ARIZONA INDEPENDENT REDISTRICTING COMMISSION

NOTICE OF PUBLIC MEETING AND POSSIBLE EXECUTIVE SESSION

Erika Schupak Neuberg, Chair Derrick Watchman, Vice-Chair David Mehl, Commissioner Shereen Lerner, Commissioner Douglas York, Commissioner

Location: Virtual via GoogleMeets

Members of the public may view the meeting at this link:
https://youtu.be/VOt5FxjZh5o

Members of the public who request to comment on an item on this agenda may provide their public comments at this link:
https://forms.gle/g7saZHkCBKjVdbc69

Date: Tuesday, July 13, 2021

Time: 8:00 a.m.

The Commission reserves the right to change the order of items on the agenda. The Commission may vote to go into executive session, which will not be open to the public, for any item listed on the agenda, for the following purposes: discussion or consideration of personnel matters pursuant to A.R.S. § 38 - 431.03(A)(1), for discussion or consideration of records exempt by law from public inspection, including the receipt and discussion of information or testimony that is specifically required to be maintained as confidential by state or federal law pursuant to A.R.S. § 38-431.03(A)(2), obtaining legal advice pursuant to A.R.S. § 38-431.03(A)(3), consultation with attorneys regarding pending or contemplated litigation pursuant to A.R.S. § 38-431.03(A)(4), or any other purpose as authorized under A.R.S. § 38-431.03. The executive session is not open to the public and all legal action will take place in a meeting that is open to the public.

A copy of the agenda for the meeting is available at https://irc.az.gov/public-meetings at least forty-eight hours in advance of the meeting, in addition to physically being posted at the Arizona Department of Environmental Equality, 1110 W. Washington St., Phoenix, AZ 85007. Background material provided to the Commission that is not otherwise exempt by law from public inspection is available for inspection upon request.

Persons with a disability may request reasonable accommodation, such as a sign language interpreter, by contacting Valerie Neumann at ircadmin@azdoa.gov. Requests should be made as early as possible to allow time to arrange the accommodation.

All matters on the agenda may be discussed, considered and are subject to action by the Commission. The Commission reserves the right to table any item on the agenda.

The agenda for the meeting is as follows:

I. Call to Order and Roll Call.
    A. Call for Quorum
    B. Call for Notice

II. Approval of minutes from June 29, 2021.
    A. General Session
    B. Executive Sessions

III. Opportunity for Public Comments.

Public comment will open for a minimum of 30 minutes and remain open until the adjournment of the meeting. Comments will only be accepted electronically in writing on the following form: ***https://forms.gle/g7saZHkCBKjVdbc69*** (Comments will be limited to 3000 characters).

Please note: Members of the Commission may not discuss items that are not specifically identified on the agenda. Therefore, pursuant to A.R.S. § 38-431.01(H), action taken as a result of public comment will be limited to directing staff to study the matter, responding to any criticism or scheduling the matter for further consideration and decision at a later date.

IV. Discussion on Public Comments received prior to today's (July 13, 2021) meeting.

V. Pro/Con Presentations on Differential Privacy
    A. Thomas Bryan, Founder & CEO, Bryan GeoDemographics (Attachment A)
    B. Moon Duchin, CEO, the Redistricting Lab, LLC, & Associate Professor, Tufts University (Attachment B)

VI. Update from the mapping Consultants, Timmons/NDC.
    A. Proposed IRC Timeline of Events (Attachment C)

VII. Executive Director's Report and discussion thereof.
    A. Budget update, including status of FY2021 expenditures
    B. FTE positions
    C. Discussion of proposed timeline for IT integration and migration
    D. Discussion and possible action on Community Outreach Coordinator

The Commission may vote to go into executive session, which will not be open to the public, for the purpose of obtaining legal advice with respect to acquiring the resources referenced in the Executive Director's Report (A.R.S. § 38-431.03(A)(3)).

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VIII. Discussion and possible action on proposed revised travel schedule.

IX. Discussion and possible action on stock IRC presentation for public use.

X. Discussion and Possible Action on census data, census delays and ways to mitigate its disruption.
 A. Discussion re *State of Alabama v. U.S. Department of Commerce (U.S. Census Bureau)* Decision.
 B. Legal discussion re differential privacy material.

The Commission may vote to go into executive session, which will not be open to the public, for the purpose of obtaining legal advice to further implement and/or advance these legal issues (A.R.S. § 38- 431.03(A)(3)).

XI. Discussion of future agenda item requests.

XII. Announcements.

XIII. Next Meeting Date.

XIV. Closing of the Public Comments.

Please note: Members of the Commission may not discuss items that are not specifically identified on the agenda. Therefore, pursuant to A.R.S. § 38-431.01(H), action taken as a result of public comment will be limited to directing staff to study the matter, responding to any criticism or scheduling the matter for further consideration and decision at a later date.

XV. Adjournment.

Attachment "A"

Thomas M. Bryan

13106 Dawnwood Terrace
Midlothian, VA 23114
425-466-9749
tom@bryangeodemo.com

Redistricting Résumé and C.V.

Introduction

I am an applied demographic, analytic and research professional who leads a team of experts in state and local redistricting cases. I have subject matter expertise in political and school redistricting and Voting Rights Act related litigation, US Census Bureau data, geographic information systems (GIS), applied demographic techniques and advanced analytics.

Education & Academic Honors

2002 MS, Management and Information Systems - George Washington University

2002 GSA CIO University graduate* - George Washington University

1997 Graduate credit courses taken at University of Nevada at Las Vegas

1996 MUS (Master of Urban Studies) Demography and Statistics core - Portland State University

1992 BS, History - Portland State University

Bryan GeoDemographics, January 2001-Current: Founder and Principal

I founded Bryan GeoDemographics (BGD) in 2001 as a demographic and analytic consultancy to meet the expanding demand for advanced analytic expertise in applied demographic research and analysis. Since then, my consultancy has broadened to include litigation support, state and local redistricting, school redistricting, and municipal infrastructure initiatives. Since 2001, BGD has undertaken over 150 such engagements in three broad areas:

1) state and local redistricting,
2) applied demographic studies, and
3) school redistricting and municipal Infrastructure analysis.

The core of the BGD consultancy has been in state and local redistricting and expert witness support of litigation. Engagements include:

Granted by the General Services Administration (GSA) and the Federal IT Workforce Committee of the CIO Council.
http://www.gwu.edu/~mastergw/programs/mis/pr.html

State and Local Redistricting

- 2021: In the matter of the *State of Alabama, Representative Robert Aderholt, William Green and Camaran Williams v. the US Department of Commerce; Gina Raimondo; the US Census Bureau and Ron Jarmin* in US District Court of Alabama Eastern Division. Prepared a demographic report for Plaintiffs analyzing the effects of using Differential Privacy on Census Data in Alabama.
    - https://www.alabamaag.gov/Documents/news/Census%20Data%20Manipulation%20Lawsuit.pdf

    - https://redistricting.lls.edu/case/alabama-v-u-s-dept-of-commerce-ii/

- 2020: In the matter of The Christian Ministerial Alliance (CMA), Arkansas Community Institute, Marion Humphrey, Olly Neal, And Ryan Davis v. the State of Arkansas. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support.
    - https://www.naacpldf.org/wp-content/uploads/CMA-v.-Arkansas_FILED-without-stamp.pdf

- 2020: In the matter of *Louisiana State Conference of the NAACP, Allen and Anthony v. the State of Louisiana* in US District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support for the analysis and testing of LA Supreme Court Districts.
    - https://apnews.com/c44c986a29ec4035a87e5ca94d4e6324

    - https://www.bloomberglaw.com/public/desktop/document/AllenetalvStateofLouisianaOfficeoftheGovernorDivisionofAdministra?1595341263

- 2020: In the matter of *Aguilar, Gutierrez, Montes, Palmer and OneAmerica v. Yakima County* in Superior Court of Washington under the Washington Voting Rights Act ("WVRA" Wash. Rev. Code § 29A.92.60). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support.
    - https://bloximages.newyork1.vip.townnews.com/yakimaherald.com/content/tncms/assets/v3/editorial/a/4e/a4e86167-95a2-5186-a86c-bb251bf535f1/5f0d01eec8234.pdf.pdf

- 2018-2020: In the matter of *Flores, Rene Flores, Maria Magdalena Hernandez, Magali Roman, Make the Road New York, and New York Communities for Change v. Town of Islip, Islip Town Board, Suffolk County Board of Elections* in US District Court. On behalf of Defendants - provided a critical analysis of plaintiff's demographic and environmental justice analysis. The critique revealed numerous flaws in both the demographic analysis as well as the tenets of their environmental justice argument, which were upheld by the court. Ultimately developed mutually agreed upon plan for districting.

- o https://nyelectionsnews.wordpress.com/2018/06/20/islip-faces-section-2-voting-rights-act-challenge/

- o https://www.courthousenews.com/wp-content/uploads/2018/06/islip-voting.pdf

- 2017-2020 In the matter of *NAACP, Spring Valley Branch; Julio Clerveaux; Chevon Dos Reis; Eric Goodwin; Jose Vitelio Gregorio; Dorothy Miller; and Hillary Moreau v East Ramapo Central School District (Defendant)* in United States District Court Southern District Of New York (original decision May 25, 2020), later the U.S. Second Circuit Court of Appeals. On behalf of Defendants, developed mutually agreed upon district plan and provided demographic and analytic litigation support.
    - o https://www.lohud.com/story/news/education/2020/05/26/federal-judge-sides-naacp-east-ramapo-voting-rights-case/5259198002/

- 2017-2020: In the matter of *Pico Neighborhood Association et al v. City of Santa Monica* brought under the California VRA. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Providing demographic and analytic litigation support. Executed geospatial analysis to identify concentrations of Hispanic and Black CVAP to determine the impossibility of creating a minority majority district, and demographic analysis to show the dilution of Hispanic and Black voting strength in a district (vs at-large) system. Work contributed to Defendants prevailing in landmark ruling in the State of California Court of Appeal, Second Appellate District.
    - o https://www.santamonica.gov/press/2020/07/09/santa-monica-s-at-large-election-system-affirmed-in-court-of-appeal-decision

- 2019: In the matter of *Johnson v. Ardoin / the State of Louisiana* in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided demographic and analytic litigation support.
    - o https://www.brennancenter.org/sites/default/files/2019-10/2019-10-16-Johnson%20v_%20Ardoin-132-Brief%20in%20Opposition%20to%20MTS.pdf

- 2019: In the matter of *Suresh Kumar v. Frisco Independent School District et al*. in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided demographic and analytic litigation support. Successfully defended.
    - o https://www.friscoisd.org/news/district-headlines/2020/08/04/frisco-isd-wins-voting-rights-lawsuit

    - o https://www.courthousenews.com/wp-content/uploads/2020/08/texas-schools.pdf

- 2019: At the request of the City of Frisco, TX in collaboration with demographic testifying expert Dr. Peter Morrison. Provided demographic assessment of the City's potential liability regarding a potential Section 2 Voting Rights challenge.

- 2019: In the matter of *Vaughan v. Lewisville Independent School District et al.* in United States District Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided demographic and analytic litigation support.
    - https://www.nbcdfw.com/news/local/lawsuit-filed-against-lewisville-independent-school-district/1125/

- 2019: In the matter of *Holloway, et al. v. City of Virginia Beach in* United States District Court, Eastern District of Virginia. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided demographic and analytic litigation support.
    - https://campaignlegal.org/cases-actions/holloway-et-al-v-city-virginia-beach

- 2018: At the request of Kirkland City, Washington in collaboration with demographic testifying expert Dr. Peter Morrison. Performed demographic studies to inform the City's governing board's deliberations on whether to change from at-large to single-member district elections following enactment of the Washington Voting Rights Act. Analyses included gauging the voting strength of the City's Asian voters and forming an illustrative district concentrating Asians; and compared minority population concentration in pre- and post-annexation city territory.
    - https://www.kirklandwa.gov/Assets/City+Council/Council+Packets/021919/8b_SpecialPresentations.pdf#:~:text=RECOMMENDATION%3A%20It%20is%20recommended%20that%20City%20Council%20receive,its%20Councilmembers%20on%20a%20citywide%2C%20at-%20large%20basis

- 2018: At the request of Tacoma WA Public Schools in collaboration with demographic testifying expert Dr. Peter Morrison. Created draft concept redistricting plans that would optimize minority population concentrations while respecting incumbency. Client will use this plan as a point of departure for negotiating final boundaries among incumbent elected officials.

- 2018: At the request of the City of Mount Vernon, Washington., in collaboration with demographic testifying expert Dr. Peter Morrison. Prepared a numerous draft concept plans that preserves Hispanics' CVAP concentration. Client utilized draft concept redistricting plans to work with elected officials and community to agree upon the boundaries of six other districts to establish a proposed new seven-district single-member district plan.

- 2017: In the matter of *John Hall, Elaine Robinson-Strayhorn, Lindora Toudle, Thomas Jerkins, v. Jones County Board of Commissioners*. In collaboration with demographic testifying expert Dr. Peter Morrison. Worked to create draft district concept plans to resolve claims of discrimination against African Americans attributable to the existing at-large voting system.
    - http://jonescountync.gov/vertical/sites/%7B9E2432B0-642B-4C2F-A31B-CDE7082E88E9%7D/uploads/2017-02-13-Jones-County-Complaint.pdf

- 2017: In the matter of *Harding v. County of Dallas* in U.S. District Court. In collaboration with demographic testifying expert Dr. Peter Morrison. In a novel case alleging discrimination *against* White, non-Hispanics under the VRA, I was retained by plaintiffs to create redistricting scenarios with different balances of White-non-Hispanics, Blacks and Hispanics. Deposed and provided expert testimony on the case.
  - https://www.courthousenews.com/wp-content/uploads/2018/08/DallasVoters.pdf

- 2016: Retained by The Equal Voting Rights Institute to evaluate the Dallas County Commissioner existing enacted redistricting plan. In collaboration with demographic testifying expert Dr. Peter Morrison, the focus of our evaluation was twofold: (1) assess the failure of the Enacted Plan (EP) to meet established legal standards and its disregard of traditional redistricting criteria; (2) the possibility of drawing an alternative Remedial Plan (RP) that did meet established legal standards and balance traditional redistricting criteria.
  - http://equalvotingrights.org/wp-content/uploads/2015/01/Complaint.pdf

- 2016: In the matter of *Jain v. Coppell ISD et al* in US District Court. In collaboration with demographic testifying expert Dr. Peter Morrison. Consulted in defense of Coppell Independent School District (Dallas County, TX) to resolve claims of discriminatory at-large voting system affecting Asian Americans. While Asians were shown to be sufficiently numerous, I was able to demonstrate that they were not geographically concentrated - thus successfully proving the Gingles 1 precondition could not be met resulting the complaint being withdrawn.
  - https://dockets.justia.com/docket/texas/txndce/3:2016cv02702/279616

- 2016: In the matter of *Feldman et al v. Arizona Secretary of State's Office et al* in SCOTUS. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided analytics on the locations and proximal demographics of polling stations that had been closed subsequent to *Shelby County v. Holder* (2013) which eliminated the requirement of state and local governments to obtain federal preclearance before implementing any changes to their voting laws or practices. Subsequently provided expert point of view on disparate impact as a result of H.B. 2023. Advised Maricopa County officials and lead counsel on remediation options for primary polling place closures in preparation for 2016 elections.
  - https://arizonadailyindependent.com/2016/04/05/doj-wants-information-on-maricopa-county-election-day-disaster/
  - https://www.supremecourt.gov/DocketPDF/19/19-1257/142431/20200427105601341_Brnovich%20Petition.pdf

- 2016: In the matter of *Glatt v. City of Pasco, et al.* in US District Court (Washington). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Provided analytics and draft plans in defense of the City of Pasco. One draft

plan was adopted, changing the Pasco electoral system from at-large to a six-district + one at large.

- o https://www.pasco-wa.gov/DocumentCenter/View/58084/Glatt-v-Pasco---Order---January-27-2017?bidId=

- o https://www.pasco-wa.gov/923/City-Council-Election-System

- 2015: In the matter of *The League of Women Voters et al. v. Ken Detzner et al* in the Florida Supreme Court. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Performed a critical review of Florida state redistricting plan and developed numerous draft concept plans.

- o http://www.miamiherald.com/news/politics-government/state-politics/article47576450.html

- o https://www.floridasupremecourt.org/content/download/322990/2897332/file/OP-SC14-1905_LEAGUE%20OF%20WOMEN%20VOTERS_JULY09.pdf

- 2015: In the matter of *Evenwel, et al. v. Abbott / State of Texas* in SCOTUS. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Plaintiffs. Successfully drew map for the State of Texas balancing both total population from the decennial census and citizen population from the ACS (thereby proving that this was possible). We believe this may be the first and still only time this technical accomplishment has been achieved in the nation at a state level. Coauthored SCOTUS Amicus Brief of Demographers.

- o https://www.supremecourt.gov/opinions/15pdf/14-940_ed9g.pdf

- o https://www.scotusblog.com/wp-content/uploads/2015/08/Demographers-Amicus.pdf

- 2015: In the matter of *Ramos v. Carrollton-Farmers Branch Independent School District* in US District Court (Texas). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Used 2009-2013 5-year ACS data to generate small-area estimates of minority citizen voting age populations and create a variety of draft concept redistricting plans. Case was settled decision in favor of a novel cumulative voting system.

- o https://starlocalmedia.com/carrolltonleader/c-fb-isd-approves-settlement-in-voting-rights-lawsuit/article_92c256b2-6e51-11e5-adde-a70cbe6f9491.html

- 2015: In the matter of *Glatt v. City of Pasco et al.* in US District Court (Washington). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Consulted on forming new redistricting plan for city council review. One draft concept plan was agreed to and adopted.

- o https://www.pasco-wa.gov/923/City-Council-Election-System

- 2015: At the request of Waterbury, Connecticut, in collaboration with demographic testifying expert Dr. Peter Morrison. As a result of a successful ballot measure to convert Waterbury

from an at-large to a 5-district representative system, consulted an extensive public outreach and drafted numerous concept plans. The Waterbury Public Commission considered alternatives and recommended one of our plans, which the City adopted.

- o http://www.waterburyobserver.org/wod7/node/4124

- 2014-15: In the matter of *Montes v. City of Yakima* in US District Court (Washington). In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants. Analytics later used to support the Amicus Brief of the City of Yakima, Washington in the U.S. Supreme Court in *Evenwel v. Abbott*.
  - o https://casetext.com/case/montes-v-city-of-yakima-3

- 2014: At the request of Gulf County, Florida in collaboration with demographic testifying expert Dr. Peter Morrison. Upon the decision of the Florida Attorney General to force inclusion of prisoners in redistricting plans – drafted numerous concept plans for the Gulf County Board of County Commissioners, one of which was adopted.
  - o http://myfloridalegal.com/ago.nsf/Opinions/B640990E9817C5AB85256A9C00631387

- 2012-2015: In the matter of *GALEO and the City of Gainesville* in Georgia. In collaboration with demographic testifying expert Dr. Peter Morrison, on behalf of Defendants -consulted on defense of existing at-large city council election system.
  - o http://atlantaprogressivenews.com/2015/06/06/galeo-challenges-at-large-voting-in-city-of-gainesville/

- 2012-: Confidential. Consulted (through Morrison & Associates) to support plan evaluation, litigation, and outreach to city and elected officials (1990s - mid-2000s). Executed first statistical analysis of the American Community Survey to determine probabilities of minority-majority populations in split statistical/administrative units of geography, as well as the cumulative probabilities of a "false-negative" minority-majority reading among multiple districts.

- 2011-: Confidential. Consulted on behalf of plaintiffs in Committee (Private) vs. State Board of Elections pertaining to citizen voting-age population. Evaluated testimony of defense expert, which included a statistical evaluation of Hispanic estimates based on American Community Survey (ACS) estimates. Analysis discredited the defendant's expert's analysis and interpretation of the ACS.

Publications

- "The Effect of the Differential Privacy Disclosure Avoidance System Proposed by the Census Bureau on 2020 Census Products: Four Case Studies of Census Blocks in Alaska" PAA Affairs, (with D. Swanson and Richard Sewell, Alaska Department of Transportation and Public Facilities). March 2021.
  - https://www.populationassociation.org/blogs/paa-web1/2021/03/30/the-effect-of-the-differential-privacy-disclosure?CommunityKey=a7bf5d77-d09b-4907-9e17-468af4bdf4a6 .
  - https://redistrictingonline.org/2021/03/31/study-census-bureaus-differential-privacy-disclosure-avoidance-system-produces-produces-concerning-results-for-local-jurisdictions/
  - https://www.ncsl.org/research/redistricting/differential-privacy-for-census-data-explained.aspx

- In the matter of the *State of Alabama, Representative Robert Aderholt, William Green and Camaran Williams v. the US Department of Commerce; Gina Raimondo; the US Census Bureau and Ron Jarmin* in US District Court of Alabama Eastern Division. Declaration of Thomas Bryan, Exhibit 6. Civil Action NO. 3:21-CV-211, United States District Court for Middle Alabama, Eastern Division.
  - https://redistricting.lls.edu/wp-content/uploads/AL-commerce2-20210311-PI.zip

- Peter A. Morrison and Thomas M. Bryan, Redistricting: A Manual for Analysts, Practitioners, and Citizens (2019). Springer Press: Cham Switzerland.

- "Small Area Business Demography." in D. Poston (editor) Handbook of Population, 2nd Edition. (2019). Springer Press: London (with P. Morrison and S. Smith).

- "From Legal Theory to Practical Application: A How-To for Performing Vote Dilution Analyses." *Social Science Quarterly*. (with M.V. Hood III and Peter Morrison). March 2017
  - http://onlinelibrary.wiley.com/doi/10.1111/ssqu.12405/abstract

- In the Supreme Court of the United States Sue Evenwel, Et Al., *Appellants,* V. Greg Abbott, in his official capacity as Governor of Texas, et al., *Appellees. On appeal from the United States District Court for the Western District of Texas*. Amicus *Brief of Demographers Peter A. Morrison, Thomas M. Bryan, William A. V. Clark, Jacob S. Siegel, David A. Swanson, and The Pacific Research Institute* - As *amici curiae* in support of Appellants. August 2015.
  - www.scotusblog.com/wp-content/uploads/2015/08/Demographers-Amicus.pdf)

- Workshop on the Benefits (and Burdens) of the American Community Survey, Case Studies/Agenda Book 6 "Gauging Hispanics' Effective Voting Strength in Proposed Redistricting Plans: Lessons Learned Using ACS Data." June 14–15, 2012
    - http://docplayer.net/8501224-Case-studies-and-user-profiles.html

- "Internal and Short Distance Migration" by Bryan, Thomas in J. Siegel and D. Swanson (eds.) <u>The Methods and Materials of Demography, Condensed Edition, Revised.</u> (2004). Academic/Elsevier Press: Los Angeles (with D. Swanson and P. Morrison).

- "Population Estimates" by Bryan, Thomas in J. Siegel and D. Swanson (eds.) <u>The Methods and Materials of Demography, Condensed Edition, Revised.</u> (2004). Academic/Elsevier Press: Los Angeles (with D. Swanson and P. Morrison).

- Bryan, T. (2000). U.S. Census Bureau Population estimates and evaluation with loss functions. *Statistics in Transition,* 4, 537–549.

Professional Presentations and Conference Participation

- Session Chairman on Invited Session "Assessing the Quality of the 2020 Census", including Census Director Ron Jarmin at the 2020 Population Association of America meeting May 5, 2021.
    - https://paa2021.secure-platform.com/a/organizations/main/home

- "The Effect of the Differential Privacy Disclosure Avoidance System Proposed by the Census Bureau on 2020 Census Products: Four Case Studies of Census Blocks in Alaska". 2021 American Statistical Association - Symposium on Data Science and Statistics (ASA-SDSS). With Dr. David Swanson.
    - https://ww2.amstat.org/meetings/sdss/2021/index.cfm

- "New Technical Challenges in Post-2020 Redistricting" 2020 Population Association of America Applied Demography Conference, 2020 Census Related Issues, February 2021. With Dr. Peter Morrison.
    - https://www.youtube.com/watch?v=ETvvoECt9sc&feature=youtu.be

- "Tutorial on Local Redistricting" 2020 Population Association of America Applied Demography Conference, February 2021. With Dr. Peter Morrison.
    - https://www.youtube.com/watch?v=ETvvoECt9sc&feature=youtu.be

- "Demographic Constraints on Minority Voting Strength in Local Redistricting Contexts" 2019 Southern Demographic Association meetings (coauthored with Dr. Peter Morrison) New Orleans, LA, October 2019. Winner of annual E. Walter Terrie award for best state and local demography presentation.
    - http://sda-demography.org/2019-new-orleans

- "Applications of Big Demographic Data in Running Local Elections" 2017 Population and Public Policy Conference, Houston, TX.

- "Distinguishing 'False Positives' Among Majority-Minority Election Districts in Statewide Congressional Redistricting," 2017 Southern Demographic Association meetings (coauthored with Dr. Peter Morrison) Morgantown, WV.

- "Devising a Demographic Accounting Model for Class Action Litigation: An Instructional Case" 2016 Southern Demographic Association (with Peter Morrison), Athens, GA.

- "Gauging Hispanics' Effective Voting Strength in Proposed Redistricting Plans: Lessons Learned Using ACS Data." 2012 Conference of the Southern Demographic Association, Williamsburg, VA.

- "Characteristics of the Arab-American Population from Census 2000 and 1990: Detailed Findings from PUMS." 2004 Conference of the Southern Demographic Association, (with Samia El-Badry) Hilton Head, SC.

- "Small-Area Identification of Arab American Populations," 2004 Conference of the Southern Demographic Association, Hilton Head, SC.

- "Applied Demography in Action: A Case Study of Population Identification." 2002 Conference of the Population Association of America, Atlanta, GA.

Primary Software Competencies
ESRI ArcGIS: advanced
SAS: intermediate
Microsoft Office: advanced

Professional Affiliations
International Association of Applied Demographers (Member and Board of Directors)
American Statistical Association (Member)
Population Association of America (Member)
Southern Demographic Association (Member)
American BAR Association (Affiliated Professional: Solo, Small Firm and General Practice Division)

Relevant Work Experience

January 2001- April 2003 ESRI Business Information Solutions / Demographer
Responsibilities included demographic data management, small-area population forecasting, IS management and software product and specification development. Additional responsibilities included developing GIS-based models of business and population forecasting, and analysis of emerging technology and R&D / testing of new GIS and geostatistical software.

May 1998-January 2001 U.S. Census Bureau / Statistician
Responsibilities: developed and refined small area population and housing unit estimates and innovative statistical error measurement techniques, such as Loss Functions and MAPE-R.

Service

Eagle Scout, 1988, Boy Scouts of America. Member of the National Eagle Scout Association. Involved in leadership of the Boy Scouts of America Heart of Virginia Council.

References

Dr. David Swanson
Professional Peer
david.swanson@ucr.edu
951-534-6336

Dr. Peter Morrison
Professional Peer
petermorrison@me.com
310-266-9580

Attachment "B"

Moon Duchin

moon.duchin@tufts.edu · mduchin.math.tufts.edu
Mathematics · STS · Tisch College of Civic Life | Tufts University

Education

University of Chicago	MS 1999, PhD 2005
Mathematics	

Advisor: Alex Eskin   Dissertation: *Geodesics track random walks in Teichmüller space*

Harvard University	BA 1998
Mathematics and Women's Studies	

Appointments

Tufts University	
Associate Professor	2015—
Assistant Professor	2011–2015
Director | Program in Science, Technology, & Society (on leave 2018–2019)	2015—
Principal Investigator | Metric Geometry and Gerrymandering Group (Research Lab)	2017—
Senior Fellow | Tisch College of Civic Life	2017—
University of Michigan	
Assistant Professor (postdoctoral)	2008–2011
University of California, Davis	
NSF VIGRE Postdoctoral Fellow	2005–2008

Research Interests

Random walks and Markov chains, random groups, random constructions in geometry.
Large-scale geometry, metric geometry, isoperimetric inequalities.
Geometric group theory, growth of groups, nilpotent groups, dynamics of group actions.
Geometric topology, hyperbolicity, Teichmüller theory.
Data science for civil rights, computation and governance, elections, geometry and redistricting.
Science, technology, and society, science policy, technology and law, social epistemology.

Awards & Distinctions

Guggenheim Fellow	2018
Radcliffe Fellow - Evelyn Green Davis Fellowship	2018–2019
Fellow of the American Mathematical Society	elected 2017
NSF C-ACCEL (PI) - Harnessing the Data Revolution: Network science of Census data	2019–2020
NSF grants (PI) - CAREER grant and three standard Topology grants	2009–2022
Professor of the Year, Tufts Math Society	2012–2013
AAUW Dissertation Fellowship	2004–2005
NSF Graduate Fellowship	1998–2002
Lawrence and Josephine Graves Prize for Excellence in Teaching (U Chicago)	2002
Robert Fletcher Rogers Prize (Harvard Mathematics)	1995–1996

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You can hear the shape of a billiard table: Symbolic dynamics and rigidity for flat surfaces
Submitted. (with Viveka Erlandsson, Christopher Leininger, and Chandrika Sadanand)   arXiv:1804.05690

The (homological) persistence of gerrymandering
Submitted. (with Thomas Needham and Thomas Weighill)   arXiv:2007.02390

Recombination: A family of Markov chains for redistricting
Submitted. (with Daryl DeFord and Justin Solomon)   mggg.org/ReCom

A reversible recombination chain for graph partitions
Preprint. (with Sarah Cannon, Dana Randall, and Parker Rule)

Noising the Census: Differentially private algorithms for disclosure avoidance
Preprint. (with Aloni Cohen, JN Matthews, Bhushan Suwal, and Peter Wayner)

Stars at infinity in Teichmüller space
Geometriae Dedicata, to appear. (with Nate Fisher)   arXiv:2004.04321

Conjugation curvature for Cayley graphs
Journal of Topology and Analysis, to appear. (with Assaf Bar-Natan and Robert Kropholler)   arXiv:1712.02484

Random walks and redistricting: New applications of Markov chain Monte Carlo
In press. (with Daryl DeFord) For edited volume, Political Geometry. Under contract with Birkhäuser.

Mathematics of nested districts: The case of Alaska
Statistics and Public Policy. Vol 7, No 1 (2020), 39–51. (with Sophia Caldera, Daryl DeFord, Sam Gutekunst, and Cara Nix)

A computational approach to measuring vote elasticity and competitiveness
Statistics and Public Policy. Vol 7, No 1 (2020), 69–86. (with Daryl DeFord and Justin Solomon)

The Heisenberg group is pan-rational
Advances in Mathematics **346** (2019), 219–263. (with Michael Shapiro)

Random nilpotent groups I
IMRN, Vol 2018, Issue 7 (2018), 1921–1953. (with Matthew Cordes, Yen Duong, Meng-Che Ho, and Ayla Sánchez)

Hyperbolic groups
chapter in *Office Hours with a Geometric Group Theorist*, eds. Matt Clay and Dan Margalit,
Princeton University Press (2017), 177–203.

Counting in groups: Fine asymptotic geometry
Notices of the American Mathematical Society **63**, No. 8 (2016), 871–874.

A sharper threshold for random groups at density one-half
Groups, Geometry, and Dynamics **10**, No. 3 (2016), 985–1005.
(with Katarzyna Jankiewicz, Shelby Kilmer, Samuel Lelièvre, John M. Mackay, and Ayla Sánchez)

Equations in nilpotent groups
Proceedings of the American Mathematical Society **143** (2015), 4723–4731. (with Hao Liang and Michael Shapiro)

Statistical hyperbolicity in Teichmüller space
Geometric and Functional Analysis, Volume 24, Issue 3 (2014), 748–795. (with Howard Masur and Spencer Dowdall)

Fine asymptotic geometry of the Heisenberg group
Indiana University Mathematics Journal 63 No. 3 (2014), 885–916. (with Christopher Mooney)

Pushing fillings in right-angled Artin groups
Journal of the LMS, Vol 87, Issue 3 (2013), 663–688. (with Aaron Abrams, Noel Brady, Pallavi Dani, and Robert Young)

Spheres in the curve complex
In the Tradition of Ahlfors and Bers VI, Contemp. Math. **590** (2013), 1–8. (with Howard Masur and Spencer Dowdall)

2

The sprawl conjecture for convex bodies
Experimental Mathematics, Volume 22, Issue 2 (2013), 113–122. (with Samuel Lelièvre and Christopher Mooney)

Filling loops at infinity in the mapping class group
Michigan Math. J., Vol 61, Issue 4 (2012), 867–874. (with Aaron Abrams, Noel Brady, Pallavi Dani, and Robert Young)

The geometry of spheres in free abelian groups
Geometriae Dedicata, Volume 161, Issue 1 (2012), 169–187. (with Samuel Lelièvre and Christopher Mooney)

Statistical hyperbolicity in groups
Algebraic and Geometric Topology **12** (2012) 1–18. (with Samuel Lelièvre and Christopher Mooney)

Length spectra and degeneration of flat metrics
Inventiones Mathematicae, Volume 182, Issue 2 (2010), 231–277. (with Christopher Leininger and Kasra Rafi)

Divergence of geodesics in Teichmüller space and the mapping class group
Geometric and Functional Analysis, Volume 19, Issue 3 (2009), 722–742. (with Kasra Rafi)

Curvature, stretchiness, and dynamics
In the Tradition of Ahlfors and Bers IV, Contemp. Math. **432** (2007), 19–30.

Geodesics track random walks in Teichmüller space
PhD Dissertation, University of Chicago 2005.

Science, Technology, Law, and Policy Publications & Preprints

Discrete geometry for electoral geography
Submitted. (with Bridget Eileen Tenner)   arXiv:1808.05860

Implementing partisan symmetry: Problems and paradoxes
Submitted. (with Daryl DeFord, Natasha Dhamankar, Mackenzie McPike, Gabe Schoenbach, and Ki-Wan Sim)

Clustering propensity: A mathematical framework for measuring segregation
Preprint. (with Emilia Alvarez, Everett Meike, and Marshall Mueller; appendix by Tyler Piazza)

Locating the representational baseline: Republicans in Massachusetts
Election Law Journal, Volume 18, Number 4, 2019, 388–401.
(with Taissa Gladkova, Eugene Henninger-Voss, Ben Klingensmith, Heather Newman, and Hannah Wheelen)

Redistricting reform in Virginia: Districting criteria in context
Virginia Policy Review, Volume XII, Issue II, Spring 2019, 120–146. (with Daryl DeFord)

Geometry v. Gerrymandering
The Best Writing on Mathematics 2019, ed. Mircea Pitici. Princeton University Press.
reprinted from Scientific American, November 2018, 48–53.

Gerrymandering metrics: How to measure? What's the baseline?
Bulletin of the American Academy for Arts and Sciences, Vol. LXII, No. 2 (Winter 2018), 54–58.

Rebooting the mathematics of gerrymandering: How can geometry track with our political values?
The Conversation (online magazine), October 2017. (with Peter Levine)

A formula goes to court: Partisan gerrymandering and the efficiency gap
Notices of the American Mathematical Society **64** No. 9 (2017), 1020–1024. (with Mira Bernstein)

International mobility and U.S. mathematics
Notices of the American Mathematical Society **64**, No. 7 (2017), 682–683.

3

Graduate Advising in Mathematics

Mai Mansouri (MS 2014),   Kevin Buckles (PhD 2015),   Ayla Sánchez (PhD 2017), Sunrose Shrestha (PhD 2020),   Nate Fisher (PhD expected 2021)

Outside committee member for Chris Coscia (PhD 2020), Dartmouth College

Postdoctoral Advising in Mathematics

Principal supervisor Thomas Weighill (2019—)

Co-supervisor Daryl DeFord (MIT 2018–2020), Rob Kropholler (2017–2020), Hao Liang (2013–2016)

Teaching

Courses Developed or Customized

Mathematics of Social Choice | sites.tufts.edu/socialchoice
Voting theory, impossibility theorems, redistricting, theory of representative democracy, metrics of fairness.

History of Mathematics | sites.tufts.edu/histmath
Social history of mathematics, organized around episodes from antiquity to present. Themes include materials and technologies of creation and dissemination, axioms, authority, credibility, and professionalization. In-depth treatment of mathematical content from numeration to cardinal arithmetic to Galois theory.

Reading Lab: Mathematical Models in Social Context | sites.tufts.edu/models
One hr/wk discussion seminar of short but close reading on topics in mathematical modeling, including history of psychometrics; algorithmic bias; philosophy of statistics; problems of model explanation and interpretation.

Geometric Literacy
Module-based graduate topics course. Modules have included: p-adic numbers, hyperbolic geometry, nilpotent geometry, Lie groups, convex geometry and analysis, the complex of curves, ergodic theory, the Gauss circle problem.

Markov Chains (graduate topics course)
Teichmüller Theory (graduate topics course)
Fuchsian Groups (graduate topics course)
Continued Fractions and Geometric Coding (undergraduate topics course)
Mathematics for Elementary School Teachers

Standard Courses

Discrete Mathematics, Calculus I-II-III, Intro to Proofs, Linear Algebra, Complex Analysis, Differential Geometry, Abstract Algebra, Graduate Real Analysis

Weekly Seminars Organized

- Geometric Group Theory and Topology
- Science, Technology, and Society Lunch Seminar

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Distinguished Plenary Lecture [June 2020]
75th Anniversary Meeting of Canadian Mathematical Society, Ottawa, Ontario *postponed*

BMC/BAMC Public Lecture [April 2020]
Joint British Mathematics/Applied Mathematics Colloquium, Glasgow, Scotland *postponed*

AMS Einstein Public Lecture in Mathematics [March 2020]
Southeastern Sectional Meeting of the AMS, Charlottesville, VA *postponed*

Gerald and Judith Porter Public Lecture
AMS-MAA-SIAM, Joint Mathematics Meetings, San Diego, CA January 2018

Mathematical Association of America Distinguished Lecture
MAA Carriage House, Washington, DC October 2016

American Mathematical Society Invited Address
AMS Eastern Sectional Meeting, Brunswick, ME September 2016

Named University Lectures

- Parsons Lecture | UNC Asheville October 2020
- Loeb Lectures in Mathematics | Washington University in St. Louis [March 2020]
- Math, Stats, CS, and Society | Macalester College October 2019
- MRC Public Lecture | Stanford University May 2019
- Freedman Memorial Colloquium | Boston University March 2019
- Julian Clancy Frazier Colloquium Lecture | U.S. Naval Academy January 2019
- Barnett Lecture | University of Cincinnati October 2018
- School of Science Colloquium Series | The College of New Jersey March 2018
- Kieval Lecture | Cornell University February 2018
- G. Milton Wing Lectures | University of Rochester October 2017
- Norman Johnson Lecture | Wheaton College September 2017
- Dan E. Christie Lecture | Bowdoin College September 2017

Math/Computer Science Department Colloquia

- Georgetown (CS)	Sept 2020	- Université de Neuchâtel	Jun 2016
- Santa Fe Institute	July 2020	- Brandeis University	Mar 2016
- UC Berkeley	Sept 2018	- Swarthmore College	Oct 2015
- Brandeis-Harvard-MIT-NEU	Mar 2018	- Bowling Green	May 2015
- Northwestern University	Oct 2017	- City College of New York	Feb 2015
- University of Illinois	Sept 2017	- Indiana University	Nov 2014
- University of Utah	Aug 2017	- the Technion	Oct 2014
- Wesleyan	Dec 2016	- Wisconsin–Madison	Sept 2014
- Worcester Polytechnic Inst.	Dec 2016	- Stony Brook	March 2013

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Minicourses

- Workshop in geometric topology (main speaker, three talks) | Provo, UT — June 2017
- Growth in groups (two talks) | MSRI, Berkeley, CA — August 2016
- Hyperbolicity in Teichmüller space (three talks) | Université de Grenoble — May 2016
- Counting and growth (four talks) | IAS Women's Program, Princeton — May 2016
- Nilpotent groups (three talks) | Seoul National University — October 2014
- Sub-Finsler geometry of nilpotent groups (five talks) | Galatasaray Univ., Istanbul — April 2014

Science, Technology, and Society

- The Mathematics of Accountability | Sawyer Seminar, Anthropology, Johns Hopkins — February 2020
- STS Circle | Harvard Kennedy School of Government — September 2019
- Data, Classification, and Everyday Life Symposium | Rutgers Center for Cultural Analysis — January 2019
- Science Studies Colloquium | UC San Diego — January 2019
- Arthur Miller Lecture on Science and Ethics | MIT Program in Science, Tech, and Society — November 2018

Data Science, Computer Science, Quantitative Social Science

- Data Science for Social Good Workshop (DS4SG) | Georgia Tech — November 2020
- Privacy Tools Project Retreat | Harvard (virtual) — May 2020
- Women in Data Science Conference | Microsoft Research New England — March 2020
- Quantitative Research Methods Workshop | Yale Center for the Study of American Politics — February 2020
- Societal Concerns in Algorithms and Data Analysis | Weizmann Institute — December 2018
- Quantitative Collaborative | University of Virginia — March 2018
- Quantitative Social Science | Dartmouth College — September 2017
- Data for Black Lives Conference | MIT — November 2017

Political Science, Geography, Law, Democracy

- The Long 19th Amendment: Women, Voting, and American Democracy | Radcliffe Institute — Fall 2020
- Voting Rights Conference | Northeastern Public Interest Law Program — September 2020
- Political Analysis Workshop | Indiana University — November 2019
- Program in Public Law Panel | Duke Law School — October 2019
- Midwest Redistricting Seminar | National Conference of State Legislatures, Columbus, OH — October 2019
- Redistricting 2021 Seminar | University of Chicago Institute of Politics — May 2019
- Geography of Redistricting Conference Keynote | Harvard Center for Geographic Analysis — May 2019
- Political Analytics Conference | Harvard University — November 2018
- Cyber Security, Law, and Society Alliance | Boston University — September 2018
- Clough Center for the Study of Constitutional Democracy | Boston College — November 2017
- Tech/Law Colloquium Series | Cornell Tech — November 2017
- Constitution Day Lecture | Rockefeller Center for Public Policy, Dartmouth College — September 2017

Editorial Boards

Harvard Data Science Review
Associate Editor — since 2019

Advances in Mathematics
Member, Editorial Board — since 2018

Selected Professional and Public Service

Amicus Brief of Mathematicians, Law Professors, and Students　　　　2019
principal co-authors: Guy-Uriel Charles and Moon Duchin

Supreme Court of the United States, in Rucho v. Common Cause - cited in dissent

Consulting Expert for Governor Tom Wolf　　　　2018
Pennsylvania Congressional Redistricting (PA State Supreme Court)

Committee on Science Policy　　　　2020–2023
American Mathematical Society

Program Committee　　　　2020–2021
Symposium on Foundations of Responsible Computing

Presenter on Public Mapping, Statistical Modeling　　　　2019, 2020
National Conference of State Legislatures, Regional Redistricting Conferences

Committee on the Human Rights of Mathematicians　　　　2016–2019
American Mathematical Society

Committee on The Future of Voting: Accessible, Reliable, Verifiable Technology　　　　2017–2018
National Academies of Science, Engineering, and Medicine

Visiting Positions and Residential Fellowships

Fellow Radcliffe Institute for Advanced Study　　　　2018–19
Harvard University | Cambridge, MA

Member Center of Mathematical Sciences and Applications　　　　2018–19
Harvard University | Cambridge, MA

Visitor Microsoft Research Lab　　　　2018–19
MSR New England | Cambridge, MA

Research Member Geometric Group Theory program　　　　Fall 2016
Mathematical Sciences Research Institute | Berkeley, CA

Research Member Random Walks and Asymptotic Geometry of Groups program　　　　Spring 2014
Institut Henri Poincaré | Paris, France

Research Member Low-dimensional Topology, Geometry, and Dynamics program　　　　Fall 2013
Institute for Computational and Experimental Research in Mathematics | Providence, RI

Research Member Geometric and Analytic Aspects of Group Theory program　　　　May 2012
Institut Mittag-Leffler | Stockholm, Sweden

Research Member Quantitative Geometry program　　　　Fall 2011
Mathematical Sciences Research Institute | Berkeley, CA

Postdoctoral Fellow Teichmüller "project blanc"　　　　Spring 2009
Agence Nationale de la Recherche (Collège de France) | Paris, France

Program Development, Mentoring, Professional Development

Voting Rights Data Institute   Summer 2018, 2019

Developed and ran six-week summer data intensive at Tufts/MIT for over 30 graduate and undergraduate students from a range of disciplines, including mathematics, computer science, geography, philosophy, political science, and law.

Supervised software development, data collection and preparation, and innovative research projects.

Mentoring Workshop for Graduate Advisors in Mathematics   since 2015

Designed workshop for junior faculty in mathematics on best practices in advising doctoral students, featuring research in social psychology on mentorship across race, sex, class, and other social difference.

Held at Tufts in April 2015, cloned at Michigan in May 2017, and Ohio State in Spring 2019.

Directed Reading Program   since 2003
Directed Reading Program Network   since 2017

Co-founded program at U Chicago pairing math majors with grad student mentors for reading projects.

Co-founded national network linking Directed Reading Programs in a range of math departments around the country to facilitate best practices for mentorship.

This highly impactful mentoring program has been cloned by its alumni at 15+ institutions. Now serving on five-person faculty oversight team for NSF-funded network project.

Research Cluster in Polygonal Billiards   Summer 2017
Research Cluster in Random Groups   Summer 2014

Ran six-week programs for mix of undergrads, grads, and faculty, mixing experimental and research projects.

Hosted at Tufts University, funded by NSF CAREER grant.

Undergraduate Faculty Program in Geometric Group Theory   Summer 2012

Directed three-week "Research Lab" with 16 participating faculty members from undergraduate institutions.

Park City Math Institute, funded by NSF and IAS.

Research Experience for Undergraduates (REU) on Metric Geometry   Summer 2006

Designed and ran month-long program supervising seven undergraduates and three grad students.

Hosted at UC Davis, funded by NSF VIGRE grant.

Warmup Program/"WOMP"   since 2001

Co-founded program at U Chicago preparing new graduate students for the doctoral program.

Recent Conferences, Workshops, Trainings Organized

- **Graphs and Networks Workshop** │ Virtual conference with 500 attendees │ August 2020
- **Geodata Bootcamp** and **Mapping Training** │ Virtual trainings for students │ June–July 2020
- **Border Science: Data, Technology, and Meaning at Political Boundaries** │ Exploratory workshop
  February 2020 at Radcliffe Institute for Advanced Study
- **Redistricting in 2020** │ Session of Harvard Data Science Symposium │ October 2019
- **Geometry of Redistricting Conferences** │ Large public conferences attracting over 1200 attendees collectively
  Somerville MA 2017, Madison WI 2017, Durham NC 2017, Austin TX 2018, San Francisco CA 2018
- **Expert Witness Training Sessions** │ most recent December 2018 at Radcliffe
- **Educator Workshops** │ most recent July 2019 at Tufts
- **Hackathons** │ most recent March 2018 at USF
- **Mapmaking Training** │ February 2018 at UT Austin

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Attachment "C"

TIMMONS GROUP

1001 Boulders Parkway
Suite 300
Richmond, VA 23225

P 804.200.6500
F 804.560.1016
www.timmons.com

Option 2 - Schedule Quick Overview Grid Map Comment Period 23 days

Task	Date Start	Date End
Socioeconomic Data Report	6/8/2021	7/13/21
Listening Tour Feedback Form	6/28/21	7/13/21
Competitiveness Training Initial Session - Doug	7/13/21	7/13/21
Listening Tour Agenda Set	7/13/21	7/13/21
Competitiveness Guest Speakers	7/20/21	7/20/21
Listening Tour	7/22/21	8/8/21
Practical Voting Rights Session/Criteria – Doug	7/27/21	7/27/21
Esri Software Setup Complete		7/23/21
Esri Training Session	**Last Week of July?**	
Competitiveness/Grid Map Method(s) Selection	8/3/21	8/3/21
Competitiveness Methods Selected	8/3/21	8/3/21
Census Release PL Data	8/16/21	8/16/21
Esri Loads PL data into Redistricting System	8/17/21	9/3/21
Community of Interest Report	8/31/21	8/31/21
Load Arizona State Data into Redistricting System	9/3/21	9/6/21
Mapping System Live	9/13/21	9/13/21
Grid Map Adoption*	9/14/21	9/14/21
Competitiveness Report	9/14/21	9/14/21
Polarized Voting Report	9/14/21	9/14/21
Grid Map – 23 Day Review	9/15/21	10/8/21
Grid Map – Comment/Data Compile	10/11/21	10/15/21
Draft Maps – Development	10/15/21	10/22/21
Draft Maps Public Decision Mtg*	10/22/21	10/27/21
Draft Maps 30 Day - Public Review	10/28/21	11/30/21
Draft Maps Processing	11/30/21	12/7/21
Final Map Reading/Comment Time	12/7/21	12/13/21
Commission Revise and Tentatively Adopted Plans	12/14/21	12/17/21
County Cleanup Requests	12/20/21	12/21/21
Commission Adopted Plans	12/22/21	12/22/21

Option 1 - Schedule Quick Overview Grid Map Comment Period 30 days

Task	Date Start	Date End
Socioeconomic Data Report	6/8/2021	7/13/21
Listening Tour Feedback Form	6/28/21	7/13/21
Competitiveness Training Initial Session - Doug	7/13/21	7/13/21
Listening Tour Agenda Set	7/13/21	7/13/21
Competitiveness Guest Speakers	7/20/21	7/20/21
Listening Tour	7/22/21	8/8/21
Practical Voting Rights Session/Criteria – Doug	7/27/21	7/27/21
Esri Software Setup Complete		7/23/21
Esri Training Session	**Last Week of July?**	
Competitiveness/Grid Map Method(s) Selection	8/3/21	8/3/21
Competitiveness Methods Selected	8/3/21	8/3/21
Census Release PL Data	8/16/21	8/16/21
Esri Loads PL data into Redistricting System	8/17/21	9/3/21
Community of Interest Report	8/31/21	8/31/21
Load Arizona State Data into Redistricting System	9/3/21	9/6/21
Mapping System Live	9/13/21	9/13/21
Grid Map Adoption*	9/14/21	9/14/21
Competitiveness Report	9/14/21	9/14/21
Polarized Voting Report	9/14/21	9/14/21
Grid Map – 30 Day Review	9/15/21	10/26/21
Grid Map – Comment/Data Compile	10/22/21	10/26/21
Draft Maps – Development	10/27/21	10/29/21
Draft Maps Public Decision Mtg*	11/2/21	11/3/21
Draft Maps 30 Day - Public Review	11/4/21	12/6/21
Public Review of Tentatively Adopted Plans	12/9/21	12/17/21
County Cleanup Requests	12/20/21	12/21/21
Commission Adopted Plans	12/22/21	12/22/21