ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

Katie Hobbs
Arizona Secretary of State
1700 West Washington Street, Floor 7
Phoenix, Arizona 85007

Re: Arizona Independent Redistricting Commission Certification and Transmittal of Arizona Congressional and Legislative Maps

Dear Secretary Hobbs:

On behalf of the Arizona Independent Redistricting Commission, and pursuant to Article IV, Part 2, Section 1(17) of the Arizona Constitution, I hereby certify to your office the maps establishing Arizona's congressional and legislative districts following the 2020 Census. The Commission adopted these final district boundaries, and authorized this certification, at its public meetings on January 18 and 21, 2022.

Enclosed with this letter is a report detailing the Commission's execution of its official constitutional duties. The data files for the final district boundaries may be accessed online at the following links:

Official Congressional Map:
https://redistricting-irc-az.hub.arcgis.com/datasets/d189bf0e087d477d8d64fe4a3ba7087e/about
Official Legislative Map:
https://redistricting-irc-az.hub.arcgis.com/datasets/5b979a8e8b064978a9a3f7e01dee8876/about

Sincerely,

Erika Neuberg
Chair, Arizona Independent Redistricting Commission

Enclosures (1)

ARIZONA INDEPENDENT REDISTRICTING COMMISSION

Overview of Decennial Redistricting Process and Maps

January 2022

COMMISSIONERS

Erika Neuberg, Chair

Derrick Watchman, Vice-Chair

David Mehl, Commissioner

Shereen Lerner, Commissioner

Douglas York, Commissioner

STAFF

Brian Schmitt, Executive Director

Lori Van Haren, Deputy Executive Director

Michele Crank, Public Information Officer

Valerie Neumann, Executive Assistant

Alex Pena, Community Outreach Coordinator

Marie Chapple Camacho, Community Outreach Coordinator

LEGAL COUNSEL

Brett W. Johnson and Eric Spencer, Snell & Wilmer LLP

Roy Herrera and Daniel Arellano, Herrera Arellano LLP

MAPPING CONSULTANTS

Mark Flahan, Brian Kingery, Parker Bradshaw, Randy Trott, Timmons Group

Douglas Johnson and Ivy Beller Sakansky, National Demographics Corp.

REDISTRICTING AND VOTING RIGHTS ACT CONSULTANTS

Stephen Ansolabehere and David Sutton, Harvard University

Sean Trende, The Ohio State University

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I. OVERVIEW

In November 2000, Arizona voters initiated and passed a constitutional amendment known as Proposition 106.[1] This initiative reformed Arizona's redistricting process by vesting redistricting powers and duties in the Arizona Independent Redistricting Commission (the "Commission").[2] Every ten years, the Commission is charged with the constitutional duty to evaluate U.S. Census data and redraw the state's congressional and legislative district lines.

After their appointment in early 2021, the Commission spent the greater part of the year meeting on a regular basis to learn about and execute its legal duties. Through this process, the Commission considered thousands of public comments from Arizona citizens from every corner of the state, stakeholder input, expert reports, academic presentations, legislative recommendations, and advice from its legal counsel, mapping consultants, and staff. After several months of deliberation, the Commission approved congressional and legislative district maps in accordance with the Arizona Constitution, which are to be transmitted as certified to the Arizona Secretary of State along with this report. This report provides a discussion of each element of this decennial redistricting process and the maps resulting from it.

II. LEGAL OVERVIEW

A. Arizona Constitution

1. Selection, Appointment, and Removal of Commissioners

The Commission on Appellate Court Appointments ("COACA"), a group of Arizonans tasked with nominating Arizona's appellate judges, is also responsible for nominating candidates to serve as Commissioners.[3] By January 8, 2021, COACA was required to identify a pool of twenty-five individuals "who are willing to serve on and are qualified for appointment" to the Commission.[4] To be qualified for appointment, the individual must:

1. Be an Arizona resident;

2. Be registered to vote;

3. Be registered with the same political party (or as unaffiliated) for the three or more

[1] Text of Proposition 106, available at https://apps.azsos.gov/election/2000/Info/pubpamphlet/english/prop106.pdf.
[2] Ariz. Const. art. IV, pt. 2 § 1.
[3] *Id.* § 1(4).
[4] *Id.* § 1(5).

years prior to appointment;

4. Not have run for or held public office, served as political party officer, or registered as a registered paid lobbyist within the three years prior to appointment; and

5. Be committed to executing the Commission's duties "in an honest, independent and impartial fashion and to upholding public confidence in the integrity of the redistricting process."[5]

To further the goal of appointing a politically balanced Commission, ten of the twenty-five individuals nominated by COACA must be from the Republican Party, ten must be from the Democratic Party, and five must be unaffiliated with either.[6] On October 13, 2020, COACA released its list of nominees, consistent with these constitutional requirements.[7]

From the pool of individuals nominated by COACA, the Speaker of the Arizona House of Representatives appoints the first commissioner no later than January 31, 2021.[8] Within seven days of each appointment, successive appointments are made by the minority party leader of the Arizona House of Representative, the President of the Arizona Senate, and the minority party leader of the Arizona Senate.[9] Of these first four appointments, "no more than two [commissioners] shall reside in the same county."[10] Typically, two Democrats and two Republicans are appointed by legislative leadership.

On October 22, 2020, Speaker of the House Rusty Bowers selected David Mehl, a Pima County Republican, as the first commissioner.[11] On October 29, 2020, House Minority Leader Charlene Fernandez selected Shereen Lerner, a Maricopa County Democrat as the second commissioner.[12] On October 30, 2020, President of the Senate Karen Fann selected

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[5] *Id.* § 1(3) (noting that "public office" includes precinct committeeman/woman positions but does not include school board member/officer positions). In addition, for the entirety of the commissioner's term and for three years thereafter, commissioners agree that they shall be ineligible for public office or registration as a paid lobbyist. *Id.* § 1(13).
[6] *Id.* § 1(5).
[7] *Nominees Announced for Arizona Independent Redistricting Commission*, Ariz. Comm'n on App. Court App'ts, available at https://www.azcourts.gov/Portals/75/IRC/News%20and%20Meetings/NewsRelease-NomineesforRedistrictingCommission.pdf?ver=2020-10-13-101357-357.
[8] Ariz. Const. art. IV, pt. 2 § 1(6).
[9] *Id.*
[10] *Id.* § 1(3).
[11] *Speaker Rusty Bowers Selects David Mehl for Redistricting Commission*, available at https://www.azleg.gov/press/house/54LEG/2R/201022BOWERSIRCSELECTION.pdf.
[12] https://twitter.com/AZHouseDems/status/1321930263329267712/photo/1.

Douglas York, a Maricopa County Republican as the third commissioner.[13] On November 5, 2020, Senate Minority Leader David Bradley selected Derrick Watchman, an Apache County Democrat and member of the Navajo Nation as the fourth commissioner.[14]

The first four Commissioners must meet to elect the fifth member and Chair of the Commission by February 28 of each year.[15] The Chair may not belong to "any party already represented on the" Commission.[16] Through majority vote, the five Commissioners then elect a member to serve as Vice-Chair.[17]

The first four commissioners were sworn into office by the Secretary of State on January 14, 2021.[18] After conducting extensive interviews of five non-affiliated independent candidates, on January 21, 2021, the Commission unanimously selected its fifth member and Chair, Erika Neuberg, a Maricopa County independent.[19] On the same day, the Commission selected Commissioner Watchman as its Vice-Chair.[20]

2. Execution of Commission Duties

The Commission must conduct business in accordance with the state's open meeting laws and provide the public with forty-eight hour prior notice of its meetings.[21] In order to conduct business, the Commission must also have a quorum, which means at least three commissioners (including either the Chair or Vice-Chair) must be present.[22]

The Commission's map-drawing duty is executed in four phases:[23]

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[13] *President Fann Selects Douglas York for Redistricting Commission*, available at https://www.azsenaterepublicans.com/post/president-fann-selects-douglas-york-for-redistricting-commission.
[14] https://twitter.com/AZSenateDems/status/1324389327313408000/photo/1.
[15] Ariz. Const. art. IV, pt. 2 § 1(8)
[16] *Id.* The Constitution also provides for procedures if the commission fails to appoint a chair or if vacancies arise. *Id.*; *see also id.* § 1(7).
[17] *Id.* § 1(9).
[18] Meeting Minutes from January 14, 2021, available at https://irc.az.gov/sites/default/files/01.14.2021%20-%20IRC%20Public%20Meeting%20Minutes%20Final.docx.pdf.
[19] Meeting Minutes (Audio) from January 21, 2021, available at https://www.youtube.com/watch?v=uZkpK5twRrQ&t=260s.
[20] *Id.*
[21] Ariz. Const. art. IV, pt. 2 § 1(12); *see also* A.R.S. § 38-431 *et seq.*; Ariz. Att'y Gen., *Attorney General Handbook*, Chapter 7—Open Meetings (2018), available at https://www.azag.gov/sites/default/files/docs/agency-handbook/2018/agency_handbook_chapter_7.pdf.
[22] Ariz. Const. art. IV, pt. 2 § 1(12).
[23] *See Ariz. Minority Coal. for Fair Redistricting v. Ariz. Indep. Redistricting Comm'n*, 220 Ariz. 587, 601 ¶ 51 (2009).

a. Phase 1: The Grid Map

The first phase of the redistricting process requires the Commission to create "districts of equal population in a grid-like pattern across the state."[24] The map resulting from this first phase is called the "grid map."

b. Phase 2: Adjustment of the Grid Map

The next step in the redistricting process is to adjust the grid map to accommodate six constitutional goals:

1. Compliance with the U.S. Constitution and the Voting Rights Act ("VRA");[25]
2. Equal population for both congressional and legislative districts;
3. Geographically compact and contiguous districts;
4. District lines that respect communities of interest;
5. District lines that follow visible geographic features, political subdivision boundaries, and undivided census tracts;
6. Creation of competitive districts, so long as creation of such does not create a "significant detriment" to the other constitutional goals.[26]

With the exception of the first goal, each goal must be accommodated "to the extent practicable."[27] The sixth goal is not allowed to have a significant detriment on the other goals.[28] The current residence of officeholders or potential candidates may not be identified or considered by the Commission in its creation or adjustment of the map.[29] While political party registration and voting history also may not be a factor in the initial creation of the grid map, these factors can be "used to test [the draft] maps for compliance with the above [constitutional] goals."[30]

c. Phase 3: Advertising Draft Maps

Once the Commission creates a grid map and adjusts it to accommodate the six constitutionally-prescribed goals, the Commission is required to advertise its draft maps to the public for review and comment for at least thirty days.[31] In addition to public comment, this time period also affords either or both bodies of the Arizona Legislature an opportunity

[24] Ariz. Const. art. IV, pt. 2 § 1(14).
[25] *See generally* 52 U.S.C. §§ 10301–10314, 10501–08, 10701–02.
[26] Ariz. Const. art. IV, pt. 2 § 1(14)(F).
[27] *Id.* § 1(14)(B)–(F).
[28] *Id.*
[29] *Id.* § 1(15).
[30] *Id.*
[31] *Id.* § 1(16).

to offer recommendations through an official memorial or report.[32] The Commission must consider any official legislative recommendations offered through this process.[33]

d. Phase 4: Establishing Final District Boundaries

After consideration of public comment, and in furtherance of the six constitutional goals, the Commission must set final congressional and legislative district boundaries and certify those districts to the Secretary of State.[34]

In order to carry out these map-drawing duties, the Commission is vested with procurement and contracting power to hire staff, consultants, and legal representation.[35]

B. U.S. Constitution

1. One Person, One Vote

"One person, one vote" is a principle derived from the U.S. Constitution that requires both congressional and legislative districts to be of roughly equal population size. The population equality requirement for congressional districts is derived from Article I, Section 2 of the U.S. Constitution, and effectively mandates that districts contain as nearly equal of a population as practicable.[36] In the congressional context, absolute population equality is the paramount objective,[37] so states must make a good-faith effort to achieve precise mathematical equality.[38] If significant population differences remain, the state must prove that such variance was necessary to achieve a legitimate redistricting goal, such as making districts compact or respecting municipal boundaries.[39]

State legislative districts are required to adhere to the "one person, one vote" principle under the Equal Protection Clause of the Fourteenth Amendment.[40] Thus, states are required to use honest and good faith efforts to create districts with as nearly equal of a population as practicable.[41] Like with congressional districts, any deviations must be justified under an evenly administered, nondiscriminatory, legitimate rationale.[42] However, the standard for mathematical precision is somewhat relaxed for legislative than

[32] *Id.*
[33] *Id.*
[34] *Id.* § 1(16)–(17).
[35] *Id.* § 1(19).
[36] *Wesberry v. Sanders*, 376 U.S. 1, 8–9 (1964).
[37] *Abrams v. Johnson*, 521 U.S. 74, 98 (1997).
[38] *Kirkpatrick v. Preisler*, 394 U.S. 526, 530-31 (1969).
[39] *Karcher v. Daggett*, 462 U.S. 725, 740 (1983).
[40] *See Reynolds v. Sims*, 377 U.S. 533, 567–68 (1964).
[41] *Id*. at 577.
[42] *Id.* at 578.

congressional districts.[43] As long as "the divergences from a strict population standard are based on legitimate considerations incident to the effectuation of a rational state policy, some deviations from the equal-population principle are constitutionally permissible with respect to the apportionment of seats in either or both of the two houses of a bicameral state legislature."[44] This means that generally, deviations of less than 10% from absolute equality (as measured based on the highest populated district to the least populated district) are presumptively valid.[45] However, this is not a safe harbor if non-legitimate redistricting policies are driving the deviation.[46]

In cases involving deviations above 10% across legislative districts, the state must demonstrate that its plan reasonably advances a rational state policy, such as compliance with traditional redistricting principles.[47]

2. Gerrymandering

Gerrymandering generally refers to the practice of drawing district lines, often in bizarre shapes, to favor certain constituencies over others in disregard of traditional redistricting principles.

One form of gerrymandering, racial gerrymandering, can be unconstitutional under the Equal Protection Clause of the Fourteenth Amendment if the state subordinated traditional, race-neutral districting principles to racial considerations.[48] If districts are indeed drawn predominantly based on race, courts will apply "strict scrutiny" in evaluating the district lines, meaning the state must demonstrate a compelling interest that is narrowly tailored to achieve that interest.[49] Compelling interests include remedying past discrimination and, it is commonly assumed, complying with the Voting Rights Act.[50] However, a redistricting plan cannot go beyond what is reasonably necessary to meet that compelling interest.[51]

Significantly, however, a State's use of race to draw district boundaries in accordance with the Voting Rights Act is not held to a standard of perfection. The State need only have a

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[43] *Id.*
[44] *Id.* at 579.
[45] *Brown v. Thompson*, 462 U.S. 835, 842 (1983).
[46] *See Cox v. Larios*, 542 U.S. 947, 949 (2004) (Stevens, J., concurring) (finding a state legislative plan with a deviation of 9.9% invalid when based on then-impermissible justification.).
[47] *Brown*, 462 U.S. at 842–43.
[48] *Shaw v. Reno*, 509 U.S. 630, 644–49 (1993) ("*Shaw I*").
[49] *Id.* at 658.
[50] *See Shaw v. Hunt*, 517 U.S. 899, 915 (1996) ("*Shaw II*"); *Miller v. Johnson*, 515 U.S. 900, 910 (1995).
[51] *See Shaw II*, 517 U.S. at 915–16.

"strong basis in evidence" to support of its choice.[52] It is enough that it had "good reasons to believe" the use of race was required to comply with the Voting Rights Act, even if a court does not agree that the use of race was actually required.[53]

In contrast, a claim alleging partisan gerrymandering under the U.S. Constitution is a "political question[] beyond the reach of the federal courts."[54]

C. The Voting Rights Act

The Voting Rights Act (VRA) is a landmark piece of legislation originally passed in 1965 to protect and enforce the voting rights of racial minorities under the Fourteenth and Fifteenth Amendments to the U.S. Constitution. Its two major provisions for purposes of redistricting are Section 2 and Section 5, although Section 5 is no longer enforceable.

1. Section 2 of the Voting Rights Act

Section 2 of the VRA prohibits any voting standards, practices, or procedures that *result* in the denial or abridgement of the right to vote on account of race or color.[55] The "results" test under Section 2, which considers the discriminatory *effect* of challenged voting districts, was included as a reaction to the Supreme Court's 1980 holding in *Mobile v. Bolden*, which interpreted the VRA as prohibiting only voting practices enacted with a discriminatory *purpose*.[56] Congress amended the VRA in 1982 to overrule *Bolden* and include the more expansive "results" test in the statute.[57]

To prove a violation of Section 2, a plaintiff must show that a particular political process is not equally open to participation by members of a protected class such that its members have less opportunity than other members of the electorate to participate in the political process or elect their preferred representatives.[58] In the redistricting context, this is known as a "vote dilution" claim. Notably, the results test does not guarantee that minority groups will have proportional representation; rather, it requires only that they have equal *opportunity* to participate in the process.[59]

To establish a vote dilution claim, a minority group must prove three preconditions first established in the 1986 case *Thornburg v. Gingles*.[60] Under the *Gingles* test, (1) the

[52] *Bethune-Hill v. Va. State Bd. of Elections*, 137 S. Ct. 788, 801 (2017).
[53] *Id.*
[54] *Rucho v. Common Cause*, 139 S. Ct. 2484, 2506–07 (2019).
[55] 52 U.S.C. § 10301(a).
[56] 446 U.S. 55, 66 (1980).
[57] 52 U.S.C. § 10301(a).
[58] *Id.* § 10301(b).
[59] *Id.*
[60] 478 U.S. 30, 50–51 (1986).

minority group must be sufficiently large and geographically compact to constitute a 50% + 1 majority in a single-member district; (2) the minority group must be politically cohesive, meaning that they tend to vote together as a group, and (3) the majority white voters must vote together as a bloc, usually resulting in the defeat of the minority group's preferred candidate.[61]

However, establishment of these three *Gingles* factors does not end the analysis—the VRA also requires courts to consider the totality of the circumstances.[62] In evaluating the totality of the circumstances, courts consider factors listed in the Senate Committee on the Judiciary Report accompanying the 1982 amendments to the VRA:[63]

- The history of official voting-related discrimination in the state or political subdivision.

- The extent to which voting in the elections of the state or political subdivision is racially polarized.

- The extent to which the state or political subdivision has used voting practices or procedures that tend to enhance the opportunity for discrimination against the minority group.

- The exclusion of members of the minority group from candidate slating processes.

- The extent to which minority group members bear the effects of discrimination in areas such as education, employment, and health, which hinder their ability to participate effectively in the political process.

- The use of overt or subtle racial appeals in political campaigns.

- The extent to which members of the minority group have been elected to public office in the jurisdiction.

- Whether there is a significant lack of responsiveness on the part of elected officials to the particularized needs of minority group members.

- Whether the policy underlying the use of the voting qualification standard, practice,

[61] *Id*. While the *Gingles* requirements typically apply only to plaintiffs and do not bind the state when drawing its original maps, they can be relevant if the state seeks to invoke the VRA as a defense to a racial gerrymandering claim. *See Cooper v. Harris*, 137 S. Ct. 1455, 1470 (2017).
[62] 52 U.S.C. § 10301(b).
[63] *Gingles*, 478 U.S. at 43–45 (citing S. Rep. No. 97-417, 97th Cong., 2d Sess. 28–29 (1982).

or procedure is tenuous.

2. Section 5 of the Voting Rights Act

Section 5 of the VRA prohibits "retrogression" of a minority group's electoral position, which occurs when a change to voting procedures (including redistricting) places protected minority class members in a worse position than before.[64] Section 5 only applies to certain "covered" jurisdictions—as defined according to a "coverage formula" found in Section 4 of the VRA— and requires that they receive approval, or "preclearance," for all proposed changes to voting procedures.[65] Until 2013, Arizona was a "covered" jurisdiction that had to obtain approval for its proposed redistricting maps.[66] However, in *Shelby County v. Holder*, the Supreme Court struck down the coverage formula found in Section 4 of the VRA as unconstitutional, rendering the preclearance regime in Section 5 inapplicable.[67]

D. Summary of Historical Commission Litigation

Since its inception in 2001, the Commission has been a party to several lawsuits regarding various subjects. A summary of major lawsuits, including those challenging the validity of the Commission's past redistricting maps, are described here.

1. Challenges Related to the 2001-2010 Commission

Redistricting litigation commenced when the Arizona Minority Coalition for Fair Redistricting (the "Minority Coalition") and several individual plaintiffs filed a complaint in state court on March 6, 2002, alleging (among other claims) that the Commission's 2001 maps were insufficiently competitive.[68] Related litigation and various appeals continued through 2009. Ultimately, each challenge resulted in a ruling that the Commission's maps were legally valid.

a. Navajo Nation v. Arizona Independent Redistricting Commission (2002)

A trial date for the Minority Coalition litigation challenging the 2001 maps was originally set for May 2, 2002; however, the trial was ultimately delayed until after the 2002 general election.[69] Meanwhile, as of March 2002, the U.S. Department of Justice granted

[64] 52 U.S.C. § 10304; 28 C.F.R. § 51.54(b).
[65] *Id.*
[66] 28 C.F.R. pt. 51, App.
[67] 570 U.S. 529, 556–57 (2013).
[68] *See Navajo Nation v. Ariz. Indep. Redistricting Comm'n*, 230 F. Supp. 2d 998, 1002 (D. Ariz. 2002).
[69] *Id*. at 1003.

preclearance for the Commission's congressional map but withheld approval of the legislative map pending further information.[70] As a result, candidates and election officials were in limbo as the 2002 primary election approached.

In the wake of this uncertainty, two lawsuits were filed in Arizona federal district court on May 1, 2002. In one suit, the Commission sought to enjoin the Arizona Secretary of State's use of existing (1994-era) legislative district lines in the 2002 elections.[71] In the other suit, the Navajo Nation and San Carlos Apache tribe alleged that the Commission's maps violated Section 2 of the Voting Rights Act by diluting Native American voting strength and sought an order adopting an alternative plan proposed by the Navajo Nation. The court consolidated the two cases as *Navajo Nation v. Arizona Independent Redistricting Commission* and allowed various interested parties to intervene.[72]

The federal district court appointed a special master to evaluate potential redistricting plans, and meanwhile set a hearing during which the DOJ would update the court on the status of preclearance.[73] The DOJ appeared and clarified that it objected to five particular legislative districts as retrogressive under Section 5; as a remedy, DOJ indicated that three of the districts could be restored to their 1994 "benchmark" levels of Hispanic voting age population (VAP) or three new Hispanic minority ability-to-elect districts could be created.[74]

In accordance with this order, the Commission held four days of public hearings[75] and informed the court on May 24, 2002 that it had adopted a proposed remedial plan with the remaining parties' support.[76] The federal court concluded that the remedial plan complied with federal law.[77]

First, the court held that the legislative district map as a whole met the "one person, one vote" requirement under the Fourteenth Amendment with a total deviation of 9.03%, within the presumptively valid 10% range of allowable deviation.[78]

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[70] *Id*.
[71] *Id*.
[72] *Id.* at 1003–04.
[73] *Id*. at 1004.
[74] *Id*. The Native American plaintiffs dismissed their lawsuit once the DOJ clarified that its preclearance objections were focused on legislative districts in Phoenix and Tucson. *Id*. at 1004–05.
[75] Under the circumstances, the Commission did not have time to complete the requisite 30-day period to advertise draft maps pursuant to Ariz. Const. art. IV, pt. 2 § 1(16).
[76] *Id.* at 1005.
[77] *Id.* at 1007.
[78] *Id.* at 1009.

Second, in evaluating compliance with the Voting Rights Act, the court stated that "[t]he exact percentage of minority voters [in a particular remedial district] required for compliance depends on the facts of each case."[79] With respect to LD 29 in Pima County, the DOJ had objected because its Hispanic VAP had been reduced to 45% "compared to its [1994] benchmark Hispanic VAP of 55%." The Commission attempted to adjust the district's boundaries to increase the Hispanic VAP to 55%, but the proposed change would have reduced the Hispanic VAP in neighboring LD 27 to only 35%, and therefore the IRC left the LD 29 VAP at 45%.[80] The Minority Coalition's witness, State Senator Ramon Valadez, testified that Hispanics nonetheless would have an equal opportunity to elect representatives of their choice at the roughly 45% Hispanic VAP.[81]

With respect to LD 23 in Pinal County, the DOJ had expressed concern that Hispanic voters had the opportunity to elect candidates of their choice with a Hispanic VAP of 30.18% in the benchmark district, but the VAP had dropped to 25.72% under the 2001 plan.[82] The Commission made three changes to LD 23, which brought the district's Hispanic VAP back up to 30.63%.[83] The Minority Coalition's expert witness, State Senator Pete Rios, testified that he "believed that Hispanics would be able to elect candidates of their choice" in this district, noting that several Hispanic representatives had been elected from the benchmark district even though the Hispanic VAP had not reached 50% in that district for the previous 20 years.[84]

Finally, with respect to LDs 13 and 14 in Maricopa County, the Commission determined (based on public testimony and the DOJ's preclearance objections) that it was necessary to raise the Hispanic VAP from 51% in the 2001 plan to roughly 55%.[85] The Minority Coalition's witness, County Supervisor Mary Rose Wilcox, testified that Hispanics would have an opportunity to elect representatives of their choice with a 55.19% Hispanic VAP in LD 13 and 55.16% Hispanic VAP in LD 14.[86]

Ultimately, the parties stipulated that LD 13 (55.19%), LD 14 (55.16%), and LD 23 (30.63%) in the remedial plan were "effective" for Hispanics.[87] The court agreed, and found no retrogression in these amended districts, "because the evidence persuaded the Court that in the three districts chosen to remedy the DOJ objections Hispanics have a fair

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[79] *Id.* at 1010.
[80] *Id.* at 1011.
[81] *Id.* at 1014–15.
[82] *Id.* at 1011.
[83] *Id.*
[84] *Id.* at 1014.
[85] *Id.* at 1012.
[86] *Id.* at 1014.
[87] *Id.* at 1015. "The term 'effective' meaning that Hispanics will be able to elect the candidate of their choice was used by the Special Master and was repeated by the parties in their stipulation of facts and law." *Id.* at n. 21.

opportunity to be elected."[88] Accordingly, the court authorized the Secretary of State to use the Commission's revised plan for interim use in the 2002 legislative primary and general elections.[89]

b. Arizona Minority Coalition I & II (2005 and 2009)

In *Arizona Minority Coalition for Fair Redistricting v. Arizona Independent Redistricting Commission*, the Arizona Court of Appeals reviewed dual constitutional challenges to the Commission's 2002 final legislative and congressional redistricting plans.[90] The trial court struck down the plans because the Commission failed to define key terms and standards related to the six Arizona constitutional redistricting goals, and had failed to adequately favor competitiveness.[91] In reversing and remanding the trial court's order, the Court of Appeals made several key holdings[92]:

- On the legislative plan, the trial court erred by applying strict scrutiny—the least deferential standard—to the plaintiffs' Equal Protection claim because there was no alleged burden on a fundamental right. While the right to vote is fundamental, "the Commission's placement of voters into various legislative and congressional district after applying specific constitutional criteria did not substantially burden that right," and there was no indication "that that Commission singled out and discriminated against a suspect class." The appellate court remanded the case back to the trial court with instructions to apply the most deferential standard, the rational basis test.[93]

- The Commission is not required by the Arizona or U.S. Constitutions to adopt definitions of the terms contained in the six constitutional goals (such as "communities of interest," "competitive," etc.).[94]

- "Although Commissioners do not have unfettered discretion in performing their redistricting duties, they are not required to ignore their personal knowledge and experiences in order to ensure compliance with the Equal Protection Clause."[95]

- The Court of Appeals also held that the trial court erred in considering the Arizona Constitution's competitiveness requirement to be an equal goal with the other

[88] *Id.* at 1016.
[89] *Id.*
[90] 211 Ariz. 337 (App. 2005) ("*Minority Coalition I*").
[91] *Id.* at 343 ¶ 10.
[92] *Id.* at 364–65 ¶¶ 110–14. The challenge to the congressional plan was dismissed on summary judgment, which the Court of Appeals affirmed. *Id.* at 366 ¶ 123.
[93] *Id.* at 349 ¶ 37, 364 ¶ 110.
[94] *Id.* at 364 ¶ 111.
[95] *Id.* at 364 ¶ 112.

redistricting criteria, as it believed competitiveness was subordinate to the other goals required by the Arizona Constitution.[96]

- While the Arizona Constitution prohibits the Commission from identifying or considering the residences of incumbents or candidates in the mapping process, it is not a violation for the Commission to know this information.[97]

The Court of Appeals also found that the Commission had not violated the "communities of interest," "compact and contiguous," or "undivided census tracts" goals by splitting the Hopi Tribe and the Navajo Nation into separate congressional districts, as requested by the Hopi.[98]

On remand, the Minority Coalition challenged the validity of the legislative plan.[99] The trial court once again found the 2002 legislative plan was invalid, but this time on the grounds that it did not sufficiently favor the Arizona Constitution's competitiveness goal.[100] The Court of Appeals reversed, concluding that the Commission "considered competitiveness and made a finding that a more competitive plan would cause a significant detriment to the other five constitutional goals" and the Commission's decision was "supported by substantial evidence."[101]

The Arizona Supreme Court made several important holdings:

- "[T]he Commission acts as a legislative body." This means that the Commission's redistricting plan is entitled to a presumption of constitutionality and "the same deference we afford to other legislation."[102]

- Though competitiveness should only be favored so long as there is no "significant detriment" to the other goals, that does not mean that it is "less mandatory than the other goals, can be ignored, or should be relegated to a secondary role."[103]

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[96] *Id.* at 364–65 ¶ 113.
[97] *Id.* at 365 ¶ 114.
[98] *Id.* at 365 ¶¶ 116–18.
[99] *Ariz. Minority Coal. for Fair Redistricting v. Ariz. Indep. Redistricting Comm'n*, 220 Ariz. 587, 593–94 ¶ 14 (2009) ("*Minority Coalition II*").
[100] *Id.*
[101] *Ariz. Minority Coal. for Fair Redistricting v. Ariz. Indep. Redistricting Comm'n*, 219 Ariz. 50, 54–55 ¶¶ 20, 26 (App. 2008).
[102] *Minority Coalition II*, 220 Ariz. at 594–95 ¶¶ 19–22.
[103] *Id.* at 598 ¶ 35.

- While the Arizona Constitution provides procedural requirements that the Commission must follow, and the Commission is not free to ignore any of the six constitutional goals, a court cannot use procedure "as a basis for intruding into the discretionary aspects of the legislative process and then, having intruded, base our review on whether we conclude that the courts or another entity could offer a 'better' redistricting plan; doing so would impermissibly enlarge our role."[104] As the Supreme Court explained:

> In reaching their decisions, the commissioners perform legislative tasks of the sort we make every effort not to preempt. The Commission adopts its final map only after engaging in several levels of discretionary decision-making. The constitutional requirement that the Commission accommodate specified goals "to the extent practicable" recognizes that accommodating the various goals requires the Commission to balance competing concerns. This balancing necessarily requires the commissioners to exercise discretion in choosing among potential adjustments to the grid map. The Commission's need to balance competing interests typifies the political process, in which each commissioner may well define differently the "best" balance of these goals. Deciding the extent to which various accommodations are "practicable" also requires the commissioners to make judgments that the voters have assigned to the Commission, not to the courts.[105]

- The Arizona Constitution does not legally require the Commission to define or record objective findings on what counts as a "significant detriment" in its competitiveness analysis, or indeed "any specific information as evidence of its deliberation."[106]

Ultimately, the Arizona Supreme Court held that the Commission engaged in "the required deliberative process" when considering competitiveness, citing to the use of three different statistical methods, alternative maps that could have increased competitiveness, discussions regarding how to increase competitiveness, and the ultimate determination that increased competitiveness "would cause significant detriment to the other goals."[107] As a result, the Court held that the Commission's 2002 legislative plan was valid under the Arizona Constitution.[108]

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[104] *Id.* at 596 ¶¶ 26–27.
[105] *Id.* at 596–97 ¶ 28.
[106] *Id.* at 598 ¶ 37, 598 ¶ 37.
[107] *Id.* at 598 ¶ 36.
[108] *Id.* at 594 ¶ 15, 598 ¶¶ 35-38, 600 ¶¶ 45–47. Although the Court of Appeals came to the same

2. Challenges Related to the 2011-2020 Commission

Between 2011 and 2020, there was one major challenge to the constitutionality of the Commission's redistricting power, and two other challenges to the Commission's maps. The Commission prevailed in all actions.

a. Arizona State Legislature v. Arizona Independent Redistricting Commission (2015)

In *Arizona State Legislature v. Arizona Independent Redistricting Commission*, the Arizona Legislature sued the Commission on the grounds that the Commission's drawing of the state's congressional map violated the Elections Clause of the U.S. Constitution: specifically, that "[t]he Times, Places and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof."[109] A three-judge district court panel disagreed with the Legislature, and on appeal the U.S. Supreme Court affirmed.[110] The Court held that the term "Legislature" as used in the Elections Clause does not limit redistricting power to state legislatures; rather, redistricting is a legislative function and can be constitutionally undertaken as provided for in state law by any legislative body—the actual legislature, the people by initiative or referendum, or the Commission.[111]

b. Harris v. Arizona Independent Redistricting Commission (2016)

The U.S. Supreme Court also considered a challenge to the Commission's 2012 legislative plan. In *Harris v. Arizona Independent Redistricting Commission*, a group of Arizona voters challenged the 2012 legislative plan on the grounds that its 8.8% population deviation violated the Equal Protection Clause of the U.S. Constitution.[112] The Court rejected this challenge, reasoning that because the deviation between the most populous district and least populous district was less than 10%, challengers had the burden of proving illegitimate factors influenced the Commission's redistricting decisions.[113] The Court further reasoned that the challengers did not meet their burden of showing that the deviations in populations were motivated by "political efforts to help the Democratic Party," primarily because the record indicated that the deviations were due to the

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ultimate conclusion on the maps, the Arizona Supreme Court vacated the Court of Appeals opinion to clarify the standard of review applicable to Commission actions. *Id.* at 594 ¶ 17. The Court concluded that it would review actions of the Commission as that of a legislative body, and will offer a "redistricting plan . . . the same deference as we afford to other legislation." *Id.* at 595 ¶ 22.

[109] 576 U.S. 787, 792 (2015).

[110] *Id.* at 793.

[111] *Id.* at 807–09.

[112] 578 U.S. 253, 257–59 (2016).

[113] *Id.* at 259.

Commission's good faith effort to comply with the VRA.[114]

c. Leach v. Arizona Independent Redistricting Commission (2017)

In *Leach v. Arizona Independent Redistricting Commission*, a group of challengers questioned the validity of the Commission's maps on the grounds that the Commission did not follow the required constitutional process in adjusting the grid map to conform to the six constitutional goals or in adequately considering all of the constitutional goals and the Legislature's report and recommendations.[115] The Superior Court of Arizona for Maricopa County rejected this challenge. Citing *Minority Coalition II*, the court reasoned that although it "must review the procedure used by the Commission to determine if it met constitutional requirements," it is not the court's place to determine "the extent to which the plan makes accommodations for the various constitutional goals [as that] requires the commissioners to make discretionary judgments."[116] Judged under that standard, the court found that it was a permissible exercise of discretion for the Commission to abandon its working map and start fresh with a new compromise map, notwithstanding the Constitution's language that the Commission must "adjust" the grid map.[117] Likewise, the record showed that the Commission more than adequately considered all of the constitutional goals and the Legislature's recommendations, even if the Legislature was unhappy that its recommendations were not followed.[118]

3. Challenge Related to the 2021-2030 Commission

In October 2020, COACA released a list of nominees for the Commission.[119] Shortly thereafter, minority party leadership in the Arizona Legislature filed a suit against COACA, alleging that the list of independent nominees "was constitutionally invalid because it included a paid, registered lobbyist and a sham Independent."[120] The superior court granted COACA's motion to dismiss with prejudice, reasoning that the alleged "sham Independent" nevertheless met the "clear and unambiguous" constitutional

[114] *Id.* at 259–61.
[115] No. CV 2012-007344, 2017 WL 9500782 (Ariz. Super. Ct. 2017).
[116] *Id.* at *2.
[117] *Id.* at *2–5 ("The Commission has considerable latitude in how it goes about adjusting the Grid Map to accommodate the goals.").
[118] *Id.* at *5–8.
[119] *Nominees Announced for Arizona Independent Redistricting Commission*, Ariz. Comm'n on App. Court App'ts, available at https://www.azcourts.gov/Portals/75/IRC/News%20and%20Meetings/NewsRelease-NomineesforRedistrictingCommission.pdf?ver=2020-10-13-101357-357.
[120] *Fernandez v. Comm'n on App. Court App'ts*, CV 2020-095696 (Ariz. Super. Ct. Dec. 7, 2020), available at https://s3.documentcloud.org/documents/20420840/fernandez-v-caca-case-dismissed.pdf.

requirements.[121] The fact that the individual hosted Trump rallies did not undercut the fact that he was a registered independent, whom the Constitution does not require to "avoid, limit, or restrict his political activities" to be eligible for the IRC.[122] The superior court further reasoned that the "paid registered lobbyist" was not a lobbyist within the meaning of Proposition 106, because he was registered as a lobbyist with the Arizona Corporation Commission, not the Arizona Legislature.[123] Challengers did not appeal the dismissal.

Despite the fact that the superior court endorsed the validity of the nominees, neither independent challenged in the suit was selected to serve on the Commission.

III. ACTIVITIES OF THE COMMISSION

In executing its constitutional duties and its commitment to transparency, the Commission held public meetings, hearings, and listening tours and considered stakeholder feedback, expert data, reports, and presentations to produce maps that procedurally and substantively comply with federal and state legal requirements. The Commission carefully and thoroughly conducted an extraordinarily transparent, nearly year-long deliberation process throughout 2021, considering input from multiple sources.

A. Pre-Grid Map Public Outreach

To assist the public in understanding the Commission's activities and making meaningful public comment, the Commission made several resources available to the public. Notably, the Commission developed the Arizona Independent Redistricting Commission Hub—a one-stop web-based information resource with access to interactive Maps and Apps, Grid Maps, the Redistricting System, Draft Maps, and Final Maps.[124]

- The Interactive Maps and Apps page provides access to the public comments (both digital survey responses and paper responses) from the Commission's listening tours, public meetings, and hearings; the Communities of Interest Report; the Socioeconomic Report of Arizona; the Atlas of Census 2020 Redistricting Data; and the IRC Published Plan Dashboard—a listing of all plans submitted through the Commission's Redistricting System.[125]

- Redistricting System is a tool that enables public stakeholders to view the Commission's comprehensive data and allows them to manage that data, visualize different districts, and submit proposed changes to the draft plans.[126] In total, the

[121] *Id.*
[122] *Id.*
[123] *Id.*
[124] https://redistricting-irc-az.hub.arcgis.com/.
[125] https://redistricting-irc-az.hub.arcgis.com/pages/maps-and-apps.
[126] https://redistricting-irc-az.hub.arcgis.com/pages/redistricting-system.

public published 233 proposed plans (77 full congressional plans, 12 single-district congressional plans, 86 fully legislative plans, and 58 single-district legislative plans) for Commission consideration.

- Draft Maps web page provides background information regarding the Commission's drafting process for the development of Draft Maps, images of the approved Draft Maps and statistical data related to the same, and an explanation of the Commission's development of its Draft Maps through the use of ten series of Draft Maps and audit reports.[127]

- Final Draft Maps web page provides the same information regarding the Commission's drafting process for the development of Final Draft Maps.[128]

- Official Maps web page provides images of the Commission's final maps and statistical data related to the same.[129]

The Commission also utilized its website as a platform to post public notices, virtually attend meetings, accept public comment, and provide other helpful resources.[130]

B. Phase I: The Grid

Shortly after all five commissioners were sworn in, the Commission began the process of hiring administrative staff and addressing several important issues before it adopted the final Grid Maps.

1. The Commission Proactively Responded to the Census Bureau's Delay in the Release of Official Census Data.

Early in the process, the Commission learned that release of the final Census data was delayed and that the final production would not be available until the end of September.[131] In an effort to avoid any potential disruption to the redistricting process, the Commission made concerted efforts to learn about pertinent issues and discuss ways to mitigate the effects of delay. After consulting with the Secretary of State's Office, the Commission's goal was to send the maps to the Secretary of State well in advance of the April 4, 2022 deadline for candidates to file their nominating petitions.[132]

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[127] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[128] https://redistricting-irc-az.hub.arcgis.com/pages/final-draft-maps.
[129] https://redistricting-irc-az.hub.arcgis.com/pages/final-maps.
[130] https://irc.az.gov/public-meetings.
[131] *Census Bureau Statement on Redistricting Data Timeline*, available at https://www.census.gov/newsroom/press-releases/2021/statement-redistricting-data-timeline.html.
[132] IRC Public Meeting Unofficial Transcript from March 9, 2021, pp. 53–54, available at

On March 23, 2021, the Commission discussed a letter it received from the Census Bureau indicating that the Bureau was planning to deliver a "legacy" version of the census data as early as August.[133] Importantly, states were expected to obtain sufficient expertise to understand the data in this format.[134] To meet this goal, the Commission prioritized retaining mapping consultants with the required sophistication.[135] In the meantime, the Commission discussed using data such as the American Community Survey from the Census Bureau, as well as other data obtained through a series of Listening Tours, to learn more about communities of interest.[136]

The Commission found it important to learn more about the causes, circumstances, and consequences of the census delay. In a presentation given on May 4, 2021, the Commission's legal counsel explained the process by which census data is provided to the states, including the typical timeline, the difference between apportionment data and redistricting data, and the reasons why the Census Bureau was unable to meet its statutory obligation to provide the data according to the statutory timeline (notably, because of the COVID-19 pandemic and the Census's need to prioritize delivery of the apportionment results).[137]

Soon thereafter, the Census had generally committed to provide the legacy format data to the Commission by August 16, 2021 and the final data by September 30, 2021.[138] On June 1, 2021, James Whitehorne, the chief of the Census and Redistricting and Voting Rights Data Office at the Census Bureau, updated the Commission on the process and provided an overview of the different types of geography that the Census Bureau keeps in its database (consisting of legal, statistical, and administrative data) and the import of the data to the redistricting process. He explained that the most relevant piece of geography for building redistricting plans is the census block, the smallest piece of geography for which

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https://irc.az.gov/sites/default/files/meeting-files/03-09-2021%20IRC%20Public%20Meeting%20Unofficial%20Transcripts.pdf.

[133] IRC Public Meeting Unofficial Transcript from March 23, 2021, pp. 25–26, available at https://irc.az.gov/sites/default/files/meeting-files/03-23-2021%20Public%20Session%20Unofficial%20Transcript.pdf.

[134] *Id.*

[135] *Id.*

[136] IRC Public Meeting Unofficial Transcript from April 20, 2021, p. 36, available at https://irc.az.gov/sites/default/files/meeting-files/04-20-2021%20IRC%20Public%20Session%20Unofficial%20Transcript.pdf.

[137] *Census Delays and Introduction to Differential Privacy*, available at https://irc.az.gov/sites/default/files/meeting-files/Census%20Delays%20and%20Differential%20Privacy%20%28Final%29.pdf.

[138] IRC Public Meeting Unofficial Transcript from May 4, 2021, p. 33, available at https://irc.az.gov/sites/default/files/meeting-files/05-04-2021%20Public%20Session%20Unofficial%20Transcripts.pdf.

the Census obtains data. Moreover, the Census Bureau had already begun to provide products and tools for the 2020 census, including tables for (1) Race, (2) Hispanic or Latino, and not Hispanic or Latino by Race, (3) Race for the Population 18 Years and Older, (4) Hispanic or Latino, and not Hispanic or Latino by Race for the Population 18 Years and Older, and (5) Occupancy Status (Housing). Mr. Whitehorn clarified that the Census's plan to distribute data in legacy file format will be the same as the data provided in September; the only difference being that the September data would be more user friendly.[139]

While it continued to wait for the Census data, the Commission stayed up to date with developments in two ongoing cases involving the delayed census data release. The first case, *Ohio v. Raimondo*, challenged the Census's failure to meet its statutory deadline.[140] There, the Court found that Ohio lacked standing to sue because the court would be unable to make the Census Bureau meet the deadline and because Ohio was not particularly affected by the delay; however, the Commission learned that the parties had filed a stipulation in which the Census Bureau agreed to provide biweekly updates about when it would release the data.[141] The second case, *Alabama v. U.S. Department of Commerce*, challenged both the census delay and the Census's use of differential privacy.[142] This case was dismissed without prejudice, meaning that it could be refiled in the future.[143]

2. The Commission Exercised Due Diligence in Learning about Differential Privacy and Its Potential Impact on the Arizona Redistricting Process.

Another important census issue raised prior to the release of census data, known as differential privacy, required the Commissioners to diligently learn about its use and potential to affect the census count.

At a presentation given by its legal counsel on May 4, 2021, the Commissioners learned about the Census Bureau's obligations with respect to privacy under federal law and how differential privacy intends to both safeguard this privacy and ensure the data retains a high degree of accuracy.[144] Indeed, the Census Bureau has a statutory obligation to protect the

[139] *2020 Census Geography and 2020 Census Redistricting Data*, available at https://irc.az.gov/sites/default/files/meeting-files/Census%20Geography%20and%20Census%20Redistricting%20Data.pdf.
[140] 848 F. App'x 187, 188 (6th Cir. 2021).
[141] *Id.*; *see also* IRC Public Meeting Unofficial Transcript from May 25, 2021, p. 59, available at https://irc.az.gov/sites/default/files/meeting-files/05-25-2021%20IRC%20Public%20Session.pdf.
[142] 321CV211RAHECMKCN, 2021 WL 2668810, at *1 (M.D. Ala. June 29, 2021).
[143] Meeting Minutes from July 19, 2021, available at https://irc.az.gov/sites/default/files/7.19.21%20Minutes.docx.pdf.
[144] *Census Delays and Introduction to Differential Privacy*, available at https://irc.az.gov/sites/default/files/meeting-

confidentiality of the data it collects.[145] To combat the risk that census data could be reverse-engineered by privacy attackers to identify specific individuals, and due to a finding that its previous "data swapping" method was inadequate to protect privacy in pace with the advancement of technology, the Census Bureau proposed to use a new method called differential privacy. Differential privacy is often used by private companies to protect against privacy attacks by introducing an appropriate amount "noise" into the data, which is measured by what is known as the privacy-loss budget, or Epsilon (ε). The Epsilon value reflects the competing interests of complete privacy and complete accuracy to find an appropriate balance between the two. The goal of the Census Bureau is to choose a value that achieves this ideal balance. Subsequently, the Commission unanimously agreed to select and retain a differential privacy expert to learn more about how differential privacy would impact Arizona.[146]

On June 1, 2021 Michael Hawes, the Census Bureau senior advisor for Data Access and Privacy, spoke at a Commission meeting.[147] Mr. Hawes explained that advances in computing power and algorithms require that the Census Bureau modernize its privacy protections through differential privacy to prevent reconstruction and reidentification of individual information. Following this presentation, the Commission sought more information about how the Epsilon value would impact the count with respect to rural and tribal communities.[148]

On June 15, the Commission learned that the Census Bureau released an Epsilon value of 19.61, which errs on the side of accuracy.[149] This number was higher than that used in the Census Bureau's test demonstrations, which were in the 8-10 range.[150]

To further understand the issue of differential privacy, the Commission received a robust collection of academic and legal materials provided by its legal counsel.[151] The Commission emphasized many times that it must use its due diligence to study these issues and seek feedback because one-person-one-vote obligations under the Constitution require

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files/Census%20Delays%20and%20Differential%20Privacy%20%28Final%29.pdf.
[145] 13 U.S.C. § 9(a)(2).
[146] Meeting Minutes from May 4, 2021, available at https://irc.az.gov/sites/default/files/5.4.21%20Public%20Meeting%20Minutes.pdf.
[147] *The 2020 Census Disclosure Avoidance System*, available at https://irc.az.gov/sites/default/files/meeting-files/2020%20Census%20Disclosure%20Avoidance%20System.pdf.
[148] IRC Public Meeting Unofficial Transcript from June 1, 2021, p. 58, available at https://irc.az.gov/sites/default/files/meeting-files/06-01-2021%20IRC%20Public%20Session.pdf.
[149] Meeting Minutes from June 15, 2021, available at https://irc.az.gov/sites/default/files/6.15.21%20Public%20Meeting%20Minutes.pdf.
[150] *Id.*
[151] Meeting Minutes from June 22, 2021, available at https://irc.az.gov/sites/default/files/6.22.21%20Public%20Meeting%20Minutes.pdf.

accurate data.[152] Additionally, the Commission recognized Native American concerns about how differential privacy would affect representation of tribal communities, as well as other rural areas, but noted that its mapping consultants were aware and ready to address these issues.[153]

The Commission invited presentations by two experts on the topic: Thomas Bryan, founder and CEO of Bryan GeoDemographics, and Dr. Moon Duchin, CEO of the Redistricting Lab and Associate Professor at Tufts University. Mr. Bryan and Dr. Duchin provided informative data and outlooks on use of the census data.[154]

After reflecting on the presentations and other information it had learned about differential privacy, the Commission felt comfortable using the Census Data information as required by law.[155]

3. In Preparation for Receipt of Census Data, the Commission Began Collecting Information and Learning about Its Constitutional Obligations.

Because the census delay meant the Commission would be unable to begin the Grid Map process until August, they committed themselves to learning about the various populations in Arizona, such as communities of interest, prior to receipt of the census data. The Commissioners proactively collected information throughout the summer months so that they would be ready to proceed as soon as they received the data.

To learn more about various communities of interest in Arizona, on June 22, 2021, Dr. Jim Chang, the Arizona State Demographer, gave a presentation on population trends in the State of Arizona based on the American Community Survey.[156] This presentation addressed population growth as well as ethnic, housing, public school, and employment trends and projections. The Commission also received initial training from its legal counsel on the VRA and the Arizona Constitutional requirements on June 29, 2021.[157]

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[152] IRC Public Meeting Unofficial Transcript from June 22, 2021, p. 63, available at https://irc.az.gov/sites/default/files/meeting-files/06-22-2021%20IRC%20Public%20Session.pdf.
[153] *Id.* at 67–68.
[154] Meeting Minutes from July 13, 2021, available at https://irc.az.gov/sites/default/files/Minutes%207.13.21.docx.pdf.
[155] Meeting Minutes from July 19, 2021, available at https://irc.az.gov/sites/default/files/7.19.21%20Minutes.docx.pdf.
[156] *Demographic Trends in Arizona*, available at https://irc.az.gov/sites/default/files/meeting-files/State%20Demographer%27s%20Presentation.pdf.
[157] Meeting Minutes from June 29, 2021, available at https://irc.az.gov/sites/default/files/Minutes%206.29.21.docx.pdf.

During the months of July and August, the Commission conducted a listening tour consisting of fifteen public hearings throughout Arizona designed to solicit public feedback to ascertain the various communities of interest it would need to consider. This would be the first of many opportunities the Commission extended to invite the public to offer testimony. The Commission hosted each public hearing in-person at a main location and, in some cases, one or two satellite locations, in addition to streaming the public hearing online:

- July 23, 2021 in Florence (satellite locations in Maricopa and Superior)
- July 24, 2021 in Glendale
- July 25, 2021 in Phoenix
- July 27, 2021 in Prescott (satellite locations in Sedona and Congress)
- July 28, 2021 in Lake Havasu (satellite locations in Bullhead City and Kingman)
- July 29, 2021 in Flagstaff (satellite locations in Tuba City and Page)
- July 30, 2021 in Window Rock (satellite locations in Eagar and Chinle)
- July 31, 2021 in Show Low
- August 1, 2021 in Payson (satellite location in Globe)
- August 4, 2021 in Yuma (satellite locations in Parker and Quartzsite)
- August 5, 2021 in Nogales (satellite location in Bisbee)
- August 6, 2021 in Safford (satellite location in Clifton)
- August 7, 2021 in Tucson
- August 8, 2021 in Tucson
- August 9, 2021 in Mesa[158]

[158] https://irc.az.gov/public-meetings/listening-tour-july-august.

The Commission actively encouraged members of the public to attend these hearings. During the Listening Tour, the Commission obtained 910 electronic and 234 paper surveys submitted by the public containing input about potential communities of interest.[159]

4. Upon Receipt of the Census Data, the Commission Engaged in a Deliberative Process Before Adopting the Grid Maps.

Upon receipt of the census data in its legacy format on August 12, 2021, four days ahead of schedule,[160] the mapping consultants successfully updated and downloaded it onto the consultants' system well within the Commission's scheduled timeline.[161]

On September 14, 2021, the mapping consultants presented the Grid Maps, which would serve as a starting point for adjusting the maps in the next phase.[162] In developing these maps, the mapping consultants looked only at total population census data that represent geographies from the census tract to the block level, considering no other variables so that every district had equal representation in terms of total population.

Additionally, as unanimously requested by the Commission, the maps incorporated several features:

- The Grid Map must originate at the Township Median. The Township Median is located at the intersection of Grand Avenue, 19th Avenue and McDowell Road in Phoenix.

- At the Township Median, the state must be divided into quadrants.

- The grid must move in a clockwise manner throughout the state within the quadrant starting in Grid 1 (top right) before moving to Grid 2 (bottom right) and so on.

- With the exception of Maricopa County, once a county has started to be assigned to a new district, the entire county must be assigned.

- Each of the 9 Congressional Districts and 30 Legislative Districts must have equal population of plus or minus (+/-) one person.

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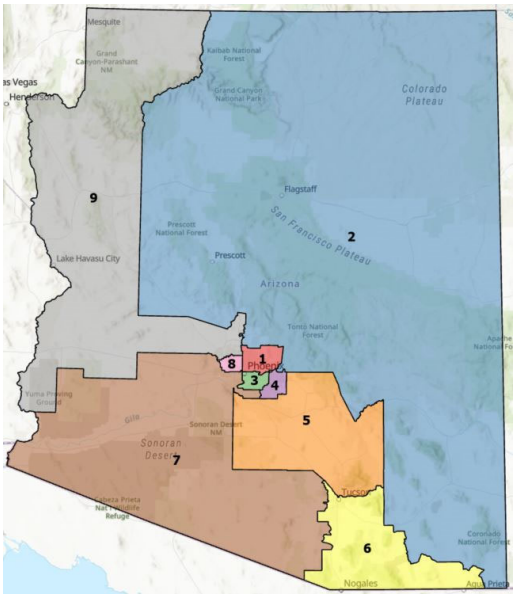
[159] https://redistricting-irc-az.hub.arcgis.com/pages/maps-and-apps.
[160] Meeting Minutes from August 17, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.17.21.docx.pdf.
[161] Meeting Minutes from August 31, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.31.21.pdf.
[162] Meeting Minutes from September 14, 2021, available at https://irc.az.gov/sites/default/files/Minutes%209.14.21.docx.pdf.

- Districts must be compact (shape of the district) and contiguous (census blocks need to be connected).[163]

The Grid Maps also followed the statutory requirement that Prescott be in Legislative District 1.[164] After due consideration, the Commission adopted the proposed Grid Maps unanimously on September 14, 2021.[165]

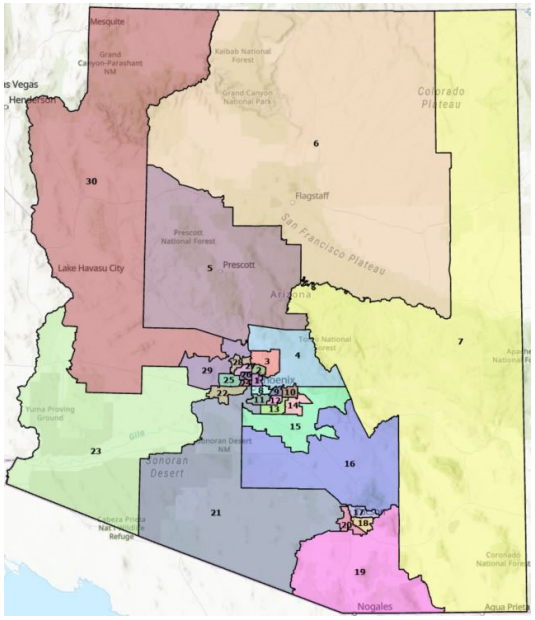
2021 Congressional Districts Grid Map



[Intentionally left blank.]

[163] https://redistricting-irc-az.hub.arcgis.com/pages/grid-map.
[164] A.R.S. § 16-1101.
[165] Meeting Minutes from September 14, 2021, available at https://irc.az.gov/sites/default/files/Minutes%209.14.21.docx.pdf.

2021 Legislative Districts Grid Map



Following its unanimous adoption of the Grid Maps, throughout September and October 2021, the Commission held another series of five public hearings and informational meetings designed to obtain further input from the public with respect to communities of interest and other redistricting criteria to be used by the Commission in the development of the Draft Maps. The Commission hosted each public hearing in-person at a main location and a satellite location, in addition to streaming the public hearing online:

- September 21, 2021 in Mesa (satellite locations in Yuma and Window Rock)
- September 23, 2021 in Scottsdale (satellite locations in Casa Grande and Sierra Vista)
- September 25, 2021 in Phoenix (satellite location in Prescott)
- September 29, 2021 in Scottsdale (satellite location in Tucson)
- October 7, 2021 in Surprise (satellite locations in Flagstaff, San Luis, and Kayenta)[166]

[166] https://irc.az.gov/public-meetings/grid-map-listening-tour-september-october.

C. Phase II: Adjusting the Grid

The Commission took extensive steps in phase two to mold its unanimously approved Grid Maps into congressional and legislative districts that comport with constitutional and statutory goals and requirements. To do so, the Commission met several times to discuss revisions to the Grid Maps, including meetings on October 5, 12, 15, 18, 19, 20, and 21, 2021. At these meetings the Commission considered all of the information presented to it to date, including the proposed plans submitted by the public,[167] public comment from its communities of interest and Grid Map Listening Tours, and public comment and presentations made at public meetings.

Throughout this process, the Commission's mapping consultants presented ten series of Draft Maps. Each iteration of the Draft Map was assigned a series number and a version number (e.g., 1.0, 1.1, 1.2, etc.) and built upon the approved Grid Maps. For every iteration of the Draft Map, the mapping consultants also produced an audit log—a high level summary of the direction given by the Commission and the actual action taken by the mapping consultants, and how that action connects with one or more of Arizona's six constitutional goals.[168] This log, available on the Redistricting Hub, remained available to the public throughout the process, ensuring a high degree of transparency.

When viewed together, the ten series of Draft Maps reflect the Commission's deliberative process to create legally valid congressional and legislative districts.[169] A deeper discussion of the Commission's consideration and deliberative process as it relates to each of the Arizona Constitution's six goals follows.

1. Goal #1: Compliance with the U.S. Constitution and Voting Rights Act

a. The Commission Complied with One Person One Vote and other Equal Protection Requirements Under the U.S. Constitution.

The Commission ensured that its maps reflected equal population as required by Article I, Section 2 of the U.S. Constitution and the Equal Protection Clause of the Fourteenth Amendment. As a starting point, the Grid Maps unanimously adopted by the Commission were finetuned to ensure that any alterations to the maps had equal population with deviation of plus or minus one person.[170] In working with the mapping consultants, the

[167] https://redistricting-irc-az.hub.arcgis.com/pages/redistricting-system.
[168] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[169] Audit logs reflecting the changes made in each series referenced herein are available at https://redistricting-irc-az.hub.arcgis.com/pages/maps-and-apps.
[170] https://redistricting-irc-az.hub.arcgis.com/pages/grid-map.

Commission emphasized that congressional maps needed to be extremely precise and recognized that even though legislative districts do not require the same level of precision, substantial equality in legislative districts should be strived for as well. Based on the census data, the ideal population was 794,611 for congressional districts and 238,383 for legislative districts.

Each plan submitted to the mapping consultants' software was checked to ensure it remained below the maximum deviation. Ultimately, in the congressional plan adopted by the Commission, each district maintained the Grid Maps' total population deviation of only plus or minus (+/-) one person in each district.[171] Moreover, the legislative plan had a total deviation of 9.93%,[172] which is below the 10% threshold required to presume validity.

Any deviation in district population was due to the Commission's consideration and accommodation of multiple nondiscriminatory redistricting factors, such as making districts compact and contiguous, respecting communities of interest, respecting municipal boundaries, complying with the VRA, and other requirements under the Arizona Constitution.

The following tables provide population breakdowns illustrating the population deviation data for both congressional and legislative districts.

2021 Congressional Draft Map Population Deviation Data

Category	2020 Census		
Field	Total Pop.	Deviation from Ideal	Pct. Dev.
1	794,612	1	0.00%
2	794,610	-1	0.00%
3	794,610	-1	0.00%
4	794,612	1	0.00%
5	794,612	1	0.00%
6	794,612	1	0.00%
7	794,612	1	0.00%
8	794,611	0	0.00%
9	794,611	0	0.00%
Statewide	7,151,502	2	0.00%

[171] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[172] *Id.*

2021 Legislative Draft Map Population Deviation Data

Category	2020 Census		
Field	Total Pop.	Deviation from Ideal	Pct. Dev.
1	237,098	-1,285	-0.54%
2	250,261	11,878	4.98%
3	237,362	-1,021	-0.43%
4	249,178	10,795	4.53%
5	236,210	-2,173	-0.91%
6	234,381	-4,002	-1.68%
7	232,467	-5,916	-2.48%
8	229,405	-8,978	-3.77%
9	236,500	-1,883	-0.79%
10	232,450	-5,933	-2.49%
11	248,102	9,719	4.08%
12	246,835	8,452	3.55%
13	243,201	4,818	2.02%
14	239,967	1,584	0.66%
15	232,481	-5,902	-2.48%
16	235,069	-3,314	-1.39%
17	230,452	-7,931	-3.33%
18	244,007	5,624	2.36%
19	228,298	-10,085	-4.23%
20	243,024	4,641	1.95%
21	248,380	9,997	4.19%
22	231,271	-7,112	-2.98%
23	235,845	-2,538	-1.06%
24	244,592	6,209	2.60%
25	243,874	5,491	2.30%
26	240,661	2,278	0.96%
27	231,727	-6,656	-2.79%
28	226,591	-11,792	-4.95%
29	247,281	8,898	3.73%
30	234,532	-3,851	-1.62%
Statewide	7,151,502	23,670	9.93%

b. The Commission Complied with All Pertinent Requirements Under the Voting Rights Act.

From the beginning, the Commission was attuned to its obligation to understand and apply the VRA. Multiple times throughout its decision-making process, the Commission assured the public that the VRA is and will be considered along with the other constitutional requirements during the mapping process.[173]

[173] *See, e.g.*, Meeting Minutes from October 18, 2021, available at https://irc.az.gov/sites/default/files/Minutes%2010.18.21.pdf.

On June 29, 2021, the Commission's legal counsel provided a comprehensive overview of the VRA and its requirements.[174] In this presentation, counsel emphasized the historic importance of the VRA as it relates to civil rights and minority representation. Additionally, counsel addressed the two major sections of the VRA—Section 5 and Section 2. Although *Shelby County v. Holder* rendered Section 5 effectively inoperable, the Commission learned about the reasoning behind the preclearance provision, including its intent to avoid retrogression such that no electoral changes would have the purpose or effect of diminishing the ability of any citizens, on the basis of race or color, to participate in the political process and elect their candidate of choice.

Furthermore, the Commission learned about Section 2's protections against vote denial or dilution. As provided in detail above, Counsel explained that a plaintiff may prove a violation of Section 2 by successfully demonstrating each of the three *Gingles* factors and establishing by the totality of the circumstances that a minority group's ability to elect candidates of its choice had been diminished.

Finally, the Commission learned about gerrymandering as it relates to the consideration of race in drawing districts, and that states should draw districts with consideration of all criteria. Following the presentation, the Commission was especially interested in learning about the application of VRA to the Native American population in Arizona, and later received a presentation from legal counsel on the history of Native American voting rights.

To further aid the Commission, the Commission's legal counsel retained Stephen Ansolabehere from Harvard University and Sean Trende from Ohio State University, two nationally recognized consulting experts on the VRA and other constitutional principles that apply to redistricting.[175] These experts assisted the Commission's legal counsel as they advised the Commission on the requirements of the VRA and compliance of the Commission's maps.

Of particular importance to the Commission was avoiding the dilution of minority votes under its redistricting plan. For instance, before adopting the final Congressional Draft Map in Series 7, the Commission addressed concerns regarding a district with a high percentage of Latino voters, due to concerns that the district may not be polarized.[176]

[174] Meeting Minutes from June 29, 2021, available at https://irc.az.gov/sites/default/files/Minutes%206.29.21.docx.pdf.
[175] Meeting Minutes from August 24, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.24.21.pdf.
[176] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.

i. The Commission Extensively Studied Voting Patterns in Arizona, Including Compactness and Polarization Data, to Establish the Appropriate Number of Minority Ability-to-Elect Districts.

The commissioners' mapping consultants retained Lisa Handley, an expert in polarized voting analysis, to help the commissioners comply with their Section 2 obligations.

Dr. Handley explained to the Commission that a racial bloc voting analysis should be used to determine if voting is polarized in areas of the State with minority concentrations.[177] A racial bloc voting analysis ascertains if minority voters are politically cohesive and if white voters bloc vote to usually defeat minority-preferred candidates, which would satisfy the second and third prongs of *Gingles* test. Then, a district-specific, functional analysis should be conducted to ensure that minority districts are drawn so that they provide minority voters with an opportunity to elect their candidates of choice without unnecessarily packing the district or violating redistricting criteria such as consideration for political subdivision boundaries and compactness.

The Commission spent considerable time learning about circumstances in which it would be required to establish a minority ability-to-elect district in compliance with Section 2 of the VRA. Dr. Handley advised the Commission that the district-specific functional analysis, not a proportional quota, must be used to determine if a minority ability-to-elect district is required.[178] If a single racial group's Citizen Voting Age Population ("CVAP") is over 50%, voting is racially polarized, and candidates preferred by a politically cohesive minority group are usually defeated by white voters not supporting these candidates, a district that offers minority voters an opportunity to elect their candidates of choice must be drawn. Additionally, if such districts already exist, and minority-preferred candidates are winning only because the districts exist, then these minority districts must be maintained in a manner that continues to provide minority voters with an opportunity to elect their preferred candidates.

Dr. Handley explained that estimates derived from racial bloc voting analysis can be used to calculate the percent minority population needed in a specific area for minority-preferred candidates to win a district in that area, or alternatively, election results from previous contests that included minority-preferred candidates ("bellwether elections" as identified by a racial bloc voting analysis) can be recompiled to reflect the boundaries of the proposed

[177] Meeting Minutes from August 31, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.31.21.pdf; *Analyzing Voting Patterns to Determine if a Redistricting Plan Complies with the Voting Rights Act*, available at https://irc.az.gov/sites/default/files/meeting-files/Analyzing%20Voting%20Patters%20Presentation%208.31.21.pdf.
[178] *Id.*

district to determine if minority-preferred candidates would consistently carry this proposed district.

Later in the process, Dr. Handley shared with the Commission racial bloc voting analyses of voting patterns and polarization in various counties: Maricopa, Navajo, Apache, Yuma, Pinal, and Pima.[179] Her analysis showed that voting was frequently polarized for Latinos in Maricopa County, Yuma County, and Pinal County, but not Pima County. There was also polarization for Native Americans in Apache and Navajo counties. Dr. Handley's Polarization Report,[180] which is a written and more detailed report of her findings, was provided to the Commission on October 26, 2021.

Based on all this expert input and additional demographic census data, including population growth among various groups in the state, the Commission appropriately drew minority ability-to-elect districts in both its congressional and legislative Draft Maps to ensure compliance with Section 2.[181] In its adopted congressional draft map, CD Draft Map Version 7.1,[182] it created two Latino ability-to-elect districts. Likewise, in its adopted legislative draft map, LD Draft Map Version 10.0,[183] it created seven Latino ability-to-elect districts and one Native American ability-to-elect district.

ii. The 2021 Redistricting Plan Contains No Retrogression for Minority Populations.

Although Section 5 of the VRA is no longer operative, the Commission worked diligently to consider its principal goal of ensuring that minority candidates were not left in a worse position than in prior redistricting plans. This is because the performance of minority "ability to elect" districts is important under both Section 5 and Section 2.

Notably, prior to *Shelby County*, each of Arizona's redistricting plans received preclearance under Section 5. In the 2011 redistricting plan, Arizona established two

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[179] *Drawing Districts that Provide Minority Voters with an Opportunity to Elect Their Candidates of Choice*, available at https://irc.az.gov/sites/default/files/meeting-files/Drawing%20Districts%20that%20Provide%20Minority%20Voters%20an%20Opportunity%20to%20Elect%20thier%20Candidates%20of%20Choice%2C%20Part%201%2010.4.21.pdf.
[180] Lisa Handley, *Voting Patterns by Race/Ethnicity in Recent Congressional and State Legislative Elections in Arizona*, available at https://irc.az.gov/sites/default/files/meeting-files/Handley%20report_Voting%20Patterns%20by%20RaceEthnicity%20in%20Recent%20State%20Legislative%20Elections%20in%20Arizona.pdf; https://irc.az.gov/sites/default/files/media/Polarized%20Data.pdf.
[181] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[182] *Id.*
[183] *Id*.

congressional[184] and eight legislative minority ability-to-elect districts.[185] As discussed above, the current plan preserves the same number.[186]

2. Goal #2: Population Equality

As discussed above, the Commission substantially complied with the U.S. Constitution's one-person-one-vote principle, concurrently satisfying the goal of population equality. Recognizing the importance of this goal, after the Commission would alter the map to incorporate other constitutional requirements, it would then adjust the districts to balance the population to the extent possible. The Commission successfully considered equal population in every one of its Draft Maps Series and ensured the same in both congressional and legislative adopted Draft Maps:[187]

- In CD Draft Maps Series 1, Series 2, Series 3, Series 4, Series 5, Series 6, and Series 7, the Commission considered, made, and carried forward several small changes, such as adjusting district lines and moving cities, towns, and other geographic areas to balance the population in the proposed congressional districts.

- Similarly, in LD Draft Maps Series 1, Series 2, Series 3, Series 4, Series 5, Series 6, Series 7, Series 8, Series 9, and Series 10, the Commission considered, made, and carried forward several small changes, such as adjusting district lines and moving cities, towns, and other geographic areas to balance the population in the proposed legislative districts.

The Commission's final CD Draft Map in Series 7, population balanced the entire plan to plus or minus (+/-) one person by transferring blocks between districts.[188] Additionally, the Commission focused on balancing the legislative plan as well in Draft Maps Series 8 through 10, ultimately achieving a total deviation of 9.93%.[189]

[184] https://azredistricting.org/Maps/Final-Maps/Congressional/Reports/Final%20Congressional%20Districts%20-%20Population%20Data%20Table.pdf.
[185] https://azredistricting.org/Maps/Final-Maps/Legislative/Reports/Final%20Legislative%20Districts%20-%20Population%20Data%20Table.pdf.
[186] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[187] *Id.*
[188] *Id.*
[189] *Id.*

3. Goal #3: Compact and Contiguous

The Commission revised the Draft Maps to create compact and contiguous districts, to the extent practicable.

On August 31, 2021, the mapping consultants presented to the Commission regarding this constitutional requirement with the aim to educate Commissioners about what it means to be contiguous and compact and how to create Draft Maps that achieve this goal.[190]

The consultants presented three definitions of contiguity:

1. "Any part touching" connection;

2. "More than a point" connection; and

3. "Able to travel" connection.

Of the three definitions, the first is the broadest and requires a bare showing of connection. The second requires more than one point of connection, but would allow communities to be connected by slender connections like a highway corridor, hiking trails, or a river. The third requires district lines that enable an individual to travel throughout the district (*i.e.*, a district could not be divided by a non-travelable mountain range). The mapping consultants also demonstrated how the Commission could use the mapping software to test the connectivity of a proposed redistricting plan. (Note, however, the mapping software had the capability to review a map and approve its connectivity based only on definitions two and three; districts that meet only the first definition of connectivity would fail the test.) This instruction enabled the Commissioners to actively consider the goal as they evaluated various maps.

As to the compactness discussion, the consultants explained that generally, compact districts will "not bypass nearby areas of population to take in more distant populations."[191] While there is no consensus on how to best measure compactness, the mapping software provided the Commission with seven ways to evaluate compactness:

1. Area (measured in square miles);

2. Perimeter (measured in miles);

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[190] Meeting Minutes from August 31, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.31.21.pdf; *Arizona Criteria*, available at https://irc.az.gov/sites/default/files/meeting-files/AZ%20Criteria%20Presentation%208.31.21.pdf.

[191] *Id.*

3. Grofman Test (the ratio of the district perimeter to the square root of the area);

4. Area/Convex Hull Test (the ratio of the area to the convex hull of the district);

5. Reock Test (the ratio of area to the smallest circle that can contain the district);

6. Schwartzberg Test (the ratio of the perimeter of the district to the perimeter of a circle of an equal area of the district); and

7. Polsby-Popper Test (the ratio of the area of the district to the area of a circle with the same perimeter).

The mapping consultants underscored the variation between these compactness measures, noting that the application of different measures to the same districts could result in different outcomes. The mapping consultants explained that, in addition to running these seven measurements, the mapping software will also identify the number of holes (unassigned geographic clusters fully enclosed by assigned census blocks). This information could significantly impact a district's compactness, depending on how the holes were later assigned.

Through the Commission's development of series of Draft Maps, it made several changes to Draft Maps to create and maintain compact and contiguous districts, including:

- In CD Draft Maps Series 2, Series 3, Series 4, Series 5, Series 6, and Series 7, the Commission considered, made, and carried forward several small changes such as "adding blocks" to help improve the compactness and contiguity of the proposed congressional districts.

- Similarly, in LD Draft Maps Series 2, Series 3, Series 4, Series 5, Series 6, Series 7, Series 8, Series 9, and Series 10 the Commission considered, made, and carried forward several small changes, such as moving a piece of a mountain into a different district or preserving a light rail corridor, to help improve the compactness and contiguity of the proposed congressional districts.

4. Goal #4: Communities of Interest

a. The Commission Extensively Learned About and Considered the Different Communities of Interest in Arizona.

The Commission considered many communities of interest throughout its discussions to ensure that the Draft Maps would reflect the diversity of the various communities in Arizona. Indeed, the Commission's first listening tour allowed it to hear extensively from

citizens around the state regarding their own particular communities of interest. Later in the drafting process, the Commission heard presentations from state experts regarding communities of interest.

On August 3, 2021, legal counsel presented on the state's Native American population, including where reservations are located in the state; the history of discrimination against Native Americans; how Native Americans form unique communities with distinctive colure, language, and traditions; and how Native communities and reservations may constitute communities of interest to be preserved in redistricting.[192] The Commission expressed an intent to ensure that districts did not split reservation boundaries and that tribes should be kept as close together as possible.[193]

Additionally, on September 21, 2021, legal counsel presented on the Latino community in Arizona, explaining that Latinos are the largest minority group in Arizona, consisting of 31% of the overall population and 23% of the citizen voting age population, and also have a history of discrimination in Arizona.[194] On the same day, Dr. Jim Chang, the Arizona State Demographer, gave a presentation that addressed additional demographic information about the State's Latino population.[195] Finally, on October 12, 2021, Dr. Lisa M. Sanchez from the University of Arizona explored trends and contemporary issues involving Latinos in Arizona.[196] The Commission recognized the importance of addressing the growing Latino constituency in Arizona.

The amount of feedback and diverse opinions from elected officials, organized groups, and the general public regarding applicable communities of interest was significant. Other communities the Commissioners specifically committed to considering included, but were not limited to, rural and urban areas, smaller cities, school districts, economic drivers in various communities, communities along the border, the copper corridor, communities along the Colorado River, other water interests, other racial minority groups such as

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[192] Meeting Minutes from August 3, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.3.21.docx.pdf.
[193] IRC Public Meeting Unofficial Transcript from October 4, 2021, pp. 42–43, available at https://irc.az.gov/sites/default/files/meeting-files/10-04-2021%20Public%20Meeting%20Unofficial%20Transcript.pdf.
[194] *Latino Voting and Drawing Majority-Minority and Minority Ability Districts*, available at https://irc.az.gov/sites/default/files/meeting-files/Latino%20Voting%20and%20Majority%20Minority%20Districts.pdf.
[195] *Race and Hispanic Origin in Arizona*, available at https://irc.az.gov/sites/default/files/meeting-files/REVISED%20State%20Demographer%27s%20Presentation%209.14.21.pdf.
[196] *Latino Politics in Arizona: Trends & Contemporary Issues*, available at https://irc.az.gov/sites/default/files/meeting-files/Latino%20political%20power%20in%20AZ%2C%20indepdent%20redist%20commitee.pdf.

African Americans and Asian Americans, and the LGBTQ community.[197] The Commission also recognized minority communities within broader communities of interest, given that minority communities are not monolithic, and that each of these separate interests should be considered, given that no boundaries should be drawn on one single issue.[198]

b. The Commission Appropriately Considered and Implemented Changes to the Draft Maps Incorporating Boundaries that Respect Communities of Interest.

Following substantial collection of data, the mapping consultants provided the Commission with the ability to analyze it in more depth. The mapping consultants' software allowed the Commission to compare Grid Maps with public submissions as well as understand demographic points and population breakdown.

In July 2021, the mapping consultants generated a Socioeconomic Report aimed at helping the public explore and understand demographic variables when creating their communities of interest submissions. The StoryMap[199] and associated application[200] highlight six different demographic variables throughout the state of Arizona using data provided by National Demographics Corporation (NDC):

1. Directing Variables, which includes the Counties layer, towns, streets, neighborhoods, and more;

2. Population, which contains the overall CVAP and can include additional layers for Latino, Asian American, African American, Native American, and Non-Hispanic White CVAP;

3. Children and Languages at Home, which contains layers for Spanish speakers, other languages, and children at home;

4. Housing, which includes layers for Renter-Occupied and Multi-Family housing,

5. Income, which includes a layer for income of $75k and higher; and

[197] IRC Public Meeting Unofficial Transcript from October 4, 2021, pp. 42–56, available at https://irc.az.gov/sites/default/files/meeting-files/10-04-2021%20Public%20Meeting%20Unofficial%20Transcript.pdf.
[198] *Id.*
[199] https://storymaps.arcgis.com/stories/a481582c11aa4f3b91739e53630d693a.
[200] https://irc-az.maps.arcgis.com/apps/webappviewer/index.html?id=eb025bd8d0a442048079532fad8eab7a.

6. Education, which includes a layer for Bachelor's Degree and higher.

Additionally, the mapping consultants also generated a Community of Interest Report,[201] which it shared with the Commission on September 9, 2021. This report incorporated the 910 submissions by the public obtained during the Commission's Listening Tour in July and August. From this data, the mapping consultants differentiated between 182 different communities of interest that were sorted into groups based on the area they covered. These groups were then used to create "Overlap Counts" for each Community; if more people said one geographic area is Community A, then that area of overlap between their shapes received a higher Overlap score. If fewer people said an area is part of Community A, then that area received a lower Overlap score. All of the shapes created by the public were used in this analysis. The Overlap scores were then placed into five groups: Highest, High, Medium, Low, and Lowest, for the Commission's consideration.

The Commission also considered the 234 paper surveys submitted by the public during its Listening Tour, containing additional information about potential communities of interest.[202]

Utilizing all of these resources, as well as input from individual Commissioners experiences, the Commission made several changes to each of its accepted Draft Maps to work towards a goal that district boundaries respect communities of interest to the extent practicable. The following discussion iterates a high-level, non-inclusive summary of the Commission's extensive and continuous consideration of communities of interest in each of its adopted Draft Maps:

- In Draft Maps Series 1, the Commission adjusted congressional lines in CD Draft Map Version 1.1 to incorporate tribal communities, cities, towns, and counties. Similarly, in LD Draft Map Version 1.0, it considered communities including tribes and reservations, cities, counties, and the copper corridor.

- In Draft Maps Series 2, CD Draft Map Version 2.1 took into account additional community of interest feedback by extending several districts and considering additional counties, cities, towns, and school districts. Additionally, LD Draft Map Version 2.0 heavily incorporated the same community of interest feedback, especially with respect to various cities and towns.

- In Draft Maps Series 3, CD Draft Map Version 3.5 considered the Latino Coalition's submitted map for District 3 as well as various cities, highway towns and unification of Native American reservations. Likewise, LD Draft Map Version 3.2 united

[201] https://storymaps.arcgis.com/stories/962c25f0866e49c9bb8751831678524b.
[202] https://redistricting-irc-az.hub.arcgis.com/pages/maps-and-apps.

Native American land and considered various cities, towns, Yavapai and Gila counites, and additional reservation land.

- In Draft Maps Series 4, CD Draft Map Version 4.2's primary objective was to use the Latino Coalition submitted map for guidance to consolidate more of the heavily Latino neighborhoods without going into Maricopa County. Additionally, LD Draft Map Version 4.1 unified a school district, moved Tombstone and Cochise County, and considered the Latino Coalition's proposed maps for creating eight minority ability-to-elect districts.

- In Draft Maps Series 5, LD Draft Map Version 5.1 moved a school district into a single district.

- In Draft Maps Series 6, CD Draft Map Version 6.0 drew lines based on a canal present in more than one district. Likewise, LD Draft Map Version 6.1 moved Greater Airport and East Phoenix into one district and also considered other cities and communities, such as a triangle community west of Loop-202.

- In Draft Maps Series 7, the Commission's final congressional Draft Map, CD Draft Map Version 7.1 considered Glendale and Peoria communities and focused on not taking blocks away from tribal reservations. LD Draft Map Version 7.1 considered many of the same communities as it did in Version 6.1 and also moved several other cities and towns.

5. Goal #5: Geographic Features, Political Boundaries, and Census Tracts

The Commission learned about and adequately revised the Draft Maps to draw district lines using visible geographic features, political subdivision boundaries, and undivided census tracts, to the extent practicable.

On August 31, 2021, the mapping consultants presented to the Commission regarding this constitutional requirement by unpacking and defining each element.[203] The consultants advised that visible geographic features included landmarks such as rivers, canals, hills/mountains, historical roads, and railroad tracks. The consultants explained that using these features as guideposts helps voters understand the boundaries of their district and facilitates door-to-door campaigning. The consultants also explained that maintaining census tracts when drawing districts was beneficial because it "provide[s] a stable set of

[203] Meeting Minutes from August 31, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.31.21.pdf; *Arizona Criteria*, available at https://irc.az.gov/sites/default/files/meeting-files/AZ%20Criteria%20Presentation%208.31.21.pdf.

geographic units for the presentation of statistical data." Finally, the consultants discussed the instruction to maintain "city town and county boundaries" and the inherent ambiguity within this language.

Through the Commission's development of series of Draft Maps, it made several changes to Draft Maps to draw lines using visible geographic features, political subdivision boundaries, and undivided census tracts, including, among others:

- In CD Draft Maps Series 2, CD Draft Map Versions 2.1 and 2.2 made several adjustments and Version 2.2 made 10 adjustments to incorporate boundaries such as the 1-19, and keep cities in one district (including Marana, Glendale City, Green Valley, and Sahuarita).[204]

- LD Draft Maps Series 2, Version 2.0 also made one adjustment to incorporate the visible boundaries created by an airport.[205]

- LD Draft Maps Series 6, Version 6.0 used the City of Tempe boundary to form a district, and united the Town of Guadalupe into a single district.

- LD Draft Maps Series 7, Version 7.0 united San Tan Valley and Version 7.1 united Florence and Coolidge.

- LD Draft Maps Series 10, Versions 10.0, 10.1 and 10.2 sought to unite several cities and geographical features, including North Mountain Preserve, Shadow Mountain Preserve, Lookout Mountain Preserve (10.0), and Nogales, Douglas, and Bisbee (10.1 and 10.2).

[204] Same or similar changes were carried forward in CD Draft Maps Series 3, CD Draft Map Versions 3.0, 3.1, 3.2, 3.3, 3.4 and 3.5, CD Draft Maps Series 4, CD Draft Map Versions 4.0, 4.1, and 4.2, CD Draft Maps Series 5, CD Draft Maps Versions 5.0, 5.1, 5.2 and 5.3, CD Draft Maps Series 6, CD Draft Maps Versions 6.0 and 6.1, and CD Draft Maps Series 7, CD Draft Maps Versions 7.0, 7.1, and 7.2.

[205] The same change was carried forward in LD Draft Maps Series 3, LD Draft Map Versions 3.0, 3.1, 3.2, LD Draft Maps Series 4, LD Draft Map Versions 4.0 and 4.1, LD Draft Maps Series 5, LD Draft Map Versions 5.0 and 5.1.

6. Goal #6: Competitiveness

a. The Commission Extensively Learned and Reasonably Deliberated Regarding the Best Way to Measure Competitiveness.

The Commission, with the assistance of its subject matter experts and mapping consultants, learned about competitiveness and the different methodologies available to measure the competitiveness of a district.

Specifically, in July 2021, the Commission began learning about competitiveness. Mapping consultants gave a presentation on competitiveness and its constitutional underpinnings.[206] An expert in the field, Dr. Eric McGhee, also presented to the Commission about potential measurement tests and how his organization PlanScore.org might be able to help the Commission in executing its competitiveness analysis.[207]

On August 3, 2021, a panel of competitiveness experts presented to the Commission, including:[208]

- Dr. Samuel Wang (Director) and Adam Podwitz-Thomas (Legal Director), Princeton Gerrymandering Project
- Dr. Moon Duchin (Director), Metric Geometry & Gerrymandering Group
- Dr. Eric McGhee (Senior Fellow), Public Policy Institute of California; (Board Member), PlanScore

The Commission also learned about the competitiveness work of Dr. Gary King, Harvard University, from the prior Commission in 2011.[209]

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[206] Meeting Minutes from July 19, 2021, available at https://irc.az.gov/sites/default/files/7.19.21%20Minutes.docx.pdf; *Competitiveness in the Constitution*, available at https://irc.az.gov/sites/default/files/media/Competitiveness%20Training%20PP.pdf.

[207] Meeting Minutes from July 20, 2021, available at https://irc.az.gov/sites/default/files/Minutes%207.20.21.docx.pdf; *Measuring Competitiveness in Redistricting*, available at https://irc.az.gov/sites/default/files/media/Measuring%20Competitiveness%20in%20Redistricting%20Presentation.pdf.

[208] Meeting Minutes from August 3, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.3.21.docx.pdf.

[209] IRC Public Meeting Unofficial Transcript from August 3, 2021, p. 40, available at https://irc.az.gov/sites/default/files/meeting-files/08-03-2021%20Public%20Meeting.pdf.

On August 10, 2021,[210] the mapping consultants delivered a presentation to summarize competitiveness methodologies and to aid the Commission in deciding the (A) competitiveness method; (B) elections to include in that method's calculations; and (C) an evaluation range (*i.e.*, a designated threshold to judge how competitive a district is).[211]

First, the consultants discussed the methods used by the Commission's predecessors in measuring competitiveness, including party registration, "Arizona Quick & Dirty," "JudgeIt," and statewide election averages. From there, the consultants discussed possible methodologies for 2021, including three "simple" methods (voter registration, average of statewide election results, and a count/mix of Democratic and Republican election victories in selected elections) and two "complicated" options (statistical calculations based on past election data, including, partisan swing analysis, responsiveness analysis, JudgeIt, declination, efficiency gap, mean-median difference, and the Markov-Chain "Thousands of Maps" comparisons).

The mapping consultants then provided summaries of the three academic expert presentations from August 3, highlighting the expert recommendations for Commission considerations. Specifically, Dr. McGhee recommended PlanScore (a statistical method) and an alternative approach involving a competitive range of "reasonable swing" and counting the number of competitive districts in each map. Dr. Duchin recommended anchoring the Commission's method with past election results and looking at the number of swing districts or "vote band." Dr. Wang likewise endorsed the use of past election results and suggested looking at a "market basket" of statewide elections over the past decade and evaluating the average performance of each party and the responsiveness of each district.

After consideration of these methods and weighing the benefits and drawbacks of each, the Commission unanimously voted to adopt the "basket of elections" method, with consideration of both the average statewide results and a count of the swing districts. Within that methodology, the Commission considered which elections to focus on. Ultimately, the Commission determined that it should focus on the elections from 2016, 2018, and 2020—dropping the data from 2012 and 2014 based on recommendations from the subject matter experts and the partisan balance between the elections. The Commission also voted to exclude outlier (wins with more than 56% of the vote) and uncontested elections from its calculations. Finally, the Commission unanimously decided to implement two ranges to assist in evaluating competitiveness: districts within seven

[210] IRC Public Meeting Unofficial Transcript from August 10, 2021, pp. 47–77, available at https://irc.az.gov/sites/default/files/meeting-files/08-10-2021%20Public%20Session%20%281%29.pdf.

[211] *Competitiveness Options*, available at https://irc.az.gov/sites/default/files/meeting-files/Competitiveness%20Options_0.pdf.

percentage points would be deemed competitive, and districts within four percentage points would be deemed highly competitive.[212]

b. The Commission Appropriately Considered and Implemented Changes to the Draft Maps to Favor Competitiveness to the Extent Practicable and Without Overriding Other Constitutional Goals.

The Commission made several changes to each of its accepted Draft Maps to implement competitive districts, to the extent practicable and without compromising the other six goals. The following discussion iterates a high-level, non-inclusive summary of the Commission's consideration of competitiveness as a part of its deliberative process to reach its Draft Maps:

- In CD Draft Maps Series 2, CD Draft Map Version 2.1 took competitiveness into account by including as much of Tucson as necessary in D6 to increase the competitiveness of the district, while still maintaining target population deviation margins.[213]

- In CD Draft Maps Series 5, CD Draft Map Version 5.0, the Commission specifically focused on increasing competitiveness in Districts 4 and 5 by moving parts of Avondale and Tolleson into District 3 and by moving Casa Grande and the University of Arizona area into District 6. These competitiveness goals were later tweaked and tested in Versions 5.1, 5.2, and 5.3.

- In CD Draft Maps Series 6, CD Draft Maps Version 6.1 built off of Version 6.0 with the goal of adding a "third Latino opportunity district (District 8) without hurting competitiveness in District 1 and District 4" arguably resulting in a "competitive Latino district."

- In CD Draft Maps Series 7, to the extent practicable, a number of tweaks to increase competitiveness were made to both CD Draft Map Versions 7.0 (26 changes) and 7.1 (42 changes).

[212] Meeting Minutes from October 21, 2021, available at https://irc.az.gov/sites/default/files/Minutes%208.10.21.pdf.

[213] This same change was reflected in CD Draft Map Version 2.2, CD Draft Maps Series 3, CD Draft Map Versions 3.0, 3.1, 3.2, 3.3, 3.4 and 3.5, CD Draft Maps Series 4, CD Draft Map Versions 4.0, 4.1, and 4.2, CD Draft Maps Series 5, CD Draft Maps Versions 5.0, 5.1, 5.2 and 5.3, CD Draft Maps Series 6, CD Draft Maps Versions 6.0 and 6.1, and CD Draft Maps Series 7, CD Draft Maps Versions 7.0, 7.1, and 7.2.

- In LD Draft Maps Series 5, the Commission made approximately 24 changes in CD Draft Map Version 5.0 "to increase competitiveness in some districts, particularly in District 1, District 4, District 8, District 9, District 10, District 11, District 12, and District 13."

In its adopted congressional map, CD Draft Map Version 7.1, the Commission included two highly competitive districts and two competitive districts. Likewise, in its adopted legislative map, LD Draft Map Version 10.0, it included two highly competitive districts and four competitive districts.

2021 Congressional Draft Map Competitiveness Data

Category	Competitiveness		
Field	Vote Spread	Dem. Wins	Rep. Wins
1	1.6%	5	4
2	7.6%	0	9
3	40.3%	9	0
4	5.6%	8	1
5	14.7%	0	9
6	1.9%	6	3
7	20.0%	9	0
8	4.1%	3	6
9	27.0%	0	9
Statewide	0.9%	5	4

[Intentionally left blank.]

2021 Legislative Draft Map Competitiveness Data

Category	Competitiveness		
Field	Vote Spread	Dem. Wins	Rep. Wins
1	40.8%	9	0
2	3.3%	6	3
3	20.4%	0	9
4	0.5%	5	4
5	28.5%	0	9
6	42.4%	9	0
7	29.8%	0	9
8	19.8%	9	0
9	6.8%	8	1
10	21.3%	0	9
11	54.2%	9	0
12	9.7%	8	1
13	4.4%	1	8
14	24.5%	0	9
15	23.5%	0	9
16	4.2%	0	9
17	9.9%	0	9
18	17.3%	9	0
19	19.1%	0	9
20	52.7%	9	0
21	33.2%	9	0
22	17.6%	9	0
23	5.4%	8	0
24	53.9%	9	0
25	8.0%	0	9
26	28.0%	9	0
27	13.1%	0	9
28	30.1%	0	9
29	17.3%	0	9
30	48.5%	0	9
Statewide	0.9%	5	4

D. Phase III: Advertising Draft Maps

After consideration of stakeholder data from phases one and two and developing a series of ten test Draft Maps, the Commission unanimously approved and published its official Draft Maps on October 28, 2021.[214]

[214] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.

Following their adoption, the Draft Maps were thoroughly reviewed by the Commission's mapping consultants to confirm that each congressional and legislative district complied with all six constitutional criteria. These findings were presented at the Commission's November 9,[215] 16,[216] and 30[217] meetings. The corresponding reports, which were made available to the public, illustrate congressional and legislative demographic data (including population deviation, total population, CVAP, competitiveness, and VRA tracking), and identified district splits and compactness measures.[218]

The mapping consultants also provided a Draft Map polarization analysis,[219] which was developed by Dr. Lisa Handley for both the congressional and legislative draft maps to evaluate VRA compliance. The report analyzed two congressional districts (CD 3 and 7) and seven legislative districts (LD 11, 20, 21, 22, 23, 24, and 26) using data from eight recent elections.

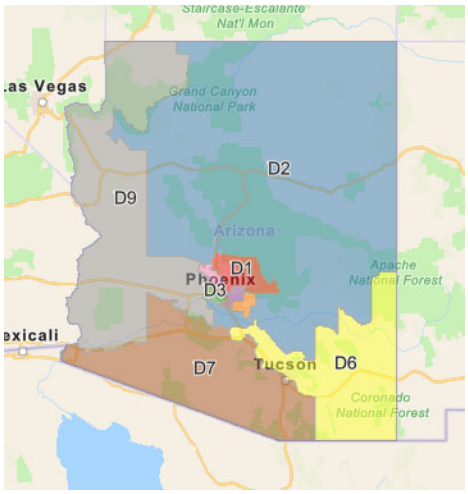
Additionally, the Commission's legal counsel presented information to the Commission on the Draft Maps' compliance with federal law, including a discussion of vote dilution, racial gerrymandering, and other factors to consider when analyzing compliance with federal law.[220]

1. The Adopted Draft Congressional District Map Reflects Careful Consideration of the Six Constitutional Goals.

The Commission officially adopted CD Draft Map Version 7.1.[221] This Draft Map features nine districts with 794,611 people each plus or minus one person, two minority ability-to-elect districts (the same amount as the Final 2012 CD Map),[222] two highly competitive

[215] Meeting Minutes from November 9, 2021, available at https://irc.az.gov/sites/default/files/Minutes%2011.09.21.pdf.
[216] Meeting Minutes from November 16, 2021, available at https://irc.az.gov/sites/default/files/Minutes%2011.16.21.pdf.
[217] Meeting Minutes from November 30, 2021, available at https://irc.az.gov/sites/default/files/11.30.21%20Minutes.pdf.
[218] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[219] IRC Public Meeting Unofficial Transcript from November 30, 2021, pp. 9–17, available at https://irc.az.gov/sites/default/files/meeting-files/11-30-2021%20Public%20Meeting%20Transcript.pdf.
[220] *Compliance with Federal Law*, available at https://irc.az.gov/sites/default/files/meeting-files/Compliance%20with%20Federal%20Law%20Legal%20Presentation%2011.30.21.pdf.
[221] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.
[222] https://azredistricting.org/Maps/Final-Maps/Congressional/Reports/Final%20Congressional%20Districts%20-%20Population%20Data%20Table.pdf.

districts, and two additional competitive districts (of note, the Final 2012 CD map, contained only three competitive districts).[223]



2. The Adopted Draft Legislative District Map Reflects Careful Consideration of the Six Constitutional Goals.

The Commission officially adopted LD Draft Map Version 10.0.[224] The Draft Map features thirty districts with substantially equal populations (9.93% deviation between the most populous and least populous districts), eight minority ability-to-elect districts (the same amount as in the Final 2012 LD Map[225]), two highly competitive districts, and four additional competitive districts (of note, the Final 2012 LD map, depending on the competitiveness measure, contained anywhere between three competitive districts and six competitive districts).[226]

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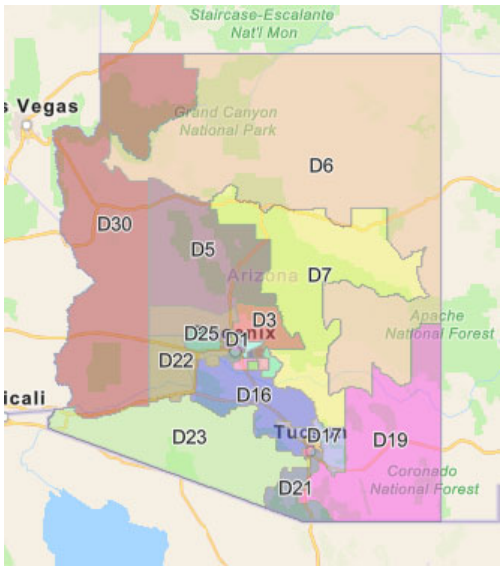
[223] *Id.* For the 2012 maps, the Commission employed several different measures of competitiveness. To determine this number for the 2012 maps, the current Commission's competitiveness range (4% for highly competitive and 7% for competitive) was applied to the 2012 congressional map competitiveness measures. *See* https://azredistricting.org/Maps/Final-Maps/Congressional/Reports/Final%20Congressional%20Districts%20-%20Compactness%20and%20Competitiveness%20Data%20Table.pdf.

[224] https://redistricting-irc-az.hub.arcgis.com/pages/draft-maps.

[225] https://azredistricting.org/Maps/Final-Maps/Legislative/Reports/Final%20Legislative%20Districts%20-%20Population%20Data%20Table.pdf.

[226] *Id.* To determine this number for the 2012 maps, the current Commission's competitiveness range (4% for highly competitive and 7% for competitive) was applied to the 2012 legislative map competitiveness measures. *See* https://azredistricting.org/Maps/Final-Maps/Legislative/Reports/Final%20Legislative%20Districts%20-%20Compactness%20and%20Competitiveness%20Data%20Table.pdf.



3. The Commission Met Its Constitutional Requirement to Advertise the Draft Maps for 30 Days by Conducting Several Draft Map Hearings, Townhalls, and Informational Meetings Throughout the State Soliciting Public Feedback.

Throughout November and December, the Commission held a series of townhalls, public hearings, and informational meetings to help educate Arizonans regarding the Draft Maps, solicit public comment, and maintain a high degree of transparency.[227] Specifically, the Commission hosted ten public hearings throughout the state, which were designed to collect public comment on the Draft Maps and create ample opportunities for public input. The Commission hosted each public hearing in-person at a main location and a satellite location, in addition to streaming the public hearing online:

- November 10, 2021 in Yuma (satellite location in Flagstaff)
- November 13, 2021 in Phoenix (satellite location in Florence)
- November 16, 2021 in Cottonwood (satellite location in North Phoenix)
- November 17, 2021 in Sun City (satellite locations in San Carlos and Wickenburg)
- November 18, 2021 in Scottsdale (satellite location in Anthem)
- November 20, 2021 in Prescott (satellite location in Hopi Nation)
- November 30, 2021 in Avondale (satellite location in Pinetop)

[227] https://irc.az.gov/public-meetings/draft-map-hearings.

- December 1, 2021 in Payson (satellite location in Navajo Nation)

- December 2, 2021 in Mesa

- December 4, 2021 in South Tucson (satellite location in Maryvale)[228]

In addition, the Commission conducted four virtual town halls, including one general session (November 6, 2021), and three focused sessions on (1) southern and eastern Arizona (November 12, 2021); (2) northern and western Arizona (November 19, 2021); and (3) Maricopa County (December 3, 2021).[229] These town halls were also designed to collect public feedback and comment and also provide a forum for interested citizens who may still be under COVID restrictions.

Finally, on November 8, 15, and 29, 2021, the Commission hosted three virtual information meetings with its mapping consultants with the aim to educate the public on the online redistricting system.[230]

This schedule of Draft Maps hearings, townhalls, and informational meetings met and exceeded the constitutional minimum of 30 days of public comment.

4. The Commission Adequately Considered and Weighed the Legislative Minority and Majority Reports and Comment on the Draft Maps.

Also in phase 3, the Commission received and considered both the Legislative Minority Report,[231] submitted by the House and Senate Minority Leaders, and the Majority Report,[232] submitted by the President of the Senate and Speaker of the House. In its December 2, 2021 meeting,[233] the Commission heard first from the House and Senate Minority leaders and then from the Speaker of the House. Following their respective presentations, the Commission engaged in a meaningful dialogue with the legislative leaders, asking thoughtful questions to better understand the leaders' requests. In these conversations, the Commission carefully considered the legislative leaders' feedback on

[228] *Id.*
[229] *Id.*
[230] *Id.*
[231] *Legislative Minority Report*, available at https://irc.az.gov/sites/default/files/meeting-files/Joint%20Letter%20-%20House%20and%20Senate%20Minority%20Leaders.pdf.
[232] *Legislative Majority Report*, available at https://irc.az.gov/sites/default/files/meeting-files/2021.12.01%20-%20AGP%20edits%20-%20IRC%20Approved%20Legislative%20District%20Draft%20Plan.pdf.
[233] Meeting Minutes from December 2, 2021, available at https://irc.az.gov/sites/default/files/Minutes%2012.02.21.pdf.

each of the draft maps' adherence to each of the constitutional factors, and especially adherence to one person one vote and the Voting Rights Act, understanding communities of interest, and the relative importance of competitiveness.

E. Phase IV: Establishing Final District Boundaries

Before adopting its Official Maps, the Commission again took extensive steps in the final phase to further develop its Maps into congressional and legislative districts that comport with constitutional and statutory goals and requirements. During this process, the Commission made additional modifications to the approved draft maps with the intent of finalizing both the congressional and legislative maps. The Commission deliberated multiple times on various modifications to the approved Draft Maps, including meetings on December 6, 9, 13, 16, 17, 19, 20, 21, and 22, 2021. At these meetings the Commission considered all of the information collected prior to adoption of the draft maps,[234] as well as feedback from the phase three public hearings, legislative leaders, and additional maps submitted by the public.

Like in phase two, the Commission's mapping consultants presented an additional series of Final Draft Maps, bringing the total to sixteen series. Each iteration of the Final Draft Map was built upon the approved Draft Maps and included another series of audit logs connecting each action taken by the mapping consultants with one or more of Arizona's six constitutional goals.[235] The corresponding reports illustrate congressional and legislative demographic data (including population deviation, total population, CVAP, competitiveness, and VRA tracking), assigned district splits and compactness.[236]

The congressional Final Draft Map series began in Series 8, and the legislative Final Draft Map series began in Series 11.

First, as with the draft maps, the Commission ensured that its maps reflected equal population as required by Article I, Section 2 of the U.S. Constitution and the Equal Protection Clause of the Fourteenth Amendment.[237] In the congressional plan adopted by the Commission, each district maintained the Draft Map's total population deviation of only plus or minus (+/-) one person in each district.[238] Moreover, the legislative plan lowered the total deviation from 9.93% to 8.91%,[239] which is within the 10% validity presumption. This deviation in district population reflected the Commission's

[234] *See supra* part III.B.
[235] https://redistricting-irc-az.hub.arcgis.com/pages/final-draft-maps.
[236] *See id*.
[237] *See supra* III.B.1.
[238] https://redistricting-irc-az.hub.arcgis.com/pages/final-draft-maps.
[239] *Id.*

consideration and accommodation of the other requirements under the Arizona Constitution.

2021 Congressional Final Draft Map Population Deviation Data

Category	2020 Census		
Field	Total Pop.	Deviation from Ideal	Pct. Dev.
1	794,611	0	0.00%
2	794,612	1	0.00%
3	794,612	1	0.00%
4	794,611	0	0.00%
5	794,612	1	0.00%
6	794,611	0	0.00%
7	794,611	0	0.00%
8	794,610	-1	0.00%
9	794,612	1	0.00%
Statewide	7,151,502	2	0.00%

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2021 Legislative Final Draft Map Population Deviation Data

Category	2020 Census		
Field	Total Pop.	Deviation from Ideal	Pct. Dev.
1	237,887	-496	-0.21%
2	246,674	8,291	3.48%
3	236,955	-1,428	-0.60%
4	244,298	5,915	2.48%
5	239,384	1,001	0.42%
6	225,436	-12,947	-5.43%
7	240,243	1,860	0.78%
8	244,203	5,820	2.44%
9	238,169	-214	-0.09%
10	235,194	-3,189	-1.34%
11	237,844	-539	-0.23%
12	238,923	540	0.23%
13	237,866	-517	-0.22%
14	241,692	3,309	1.39%
15	240,037	1,654	0.69%
16	236,984	-1,399	-0.59%
17	239,625	1,242	0.52%
18	243,411	5,028	2.11%
19	230,450	-7,933	-3.33%
20	238,486	103	0.04%
21	244,438	6,055	2.54%
22	238,320	-63	-0.03%
23	232,246	-6,137	-2.57%
24	234,992	-3,391	-1.42%
25	243,005	4,622	1.94%
26	237,193	-1,190	-0.50%
27	240,634	2,251	0.94%
28	228,803	-9,580	-4.02%
29	240,102	1,719	0.72%
30	238,008	-375	-0.16%
Statewide	7,151,502	21,238	8.91%

The Commission also built upon its VRA-compliant Draft Maps by tracking VRA compliance and ultimately maintaining the same number of minority ability-to-elect districts in both congressional and legislative maps.[240] Before starting the Final Draft Map process, the Commission thoroughly reviewed additional polarization information derived from each approved draft map district, which alerted them to which districts would need to comply with the VRA.[241]

[240] *See id.*

[241] Meeting Minutes from November 9, 2021, available at https://irc.az.gov/sites/default/files/Minutes%2011.09.21.pdf; Meeting Minutes from November 16, 2021, available at https://irc.az.gov/sites/default/files/Minutes%2011.16.21.pdf; Meeting Minutes from November 30, 2021, available at

The Commission also considered additional maps submitted by the public to ensure VRA compliance. For instance, it followed the Latino Coalition LD map[242] to ensure compliance with the VRA in CD Final Draft Map Series 13.

The Commission's adopted Final Draft Maps again included an appropriate number of minority ability-to-elect districts in both its congressional and legislative Final Draft Maps.[243] In its adopted congressional map, CD Final Draft Map Version 13.9,[244] it maintained the two minority ability-to-elect Latino districts, and in its adopted legislative map, LD Final Draft Map Version 16.1,[245] it maintained seven minority ability-to-elect Latino districts and one minority ability-to-elect Native American district.

Second, the Commission again concurrently satisfied the goal of population equality in every one of its Final Draft Maps Series and ensured the same in both congressional and legislative adopted Draft Maps:[246]

- In CD Final Draft Maps Series 8, Series 10, Series 11, Series 12, and Series 13, the Commission the Commission considered, made, and carried forward several small changes, such as adjusting district lines and moving cities, towns, and other geographic areas to balance the population in the proposed congressional districts.

- Similarly, in LD Final Draft Maps Series 11, Series 12, Series 13, Series 14, Series 15, and Series 16, the Commission considered, made, and carried forward several small changes, such as adjusting district lines and moving cities, towns, and other geographic areas to balance the population in the proposed legislative districts.

The Commission's Final Draft Maps population balanced the entire congressional plan to plus or minus (+/-) one person and balanced the legislative plan to achieve a total deviation of 8.91%.[247]

Third, the Commission made several changes to Draft Maps to create and maintain compact and contiguous districts, including:

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https://irc.az.gov/sites/default/files/11.30.21%20Minutes.pdf.

[242] AZ Latino Coalition Updates from Draft Legislature Map, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=a64b3ffc4bf340b097cc274de87cdb58.

[243] https://redistricting-irc-az.hub.arcgis.com/pages/final-draft-maps.

[244] *Id*.

[245] *Id*.

[246] *Id.*

[247] *Id.*

- In CD Final Draft Maps Series 13, the Commission considered, made, and carried forward several small changes such as cleaning up holes along southern border of District 7 to help improve the compactness and contiguity of the proposed congressional districts.

- Similarly, in LD Draft Maps Series 16, the Commission considered, made, and carried forward several small changes, such as moving the Arizona Country Club, to help improve the compactness and contiguity of the proposed congressional districts.

Fourth, the Commission continued to make changes to each of its accepted Final Draft Maps to work towards a goal that district boundaries respect communities of interest to the extent practicable, for example:

- In Final Draft Maps Series 8, the Commission adjusted congressional lines in CD Final Draft Map Version 8.1 to incorporate cities, towns, and unincorporated areas around Yuma and Tucson, as well as Davis-Monthan Air Force Base and the Rillito River.

- In Final Draft Maps Series 10, CD Final Draft Map 10.1.2 (which built off CD Approved Congressional Draft Map 7.1) sought to replicate maps submitted by the Latino Coalition for Districts 3 and 7,[248] the Yuma Gold Map[249] for Districts 6 and 7, and additional communities of interest such as cities, towns, and tribal reservations.

- In Final Draft Maps Series 11, CD Final Draft Map Version 11.1 incorporated additional communities of interest, especially in District 9. Additionally, LD Final Draft Map Version 11.3 incorporated legislative maps from the Consolidated Gilbert User Map,[250] Navajo Nation Districts 6[251] and 7[252] submissions, the Latino

[248] AZ Latino Coalition Updates from Draft Congressional Map, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=709c7378374943c6a91e3b0d2ae3d103.
[249] Yuma Gold Map, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=7c83e9ba5535467ca0535087065be02e.
[250] Consolidated Gilbert Map, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=4762f6d2096a4e4ca30b159cbc832acc.
[251] Navajo Nation LDF 6, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=e954cc0e4f874935a11aa5dd153776dd.
[252] Navajo Nation LDF 7, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f847

Coalition's submissions for Districts 11, 22, 24, and 26,[253] and the Yuma Gold legislative map[254] connecting North Yuma to the West Valley. This map also takes District 30 into Wickenburg.

- In Final Draft Maps Series 12, the Commission's final congressional Final Draft Map, CD Final Draft Map Version 12.1 moved Sun City Grande, united Tempe, split Casa Grande, and incorporated more communities of interest including cities, towns, and tribes. Additionally, LD Final Draft Map Version 12.1.1 considered more cities and towns.

- In Final Draft Maps Series 13, LD Final Draft Map Version 13.1 considered communities of interest in cities, towns, and the Latino Coalition 4.0 submission for Districts 11 and 22.[255]

- In Final Draft Maps Series 14, LD Final Draft Map Version 14.0 incorporated districts 1, 4, 5, 6, 7 from the Latino Coalition 4.0 submission,[256] and shifted various communities of interests to align with their neighboring communities across the state.

- In Final Draft Maps Series 15, LD Final Draft Map Version 15.0 considered additional communities of interest, including Buckeye and other areas within Maricopa County.

- In Final Draft Maps Series 16, LD Final Draft Map Version 16.1, the Commission's final legislative Final Draft Map, considered additional communities of interest within cities and towns, such as Pebble Creek.

Fifth, the Commission made several changes to draw lines using visible geographic features, political subdivision boundaries, and undivided census tracts, including:

0&layers=11b4bef6b92e4079bec09f3f2d3c5e30.

[253] Arizona Latino Coalition Updates from Legislative Draft Map, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=0fd2325d57b84ac7ad6405a6b6925c0e.

[254] Yuma Gold LDs, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=7c83e9ba5535467ca0535087065be02e.

[255] Arizona Latino Coalition Legislative 4.0, available at https://irc-az.maps.arcgis.com/home/webmap/viewer.html?webmap=803b337509c4458aa37b08c7e66f8470&layers=852353ec86b54f808aaa0f38e0b22fd8.

[256] *Id.*

- In CD Final Draft Maps Series 13, CD Draft Map Version 13.9 made several adjustments to slivers and blocks of cities and geographic features (including Maricopa County, Marana, Eloy, Picture Rocks, Scottsdale, Fortuna Foothills, Gilbert, Peoria, Glendale, Chandler, and Douglas Airport) and united Stanfield.

- LD Final Draft Maps Series 11, 12, and 13 moved the remainder of Apache County into District 6.

- LD Final Draft Maps Series 16, Version 16.1 made several adjustments to slivers and blocks of cities and geographic features (including Maricopa, Pinal, and La Paz Counties and various cities) and united Yavapai County, Winslow West, Saddlebrooke, and Sierra Vista Southeast.

Finally, and as discussed above, the Commission considered changes to favor competitive districts, to the extent practicable and without compromising the other six goals. In its adopted congressional map, CD Final Draft Map Version 13.9, the Commission included two highly competitive districts and one competitive district. Likewise, in its adopted legislative map, LD Final Draft Map Version 16.1, it included five highly competitive districts. As referenced above, depending on the metric used by the 2012 IRC, the Commission equaled or exceeded the number of competitive districts from the previous commission.

2021 Congressional Final Draft Map Competitiveness Data

Category	Competitiveness		
Field	Vote Spread	Dem. Wins	Rep. Wins
1	2.6%	4	5
2	7.2%	0	9
3	52.9%	9	0
4	7.0%	8	1
5	18.1%	0	9
6	2.4%	3	6
7	35.4%	9	0
8	15.3%	0	9
9	26.0%	0	9
Statewide	0.9%	5	4

2021 Legislative Final Draft Map Competitiveness Data

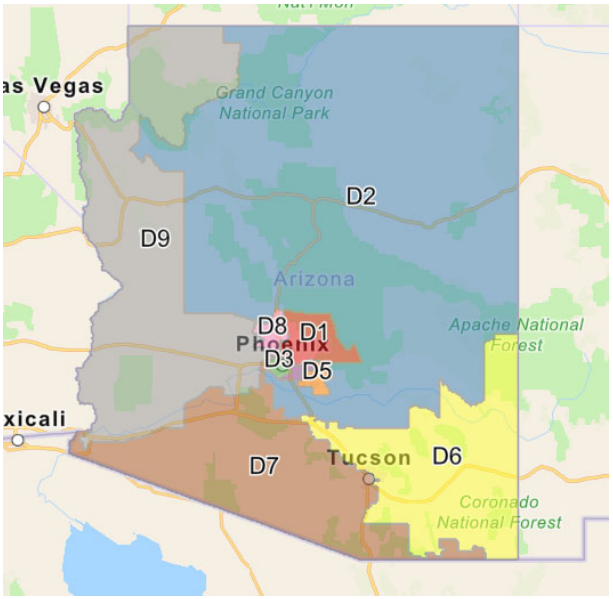
Category	Competitiveness		
Field	Vote Spread	Dem. Wins	Rep. Wins
1	27.8%	0	9
2	3.8%	3	6
3	25.6%	0	9
4	3.4%	4	5
5	38.1%	9	0
6	34.8%	9	0
7	21.4%	0	9
8	27.3%	9	0
9	2.6%	5	4
10	22.7%	0	9
11	53.9%	9	0
12	14.7%	9	0
13	1.6%	4	5
14	17.9%	0	9
15	27.4%	0	9
16	3.6%	0	9
17	8.3%	0	9
18	20.4%	9	0
19	22.2%	0	9
20	53.3%	9	0
21	30.5%	9	0
22	37.4%	9	0
23	16.9%	9	0
24	33.5%	9	0
25	25.7%	0	9
26	39.4%	9	0
27	8.9%	0	9
28	25.0%	0	9
29	13.3%	0	9
30	48.7%	0	9
Statewide	0.9%	5	4

1. The Final Draft Congressional District Map Reflects Careful Consideration of the Six Constitutional Goals.

The Commission officially adopted CD Final Draft Map Version 13.9.[257] This Final Draft Map features nine districts with 794,611 people each plus or minus one person, two

[257] https://redistricting-irc-az.hub.arcgis.com/pages/final-draft-maps.

minority ability-to-elect districts, two highly competitive districts, and one additional competitive district.

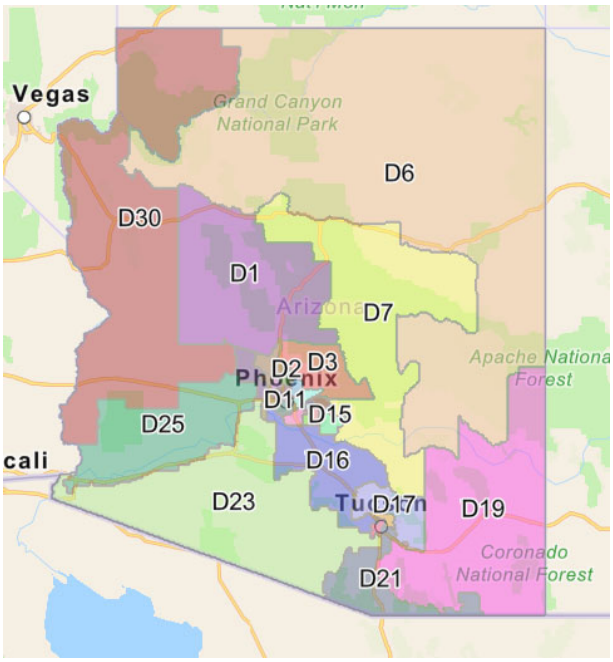


2. The Final Draft Legislative District Map Reflects Careful Consideration of the Six Constitutional Goals.

The Commission officially adopted LD Final Draft Map Version 16.1.[258] The Final Draft Map features thirty districts with substantially equal populations (8.91% deviation between the most populous and least populous districts), eight minority ability-to-elect districts, and five highly competitive districts.

[Intentionally left blank.]

[258] *Id.*



F. Independent Expert Review of the Final Maps

Of note, the Commission's redistricting and Voting Rights Act experts Ansolabehere and Trende, authored joint reports highlighting the validity of the congressional and legislative district maps. These joint reports are attached as Appendix A and Appendix B.

IV. ADOPTION OF OFFICIAL MAPS, CERTIFICATION, AND TRANSMITTAL

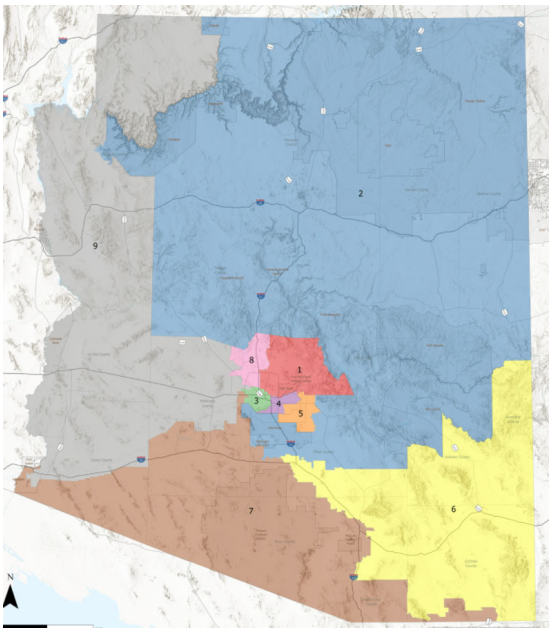
After careful consideration of the public comments and all the evidence presented to it, the Commission finalized its legislative and congressional redistricting Final Draft Maps on December 22, 2021.[259] The Congressional and Legislative Final Draft Maps served as the starting point for county election officials to review the maps and request minor changes to assist with election administration (such as precinct locations, polling locations, and split addresses). These final changes occurred in a final series of changes (Congressional Series 14 and Legislative Series 17) in which changes reflected adherence to (1) population equality and (2) geographic features, political boundaries, and census tracts.[260]

On January 18 and 21, 2022, after consideration and partial incorporation of election administrators' minor requests, the Commission finalized the official maps. The corresponding reports illustrate congressional and legislative demographic data (including population deviation, total population, CVAP, competitiveness, and VRA tracking),

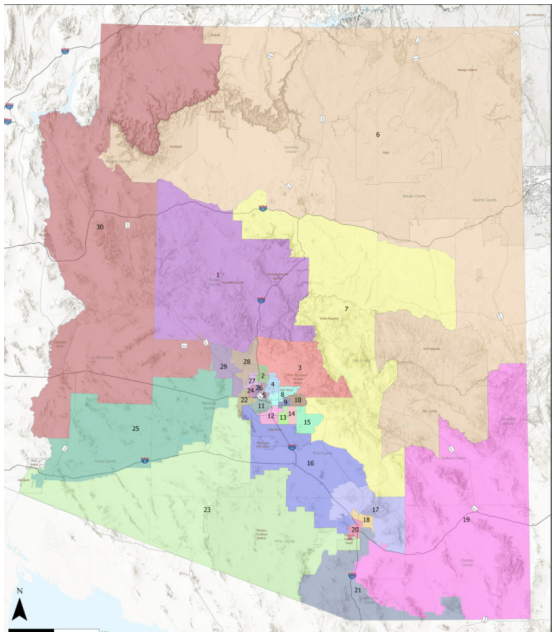
[259] Meeting Minutes from December 22, 2022, available at https://irc.az.gov/sites/default/files/Minutes%2012.22.21_0.pdf.
[260] https://redistricting-irc-az.hub.arcgis.com/pages/official-maps.

assigned district splits, and compactness.[261] These reports are attached as Appendix C and Appendix D.

2022 Congressional Districts Official Map



2022 Legislative Districts Official Map



[261] *Id.*

On January 21, 2022, the Commission adopted this report and authorized the Chair's signature to establish new congressional and legislative district maps for the State of Arizona.

V. CHAIR ATTESTATION AND ESTABLISHMENT OF ARIZONA CONGRESSIONAL AND LEGISLATIVE DISTRICTS

Based on my involvement in the Commission's deliberative process and based upon the information that has been provided to me as the Commission's Chair, I affirm and attest that the information contained in this report is true and correct to the best of my knowledge and that, pursuant to a proper vote of the Commission and the authorization provided therein, the final congressional and legislative maps for the State of Arizona certified to the Arizona Secretary of State pursuant to Article IV, Part 2, Section 1(17) of the Arizona Constitution are hereby established.

Date: January 21, 2022

Erika Neuberg, Chair
Arizona Independent Redistricting Commission

APPENDIX A

memo

To: Arizona Independent Redistricting Commission

From: Stephen Ansolabehere, Ph.D., David Sutton, Sean Trende

Date: 1/20/2022

Re: Characteristics of Congressional District (CD) Map 14.0

SUMMARY

The Arizona Independent Redistricting Commission ("IRC") enacted Congressional District (CD) map version 14.0 on January 18, 2022 ("Enacted Map"). We have identified two congressional districts, CD-3 and CD-7, as districts in which minorities would have the opportunity to elect their preferred candidates in compliance with the federal Voting Rights Act of 1965. We also explored certain other data metrics, including the Arizona Constitution's redistricting goals, related to the districts in CD map version 14.0.

DISTRICT POPULATIONS

The 2020 Census endeavored to count every living person in the United States. These counts form the basis for the apportionment of congressional districts. *See* 2 U.S.C. § 2a. The 2020 enumeration shows that the State of Arizona has 7,151,502 people, which entitles it to nine Congressional Districts. Exact equal apportionment of population to congressional districts, as required by both United States and Arizona law, would therefore assign 794,611 people to each CD. CD Map 14.0 assigns exactly that number, plus or minus one person (as allowable) to each CD.

The Census also asks two separate questions to measure race and ethnicity. The first question asks whether a person considers herself or himself to be American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, White, or Other. Respondents who wish to do so may select multiple categories to describe themselves. For example, some respondents may consider themselves both White and Native American. People who identify with only one race are classified as that race alone, *e.g.*, a person who only selected "White" would be classified as "White Alone."

The second question asks people whether they identify as Hispanic or not Hispanic. All people who answered Hispanic to the second question are classified as Hispanic, while those who do not select Hispanic are classified as "non-Hispanic." Thus, a respondent who selected "White" and "non-Hispanic" would be classified as "non-Hispanic White," while an individual who selected "Black" and "Hispanic" would be classified as "Hispanic Black."

To assess compliance with the Voting Rights Act, an analyst must identify the count of citizens who are at least 18 years of age *and* are citizens of the United States. *Romero v. City of Pomona*, 883 F.2d 1418, 1426, *abrogated on other grounds*, *Townsend v. Holman Consulting Corp.*, 929 F.2d 1358, 1363 (9th Cir. 1990). This measure is commonly referred to as the Citizen Voting Age Population or "CVAP." The Census Bureau determines citizenship counts through the American Community Survey ("ACS"). Unlike the decennial census, the ACS is conducted annually and is not a complete count of residents. Rather, it reflects a random sample of the population. Using the ACS data, the Census Bureau classifies adult citizens as people who are at least 18 years of age and citizens of the United States. The ACS tabulations are available both annually and in 5-year averages. The most recent annual data available are the 2019 ACS, and the

most recent 5-year average covers 2015-2019. Here, we utilize the 5-year average. Unlike the census figures, ACS data do have error margins.

Tables 1 and 2 present the total and adult citizen populations of the nine CDs in the CD Map 14.0. Table 1 displays the total population and Table 2 displays the CVAP of all people in each CD. The tables also display the Hispanic, non-Hispanic Black, non-Hispanic Native American, and non-Hispanic White populations in each CD. Two districts have majority Hispanic populations, CD-3 and CD-7. CD-3 is 62.6 percent Hispanic in total population and 50.4 percent Hispanic in CVAP. CD-7 is 59.8 percent Hispanic in total population and 50.5 percent Hispanic in CVAP.

RACIAL VOTING ANALYSIS

A. Method

Determining whether racial voting in a district is polarized is a crucial step in determining whether a district is protected by the Voting Rights Act of 1965. *Thornburg v. Gingles*, 478 U.S. 30 (1986). Racially polarized voting occurs when a racial minority systemically prefers one candidate while the majority group prefers a different candidate. Determining whether racially polarized voting exists is theoretically straightforward: First, determine which candidates the minority group in a district supports and, second, determine whether the majority group consistently votes against that candidate.

In the real world, however, things are not that straightforward, as secret ballots obscure individual level results. Instead, we are left with results that are aggregated at the precinct level. It has been a longstanding observation in social science that these aggregated results can conceal variation at the individual level. *See, e.g.*, William S. Robinson, *Ecological Correlation and the Behavior of Individuals*, 15 Am. Soc. Rev. 351 (1950); Gary King, *A Solution to the Ecological*

Inference Problem (1997). As a result, a researcher must employ appropriate statistical estimation techniques to determine how groups vote.

There are multiple approaches to estimating group vote shares based upon areal data, and there are choices that must be made with respect to which technique to use, which races to analyze, and how to analyze those races. While we believe we have made the most appropriate choices for this particular context, we recognize that reasonable minds can differ on which approach is most appropriate, and that the IRC may reasonably consider alternative approaches when drawing and analyzing its maps.

To estimate how minority groups voted in Arizona, we examined the races selected by the IRC as key races: the presidential and U.S. Senate elections in 2020, and all statewide elections in 2018, except Governor and Corporation Commissioner.[1] For each analysis, we computed the percent of the two-party vote (that is, the vote share that Republicans or Democrats received after excluding third parties) that is won by the candidate preferred by minority voters. Then we used Ecological Regression ("ER"), which is the standard technique used in Voting Rights cases since the mid-1980s, and which was endorsed by the Supreme Court of the United States in *Thornburg v. Gingles*. *See* Leo Goodman, *Ecological Regressions and the Behavior of Individuals*, 18 Am. Soc. Rev. 663 (1953).

We used ER to measure the percent of the vote received by each candidate from each racial or ethnic group -- Blacks, Hispanics, Native Americans, and Whites -- in the set of precincts assigned to each district by CD Map 14.0. Ecological regression takes the party's share of the

[1] The 2018 statewide elections considered are Senate, Secretary of State, Attorney General, State Treasurer, Superintendent of Public Instruction, and State Mine Inspector. The IRC did not rely on the 2016 U.S. Senate election either, as it was judged atypical of elections in the state.

two-party vote in precincts and then regresses it on racial data from the precincts to provide estimates of racial voting patterns.

We also considered estimates from other methodologies. Specifically, we examined results from Homogeneous Precinct Analysis, *e.g.*, King, *supra* at 78, which has also been in use in Voting Rights cases since the 1980s, and Ecological Inference (EI), developed by Professor Gary King of Harvard University in the 1990, *Id. passim*. We decided not to rely on homogeneous precinct analysis because only a small percent of precincts in any CD are more than 80 percent Hispanic CVAP. In the final version of CD-3, for instance, there are three precincts that are at least 80 percent Hispanic CVAP under the Enacted Map. We preferred ER over EI because EI is computationally slow. Of the EI estimates we computed, their results were almost identical to those found using ER, which mitigated the utility of the method, given the time to compute. The similarities between the two methods are unsurprising, as EI's major benefit comes from its ability to leverage homogenous precincts to provide more exact estimates in a state. Given the relative paucity of homogenous precincts in Arizona, EI adds little to the analysis.

The ER estimates are used (i) to determine which candidates are preferred by which groups for the sake of assessing electoral performance of the districts, (ii) to measure the cohesiveness of groups in their voting behavior in each district, (iii) to measure the extent of racially polarized voting in each district, and (iv) to calculate the minimum percent of the population that must be Hispanic (or Native American) in order for the candidates preferred by those groups to win a majority of votes.

The results of the Ecological Regression estimates are shown in Table 5. Statewide estimates (the bottom row of the table) indicate that 89 percent of Hispanics voted for Democrats

in the assessed 2020 and 2018 statewide elections and one-third (33 percent) of Whites voted for Democrats.

B. Election Performance

We first determined which candidates were preferred by a minority group (Hispanics or Native Americans). Table 5 presents the estimated preference of each group. A majority of Hispanics chose Democrats in CD Map 14.0's versions of CDs 3 and 7. In CD-3, 83 percent of Hispanics voted Democratic in 2018 and 2020. In CD-7, 79 percent of Hispanics voted Democratic in 2018 and 2020. *See* Table 5.

As we can see in Table 6, Democratic candidates won substantial majorities in these CDs. In CD-3, Democratic candidates won all eight of the 2018 and 2020 elections examined, and the average vote share for the Democratic candidates was 76.33 percent. CD-3 is therefore a district in which Hispanics will have the opportunity to elect their preferred candidates.

In CD-7, Democratic candidates also won all eight of the 2018 and 2020 elections examined. The average vote share for the Democratic candidates was 67.33 percent. CD-7 is therefore also a district in which Hispanics will have the opportunity to elect their preferred candidates.

We note there is a substantial minority population in CD-2, where 21 percent of the CVAP is Native American. Native Americans overwhelmingly prefer Democratic candidates in that district. Their vote choices are opposed by the White majority, and the candidates preferred by Native Americans do not win elections in CD-2 in CD Map 14.0. *See* Tables 5 and 6. We note, however, that it does not appear possible to create a district in which Native Americans form a compact plurality of the district population, let alone a majority, either singularly or in coalition with another minority group.

C. Extent of White Cohesion and Polarization

At the outset, we acknowledge that there are various ways to evaluate polarization, and that this analysis reflects our approach as discussed above. Based on our review of CD Map 14.0, a majority of non-Hispanic Whites chose Republican candidates in CD-1, CD-2, CD-4, CD-5, CD-8, and CD-9. Among these districts, the Democratic Party's share of the non-Hispanic White vote ranged from ranged from 17 percent support in CD-9 to 38 percent in CD-1.

In CD-6, the vote of non-Hispanic Whites was more evenly split but nevertheless leaned Republican. Specifically, 47 percent of non-Hispanic Whites are estimated to have voted Democratic in the 2018 and 2020 elections. *See* Table 5. The uncertainty or margin of error around these estimates is plus or minus approximately 20.5 percent. That means that there is a 95 percent probability that the true value lies in the interval 47 percent plus or minus approximately 20.5 percent.

The evidence of racially polarized voting in the two majority Hispanic CDs is as tenuous. In CD-7, 48 percent of non-Hispanic Whites are estimated to have voted Democratic. *See* Table 5. The uncertainty or margin of error around these estimates is plus or minus approximately 12.5 percent. That means that there is a 95 percent probability that the true value lies in the interval 48 percent plus or minus approximately 12.5 percent. In statistical terms, one cannot distinguish the estimated value from 50 percent with a high degree of confidence. Therefore, we cannot say with a high degree of confidence whether non-Hispanic white voters oppose the candidate of choice of Hispanic voters.

CD-3 shows no evidence of racially polarized voting. Two thirds of non-Hispanic Whites in CD-3 of CD Map 14.0 voted for Democratic candidates, who are also the candidates preferred by the majority of Hispanics. *See* Table 5.

D. Calculation of Thresholds

Recent decisions of the Supreme Court, especially *Alabama Legislative Black Caucus v. Alabama*, 575 U.S. 254 (2015) and *Bethune-Hill v. Virginia State Board of Elections*, 580 U.S. __ (2017), state that minority districts ought not be drawn with arbitrary thresholds in mind; rather, they should be drawn based upon an individualized assessment of the district's voting patterns based upon available evidence. To facilitate this, we calculated the population threshold or minimum minority population required for candidates preferred by minority voters to have a reasonable opportunity to win elections.

The calculation of such thresholds is based on an accounting of the vote for minority-preferred candidates—in this setting, Democratic candidates. The vote for Democratic candidates can be thought of in terms of two bins: votes that come from White voters and votes that come from minority voters. The size of the vote for Democrats will depend on the sizes of the populations of minority and White voters and the rates with which each group votes for Democrats (the same is true for Republicans).

$$Dem\ Vote\ Share$$
$$= Share\ of\ Whites\ Who\ Vote\ Dem\ X\ Share\ of\ Population\ White$$
$$+ Share\ of\ nonWhites\ Who\ Vote\ Dem\ X\ Share\ of\ Population\ Non\ White$$

Note that the population of Whites plus non-Whites must add to 100 percent, so the share of the population that is White can be calculated as 1 minus the share of the population that is non-White.

The threshold share of the non-White Population needed for candidates preferred by non-Whites to win in the district is that which will result in a Democratic Vote Share of at least 50 percent.

This implies that in order to expect to win half of the two-party votes in an election, the share of the population that is non-White must be above the following threshold:

$$\frac{(.5 - Share\ of\ Whites\ Who\ Vote\ Dem)}{(Share\ NonWhite\ Who\ Vote\ Dem - Share\ White\ Who\ Vote\ Dem)}$$

The threshold levels of Hispanic population needed for Hispanics' preferred candidates to win 50 percent of the vote is shown in Table 7. Both CD-3 and CD-7 have sufficient Hispanic populations to ensure that Hispanic voters are able to elect their preferred candidates.

E. Primary Elections

A final question regarding the performance of minority districts is whether minority-preferred candidates can emerge from primary elections. We examined the 2018 and 2020 primary elections in CD-3 and CD-7. Parallel to our analysis of racially polarized voting, we first determined which candidate is the preferred candidate. For multi-candidate primaries, we follow the principle in *Ruiz v. City of Santa Maria*, 160 F.3d 543 (9th Cir. 1998), that the candidate who receives the most votes from minorities is determined to be the candidate preferred by minority voters.

Most primary elections in the area of CD-3 and CD-7 are uncontested or nearly so, in that the only votes opposing the eventual nominee are write-in votes. The contested primaries that cover all precincts in these districts are the 2018 U.S. Senate, the 2018 Governor, and the 2018 Superintendent of Public Instruction.

We performed a two-stage ecological regression analysis to determine the extent of racially polarized voting in the primaries. The first stage estimates the fraction of the Hispanic CVAP and White CVAP that voted in the Democratic primaries. In her analysis, Dr. Handley uses the percent of registered voters with Spanish surnames to measure the Hispanic electorate and the White percent of CVAP to measure the White share of the electorate. We prefer using CVAP for all

groups to ensure commensurability of the analyses. The second stage estimates the voting rates of the groups for the winner of each primary, adjusting for differential turnout.

The candidate preferred by Hispanic voters in both CD-3 and CD-7 was the winner in the primaries for U.S. Senate and Governor. In both districts, the majority of Hispanic voters preferred Kyrsten Sinema for U.S. Senate and David Garcia for Governor. In statistical terms, one cannot distinguish with a high degree of confidence the estimated candidate preferences of Hispanics and Whites from 50 percent for Governor in CD-7. However, the Democratic primary for Governor featured three candidates. This means that Garcia would need a plurality of votes from Hispanic voters to be considered their candidate of choice, and it is our estimation that Garcia did secure enough votes from Hispanic voters to be considered the candidate of choice for Hispanic voters in CD-7 in that three-way race.

In CD-3, Hispanic voters slightly preferred David Schapira, who lost to Kathy Hoffman in the Democratic primary for Superintendent of Public Instruction. Non-Hispanic White voters evenly split their votes between Hoffman and Shapira in CD-3. In statistical terms, one cannot distinguish with a high degree of confidence the estimated candidate preferences of Hispanics and Whites from 50 percent in this election in CD-3. Therefore, we cannot say with a high degree of confidence whether non-Hispanic white voters opposed the candidate of choice of Hispanic voters in this election.

In CD-7, the candidate preferred by Hispanic voters was the winner in the primary for Superintendent of Public Instruction. Hispanic voters and White voters both preferred Hoffman in CD-7 (56 percent and 55 percent, respectively). We did not find statistically significant evidence of racially polarized voting in any of the primary elections examined. In CD-3 and CD-7, Whites and Hispanics preferred the same candidates for U.S. Senate and for Governor, and both Whites

and Hispanics preferred the same candidate for Superintendent of Public Instruction in CD-7. In CD-3, Hispanic and White voters were evenly split in their choice for Superintendent of Public Instruction. Because we found no evidence of racially polarized voting, the results do not impact our analysis of minority district performance.[2]

F. Summary

CD-3 and CD-7 comply with the Voting Rights Act. In both districts, Hispanics would be able to elect candidates they prefer. A full summary our analysis of racial voting patterns in each district is located in Table 8. We recognize that other, non-VRA, factors also guided the drawing of these districts, as permitted by the Arizona Constitution. These non-VRA factors included recognition of communities of interest and other factors discussed below. Our conclusions of racial voting patterns pertain only to VRA compliance.

DISTRICT GEOGRAPHY

A. County and Municipal Splits

The State of Arizona has 15 counties. CD Map 14.0 keeps eight of these Counties whole: Apache (CD-2), Coconino (CD-2), Gila (CD-2), Greenlee (CD-6), Navajo (CD-2), Santa Cruz (CD-7), and Yavapai (CD-2). The remaining seven counties are divided by two or more Congressional Districts. Cochise County is split between CD-6 and CD-7. Graham County is split between CD-2 and CD-6. Mohave County is split between CD-2 and CD-9. Pima County is split between CD-6 and CD-7. Yuma County is split between CD-7 and CD-9. Pinal County is divided by CD-2, CD-5, CD-6, and CD-7.

[2] It should be noted that Dr. Handley does find evidence of racially polarized voting in the 2018 Governor primary election in CD-7. Even still, the Hispanic-preferred candidate received a majority of votes in that primary in precincts assigned to CD-7, so the district still is a performing district for Hispanic voters.

Maricopa County is the most populous county in Arizona, with 4,420,568 people and 62 percent of the state's population. Eight of the nine CDs – all except for CD-6 – take some or all of their population from Maricopa County. CD-1, CD-3, CD-4, and CD-8 are contained entirely within Maricopa County. CD-2, CD-5, CD-7, and CD-9 split the county boundary to take some of its population.

Table 3 also lists cities whose boundaries are crossed by congressional district lines. CD-1, CD-3, CD-4, CD-5, CD-7, and CD-8 cross the boundary of the City of Phoenix. Glendale is divided by three CDs (3, 8, and 9). Mesa is divided by three CDs (1, 4, and 5). All other municipalities that are split are divided by two CDs.

B. Compactness

The CDs are reasonably compact. To make this determination, we examined the two most widely used measures of compactness – Reock and Polsby-Popper. Both measures compare the characteristics of the district relative to a circle, which is the most compact geometric shape.

The Reock score is the ratio of the area of the district to the area of the smallest circle that inscribes the district. It penalizes long, narrow districts. Reock scores range from 0 to 1.00. Lower values correspond to less compact districts, and higher values correspond to more compact districts. A district that is a perfect square will have a Reock score of .64.

The Polsby-Popper score is the ratio of the area of the district to the area of a circle that has the same perimeter as the district. These scores penalize districts that have highly irregular borders, or that snake around. Polsby-Popper scores also range from 0 to 1.00. Lower values correspond to less compact districts, and higher values correspond to more compact districts. A district that is a perfect square has a Polsby-Popper score of .73.

Districts with very low Reock or very low Polsby-Popper scores might indicate compactness concerns and may merit closer examination to understand why the districts were configured as they were, although other redistricting considerations and state constitutional criteria may account for the lack of compactness in some districts. For example, a district might follow the boundaries of a city, but the city's boundary itself is highly irregular. A district that conformed to an irregularly shaped city boundary would produce a poor Polsby-Popper score. The boundary of the City of Phoenix, for example, has a Reock score of .38 and a Polsby-Popper score of .18. The City of Mesa has a highly irregular border and a Polsby-Popper score of .11.

Table 4 displays the compactness measures. CD-2 has the most compact area dispersion. It has a Reock score of .60, as the district deviates only somewhat from a perfect square shape. CD-3 has the most compact or regular perimeter. It has a Polsby-Popper score of .39. The least compact district, both in area-dispersion and perimeter irregularity, is CD-7. It has a Reock score of .16 and a Polsby-Popper score of .18. The relatively low Reock score is likely caused by extending the district across the southern border of Arizona from Tucson to Yuma, while the relatively low Polsby-Popper score is likely caused by numerous jagged edges following census blocks in the Tucson and Phoenix areas. As referenced above, we recognize that there are other factors that may lead to a lower compactness score, especially as they relate to state-specific requirements, such as adhering to existing borders.

COMPETITIVENESS

Proposition 106 amended the Arizona Constitution to require the creation of competitive districts to the extent possible, so long as the creation of such districts do not interfere with the other constitutional criteria. The IRC chose the 2016, 2018, and 2020 election results of eight statewide positions to measure the competitiveness of the districts.

We understand that the Commission received testimony on partisan fairness and competitiveness metrics from Dr. Eric McGhee, Dr. Moon Duchin, and Dr. Sam Wang. Although the Commission ultimately opted against including many of these measures, we have calculated them for the sake of completeness.[3] Table 10 presents the various competitiveness statistics. We understand that for each version of the draft map created at the direction of the Commission, regardless of whether that draft was accepted, competitive data was provided to the Commission for evaluation and discussion. These data sets, which we did not independently review, are available on the Commission's website.

Instead, we separately analyzed the districts for competitiveness. The analysis of election results is shown in Table 6. Statewide, Democrats won the majority in five of the elections examined and Republicans won majorities in three. Among the eight elections that the Commission chose to examine for purposes of gauging competitiveness, on average, Republicans won 50.3 percent of the Democratic plus Republican vote and Democrats won 49.7 percent. The standard deviation of the vote share was 1.9 percentage points.[4] In all of eight of the elections that the Commission chose to examine as part of the analysis of competitiveness, the winner won by fewer than four percentage points. In fourteen statewide elections in 2016, 2018, and 2020, the margin of victory was fewer than four percentage points in ten elections and more than four points in four elections.

The three most competitive districts are CD-1, CD-2, and CD-6.

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[3] For a survey of such measures *see* Jonathan Katz, Gary King, and Elizabeth Rosenblatt, *Theoretical Foundations & Empirical Evaluations of Partisan Fairness in District-Based Democracies*, Am. Pol. Sci. Rev. 111, at 165-178 (2019).

[4] The standard deviation of 1.9 percentage points is the standard deviation of the two-party vote percentages statewide for the eight elections identified by the Commission for the competitiveness analysis.

CD-2 leans strongly Republican, as Republican candidates won each of the eight elections examined. On average, Democrats won 46.5 percent of the vote, while Republicans won 53.5 percent of the vote in CD-2 of CD Map 14.0. *See* Table 6.

CD-1 also leans Republican. Republican candidates won majorities in four of eight elections examined, and on average Republican candidates received 51.2 percent of the two-party vote.

CD-6 is the most competitive district in Map 14.0. Democratic candidates won four of eight elections, but Republican candidates won, on average, 50.8 percent of the two-party vote, almost mirroring their statewide vote share in the selected elections.

In all eight of the statewide elections examined, the percent of the two-party vote share that each party won ranged between 48 and 52 percent. Of the three competitive districts, two (CD-1 and CD-6) are within this range of vote shares observed statewide.

In five of the remaining six CDs in Map 14.0,one party won all eight elections examined. Three are Republican districts (CD-5, CD-8, and CD-9); three are Democratic districts (CD-3, CD-4, and CD-7).

The vote margins for Democrats in the two most Democratic districts—CD-3 and CD-7—are much higher than the vote margins for Republicans in the two most Republican districts—CD-5 and CD-9. That creates some degree of inefficiency in the translation of Democratic votes into seats.

We also implemented the quantitative measures that Dr. Eric McGhee, Dr. Moon Duchin, and Dr. Sam Wang introduced to the IRC in their presentation on competitiveness. These measures look at how many districts favor each party across a redistricting plan and the degree to which they do so. They do not measure competitiveness of specific districts or the number of competitive

districts. *See* Ariz. Const. art. 4, Part 2, § 1(14)(F) (referring to "competitive districts" rather than proportionality). We do not hold a view on the appropriateness of these measures and include them here only to provide a complete assessment of measures presented to the commission.

Of the various competitiveness measures, partisan bias is perhaps the simplest and least restrictive metric. It asks: In a competitive electoral setting, where the two parties evenly divide the vote (as is the case in Arizona) what is the expected division of the seats? This is the least restrictive measure of partisan competitiveness because it only asks about one value, the vote share at 50 percent. As shown in Table 10, when the votes are equally divided between the two parties, the Republicans would expect to win 56 percent of the seats. Partisan bias is the expected seat share. Even though there are 9 CDs in Arizona, it is possible to have a bias of 0. Suppose, for example, there are three seats that are safely Republican and three that are safely Democratic, and three that are "tossups", with equal shares of Republican and Democratic voters in each. We would expect the parties to have an equal likelihood of winning the tossup seats, and thus the plan would have zero bias. Partisan bias is a statement about what the expected division of seats is in a map. In any future election, the seats could not be equally divided between the parties because the state has an odd number of seats.

Responsiveness measures how changes in a party's vote share statewide translate to their likelihood of winning an additional seat. In other words, this helps answer the question: as a party's vote share increases, does its share of the seats increase accordingly? The responsiveness in the map is 3.5, which is quite high. That suggests that if the vote swings toward one party by 1 percent, that party will see its expected seat share rise by 3.5 percent.

Symmetry measures the extent to which the distribution of vote shares across districts is the same on the Republican side as on the Democratic side. Roughly speaking, this means that if

a party wins, say, 55 percent of the vote and receives 60 percent of the seats, does the other party also receive 60 percent of the seats when it wins 55 percent of the vote?[5] Here the symmetry measure is 3.56. That means that on average Democrats win 3.56 percent more vote in districts where they win the majority of the vote than the votes won by Republicans in which they win a majority of votes.

The Mean-Median and Efficiency Gap similarly gauge the extent to which the map treats the two parties symmetrically. The Mean-Median measure is the difference between the average vote statewide and the vote share in the median district. If we rank order districts according to their party vote share, from most Republican to most Democratic, the fifth ranking CD in Arizona would be the median. The Republicans won 50.7 percent of the vote statewide. CD-1 is the median district in vote share. Republicans, on average, won 51.2 percent of the vote in this CD.

The Efficiency Gap computes the percentage difference between the two parties in the number of votes that each party wasted. Unlike Mean-Median, the Efficiency Gap incorporates turnout levels. A party's vote is wasted in every district that the party lost, and for every vote that the party received in excess of what they needed to win. According to Table 10, the Efficiency Gap is 8 percent, meaning that the map as a whole allocates voters to districts in such a way that across the entire map Democrats "waste" 8 percent more votes than Republicans do.

We acknowledge that there are differences of opinion when it comes to the interpretation of these statistics, particularly when it comes to answering the question "How much partisan bias

[5] To calculate a plan's partisan symmetry score, first, pair all districts as follows: most Democratic and most Republican, second most Democratic and second most Republican, and so on. Measure the difference in the parties vote shares. In a perfectly symmetric distribution, the Democratic candidates' share of votes in the most Democratic district would equal the Republican candidates' share of votes in the most Republican district, and on down the line. As a result, in a perfectly symmetric map, the measure would equal 0.

is too much?" We also acknowledge that factors such as compliance with the VRA, protecting communities of interest and drawing compact districts that avoid splitting municipalities can impact a state's "baseline" partisan bias score. We therefore, again, provide these scores for the IRC's reference, and do not endorse any particular threshold. We do note, however, that the efficiency gap of 8 percent does not exceed the 12 percent threshold suggested by plaintiffs in *Common Cause v. Rucho*, for a state with a relatively small number of Congressional Districts. 279 F. Supp. 3d 587, 662 (M.D.N.C. 2018), *vacated and remanded*, 138 S. Ct. 2679 (2018).

Table 1: Demographics

				Alone and in Combination	
District	Total Population	Hispanic/Latino	NH White[1]	NH Black[1]	NH Native Amer.[1]
1	794611	16.4%	69.9%	4.2%	2.6%
2	794612	16.9%	55.3%	2.8%	22.1%
3	794612	62.6%	19.6%	11.3%	2.7%
4	794611	26.7%	55.2%	6.7%	3.4%
5	794612	17.8%	67.1%	4.7%	2.0%
6	794611	24.7%	63.1%	4.4%	2.2%
7	794611	59.8%	28.5%	4.6%	3.8%
8	794610	21.1%	64.3%	5.6%	2.3%
9	794612	29.9%	57.5%	5.3%	2.7%

[1] NH stands for non-Hispanic

Table 2: CVAP Demographics[1]

				Alone and in Combination	
District	Total	Hispanic/Latino	NH White[2]	NH Black[2]	NH Native Amer.[2]
1	609630	11.3%	79.7%	3.3%	2.0%
2	597950	13.5%	61.8%	2.4%	20.6%
3	435275	50.4%	30.9%	12.3%	3.3%
4	566950	18.9%	67.9%	6.2%	2.9%
5	503640	14.2%	76.0%	3.6%	1.3%
6	600870	21.7%	69.7%	3.6%	1.8%
7	516005	50.5%	38.6%	4.5%	4.0%
8	556790	15.2%	75.1%	4.3%	1.5%
9	533260	22.0%	68.3%	4.9%	1.9%

[1] CVAP stands for Citizen Voting Age Population

[2] NH stands for non-Hispanic

Table 3: Split Political Boundaries

District	County Splits	City Splits
1	Entirely in Maricopa	Mesa, Phoenix
2	Splits Graham, Maricopa, Mohave, Pinal Entirety of Apache, Coconino, Gila, Navajo, Yavapai	Casa Grande, Eloy, Gold Canyon, Peoria, Wickenburg
3	Entirely in Maricopa	Glendale, Phoenix
4	Entirely in Maricopa	Chandler, Mesa, Phoenix
5	Splits Maricopa, Pinal	Chandler, Gold Canyon, Mesa, Phoenix
6	Splits Cochise, Graham, Pima, Pinal Entirety of Greenlee	Casa Grande, Eloy, Flowing Wells, Sahuarita, Tucson, Tucson Mountains
7	Splits Cochise, Maricopa, Pima, Pinal, Yuma Entirety of Santa Cruz	Avondale, Flowing Wells, Fortuna Foothills, Goodyear, Phoenix, Sahuarita, Tucson, Tucson Mountains, Wellton, Yuma
8	Entirely in Maricopa	Glendale, Peoria, Phoenix, Surprise, Wickenburg
9	Splits Maricopa, Mohave, Yuma Entirety of La Paz	Avondale, Fortuna Foothills, Glendale, Goodyear, Surprise, Wellton, Yuma

Table 4: District Compactness

District	Reock	Polsby-Popper
1	0.4106	0.3740
2	0.6002	0.2989
3	0.4487	0.3910
4	0.2075	0.2126
5	0.5149	0.3133
6	0.3796	0.2248
7	0.1615	0.1783
8	0.5008	0.3172
9	0.3298	0.1814

Table 5: Democratic Party Preference[1]

Arizona Demographic Groups

District	Hispanic/Latino[2]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
1	100%	38%	100%	99%
2	22%	28%	23%	85%
3	83%	66%	81%	100%
4	100%	36%	100%	100%
5	60%	32%	100%	56%
6	52%	47%	100%	46%
7	79%	48%	41%	95%
8	100%	31%	100%	100%
9	94%	17%	100%	72%
Statewide	89%	33%	100%	87%

[1] Two party vote share for Democrats regressed on racial/ethnic group proportions of CVAP

[2] Estimates are from ecological regression

[3] NH stands for non-Hispanic

Table 6: Party Performance by District

	Vote Share[1]			Wins	
District	Democrat	Republican	Vote Spread	Democrat	Republican
1	48.77%	51.23%	2.46%	4	4
2	46.52%	53.48%	6.95%	0	8
3	76.33%	23.67%	52.66%	8	0
4	53.69%	46.31%	7.39%	7	1
5	41.35%	58.65%	17.31%	0	8
6	49.24%	50.76%	1.51%	4	4
7	67.33%	32.67%	34.67%	8	0
8	42.67%	57.33%	14.67%	0	8
9	37.29%	62.71%	25.42%	0	8
Statewide	49.71%	50.29%	0.58%	5	3

[1] Average is weighted by two-party turnout, except statewide

Table 7: Threshold Analysis		
District	Hispanic/Latino	NH Native American[1]
1	19.4%	19.7%
2	0.0%	38.6%
3	0.0%	0.0%
4	21.9%	21.9%
5	64.3%	75.0%
6	60.0%	0.0%
7	6.5%	4.3%
8	27.5%	27.5%
9	42.9%	60.0%

[1] NH stands for non-Hispanic

Table 8: Summary Table

District	Total Pop.	CVAP				Dem. Wins	Rep. Wins	Vote Spread	Polarized?	Threshold
		Hispanic	NH White[1]	NH Black[1]	NH Native American[1]					
1	794611	11.3%	79.7%	3.3%	2.0%	4	4	−2.5%	Yes	19.4%
2	794612	13.5%	61.8%	2.4%	20.6%	0	8	−7.0%	Yes	38.6%
3	794612	50.4%	30.9%	12.3%	3.3%	8	0	52.7%	No	0.0%
4	794611	18.9%	67.9%	6.2%	2.9%	7	1	7.4%	Yes	21.9%
5	794612	14.2%	76.0%	3.6%	1.3%	0	8	−17.3%	Yes	64.3%
6	794611	21.7%	69.7%	3.6%	1.8%	4	4	−1.5%	No	60.0%
7	794611	50.5%	38.6%	4.5%	4.0%	8	0	34.7%	Yes	6.5%
8	794610	15.2%	75.1%	4.3%	1.5%	0	8	−14.7%	Yes	27.5%
9	794612	22.0%	68.3%	4.9%	1.9%	0	8	−25.4%	Yes	42.9%

[1] NH stands for non-Hispanic

Table 9a: Primary Election Analysis - CD3

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	0.6%	28.0%	2.9%	16.1%	66.0%	73.9%	56.7%	66.3%
Governor	1.0%	27.3%	2.7%	15.3%	100.0%	64.8%	62.1%	69.5%
Super. of Public Instr.	1.1%	25.9%	2.8%	13.2%	49.4%	49.8%	100.0%	65.3%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9b: Primary Election Analysis - CD7

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	7.3%	15.9%	0.0%	72.4%	76.7%	76.6%	76.0%	76.8%
Governor	8.0%	15.5%	0.0%	72.5%	51.4%	51.7%	52.8%	51.2%
Super. of Public Instr.	7.5%	15.0%	0.0%	70.1%	55.5%	55.1%	55.9%	55.3%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 10: Measures of Competitiveness

Measure	Composite	Pres 2020	US Sen 2020	US Sen 2018	AG 2018
Partisan Bias	5.97	3.90	5.36	6.33	6.43
Responsiveness	3.53	3.78	4.19	4.37	3.52
Symmetry	3.56	2.71	2.99	3.35	3.96
Mean-Median	2.55	1.74	2.34	4.35	3.77
Efficiency Gap	8.04	3.63	3.13	3.93	9.71

Table 11: Democratic Party Preference Estimates

District	Hispanic/Latino, **Coefficient, (CI)**[1]	NH White, **Coefficient, (CI)**[1,2]	NH Black, **Coefficient, (CI)**[1,2]	NH Native American, **Coefficient, (CI)**[1,2]
1	1 (1.08, 1.36)	0.38 (0.25, 0.52)	1 (1.63, 2.36)	0.99 (0.76, 1.22)
2	0.22 (-0.06, 0.5)	0.28 (0.17, 0.38)	0.23 (-0.52, 0.97)	0.85 (0.77, 0.93)
3	0.83 (0.73, 0.93)	0.66 (0.57, 0.76)	0.81 (0.63, 0.98)	1 (0.63, 1.44)
4	1 (0.77, 1.26)	0.36 (0.13, 0.58)	1 (1.53, 2.48)	1 (0.95, 2.69)
5	0.6 (0.37, 0.83)	0.32 (0.1, 0.55)	1 (0.79, 1.68)	0.56 (-0.29, 1.41)
6	0.52 (0.34, 0.71)	0.47 (0.26, 0.67)	1 (0.48, 1.59)	0.46 (-0.34, 1.25)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 11: Democratic Party Preference Estimates				
7	0.79 (0.66, 0.92)	0.48 (0.36, 0.61)	0.41 (-0.15, 0.97)	0.95 (0.73, 1.18)
8	1 (0.94, 1.13)	0.31 (0.21, 0.41)	1 (1.6, 2.17)	1 (2.11, 3.82)
9	0.94 (0.77, 1.12)	0.17 (0.02, 0.32)	1 (1.8, 2.74)	0.72 (0.06, 1.37)
Statewide	0.89 (0.84, 0.94)	0.33 (0.28, 0.37)	1 (1.6, 1.96)	0.87 (0.8, 0.94)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 12a: Candidate Preference by Demographic Group - CD3[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.66 (0.4963, 0.8937)	0.74 (0.7011, 0.7765)	0.57 (0.3152, 0.8335)	0.66 (0.5036, 0.7972)
Governor	1 (1.1814, 1.7048)	0.65 (0.5894, 0.7052)	0.62 (0.2215, 1.0524)	0.69 (0.4778, 0.9477)
Super. of Public Instr.	0.49 (0.2893, 0.6985)	0.5 (0.4602, 0.536)	1 (0.7629, 1.2544)	0.65 (0.5051, 0.8016)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12b: Candidate Preference by Demographic Group - CD7[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.77 (0.7578, 0.7759)	0.77 (0.7551, 0.7775)	0.76 (0.7487, 0.7709)	0.77 (0.7583, 0.7771)
Governor	0.51 (0.4906, 0.5367)	0.52 (0.489, 0.5448)	0.53 (0.4997, 0.5561)	0.51 (0.4879, 0.5357)
Super. of Public Instr.	0.56 (0.5459, 0.5643)	0.55 (0.538, 0.5634)	0.56 (0.546, 0.5715)	0.55 (0.544, 0.5628)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

APPENDIX B

memo

To: Arizona Independent Redistricting Commission

From: Stephen Ansolabehere, Ph.D., David Sutton, Sean Trende

Date: 1/20/2022

Re: Characteristics of Legislative District (LD) Map 17.0

SUMMARY

The Arizona Independent Redistricting Commission ("IRC") enacted Legislative District (LD) map version 16.1 on December 22, 2021 ("Enacted Map"). We have identified eight districts in which minorities would have the opportunity to elect their preferred candidates. LD-6 is a Native American opportunity district. The other seven opportunity districts would enable Hispanic voters to have a reasonable opportunity to elect their candidate of choice, in compliance with the federal Voting Rights Act of 1965. We also explored certain other data metrics, including the Arizona Constitution's redistricting goals, related to the districts in LD map version 17.0, which is under consideration for approval.

DISTRICT POPULATIONS

The 2020 Census endeavored to count every living person in the United States. These counts form the basis for the apportionment of legislative districts. *See* 2 U.S.C. § 2a. The 2020 enumeration shows that the State of Arizona has 7,151,502 people. The State of Arizona has 30 legislative districts. Based on the enumeration, exact equal apportionment of population to

legislative districts would assign 238,383 people to each LD. A five percent deviation would add or subtract 11,919 people.

The Census also asks two separate questions to measure race and ethnicity. The first question asks whether a person considers herself or himself to be American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, White, or Other. Respondents who wish to do so may select multiple categories to describe themselves. For example, some respondents may consider themselves both White and Native American. People who identify with only one race are classified as that race alone, *e.g.*, a person who only selected "White" would be classified as "White Alone."

The second question asks people whether they identify as Hispanic or not Hispanic. All people who answered Hispanic to the second question are classified as Hispanic, while those who do not select Hispanic are classified as "non-Hispanic." Thus, a respondent who selected "White" and "non-Hispanic" would be classified as "non-Hispanic White," while an individual who selected "Black" and "Hispanic" would be classified as "Hispanic Black."

To assess compliance with the Voting Rights Act, an analyst must identify the count of citizens who are at least 18 years of age *and* are citizens of the United States. *Romero v. City of Pomona*, 883 F.2d 1418, 1426 (9th Cir. 1989), *abrogated on other grounds*, *Townsend v. Holman Consulting Corp.*, 929 F.2d 1358, 1363 (9th Cir. 1990). This measure is commonly referred to as the Citizen Voting Age Population or "CVAP." The Census Bureau determines citizenship counts through the American Community Survey ("ACS"). Unlike the decennial census, the ACS is conducted annually and is not a complete count of residents. Rather, it reflects a random sample of the population. Using the ACS data, the Census Bureau classifies adult citizens as people who are at least 18 years of age and citizens of the United States. The ACS tabulations are available

both annually and in 5-year averages. The most recent annual data available are the 2019 ACS, and the most recent 5-year average covers 2015-2019. Here, we utilize the 5-year average. Unlike the census figures, ACS data do have error margins.

Tables 1 and 2 present the total and adult citizen populations of the 30 Legislative Districts in LD Map 17.0. Table 1 displays the total population and Table 2 displays the CVAP of all people in each LD and the Hispanic, non-Hispanic Black, non-Hispanic Native American, and non-Hispanic White populations in each LD.

LD-6 is a majority Native American district. Native Americans comprise 62.4 percent of the CVAP in this LD. Hispanics are the majority of the CVAP in LD-22, LD-23, and LD-24. LD-22 is 53.3 percent Hispanic CVAP, LD-23 is 52.6 percent Hispanic CVAP, and LD-24 is 50.4 percent Hispanic CVAP. Hispanics are the plurality of the CVAP in LD-11, LD-20, LD-21, and LD-26. Hispanic CVAP plus Black CVAP or Native American CVAP constitutes the majority of the adult citizens in these districts. *See* Table 2.

RACIAL VOTING ANALYSIS

A. Method

Determining whether racial voting in a district is polarized is a crucial step in determining whether a district is protected by the Voting Rights Act of 1965. *Thornburg v. Gingles*, 478 U.S. 30 (1986). Racially polarized voting occurs when a racial minority systemically prefers one candidate while the majority group prefers a different candidate. Determining whether racially polarized voting exists is theoretically straightforward: First, determine which candidates the minority group in a district supports and, second, determine whether the majority group consistently votes against that candidate.

In the real world, however, things are not that straightforward, as secret ballots obscure individual level results. Instead, we are left with results that are aggregated at the precinct level. It has been a longstanding observation in social science that these aggregated results can conceal variation at the individual level. *See, e.g.*, William S. Robinson, *Ecological Correlation and the Behavior of Individuals*, 15 Am. Soc. Rev. 351 (1950); Gary King, *A Solution to the Ecological Inference Problem* (1997). As a result, a researcher must employ appropriate statistical estimation techniques to determine how groups vote.

There are multiple approaches to estimating group vote shares based upon data, and there are choices that must be made with respect to which technique to use, which races to analyze, and how to analyze those races. While we believe we have made the most appropriate choices for this particular context, we recognize that reasonable minds can differ on which approach is most appropriate, and that the IRC may reasonably consider alternative approaches when drawing and analyzing its maps.

To estimate how minority groups voted in Arizona, we examined the races selected by the IRC as key races: the presidential and U.S. Senate elections in 2020, and all statewide elections in 2018, except Governor and Corporation Commissioner.[1] For each analysis, we computed the percent of the two-party vote (that is, the vote share that Republicans or Democrats received after excluding third parties) that is won by the candidate preferred by minority voters. Then we used Ecological Regression ("ER"), which is the standard technique used in Voting Rights cases since the mid-1980s, and which was endorsed by the Supreme Court of the United States in *Thornburg*

[1] The 2018 statewide elections considered are Senate, Secretary of State, Attorney General, State Treasurer, Superintendent of Public Instruction, and State Mine Inspector. The IRC did not rely on the 2016 U.S. Senate election either, as it was judged atypical of elections in the state.

v. Gingles. *See* Leo Goodman, *Ecological Regressions and the Behavior of Individuals*, 18 Am. Soc. Rev. 663 (1953).

We used ER to measure the percent of the vote received by each candidate from each racial or ethnic group—Blacks, Hispanics, Native Americans, and Whites—in the set of precincts assigned to each district by LD Map 17.0. Ecological regression takes the party's share of the two-party vote in precincts and then regresses it on racial data from the precincts to provide estimates of racial voting patterns.

We also considered estimates from other methodologies. Specifically, we examined results from Homogeneous Precinct Analysis, *e.g.*, King, *supra* at 78, which has also been in use in Voting Rights cases since the 1980s, and Ecological Inference (EI), developed by Professor Gary King of Harvard University in the 1990. *Id. passim*. We decided not to rely on homogeneous precinct analysis because only a small percent of precincts in any LD are more than 80 percent Hispanic CVAP. We preferred ER over EI because EI is computationally slow. Of the EI estimates we computed, their results were almost identical to those found using ER, which mitigated the utility of the method, given the time to compute. The similarities between the two methods are unsurprising, as EI's major benefit comes from its ability to leverage homogenous precincts to provide more exact estimates in a state. Given the relative paucity of homogenous precincts in Arizona, EI adds little to the analysis.

The ER estimates are used (i) to determine which candidates are preferred by which groups for the sake of assessing electoral performance of the districts, (ii) to measure the cohesiveness of groups in their voting behavior in each district, (iii) to measure the extent of racially polarized voting in each district, and (iv) to calculate the minimum percent of the population that must be

Hispanic (or Native American) in order for the candidates preferred by those groups to win a majority of votes.

The results of the Ecological Regression estimates are shown in Table 5. Statewide estimates (the bottom row of the table) indicate that 89 percent of Hispanics voted for Democrats in the assessed 2020 and 2018 statewide elections and one-third (33 percent) of Whites voted for Democrats.

B. Election Performance

We first determined which candidates were preferred by a minority group (Hispanics or Native Americans). Table 5 presents the estimated preference of each group.

There are eight LDs in which minorities will have the opportunity to elect their preferred candidates: LD-6, LD-11, LD-20, LD-21, LD-22, LD-23, LD-24, and LD-26. LD-6's CVAP is majority Native American. LD-22, LD-23, and LD24's CVAPs are majority Hispanic. LD-11, LD-20, LD-21, and LD-26's CVAPs are majority-minority populations. In all four of the majority-minority districts, Hispanics range between 47 and 48 percent of the CVAP and the Hispanics plus Blacks constitute a majority of the CVAP. Hispanics plus Native Americans are the majority of the CVAP in three of these districts: LD-11, LD-20, and LD-26.

i. LD-6

Native Americans are 62.4 percent of the CVAP in LD-6. ER estimates indicate that 84 percent of Native Americans in the precincts assigned to LD-6 voted for Democratic candidates in the analyzed 2018 and 2020 elections. Democratic candidates, on average, won 67 percent of the vote in precincts assigned to LD-6, and they won the majority of votes in all eight elections assessed. *See* Table 6. Hence, Native Americans have the opportunity to elect their preferred candidates in LD-6.

ii. LD-22, LD-23, and LD-24

A majority of Hispanics preferred Democratic candidates in all three of the majority Hispanic CVAP LDs—LD-22, LD-23, and LD-24. In each, Hispanic-preferred candidates won each of the elections assessed, averaging 68.4 percent of the vote in LD-22, 58.7 percent of the vote in LD-23, and 66.3 percent of the vote in LD-24. *See* Table 6. Hence, LD-22, LD-23, and LD-24 are districts in which Hispanics have the opportunity to elect their preferred candidates.

iii. LD-11, LD-20, LD-21, and LD-26

Finally, LD-11, LD-20, LD-21, and LD-26 are districts in which Hispanics are the plurality of the CVAP and majority of the VAP. Blacks plus Hispanics constitute the majority of the CVAP in all four LDs. *See* Table 2. In LD-11 and LD-21, a majority of Hispanics and a majority of Blacks prefer Democratic candidates. *See* Table 5. And, in both of these majority-minority (plurality Hispanic) LDs, candidates preferred by Hispanics and Blacks won all eight of the elections assessed. Hispanic-preferred candidates averaged 76.5 percent of the vote in LD-11 and 64.3 percent of the vote in LD-21. *See* Table 6. In LD-20, a majority of Hispanics and a majority of Native Americans prefer Democratic candidates. *See* Table 5. And in LD-20, candidates preferred by Hispanics and Native Americans won all eight of the elections assessed. Hispanic-preferred candidates averaged 76.9 percent of the vote. *See* Table 6. In LD-26, a majority of Hispanics prefer Democratic candidates. *See* Table 5. Although the majority of the other racial and ethnic groups assessed prefer Republican candidates in LD-26, the Hispanic portion of the CVAP in LD-26 is 47.4 percent which is more than double the 20 percent threshold necessary for Hispanic voters to have the opportunity to elect their candidates of choice. *See* Table 7. Hence, these are districts in which minority preferred candidates have the opportunity to elect their

preferred candidates. These districts comply with the Voting Rights Act as they provide minorities the ability to elect their preferred candidates.

C. Extent of White Cohesion and Polarization

At the outset, we acknowledge that there are various ways to evaluate polarization, and that this analysis reflects our approach as discussed above. Based on our review of LD Map 17.0, LD-6 is majority Native American and clearly polarized. On average, nearly two-thirds (65 percent) of White non-Hispanics vote for Republican candidates, while 84 percent of Native Americans vote for Democratic candidates. *See* Table 5. Voting is also racially polarized in LD-21, LD-22, LD-23, LD-24, and LD-26. In each of these majority-minority LDs, a majority of White voters opposed the candidates preferred by majorities of the non-White voters.

Voting does not appear to be racially polarized in LD-20. There, 73 percent of White non-Hispanic voters on average cast votes for Democrats, and 79 percent of Hispanic voters cast votes for Democrats. *See* Table 5. We looked more closely at the election results in the 2018 Governor and Attorney General races to identify any evidence of racially polarized voting in those elections. *See* Table 13b. We find that in these two elections, when there were Hispanic candidates running, there is still no evidence of racially polarized voting in the precincts assigned to LD-20 under LD Map 17.0

LD-11 presents an ambiguous case. The ER estimate across the eight competitive statewide districts is that 46 percent of White non-Hispanics voted for Democratic candidates. *See* Table 5. The margin of error on this estimate is plus or minus sixteen percentage points. Hence, the most probable value for the true rate at which White non-Hispanics voted for Democratic candidates is between 30 percent and 62 percent. As a result, we cannot conclude that voting is or is not racially

polarized. These estimates may imply that Whites are not sufficiently cohesive to block the emergence of Hispanic-preferred candidates in LD-11.

We also looked more closely at the election results in the 2018 Governor and Attorney General races to identify any evidence of racially polarized voting in those elections. *See* Table 13a. We find that in these two elections, when there were Hispanic candidates running, there was clear evidence of racially polarized voting in the precincts assigned to LD-11 under LD Map 17.0.

D. Calculation of Thresholds

Recent decisions of the Supreme Court, especially *Alabama Legislative Black Caucus v. Alabama*, 575 U.S. 254 (2015) and *Bethune-Hill v. Virginia State Board of Elections*, 580 U.S. __ (2017), state that minority districts ought not be drawn with arbitrary thresholds in mind; rather, they should be drawn based upon an individualized assessment of the district's voting patterns based upon available evidence. To facilitate this, we calculated the population threshold or minimum minority population required for candidates preferred by minority voters to have a reasonable opportunity to win elections.

The calculation of such thresholds is based on an accounting of the vote for minority-preferred candidates—in this setting, Democratic candidates. The vote for Democratic candidates can be thought of in terms of two bins: votes that come from White voters and votes that come from minority voters. The size of the vote for Democrats will depend on the sizes of the populations of minority and White voters and the rates with which each group votes for Democrats (the same is true for Republicans).

$$Dem\ Vote\ Share$$
$$= Share\ of\ Whites\ Who\ Vote\ Dem\ X\ Share\ of\ Population\ White$$
$$+ Share\ of\ nonWhites\ Who\ Vote\ Dem\ X\ Share\ of\ Population\ Non\ White$$

Note that the population of Whites plus non-Whites must add to 100 percent, so the share of the population that is White can be calculated as 1 minus the share of the population that is non-White.

The threshold share of the non-White Population needed for candidates preferred by non-White to win in the district is that which will result in a Democratic Vote Share of at least 50 percent.

This implies that in order to expect to win half of the two-party votes in an election, the share of the population that is non-White must be above the following threshold:

$$\frac{(.5 - Share\ of\ Whites\ Who\ Vote\ Dem)}{(Share\ NonWhite\ Who\ Vote\ Dem - Share\ White\ Who\ Vote\ Dem)}$$

The threshold levels of Hispanic population needed for Hispanics' preferred candidates to win 50 percent of the vote is shown in Table 8.

- In LD-6, the minimum percent of the CVAP needed to elect candidates preferred by Native American voters is 30.6 percent.
- In LD-11, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 8.5 percent.
- In LD-20, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 0, because voting is not racially polarized.
- In LD-21, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 22.2 percent.
- In LD-22, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 30 percent.
- In LD-23, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 55.6 percent. In this LD, Hispanic CVAP must exceed the

majority of Hispanic plus White CVAP in the district. In this district, Hispanics are 60.2 percent of the White + Hispanic CVAP (52.6/(52.6 + 34.8)).

- In LD-24, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 30.8 percent.
- In LD-26, the minimum percent of the CVAP needed to elect candidates preferred by Hispanic voters is 20 percent.

Based upon the foregoing, the CVAP population in each of these minority LDs is high enough so that those minorities are able to elect their preferred candidates.

E. Primary Elections

A final question regarding the performance of minority districts is whether minority-preferred candidates can emerge from primary elections. We examined the 2018 and 2020 primary elections in the eight minority opportunity districts: LD-6, LD-11, LD-20, LD-21, LD-22, LD-23, LD-24, and LD-26. Parallel to our analysis of racially polarized voting, we first determined which candidate is the preferred candidate. For multi-candidate primaries, we follow the principle in *Ruiz v. City of Santa Maria*, 160 F.3d 543 (9th Cir. 1998), that the candidate who receives the most votes from minorities is determined to be the candidate preferred by minority voters.

Most primary elections in the eight minority opportunity districts are uncontested or nearly so, in that the only votes opposing the eventual nominee are write-in votes. The contested primaries that cover all precincts in these districts are the 2018 U.S. Senate, the 2018 Governor, and the 2018 Superintendent of Public Instruction.

We performed a two-stage ecological regression analysis to determine the extent of racially polarized voting in the primaries. The first stage estimates the fraction of the Hispanic CVAP or Native American CVAP and White CVAP that voted in the Democratic primaries. In her analysis,

Dr. Handley uses the percent of registered voters with Spanish surnames to measure the Hispanic electorate and the White percent of CVAP to measure the White share of the electorate. We prefer using CVAP for all groups to ensure commensurability of the analyses. The second stage estimates the voting rates of the groups for the winner of each primary, adjusting for differential turnout.

i. U.S. Senate Primary

The majority of Native American voters in LD-6 and the majority of Hispanic voters in LD-11, LD-20, LD-21, LD-24, and LD-26 preferred the winner of the 2018 Democratic primary for U.S. Senate, Kyrsten Sinema. In all these districts, White voters overwhelmingly preferred Sinema, as well.

In LD-22, we estimate that Hispanic voters preferred Deedra Abboud, who lost to Kyrsten Sinema in the Democratic primary for U.S. Senate. In statistical terms, one cannot distinguish with a high degree of confidence the estimated candidate preferences of Hispanics from 50 percent in this election in LD-22. Therefore, we cannot say with a high degree of confidence whether Hispanic voters opposed the candidate of choice of White voters, who voted for Sinema at a rate of 75 percent.

In LD-23, we estimate that zero percent of Hispanic voters cast their ballot for the White candidate of choice, Kyrsten Sinema, in the Democratic primary for U.S. Senate. Because Whites strongly preferred Sinema, at a rate of 74 percent, we conclude that Whites opposed the Hispanic candidate of choice in this primary election.

ii. Gubernatorial Primary

The majority of Hispanic voters in LD-11, LD-22, LD-23, LD-24, and LD-26 preferred the winner of the Democratic primary for Governor, David Garcia. Also, a plurality of Native American voters in LD-6 and a plurality of Hispanic voters in LD-20 and LD-21 preferred Garcia. Although the vote totals for Garcia fell short of a majority of Native Americans in LD-6 and a majority of Hispanics in LD-20 and LD-21, the Democratic primary for Governor featured three candidates. This means that Garcia would need a plurality of votes from a group to be considered the group's candidate of choice. We estimate that Garcia secured enough votes from Native Americans in LD-6 and Hispanics in LD-20 and LD-21 to be considered their candidate of choice.

In LD-11, LD-22, LD-23, and LD-26, the majority of White voters preferred Garcia in the Democratic primary for Governor. In LD-24, 50 percent of White voters preferred Garcia. In this three-way primary, that means that Garcia is the preferred candidate of White voters in LD-24, as well. In LD-6, LD-20, and LD-21, we estimate that a plurality of White voters preferred Garcia over the other candidates. Therefore, we conclude that White voters did not oppose the Native American candidate of choice in LD-6 or the Hispanic candidate of choice in LD-11, LD-20, LD-21, LD-22, LD-23, LD-24, and LD-26.

iii. Superintendent Primary

The majority of Native American voters in LD-6 and the majority of Hispanic voters in LD-20, LD-21, and LD-23 preferred the winning candidate of the Democratic primary for Superintendent of Public Instruction, Kathy Hoffman. In these LDs, a majority of White voters preferred Hoffman, as well.

In LD-11, Hispanic voters split their vote evenly between Hoffman and the opponent she defeated, David Schapira, while White voters in the district preferred Hoffman. In LD-22, Hispanic

voters slightly preferred Schapira while White voters split their votes evenly between the two candidates. In LD-24 and LD-26, Hispanic voters preferred Schapira, while White voters preferred Hoffman. However, in statistical terms, one cannot distinguish with a high degree of confidence the estimated candidate preferences of Hispanics and Whites in this election in these districts. Therefore, we cannot say with a high degree of confidence whether non-Hispanic white voters opposed the candidate of choice of Hispanic voters in this election.

We did not find statistically significant evidence of racially polarized voting in any of the primary elections examined. Because we find no evidence of racially polarized voting, the results do not impact our analysis of minority district performance.

F. Summary

LDs 6, 11, 20, 21, 22, 23, 24, and 26 comply with the Voting Rights Act. LD 6 is a district in which Native Americans will be able to elect their preferred candidates. LDs 11, 20, 21, 22, 23, 24, and 26 are districts in which Hispanics will be able to elect candidates they prefer. LDs 6, 11, 21, 22, 23, 24 and 26 exhibit racially polarized voting; LD-20 does not. A full summary of our analysis of racial voting patterns in each district is located in Table 8. We recognize that other, non-VRA factors also guided the drawing of these districts, as permitted by the Arizona Constitution. These non-VRA factors included recognition of communities of interest and other factors discussed below. Our conclusions of racial voting patterns pertain only to VRA compliance.

DISTRICT GEOGRAPHY

A. County and Municipal Splits

The State of Arizona has 15 counties. LD Map 17.0 keeps two of these counties whole: Apache (LD-6) and LaPaz (LD-30). Sixteen districts reside entirely in Maricopa County (LDs 2,

3, 4, 5, 8, 9, 11, 12, 13, 14, 22, 24, 26, 27, 28, 29) and two reside entirely in Pima County (LDs 18, 20). LD-6 splits eight counties' boundaries—the most of any district. The remaining districts are split between two to four districts.

The boundaries of LD-7 and LD-25 cross the most municipalities' lines and thus, split the most municipalities, a total of eight. Eleven LDs cross the borders of the City of Phoenix: LDs 2, 4, 5, 11, 12, 22, 24, 26, 27, 28, and 29. The City of Tucson is split across four LDs.

Table 3 also lists the counties and cities whose boundaries are crossed by legislative district lines and identifies which LDs cross county and city boundaries.

B. Compactness

The LDs are reasonably compact. To make this determination, we examined the two most widely used measures of compactness – Reock and Polsby-Popper. Both measures compare the characteristics of the district relative to a circle, which is the most compact geometric shape.

The Reock score is the ratio of the area of the district to the area of the smallest circle that inscribes the district. It penalizes long, narrow districts. Reock scores range from 0 to 1.00. Lower values correspond to less compact districts, and higher values correspond to more compact districts. A district that is a perfect square will have a Reock score of .64.

The Polsby-Popper score is the ratio of the area of the district to the area of a circle that has the same perimeter as the district. These scores penalize districts that have highly irregular borders, or that snake around. Polsby-Popper scores also range from 0 to 1.00. Lower values correspond to less compact districts, and higher values correspond to more compact districts. A district that is a perfect square has a Polsby-Popper score of .73.

Districts with very low Reock or very low Polsby-Popper scores might indicate compactness concerns and may merit closer examination to understand why the districts were

configured as they were, although other redistricting considerations and state constitutional criteria may account for the lack of compactness in some districts. For example, a district might follow the boundaries of a city, but the city's boundary itself is highly irregular. A district that conformed to an irregularly shaped city boundary would produce a poor Polsby-Popper score. The boundary of the City of Phoenix, for example, has a Reock score of .38 and a Polsby-Popper score of .18. The City of Mesa has a highly irregular border and a Polsby-Popper score of .11.

Table 4 displays the compactness measures. LD-21 and LD-7 have the least compact perimeters (Polsby-Popper) of .1411 and .1520. LD-21 has the lowest area compactness score (Reock) of .1850. The average district in the map has an area dispersion (Reock) of .3951 and an average perimeter dispersion (Polsby-Popper) of .3433. While the compactness of the least compact districts (especially LD-21) might be improved, it is our professional opinion that while these measures are somewhat low, they are still sufficiently compact. As referenced above, we recognize that there are other factors that may lead to a lower compactness score, especially as they relate to state specific requirements, such as adhering to existing borders.

COMPETITIVENESS

Proposition 106 amended the Arizona Constitution to require the creation of competitive districts to the extent possible, so long as the creation of such districts do not interfere with the other constitutional criteria. The IRC chose the 2016, 2018, and 2020 election results of eight statewide offices to measure the competitiveness of the districts.

We understand that the Commission received testimony on partisan fairness and competitiveness metrics from Dr. Eric McGhee, Dr. Moon Duchin, and Dr. Sam Wang. Although the Commission ultimately opted against including many of these measures, we have calculated

them for the sake of completeness.[2] Table 10 presents the various competitiveness statistics. We understand that for each version of the draft map created at the direction of the Commission, regardless of whether that draft was accepted, competitive data was provided to the Commission for evaluation and discussion. These data sets, which we did not independently review, are available on the Commission's website.

Instead, we separately analyzed the districts for competitiveness. The analysis of election results is shown in Table 6. Statewide, Democrats won the majority in five of the elections examined and Republicans won majorities in three. Among the eight elections that the Commission chose to examine for purposes of gauging competitiveness, on average, Republicans won 50.5 percent of the Democratic plus Republican vote and Democrats won 49.5 percent. The standard deviation of the vote share was 1.9 percentage points.[3] In all of eight of the elections that the Commission chose to examine as part of the analysis of competitiveness, the winner won by fewer than four percentage points. In fourteen statewide elections in 2016, 2018, and 2020, the margin of victory was fewer than four percentage points in ten elections and more than four points in four elections.

There are 26 LDs in Map 17.0 in which one of the two parties won a majority of the vote in all eight of the statewide elections examined in assessing electoral performance, twelve in which Democratic candidates won the majority of votes cast in all eight elections studied. There are

[2] For a survey of such measures *see* Jonathan Katz, Gary King, and Elizabeth Rosenblatt, *Theoretical Foundations & Empirical Evaluations of Partisan Fairness in District-Based Democracies*, Am. Pol. Sci. Rev. 111, 165-178 (2019).

[3] The standard deviation of 1.9 percentage points is the standard deviation of the two-party vote percentages statewide for the eight elections identified by the Commission for the competitiveness analysis.

fourteen LDs in which Republican candidates won a majority of votes cast in all eight elections examined. *See* Table 6.

There are four districts in which one party did *not* win all eight of the elections assessed. These are LD-2, LD-4, LD-9, and LD-13. Republicans won five of eight elections assessed in LD-2 and LD-4. Republicans won four of eight elections in LD-13, and Democrats won five of eight in LD-9. Table 6 displays the number of elections won by each party and LD numbers of districts in each category.

The average percent of the two-party vote won by Republican candidates shows a similar pattern. There are three districts in which the average vote share of the Republican candidates is between 48 percent and 52 percent, a range of political scientists consider to be very competitive. That range also corresponds to a one standard deviation in the average statewide vote percentage. On average, Republicans won 50.5 percent of the vote across the eight elections examined, and Democrats won 49.5 percent. The standard deviation of the statewide vote in these elections is 1.9 percentage points. LD-2, LD-9, and LD-13 all fall within 48 to 52 percent. In addition to the three very competitive districts, LD-04, LD-12, LD-14, LD-16, LD-17, LD-23, LD-27, and LD-29 are in the 60 to 40 percent range.

There are 9 LDs with average Republican vote percentages above 60, and 10 with average Republican vote percentages below 60. This range is generally considered to be uncompetitive, in that one party will win all or almost all elections in such districts. *See* Table 6. Overall, there are 19 LDs in the uncompetitive range, eight in the somewhat competitive range, and three in the highly competitive range.

We also implemented the quantitative measures that Dr. McGhee, Dr. Duchin, and Dr. Wang introduced to the IRC in their presentation on competitiveness. These measures look at how

many districts favor each party across a redistricting plan and the degree to which they do so. They do not measure competitiveness of specific districts or the number of competitive districts. *See* Ariz. Const. art. 4, Part 2, § 1(14)(F) (referring to "competitive districts" rather than proportionality). We do not hold a view on the appropriateness of these measures and include them here only to provide a complete assessment of measures presented to the Commission.

Of the various competitiveness measures, partisan bias is perhaps the simplest and least restrictive metric. It asks: in a competitive electoral setting, where the two parties evenly divide the vote (as is the case in Arizona) what is the expected division of the seats? This is the least restrictive measure of partisan competitiveness because it only asks about one value, the vote share at 50 percent. As shown in Table 10, when the votes are equally divided between the two parties the Republicans would expect to win 51 percent of the seats. Partisan bias is the expected seat share and is a statement about what the expected division of seats is in a map.

Responsiveness measures how changes in a party's vote share statewide translate to their likelihood of winning an additional seat. In other words, this helps answer the question: as a party's vote share increases, does its share of the seats increase accordingly? The responsiveness in the map is 1.97. That suggests that if the vote swings toward one party by 1 percent, that party will see its expected seat share rise by 2 percent.

Symmetry measures the extent to which the distribution of vote shares across districts is the same on the Republican side as on the Democratic side. Roughly speaking, this means that if a party wins, say, 55 percent of the vote and receives 60 percent of the seats, does the other party also receive 60 percent of the seats when it wins 55 percent of the vote?[4] Here the symmetry

[4] To calculate a plan's partisan symmetry score, first, pair all districts as follows: most Democratic and most Republican, second most Democratic and second most Republican, and so on. Measure

measure is 2.69. That means that on average Democrats win 2.69 percent more vote in districts where they win the majority of the vote than the votes won by Republicans in which they win a majority of votes.

Other measures derived from academic literature, known as Mean-Median and the Efficiency Gap, similarly gauge the extent to which the map treats the two parties symmetrically. The Mean-Median measure is the difference between the average vote statewide and the vote share in the median district. If we rank order districts according to their party vote share, from, say, most Republican to most Democratic, the median district would be the average of the 15th and 16th most Republican district. The Republicans won 50.5 percent of the vote statewide. LD-2 and LD-4 are the median districts in vote share. Republicans, on average, won 51.9 percent of the vote in these LDs.

The Efficiency Gap computes the percentage difference between the two parties in the number of votes that each party wasted. Unlike Mean-Median, the Efficiency Gap incorporates turnout levels. A party's vote is wasted in every district that the party lost, and for every vote that the party received in excess of what they needed to win. According to Table 10, the Efficiency Gap is 1.19 percent, meaning that the map as a whole allocates voters to districts in such a way that across the entire map Democrats "waste" 1 percent more votes than Republicans do.

We acknowledge that there are differences of opinion when it comes to the interpretation of these statistics, particularly when it comes to answering the question "How much partisan bias is too much?" We also acknowledge that factors such as compliance with the VRA, protecting

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the difference in the parties vote shares. In a perfectly symmetric distribution, the Democratic candidates' share of votes in the most Democratic district would equal the Republican candidates' share of votes in the most Republican district, and on down the line. As a result, in a perfectly symmetric map, the measure would equal 0.

communities of interest and drawing compact districts that avoid splitting municipalities can impact a state's "baseline" partisan bias score. We therefore, again, provide these scores for the IRC's reference, and do not endorse any particular threshold. We do note, however, that the efficiency gap of 1.19 percent does not exceed the 7 percent threshold suggested by plaintiffs in *Common Cause v. Rucho*, for a state with a relatively large number of districts. 279 F. Supp. 3d 587, 662 (M.D.N.C. 2018), *vacated and remanded*, 138 S. Ct. 2679 (2018).

Table 1: Demographics

				Alone and in Combination	
District	Total Population	Hispanic/Latino	NH White[1]	NH Black[1]	NH Native Amer.[1]
1	237896	14.5%	77.6%	1.1%	3.2%
2	246674	23.0%	60.9%	5.7%	2.5%
3	236955	7.0%	82.8%	2.1%	1.6%
4	244298	10.1%	76.6%	2.7%	1.4%
5	239088	35.6%	48.3%	7.8%	3.4%
6	225474	9.6%	26.1%	1.1%	61.8%
7	240205	18.5%	70.8%	2.2%	5.2%
8	244166	25.2%	52.8%	7.7%	5.3%
9	238117	37.7%	47.4%	6.3%	4.1%
10	235579	18.2%	71.9%	3.4%	2.2%
11	237844	57.6%	18.4%	16.5%	3.3%
12	238923	19.6%	58.6%	7.7%	3.3%
13	237866	21.2%	56.4%	6.1%	2.1%
14	241692	16.3%	67.5%	4.9%	1.8%

[1] NH stands for non-Hispanic

Table 1: Demographics

15	240037	20.4%	67.4%	5.0%	2.0%
16	236940	34.9%	45.5%	7.0%	8.8%
17	239669	19.5%	69.7%	3.3%	1.8%
18	243411	22.3%	63.9%	5.0%	2.0%
19	230476	29.4%	60.9%	3.7%	2.2%
20	238486	53.4%	33.9%	4.0%	4.4%
21	244412	58.4%	30.6%	5.5%	2.1%
22	238320	63.6%	19.4%	10.6%	1.9%
23	232246	62.4%	25.4%	4.0%	5.6%
24	234992	65.4%	20.4%	8.4%	2.1%
25	243005	36.0%	52.6%	5.4%	2.2%
26	237193	60.9%	21.4%	9.9%	2.9%
27	240634	25.4%	59.5%	6.1%	2.5%
28	228803	9.6%	79.8%	2.9%	1.5%
29	240102	27.1%	58.3%	7.0%	2.0%
30	237999	16.8%	74.2%	1.5%	4.2%

[1] NH stands for non-Hispanic

Table 2: CVAP Demographics[1]

				Alone and in Combination	
District	Total	Hispanic/Latino	NH White[2]	NH Black[2]	NH Native Amer.[2]
1	184345	10.0%	85.6%	0.8%	2.1%
2	170370	15.4%	75.0%	4.1%	1.7%
3	183425	4.8%	89.2%	1.4%	0.9%
4	184370	8.5%	84.1%	2.2%	0.8%
5	164115	25.4%	61.4%	6.6%	3.4%
6	163465	7.0%	29.1%	0.8%	62.4%
7	199450	17.3%	74.8%	2.2%	3.9%
8	188825	19.3%	64.9%	7.2%	4.7%
9	157345	25.0%	62.0%	5.9%	4.3%
10	178145	12.4%	81.5%	2.9%	1.4%
11	134615	47.2%	26.8%	19.7%	3.2%
12	176025	15.6%	69.3%	6.6%	2.7%
13	146470	15.6%	69.7%	5.3%	1.6%
14	148285	14.9%	74.1%	4.3%	0.9%

[1] CVAP stands for Citizen Voting Age Population

[2] NH stands for non-Hispanic

Table 2: CVAP Demographics[1]					
15	144500	16.3%	74.7%	3.8%	1.5%
16	179065	29.9%	53.6%	6.1%	7.9%
17	174475	15.5%	77.5%	2.5%	0.8%
18	183180	19.2%	72.0%	3.6%	1.5%
19	160235	25.7%	66.9%	3.5%	1.6%
20	168180	47.4%	41.5%	3.7%	4.6%
21	159600	47.7%	42.3%	5.4%	2.0%
22	137985	53.3%	29.7%	10.8%	2.0%
23	139990	52.6%	34.8%	4.3%	6.3%
24	129350	50.4%	36.0%	8.5%	2.3%
25	149670	27.5%	62.3%	5.9%	1.6%
26	122160	47.4%	36.2%	9.4%	3.6%
27	173070	18.6%	70.5%	4.3%	1.6%
28	168965	7.1%	86.6%	2.2%	0.7%
29	163625	20.3%	68.4%	6.4%	1.0%
30	187070	13.1%	81.1%	1.3%	3.1%

[1] CVAP stands for Citizen Voting Age Population

[2] NH stands for non-Hispanic

Table 3: Split Political Boundaries

District	County Splits	City Splits
1	Splits Coconino (at Sedona), Yavapai (at Wickenburg)	None
2	Entirely in Maricopa	Entirely in Phoenix
3	Entirely in Maricopa	Splits New River, Phoenix, Scottsdale
4	Entirely in Maricopa	Splits Phoenix, Scottsdale
5	Entirely in Maricopa	Entirely in Phoenix
6	Entirety of Apache Splits Coconino, Gila, Graham, Mohave, Navajo, Pinal	Splits Flagstaff, Parks, Winslow West
7	Splits Coconino, Gila, Navajo, Pinal	Splits Apache Junction, Flagstaff, Florence, Parks, Saddlebrooke, San Tan Valley, Winslow West
8	Entirely in Maricopa	Splits Mesa, Tempe
9	Entirely in Maricopa	Splits Chandler, Gilbert, Mesa, Tempe
10	Splits Maricopa, Pinal	Splits Apache Junction, Mesa
11	Entirely in Maricopa	Splits Phoenix Entirety of Guadalupe
12	Entirely in Maricopa	Splits Chandler, Phoenix, Tempe

Table 3: Split Political Boundaries

13	Entirely in Maricopa	Splits Chandler, Gilbert
14	Entirely in Maricopa	Splits Chandler, Gilbert, Queen Creek
15	Splits Maricopa, Pinal	Splits Mesa, Queen Creek, San Tan Valley
16	Splits Maricopa, Pima, Pinal	Splits Florence, Picture Rocks, Tucson, Tucson Mountains
17	Splits Pima, Pinal	Splits J-Six Ranchettes, Oro Valley, Picture Rocks, Saddlebrooke, Tucson, Tucson Mountains
18	Entirely in Pima	Splits Oro Valley, Tucson
19	Splits Cochise, Graham, Pima, Santa Cruz	Splits J-Six Ranchettes, Suharita, Tucson
20	Entirely in Pima	Splits Drexel Heights, Tucson, Tucson Mountains, Valencia West
21	Splits Cochise, Pima, Santa Cruz	Splits Suharita, Tucson
22	Entirely in Maricopa	Splits Glendale, Goodyear, Phoenix
23	Splits Maricopa, Pima, Pinal, Yuma	Splits Buckeye, Drexel Heights, Fortuna Foothills, Goodyear, Valencia West, Wellton

Table 3: Split Political Boundaries

24	Entirely in Maricopa	Splits Glendale, Phoenix
25	Splits Maricopa, Yuma	Splits Buckeye, Fortuna Foothills, Glendale, Goodyear, Surprise, Wellton, Yuma
26	Entirely in Maricopa	Splits Glendale, Phoenix
27	Entirely in Maricopa	Splits Glendale, Peoria, Phoenix
28	Entirely in Maricopa	Splits New River, Peoria, Phoenix, Surprise
29	Entirely in Maricopa	Splits Glendale, Goodyear, Peoria, Phoenix, Surprise
30	Entirety of La Paz Splits Maricopa, Mohave, Yavapai	Splits Buckeye

Table 4: District Compactness

District	Reock	Polsby-Popper
1	0.4616	0.4299
2	0.6242	0.4826
3	0.3067	0.3660
4	0.6183	0.4891
5	0.4950	0.3321
6	0.3965	0.2227
7	0.2986	0.1520
8	0.2784	0.3108
9	0.4323	0.5363
10	0.3443	0.3989
11	0.4253	0.4907
12	0.3897	0.3914
13	0.4805	0.4895
14	0.5236	0.6163
15	0.5293	0.4966
16	0.3166	0.2060

Table 4: District Compactness

17	0.3726	0.2172
18	0.2596	0.2046
19	0.4369	0.2868
20	0.4426	0.2827
21	0.1850	0.1411
22	0.3968	0.2800
23	0.2354	0.2335
24	0.4802	0.4429
25	0.2758	0.2981
26	0.5240	0.4624
27	0.3222	0.3194
28	0.3806	0.2704
29	0.3190	0.2776
30	0.3059	0.1731

Table 5: Democratic Party Preference[1]

Arizona Demographic Groups

District	Hispanic/Latino[2]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
1	30%	36%	100%	4%
2	75%	41%	86%	100%
3	100%	32%	100%	87%
4	98%	42%	100%	100%
5	99%	54%	100%	100%
6	0%	35%	0%	84%
7	85%	29%	100%	89%
8	100%	53%	100%	82%
9	91%	30%	100%	100%
10	67%	35%	99%	0%
11	93%	46%	80%	100%
12	100%	46%	100%	100%
13	100%	34%	100%	100%

[1] Two party vote share for Democrats regressed on racial/ethnic group proportions of CVAP

[2] Estimates are from ecological regression

[3] NH stands for Non-Hispanic

Table 5: Democratic Party Preference[1]

Arizona Demographic Groups

14	68%	33%	99%	73%
15	45%	35%	36%	70%
16	30%	28%	19%	88%
17	58%	42%	100%	100%
18	59%	58%	100%	18%
19	61%	29%	27%	0%
20	79%	73%	15%	100%
21	85%	40%	79%	100%
22	92%	32%	100%	100%
23	74%	20%	0%	91%
24	95%	30%	75%	100%
25	53%	27%	83%	100%
26	90%	40%	19%	12%
27	89%	32%	100%	100%

[1] Two party vote share for Democrats regressed on racial/ethnic group proportions of CVAP

[2] Estimates are from ecological regression

[3] NH stands for Non-Hispanic

Table 5: Democratic Party Preference[1]

Arizona Demographic Groups

28	23%	39%	41%	0%
29	96%	29%	100%	100%
30	80%	18%	100%	100%
Statewide	89%	33%	100%	87%

[1] Two party vote share for Democrats regressed on racial/ethnic group proportions of CVAP

[2] Estimates are from ecological regression

[3] NH stands for Non-Hispanic

Table 6: Party Performance by District

	Vote Share[1]			Wins	
District	Democrat	Republican	Vote Spread	Democrat	Republican
1	35.80%	64.20%	28.40%	0	8
2	48.34%	51.66%	3.32%	3	5
3	36.76%	63.24%	26.49%	0	8
4	47.91%	52.09%	4.18%	3	5
5	68.90%	31.10%	37.79%	8	0
6	66.71%	33.29%	33.43%	8	0
7	39.04%	60.96%	21.92%	0	8
8	64.68%	35.32%	29.35%	8	0
9	51.07%	48.93%	2.14%	5	3
10	38.76%	61.24%	22.49%	0	8
11	76.46%	23.54%	52.92%	8	0
12	57.20%	42.80%	14.40%	8	0
13	49.20%	50.80%	1.59%	4	4
14	40.91%	59.09%	18.18%	0	8

[1] Average is weighted by two-party turnout, except statewide

Table 6: Party Performance by District					
15	36.56%	63.44%	26.88%	0	8
16	47.82%	52.18%	4.36%	0	8
17	46.04%	53.96%	7.92%	0	8
18	60.59%	39.41%	21.17%	8	0
19	38.66%	61.34%	22.67%	0	8
20	76.89%	23.11%	53.78%	8	0
21	64.29%	35.71%	28.58%	8	0
22	68.37%	31.63%	36.74%	8	0
23	58.66%	41.34%	17.31%	8	0
24	66.30%	33.70%	32.59%	8	0
25	37.65%	62.35%	24.71%	0	8
26	69.60%	30.40%	39.20%	8	0
27	45.34%	54.66%	9.33%	0	8
28	37.44%	62.56%	25.12%	0	8
29	42.71%	57.29%	14.58%	0	8
30	25.68%	74.32%	48.65%	0	8

[1] Average is weighted by two-party turnout, except statewide

Table 6: Party Performance by District					
Statewide	49.52%	50.48%	0.96%	5	3

[1] Average is weighted by two-party turnout, except statewide

Table 7: Threshold Analysis

District	Hispanic/Latino	NH Native American[1]
1	0.0%	0.0%
2	26.5%	15.3%
3	26.5%	32.7%
4	14.3%	13.8%
5	0.0%	0.0%
6	0.0%	30.6%
7	37.5%	35.0%
8	0.0%	0.0%
9	32.8%	28.6%
10	46.9%	0.0%
11	8.5%	7.4%
12	7.4%	7.4%
13	24.2%	24.2%
14	48.6%	42.5%
15	100.0%	42.9%

[1] NH stands for non-Hispanic

Table 7: Threshold Analysis		
16	100.0%	36.7%
17	50.0%	13.8%
18	0.0%	20.0%
19	65.6%	0.0%
20	0.0%	0.0%
21	22.2%	16.7%
22	30.0%	26.5%
23	55.6%	42.3%
24	30.8%	28.6%
25	88.5%	31.5%
26	20.0%	0.0%
27	31.6%	26.5%
28	0.0%	0.0%
29	31.3%	29.6%
30	51.6%	39.0%

[1] NH stands for non-Hispanic

Table 8: Summary Table

District	Total Pop.	CVAP				Dem. Wins	Rep. Wins	Vote Spread	Polarized?	Threshold
		Hispanic	NH White[1]	NH Black[1]	NH Native American[1]					
1	237896	10.0%	85.6%	0.8%	2.1%	0	8	−27.9%	No	0.0%
2	246674	15.4%	75.0%	4.1%	1.7%	3	5	−2.7%	Yes	26.5%
3	236955	4.8%	89.2%	1.4%	0.9%	0	8	−26.1%	Yes	26.5%
4	244298	8.5%	84.1%	2.2%	0.8%	3	5	−3.6%	Yes	14.3%
5	239088	25.4%	61.4%	6.6%	3.4%	8	0	38.5%	No	0.0%
6	225474	7.0%	29.1%	0.8%	62.4%	8	0	33.6%	Yes	30.6%
7	240205	17.3%	74.8%	2.2%	3.9%	0	8	−21.3%	Yes	37.5%
8	244166	19.3%	64.9%	7.2%	4.7%	8	0	30.0%	No	0.0%
9	238117	25.0%	62.0%	5.9%	4.3%	5	3	2.6%	Yes	32.8%
10	235579	12.4%	81.5%	2.9%	1.4%	0	8	−22.0%	Yes	46.9%
11	237844	47.2%	26.8%	19.7%	3.2%	8	0	53.5%	Yes	8.5%
12	238923	15.6%	69.3%	6.6%	2.7%	8	0	15.0%	Yes	7.4%
13	237866	15.6%	69.7%	5.3%	1.6%	4	4	−1.1%	Yes	24.2%
14	241692	14.9%	74.1%	4.3%	0.9%	0	8	−17.8%	Yes	48.6%

[1] NH stands for non-Hispanic

Table 8: Summary Table

15	240037	16.3%	74.7%	3.8%	1.5%	0	8	−26.4%	No	100.0%
16	236940	29.9%	53.6%	6.1%	7.9%	0	8	−4.0%	No	100.0%
17	239669	15.5%	77.5%	2.5%	0.8%	0	8	−8.1%	No	50.0%
18	243411	19.2%	72.0%	3.6%	1.5%	8	0	21.1%	No	0.0%
19	230476	25.7%	66.9%	3.5%	1.6%	0	8	−22.7%	Yes	65.6%
20	238486	47.4%	41.5%	3.7%	4.6%	8	0	53.9%	No	0.0%
21	244412	47.7%	42.3%	5.4%	2.0%	8	0	28.5%	Yes	22.2%
22	238320	53.3%	29.7%	10.8%	2.0%	8	0	37.2%	Yes	30.0%
23	232246	52.6%	34.8%	4.3%	6.3%	8	0	17.5%	Yes	55.6%
24	234992	50.4%	36.0%	8.5%	2.3%	8	0	33.2%	Yes	30.8%
25	243005	27.5%	62.3%	5.9%	1.6%	0	8	−24.6%	Yes	88.5%
26	237193	47.4%	36.2%	9.4%	3.6%	8	0	39.9%	Yes	20.0%
27	240634	18.6%	70.5%	4.3%	1.6%	0	8	−8.7%	Yes	31.6%
28	228803	7.1%	86.6%	2.2%	0.7%	0	8	−24.5%	No	0.0%
29	240102	20.3%	68.4%	6.4%	1.0%	0	8	−14.1%	Yes	31.3%
30	237999	13.1%	81.1%	1.3%	3.1%	0	8	−48.2%	Yes	51.6%

[1] NH stands for non-Hispanic

Table 9a: Primary Election Analysis - LD6

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	0.0%	12.5%	0.0%	21.6%	72.6%	74.4%	72.9%	73.6%
Governor	0.0%	12.5%	0.0%	21.5%	46.6%	48.4%	47.2%	47.1%
Super. of Public Instr.	0.0%	11.6%	0.0%	21.4%	60.3%	57.8%	60.1%	60.4%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9b: Primary Election Analysis - LD11

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	8.2%	16.8%	12.4%	23.5%	72.5%	73.9%	68.9%	73.9%
Governor	8.5%	16.4%	11.6%	23.5%	72.3%	65.0%	58.1%	97.0%
Super. of Public Instr.	7.8%	16.1%	11.6%	19.4%	49.6%	51.8%	65.1%	51.7%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9c: Primary Election Analysis - LD20

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	15.0%	12.1%	0.0%	44.3%	78.7%	78.9%	78.3%	78.9%
Governor	15.0%	12.2%	0.0%	43.4%	42.4%	42.0%	43.3%	42.0%
Super. of Public Instr.	14.4%	11.6%	0.0%	42.7%	57.1%	56.4%	58.4%	56.5%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9d: Primary Election Analysis - LD21

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	10.1%	28.9%	0.0%	0.0%	77.1%	77.1%	77.1%	76.8%
Governor	10.5%	28.7%	0.0%	0.0%	48.4%	48.5%	48.4%	48.6%
Super. of Public Instr.	10.0%	27.6%	0.0%	0.0%	56.7%	56.4%	56.0%	55.7%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9e: Primary Election Analysis - LD22

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	2.0%	22.6%	0.0%	0.0%	44.5%	75.0%	96.0%	86.7%
Governor	2.2%	22.1%	0.0%	0.0%	96.8%	64.5%	62.4%	67.8%
Super. of Public Instr.	1.9%	21.5%	0.0%	0.0%	47.3%	50.4%	30.8%	42.8%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9f: Primary Election Analysis - LD23

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	0.6%	6.0%	0.0%	91.7%	0.0%	73.9%	75.6%	73.6%
Governor	2.2%	4.7%	0.0%	91.9%	84.9%	54.6%	63.4%	56.9%
Super. of Public Instr.	1.6%	4.9%	0.0%	88.7%	69.9%	57.9%	51.8%	54.9%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9g: Primary Election Analysis - LD24

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	6.3%	11.3%	7.2%	0.0%	73.5%	78.6%	73.1%	72.2%
Governor	6.4%	11.0%	7.6%	0.0%	74.5%	50.0%	65.1%	48.5%
Super. of Public Instr.	6.2%	10.7%	7.1%	0.0%	48.4%	53.8%	64.3%	49.7%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 9h: Primary Election Analysis - LD26

2018 Democratic Primary Winners

	Turnout				Candidate Preference			
Contest	Hispanic/Latino[1]	NH White[1,2]	NH Black[1,2]	NH Native American[1,2]	Hispanic/Latino[3]	NH White[2,3]	NH Black[2,3]	NH Native American[2,3]
US Senate	6.8%	17.0%	0.0%	1.9%	72.7%	75.2%	77.8%	88.0%
Governor	7.1%	16.5%	0.0%	0.8%	75.2%	59.9%	84.3%	0.0%
Super. of Public Instr.	6.8%	15.8%	0.0%	1.1%	47.5%	51.6%	41.4%	100.0%

[1] Turnout regressed on racial/ethnic group proportions of CVAP

[2] NH stands for non-Hispanic

[3] Candidate vote share regressed on estimated turnout of racial/ethnic group

Table 10: Measures of Competitiveness

Measure	Composite	Pres 2020	US Sen 2020	US Sen 2018	AG 2018
Partisan Bias	1.00	-0.22	-0.01	0.52	1.96
Responsiveness	1.97	2.32	2.45	2.46	1.82
Symmetry	2.69	-2.14	-1.94	2.16	3.09
Mean-Median	3.24	2.32	2.91	2.65	3.74
Efficiency Gap	1.19	-0.26	-0.36	0.15	2.19

Table 11: Democratic Party Preference Estimates

District	Hispanic/Latino, **Coefficient, (CI)**[1]	NH White, **Coefficient, (CI)**[1,2]	NH Black, **Coefficient, (CI)**[1,2]	NH Native American, **Coefficient, (CI)**[1,2]
1	0.3 (-0.41, 1.01)	0.36 (-0.73, 1.44)	1 (-1.22, 10.79)	0.04 (-1.56, 1.64)
2	0.75 (0.48, 1.01)	0.41 (0.09, 0.73)	0.86 (0.37, 1.34)	1 (-0.03, 2.36)
3	1 (0.46, 1.86)	0.32 (-0.07, 0.7)	1 (0.48, 3.37)	0.87 (0.52, 1.22)
4	0.98 (0.72, 1.23)	0.42 (0.06, 0.78)	1 (0.52, 2.02)	1 (-0.1, 3.08)
5	0.99 (0.74, 1.24)	0.54 (0.28, 0.81)	1 (0.48, 1.92)	1 (0.13, 2.26)
6	0 (-0.96, 0.14)	0.35 (0.21, 0.49)	0 (-7.53, -0.05)	0.84 (0.7, 0.98)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 11: Democratic Party Preference Estimates

7	0.85 (0.54, 1.17)	0.29 (-0.08, 0.65)	1 (1.72, 5.01)	0.89 (0, 1.78)
8	1 (0.76, 1.39)	0.53 (0.29, 0.76)	1 (1.03, 2.04)	0.82 (0.5, 1.13)
9	0.91 (0.54, 1.28)	0.3 (-0.06, 0.66)	1 (0.81, 3.01)	1 (0.72, 3.1)
10	0.67 (0.39, 0.95)	0.35 (-0.03, 0.73)	0.99 (0.4, 1.58)	0 (-1.56, 1.36)
11	0.93 (0.74, 1.12)	0.46 (0.3, 0.62)	0.8 (0.48, 1.12)	1 (0.69, 1.97)
12	1 (0.93, 1.55)	0.46 (0.25, 0.67)	1 (0.95, 1.54)	1 (0.78, 2.23)
13	1 (0.91, 1.24)	0.34 (0.18, 0.49)	1 (1.24, 2.53)	1 (0.01, 3.85)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 11: Democratic Party Preference Estimates

14	0.68 (0.22, 1.14)	0.33 (-0.2, 0.85)	0.99 (0.09, 1.9)	0.73 (-0.57, 2.03)
15	0.45 (0.12, 0.79)	0.35 (-0.07, 0.77)	0.36 (-0.29, 1.02)	0.7 (-0.29, 1.69)
16	0.3 (-0.11, 0.71)	0.28 (0, 0.56)	0.19 (-0.51, 0.89)	0.88 (0.7, 1.07)
17	0.58 (0.35, 0.81)	0.42 (0.16, 0.67)	1 (0.68, 1.76)	1 (0.43, 2.66)
18	0.59 (0.23, 0.96)	0.58 (0.13, 1.02)	1 (0.86, 2.61)	0.18 (-1.57, 1.93)
19	0.61 (0.43, 0.79)	0.29 (0.06, 0.52)	0.27 (-0.49, 1.03)	0 (-2.21, 0.84)
20	0.79 (0.61, 0.97)	0.73 (0.55, 0.91)	0.15 (-1.05, 1.34)	1 (0.65, 1.54)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 11: Democratic Party Preference Estimates

21	0.85 (0.68, 1.02)	0.4 (0.24, 0.56)	0.79 (-0.12, 1.7)	1 (0.95, 4.7)
22	0.92 (0.71, 1.14)	0.32 (0.17, 0.46)	1 (0.03, 1.97)	1 (-0.2, 3.69)
23	0.74 (0.5, 0.97)	0.2 (0.03, 0.36)	0 (-2.82, -0.85)	0.91 (0.65, 1.17)
24	0.95 (0.82, 1.09)	0.3 (0.19, 0.41)	0.75 (-0.37, 1.88)	1 (-0.37, 3.6)
25	0.53 (0.26, 0.79)	0.27 (-0.02, 0.56)	0.83 (0.23, 1.44)	1 (-0.55, 2.71)
26	0.9 (0.76, 1.04)	0.4 (0.25, 0.54)	0.19 (-0.53, 0.91)	0.12 (-1.32, 1.56)
27	0.89 (0.72, 1.07)	0.32 (0.11, 0.53)	1 (1.03, 2.12)	1 (0.09, 2.31)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 11: Democratic Party Preference Estimates				
28	0.23 (-0.06, 0.52)	0.39 (0.11, 0.67)	0.41 (-0.3, 1.13)	0 (-1.99, 0.36)
29	0.96 (0.78, 1.13)	0.29 (0.07, 0.51)	1 (0.85, 2.77)	1 (-2.32, 4.87)
30	0.8 (0.49, 1.1)	0.18 (-0.02, 0.37)	1 (0.37, 3.67)	1 (0.78, 1.29)
Statewide	0.89 (0.84, 0.94)	0.33 (0.28, 0.37)	1 (1.6, 1.96)	0.87 (0.8, 0.94)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 12a: Candidate Preference by Demographic Group - LD6[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.73 (0.6964, 0.7559)	0.74 (0.7086, 0.7804)	0.73 (0.7049, 0.753)	0.74 (0.7097, 0.7621)
Governor	0.47 (0.4274, 0.508)	0.48 (0.4352, 0.532)	0.47 (0.4398, 0.5051)	0.47 (0.4359, 0.5066)
Super. of Public Instr.	0.6 (0.5654, 0.6416)	0.58 (0.5333, 0.6219)	0.6 (0.5702, 0.6319)	0.6 (0.5709, 0.6375)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12b: Candidate Preference by Demographic Group - LD11[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.72 (0.6531, 0.7923)	0.74 (0.667, 0.8106)	0.69 (0.5735, 0.7935)	0.74 (0.5504, 0.9239)
Governor	0.72 (0.6184, 0.8504)	0.65 (0.5187, 0.7845)	0.58 (0.3747, 0.7943)	0.97 (0.746, 1.3483)
Super. of Public Instr.	0.5 (0.4104, 0.5807)	0.52 (0.4363, 0.6002)	0.65 (0.5501, 0.7523)	0.52 (0.2995, 0.7352)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12c: Candidate Preference by Demographic Group - LD20[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.79 (0.7752, 0.7994)	0.79 (0.7695, 0.8097)	0.78 (0.7696, 0.7962)	0.79 (0.7762, 0.8024)
Governor	0.42 (0.3963, 0.4513)	0.42 (0.3728, 0.465)	0.43 (0.4032, 0.4628)	0.42 (0.3901, 0.4496)
Super. of Public Instr.	0.57 (0.5576, 0.5843)	0.56 (0.5359, 0.5925)	0.58 (0.5699, 0.5988)	0.57 (0.5508, 0.58)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12d: Candidate Preference by Demographic Group - LD21[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.77 (0.7574, 0.7857)	0.77 (0.7568, 0.7855)	0.77 (0.7556, 0.7859)	0.77 (0.7515, 0.7838)
Governor	0.48 (0.4402, 0.5278)	0.48 (0.4439, 0.5254)	0.48 (0.4418, 0.5261)	0.49 (0.4404, 0.5311)
Super. of Public Instr.	0.57 (0.5542, 0.5805)	0.56 (0.5512, 0.5759)	0.56 (0.5468, 0.5736)	0.56 (0.5428, 0.5718)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12e: Candidate Preference by Demographic Group - LD22[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.45 (0.1671, 0.7103)	0.75 (0.6735, 0.8314)	0.96 (0.7226, 1.2238)	0.87 (0.7553, 1.0001)
Governor	0.97 (0.6904, 1.3593)	0.64 (0.5548, 0.7296)	0.62 (0.2945, 0.942)	0.68 (0.517, 0.8413)
Super. of Public Instr.	0.47 (0.176, 0.7703)	0.5 (0.4251, 0.5839)	0.31 (0.0652, 0.5516)	0.43 (0.304, 0.5517)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12f: Candidate Preference by Demographic Group - LD23[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0 (0.1514, 0.5647)	0.74 (0.6617, 0.8157)	0.76 (0.6838, 0.8273)	0.74 (0.6946, 0.7766)
Governor	0.85 (0.6013, 1.4942)	0.55 (0.402, 0.7004)	0.63 (0.4894, 0.7675)	0.57 (0.4895, 0.6498)
Super. of Public Instr.	0.7 (0.506, 0.8928)	0.58 (0.5191, 0.6396)	0.52 (0.4587, 0.5763)	0.55 (0.5154, 0.582)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12g: Candidate Preference by Demographic Group - LD24[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.74 (0.6643, 0.8045)	0.79 (0.707, 0.8707)	0.73 (0.4698, 0.9903)	0.72 (0.5112, 0.928)
Governor	0.75 (0.6282, 0.8746)	0.5 (0.357, 0.6284)	0.65 (0.0698, 1.2565)	0.48 (0.0003, 0.9448)
Super. of Public Instr.	0.48 (0.3943, 0.5735)	0.54 (0.4384, 0.6375)	0.64 (0.3294, 0.9557)	0.5 (0.2409, 0.7526)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 12h: Candidate Preference by Demographic Group - LD26[1]

2018 Democratic Primary Winners

Contest	Hispanic/Latino, **Coefficient, (CI)**[2]	NH White, **Coefficient, (CI)**[2,3]	NH Black, **Coefficient, (CI)**[2,3]	NH Native American, **Coefficient, (CI)**[2,3]
US Senate	0.73 (0.6421, 0.8122)	0.75 (0.676, 0.8286)	0.78 (0.6514, 0.9063)	0.88 (-2.3061, 4.239)
Governor	0.75 (0.6449, 0.8772)	0.6 (0.4848, 0.6973)	0.84 (0.6482, 1.0782)	0 (-7.6079, 4.0956)
Super. of Public Instr.	0.48 (0.3851, 0.5659)	0.52 (0.4414, 0.5909)	0.41 (0.2828, 0.5456)	1 (-1.5829, 5.273)

[1] Candidate vote share regressed on estimated turnout of racial/ethnic group

[2] Estimates are from ecological regression with 95% confidence interval in parentheses

[3] NH stands for non-Hispanic

Table 13a: Racial Voting Pattern by Contest: LD-11

Contest	Hispanic/Latino, **Coefficient, (CI)**[1]	NH White, **Coefficient, (CI)**[1,2]
2018 Governor	0.9 (0.7058, 1.0966)	0.37 (0.1952, 0.5474)
2018 Attorney General	0.94 (0.7469, 1.1246)	0.43 (0.2775, 0.5892)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

Table 13b: Racial Voting Pattern by Contest: LD-20

Contest	Hispanic/Latino, **Coefficient, (CI)**[1]	NH White, **Coefficient, (CI)**[1,2]
2018 Governor	0.9 (0.7058, 1.0966)	0.37 (0.1952, 0.5474)
2018 Attorney General	0.94 (0.7469, 1.1246)	0.43 (0.2775, 0.5892)

[1] Estimates are from ecological regression with 95% confidence interval in parentheses

[2] NH stands for non-Hispanic

APPENDIX C

Official Congressional Map 14.0

Pct Dev : (population deviation from the ideal population)

Vote Spread Key: (Difference between average Democratic and average Republican votes in 9 state elections): "highly competitive" = 4% spread or less; "competitive" = spread between 4% and 7%
Democratic / Republican Wins: (# wins in 9 statewide elections): "Swing Districts" each party won at least 1 election out of the 9
VRA Tracking: two statewide White vs Latino elections identified as good measures of Latino voters' ability to elect their preferred candidates

Category	2020 Census			Total Population					Citizen Voting Age Pop						NH Native Amer Single-Race VAP	Competitiveness			VRA Tracking	
Field	Total Pop	Deviation from Ideal	Pct Dev	Hispanic / Latino	NH White	NH Black	NH Asian / Pac Isl	NH Native Amer	Total CVAP	Hispanic / Latino	NH White	NH Black	NH Asian / Pac Isl	NH Native Amer		Vote Spread	Dem Wins	Rep Wins	Dem Gov '18	Dem AtG '18
1	794,611	0	0 00%	16%	70%	4%	6%	2%	608,665	11%	80%	3%	4%	2%	1%	2 6%	4	5	41 4%	46 4%
2	794,612	1	0 00%	17%	55%	3%	2%	22%	593,135	14%	62%	2%	1%	21%	18%	7 2%	0	9	40 0%	45 3%
3	794,612	1	0 00%	63%	20%	11%	3%	2%	433,659	51%	31%	12%	3%	3%	2%	52 9%	9	0	70 7%	75 4%
4	794,611	0	0 00%	27%	55%	6%	7%	3%	567,091	19%	68%	6%	4%	3%	2%	7 0%	8	1	46 7%	51 2%
5	794,612	1	0 00%	18%	67%	4%	7%	2%	502,662	14%	76%	4%	5%	1%	1%	18 1%	0	9	34 7%	39 3%
6	794,611	0	0 00%	25%	63%	4%	4%	2%	592,361	21%	70%	3%	3%	2%	1%	2 4%	3	6	41 9%	48 8%
7	794,611	0	0 00%	60%	28%	4%	3%	4%	515,833	51%	38%	4%	2%	4%	3%	35 4%	9	0	61 8%	68 3%
8	794,610	-1	0 00%	21%	64%	5%	6%	2%	562,017	15%	75%	4%	4%	1%	1%	15 3%	0	9	34 7%	40 6%
9	794,612	1	0 00%	30%	57%	5%	3%	3%	534,809	22%	68%	5%	2%	2%	1%	26 0%	0	9	30 6%	36 0%
Statewide	7,151,502	2	0 00%	31%	53%	5%	5%	5%	4,910,232	23%	64%	5%	3%	4%		0 9%	5	4		

Vote Spread: The difference between the Democratic and Republican percentages of total votes cast in the nine focus elections (listed below).

Dem/Rep Wins: The number of elections won by each party from the Commission's nine focus electons: 2020 President and Senate; 2018 Senate, Secretary of State, Attorney General, State Treasurer, Superintendent of Public Education, State Mine Inspector; 2016 President

Notes:

Official Congressional Map 14.0 Assigned District Splits

FIPS	Total Population	2020 Decennial Census Total Population
District 1		
* Maricopa County		
*No Place	19,108	19,108
Carefree	3,690	3,690
Cave Creek	4,892	4,892
Fountain Hills	23,820	23,820
* Mesa	4,704	4,704
Paradise Valley	12,658	12,658
* Phoenix	482,168	482,168
Rio Verde	2,210	2,210
Scottsdale	241,361	241,361
* Maricopa County	794,611	794,611
District 1 Total	794,611	794,611
	100%	100%
District 2		
Apache County		
*No Place	31,092	31,092
Alpine	146	146
Burnside	494	494
Chinle	4,573	4,573
Concho	54	54
Cornfields	221	221

FIPS	Total Population	2020 Decennial Census Total Population
Cottonwood	167	167
Del Muerto	258	258
Dennehotso	587	587
Eagar	4,395	4,395
Fort Defiance	3,541	3,541
Ganado	883	883
Greer	58	58
Houck	886	886
Klagetoh	181	181
Lukachukai	1,424	1,424
Lupton	19	19
Many Farms	1,243	1,243
McNary	483	483
Nazlini	505	505
Nutrioso	39	39
Oak Springs	54	54
Red Mesa	354	354
Red Rock	136	136
Rock Point	552	552
Rough Rock	428	428
Round Rock	640	640
Sanders	575	575
Sawmill	564	564
Sehili	153	153
Springerville	1,717	1,717
St. Johns	3,417	3,417
St. Michaels	1,384	1,384

FIPS	Total Population	2020 Decennial Census Total Population
Steamboat	235	235
Teec Nos Pos	507	507
Toyei	2	2
Tsaile	1,408	1,408
Vernon	126	126
Wide Ruins	20	20
Window Rock	2,500	2,500
Apache County	66,021	66,021
Coconino County		
*No Place	12,922	12,922
Bellemont	1,167	1,167
Bitter Springs	355	355
Blue Ridge	594	594
Cameron	734	734
Doney Park	5,910	5,910
Flagstaff	76,831	76,831
Forest Lakes	155	155
Fort Valley	1,682	1,682
Fredonia	1,323	1,323
Grand Canyon Village	1,784	1,784
Greenehaven	381	381
Kachina Village	2,502	2,502
Kaibab Estates West	1,034	1,034
Kaibito	1,540	1,540
LeChee	1,236	1,236
Leupp	934	934

FIPS	Total Population	2020 Decennial Census Total Population
Moenkopi	771	771
Mormon Lake	90	90
Mountain View Ranches	1,508	1,508
Mountainaire	1,068	1,068
Munds Park	1,096	1,096
Oak Creek Canyon	442	442
Page	7,440	7,440
Parks	1,382	1,382
Red Lake	1,680	1,680
Sedona	2,547	2,547
Supai	0	0
Timberline-Fernwood	2,572	2,572
Tolani Lake	227	227
Tonalea	451	451
Tuba City	8,072	8,072
Tusayan	603	603
Valle	759	759
Williams	3,202	3,202
Winslow West	107	107
Coconino County	145,101	145,101
Gila County		
*No Place	2,734	2,734
Bear Flat	11	11
Beaver Valley	226	226
Canyon Day	1,205	1,205
Carrizo	92	92

FIPS	Total Population	2020 Decennial Census Total Population
Cedar Creek	372	372
Central Heights-Midland City	2,319	2,319
Christopher Creek	121	121
Claypool	1,395	1,395
Copper Hill	158	158
Cutter	84	84
Deer Creek	230	230
Dripping Springs	142	142
East Globe	259	259
East Verde Estates	151	151
El Capitan	48	48
Flowing Springs	34	34
Freedom Acres	90	90
Geronimo Estates	30	30
Gisela	536	536
Globe	7,249	7,249
Haigler Creek	35	35
Hayden	512	512
Hunter Creek	51	51
Icehouse Canyon	574	574
Jakes Corner	98	98
Kohls Ranch	30	30
Mead Ranch	42	42
Mesa del Caballo	781	781
Miami	1,541	1,541
Oxbow Estates	198	198
Payson	16,351	16,351

FIPS	Total Population	2020 Decennial Census Total Population
Peridot	444	444
Pinal	456	456
Pine	1,953	1,953
Rock House	10	10
Roosevelt	26	26
Roosevelt Estates	449	449
Round Valley	459	459
Rye	104	104
San Carlos	3,987	3,987
Six Shooter Canyon	958	958
Star Valley	2,484	2,484
Strawberry	943	943
Tonto Basin	1,444	1,444
Tonto Village	209	209
Top-of-the-World	0	0
Washington Park	85	85
Wheatfields	556	556
Whispering Pines	124	124
Winkelman	294	294
Young	588	588
Gila County	53,272	53,272
* Graham County		
*No Place	2,074	2,074
Bylas	1,782	1,782
Peridot	864	864

FIPS	Total Population	2020 Decennial Census Total Population
* Graham County	4,720	4,720
* Maricopa County		
*No Place	390	390
Gila Crossing	636	636
Komatke	1,013	1,013
Maricopa Colony	854	854
St. Johns	690	690
* Maricopa County	3,583	3,583
* Mohave County		
*No Place	235	235
Grand Canyon West	0	0
Kaibab	140	140
Moccasin	53	53
Peach Springs	1,098	1,098
* Mohave County	1,526	1,526
Navajo County		
*No Place	21,273	21,273
Chilchinbito	769	769
Cibecue	1,816	1,816
Clay Springs	331	331
Di kon	1,194	1,194
East Fork	672	672
First Mesa	1,352	1,352
Fort Apache	113	113
Greasewood	372	372

FIPS	Total Population	2020 Decennial Census Total Population
Hard Rock	38	38
Heber-Overgaard	2,898	2,898
Holbrook	4,858	4,858
Hondah	814	814
Hotevilla-Bacavi	1,001	1,001
Indian Wells	232	232
Jeddito	346	346
Joseph City	1,307	1,307
Kayenta	4,670	4,670
Keams Canyon	265	265
Kykotsmovi Village	736	736
Lake of the Woods	3,648	3,648
Linden	2,760	2,760
Low Mountain	631	631
McNary	1	1
North Fork	1,467	1,467
Oljato-Monument Valley	115	115
Pinedale	482	482
Pinetop Country Club	1,409	1,409
Pinetop-Lakeside	4,030	4,030
Pinon	1,084	1,084
Rainbow City	1,001	1,001
Seba Dalkai	126	126
Second Mesa	843	843
Seven Mile	742	742
Shongopovi	711	711
Shonto	494	494

FIPS	Total Population	2020 Decennial Census Total Population
Show Low	11,732	11,732
Shumway	347	347
Snowflake	6,104	6,104
Sun Valley	153	153
Taylor	3,995	3,995
Tees Toh	420	420
Turkey Creek	377	377
Wagon Wheel	1,856	1,856
White Mountain Lake	2,335	2,335
Whitecone	768	768
Whiteriver	4,520	4,520
Winslow	9,005	9,005
Winslow West	350	350
Woodruff	154	154
Navajo County	106,717	106,717
* Pinal County		
*No Place	27,987	27,987
Ak-Chin Village	884	884
Blackwater	1,190	1,190
Cactus Forest	606	606
Casa Blanca	1,727	1,727
* Casa Grande	23,433	23,433
Coolidge	13,218	13,218
Dudleyville	597	597
Florence	26,785	26,785
* Gold Canyon	10,320	10,320

FIPS	Total Population	2020 Decennial Census Total Population
Goodyear Village	463	463
Hayden	0	0
Kearny	1,741	1,741
Lower Santan Village	437	437
Maricopa	58,125	58,125
Queen Valley	967	967
Sacate Village	260	260
Sacaton	3,254	3,254
Sacaton Flats Village	576	576
Santa Cruz	39	39
Stanfield	558	558
Stotonic Village	610	610
Superior	2,407	2,407
Sweet Water Village	123	123
Top-of-the-World	189	189
Upper Santan Village	665	665
Wet Camp Village	300	300
Winkelman	2	2
* Pinal County	177,463	177,463
Yavapai County		
*No Place	36,262	36,262
Ash Fork	361	361
Bagdad	1,932	1,932
Black Canyon City	2,677	2,677
Camp Verde	12,147	12,147
Chino Valley	13,020	13,020

FIPS	Total Population	2020 Decennial Census Total Population
Clarkdale	4,424	4,424
Congress	1,811	1,811
Cordes Lakes	2,684	2,684
Cornville	3,362	3,362
Cottonwood	12,029	12,029
Dewey-Humboldt	4,326	4,326
Jerome	464	464
Lake Montezuma	5,111	5,111
Mayer	1,558	1,558
Paulden	5,567	5,567
Peeples Valley	499	499
* Peoria	0	0
Prescott	45,827	45,827
Prescott Valley	46,785	46,785
Sedona	7,137	7,137
Seligman	446	446
Spring Valley	1,143	1,143
Verde Village	12,019	12,019
Village of Oak Creek (Big Park)	6,128	6,128
* Wickenburg	860	860
Wilhoit	864	864
Williamson	6,196	6,196
Yarnell	570	570
Yavapai County	236,209	236,209
District 2 Total	794,612	794,612

FIPS	Total Population	2020 Decennial Census Total Population
	100%	100%
District 3		
* Maricopa County		
*No Place	6,637	6,637
* Glendale	45,650	45,650
Guadalupe	5,322	5,322
* Phoenix	736,968	736,968
* Tempe	35	35
* Maricopa County	794,612	794,612
District 3 Total	794,612	794,612
	100%	100%
District 4		
* Maricopa County		
*No Place	15,502	15,502
* Chandler	143,516	143,516
* Mesa	373,401	373,401
* Phoenix	81,640	81,640
* Tempe	180,552	180,552
* Maricopa County	794,611	794,611
District 4 Total	794,611	794,611
	100%	100%

FIPS	Total Population	2020 Decennial Census Total Population
District 5		
* Maricopa County		
*No Place	44,754	44,754
Apache Junction	393	393
* Chandler	132,471	132,471
Gilbert	267,918	267,918
* Mesa	126,153	126,153
Queen Creek	50,190	50,190
Sun Lakes	14,868	14,868
* Maricopa County	636,747	636,747
* Pinal County		
*No Place	9,452	9,452
Apache Junction	38,106	38,106
* Gold Canyon	1,084	1,084
Queen Creek	9,329	9,329
San Tan Valley	99,894	99,894
* Pinal County	157,865	157,865
District 5 Total	794,612	794,612
	100%	100%
District 6		
* Cochise County		
*No Place	15,714	15,714

FIPS	Total Population	2020 Decennial Census Total Population
Benson	5,355	5,355
Bowie	406	406
* Douglas	0	0
Dragoon	178	178
Elfrida	421	421
Huachuca City	1,626	1,626
McNeal	182	182
Mescal	1,751	1,751
San Simon	158	158
Sierra Vista	45,308	45,308
Sierra Vista Southeast	14,428	14,428
St. David	1,639	1,639
Sunizona	233	233
Sunsites	790	790
Tombstone	1,308	1,308
Whetstone	3,236	3,236
Willcox	3,213	3,213
* Cochise County	95,946	95,946
* Graham County		
*No Place	9,156	9,156
Bryce	173	173
Cactus Flats	1,524	1,524
Central	758	758
Fort Thomas	319	319
Pima	2,847	2,847
Safford	10,129	10,129

FIPS	Total Population	2020 Decennial Census Total Population
San Jose	467	467
Solomon	399	399
Swift Trail Junction	2,810	2,810
Thatcher	5,231	5,231
* Graham County	33,813	33,813
Greenlee County		
*No Place	2,234	2,234
Clifton	3,933	3,933
Duncan	694	694
Franklin	75	75
Morenci	2,028	2,028
York	599	599
Greenlee County	9,563	9,563
* Pima County		
*No Place	28,184	28,184
Casas Adobes	70,973	70,973
Catalina	7,551	7,551
Catalina Foothills	52,401	52,401
Corona de Tucson	9,240	9,240
Elephant Head	588	588
* Flowing Wells	1,193	1,193
Green Valley	22,616	22,616
J-Six Ranchettes	647	647
Kleindale	165	165
Marana	51,908	51,908

FIPS	Total Population	2020 Decennial Census Total Population
Nelson	249	249
Oro Valley	47,070	47,070
Rillito	94	94
Rincon Valley	5,612	5,612
* Sahuarita	8,346	8,346
Summerhaven	71	71
Tanque Verde	16,250	16,250
* Tucson	233,018	233,018
* Tucson Mountains	1,836	1,836
Vail	13,604	13,604
Willow Canyon	2	2
* Pima County	571,618	571,618
* Pinal County		
*No Place	5,170	5,170
Arizona City	9,868	9,868
Campo Bonito	83	83
* Casa Grande	30,225	30,225
Eloy	15,635	15,635
Mammoth	1,076	1,076
Marana	0	0
Oracle	3,051	3,051
Picacho	250	250
Red Rock	2,625	2,625
Saddlebrooke	12,574	12,574
San Manuel	3,114	3,114

FIPS	Total Population	2020 Decennial Census Total Population
* Pinal County	83,671	83,671
District 6 Total	794,611	794,611
	100%	100%
District 7		
* Cochise County		
*No Place	5,015	5,015
Bisbee	4,923	4,923
* Douglas	16,534	16,534
Miracle Valley	571	571
Naco	824	824
Palominas	222	222
Pirtleville	1,412	1,412
* Cochise County	29,501	29,501
* Maricopa County		
*No Place	2,657	2,657
* Avondale	87,847	87,847
Gila Bend	1,892	1,892
* Goodyear	64	64
Kaka	83	83
* Phoenix	14,608	14,608
Theba	111	111
Tolleson	7,216	7,216
* Maricopa County	114,478	114,478

FIPS	Total Population	2020 Decennial Census Total Population
* Pima County		
*No Place	20,032	20,032
Ajo	3,039	3,039
Ak Chin	50	50
Ali Chuk	119	119
Ali Chukson	113	113
Ali Molina	61	61
Anegam	149	149
Arivaca	623	623
Arivaca Junction	970	970
Avra Valley	5,569	5,569
Charco	27	27
Chiawuli Tak	48	48
Comobabi	44	44
Cowlic	105	105
Drexel Heights	27,523	27,523
* Flowing Wells	14,464	14,464
Gu Oidak	126	126
Haivana Nakya	72	72
Ko Vaya	43	43
Maish Vaya	129	129
Nolic	12	12
Picture Rocks	9,551	9,551
Pisinemo	359	359
* Sahuarita	25,788	25,788
San Miguel	205	205
Santa Rosa	474	474

FIPS	Total Population	2020 Decennial Census Total Population
Sells	2,121	2,121
South Komelik	176	176
South Tucson	4,613	4,613
Summit	4,724	4,724
Three Points	5,184	5,184
Topawa	233	233
* Tucson	309,611	309,611
Tucson Estates	12,069	12,069
* Tucson Mountains	9,026	9,026
Valencia West	14,101	14,101
Ventana	52	52
Wahak Hotrontk	88	88
Why	122	122
* Pima County	471,815	471,815
* Pinal County		
*No Place	5,877	5,877
Chuichu	240	240
Kohatk	37	37
Tat Momoli	18	18
Vaiva Vo	93	93
* Pinal County	6,265	6,265
Santa Cruz County		
*No Place	3,235	3,235
Amado	198	198
Beyerville	72	72

FIPS	Total Population	2020 Decennial Census Total Population
Elgin	162	162
Kino Springs	166	166
Nogales	19,770	19,770
Patagonia	804	804
Rio Rico	20,549	20,549
Sonoita	803	803
Tubac	1,581	1,581
Tumacacori-Carmen	329	329
Santa Cruz County	47,669	47,669
* Yuma County		
*No Place	8,582	8,582
Avenue B and C	4,101	4,101
Donovan Estates	1,295	1,295
Drysdale	225	225
Gadsden	571	571
Orange Grove Mobile Manor	495	495
Rancho Mesa Verde	571	571
San Luis	35,257	35,257
Somerton	14,197	14,197
Wall Lane	262	262
* Wellton	0	0
* Yuma	59,327	59,327
* Yuma County	124,883	124,883
District 7 Total	794,611	794,611

FIPS	Total Population	2020 Decennial Census Total Population
	100%	100%
District 8		
* Maricopa County		
*No Place	15,058	15,058
Anthem	23,190	23,190
* Glendale	155,531	155,531
New River	17,290	17,290
* Peoria	190,985	190,985
* Phoenix	292,752	292,752
Sun City	39,931	39,931
Sun City West	25,806	25,806
* Surprise	34,067	34,067
* Maricopa County	794,610	794,610
District 8 Total	794,610	794,610
	100%	100%
District 9		
La Paz County		
*No Place	2,910	2,910
Alamo Lake	4	4
Bluewater	682	682
Bouse	707	707
Brenda	466	466
Cibola	198	198

FIPS	Total Population	2020 Decennial Census Total Population
Cienega Springs	1,690	1,690
Ehrenberg	763	763
La Paz Valley	368	368
Parker	3,417	3,417
Parker Strip	621	621
Poston	183	183
Quartzsite	2,413	2,413
Salome	1,162	1,162
Sunwest	5	5
Utting	92	92
Vicksburg	418	418
Wenden	458	458
La Paz County	16,557	16,557
* Maricopa County		
*No Place	79,172	79,172
Aguila	565	565
Arlington	150	150
* Avondale	1,487	1,487
Buckeye	91,502	91,502
Circle City	522	522
Citrus Park	5,194	5,194
El Mirage	35,805	35,805
* Glendale	47,144	47,144
* Goodyear	95,230	95,230
Litchfield Park	6,847	6,847
Morristown	186	186

FIPS	Total Population	2020 Decennial Census Total Population
* Phoenix	3	3
* Surprise	109,081	109,081
Tonopah	23	23
* Wickenburg	6,614	6,614
Wintersburg	51	51
Wittmann	684	684
Youngtown	7,056	7,056
* Maricopa County	487,316	487,316
* Mohave County		
*No Place	16,462	16,462
Antares	132	132
Arizona Village	1,057	1,057
Beaver Dam	1,552	1,552
Bullhead City	41,348	41,348
Cane Beds	466	466
Centennial Park	1,578	1,578
Chloride	229	229
Clacks Canyon	167	167
Colorado City	2,478	2,478
Crozier	21	21
Crystal Beach	250	250
Desert Hills	2,764	2,764
Dolan Springs	1,734	1,734
Fort Mohave	16,190	16,190
Golden Shores	1,927	1,927
Golden Valley	8,801	8,801

FIPS	Total Population	2020 Decennial Census Total Population
Hackberry	103	103
Katherine	76	76
Kingman	32,689	32,689
Lake Havasu City	57,144	57,144
Lazy Y U	474	474
Littlefield	256	256
McConnico	63	63
Meadview	1,420	1,420
Mesquite Creek	403	403
Mohave Valley	2,693	2,693
Mojave Ranch Estates	53	53
New Kingman-Butler	12,907	12,907
Oatman	102	102
Pine Lake	142	142
Pinion Pines	158	158
Scenic	1,321	1,321
So-Hi	428	428
Topock	2	2
Truxton	104	104
Valentine	39	39
Valle Vista	1,802	1,802
Walnut Creek	571	571
White Hills	345	345
W kieup	135	135
Willow Valley	1,059	1,059
Yucca	96	96

FIPS	Total Population	2020 Decennial Census Total Population
* Mohave County	211,741	211,741
* Yuma County		
*No Place	10,845	10,845
Aztec	2	2
Buckshot	70	70
Dateland	257	257
El Prado Estates	320	320
Fortuna Foothills	27,776	27,776
Martinez Lake	94	94
Padre Ranchitos	133	133
Tacna	425	425
* Wellton	2,375	2,375
Wellton Hills	167	167
* Yuma	36,221	36,221
Yuma Proving Ground	313	313
* Yuma County	78,998	78,998
District 9 Total	794,612	794,612
	100%	100%

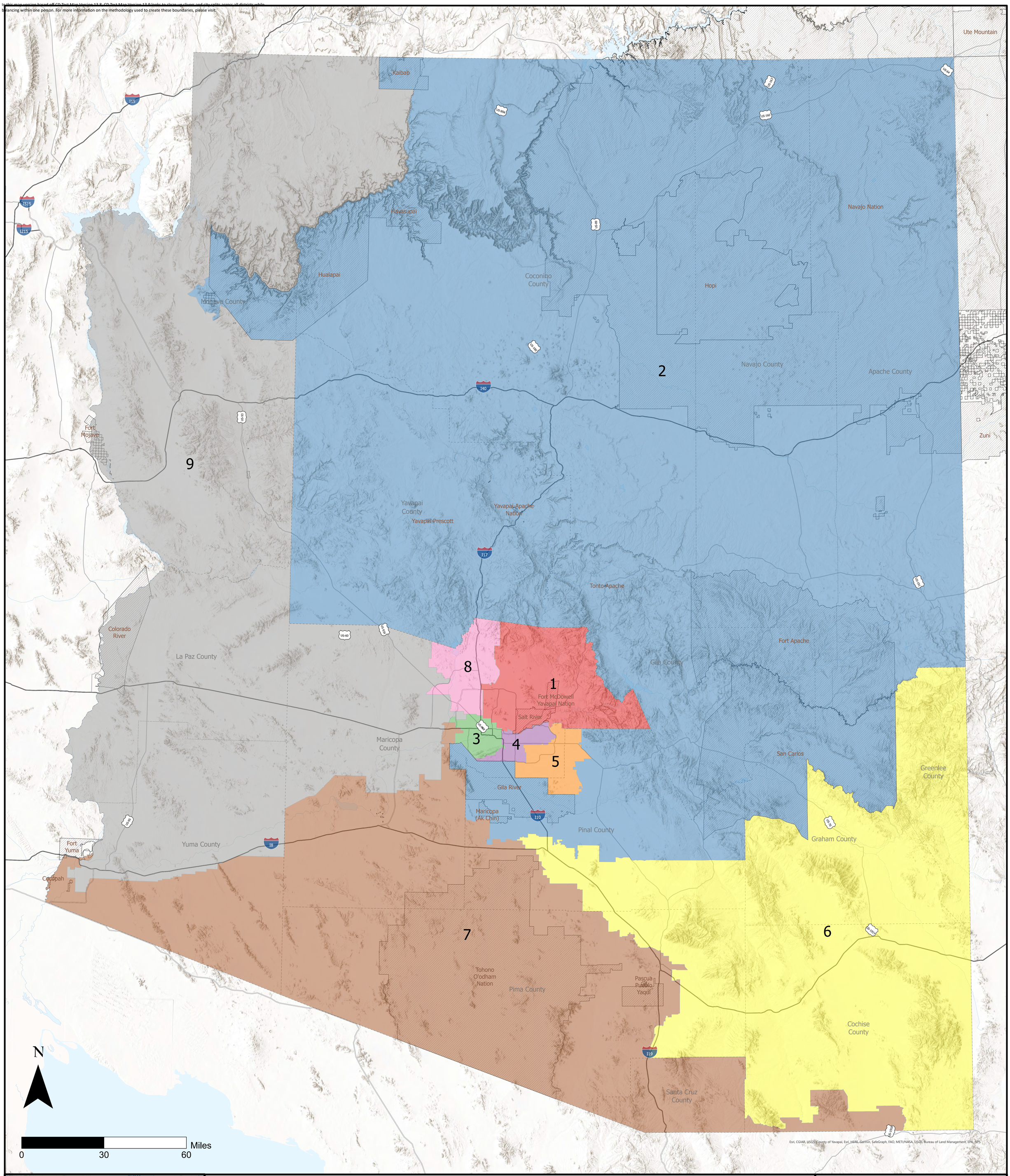
User: brian.kingery
Plan: Official Congressional Map 14.0
wkid: 102100

Date: Thu Jan 06 2022 10:52:06 GMT-0500 (Eastern Standard Time)
Plan No.: 0fcad8ae836c42f0bd1c13417f7ca709

Official Congressional Map 14.0 District Compactness Report

District	Polygon Area (sq. mi)	Perimeter (mi)	Reock	Area/Convex Hull	Grofman	Schwartzberg	Polsby Popper	Holes
Unassigned	0	0	0	0	0	0	0	0
D1	1617.24	232.99	0.45	0.84	5.79	1.63	0.37	0
D2	58970.08	1567.99	0.63	0.85	6.46	1.82	0.3	0
D3	207.04	81.55	0.5	0.83	5.67	1.6	0.39	0
D4	180.21	103.14	0.24	0.65	7.68	2.17	0.21	0
D5	406.71	127.69	0.54	0.73	6.33	1.79	0.31	0
D6	13694.89	876.17	0.4	0.7	7.49	2.11	0.22	0
D7	15415.73	1041.31	0.19	0.69	8.39	2.37	0.18	0
D8	580.28	151.6	0.5	0.76	6.29	1.78	0.32	0
D9	23372.36	1274.92	0.28	0.62	8.34	2.35	0.18	0

In this map version based off CD Test Map Version 13.8, CD Test Map Version 13.9 looks to clean up slivers and city splits across all districts while balancing within one person. For more information on the methodology used to create these boundaries, please visit:

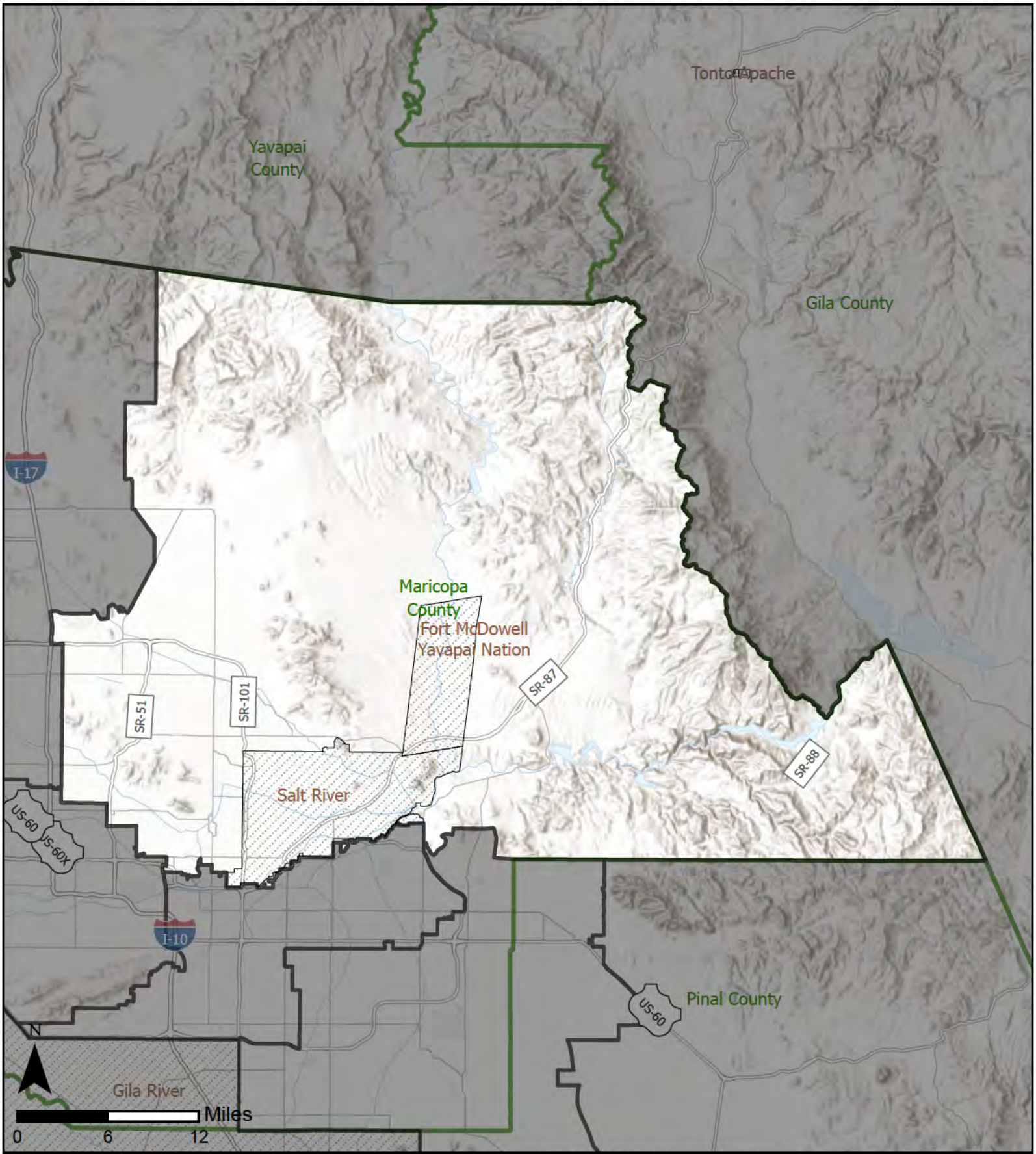


Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

DISTRICT
1
2
3
4
5
6
7
8
9
Arizona Tribal Reservations
Interstate Highways
Arizona Counties
Cities (Pop. > 10k)



Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 1

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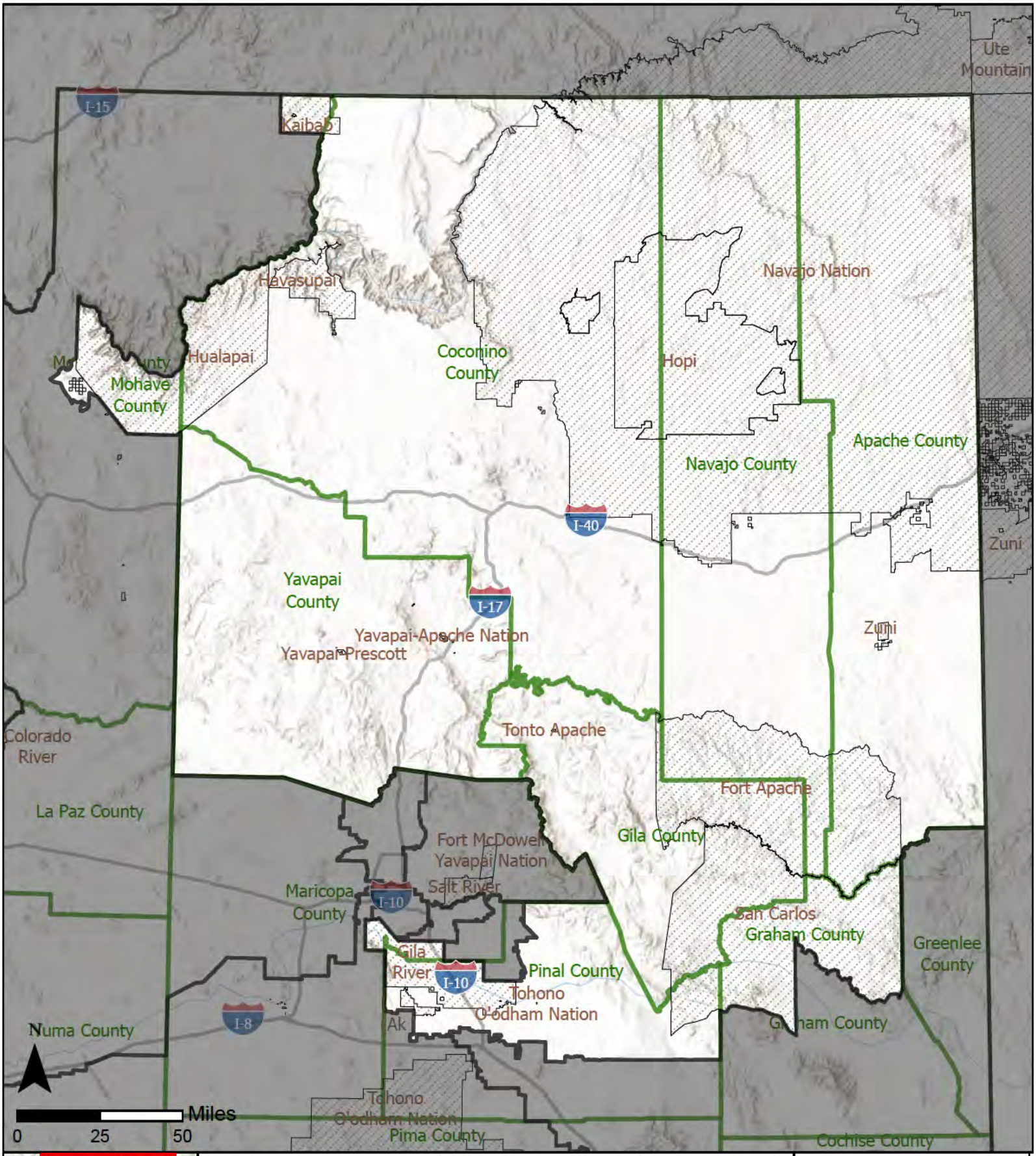
ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

- Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)
- Arizona Tribal Reservations
- ArizonaCounties

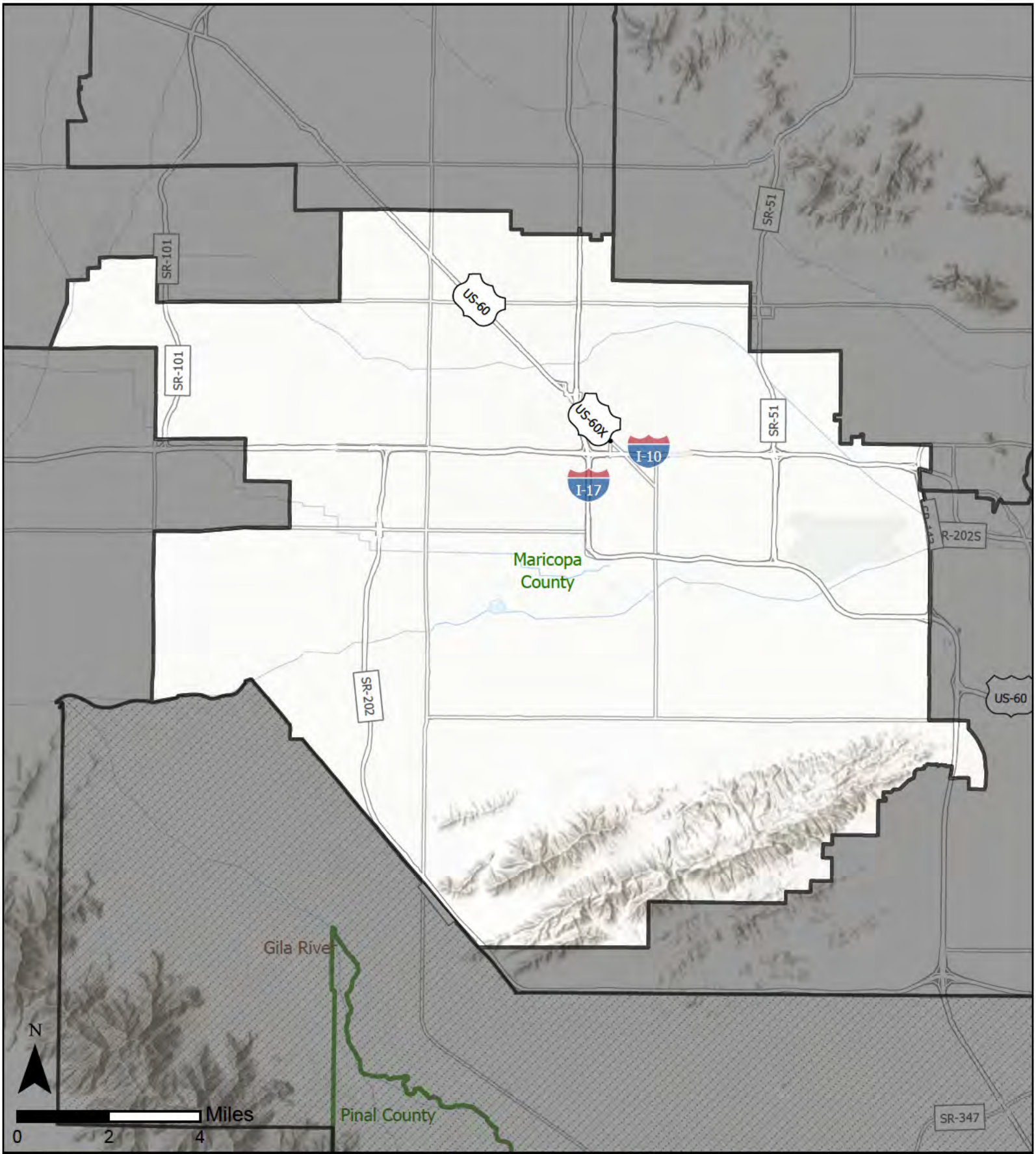


Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 2

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

- Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)
- Arizona Tribal Reservations
- ArizonaCounties

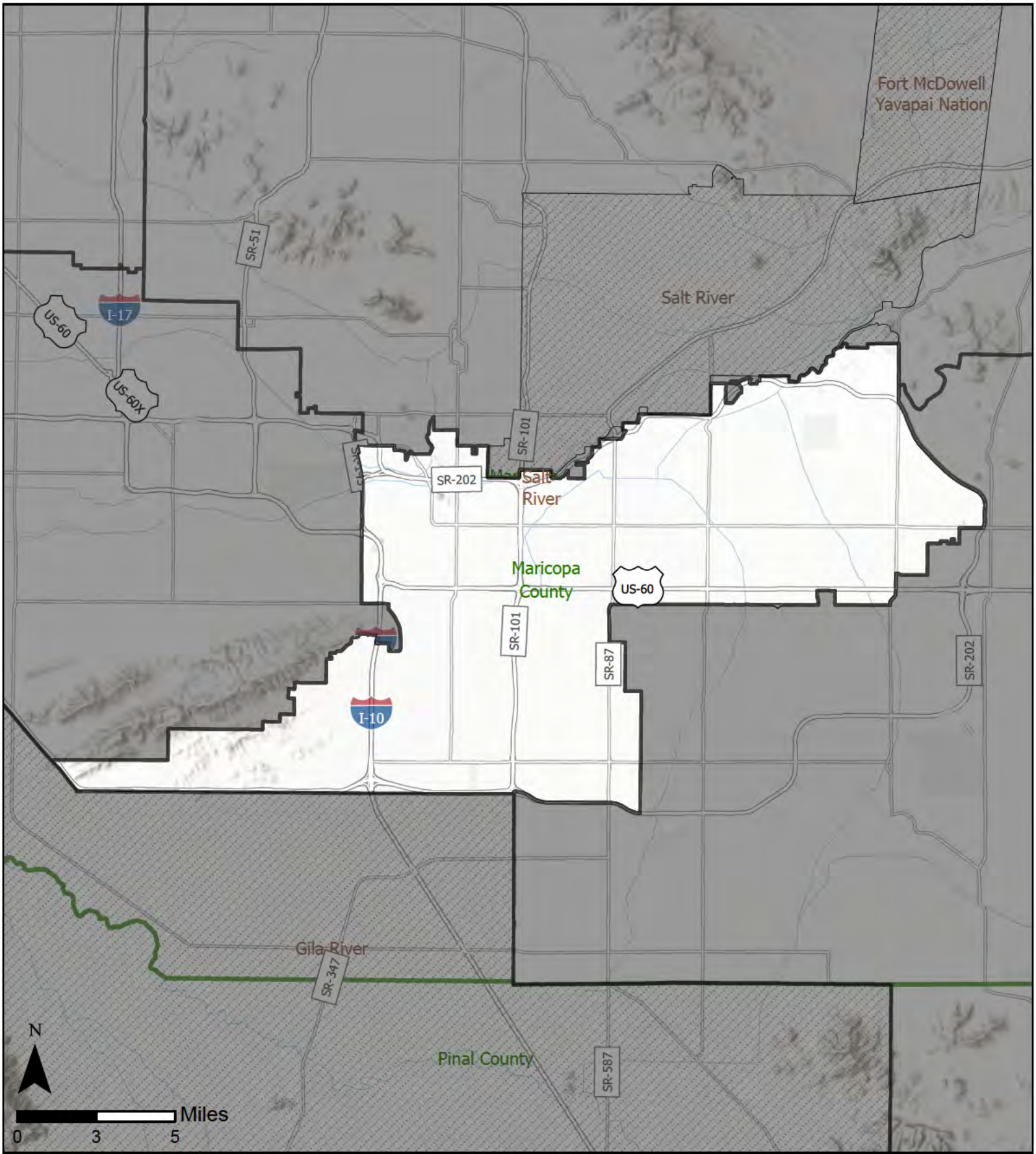


Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 3

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

- Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)
- Arizona Tribal Reservations
- Cities (Pop. > 2.5k)
- ArizonaCounties

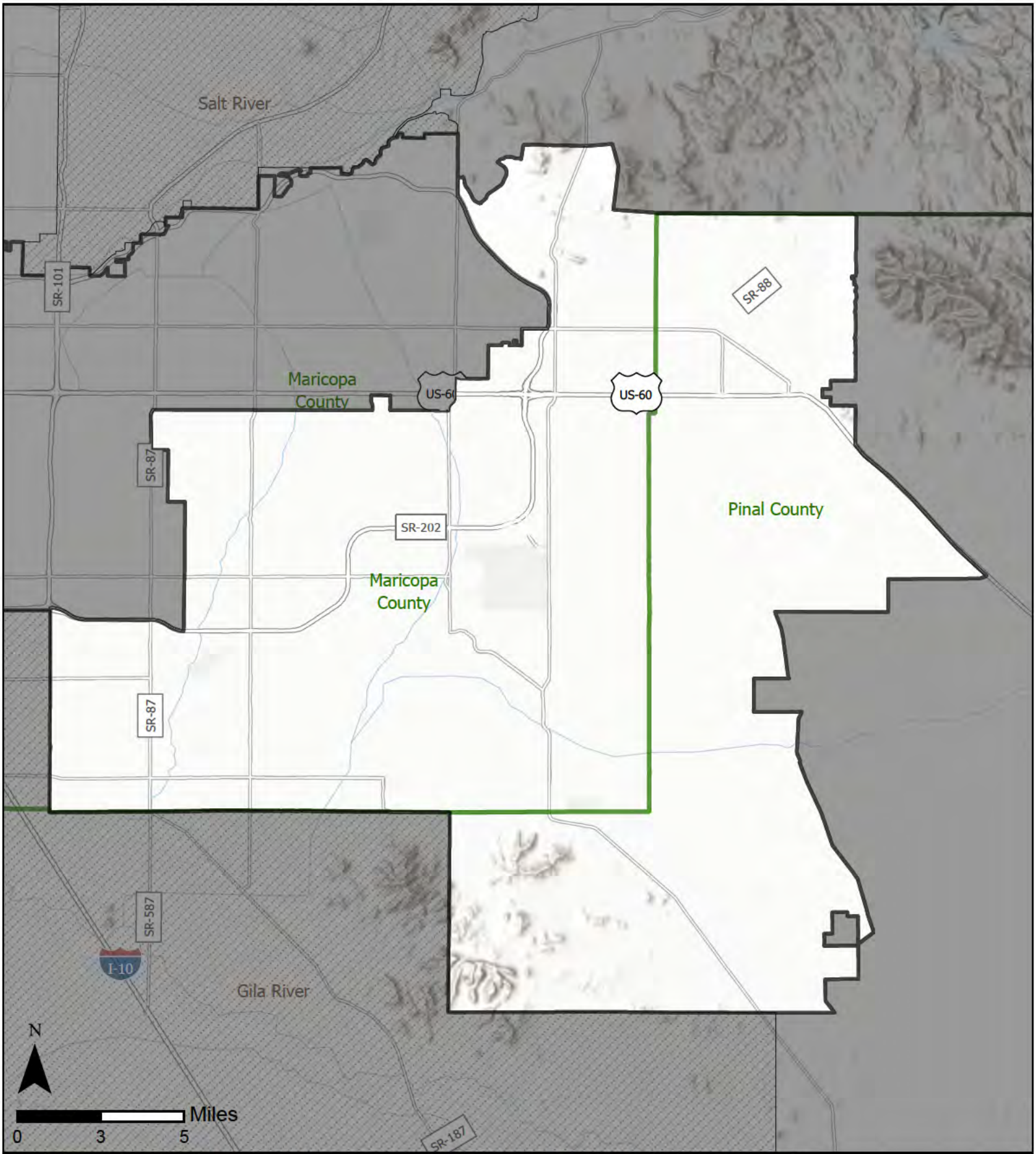


Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 4

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

- Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)
- Arizona Tribal Reservations
- ArizonaCounties



Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 5

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

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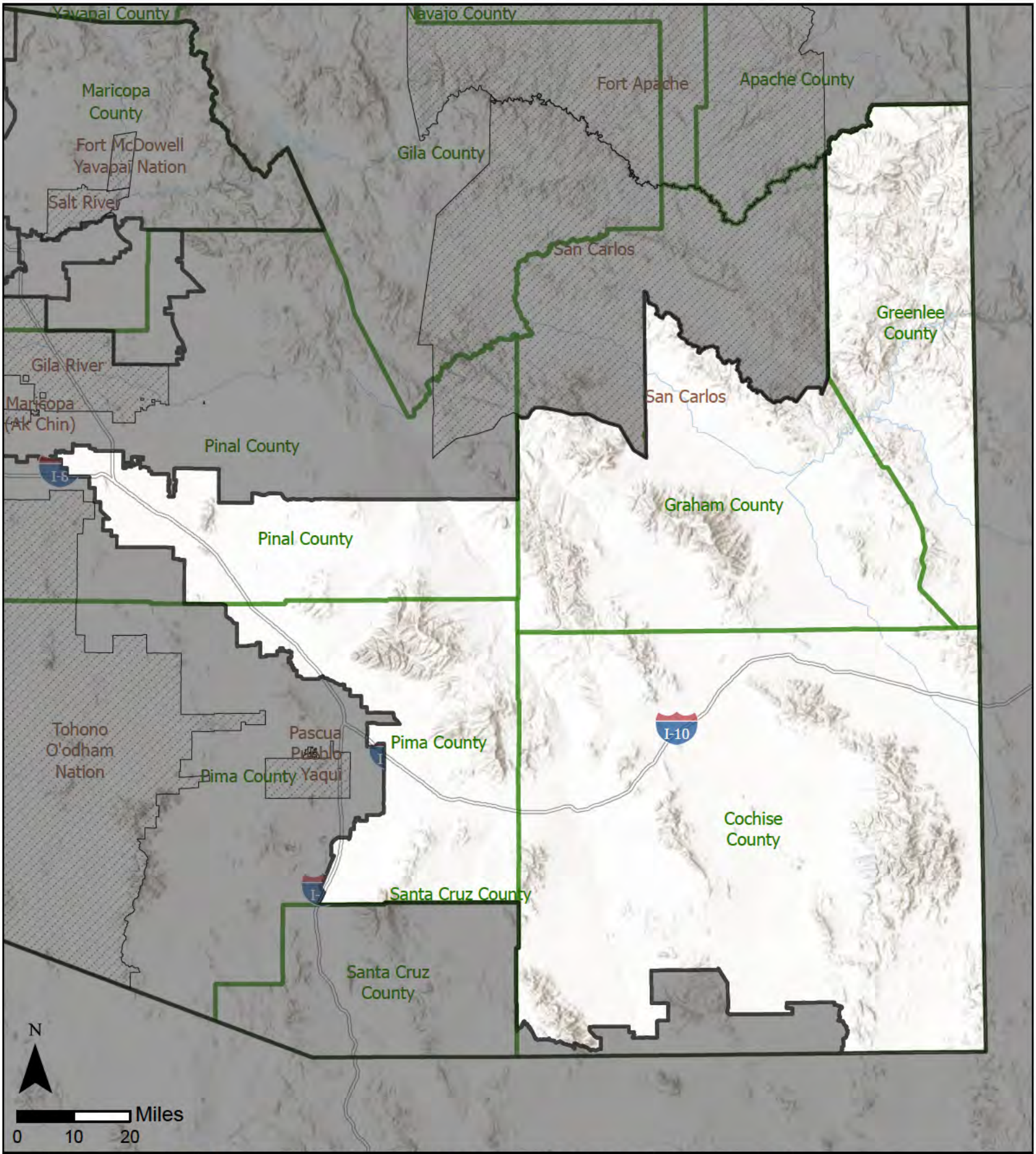
Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)

Arizona Tribal Reservations

ArizonaCounties



Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 6

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

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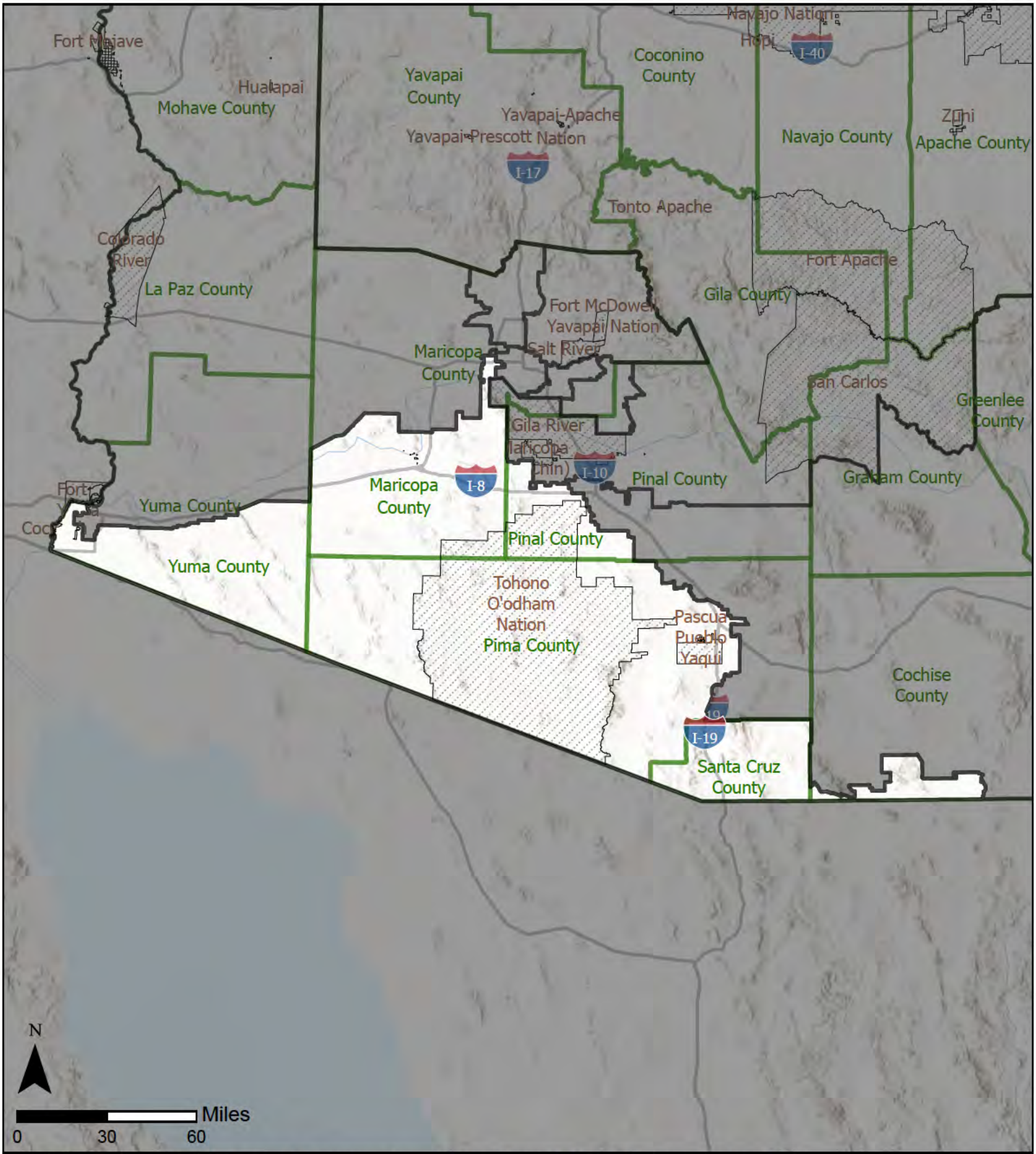
Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)

Arizona Tribal Reservations

ArizonaCounties

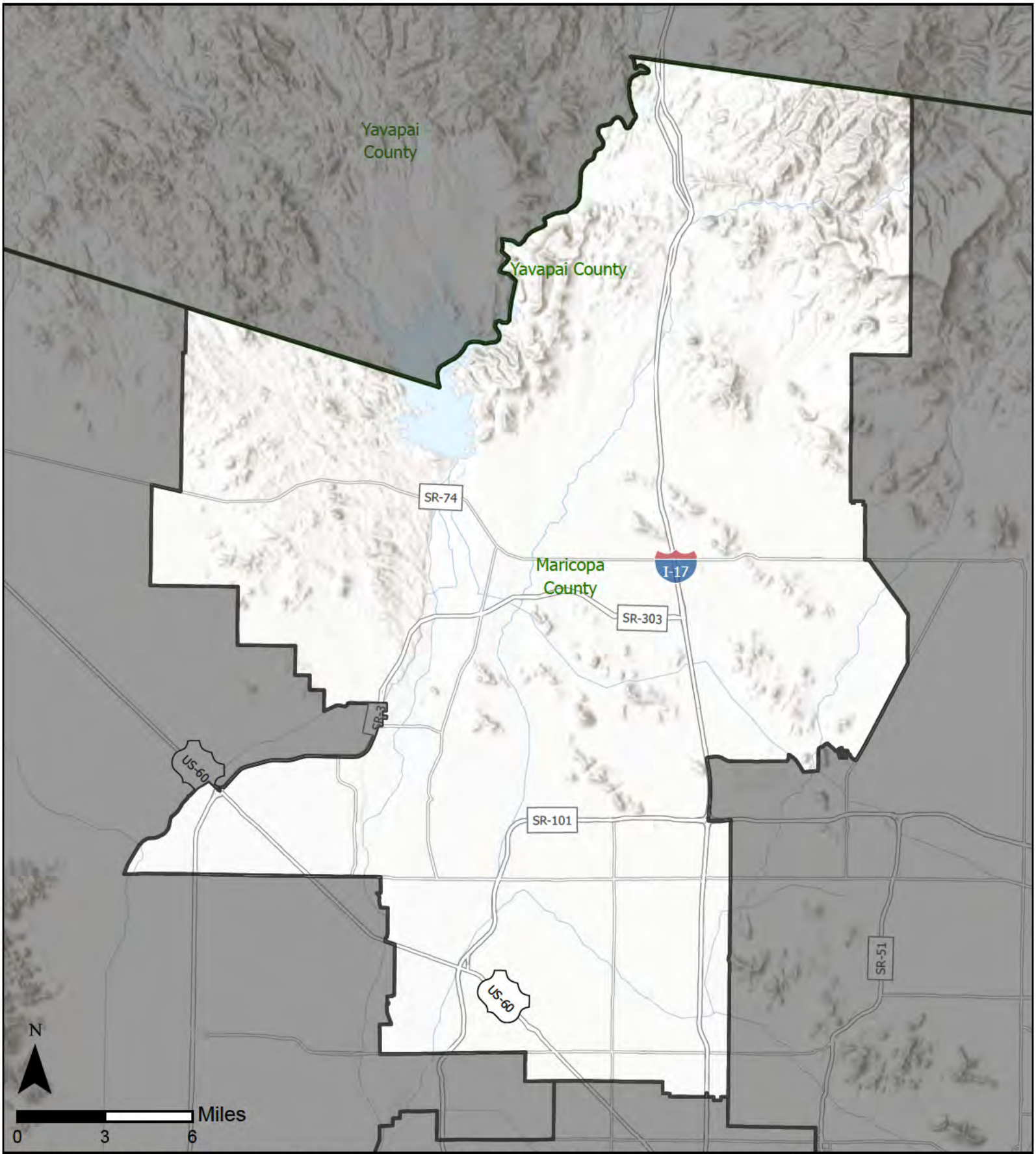


Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 7

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

- Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)
- Arizona Tribal Reservations
- ArizonaCounties



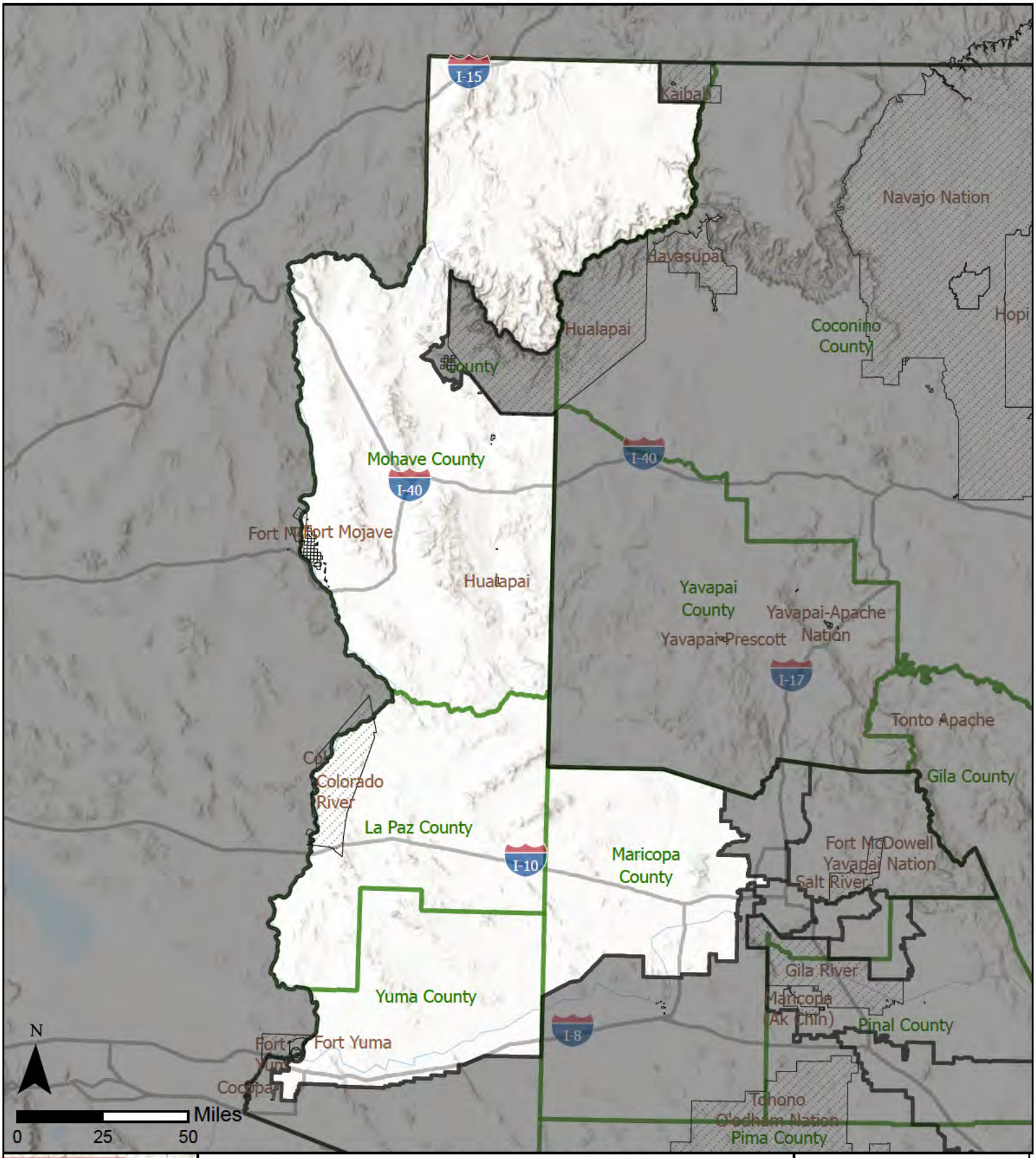
Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 8

This map builds from the Approved Congressional Final Draft Map incorporating administrative changes requested by counties across the state. Cleanup of slivers and splits across the state as shown in the Assigned District Splits Report were performed on the Approved Congressional Final Draft Map. No further cleanup required on Official Congressional Map 14.0. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)

ArizonaCounties



Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes): 9

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ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

- Arizona Congressional Districts: Official Congressional Map 14.0 (Administrative Changes)
- Arizona Tribal Reservations
- ArizonaCounties

APPENDIX D

Official Legislative Map 17.0

Pct. Dev.: (population deviation from the ideal population)
Vote Spread Key: (Difference between average Democratic and average Republican votes in 9 state elections): "highly competitive" = 4% spread or less; "competitive" = spread between 4% and 7%.

Democratic / Republican Wins: (# wins in 9 statewide elections): "Swing Districts" each party won at least 1 election out of the 9.
VRA Tracking: two statewide White vs Latino elections identified as good measures of Latino voters' ability to elect their preferred candidates.

Category	2020 Census			Total Population					Citizen Voting Age Pop						NH Native Amer. Single-Race VAP	Competitiveness			VRA Tracking	
Field	Total Pop.	Deviation from Ideal	Pct. Dev.	Hispanic / Latino	NH White	NH Black	NH Asian / Pac.Isl.	NH Native Amer.	Total CVAP	Hispanic / Latino	NH White	NH Black	NH Asian / Pac.Isl.	NH Native Amer.		Vote Spread	Dem. Wins	Rep. Wins	Dem Gov '18	Dem AtG '18
1	237,896	-487	-0.20%	15%	78%	1%	2%	3%	186,039	10%	86%	1%	1%	2%	1%	27.8%	0	9	30.6%	35.4%
2	246,674	8,291	3.48%	23%	61%	5%	7%	2%	169,854	15%	75%	4%	4%	2%	1%	3.8%	3	6	41.3%	46.5%
3	236,955	-1,428	-0.60%	7%	83%	2%	5%	1%	184,570	5%	89%	1%	4%	1%	1%	25.6%	0	9	30.3%	35.4%
4	244,298	5,915	2.48%	10%	77%	2%	8%	1%	188,558	8%	84%	2%	4%	1%	0%	3.4%	4	5	41.0%	45.9%
5	239,088	705	0.30%	36%	48%	7%	4%	3%	163,741	26%	61%	7%	3%	3%	2%	38.1%	9	0	62.8%	66.9%
6	225,474	-12,909	-5.42%	10%	26%	1%	1%	61%	163,538	8%	28%	1%	1%	63%	58%	34.8%	9	0	60.6%	65.9%
7	240,214	1,831	0.77%	19%	71%	2%	2%	5%	194,928	17%	76%	2%	1%	4%	3%	21.4%	0	9	33.5%	38.6%
8	244,166	5,783	2.43%	25%	53%	7%	8%	5%	187,882	19%	65%	7%	4%	5%	4%	27.5%	9	0	57.6%	61.9%
9	238,117	-266	-0.11%	38%	47%	6%	4%	4%	158,498	25%	62%	6%	3%	4%	3%	2.6%	5	4	44.5%	49.0%
10	235,579	-2,804	-1.18%	18%	72%	3%	3%	2%	176,613	12%	82%	3%	2%	1%	1%	22.7%	0	9	30.9%	36.4%
11	237,844	-539	-0.23%	58%	18%	16%	4%	3%	135,668	47%	27%	19%	3%	3%	3%	53.9%	9	0	70.5%	75.8%
12	238,923	540	0.23%	20%	59%	7%	10%	3%	176,014	16%	69%	7%	6%	3%	2%	14.7%	9	0	50.5%	54.9%
13	237,866	-517	-0.22%	21%	56%	6%	13%	2%	148,739	16%	70%	5%	8%	1%	1%	1.6%	4	5	42.0%	46.8%
14	241,692	3,309	1.39%	16%	68%	5%	8%	2%	146,030	15%	74%	4%	5%	1%	1%	17.9%	0	9	35.5%	39.3%
15	240,028	1,645	0.69%	20%	67%	5%	4%	2%	140,621	16%	75%	4%	3%	2%	1%	27.4%	0	9	30.7%	35.3%
16	236,940	-1,443	-0.61%	35%	45%	7%	3%	8%	171,727	30%	53%	6%	2%	8%	7%	3.6%	0	9	39.8%	47.1%
17	239,669	1,286	0.54%	19%	70%	3%	4%	2%	176,733	16%	77%	2%	3%	1%	1%	8.3%	0	9	39.2%	45.9%
18	243,411	5,028	2.11%	22%	64%	5%	6%	2%	181,678	19%	72%	4%	3%	1%	1%	20.4%	9	0	53.5%	60.3%
19	230,476	-7,907	-3.32%	29%	61%	3%	3%	2%	167,652	25%	68%	3%	2%	1%	1%	22.2%	0	9	31.6%	39.0%
20	238,486	103	0.04%	53%	34%	4%	4%	4%	170,590	47%	42%	4%	3%	4%	3%	53.3%	9	0	71.1%	77.4%
21	244,412	6,029	2.53%	58%	31%	5%	3%	2%	155,168	50%	41%	5%	3%	2%	1%	30.5%	9	0	58.3%	65.8%
22	238,320	-63	-0.03%	64%	19%	10%	4%	2%	138,414	53%	30%	11%	4%	2%	1%	37.4%	9	0	62.7%	68.0%
23	232,246	-6,137	-2.57%	62%	25%	4%	2%	5%	133,867	54%	34%	4%	2%	6%	5%	16.9%	9	0	53.6%	58.8%
24	234,992	-3,391	-1.42%	65%	20%	8%	3%	2%	128,738	51%	36%	8%	3%	2%	1%	33.5%	9	0	59.6%	65.2%
25	243,005	4,622	1.94%	36%	53%	5%	3%	2%	151,503	28%	62%	6%	2%	1%	1%	25.7%	0	9	31.4%	36.3%
26	237,193	-1,190	-0.50%	61%	21%	9%	4%	3%	121,131	47%	36%	9%	3%	3%	2%	39.4%	9	0	62.7%	67.8%
27	240,634	2,251	0.94%	25%	59%	6%	5%	2%	173,349	19%	71%	4%	5%	1%	1%	8.9%	0	9	38.6%	44.0%
28	228,803	-9,580	-4.02%	10%	80%	3%	5%	1%	168,694	7%	86%	2%	3%	1%	0%	25.0%	0	9	29.2%	35.7%
29	240,102	1,719	0.72%	27%	58%	7%	4%	2%	160,975	21%	68%	7%	4%	1%	1%	13.3%	0	9	35.9%	42.1%
30	237,999	-384	-0.16%	17%	74%	1%	2%	4%	188,727	13%	81%	1%	1%	3%	2%	48.7%	0	9	19.4%	24.7%
Statewide	7,151,502	21,200	8.89%	31%	53%	5%	5%	5%	4,910,239	23%	64%	5%	3%	4%		0.9%	5	4		

Vote Spread: The difference between the Democratic and Republican percentages of total votes cast in the nine focus elections (listed below).
Dem/Rep Wins: The number of elections won by each party from the Commission's nine focus electons: 2020 President and Senate; 2018 Senate, Secretary of State, Attorney General, State Treasurer, Superintendent of Public Education, State Mine Inspector; 2016 President

Notes:

User: brian.kingery
Plan: Official Legislative Map 17.0

Date: Tue Jan 11 2022 12:24:47 GMT-0500 (Eastern Standard Time)
Plan No.: 5743f5dd543146fca97b11ec3365577b

Official Legislative Map 17.0 Assigned District Splits

FIPS	Total Population	2020 Decennial Census Total Population
District 1		
* Coconino County		
Sedona	2,547	2,547
* Coconino County	2,547	2,547
* Yavapai County		
*No Place	36,262	36,262
Ash Fork	361	361
Bagdad	1,932	1,932
Black Canyon City	2,677	2,677
Camp Verde	12,147	12,147
Chino Valley	13,020	13,020
Clarkdale	4,424	4,424
Congress	1,811	1,811
Cordes Lakes	2,684	2,684
Cornville	3,362	3,362
Cottonwood	12,029	12,029
Dewey-Humboldt	4,326	4,326
Jerome	464	464
Lake Montezuma	5,111	5,111
Mayer	1,558	1,558
Paulden	5,567	5,567
Peeples Valley	499	499
* Peoria	0	0
Prescott	45,827	45,827

FIPS	Total Population	2020 Decennial Census Total Population
Prescott Valley	46,785	46,785
Sedona	7,137	7,137
Seligman	446	446
Spring Valley	1,143	1,143
Verde Village	12,019	12,019
Village of Oak Creek (Big Park)	6,128	6,128
Wilhoit	864	864
Williamson	6,196	6,196
Yarnell	570	570
* Yavapai County	235,349	235,349
District 1 Total	237,896	237,896
	100%	100%
District 2		
* Maricopa County		
*No Place	804	804
* Phoenix	245,870	245,870
* Maricopa County	246,674	246,674
District 2 Total	246,674	246,674
	100%	100%
District 3		
* Maricopa County		

FIPS	Total Population	2020 Decennial Census Total Population
*No Place	13,060	13,060
Anthem	23,190	23,190
Carefree	3,690	3,690
Cave Creek	4,892	4,892
Fountain Hills	23,820	23,820
New River	17,290	17,290
* Phoenix	45,311	45,311
Rio Verde	2,210	2,210
* Scottsdale	103,492	103,492
* Maricopa County	236,955	236,955
District 3 Total	236,955	236,955
	100%	100%
District 4		
* Maricopa County		
*No Place	404	404
Paradise Valley	12,658	12,658
* Phoenix	159,286	159,286
* Scottsdale	71,950	71,950
* Maricopa County	244,298	244,298
District 4 Total	244,298	244,298
	100%	100%

FIPS	Total Population	2020 Decennial Census Total Population
District 5		
* Maricopa County		
*No Place	1	1
* Phoenix	239,087	239,087
* Maricopa County	239,088	239,088
District 5 Total	239,088	239,088
	100%	100%
District 6		
Apache County		
*No Place	31,092	31,092
Alpine	146	146
Burnside	494	494
Chinle	4,573	4,573
Concho	54	54
Cornfields	221	221
Cottonwood	167	167
Del Muerto	258	258
Dennehotso	587	587
Eagar	4,395	4,395
Fort Defiance	3,541	3,541
Ganado	883	883
Greer	58	58
Houck	886	886
Klagetoh	181	181

FIPS	Total Population	2020 Decennial Census Total Population
Lukachukai	1,424	1,424
Lupton	19	19
Many Farms	1,243	1,243
McNary	483	483
Nazlini	505	505
Nutrioso	39	39
Oak Springs	54	54
Red Mesa	354	354
Red Rock	136	136
Rock Point	552	552
Rough Rock	428	428
Round Rock	640	640
Sanders	575	575
Sawmill	564	564
Sehili	153	153
Springerville	1,717	1,717
St. Johns	3,417	3,417
St. Michaels	1,384	1,384
Steamboat	235	235
Teec Nos Pos	507	507
Toyei	2	2
Tsaile	1,408	1,408
Vernon	126	126
Wide Ruins	20	20
Window Rock	2,500	2,500
Apache County	66,021	66,021

FIPS	Total Population	2020 Decennial Census Total Population
* Coconino County		
*No Place	10,695	10,695
Bellemont	1,167	1,167
Bitter Springs	355	355
Cameron	734	734
Doney Park	5,910	5,910
* Flagstaff	35,773	35,773
Fort Valley	1,682	1,682
Fredonia	1,323	1,323
Grand Canyon Village	1,784	1,784
Greenehaven	381	381
Kaibab Estates West	1,034	1,034
Kaibito	1,540	1,540
LeChee	1,236	1,236
Leupp	934	934
Moenkopi	771	771
Mountain View Ranches	1,508	1,508
Page	7,440	7,440
* Parks	860	860
Supai	0	0
Timberline-Fernwood	2,572	2,572
Tolani Lake	227	227
Tonalea	451	451
Tuba City	8,072	8,072
Tusayan	603	603
Valle	759	759

FIPS	Total Population	2020 Decennial Census Total Population
* Coconino County	87,811	87,811
* Gila County		
*No Place	913	913
Canyon Day	1,205	1,205
Carrizo	92	92
Cedar Creek	372	372
Cutter	84	84
East Globe	259	259
Peridot	444	444
San Carlos	3,987	3,987
* Gila County	7,356	7,356
* Graham County		
*No Place	2,074	2,074
Bylas	1,782	1,782
Peridot	864	864
* Graham County	4,720	4,720
* Mohave County		
*No Place	235	235
Grand Canyon West	0	0
Kaibab	140	140
Moccasin	53	53
Peach Springs	1,098	1,098
* Mohave County	1,526	1,526
* Navajo County		

FIPS	Total Population	2020 Decennial Census Total Population
*No Place	14,677	14,677
Chilchinbito	769	769
Cibecue	1,816	1,816
Di kon	1,194	1,194
East Fork	672	672
First Mesa	1,352	1,352
Fort Apache	113	113
Greasewood	372	372
Hard Rock	38	38
Holbrook	4,858	4,858
Hondah	814	814
Hotevilla-Bacavi	1,001	1,001
Indian Wells	232	232
Jeddito	346	346
Joseph City	1,307	1,307
Kayenta	4,670	4,670
Keams Canyon	265	265
Kykotsmovi Village	736	736
Low Mountain	631	631
McNary	1	1
North Fork	1,467	1,467
Oljato-Monument Valley	115	115
Pinon	1,084	1,084
Rainbow City	1,001	1,001
Seba Dalkai	126	126
Second Mesa	843	843
Seven Mile	742	742

FIPS	Total Population	2020 Decennial Census Total Population
Shongopovi	711	711
Shonto	494	494
Sun Valley	153	153
Tees Toh	420	420
Turkey Creek	377	377
Whitecone	768	768
Whiteriver	4,520	4,520
Winslow	9,005	9,005
* Winslow West	350	350
* Navajo County	58,040	58,040
* Pinal County	0	0
District 6 Total	225,474	225,474
	100%	100%
District 7		
* Coconino County		
*No Place	2,227	2,227
Blue Ridge	594	594
* Flagstaff	41,058	41,058
Forest Lakes	155	155
Kachina Village	2,502	2,502
Mormon Lake	90	90
Mountainaire	1,068	1,068
Munds Park	1,096	1,096
Oak Creek Canyon	442	442

FIPS	Total Population	2020 Decennial Census Total Population
* Parks	522	522
Red Lake	1,680	1,680
Williams	3,202	3,202
* Winslow West	107	107
* Coconino County	54,743	54,743
* Gila County		
*No Place	1,821	1,821
Bear Flat	11	11
Beaver Valley	226	226
Central Heights-Midland City	2,319	2,319
Christopher Creek	121	121
Claypool	1,395	1,395
Copper Hill	158	158
Deer Creek	230	230
Dripping Springs	142	142
East Verde Estates	151	151
El Capitan	48	48
Flowing Springs	34	34
Freedom Acres	90	90
Geronimo Estates	30	30
Gisela	536	536
Globe	7,249	7,249
Haigler Creek	35	35
Hayden	512	512
Hunter Creek	51	51
Icehouse Canyon	574	574

FIPS	Total Population	2020 Decennial Census Total Population
Jakes Corner	98	98
Kohls Ranch	30	30
Mead Ranch	42	42
Mesa del Caballo	781	781
Miami	1,541	1,541
Oxbow Estates	198	198
Payson	16,351	16,351
Pinal	456	456
Pine	1,953	1,953
Rock House	10	10
Roosevelt	26	26
Roosevelt Estates	449	449
Round Valley	459	459
Rye	104	104
Six Shooter Canyon	958	958
Star Valley	2,484	2,484
Strawberry	943	943
Tonto Basin	1,444	1,444
Tonto Village	209	209
Top-of-the-World	0	0
Washington Park	85	85
Wheatfields	556	556
Whispering Pines	124	124
Winkelman	294	294
Young	588	588
* Gila County	45,916	45,916

FIPS	Total Population	2020 Decennial Census Total Population
* Maricopa County	0	0
* Navajo County		
*No Place	6,596	6,596
Clay Springs	331	331
Heber-Overgaard	2,898	2,898
Lake of the Woods	3,648	3,648
Linden	2,760	2,760
Pinedale	482	482
Pinetop Country Club	1,409	1,409
Pinetop-Lakeside	4,030	4,030
Show Low	11,732	11,732
Shumway	347	347
Snowflake	6,104	6,104
Taylor	3,995	3,995
Wagon Wheel	1,856	1,856
White Mountain Lake	2,335	2,335
Woodruff	154	154
* Navajo County	48,677	48,677
* Pinal County		
*No Place	21,655	21,655
* Apache Junction	26,021	26,021
Campo Bonito	83	83
Dudleyville	597	597
* Florence	18,571	18,571
Gold Canyon	11,404	11,404
Hayden	0	0

FIPS	Total Population	2020 Decennial Census Total Population
Kearny	1,741	1,741
Mammoth	1,076	1,076
Oracle	3,051	3,051
Queen Valley	967	967
San Manuel	3,114	3,114
Superior	2,407	2,407
Top-of-the-World	189	189
Winkelman	2	2
* Pinal County	90,878	90,878
District 7 Total	240,214	240,214
	100%	100%
District 8		
* Maricopa County		
*No Place	6,422	6,422
* Mesa	18,274	18,274
* Phoenix	47,145	47,145
* Scottsdale	65,919	65,919
* Tempe	106,406	106,406
* Maricopa County	244,166	244,166
District 8 Total	244,166	244,166
	100%	100%

FIPS	Total Population	2020 Decennial Census Total Population
District 9		
* Maricopa County		
* Mesa	231,939	231,939
* Tempe	6,178	6,178
* Maricopa County	238,117	238,117
District 9 Total	238,117	238,117
	100%	100%
District 10		
* Maricopa County		
*No Place	44,206	44,206
* Apache Junction	393	393
* Mesa	178,895	178,895
* Maricopa County	223,494	223,494
* Pinal County		
* Apache Junction	12,085	12,085
* Pinal County	12,085	12,085
District 10 Total	235,579	235,579
	100%	100%
District 11		
* Maricopa County		

FIPS	Total Population	2020 Decennial Census Total Population
*No Place	5,582	5,582
Guadalupe	5,322	5,322
* Phoenix	226,940	226,940
* Maricopa County	237,844	237,844
District 11 Total	237,844	237,844
	100%	100%
District 12		
* Maricopa County		
*No Place	715	715
* Chandler	89,612	89,612
* Phoenix	80,593	80,593
* Tempe	68,003	68,003
* Maricopa County	238,923	238,923
District 12 Total	238,923	238,923
	100%	100%
District 13		
* Maricopa County		
*No Place	4,067	4,067
* Chandler	178,163	178,163
* Gilbert	40,768	40,768
Sun Lakes	14,868	14,868

FIPS	Total Population	2020 Decennial Census Total Population
* Maricopa County	237,866	237,866
District 13 Total	237,866	237,866
	100%	100%
District 14		
* Maricopa County		
*No Place	5,922	5,922
* Chandler	8,212	8,212
* Gilbert	227,150	227,150
* Queen Creek	408	408
* Maricopa County	241,692	241,692
District 14 Total	241,692	241,692
	100%	100%
District 15		
* Maricopa County		
*No Place	5,508	5,508
* Mesa	75,150	75,150
* Queen Creek	49,782	49,782
* Maricopa County	130,440	130,440
* Pinal County		
*No Place	365	365

FIPS	Total Population	2020 Decennial Census Total Population
Queen Creek	9,329	9,329
San Tan Valley	99,894	99,894
* Pinal County	109,588	109,588
District 15 Total	240,028	240,028
	100%	100%
District 16		
* Maricopa County		
*No Place	210	210
Gila Crossing	636	636
Komatke	1,013	1,013
Maricopa Colony	854	854
St. Johns	690	690
* Maricopa County	3,403	3,403
* Pima County		
*No Place	1,380	1,380
Avra Valley	5,569	5,569
Nelson	249	249
* Picture Rocks	1,338	1,338
* Tucson	4,999	4,999
Tucson Estates	12,069	12,069
* Tucson Mountains	9,571	9,571
* Pima County	35,175	35,175

FIPS	Total Population	2020 Decennial Census Total Population
* Pinal County		
*No Place	25,077	25,077
Ak-Chin Village	884	884
Arizona City	9,868	9,868
Blackwater	1,190	1,190
Cactus Forest	606	606
Casa Blanca	1,727	1,727
Casa Grande	53,658	53,658
Coolidge	13,218	13,218
Eloy	15,635	15,635
* Florence	8,214	8,214
Goodyear Village	463	463
Lower Santan Village	437	437
Maricopa	58,125	58,125
Picacho	250	250
Red Rock	2,625	2,625
Sacate Village	260	260
Sacaton	3,254	3,254
Sacaton Flats Village	576	576
Santa Cruz	39	39
Stanfield	558	558
Stotonic Village	610	610
Sweet Water Village	123	123
Upper Santan Village	665	665
Wet Camp Village	300	300
* Pinal County	198,362	198,362

FIPS	Total Population	2020 Decennial Census Total Population
District 16 Total	236,940	236,940
	100%	100%
District 17		
* Pima County		
*No Place	16,523	16,523
Catalina	7,551	7,551
* J-Six Ranchettes	161	161
Marana	51,908	51,908
Oro Valley	47,070	47,070
* Picture Rocks	8,213	8,213
Rillito	94	94
Rincon Valley	5,612	5,612
Summerhaven	71	71
Tanque Verde	16,250	16,250
* Tucson	71,984	71,984
* Tucson Mountains	344	344
Willow Canyon	2	2
* Pima County	225,783	225,783
* Pinal County		
*No Place	1,312	1,312
Marana	0	0
Saddlebrooke	12,574	12,574
* Pinal County	13,886	13,886

FIPS	Total Population	2020 Decennial Census Total Population
District 17 Total	239,669	239,669
	100%	100%
District 18		
* Pima County		
*No Place	8	8
Casas Adobes	70,973	70,973
Catalina Foothills	52,401	52,401
Kleindale	165	165
* Tucson	119,864	119,864
* Pima County	243,411	243,411
District 18 Total	243,411	243,411
	100%	100%
District 19		
* Cochise County		
*No Place	18,307	18,307
Benson	5,355	5,355
Bowie	406	406
Douglas	16,534	16,534
Dragoon	178	178
Elfrida	421	421
Huachuca City	1,626	1,626
McNeal	182	182

FIPS	Total Population	2020 Decennial Census Total Population
Mescal	1,751	1,751
Pirtleville	1,412	1,412
San Simon	158	158
Sierra Vista	45,308	45,308
Sierra Vista Southeast	14,428	14,428
St. David	1,639	1,639
Sunizona	233	233
Sunsites	790	790
Tombstone	1,308	1,308
Whetstone	3,236	3,236
Willcox	3,213	3,213
* Cochise County	116,485	116,485
* Graham County		
*No Place	9,156	9,156
Bryce	173	173
Cactus Flats	1,524	1,524
Central	758	758
Fort Thomas	319	319
Pima	2,847	2,847
Safford	10,129	10,129
San Jose	467	467
Solomon	399	399
Swift Trail Junction	2,810	2,810
Thatcher	5,231	5,231
* Graham County	33,813	33,813

FIPS	Total Population	2020 Decennial Census Total Population
Greenlee County		
*No Place	2,234	2,234
Clifton	3,933	3,933
Duncan	694	694
Franklin	75	75
Morenci	2,028	2,028
York	599	599
Greenlee County	9,563	9,563
* Pima County		
*No Place	7,707	7,707
Corona de Tucson	9,240	9,240
Elephant Head	588	588
Green Valley	22,616	22,616
* J-Six Ranchettes	486	486
* Sahuarita	8,346	8,346
* Tucson	5,116	5,116
Vail	13,604	13,604
* Pima County	67,703	67,703
* Santa Cruz County		
*No Place	1,143	1,143
Elgin	162	162
Patagonia	804	804
Sonoita	803	803
* Santa Cruz County	2,912	2,912

FIPS	Total Population	2020 Decennial Census Total Population
District 19 Total	230,476	230,476
	100%	100%
District 20		
* Pima County		
*No Place	3,836	3,836
* Drexel Heights	16,613	16,613
Flowing Wells	15,657	15,657
South Tucson	4,613	4,613
* Tucson	194,605	194,605
* Tucson Mountains	947	947
* Valencia West	2,215	2,215
* Pima County	238,486	238,486
District 20 Total	238,486	238,486
	100%	100%
District 21		
* Cochise County		
*No Place	2,422	2,422
Bisbee	4,923	4,923
Miracle Valley	571	571
Naco	824	824
Palominas	222	222

FIPS	Total Population	2020 Decennial Census Total Population
* Cochise County	8,962	8,962
* Pima County		
*No Place	12,527	12,527
Arivaca	623	623
Arivaca Junction	970	970
* Sahuarita	25,788	25,788
Summit	4,724	4,724
* Tucson	146,061	146,061
* Pima County	190,693	190,693
* Santa Cruz County		
*No Place	2,092	2,092
Amado	198	198
Beyerville	72	72
Kino Springs	166	166
Nogales	19,770	19,770
Rio Rico	20,549	20,549
Tubac	1,581	1,581
Tumacacori-Carmen	329	329
* Santa Cruz County	44,757	44,757
District 21 Total	244,412	244,412
	100%	100%
District 22		
* Maricopa County		

FIPS	Total Population	2020 Decennial Census Total Population
*No Place	3,676	3,676
Avondale	89,334	89,334
* Glendale	7,760	7,760
* Goodyear	4	4
* Phoenix	130,330	130,330
Tolleson	7,216	7,216
* Maricopa County	238,320	238,320
District 22 Total	238,320	238,320
	100%	100%
District 23		
* Maricopa County		
*No Place	7,496	7,496
* Buckeye	8	8
Gila Bend	1,892	1,892
* Goodyear	57,776	57,776
Kaka	83	83
Theba	111	111
* Maricopa County	67,366	67,366
* Pima County		
*No Place	6,235	6,235
Ajo	3,039	3,039
Ak Chin	50	50
Ali Chuk	119	119

FIPS	Total Population	2020 Decennial Census Total Population
Ali Chukson	113	113
Ali Molina	61	61
Anegam	149	149
Charco	27	27
Chiawuli Tak	48	48
Comobabi	44	44
Cowlic	105	105
* Drexel Heights	10,910	10,910
Gu Oidak	126	126
Haivana Nakya	72	72
Ko Vaya	43	43
Maish Vaya	129	129
Nolic	12	12
Pisinemo	359	359
San Miguel	205	205
Santa Rosa	474	474
Sells	2,121	2,121
South Komelik	176	176
Three Points	5,184	5,184
Topawa	233	233
* Valencia West	11,886	11,886
Ventana	52	52
Wahak Hotrontk	88	88
Why	122	122
* Pima County	42,182	42,182
* Pinal County		

FIPS	Total Population	2020 Decennial Census Total Population
*No Place	77	77
Chuichu	240	240
Kohatk	37	37
Tat Momoli	18	18
Vaiva Vo	93	93
* Pinal County	465	465
* Yuma County		
*No Place	8,582	8,582
Avenue B and C	4,101	4,101
Donovan Estates	1,295	1,295
Drysdale	225	225
Gadsden	571	571
Orange Grove Mobile Manor	495	495
Rancho Mesa Verde	571	571
San Luis	35,257	35,257
Somerton	14,197	14,197
Wall Lane	262	262
* Wellton	0	0
* Yuma	56,677	56,677
* Yuma County	122,233	122,233
District 23 Total	232,246	232,246
	100%	100%

District 24

FIPS	Total Population	2020 Decennial Census Total Population
* Maricopa County		
*No Place	602	602
* Glendale	126,305	126,305
* Phoenix	108,085	108,085
* Maricopa County	234,992	234,992
District 24 Total	234,992	234,992
	100%	100%
District 25		
* Maricopa County		
*No Place	31,769	31,769
Arlington	150	150
* Buckeye	91,494	91,494
Citrus Park	5,194	5,194
* Glendale	0	0
* Goodyear	6,152	6,152
* Surprise	26,524	26,524
Tonopah	23	23
Wintersburg	51	51
* Maricopa County	161,357	161,357
* Yuma County		
*No Place	10,845	10,845
Aztec	2	2
Buckshot	70	70

FIPS	Total Population	2020 Decennial Census Total Population
Dateland	257	257
El Prado Estates	320	320
Fortuna Foothills	27,776	27,776
Martinez Lake	94	94
Padre Ranchitos	133	133
Tacna	425	425
* Wellton	2,375	2,375
Wellton Hills	167	167
* Yuma	38,871	38,871
Yuma Proving Ground	313	313
* Yuma County	81,648	81,648
District 25 Total	243,005	243,005
	100%	100%
District 26		
* Maricopa County		
* Glendale	16,273	16,273
* Phoenix	220,920	220,920
* Maricopa County	237,193	237,193
District 26 Total	237,193	237,193
	100%	100%
District 27		

FIPS	Total Population	2020 Decennial Census Total Population
* Maricopa County		
*No Place	987	987
* Glendale	95,277	95,277
* Peoria	76,180	76,180
* Phoenix	68,190	68,190
* Maricopa County	240,634	240,634
District 27 Total	240,634	240,634
	100%	100%
District 28		
* Maricopa County		
*No Place	12,608	12,608
* Peoria	110,408	110,408
* Phoenix	36,382	36,382
Sun City	39,931	39,931
Sun City West	25,806	25,806
* Surprise	3,668	3,668
* Maricopa County	228,803	228,803
District 28 Total	228,803	228,803
	100%	100%
District 29		
* Maricopa County		

FIPS	Total Population	2020 Decennial Census Total Population
*No Place	37,577	37,577
Circle City	522	522
El Mirage	35,805	35,805
* Glendale	2,710	2,710
* Goodyear	31,362	31,362
Litchfield Park	6,847	6,847
Morristown	186	186
* Peoria	4,397	4,397
* Phoenix	0	0
* Surprise	112,956	112,956
Wittmann	684	684
Youngtown	7,056	7,056
* Maricopa County	240,102	240,102
District 29 Total	240,102	240,102
	100%	100%
District 30		
La Paz County		
*No Place	2,910	2,910
Alamo Lake	4	4
Bluewater	682	682
Bouse	707	707
Brenda	466	466
Cibola	198	198
Cienega Springs	1,690	1,690

FIPS	Total Population	2020 Decennial Census Total Population
Ehrenberg	763	763
La Paz Valley	368	368
Parker	3,417	3,417
Parker Strip	621	621
Poston	183	183
Quartzsite	2,413	2,413
Salome	1,162	1,162
Sunwest	5	5
Utting	92	92
Vicksburg	418	418
Wenden	458	458
La Paz County	16,557	16,557
* Maricopa County		
*No Place	1,662	1,662
Aguila	565	565
* Buckeye	0	0
Wickenburg	6,614	6,614
* Maricopa County	8,841	8,841
* Mohave County		
*No Place	16,462	16,462
Antares	132	132
Arizona Village	1,057	1,057
Beaver Dam	1,552	1,552
Bullhead City	41,348	41,348
Cane Beds	466	466

FIPS	Total Population	2020 Decennial Census Total Population
Centennial Park	1,578	1,578
Chloride	229	229
Clacks Canyon	167	167
Colorado City	2,478	2,478
Crozier	21	21
Crystal Beach	250	250
Desert Hills	2,764	2,764
Dolan Springs	1,734	1,734
Fort Mohave	16,190	16,190
Golden Shores	1,927	1,927
Golden Valley	8,801	8,801
Hackberry	103	103
Katherine	76	76
Kingman	32,689	32,689
Lake Havasu City	57,144	57,144
Lazy Y U	474	474
Littlefield	256	256
McConnico	63	63
Meadview	1,420	1,420
Mesquite Creek	403	403
Mohave Valley	2,693	2,693
Mojave Ranch Estates	53	53
New Kingman-Butler	12,907	12,907
Oatman	102	102
Pine Lake	142	142
Pinion Pines	158	158
Scenic	1,321	1,321

FIPS	Total Population	2020 Decennial Census Total Population
So-Hi	428	428
Topock	2	2
Truxton	104	104
Valentine	39	39
Valle Vista	1,802	1,802
Walnut Creek	571	571
White Hills	345	345
W kieup	135	135
Willow Valley	1,059	1,059
Yucca	96	96
* Mohave County	211,741	211,741
* Yavapai County		
Wickenburg	860	860
* Yavapai County	860	860
District 30 Total	237,999	237,999
	100%	100%

User: brian.kingery
Plan: Official Legislative Map 17.0
wkid: 102100

Date: Tue Jan 11 2022 12:21:34 GMT-0500 (Eastern Standard Time)
Plan No.: 5743f5dd543146fca97b11ec3365577b

Official Legislative Map 17.0 District Compactness Report

District	Polygon Area (sq. mi)	Perimeter (mi)	Reock	Area/Convex Hull	Grofman	Schwartzberg	Polsby Popper	Holes
Unassigned	0	0	0	0	0	0	0	0
D1	8125.03	487.12	0.47	0.88	5.4	1.52	0.43	0
D2	78.11	45.11	0.57	0.83	5.1	1.44	0.48	0
D3	1493.08	226.26	0.34	0.84	5.86	1.65	0.37	0
D4	101.34	51.04	0.57	0.87	5.07	1.43	0.49	0
D5	45.7	41.59	0.45	0.73	6.15	1.74	0.33	0
D6	39294.92	1482.61	0.42	0.67	7.48	2.11	0.22	0
D7	10871.21	947.75	0.27	0.58	9.09	2.56	0.15	0
D8	136.6	74.29	0.31	0.74	6.36	1.79	0.31	0
D9	39.4	30.38	0.46	0.83	4.84	1.37	0.54	0
D10	85.08	51.75	0.4	0.82	5.61	1.58	0.4	0
D11	106.53	52.21	0.51	0.86	5.06	1.43	0.49	0
D12	129.59	64.48	0.46	0.76	5.66	1.6	0.39	0
D13	63.43	40.37	0.44	0.84	5.07	1.43	0.49	0
D14	67.24	37.06	0.47	0.94	4.52	1.27	0.62	0
D15	224.42	77.03	0.55	0.84	5.14	1.45	0.48	0
D16	3011.63	428.27	0.31	0.69	7.8	2.2	0.21	0
D17	1263.11	270.25	0.39	0.73	7.6	2.15	0.22	0
D18	95.83	76.7	0.27	0.66	7.83	2.21	0.2	0
D19	11781.46	719.66	0.42	0.83	6.63	1.87	0.29	0
D20	86.93	62.16	0.43	0.73	6.67	1.88	0.28	0
D21	2112.58	433.63	0.21	0.48	9.43	2.66	0.14	0
D22	111.42	70.73	0.35	0.63	6.7	1.89	0.28	0
D23	11316.48	780.68	0.28	0.7	7.34	2.07	0.23	0
D24	31.8	30.05	0.44	0.83	5.33	1.5	0.44	0
D25	5340.9	474.4	0.31	0.77	6.49	1.83	0.3	0

District	Polygon Area (sq. mi)	Perimeter (mi)	Reock	Area/Convex Hull	Grofman	Schwartzberg	Polsby Popper	Holes
D26	33.06	29.99	0.46	0.78	5.22	1.47	0.46	0
D27	59.46	48.36	0.32	0.67	6.27	1.77	0.32	0
D28	302.74	118.66	0.33	0.67	6.82	1.92	0.27	0
D29	388.58	132.59	0.29	0.71	6.73	1.9	0.28	0
D30	18011.86	1143.62	0.27	0.61	8.52	2.4	0.17	0

Arizona Legislative Districts: Official Legislative Map 17.0 (Administrative Changes)

This map builds from the Approved Legislative Final Draft Map incorporating administrative changes requested by counties across the state. This map also incorporates cleanup of slivers and splits across the state as shown in the Assigned District Splits Report. For more information on the methodology used to create these boundaries, please visit: https://redistricting-irc-az.hub.arcgis.com/pages/official-maps

ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

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Arizona Tribal Reservations
Arizona Counties
Cities (Pop. > 10k)

N

0 30 60 Miles

Arizona Legislative Districts: Official Legislative Map 17.0 (Administrative Changes)

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ARIZONA
INDEPENDENT REDISTRICTING COMMISSION

DISTRICT
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Arizona Tribal Reservations
Arizona Counties
Cities (Pop. > 10k)

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Miles
0 5 10

N
Miles
0 4 8

Fort McDowell Yavapai Nation
Salt River
Maricopa County
Gila River
Pinal County
Pima County
Pascua Pueblo Yaqui
Tohono O'odham Nation

Esri, NASA, NGA, USGS, City of Phoenix, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

Esri, NASA, NGA, USGS, FEMA, CONANP, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA