Supplementary Material for *Planning for extreme heat: A national survey of U.S. planners*

Table of Contents

Appendix 1 Survey Questions

1. Are you employed or self-employed as a planner?

2. In your role as a planner, how concerned are you about extreme heat (summertime temperatures that are much hotter and/or humid than average) in the community(ies) you work with?

	Not at all concerned	A little bit concerned	Somewhat concerned	Very concerned
Economic impacts				
Health impacts				
Environmental impacts				
Overall				

3. In your role as a planner, how concerned are you about the following two contributors to extreme heat risk in the community(ies) you work with?

	Not at all concerned	A little bit concerned	Somewhat concerned	Very concerned
Urban heat island				
Climate change				

4. To the best of your knowledge, have any of the following been impacted in the last five years due to extreme heat in the community(ies) you work with? (select all that apply)
   - Public health
   - Quality of life
   - Economic productivity
   - Economic development
   - Labor productivity
   - Retail
   - Tourism
   - Utility functioning
   - Transportation
   - Water use
   - Energy use
   - Urban vegetation or wildlife
   - Other (Please specify)

5. To the best of your knowledge, is extreme heat specifically addressed in the following plans anywhere in the community(ies) you work with?
   - Zoning codes and regulations
   - Building codes
   - Comprehensive or general plans
   - Sustainability, climate action, or resilience plans
   - Hazard mitigation plans
   - Emergency response plans
   - Other (Please specify)

6. What are the names of these plans?

7. In your opinion, which level(s) of jurisdiction should be primarily responsible for planning for extreme heat? (Check all that apply)
   - Local (city or town)
   - Count
   - Regional
   - State
   - National
   - Don't know

8. Are any of the following sources of extreme heat information used in the community(ies) you work with?

	No - because they are not useful	No - because the information is currently unavailable	Yes - currently in use	Not sure
Land surface temperature map				
Ambient air temperature maps				
Heat vulnerability maps				
Real-time ambient air temperature readings				
Historic temperature information				
Future temperature projections and statistics				

Future targeted heat wave scenarios for specific planning time periods	
Heat index	
Vegetation or tree canopy maps	
Other (please specify)	

9. Please describe the extreme heat information sources used in the community(ies) you work with and how they are used in more detail.

10. What sources of heat information would be most useful in the community(ies) you work with?

11. To the best of your knowledge, has the community(ies) you work with implemented any of the following strategies to address extreme heat?

	Yes	No	Don't know
Building material and reflectivity			
Weatherization/building retrofits			
Urban design/layout			
Manmade shade structures			
Urban forestry/tree canopy			
Green roofs/walls			
Water features			
Drinking fountains			
Cooling centers			
Informational/awareness campaigns			
Emergency response coordination			
Warning systems			
Utility assistance			

Vulnerability assessments					
Regulations for outdoor work or recreation					
Staff assigned to work on extreme heat					
Other (Please specify)					

12. How effective do you consider each of the following strategies for addressing extreme heat in the community(ies) you work with?

	Not at all effective	A little bit effective	Somewhat effective	Very effective	Don't know
Building material and reflectivity					
Weatherization/building retrofits					
Urban design/layout					
Manmade shade structures					
Urban forestry/tree canopy					
Green roofs/walls					
Water features					
Drinking fountains					
Cooling centers					
Informational/awareness campaigns					
Emergency response coordination					
Warning systems					
Utility assistance					
Vulnerability assessments					
Regulations for outdoor work or recreation					

Staff assigned to work on extreme heat	
Other (Please specify)	

13. To what degree do you consider the following as barriers to extreme heat planning in the community(ies) you work with?

	Not a barrier	Slight barrier	Moderate barrier	Significant barrier	Don't know
Data on extreme heat risk					
Spatial resolution of existing information					
Temporal scale of existing information					
Uncertainty/reliability of existing information					
Expertise to understand existing information					
Knowledge of heat strategies					
Funding					
Time and staff					
Leadership					
Public support					
Coordination between agencies and/or jurisdictions					
Other hazards or issues that are higher priority					
Other (please specify)					

14. Select the state(s) in which you primarily work

15. Please list the community(ies) in which you primarily work

16. Which of the following best describes your employer?
    - Academic institution
    - Public planning agency
    - Other public agency
    - Private sector
    - NGO or non-profit
    - Self-employed
    - Other (Please specify)

17. Which of the following best describes the scale of the planning jurisdiction(s) with which you currently work? (select all that apply)
    - Municipal
    - County or parish
    - Regional
    - State or territory
    - Tribal
    - Special district (i.e. water district, school, etc.)
    - International
    - Other (Please specify)

18. Which of the following describes your area(s) of specialization in planning? (select all that apply)
    - Community activism/empowerment
    - Community development
    - Comprehensive/long-range planning
    - Economic development
    - Environment/natural resources planning
    - Food systems planning
    - Hazard mitigation/disaster recovery planning
    - Historic preservation
    - Housing
    - Land use and code enforcement
    - Parks and recreation
    - Planning management and finance
    - Transportation planning
    - Urban design

19. Is there anything else about extreme heat planning or this survey that you would like us to know?

Appendix 2 Targeted sample cities with population, region, size, and survey completion status

City	State	Population	NCA Region	Size	Survey completed Y=yes N=no
Hawaii (County)	Hawaii	185079	Hawaii and Pacific Islands	medium	Y
Honolulu (County & City)	Hawaii	347884	Hawaii and Pacific Islands	large	Y
Cleveland	Ohio	390113	Midwest	large	Y
Minneapolis	Minnesota	400070	Midwest	large	Y
Indianapolis	Indiana	843393	Midwest	large	Y
Brooklyn Park	Minnesota	78373	Midwest	medium	Y
St. Clair Shores	Michigan	60070	Midwest	medium	Y
Carol Stream	Illinois	40379	Midwest	small	Y
Romeoville	Illinois	39650	Midwest	small	Y
Pittsburgh	Pennsylvania	305841	Northeast	large	Y
Baltimore	Maryland	622104	Northeast	large	Y
Rochester	New York	210358	Northeast	medium	Y
Paterson	New Jersey	145948	Northeast	medium	Y
Bowie	Maryland	56759	Northeast	medium	Y
Salem	Massachusetts	42544	Northeast	small	Y
Woonsocket	Rhode Island	41026	Northeast	small	Y
Omaha	Nebraska	434353	Northern Great Plains	large	Y
Bismarck	North Dakota	67034	Northern Great Plains	medium	Y
Fargo	North Dakota	113658	Northern Great Plains	medium	Y
Grand Forks	North Dakota	54932	Northern Great Plains	medium	Y
Grand Island	Nebraska	50550	Northern Great Plains	medium	Y
Lincoln	Nebraska	268738	Northern Great Plains	medium	Y
Cheyenne	Wyoming	62448	Northern Great Plains	medium	Y
Sioux Falls	South Dakota	164676	Northern Great Plains	medium	Y
Missoula	Montana	69122	Northern Great Plains	medium	Y
Casper	Wyoming	59628	Northern Great Plains	medium	Y
Bozeman	Montana	39860	Northern Great Plains	small	Y
Seattle	Washington	652405	Northwest	large	Y
Portland	Oregon	609456	Northwest	large	Y
Boise City	Idaho	214237	Northwest	medium	Y
Corvallis	Oregon	55298	Northwest	medium	Y
Nampa	Idaho	86518	Northwest	medium	Y
Lakewood	Washington	59097	Northwest	medium	Y

Yakima	Washington	93257	Northwest	medium	Y
Lake Oswego	Oregon	37610	Northwest	small	Y
Edmonds	Washington	40727	Northwest	small	Y
Virginia Beach	Virginia	448479	Southeast	large	Y
Raleigh	North Carolina	431746	Southeast	large	Y
Charleston	South Carolina	127999	Southeast	medium	Y
Mount Pleasant	South Carolina	74885	Southeast	medium	Y
Norfolk	Virginia	246139	Southeast	medium	Y
Hickory	North Carolina	40361	Southeast	small	Y
Biloxi	Mississippi	44820	Southeast	small	Y
Pinellas Park	Florida	49998	Southeast	small	Y
Altamonte Springs	Florida	42150	Southeast	small	Y
San Antonio	Texas	1409019	Southern Great Plains	large	Y
Dallas	Texas	1257676	Southern Great Plains	large	Y
Houston	Texas	2195914	Southern Great Plains	large	Y
Arlington	Texas	379577	Southern Great Plains	large	Y
Tulsa	Oklahoma	398121	Southern Great Plains	large	Y
New Braunfels	Texas	63279	Southern Great Plains	medium	Y
Flower Mound	Texas	68609	Southern Great Plains	medium	Y
League City	Texas	90983	Southern Great Plains	medium	Y
Pasadena	Texas	152735	Southern Great Plains	medium	Y
Duncanville	Texas	39605	Southern Great Plains	small	Y
Muskogee	Oklahoma	38863	Southern Great Plains	small	Y
Rockwall	Texas	40922	Southern Great Plains	small	Y
Hurst	Texas	38448	Southern Great Plains	small	Y
Albuquerque	New Mexico	556495	Southwest	large	Y
Las Vegas	Nevada	603488	Southwest	large	Y
Fresno	California	509924	Southwest	large	Y
San Jose	California	998537	Southwest	large	Y
Henderson	Nevada	270811	Southwest	medium	Y
Yorba Linda	California	67032	Southwest	medium	Y
Santa Rosa	California	171990	Southwest	medium	Y
Apache Junction	Arizona	37130	Southwest	small	Y
Palm Springs	California	46281	Southwest	small	Y
Draper	Utah	45285	Southwest	small	Y
Montclair	California	38027	Southwest	small	Y
Anchorage	Alaska	300950	Alaska	large	N
Fairbanks	Alaska	31535	Alaska	small	N
San Juan	Puerto Rico	395326	Caribbean	large	N
Bayamón	Puerto Rico	208116	Caribbean	medium	N

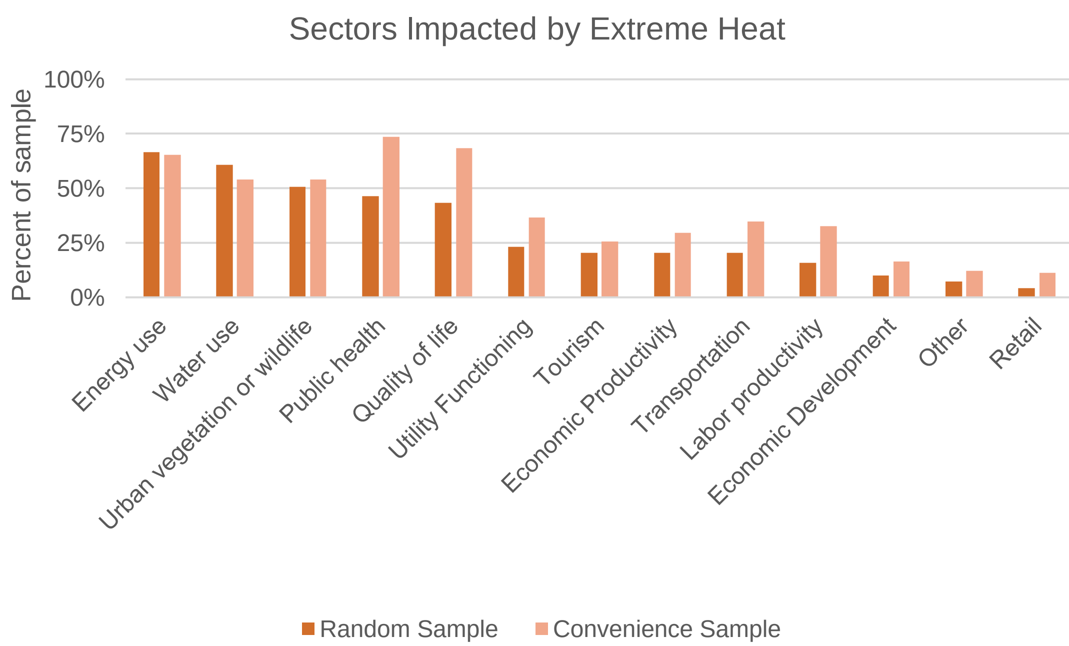
St. Louis	Missouri	318416	Midwest	large	N
Chicago	Illinois	2718782	Midwest	large	N
Elgin	Illinois	110145	Midwest	medium	N
Dubuque	Iowa	58253	Midwest	medium	N
Lee's Summit	Missouri	93184	Midwest	medium	N
Mankato	Minnesota	40641	Midwest	small	N
DeKalb	Illinois	43849	Midwest	small	N
Huber Heights	Ohio	38142	Midwest	small	N
New York	New York	8405837	Northeast	large	N
Boston	Massachusetts	645966	Northeast	large	N
Washington	District of Columbia	646449	Northeast	large	N
Fall River	Massachusetts	88697	Northeast	medium	N
Bristol	Connecticut	60568	Northeast	medium	N
Barnstable Town	Massachusetts	44641	Northeast	small	N
Pittsfield	Massachusetts	44057	Northeast	small	N
Beverly	Massachusetts	40664	Northeast	small	N
Great Falls	Montana	59351	Northern Great Plains	medium	N
Bellevue	Nebraska	53663	Northern Great Plains	medium	N
Billings	Montana	109059	Northern Great Plains	medium	N
Minot	North Dakota	46321	Northern Great Plains	small	N
Tacoma	Washington	203446	Northwest	medium	N
Marysville	Washington	63269	Northwest	medium	N
Spokane	Washington	210721	Northwest	medium	N
Bremerton	Washington	39056	Northwest	small	N
Puyallup	Washington	38609	Northwest	small	N
Lacey	Washington	44919	Northwest	small	N
Nashville	Tennessee	634464	Southeast	large	N
Atlanta	Georgia	447841	Southeast	large	N
Miami	Florida	417650	Southeast	large	N
Lynchburg	Virginia	78014	Southeast	medium	N
Tallahassee	Florida	186411	Southeast	medium	N
Manassas	Virginia	41705	Southeast	small	N
Victoria	Texas	65098	Southern Great Plains	medium	N
Burleson	Texas	40714	Southern Great Plains	small	N
Oakland	California	406253	Southwest	large	N
Costa Mesa	California	112174	Southwest	medium	N
Hemet	California	81750	Southwest	medium	N
Oakley	California	38194	Southwest	small	N

Appendix 3 Convenience sample distribution lists

- APA Hazard Mitigation and Disaster Recovery Division
- APA Sustainable Communities Division, Environment
- APA Natural Resources, and Energy Division
- APA National Chapter Presidents' Forum
- U.S. National Oceanic and Atmospheric Administration (NOAA) Climate Program Office
- Global Heat Health Information Network (GHHIN)
- University of Arizona Extreme Heat Network
- Trust for Public Land's community stakeholders

Appendix 4 Heat impacts, random vs convenience sample

Impact	Random Sample	Convenience Sample
Energy use	67%	65%
Water use	61%	54%
Urban vegetation or wildlife	51%	54%
Public health	46%	73%
Quality of life	43%	68%
Utility Functioning	23%	37%
Tourism	20%	26%
Economic Productivity	20%	30%
Transportation	20%	35%
Labor productivity	16%	33%
Economic Development	10%	16%
Other	7%	12%
Retail	4%	11%



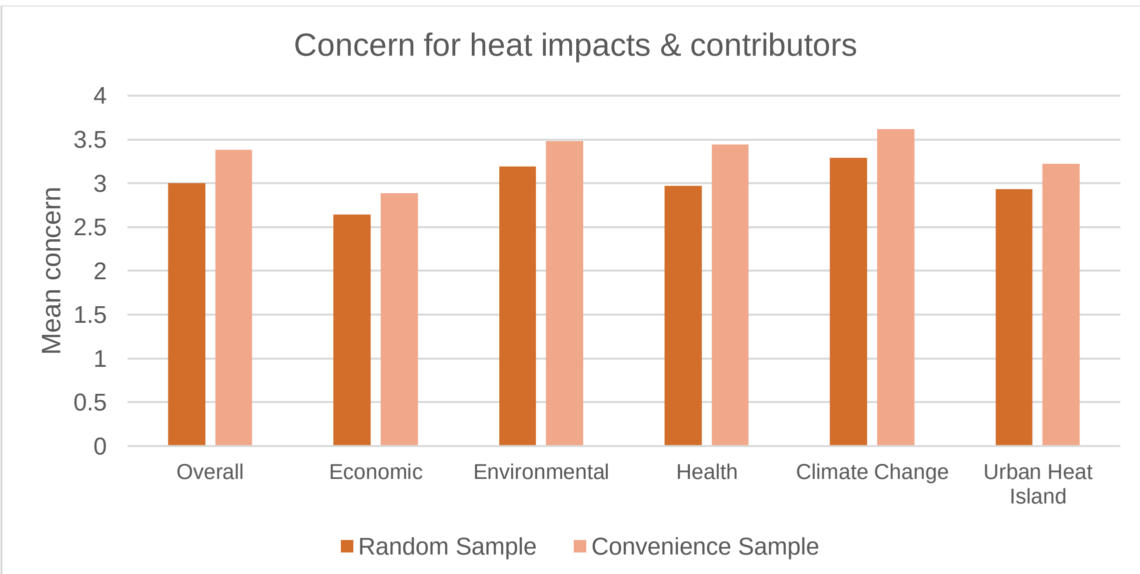
Appendix 5 Extreme heat impacts, by region in the random sample

Number of respondents reporting impact, by region								
NCA Region	Hawaii and Pacific Islands	Midwest	Northeast	Northern Great Plains	Northwest	Southeast	Southern Great Plains	Southwest
Public health	0	5	5	3	4	1	8	6
Quality of life	2	3	6	2	4	2	7	4
Economic productivity	1	1	1	4	2	2	3	0
Economic development	0	1	0	0	2	0	2	2
Labor productivity	0	0	1	0	2	1	4	3
Retail	0	1	0	0	2	0	0	0
Tourism	0	1	2	1	2	1	3	4
Utility functioning	0	3	1	0	2	2	5	3
Transportation	0	2	0	1	3	2	3	3
Water use	1	3	5	6	3	5	10	9
Energy use	2	5	7	4	4	6	11	7
Urban vegetation or wildlife	2	3	5	5	3	2	8	7
TOTAL	2	7	7	11	9	9	13	11

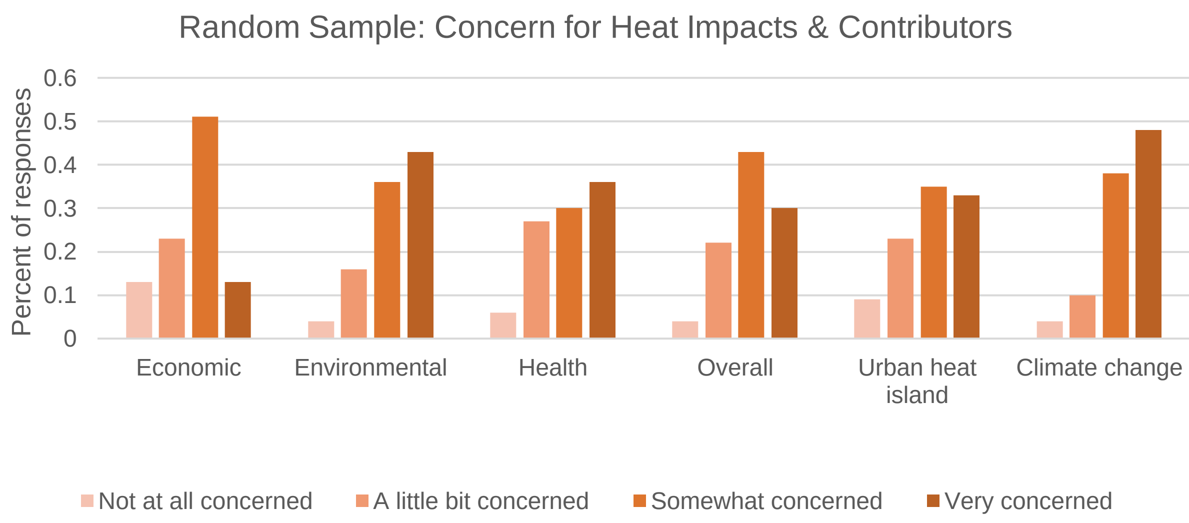

Northeast
Northwest
Southeast
Southwest
Northern Great Plains
Southern Great Plains
Midwest
Hawaii & Pacific
Percent of sample
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Economic...
Economic Productivity
Energy use
Labor productivity
Other
Public health
Quality of life
Retail
Tourism
Transportation
Urban vegetation or...
Utility Functioning
Water use

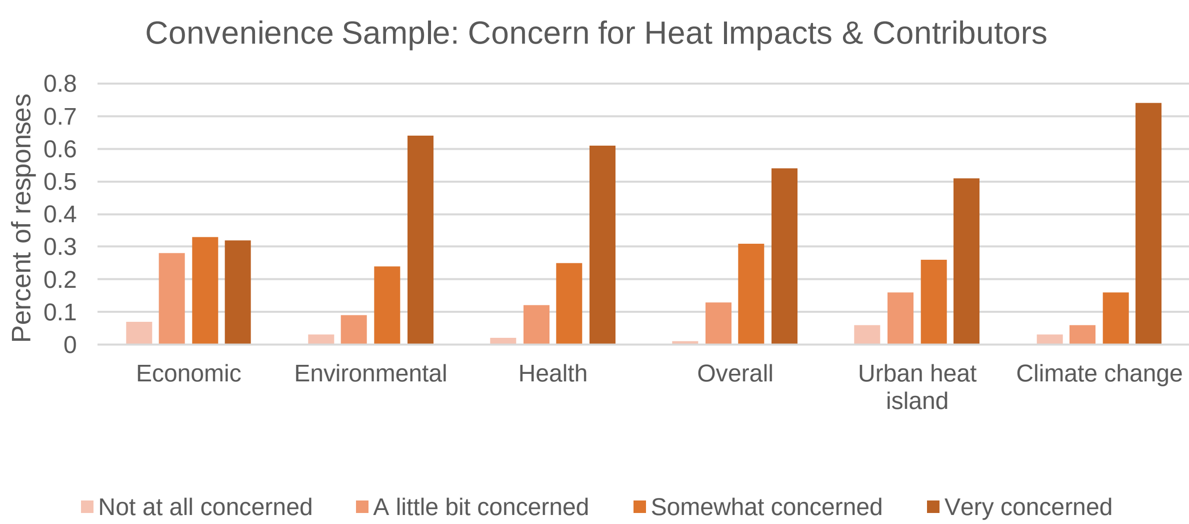
Appendix 6 Mean concern for extreme heat impacts and contributors, random vs convenience sample

Concern	Random Sample	Convenience Sample
Overall	3	3.38
Economic	2.64	2.89
Environmental	3.19	3.48
Health	2.97	3.44
Climate Change	3.29	3.62
Urban Heat Island	2.93	3.22

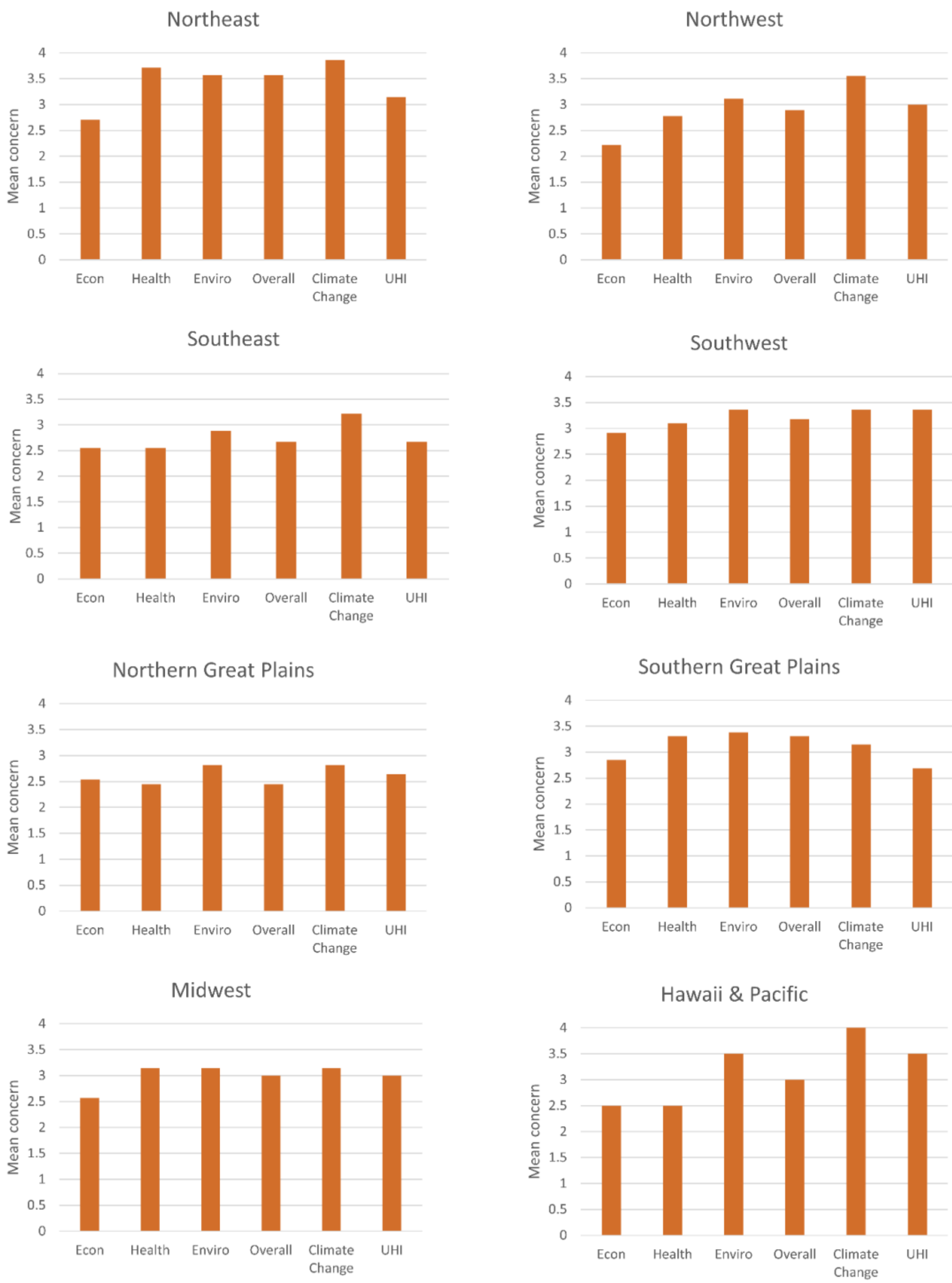


Appendix 7 Distribution of responses on concern for heat impacts & contributors

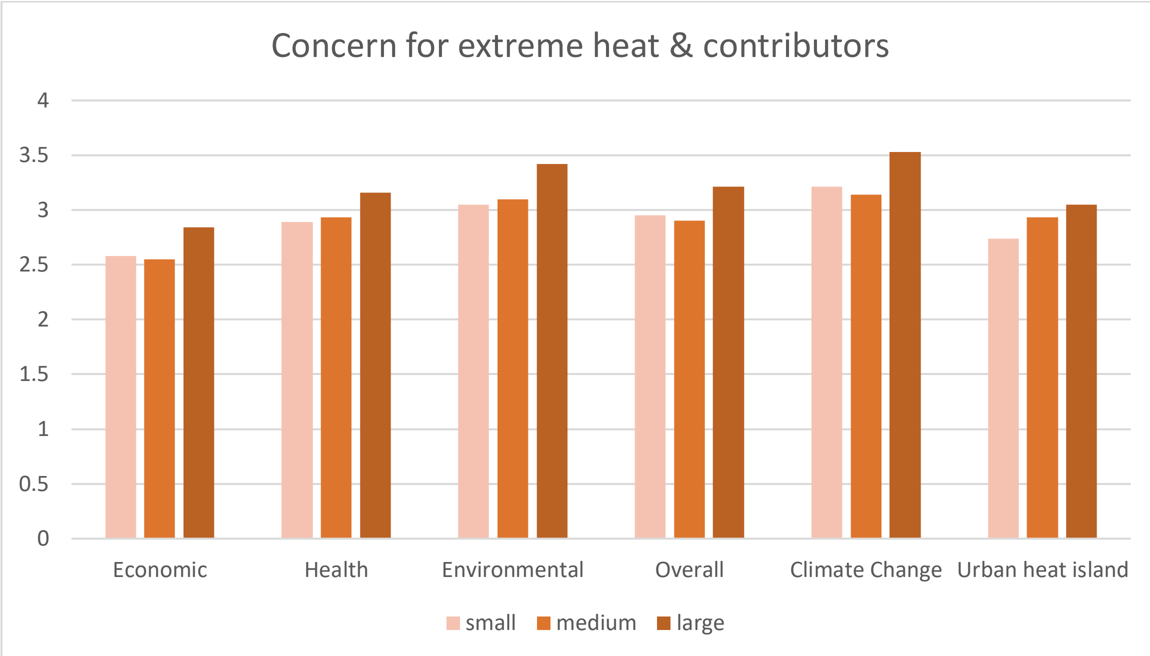




Appendix 8 Concern for extreme heat impacts and contributors, by region in the random sample

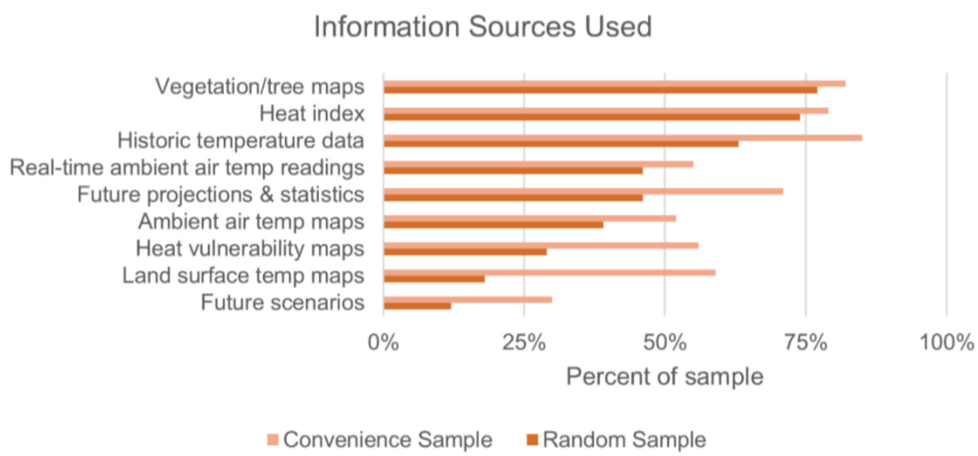


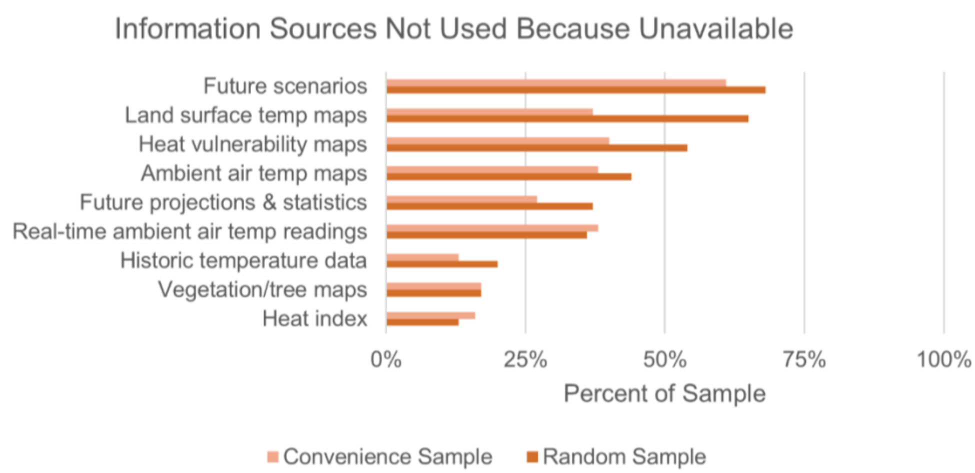
Appendix 9 Concern for extreme heat, by city size in the random sample



Appendix 10 Heat information Sources, random vs convenience sample: Sources that planners reported using; and sources that planners do not use because they are unavailable

Information Source	Used		Not used because unavailable	
	Random Sample	Convenience Sample	Random Sample	Convenience Sample
Vegetation/tree maps	77%	82%	17%	17%
Heat index	74%	79%	13%	16%
Historic temperature data	63%	85%	20%	13%
Future projections & statistics	46%	71%	37%	27%
Real-time ambient air temp readings	46%	55%	36%	38%
Ambient air temp maps	39%	52%	44%	38%
Heat vulnerability maps	29%	56%	54%	40%
Land surface temp maps	18%	59%	65%	37%
Future scenarios	12%	30%	68%	61%



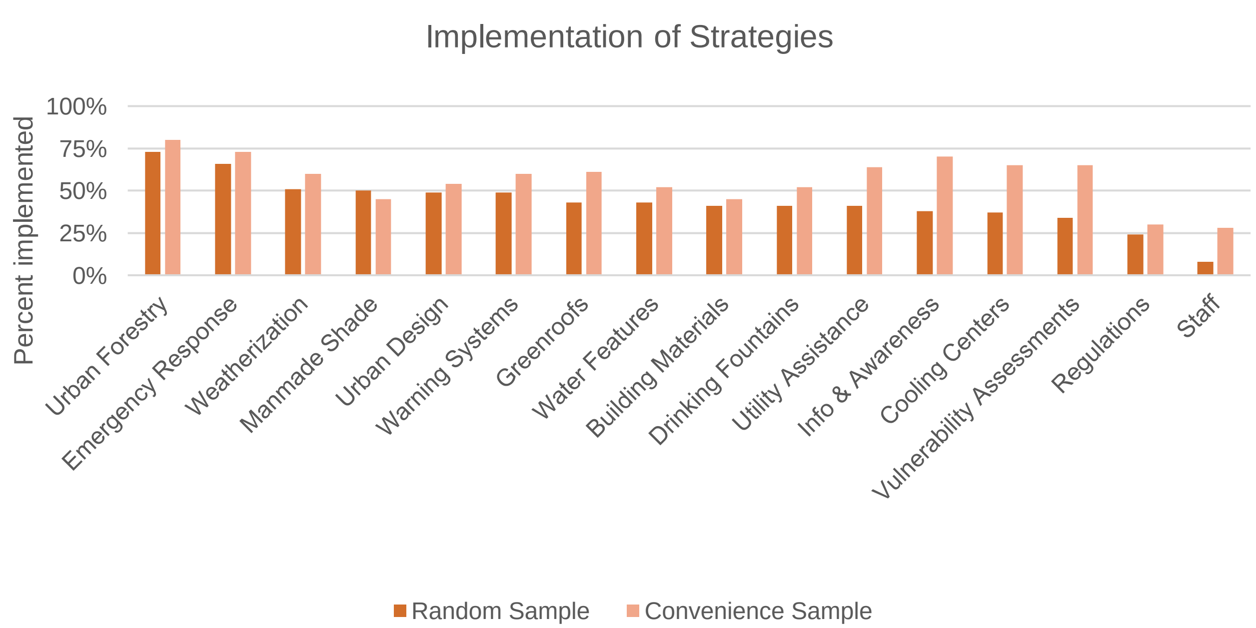


Appendix 11 Level of government and plan types for addressing heat, random vs convenience sample

	Random Sample	Convenience Sample
Level of government that should be responsible for addressing extreme heat		
Local (city or town)	68%	85%
County	49%	59%
Regional	43%	70%
State	61%	68%
National	48%	50%
Plans addressing extreme heat		
Sustainability, climate action, or resilience plans	36%	52%
Emergency response plans	25%	27%
Comprehensive/general plans	25%	19%
Hazard mitigation plans	19%	40%
Other	14%	7%
Building codes	10%	16%
Zoning codes	9%	11%

Appendix 12 Strategies implemented and perceived effectiveness, random vs convenience sample

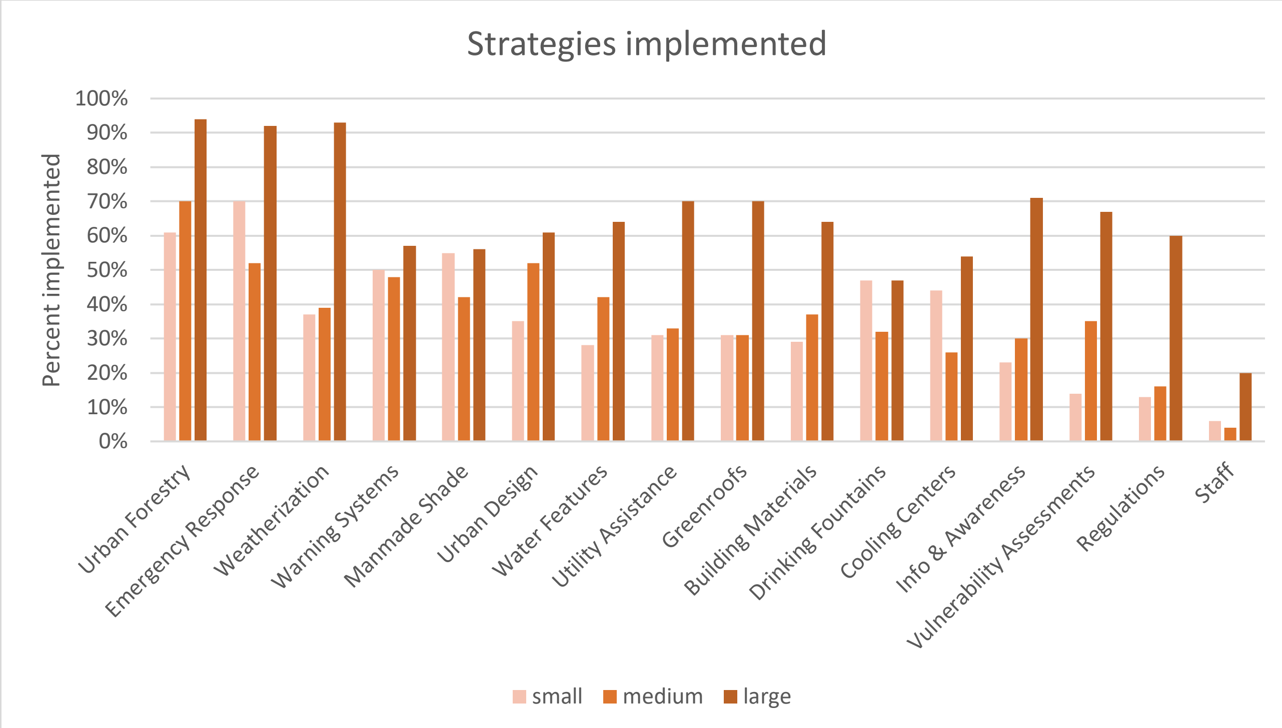
	Percent of sample implemented		Perceived effectiveness (sample mean)	
Heat Resilience Strategies	Random	Convenience	Random	Convenience
Urban Forestry	73%	80%	3.68	3.77
Emergency Response	66%	73%	3.33	3.41
Weatherization	51%	60%	3.38	3.4
Manmade Shade	50%	45%	3.32	3.14
Urban Design	49%	54%	3.48	3.48
Warning Systems	49%	60%	3.22	3.26
Green roofs	43%	61%	3.14	3.29
Water Features	43%	52%	3.08	3.04
Building Materials	41%	45%	3.27	3.32
Drinking Fountains	41%	52%	3.16	3.14
Utility Assistance	41%	64%	3.28	3.24
Info & Awareness	38%	70%	3.11	3.1
Cooling Centers	37%	65%	3.31	3.25
Vulnerability Assessments	34%	65%	3.31	3.39
Regulations	24%	30%	3.08	3.22
Staff	8%	28%	3.16	3.26



Appendix 13 Strategies implemented, by region in random sample

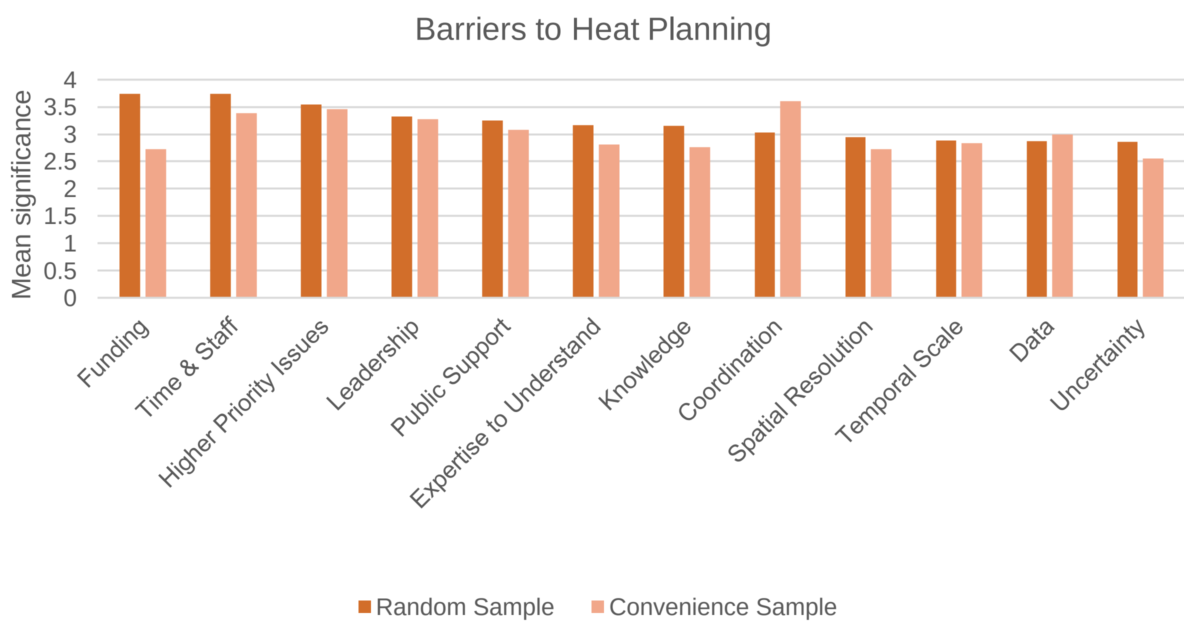
Appendix 14 Perceived effectiveness of strategies, by region in random sample

Appendix 15 Strategies implemented, by city in the size random sample



Appendix 16 Heat planning barriers random vs convenience sample

	Random Sample	Convenience Sample
Funding	3.74	2.72
Time & Staff	3.74	3.39
Higher Priority Issues	3.55	3.46
Leadership	3.33	3.28
Public Support	3.25	3.08
Expertise to Understand	3.17	2.81
Knowledge	3.15	2.76
Coordination	3.03	3.61
Spatial Resolution	2.95	2.73
Temporal Scale	2.89	2.83
Data	2.87	2.99
Uncertainty	2.86	2.56



Appendix 17 Independent and dependent variables

Independent variables

Index	Variable	Variable name	Rationale	Data description	Source
City capacity	Population	Population	Research suggests larger cities are more likely to engage in climate change planning (Hamin, Gurran, & Emlinger, 2014; Reckien et al., 2018), so we would expect that city population would predict engagement in heat planning.	Population of the city in 2013	Jones (2015) https://gist.github.com/Miserlou/11500b2345d3fe850c92
	Median household income	Median_hh_income	Wealthier cities have more resources for action (Krause, 2011), so we would expect median income would be positively related to heat planning.	Median household income in the past 12 months (in 2016 inflation-adjusted dollars) (ACS 5-Year Estimates)	MIT Election Data and Science Lab https://github.com/MEDSL/2018-elections-unoffical/blob/master/election-context-2018.md
Heat vulnerable populations	Percent of the population that is nonwhite	Nonwhite_pct	Research shows heat disproportionately affects minority communities (Wilson, 2020), so cities where a greater share of the population is nonwhite might be more concerned about heat and engaged in heat planning.	non-whites as a percentage of total population 2012-2016 (ACS 5-Year Estimates)	MIT Election Data and Science Lab https://github.com/MEDSL/2018-elections-unoffical/blob/master/election-context-2018.md
	Percent of the population aged 65+	Age65andolder_pct	Research shows that heat disproportionately affects elderly populations (Hondula, Davis, Saha, Wegner, & Veazey, 2015), so cities where a greater share of the population is elderly might be more engaged in heat planning.	population 65 years or older as a percentage of total population 2012-2016 (ACS 5-Year Estimates)	MIT Election Data and Science Lab https://github.com/MEDSL/2018-elections-unoffical/blob/master/election-context-2018.md
Politics	Percent of the population with less than a college degree	Lesscollege_pct	Research suggests that cities with more highly educated populations are more likely to commit to climate change action (Krause, 2011), so we expect that cities where more of the population has a college degree are more likely to be engaged in heat planning.	Population with an education of less than a bachelor's degree as a percentage of total population 2012-2016 (ACS 5-Year Estimates)	MIT Election Data and Science Lab https://github.com/MEDSL/2018-elections-unoffical/blob/master/election-context-2018.md
	Vote share for Hillary Clinton in 2016 presidential election (county)	Clinton16_percent	Research suggests that cities with a greater percentage of Democrats are more likely to commit to climate change action (Krause, 2011), so we expect that cities where more of the population voted for the Democratic presidential candidate in 2016 would be more engaged in heat planning.	Presidential candidate vote totals in 2016	MIT Election Data and Science Lab https://github.com/MEDSL/2018-elections-unoffical/blob/master/election-context-2018.md
Membership	City network membership scale	City_Membership_Count	Research suggests that cities in international city networks are more likely to engage in climate change planning (Reckien et al., 2018), and we would expect the same would be true for heat planning specifically.	Scale representing the number of the following city networks the city is a member of: Climate Protection Membership, National League of Cities, 100 Resilient Cities, Urban Sustainability Directors Network, C40	City network websites and city websites
Heat information	Number of heat information sources used	Number_of_information_sources	Research suggests that climate information is often a barrier to climate change planning (Hamin et al., 2014; Shi, Chu, & Debats, 2015) and future climate projections are often not used in planning (Eliasson, 2000), so we expect that cities that have multiple sources of heat information will be more concerned about it and more likely to take action.	Scale representing the amount of heat information	Our survey
Projected heat	Projected average daily maximum	Heat_Temp_Proj	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015),	Projected average daily maximum temperature for 2050 under RCP8.5 (weighted mean)	US Climate Resilience Toolkit https://crt-climate-explorer.nemac.org/

	temperature 2050		and we would expect the same would be true for heat planning specifically.		
	Projected absolute Temp Change 2020-2050	Absolute_TempChge	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Absolute temperature change 2020-2050 under RCP8.5	US Climate Resilience Toolkit https://crt-climate-explorer.nemac.org/
Experienced heat	Average annual temperature change 1970-2018	Heat_TempChge	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Average annual temperature change 1970-2018	Climate Central 2019 https://ccentralassets.s3.amazonaws.com/presents/2019EarthDay_data.zip
	Heat wave injuries	Sheldus_Injuries	Research suggests that prior experience of climate impacts predicts climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	County-level heat wave injuries reported in the Spatial Hazard Events and Losses Database for the United States (SHELDUS)	CEMHS, 2020. Spatial Hazard Events and Losses Database for the United States, Version 19.0. [Online Database]. Phoenix, AZ: Center for Emergency Management and Homeland Security, Arizona State University.
	Heat wave fatalities	Sheldus_Fatalities	Research suggests that prior experience of climate impacts predicts climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	County-level heat wave deaths reported in the Spatial Hazard Events and Losses Database for the United States (SHELDUS)	CEMHS, 2020. Spatial Hazard Events and Losses Database for the United States, Version 19.0. [Online Database]. Phoenix, AZ: Center for Emergency Management and Homeland Security, Arizona State University.
	Change in heat wave frequency 1961-2019	Heat_wave_freq_chng	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Changes in the number of heat waves per year; these data were analyzed from 1961 to 2019 for 50 large metropolitan areas	US EPA Change in heat wave intensity 1961-2019 https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves
	Change in heat wave duration 1961-2019	Heat_wave_dur_chng	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Changes in the average length of heat waves in days; these data were analyzed from 1961 to 2019 for 50 large metropolitan areas	US EPA Change in heat wave intensity 1961-2019 https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves
	Change in heat wave intensity 1961-2019	Heat_wave_int_chng	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Changes in how hot the heat waves were, compared with the local temperature threshold for defining a heat wave; these data were analyzed from 1961 to 2019 for 50 large metropolitan areas	US EPA Change in heat wave intensity 1961-2019 https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves
	Change in heat wave season 1961-2019	Heat_wave_ssn_chng	Research suggests that experiencing changing climate conditions is a significant predictor of climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Change in the number of days between the first and last heat wave of the year; these data were analyzed from 1961 to 2019 for 50 large metropolitan areas	US EPA Change in heat wave intensity 1961-2019 https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves
	Reported extreme heat impacts	Impacted_scale	Research suggests that prior experience of climate impacts predicts climate change adaptation planning (Shi et al., 2015), and we would expect the same would be true for heat planning specifically.	Scale variable representing the number of different sectors/systems reportedly impacted by extreme heat	Our survey

Dependent variables from survey

Variable name	Description
Concern_Overall	Response to survey question on overall concern for extreme heat, with responses ranging from 1- Not at all to 4-Very concerned
Concern_Health	Response to survey question on concern for health impacts of extreme heat, with responses ranging from 1- Not at all to 4-Very concerned
Concern_Environmental	Response to survey question on concern for environmental impacts of extreme heat, with responses ranging from 1- Not at all to 4-Very concerned
Concern_Economic	Response to survey question on concern for economic impacts of extreme heat, with responses ranging from 1- Not at all to 4-Very concerned
Concerncontributor_UHI	Response to survey question on concern for UHI as a contributor to extreme heat, with responses ranging from 1- Not at all to 4-Very concerned
Concerncontributor_climatechange	Response to survey question on concern for climate change as a contributor to extreme heat, with responses ranging from 1- Not at all to 4-Very concerned
Heat_Plans_scale	Scale variable representing the number of different plan types addressing extreme heat according to the survey, ranging from 0-6
Heat_Plans_binary	Binary variable indicating whether or not any extreme heat strategies were implemented, according to the survey
Implement_scale	Scale variable representing the number of different extreme heat strategies according to the survey, ranging from 0-15
Implement_binary	Binary variable indicating whether or not extreme heat was addressed in any plan types, according to the survey

Appendix 18 Correlations between variables: Pearson correlation coefficient matrix, larger, darker blue circles indicate a larger positive correlation coefficient between two variables, larger darker red circles indicate a larger negative correlation coefficient