

43. Dr. Chen has extensive experience in redistricting matters. PX 31 ¶¶ 3-4 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 115:3-117:3 (Chen). Dr. Chen has published academic papers on legislative districting and political geography in several peer-reviewed political science journals, including the *American Journal of Political Science*, the *American Political Science Review*, and the *Election Law Journal*. PX 31 ¶¶ 3-4 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 116:16-19

(Chen). His academic areas of expertise include legislative elections, spatial statistics, geographic information systems (GIS) data, redistricting, racial politics, legislatures, and political geography. PX 31 ¶ 3 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 115:3-8 (Chen). He also has expertise in the use of computer simulations in legislative districting and in analyzing political geography, elections, and districting plans. PX 31 ¶ 3 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 115:3-8 (Chen).

44. Dr. Chen has presented expert testimony regarding his simulation methodology in numerous partisan gerrymandering lawsuits, and his analysis has been repeatedly credited and relied upon by the courts in these cases. PX 31 ¶ 4 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 116:20-117:3 (Chen); *see, e.g., Harper v. Hall*, 868 S.E.2d 499, 515-16 (N.C.), *stay denied sub nom. Moore v. Harper*, 142 S. Ct. 1089 (2022); *Adams v. DeWine*, ___ N.E.3d ___, Nos. 2021-1428, 2021-1449, 2022 WL 129092, at *11-13 (Ohio Jan. 14, 2022); *League of Women Voters of Pa. v. Commonwealth*, 645 Pa. 1, 124, 178 A.3d 737 (2018) (finding "Dr. Chen's expert testimony" to be "[p]erhaps the most compelling evidence" in invalidating Pennsylvania's congressional plan as an unconstitutional partisan gerrymander); *Raleigh Wake Citizens Ass'n v. Wake Cnty. Bd. of Elections*, 827 F.3d 333, 344 (4th Cir. 2016) ("The district court clearly and reversibly erred in rejecting Dr. Chen's expert testimony."); *League of Women Voters of Mich. v. Benson*, 373 F. Supp. 3d 867, 907 (E.D. Mich.) ("[T]he Court has determined that Dr. Chen's data and expert findings are reliable."), *vacated and remanded and other grounds*, 140 S. Ct. 429 (2019); *Common Cause v. Rucho*, 279 F. Supp. 3d 587, 666

(M.D.N.C.) ("Dr. Chen's simulation analyses not only evidence the General Assembly's discriminatory intent, but also provide evidence of the [challenged map's] discriminatory effects."), *vacated and remanded and other grounds*, 138 S. Ct. 2679 (2018); *City of Greensboro v. Guilford Cnty. Bd. of Elections*, 251 F. Supp. 3d 935, 943 (M.D.N.C. 2017) (relying upon the "computer simulations by Dr. Jowei Chen" to find impermissible partisan intent); *Common Cause v. Lewis*, No. 18 CVS 014001, 2019 WL 4569584, at *18 (N.C. Super. Ct. Sept. 3, 2019) ("The Court gives great weight to Dr. Chen's findings and, to the extent set forth below, adopts his conclusions.").

45. The Court accepts Dr. Chen in this case as an expert in redistricting, political geography, and redistricting simulation analysis.

46. Using his computer-simulation methodology, Dr. Chen analyzed whether Ad Astra 2 was a partisan outlier on both statewide and district-by-district bases. PX 31 ¶¶ 6, 51 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 117:17-118:23 (Chen). Dr. Chen also analyzed whether partisan intent predominated in the drawing of Ad Astra 2 and subordinated the traditional redistricting criteria reflected in the Guidelines, such as compactness and avoiding county and voting tabulations district ("VTD") splits. PX 31 ¶¶ 6, 9, 50 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 117:17-118:23 (Chen).

47. In his academic research on legislative districting, partisan and racial gerrymandering, and electoral bias, Dr. Chen has developed computer-simulation programming techniques that allow him to

produce a large number of nonpartisan redistricting plans that adhere to traditional redistricting criteria using U.S. Census geographies as building blocks. PX 31 ¶ 7 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 119:20-120:12 (Chen). Dr. Chen's simulation process ignores all partisan and racial considerations when drawing districts, in favor of various traditional districting goals, such as equalizing population, avoiding county and Voting Tabulation District (VTD) splits, and pursuing geographic compactness. PX 31 ¶ 7 (Chen Rep.). By comparing an enacted redistricting plan to these randomly generated plans that closely adhere to traditional redistricting criteria, Dr. Chen can assess whether partisan goals motivated a map-drawer to deviate from traditional districting criteria, and whether the enacted plan could be the product of something other than partisan considerations. PX 31 ¶ 7 (Chen Rep.).

48. In his simulation set in this case, Dr. Chen programmed the computer algorithm to create 1,000 independent simulated plans adhering to traditional redistricting criteria listed in the Guidelines: (1) population equality, (2) contiguity, (3) minimizing county splits, (4) minimizing VTD splits, and (5) prioritizing compactness where doing so would not violate an earlier criterion. PX 31 ¶¶ 8, 11 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 119:20-120:12, 120:18-121:1 (Chen); *see also* PX 137 at 2 (Guidelines). Dr. Chen also programmed the algorithm to preserve municipal boundaries where possible, because municipalities are considered communities of interest; preserving municipal boundaries is a traditional redistricting criterion followed around the country even where not

explicitly considered; and, based on Dr. Chen's inspection of Ad Astra 2, the Legislature appeared to have tried to avoid splitting municipalities. PX 31 ¶¶ 8, 11 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 119:20-120:12, 121:2-21 (Chen). Dr. Chen has applied this same technique "many times" while serving as an expert witness in other cases. Hr'g Tr. Day 1 Vol. 2 at 116:20-23 (Chen).

49. The Court finds that Dr. Chen's computer algorithm properly reflected the Guidelines, as well as traditional redistricting principles. The Court further finds that Dr. Chen's interpretation and application of the Guidelines are fully consistent with the Guidelines' text. The Court further finds that Dr. Chen's application of these criteria is consistent with generally accepted redistricting principles and practice.

50. Based on his analysis, Dr. Chen concluded that partisan intent predominated over the Guidelines and traditional redistricting criteria in the drawing of Ad Astra 2 and is responsible for the Republican advantage in the enacted plan. PX 31 ¶¶ 50-52, 67-70 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 117:24-118:23 (Chen). Dr. Chen also found that the plan's Republican advantage was an extreme partisan statistical outlier on every level—statewide, regionally, and on a district-by-district basis—and by every measure analyzed— overall seat share, partisan vote-share ranges, and a widely-used quantitative measure of partisan bias. PX 31 ¶¶ 51-52, 55-58 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 117:24-118:23 (Chen).

51. The Court credits Dr. Chen's findings, finds his analysis and testimony to be reliable, places great

weight on his testimony, and adopts each of his conclusions. During Dr. Chen's live testimony, the Court carefully observed Dr. Chen's demeanor, particularly as he was cross-examined for the first time about his work on this case. He consistently defended his work with careful and deliberate explanations of the bases for his opinions.

Ad Astra 2 does not adhere to the Guidelines or to traditional redistricting principles.

52. Dr. Chen compared Ad Astra 2 to his 1,000 computer-simulated plans along a number of measures. *See* PX 31 ¶¶ 13-27 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 146:14-152:18 (Chen).

53. First, Dr. Chen compared the number of counties split by Ad Astra 2 and the simulated plans. Ad Astra 2 splits four counties, including both Douglas and Wyandotte. PX 31 ¶¶ 15-16 & tbl.1 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 147:7-8 (Chen). In Dr. Chen's simulations, no plan split more than three counties, while remaining compliant with the other traditional redistricting criteria incorporated in the algorithm. PX 31 ¶ 17 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 147:15-17 (Chen). Dr. Chen explained that the difference between three and four split counties is "significant": any congressional plan will necessarily divide only a small number of counties, and the extra county split under Ad Astra 2 means that the plan splits 33% more counties than is necessary. Hr'g Tr. Day 1 Vol. 2 at 147:18-148:10 (Chen). Dr. Chen further explained that even if the Legislature had a valid reason to split a particular county, doing so would not prevent it from

drawing a map that splits a total of only three counties. Hr'g Tr. Day 1 Vol. 2 at 196:10-197:7 (Chen).

54. Figure 1 in Dr. Chen's report, also admitted as Plaintiffs' Exhibit 32, depicts how the number of counties split by Ad Astra 2 compares to the number of counties split under Dr. Chen's simulated plans:

Figure 1:
Number of Split Counties
in 2022 Enacted Plan and 1,000 Computer-Simulated Plans
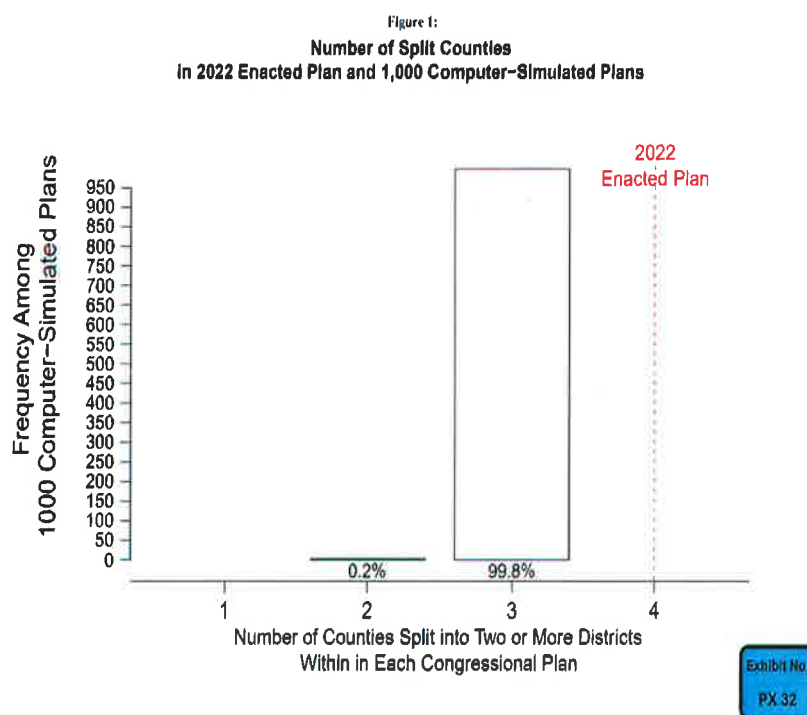
55. From this analysis, Dr. Chen concluded that the enacted congressional plan "clearly contains more county splits than one would expect from a map-drawing process prioritizing county boundaries," as called for by the Guidelines and traditional redistricting principles. PX 31 ¶ 17 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 147:9-14 (Chen).

56. The Court finds that only three counties needed to be split to achieve a perfectly equally populated plan, and Ad Astra 2's four county splits is an outlier compared to simulated plans generated using traditional redistricting criteria. Defendants proffered that the fourth county was split to avoid splitting the Kickapoo Tribe—but did not explain why one of the other split counties was not then made whole. The Court finds that Ad Astra 2 splits more counties than necessary.

57. Second, Dr. Chen compared the number of VTDs split by Ad Astra 2 and the simulated plans. Dr. Chen found that while the simulated congressional plans split no more than three VTDs, Ad Astra 2 contains 19 VTD splits, including 13 VTD splits that divide the populated portions of the VTD into two different districts. PX 31 ¶¶ 18-19 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 148:11-25 (Chen). Seven of these VTD splits involving population occur in either Douglas County or Wyandotte County. PX 31 tbl.2 (Chen Rep.).

58. Figure 2 in Dr. Chen's report, also admitted as Plaintiffs' Exhibit 33, depicts how the number of populated VTDs split by Ad Astra 2 compares to the number of populated VTDs split under Dr. Chen's simulated plans:

Figure 2:

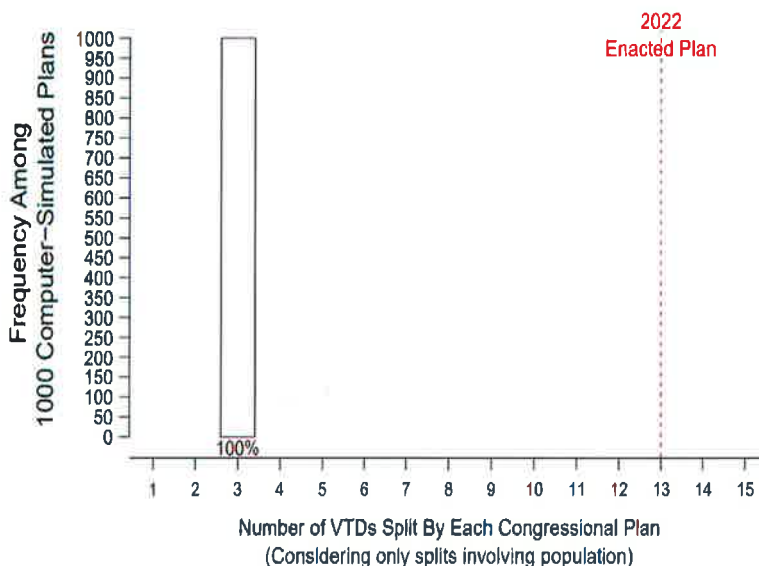**Comparison of VTDs Split in 2022 Enacted Plan and 1,000 Computer–Simulated Plans**

59. From this analysis, Dr. Chen concluded that Ad Astra 2 splits "far more [VTDs] than is necessary to draw equally populated districts and comply with other traditional districting criteria." PX 31 ¶ 20 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 148:21-23 (Chen).

60. The Court finds that Ad Astra 2 fails to follow, and subordinates, the Guidelines' principle of avoiding the unnecessary splitting of VTDs by splitting far more VTDs than necessary.

61. Third, Dr. Chen compared the compactness of the districts in Ad Astra 2 to the compactness of the districts in each of his 1,000 simulated plans. To
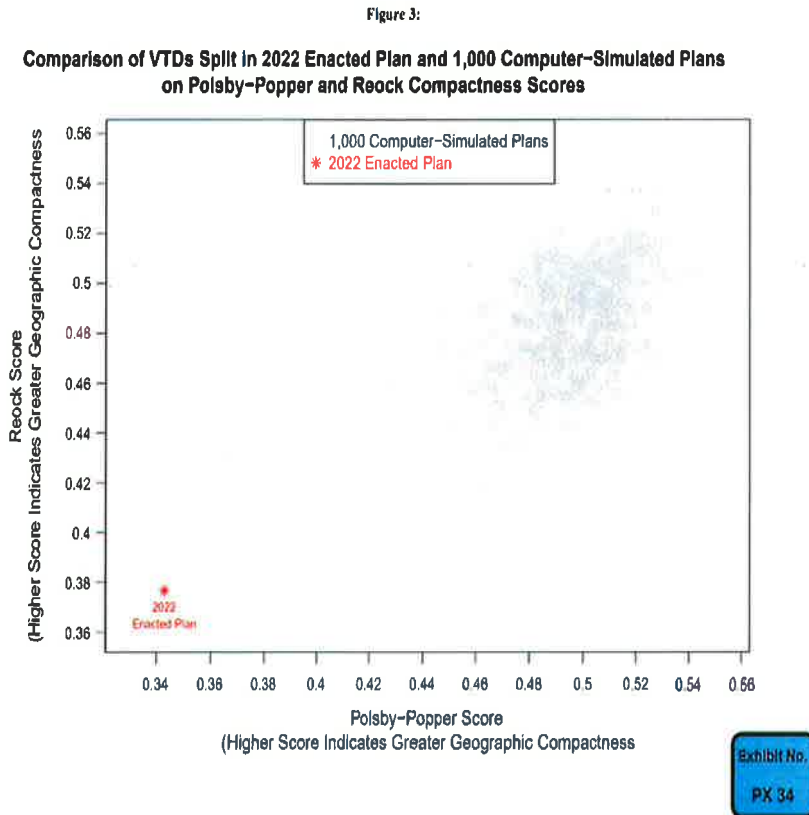
measure compactness, Dr. Chen analyzed the plans' average Reock and Polsby-Popper scores.[4] PX 31 ¶¶ 22-25 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 149:5-150:2 (Chen). Dr. Chen explained that both measures are commonly used by redistricting practitioners, map-drawers, and scholars to measure compactness. Hr'g Tr. Day 1 Vol. 2 at 149:10-14 (Chen). For both measures, a higher score indicates that a plan's districts are more compact. PX 31 ¶¶ 24-25 (Chen Rep.).

62. Dr. Chen found that using either metric, Ad Astra 2's districts are far less compact than the districts in all 1,000 simulated plans. Ad Astra 2 has an average Polsby-Popper score of 0.343; every simulated plan had a significantly higher average Polsby-Popper score, with a middle 50% range of 0.483 to 0.510 and a maximum score of 0.542. PX 31 ¶ 24 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 149:14-23 (Chen). Similarly, Ad Astra 2 has an average Reock score of 0.377; every simulated plan had a significantly higher average Reock score, with a middle 50% range of 0.469 to 0.502 and a maximum score of 0.538. PX 31 ¶ 25 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 149:14-23 (Chen).

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[4] Dr. Chen's report explained that the "Polsby-Popper score for each individual district is calculated as the ratio of the district's area to the area of a hypothetical circle whose circumference is identical to the length of the district's perimeter." PX 31 ¶ 24 (Chen Rep.). The "Reock score for each individual district is calculated as the ratio of the district's area to the area of the smallest bounding circle that can be drawn to completely contain the district." PX 31 ¶ 25 (Chen Rep.).

63. Figure 3 in Dr. Chen's report, also admitted as Plaintiffs' Exhibit 34, depicts how Ad Astra 2's average Polsby-Popper and Reock scores compare to the average Polsby-Popper and Reock scores of each of the 1,000 simulated plans[5]:

Figure 3:

Comparison of VTDs Split in 2022 Enacted Plan and 1,000 Computer–Simulated Plans on Polsby–Popper and Reock Compactness Scores

64. Dr. Chen testified that Ad Astra 2's average compactness scores are "just not even close to what's

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[5] Dr. Chen explained in his testimony that the title of Figure 3 contains a typo; it should refer to geographic compactness rather than to VTD splits. Hr'g Tr. Day 1 Vol. 2 at 150:3-9 (Chen).

reasonably possible." Hr'g Tr. Day 1 Vol. 2 at 150:10-151:5 (Chen).

65. From this analysis, Dr. Chen concluded that Ad Astra 2 "is significantly less compact . . . than what could reasonably have been expected from a districting process adhering to the compactness requirement in the . . . Guidelines." PX 31 ¶¶ 24-25 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 149:14-150:2 (Chen).

66. The Court finds that Ad Astra 2 fails to follow, and subordinates, the Guidelines' principle of drawing compact districts. Ad Astra 2's districts are less compact than they would be under a map-drawing process that adhered to the Guidelines and prioritized the traditional districting criterion of compactness.

67. Finally, although Dr. Chen did not program the algorithm to consider core retention in drawing simulated plans, he determined that the simulated plans outperform Ad Astra 2 in retaining the cores of congressional districts from the 2012 plan. Hr'g Tr. Day 1 Vol. 2 at 194:8-196:4 (Chen); *see also* PX 137 at 2 (listing core retention as a consideration under the Guidelines). For example, 61% of the simulated plans did a better job of preserving the core of the Third District than did Ad Astra 2, as measured by the share of the population of the old district that remains together in a district under the new plan. Hr'g Tr. Day 1 Vol. 2 at 194:13-195:5, 198:22-199:10 (Chen).

68. From this analysis, Dr. Chen concluded that Ad Astra 2's pro-Republican partisan bias cannot be explained by an attempt to preserve the cores of the

2012 districts. Hr'g Tr. Day 1 Vol. 2 at 195:6-196:4 (Chen).

69. The Court finds that Ad Astra 2 fails to follow, and subordinates, the Guidelines' principle of preserving the cores of existing congressional districts. Ad Astra 2 does a worse job of retaining the cores of existing districts than would a plan produced by a map-drawing process that adhered to the Guidelines and prioritized the traditional districting criterion of preserving the cores of existing districts.

Three of the four districts in Ad Astra 2 are extreme statistical partisan outliers.

70. To compare the partisanship of his simulated plans to the enacted congressional plan, Dr. Chen used census block-level election results from recent statewide elections in Kansas. PX 31 ¶¶ 28-33 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 121:25-123:20 (Chen). For his analysis, Dr. Chen uses every statewide general election for nonjudicial office from 2016 to 2020, which amounted to the following nine contests: 2016 U.S. President, 2016 U.S. Senator, 2018 Governor, 2018 Attorney General, 2018 Insurance Commissioner, 2018 Secretary of State, 2018 Treasurer, 2020 U.S. President, and 2020 U.S. Senator. PX 31 ¶ 31 (Chen Rep.); *see* Hr'g Tr. Day 1 Vol. 2 at 121:25-123:20 (Chen). Dr. Chen aggregated the results of these elections into a single composite, referred to as the "2016-2020 Statewide Election Composite." PX 31 ¶ 31 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 121:25-123:20 (Chen).

71. Dr. Chen explained that using statewide elections in this fashion is the established practice

among practitioners, map-drawers, and academics when measuring the partisanship of new districts for several reasons. Hr'g Tr. Day 1 Vol. 2 at 125:3-13 (Chen). First, there are no congressional-level election results available for a new district. Hr'g Tr. Day 1 Vol. 2 at 101:20-102:4 (Chen). Second, past congressional races in old districts may have turned on idiosyncratic factors unique to that race or district that will not affect future races in the new district and that make comparisons across the entirety of a statewide plan difficult. PX 31 ¶ 29 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 125:21-126:19 (Chen). Statewide elections are not affected by unique district-based factors and provide a level statewide basis for comparing new districts' partisanship. PX 31 ¶ 29 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 125:21-126:19 (Chen). Third, statewide results are "really strongly" correlated with underlying partisanship, including voting patterns in congressional elections. Hr'g Tr. Day 1 Vol. 2 at 125:14-125:21 (Chen); *see* PX 31 ¶ 28 (Chen Rep.). Fourth, Dr. Chen explained that statewide election results are also a more reliable indicator of district partisanship than are partisan voter registration counts, which may lag behind voters' actual preferences. PX 31 ¶¶ 28, 30 (Chen Rep.).
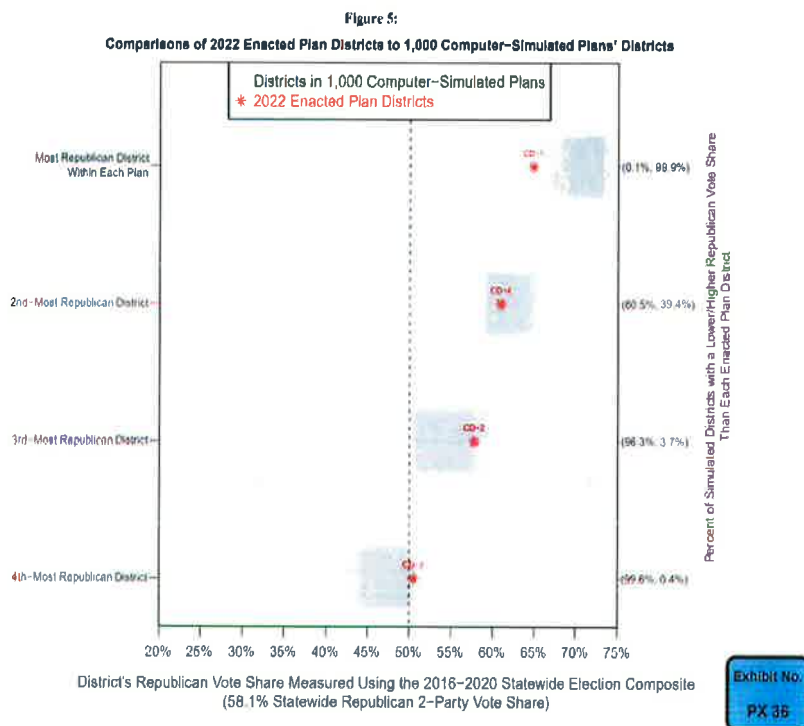
72. By overlaying the 2016-2020 Statewide Election Composite results onto Ad Astra 2, Dr. Chen calculated the Republican share of the votes cast from within each district in Ad Astra 2 and in each simulated plan. PX 31 ¶ 28 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 121:25-123:20 (Chen). Based on these calculations, Dr. Chen directly compared the partisanship of the enacted congressional plan and the simulated plans. PX 31 ¶ 28

(Chen Rep.). Dr. Chen used these comparisons to determine whether the partisanship of individual enacted districts and the partisan distribution of seats in the enacted congressional plan could reasonably have arisen from a nonpartisan redistricting process that adhered to the Guidelines and to traditional redistricting criteria. PX 31 ¶ 30 (Chen Rep.).

73. To measure the partisanship of his simulated districts and the enacted districts, Dr. Chen obtained precinct-level results for the nine elections in the 2016-2020 Statewide Election Composite and aggregated the census block-level results to the district level. PX 31 ¶ 32 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 122:19-123:20 (Chen). Using the census blocks that would comprise a particular district in a given simulation and the actual election results from those census blocks, Dr. Chen calculated the percentage total two-party votes in that simulated district for Republican candidates in the 2016-2020 statewide election contests. PX 31 ¶¶ 32-33 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 122:19-123:20 (Chen).

74. The Court finds that the use of statewide elections by Plaintiffs' experts to measure the partisanship of simulated and enacted districts is a reliable methodology. The Court further credits Dr. Chen's use of the nine elections comprising the 2016-2020 Statewide Election Composite.

75. Figure 5 in Dr. Chen's report, PX 36, compares the partisan distribution of districts in Ad Astra 2 to the partisan distribution of districts in the 1,000 computer-simulated plans:

Figure 5:

Comparisons of 2022 Enacted Plan Districts to 1,000 Computer–Simulated Plans' Districts

76. To make this comparison, Dr. Chen first ordered Ad Astra 2's districts from most to least Republican, as measured by Republican vote share using the 2016-2020 Statewide Election Composite, with the most-Republican district in the top row, the second-most-Republican in the second row, and so on. PX 31 ¶ 35 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 127:2-128:10 (Chen). The red stars mark enacted districts under Ad Astra 2 and are labeled with district numbers. PX 31 ¶ 35 (Chen Rep.); Hr'g Tr. Day 1 Vol. 2 at 127:2-128:10 (Chen). Next, Dr. Chen similarly ordered the districts in each simulated plan from most to least Republican and plotted each simulated district's partisanship in the corresponding row; thus, each gray dot represents