EXHIBIT 7

Preliminary Expert Report: Development of an Illustrative Plan with New Majority Black Districts for Arkansas' State House Districts

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A. Introduction

1. I have been retained by counsel to determine whether it is possible to draw an illustrative plan ("Illustrative Plan") with more majority-Black state House districts in Arkansas than the eleven contained in the Board of Apportionment's final plan.

B. Background

2. The State of Arkansas has a Board of Apportionment ("BOA" or "Board"), comprised of the Governor, the Secretary of State, and the Attorney General, that is charged with redrawing the boundaries of the state's 100 House of Representatives districts (HDs) following each federal decennial Census.

3. The BOA adopted its final plan for the state House (the "Board Plan") on November 29, 2021. It filed the plan with the Secretary of State on the same day, and the plan became effective under Arkansas law on December 29, 2021.

C. Qualifications

4. I received a Bachelor of Science degree in Electrical Engineering (BSEE) from Virginia Tech in 1982 and a Master of Geospatial Information Science and Technology (MGIST) degree from N.C. State University in 2016.

5. I am a demographic and mapping consultant and the CEO/Principal Consultant of CensusChannel LLC, and have more than thirty years of experience working on redistricting issues. I have developed nearly one thousand redistricting plans during the last three redistricting cycles for jurisdictions of all sizes, ranging from statewide plans to redistricting plans for small municipalities. I have also provided consulting services for numerous non-profit and public-sector groups focusing on redistricting plan development, analysis, and training.

6. I have worked extensively on redistricting issues as a Master on behalf of municipalities and as a member of a team of experts that developed court-ordered remedial maps, and as both a consulting and testifying expert in federal and state courts across the country, including in Virginia, Texas, Alabama and North Carolina. I have also served as Consulting Demographer (2000 & 2010) and Project Director (2010) for the Congressional Black Caucus Institute's Redistricting Project. In those roles, I provided redistricting plan development, review, and analysis, and answered questions from members of congress and staff pertaining to the redistricting process. Finally, during the 2010 redistricting cycle, I was one of two Project Managers for a week-long redistricting expert preparation session sponsored by Duke University's Center for the Study of Race,

Ethnicity, and Gender in the Social Sciences (REGSS) and the Southern Coalition for Social Justice (SCSJ).

7. My redistricting/GIS experience and work as an expert are contained within my attached resume (*see* Appendix A).

D. Software, Data, and Processing

8. I used Maptitude for Redistricting ("Maptitude") by Caliper Corporation to develop the Illustrative Plan in this report. Maptitude for Redistricting is one of the leading redistricting software applications utilized by governments, nonprofit groups, and consultants to develop redistricting plans. I used ArcGIS by ESRI Corporation to generate the printed maps, and I primarily used Microsoft Excel to develop the district statistics tables that were exported from Maptitude. ESRI is one of the leading GIS companies, and Microsoft is a leader in software applications.

9. I acquired, processed, and utilized the following materials during this effort:

   a. The 2020 Census Data for total population and voting age population (VAP) were obtained from Caliper Corporation's dataset for the state of Arkansas. The 2019 5-Year ACS estimate citizen voting-age population (CVAP) data were obtained at the block group level from the Redistricting Data Hub's website.[1] The 2019 1-Year ACS estimate CVAP data were obtained from the Census Bureau website.[2]

   b. The current state legislative House district boundaries and potential communities of interest (*e.g.* cities, colleges/universities, major parks, etc.) were also obtained from Caliper Corporation's Arkansas dataset. BOA district boundaries were obtained from the BOA website.[3]

   c. Arkansas school district boundary files were obtained from the Arkansas GIS Office website.[4]

   d. Incumbent residence data were obtained from the counsel for the plaintiffs who received them from the Arkansas GIS office.

E. Summary Findings

A summary of my conclusions and opinions includes the following:

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[1] The Redistricting Data Hub provides access to redistricting related data. *See* https://www.redistrictingdatahub.org.
[2] https://census.gov
[3] https://arkansasredistricting.org/maps-2/
[4] https://gis.arkansas.gov/product/public-school-district-boundary-polygon/

10. It is possible to draw an Illustrative Plan that contains at least sixteen majority-Black House districts that adhere to federal and state (BOA) redistricting criteria – an additional five majority-Black House districts compared to the Board Plan.

11. The Illustrative Plan performs as well or better than the Board Plan on at least eight of ten redistricting criteria (equal population [one-person, one-vote], contiguity, compactness, political subdivision splits [county and precinct[5]], splits of cities[6], landmark splits, fracking, and incumbent pairings).

12. Thus, the Illustrative Plan easily meets the first of three preconditions of *Thornburg v. Gingles*, 478 U.S. 30, 56 (1986), which requires demonstrating that the minority population is sufficiently numerous and geographically compact to enable the creation of at least one additional single-member majority-minority district.[7] Arkansas' Black population, which is now more than 16% of the state's total population, is sufficiently large and geographically compact to draw sixteen majority-Black House districts.

F. Redistricting Criteria

13. Prior to plan development, I reviewed the Arkansas State Constitution[8] and the BOA's Redistricting Criteria and Goals[9] (the "BOA Guidelines") that outline redistricting criteria for legislative plans.

14. The Arkansas Constitution contains only one redistricting criterion – that of "one person, one vote" or a requirement that each House district contain roughly the same population.

15. The BOA Guidelines supplement the Arkansas Constitution and provide additional redistricting guidance, which I also followed during the plan development process:

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[5] Voting Tabulation Districts ("VTDs") were used in place of precincts. VTDs are created by the U.S. Census Bureau and are generated using census blocks. They are, in many places, similar to or exactly match precincts.
[6] This includes towns and Census Designated Places ("CDPs"). CDPs are statistical geographic areas of unincorporated communities. They are usually locally recognized and identified using a particular name.
[7] *Thornburg v. Gingles*, 478 U.S. 30, 56 (1986), is the seminal United States Supreme Court case that sets out the framework for challenges to Section 2 vote dilution claims. Under *Gingles*, a voter or public interest group challenging the constitutionality of a redistricting plan must show three preconditions for a vote-dilution claim under Section 2. The first precondition of *Gingles* requires demonstration that the minority population is sufficiently numerous and geographically compact to enable the creation of at least one additional single-member majority-minority district. The second precondition requires the minority group to show that it is politically cohesive. *Id.* at 51. The third precondition requires the minority to demonstrate that the white majority votes sufficiently as a bloc to enable it—in the absence of special circumstances, such as the minority candidate running unopposed—usually to defeat the minority's preferred candidate. *Id.* Where those three preconditions are met, Section 2 then requires the court to determine, based on a review of the "totality of the circumstances," whether the challenged practice results in unequal electoral opportunity for minority voters. *Id.* at 79.
[8] The relevant Arkansas constitutional language is found in Article VIII.
[9] The Arkansas Board of Apportionment Redistricting Criteria and Goals are listed on the BOA's website, https://arkansasredistricting.org/about-the-process/redistricting-criteria-and-goals/.

a. Equal Population – The BOA Guidelines state: "One person, one vote: balancing of each of the legislative districts every ten years, after the Federal Census, so that they are 'substantially equal' (generally +/-5% deviation)."

Equally populating election districts within a specific population deviation is required in order to adhere to the "one person, one vote" requirement of the Fourteenth Amendment's Equal Protection Clause.[10] Courts have ruled that the district population for state legislative and local jurisdictions should not deviate overall more than 10% from the ideal population size.[11] The BOA Guidelines have refined the criteria to ±5%. Since the ideal population size of Arkansas' House districts is 30,115, a five percent deviation represents approximately 1,506 persons. Put differently, House districts can range from 28,609 to 31,621 persons under the BOA Guidelines.

b. Contiguity – The BOA Guidelines state: "Contiguous, continuity, (Latin: to have contact with) touching, common border. No Partial districts that are islands."

Contiguity ensures that there are no parts of a district that are separated from the district itself. There are exceptions to contiguity. For example, Arkansas treats areas separated only by water as contiguous. Contiguity can be measured using Maptitude for Redistricting.

c. Compactness – The BOA Guidelines state: "Compactness, one of 4 geographic principles, or the 'eyeball test,' refers to the shape of a district, round or square."

Compactness refers to how irregularly shaped or dispersed a district is compared to an ideal compact area. Geographic compactness can be demonstrated by analyzing the districts using compactness measures.[12] Many compactness measures, such as the ones used in this report, are developed such that the measure's value ranges from 0 to 1; the closer the value is to 1, the more compact the district. The districts were analyzed using three of the most widely used compactness measures, Reock, Polsby-Popper, and Convex Hull.[13]

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[10] A series of Supreme Court cases helped define the equal population criteria, beginning with: *Baker v. Carr*, 369 U.S. 186 (1962); *Gray v Sanders*, 372 U.S. 368 (1963); *Reynolds v. Sims*, 377 U.S. 533 (1964); and *Evenwel v. Abbot*, 136 S. Ct. 1120 (2016).

[11] *See Gaffney v. Cummings*, 412 U.S. 735 (1973).

[12] Compactness measurements quantify the geographic shape of the districts as compared to a designated perfectly compact shape, such as a circle.

[13] *Maptitude for Redistricting* documentation defines the compactness measures as follows: 1) "…the Reock test computes the ratio of the area of the district to the area of the minimum enclosing circle for the district."; 2) "The Polsby-Popper test computes the ratio of the district area to the area of a circle with the same perimeter: 4pArea/(Perimeter2)."; 3) Convex Hull "…computes only a ratio of the area of the district to the area of the convex hull of the district, without regard to population within the areas." Convex Hull is routinely referred to as a "rubber-band" enclosure or polygon.

d. Minimizing Political Subdivision Splits – The BOA Guidelines state: "The core of existing districts: whole counties, whole cities, whole precincts is the goal. Minimize splitting political subdivisions."

As a traditional redistricting principle or criteria, minimizing the splitting of political subdivisions keeps intact political entities such as cities, counties, precincts, and voting tabulation districts (VTDs). This report focuses on VTDs as the primary political subdivision.[14] VTDs are generated by the U.S. Census Bureau to approximate election precincts. Reducing or minimizing split political subdivisions generally reduces costs in administering elections.

e. Preservation of Communities of Interest – The BOA Guidelines state: "Communities of interest: commonalities of economic, social, political, cultural, ethnic, or religious interests."

Preservation of communities of interest is the goal of maintaining a specific population group within a defined geographic area where the group shares one or more common interests (*e.g.*, economic, social, cultural, or ethnic interests). Minimizing splits tends to ensure that these voters can collectively vote for the same representatives.

f. Minimizing Pairing Incumbents – The BOA Guidelines state: "Continuity of representation: Incumbency, will of the voters. Try to avoid making incumbents run against each other."

Minimizing the pairing of incumbents includes reducing the number of incumbents that are drawn into the same district.

g. Minimizing Partisanship – The BOA Guidelines state: "Minimize partisanship: No targeting or giving preferential treatment. Beware of salamanders, little fingers, or abrupt lines to draw someone in or out of a district."

Prohibiting the favoring or disfavoring of an incumbent, candidate, or party is a goal in many states throughout the country. The concept is to limit or eliminate favoring a specific person or partisan group. The BOA also dissuades the configuration of districts in a noncompact manner to include or exclude an incumbent or potential candidate. With the exception of Black voter effectiveness analysis, no other election data were used in this report.

16. The BOA Guidelines also state that "Section 2 of the VRA of 1965 (as amended) prohibits discrimination based on race, color, or language minority." The BOA Guidelines additionally state that the "Equal Protection Clause of the Fourteenth Amendment limits redrawing district boundaries strictly based on race." The Illustrative

[14] Throughout this report, the term precinct will be used in place of the Census' designation of VTD.

Plan that was developed did not discriminate based upon race or draw district boundaries on race.

G. Demographic Profile of the State of Arkansas

17. According to the latest decennial Census, the state of Arkansas' population was 3,011,524 in the year 2020 (*see* Table 1). This amount was an increase of 95,606 persons over the 2010 population of 2,915,918. However, the White population decreased during that same period of time from 2,173,469 to 2,063,550 (a decrease of 109,919 persons). All other major races/ethnicities increased from 2010 to 2020. The Hispanic or Latino (Latino) population increased the most (70,797) out of all of the major race/ethnicity groups. Although the Black population decreased according to Not Hispanic Alone[15] percentage (15.33% to 14.94%), when reviewing the "Any Part"[16] Black population,[17] there was an increase from 2010 to 2020 (16.07% to 16.47%).

Table 1 – Population of Arkansas by Race/Ethnicity (2010 & 2020)

	2010		**2020**		**2010 to 2020 Increase**
Race/Ethnicity	**#**	**%**	**#**	**%**	**#**
Total Population	2,915,918	100.00%	3,011,524	100.00%	95,606
Hispanic or Latino	186,050	6.38%	256,847	8.53%	70,797
White	2,173,469	74.54%	2,063,550	68.52%	-109,919
Black	447,102	15.33%	449,884	14.94%	2,782
American Indian	20,183	0.69%	20,549	0.68%	366
Asian	35,647	1.22%	51,210	1.70%	15,563
Pacific Islander	5,509	0.19%	14,280	0.47%	8,771
Some Other Race	2,121	0.07%	8,047	0.27%	5,926
Two or More Races	45,837	1.57%	147,157	4.89%	101,320
Any Part Black	468,710	16.07%	495,968	16.47%	27,258

Source: U.S. Census Bureau 2010 and 2020 data

Note: All races are Not Hispanic Alone categories except for the Any Part Black

[15] The Alone category includes only surveyed persons who selected one race (*e.g.* single race Black or single race White, etc.)

[16] The "Any Part" or "All Parts" Black includes surveyed persons who select Black Alone and Black and in combination with any race. Also, included are Hispanic Black population as well.

[17] In *Georgia v. Ashcroft*, 539 U.S. 461, the Court found it acceptable to combine all persons who self-identified themselves in the 2000 Census survey as Black in determining majority minority districts. That includes Black in combination with other races to include both Hispanic and Not Hispanic Black persons. https://casetext.com/case/georgia-v-ashcroft-2. The Department of Justice (DOJ) has also provided guidance on using multiple race categories in voting rights analysis. For instance, for the Black population, this includes adding non-Hispanic persons who identify as Black Alone plus Black and White multiracial persons. If other multiple race categories have significant numbers, they would be added as well. https://www.justice.gov/opa/press-release/file/1429486/download

18. The state of Arkansas' voting age population was 2,312,273 in 2020 (Table 2). That amount was an increase of 107,830 over the 2010 VAP of 2,204,443. However, the White VAP decreased during that same period of time from 1,708,907 to 1,653,772 (a decrease of 55,135 persons). All other major races/ethnicities increased from 2010 to 2020. The Latino VAP increased the most (50,908) out of all of the major race/ethnicity groups, while the Black VAP increased the second highest (17,348). The percentage of Latinos above 18 years in the state grew from 5.04% in 2010 to 7.01% in 2020. The percentage of Black VAP grew from 14.24% to 14.33% for Not-Hispanic Black Alone. When viewing Any Part Black, the VAP percentage grew from 14.57% to 15.22% from 2010 to 2020.

Table 2 – Voting Age Population of Arkansas by Race/Ethnicity (2010 & 2020)

	2010		**2020**		**2010 to 2020 Increase**
Race/Ethnicity	**#**	**%**	**#**	**%**	**#**
VAP	2,204,443	100.00%	2,312,273	100.00%	107,830
Hispanic or Latino VAP	111,094	5.04%	162,002	7.01%	50,908
White VAP	1,708,907	77.52%	1,653,772	71.52%	-55,135
Black VAP	313,887	14.24%	331,235	14.33%	17,348
American Indian VAP	14,876	0.67%	15,691	0.68%	815
Asian VAP	26,790	1.22%	39,675	1.72%	12,885
Pacific Islander VAP	3,171	0.14%	8,250	0.36%	5,079
Some Other Race VAP	1,032	0.05%	5,260	0.23%	4,228
Two or More Races VAP	24,686	1.12%	96,388	4.17%	71,702
Any Part Black VAP	321,201	14.57%	351,878	15.22%	30,677

Source: U.S. Census Bureau 2010 and 2020 data

Note: All races are Not Hispanic Alone categories except for the Any Part Black

19. The Citizen Voting Age Population (CVAP) percentage for the state according to the 2019 American Community Survey, the most recent citizenship data available shows an increase for the White and Black population over the VAP (*see* Table 3). The Latino CVAP decreases to 3.85%. The White CVAP is 77.28%, and the Black CVAP is 15.45%.

Table 3 – Citizen Voting Age Population of Arkansas by Race/Ethnicity (2019 1-Year ACS)

	2020	
Race/Ethnicity	**#**	**%**
CVAP	2,235,415	100.00%
Hispanic or Latino CVAP	86,066	3.85%
White CVAP	1,727,484	77.28%
Black CVAP	345,456	15.45%
American Indian CVAP	15,089	0.67%

Table 3 – Citizen Voting Age Population of Arkansas by Race/Ethnicity (2019 1-Year ACS)

Asian CVAP	24,055	1.08%
Pacific Islander CVAP	2,135	0.10%
Some Other Race CVAP	48,443	2.17%
Two or More Races CVAP	41,170	1.84%

Source: U.S. Census Bureau 2019 1-Year ACS CVAP

Note: All races categories are "Alone" category

H. General Plan Development Approach

General

20. I deployed the following general approach for plan development of the House districts:

a. The starting point for development of the Illustrative Plan was the enacted 2011 district boundaries (the "Current Plan") with the updated 2020 Census Data included.[18] The Illustrative Plan utilized the Current Plan, the last legally enacted plan, as the baseline prior to the adoption of the Board Plan.

b. A Voting Tabulation Districts (VTDs) layer was used as the dominant building block for the House plan.[19]

c. County boundaries were overlayed in the Maptitude system during plan development and were visible throughout the redistricting process to guide in minimizing split counties. Political subdivision split reports were periodically generated to view the actual number of splits.

d. Insofar as possible, communities of interest ("COI") were preserved by periodically overlaying cities, colleges/universities, military bases, major parks, and other potential communities in Maptitude while the Illustrative Plan was developed. Periodically, COI split reports were generated to identify the number of splits for each category. Once again, periodically as well as near the end of the plan, compactness reports were generated to view computational measures.

e. A layer that included the incumbent resident locations was displayed on an ongoing basis during the drawing process. This assisted in minimizing the pairing of incumbents as well as in identifying the districts without incumbents.

[18] I began developing the Illustrative Plan shortly after the Census Bureau released the 2020 Census data (PL94-171) in September 2021 and prior to the adoption of the Board Plan.

[19] For the most part, VTDs follow precinct boundaries. However, many state legislative bodies use VTDs instead of precincts because VTDs follow Census block boundaries where precincts many times do not.

21. The Census' voting-age population race categories of "Any Part" Black ("BVAP") and CVAP Not-Hispanic Black Alone ("BCVAP") were used in determining majority Black status for the districts.

I. Current Plan's Majority-Black Districts

22. The Current Plan has twelve majority Black BVAP districts (*see* Table 4).[20]

23. The Current Plan's majority-Black House districts are centered in four areas of the state (*see* Figure 1). Five majority-Black districts currently exist in Pulaski County in the Central Arkansas region (HD29, 30, 34, 36, and 37).

24. Three districts are along the Mississippi River in the Upper Delta region (HD48, 50, and 55). Three other majority Black districts are located in the Lower Delta region (HD12, 16, and 17). One more majority Black House district (HD5) exists in the Southwest Arkansas region.

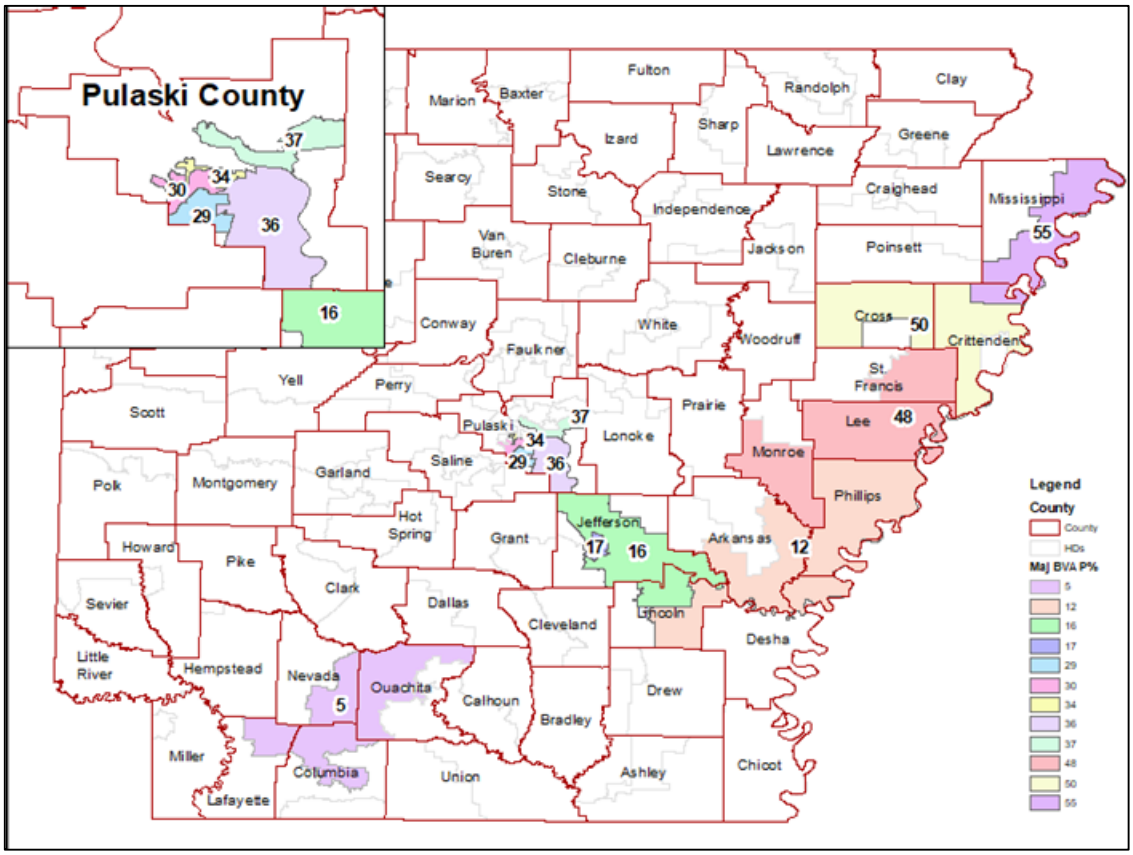


Figure 1 – Arkansas Current Plan's Majority Black Districts

Source: Maptitude Arkansas Legislative Districts

[20] Two of the Current Plan's majority-BVAP districts, HD5 and 55, are below 50% BCVAP.

Table 4 - Arkansas Current Plan's Majority Black Districts Race/Ethnicity%

Dist	Pop	Devn	% Devn	HVAP	WVAP	BVAP	HCVAP	WCVAP	BCVAP
005	24,127	-5,988	-19.88%	2.07%	43.74%	52.01%	1.87%	50.77%	46.70%
012	22,304	-7,811	-25.94%	1.98%	43.53%	53.05%	1.78%	44.24%	53.50%
016	27,536	-2,579	-8.56%	2.24%	33.82%	61.56%	1.09%	40.97%	56.51%
017	23,226	-6,889	-22.88%	1.92%	20.04%	76.35%	0.97%	20.28%	77.86%
029	30,605	490	1.63%	22.84%	19.75%	55.67%	7.35%	24.54%	67.60%
030	30,754	639	2.12%	9.49%	27.26%	59.71%	2.47%	31.72%	64.02%
034	28,949	-1,166	-3.87%	9.26%	29.04%	59.51%	2.36%	35.19%	60.62%
036	28,312	-1,803	-5.99%	11.16%	30.05%	56.40%	2.73%	34.18%	62.11%
037	28,779	-1,336	-4.44%	5.67%	30.00%	61.31%	2.08%	35.29%	60.89%
048	24,333	-5,782	-19.20%	3.13%	36.91%	58.18%	2.65%	38.98%	57.27%
050	24,703	-5,412	-17.97%	1.72%	42.95%	53.40%	1.08%	39.89%	53.49%
055	24,216	-5,899	-19.59%	3.23%	42.89%	51.91%	2.07%	46.89%	49.44%

Source: U.S. Census Bureau 2020 Decennial Census and 2019 5-Yr ACS

J. The Board's Majority-Black Districts

25. The Board Plan has eleven majority-Black BVAP districts (*see* Table 5).[21] Compared to the Illustrative Plan, the Board Plan has five fewer majority-Black BVAP districts.

Table 5 - Arkansas Board Plan's Majority Black Districts Race/Ethnicity%

Dist	Pop	Devn	% Devn	HVAP	WVAP	BVAP	HCVAP	WCVAP	BCVAP
035	30,871	756	2.51%	2.67%	40.56%	54.32%	1.05%	40.99%	52.37%
062	29,200	-915	-3.04%	2.15%	43.29%	52.97%	1.50%	43.70%	54.24%
063	29,965	-150	-0.50%	2.77%	40.95%	54.17%	2.74%	45.52%	49.19%
064	30,482	367	1.22%	2.94%	27.36%	67.84%	1.36%	33.91%	63.53%
065	30,297	182	0.60%	2.27%	29.26%	66.75%	0.99%	31.86%	66.08%
066	30,632	517	1.72%	5.35%	39.12%	51.95%	1.76%	47.09%	48.83%
072	30,115	0	0.00%	8.84%	35.64%	52.41%	3.57%	38.07%	57.20%
076	29,928	-187	-0.62%	10.15%	21.32%	67.65%	1.93%	25.45%	71.40%
077	29,990	-125	-0.42%	10.58%	29.20%	55.97%	3.33%	32.78%	60.29%
079	30,065	-50	-0.17%	20.81%	19.28%	57.90%	6.74%	23.10%	69.66%
080	30,091	-24	-0.08%	10.58%	33.99%	52.92%	2.58%	37.48%	58.93%

Source: U.S. Census Bureau 2020 Decennial Census and 2019 5-Yr ACS

[21] Two of the Board Plan's majority-BVAP districts, HD63 and 66, are below 50% BCVAP.

26. As Figure 2 shows, six majority-Black House districts exist in Pulaski county in the Central Arkansas region (HD66, 72, 76, 77, 79, and 80). Two districts are along the Mississippi River in the Upper Delta region (HD35 and 63). Three other majority-Black districts are located in the Lower Delta region (HD62, 64, and 65). The Board Plan eliminates the majority-Black district in Southwest Arkansas as well as one of the three majority-Black districts in the Upper Delta (the northernmost of the three Upper Delta districts, generally following HD55 in the Current Plan and running along the river through most of Mississippi county).

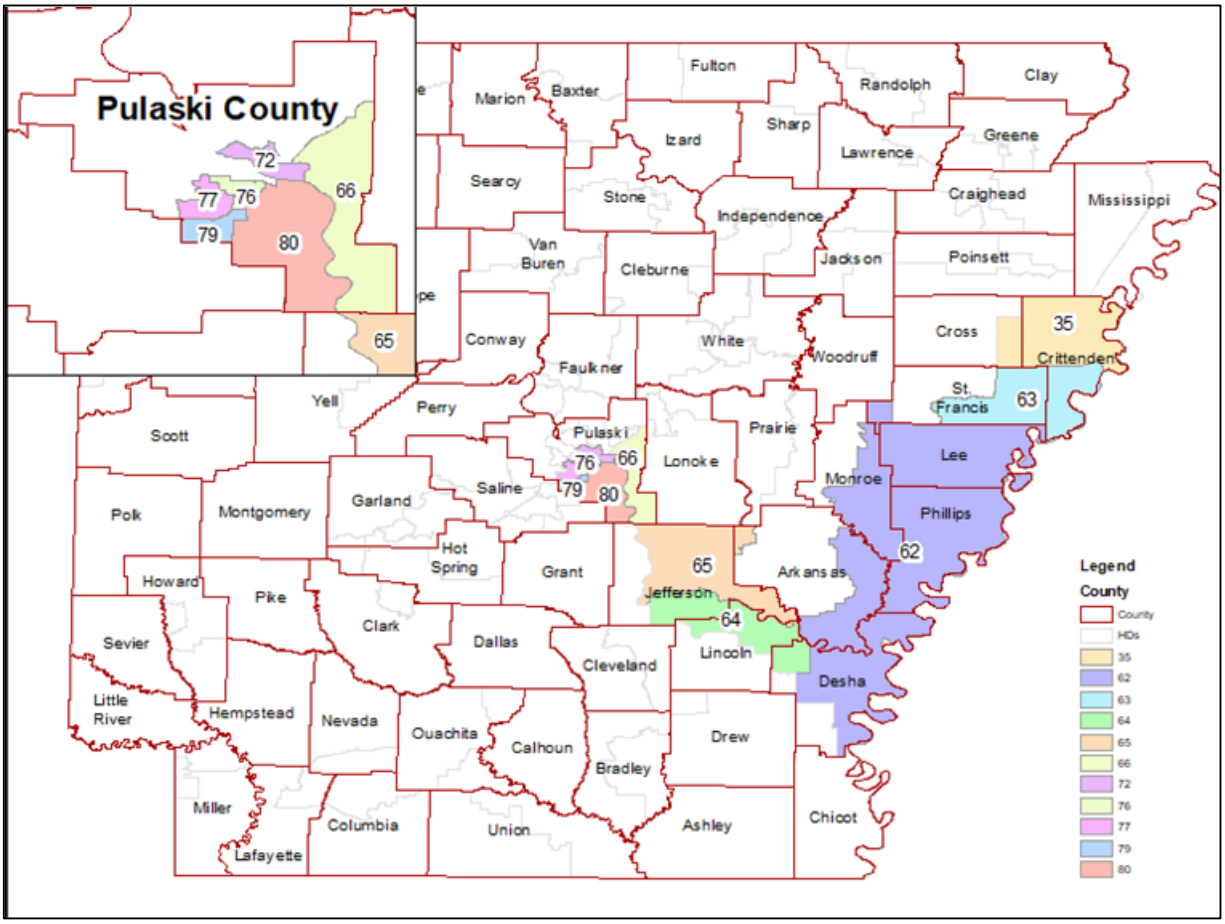


Figure 2 – Arkansas Board Plan's Majority-Black Districts

Source: Arkansas Board of Apportionment

K. The Illustrative Plan's Majority-Black Districts

27. The Illustrative Plan has sixteen majority-Black districts when measured using both BVAP and BCVAP data (*see* Table 6). The Illustrative Plan's sixteen majority-BVAP and BCVAP districts are: HD5, 11, 12, 16, 17, 29, 30, 33, 34, 36, 37, 42, 48, 50, 51, and 55 (*see* Figure 4). This means that the Illustrative Plan has five additional majority BVAP

districts compared to the Board Plan and four additional majority BVAP districts compared to the Current Plan.

28. Seven majority-Black House districts exist in Pulaski county in the Central Arkansas region (HD29, 30, 33, 34, 36, 37, 42). Three majority-Black districts are along the Mississippi River in the Upper Delta region (HD50, 51, and 55). There are five majority-Black districts in the Lower Delta region (HD11, 12, 16, 17, and 48). One more majority-Black House district (HD5) exists in the Southwestern Arkansas region.

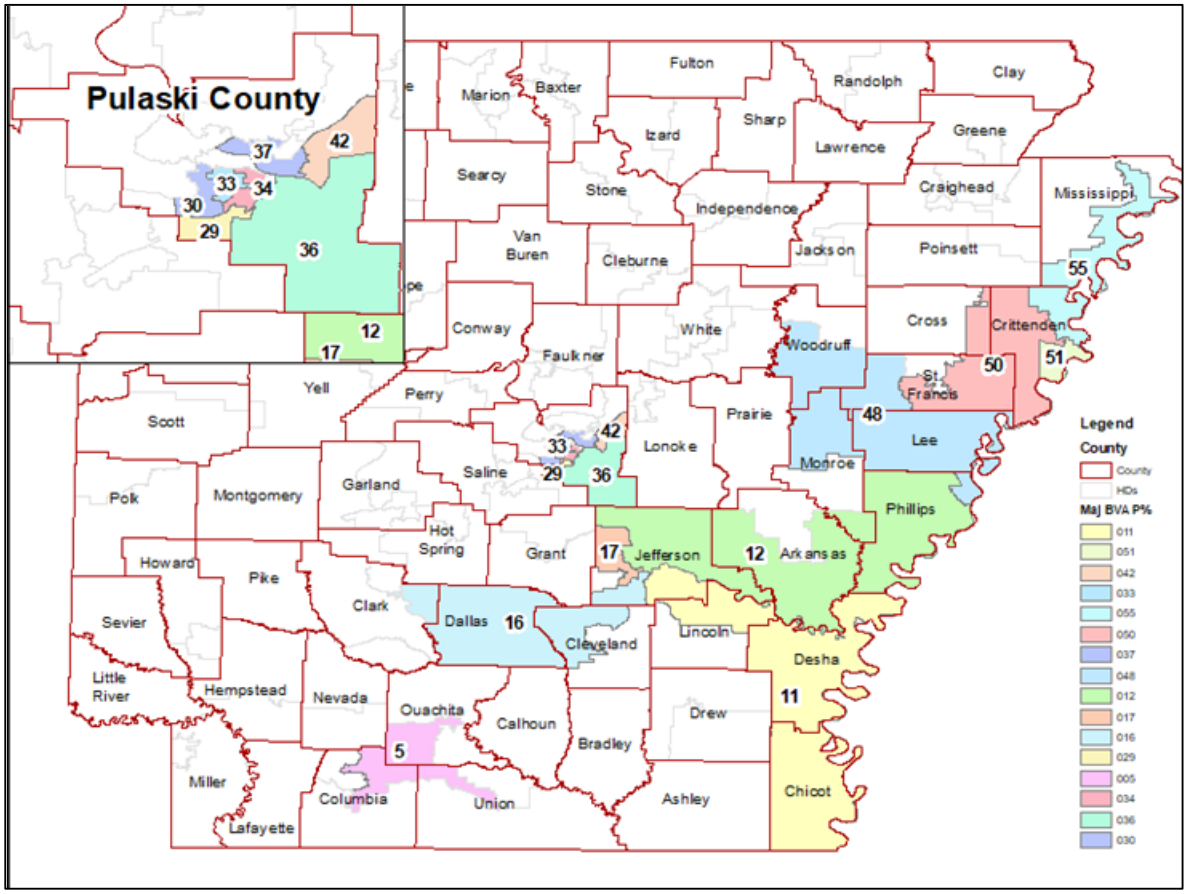


Figure 3 – Arkansas Illustrative Plan's Majority Black Districts

Table 6 - Arkansas Illustrative Plan's Majority Black Districts Race/Ethnicity%

Dist	Pop	Devn	% Devn	HVAP	WVAP	BVAP	HCVAP	WCVAP	BCVAP
005	31,009	894	2.97%	3.48%	39.61%	54.43%	2.46%	46.73%	50.01%
011	28,733	-1,382	-4.59%	4.95%	42.26%	50.64%	2.12%	46.38%	50.13%
012	28,616	-1,499	-4.98%	2.09%	44.79%	50.83%	1.90%	46.21%	51.24%
016	28,822	-1,293	-4.29%	1.70%	43.46%	52.45%	0.58%	47.23%	50.60%
017	29,011	-1,104	-3.67%	2.01%	44.83%	50.28%	1.60%	45.48%	51.66%

Table 6 - Arkansas Illustrative Plan's Majority Black Districts Race/Ethnicity%

Dist	Pop	Devn	% Devn	HVAP	WVAP	BVAP	HCVAP	WCVAP	BCVAP
029	30,623	508	1.69%	20.93%	19.31%	57.76%	6.97%	23.16%	69.38%
030	29,323	-792	-2.63%	7.54%	37.08%	50.35%	1.90%	42.57%	51.33%
033	29,375	-740	-2.46%	7.03%	35.82%	52.57%	2.52%	41.68%	53.90%
034	29,123	-992	-3.29%	9.69%	38.51%	50.57%	2.12%	42.79%	52.72%
036	29,623	-492	-1.63%	10.53%	36.77%	50.41%	2.22%	39.69%	56.96%
037	30,297	182	0.60%	8.03%	38.23%	50.30%	3.48%	40.93%	54.40%
042	28,692	-1,423	-4.73%	5.86%	37.03%	53.25%	2.02%	45.71%	50.34%
048	28,702	-1,413	-4.69%	1.94%	41.96%	54.30%	1.14%	44.56%	53.58%
050	31,204	1,089	3.62%	3.06%	40.75%	54.06%	2.28%	41.01%	52.87%
051	28,662	-1,453	-4.82%	2.18%	37.50%	58.23%	0.98%	43.68%	52.35%
055	29,043	-1,072	-3.56%	3.15%	43.33%	51.41%	2.29%	44.30%	50.03%

Source: U.S. Census Bureau 2020 Decennial Census and 2019 5-Yr ACS

L. Comparative Analysis of the Illustrative Plan and Board Plan

29. I performed a comparative analysis of the Illustrative Plan and Board Plan along the above-stated state redistricting criteria (*see* Section F, above). The results showed the following:

Equal Population

30. Both plans comply with the Board's redistricting guideline on population equality. All 100 House districts in both the Illustrative Plan and the Board Plan fall within the BOA Guidelines' recommendation of no more than a 5% deviation from the ideal population. The Illustrative Plan has a population deviation range of 9.87%, while the Board Plan has a population deviation range of 6.85% and both within a 5% deviation from ideal population (*see* Appendix C – Equal Population).

Contiguity

31. Both the Board Plan and the Illustrative Plan are fully contiguous (*see* Appendix C – Contiguity).

Compactness

32. Compactness was quantified for the Illustrative Plan and Board Plan (*see* Appendix C - Compactness). Three compactness measures were used, Reock, Polsby-Popper, and Convex Hull. I used the mean and standard deviation reported for all districts to determine the compactness measure for each plan overall. The Illustrative Plan was shown to be statistically indistinguishable from the Board Plan. The Illustrative Plan has mean measures of .40, .27, and .72, while the Board Plan had measures of .41, .33, and

.77 for Reock, Polsby-Popper, and Convex Hull, respectively. The mean for each measure on each plan fell within one standard deviation of the mean for the measure on the other plan.

County and Precinct (VTD) Splits

33. The number of county splits in the Illustrative Plan is roughly equal to the number in the Board Plan. The Illustrative Plan contain 53 county splits, while the Board Plan contains 51 and the Current plan 62. The number of VTD splits is significantly reduced in the Illustrative Plan. The Illustrative Plan has 98 VTD splits, while the Board Plan contains 282, and the Current Plan contains 412 splits (*see* Appendix C – Political Subdivision Splits).

City/Municipalities Splits

34. The number of cities, municipalities, and Census Designated Places[22] (CDPs) split in the Illustrative Plan is essentially equal to the Board Plan and lower than the Current Plan. The Illustrative Plan contains 69 city splits compared to 70 in the Board Plan and 97 in the Current Plan (*see* Appendix C – COI City Splits).

Landmark Splits

35. The number of landmark splits (includes parks, colleges, military bases, etc.) in the Illustrative Plan is lower than in either the Current Plan or the Board Plan. The Illustrative Plan contains 85 splits, while the Board Plan has 88 and the Current Plan has 89 (*see* Appendix C – COI Landmarks Splits).

School Districts

36. The number of school districts split in the Illustrative Plan is higher than in the Current Plan or the Board Plan. The Illustrative Plan has 193 splits, the Board Plan has 183, and the Current Plan has 188 (*see* Appendix C – COI School District Splits).

Fracked

37. The number of county fracked pieces for the Illustrative Plan is lower than the Board Plan. The Illustrative Plan has no fracked areas, while the Board Plan has three, while the Current Plan has eleven (*see* Appendix C - Fracking).

Paired Incumbents

38. The number of incumbents that are paired in the Illustrative Plan is less than for the Board Plan. Two incumbents are paired in the Illustrative Plan, while the Board Plan

[22] Census Designated Places are non-incorporated statistical geographic areas created by the Census Bureau. In many instances, CDPs are geographic areas that are recognized by the local community but have no legal status or governmental body.

pairs 11 incumbents. As expected, the Current Plan has zero paired incumbents. HD62 in the Board Plan, which is a majority-Black district, places three incumbents in the same district (Appendix C – Incumbent Pairing).

Summary Comparisons

39. Comparing the results reveals that the Illustrative Plan fares better than the Board Plan on the Board's own redistricting criteria. The Illustrative Plan performs better than the Board Plan on five criteria, while the Board Plan performed better than the Illustrative Plan in only two. In three criteria, the Illustrative and Board Plan performed the same.

40. Thus, when comparing the Illustrative Plan to the BOA Plan, the Illustrative Plan performs equally or better than the Board Plan in eight of ten redistricting criteria measures.

Criteria	Illustrative	Board
Equal Population	All 100 districts within BOA Guideline of less than 5% deviation from ideal Deviation range of highest to lowest population is 9.87%	All 100 districts within BOA Guideline of less than 5% deviation from ideal Deviation range of highest to lowest population is 6.85%
Contiguity	Y	Y
Compactness	.40, .27, .72	.41, .33, and .77
County Splits	53	51
VTD Splits	98	282
City Splits	69	70
Landmark Splits	85	88
School Districts Splits	193	183
Fracking	0	3
Incumbents Paired	2	11

Source: Illustrative and Board plans Maptitude for Redistricting reports

M. Conclusions

41. Changes in Arkansas' current demographic configuration over the last decade, including a notable increase in the Black population in Pulaski County since the 2010 census, has made it possible to create at least four additional majority-Black House districts relative to the Current Plan that meet the requirement of "one person, one vote" and the additional redistricting criteria adopted by the BOA. Instead, the BOA has *reduced* the number of majority-Black House districts by one. As the Illustrative Plan shows, the state could draw five additional majority-Black House districts compared to the Board Plan, while fully complying with federal law as well as the Board's redistricting criteria.

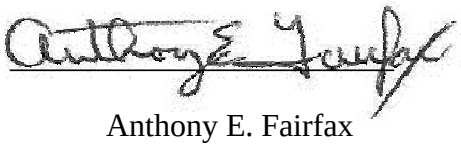
42. When comparing the Illustrative Plan to the Board Plan, the Illustrative Plan performs equally or better than the Board Plan in eight of ten redistricting criteria measures (equal population [one person one vote], contiguity, compactness, political subdivision splits [county and precinct[23]], splits of cities[24], landmark splits, fracking and incumbent paring).

43. The Illustrative Plan clearly meets the first precondition of *Gingles*. The state's Black population percentage, which is now more than 16%, is sufficiently large and geographically compact to draw sixteen majority-Black House districts out of its total 100 districts.[25]

[23] Voting Tabulation Districts (VTDs) were used in place of precincts. VTDs are created by the U.S. Census Bureau and are generated using census blocks. They are, in many places, similar to or exactly match precincts.
[24] This includes towns and CDPs. CDPs are Census Designated Places which are statistical geographic areas of unincorporated communities. They are locally recognized and identified using a particular name.
[25] Using Any Part Black and Black CVAP data.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 29, 2021.



Anthony E. Fairfax

Appendix A

Resume of Anthony E. Fairfax

Anthony "Tony" Fairfax

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Experience Highlights:

- Demographic, Geographic & Voter Data Analysis
- Multiple GIS Software/Census Data Skillsets
- Redistricting Plan Development & Analysis
- Redistricting Expert Reports & Testimony
- Redistricting Presentations & Training
- ESRI ArcGIS Map Applications & Dashboards
- Maptitude for Redistricting Proficiency
- Professional Presentations/Training Experience

Education:

Master of Geospatial Information Science and Technology (2016)
North Carolina State University, Raleigh, North Carolina

Graduate Certificate in Geographic Information Systems (2016)
North Carolina State University, Raleigh, North Carolina

Bachelor of Science Degree in Electrical Engineering (1982)
Virginia Tech, Blacksburg, Virginia

Work Experience:

CensusChannel LLC, Hampton, VA (2009 - Present)
CEO & Principal Consultant - Providing overall project management and operations as well as primary consulting services for clients. Also responsible for customer acquisition and support. Core tasks include GIS-centered services centering on: redistricting support (extensive use and analysis of traditional redistricting principles); demographic/socioeconomic, geographic, and voting data; GIS, Census Data, and Redistricting training; GIS data processing/conversion; expert redistricting plan development, analysis, depositions, testimony, and training. Major clientele and projects include:

- **The ACLU, New York, NY (2021 - Present**) – Providing expert plan development services centering on the states of Alabama and Arkansas.
- **The Power Coalition, New Orleans, LA (2021 - Present)** - Providing technical advice and input for building an equitable redistricting process in Louisiana for communities, legislators, and organizations. Providing analysis and plan alternatives for Louisiana state legislative House and Senate districts where Black voters could elect a candidate of choice.
- **Bondurant Mixson & Elmore, Atlanta, GA (2021)** – Developed statewide congressional district plans. The effort utilized two additional map drawers to collaborate and develop ultimately a single congressional plan submitted by the Georgia Democratic House and Senate members.
- **Crescent City Media Group, New Orleans, LA (2021)** – Provided redistricting training to the PreRedistricting Lab. Training centers on various educational presentations and hands-on sessions to community leaders and local/state legislators.
- **NAACP Legal Defense Fund (LDF), New York, NY (2020 – Present)** - Providing redistricting development and analysis of various district configurations for city, county, and state-level plans.

- **Crowd Academy [an SCSJ sponsored effort], Durham, NC (2020 - Present)** - Providing redistricting training and support. Training centers on presentations on "How the Lines are Drawn" which focuses on pre-plan development and plan development activities of redistricting. The target attendee includes individuals in Georgia, North Carolina, South Carolina, Tennessee, and Texas. The effort also includes providing mentorship to Academy Fellows and Academy Mentors.
- **City of Everett, WA, Everett, WA (2020)** – Provided advice, consultation, and mapping services as Districting Master to the city of Everett, WA's Districting Commission. Efforts centered on the development of the city's first districting plan. Also assisted with answering questions at public forums and developed an ArcGIS web map application for public access of all plans.
- **NAACP, Baltimore, MD (2018 - Present)** – Providing GIS consulting services via the NAACP (as fiscal agent) to the *Racial Equity Anchor Collaborative* (consisting of the Advancement Project, APIA Health Forum, Demos, Faith in Action, NAACP, National Urban League, NCAI, Race Forward, and Unidos US). Efforts include the development of the Racial Equity 2020 Census Data Hub. The Data Hub utilized ESRI's Hub Cloud platform, that centralized web maps, mapping applications, and dashboards into a common platform that enabled collaborative partners to locate hard-to-count areas by major race or ethnicity.
- **Southern Echo, Jackson, MS (2018 - Present)** – Providing redistricting training sessions to Southern Echo partners throughout the south. Also provided GIS data, maps, and training to Southern Echo, community leaders, stakeholders, and subsequently in the field to groups working in the following states; Alabama, Arkansas, Georgia, Florida, Louisiana, Mississippi, New Mexico, North Carolina, South Carolina, and Texas. Specifically, deliverables include map-centered projects centering on education, GOTV, and redistricting.
- **Campaign Legal Center, Washington, DC (2018 –2021)** – Developed illustrative redistricting plans, associated expert reports, depositions, and testimony in the *Holloway v City of Virginia Beach court* case. The Illustrative plans included two majority Hispanic, Black, and Asian combined districts for the purpose of providing evidence of the first prong in *Gingles* for the city of Virginia Beach.
- **Southern Coalition for Social Justice [SCSJ], Durham, NC (2015 - 2018)** - Provided several expert reports, depositions, and testimony for multiple redistricting court cases in North Carolina. Testimony, depositions, and reports included numerous plans at the congressional, state Senate, state House, and local jurisdiction level. Analyses covered certain district characteristics, including population deviation, political subdivision splits, partisan performance, and incumbent effect analysis.
- **The Rehab Crew, Durham, NC (2017)** - Provided geospatial & demographic analysis as well as website development and the creation of a proprietary application for the use of targeting real estate investment properties.
- **Congressman G.K. Butterfield, NC (2016 & 2021)** - Developed several congressional district plan alternatives for the State of North Carolina. Provided analyses on alternative district configurations.
- **Alabama Democratic Conference (ADC), Montgomery, AL (2015 - 2016)** - Developed state Senate and House redistricting plans for the state of Alabama in response to the *ADC v Alabama* court case. Also, provided a series of thematic maps depicting areas added from the previous plan to the enacted plan, displaying concentrations of African American voters that were added to the enacted plan.
- **Net Communications, Tallahassee, FL (2014 - 2015)** - Generated offline mapping and online web services (ArcGIS.com) of client's energy company's resources and organizational assets. Mapping included demographic, socioeconomic, and other resources of the energy company.

- **National NAACP Office of General Counsel, Baltimore, MD (2012 - 2013)** - Provided project management and developmental support for the creation of a final report for the NAACP National Redistricting Project. Provided planning, organizing, supplemental writing, and interfacing with graphics entity for the complete development of the final report.
- **Congressional Black Caucus Institute (CBC Institute), Washington, DC (2011 - 2012) -** Provided contract duties as the Project Director and Consulting Demographer for the CBC Institute's Redistricting Project. Provided project management, redistricting plan development, review, analysis, advice, and answers to various questions pertaining to redistricting plans, principles, and processes. Focus included districts where Black voters could elect a candidate of choice.
- **Mississippi NAACP, Jackson, MS (2011) -** Developed state Senate plans and analyzed enacted plans that were developed by the State Court.
- **African American Redistricting Collaborative (AARC) of California, Los Angeles, CA (2011) -** Provided demographic and redistricting contracted services. Responsible for developing congressional, state Senate, and state assembly plans for the collaborative. Special focus was given to the southern Los Angeles area (SOLA) and the Bay Area region. In addition to plan development, several socioeconomic maps were developed to show various communities of interest commonalities.

  Also, developed a demographic profile using maps and reports of California's congressional, state Senate, and state Assembly districts for the purpose of preparing for the redistricting plan development process by identifying areas of growth throughout the state. The profiles included data from the American Community Survey (ACS) 2005-2009 and the 2010 Census.
- **The Advancement Project, Washington, DC (2011) -** Provided redistricting plan development services and training. Included was the development of a base map for a new seven (7) district plan in New Orleans that was further developed by community groups in Louisiana. The second effort included training a staff person on the use of Maptitude for Redistricting as well as on various redistricting scenarios.
- **Louisiana Legislative Black Caucus (LLBC), Baton Rouge, LA (2011) -** Provided redistricting plan development services. Responsibilities included supporting the Caucus members' efforts to develop state House, state Senate, and congressional redistricting plans. Developed or analyzed over eighty different redistricting plans. The effort also included testifying in front of the Louisiana Senate and Governmental Affairs committee.
- **Community Policy Research & Training Institute (One Voice), Jackson, MS (2011) -** Developed Mississippi State Senate plan along with appropriate reports and large-scaled map.
- **National Black Caucus of State Legislators (NBCSL), Washington, DC (2010)** - Provided services as the Project Director for a 2010 census outreach effort. Developed proposal and managed personnel to generate and execute a strategy to utilize Black state Senate and House legislators to place targeted posters in select hard-to-count (HTC) areas throughout the country.
- **Duke University's Center for REGSS & SCSJ, Durham, NC (2010 - 2011) -** Contracted to serve as one of two Project Coordinators to support an expert preparation workshop hosted by Duke University's REGSS and the SCSJ.

  Project Coordinator duties included developing, managing, and providing hands-on training for the Political Cartographer's side of a week-long intensive "redistricting expert" preparation workshop. The workshop trained 18 political cartographers, who came from various parts of the country, on all aspects of redistricting plan development and principles. Also, two hands-on redistricting scenarios were created to train large audiences on the plan development process.

Democracy South, Virginia Beach, VA (2004 - 2008)
Senior Technical Consultant - Provided technical, GIS mapping, data analysis, and management support for several projects and civic engagement-related efforts. Major project efforts included:

- Senior Technical Consultant for the National Unregistered Voter Map. Developed a web-based interactive map that allowed visitors to view state/county level information pertaining to the number of unregistered voters (2009)

- Co-Director of the Hampton Roads Missing Voter Project (a nonpartisan nonprofit voter engagement effort to increase voter participation with a focus on underrepresented population groups). The effort covered the seven major Independent cities in Hampton Roads. Responsibilities included co-managing the overall civic engagement effort and was solely responsible for integrating and processing Catalist voter data into targeting maps and walk lists for all focus areas. Directly Responsible for overseeing the operations in Hampton, Newport News, Portsmouth, and Suffolk, Virginia (2008)
- Senior Technical Consultant for Civic Engagement Efforts. Provided telephone technical voter database support to 17 USAction state partners in 2004; and 12 USAction state partners in 2006. Trained client on VBASE voter data software; Performed voter data conversion; and voter targeting assistance.

Congressional Black Caucus Institute, Redistricting Project, Washington D.C. (2001 - 2003)
Consulting Demographer - Provided services that included the development, review, and analysis of over 75 congressional district plans. Responsible for all setup and configuration of hardware and GIS software and performed all development and analyses of redistricting plans. Congressional district plans were developed for 22 states. Also, performed as a redistricting expert advisor in a consolidated U.S. District Court Voting Rights case in Alabama.

National Voter Fund, Washington, D.C. (2000)
GIS Consultant (in a consulting partnership of Hagens & Fairfax) - Developed hundreds of precinct targeting maps for a civic engagement effort designed to increase the turnout in the November 2000 election. Efforts included: geocoding voter data, census data integration, and precinct mapping.

Norfolk State University, Poli. Science & Computer Science Dept., Norfolk, Virginia (1996 - 2001)
Adjunct Faculty - Provided instruction to students for BASIC Programming, Introduction to Computer Science, and Computer Literacy courses.

GeoTek. Inc. (formally GIS Associates), Virginia Beach, VA (1992 - 1995)
Consultant and Co-owner - Provided geodemographic research and analysis; client technical & training support; hardware/software system installation; and redistricting manual/ brochure development. Major clients and tasks included:

- New York City Housing Authority - Redistricting Training
- Maryland State Office of Planning - Redistricting Tech Support
- City of Virginia Beach, VA Planning Dept. - Redistricting Training/Tech Support
- City of Norfolk, VA Registrar - Redistricting Training/Tech Support
- City of Chesapeake, VA Registrar - Precinct Realignment

Norfolk State University, Political Science Dept., Norfolk, Virginia (1991 - 1999)

GIS Consultant - Provided a variety of geographic and demographically related tasks. Major Redistricting related tasks included:

- Installed and operated the LogiSYS ReapS software that was used to perform the bulk of redistricting plans. Performed the intricate ReapS processing of the U.S. Census Bureau Topographically Integrated Geographic Encoded Referencing (TIGER) line files, Public Law 94-171 (PL94-171) demographic data, and the STF socioeconomic data series.
- Developed over 200 hundred redistricting plans, located in over 60 jurisdictions, in the states of Florida, Louisiana, North Carolina, Texas, and Virginia. Developed plans from city/county to legislative to congressional district.
- Traveled to and trained several university faculty personnel on setting up and utilizing the ReapS redistricting system. Also, trained on redistricting plan development principles.

Major GIS-related tasks included:

- Performed a study commissioned by the U.S. Department of Transportation to analyze the ethnic differences in commuting behavior. This study extensively utilized the Summary Tape File 3 A (STF3 A) and Public Microdata Sample (PUMS) data to locate, map, and report the frequency and average travel time to and from work for: Miami, FL MSA; Kansas City, MO-KS MSA; and Detroit, MI MSA.
- Performed a study funded by the City of Norfolk, VA, and NSU School of Business that determined and analyzed the trade area of a section located in Norfolk, VA. Major duties included: geocoding customer addresses, producing address point maps, and developing demographic reports for the project.
- Performed a study commissioned by the U.S. Department of Housing and Urban Development (HUD) to revitalize a neighborhood located in Norfolk, VA. The purpose of the GIS component was to first establish a socioeconomic base-line then track the progress of the revitalized area as well select surrounding areas. Geocoded address locations, generated point as well as demographic thematic maps, and produced reports of the target areas.
- Provided demographic analysis of proposed newly incorporated areas in Florida for local Florida civic organizations.

Cooperative Hampton Roads Org. for Minorities in Engineering, Norfolk, VA (1991 - 1992)

Computer Consultant - Designed and developed a menu-driven student database, used to track hundreds of minority Junior High and High School students that were interested in pursuing science or engineering degrees.

Norfolk State University, School of Education, Norfolk VA (1990 - 1991)

Technical Consultant/Computer Lab Manager- Provided a variety of support to include hardware and software installation; faculty workshops; course instruction; Network Administrator; and technical support.

Engineering and Economics Research (EER) Systems (1989)

Technical Consultant - Coordinated and participated in writing, editing, and formatting technical test documents; central role in the development of the Acceptance Test Procedures for the initial phase of a multi-million dollar Combat Maneuver Training Complex (CMTC) in Hohenfels, Germany; the final review and editing of all test documentation.

Executive Training Center (ETC). Newport News, VA (1988 - 1989)
Vice President & Co-founder - Managed over 11 part-time and full-time employees; assisted in developing and implementing company policies; performed the duties of the Network Administrator for a Novell-based computer training network; and taught several courses by substituting for instructors when necessary.

Engineering & Economics Research (EER) Systems. Newport News, VA (1986 - 1987)
Hardware Design Engineer and Electronics Engineer - Provided engineering and select project management support for the development of the following million/multi-million dollar project efforts:

- Baseline Cost Estimate (BCE) to be used in the procurement of the Combat Maneuver Training Complex - Instrumentation System (CMTC-IS)
- Operational and Maintenance (O&M) Support Plan at the National Training Center (NTC)
- Quality Assurance Surveillance Plan for the O&M Support Plan at the NTC; Configuration Management Plan for CMTC
- Requirements Operational Capabilities (ROC) Analysis for an instrumentation System at the U.S. Army Ranger School, Georgia;
- ROC Analysis for an Instrumentation System at Fort Chaffee, Arkansas;
- Suggested Statement of Work for the Digital Data Entry Device (DDED); and the Concept Formulation Package and Requirements Definition to Support interface and integration of Red Flag at the NTC:
- Phase ll of a multi-million dollar GIS-based concept test demonstration. Performing as Assistant Test Director (ATD) - liaison between the Government Director Army Ranges and Targets (DART) personnel and EER Systems' personnel; and assumed the role of Test Director when required (1987).
- Suggested Statement of Work (SOW) for a $1 million procurement of Multivehicle Player Units (MVPUs) at the NTC. Performed as Project Task Manager for a team of engineers, computer programmers, and technical support personnel in the development of a position location player unit for the Army (I986).

Teledyne Hastings-Raydist, Hampton, VA (1982 - 1986)
Hardware Design Engineer - Designed and developed custom flow and vacuum measuring products; Project Manager for the production and completion of a $.25 million flow measuring system; Electrical Engineer - Chiefly responsible for developing special products for customers.

Major Litigation & Testimony Related Efforts:

Campaign Legal Center, Washington, DC (2018 – 2020)
Developed multiple illustrative redistricting plans and associated expert reports for *Latasha Holloway v City of Virginia Beach* court case. The Illustrative Plan**s** included two majority Hispanic, Black, and Asian combined (Coalition) districts for the purpose of providing evidence of the first prong in *Gingles* in the section 2 court case. The effort included an additional rebuttal**,** supplemental report**,** deposition, and testimony.

Virginia NAACP, Richmond, VA (2018)
Developed a statewide remedial plan for *Bethune-Hill v. Virginia State Bd. of Elections*. The plan corrected 11 unconstitutional racial gerrymandered state House districts in the Richmond, Peninsula, and Southside Hampton Roads areas.

Southern Coalition for Social Justice (SCSJ), Durham, NC (2018)
Developed a demonstrative remedial redistricting plan and associated expert report as well as provided a deposition for *North Carolina State Conference of NAACP Branches v. Lewis* Wake County Superior Court case. The demonstrative remedial plan corrected the two Wake County, N.C. House Districts declared by a federal court to be racially gerrymandered districts (HD33 & HD38). The expert report provided a narrative that not only discussed my results but also provided insight for the Court on how a map drawer would reasonably go about fixing racially gerrymandered districts and still comply with the state constitution's prohibition on mid-decade redistricting.

Texas NAACP, San Antonio, TX, (2017)
Provided expert report, deposition, and testimony for the *Perez v. Abbott* US Federal District Court Case. Analyses focused on certain redistricting criteria, including population deviation, compactness, political subdivision splits, and communities of interest for congressional and House plans. Additional analysis was performed on demographic projections for certain congressional and state House districts.

Southern Coalition for Social Justice (SCSJ), Durham, NC (2015 - 2016)
Provided expert testimony, deposition, and expert report for the *City of Greensboro v The Guilford County Board of Elections* U.S. District Court Case. Deposition and report included several district plans for the city council of Greensboro, NC, and analyzed certain characteristics, including population deviation, political subdivision splits, partisan performance, and incumbent effect analysis.

Provided expert testimony and report for the *Covington v North Carolina* federal redistricting court case. The testimony included analysis from *Dickson v Rucho* (also *NAACP v North Carolina*) of compactness on state legislative House and Senate districts.

Provided expert testimony and report for the *Wright v North Carolina* federal redistricting court case. The testimony and report included analysis of population deviation, compactness, partisan impact, and incumbent residences for county commission and school board plans.

Alabama Democratic Conference (ADC), Montgomery, AL (2015 - 2016)
Developed Senate and House redistricting plans for the state of Alabama for the *ADC v Alabama* court case. Provided deposition on the creation of the plan. Also, generated a series of thematic maps depicting areas added from the previous benchmark plan to the enacted plan, displaying concentrations of African American voters that were added to the enacted plan.

Southern Coalition for Social Justice (SCSJ), Durham, NC (2014)
Provided expert testimony, report, and deposition for Federal redistricting court case, *Perez v. Perry* of Texas. The report included analysis of population extrapolations and projections for several submitted plans for select congressional and House districts.

North Carolina NAACP, Raleigh, NC (2012)
Provided expert opinions and analysis in an affidavit for the *NC NAACP v. State of North Carolina* federal redistricting case (later *Dickson v Rucho*). The affidavit included examination of compactness measurements pertaining to the Congressional, State Senate, and State House "Benchmark" plans, several approved plans, and several legislative submitted plans. The report also contained county splits for the target districts.

Southern Coalition for Social Justice (SCSJ), Durham, NC (2011)
Provided expert opinions and analysis in an affidavit for the *Moore v. State of Tennessee* redistricting case. The affidavit included analysis of county splits comparing State Senate "Benchmark" plans, the approved plan, and several legislative submitted plans.

Texas NAACP, San Antonio, TX (2011)
Provided expert report, deposition, and testimony for federal redistricting court case *Perez v. Perry*. Testimony covered the evaluation of traditional redistricting criteria of the Congressional and House approved plans compared to several proposed or legislature submitted plans.

Louisiana Legislative Black Caucus, Baton Rouge, LA (2011)
Provided expert testimony in front of the Senate and Governmental Affairs committee. Testimony included the analysis of two redistricting plans comparing ideal population deviation, political subdivision splits (Parishes), and compactness ratios. Also, developed a redistricting plan and testified in front of the House and Governmental Affairs in support of a new majority-minority (African American) congressional district in Louisiana.

Morrison & Foerster LLP, Los Angeles, CA (2004)
Provided expert report on several state Senate plans for the *Metts v. Murphy* Rhode Island court case. The report contained analyses of communities of interest areas that were not included in the state's enacted plan of the only majority-minority district.

Congressional Black Caucus Institute, Redistricting Project, Washington D.C. (2002)
Performed as the redistricting mapping expert for Congressman Hilliard in a consolidated U.S. District redistricting court case in Alabama (*Montiel v. Davis* and *Barnett v. Alabama*). Developed the submitted plan and provided advice to legal counsel for the court case.

Council of Black Elected Democrats (COBED) New York State, New York, NY (2002)
Performed as one of the redistricting experts (*Allen v Pataki/Rodriguez v Pataki*) by developing several New York State congressional district plans that were presented by COBED.

Miami-Dade, Florida (1993)
Provided expert technical redistricting support as one half of the Expert Master's Team for the remedial Plan (*Meek v. Metropolitan Dade County*). Developed over 50 commissioner district plans for the county as well as the final adopted Plan for the metro Dade County.

NAACP Legal Defense and Educational Fund (LDEF), New York, NY (1993)
Provided expert technical support for the *Shaw v. Reno* Supreme Court case (via Norfolk State University). Analyzed and compared various compactness ratios for congressional districts throughout the U.S. The results were compared to the 12th congressional district of North Carolina. Also, developed several alternative congressional district plans.

Major GIS/Demographic/Redistricting Training and Presentations:

Southern Echo (2021 - Present)
Presented multiple training sessions (11 planned) on various aspects of redistricting. Included both presentations and ultimately hands-on (Dave's Redistricting)

Crowd Academy (2020 – Present)
Presented multiple Training sessions (>25) that center on "How the lines are Drawn" which focuses on the plan development activities of redistricting.

Crescent City Media Group (2021)
Presented ten three-hour-long training sessions on various aspects of redistricting. Included both presentations and hands-on (Maptitude for Redistricting)

NAACP LDF/MALDEF Expert Convening (2021)
Provided multiple sessions to potential future experts on expert report development, giving depositions, and providing testimony.

SIF Voting Rights Convening (2021)
Presented on a panel the unique aspects and issues pertaining to the 2020 round of redistricting.

SIF Voting Rights Convening (2020)
Presented on a panel various preparatory aspects and questions that should be addressed prior to the development of plans.

Delta Days in the Nation's Capital, Washington, DC (2020)
Provided panel presentation on suggested efforts in preparation for the next round of redistricting. Plenary presentation to several hundred Delta Sigma Theta (DST) sorority sisters throughout the country.

William and Mary, Williamsburg, VA (2019)
Presented lecture to the GIS and Districting course students centering on improving as well as potential adverse trade-offs from improvements of the adopted redistricting plan chosen by the special masters of the *Bethune-Hill v. Virginia State Bd. of Elections* redistricting case.

Southern Echo, Jackson, Mississippi (2019)
Provided detailed training/presentation (3 hours) on various aspects of redistricting. Topics included: Relevant redistricting court cases, traditional redistricting criteria, and redistricting data.

William and Mary, Williamsburg, VA (2018)
Presented lecture to the GIS and Districting course students centering on aspects of the *Bethune-Hill v. Virginia State Bd. of Elections* redistricting case. Discussion pertained to how to develop a plan that corrected the 11 unconstitutional racial gerrymandered states House districts.

Congressional Black Caucus Institute, Washington, DC (2016)
Presented at the annual legislative conference in Tunica, MS. Presented the election demographic analysis and for the 2016 presidential and Senate elections. Panel also included Congressman Cedrick Richmond (L.A.), Congressman Sanford Bishop (G.A.), and Professor Spencer Overton.

Coalition of Black Trade Unionists (CBTU), Chicago, IL (2015)
Presented at the annual CBTU conference on the election panel that included Congressman Al Green (TX) and Congressman Bobby Rush (I.L.).

Nobel Women's Initiative, Washington, DC (2015)
Presented on a panel at the annual conference in San Diego, CA, on the upcoming 2020 census.

Tennessee NAACP, Nashville, TN (2011)
Provided redistricting training session on the mapping and demographic aspects of Redistricting.

Congressional Black Caucus Institute, Washington, DC (2002 - 2012, 2014)
Presented "The Demographics of Campaigns" twelve times at the institute's annual political campaign "Boot Camp." The presentation covers how to locate and utilize demographic data for political campaigns.

Congressional Black Caucus Foundation (CBCF), Washington, DC (2011)
Presented as one of the panelists at the" Judge A. Leon Higginbotham" Braintrust at the CBC Annual Legislative Conference. The panel was moderated by Congressman Mel Watt.

The Advancement Project, Washington, DC (2011)
Trained staff GIS person on Maptitude for Redistricting as well as on redistricting scenarios.

National Association for the Advancement of Colored People, Baltimore, MA (2011)
Provided training session on "Redistricting Mapping Overview "at the organization's national redistricting training seminar for state and local chapters.

Congressional Black Caucus Institute, Washington, DC (2010)
Presented at the annual CBC Institute conference in Tunica, MS (The panel included Congressman John Lewis and Congressman Jim Clyburn). Outlined two critical issues that would surface in the 2010 round of redistricting: 1) Prison-based Gerrymander; and 2) The use of Citizen Voting Age Population (CVAP).

Community Census and Redistricting Institute (CCRI), Durham, NC (2010)
Developed, managed, and provided hands-on training for the Political Cartographer's side of a week-long intensive "redistricting expert" preparation workshop. The workshop trained 18 political cartographers on all aspects of plan development.

North Carolina University's Center for Civil Rights, Chapel Hill, NC (2010)
Provided presentation on "Redistricting Laws & GIS" at the *Unfinished Work* conference. The presentation outlined the evolution of major redistricting laws and GIS and their impact on minority representation.

NAACP Legal Defense Fund AIRLIE Conference, AIRLIE, VA (2010)
Provided training using hands-on "paper" redistricting scenario to voting rights advocates on developing a plan without the use of computers.

Young Elected Officials, Los Angeles, CA (2010)
Provided training using hands-on "paper" redistricting scenario to young legislators on developing a plan without the use of computers.

Young Elected Officials, Alexandria, VA (2010)
Provided overview training on the major aspects of redistricting to young legislators.

North Carolina University's Center for Civil Rights, Chapel Hill, NC (2006)
Provided presentation on "Congressional Elections Won by African Americans Race & Ethnicity District Perspective (1960 - 2004)" at the *Who Draws the Lines? The Consequences of Redistricting Reform for Minority Voters* conference.

Howard University - Continuing Education - HBCU GIS Workshop, Washington, DC (2002)
Provided presentation on redistricting and the use Maptitude for Redistricting to faculty members of Historically Black Colleges and Universities (HBCUs).

Norfolk State University Redistricting Project Training Workshops (1991 - 1998)
Provided redistricting training to the following:

- Alabama State University, Montgomery, Alabama
- Albany State University, Albany, Georgia
- Florida A & M, Tallahassee, Florida
- National Conference of Black Political Scientists, Atlanta, Georgia Conference
- Norfolk State University, Norfolk, Virginia
- North Carolina A & T State University, Greensboro, North Carolina
- North Carolina Central University, Durham, North Carolina
- Southern University, Baton Rouge, Louisiana
- Williams College, Williamstown, Massachusetts

Major GIS/Redistricting/Voter Data Software Experience:

- ArcGIS - GIS Software - Primary GIS Software after 2012 (ESRI)
- ArcGIS Online – Including Story Maps & Web Application Builder (ArcGIS.com)
- GRASS GIS – Open Source GIS (OSGeo)
- Maptitude for Redistricting - Primary Redistricting software, since 2001 (Caliper)
- ESRI Redistricting Online - Beta Tester (ESRI)
- Public Mapping Project - Advisory Board Member (an open source online software)
- GIS Plus (the precursor to Maptitude Software in the mid to late 1990s) - User (Caliper)
- ReapS Redistricting and Reapportionment System - Redistricting software, 1990s (LogiSYS)
- Voter Activation Network System NPGVAN
- Voterlistonline.com Aristotle software Aristotle

GIS Skillset/Coding Languages:

- Geocoding Data
- Linear Referencing
- Digital Cardinality
- Spatial Statistics
- Suitability Analysis
- Image Classification
- ArcGIS Web Services
- pdAdmin
- Python
- PostgreSQL

ESRI Training Certificates:

- Learning ArcGIS Desktop (for ArcGIS 10) - 24 hrs training
- Turning Data into Information Using ArcGIS 10 - 18 hrs training
- Basics of Raster Data (for ArcGIS 10) - 3 hrs training
- Using Raster Data for Site Selection (for ArcGIS 10) - 3 hrs training
- Working with Geodatabase Domains and Subtypes in ArcGIS - 3 hrs training
- Network Analysis Using ArcGIS - 3 hrs training

Publications:

Books

- *An Introduction to the Presidential Trend*, Statistical Press, March 2015
- *The Presidential Trend*, Statistical Press, December 2013
- *A Step by Step Guide to Using Census 2000 Data*, MediaChannel LLC, March 2004. Also Included, a companion CD-ROM (sold through various Census-related workshops and training sessions and used in a political science course).

Manuals

- *A Beginner's Guide To Using Census 2000 Data*, November 2002 (Co-authored- developed for the U.S. Census Bureau's Census Information Centers)

Articles

- "Precision Voter Targeting: GIS Maps Out a Strategy," Geo Info Systems, November 1996 (Co-authored one of the first articles published on using modern-day GIS for voter targeting).

Current Advisory Boards

- Redistricting Data Hub Advisory Board (redistrictingdatahub.org) (2020 to Present)
- First Baptist Church of Hampton Trustee Board (Term: 2015 to Present)

Appendix B

Maps of the

Illustrative and Board of Apportionment Plans

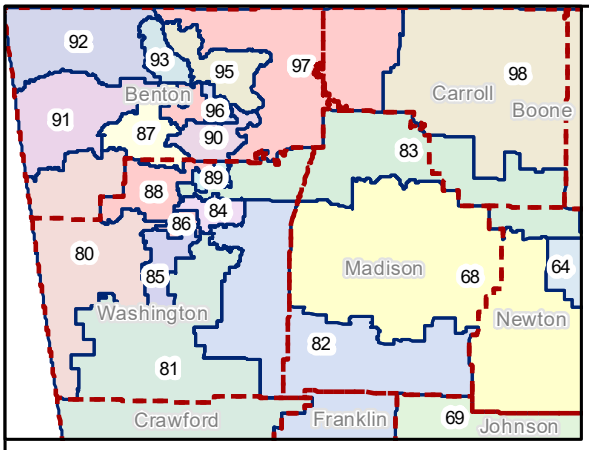
1. Illustrative Plan - House Districts Statewide
2. Illustrative Plan - House Districts Zoom
3. BOA Plan - House Districts Statewide
4. BOA Plan - House Districts Zoom

Illustrative Plan House Districts

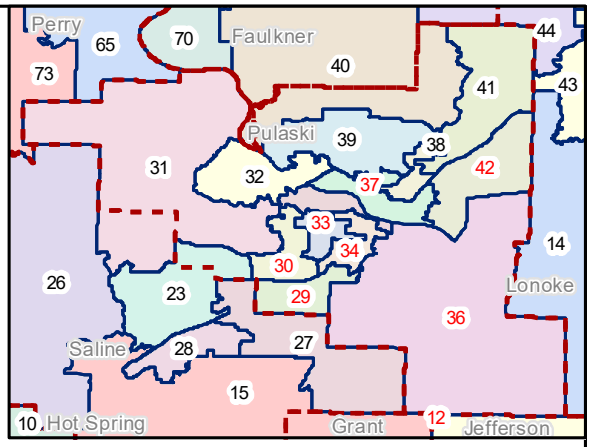
Statewide

Arkansas

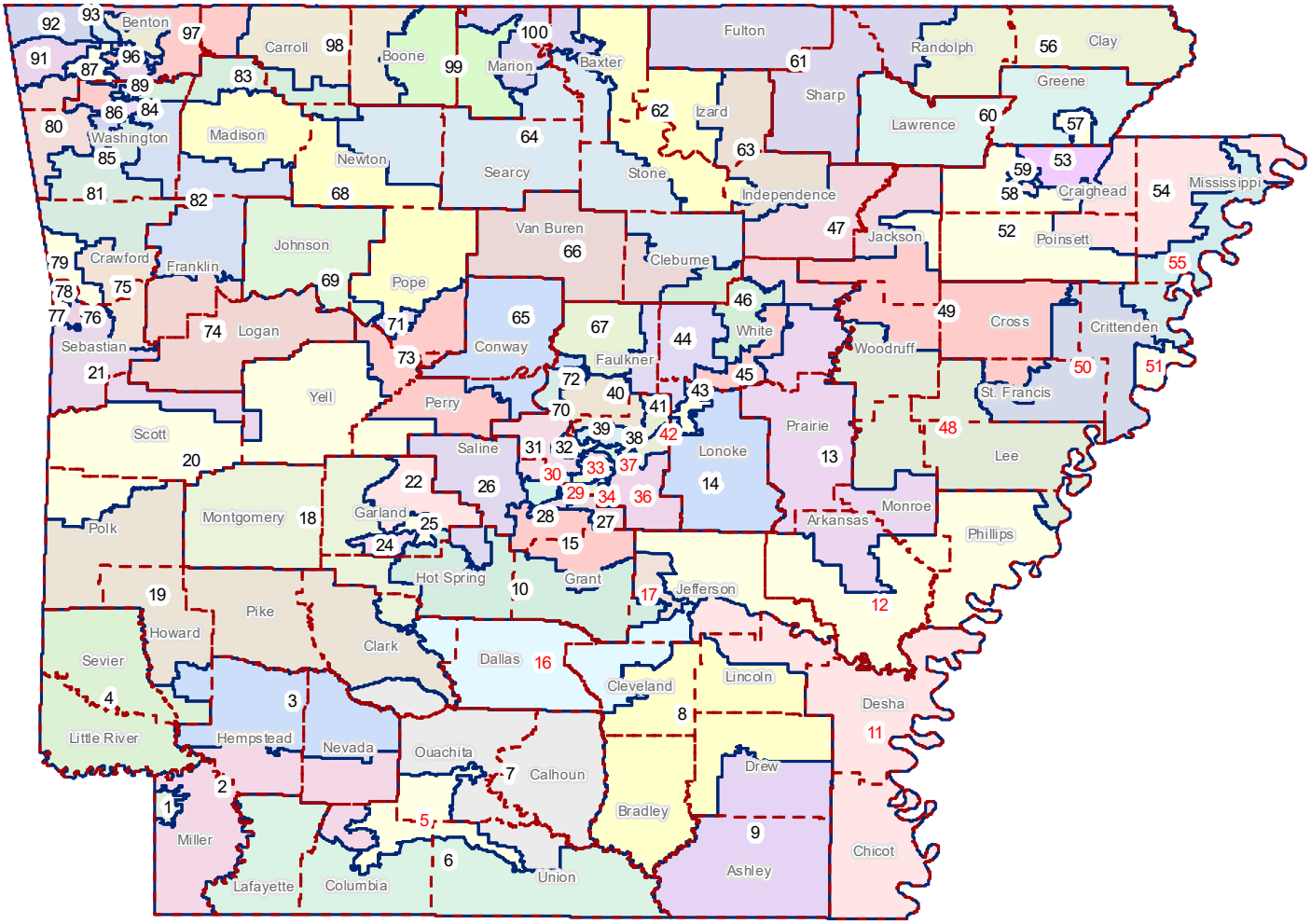
Illustrative Plan
State House Districts



Benton - Washington



Pulaski



Legend

- County
- Illustrative

Note: The red number indicates a Majority Black District

N W E S

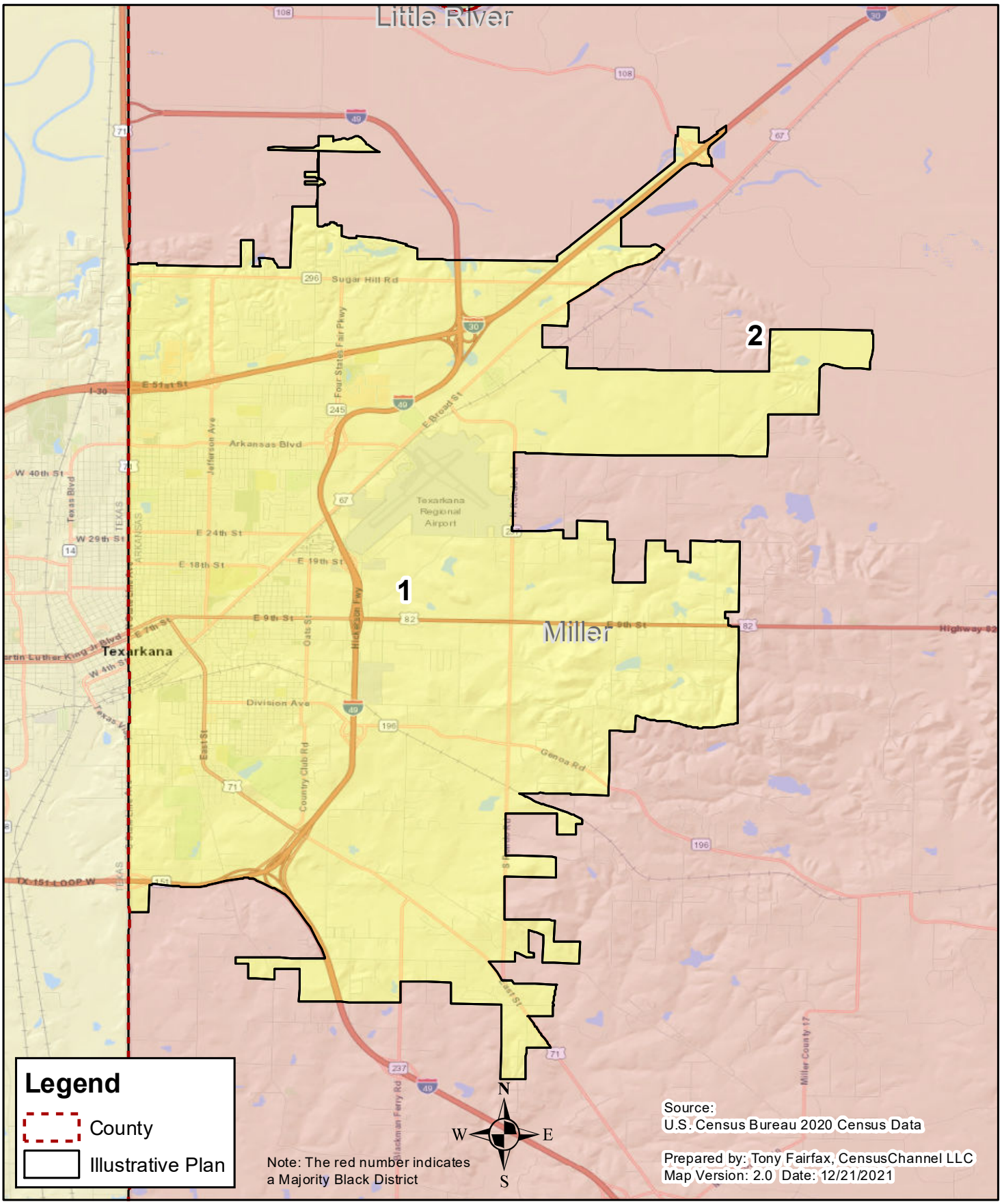
Source:
U.S. Census Bureau 2020 Census Data

Prepared by: Tony Fairfax, CensusChannel LLC
Map Version: 2.0 Date: 12/27/2021

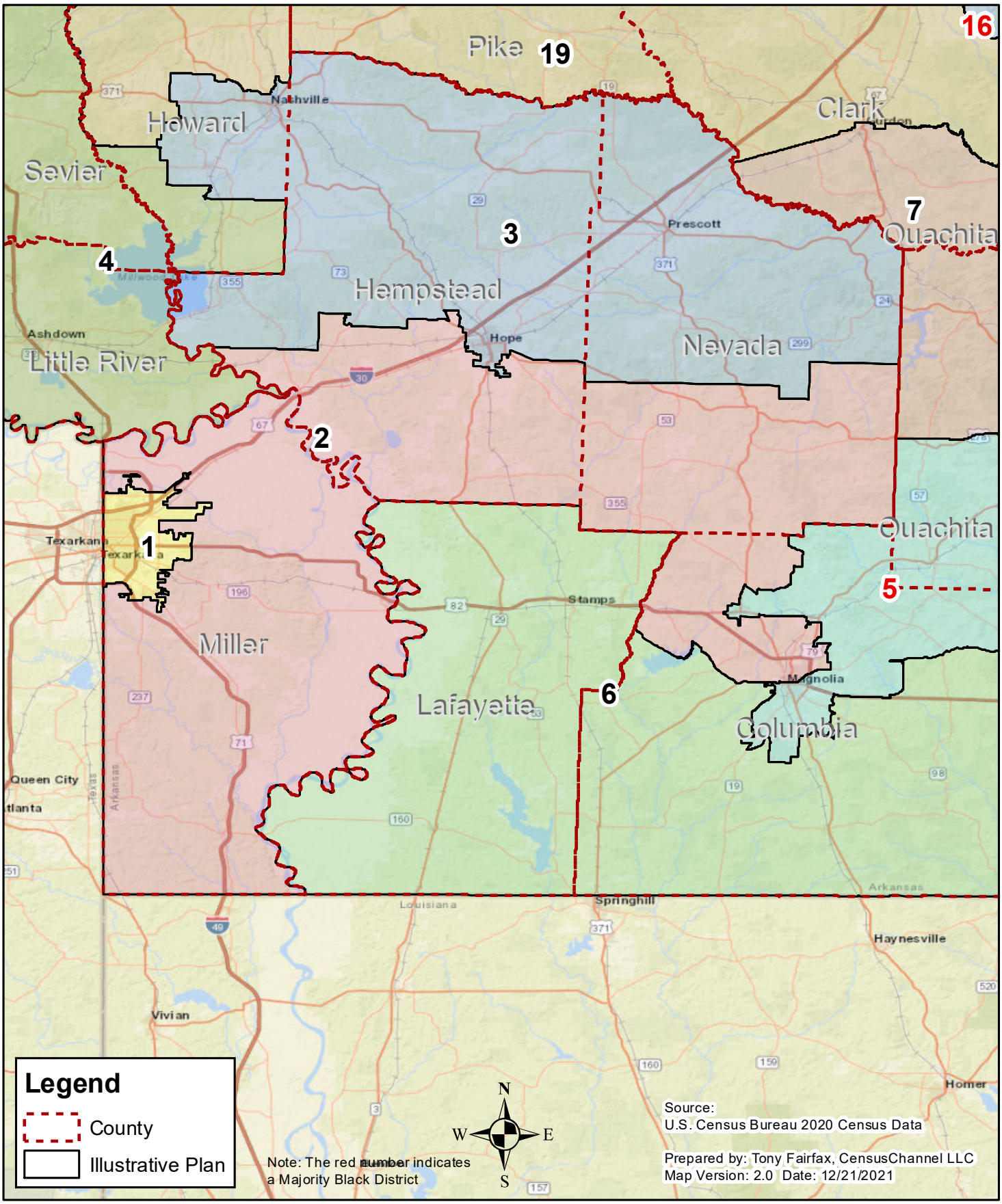
Illustrative Plan House Districts

Districts Zoom

Arkansas
State House District 1
Illustrative Plan



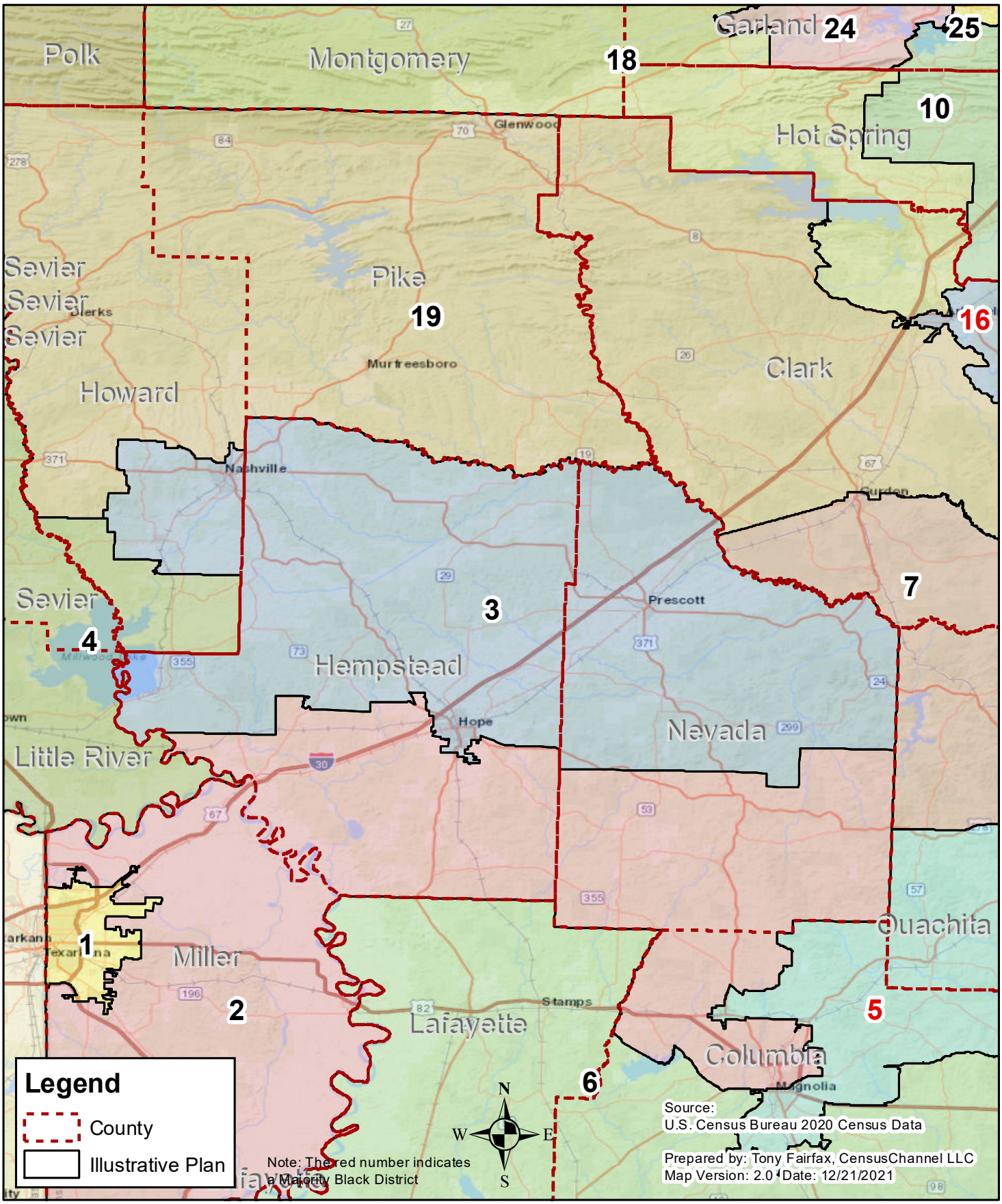
Arkansas
State House District 2
Illustrative Plan



Arkansas

State House District 3

Illustrative Plan



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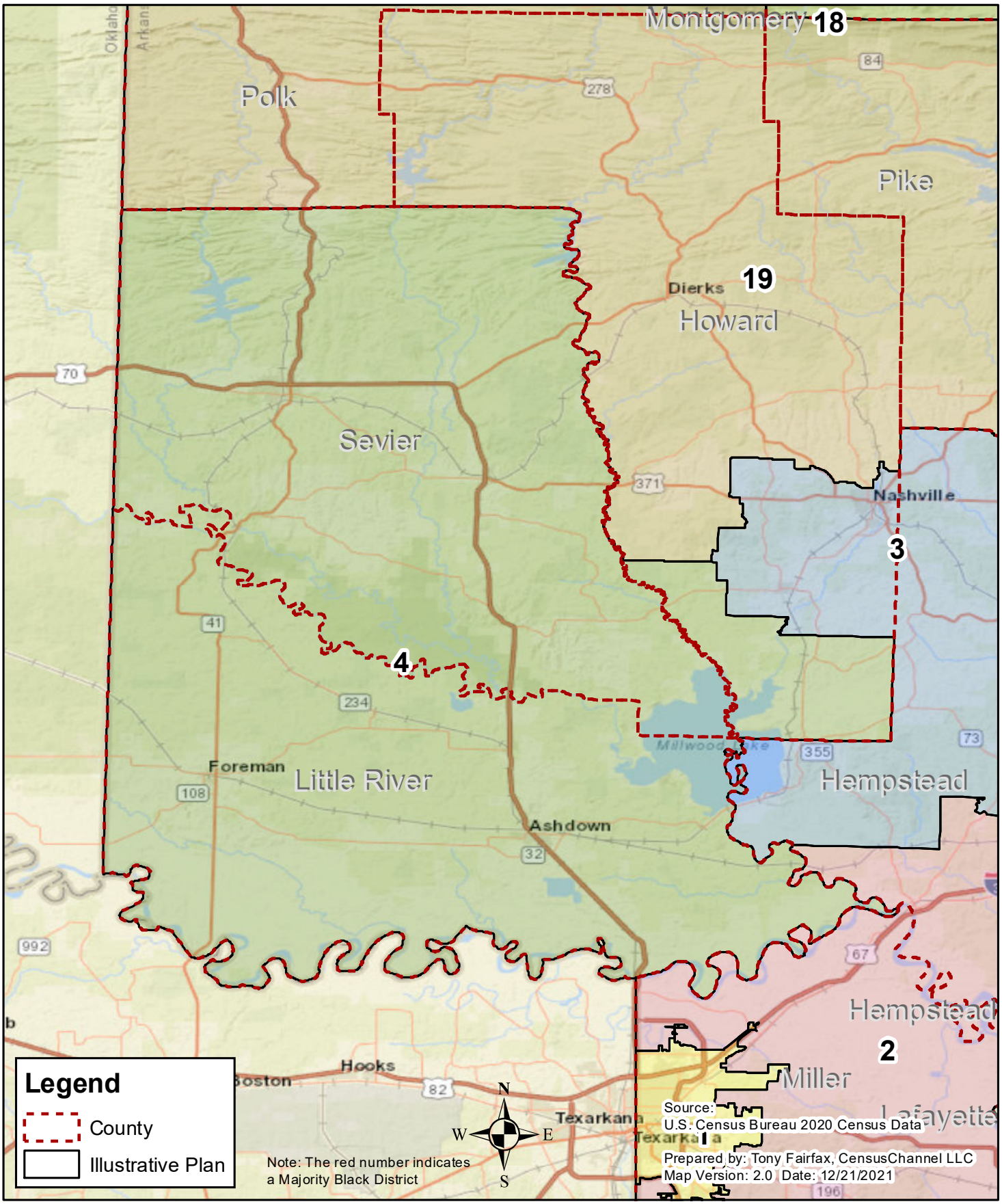
State House District 4
Illustrative Plan



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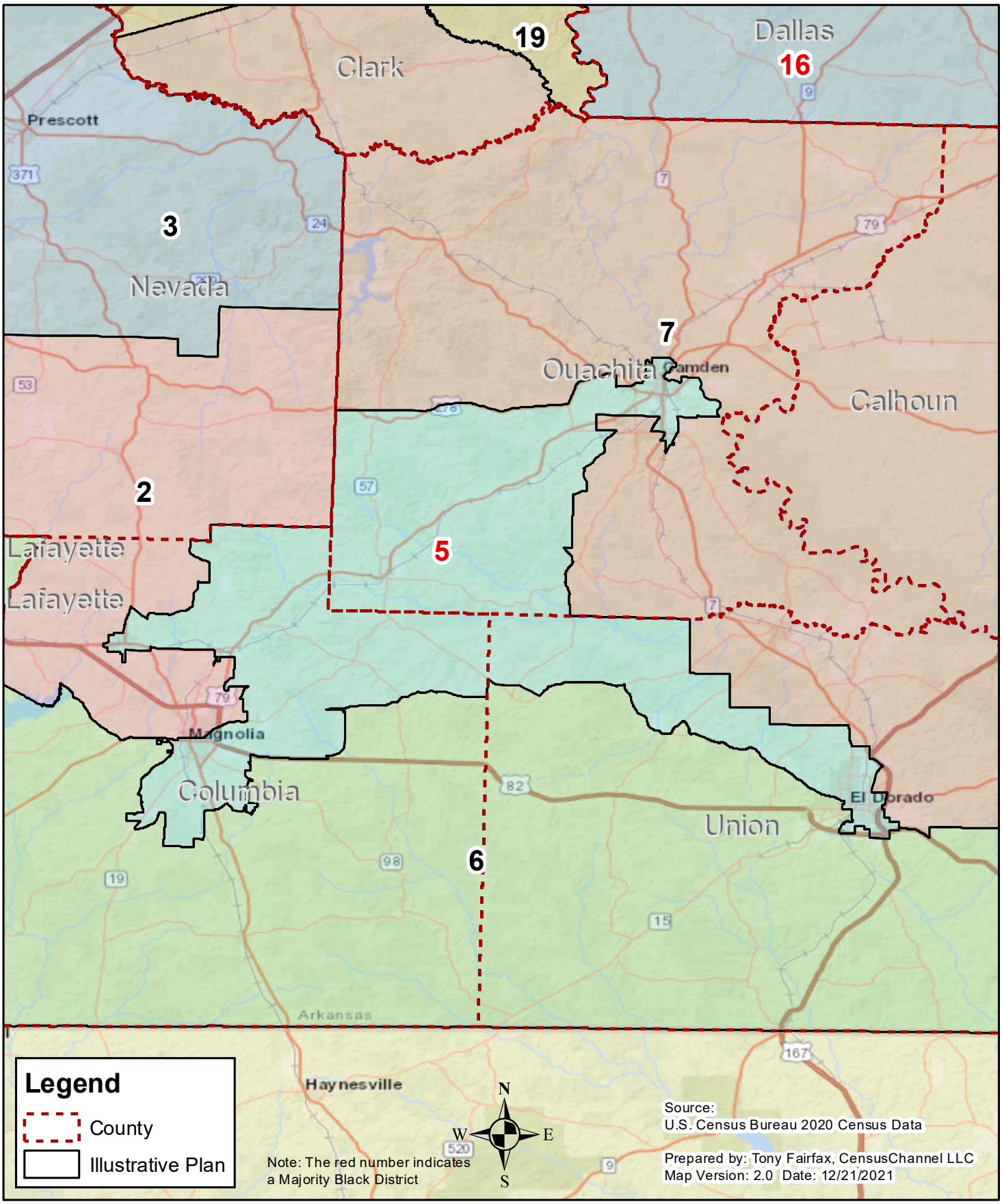
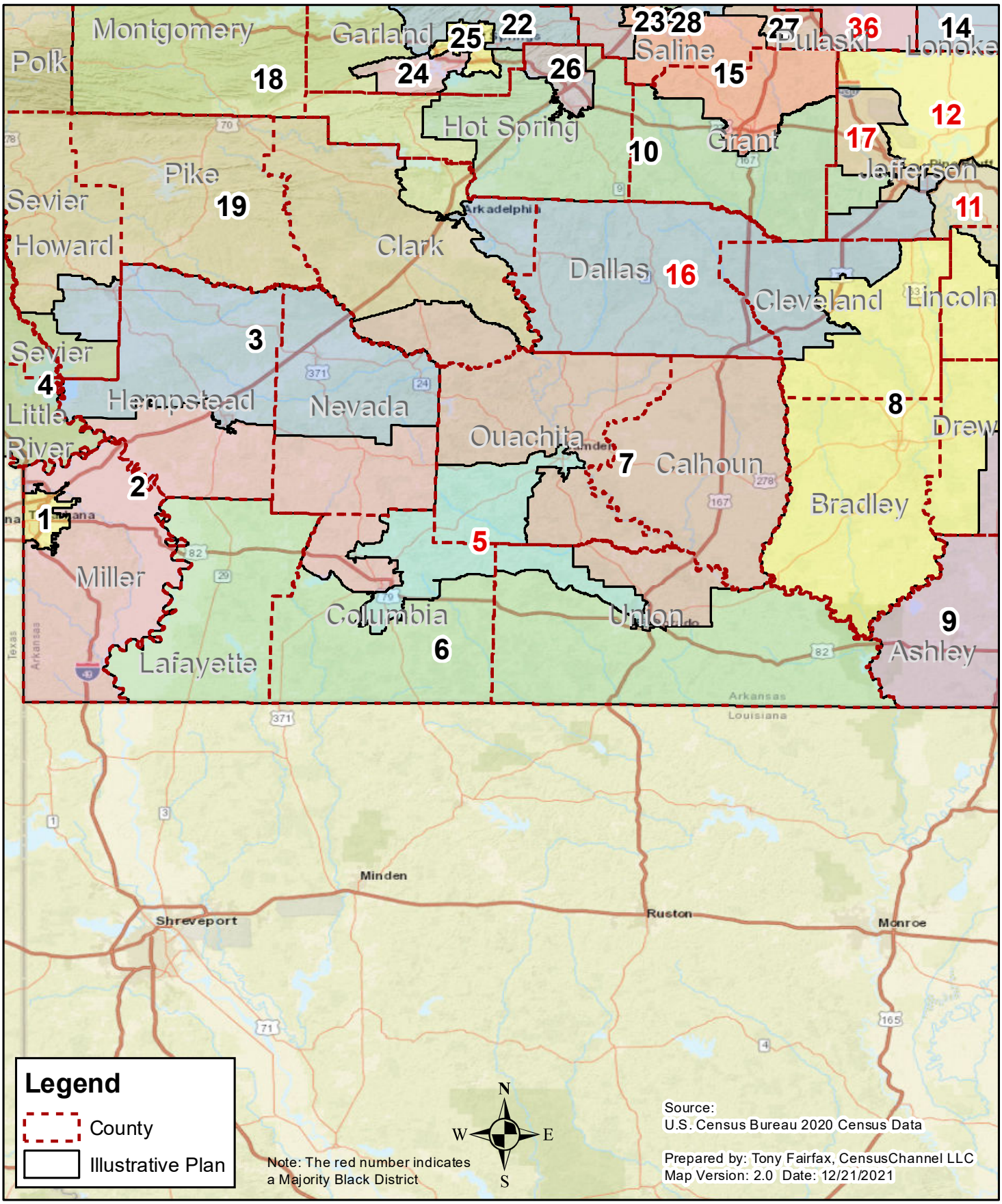
State House District 5
Illustrative Plan



Arkansas

State House District 6

Illustrative Plan



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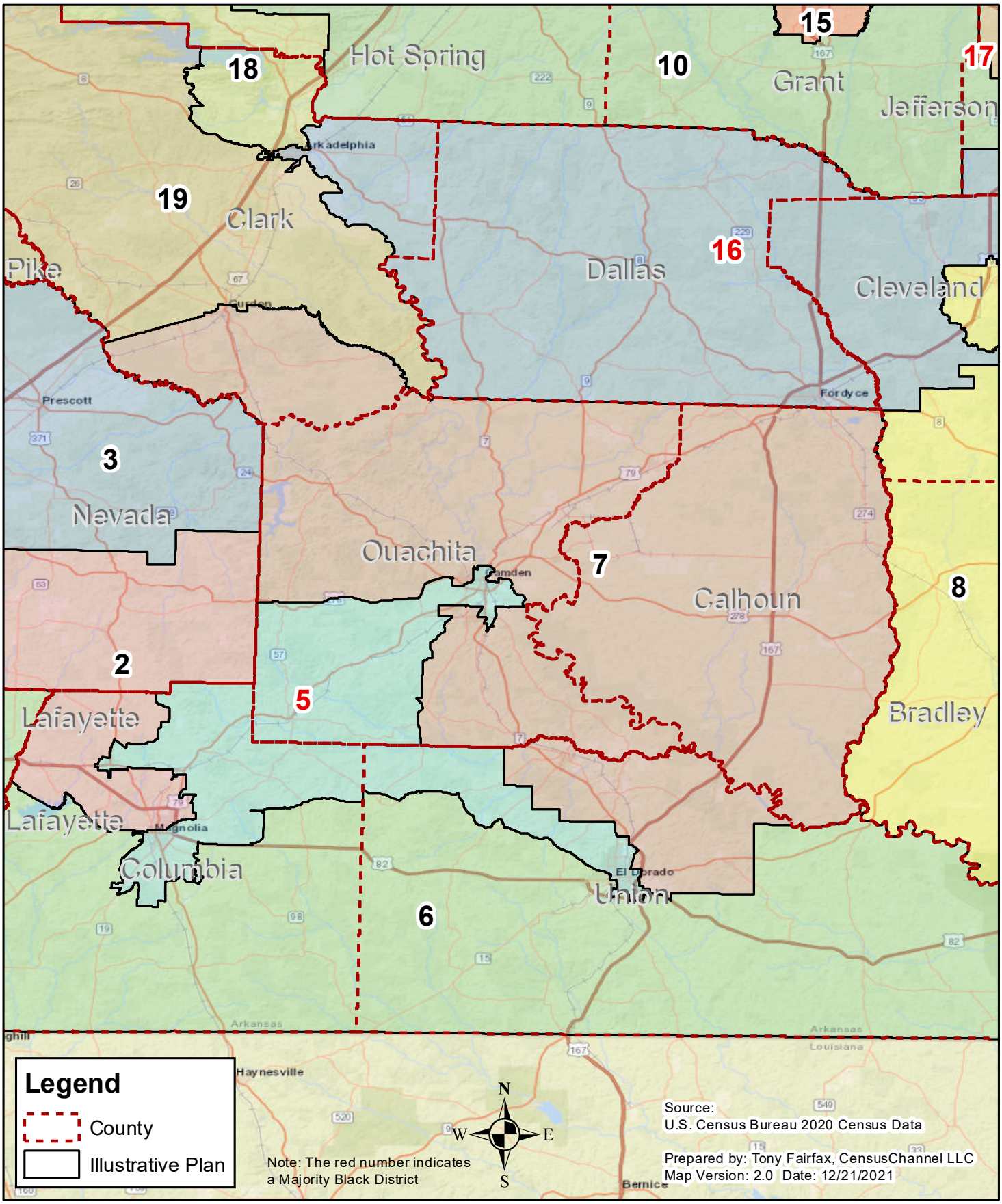
State House District 7
Illustrative Plan



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State House District 8
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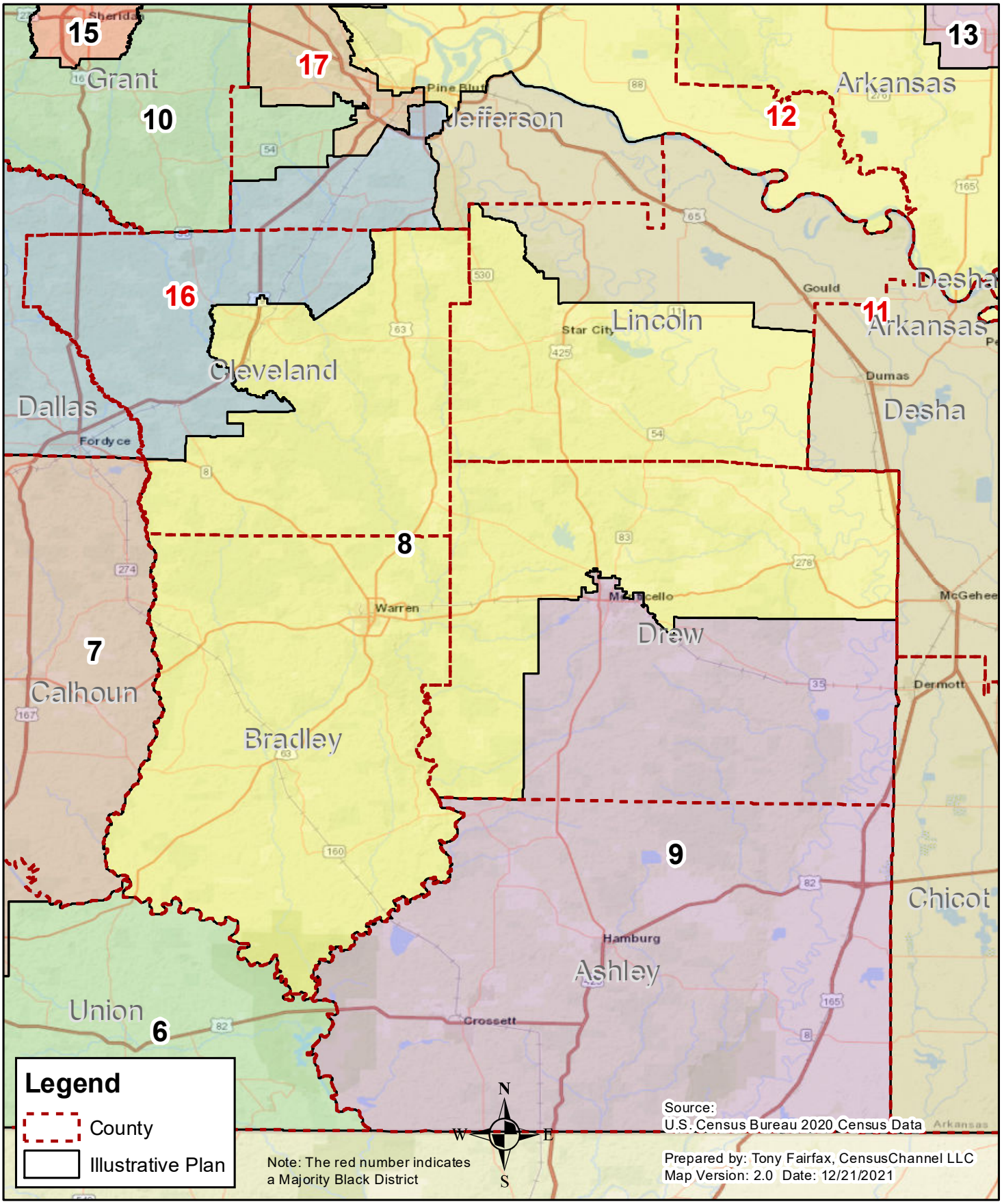
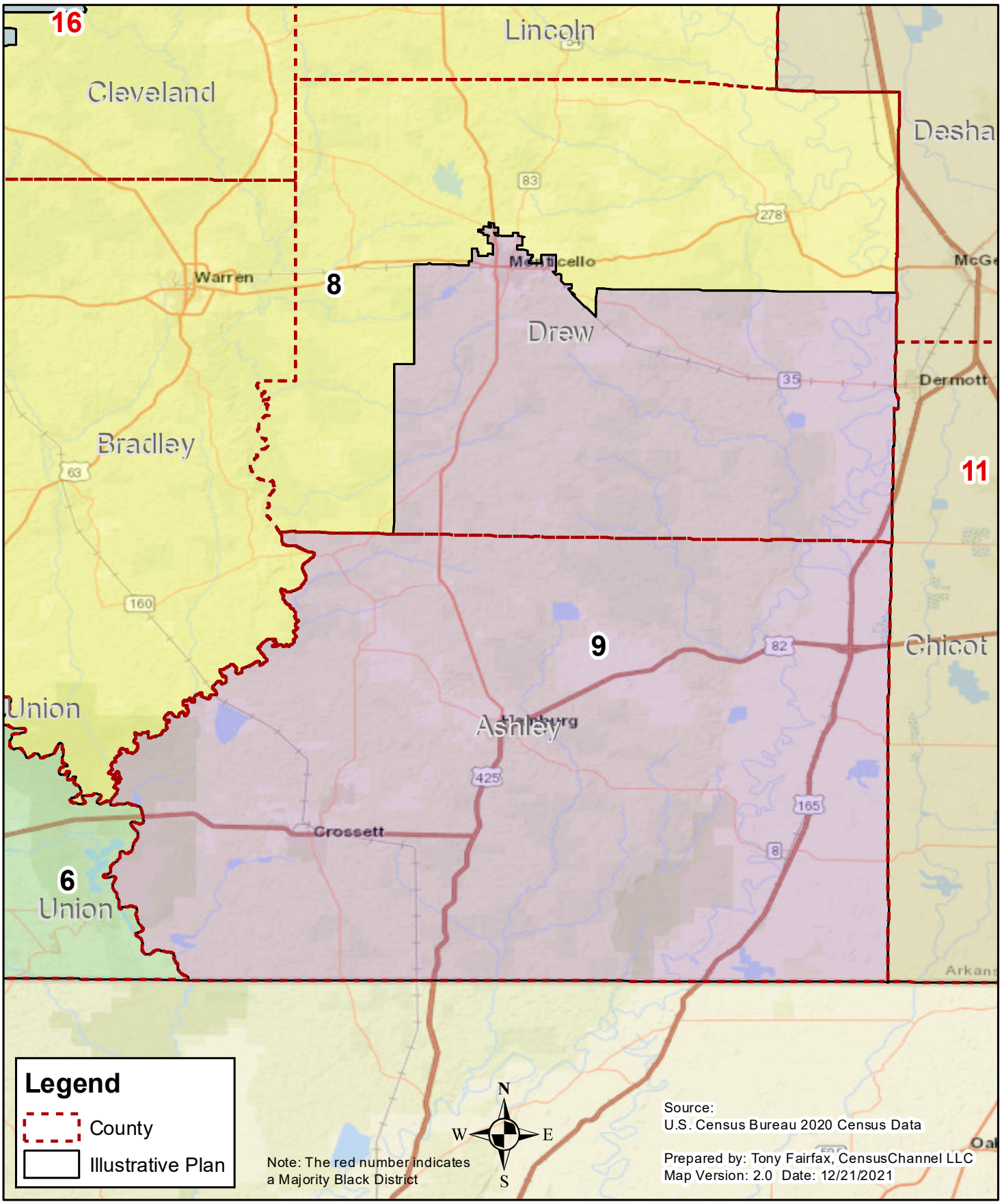


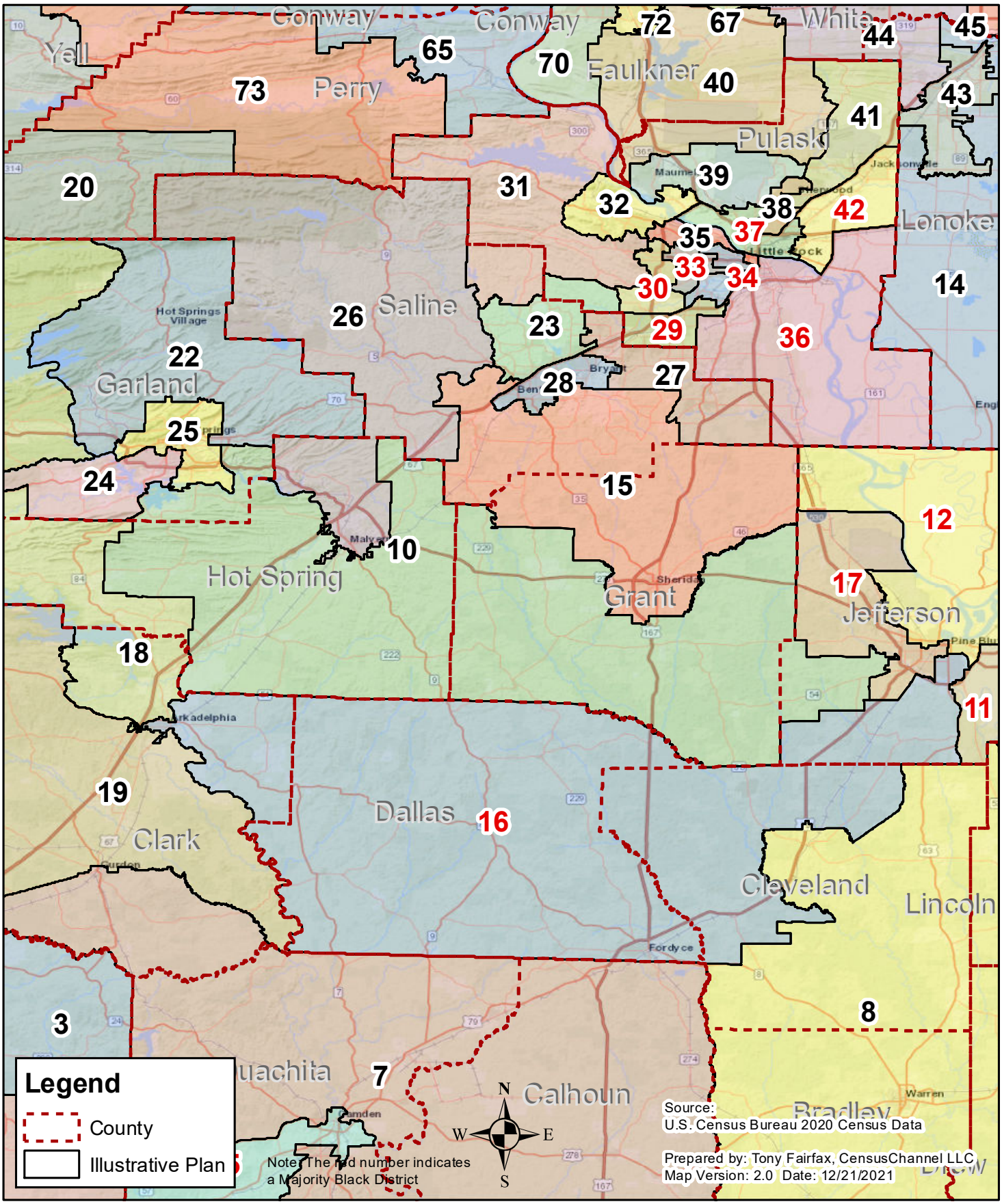
Arkansas
State House District 9
Illustrative Plan



Arkansas

State House District 10

Illustrative Plan



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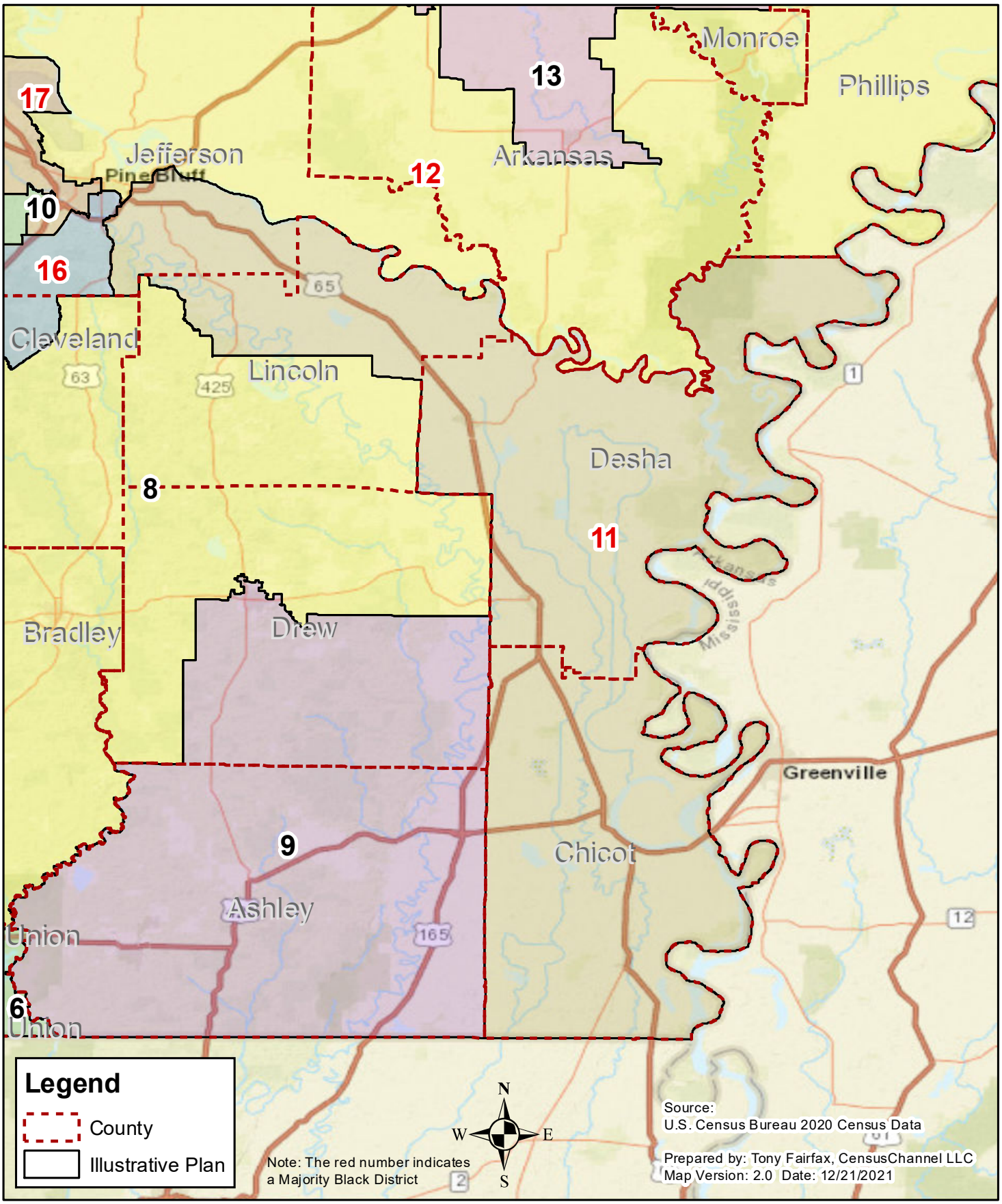
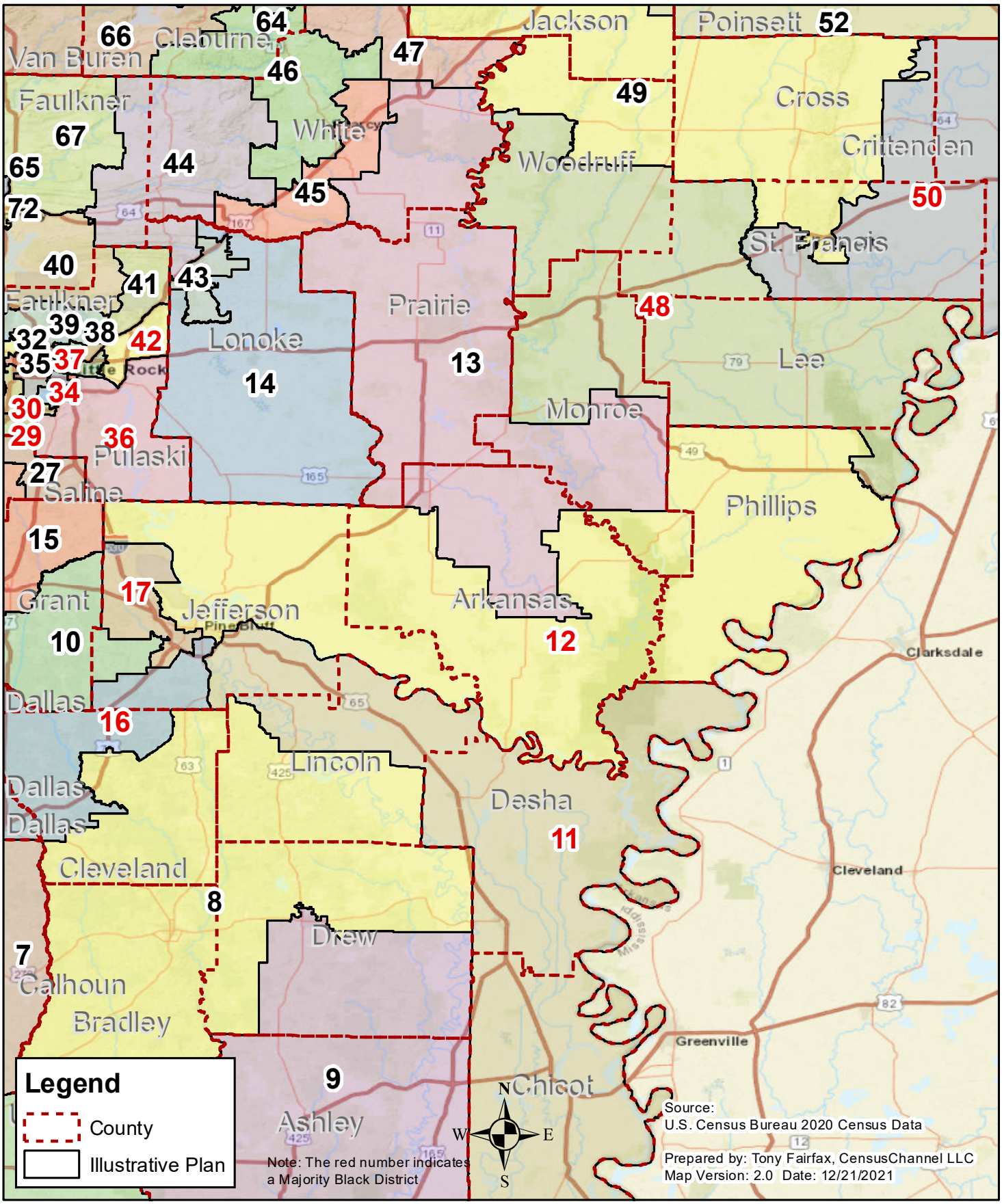
State House District 11
Illustrative Plan



Arkansas

State House District 12

Illustrative Plan



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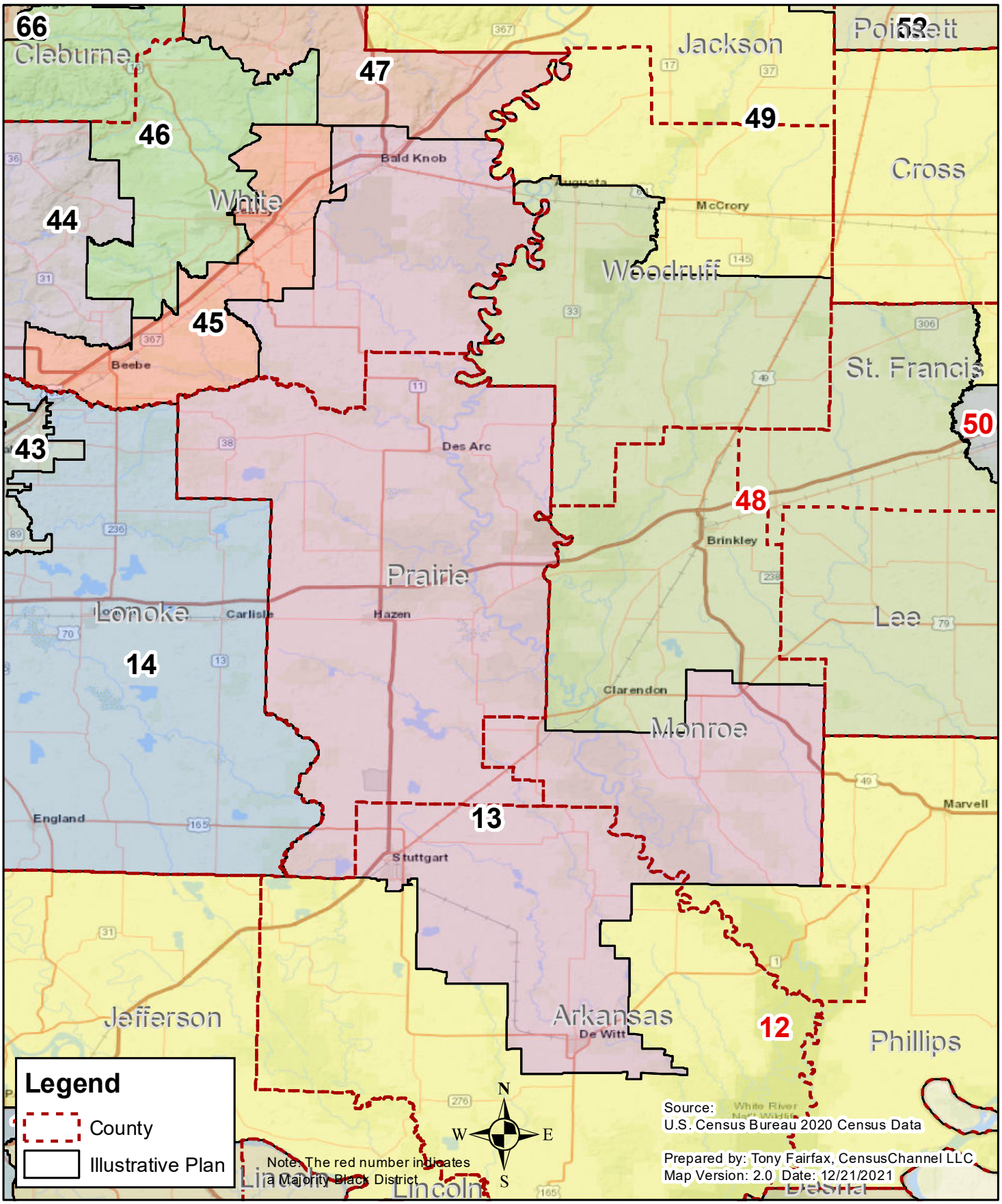
State House District 13
Illustrative Plan



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State House District 14
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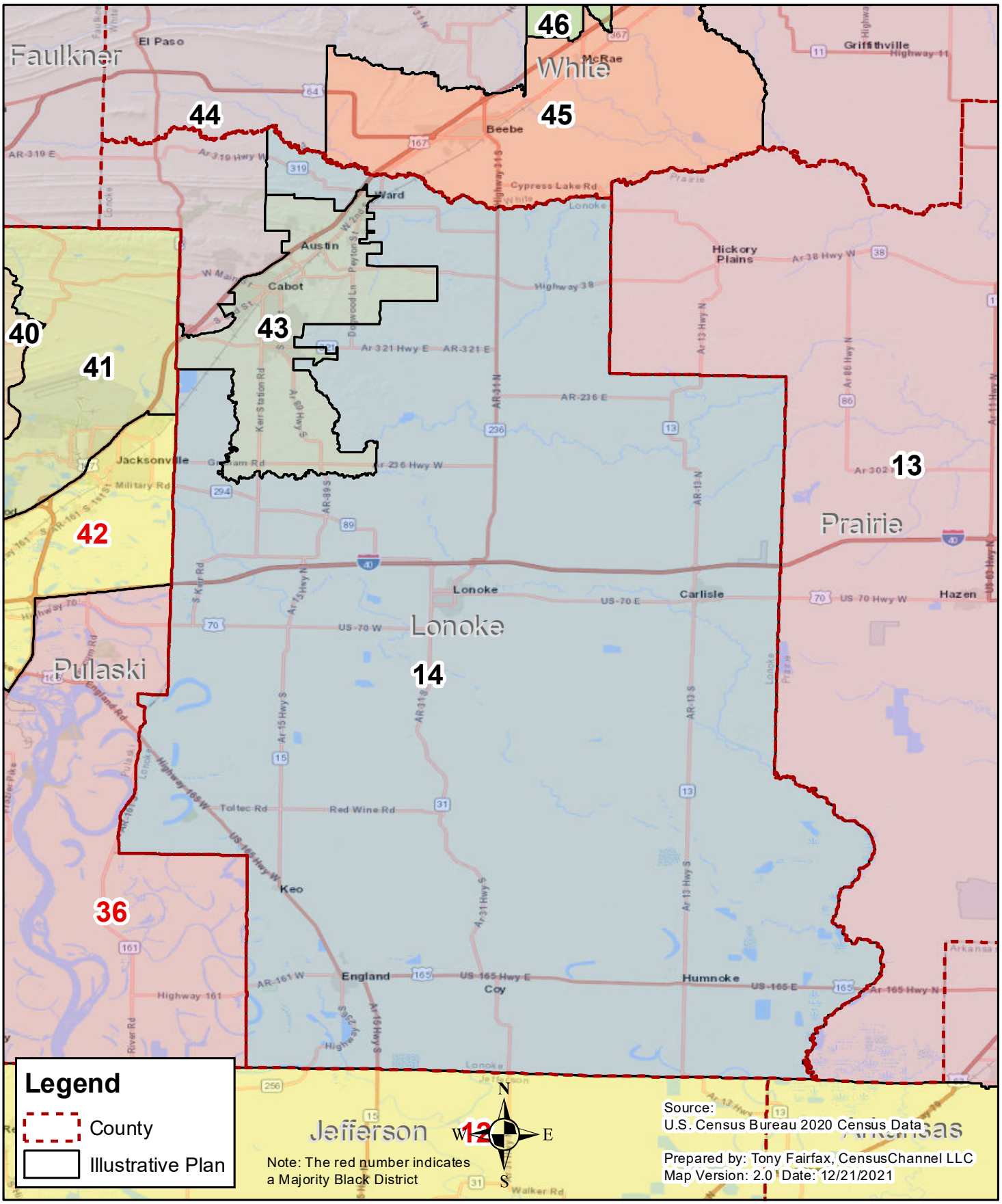

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State House District 15
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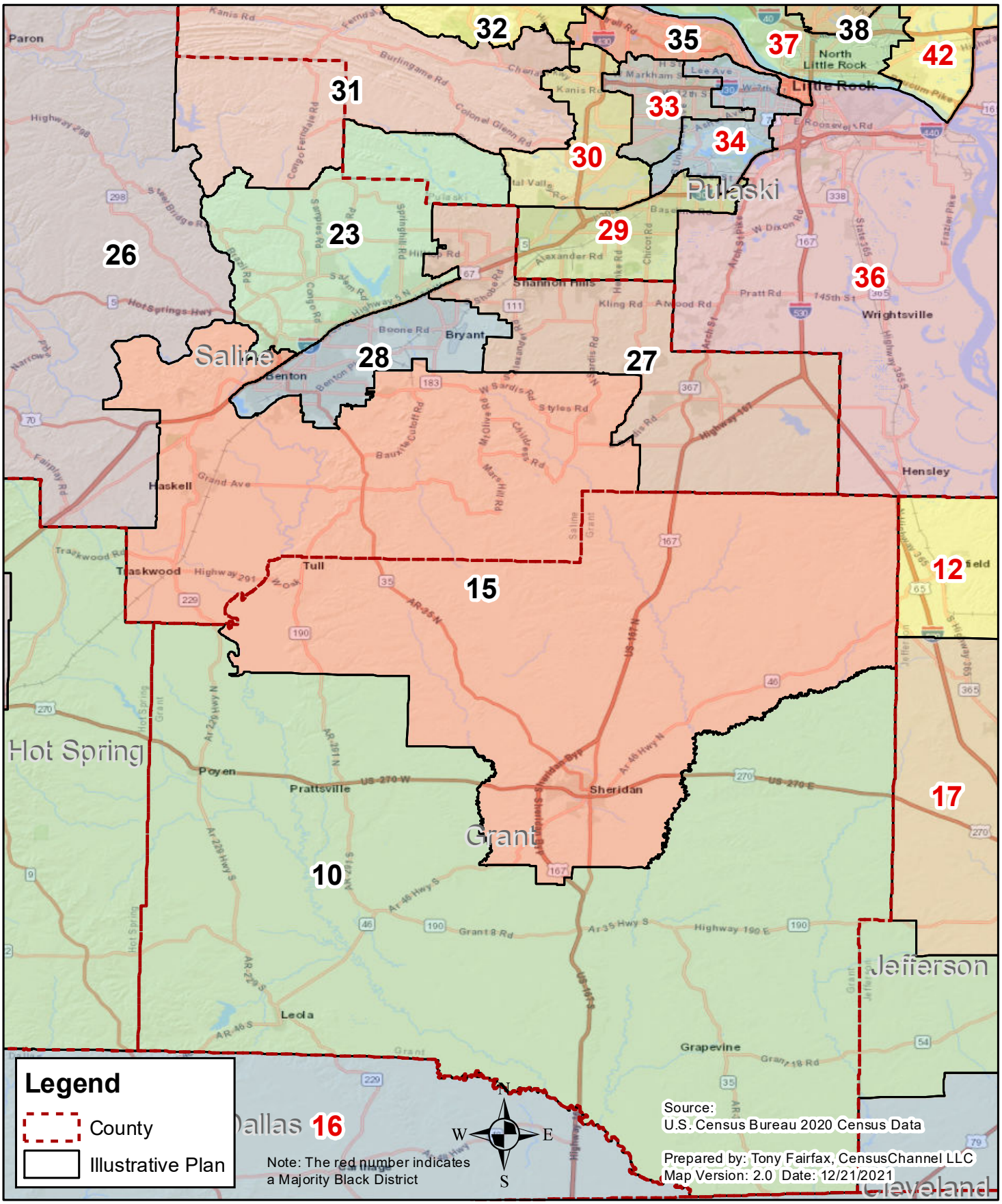
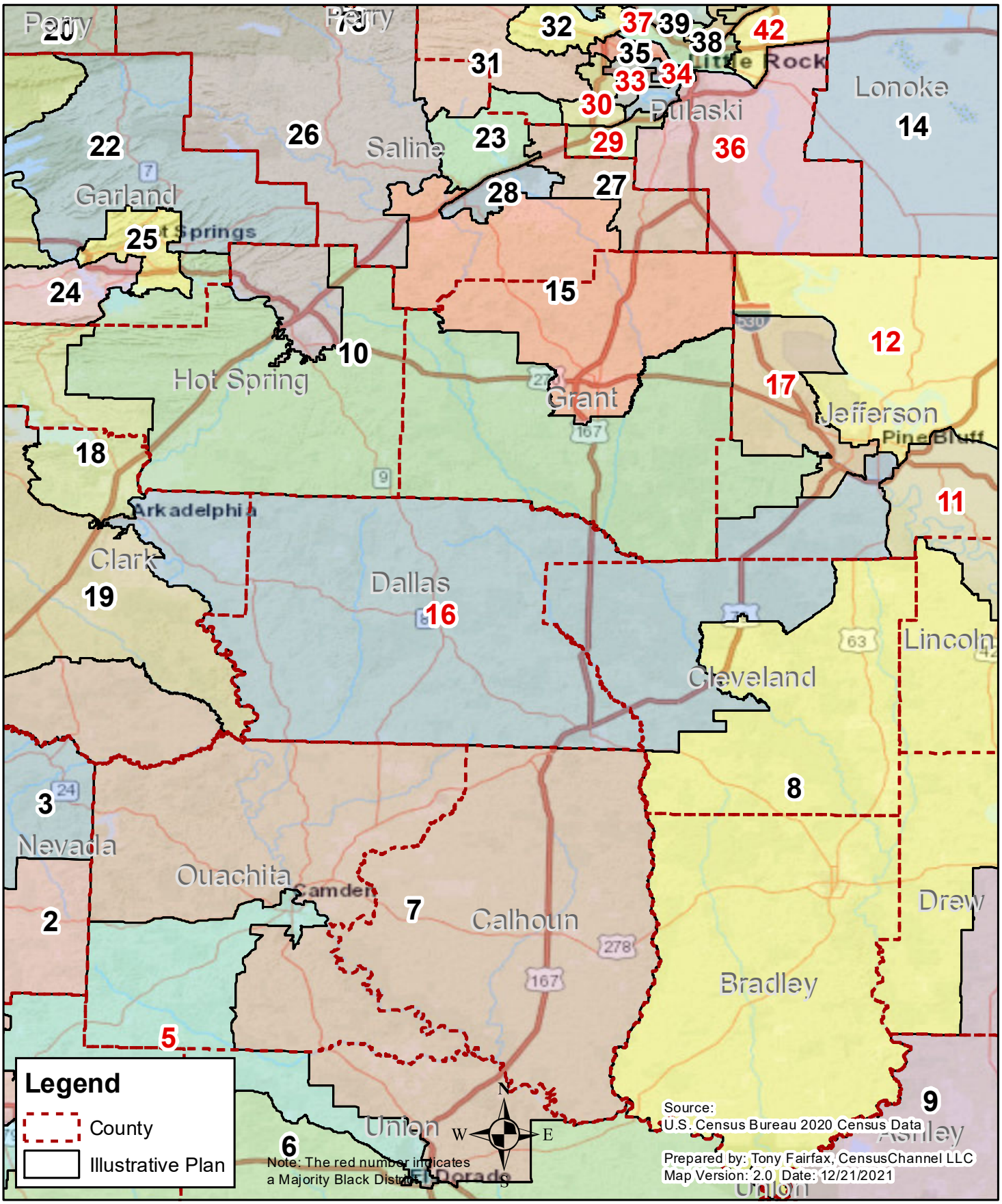


Arkansas

State House District 16

Illustrative Plan



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State House District 17
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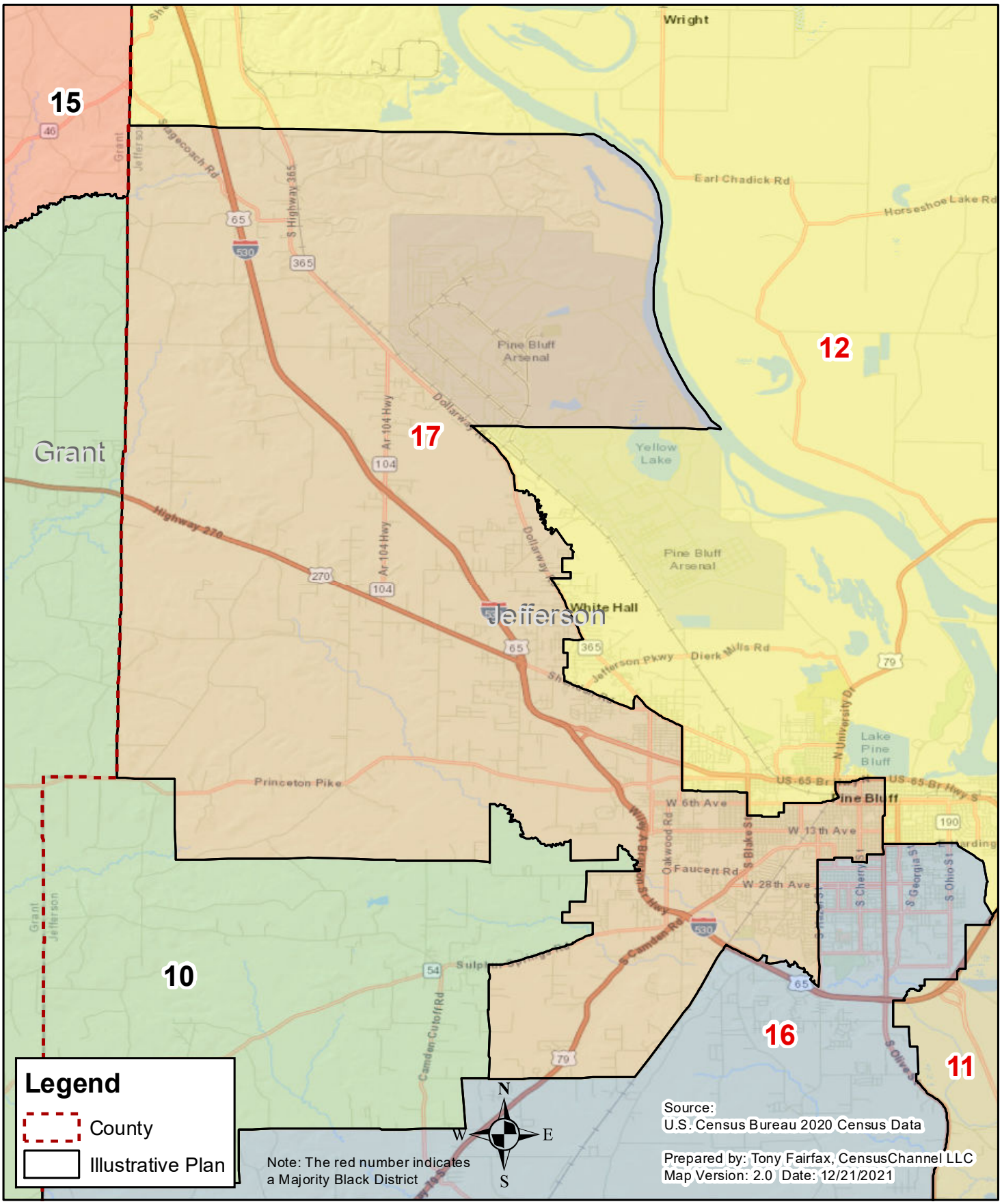

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State House District 18
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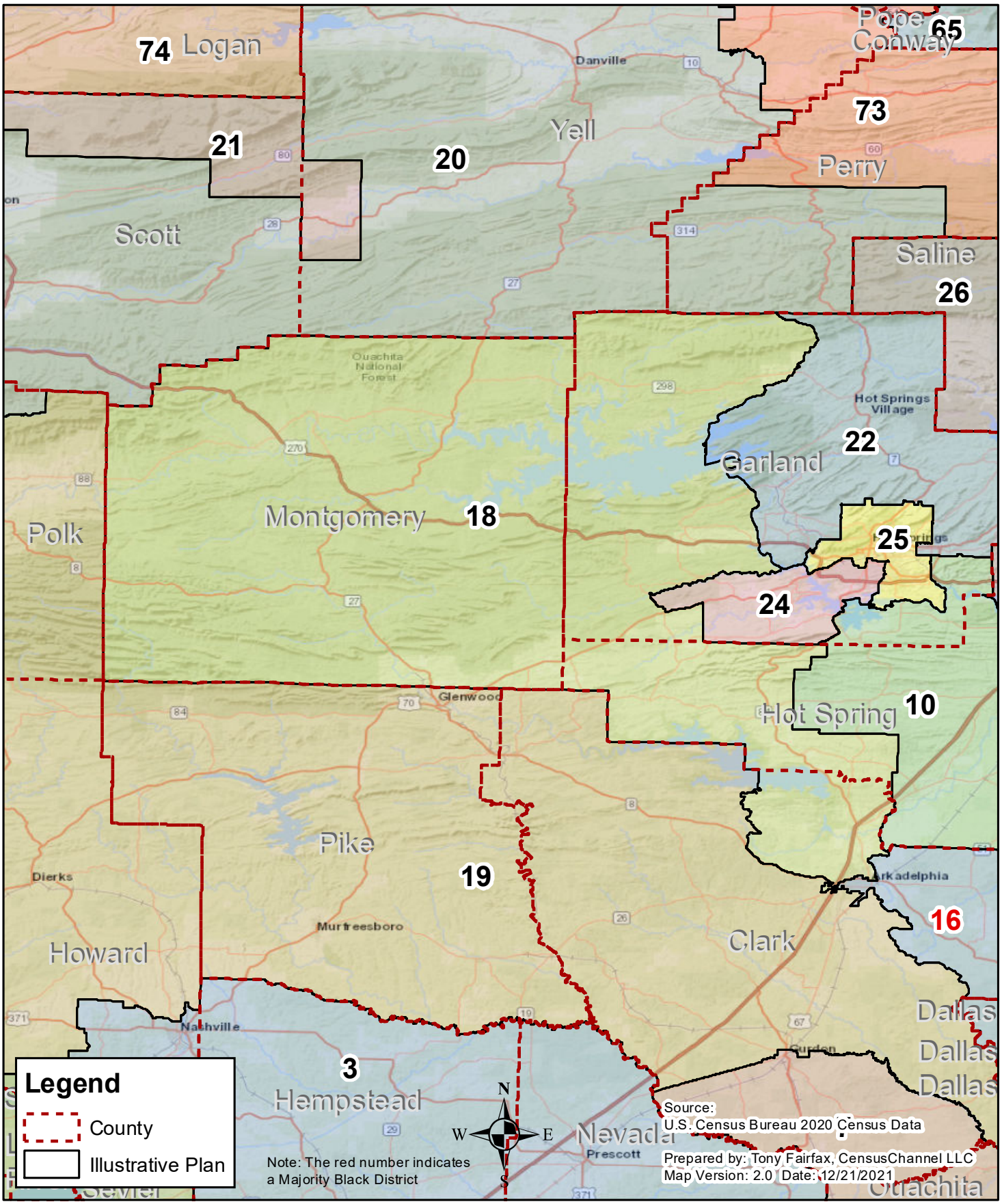
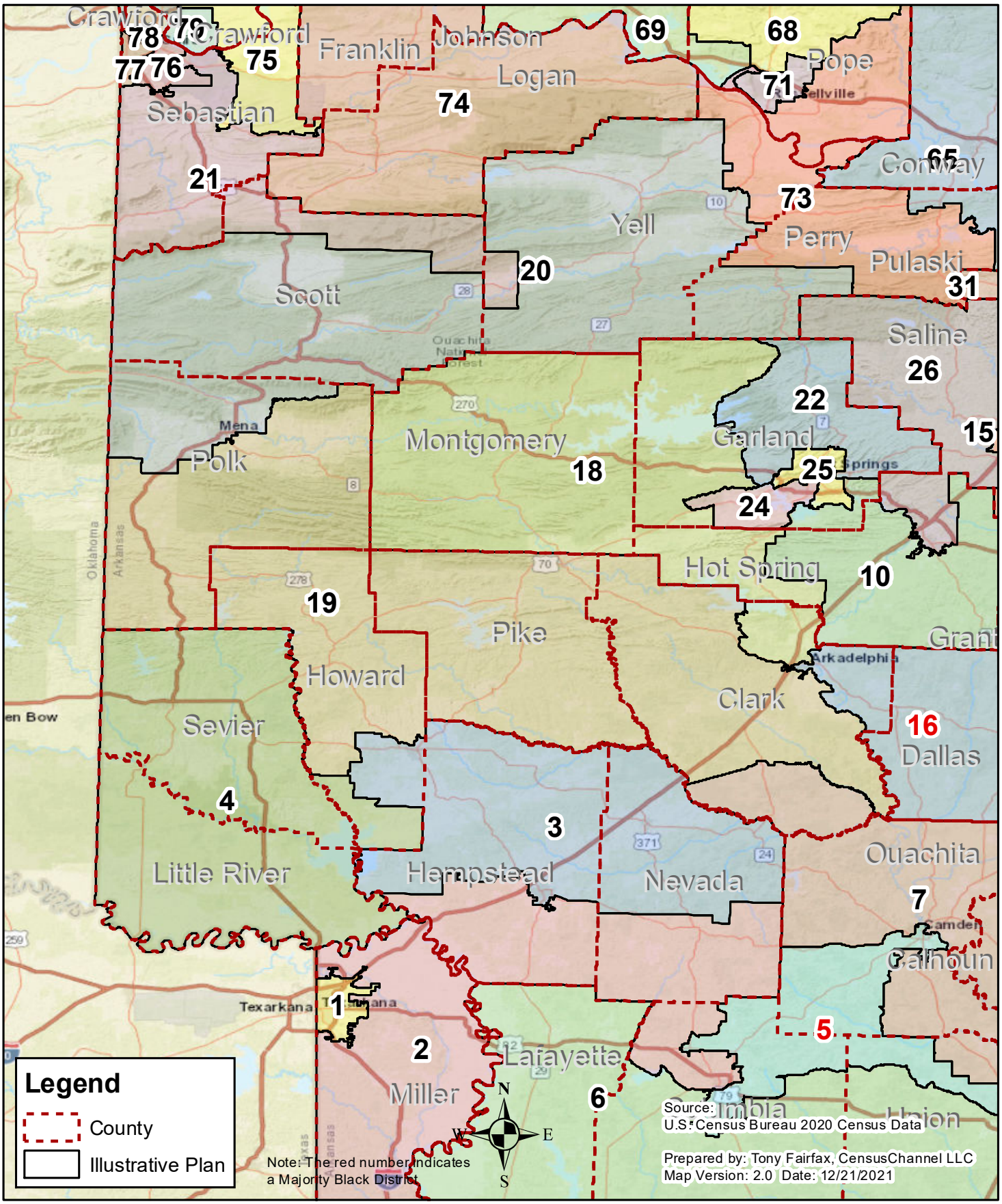


Arkansas

State House District 19

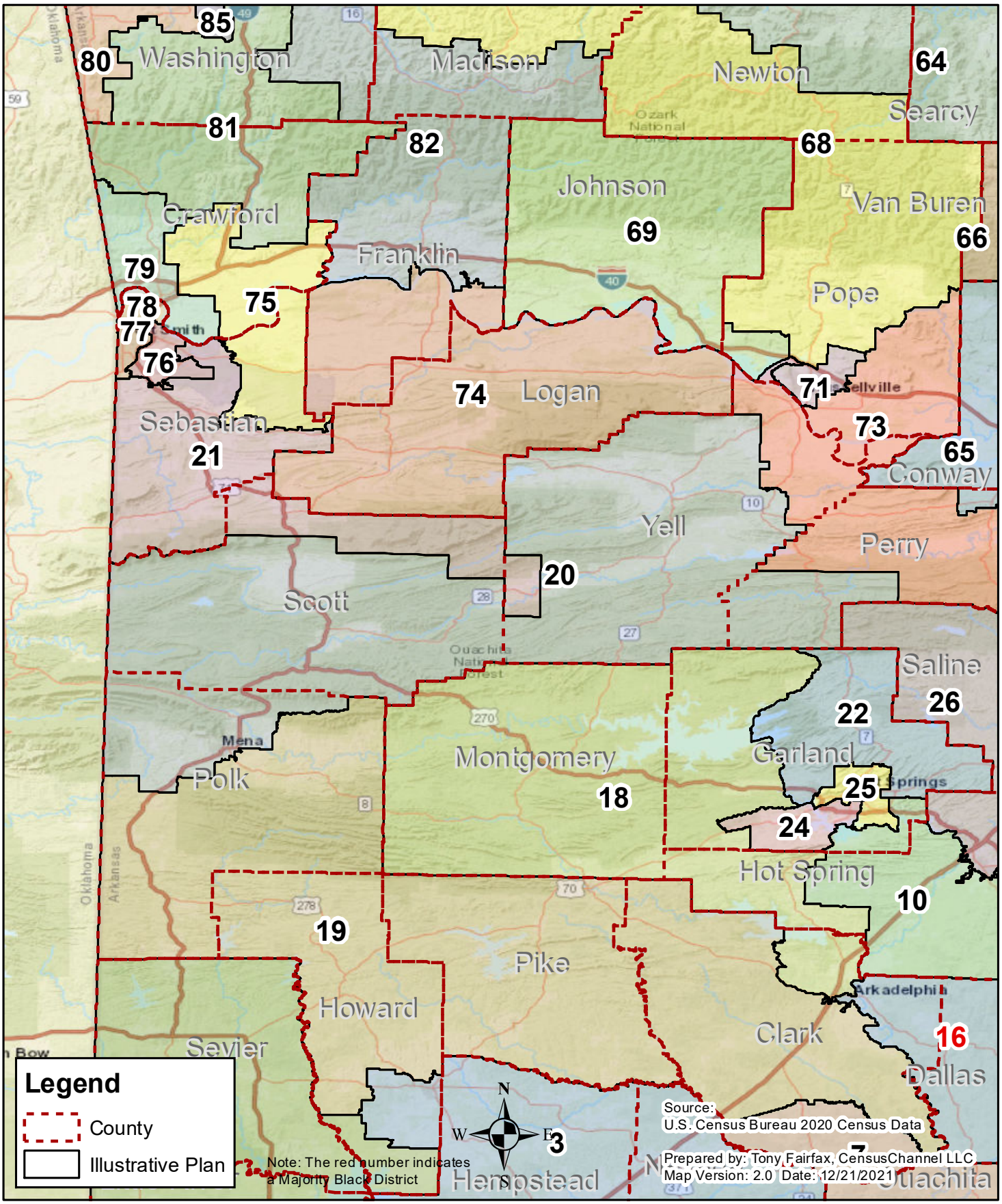
Illustrative Plan



Arkansas

State House District 20

Illustrative Plan



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State House District 21
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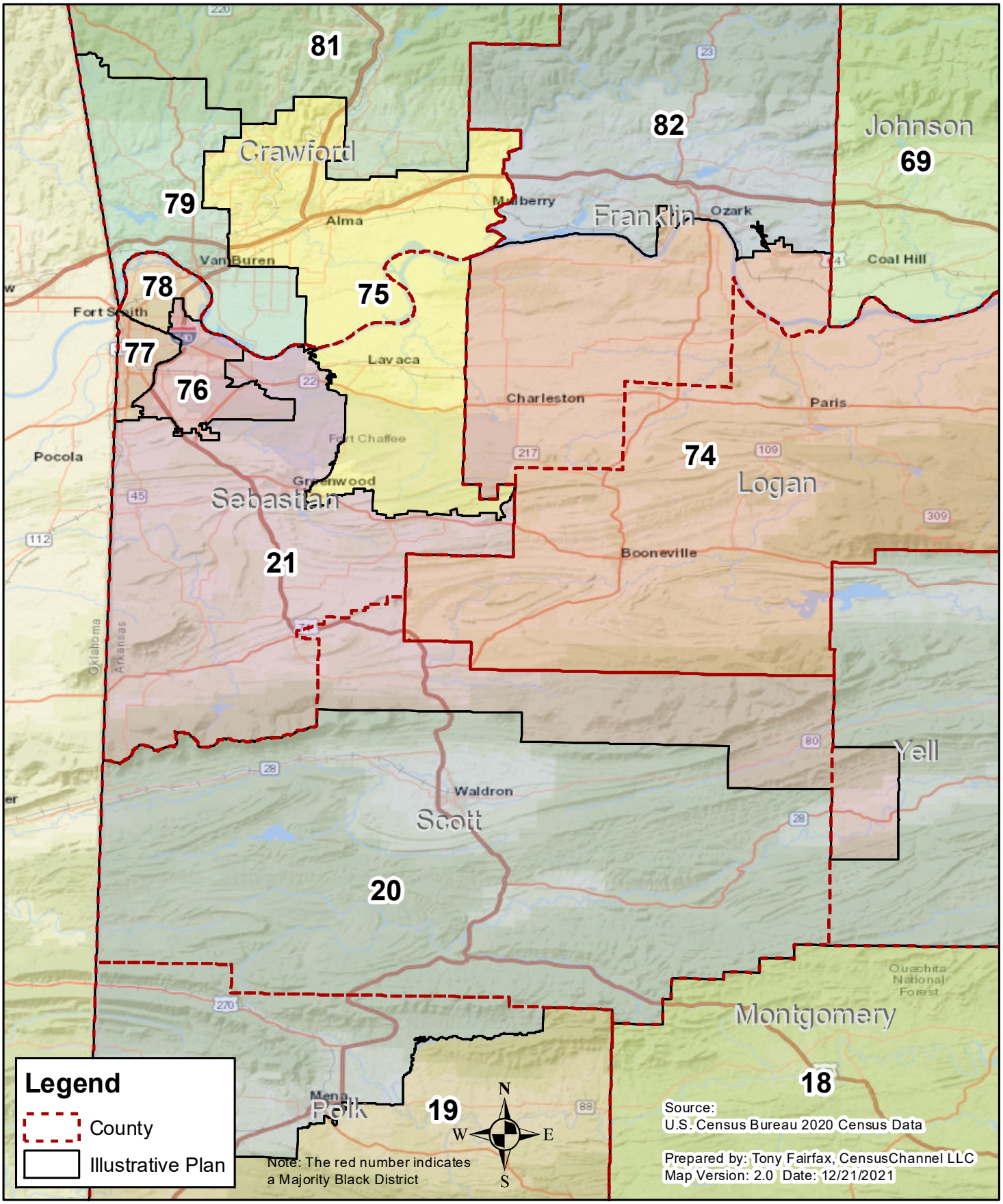

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State House District 22
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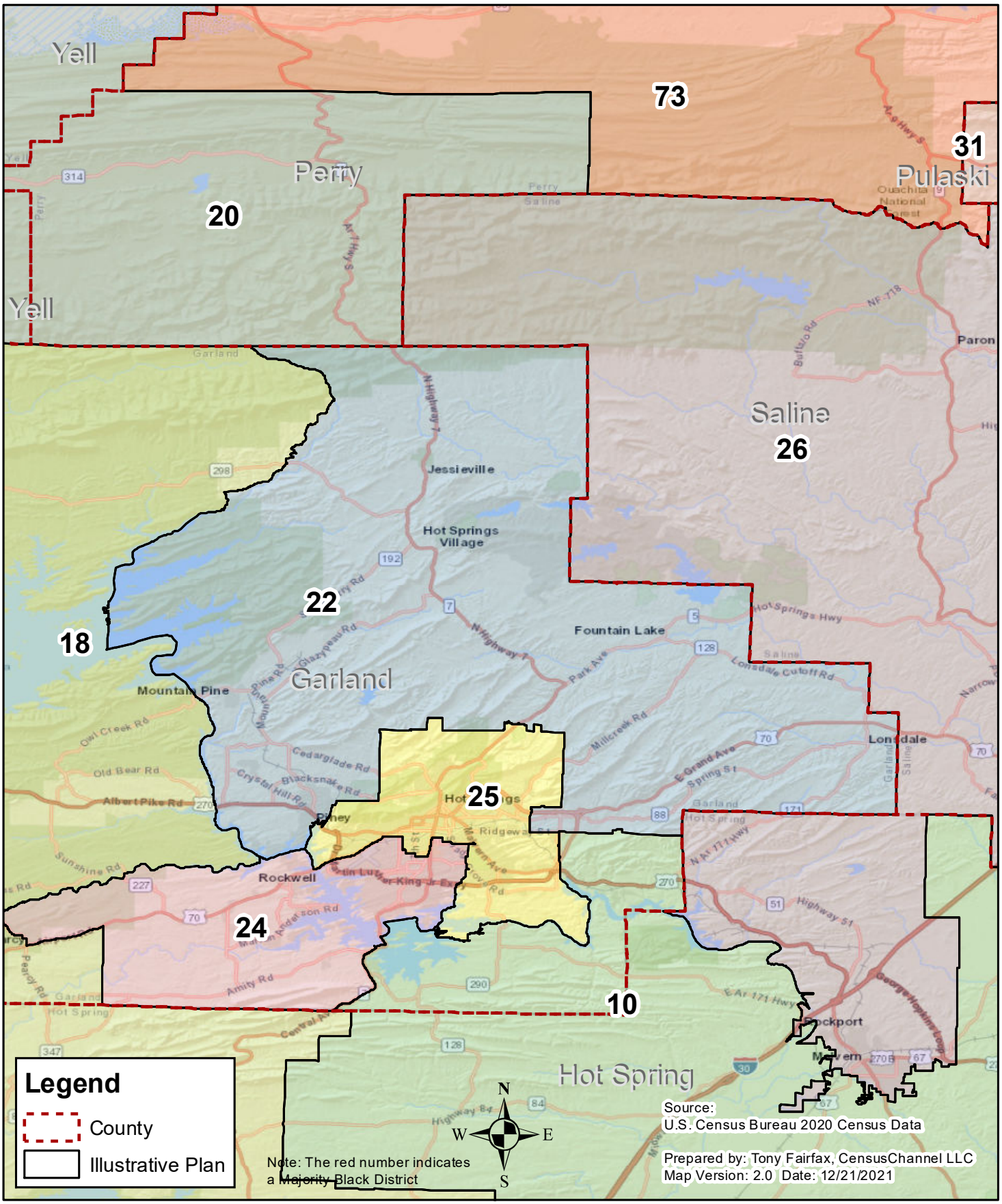

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State House District 23
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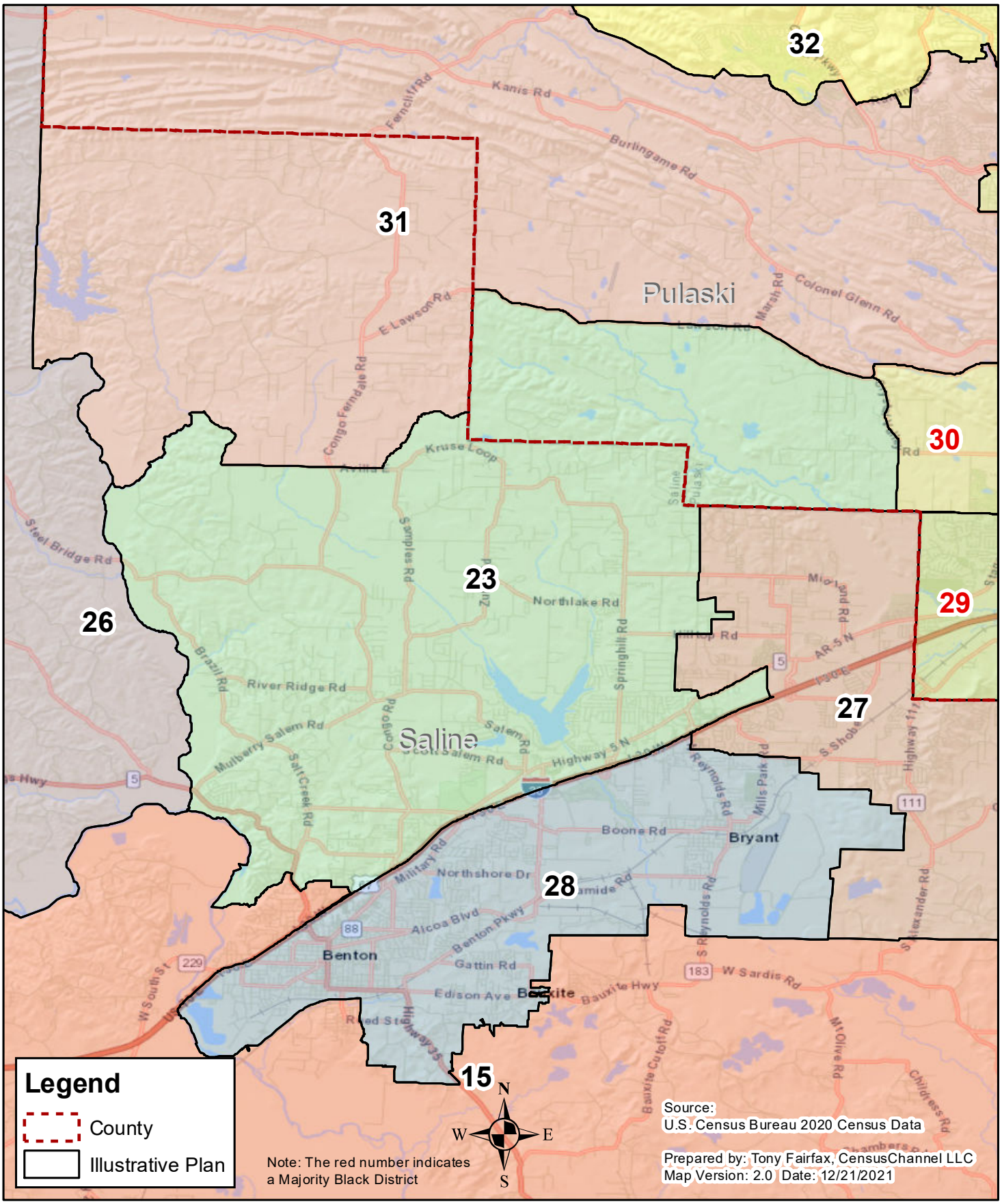

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State House District 24
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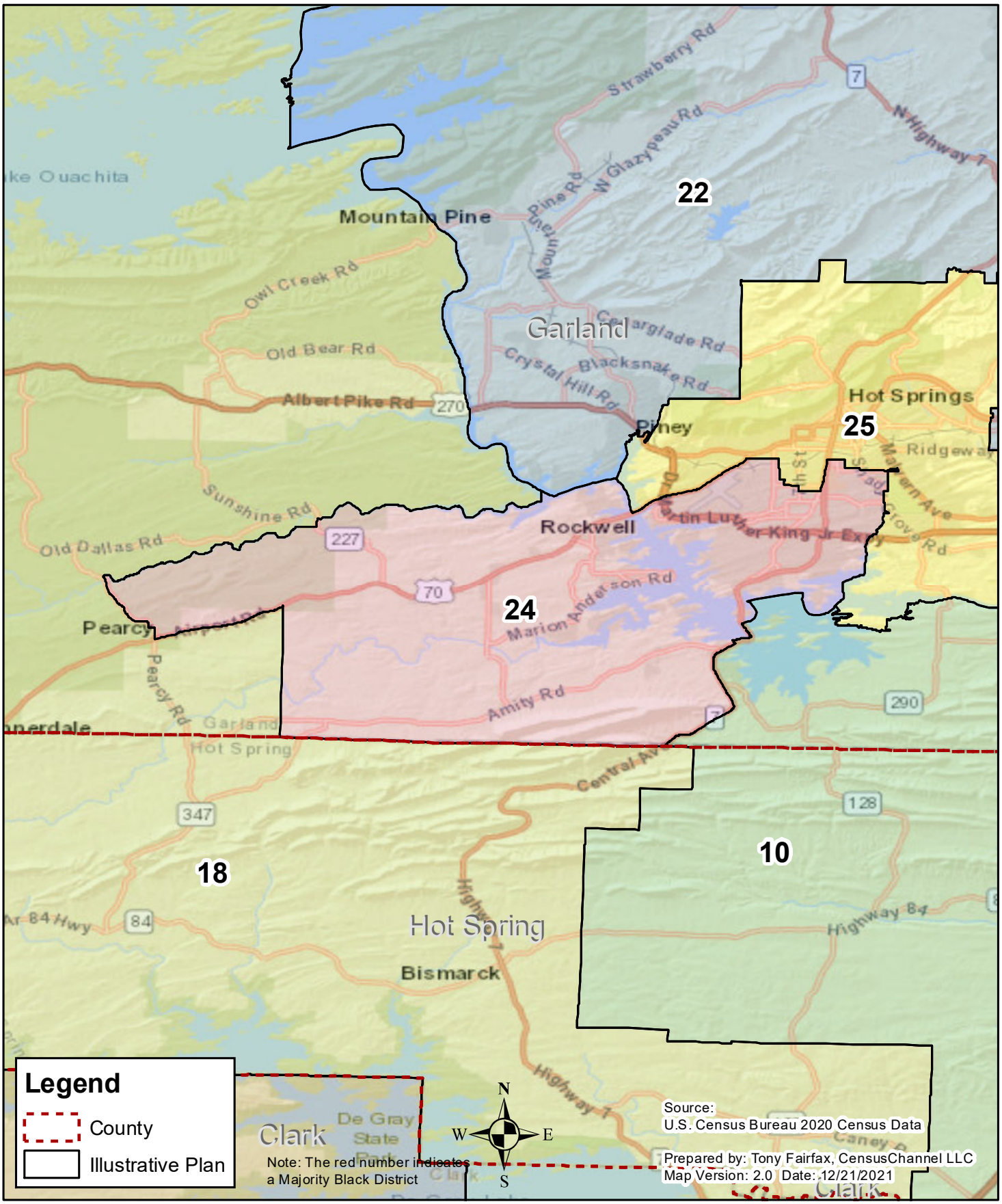

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State House District 25
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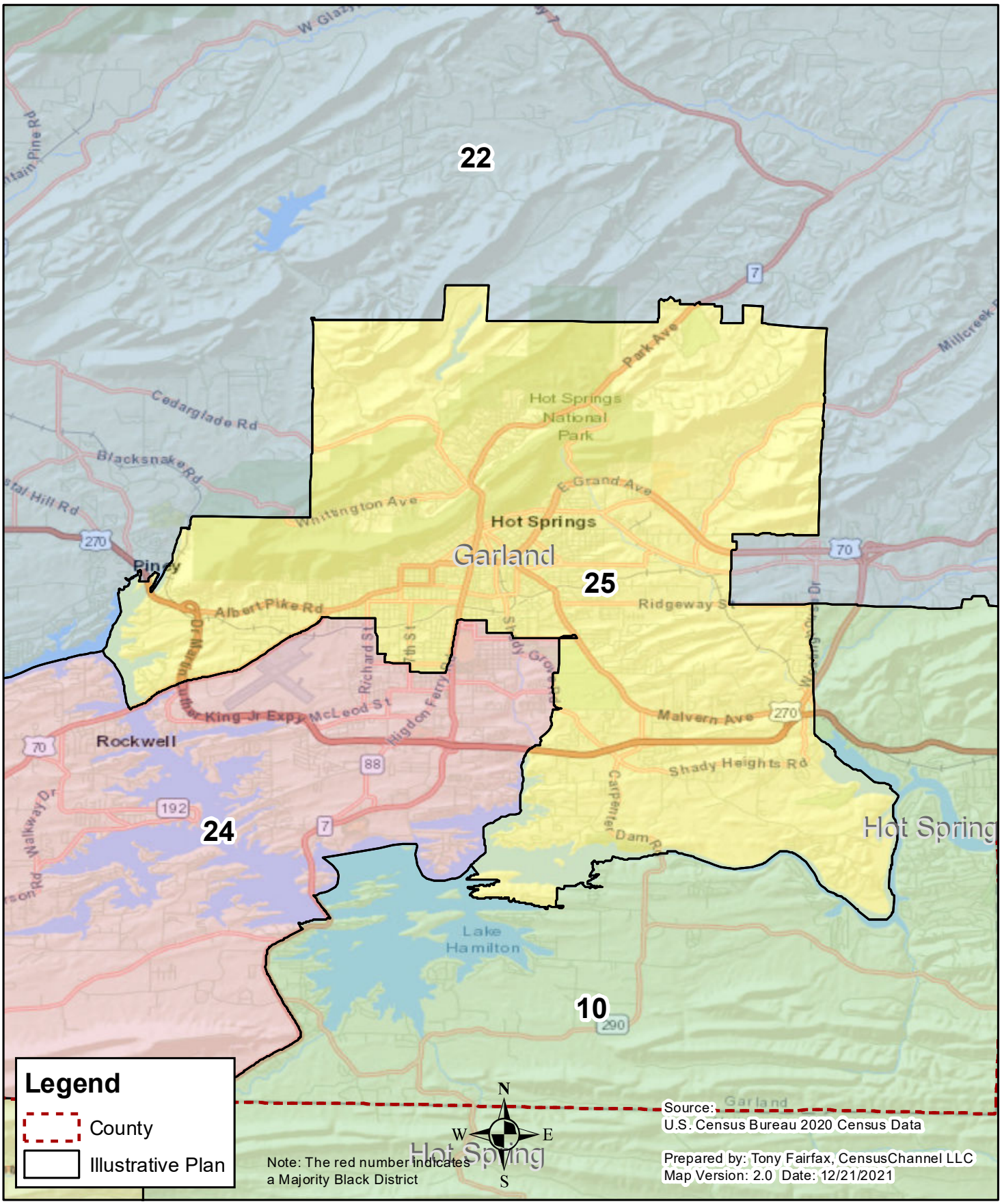

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State House District 26
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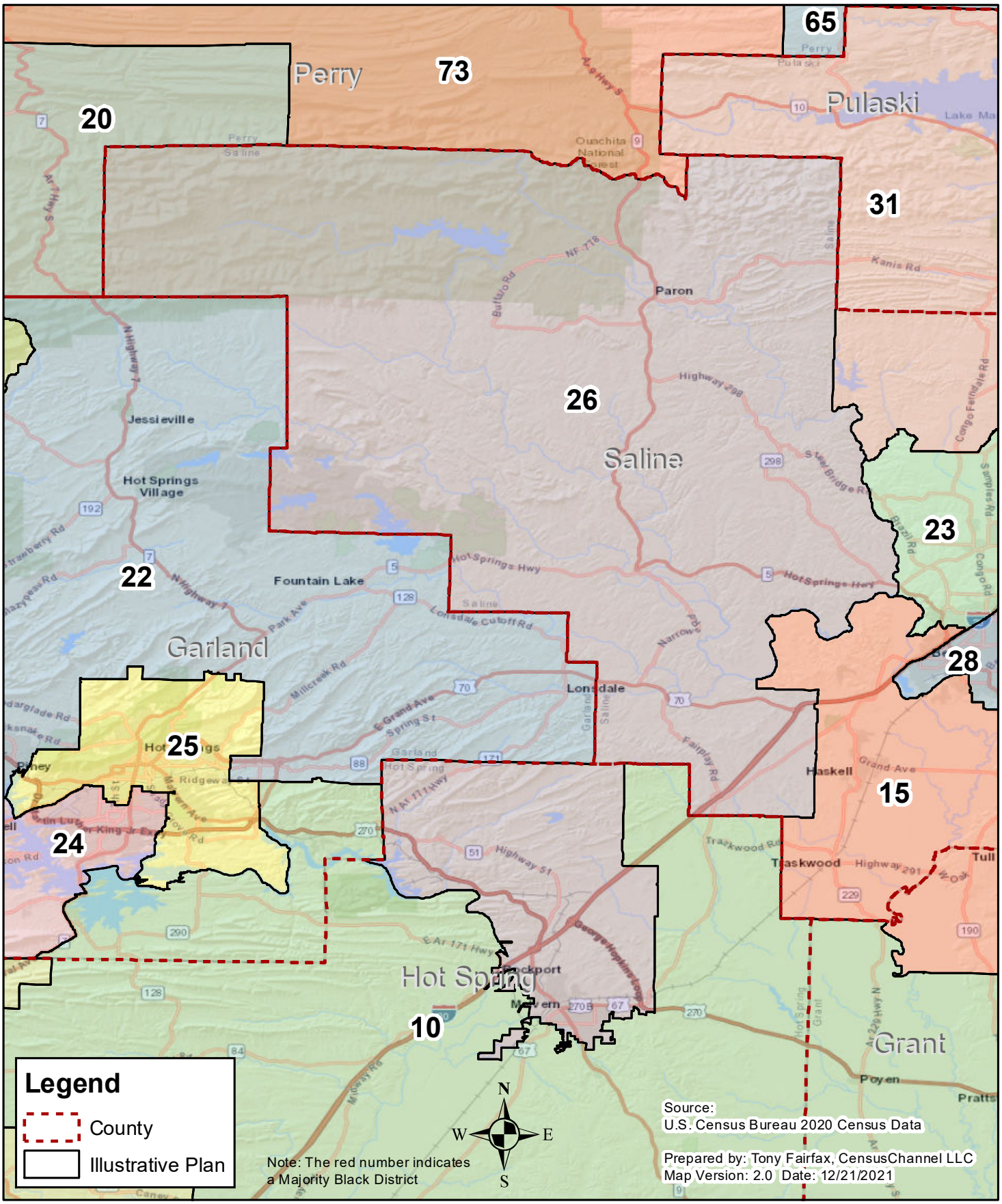

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State House District 27
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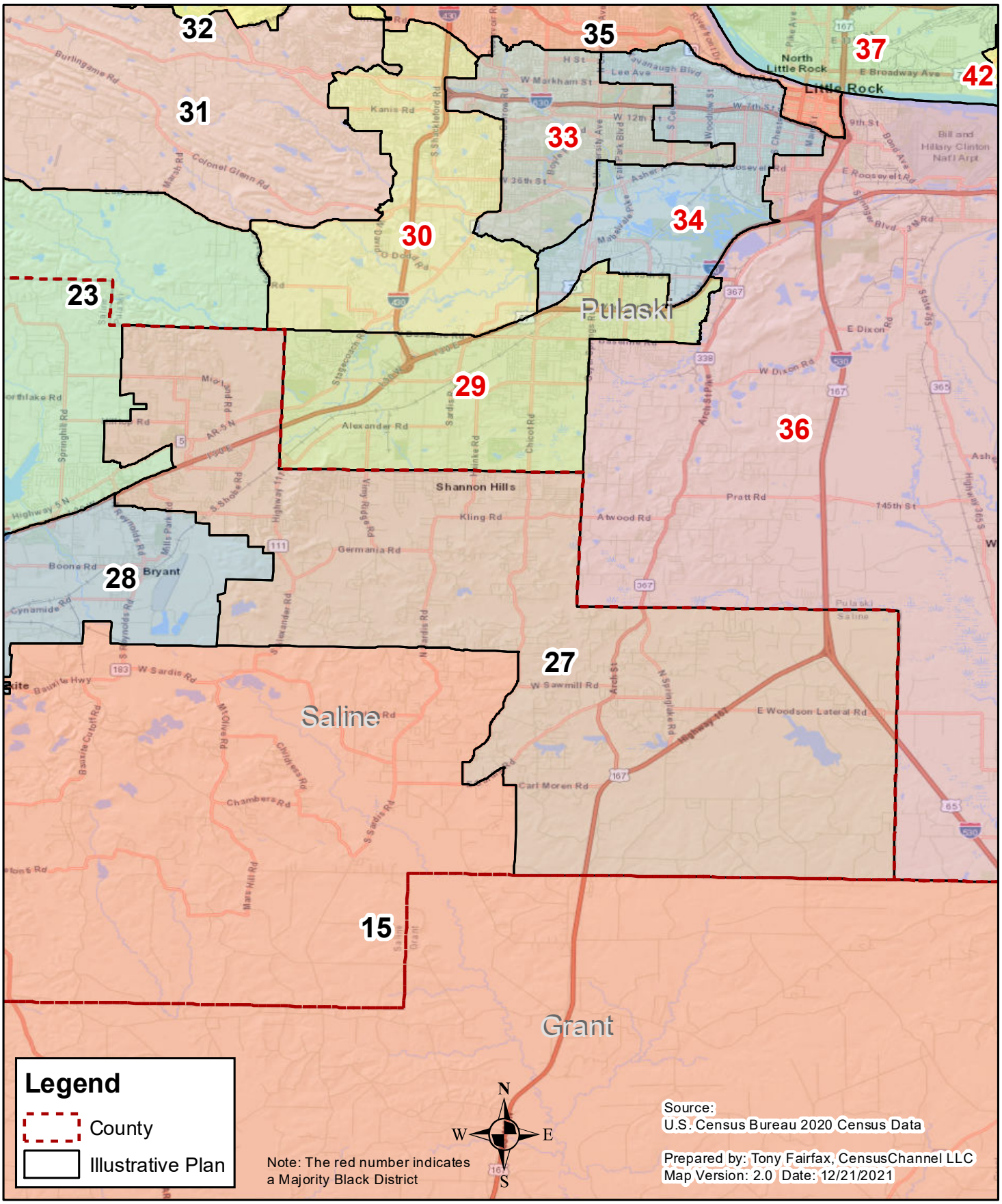

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State House District 28
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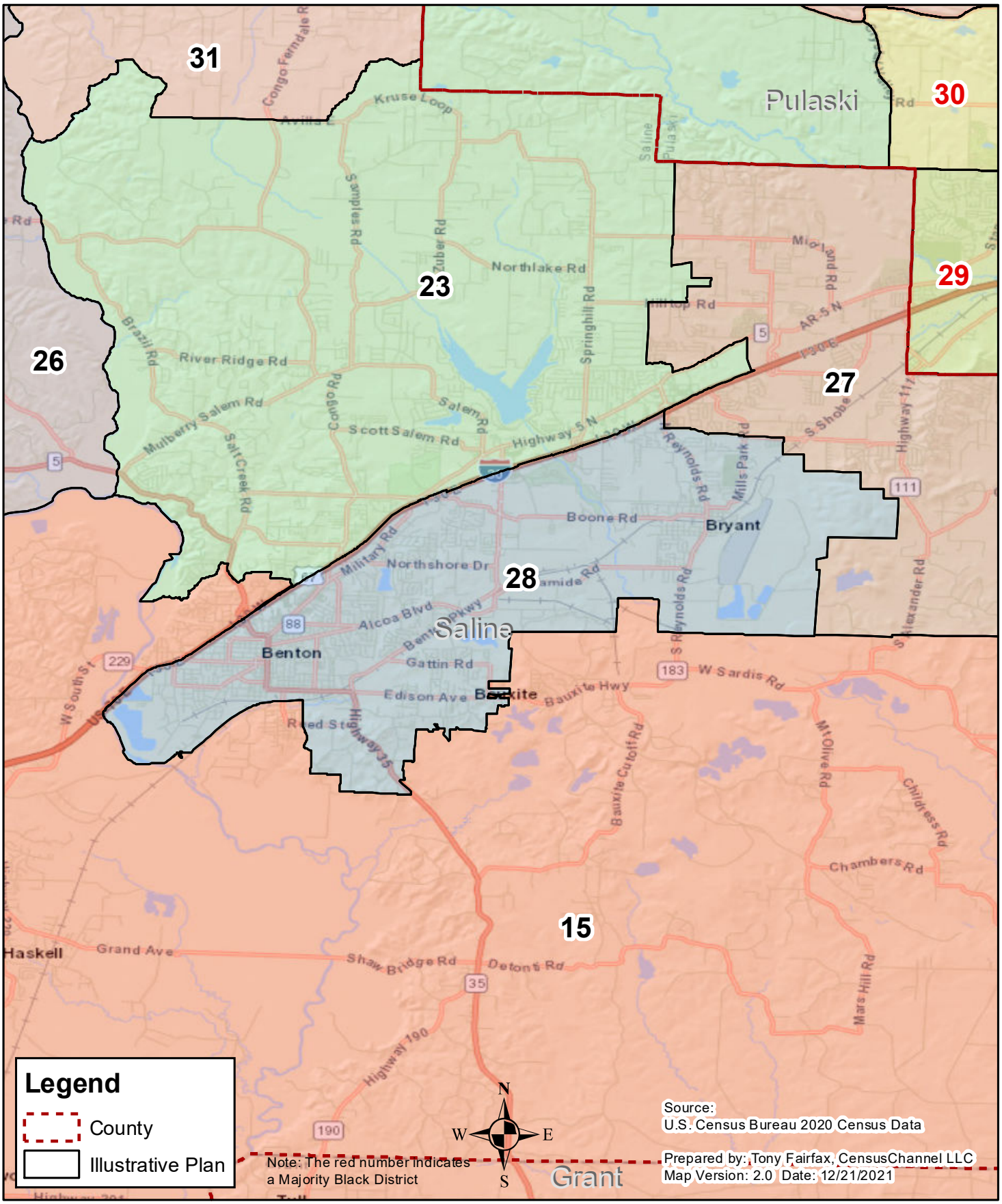

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State House District 29
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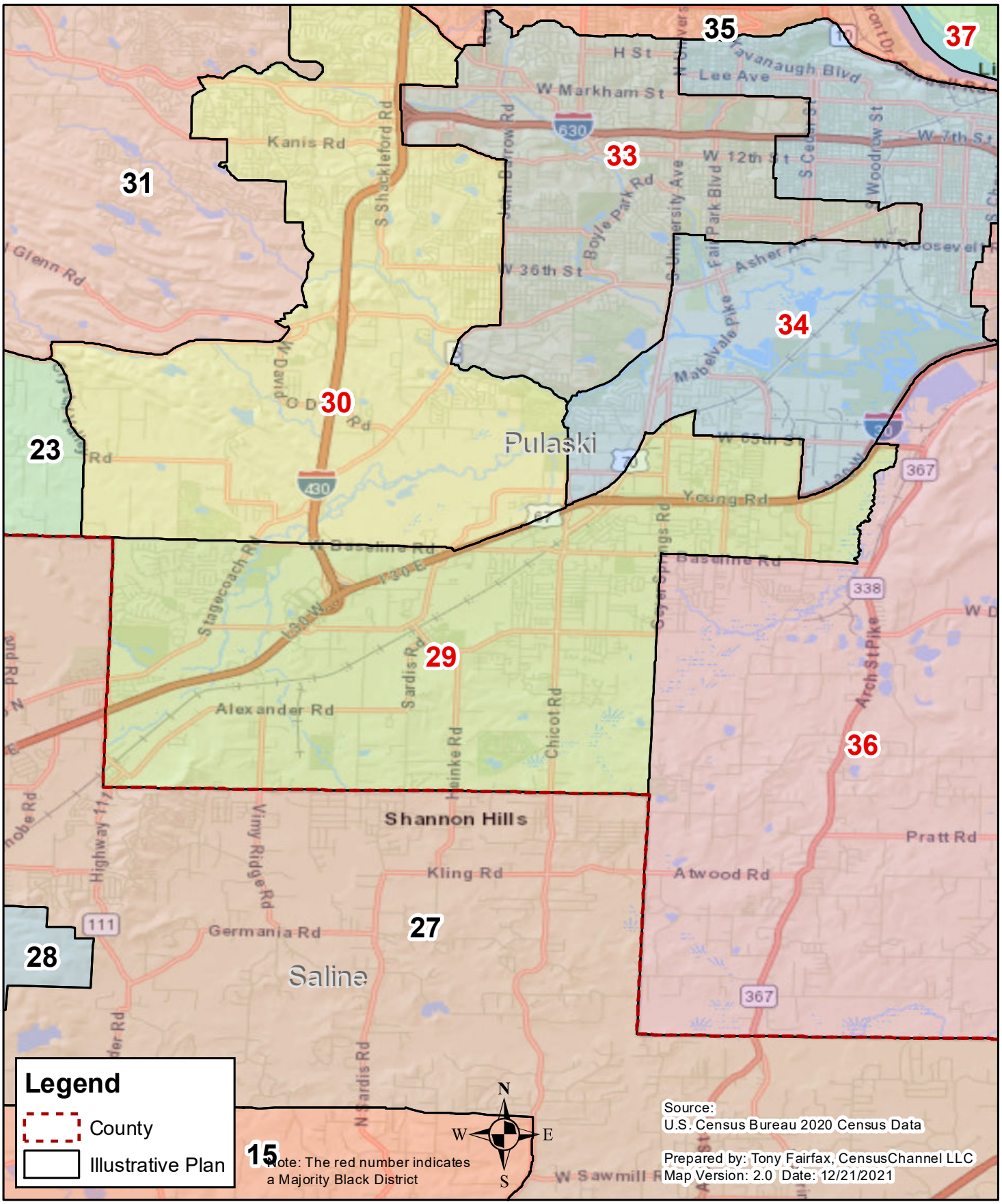

Arkansas
State House District 30
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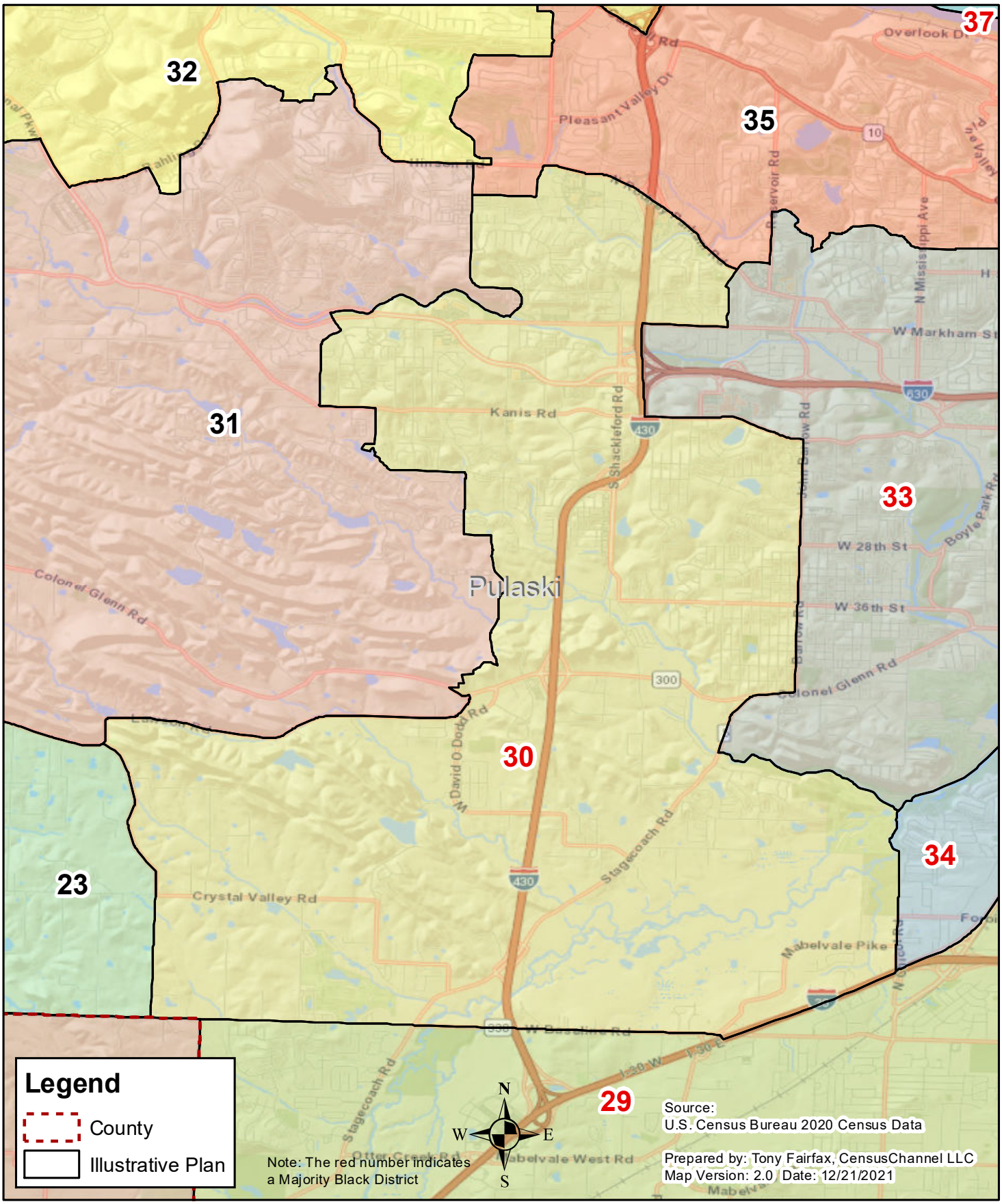
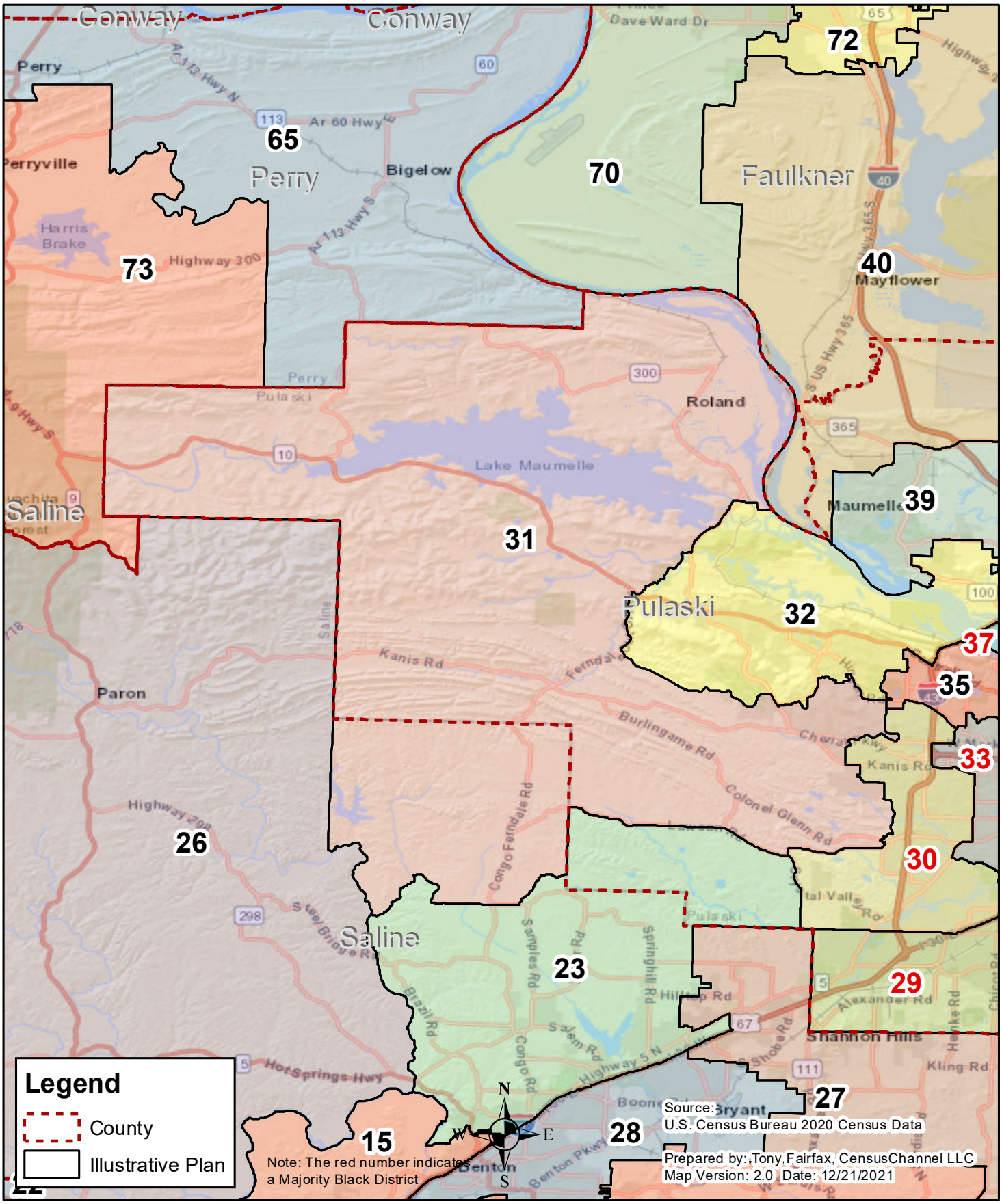


Arkansas

State House District 31

Illustrative Plan



Arkansas
State House District 32
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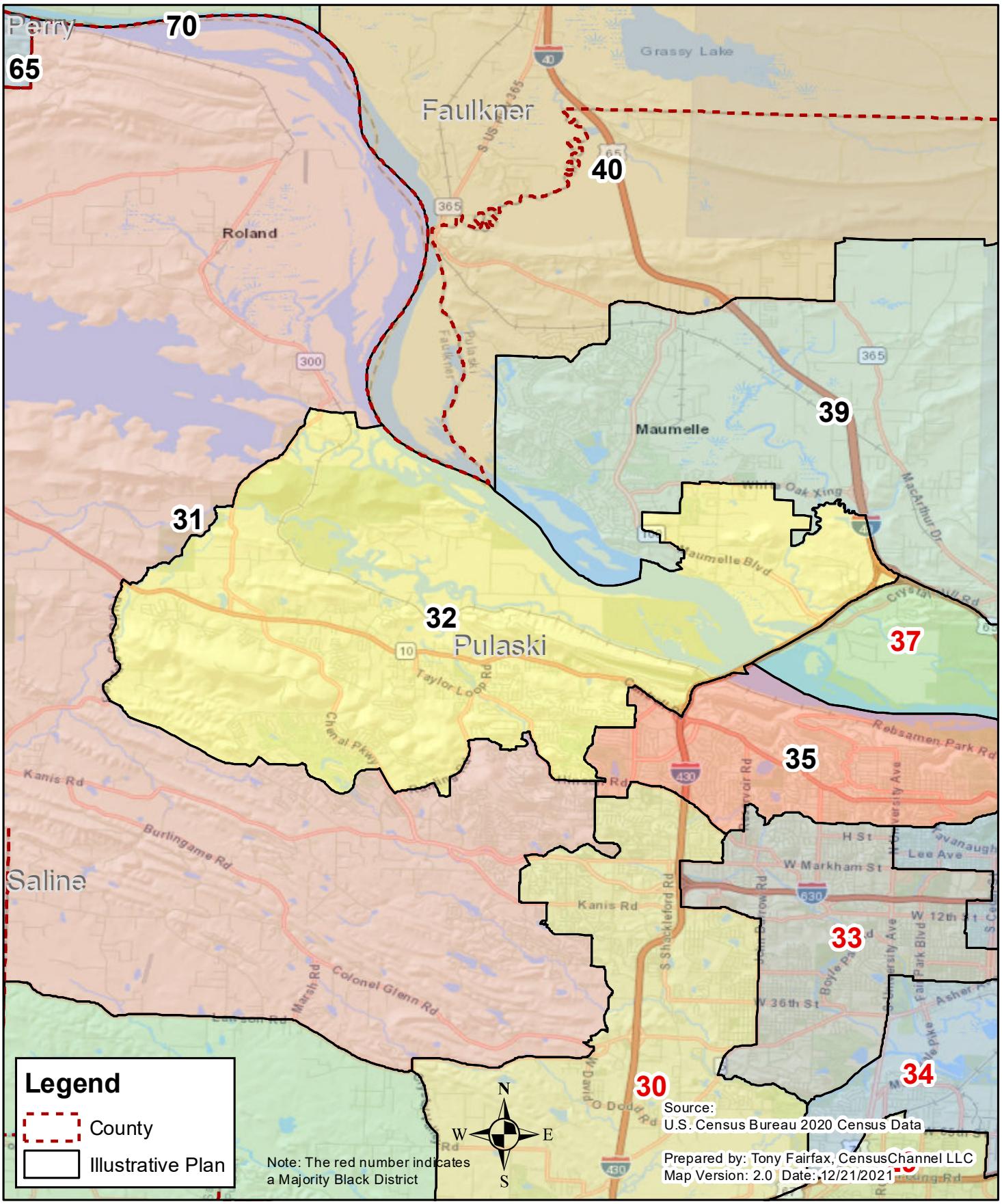

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State House District 33
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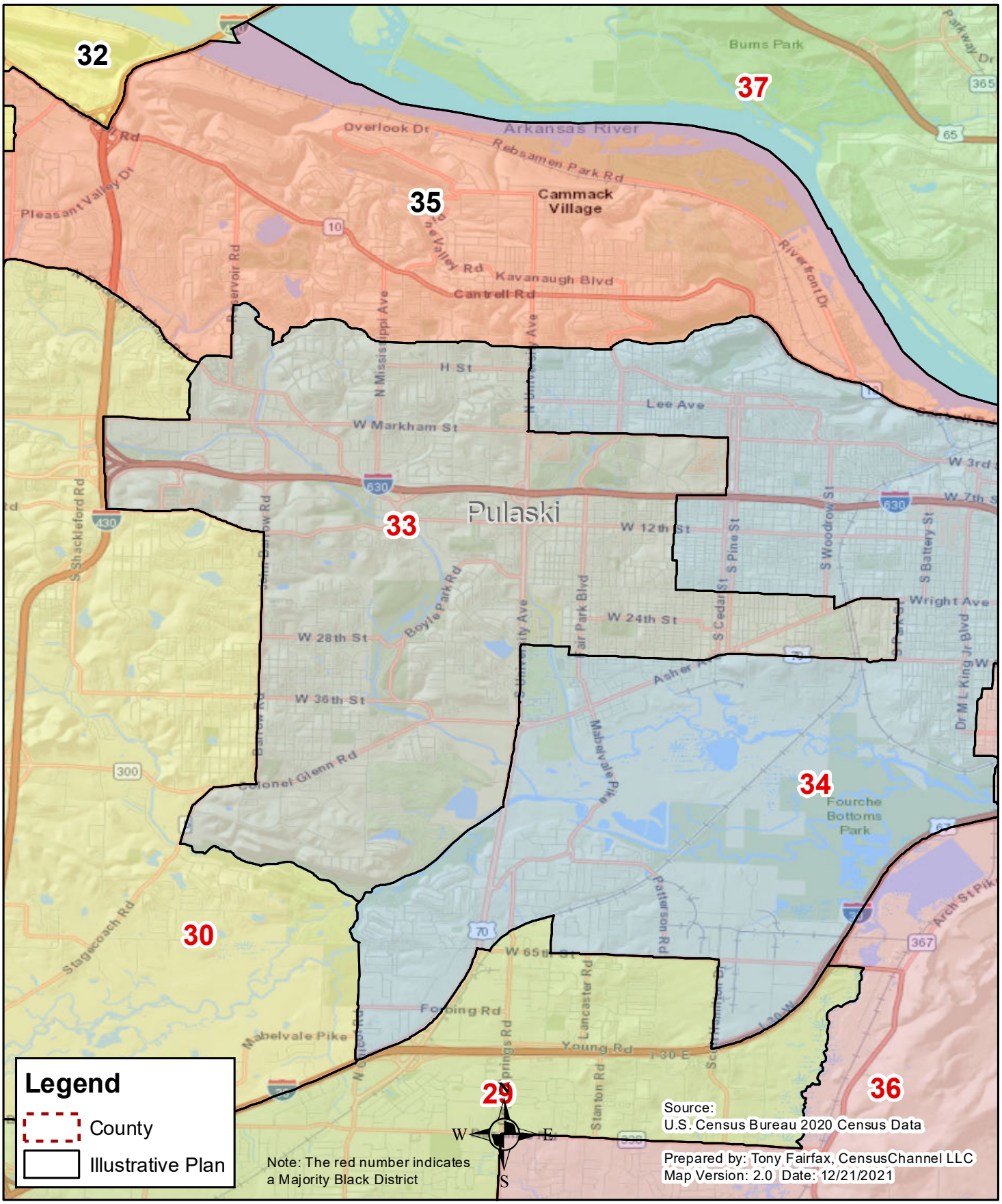
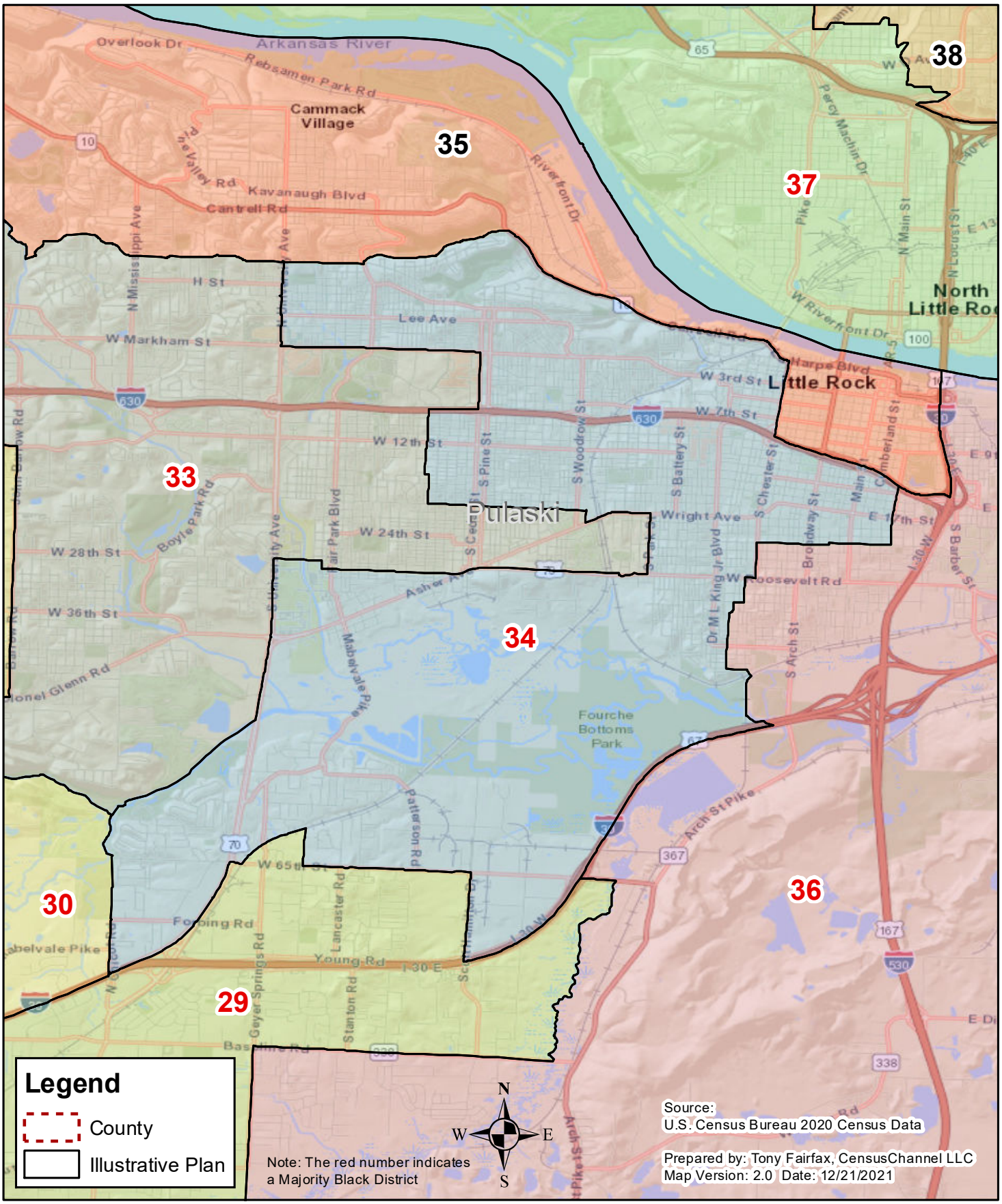


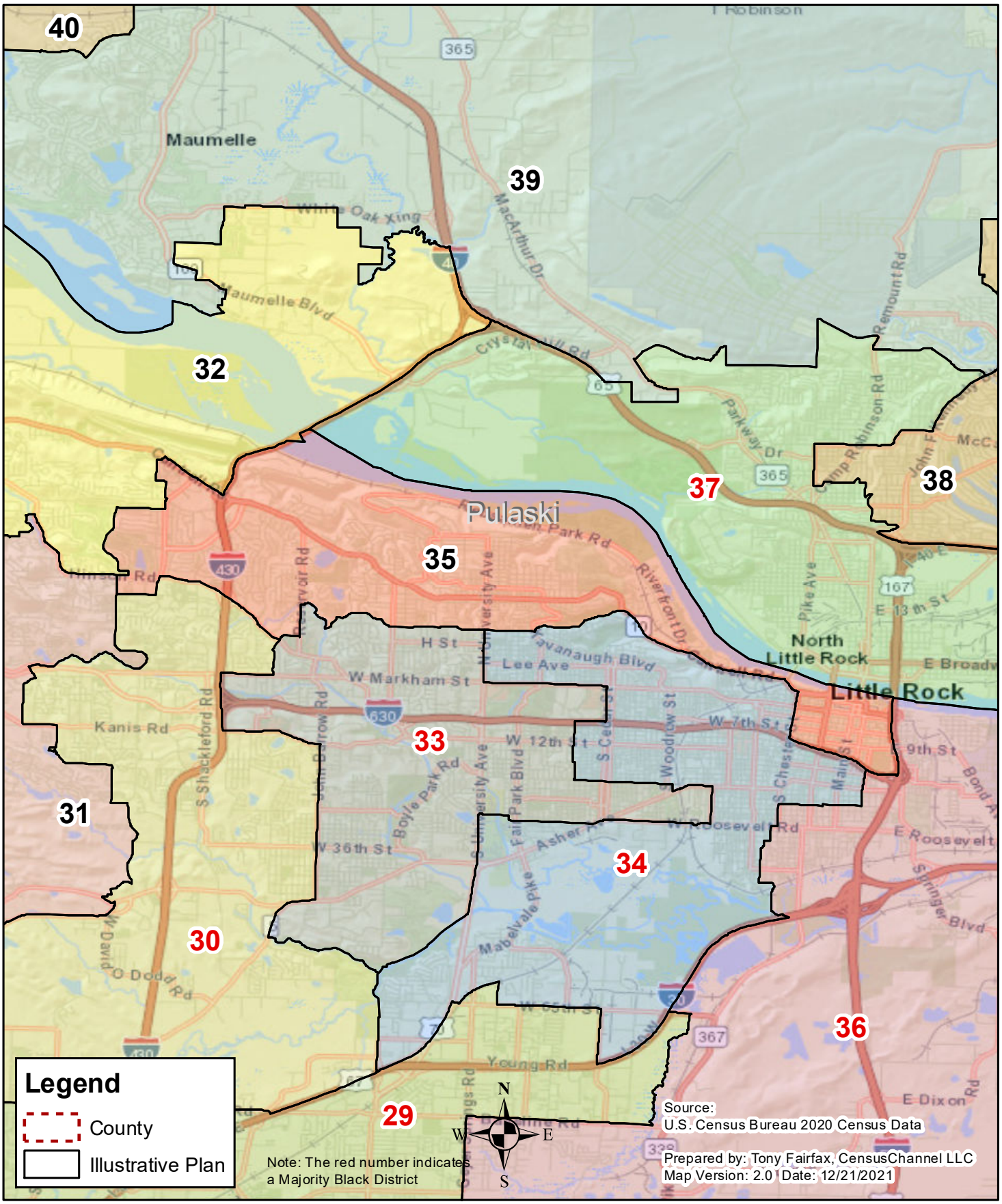
Arkansas
State House District 34
Illustrative Plan



Arkansas

State House District 35

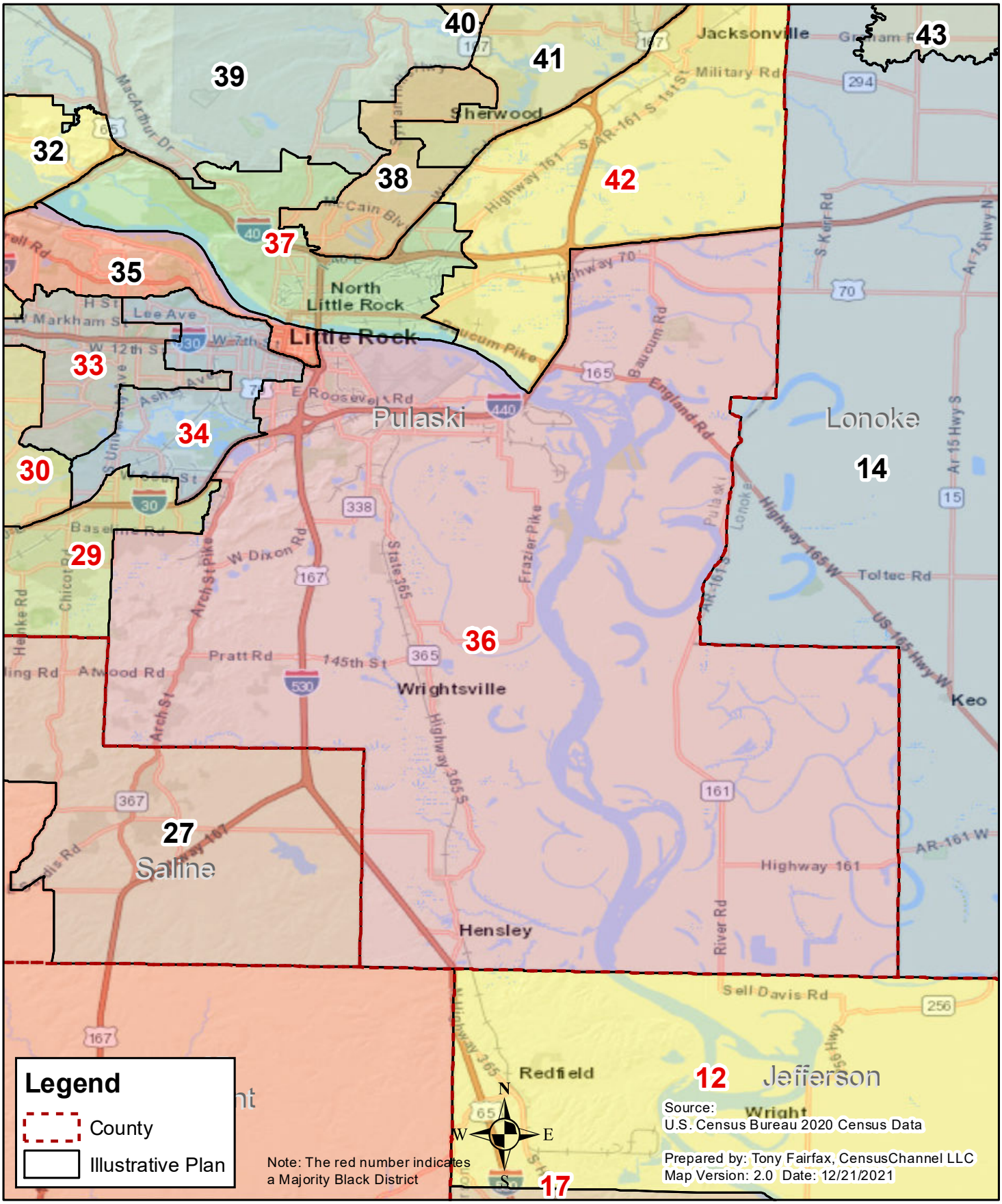
Illustrative Plan



Arkansas

State House District 36

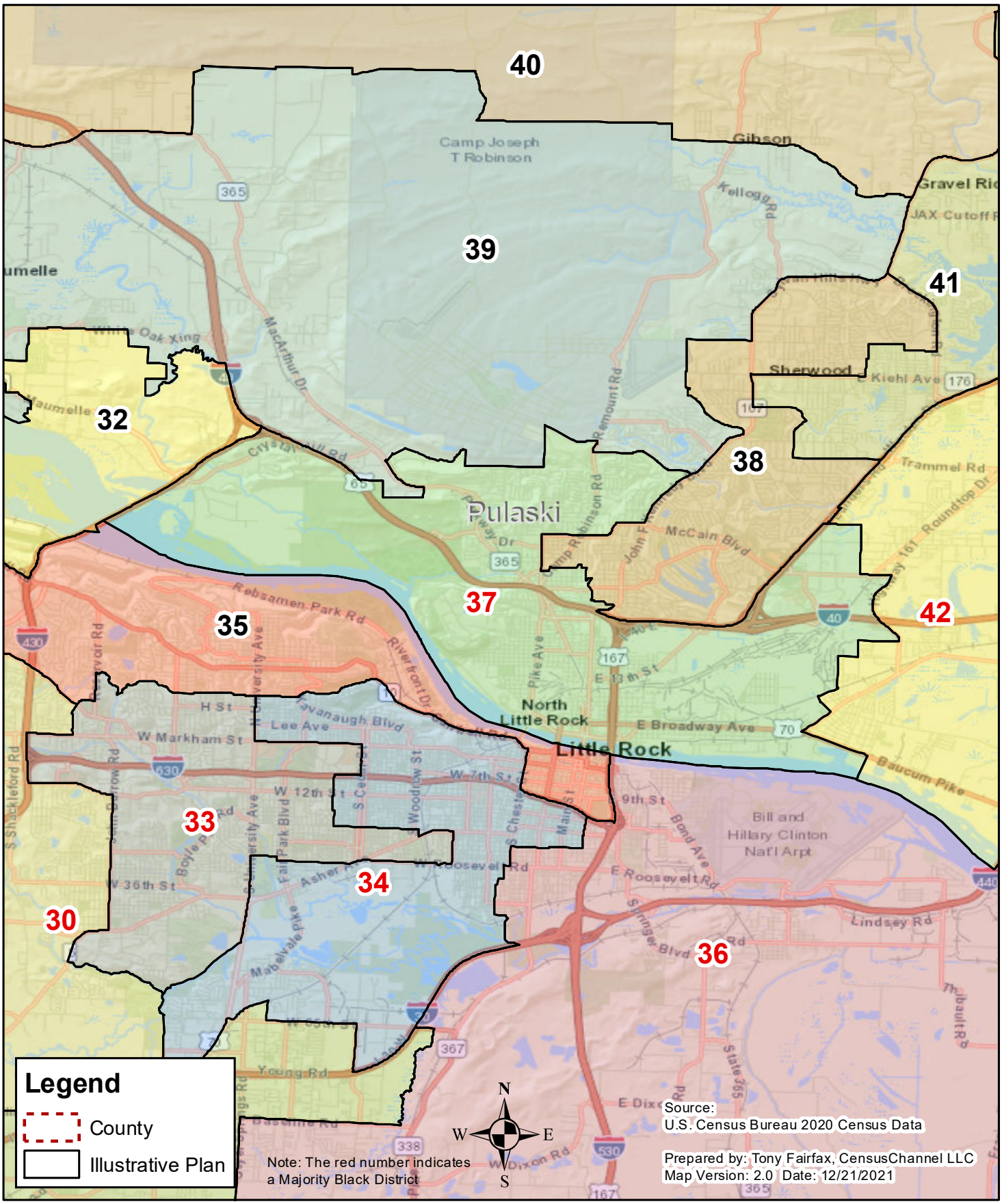
Illustrative Plan



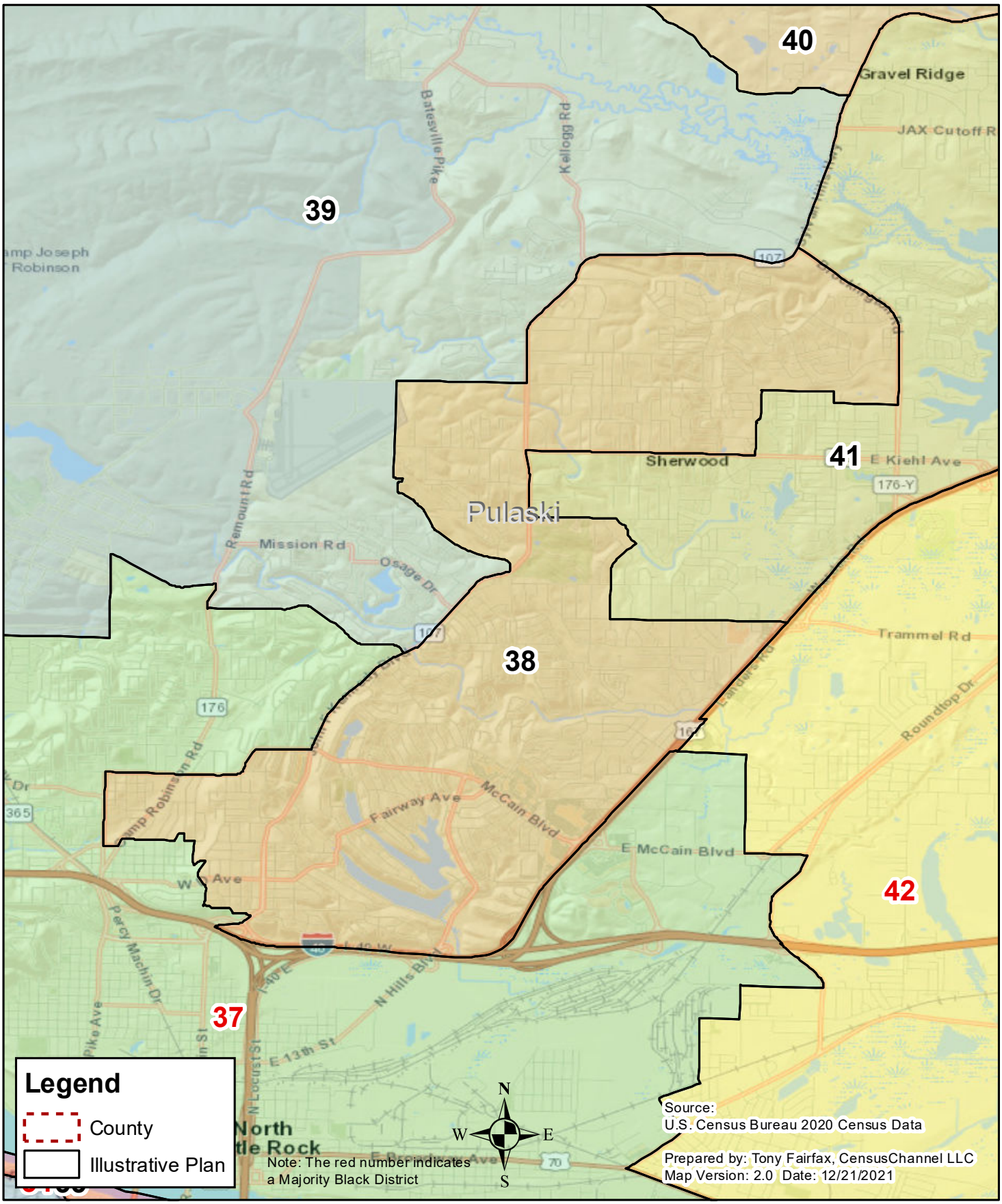
Arkansas

State House District 37

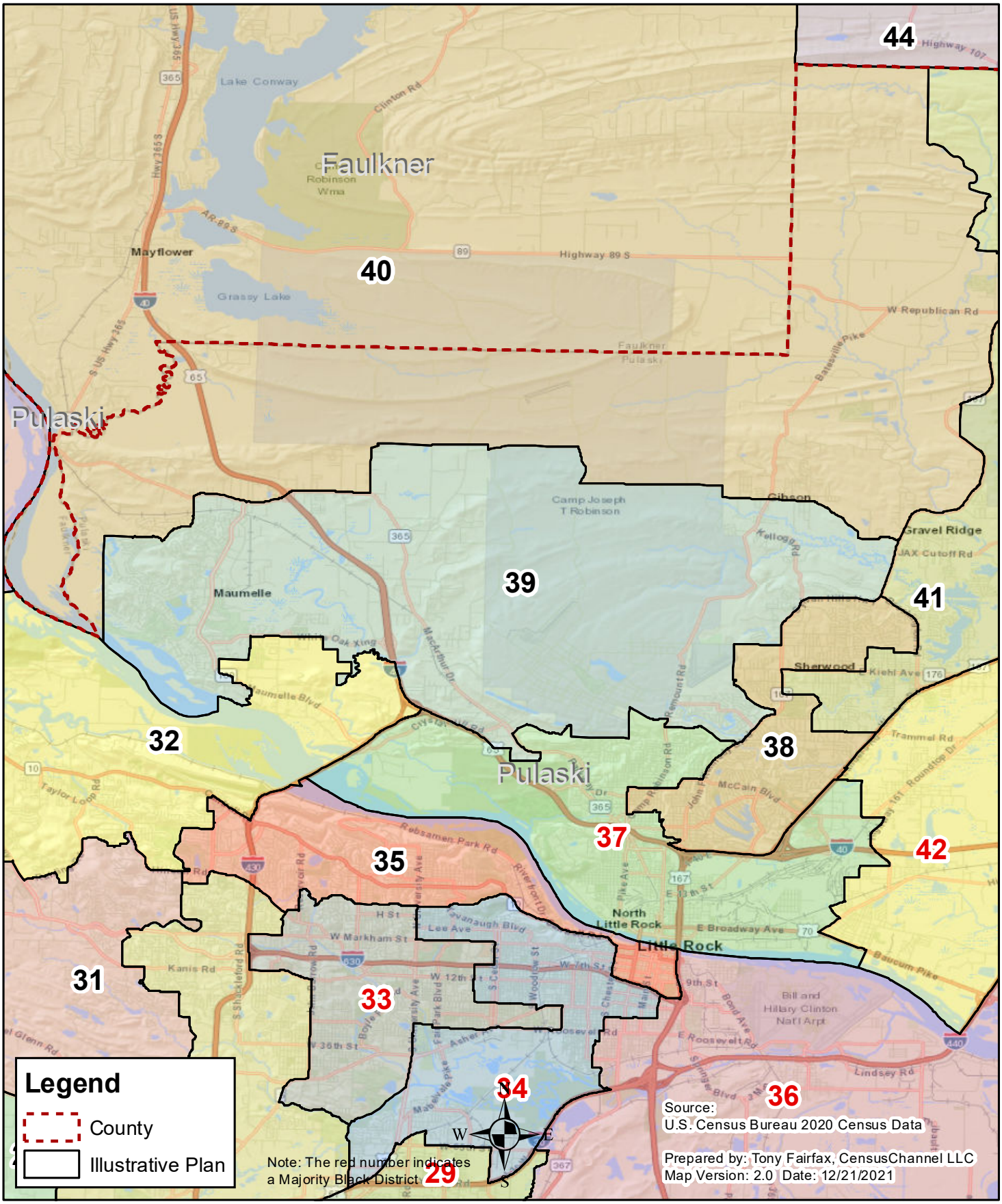
Illustrative Plan



Arkansas
State House District 38
Illustrative Plan



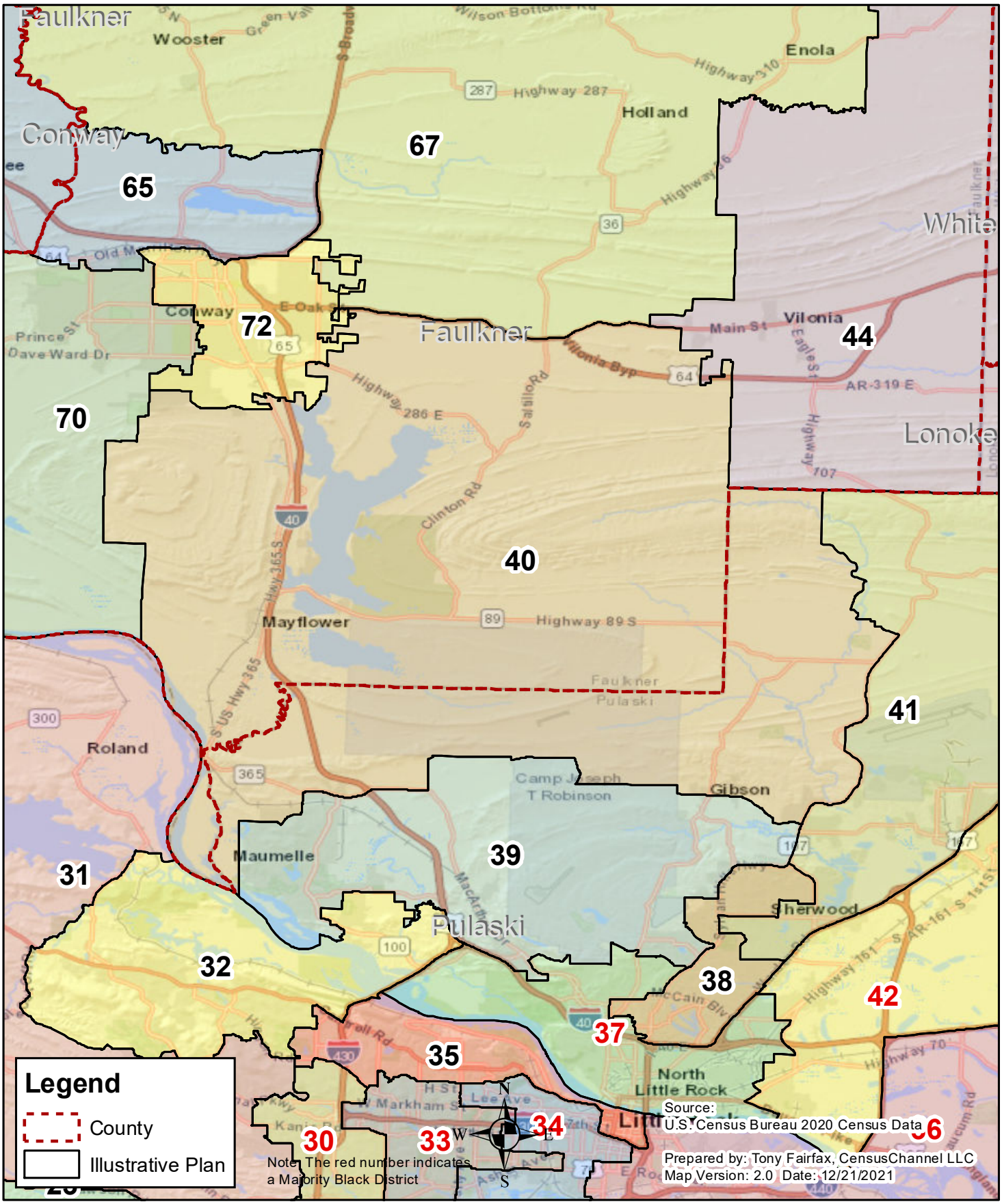
Arkansas
State House District 39
Illustrative Plan



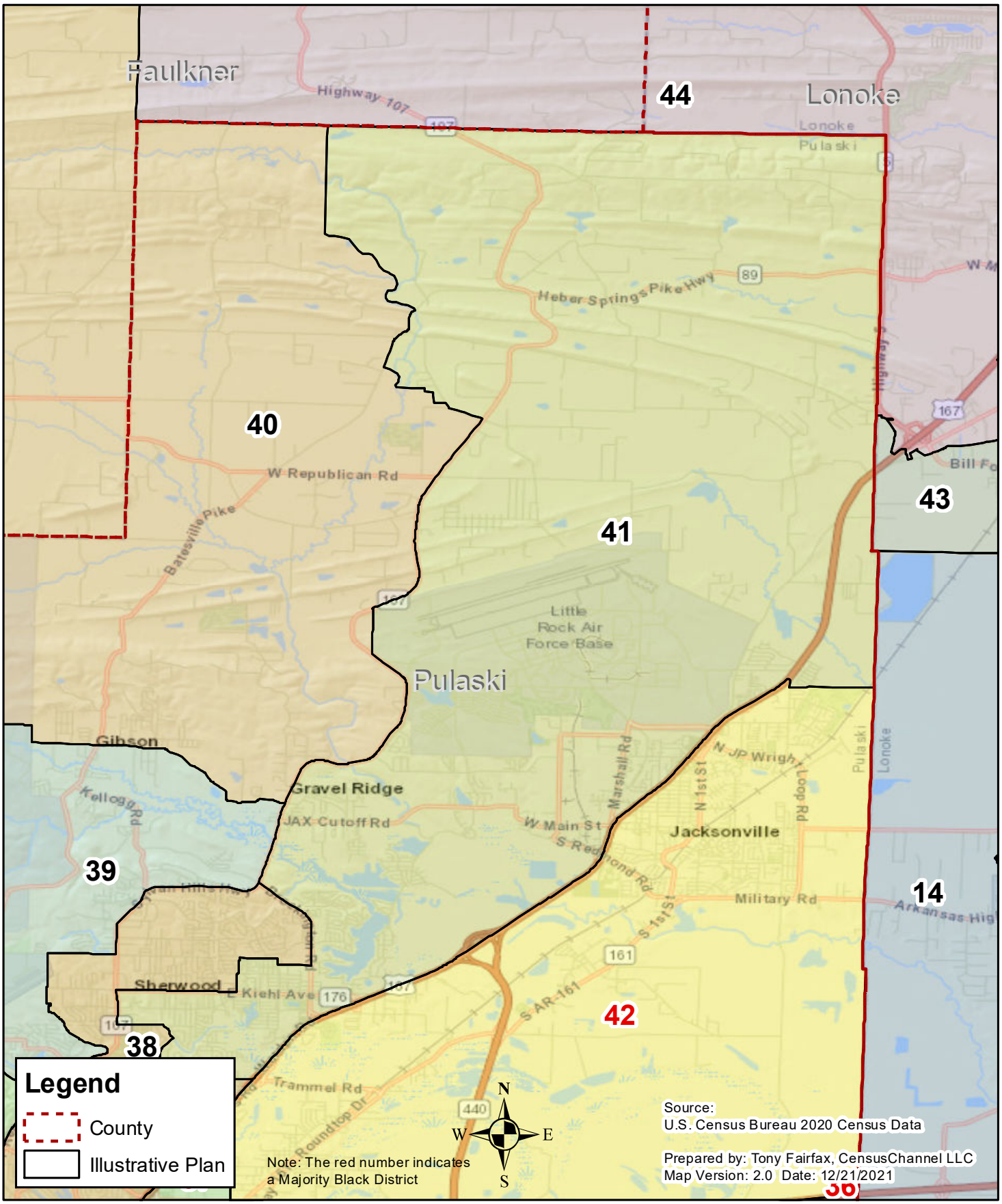
Arkansas

State House District 40

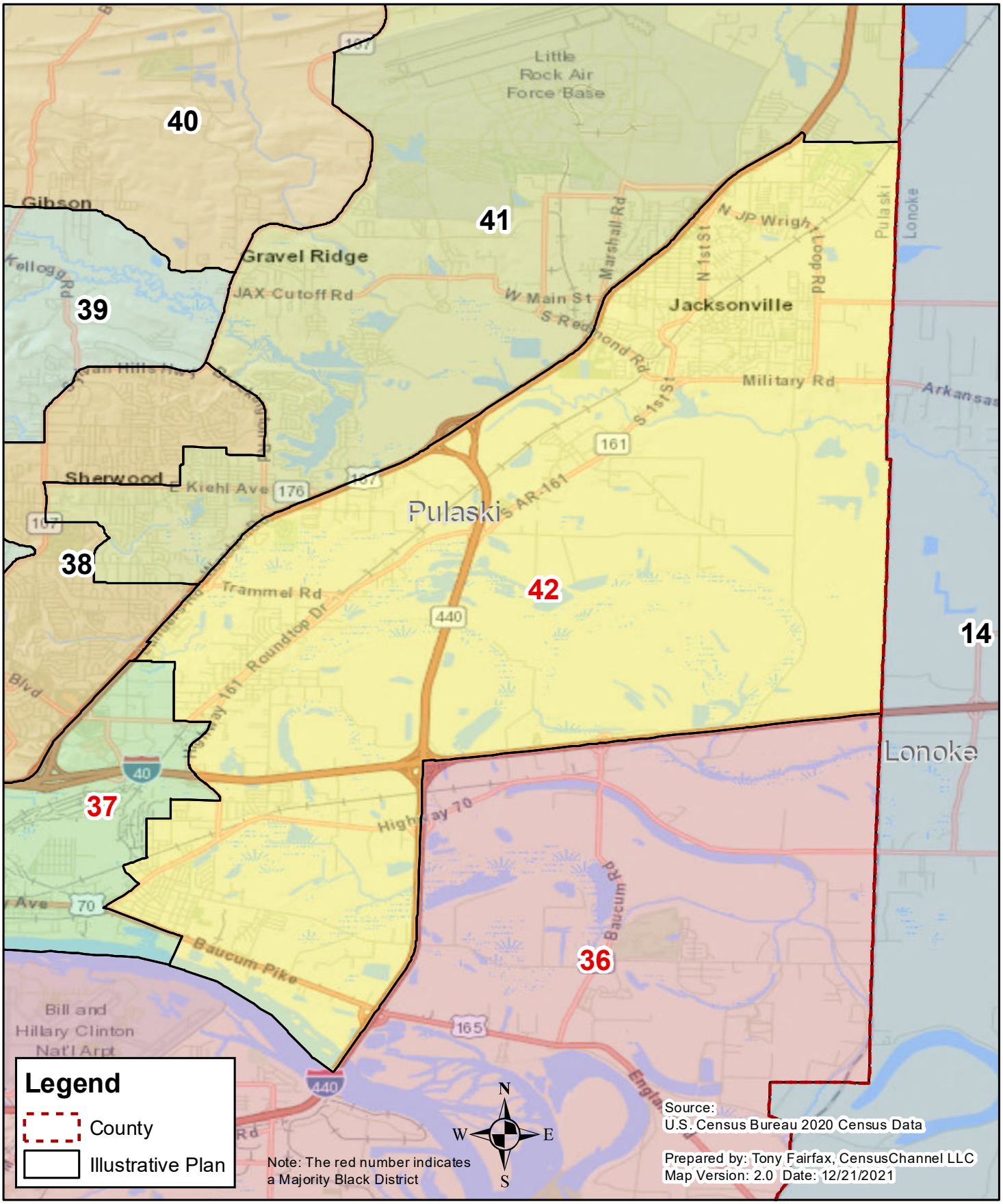
Illustrative Plan



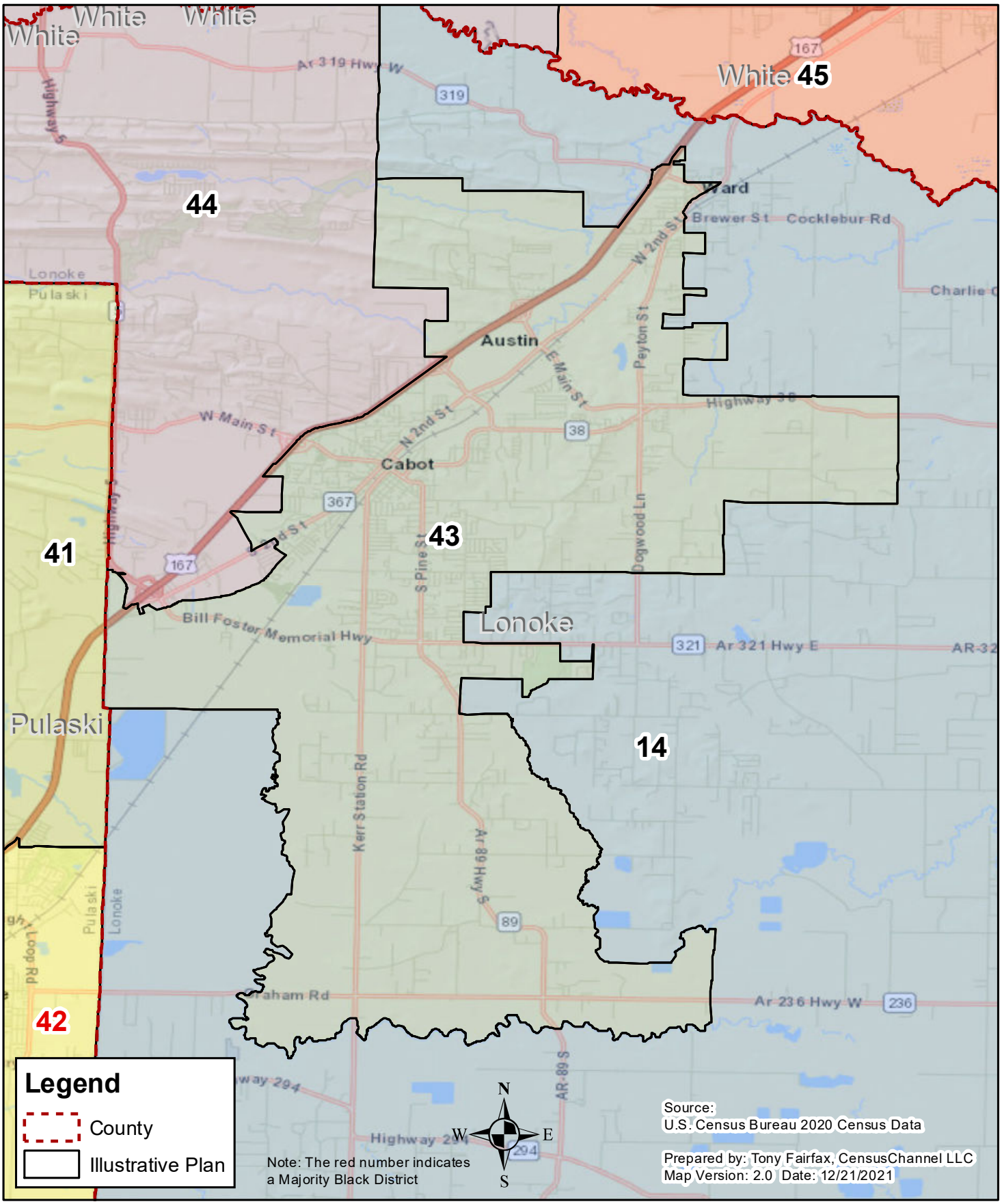
Arkansas
State House District 41
Illustrative Plan



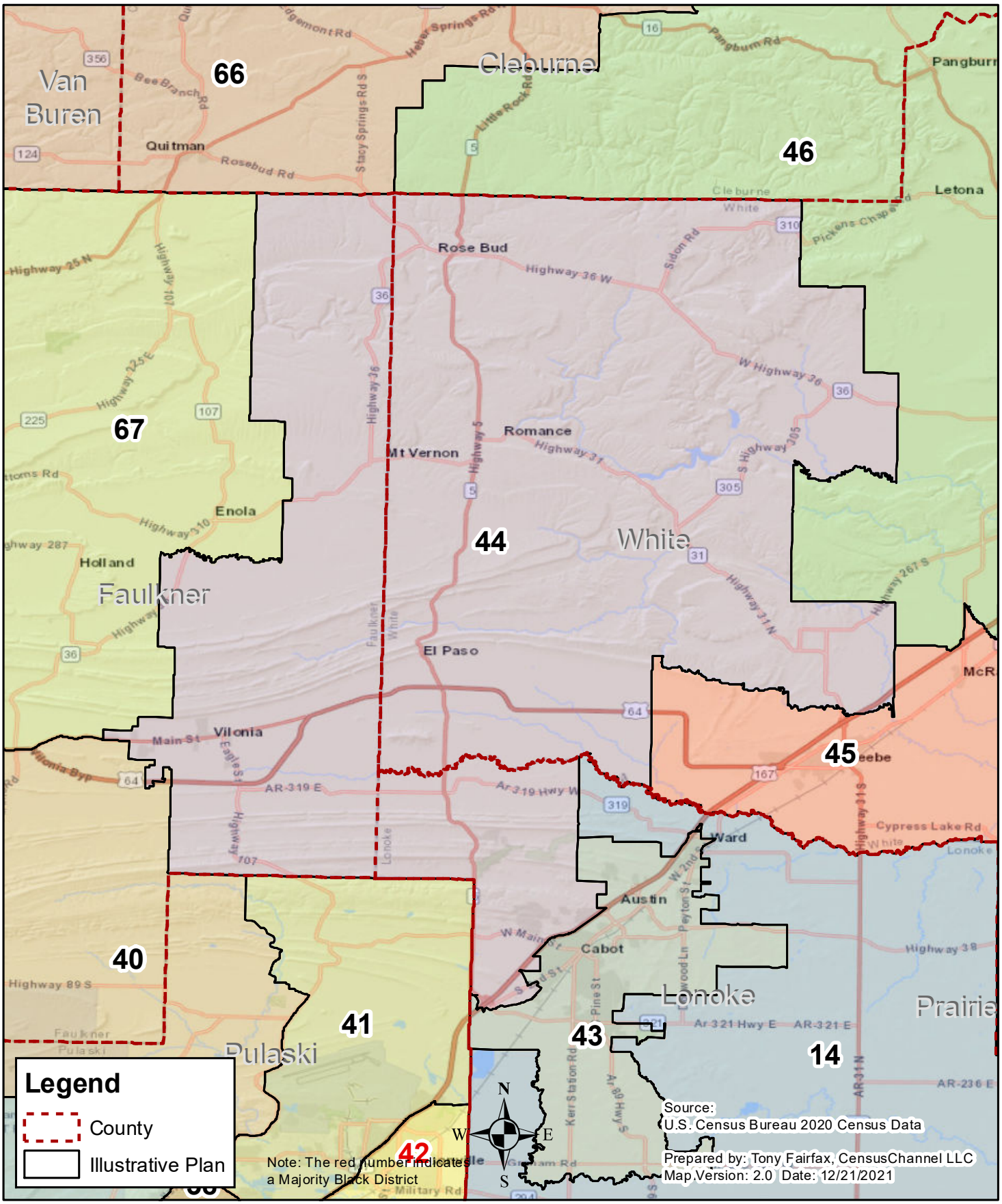
Arkansas
State House District 42
Illustrative Plan



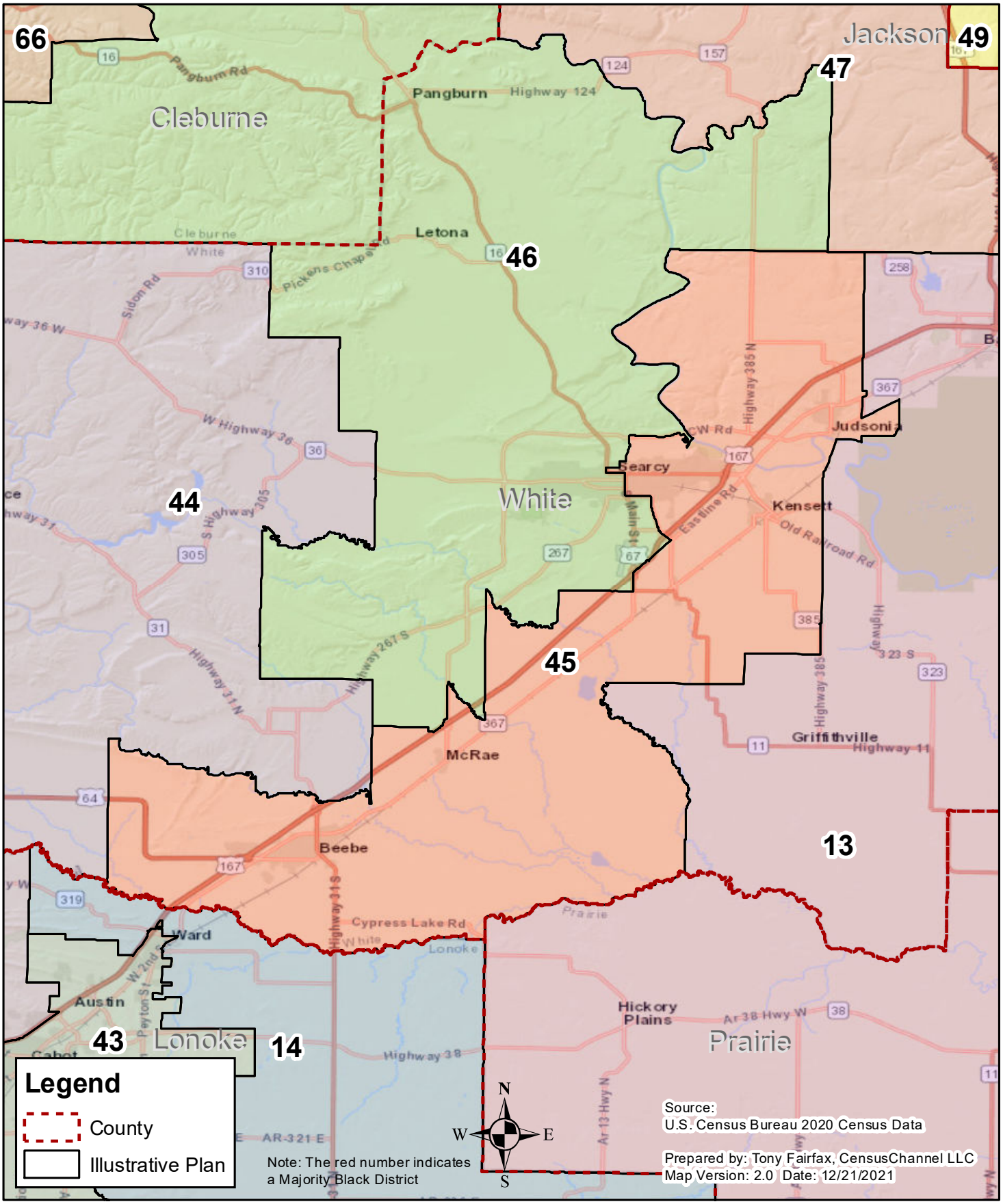
Arkansas
State House District 43
Illustrative Plan



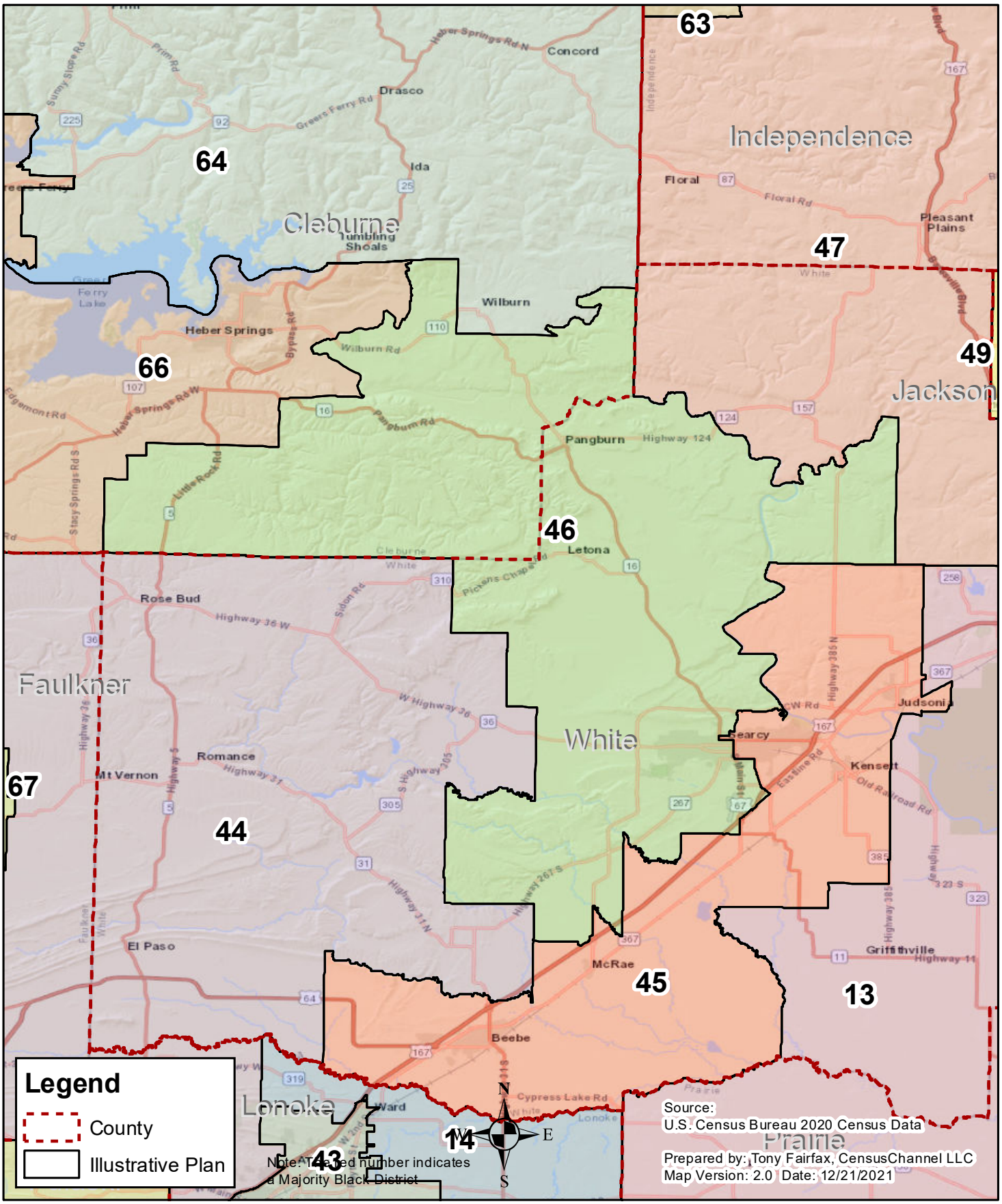
Arkansas
State House District 44
Illustrative Plan



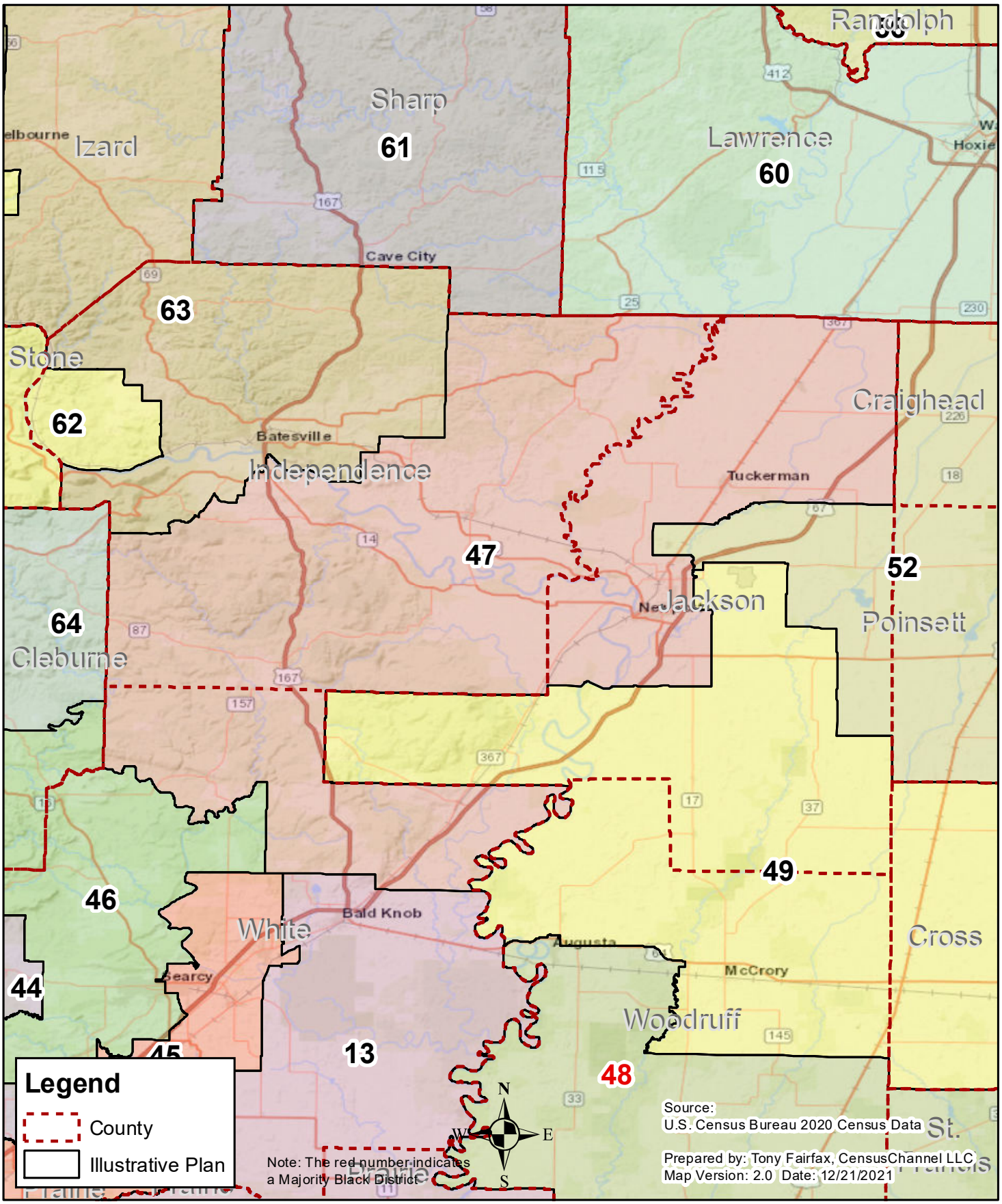
Arkansas
State House District 45
Illustrative Plan



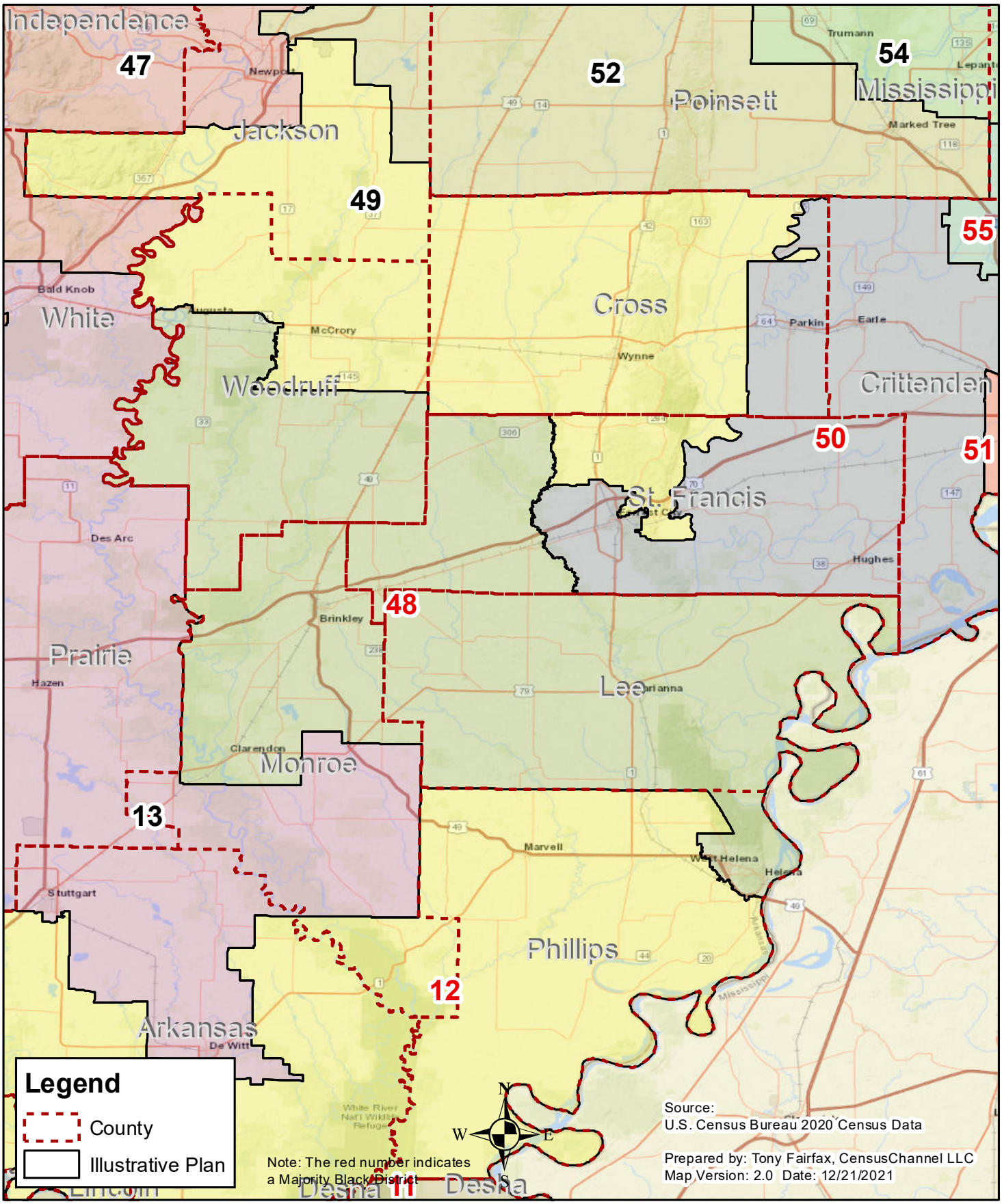
Arkansas
State House District 46
Illustrative Plan



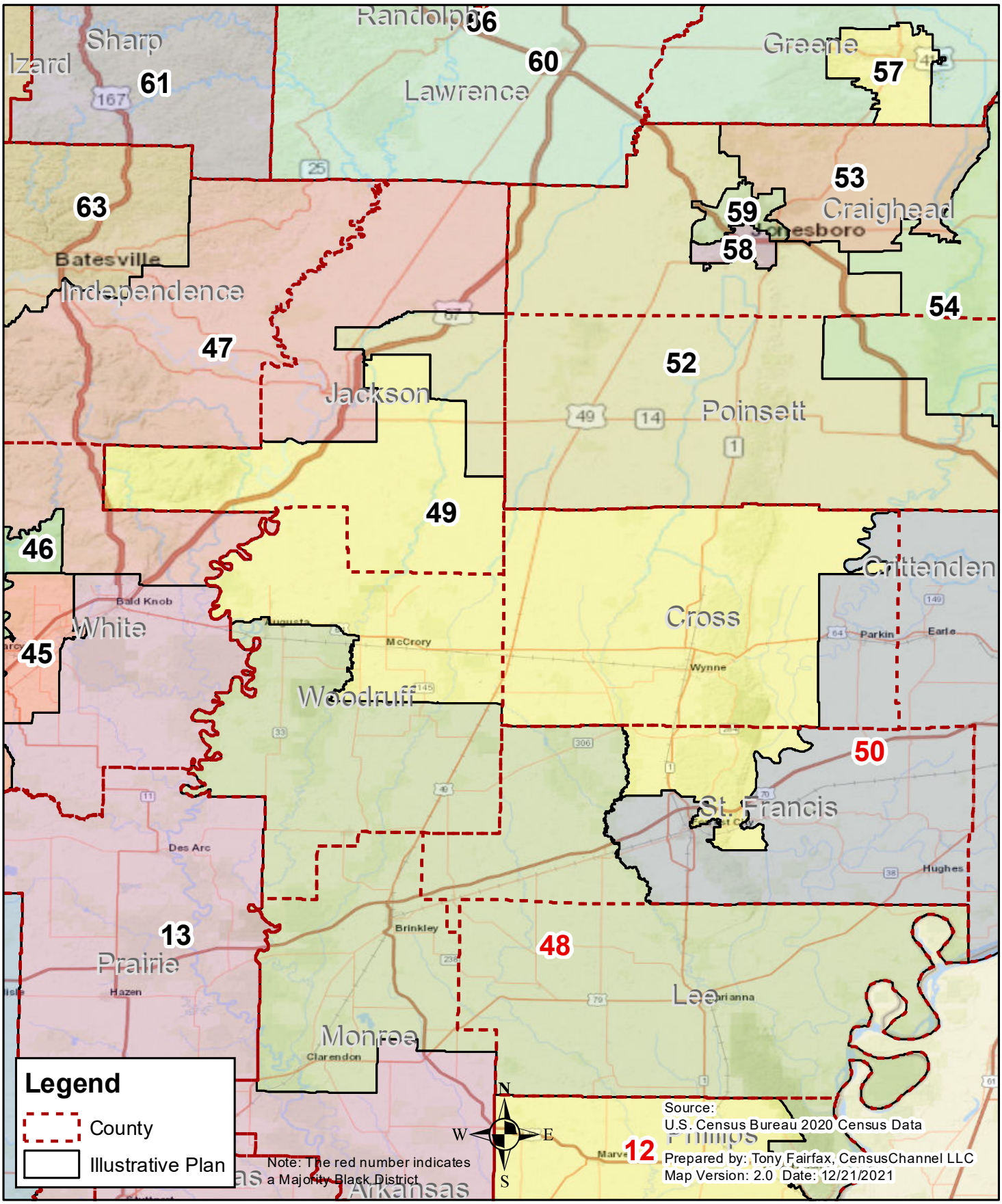
Arkansas
State House District 47
Illustrative Plan



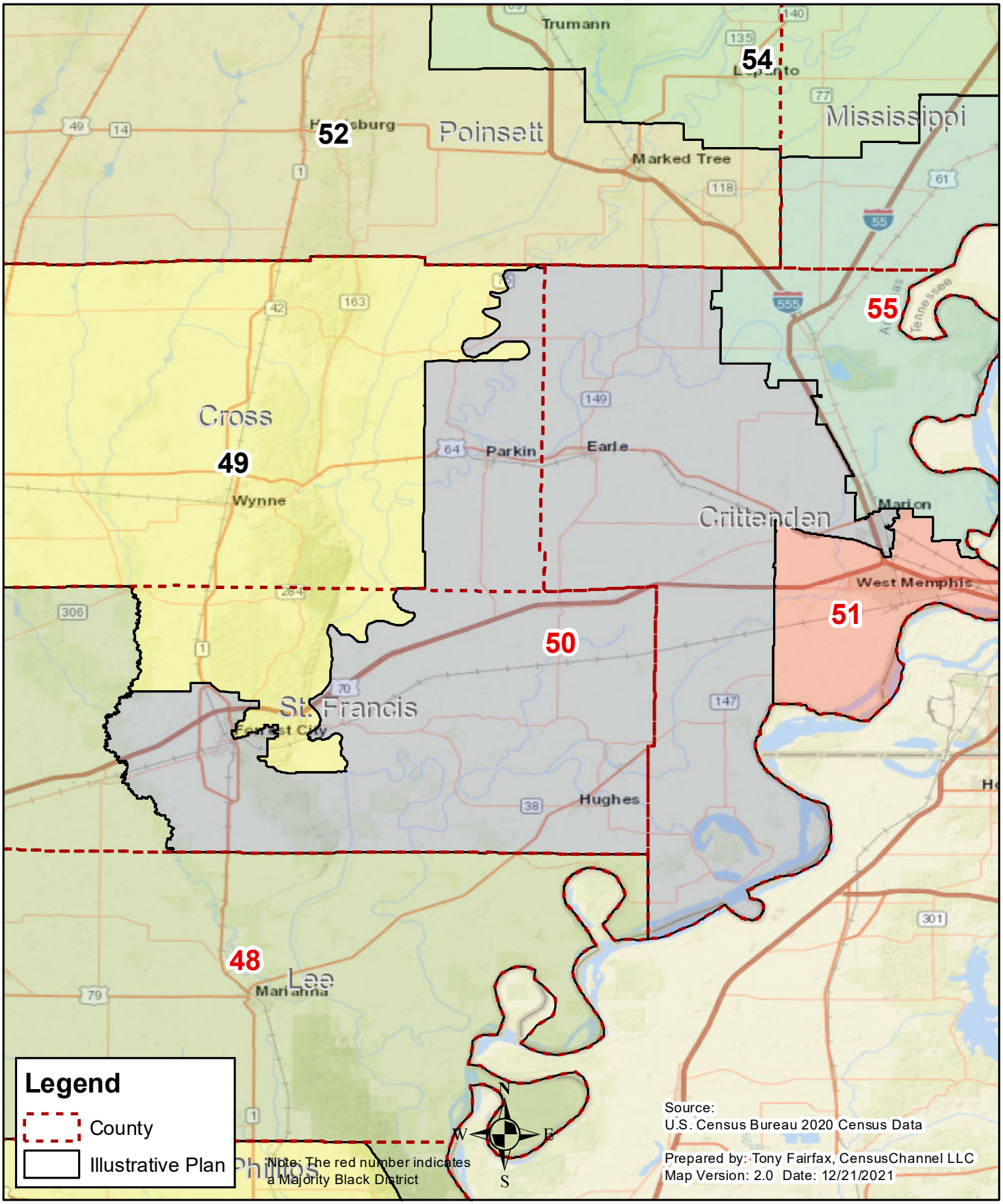
Arkansas
State House District 48
Illustrative Plan



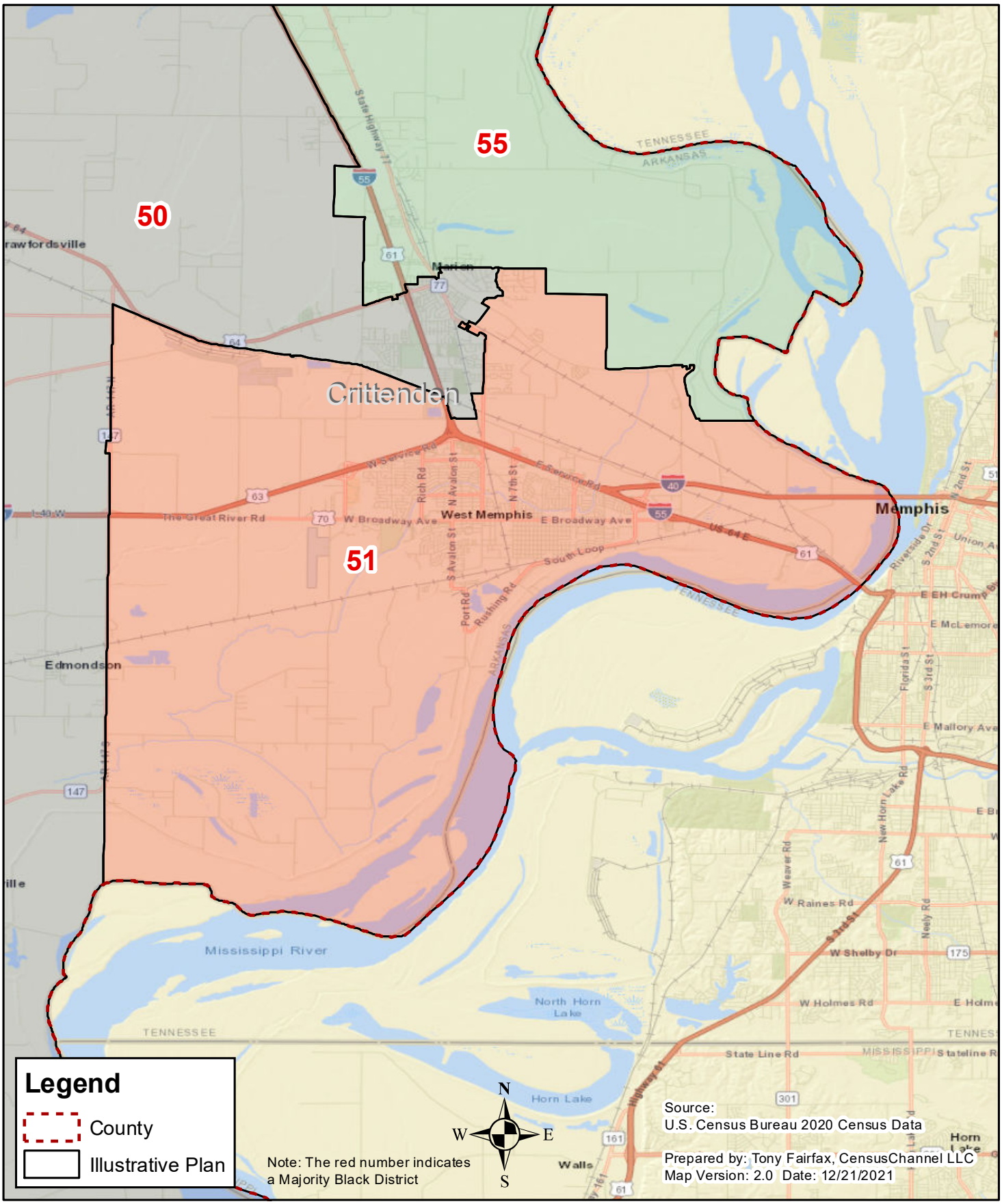
Arkansas
State House District 49
Illustrative Plan



Arkansas
State House District 50
Illustrative Plan



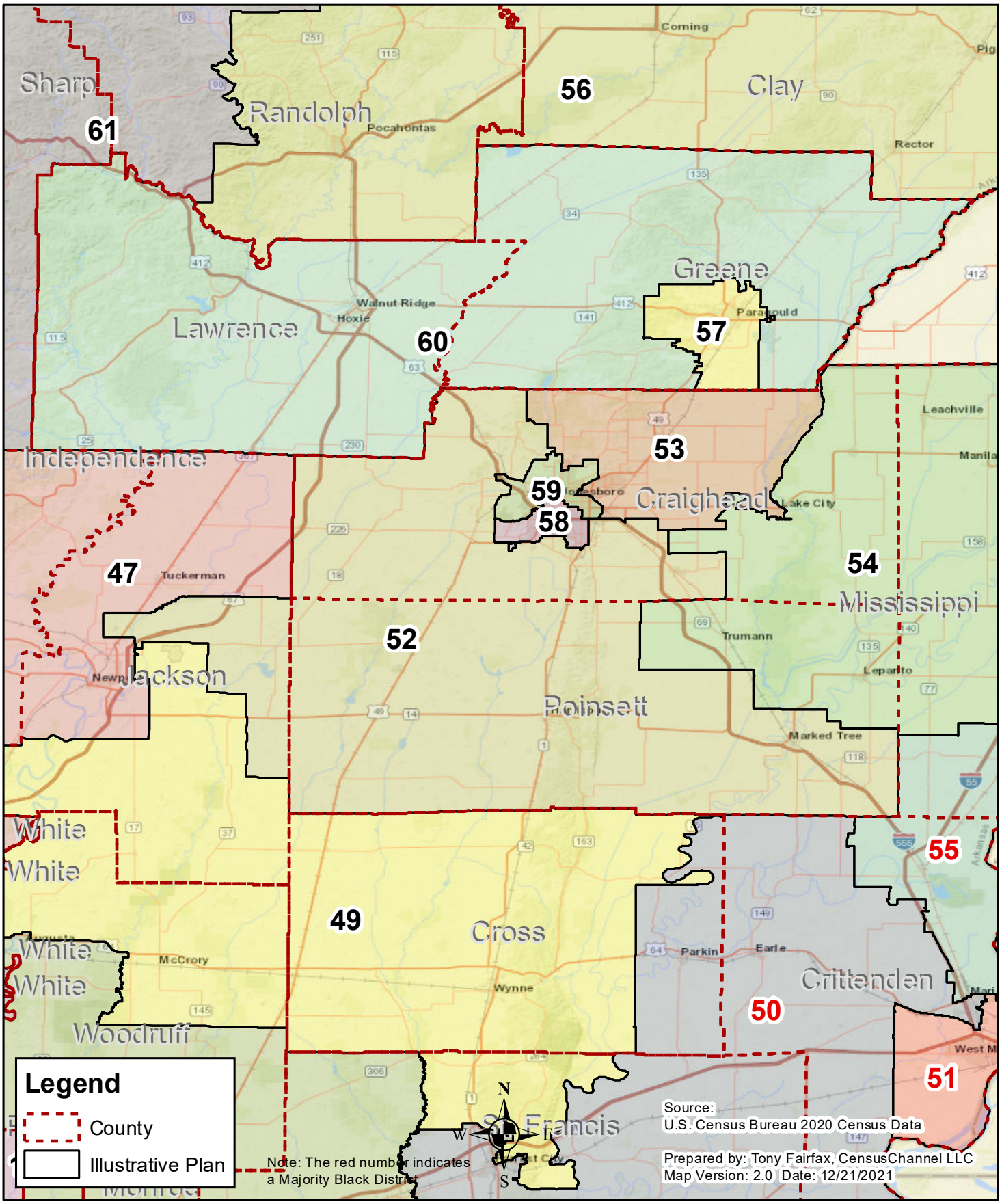
Arkansas
State House District 51
Illustrative Plan



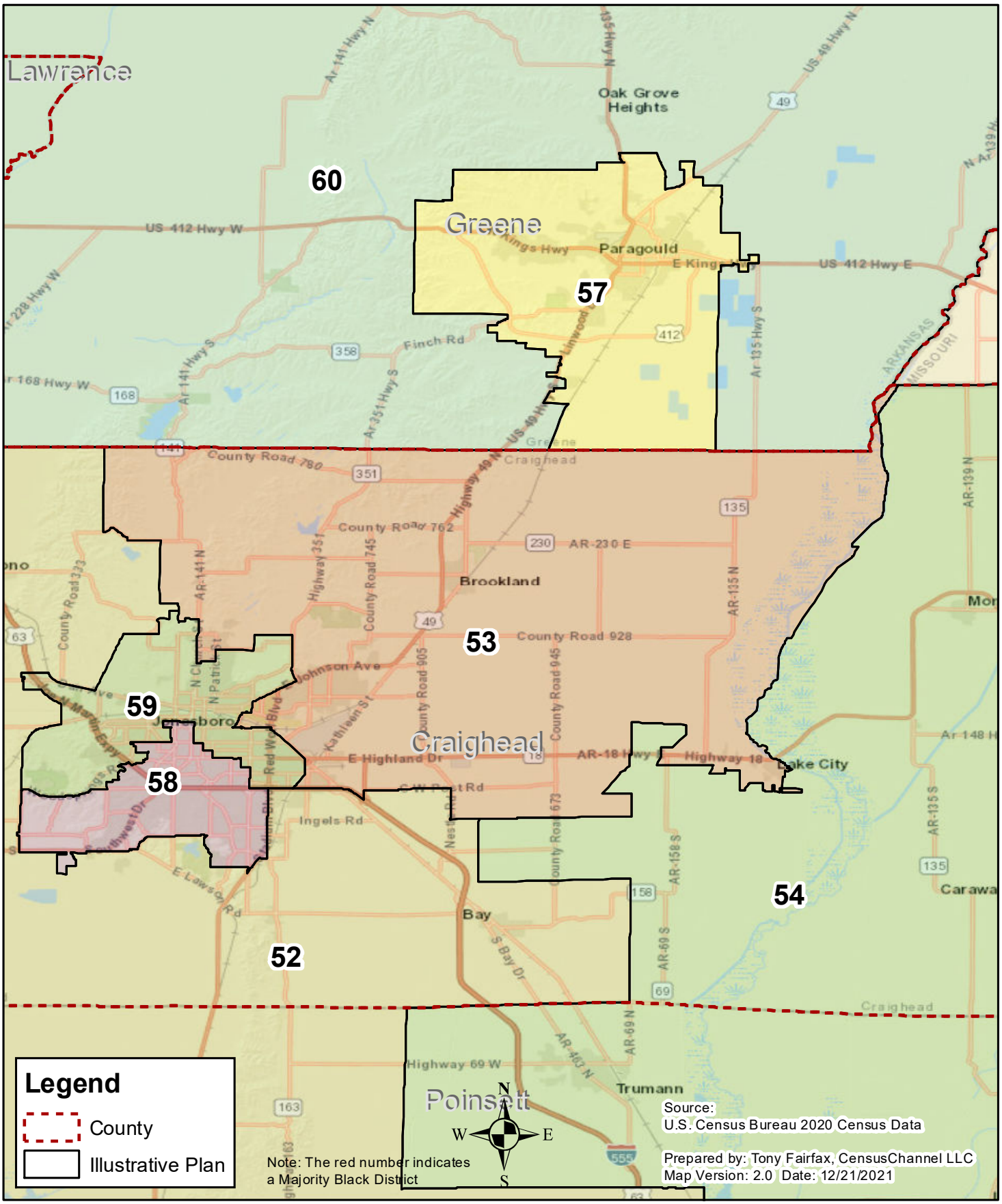
Arkansas

State House District 52

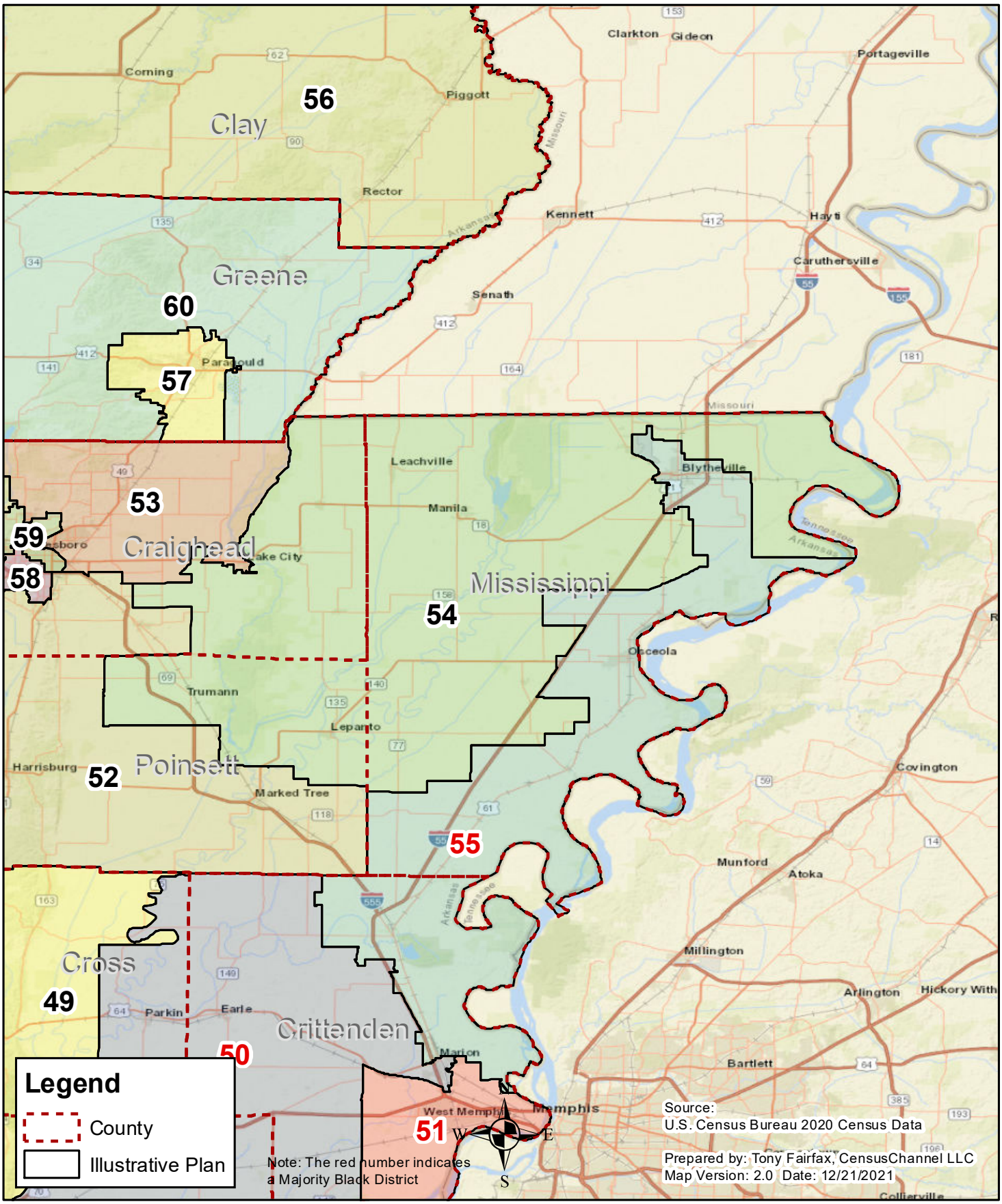
Illustrative Plan



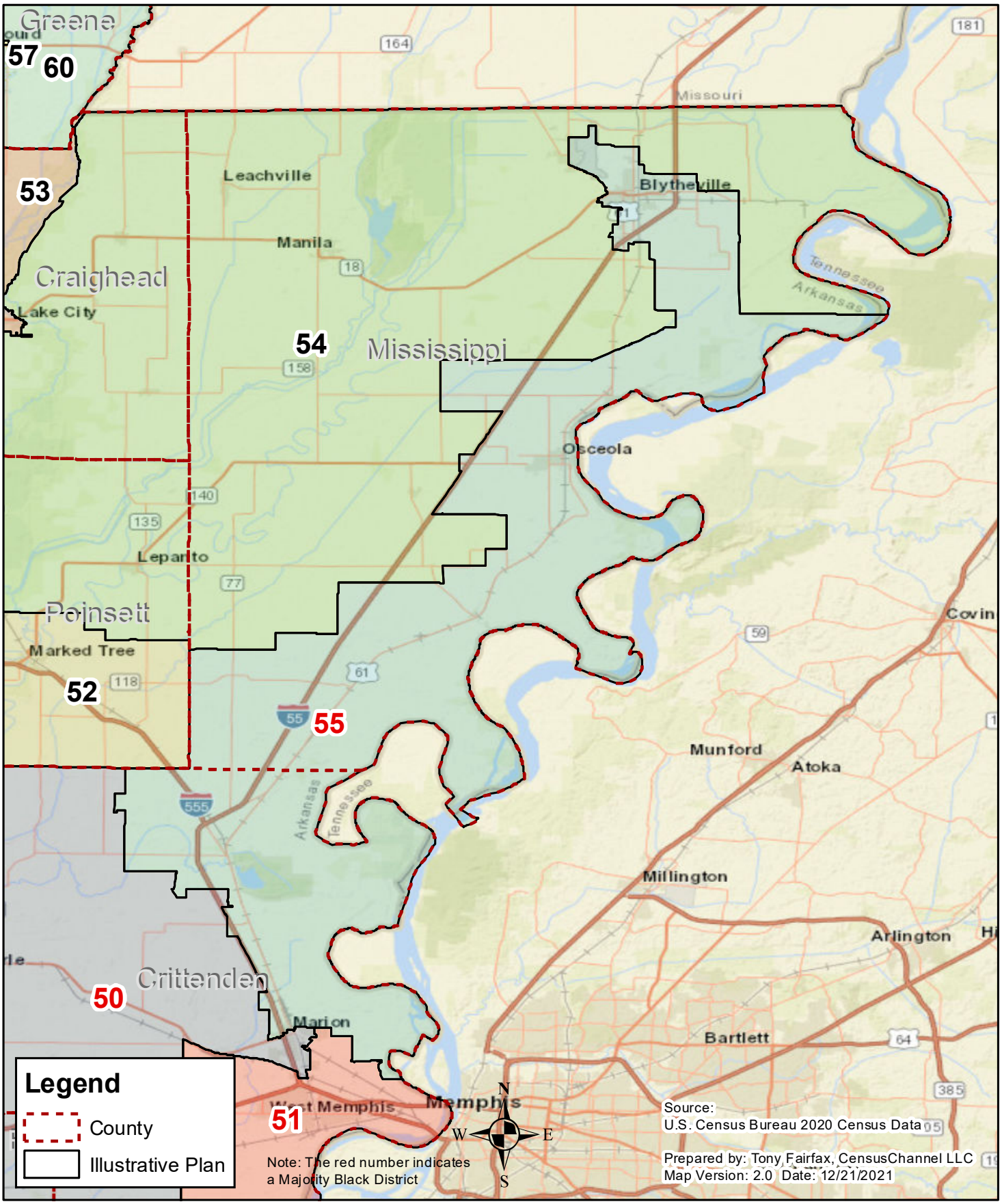
Arkansas
State House District 53
Illustrative Plan



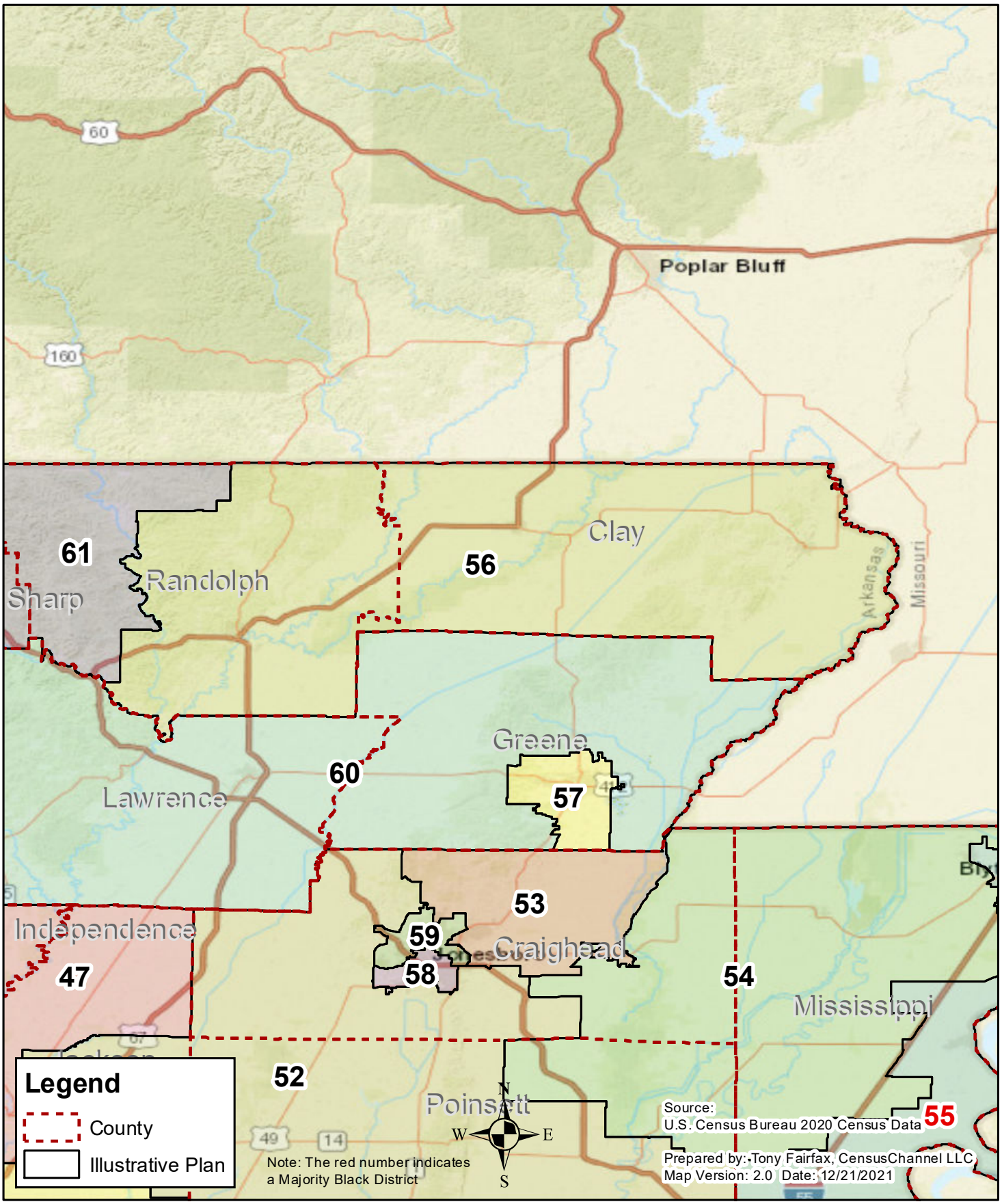
Arkansas
State House District 54
Illustrative Plan



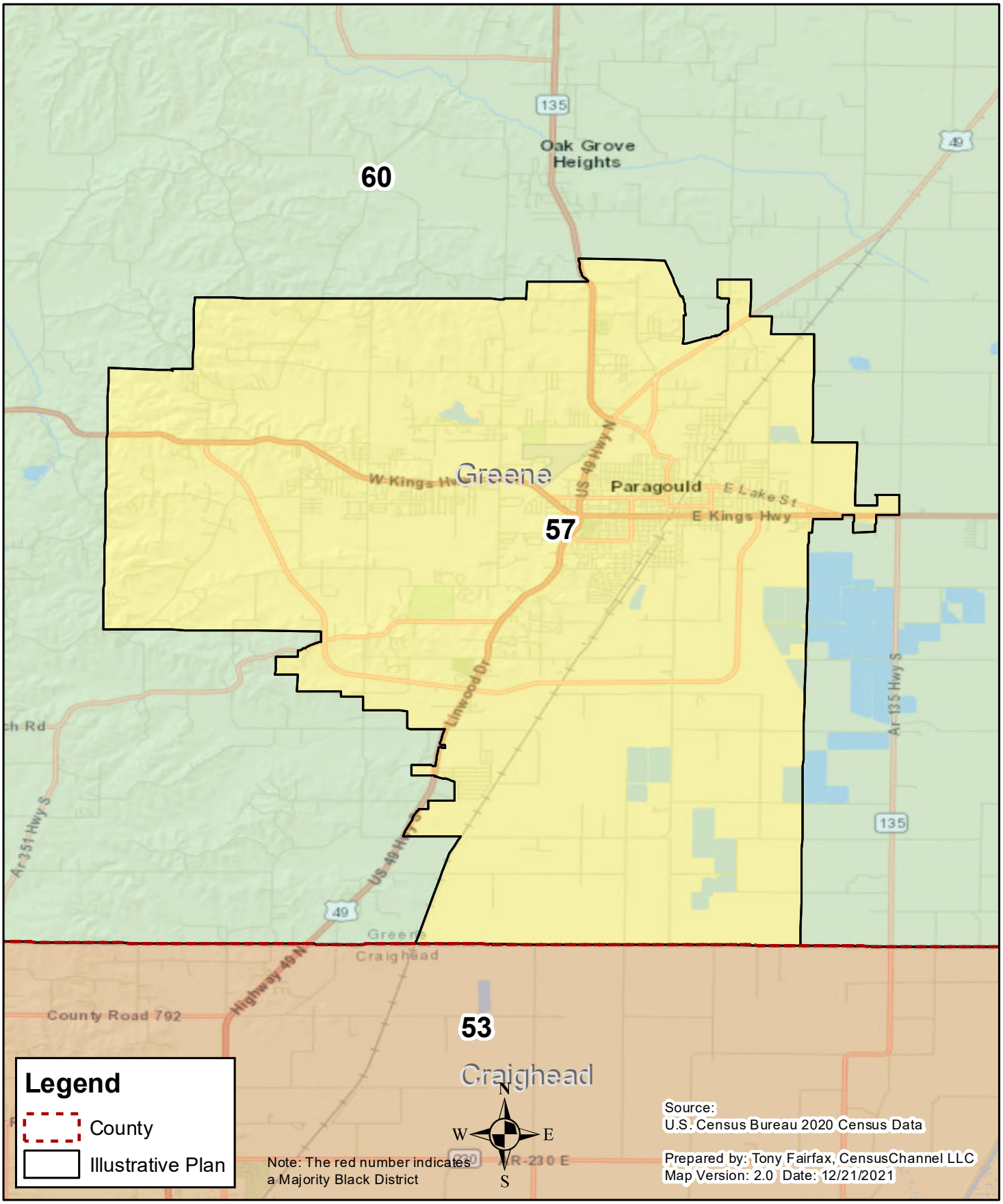
Arkansas
State House District 55
Illustrative Plan



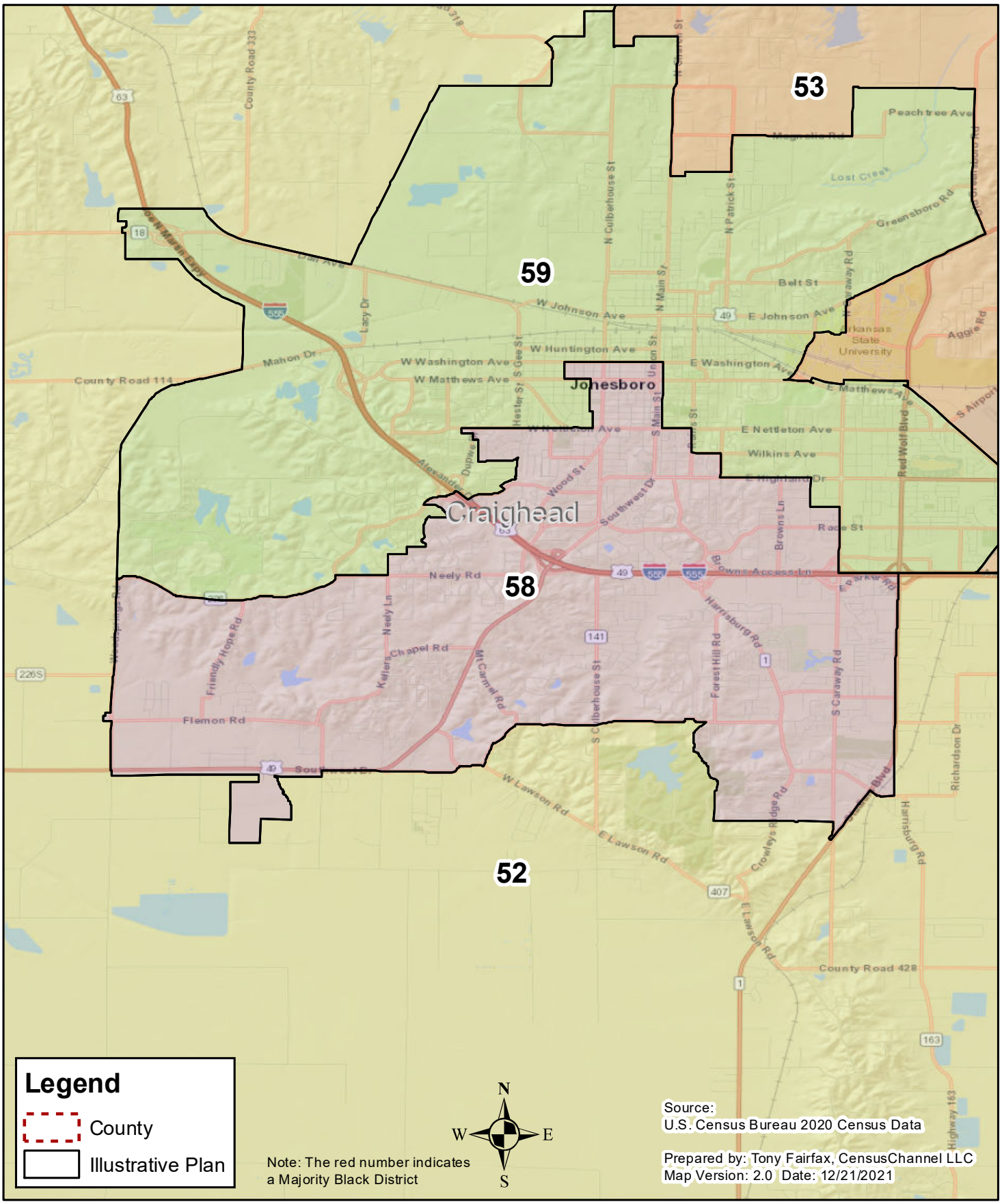
Arkansas
State House District 56
Illustrative Plan



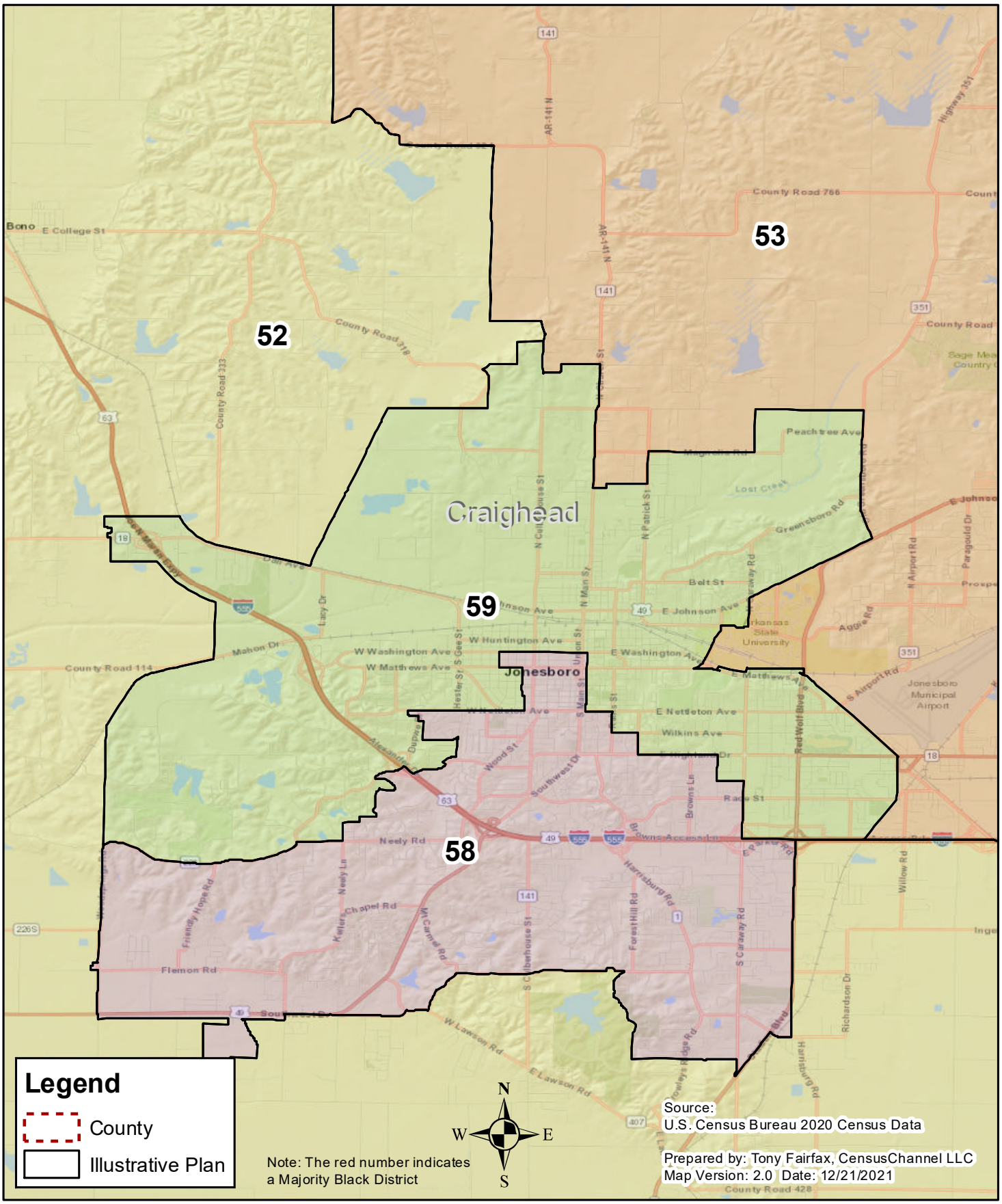
Arkansas
State House District 57
Illustrative Plan



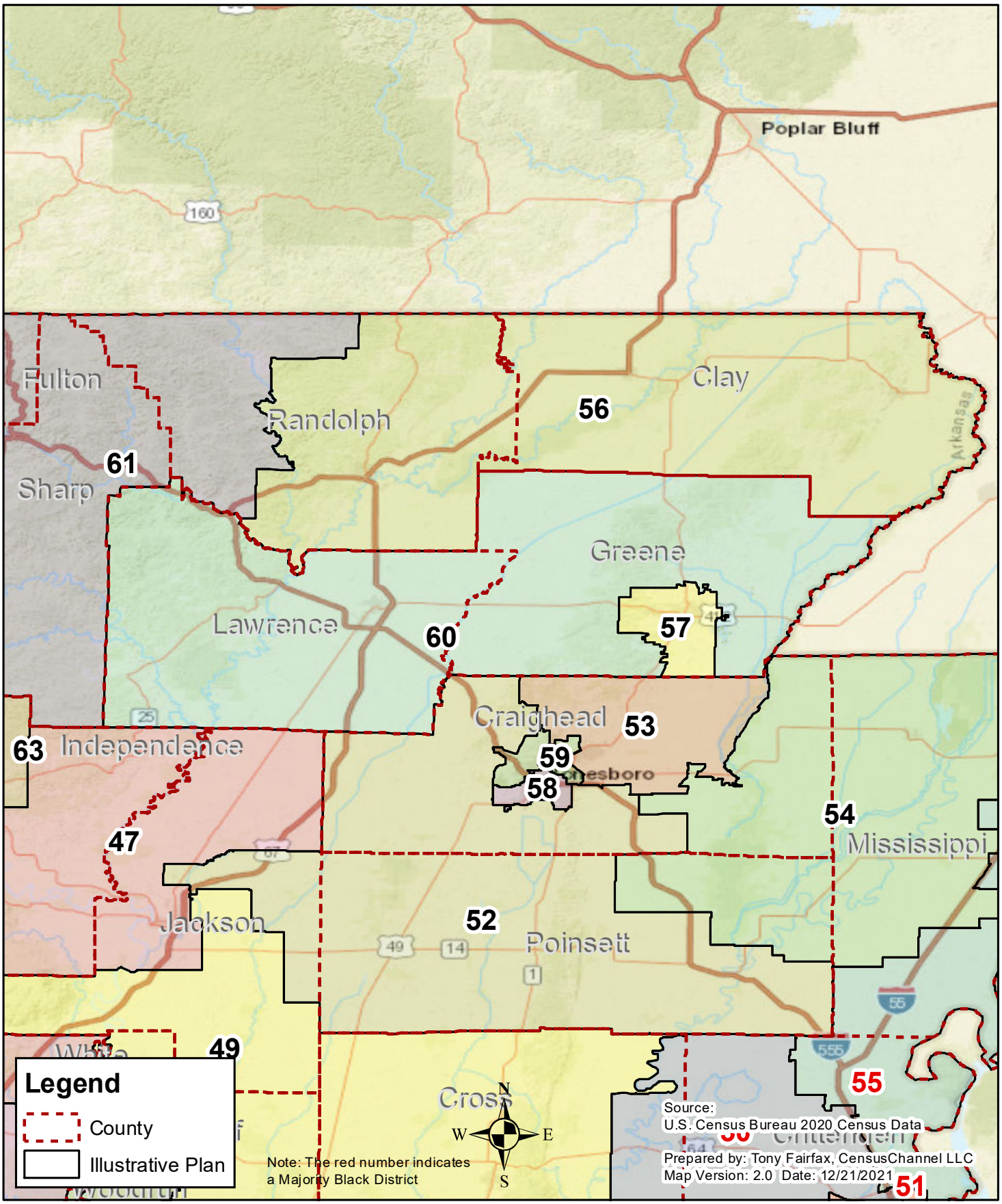
Arkansas
State House District 58
Illustrative Plan



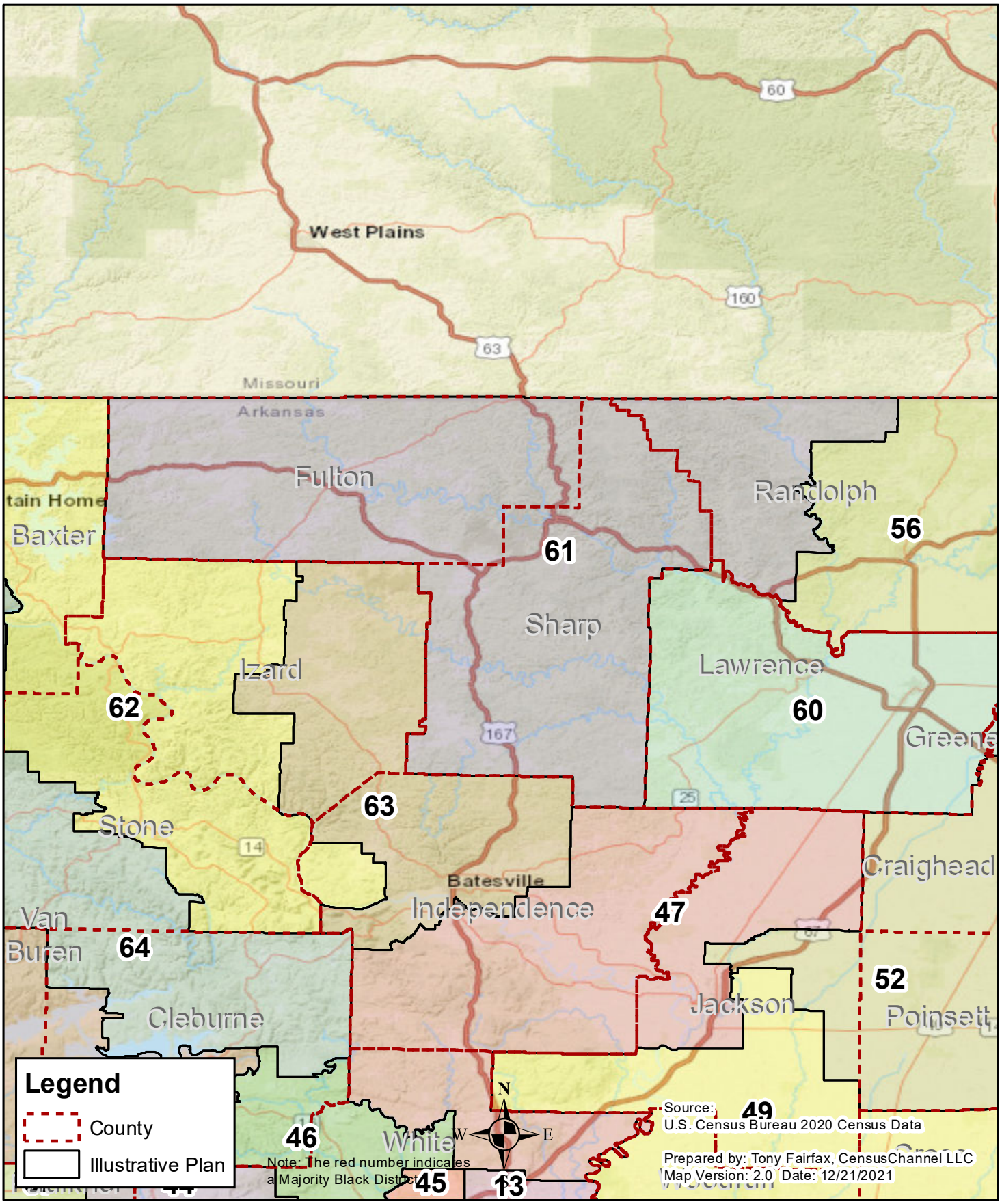
Arkansas
State House District 59
Illustrative Plan



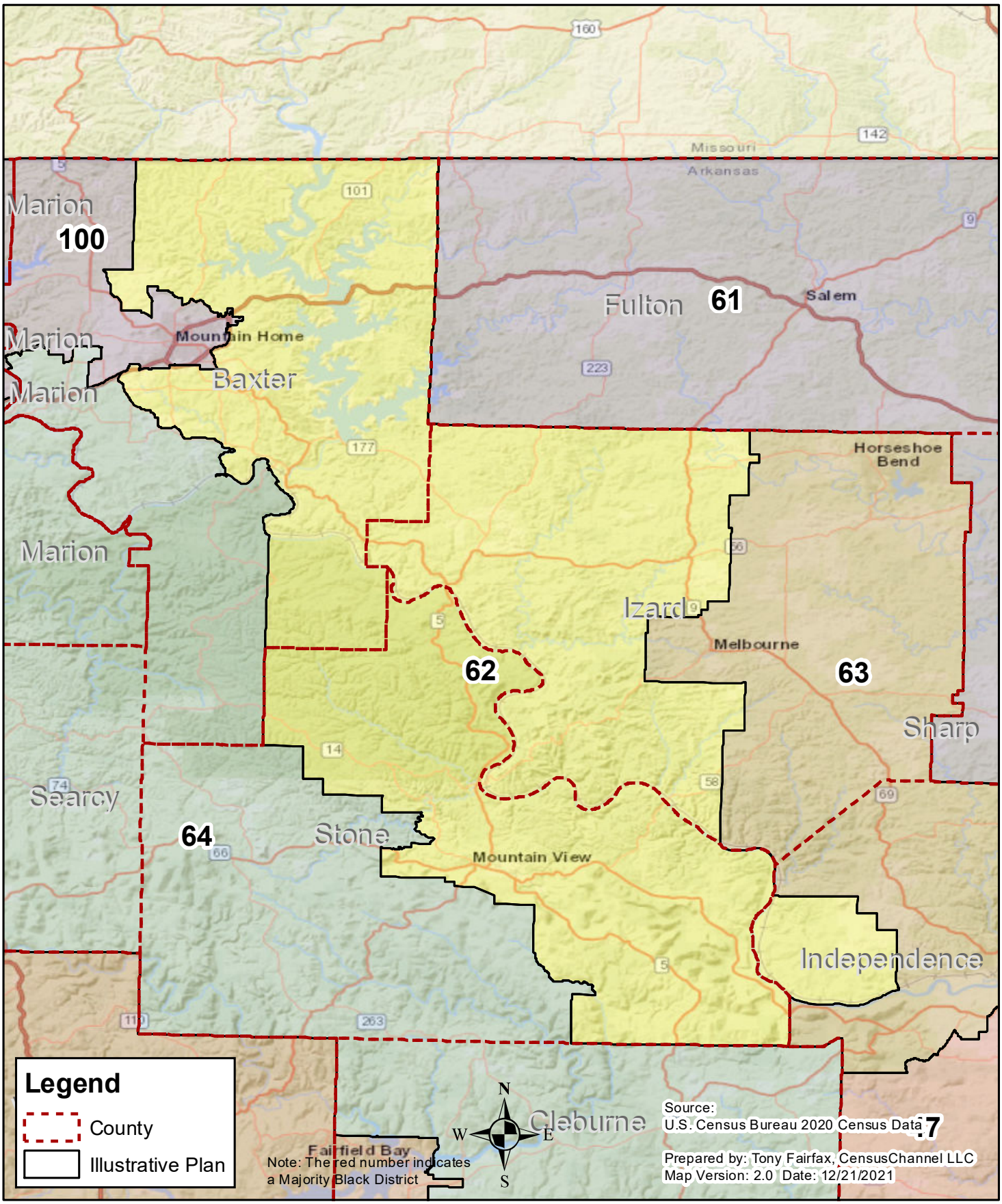
Arkansas
State House District 60
Illustrative Plan



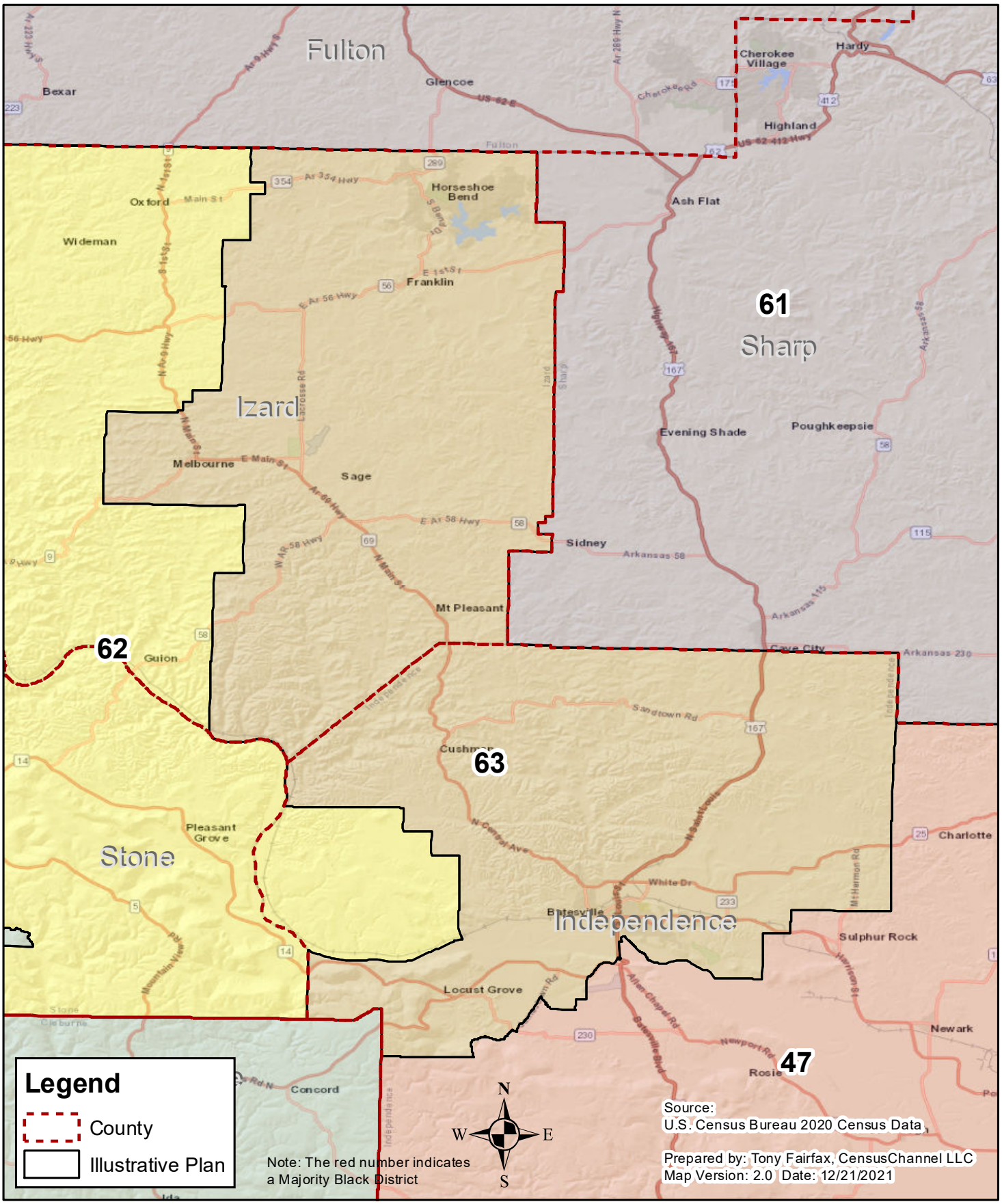
Arkansas
State House District 61
Illustrative Plan



Arkansas
State House District 62
Illustrative Plan

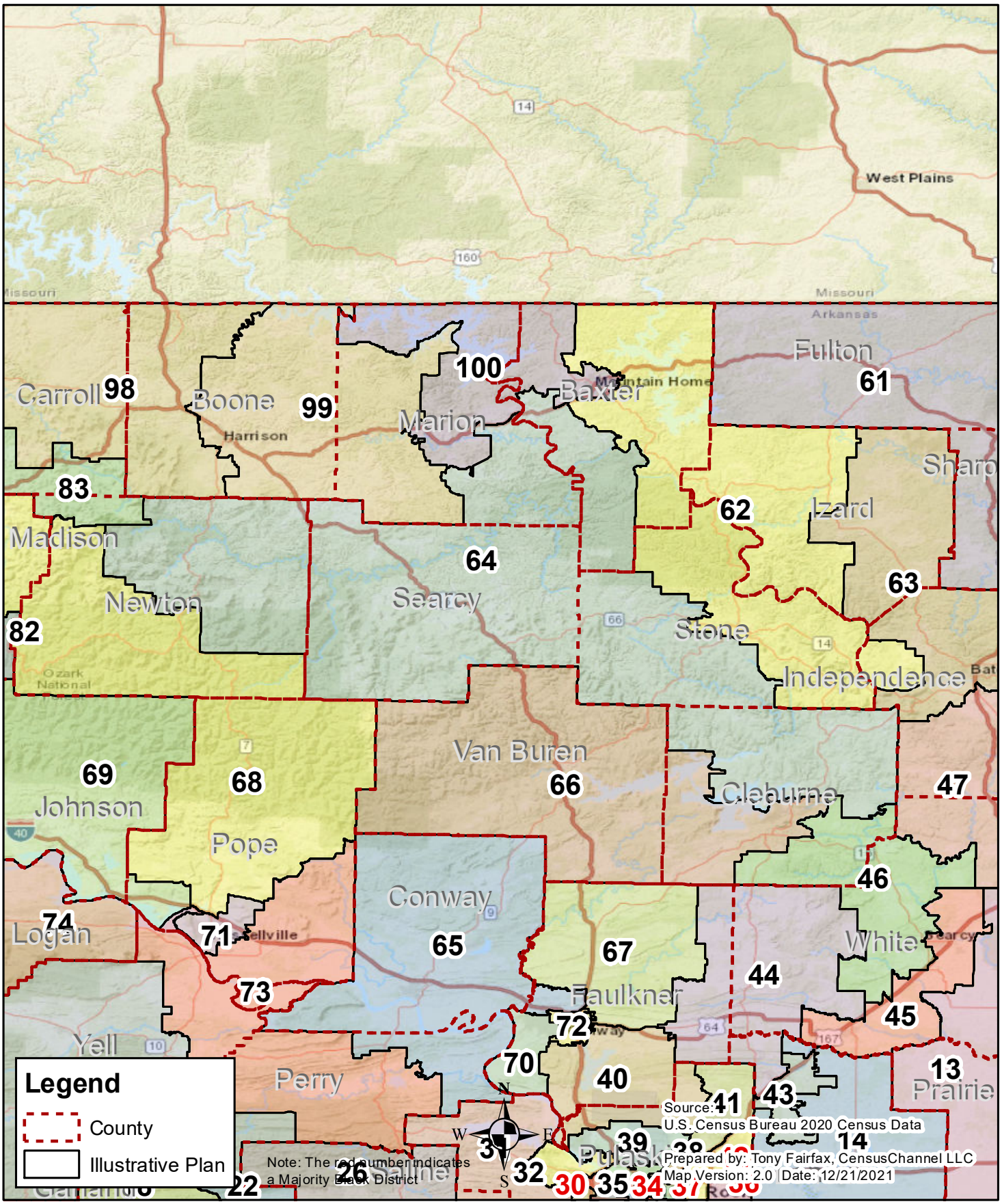


Arkansas
State House District 63
Illustrative Plan

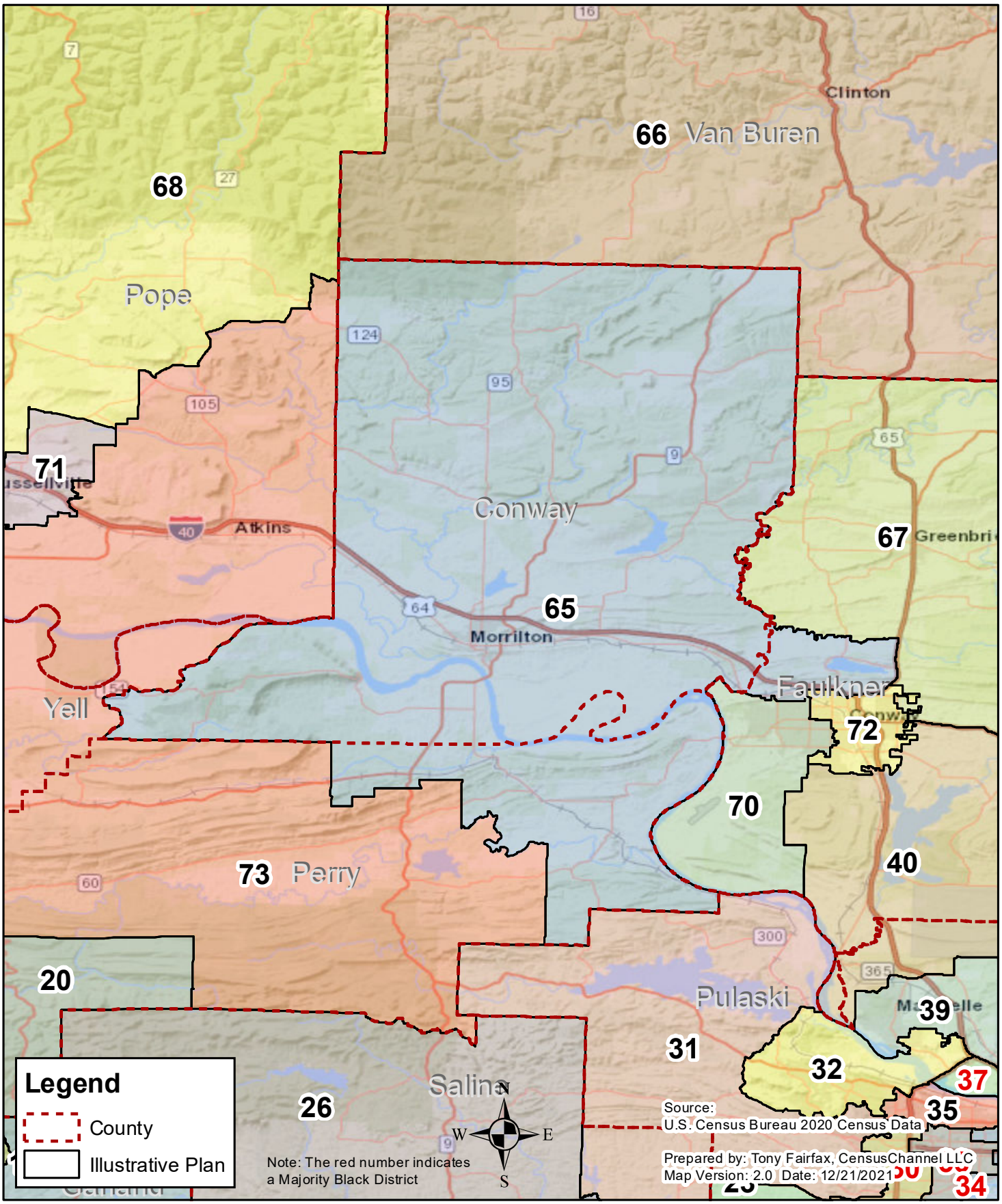


Note: The red number indicates a Majority Black District

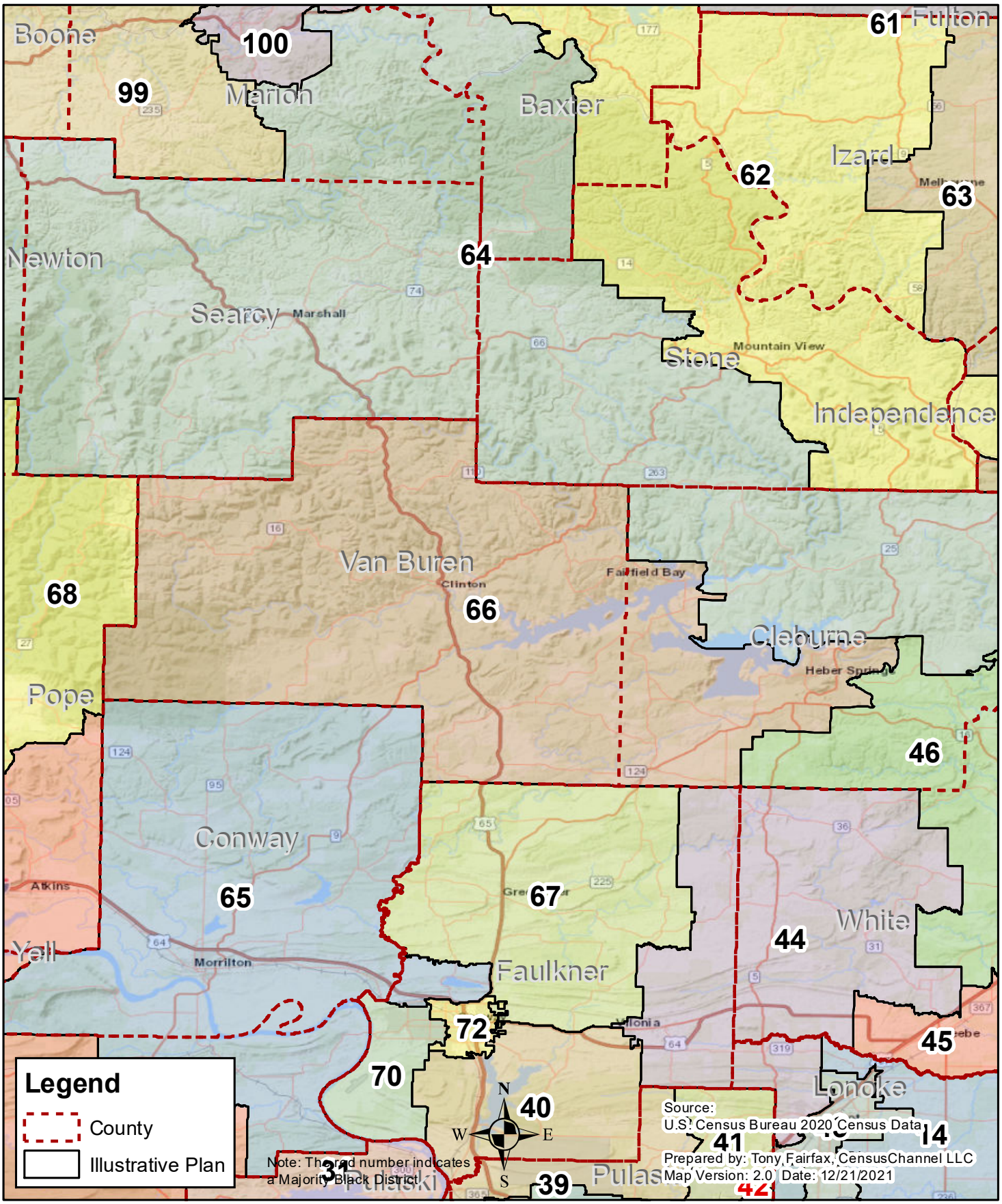
Arkansas
State House District 64
Illustrative Plan



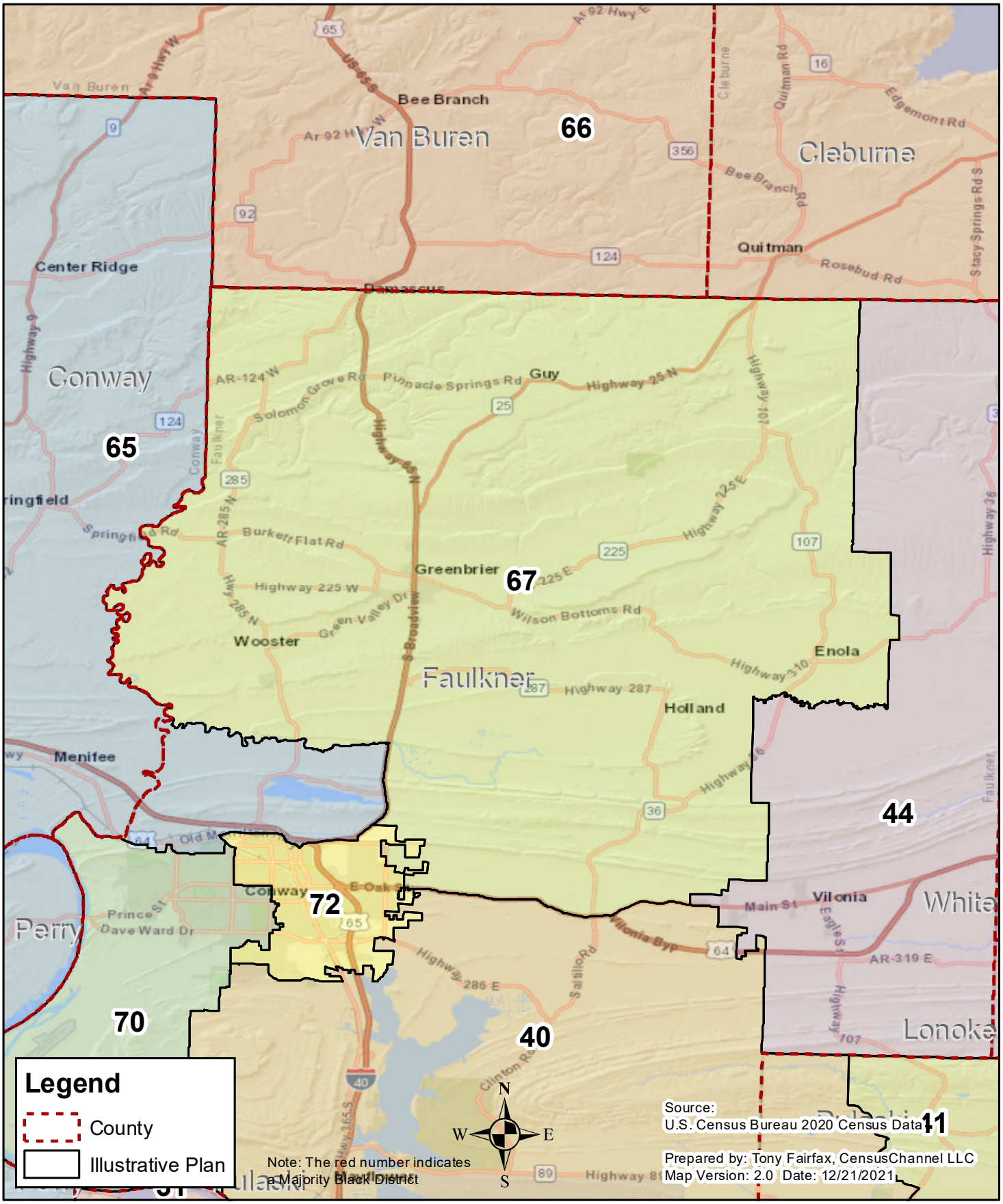
Arkansas
State House District 65
Illustrative Plan



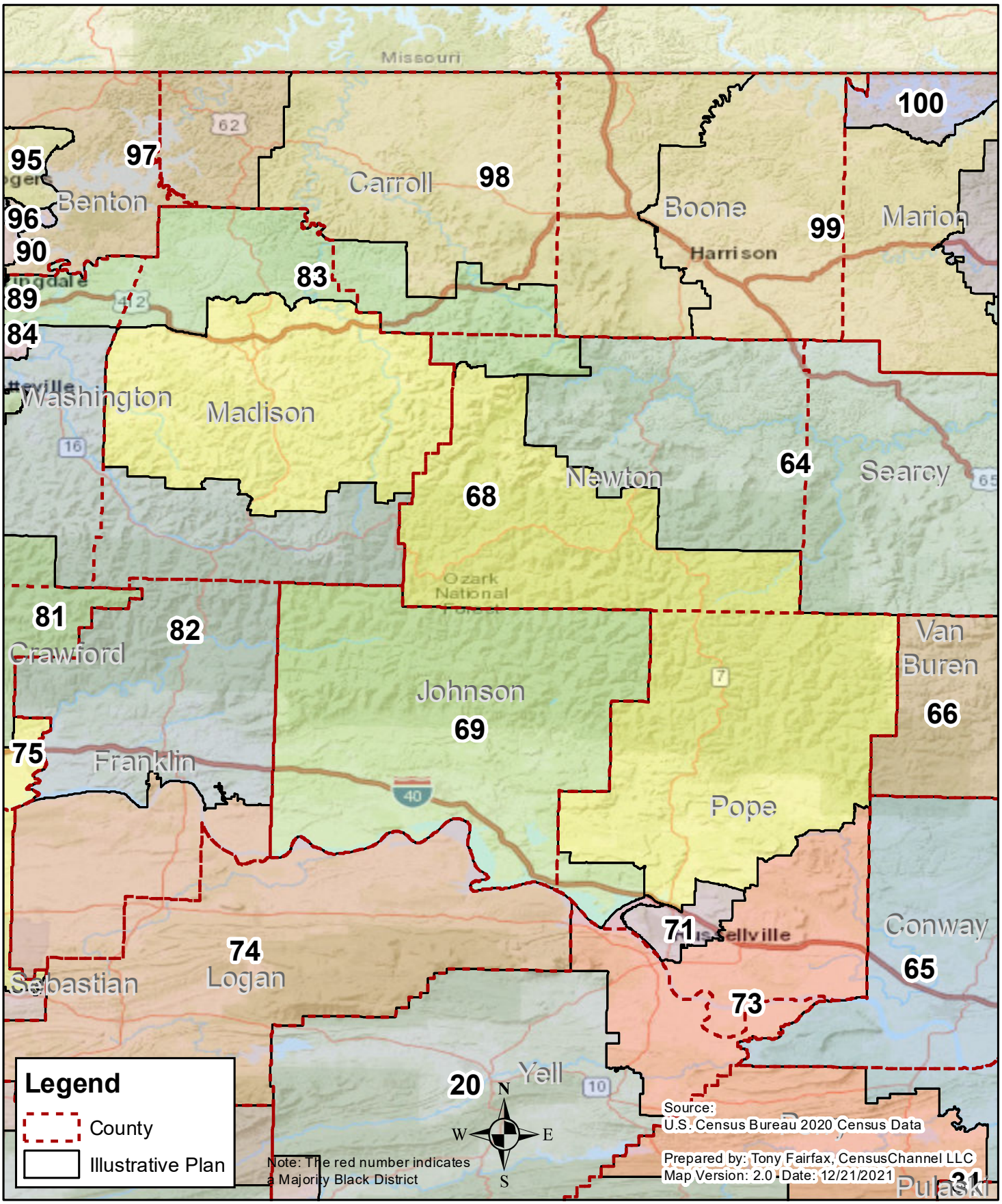
Arkansas
State House District 66
Illustrative Plan



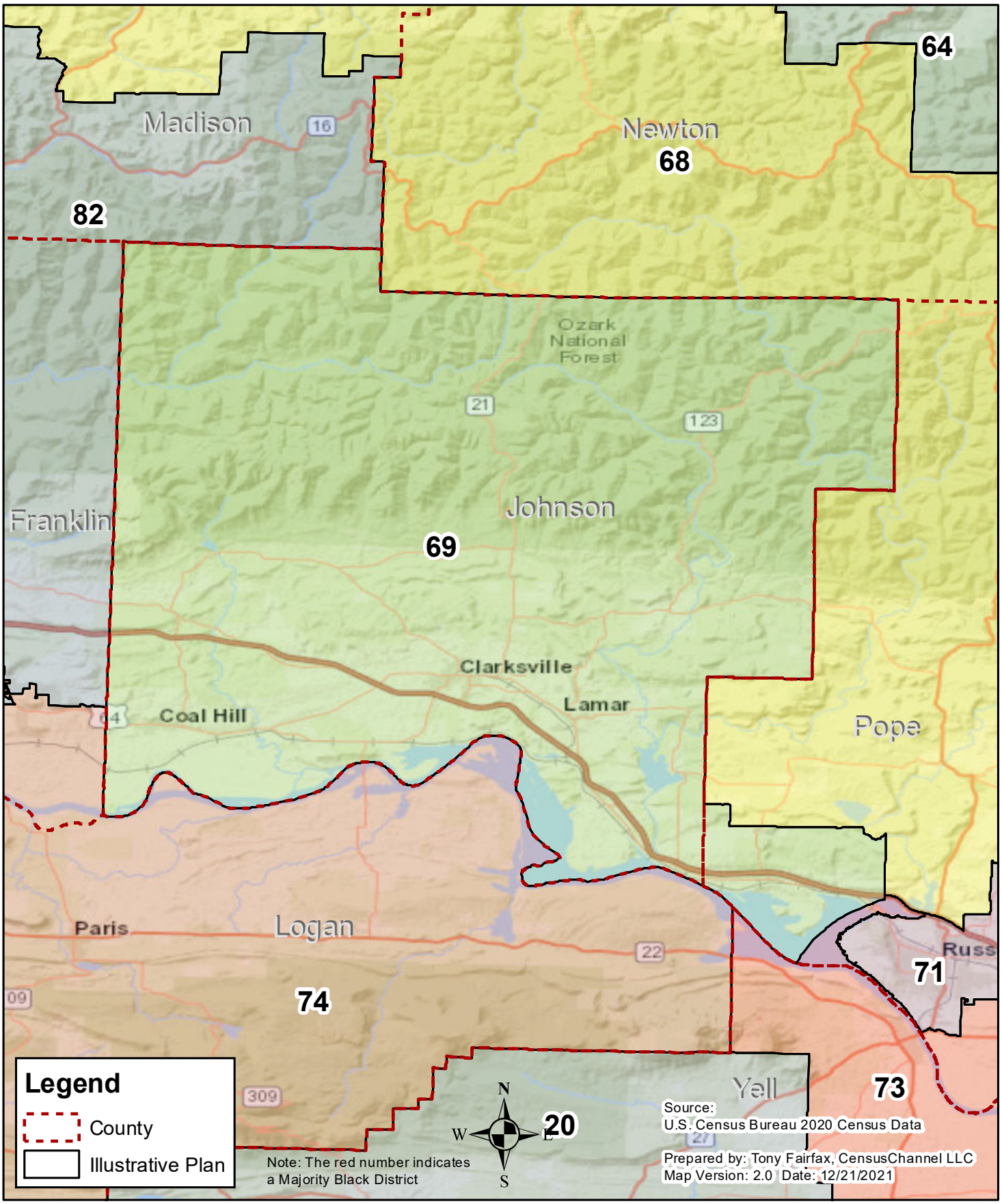
Arkansas
State House District 67
Illustrative Plan



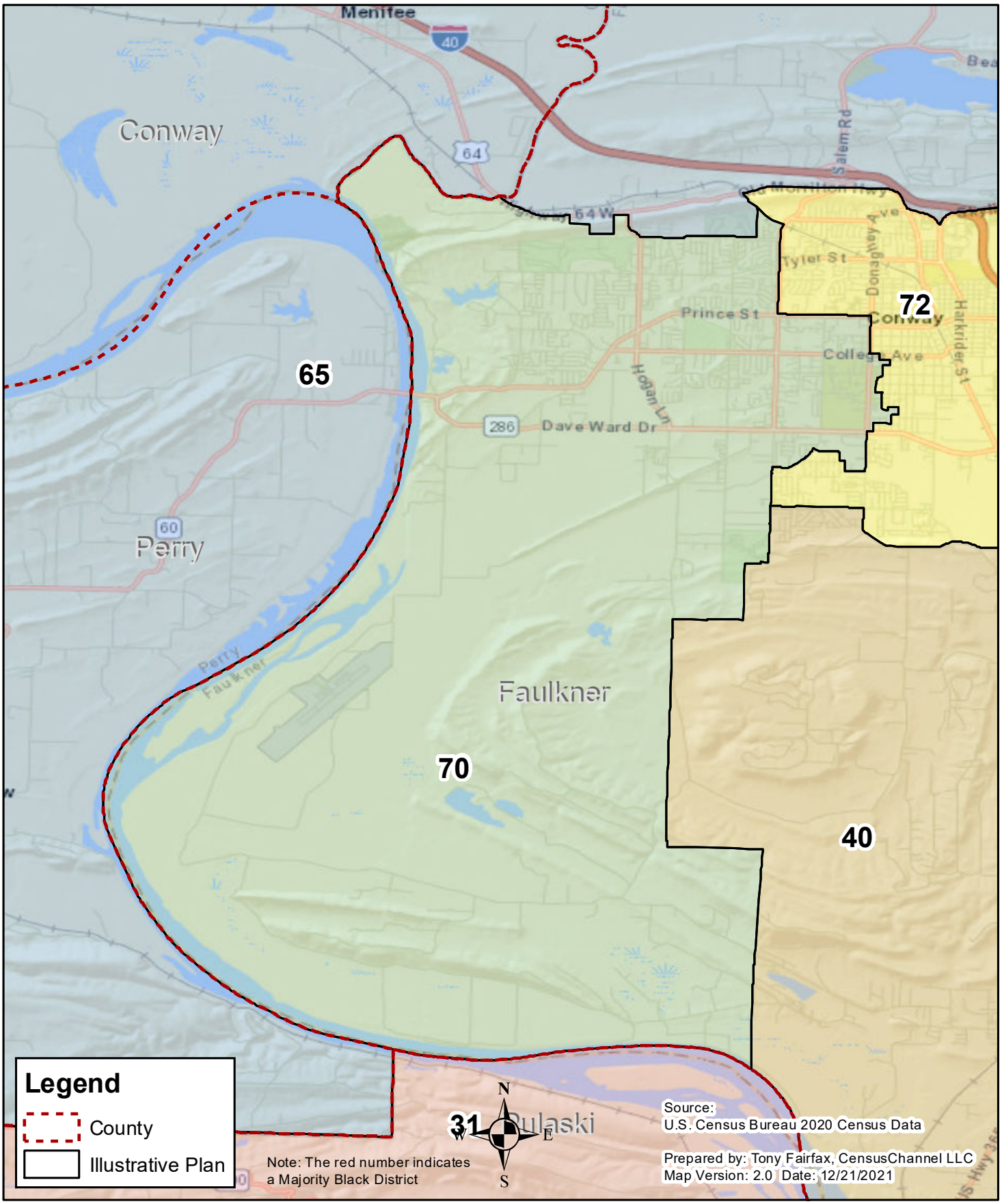
Arkansas
State House District 68
Illustrative Plan



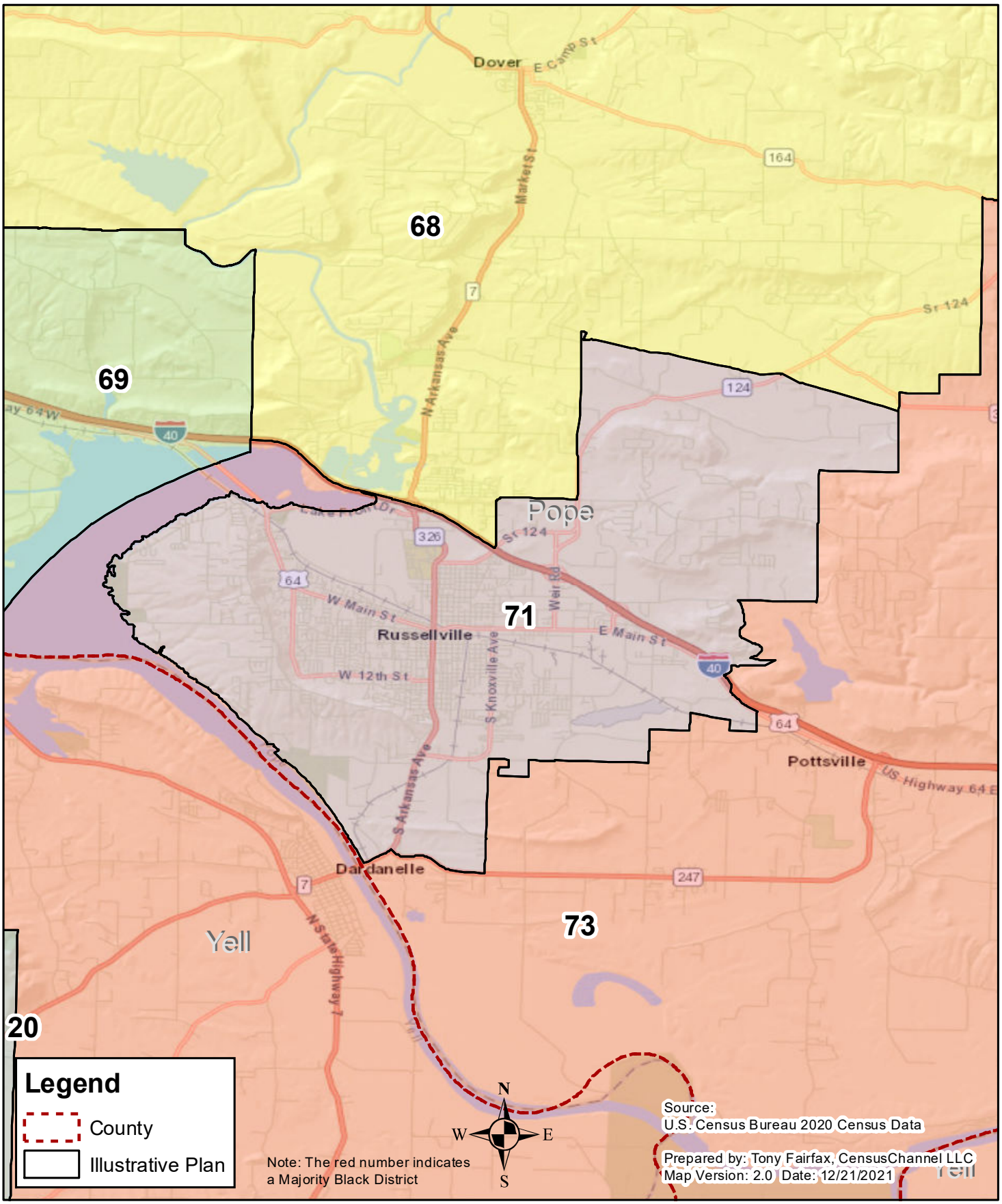
Arkansas
State House District 69
Illustrative Plan



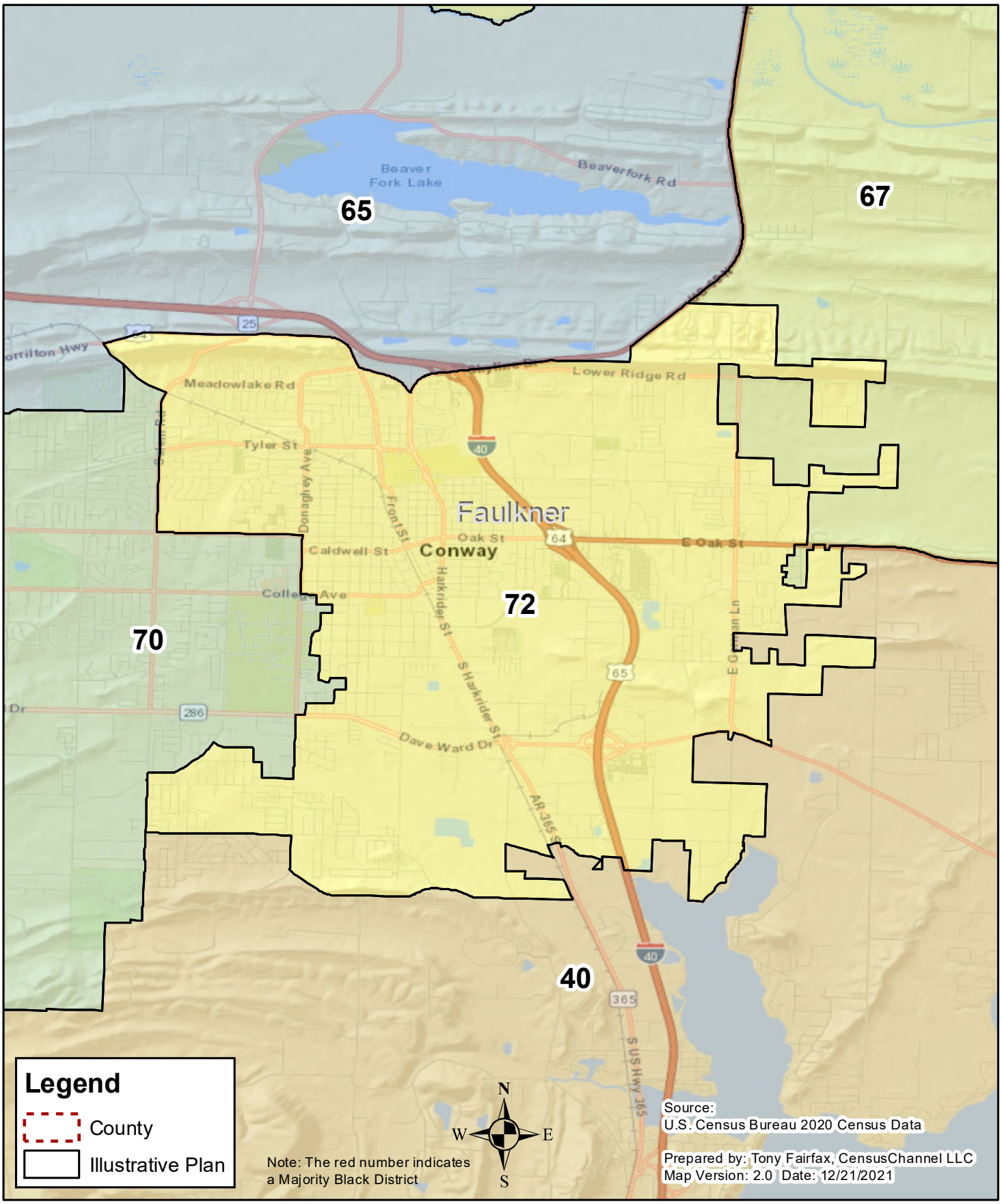
Arkansas
State House District 70
Illustrative Plan



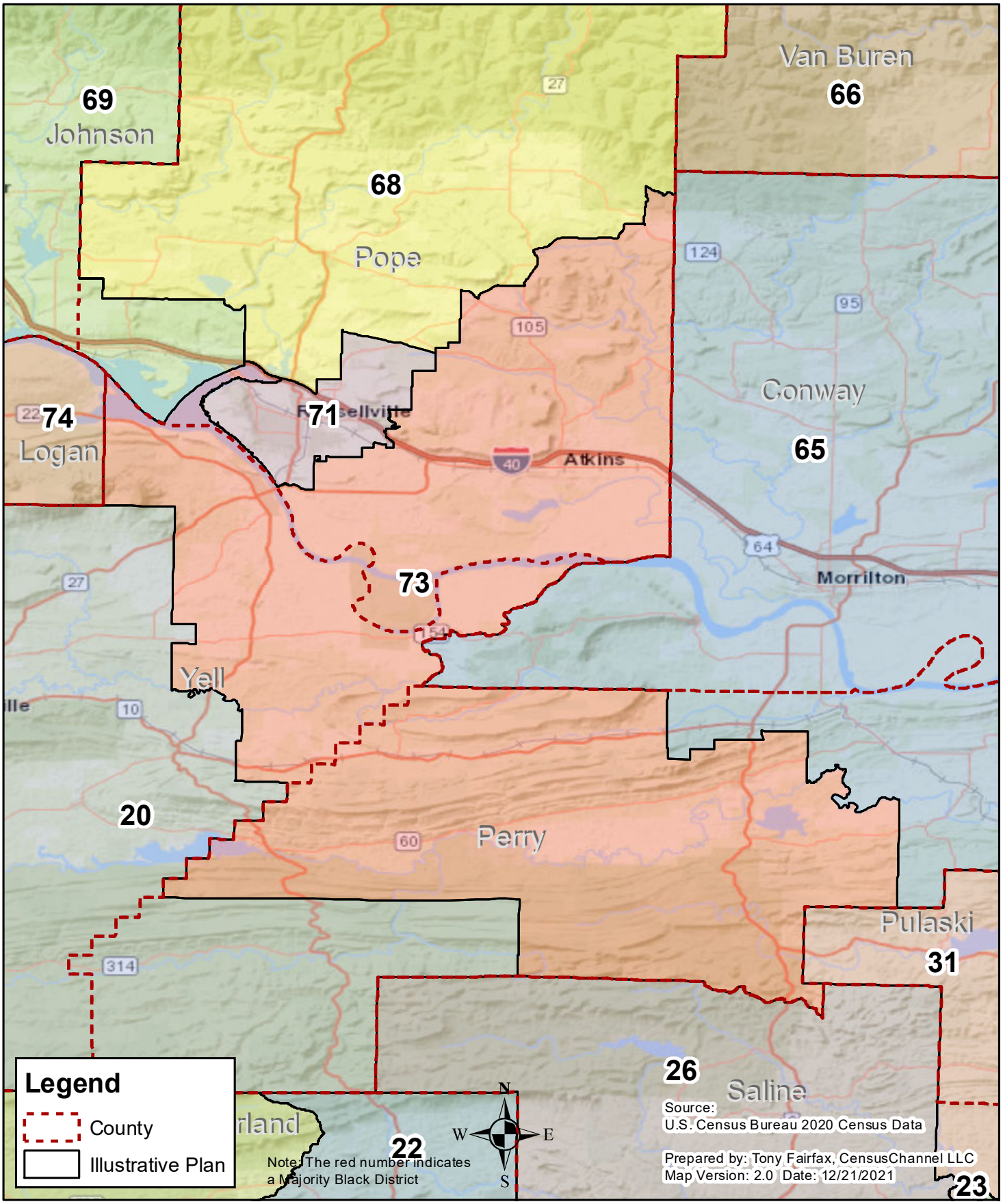
Arkansas
State House District 71
Illustrative Plan



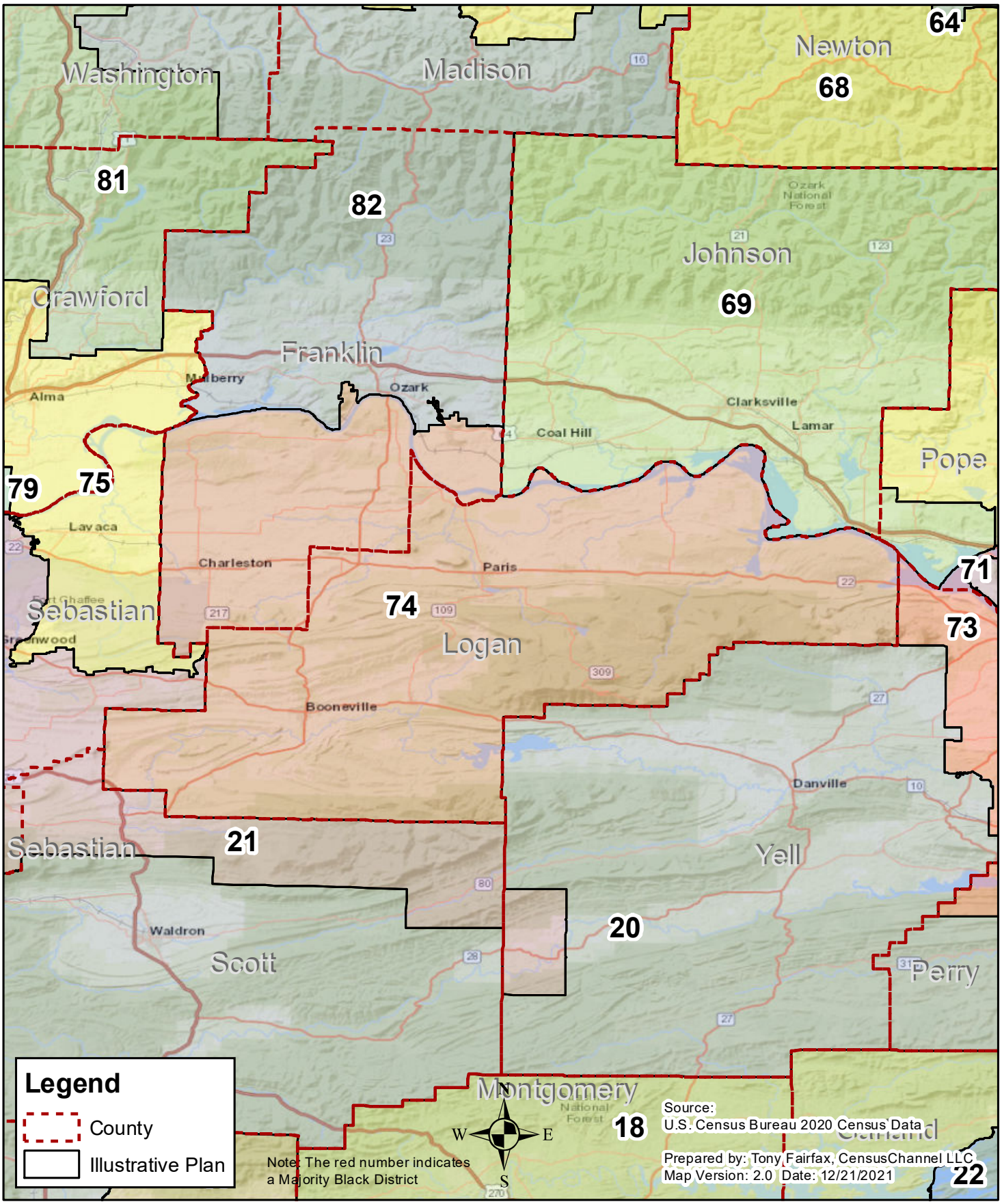
Arkansas
State House District 72
Illustrative Plan



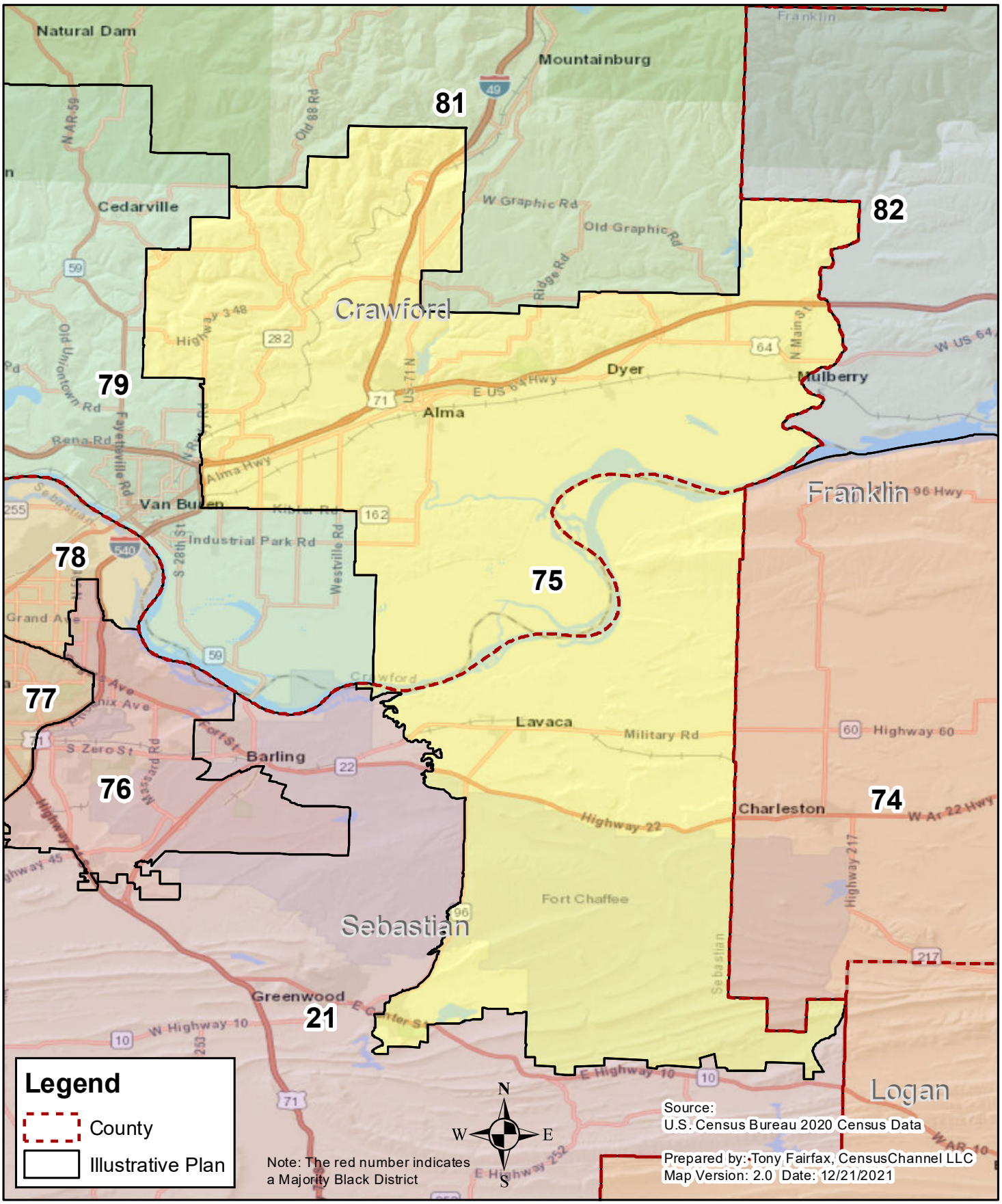
Arkansas
State House District 73
Illustrative Plan



Arkansas
State House District 74
Illustrative Plan



Arkansas
State House District 75
Illustrative Plan



Arkansas
State House District 76
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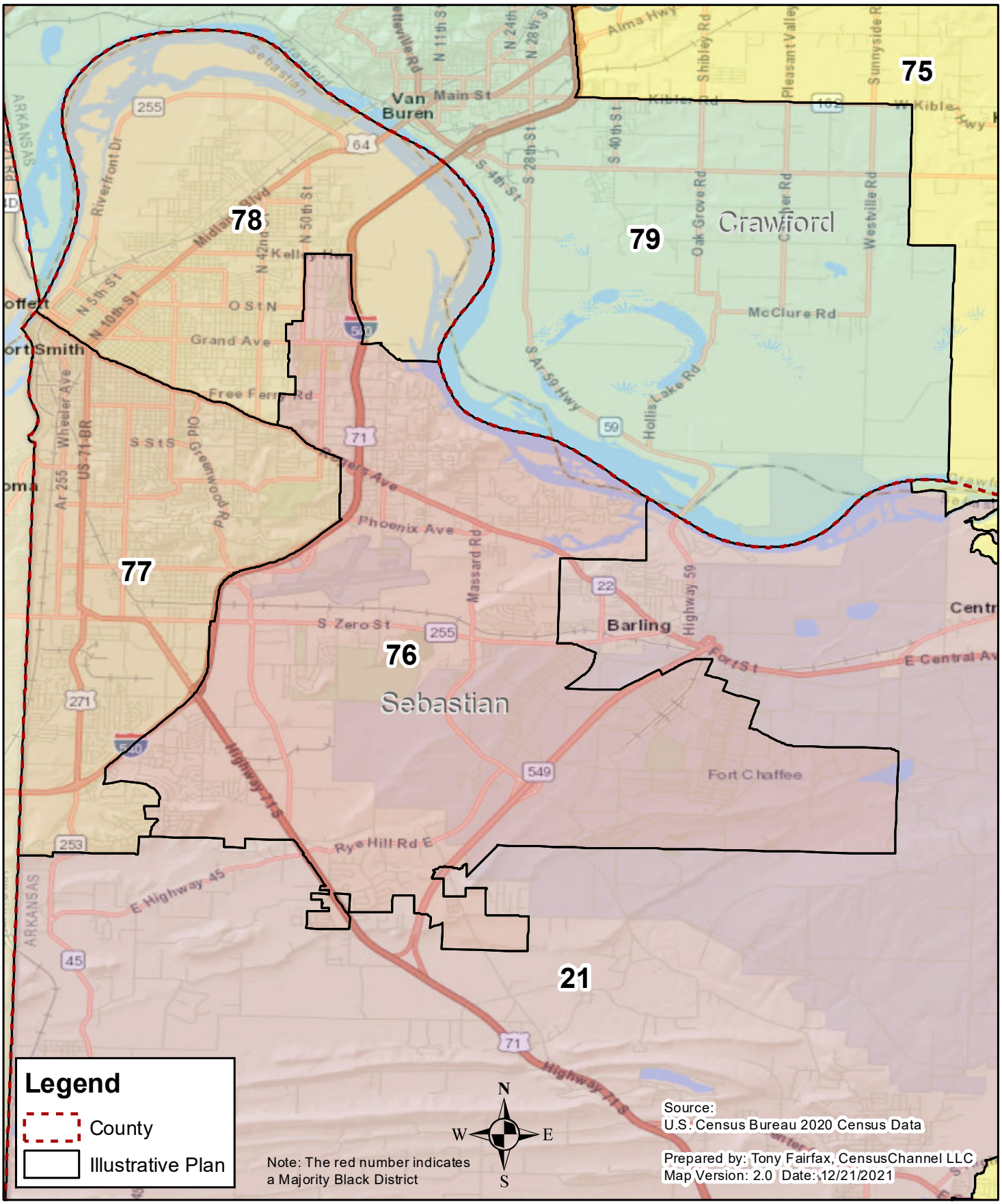
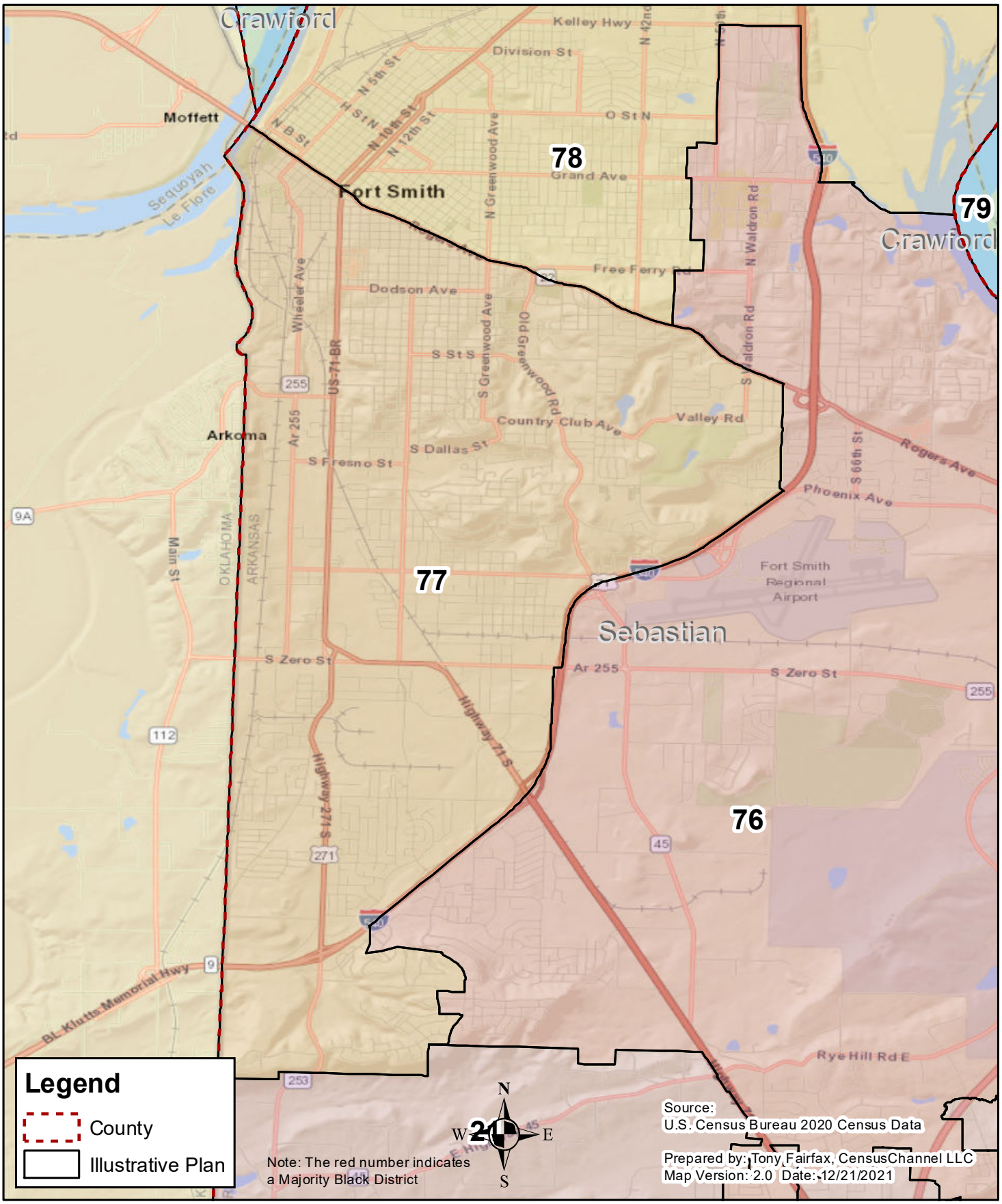
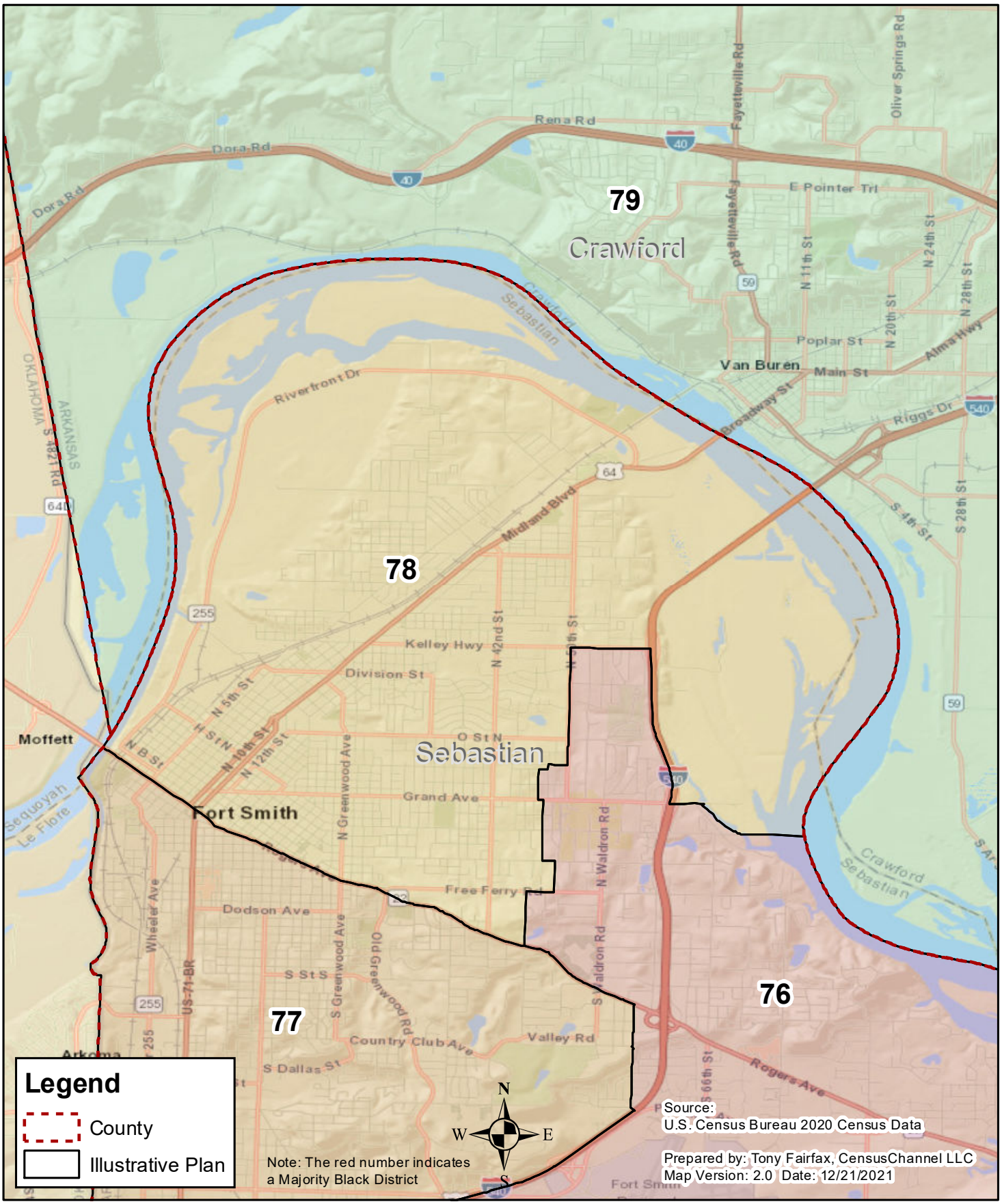


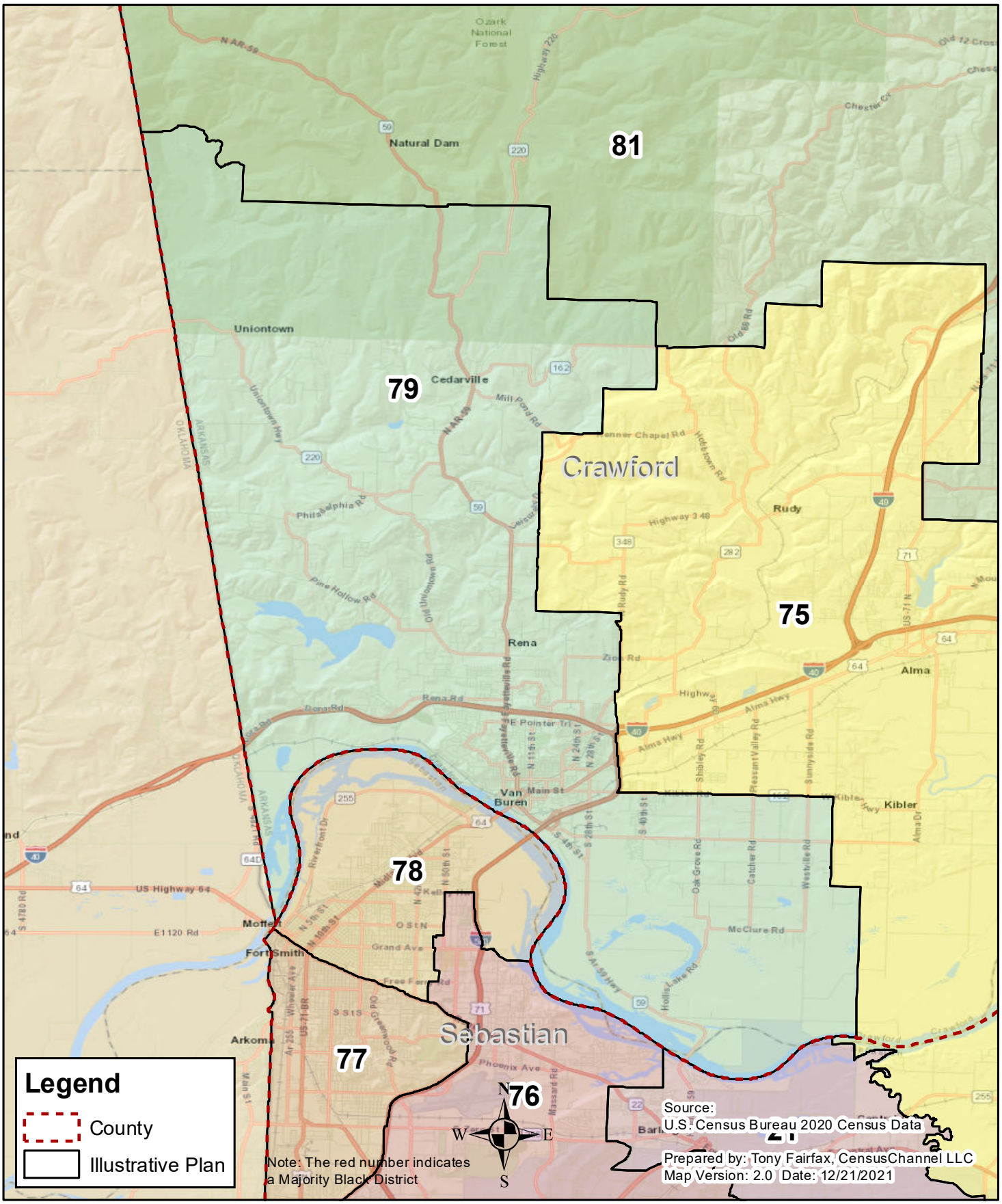
Arkansas
State House District 77
Illustrative Plan



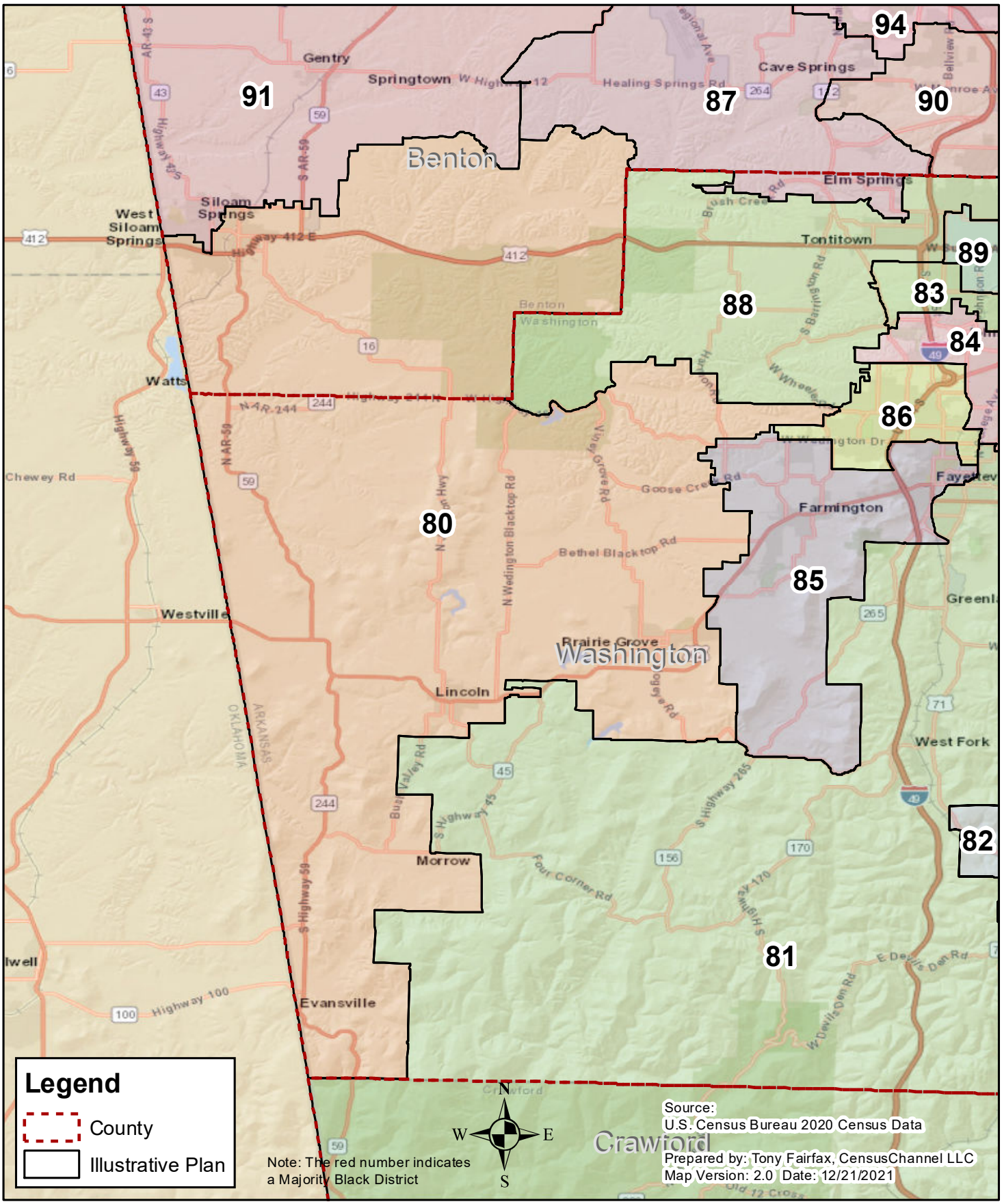
Arkansas
State House District 78
Illustrative Plan



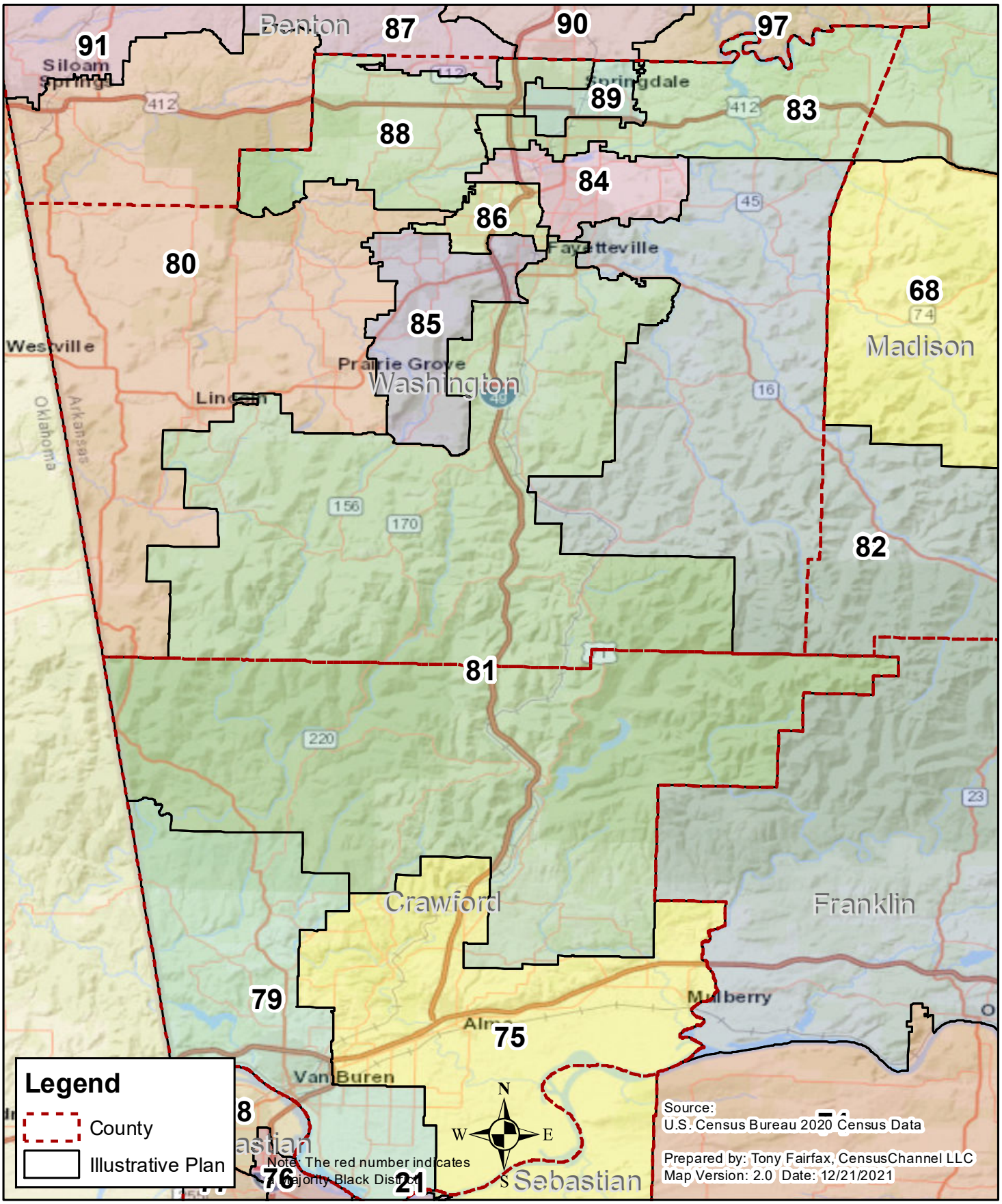
Arkansas
State House District 79
Illustrative Plan



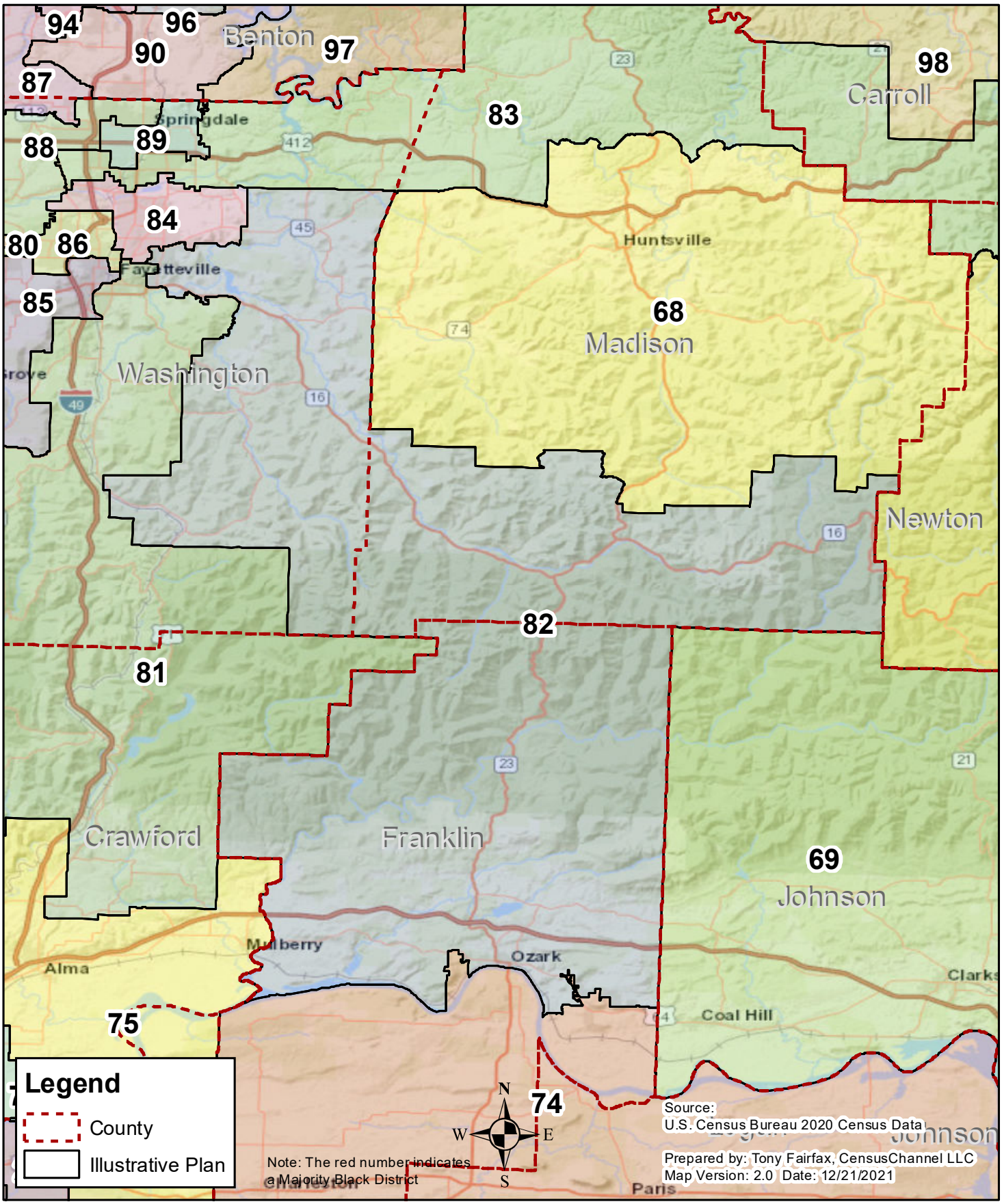
Arkansas
State House District 80
Illustrative Plan



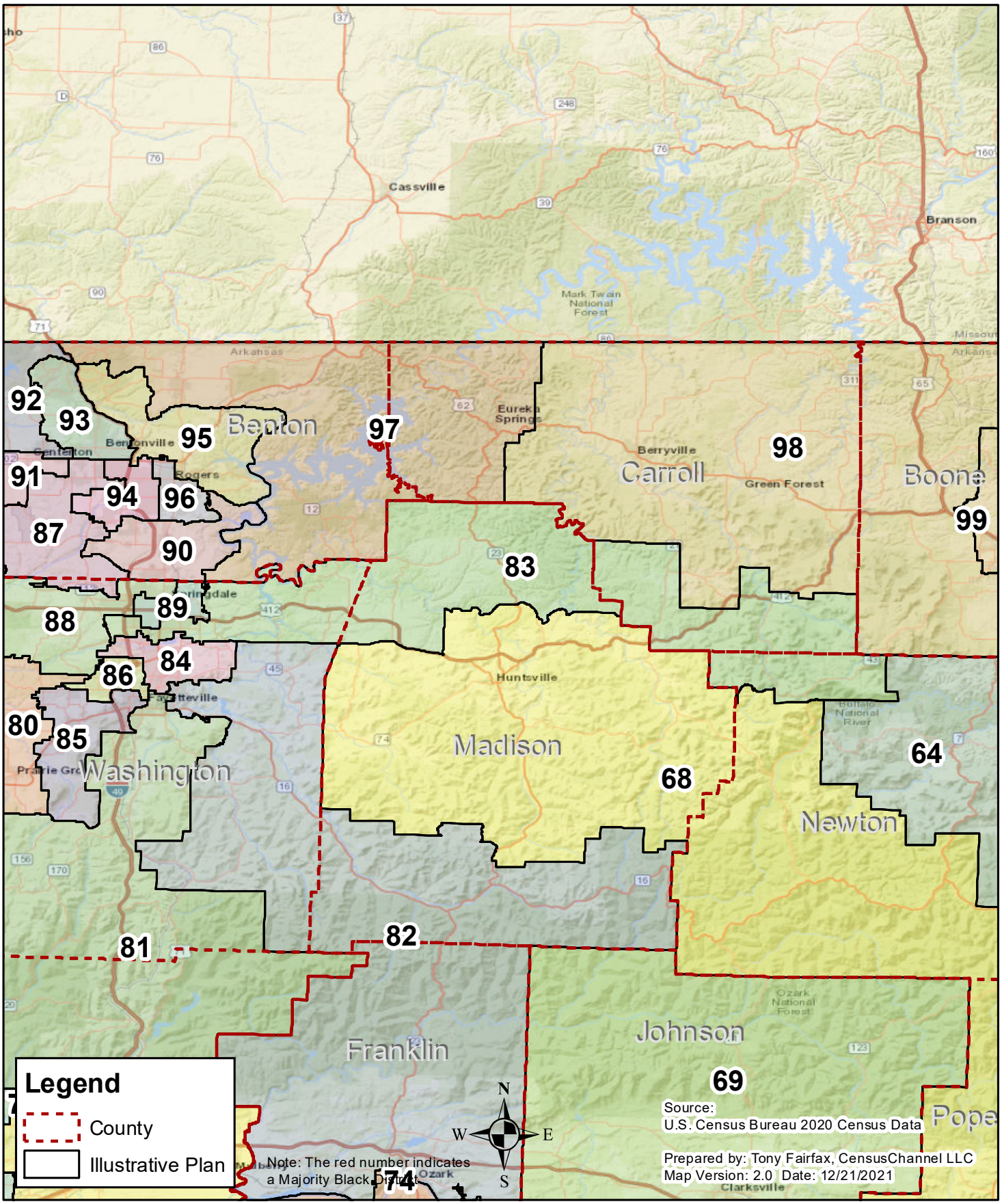
Arkansas
State House District 81
Illustrative Plan



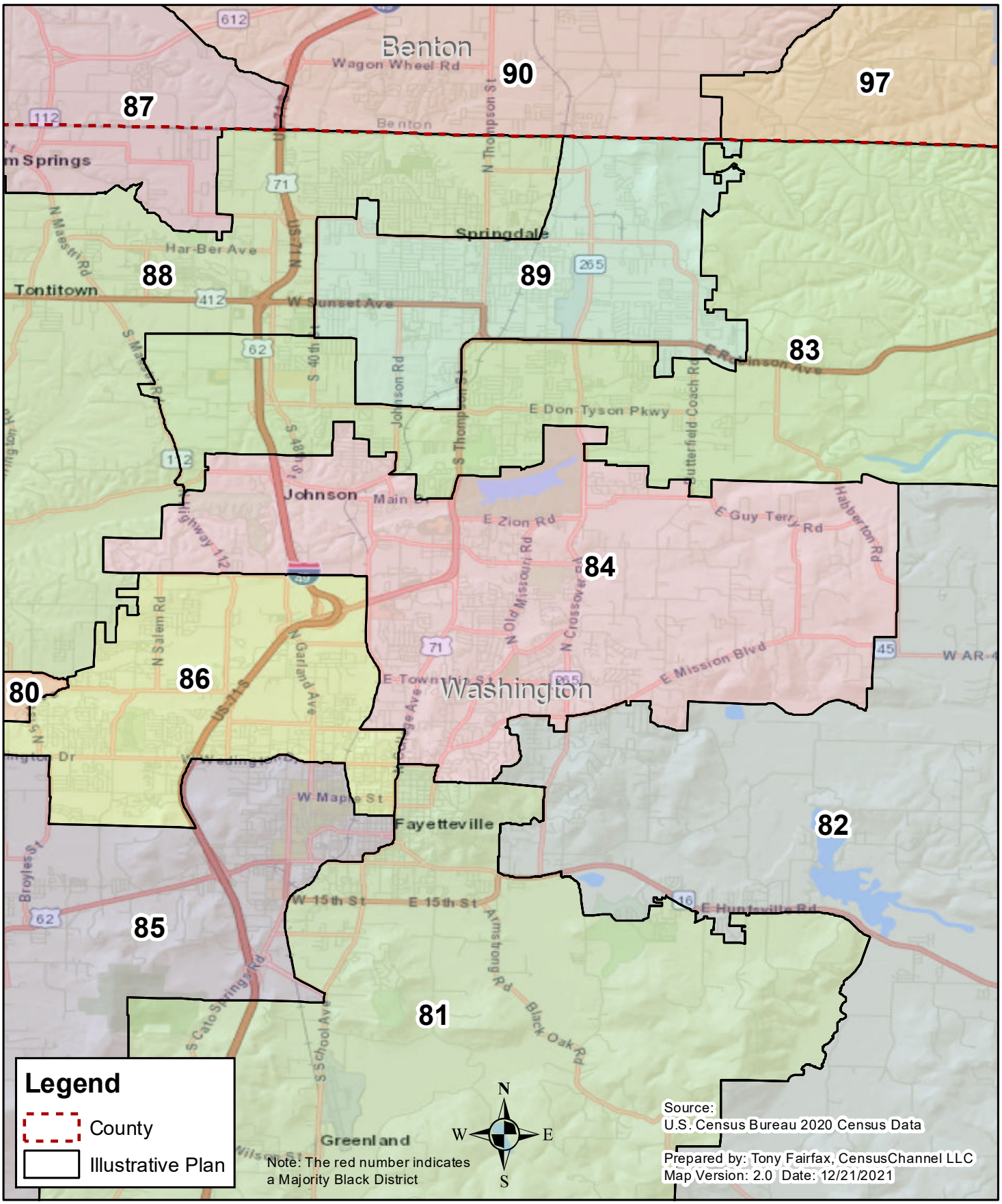
Arkansas
State House District 82
Illustrative Plan



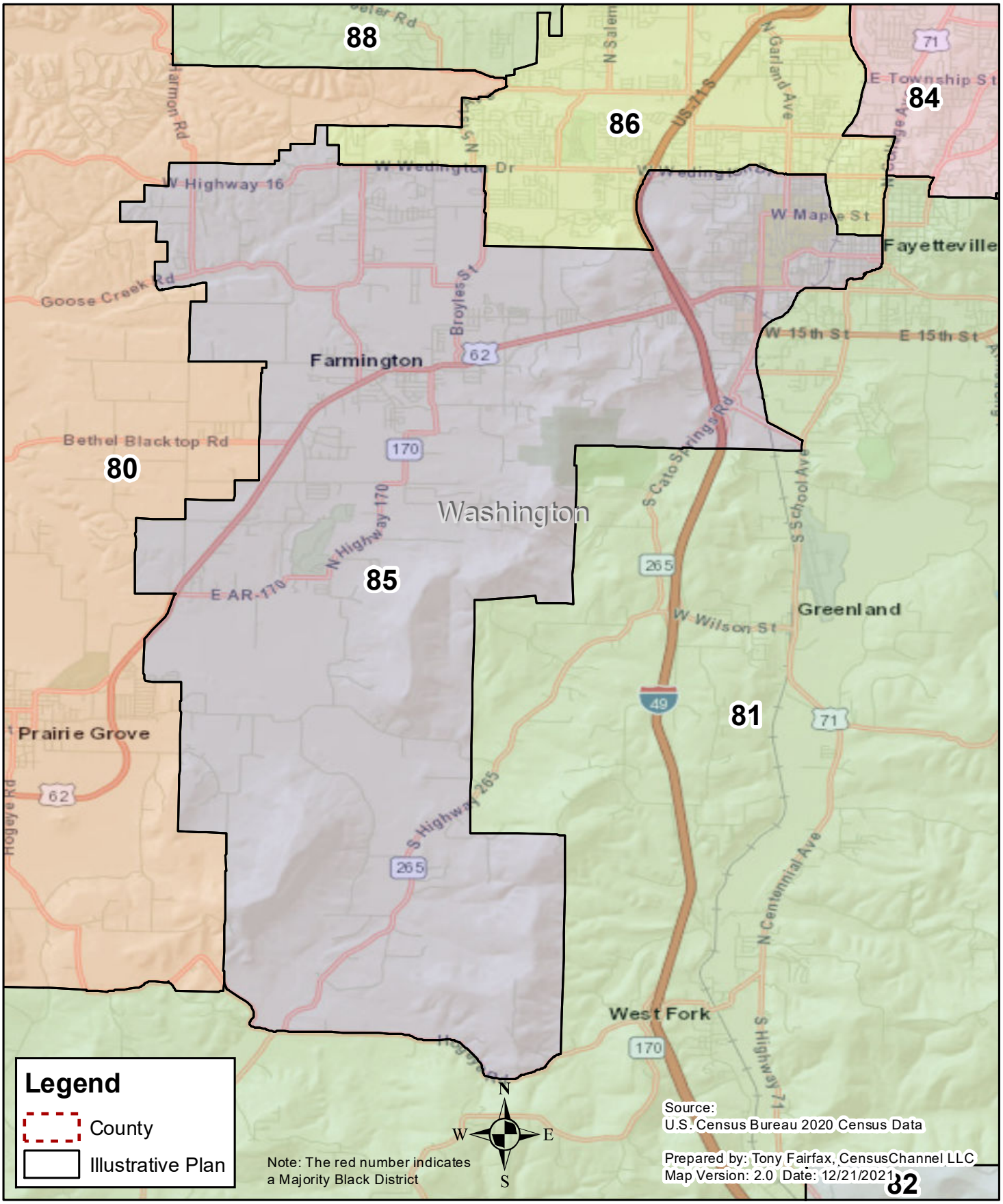
Arkansas
State House District 83
Illustrative Plan



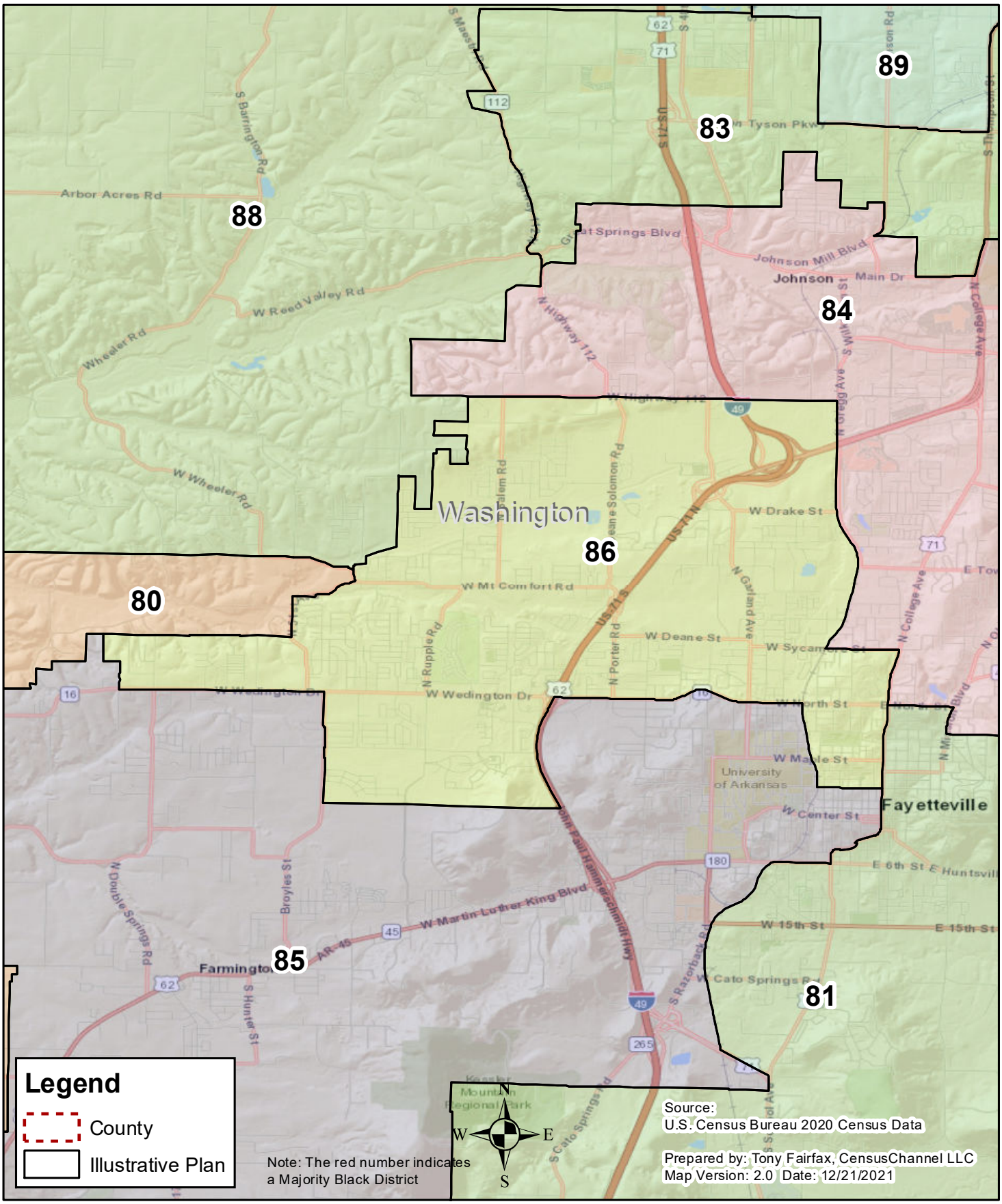
Arkansas
State House District 84
Illustrative Plan



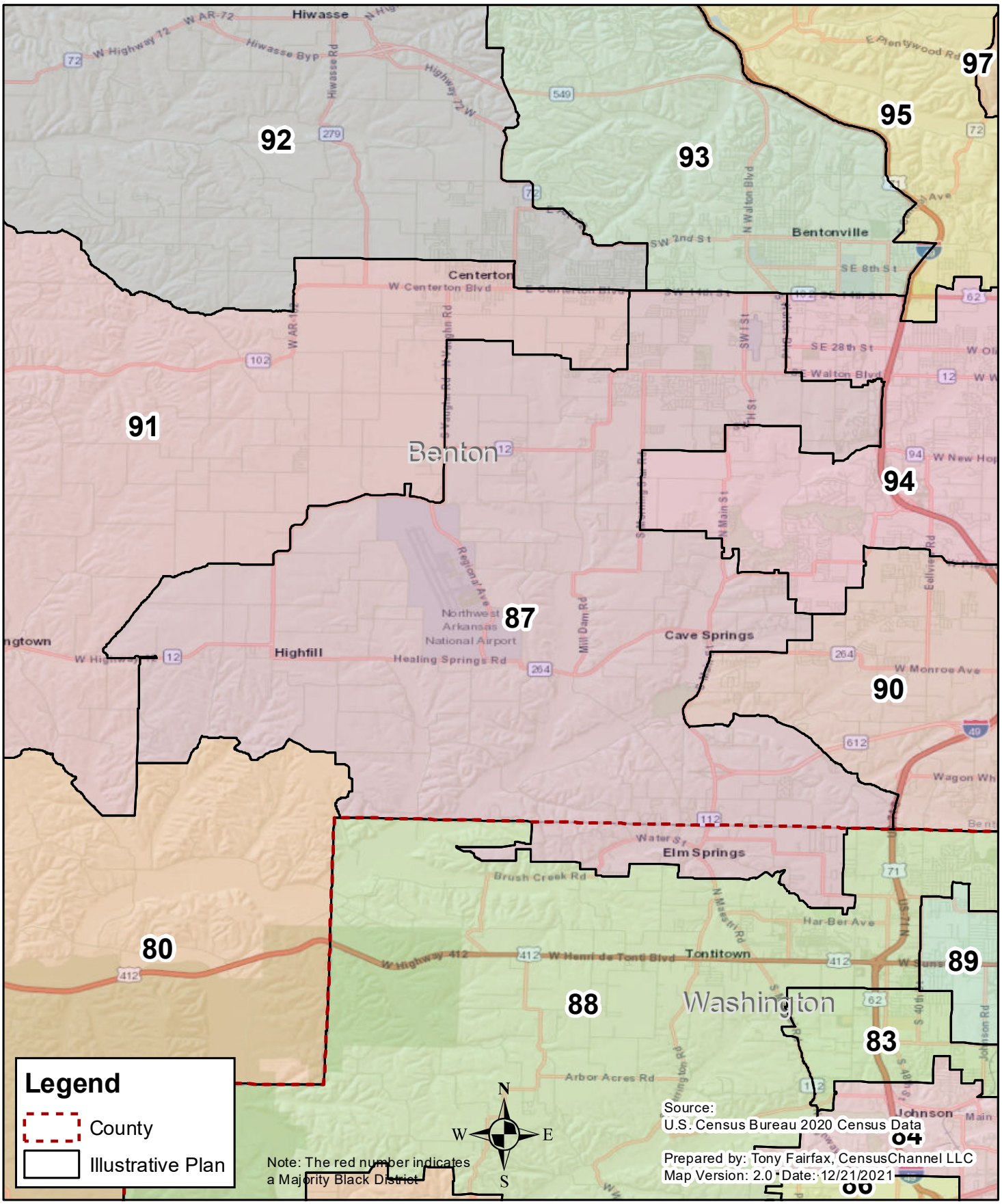
Arkansas
State House District 85
Illustrative Plan



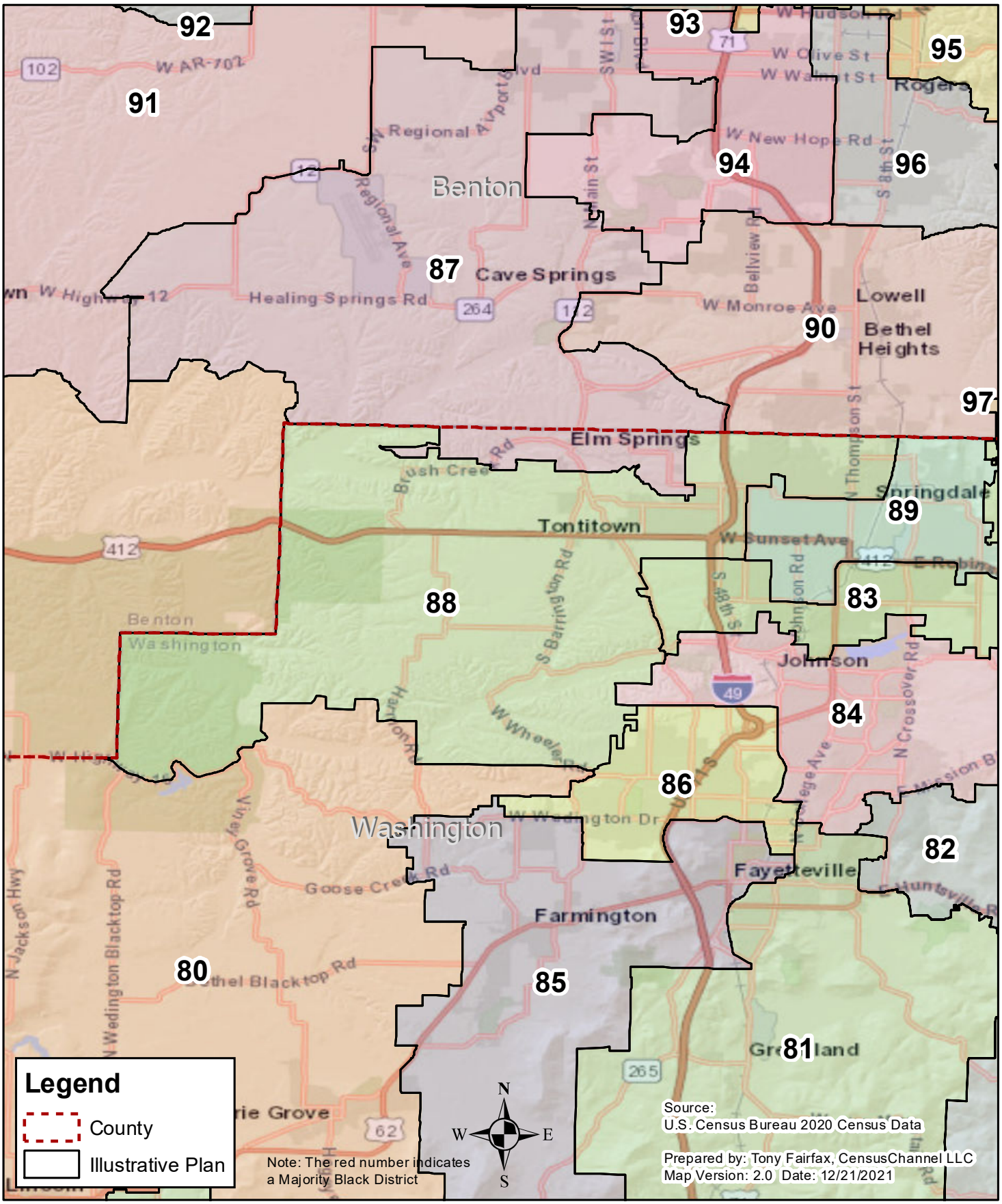
Arkansas
State House District 86
Illustrative Plan



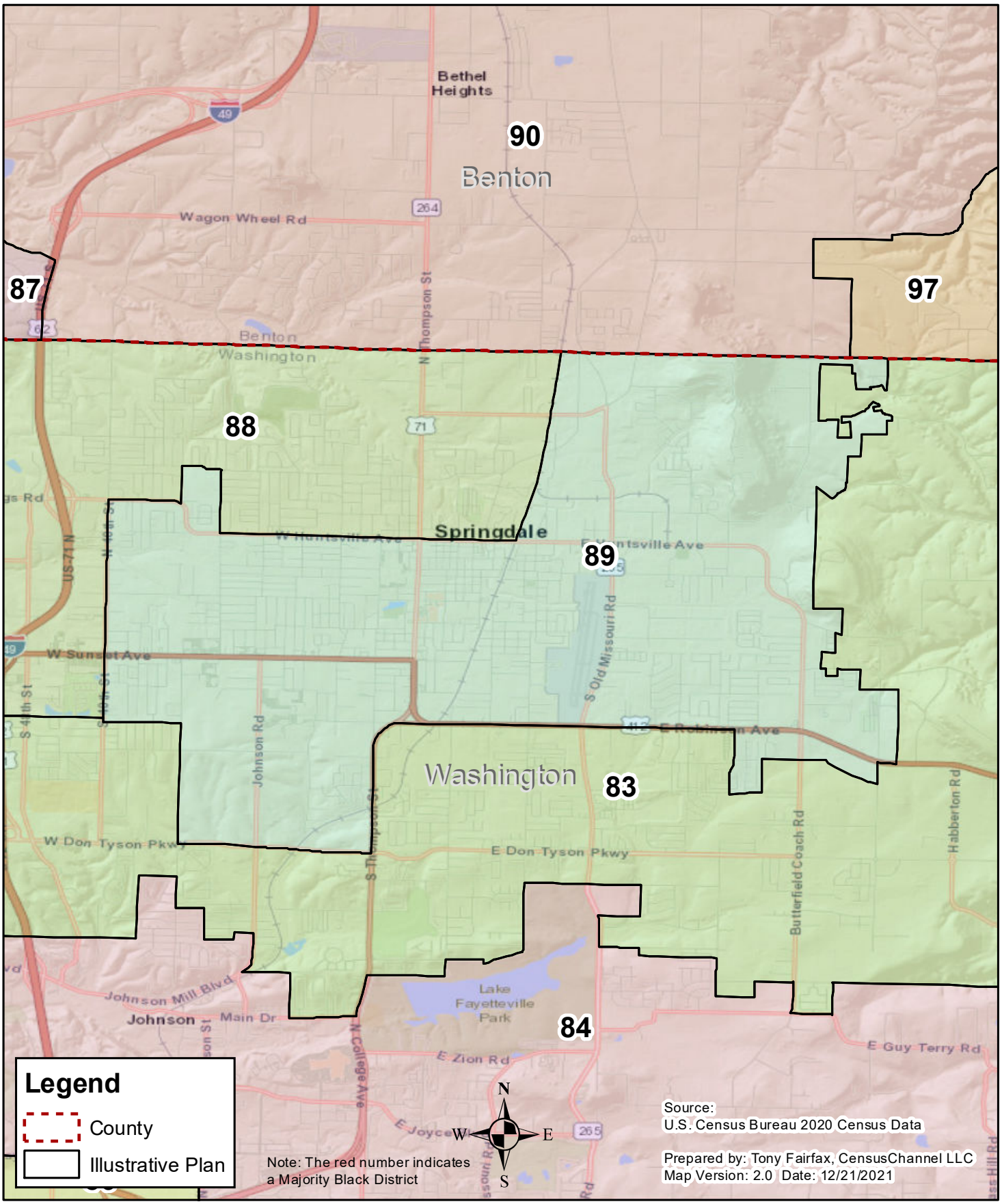
Arkansas
State House District 87
Illustrative Plan



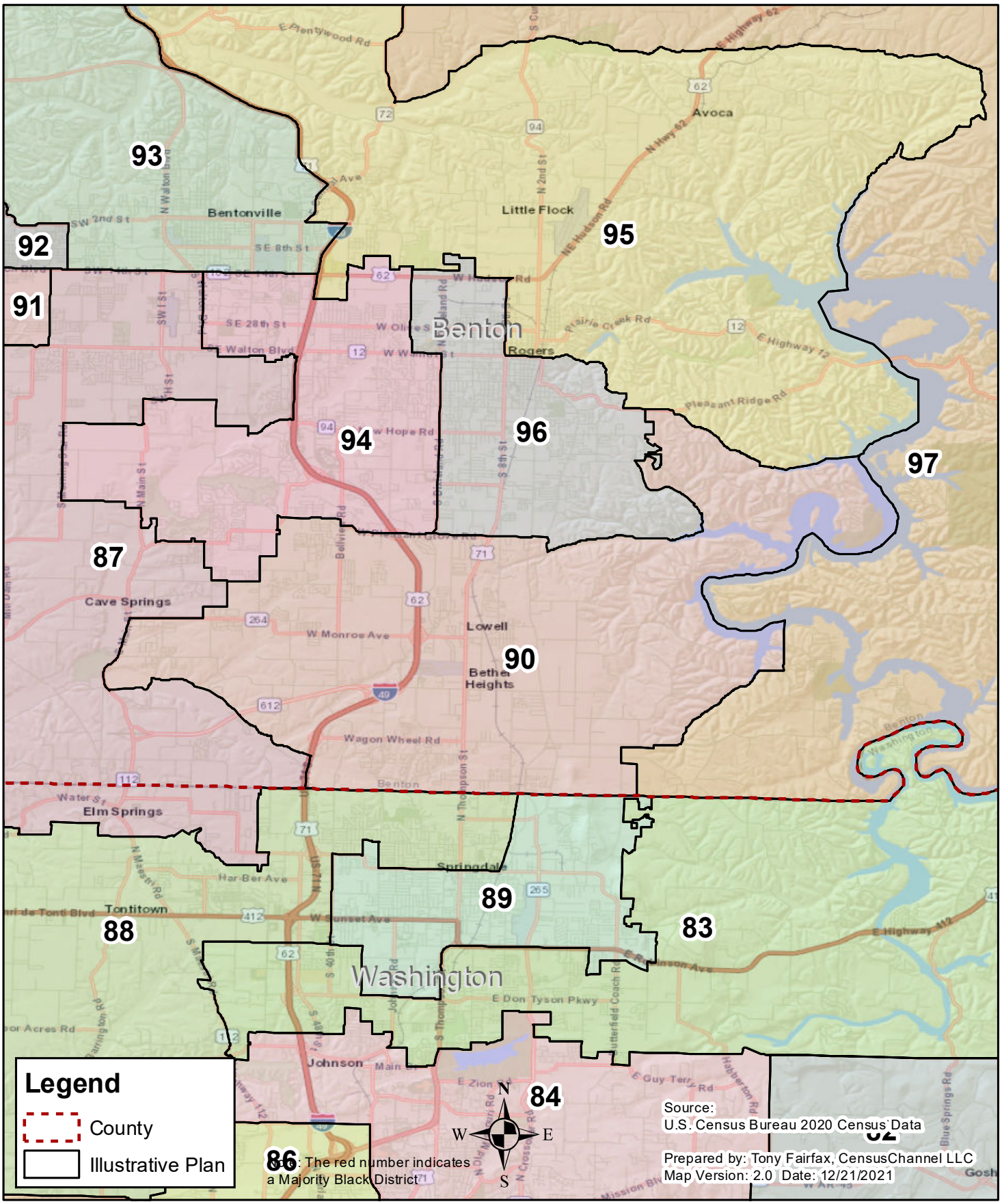
Arkansas
State House District 88
Illustrative Plan



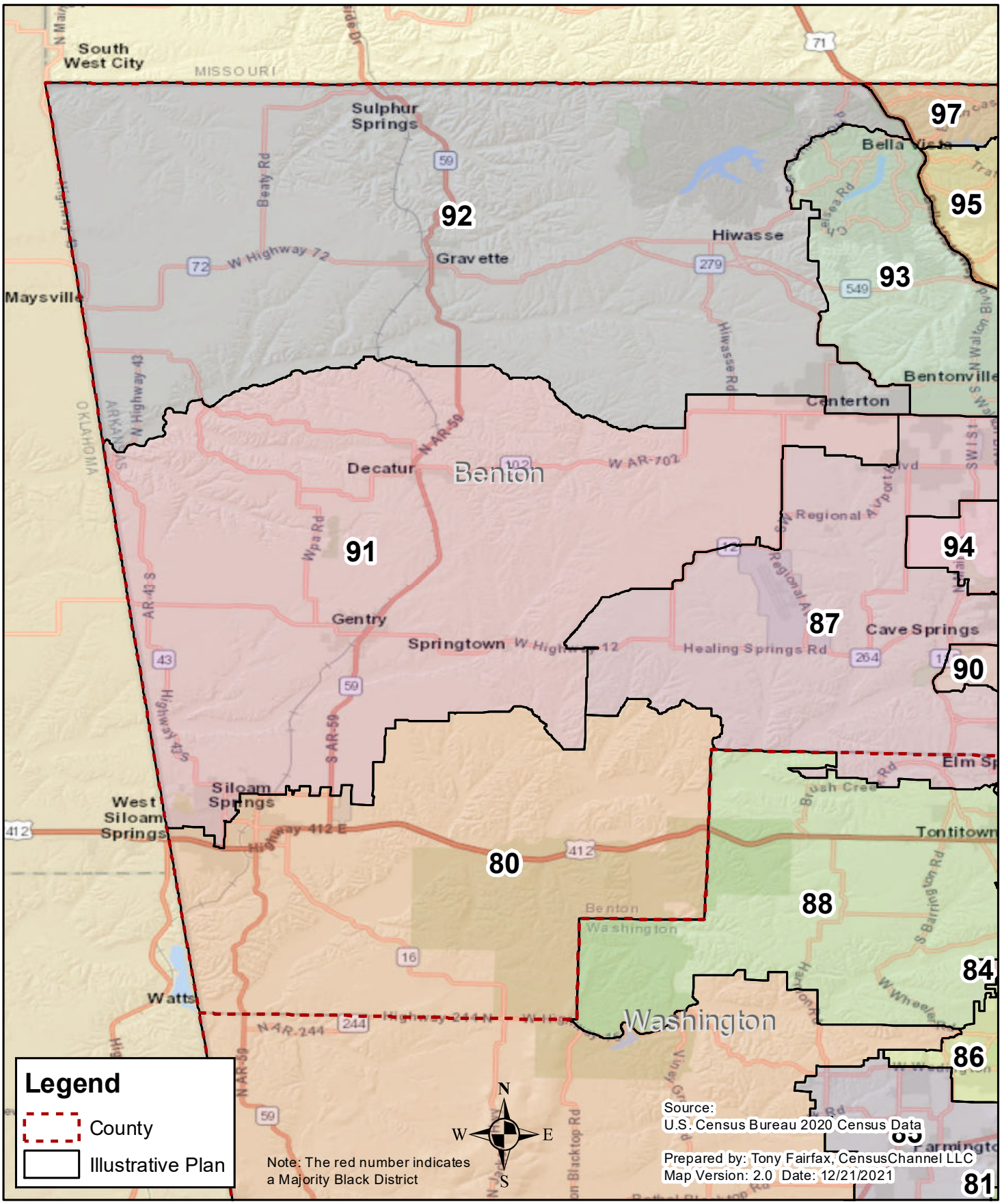
Arkansas
State House District 89
Illustrative Plan



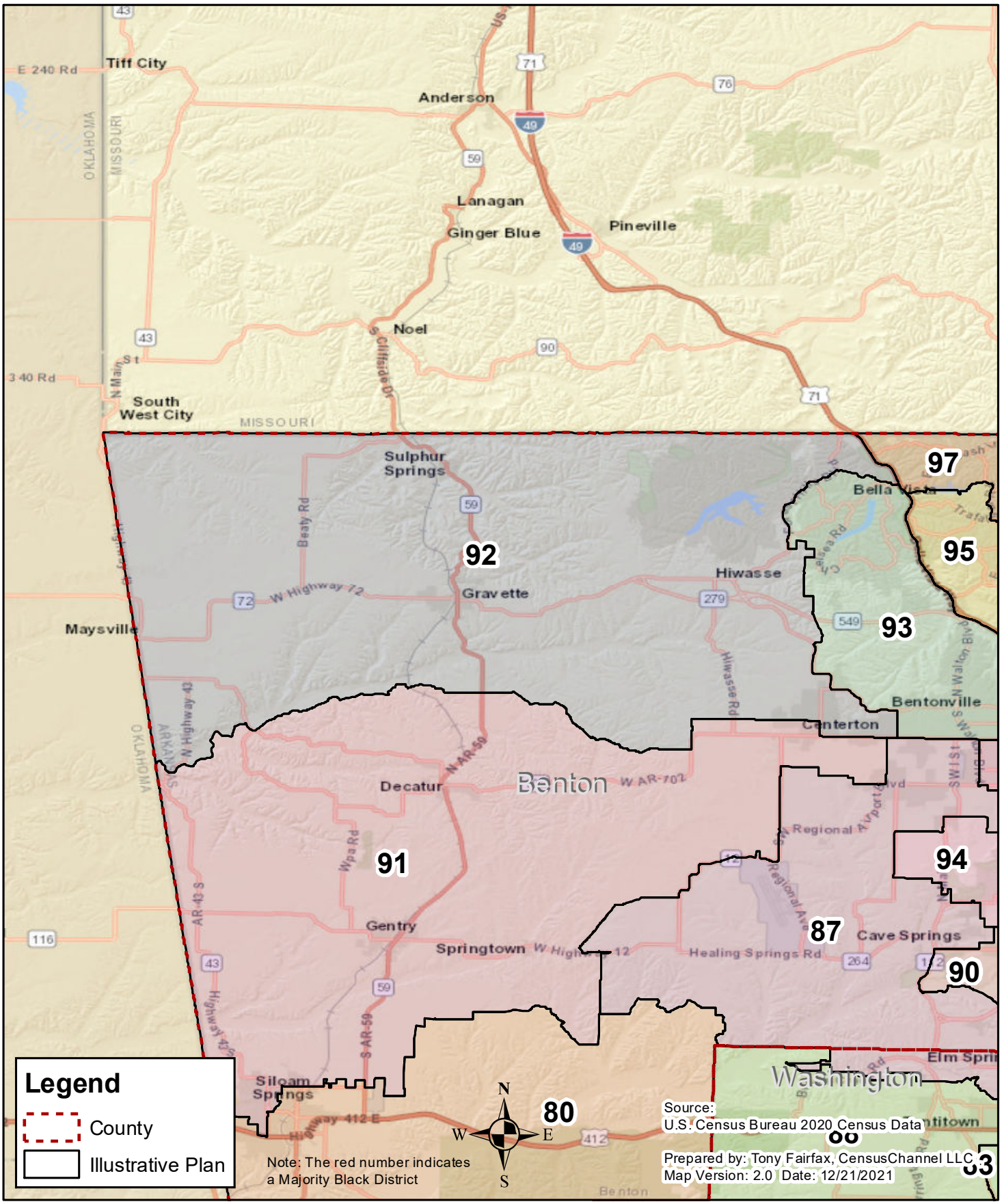
Arkansas
State House District 90
Illustrative Plan



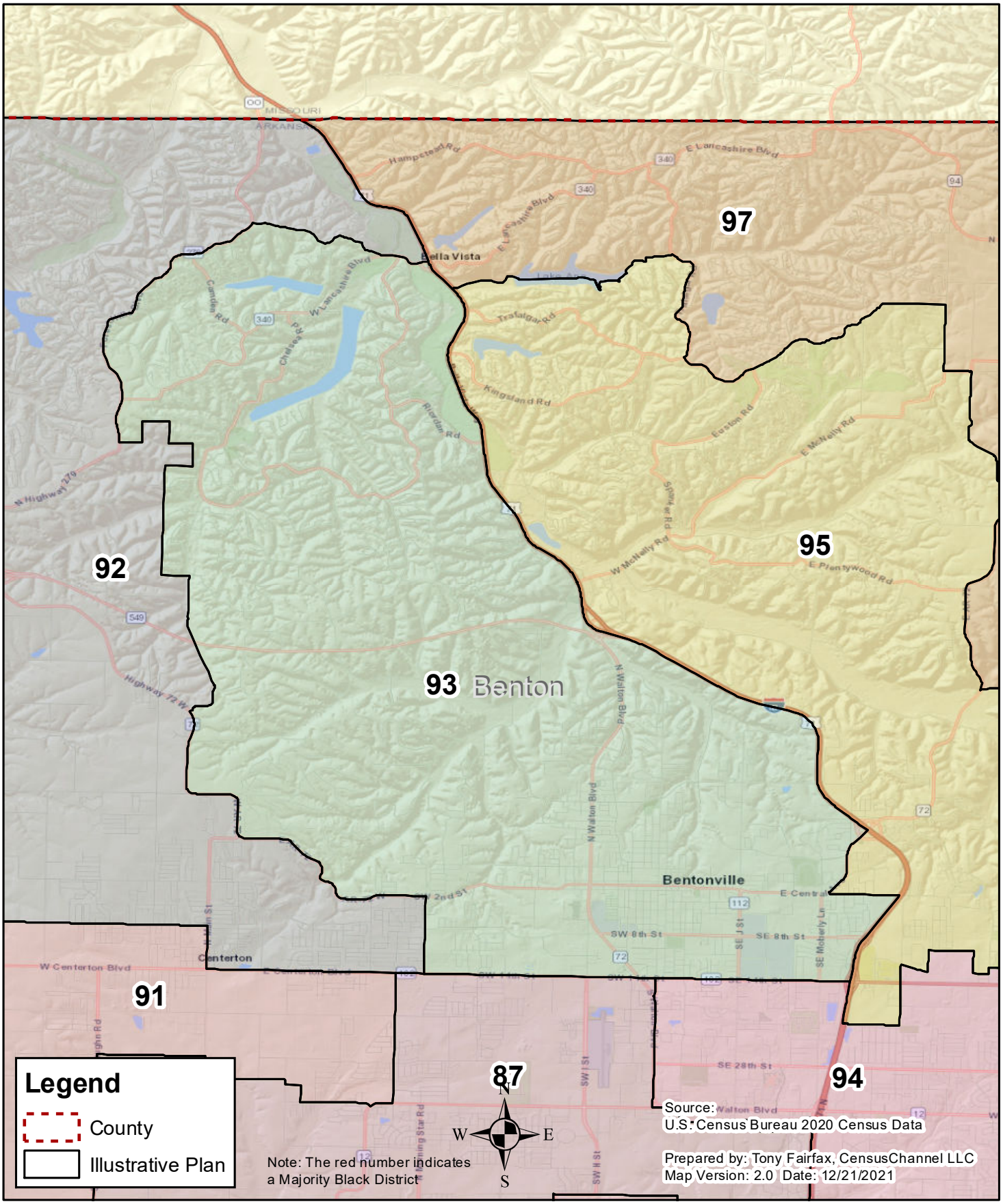
Arkansas
State House District 91
Illustrative Plan



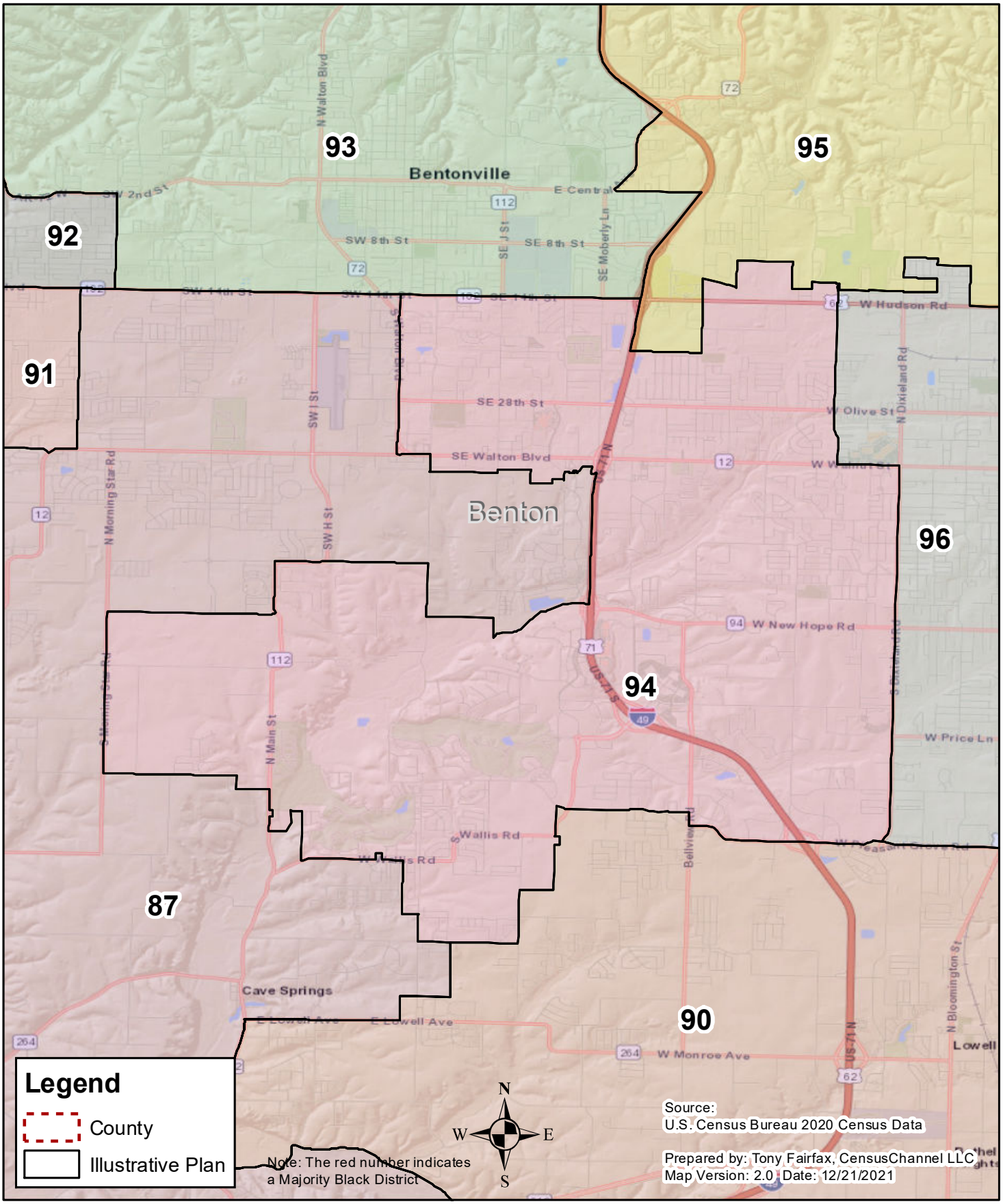
Arkansas
State House District 92
Illustrative Plan



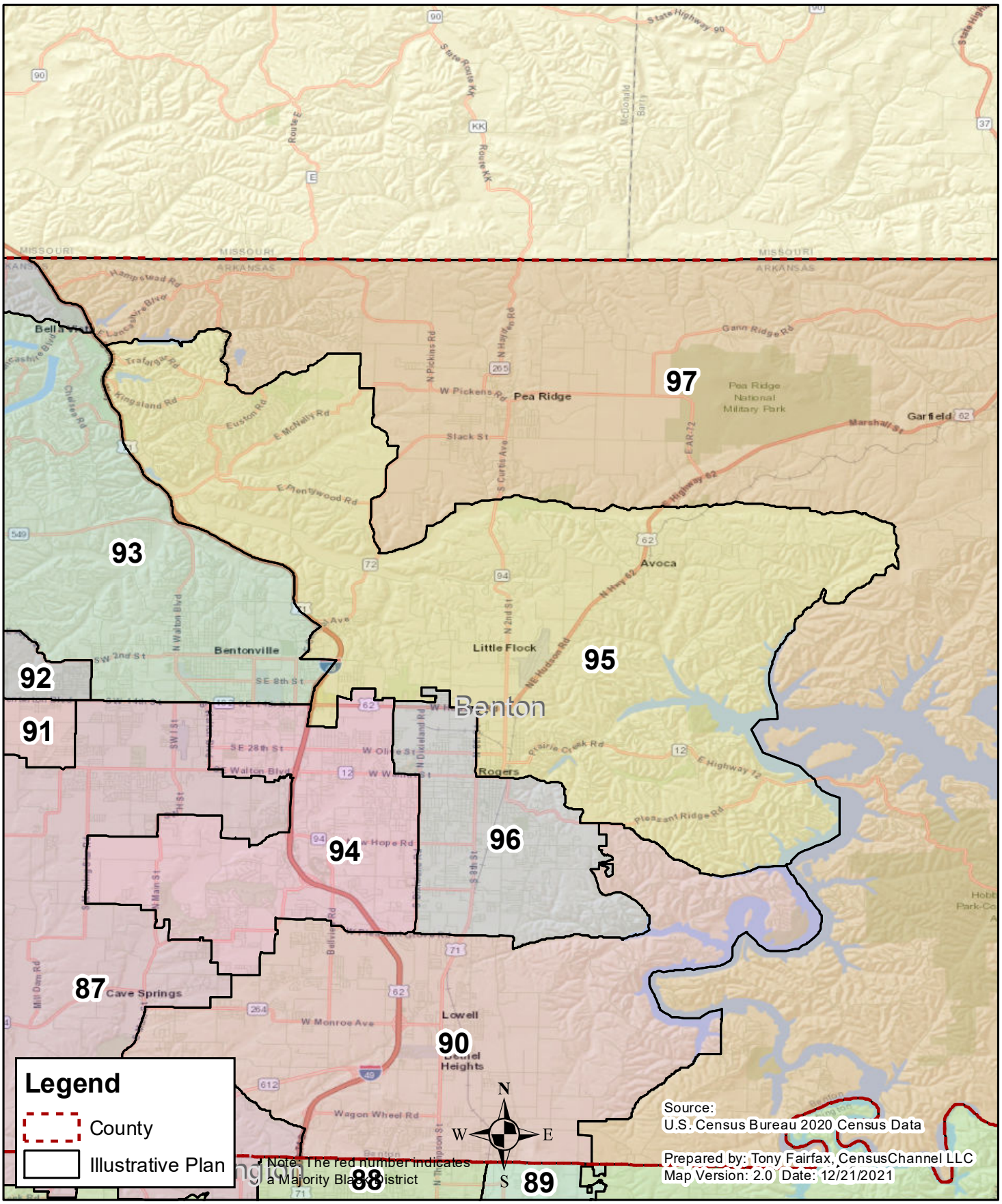
Arkansas
State House District 93
Illustrative Plan



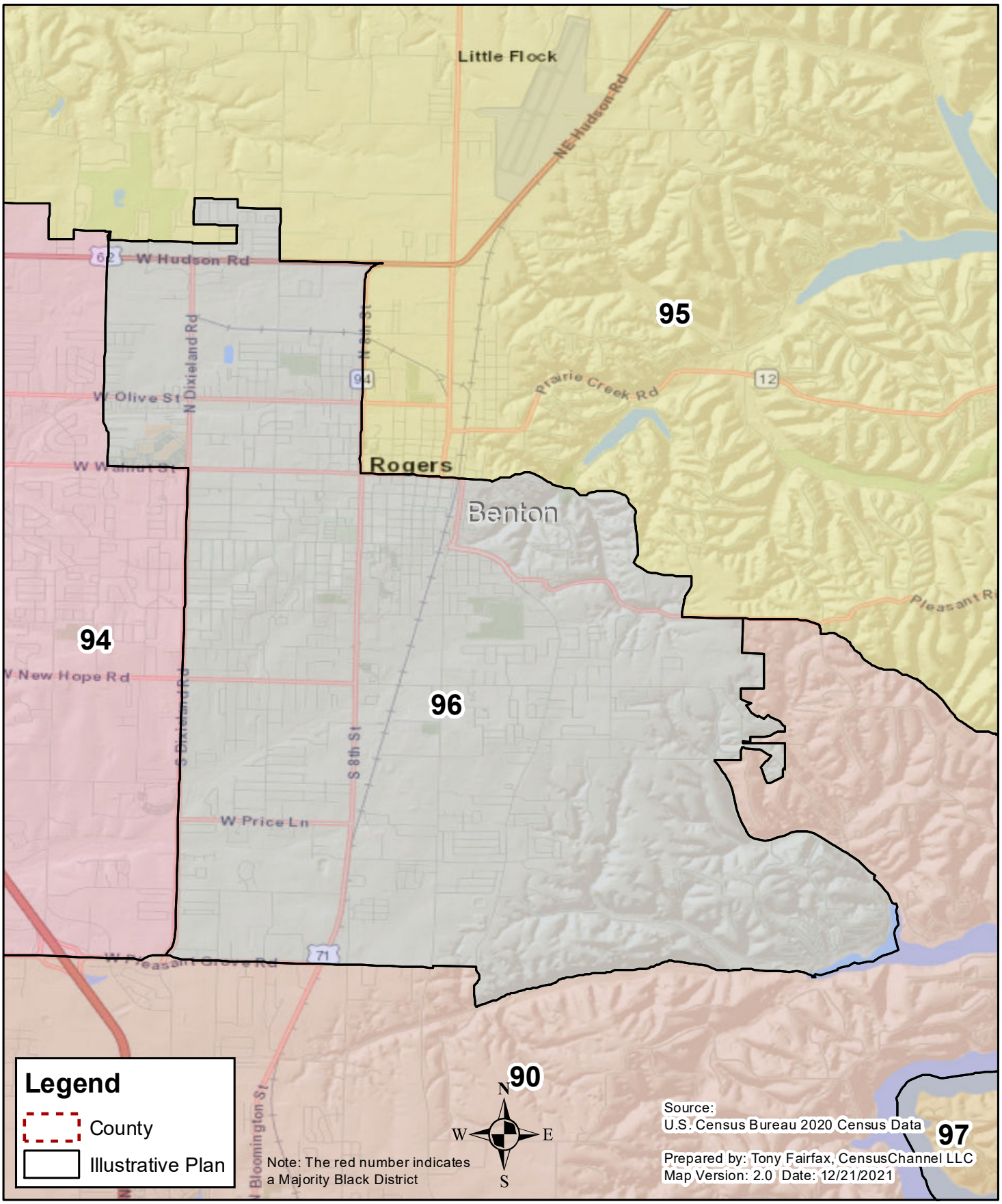
Arkansas
State House District 94
Illustrative Plan



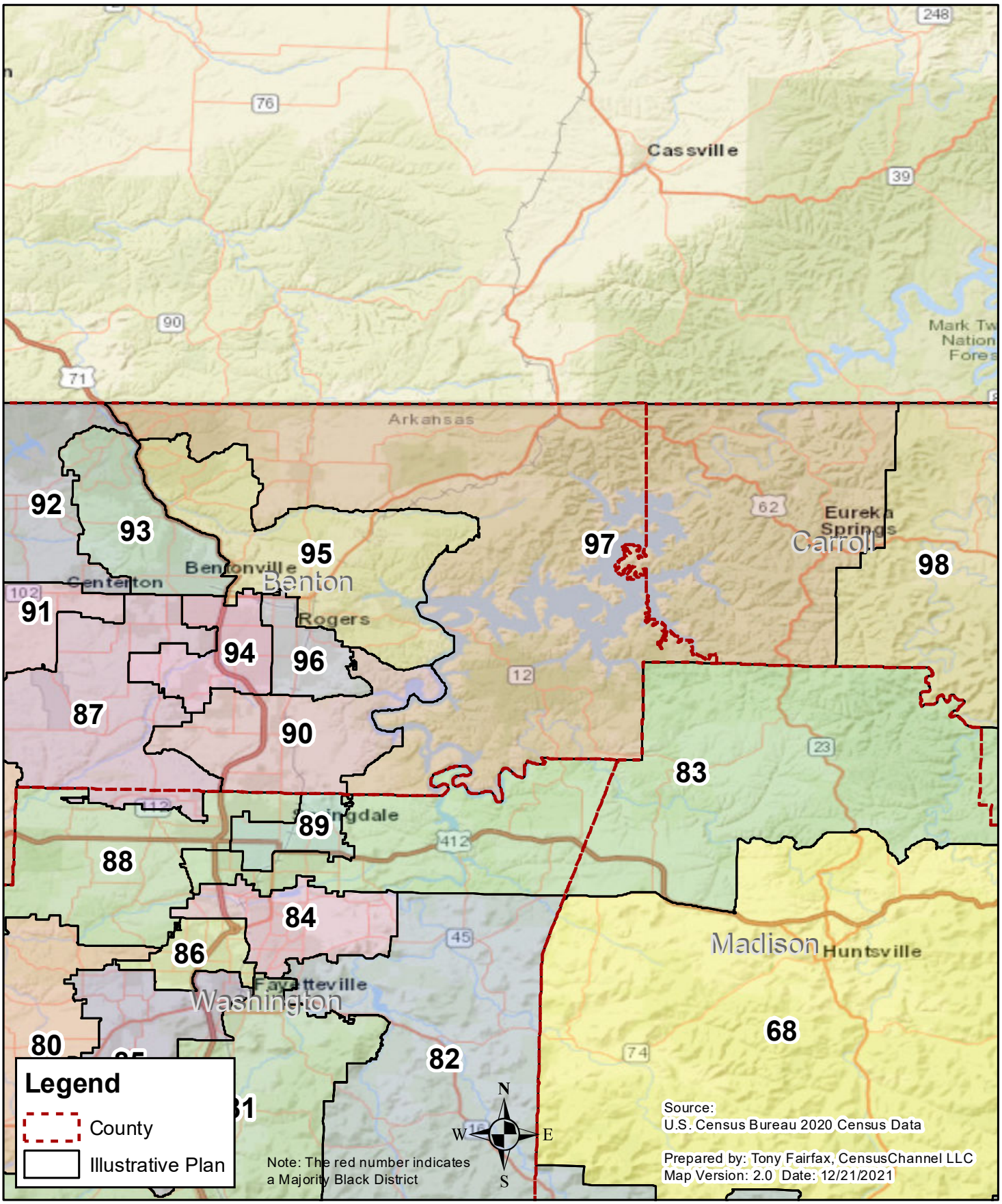
Arkansas
State House District 95
Illustrative Plan



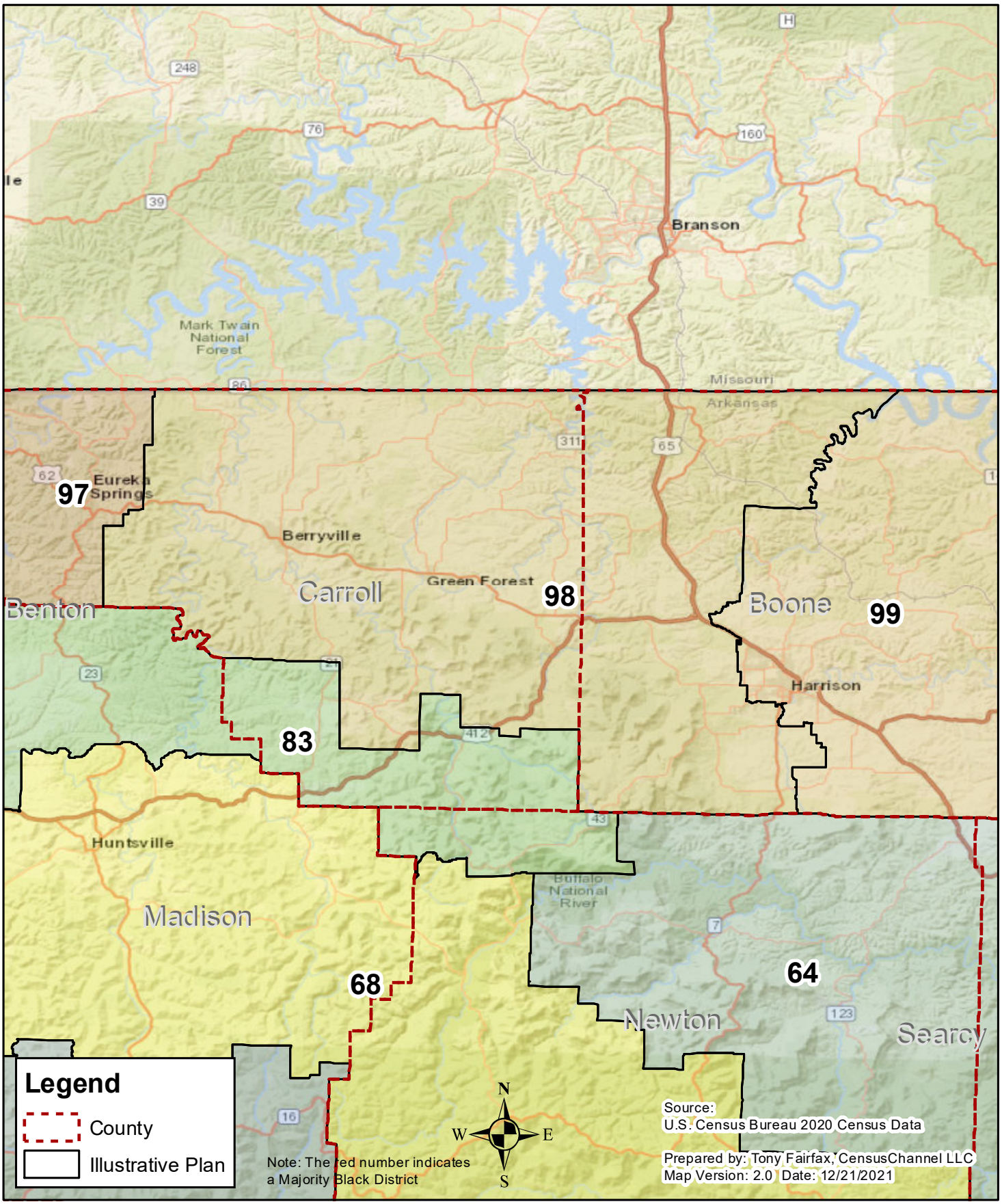
Arkansas
State House District 96
Illustrative Plan



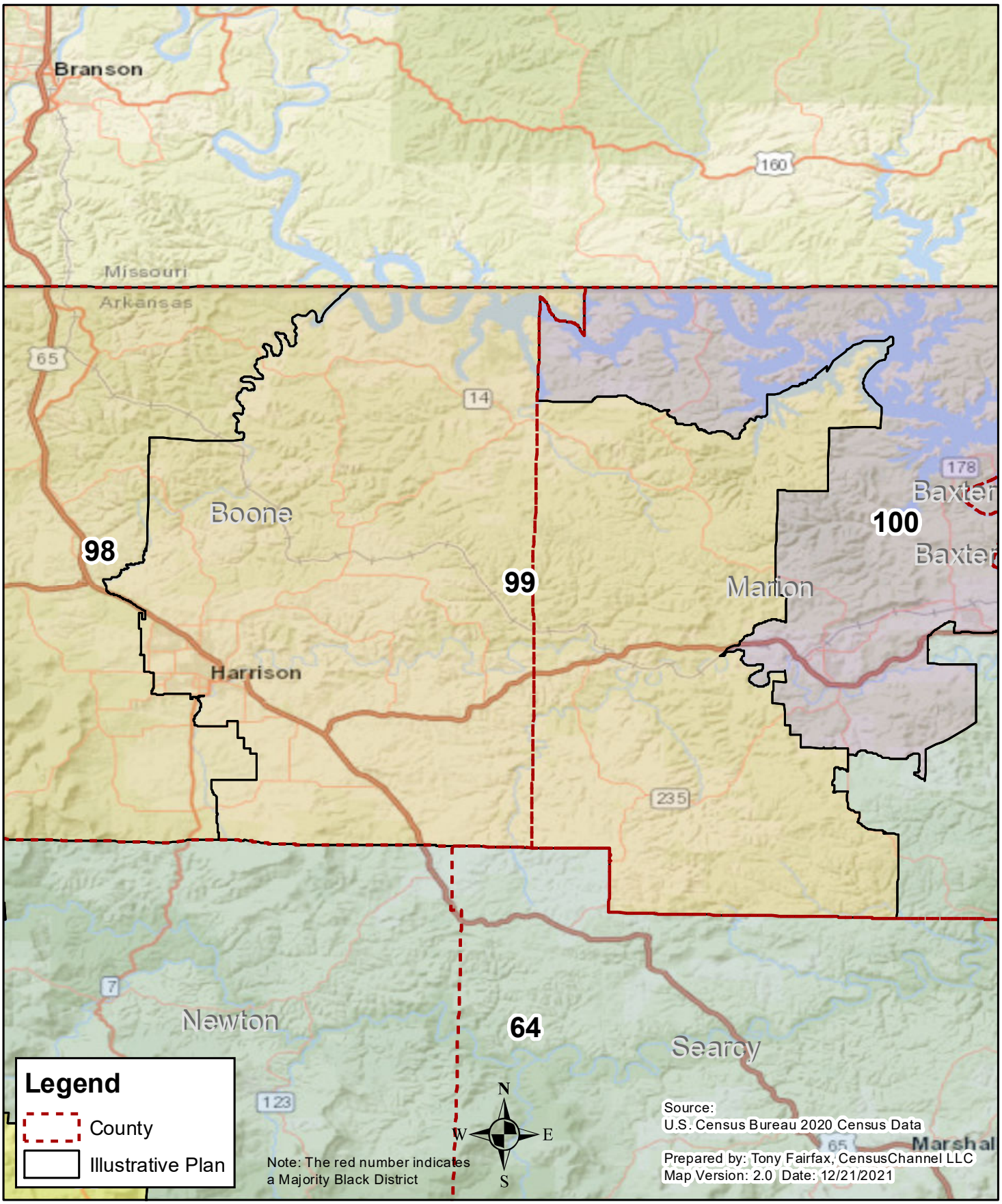
Arkansas
State House District 97
Illustrative Plan



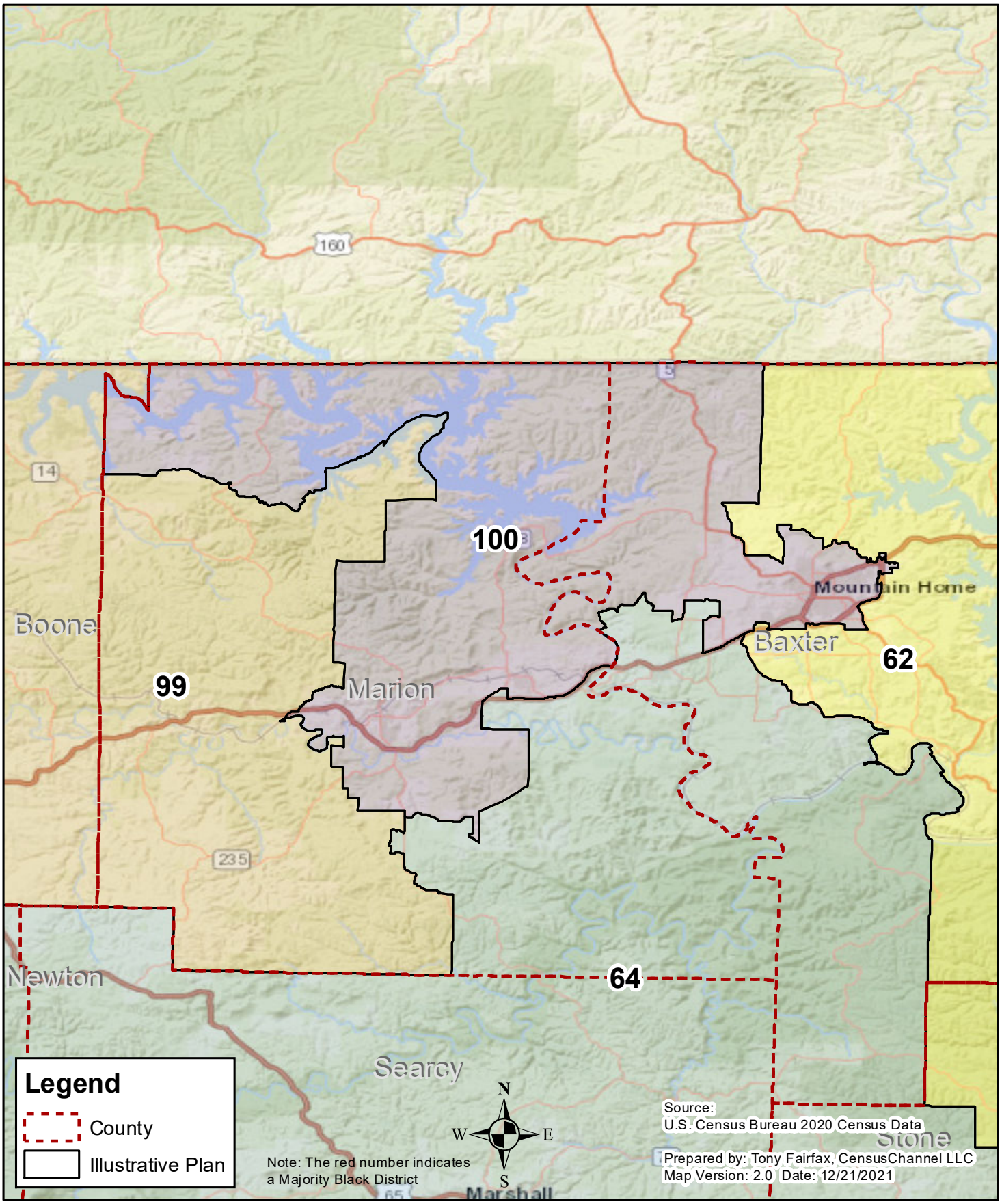
Arkansas
State House District 98
Illustrative Plan



Arkansas
State House District 99
Illustrative Plan



Arkansas
State House District 100
Illustrative Plan

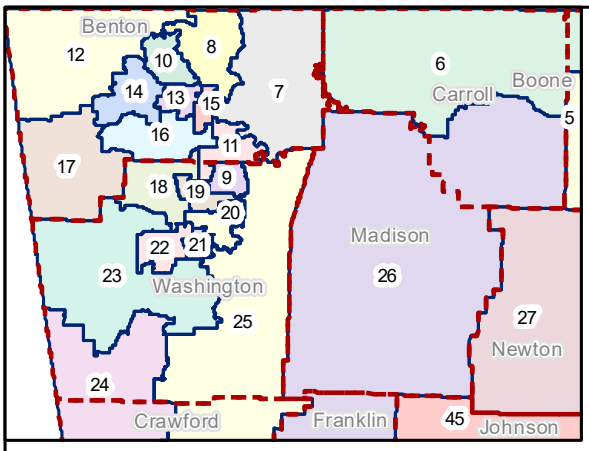


BOA Plan House Districts

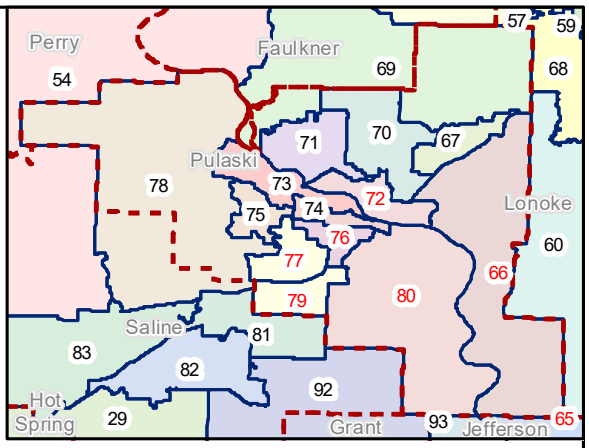
Statewide

Arkansas

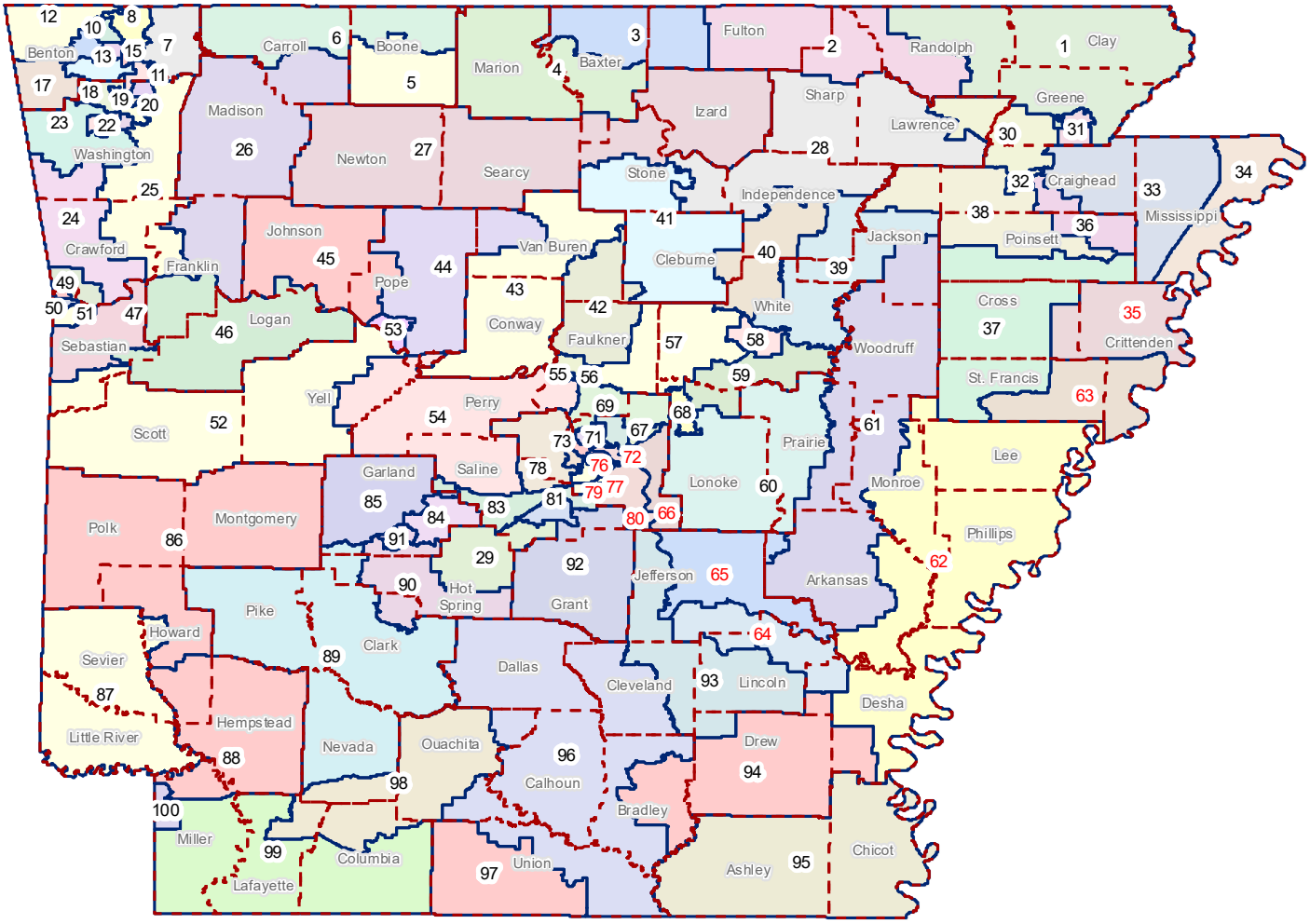
Board of Apportionment Plan
State House Districts



Benton - Washington



Pulaski



Legend

- County
- BOA Plan

Note: The red number indicates a Majority Black District

N W E S

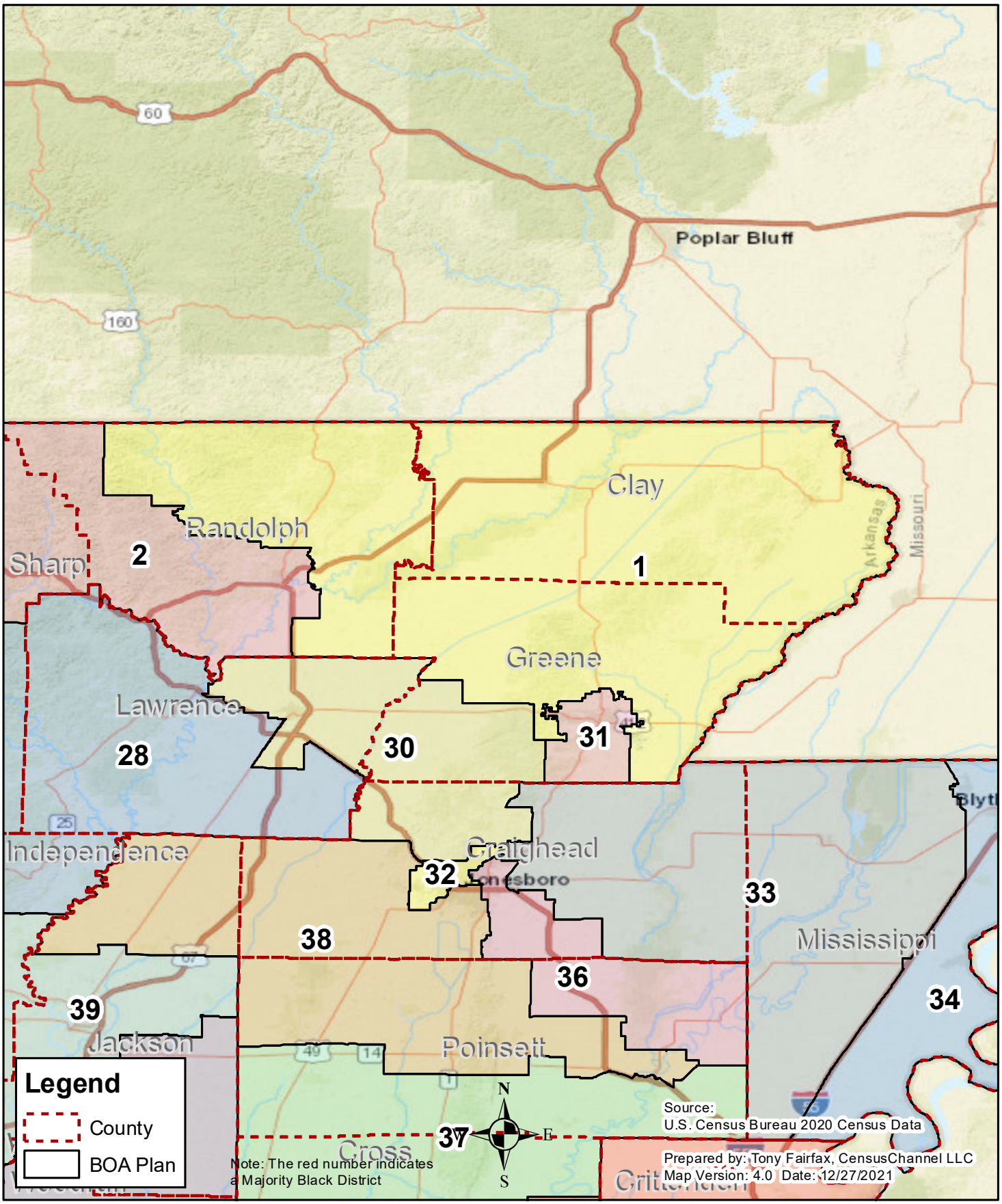
Source:
U.S. Census Bureau 2020 Census Data

Prepared by: Tony Fairfax, CensusChannel LLC
Map Version: 3.0 Date: 12/27/2021

BOA Plan House Districts

Districts Zoom

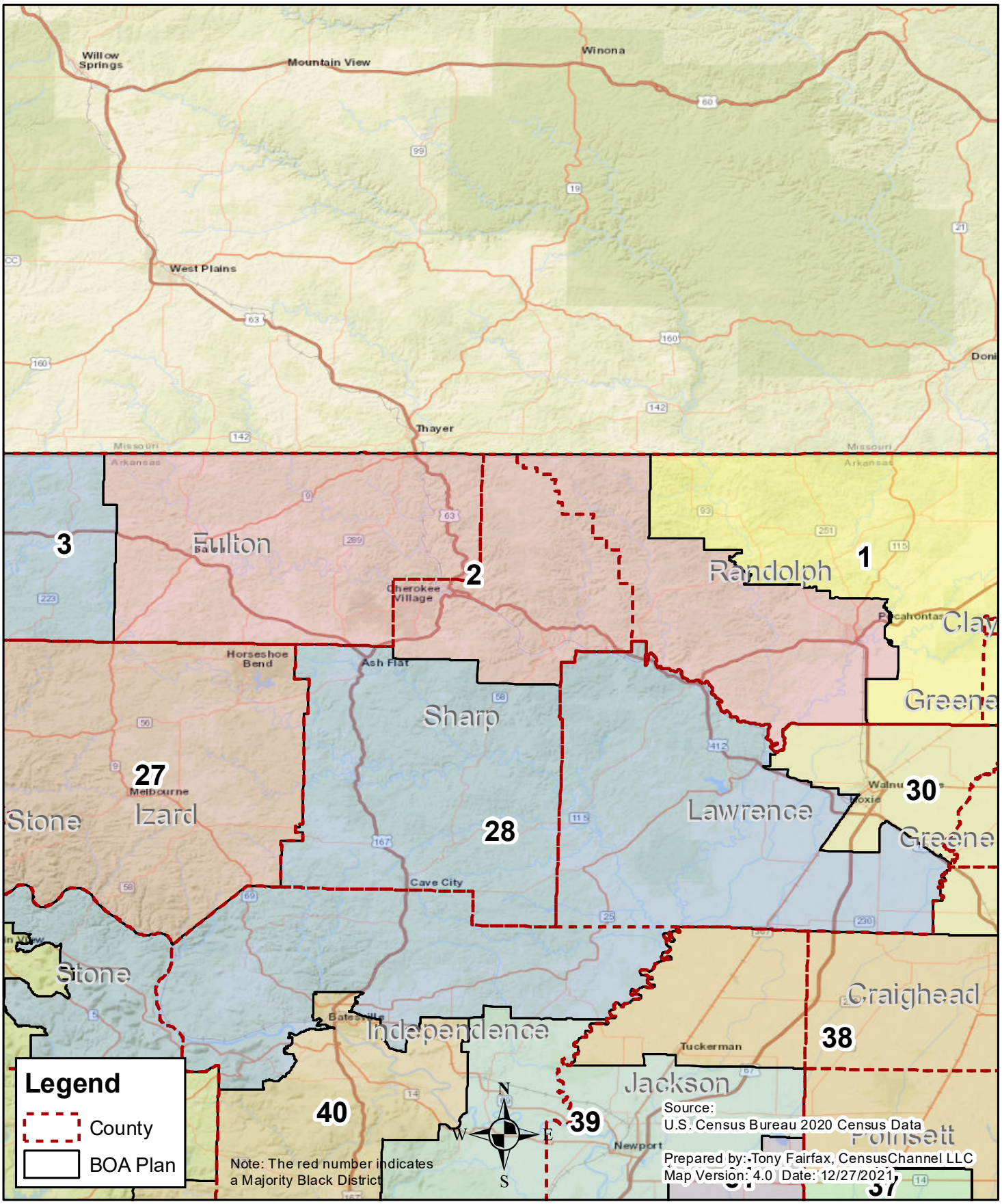
Arkansas
State House District 1
Board of Apportionment Plan



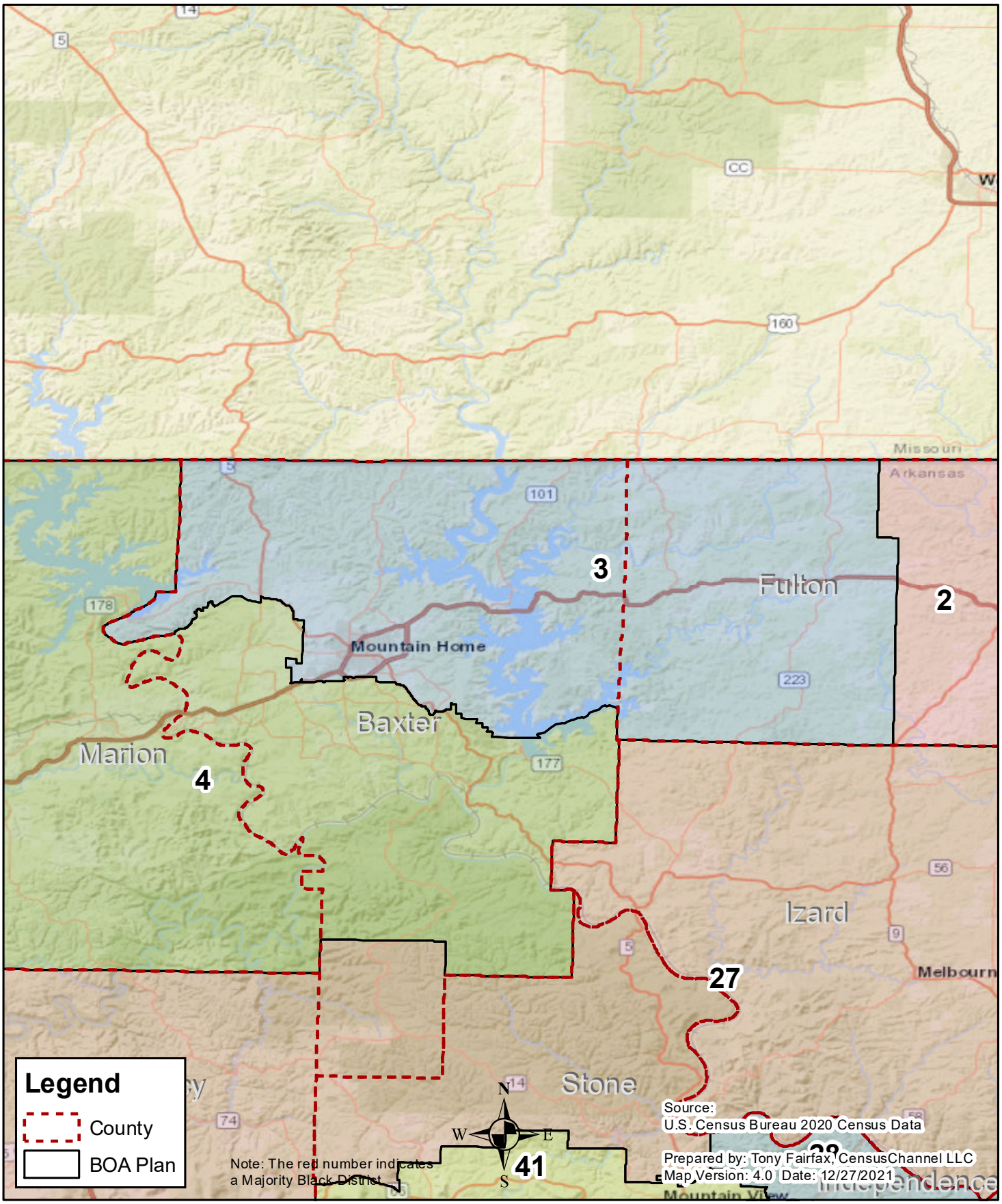
Arkansas

State House District 2

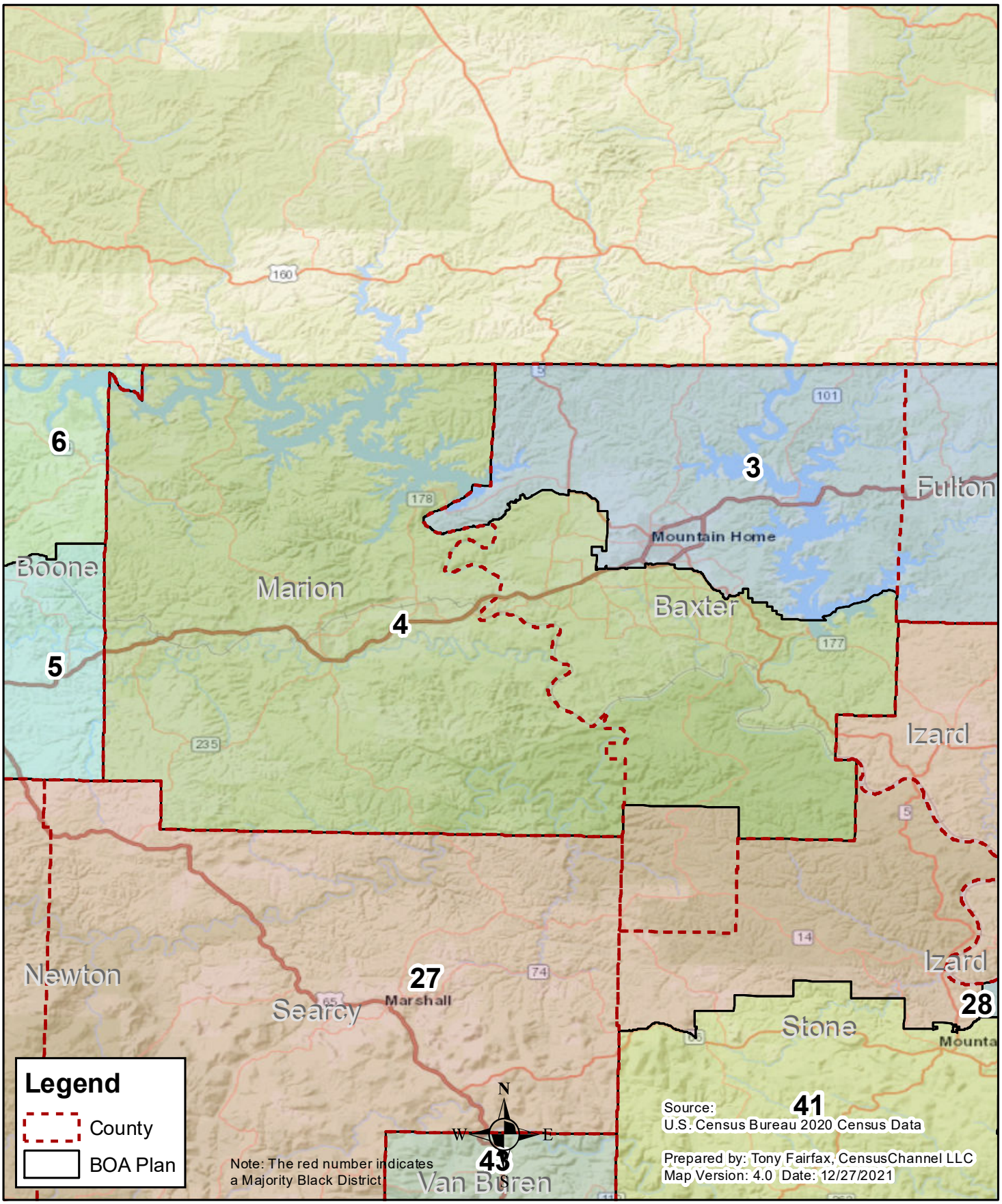
Board of Apportionment Plan



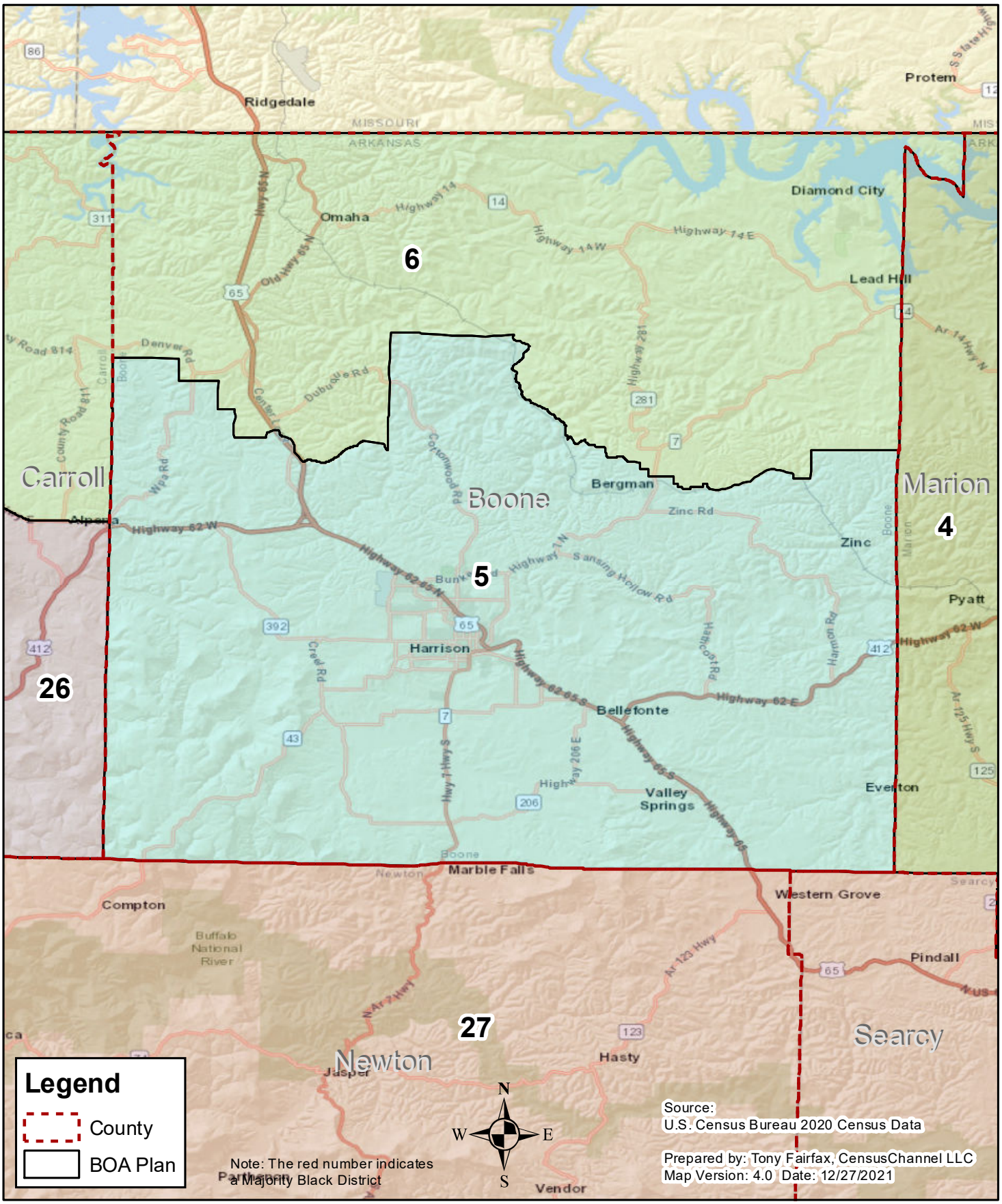
Arkansas
State House District 3
Board of Apportionment Plan



Arkansas
State House District 4
Board of Apportionment Plan



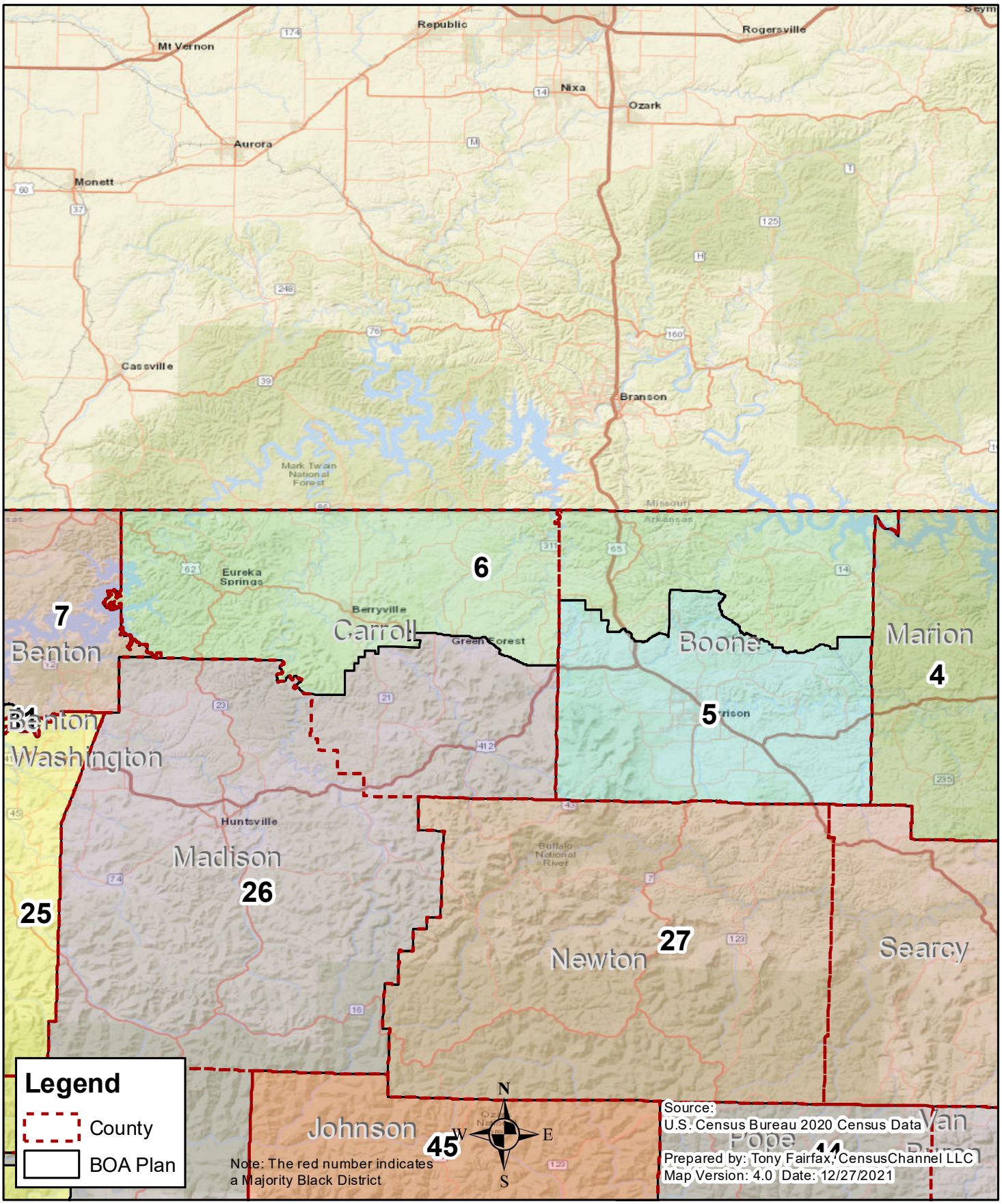
Arkansas
State House District 5
Board of Apportionment Plan



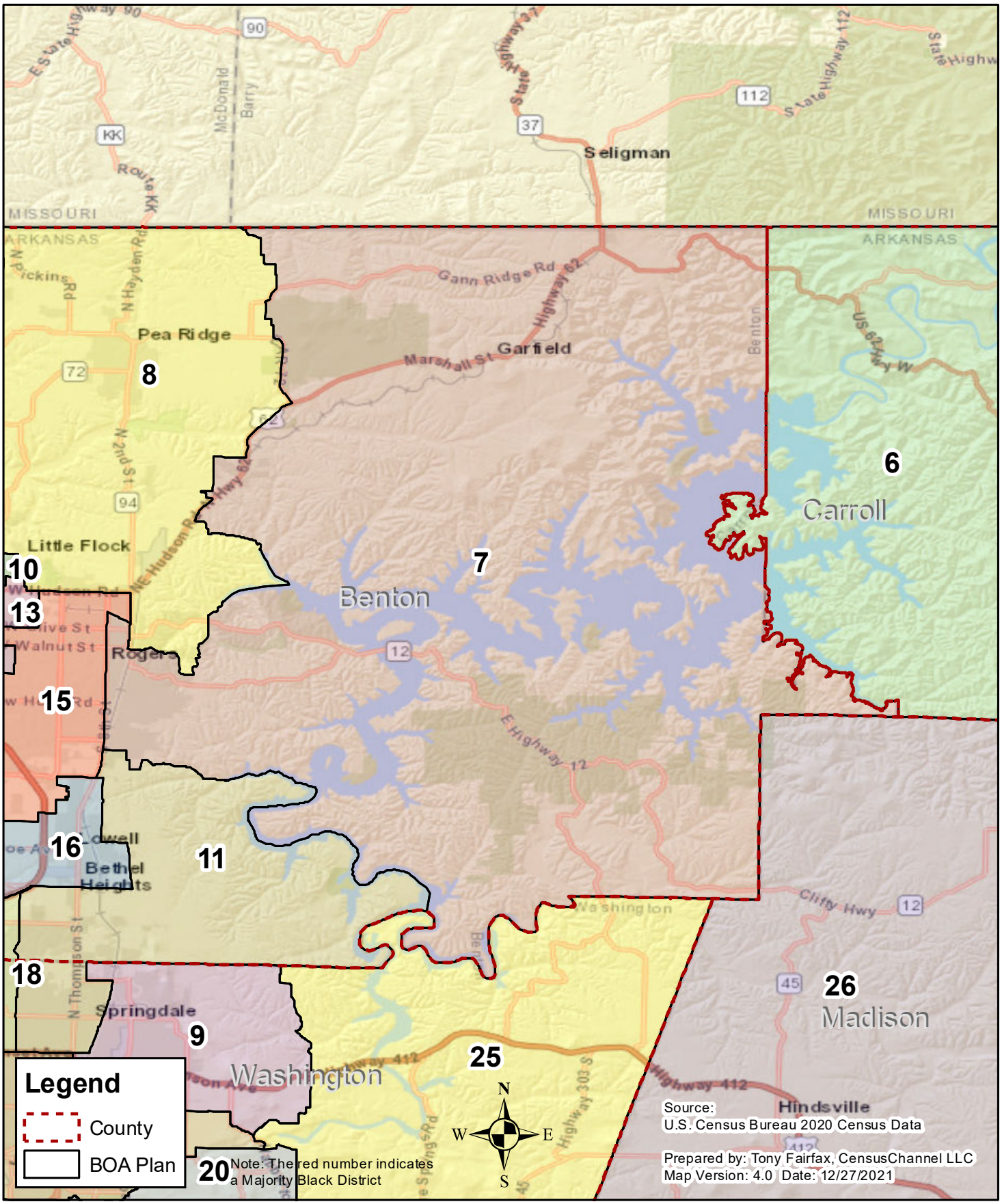
Arkansas

State House District 6

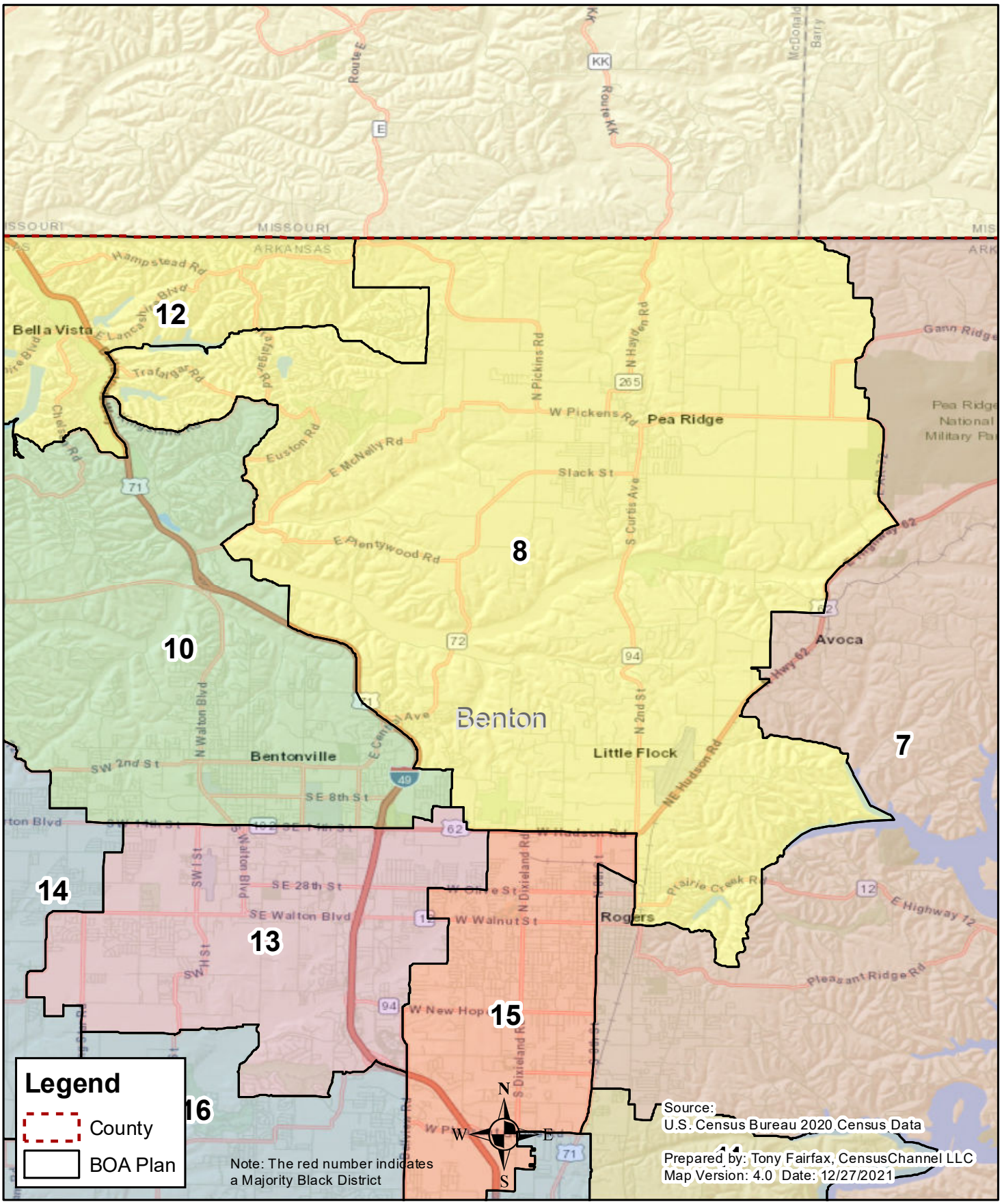
Board of Apportionment Plan



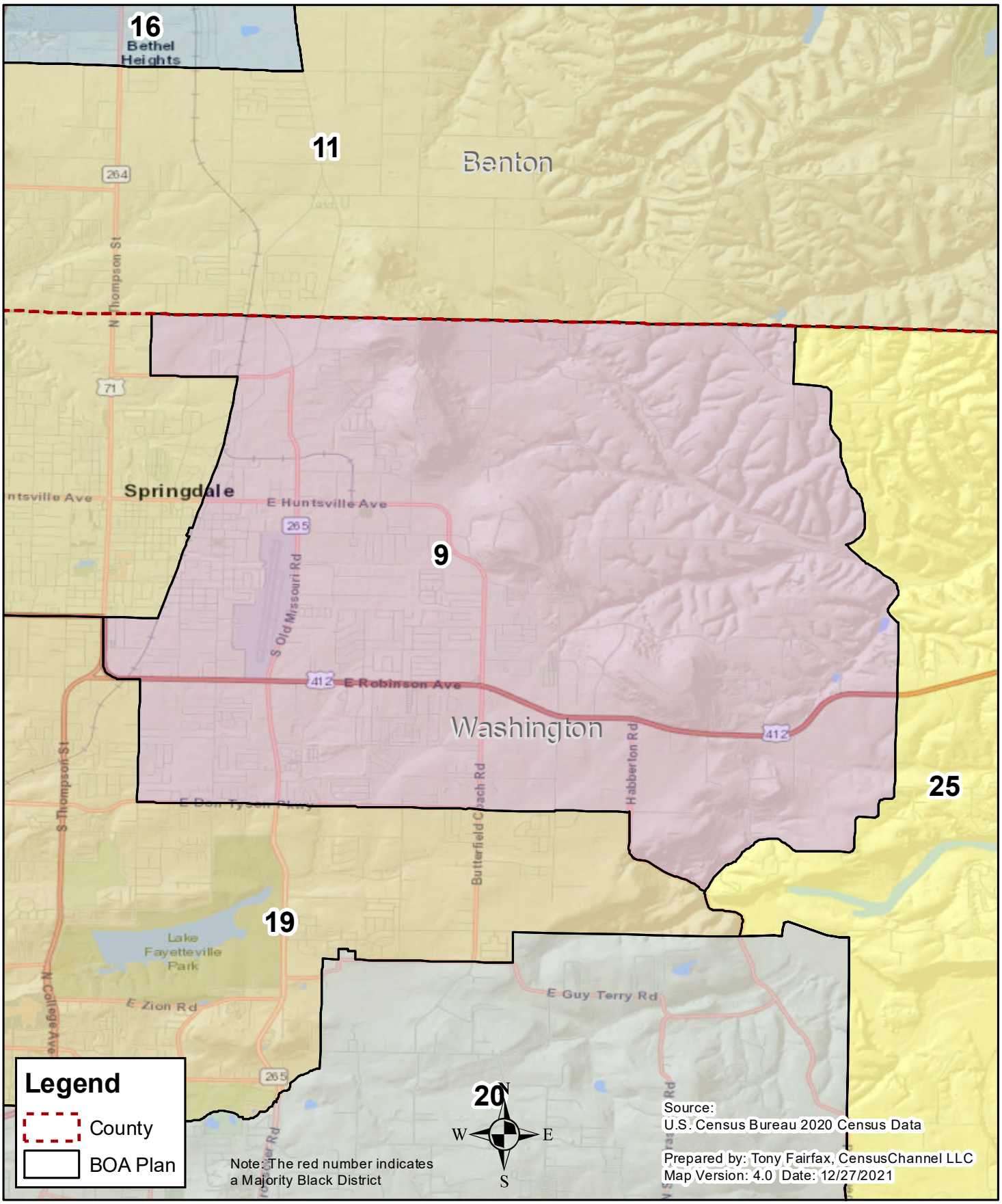
Arkansas
State House District 7
Board of Apportionment Plan



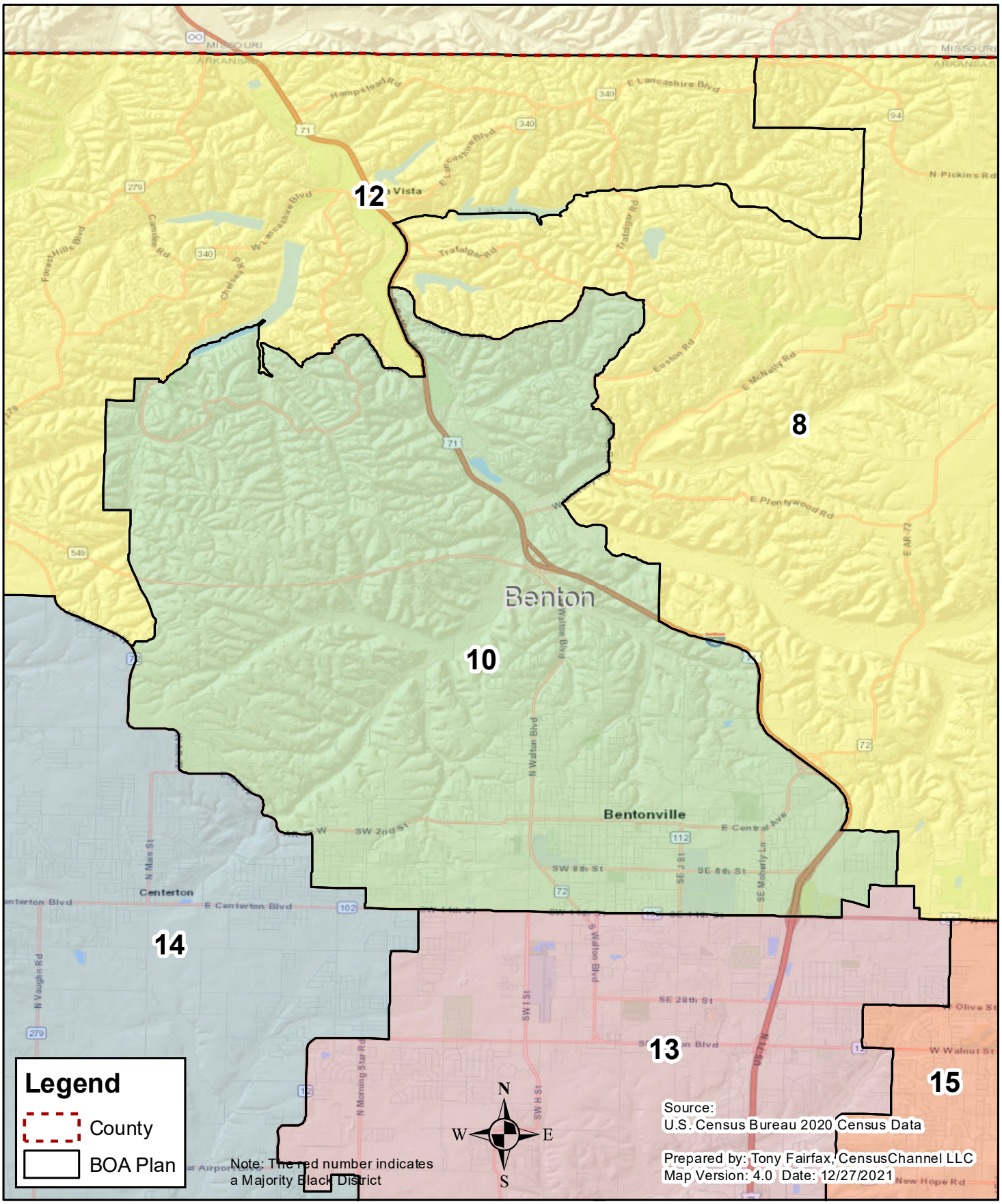
Arkansas
State House District 8
Board of Apportionment Plan



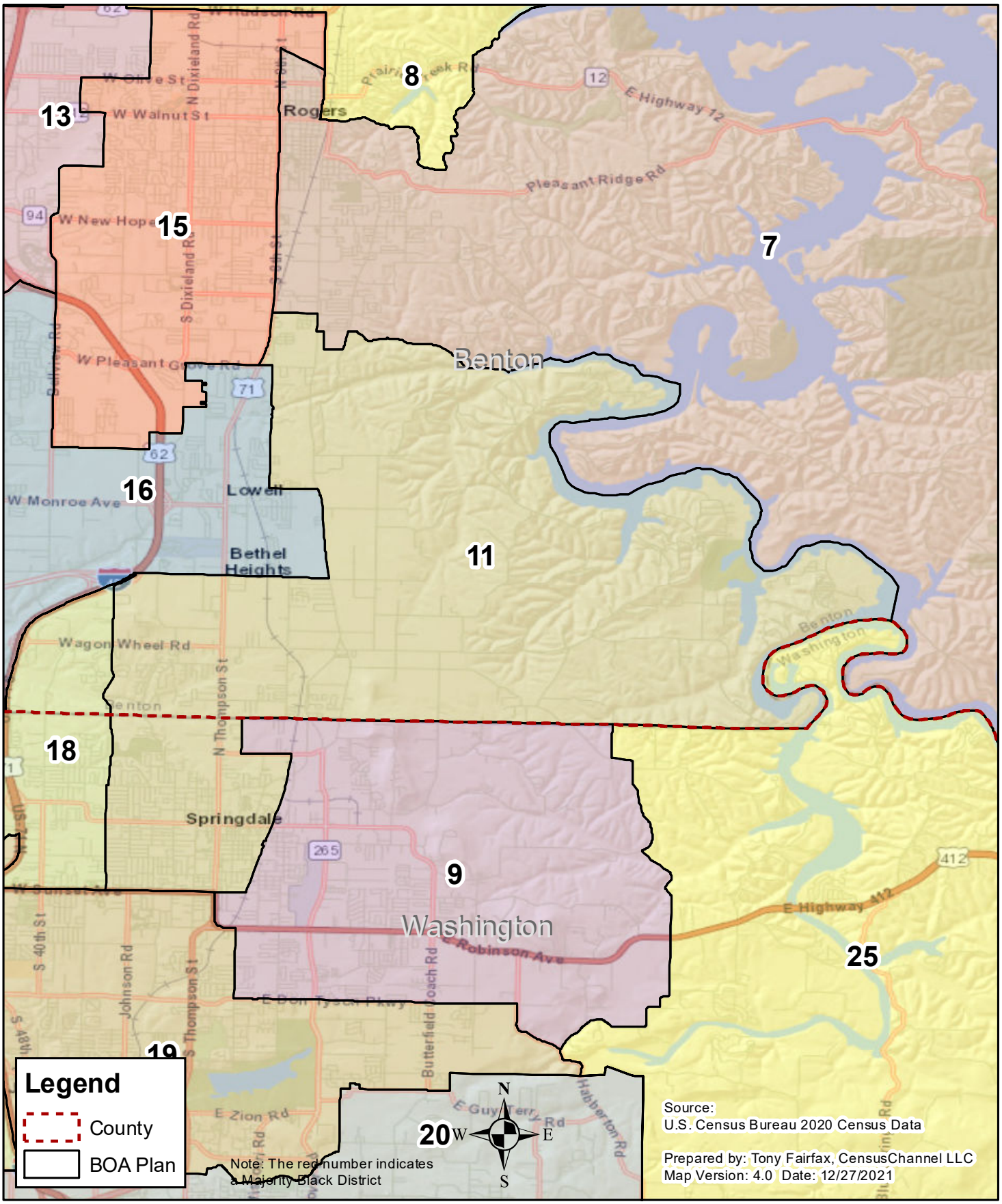
Arkansas
State House District 9
Board of Apportionment Plan



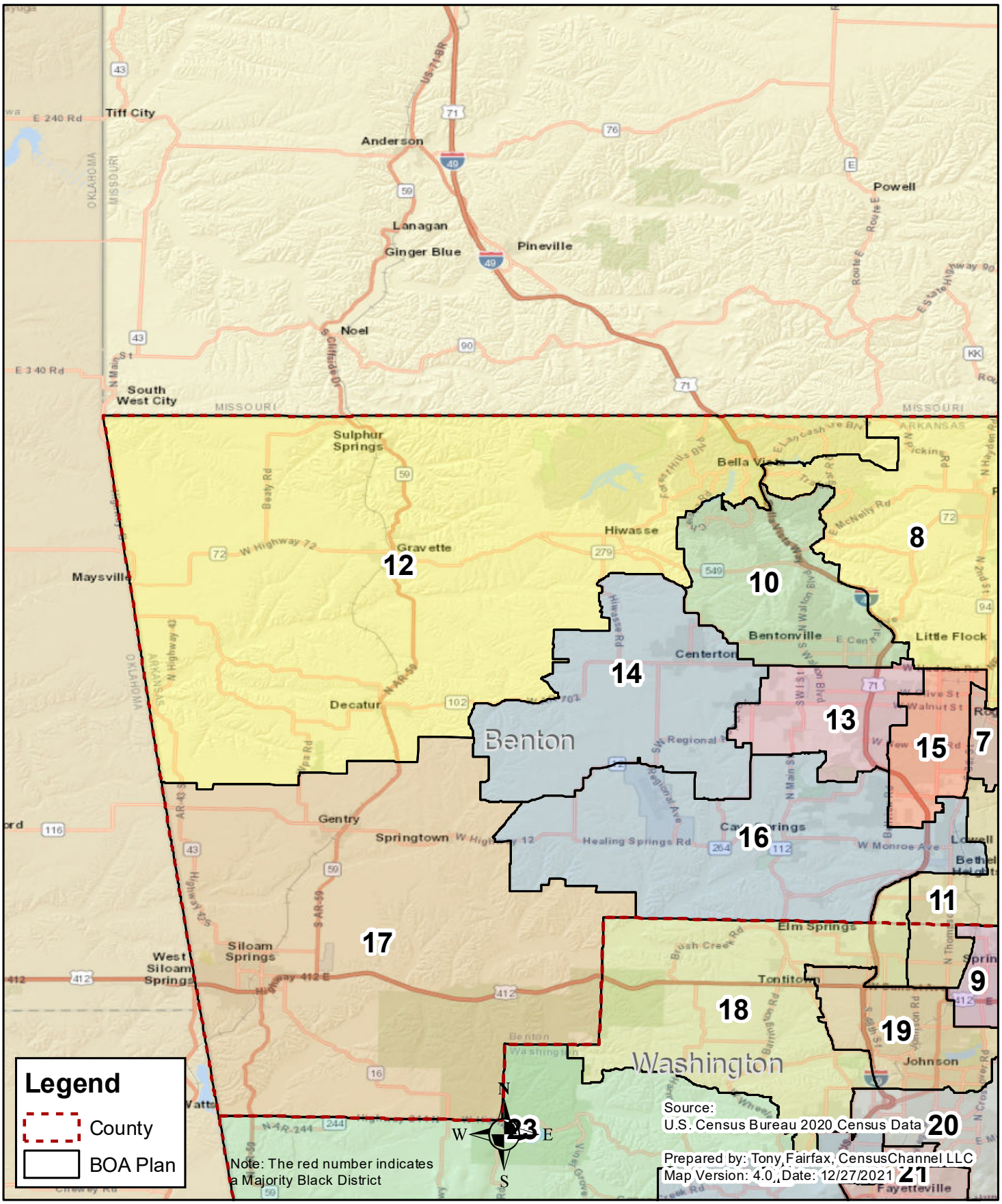
Arkansas
State House District 10
Board of Apportionment Plan



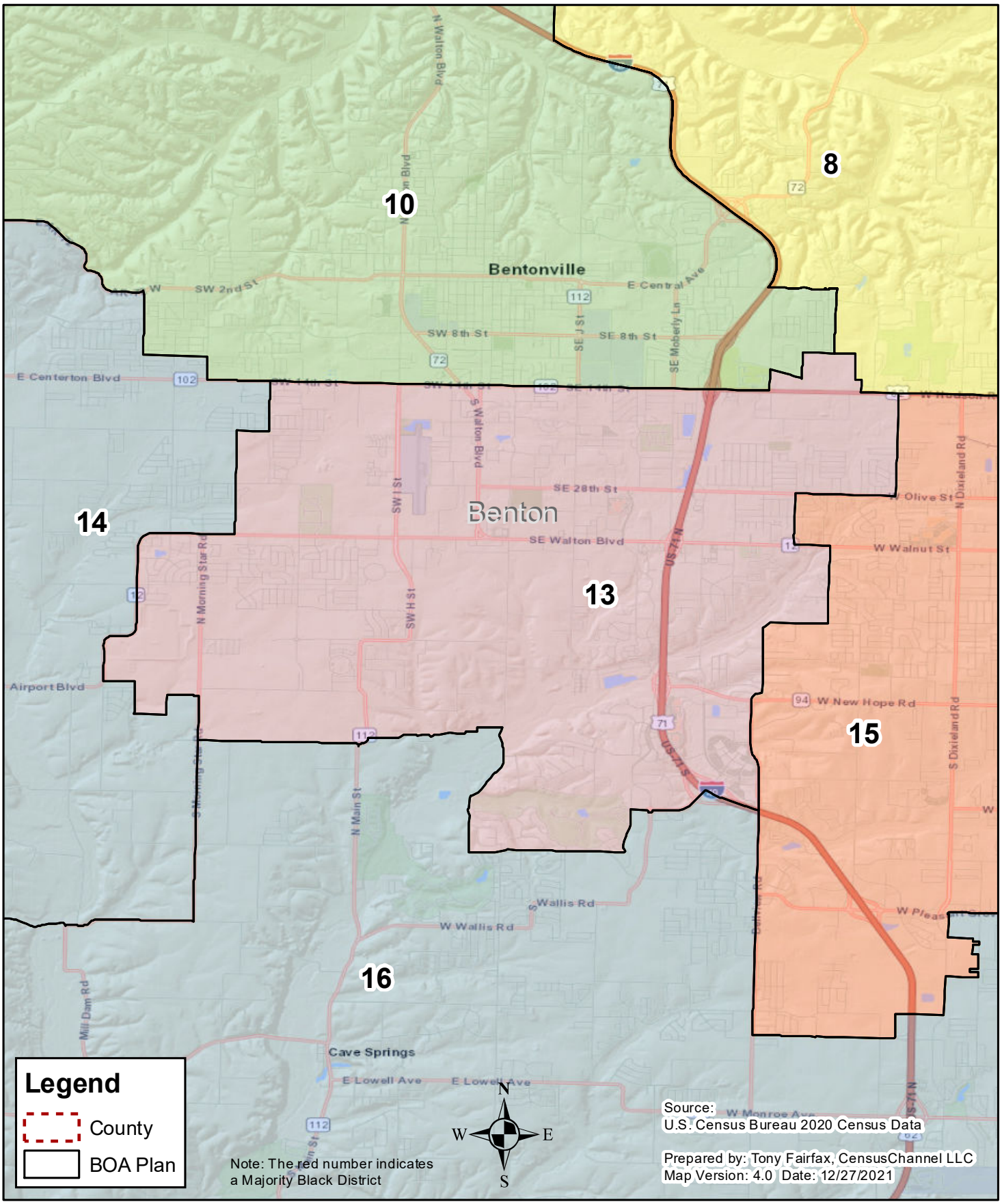
Arkansas
State House District 11
Board of Apportionment Plan



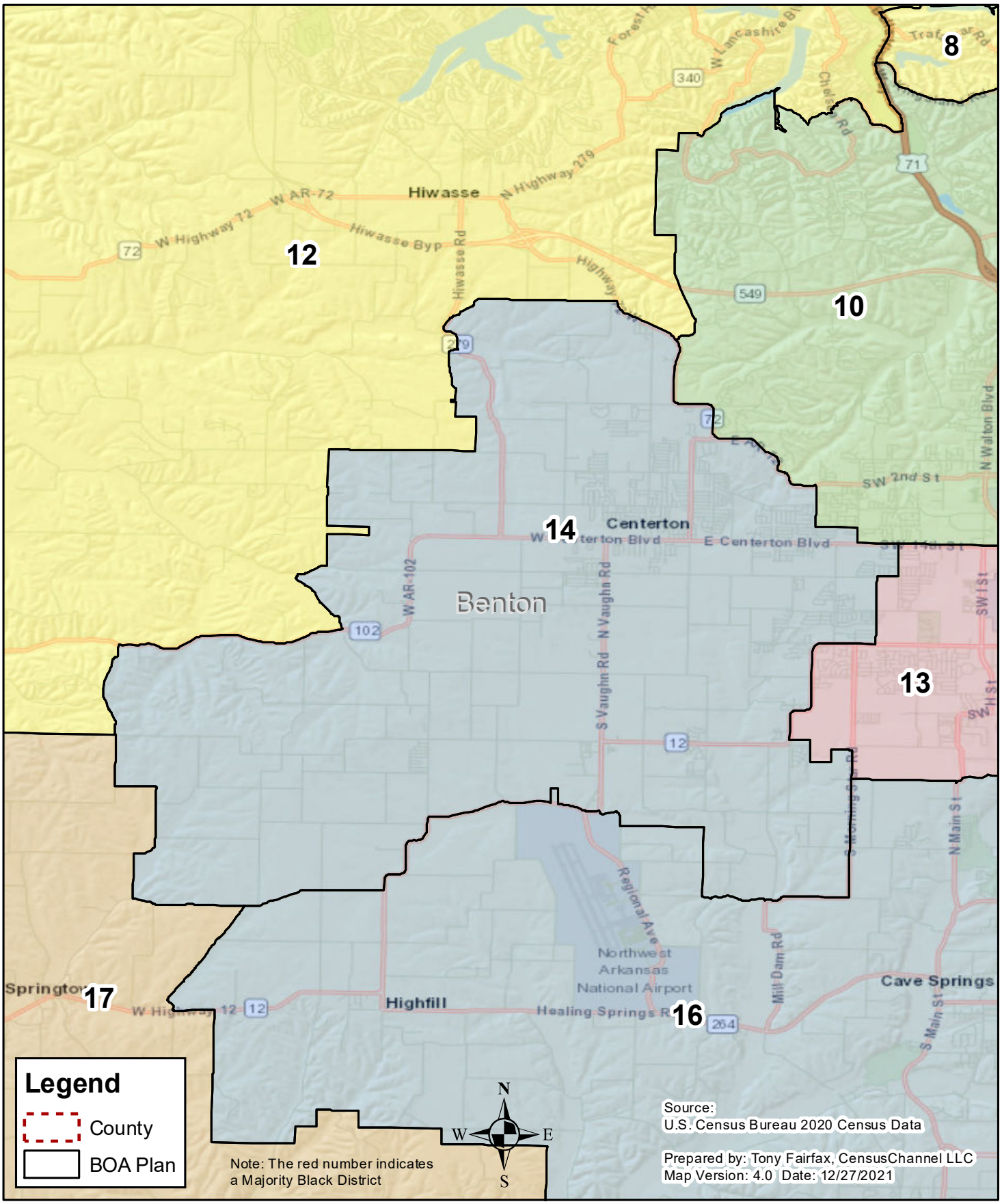
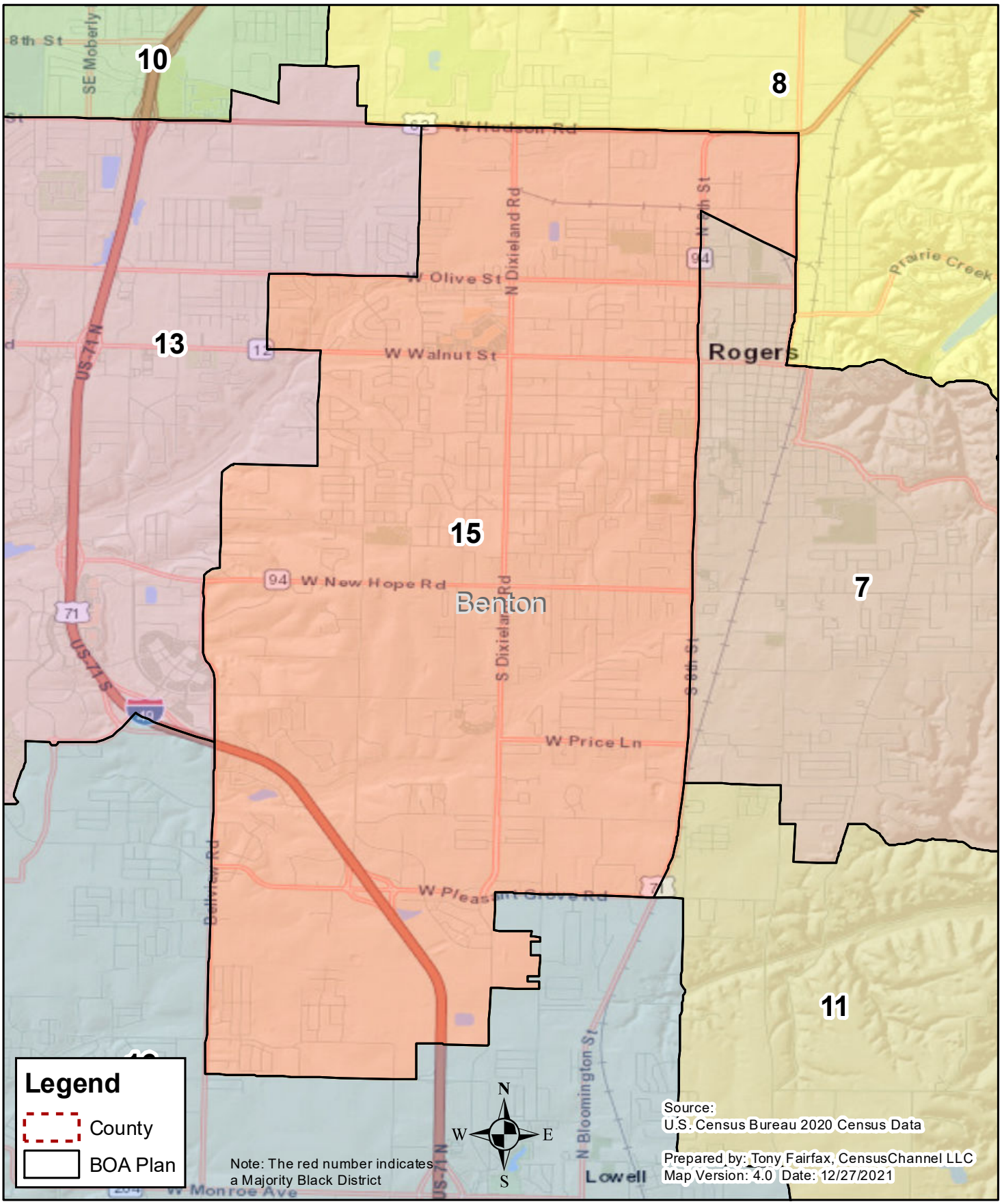
Arkansas
State House District 12
Board of Apportionment Plan



Arkansas
State House District 13
Board of Apportionment Plan



Arkansas
State House District 14
Board of Apportionment Plan



Arkansas
State House District 15
Board of Apportionment Plan