Figure 9: Comparison of efficiency gap on Ad Astra 2 plan, 2012-2020 plan, and other potential plans in Kansas based on composite of statewide elections with other congressional districting plans from 1972-2020 around the country.

Exhibit No.

PX 114

191. Dr. Warshaw concluded that this comparison shows that it is "certainly possible" to draw a Kansas congressional map that does not have the same level of bias as Ad Astra 2. Hr'g Tr. Day 2 Vol. 1 at 105:25-106:4 (Warshaw). In particular, Dr. Warshaw noted that the Mushroom Rock 2 plan considered by the Legislature (included in Figure 9's comparison) kept Johnson County intact within one congressional district, together with most of the Kansas City metro area, but still exhibited a substantially lower efficiency gap than Ad Astra 2. Hr'g Tr. Day 2 Vol. 1 at 105:14-24, 212:3-213:5 (Warshaw). Indeed, Dr. Warshaw testified that Mushroom Rock 2 was not even the most pro-Republican of the proposed, unenacted plans

marked in black in Figure 9. Hr'g Tr. Day 2 Vol. 1 at 212:3-9 (Warshaw). This shows that it was possible to avoid splitting Johnson County while enacting a plan with a much less pro-Republican efficiency gap than Ad Astra 2's. Hr'g Tr. Day 2 Vol. 1 at 213:1-5 (Warshaw).

192. Dr. Warshaw further concluded that this comparison also indicates that "the intent of the Legislature appears to have been to draw the most extreme plan among the plans they had available to them." Hr'g Tr. Day 2 Vol. 1 at 106:5-7 (Warshaw).

193. The Court credits Dr. Warshaw's analysis of the partisan bias reflected in Ad Astra 2 as compared to historical congressional plans, and accepts his conclusions. The Court further credits Dr. Warshaw's analysis of the partisan bias reflected in Ad Astra 2 as compared to the 2012 plan and the other plans considered by the Legislature during the redistricting process, and adopts his conclusions. The Court finds that the efficiency gap is a reliable measure of partisan bias in Kansas's congressional plan. The Court further finds that Ad Astra 2 exhibits a historically extreme pro-Republican bias, as measured by the efficiency gap. The Court finds that Dr. Warshaw's analyses provide persuasive evidence that Ad Astra 2's partisan bias was not the result of political geography or, in particular, a desire to keep Johnson County intact. The Court also finds that Ad Astra 2's relatively high level of partisan bias is persuasive evidence that Ad Astra 2 is an intentional, effective partisan gerrymander.

D. Evidence presented by Dr. Patrick Miller demonstrates that Ad Astra 2 is an intentional, effective partisan gerrymander.

194. Dr. Patrick Miller is a tenured associate professor of political science at the University of Kansas. PX 58 at 2 (P. Miller Rep.); Hr'g Tr. Day 2 Vol. 2 at 5:3-4 (P. Miller). In addition to his full-time teaching and researching responsibilities at the University of Kansas ("KU"), Dr. Miller is a policy fellow at the Docking Institute of Public Affairs at Fort Hays State University. PX 58 at 2 (P. Miller Rep.). At both institutions, Dr. Miller teaches courses specifically related to Kansas politics and political geography. PX 58 at 2 (P. Miller Rep.). Dr. Miller also has a specialty in the history of racial discrimination throughout the state, particularly in Wyandotte County, and during his doctoral studies at the University of North Carolina at Chapel Hill, he completed extensive coursework in quantitative research methodologies. PX 58 at 2-3 (P. Miller Rep.).

195. Dr. Miller has been published more than thirty times in peer-reviewed publications that are among the most prestigious in his field. PX 58 at 75-84 (P. Miller Rep.). Scholars in Dr. Miller's field have cited his published research more than 1,000 times. Hr'g Tr. Day 2 Vol. 2 at 6:14-16 (P. Miller).

196. The Court accepts Dr. Miller in this case as an expert in Kansas politics and the political geography of Kansas as well as in the history of racial discrimination in the state of Kansas. Hr'g Tr. Day 2 Vol. 2 at 8:2-11 (P. Miller). At trial the Court indicated that the

testimony of Dr. Miller was relevant and admissible to the claims of both partisan gerrymandering and racial vote dilution. Hr'g Tr. Day 2 Vol. 2 at 3:6-4:18 (P. Miller).

197. Dr. Miller conducted an analysis of Kansas's congressional maps used in elections between 2012 and 2020, as well as the Legislature's recently enacted Ad Astra 2 congressional districting plan. PX 58 at 2 (P. Miller Rep.). Dr. Miller gathered Kansas's census data from the past 60 years and employed quantitative as well as qualitative methods. *See generally* PX 58 (P. Miller Rep.).

198. Based on his comprehensive and thorough analysis, Dr. Miller concluded that Ad Astra 2 constitutes a partisan gerrymander. *See generally* PX 58 (P. Miller Rep.).

199. After reviewing all statewide elections in Kansas from 2012 to 2020, Dr. Miller concluded that Kansas is not the Republican stronghold it once was. Hr'g Tr. Day 2 Vol. 2 at 10:9-13:8 (P. Miller). While Republicans still garner a majority of the statewide vote, the number of Democratic voters has grown dramatically over the last decade and now constitutes 40 percent of the state's electorate. Hr'g Tr. Day 2 Vol. 2 at 13:9-14:2 (P. Miller).

200. At the same time, support for each party is increasingly geographically segregated; Democrats tend to cluster in urban and suburban areas of the state while Republicans increasingly find their base in the state's rural and exurban areas. Hr'g Tr. Day 2 Vol. 2 at 13:9-14:2 (P. Miller). These trends have only

accelerated in the last decade according to U.S. Census Bureau data and official election returns from the Kansas Secretary of State. Hr'g Tr. Day 2 Vol. 2 at 13:9-14:2 (P. Miller).
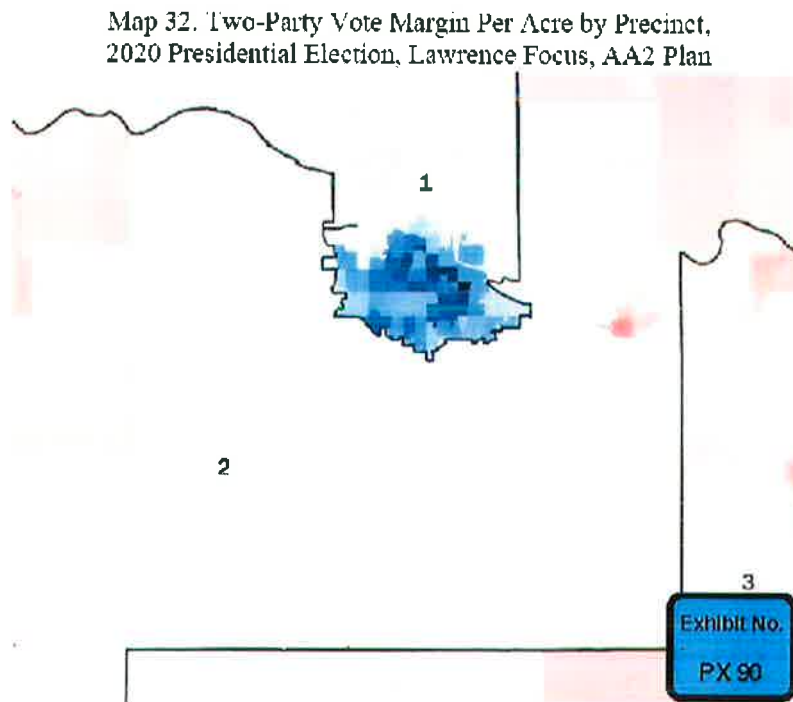
Map 1. County-Level Results, Kansas Gubernatorial Elections, 2002-2018

2002

2006

2010

2014

2018

Blue = Democratic
Red = Republican
Green = tied

Exhibit No.

PX 59
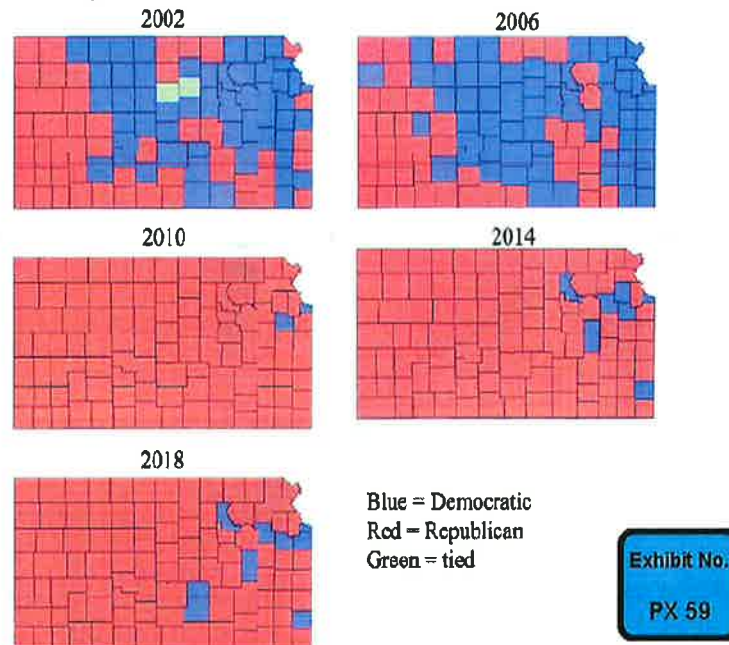
201. Based on these trends, Dr. Miller explained that Democrats are capable of winning statewide offices in Kansas. Of the last five elections for Governor of Kansas, Democrats have prevailed in three contests: in 2002, 2006, and 2018. PX 58 at 6-8 (P. Miller Rep.); PX 61 (P. Miller Map 3); PX 62 (P. Miller Map 4). Dr. Miller's analysis further confirms that the Legislature

created a congressional plan that leans overwhelmingly Republican.

202. *First*, Dr. Miller convincingly showed that Ad Astra 2 carefully scoops the densely populated Democratic stronghold of Lawrence out of Douglas County and CD 2 and places it in the Big First to strengthen the state's Republican advantage. Hr'g Tr. Day 2 Vol. 2 at 50:7-51:19 (P. Miller). The Lawrence "scoop" is depicted in the map below.

Map 32. Two-Party Vote Margin Per Acre by Precinct, 2020 Presidential Election, Lawrence Focus, AA2 Plan


203. This move has two effects: After losing Lawrence, CD 2 "leans so strongly Republican that the votes of Democratic-leaning and minority residents

from Wyandotte are diluted to practical electoral irrelevance." PX 58 at 4 (P. Miller Rep.); *see also* Hr'g Tr. Day 2 Vol. 2 at 47:12-48:4 (P. Miller). Dr. Miller determined that "CD2 would not be a credibly competitive district in congressional races for the next decade." PX 58 at 54 (P. Miller Rep.). As for Lawrence itself, Ad Astra 2 drowns the city's Democratic voters in the overwhelmingly Republican Big First, leaving them with effectively no opportunity to influence the district's electoral outcomes. PX 58 at 62 (P. Miller Rep.).

204. *Second*, Dr. Miller concluded that separating northern Wyandotte County from CD 3 renders that district significantly more Republican and dilutes the votes of Democratic voters "who remain in CD3," "mak[ing] the plan unrepresentative of the overall partisan composition of Kansas." PX 58 at 36-41 (P. Miller Rep.). Indeed, under Ad Astra 2, the Republican advantage in CD 3 increases from 1.0% to 6.6% averaged across elections between 2012 and 2020. PX 58 at 36-37 (P. Miller Rep.). The Wyandotte split was shown by Dr. Miller in the two maps below:

Map 19. Two-Party Vote Margin Per Acre by Precinct,
2020 Presidential Election, CD3 Focus, 2012 Plan

Map 21. Two-Party Vote Margin Per Acre by Precinct, 2020 Presidential Election, CD3 Focus, AA2 Plan
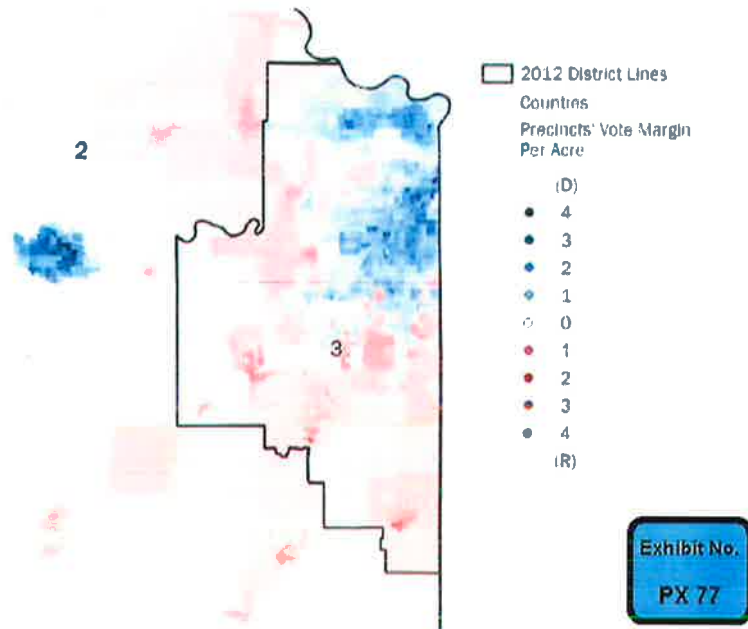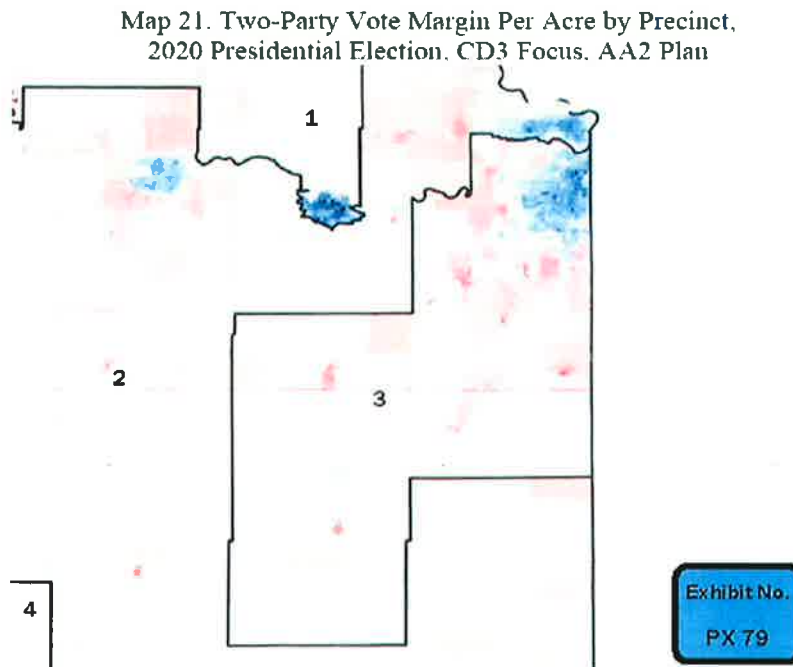
205. *Third*, Dr. Miller testified that enacted CDs 1 and 4 are "strongly and safely Republican" districts, both of which contain overwhelming Republican majorities. PX 58 at 62, 68 (P. Miller Rep.); *see also* Hr'g Tr. Day 2 Vol. 2 at 16:22-17:15 (P. Miller).

206. In sum, Dr. Miller concluded that Ad Astra 2 "is not a result of natural packing or geographic clustering, as those factors should actually facilitate . . . a fair partisan map given partisan voting trends in Kansas and how the population is distributed." PX 58 at 70 (P. Miller Rep.). Instead, an analysis of Ad Astra 2 reveals that its "lines benefit the Republican Party, at the expense of minority Kansas, communities of interest, partisan fairness," and the traditional

redistricting standards reflected in the Guidelines. PX 58 at 70 (P. Miller Rep.).

207. The Court finds Dr. Miller's analysis sound and convincing and concludes, as it has done with respect to Plaintiffs' other experts, that Ad Astra 2 was drawn intentionally and successfully to benefit Republican candidates and voters. During Dr. Miller's live testimony, the Court carefully observed his 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.

E. Evidence presented by Dr. Michael Smith demonstrates that Ad Astra 2 is an intentional, effective partisan gerrymander.

208. Plaintiffs' expert Dr. Michael A. Smith, Ph.D, is a tenured Professor of Political Science and Chair of the Department of Social Sciences, Sociology, and Criminology at Emporia State University. PX 135 at 2 (Smith Rep.); Hr'g Tr. Day 3 Vol. 1 at 8:10-15 (Smith)

209. Dr. Smith's research focuses on state and local politics, including campaigns and elections, election laws, and political history, with particular focus on Kansas and Missouri. Hr'g Tr. Day 3 Vol. 1 at 8:23-9:6 (Smith). Dr. Smith has published journal articles and four books on these topics. PX 135 at 2 (Smith Rep.); Hr'g Tr. Day 3 Vol. 1 at 9:17-10:20 (Smith).

210. The Court accepts Dr. Smith in this case as an expert in Kansas politics and elections and the history thereof.

211. Dr. Smith testified that the Legislature's split of Lawrence from Douglas County could not be explained by neutral redistricting criteria and had the effect of diluting the votes of Democratic voters in the region. PX 135 at 1 (Smith Rep.).

212. Dr. Smith explained that over the last three decades, at "no point was any portion of Lawrence or Douglas County ever located in theBig First, which is centered in the rural, western and central parts of the state." PX 135 at 3-4 (Smith Rep.). Ad Astra 2, however, "scooped" Lawrence out of Douglas County and placed it into the Big First, Hr'g Tr. Day 3 Vol. 1 at 22:16-23:9 (Smith)—a decision, Dr. Smith concluded, that could not be explained by compliance with the Guidelines, *see* PX 135 at 6-10 (Smith Rep.) (summarizing Ad Astra 2's deviations from traditional redistricting principles); Hr'g Tr. Day 3 Vol. 1 at 22:16-26:4 (Smith) (discussing communities of interest); Hr'g Tr. Day 3 Vol. 1 at 26:5-28:4 (Smith) (discussing districts' odd shapes); Hr'g Tr. Day 3 Vol. 1 at 19:11-15, 27:25-30:14 (Smith) (discussing changes to past district boundaries and unnecessary transfer of Kansans between districts).

213. Indeed, Dr. Smith stated that Ad Astra 2's configuration of CD 2 scored poorly on the Polsby-Popper compactness measure, which is "an indication of gerrymandering." PX 135 at 8 (Smith Rep.). Moreover, Dr. Smith explained that Ad Astra 2 fails to abide by the Guidelines' instruction that communities of interest and the cores of existing districts should be kept whole. By severing Lawrence from Douglas County, Ad Astra 2 "divides Douglas County, which is

a community of interest, "PX 135 at 9 (Smith Rep.), and dismantled the "core" of the prior configuration of CD 2, which comprised all of Douglas and Shawnee Counties, PX 135 at 10 (Smith Rep.).

214. On this last point, Dr. Smith also testified that Ad Astra 2 unnecessarily transferred population from Douglas County to the Big First. Hr'g Tr. Day 3 Vol. 1 at 28:5-29:24 (Smith). To achieve population equality, the 2020 census required the Legislature to add 33,855 residents to the Big First. But the population of Lawrence is 94,934, roughly *three times* the number of residents needed to balance CD 1. PX 135 at 11 (Smith Rep.). The Legislature did not need to make this decision; as Dr. Smith testified, "there [were] a number of different ways the Big First could have been redrawn to add an additional 33,000 votes" without splitting Lawrence from Douglas County and while remaining compliant with traditional redistricting factors. Hr'g Tr. Day 3 Vol. 1 at 30:3-14 (Smith).

215. The effects of this unnecessary decision are devastating for Lawrence's overwhelmingly Democratic population. Dr. Smith testified that Ad Astra 2 places Lawrence into "one of the most Republican districts in the United States." Hr'g Tr. Day 3 Vol. 1 at 22:16-23:9 (Smith); *see also* PX 135 at 12 (Smith Rep.). Until now, Lawrence's 72.9% Democratic population resided in CD 2, which has a 41%-54.3% Democratic-Republican split. PX 135 at 12 (Smith Rep.). Although CD 2 has not elected a Democrat, elections in the district have been competitive, making CD 2 a "lean Republican" rather than a "safe Republican" district. PX 135 at 12 (Smith Rep.). Ad Astra 2 dilutes the vote of Lawrence's

overwhelmingly Democratic population by placing it in the Big First, which has significantly fewer Democratic voters and is therefore a "safe Republican" district. PX 135 at 12 (Smith Rep.).

216. Dr. Smith explained that the consequences of Ad Astra 2's reconfiguration of Lawrence will negatively affect political outcomes for Democratic voters in the city. Because CD 2 is not a safe Republican district, it has hosted "heavily-contested elections featuring experienced Democratic candidates who conducted extensive fundraising and mounted strong campaigns, including voter registration and get-out-the-vote efforts in Lawrence and Douglas County." PX 135 at 12-13 (Smith Rep.). These campaigns have had significant voter engagement effects. PX 135 at 13-14 (Smith Rep.); Hr'g Tr. Day 2 Vol. 1 at 31:18-20 (Smith). Even when well-funded candidates lose, "their campaigns help energize voters, boost turnout, and recruit volunteers" and "can also lead to a culture of participation and volunteerism from which future candidates may be recruited." PX 135 at 14 (Smith Rep.). These close races and the attention CD 2 enjoys as a result "helped motivate, register, and turn out [Democratic] voters and volunteers" in Lawrence. PX 135 at 14 (Smith Rep.). Dr. Smith testified that "[t]he redrawing of Lawrence into a noncompetitive district is predicted to suppress voter turnout and other forms of political activity" by eliminating the residents of Lawrence's belief "that their candidates have any realistic chance of winning an election." PX 135 at 14 (Smith Rep.). Dr. Smith put its harply in court: By placing Lawrence in the Big First, the Legislature "disincentiv[izes]" Democratic "voter mobilization,

voter registration, voter turnout, fundraising, all of the activities that build a political base because the election would not be competitive." Hr'g Tr. Day 3 Vol. 1 at 32:1-32:9 (Smith).

217. The Court credits Dr. Smith's expert testimony and finds that it supports the foregoing expert evidence demonstrating the Legislature's partisan intent and the pro-Republican effect Ad Astra 2 will have, particularly with respect to CD 2 and the City of Lawrence. During Dr. Smith's live testimony, the Court carefully observed his 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.

F. Evidence presented by Plaintiffs' fact and expert witnesses demonstrates that Ad Astra 2 disregards communities of interest in support of partisan gains.

218. The testimony of Plaintiffs' fact witnesses establishes that Ad Astra 2 runs roughshod over communities of interest for the purpose of securing maximum Republican advantage. In so doing, Ad Astra 2 pairs together geographically disparate communities that share little in common.

219. First, Ad Astra 2 breaks up the Kansas City metro area. Witnesses at trial were in accord that the Kansas side of the Kansas City metro area constitutes a community of interest. Hr'g Tr. Day 1 Vol. 2 Hr'g Tr. Day 1 Vol. 2 at 225:21-226:6 (Corson); Hr'g Tr. Day 2 Vol. 1 at 16:9-17:5 (Burroughs); Hr'g Tr. Day 2 Vol. 1 at

48:8-18 (Edwards). Witnesses described this area as consisting of Wyandotte County and the suburban and urban areas in the northeastern portion of Johnson County. These communities share a great deal in common, with strong overlaps in their "business sector, . . . healthcare facilities," "transportation, water, and social services," not to mention the many "people who live in Johnson County and work in Wyandotte County." Hr'g Tr. Day 1 Vol. 2 at 225:21-226:6 (Corson); *see also* Hr'g Tr. Day 2 Vol. 1 at 16:17-21 (Burroughs) (testifying that the areas "share major hospitals" as well as "transportation corridors," and noting the "sundown community" that lives in Johnson but works in Wyandotte). In fact, 80% of the educators in Kansas City, Kansas public schools live in Johnson County. Hr'g Tr. Day 2 Vol. 1 at 48:10-18. (Edwards). Additionally, because Wyandotte County does not have a grocery chain, residents are heavily reliant on surrounding communities, including neighboring Johnson County, for groceries. Hr'g Tr. Day 2 Vol. 1 at 47:12-48:7 (Edwards).

220. Expert testimony similarly confirmed that the Kansas City metro area is a community of interest. In discussing the previous congressional plan, Dr. Patrick Miller testified that the former CD 3 reflects the community of interest of the Kansas City metro area, taking account of "all the ways those . . . communities are interrelated." Hr'g Tr. Day 2 Vol. 2 at 27:21-28:5 (P. Miller). Focusing on Wyandotte County in particular, Dr. Rodden confirmed that the county constitutes not only a community of interest, but also a single "political and social and economic unit[]" given Wyandotte's unified county and city government. Hr'g Tr. Day 1 Vol.

2 at 25:14-25 (Rodden). When a congressional map splits Wyandotte County, it "split[s] an important American city right down the middle." Hr'g Tr. Day 1 Vol. 2 at 26:25-27:2 (Rodden). It was for this reason that Dr. Rodden considered "a starting point" for any plan he drafted to "keep Kansas City and Wyandotte together"; it simply "would not have occurred to [him]" to split Wyandotte. Hr'g Tr. Day 1 Vol. 2 at 26:25-27:9 (Rodden).

221. Despite these significant ties within the Kansas City metro area, Ad Astra 2 splits the region in two, dividing Wyandotte County along I-70 and the Kansas River. The result is that major portions of the greater Kansas City area—including the Legends shopping area, Kansas Speedway, KC Park, and Hollywood Casino—are now in CD 2. Hr'g Tr. Day 1 Vol. 2 at 226:20-227:2 (Corson); Hr'g Tr. Day 2 Vol. 1 at 42:17-22 (Edwards). By splitting Wyandotte County alone, Ad Astra 2 divides a county that has had a unified county and city government since 1997. Hr'g Tr. Day 2 Vol. 1 at 41:3-10 (Edwards). It also takes the portion of Wyandotte County that "historically has been disinvested" and separates it from the remainder of the Greater Kansas City area. Hr'g Tr. Day 2 Vol. 1 at 52:7-10 (Edwards). Mildred Edwards, the chief of staff to the Mayor of the Unified Government of Wyandotte County and Kansas City, Kansas, testified that dividing Wyandotte County in this manner is likely to make it more difficult for the city/county government to advocate for federal funds, since a portion of the county will now be represented by a member of Congress with whom the Wyandotte County

unified government has no relationship. Hr'g Tr. Day 2 Vol. 1 at 49:12-20 (Edwards).

222. Additionally, Ad Astra 2 splits the City of Lawrence from the remainder of Douglas County. This is despite the fact that Douglas County has a "joint health department between the city of Lawrence and Douglas County," as well as a "joint city, county, planning commission because [Douglas does] planning from a countywide perspective." Hr'g Tr. Day 2 Vol. 2 at 110:14-20 (Portillo). In her capacity as a Douglas County Commissioner, witness Shannon Portillo represents a district that is now split by Ad Astra 2. Hr'g Tr. Day 2 Vol. 2 at 109:1-7 (Portillo). Portillo testified that the issues on which she advocates are not Lawrence-specific; she handles issues that are countywide. Hr'g Tr. Day 2 Vol. 2 at 110:9-13 (Portillo). Nonetheless, Lawrence and the remainder of Douglas County are now in separate districts.

223. In addition to carving up communities with significant commonality, Ad Astra 2 pairs several far-flung communities that share little in common. In CD 3, as discussed, Ad Astra 2 splits Wyandotte County and pairs its southern portion with Johnson, Miami, Franklin, and Anderson Counties. As a result, a large chunk of the Kansas City metro area is now paired with rural areas in southern Johnson County, as well as Miami, Franklin, and Anderson Counties. Senator Corson, who represents northeast Johnson County, testified that Kansans live in Miami, Franklin, and Anderson Counties precisely because they "don't really prioritize being part of the Kansas City metro and don't see themselves that way," and prefer instead

"a more rural way of life." Hr'g Tr. Day 1 Vol. 2 at 228:11-20 (Corson).

224. On the other side of the divide between CD 2 and CD 3, the pairings are even more confounding. In CD 2, Ad Astra 2 pairs the portion of Wyandotte County that is north of I-70 with a wide array of counties, stretching from the northeast to southeast corner of the state, and westward out to Marion County. Dr. Edwards testified that residents of northern Wyandotte County share "nothing" in common with other communities in CD 2. Hr'g Tr. Day 2 Vol. 1 at 51:5-14 (Edwards). 1.

225. Likewise, Ad Astra 2 places urban Lawrence into the very rural CD 1, which includes counties along the entire Colorado border as well as a large portion of the Oklahoma border. As Dr. Portillo testified, "we're all Kansans, . . . but I don't think there's a unique kind of cultural relationship between the 1st Congressional District and the city of Lawrence." Hr'g Tr. Day 2 Vol. 2 at 113:2-5 (Portillo).

226. The Court credits this testimony from numerous fact and expert witnesses for Plaintiffs and finds it persuasive evidence that the Ad Astra 2 map subordinated communities of interest for partisan gains. In particular, the Court finds that this evidence bolsters the empirical and mathematical findings made by Plaintiffs' experts.

G. Although Former Senate President Susan Wagle was not in the Legislature when Ad Astra 2 was enacted, her comments regarding partisan intent provide additional support for the overwhelming evidence that Ad Astra 2 is an intentional, effective partisan gerrymander.

227. The Court notes that in enacting a partisan gerrymander, Republican legislators delivered on a campaign promise made by former Senate President Susan Wagle. Shortly before the 2020 election, then-Senate President Wagle told a group of Republican activists and donors that Republican legislators could produce a congressional plan "that takes out Sharice Davids up in the third." PX 150; see Hr'g Tr. Day 1 Vol. 2 at 218:11-219:17 (Corson). She boasted: "[W]e can do that. I guarantee you we can draw four Republican congressional maps. But we can't do it unless we have a two-thirds majority in the Senate and House." PX 150; *see* Hr'g Tr. Day 1 Vol. 2 at 218:11-219:17 (Corson).

228. Although Wagle left the Legislature prior to the current redistricting cycle, Senator Corson offered unrebutted testimony that the Senate President serves as the leader of her party; that many current Republican legislators worked with Wagle; and that it is "overwhelmingly likely" that as leader of the Republican caucus, she communicated her policy preferences regarding redistricting to other members of her caucus. Hr'g Tr. Day 1 Vol. 2 at 259:11-260:5, 260:22-261:14 (Corson).

229. Republican legislators seemed to have gotten the message. Despite repeated warnings during floor debates that Ad Astra 2 was unduly partisan and diluted minority votes, *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), Republican legislators still voted in support.

III. Ad Astra 2 intentionally and effectively dilutes the voting power of Wyandotte County's minority communities.

230. Using distinct evidence and analyses, the analysis of three of Plaintiffs' experts—Drs. Rodden, Collingwood, and Chen—shows that Ad Astra 2 intentionally and successfully dilutes the votes of minority voters in Wyandotte County and northern Johnson County.

A. Evidence presented by Dr. Jonathan Rodden demonstrates that Ad Astra 2 intentionally and effectively dilutes minority votes.

231. As discussed above, Dr. Rodden analyzed the racial implications of Ad Astra 2. *See supra* FOF § II.B. Without restating the details of his analyses, in brief, Dr. Rodden found that racial minorities were moved among districts far more often than white Kansans and that they were divided between districts in a way that

contravenes Kansas's racial geography and dilutes minority voting strength.

232. For example, Dr. Rodden testified that under Ad Astra 2, minority Kansans were shifted among districts at rates much higher than the overall population. While Ad Astra 2 kept about 86% of all Kansans in the same districts, it kept just 75% of Black Kansans, 83% of Hispanic Kansans, and 79% of Native American Kansans in their former districts. *See* PX 1 at 26 tbl.3 (Rodden Rep.).

Table 3: Core Preservation in the Enacted Plan and Illustrative Plans as Compared to Prior Plan

	Enacted Plan	Least Change Plan	Community of Interest Plan
Share of **total** population in the same district	86.46%	96.68%	83.39%
Share of **Black** population in the same district	74.88%	99.04%	88.39%
Share of **Hispanic** population in the same district	83.22%	98.47%	90.03%
Share of **Native American** population in the same district	79.44%	98.50%	81.97%

223. Dr. Rodden's racial dislocation analysis confirmed that the nature of the movement of minority Kansans served to crack those communities among districts, such that minority voters as a whole and individual minority groups were placed in districts that do not match the racial composition of their neighborhoods. *See supra* FOF § II.B. Minority Kansans were consistently divided and placed in districts that are far less diverse than would be expected under a neutral map-drawing process. *See supra* FOF § II.B.

234. The Court credits Dr. Rodden's testimony on the racial consequences of Ad Astra 2 and concludes that it was enacted intentionally and effectively to diminish the electoral influence of minority voters in the state.

B. Evidence presented by Dr. Loren Collingwood demonstrates that Ad Astra 2 intentionally and effectively dilutes minority votes.

235. Dr. Loren Collingwood, Ph.D., is an Associate Professor in the Department of Political Science at the University of New Mexico and the founder of Collingwood Research LLC, a research organization that conducts statistical and demographic analysis of political data for a variety of clients. PX 122 at 2 (Collingwood Rep). Dr. Collingwood has "published two books with Oxford University Press, 39 peer-reviewed journal articles, and nearly a dozen book chapters focusing on sanctuary cities, race/ethnic politics, election administration, and racially polarized voting." PX 122 at 2 (Collingwood Rep). Within the field of

American politics, Dr. Collingwood conducts research and teaches in the areas of political behavior, voting behavior, political methodology, applied statistics, and racially polarized voting ("RPV"). Hr'g Tr. Day 3 Vol. 1 at 68:2-7 (Collingwood).

236. Dr. Collingwood has extensive experience in redistricting litigation, having testified on behalf of parties challenging redistricting plans drawn by both the Republican and Democratic parties. Hr'g Tr. Day 3 Vol. 1 at74:20-75:2 (Collingwood). Dr. Collingwood has been retained in at least five other redistricting cases to offer analysis of RPV specifically and racial voting patterns more broadly. PX 122 at 2 (Collingwood Rep.). Courts have consistently credited Dr. Collingwood's work in these cases. Hr'g Tr. Day 3 Vol. 1 at 70:12-17, 96:13-16 (Collingwood).

237. The Court accepts Dr. Collingwood as an expert in American politics, with particular expertise in voting behavior, race and ethnicity, RPV, and political methodology. Hr'g Tr. Day 3 Vol. 1 at 75:13-20 (Collingwood).

238. Dr. Collingwood analyzed the 2012 congressional plan and Ad Astra 2 to determine whether RPV exists in CDs 2 and 3 and to assess whether Ad Astra 2 dilutes the votes of racial minorities. "Racially polarized voting" is a technical term used to describe an electoral environment in which "a majority of voters belonging to one racial/ethnic group vote for one candidate and a majority of voters who belong to another racial/ethnic group prefer the other candidate." PX 122 at 3 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 68:19-69:8 (Collingwood). As

the term RPV is used in Dr. Collingwood's analysis, and in this Court's findings, RPV is an observable fact—not a legal conclusion or standard. Hr'g Tr. Day 3 Vol. 1 at 138:13-139:2 (Collingwood).

239. Dr. Collingwood's RPV analysis relies on aggregating demographic data from U.S. Census data through a method known as "ecological inference." PX 122 at 3 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 69:12-80:15 (Collingwood). Defendants assail the reliability of the ecological inference method by invoking an article authored by Dr. Collingwood and others entitled "eiCompare: Comparing Ecological Inference Estimates across EI and EI:R×C." *See* Hr'g Tr. Day 3 Vol. 1 at 61:12-62:17, 106:8-110:21 (Collingwood); DX 1068 (Collingwood article). As counsel for Defendants emphasized during cross-examination of Dr. Collingwood, the article states, in part, that "[e]cological inference is a widely debated methodology" that "has come under fire for being unreliable, especially in the fields of biological sciences, ecology, epidemiology, public health and many social sciences." DX 1068 at 1 (Collingwood article); *see* Hr'g Tr. Day 3 Vol. 1 at 105:8-110:8 (Collingwood). The article also notes that the "challenges surrounding ecological inference are well documented." DX 1068 at 2 (Collingwood article).

240. What Defendants' counsel did not emphasize, however, is the article's explanation that "within the narrow subfield of racial voting patterns in American elections ecological inference is regularly used" and that the "American Constitution Society for Law and Policy explains that ecological inference is one of the

three statistical analyses that must be performed in voting rights research on racial voting patterns." DX 1068 at1 (Collingwood article);*see* Hr'g Tr. Day 3 Vol. 1 at 61:12-62:17, 71:3-74:8, 105:8-110:8 (Collingwood). Dr. Collingwood specifically testified that questioning the reliability of ecological inference in the field of American politics was not the purpose of the article, Hr'g Tr. Day 3 Vol. 1 at 73:16-74:4 (Collingwood); that ecological inference is the "go-to standard" in assessing RPV, Hr'g Tr. Day 3 Vol. 1 at 71:19-72:5 (Collingwood); and that it is "definitely" a reliable methodology in that context, Hr'g Tr. Day 3 Vol. 1 at 71:19-72:5 (Collingwood). Dr. Collingwood also testified that he has used ecological inference to produce reports and testimony in other redistricting cases and that courts have accepted and credited his testimony in those cases. Hr'g Tr. Day 3 Vol. 1 at 70:12-17 (Collingwood). Furthermore, Defendants' own expert, Dr. Alford, agreed that ecological inference is "by far the most widely used technique" in the field, and indeed that it is the "gold standard" for analyzing RPV. Hr'g Tr. Day 4 Vol. 1 at 21:21-25 (Alford). Based on this testimony, and Defendants' inability to point to any case or academic source questioning the reliability of ecological inference in the field of American politics, the Court finds that ecological inference is a reliable and accurate method for analyzing RPV and racial vote dilution and that Dr. Collingwood used the method reliably. Hr'g Tr. Day 3 Vol. 1 at 66:4-19, 75:11-22 (Collingwood). Using RPV data, derived from ecological inference analysis, the Court can reliably analyze racial voting patterns in districting plans, including in Ad Astra 2.

241. Dr. Collingwood evaluated RPV by considering nine statewide elections that took place in Kansas between 2016 and 2020.[9] Hr'g Tr. Day 3 Vol. 1 at 80:20-81:4 (Collingwood); PX 122 at 3-4 (Collingwood Rep.). Throughout the trial, Defendants criticized Plaintiffs' experts for relying on statewide election results, or "exogenous elections," rather than results from congressional elections carried out in the relevant districts themselves, or "endogenous elections," based one paragraph of a law review article about partisan (not racial) gerrymandering. *See, e.g.*, Hr'g Tr. Day 1 Vol. 2 at 99:25-108:2 (Rodden). Dr. Collingwood testified, however, that the use of statewide elections is necessary to provide constant and consistent results in an environment where particular congressional districts (for example, CD 3), cover different geographic areas and sets of voters between plans (for example, between the 2012 congressional plan and Ad Astra 2). Hr'g Tr. Day 3 Vol. 1 at 81:6-22 (Collingwood). Using statewide election results, he continued, is "extremely common" in analyzing racial voting patterns and is a "reliable indicator[] of future voting patterns." Hr'g Tr. Day 3 Vol. 1 at 81:23-82:3, 96:3-9 (Collingwood). Furthermore, Dr. Collingwood testified that "the most proximate round of elections," which his report used, is "generally going to be the most appropriate" to "get an understanding of how the electorate is now and how it's going to be in the next couple years." Hr'g Tr. Day 3

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[9] One sentence in Dr. Collingwood's report misstates that he analyzed ten statewide elections. PX 122 at 3 (Collingwood Rep.). Dr. Collingwood testified, and the Court accepts, that this was a typographical error that has no bearing on the weight of his testimony. Hr'g Tr. Day 3 Vol. 1 at 80:20-81:4 (Collingwood).

Vol. 1 at 82:6-14 (Collingwood). The Court finds that the statewide election results Dr. Collingwood relied upon are a proper dataset for analyzing RPV.

242. The set of statewide elections upon which Dr. Collingwood's RPV analysis relies is produced in Table 1 of his report and replicated in Plaintiffs' Exhibit 131:

Table 1 List of contests analyzed between 2016-2020. The columns list the year, the candidate names, and whether minorities voted cohesively.

Year	Contest	Dem Candidate	GOP Candidate	2012 CD3 POC Cohesion	Enacted CD3 POC Cohesion	Enacted CD2 POC Cohesion
2020	President	Biden	Trump	YES	YES	YES
2020	U.S. Senate	Bollier	Marshall	YES	YES	YES
2018	Governor	Kelly/Rogers	Koback/Hartman	YES	YES	YES
2018	Secretary of State	McClendon	Schwab	YES	YES	YES
2018	Attorney General	Swain	D. Schmidt	YES	YES	YES
2018	Treasurer	Francisco	LaTurner	YES	YES	YES
2018	Insurance Commissioner	McLaughlin	V. Schmidt	YES	YES	YES
2016	President	Clinton	Trump	YES	YES	YES
2016	U.S. Senate	Wiesner	Moran	YES	YES	YES

Exhibit No. PX 131

243. Using this data, Dr. Collingwood analyzed whether RPV existed in three distinct electoral environments: CD 3 under the 2012 congressional plan, CD 2 under Ad Astra 2, and CD 3 under Ad Astra 2. He set the confidence interval throughout his analysis to 95%, which is the generally accepted standard in the field, and which the Court finds appropriate here. Hr'g Tr. Day 3 Vol. 1 at 90:22-93:25 (Collingwood).

244. First, Dr. Collingwood analyzed RPV in CD 3 under the 2012 congressional plan, which is depicted in Figure 1 of his report. PX 122 at 4-5 & fig.1 (Collingwood Rep.). Figure 1 contains two columns and nine rows, with four horizontal bars presented at the intersection of each row and each column. PX 122 at 4-5 & fig.1 (Collingwood Rep.). The column on the left-hand side displays election returns by racial demographic for the candidate preferred by white voters; the column on the right-hand side displays election results by racial demographic for the candidate preferred by minority voters. PX 122 at 4-5 & fig.1 (Collingwood Rep.). The nine rows, identified on the left-hand side of the chart, correspond to the nine statewide elections Dr. Collingwood analyzed. PX 122 at 4-5 & fig.1 (Collingwood Rep.). The four color-coded bars within reach row display election returns by racial demographic. PX 122 at 4-5 & fig.1 (Collingwood Rep.). For each election, the Figure shows the relevant candidate's share of the white vote (red), Latino vote (green), Black vote (blue), and total minority vote (purple). PX 122 at 4-5 & fig.1 (Collingwood Rep.).

Figure 1. Racially Polarized Voting assessment statewide, subset to 2012-enacted CD-3, for white, Black, Hispanic, and non-white (all).
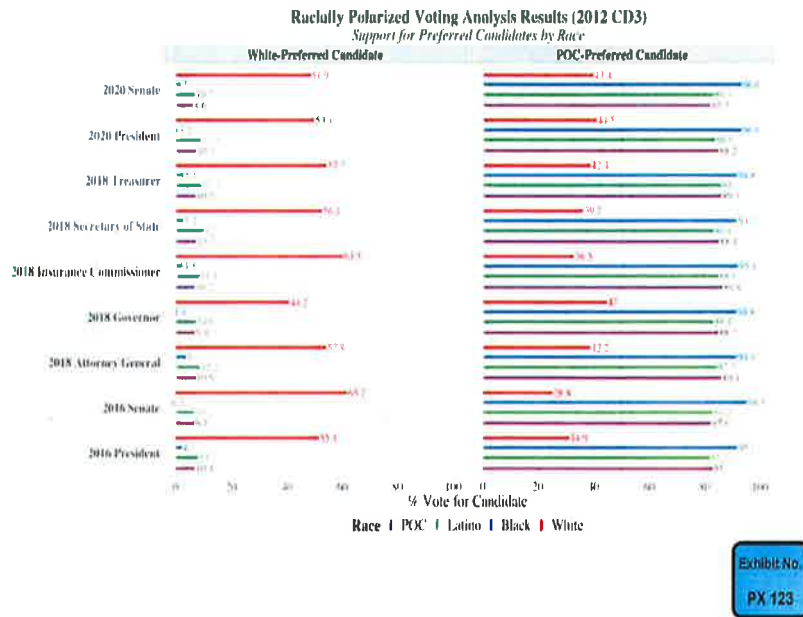
245. Based on the data depicted in Figure 1, Dr. Collingwood concluded that RPV existed in eight of the nine elections he examined in CD 3 under the prior plan. Hr'g Tr. Day 3 Vol. 1 at 82:23-83:3 (Collingwood); PX 122 at 4 (Collingwood Rep.); PX 123 (Collingwood Rep. Fig. 1). The 2018 gubernatorial election, in which Laura Kelly ran against Kris Kobach—and which Dr. Collingwood described as "a unique circumstance," Hr'g Tr. Day 3 Vol. 1 at 100:17-19 (Collingwood)—was the only election in which RPV did not exist, Hr'g Tr. Day 3 Vol. 1 at 82:23-83:3 (Collingwood); PX 122 at 4-5 & fig.1 (Collingwood Rep.); PX 123 (Collingwood Rep. Fig. 1).

246. Second, Dr. Collingwood analyzed RPV in CD 2 under Ad Astra 2, which is depicted in Figure 2 of his

report and reproduced in Plaintiffs' Exhibit 124. PX 122 at 6 & fig. 2 (Collingwood Rep.); PX 124 (Collingwood Rep. Fig. 2). Figure 2 follows the same visual presentation as Figure 1 but uses precinct-level data to plot historic election returns onto the newly enacted map. PX 122 at 4, 6 (Collingwood Rep.). Dr. Collingwood concluded that under Ad Astra 2, RPV would exist in CD 2 in all nine of the elections he studied, including the 2018 gubernatorial election. PX 122 at 5-6 & fig.2 (Collingwood Rep.); PX 124 (Collingwood Rep. Fig. 2).

Figure 2. Racially Polarized Voting assessment statewide subset to newly-enacted CD-2, for white, Black, Hispanic, and non-white
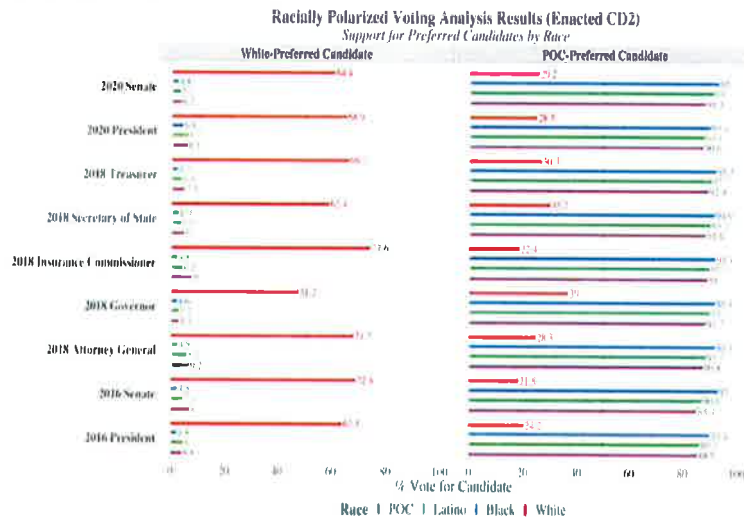

247. Third, Dr. Collingwood analyzed RPV in CD 3 under Ad Astra 2, which is depicted in Figure 3 of his report and reproduced in Plaintiffs' Exhibit 125. PX 122 at 7 (Collingwood Rep.); PX 125 (Collingwood Rep.

Fig. 3). Figure 3 follows the same visual presentation and methodology as Figure 2. PX 122 at 4, 7 (Collingwood Rep.). Dr. Collingwood concluded that like in the prior CD 3, RPV would exist in eight of nine elections in the new CD 3, with the 2018 gubernatorial election remaining the only exception. Hr'g Tr. Day 3 Vol. 1 at 88:20-89:1 (Collingwood); PX 122 at 7 & fig.3 (Collingwood Rep.); PX 125 (Collingwood Rep. Fig. 3).

Figure 3. Racially Polarized Voting assessment statewide subset to newly-enacted CD-3, for white, Black, Latino, and non-white
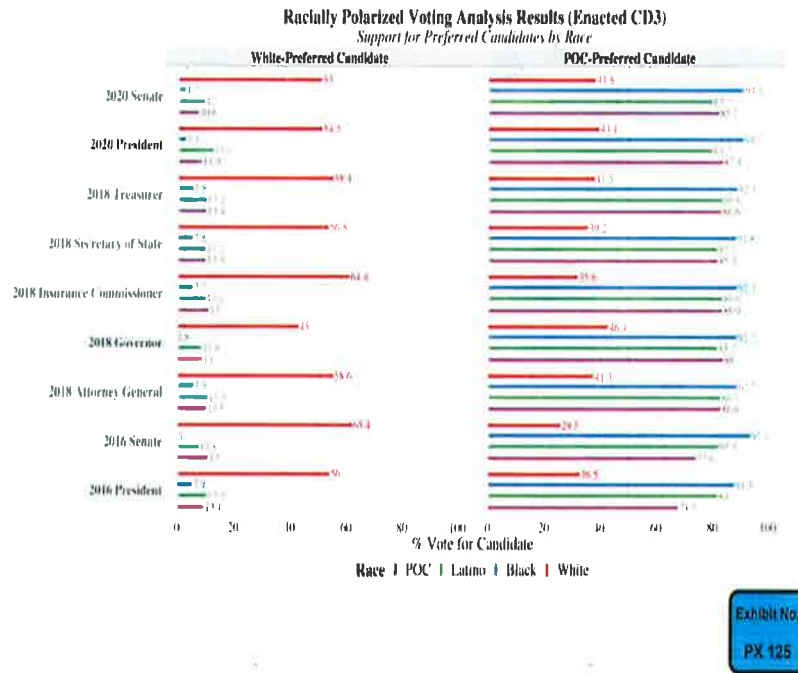
248. Based on this analysis, Dr. Collingwood concluded that RPV is present in each of the three districts he analyzed—the prior CD 3, the new CD 2, and the new CD 3. The Court credits Dr. Collingwood's

RPV analysis and finds that RPV exists in CD 3 under the 2012 congressional plan, CD 2 under Ad Astra 2, and CD 3 under Ad Astra 2.

249. The nuances of Dr. Collingwood's RPV analysis have important implications on minority vote dilution, which is discussed more fully in the following section. Under the prior plan, an average of 40% of white voters in CD 3 voted for the minority-preferred candidate. PX 122 at 5 (Collingwood Rep.). This relatively lower level of RPV—combined with a relatively large and cohesive number of minority voters—made the prior CD 3 a performing crossover district for minority voters. Hr'g Tr. Day 3 Vol. 1 at 83:22-84:8 (Collingwood). Under Ad Astra 2, however, CD 3 contains 7% more white voters than under the prior plan, a dynamic that dilutes minority votes even as the overall level of RPV remains relatively constant. PX 122 at 7 (Collingwood Rep.). Ad Astra 2 also moves over 45,000 minority voters to CD 2, PX 122 at 10 (Collingwood Rep.), where only 28.6% of white voters vote for the minority candidate of choice, PX 122 at 5 (Collingwood Rep.), a far more extreme level of RPV than in CD 3, which will prevent minority voters from electing their preferred candidates.

250. Dr. Collingwood conducted a performance analysis as his principal method of determining whether the RPV in CD 2 and CD 3 translates into minority vote dilution under Ad Astra 2. PX 122 at 7-8 (Collingwood Rep.). To conduct the performance analysis, Dr. Collingwood mapped precinct-level election returns onto the maps for each plan, and subset them to the appropriate district boundaries for

each district he analyzes. PX 122 at 4, 7-8 (Collingwood Rep.). He then totaled the number of votes for the white-preferred candidate and the minority-preferred candidate in the relevant district and divided by the total number of votes to reach a vote share for each candidate in each district. PX 122 at 7 (Collingwood Rep.). This is also known as a reconstituted election analysis. *See* PX 122 at 1-2 (Collingwood Rep.).

251. The results of Dr. Collingwood's performance analysis are depicted in Figure 4 of his report and reproduced in Plaintiffs' Exhibit 126. PX 122 at 8 & fig.4 (Collingwood Rep.); PX 126 (Collingwood Rep. Fig. 4). Figure 4 contains four columns and nine rows. PX 122 at 8 & fig.4 (Collingwood Rep.). The columns represent the prior CD 2, the enacted CD 2, the prior CD 3, and the enacted CD 3 respectively. PX 122 at 8 & fig.4 (Collingwood Rep.). The rows indicate the nine statewide elections Dr. Collingwood analyzed, which are identified on the left-hand side of the Figure. PX 122 at 8 & fig.4 (Collingwood Rep.). The two horizontal bars at the intersection of each column and row display the performance analysis for the white-preferred candidate (green) and minority-preferred candidate (purple) for each respective election. PX 122 at 8 & fig.4 (Collingwood Rep.).

Figure 4. Performance analysis assessment in CD-2 (2012 enacted), CD-2 (2022 enacted), CD-3 (2012 enacted), CD-3 (2022 enacted).

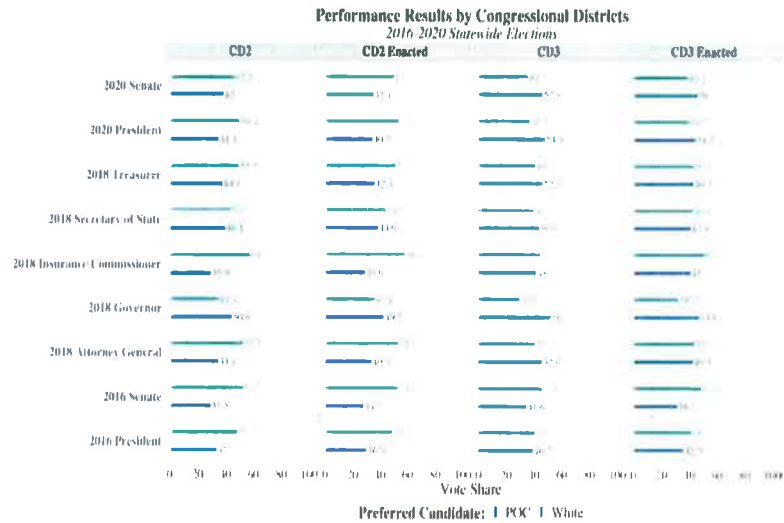Performance Results by Congressional Districts
2016-2020 Statewide Elections

Preferred Candidate: ▮ POC ▮ White

252. Dr. Collingwood's performance analysis demonstrates that Ad Astra 2 has an extreme dilutive effect on the ability of minority voters to elect their preferred candidates. This is true for both the minority voters Ad Astra 2 moves from CD 3 into CD 2 and the minority voters who remain in CD 3. Under the prior plan, minority voters in CD 3 were able to elect their candidates of choice in 75% of the elections in which RPV existed, making CD 3 a performing crossover district for minority voters. PX 122 at 7-8 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 99:5-8 (Collingwood). Ad Astra 2, however, moves over 45,000 minority voters out of CD 3 into CD 2. PX 122 at 10 (Collingwood Rep.). These new CD 2 voters are no longer able to elect their candidate of choice in any of the elections in which RPV

is present—their votes are completely diluted. PX 122 at 7-8 (Collingwood Rep.). At the same time, Ad Astra 2 leaves a portion of Wyandotte County's minority population in CD 3. PX 122 at 10 (Collingwood Rep.). These voters are now able to elect their candidate of choice in only 25% of the elections in which RPV is present—a performance rate 67% lower than the prior CD 3's. PX 122 at 7-8 (Collingwood Rep.).

253. Ad Astra 2's dilution of minority votes, demonstrated by Dr. Collingwood's performance analysis, has the effect of eliminating a performing minority crossover district. Under the prior plan, CD 3 was a performing crossover district for minority voters. *See, e.g.*, PX 122 at 8 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 99:5-8 (Collingwood). But under Ad Astra 2, CD 3 will no longer perform for the minority voters who remain there. *See, e.g.*, PX 122 at 8 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 100:6-9 (Collingwood). Likewise, under Ad Astra 2, CD 2 will not perform for minority voters either—despite the significant number of minority voters moved there from the previously performing CD 3.[10] *See, e.g.*, PX 122 at 8 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 100:10-101:14 (Collingwood). Indeed, minority voters in CD 2 have even less opportunity to elect their preferred candidates than do white Democrats in CD 3 and white Republicans throughout the state. *See, e.g.*, PX 122 at

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[10] This is, in large part, because Ad Astra 2 moves the heavily Democratic city of Lawrence out of CD 2 and into CD 1. PX 122 at 7 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 101:17-21 (Collingwood).

8 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 101:22-102:4 (Collingwood).

254. Dr. Collingwood reinforced his performance analysis with a demographic analysis that provides further evidence that Ad Astra 2 dilutes minority votes. Figures 5 through 8 in Dr. Collingwood's report depict Dr. Collingwood's demographic analysis, and Table 4 contains additional data underlying the Figures. PX 122 at 11-15 (Collingwood Rep.). Figure 8, in particular, highlights the surgical manner in which Ad Astra 2 excises the census blocks with the most concentrated minority populations from CD 3 into CD 2.

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Kansas CD 3 POC Distribution
(2012 vs. 2022 Enacted)
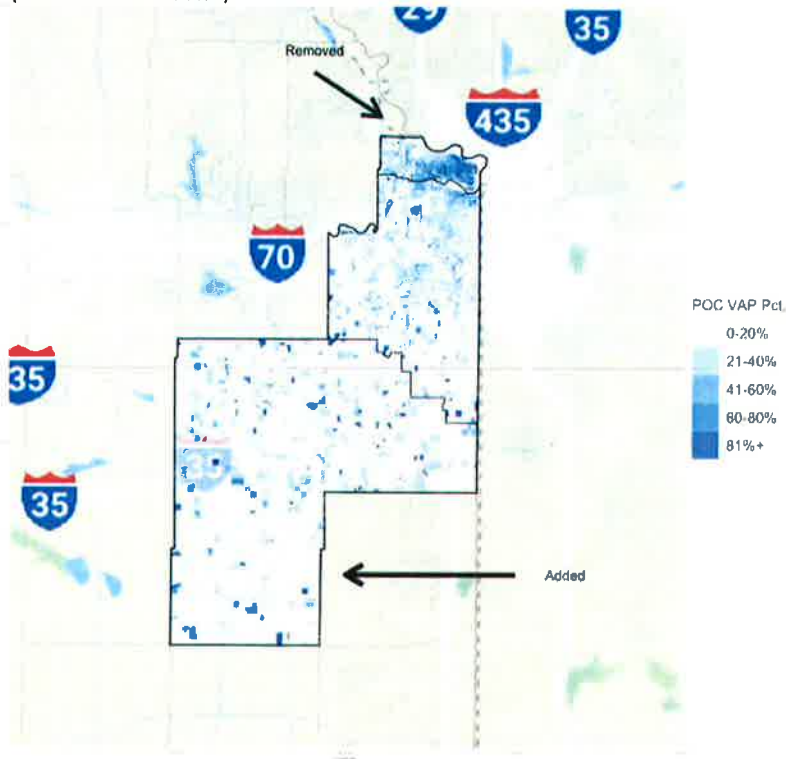
255. Using U.S. Census data, Figure 8 depicts
block-level demographics for the geographic regions
that Ad Astra 2 removes from CD 3, retains in CD 3,
and introduces to CD 3. PX 122 at 13-14 (Collingwood
Rep.). The more lightly shaded the area, the whiter its
population; the more darkly shaded the area, the
greater its minority population. PX 122 at 13-14
(Collingwood Rep.). The arrow positioned at the
Figure's top left-hand side identifies the portion of
Wyandotte County that Ad Astra 2 moves out of CD 3

into CD 2. PX 122 at 13-14 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 103-04 (Collingwood). The arrow positioned at the Figure's bottom right-hand side identifies the counties Ad Astra 2 moves into CD 3 for the first time. PX 122 at 13-14 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 103-04 (Collingwood). The middle portion of the Figure contains Johnson County and the portion of Wyandotte County that remains in CD 3 under Ad Astra 2. PX 122 at 13-14 (Collingwood Rep.); Hr'g Tr. Day 3 Vol. 1 at 103:12-104:7 (Collingwood).

256. Figure 8 illustrates that although CD 2 and CD 3 now have minority voting age populations ("VAPs") of 26.7% and 22.1% respectively, PX 122 at 10 (Collingwood Rep.), the portion of Wyandotte County severed from CD 3 into CD 2 is 66.21% minority—over three times the minority VAP in CD 3 as a whole, PX 122 at 14-15 (Collingwood Rep.). Ad Astra 2 then compensates for this population loss in CD 3 by adding counties from the southwest that are 90.3% white. PX 122 at 14 (Collingwood Rep.). In Dr. Collingwood's view, this makes Ad Astra 2 among the starkest cuts along racial lines that he has "ever seen" in his professional work. Hr'g Tr. Day 3 Vol. 1 at 104:8-11 (Collingwood).[11]

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[11] The Court finds that the legislative proponents' suggestion that the location of I-70 explains the stark racial division in the map is pretextual. Any number of highways that do *not* split the district along racial lines were available to be selected, and as explained below, the enacted plan departs from 94.9% of Dr. Chen's simulated plans in its demographic and electoral composition with respect to minority voters.

257. The Court credits Dr. Collingwood's analysis and finds that Ad Astra 2 has an extreme dilutive effect on the vote share of minority voters in both CD 2 and CD 3. The Court further finds that that the minority vote dilution in Ad Astra 2 has the effect of eliminating a performing crossover district for minority voters and replaces it with a plan that will not perform for minority voters in any congressional district. Finally, the Court finds that the racially discriminatory effects of Ad Astra 2 are particularly pronounced—and entirely distinct from its partisan effects—because the plan treats Democratic minority voters considerably worse than it treats white Democratic and white Republican voters.

258. Based on Dr. Collingwood's analysis, the Court concludes that there is persuasive evidence that the Legislature intended to dilute minority voting strength by cracking minority voters in northern Wyandotte into CD 2 and by drowning the minority voters who remain in CD 3 in an overwhelmingly white district. Not only does Dr. Collingwood's analysis provide uncontroverted evidence of minority vote dilution, it is also persuasive evidence the Legislature intended the result it achieved, in light of the reasonable inferences the Court draws from all the direct and circumstantial evidence.

259. First, courts can reach a strong inference that the Legislature intended the natural, foreseeable results of its actions—particularly where has here there is no countervailing evidence to rebut that inference. *See infra* FOF §§ IV, V. As the Court's entire discussion of Dr. Collingwood's analysis makes plain,

his report is replete with evidence that Ad Astra 2 has the effect of diluting minority votes to an extreme degree.

260. Moreover, Ad Astra 2's effect on minority voters was widely discussed in the legislative debate, and Senate President Masterson expressly acknowledged that the plan carved out the largest concentration of minority voters in the state. *See, e.g.*, PX 168 at 31:24-32:8, 67:10-17-73:21 (transcript of January 20, 2022 Senate Redistricting Committee hearing). In an exchange with Senate President Masterson, Senator Corson recited in detail the map's projected impact on minority voters. He explained that the plan would shift 25,240 Black voters and 70,288 Hispanic voters out of CD 3, removing nearly one-half of its Black population and one-third of its Hispanic population. PX 168 at 67:10-17, 68:13-22. He also noted that Kansas's population growth did not require this result. Senator Corson pointed out that an available alternative, the proposed map entitled "United," would actually *increase* CD 3's minority population. PX 168 at 68:23-69:4.

261. In response, the majority party acknowledged Ad Astra 2's dilutive effects. Senate President Masterson, who introduced Ad Astra 2, acknowledged that he was "aware" that Wyandotte County is the state's most diverse county and replied, "I appreciate that" to Senator Corson's figures, but characterized them as "red herrings" and "political arguments." PX 168 at 32:3-8, 70:10, 73:11, 76:15. Minority votes could not be "deprived," in Senator Masterson's view, "when they have the right to vote." PX 168 at 72:1-2. To settle

whether Ad Astra 2's vote dilution was unlawful, Senator Masterson concluded, "I'm sure we'll be able to get that through a court of law and figure that answer." PX 168 at 73:19-21.

262. While awareness alone does not establish invidious intent, it raises a strong inference that the outcome that was achieved was intended, particularly where, as here, the negative effect on the targeted group is so extreme and so foreseeable. Indeed, Dr. Collingwood's demographic analysis underscores the surgical precision with which the Legislature divided Wyandotte County on racial (and not merely partisan) lines. PX 122 at 14 (Collingwood Rep.). The Court finds that the discriminatory effects Dr. Collingwood's report shows are powerful evidence of the Legislature's intent to dilute minority votes.

263. Second, Dr. Collingwood's analysis demonstrates that Ad Astra 2 has substantially more negative effects on minority voters than it does on white voters. In his testimony, Dr. Collingwood explained that although minority voters preferred the Democratic candidate in each election he analyzed, the Court should not mistake that trend for evidence that Ad Astra 2 treats minority Democrats the same way it treats white Democrats. Hr'g Tr. Day 3 Vol. 1 at 142:14-22 (Collingwood). Indeed, Dr. Collingwood testified that Ad Astra 2 treats minority Democrats much less favorably than it treats white Democrats. Hr'g Tr. Day 3 Vol. 1 at 142:23-143:14 (Collingwood). Under Ad Astra 2, minority Democrats in CD 2 have a "very low" chance of electing their candidate of choice; in fact, with the exception of the 2018 gubernatorial

race, enacted CD 2 never performs for minority Democrats. Hr'g Tr. Day 3 Vol. 1 at 100:17-21 (Collingwood); *see* PX 122 at 7-8 (Collingwood Rep.). Meanwhile, in CD 3, where most of the district's Democrats are white, Democrats have an opportunity to elect their preferred candidate in three of the nine elections Dr. Collingwood analyzed (including the 2018 gubernatorial election). PX 122 at 7-8 (Collingwood Rep.). The result is that by moving minority Democrats into CD 2, and leaving white Democrats in CD 3, Ad Astra 2 dilutes minority votes even when controlling for partisan affiliation—a result that could have been avoided by moving white Democrats or white Republicans from CD 3 to CD 2 instead. Hr'g Tr. Day 3 Vol. 1 at 143:11-144:7 (Collingwood). The Court therefore finds that Ad Astra 2 has a more negative effect on minority voters than on white voters, which is additional evidence of the Legislature's intent to dilute minority voters' political voices.

264. Third, Dr. Collingwood's testimony also makes clear that Ad Astra 2 substantively departs from prior plans as it relates to minority voters. As discussed above, the plan moves over 45,000 minority voters out of CD 3 into CD 2, cracking apart a performing crossover district so that minority voters can no longer elect their candidate of choice in either CD 2 or CD 3. PX 122 at 10 (Collingwood Rep.). To achieve this effect, Ad Astra 2 is drawn with pinpoint precision to move the most densely populated minority census blocks from CD 3 and place them into CD 2. PX 122 at 14-15 (Collingwood Rep.). The result is that Wyandotte County—the state's only majority-minority county—is split for the first time in decades and that CD 3, which

previously had the highest minority population of any congressional district in the state, now has the lowest minority population of any congressional district in the state. Hr'g Tr. Day 3 Vol. 1 at 104:22-25 (Collingwood). In light of this testimony, the Court finds that Ad Astra 2 substantively departs from prior plans as it relates to minority voters, which, again, is evidence that the Legislature intended to dilute the votes of racial and ethnic minorities.

265. The Court credits Dr. Collingwood's findings, finds his analysis and testimony to be reliable, places great weight on his testimony, and adopts each of his conclusions. During Dr. Collingwood's live testimony, the Court carefully observed his 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.

C. Evidence presented by Dr. Jowei Chen demonstrates that Ad Astra 2 intentionally and effectively dilutes minority votes.

266. As discussed above, the Court accepts Dr. Chen as an expert in redistricting, political geography, and redistricting simulation analysis. *See supra* FOF § II.A; Hr'g Tr. Day 1 Vol. 2 at 117:4-14 (Chen).

267. Dr. Chen examined whether Ad Astra 2 dilutes minority votes using a computer simulation technique. PX 31 ¶ 71 (Chen Rep.). Dr. Chen's simulation process, which the Court has already explained in depth, *see supra* FOF § II.A, ignores all racial considerations

when drawing districts and instead produces 1,000 simulated maps programmed to adhere to the Guidelines and other "traditional districting criteria." PX 31 ¶¶ 7-9 (Chen Rep.). Dr. Chen's simulation of a large number of districting plans that adhere to these criteria enables him to assess whether a particular plan is more dilutive of minority vote share than expected from a plan that solely follows neutral districting criteria in the context of Kansas's political geography. Hr'g Tr. Day 1 Vol. 2 at 154:19-155:14 (Chen).

268. Dr. Chen assessed the level of minority vote dilution in Ad Astra 2 by comparing the minority VAP in the most-Democratic district under Ad Astra 2 (that is, the district most favorable to the minority-preferred candidate[12]) to the minority VAP in the most Democratic district in each of his 1,000 simulated plans. PX 31 ¶ 72 (Chen Rep.). Under Ad Astra 2, the most-Democratic district is CD 3, which has a Republican vote share of 50.6% and a minority VAP of 22.14%. PX 31 ¶ 73 (Chen Rep.).

269. Figure 13 of Dr. Chen's report depicts the comparison between the minority VAP of Ad Astra's CD 3 and the minority VAP in the most-Democratic district in each of Dr. Chen's 1,000 simulated plans. PX 31 fig.13 (Chen Rep.). In the Figure, the red star represents Ad Astra 2's most-Democratic district, CD 3, and the 1,000 gray circles represent the most-

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[12] In Kansas, the "most-Democratic district" corresponds to the district most likely to elect a minority-preferred candidate. *See, e.g.,* Hr'g Tr. Day 3 Vol. 1 at 119:24-120:3 (Collingwood).

Democratic district in each of the simulated plans. PX 31 ¶ 74 (Chen Rep.). The minority VAP of each district is indicated on the vertical axis and Republican vote share in each district is indicated on the horizontal axis. PX 31 ¶ 74 (Chen Rep.).

Figure 13:

Comparison of the Most-Democratic District in the 2022 Enacted Plan and in the 1,000 Computer-Simulated Plans

Republican Vote Share of the Most-Democratic District in Each Plan
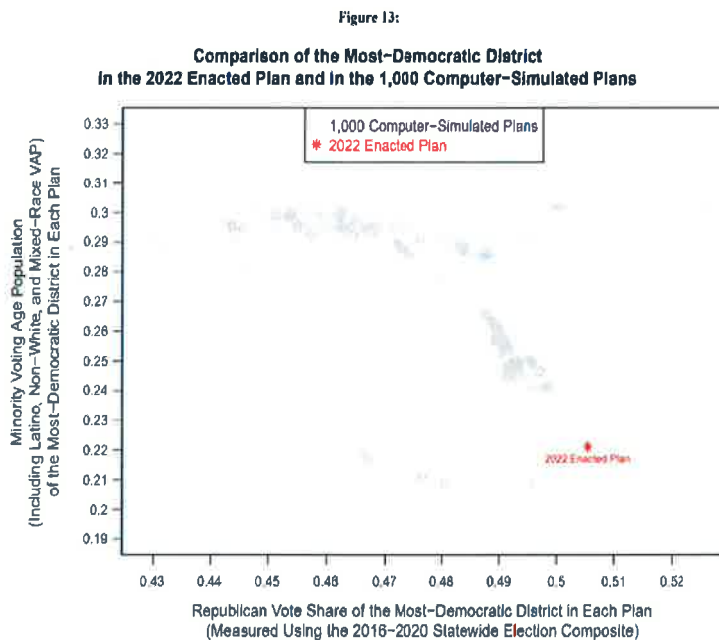(Measured Using the 2016-2020 Statewide Election Composite)

Exhibit No. PX 31

270. Figure 13 demonstrates that the minority VAP in Ad Astra 2's most-Democratic district is a low-end outlier relative to the minority VAP in the most-Democratic districts in the computer-simulated plans. PX 31 ¶ 75 (Chen Rep.). Whereas most of the simulated districts have minority VAPs between 24% and 30%, CD 3 has a minority VAP of just 22.14%. PX 31 ¶ 74 (Chen Rep.). CD 3's minority VAP "is lower than 94.9%

of the most-Democratic districts in the 1,000 simulated plans." PX 31 ¶ 74 (Chen Rep.). From this analysis, Dr. Chen concluded that Ad Astra 2 has the effect of diluting minority votes. Hr'g Tr. Day 1 Vol. 2 at 154:19-155:14 (Chen).

271. The Court credits Dr. Chen's analysis of whether the minority VAP in the most-Democratic district in Ad Astra 2 is an outlier as compared to the most-Democratic districts in plans that adhere to traditional districting criteria. Accordingly, the Court finds that Ad Astra 2 has the effect of diluting minority vote strength by exporting minority voters out of the district in which they have the best opportunity to elect their preferred candidate. Moreover, the Court finds that Dr. Chen's analysis is compelling evidence that the Legislature intended to dilute minority voting strength. The fact that 94.9% of the simulated plans have a higher minority share in the most Democratic district—the district in which minority voters are likeliest to elect their preferred candidate—than does Ad Astra 2 demonstrates that the removal of minority voters from CD 3 in Ad Astra 2 was purposeful, and not explained by some neutral justification.

D. Evidence presented by Dr. Patrick Miller demonstrates that Ad Astra 2 intentionally and effectively dilutes minority votes.

272. Dr. Miller also analyzed the racial effects of Ad Astra 2. *See generally* PX 58 (P. Miller Rep.).

273. Dr. Miller testified that race is a foundational element of Kansas politics. PX 58 at 13 (P. Miller Rep.); Hr'g Tr. Day 2 Vol. 2 at 16:22-17:15 (P. Miller).

274. The racial composition of the state has changed over the last decade. As of the 2020 census, Kansas has a minority population of at least 25%. Hr'g Tr. Day 2 Vol. 2 at 17:16-18:5 (P. Miller). That figure represents significant growth since the 2010 census, particularly in the state's most populous counties like Douglas, Johnson, and Wyandotte. PX 63 (P. Miller Map 5). Meanwhile, the overall white population of Kansas declined by more than 100,000, or 4.3%. Hr'g Tr. Day 2 Vol. 2 at 18:11-19:21 (P. Miller).

275. Mirroring geographic differences in the state's partisan breakdown, most minority Kansans reside in urban communities, Native American reservations, southwest Kansas, and military communities, whereas the state's white population predominantly resides in more rural regions. PX 58 at 14 (P. Miller Rep.).

276. Kansas has a long history of racial violence and terror. Hr'g Tr. Day 2 Vol. 2 at 16:22-17:15 (P. Miller). Professor Brent Campney conducted extensive research into this history, particularly focusing on the years 1861 to 1927. During that period, Dr. Campney found direct evidence of 37 lynchings, 105 threatened lynchings, 42 racially motivated homicides, 26 killing be police, 26 race riots, and 22 racially motivated muggings. PX 58 at 15-16 (P. Miller Rep.); *see also* Hr'g Tr. Day 2 Vol. 2 at 20:24-21:7 (P. Miller). Nineteen of these incidents occurred in Wyandotte County. PX 58 at 16 (P. Miller Rep.).

277. Kansas also has a long history of racial segregation in its public and private educational facilities and in its residential housing. The seminal U.S. Supreme Court case *Brown v. Board of Education*, 347 U.S. 483 (1954), arose from Topeka's public schools. PX 58 at 16-17 (P. Miller Rep.). And Kansas long saw highly racially segregated residential areas in Wyandotte County and across the state. In the 1930s, the federal Home Owners' Loan Corporation surveyed Wyandotte County and assigned its lowest grade, D, to any neighborhoods that had significant populations of "negroes" or "Mexicans." Hr'g Tr. Day 2 Vol. 2 at 21:8-25:6 (P. Miller); PX 58 at 17-19 (P. Miller Rep.).

278. Kansas's racial discrimination extended even to its infrastructure. Interstate I-70 and its precursor, the Kansas Turnpike, were built by dividing many of these minority neighborhoods, including Argentine, Armourdale, and Rosedale. PX 58 at 17-19 (P. Miller Rep.). In this way, I-70 became a permanent fixture built along, and reinforcing, significant racial scars. PX 58 at 17-19 (P. Miller Rep.). Indeed, I-70 continues to divide minority communities to this day. PX 58 at 21-22 (P. Miller Rep.).

279. Dr. Miller has shown that Ad Astra 2 exacerbates Kansas's racial divisions.

280. He testified that Ad Astra 2 "has a disastrous effect on minority Kansans" in CD 2. PX 58 at 46 (P. Miller Rep.). Although CD 2 becomes more diverse under the new plan, it remains "overwhelmingly White," while the map "simultaneously makes" the district "more Republican." PX 58 at 47 (P. Miller Rep.); *see also* Hr'g Tr. Day 2 Vol. 2 at 31:8-32:9 (P. Miller).

"Indeed, the new CD2 is arguably so Republican-leaning that its new minority, Democratic-leaning residents from northern Wyandotte have no credible chance to meaningfully impact elections in the district. In effect, [Ad Astra 2] neutralizes them to the point of arguable irrelevance." PX 58 at 47 (P. Miller Rep.).

281. Dr. Miller also explained that Ad Astra 2 negatively impacts the state's Native American community. Under the prior congressional plan, CD2 contained "all four reservations in Kansas." PX 58 at 48 (P. Miller Rep.). Ad Astra 2, however, splits this community by separating the Prairie Band Potawatomi reservation into CD 1, further dividing and diminishing the "potential political power" of "this already small population." PX 58 at 48 (P. Miller Rep.).

282. Enacted CD 3 is similarly flawed. Since it was drawn in 2012 by the U.S. District Court for the District of Kansas, the district has gone from a relatively reliable Republican district to something much "bluer over the course of the decade." Hr'g Tr. Day 2 Vol. 2 at 27:6-13 (P. Miller). Ad Astra2 dismantles the district by "crack[ing] Wyandotte County along racial lines and add[ing] significant white populations to CD3—transforming it from the most racially diverse district in Kansas to the least racially diverse." PX 58 at 38 (P. Miller Rep.); *see also* Hr'g Tr. Day 2 Vol. 2 at 33:23-35:14 (P. Miller). As a consequence, CD 3's minority voices are now drowned out by the district's new, overwhelmingly white population. The Wyandotte split is shown by Dr. Miller in the two maps below:

Map 16. Minority Population Percentage by VTD in 2020 Census, CD3 in 2012 Plan
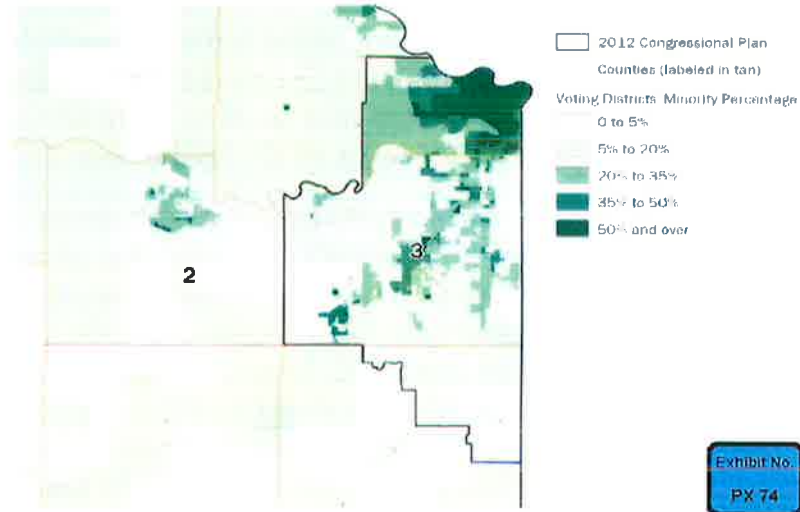
Map 18. Minority Population Percentage by VTD in 2020 Census, Wyandotte in AA2 Plan
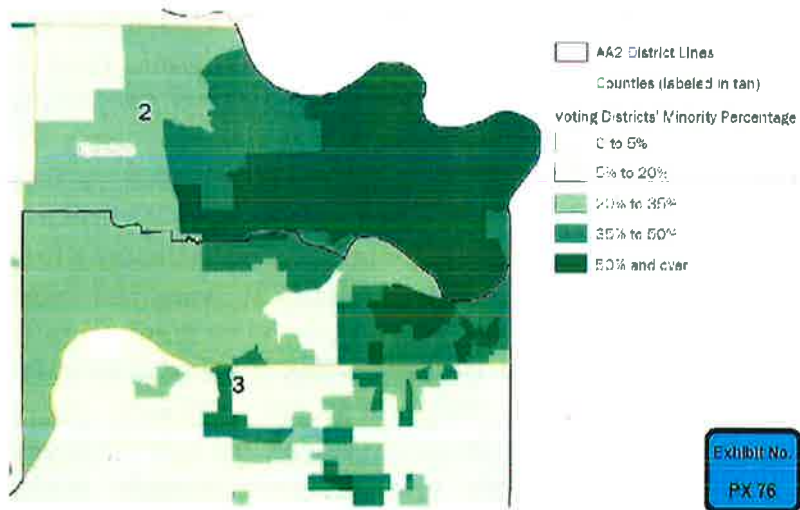
283. The Legislature did not need to make this choice. As Dr. Miller testified, the Legislature could