Maricopa County Manufactured and RV Homes: Raising Awareness about Extreme Heat, Safety Tips, and Available Community Resources

HEALTHY URBAN ENVIRONMENTS
PRE-HEAT SEASON (JULY) SURVEY RESULTS 2020

Maricopa County Department of Public Health
Office of Epidemiology and Data Services
Division of Climate and Health

Maricopa County Public Health
WeArePublicHealth.org
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts</td>
<td>2</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>4</td>
</tr>
<tr>
<td>Key Takeaways</td>
<td>4</td>
</tr>
<tr>
<td>Objective</td>
<td>6</td>
</tr>
<tr>
<td>Methods</td>
<td>6</td>
</tr>
<tr>
<td>Results</td>
<td>6</td>
</tr>
<tr>
<td>Heat Perception</td>
<td>6</td>
</tr>
<tr>
<td>Knowledge of Heat and Illness</td>
<td>6</td>
</tr>
<tr>
<td>Coping Mechanisms</td>
<td>7</td>
</tr>
<tr>
<td>Barriers Faced to Cooling</td>
<td>7</td>
</tr>
<tr>
<td>Knowledge and Use of Community Resources</td>
<td>7</td>
</tr>
<tr>
<td>Effects of COVID-19</td>
<td>8</td>
</tr>
<tr>
<td>Background</td>
<td>9</td>
</tr>
<tr>
<td>Introduction</td>
<td>10</td>
</tr>
<tr>
<td>Goals and Objectives</td>
<td>12</td>
</tr>
<tr>
<td>Methods and Data Collection</td>
<td>13</td>
</tr>
<tr>
<td>Survey Results</td>
<td>22</td>
</tr>
<tr>
<td>Demographics</td>
<td>23</td>
</tr>
<tr>
<td>Perception of Heat</td>
<td>28</td>
</tr>
<tr>
<td>Knowledge of Heat and Illness</td>
<td>31</td>
</tr>
<tr>
<td>Coping Mechanisms</td>
<td>35</td>
</tr>
<tr>
<td>Barriers Faced to Cooling</td>
<td>39</td>
</tr>
<tr>
<td>Knowledge and Use of Community Resources</td>
<td>41</td>
</tr>
<tr>
<td>Effects of COVID-19</td>
<td>45</td>
</tr>
<tr>
<td>Discussion</td>
<td>47</td>
</tr>
<tr>
<td>Demographics</td>
<td>47</td>
</tr>
<tr>
<td>Heat Perception</td>
<td>48</td>
</tr>
<tr>
<td>Knowledge of Heat and Illness</td>
<td>48</td>
</tr>
<tr>
<td>Coping Mechanisms</td>
<td>48</td>
</tr>
<tr>
<td>Barriers Faced To Cooling</td>
<td>48</td>
</tr>
<tr>
<td>Knowledge and Use of Community Resources</td>
<td>48</td>
</tr>
<tr>
<td>Effects of COVID-19</td>
<td>49</td>
</tr>
<tr>
<td>Conclusion and Next Steps</td>
<td>50</td>
</tr>
<tr>
<td>References</td>
<td>51</td>
</tr>
<tr>
<td>Appendices</td>
<td>52</td>
</tr>
<tr>
<td>Appendix I: Goal and Objectives</td>
<td>52</td>
</tr>
<tr>
<td>Appendix II: Definitions</td>
<td>53</td>
</tr>
<tr>
<td>Appendix III: HUE Logic Model and Narrative</td>
<td>54</td>
</tr>
<tr>
<td>Appendix IV: Heat Deaths in 85008 Zip Code vs Maricopa County</td>
<td>57</td>
</tr>
<tr>
<td>Appendix V: Heat-Associated Deaths by Housing Type 2016-2020</td>
<td>60</td>
</tr>
<tr>
<td>Appendix VI: Survey Questions - English</td>
<td>62</td>
</tr>
<tr>
<td>Appendix VII: Survey Questions - Spanish</td>
<td>70</td>
</tr>
<tr>
<td>Appendix VIII: Survey Results</td>
<td>70</td>
</tr>
<tr>
<td>Survey Results Infographic</td>
<td>78</td>
</tr>
<tr>
<td>Appendix IX: Heat Toolkit</td>
<td>80</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

KEY TAKEAWAYS

• Each year, 100 residents on average die from heat and more than 1,700 residents suffer heat-associated injuries. **In the last five years (2016-2020), this average has climbed to 207 deaths and 2,000 heat-associated injuries.** Nearly 26% of these heat deaths occur indoors with 30% of them occurring in mobile home communities.

• In 2020, MCDPH and partners **initiated a campaign to raise awareness about extreme heat, safety tips, and available community resources among residents living in a select mobile home community.** The campaign consisted of distribution of the *Heat Toolkit* to the selected community, which provided information on heat illness, heat safety tips, and community resources.

• The first phase of this project (pre-heat season) includes *Heat Toolkits* and **survey distribution to residents living in the mobile home community.** For detailed information on this initiative following post-heat season, refer to the following reports: **Pre-Heat Season (July) Survey Results report**, Post-Heat Season (October) Survey Results report, and Evaluation report. 144 surveys were distributed in July, and 103 pre-heat season surveys were completed (66% response rate).

• **Most residents (85%) feel at risk of heat-related illnesses**, yet 93% stay home and take no action when they feel ill.

• **Only 5% of residents never feel hot in their home**, while most residents feel hot at temperatures of 80 degrees Fahrenheit and above (94%).

• Most residents use window air conditioners (78%) with **49% of these in working condition.**

• **70% of residents limit their home cooling system use in their home - primarily due to cost of electricity (100%) and cost of repairs (62%).**
• Nearly 84% of residents were unaware of programs that assist with the cost of utility bills. Only 2% have used these services.

• Most residents (96%) were unaware of programs that assist with home cooling system repairs.

• Only 10% of residents have applied to the community programs that assist with the cost of utility bills and home cooling system repairs. 78% did not apply because they were unaware of the programs and 77% did not have the contact information.

• Only 1% of residents have used a cooling center's services while 88% were unaware of cooling centers.

• Half of the residents (49%) that left home to cool off during high temperatures went to a supermarket (63%) or mall (49%).

• The COVID-19 pandemic has had many effects on the residents, with a key one being loss of a job (74%), which has made it difficult for residents to pay for essentials such as utilities (28%) and rent (22%).

1 Pre-heat season was originally intended to take place in April but was extended to July due to the pandemic.

2 This report discusses the post-heat season survey results from July.
The Greater Phoenix area is one of the largest urban areas to experience extreme heat. **Extreme heat is a threat to human health, with mobile home communities being disproportionately impacted.** Maricopa County Department of Public Health seeks to discover why the impact on heat is higher in mobile home communities.

**OBJECTIVE**

The objective of this survey (objective 3) is to **gain a better understanding of mobile home residents’ heat perception, knowledge of heat illness, coping mechanisms during heat events, barriers faced to cooling, knowledge and use of community resources, and effects of the COVID-19 pandemic.**

**METHODS**

To learn more about trailer/mobile home residents in relation to extreme heat, a community survey was designed and implemented. The survey will be carried out in two phases: 1) pre-heat season (July), and 2) post-heat season (October). Residents who completed the survey did so over the phone with a Community Health Worker (CHW).

During pre-heat season, resources in the form of a **Heat Toolkit** were provided to residents along with the pre-heat season survey. The October Survey Results report will discuss the results of both the July participants and the October participants, and the Evaluation report will compare the behavioral changes between the participants.

**RESULTS**

The results described below are from the pre-heat season survey conducted in July.

**Heat Perception**

- 85% of respondents felt at risk of heat-related illness.
- Only 5% never felt too hot inside their homes during summer months.
- 94% felt hot at temperatures of 80 degrees Fahrenheit and above.

**Knowledge of Heat and Illness**

- Residents are aware of excessive heat warnings (93%). Most residents hear of these warnings through TV (91%).
- **Most residents could name heat symptoms.** The most common symptom listed was dehydration (61%).
- 73% of participants reported experiencing heat-related illness.
- The most common outcome of experiencing a heat-related illness was staying home and not taking action (93%).
Coping Mechanisms

- More than 3/4 (78%) of residents used window air-conditioners; however, only 49% of these were in working condition.
- Most participants used their home cooling units all day and all night (85%). Only 1% did not use A/C at all.
- Half of the participants leave home to cool off during high summer temperatures.
- Supermarkets were the most popular places to go to cool off.
- Very few participants have used a cooling center’s services (1%).

Barriers Faced Toward Cooling

- Although home cooling systems were commonly used among the residents, most reported limitations to their use (70%).
- All residents reported the cost of electricity as the primary reason for limiting the use of their home cooling systems.

Cost of electricity was the most common reason for limiting home cooling system use

Knowledge and Use of Community Resources

- Most participants were unaware of the community programs offered to help with the cost of utility bills (84%), and only 2% have used the services.
- Almost all of the residents surveyed were unaware of community programs to assist with home cooling repairs (96%).
- Very few residents have applied to any community programs that assist with the cost of utility bills and cooling system repairs (11%).
- Over 3/4 (77%) reported a lack of contact information as the main reason for not applying to assistance programs.
Effects of COVID-19

- **74% of households experienced job loss** from at least one household member.
- **28% of households were unable to pay utilities** and **22% were unable to pay their rent or mortgage.**
- **16% of residents had at least one household member that had been diagnosed with COVID-19.**

**74% of households experienced job loss during the COVID-19 pandemic**
The Greater Phoenix area is one of the largest urban areas to experience extreme heat. Extreme heat is a threat to human health and preventing heat-associated morbidity and mortality is a public health priority in Maricopa County. The Maricopa County Department of Public Health (MCDPH), Office of Epidemiology is responsible for monitoring health trends and behavioral risk factors among its 4.5 million residents. MCDPH has been conducting heat surveillance since 2006 and, over the years, has surveyed community members to understand how they cope with extreme heat during the summer.

Every year, our populous county experiences continuous and long stretches of extreme heat and is home to many disproportionately impacted subpopulations. While all residents and visitors are affected by extreme heat, the elderly, those with underlying health conditions, people of color, outdoor workers, small children, and those living in poverty are among those most at risk. Exposure to extreme high temperatures can cause serious health complications such as dehydration, heat cramps, heat-stroke, respiratory illness, cardiovascular illness, and even death.

Each year, 100 residents on average die from heat and more than 1,700 residents suffer heat-associated injuries. In the last five years (2016 - 2020), this average has climbed to 207 deaths and 2,000 heat-associated injuries. Nearly 26% of these heat deaths occur indoors. Most of the indoor deaths occur in residential units including single-family homes (50%), trailer/RV/mobile homes (30%), and apartments/condos (16%). Ninety-four percent of all heat-associated deaths occurring within mobile homes were among individuals 50 years and older. Furthermore, it is known that at time of death these individuals were not using their air-conditioning for several reasons, including not using AC (16%), having a non-functioning AC system (70%), or not having electricity (7%). For more information on heat-associated deaths by type of housing, refer to Appendix V. Mitigation efforts from local government agencies and community-based organizations have included hydration stations and cooling centers. The purpose of cooling centers is to provide an air-conditioned public space to temporarily prevent the negative effects of extreme heat. This MCDPH initiative is focused on raising awareness about Extreme Heat, Safety Tips, and Available Community Resources Among Mobile Home Communities.
INTRODUCTION

In Maricopa County (MC), extreme heat is a public health emergency. During the summer, some areas of Arizona, such as MC, can endure over 126 days of extreme heat with temperatures of more than 100°Fahrenheit. In 2020, MC endured 145 days of extreme heat, higher than average in the past years and rising. Extreme heat can impact daily life by hindering the ability to do things such as play outside, participate in outdoor recreational activities, grocery shopping, and use public transportation. Heat can also cause increased utility expenses, illnesses, and even death. These impacts are even greater among disproportionately impacted communities, such as mobile home communities. Knowing this, MCDPH initiated a project to learn more about impact of heat among residents in mobile home community. Through this initiative, Office of Epidemiology seeks to gain a better understanding of mobile home residents’ heat perception, knowledge about heat illness, coping mechanisms used during heat events, barriers faced to cooling, knowledge and use of community resources, and the effects COVID-19 has had on the community. Also, this initiative is a great opportunity to raise awareness and provide education to improve the knowledge about heat illness and heat resources among residents. To implement this initiative, the Office of Epidemiology staff partnered with the community partners who helped with distribution of heat resources and data collection by interviewing residents living in a selected mobile home community. Initial collaboration was established within MCDPH between offices, including Office of Epidemiology and the Office of Nutrition and Active Living. The Office of Nutrition and Active living had been working with Community Health Workers who had an existing connection with residents of mobile home communities. Connection between public health offices led to a partnership with the community-based organization (COB)-Salud en Balance.
The Office of Nutrition and Active Living has been closely working with a faith-based organization, Iglesia Episcopal San Pablo, on a Shared Use funding opportunity. This funding opportunity is designed to support MCDPH’s goal of increasing the number of spaces/facilities that will provide new or expanded access to physical activity and/or healthy eating opportunities at very little or no cost to community residents. Iglesia Episcopal de San Pablo has formed a six-member team of Community Health Workers, Salud en Balance (Health in Balance) which is led by Ms. Teresa Sosa, and are lending office and classroom space to serve as a community center for neighborhood residents. The conversation and connection with both the Office of Nutrition and Active Living and Salud en Balance staff, culminated in a longstanding partnership, which is still ongoing. The team agreed that a project on raising heat awareness would complement the existing initiative by MCDPH to promote the wellbeing of the residents of a mobile home community.

In July of 2020, MCDPH in partnership with the Salud en Balance staff initiated a campaign to provide educational heat materials including information about extreme heat, safety tips and available community resources in a mobile home community.

The purpose of this initiative, in addition to providing information, was to assess the community’s knowledge about heat exposure, heat illness, available community heat resources, the ways residents cope with the heat, and how COVID-19 has affected their household’s daily life. In order to learn more from residents about these experiences, MCDPH, in collaboration with Salud en Balance, designed a survey which was implemented and distributed to the residents of the mobile home community by the Community Health Workers at Salud en Balance along with a Heat Toolkit (see Appendix IX).
GOAL AND OBJECTIVES

See Appendix I

OVERARCHING GOAL:
Reduction of heat deaths and illness in MC residents living in trailer/mobile home communities by raising awareness about extreme heat, safety tips, and available community resources

- **Objective 1**: Provide information and resources related to heat – develop *Heat Toolkit*
- **Objective 2**: Train residents and Community Health Workers – *conduct workshops*
- **Objective 3**: Gain a better understanding of trailer/mobile home residents’ heat perception, knowledge, coping mechanisms, barriers faced toward cooling, and knowledge and use of community resources – *administer survey in pre-heat/post-heat season.*
- **Objective 4**: Capture and identify behavior modification in relation to heat exposure, safety tips, use of heat resources; measure the changes that occur throughout the summer – *administer survey in post-heat season*
- **Objective 5**: Compare information obtained from both surveys (during pre/post-heat season) - *analyze and evaluate data to learn if any behavioral changes has occurred regarding use of heat resources*
- **Objective 6**: Communicate information to residents and Community Health Workers – *plan next steps*

*This pre-heat season (July) report specifically addresses 1, 2, and 3 objectives. Refer to the October Survey Results report and Evaluation report for more information following post-heat season.*
In April 2020, MCDPH staff partnered with Salud en Balance and ASU to form a project team. The project team used the Community Health Assessment Toolkit from the Association for Community Health Improvement, 2017 as a model for this study (see Figure 1). This framework provides a nine-step pathway for identifying and analyzing community health needs and assets, prioritizing needs, and developing and implementing plans to address significant needs. In addition, this assessment tool focuses on community engagement, designing interventions, and implementing interventions. The ASU Institutional Review Board declared this assessment exempt based on not collecting personally identifiable information and being strictly intended for program implementation. Members of the assessment team completed training through the Collaborative Institutional Training Initiative (CITI) Human Research Curriculum.
In order to learn about the community’s needs about heat and provide information about available resources, the study team utilized the following steps:

**Step 1: Reflect and Strategize:**

*How can we raise awareness about extreme heat, safety tips and available resources among residents living in a mobile home community?*

Based on knowledge that approximately 94% of all heat-associated deaths occurring within mobile homes were among individuals 50 years and older and knowing that at the time of death these individuals were not using their air-conditioning for several reasons, including not having AC (23%), not using their AC (16%) having a non-functioning AC system (70%), or no electricity (7%), the project plan was centered around individuals living at the mobile home community (see Appendix IV for a comparison of heat deaths in the 85008 zip code, the zip code where the mobile home community is located, vs Maricopa County).

Project goals were focused on solutions that fall under themes, including training, demonstration, and evaluation. The plan was to organize two half-day workshops: one at the beginning of the heat season (early April) and the second one at the end of the heat season.
Workshops were attended by mobile home community residents, ASU staff, volunteers (college students), and other community partners. These workshops serve to connect with residents to talk about heat, answer their questions, provide educational resources collected in the packet – *The Heat Toolkit* (see Appendix IX). In order to assess the knowledge about heat exposure, heat illness, available community heat resources, and ways residents cope with the heat, surveys were administered in both workshops. Information provided through the survey at the beginning of the season (pre-heat season) provided an understanding of how much residents know about heat exposure and types of heat illness; heat resources; and what coping mechanisms they use. At the second workshop, through the second survey (post-heat season), the objective is to capture and identify behavior modifications and measure the changes that occur throughout the summer. Mobile home residents asked we add in the October survey, a new section, “resources and potential solutions” which will provide an opportunity for resident’s voices to be heard about potential solutions. An evaluation report will be generated, and the team will have a better sense of where to focus efforts and how to engage more community members. It is strongly believed that this whole process will help raise awareness and open communication with the community about knowledge, barriers, resources, and solutions.

**Step 2: Identify stakeholders and partnerships with community**

**What are the resources and how we can fulfil our plan to raise the awareness about heat among residents living in a mobile home community?**

In March of 2020, Healthy Urban Environments at the Arizona State University (ASU) selected MCDPH’s proposed project and provided funding. In April of 2020, MCDPH had initiated a conversation about the project with Salud en Balance. Since then, weekly meetings were conducted, which are attended by the project HUE team, (Salud en Balance, the Office of Nutrition and Active Living, and the Office of Epidemiology staff). Other partners included the residents of the mobile home community where the project took place; Knowledge Exchange for Resilience (KER), who helped with project design and to obtain the IRB approval; and the Arizona Association of Manufactured Home and RV Owners (AAMHO), who provided support for the project. Due to the COVID-19 pandemic, the course of the project changed. Initially, plans were in place for in-person half day meetings with the community residents and stakeholders participating. These plans were replaced with virtual meetings and no community resident participation. Only Community Health Workers were able to participate (6 members of the Salud en Balance team) virtually as well as an interpreter. Table 1 describes the partners by type and role they played for this project.
### Table 1. List of Stakeholders Involved in HUE Survey 2020

<table>
<thead>
<tr>
<th>Partners</th>
<th>Type</th>
<th>Role Involved</th>
<th>Individuals (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Home Community</td>
<td>Community Members</td>
<td>Survey respondents</td>
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</tr>
<tr>
<td>Iglesia Episcopal San Pablo, Salud en Balance</td>
<td>Community Partner</td>
<td>Supportive role in the study</td>
<td>6</td>
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<tr>
<td>Maricopa County Department of Public Health (MCDPH): Office of Nutrition and Active Living</td>
<td>Local Public Health Department</td>
<td>Distributed surveys, Organized incentive plan, Assisted in planning and implementing project</td>
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<tr>
<td>Healthy Urban Environments (HUE) Initiative</td>
<td>Community Partner</td>
<td>Supportive role in the study</td>
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<td>Arizona State University (ASU): Knowledge Exchange for Resilience</td>
<td>Academic Institution</td>
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<td>Maricopa County Department of Public Health (MCDPH): Office of Epidemiology, Climate and Health</td>
<td>Local Public Health Department</td>
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<tr>
<td>The Arizona Association of Manufactured Home and RV Owners</td>
<td>Community Partner</td>
<td>Supportive role in the study</td>
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**Step 3: Define the Community:**

This assessment focused on the residents of a mobile home community with whom Salud en Balance already had an existing relationship. The mobile home community is located in Phoenix, Maricopa County in the zip code 85008 and consists of 109 mobile homes. Within a quarter mile or walking distance, there is a bus route and a park. Within one mile of their homes, they have access to three supermarkets, one hospital, four public schools, one private school and three charter schools. The mobile home community is predominately Hispanic (based on the survey in July, 98.0%). According to the 2018 Census, the Hispanic population of Maricopa County is 31.3%, yet the Hispanic population in the zip code 85008, where the mobile home community is located, is 57.6%. The percentage of people living below poverty for the zip code 85008 is 29.0% compared to the percentage of people living in Maricopa County below poverty level of 12.1%. The labor force is also higher in the zip code 85008 at 73.1% compared to MC at 64.6%, yet the unemployment rate is higher in 85008 at 6.3% compared to MC at 4.6%.
Step 4: Collect and analyze data:

In April - July of 2020, the team developed an instrument, the Healthy Urban Environments (HUE) survey (see Appendices VI and VII) through Qualtrics, a web-based survey tool that assists in creating and collecting survey responses as well as managing data. This survey included 31 questions separated into the following topics (see Figure 2). The survey was pilot tested before it was distributed to residents. Due to the COVID-19 pandemic, adjustments had to be made to the project which included administration of the surveys over the phone rather than in-person. Furthermore, questions specific to the impact of the pandemic were added to the survey. The team also designed a Heat Toolkit, which included different heat resources including information about extreme heat, types of heat illness, safety tips to stay cool, and available community resources (see Appendix IX).

**Figure 2. Survey Topics**

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Questions 1-8</th>
<th>Age, Ethnicity, Employment Status</th>
</tr>
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<tr>
<td>Knowledge of Heat and Illness</td>
<td>Questions 9-13</td>
<td>Heat Warnings, Symptoms of Illness</td>
</tr>
<tr>
<td>Perceptions about Heat</td>
<td>Questions 14-16</td>
<td>Heat Inside Home</td>
</tr>
<tr>
<td>Home Cooling Systems</td>
<td>Questions 17-21</td>
<td>Types of Home Cooling Systems</td>
</tr>
<tr>
<td>Access to Resources</td>
<td>Questions 22-25</td>
<td>Awareness of Community Programs to Assist in Repairs and Utilities</td>
</tr>
<tr>
<td>Neighborhood Resources</td>
<td>Questions 26-29</td>
<td>Cooling Centers and Air-Conditioned Places</td>
</tr>
<tr>
<td>COVID-19 Questions</td>
<td>Questions 30-31</td>
<td>Effects of COVID-19 on Household</td>
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The last two weeks in July were used by the Community Health Workers for administering the surveys to residents and distributing incentive cards (Walmart cards of $50/each for those who participated in the survey). Surveys were completed mainly over the phone or in-person. The Community Health Workers kept records of completed surveys and distributed the incentive cards. These records were provided to the team at MCDPH.

The data entry and analysis process are described in Figure 3. First, completed surveys were collected and submitted to the Office of Epidemiology at MCDPH. The team leaders at Iglesia Episcopal San Pablo were instrumental in collecting surveys, with efforts to remove any duplicates or incomplete surveys. Surveys were then entered into Qualtrics, one survey at a time. After this, the raw Qualtrics data were exported to an Excel file. The data on this Excel
file were then cleaned and tallied, resulting in a new Excel file that was used for analysis. SAS was also used for data analysis and quality control. Analysis included generating statistics such as percentages and values which corresponded to individual survey questions. Graphical displays such as tables, pie charts, and bar graphs were also produced using Excel.

Quantitative data were summarized with descriptive statistics and qualitative data were reviewed and incorporated into the appropriate fields. Data entry, quality control, and analyses were all completed using Qualtrics, SAS, and Microsoft Excel.

Figure 3. Data Entry and Analysis Process

- 1. Collect surveys
- 2. Enter survey responses into Qualtrics
- 3. Convert entered Qualtrics data into Excel spreadsheet
- 4. Analyze data using Excel and SAS

Activities and outcomes were summarized in a logic model that was shared with others involved in the study (see Appendix III for the HUE logic model with its accompanying narrative).
### Table 2. HUE Logic Model

**HUE Logic Model**

**Purpose:** Reducing Heat Deaths and Illness in Maricopa County Mobile Home Communities

**Situation:** Heat Deaths and Illness adversely affect Maricopa County Mobile Home Communities

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
<th>OUTCOMES</th>
</tr>
</thead>
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<td><strong>Partners</strong></td>
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<tr>
<td>Mobile Home Community</td>
<td>Develop and distribute Heat Toolkit to households</td>
<td>Heat Toolkit</td>
<td>Increase community’s knowledge of heat</td>
</tr>
<tr>
<td>Salud en Balance</td>
<td>Develop and administer pre-heat season survey</td>
<td># Households Heat Toolkit distributed to</td>
<td>Change perceptions about heat</td>
</tr>
<tr>
<td>Iglesia Episcopal San Pablo</td>
<td>Conduct pre-heat season workshops to train residents/Community Health Workers</td>
<td>Pre-heat season survey</td>
<td>Decrease barriers to use of home cooling systems</td>
</tr>
<tr>
<td>ASU Knowledge Exchange for Resilience</td>
<td>Analyze pre-heat season surveys</td>
<td># Pre-heat season surveys completed</td>
<td>Increase awareness of utility assistance programs</td>
</tr>
<tr>
<td>HUE Initiative</td>
<td>Summarize information from the pre-heat season in the form of an infographic and produce a report</td>
<td>Pre-heat season workshop conducted</td>
<td>Increase awareness of neighborhood resources</td>
</tr>
<tr>
<td>The Arizona Association of Manufactured Home and RV Owners</td>
<td>Develop and administer post-heat season survey</td>
<td># Residents/Community Health Workers trained</td>
<td>Decrease effect of COVID-19 on the household and individual</td>
</tr>
<tr>
<td>Maricopa County Department of Public Health</td>
<td>Develop post-heat season survey definition card</td>
<td>Pre-heat season surveys analyzed</td>
<td>Increase trailer/mobile home residents’ knowledge of heat</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HUE Funding</td>
<td>Develop 3 posters that are a compilation of resources found in the Heat Toolkit</td>
<td>Pre-heat season results infographic and report</td>
<td>Increase use of home cooling systems</td>
</tr>
<tr>
<td>Qualtrics, Excel, Word, Canva</td>
<td>Heat Toolkit resource posters</td>
<td>Post-heat season survey</td>
<td>Increase trailer/mobile home residents’ use of existing cooling services</td>
</tr>
<tr>
<td>Heat Data</td>
<td></td>
<td>Post-heat season survey definition card</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td># Post-heat season surveys completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Toolkit resource posters</td>
<td></td>
</tr>
</tbody>
</table>

**Short Term**

**Intermediate**

**Long Term**

Reduction of heat deaths and illness in MC mobile home communities
### Time

<table>
<thead>
<tr>
<th>Participant incentives</th>
<th>Conduct post-heat season workshop with Community Health Workers</th>
<th>Post-heat season workshop conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing materials</td>
<td>Analyze post-heat season surveys</td>
<td># Community Health Workers in attendance at Post-heat season workshop</td>
</tr>
<tr>
<td>Gloves, hand sanitizer, face masks</td>
<td>Summarize information from the post-heat season and produce an evaluation report</td>
<td>Post-heat season surveys analyzed</td>
</tr>
<tr>
<td>Space to conduct workshops</td>
<td>Communicate and discuss next steps with community, funder, and partners</td>
<td>Evaluation report</td>
</tr>
<tr>
<td>Personnel</td>
<td></td>
<td>Completed communication and discussion of next steps with community, funder, and partners</td>
</tr>
<tr>
<td>Educational materials and sources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English/Spanish translation and interpretation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Assumptions

- Ability to connect with community-based organization
- Survey responses will be received

### External Factors

- 4Cs: Coordination, Communication, Collaboration, Cooperation
- COVID-19 Pandemic

### Step 5: Prioritize community health issues:

The Maricopa County Department of Public Health’s mission is “To make healthy lives possible” and vision is “A healthy, safe, and thriving community.” In order to prevent heat-related deaths and illnesses, MCDPH focused on individuals that experience limitations to their home cooling systems or lack awareness of available programs to assist with the cost of utilities and repairs. MCDPH began this initiative to increase the knowledge of available assistance programs and to improve accessibility of these programs. This is an initial step to mitigating heat-related deaths among these residents as it is important to note that other factors also influence limitations to home cooling systems and use of resources, such as eligibility criteria.
Step 6. Document and Communicate Results

Are there knowledge gaps about extreme heat, heat illness, safety tips and available resources?

Is heat a priority for these residents?

During weekly meetings with the HUE team, initial findings were reported, and ideas were discussed for how to provide information to the residents regarding community resources. MCDPH project staff were very interested in hearing from other HUE team members about questions to be included on the survey. Further, based on the feedback, the HUE team decided to include another section “resources and potential solutions” in the second survey to provide space for residents to share their thoughts on potential solutions.

On October 27, 2020, MCDPH staff had a virtual meeting with the Salud en Balance team to share findings from the July survey and to prepare for the second phase, which included the post-heat season survey. The team also discussed the project evaluation plan and the production of a recommendation report.

Strategies and plans for the last three steps of the project: “Step 7. Plan Implementation Strategies, Step 8. Implement Strategies, Step 9. Evaluate progress” will continue to be discussed in the future after implementing the second survey in October, completing the project evaluation. The team will continue to develop a recommendation report and possible plans for how to implement these recommendations.
The results displayed below represent the survey responses of the pre-heat season survey conducted in July. The survey was distributed to 144 households and 103 completed surveys were returned (response rate = 66%).
Demographics

Most of the survey respondents were Hispanic (98%) and lived in households with one or more members who do not speak English (84%). Most survey respondents had 6 or more household members (16% had 6 household members, 18% had 7 household members, and 20% had 8 household members). The most common household age group was ages 5-19 (78%), followed by both ages of 20-34 (58%) and ages 35-49 (57%).

As for the number of household members employed, having one employed household member was the most common response (60%). Having two employed household members was the second most popular response at 30%. However, 7% of household members responded the entire household was currently unemployed.

Many respondents (62%) reported that they had received less than high school education while 34% reported having a High School Diploma or GED. Of the households surveyed, over half stated that they rented the land or their home.

The respondents answered questions about their household transportation. Participants stated that they had a personal vehicle (78%), used Public Transportation (42%), and/or walked (29%). Other participants responded that they would get rides from neighbors and friends (9%) or take a taxi (6%) to get to their destination.
### Table 3. Demographics and Characteristics of Respondents

<table>
<thead>
<tr>
<th>Demographics</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How Many People Live in Your Home? (N=103)</strong></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>11 (11%)</td>
</tr>
<tr>
<td>3</td>
<td>21 (20%)</td>
</tr>
<tr>
<td>4</td>
<td>25 (24%)</td>
</tr>
<tr>
<td>5</td>
<td>21 (20%)</td>
</tr>
<tr>
<td>6+</td>
<td>25 (24%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>*<em>What are the Age Groups in Your Household? (N= 103) <em>267 is the total number of responses (Percentage does not add to 100)</em></em></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages less than 4</td>
<td>33 (32%)</td>
</tr>
<tr>
<td>Ages 5-19</td>
<td>80 (78%)</td>
</tr>
<tr>
<td>Ages 20-34</td>
<td>60 (58%)</td>
</tr>
<tr>
<td>Ages 35-49</td>
<td>59 (57%)</td>
</tr>
<tr>
<td>Ages 50-64</td>
<td>31 (30%)</td>
</tr>
<tr>
<td>Ages 65+</td>
<td>4 (4%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>*<em>How Many Household Members are Employed? (N= 98) <em>Excludes 5 respondents who did not answer</em></em></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7 (7%)</td>
</tr>
<tr>
<td>1</td>
<td>59 (60%)</td>
</tr>
<tr>
<td>2</td>
<td>29 (30%)</td>
</tr>
<tr>
<td>3</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>4+</td>
<td>1 (1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>What Language is Spoken at Home? (N =103)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>9 (9%)</td>
</tr>
<tr>
<td>Other</td>
<td>87 (84%)</td>
</tr>
<tr>
<td>Refused</td>
<td>7 (7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ethnicity (N=103)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>102 (98%)</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>1 (1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Do You Own or Rent Your Home (N= 103) * 142 responses were recorded for those that answered both</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Own</td>
<td>60 (58%)</td>
</tr>
<tr>
<td>Rent</td>
<td>82 (80%)</td>
</tr>
</tbody>
</table>

*Survey question 6 is in reference to whether participants own or rent their mobile home. Residents rent and make payments for the land their mobile home occupies.

### Demographics

Survey Questions:

1.) How many people live in your household?
2.) What are the age groups in your household?
3.) How many are employed in your household?
4.) Is there any adult who does not speak English? (language spoken at home)
5.) What is your race and that of members of your household?
6.) Does your household own or rent this residence?
Graph 1. Number of People in Household (N=103)
Most participants lived in a household with 4 or more people

Graph 2. Age Range of Household Members (N=103)
The most common age range of household members was ages 5-19

* 103 respondents answered for every individual in the household with 267 responses; therefore, percentages add to more than 100%.
Graph 3. Employment Status of Households (N=103)
Most households had one employed person

Graph 4. Education Level of Community Members (N=103)
Most households selected “less than high school” for highest level of education achieved by a household member

*Excludes one participant who refused to answer.
**Graph 5. Transportation Methods of Households (N=103)**

Most households selected “personal vehicle” as their household’s primary means of transportation.

<table>
<thead>
<tr>
<th>Transportation Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Vehicle</td>
<td>78%</td>
</tr>
<tr>
<td>Public Transportation</td>
<td>42%</td>
</tr>
<tr>
<td>Walk</td>
<td>29%</td>
</tr>
<tr>
<td>Get a ride from Family/Friends</td>
<td>9%</td>
</tr>
<tr>
<td>Taxi</td>
<td>6%</td>
</tr>
<tr>
<td>Bike</td>
<td>4%</td>
</tr>
</tbody>
</table>

*174 responses were recorded. Survey respondents were able to choose more than one option; percentages add to more than 100%.*

**Graph 5.**

Survey question 8: What is your household’s primary means of transportation?
Perception of Heat

The participants were questioned if they felt they were at risk of heat-related illnesses and most respondents answered “yes” (85%). Only 14% believed that they were not at risk of any heat-related illnesses.

Of the households, 35% stated that their homes were always too hot while others stated that their homes were too hot most of the time (29%) or sometimes, but not often (31%). Twenty-four households (38%) responded that they felt hot inside their homes at temperatures of 100 degrees Fahrenheit or hotter. This was followed by the range of 80-84 degrees Fahrenheit (33%) and 85-89 degrees Fahrenheit (14%).
Graph 6. Outcomes of Heat-related Illnesses (N=100)
Most participants felt that their health is at risk because of high summer temperatures

*Excludes 2 participants who did not respond and 1 participant who refused or had no opinion.

Graph 7. Perception of Heat at Degrees Fahrenheit (N=63)
Participants felt too hot inside their homes at temperatures of 100 degrees Fahrenheit and above

*Excludes 40 participants who put “no” or left their responses blank for Question 14.
Graph 8. Perception of Heat Within the Home (N=103)
Only 5% never felt too hot inside their home

<table>
<thead>
<tr>
<th>Perception</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>35%</td>
</tr>
<tr>
<td>Sometimes, but Rarely</td>
<td>31%</td>
</tr>
<tr>
<td>Most of the Time, but Not Always</td>
<td>29%</td>
</tr>
<tr>
<td>Never</td>
<td>5%</td>
</tr>
</tbody>
</table>

Graph 8.
Survey question 16:
Did you or members of your household ever feel too hot inside your home during the past summer?
Knowledge of Heat and Illness

Most of the respondents were aware of heat warnings (94%) while only 5% were not aware of heat warnings. Many of the participants learned of heat waves through television, radio broadcasts, text messages, social media, and Internet access, with very few learning of them through word of mouth from neighbors, friends, and churches.

When asked to name health problems one could get from exposure to heat, dehydration, dizziness, and headaches were the most common responses. More than half of the participants involved in the survey knew that dehydration is a symptom of exposure to heat (61%), while 16% knew that dizziness is a symptom, and 7% knew that headaches are a symptom.

The participants were asked if they had ever experienced any illnesses caused by heat and 75 participants out of the 103 (73%) surveyed reported experiencing a heat-related illness. Only 24% reported not experiencing a heat-related illness. There were a few respondents that were unsure if they had experienced heat-related illness.

The respondents were asked what they did after they experienced symptoms, and 93% stated that they stayed home and took no action, while 6% went to the emergency room or doctor’s office, 3% called 911 for assistance, and 3% were admitted to a hospital. Fortunately, no deaths were reported by the community.
Graph 9. Knowledge and Awareness of Excessive Heat Warnings (N=102)
Most households remembered hearing weather warnings about excessive heat

*Excludes 1 participant who refused to respond.

Graph 10. Sources of Heat Warnings (N=96)
TV was the primary source for hearing weather warnings about excessive heat

*176 responses from participants who checked multiple forms of heat warnings; percentages add to more than 100%.
Graph 11. Knowledge of Symptoms from Exposure to Heat (N=103)
Dehydration was the most common response

*Survey participants were able to write more than one answer. 112 responses were recorded; percentages add to more than 100%.

Graph 12. Experiencing Heat-related Symptoms (N=103)
Over 2/3 of households had a member that had experienced symptoms related to the heat

Graph 11.
Survey question 11:
Can you tell me any health problems you or a household member can get from exposure to heat?

Graph 12.
Survey question 12:
Have you or a member of your household had symptoms this past summer related to heat or high temperatures such as leg cramps, dry mouth, dizziness, fatigue, rapid heartbeat, or hallucinations?
**Graph 13. Outcomes of Heat-related Illness (N=70)**

*Most reported staying home and taking no action in response to experiencing heat-related illness*

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stayed Home and Took No Action</td>
<td>93%</td>
</tr>
<tr>
<td>Went to the Emergency Room</td>
<td>6%</td>
</tr>
<tr>
<td>Called 911</td>
<td>3%</td>
</tr>
<tr>
<td>Admitted to the Hospital</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Excludes respondents who did not answer “yes” to Q12 and those who put “refused” or left the response blank for Q13. A total of 73 responses were recorded (excludes 3 who refused or left blank responses).*

Survey question 13:

What was the outcome of this heat-related illness?
Coping Mechanisms

Coping mechanisms include home cooling systems as well as ways people avoid the heat, such as leaving home to cool off.

More than three-quarters (78%) of the population surveyed stated that they used window air-conditioners; however, 49% of window air-conditioners were reported as functional. Central air-conditioners were used by 17% of participants, with 14% of participants reporting central-air conditioners as functional in their home. Some participants reported use of fans, misters, and trees or plants. It is important to note that here in Maricopa County, where there is extreme heat, that these three types of cooling systems are not sufficient by themselves, and often need to be supplemented with at least one of the other types of cooling systems. Most households responded that they use their cooling system both all day and all night (85%), while 9% reported using theirs during the evening only, and 5% reported using theirs in the afternoon only.

The community members who participated in the study were asked if they leave their home to go to an air-conditioned place to cool down. Half of the participants stated that they did not leave home to get to a place with A/C, however, 31% of participants responded that they do leave home to get to a place with A/C, and 18% stated that they sometimes leave home to get a place with A/C. Participants were then asked where they are more likely to go to get A/C when they leave home and most households reported going to the supermarket (63%) and/or the mall (49%), or visiting a friend or neighbor (29%).

Community members were asked about their method of transportation to leave home to get to an air-conditioned place. Many of the households, (55%), used a personal vehicle to get to their preferred air-conditioned destination. Other households reported walking (41%), using public transportation (35%), or getting a ride from a friend (14%).
Graph 14. Cooling System Used in Home and its Working Condition (N=103)
The majority of households used window air-conditioning

*This graph shows each cooling unit used in the household (154 responses) vs their working condition in the household (85 responses). The responses received were out of 103 participants; percentages add to more than 100.

Graph 15. Cooling System Use Throughout the Day (N=103)
Most households used their cooling system all day and all night

*This figure combines questions 17:
Which of the following did your household use to cool your house this past summer?

And 19:
Which cooling system works in your home?
**Graph 16. Leaving Home to Cool Off (N=102)**

About 1/2 would leave their home to go to an air-conditioned place to cool off

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>50%</td>
</tr>
<tr>
<td>Yes</td>
<td>31%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>19%</td>
</tr>
</tbody>
</table>

*Excludes 1 respondent who refused to answer.

**Graph 17. Locations Participants Go to Cool Off (N=51)**

Most would go to a supermarket or mall to cool off

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarket</td>
<td>63%</td>
</tr>
<tr>
<td>Mall</td>
<td>49%</td>
</tr>
<tr>
<td>Friends/Neighbors</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>18%</td>
</tr>
<tr>
<td>Church, Mosque, Synagogue, Etc.</td>
<td>8%</td>
</tr>
<tr>
<td>Library</td>
<td>6%</td>
</tr>
<tr>
<td>Community Center</td>
<td>4%</td>
</tr>
<tr>
<td>Movie Theater</td>
<td>2%</td>
</tr>
</tbody>
</table>

*Excludes 52 participants who did not leave home to cool off. Multiple (91) responses from 51 participants were able to choose more than one option; Percentages will add to more than 100%.
### Graph 18. Mode of Transportation to Air-conditioned Locations (N=51)
Most either used a personal vehicle or walked to get to an air-conditioned place

<table>
<thead>
<tr>
<th>Mode of Transportation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Vehicle</td>
<td>55%</td>
</tr>
<tr>
<td>Walk</td>
<td>41%</td>
</tr>
<tr>
<td>Public Transportation</td>
<td>35%</td>
</tr>
<tr>
<td>Get a Ride from Family/Friends</td>
<td>14%</td>
</tr>
<tr>
<td>Taxi</td>
<td>6%</td>
</tr>
</tbody>
</table>

*Excludes 52 participants who left this section blank. A total of 77 responses were recorded; 51 participants were able to choose multiple answers.*
Barriers Faced To Cooling

Although home cooling systems were commonly used among the participants, most reported limitations on their use. **Out of the 103 surveys received, 71 households (70%) said they limited their home cooling.** Of those 71 households, **100% responded that they limited home cooling due to the cost of electricity and 62% responded that they limited use due to the cost of repairs.** Over one-quarter of households (30%) did not have limitations to using their home cooling systems.
Graph 19. Limitations of Cooling System (N=102)
Over 2/3 of participants had limitations to using their home cooling system

*Excludes 1 respondent who did not answer.

Graph 20. Limitations of Cooling System (N=71)
Cost of electricity was the most reported limitation to use of air-conditioning

*Excludes 32 participants who did not limit use to their home cooling system. Includes 131 responses from 71 participants who had more than one reason to limit home cooling; percentages add to more than 100%.
Knowledge and Use of Community Resources

Throughout the project, the community members who agreed to participate were given materials listing resources and community programs available to them. Most of the participants were unaware of the community programs offered to help them with utility bills. Although 14% had heard of the service, but never used it, 84% were completely unaware of these utility assistance services. Only 2% of the households had used the service.

Participants of the study were also given resources to assist with home cooling repairs and almost all of the households surveyed (96%) were unaware of these repair services provided by the community. Only a handful of respondents (4%) were aware of the programs but had never used the service.

Of the households who needed utility assistance, only 11% had applied to the programs for help. Most households (78%) were not aware of any assistance programs, and 6% did not qualify after applying for aid. Of those who did not use the service, 77% did not have the contact information, 12% thought the process was too complicated, 10% did not qualify for assistance, 3% had difficulty completing the application, and 1% were not interested.

Community households were asked if they were aware of cooling centers around Maricopa County. A large percentage of households (80%) responded that they had no knowledge of cooling centers around Maricopa County. Some households (11%) knew about cooling centers, but had never used the service, and 8% did not know what cooling centers are. Only 1% had used a cooling center’s services.
Graph 21. Awareness of Resources to Help with Cost of Utilities (N=103)
84% were unaware of programs or services to help with the cost of utility bills

Graph 22. Awareness of Resources to Help with Cost of Repairs (N=101)
96% were unaware of programs or services to help with home cooling system repairs

*Excludes two respondents who did not answer.
**Graph 23. Application to Community Programs and Services (N=92)**

70% had not applied to utility assistance programs as they were not aware of these programs

*Excludes 11 people who refused to answer or left the response blank.

**Graph 24. Reasons for Not Using Services (N=103)**

Not having the contact information was the most common reason for not having utilized any community assistance programs

*Includes 113 responses from 103 surveyors who had multiple reasons for not using the services; percentages add to more than 100%. 

---

**Survey question 24:**

Have you or a household member ever applied for these utility assistance programs (cost of utility bills or for cooling system repairs)?

**Survey question 25:**

If you have not utilized any community assistance programs or resources, please select your reason(s):
**Graph 25. Knowledge of Cooling Centers in Maricopa County (N=102)**

*Most households were unaware of cooling centers*

<table>
<thead>
<tr>
<th>Choice</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>80%</td>
</tr>
<tr>
<td>Yes, but I have never used the service</td>
<td>11%</td>
</tr>
<tr>
<td>I don't know what cooling centers are</td>
<td>8%</td>
</tr>
<tr>
<td>Yes, I have used the service</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Excludes one respondent who did not answer.*
Many of the community members interviewed were dealing with the effects of COVID-19. In the majority of households (74%) at least one family member lost a job. Twenty-eight percent of participants were unable to pay utilities, 22% were unable to pay their rent or mortgage, 14% were unable to provide their families with food and other essentials, and 16% of participants had one or more members diagnosed with COVID-19. Two participants reported that a household member had been hospitalized.

Because of COVID-19, many of the participants feared getting sick (73%), felt anxious (64%), could not sleep (35%), felt lonely (19%), or felt stressed or isolated.
Graph 26. Effects of COVID-19 on Households (N=103)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Member Lost a Job</td>
<td>74%</td>
</tr>
<tr>
<td>Unable to Pay Utilities</td>
<td>28%</td>
</tr>
<tr>
<td>Unable to Pay Rent/Mortage</td>
<td>22%</td>
</tr>
<tr>
<td>Household Member Diagnosed with COVID</td>
<td>16%</td>
</tr>
<tr>
<td>Unable to Provide Food</td>
<td>14%</td>
</tr>
<tr>
<td>Other</td>
<td>13%</td>
</tr>
<tr>
<td>Household Member Hospitalized</td>
<td>2%</td>
</tr>
<tr>
<td>Unable to Help Children with School</td>
<td>1%</td>
</tr>
<tr>
<td>Unable to Provide Childcare</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Includes multiple responses (175) from 103 participants who had more than one effect. Percentages will add to more than 100%.

Figure 4. Personal Effects of COVID-19 (N = 103)

- 64% reported feeling anxious
- 19% felt lonely
- 35% could not sleep
- 73% feared getting sick
- 24% selected other:
  - Depressed, frustrated
  - Afraid for family member who works in hospitals
  - Afraid for children
  - Household member has asthma and is afraid of getting sick
  - Sad because I am not able to visit family
  - A family member died of COVID-19
  - The world is not the same and everything is so serious now
  - Afraid to go outside

*Includes 222 responses from participants who had more than one effect; percentages will not add to 100%.
The overarching goal of this study is to reduce heat deaths and illness in MC mobile home communities by raising awareness about extreme heat, providing safety tips and information, and providing information about available resources. The following discussion is specific to the pre-heat season and the survey results from July.

**Demographics**

Over 68% of respondents lived in households with four or more people. Many of these households had members with small children, teenagers, and young adults. Nearly 65% of the population ranged from the ages of infant-34 years old while only 35% ranged from the ages of 35-74. Most of the households (92%) had at least one working person, however 7% of households had no working members.
**Heat Perception**

Sixty-four percent of participants reported feeling hot inside their homes most of the time or always. Of those that had reported that their houses were too hot, 94% felt hot at temperatures ranging from 80 degrees Fahrenheit to 112 degrees Fahrenheit. **Over 85% of participants stated that they felt at risk of illnesses related to increased temperatures.**

**Knowledge of Heat and Illness**

Overall, the participants responded that they were informed of heat waves (93%) but uninformed about resources to assist them with their home cooling systems during heat waves. **The most common form of heat alerts was television (91%), followed by radio (32%) and text alerts (24%).**

Many participants (61%) were able to name dehydration as a symptom of heat-related illness. Of those who felt at risk, 73% had experienced symptoms associated with heat waves. **Ninety-three percent of respondents who had experienced symptoms chose to stay home and take no action as opposed to other options, such as seeing a doctor.**

**Coping Mechanisms**

Many residents who felt too hot in their homes used multiple forms of cooling units. Most residents who used window air-conditioning would use their home cooling system both all day and all night (85%). **Most respondents relied on window air-conditioners to cool off in their home, but only 49% were functioning.** Others relied on trees for shade (9%) on a hot day; however, that did not work for any participant in keeping them cool. Many who did not know about cooling centers found themselves driving to the nearest supermarket (63%) or mall (49%) to cool off. Other respondents found opportunities to cool off at a friend’s house (29%), library (6%), or religious building (8%). **This was the preferred method to cope with the heat for most residents as many had never used a cooling center because they were unaware of the services (80%) or did not know what cooling centers are (8%).**

**Barriers Faced To Cooling**

Many of the respondents used multiple forms of cooling systems; however, not all systems were working properly. **Although many respondents reported that they used at least one form of home cooling system, it was discovered that over 70% had limitations to the use of these cooling systems. The biggest problem reported for limitations on cooling systems was the cost of electricity (100%) followed by the cost of repairs (62%).**

**Knowledge and Use of Community Resources**

Most participants stated that they were not aware of community programs that assisted in the cost of utility bills (84%) or the cost of repairs (96%). **Only 14% of respondents knew about the utility bill assistance programs yet had never used them. Only 2% of households surveyed had ever used the service to assist with utility bills and only 4% were aware of the service to assist with the cost of repairs yet had never used them.** **Over three-quarters of households (77%) responded that the main reason they did not use these services was because they did not have the contact information.** Of those who knew about the programs, 10% stated that they did not qualify and 12% stated that the process was too long or complicated. This highlights that while lack of awareness is one factor that plays a role in limitations to cooling systems and use of utility
bill and repair assistance programs, other critical factors also exist, such as program qualification requirements and complicated processes that deter program use.

**Effects of COVID-19**

With COVID-19 hitting many neighborhoods throughout Maricopa County, many respondents were affected by the virus, especially during heat waves. **Seventy-four percent of respondents had a member of the household lose a job.** With the lack of work during the pandemic, 28% were unable to pay utilities, such as air-conditioning and water, and 22% were unable to pay the rent or mortgage. Another 14% of respondents were unable to provide food or other essentials and 16% had at least one household member diagnosed with COVID-19.

Because of the stress of the pandemic, two-thirds of the community feared getting sick or felt anxious from stress or other issues. Many of those who dealt with the effects of COVID-19 also reported a lack of sleep. Many participants wrote that they felt anxious due to financial issues, lack of contact from phones being shut off or isolation from not wanting to leave the house in fear of getting sick.
CONCLUSION AND NEXT STEPS

The results of the Healthy Urban Environment (HUE) surveys suggest that community outreach and education are needed to ensure these communities are aware of existing programs and services available to them for assistance. They also suggest that the COVID-19 pandemic has had a large impact on the participants’ ability to act and utilize various resources. Maricopa County Department of Public Health (MCDPH) plans to continue to work with this community to ensure that they are given proper resources and important information to assist them during extreme heat waves and climate changes.

Phase two of this project includes a post-heat season survey that was distributed in October of 2020. This allows for collection and analysis of data to determine if there are any knowledge and behavior changes following phase one of the project. The funding for this project was from ASU; however, during the summer, there was an opportunity of supplemental funding ($6,500) from Robert Wood Johnson Foundation to help at-risk communities. The funding was granted to this project to help the community center at the church where Salud en Balance Community Health Workers will continue to assist and support community residents. The plan for the extra funding is to buy the community center a new computer and printer/copy machine as well as assist with utilities during increased project hours. The remaining of the funding will be used to purchase incentive gift cards of $25 to distribute directly to each mobile home community household.
REFERENCES


APPENDICES

APPENDIX I: GOAL AND OBJECTIVES

Overarching Goal: Reduction of heat deaths and illness in MC mobile home communities

Goal: To gain a better understanding of trailer/mobile home residents’ heat perception, knowledge, coping mechanisms used, barriers faced toward cooling, and knowledge and use of community resources

Figure 1. Goals and Objectives

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Pre-Heat Season (July)</th>
<th>Post-Heat Season (October-November)</th>
<th>Deliverables (completed/to be completed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide information related to heat</td>
<td>Develop Heat Toolkit* and distribute to every household</td>
<td>Summarize pre-heat season survey results and produce report and infographics</td>
<td>Heat Toolkit including survey distributed to 165 households</td>
</tr>
<tr>
<td>Train residents/Community Health Workers</td>
<td>Conduct workshops to train Community Health Workers to administer the survey</td>
<td>Conduct the second workshop with residents and Community Health Workers</td>
<td>First workshop with Community Health Workers held on 7/7/2020</td>
</tr>
<tr>
<td></td>
<td>Community Health Workers administer the survey &amp; distribute incentive cards</td>
<td>Community Health Workers will administer the survey &amp; distribute incentive cards</td>
<td>Collected 103 completed surveys</td>
</tr>
<tr>
<td>Analyze and evaluate results from both surveys</td>
<td>Analyze the pre-heat season survey</td>
<td>Analyze the post-heat season survey and conduct evaluation</td>
<td>Survey analysis and reports will be completed</td>
</tr>
<tr>
<td>Communicate and next steps</td>
<td>Communicate information with residents, funder, and partners</td>
<td>Communicate information with residents, funder, and partners</td>
<td>Replicate and implement the same procedures in additional communities as resources permit</td>
</tr>
</tbody>
</table>

*packet with information on types of heat illness, heat statistics, safety tips, and available resources
## APPENDIX II: DEFINITIONS

### Table 1. Definitions

<table>
<thead>
<tr>
<th>Item</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-heat Season</td>
<td>The time of year just before it gets hot that occurs between winter and summer.</td>
</tr>
<tr>
<td>Post-heat Season</td>
<td>The time of year following heat season that occurs after the hot summer months.</td>
</tr>
<tr>
<td>Cooling Center</td>
<td>An air-conditioned public space set up by local authorities to temporarily prevent negative health effects of extreme heat or to prevent overheating during heat waves.</td>
</tr>
<tr>
<td>Central Air-Conditioning</td>
<td>A cooling system in which air is cooled at a central location and distributed throughout multiple rooms through vents.</td>
</tr>
<tr>
<td>Window Air-Conditioning</td>
<td>A simple air-conditioning unit that is mounted on windows to cool the room.</td>
</tr>
</tbody>
</table>
# APPENDIX III: HUE LOGIC MODEL AND NARRATIVE

**Figure 1. Logic Model**

## HUE Logic Model

**Purpose:** Reducing Heat Deaths and Illness in Maricopa County Mobile Home Communities

**Situation:** Heat Deaths and Illness adversely affect Maricopa County Mobile Home Communities

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Partners</strong></td>
<td>Develop and distribute Heat Toolkit to households</td>
<td>Heat Toolkit</td>
<td>Increase community’s knowledge of heat</td>
</tr>
<tr>
<td>Mobile Home Community</td>
<td>Develop and administer pre-heat season survey</td>
<td># Households Heat Toolkit distributed to</td>
<td>Better understanding of trailer/mobile home residents’ heat perception, knowledge, coping mechanisms used, barriers faced toward cooling, and knowledge and use of community resources</td>
</tr>
<tr>
<td></td>
<td>Conduct pre-heat season workshops to train residents/Community Health Workers</td>
<td>Pre-heat season survey</td>
<td>Change perceptions about heat</td>
</tr>
<tr>
<td>Salud en Balance</td>
<td>Analyze pre-heat season surveys</td>
<td># Pre-heat season surveys completed</td>
<td>Decrease barriers to use of home cooling systems</td>
</tr>
<tr>
<td>Iglesia Episcopal San Pablo</td>
<td>Summarize information from the pre-heat season in the form of an infographic and produce a report</td>
<td>Pre-heat season workshop conducted</td>
<td>Increase awareness of utility assistance programs</td>
</tr>
<tr>
<td>ASU Knowledge Exchange for Resilience</td>
<td>Develop and administer post-heat season survey</td>
<td># Residents/Community Health Workers trained</td>
<td>Increase awareness of neighborhood resources</td>
</tr>
<tr>
<td>HUE Initiative</td>
<td>Develop post-heat season survey definition card</td>
<td>Pre-heat season surveys analyzed</td>
<td>Decrease effect of COVID-19 on the household and individual</td>
</tr>
<tr>
<td>The Arizona Association of Manufactured Home and RV Owners</td>
<td>Develop 3 posters that are a compilation of</td>
<td>Pre-heat season results infographic and report</td>
<td>Increase trailer/mobile home residents’ knowledge of heat</td>
</tr>
<tr>
<td>Maricopa County Department of Public Health</td>
<td></td>
<td>Post-heat season survey</td>
<td>Increase trailer/mobile home residents’ use of existing cooling services</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td></td>
<td>Post-heat season survey definition card</td>
<td>Increase use of home</td>
</tr>
<tr>
<td>Funding</td>
<td></td>
<td># Post-heat season surveys completed</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Participant incentives</td>
<td>Printing materials</td>
<td>Gloves, hand sanitizer, face masks</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------</td>
<td>--------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>resources found in the Heat Toolkit</td>
<td>Conduct post-heat season workshop with Community Health Workers</td>
<td>Analyze post-heat season surveys</td>
</tr>
<tr>
<td></td>
<td>cooling systems</td>
<td>Decrease in heat illness</td>
<td></td>
</tr>
</tbody>
</table>

**Logic Model Narrative**

This logic model is built on the assumptions that the project will have the ability to connect and collaborate with a Community-Based Organization and that survey responses will be received from the project’s target population. It also considers external factors including the 4Cs (collaboration, communication, coordination, cooperation) and the COVID-19 pandemic.
The outputs described on the logic model will be measured in a variety of ways. For many outputs, such as Heat Toolkit, pre-heat season survey, and evaluation report, the completion of activities will be used for evaluation. Heat Toolkit distribution numbers, attendance numbers, and survey completion numbers will also be used for evaluation to measure how many households received the Heat Toolkit, how many residents and Community Health Workers attended the pre- and post-heat season workshops, and how many pre- and post-heat season surveys were completed. Pre- and post-heat season surveys will be administered to measure participant knowledge of heat and illness, perceptions about heat, home cooling system use and barriers to use, awareness and use of utility assistance programs, awareness and use of neighborhood resources, and the effect of COVID-19 on the household and individual both pre-heat season (pre-intervention) and post-heat season (post-intervention).

Short-term, intermediate, and long-term outcomes are also illustrated in the logic model. Short-term and intermediate outcomes include but are not limited to increasing the community’s knowledge of heat, increasing awareness of utility assistance programs, and gaining a better understanding of trailer/mobile home residents’ heat perception, knowledge, coping mechanisms used, barriers faced toward cooling, and knowledge and use of community resources. The long-term outcome listed in the logic model is reduction of heat deaths and illness in Maricopa County (MC) mobile home communities.
## APPENDIX IV: HEAT DEATHS IN 85008 ZIP CODE VS MARICOPA COUNTY

### Table 1. Heat Deaths in 85008 Zip Code vs Maricopa County for Years 2016 – 2020

<table>
<thead>
<tr>
<th>Zip Code 85008</th>
<th>Maricopa County</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total # Confirmed Heat-Associated Deaths</strong></td>
<td></td>
</tr>
<tr>
<td>Death rate: 4.5 per 100,000 residents</td>
<td>Death rate: 4.0 per 100,000 residents</td>
</tr>
<tr>
<td><strong>Ages of Those Experiencing Heat-Associated Death (%)</strong></td>
<td></td>
</tr>
<tr>
<td>0-4:</td>
<td>0%</td>
</tr>
<tr>
<td>5-19:</td>
<td>0%</td>
</tr>
<tr>
<td>20-34:</td>
<td>7%</td>
</tr>
<tr>
<td>35-49:</td>
<td>14%</td>
</tr>
<tr>
<td>50-64:</td>
<td>43%</td>
</tr>
<tr>
<td>65-74:</td>
<td>21%</td>
</tr>
<tr>
<td>75+:</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Total Indoor Heat-Associated Deaths</strong></td>
<td></td>
</tr>
<tr>
<td>21%</td>
<td>30%</td>
</tr>
<tr>
<td><strong>A/C Present</strong>:</td>
<td>67%</td>
</tr>
<tr>
<td><strong>A/C Non-functioning</strong>:</td>
<td>50%</td>
</tr>
<tr>
<td><strong>No Electricity</strong>:</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Not in Use</strong>:</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Total Outdoor Heat-Associated Deaths</strong></td>
<td></td>
</tr>
<tr>
<td>71%</td>
<td>69%</td>
</tr>
<tr>
<td><strong>Place of Injury</strong></td>
<td><strong>Place of Injury</strong></td>
</tr>
<tr>
<td>Urban Area:</td>
<td>50%</td>
</tr>
<tr>
<td>Desert Area/Trail:</td>
<td>10%</td>
</tr>
<tr>
<td>Residence:</td>
<td>30%</td>
</tr>
<tr>
<td>Car:</td>
<td>10%</td>
</tr>
<tr>
<td>Work Site:</td>
<td>0%</td>
</tr>
<tr>
<td>Care Facility:</td>
<td>0%</td>
</tr>
<tr>
<td>Unknown:</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Living Situation</strong></td>
<td><strong>Living Situation</strong></td>
</tr>
<tr>
<td>Homeless:</td>
<td>36%</td>
</tr>
<tr>
<td>Co-habitating/Roommate:</td>
<td>14%</td>
</tr>
<tr>
<td>Living Independently:</td>
<td>29%</td>
</tr>
<tr>
<td>Unknown:</td>
<td>21%</td>
</tr>
</tbody>
</table>

- Data only include Maricopa County residents.
- MCDPH conducts heat associated mortality surveillance.
Table 2. Poverty Level of Zip Code 85008 vs. Maricopa County 2018

<table>
<thead>
<tr>
<th>85008 Poverty Level 2018 Total Pop (N=62,436)</th>
<th>Maricopa Poverty Level 2018 Total Pop (N=4,355,605)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>18,107 (29%)</td>
<td>531,672 (12.2%)</td>
</tr>
<tr>
<td>Hispanic Total Pop</td>
<td>Hispanic Total Pop</td>
</tr>
<tr>
<td>36,071</td>
<td>1,363,296</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>12,114 (33.6%)</td>
<td>249,762 (18.3%)</td>
</tr>
<tr>
<td>White Total Pop</td>
<td>White Total Pop</td>
</tr>
<tr>
<td>37,214</td>
<td>3,430,487</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>9,328 (25.1%)</td>
<td>375,482 (10.9%)</td>
</tr>
<tr>
<td>American Indian or Alaska Native Total Pop</td>
<td>American Indian or Alaska Native Total Pop</td>
</tr>
<tr>
<td>1,926</td>
<td>88,937</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>415 (21.5%)</td>
<td>22,255 (25%)</td>
</tr>
<tr>
<td>Black or African American Total Pop</td>
<td>Black or African American Total Pop</td>
</tr>
<tr>
<td>7,498</td>
<td>253,229</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>2,960 (39.5%)</td>
<td>45,974 (18.2%)</td>
</tr>
<tr>
<td>Asian Total Pop</td>
<td>Asian Total Pop</td>
</tr>
<tr>
<td>774</td>
<td>182,137</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>207 (26.7%)</td>
<td>20,083 (11%)</td>
</tr>
<tr>
<td>Native Hawaiian or Pacific Islander Total Pop</td>
<td>Native Hawaiian or Pacific Islander Total Pop</td>
</tr>
<tr>
<td>185</td>
<td>10,331</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>65 (35.1%)</td>
<td>444 (4.3%)</td>
</tr>
<tr>
<td>Other Race Total Pop</td>
<td>Other Race Total Pop</td>
</tr>
<tr>
<td>12,589</td>
<td>221,416</td>
</tr>
<tr>
<td>Below Poverty</td>
<td>Below Poverty</td>
</tr>
<tr>
<td>4,645 (36.9%)</td>
<td>41,363 (18.7%)</td>
</tr>
</tbody>
</table>

Data pulled from 2018 Census describes the total population and population by race that are below poverty level in Maricopa County and the zip code 85008.
Table 3. Demographics of Zip Code 85008 vs. Maricopa County 2018 Census

<table>
<thead>
<tr>
<th>Age Range (N=62,992)</th>
<th>Zip code 85008 Total Population 2018</th>
<th>Maricopa County Total Population 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4</td>
<td>5,356 (9%)</td>
<td>279,484 (6%)</td>
</tr>
<tr>
<td>Ages 5-19</td>
<td>13,574 (22%)</td>
<td>890,280 (20%)</td>
</tr>
<tr>
<td>Ages 20-34</td>
<td>19,708 (31%)</td>
<td>934,984 (21%)</td>
</tr>
<tr>
<td>Ages 35-49</td>
<td>11,980 (19%)</td>
<td>858,820 (19%)</td>
</tr>
<tr>
<td>Ages 50-64</td>
<td>8,801 (14%)</td>
<td>778,057 (18%)</td>
</tr>
<tr>
<td>Ages 65+</td>
<td>3,573 (6%)</td>
<td>669,199 (15%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment (N=47,926)</th>
<th>Zip code 85008 Employment vs. Maricopa County Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Force</td>
<td>73.10%</td>
</tr>
<tr>
<td>Employment/ Population Ratio</td>
<td>68.30%</td>
</tr>
<tr>
<td>Unemployment</td>
<td>6.30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race (N=62,992)</th>
<th>Zip code 85008 Race vs. Maricopa County Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>36,314 (57.6%)</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>2,509 (4%)</td>
</tr>
<tr>
<td>White</td>
<td>38,944 (61.8%)</td>
</tr>
<tr>
<td>Asian</td>
<td>1,287 (2%)</td>
</tr>
<tr>
<td>Native Hawaiian or Pacific Islander</td>
<td>463 (0.7%)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>8,740 (13.9%)</td>
</tr>
<tr>
<td>Other Race</td>
<td>13,507 (21.4%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language (N=57,636)</th>
<th>Zip code 85008 Language vs. Maricopa County Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>25,807 (44.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>31,829 (55.2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Households (N=21,902)</th>
<th>Zip code 85008 Households vs. Maricopa County Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own</td>
<td>25%</td>
</tr>
<tr>
<td>Rent</td>
<td>75%</td>
</tr>
</tbody>
</table>

Data pulled from the 2018 Census describes the demographics of Maricopa County vs the zip code of 85008.
## APPENDIX V: HEAT ASSOCIATED DEATHS BY HOUSING TYPE 2016-2020

### Table 1. Heat-Associated Deaths by Housing Type for Years 2016-2020

<table>
<thead>
<tr>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>53%</td>
<td>16%</td>
</tr>
</tbody>
</table>

### Ages of Those Experiencing Heat-Associated Deaths (%)

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>5-19</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>20-34</td>
<td>1%</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>35-49</td>
<td>4%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>50-64</td>
<td>34%</td>
<td>30%</td>
<td>33%</td>
</tr>
<tr>
<td>65-74</td>
<td>33%</td>
<td>26%</td>
<td>33%</td>
</tr>
<tr>
<td>75+</td>
<td>28%</td>
<td>38%</td>
<td>21%</td>
</tr>
</tbody>
</table>

### Gender of Those Experiencing Heat-Associated Deaths (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>73%</td>
<td>56%</td>
<td>60%</td>
</tr>
<tr>
<td>Female</td>
<td>28%</td>
<td>44%</td>
<td>40%</td>
</tr>
</tbody>
</table>

### Race/Ethnicity of Those Experiencing Heat-Associated Deaths (%)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian/Pacific Islander</td>
<td>0%</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>13%</td>
<td>9%</td>
<td>23%</td>
</tr>
<tr>
<td>White Non-Hispanic</td>
<td>75%</td>
<td>77%</td>
<td>56%</td>
</tr>
<tr>
<td>American Indian</td>
<td>0%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>4%</td>
<td>8%</td>
<td>7%</td>
</tr>
</tbody>
</table>

### A/C Status (%)

<table>
<thead>
<tr>
<th>Status</th>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/C NOT Present</td>
<td>23%</td>
<td>11%</td>
<td>2%</td>
</tr>
<tr>
<td>A/C Present:</td>
<td>71%</td>
<td>84%</td>
<td>95%</td>
</tr>
<tr>
<td>A/C Non-functioning</td>
<td>70%</td>
<td>79%</td>
<td>56%</td>
</tr>
<tr>
<td>No Electricity:</td>
<td>7%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>Not in Use:</td>
<td>16%</td>
<td>14%</td>
<td>39%</td>
</tr>
</tbody>
</table>

### Month of Death (%)

<table>
<thead>
<tr>
<th>Month</th>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>April</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>May</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>June</td>
<td>25%</td>
<td>17%</td>
<td>21%</td>
</tr>
<tr>
<td>July</td>
<td>33%</td>
<td>45%</td>
<td>35%</td>
</tr>
<tr>
<td>August</td>
<td>34%</td>
<td>22%</td>
<td>35%</td>
</tr>
<tr>
<td>September</td>
<td>4%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td>October</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>November</td>
<td>1%</td>
<td>0%</td>
<td>2%</td>
</tr>
</tbody>
</table>

### Living Situation (%)

<table>
<thead>
<tr>
<th>Situation</th>
<th>Mobile Homes</th>
<th>Single Homes</th>
<th>Apartments/Condos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeless</td>
<td>9%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Co-habitating/Roommate</td>
<td>Co-habitating/Roommate</td>
<td>Co-habitating/Roommate</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Living Independently</td>
<td>16%</td>
<td>24%</td>
<td>7%</td>
</tr>
<tr>
<td>Unknown</td>
<td>74%</td>
<td>72%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>
APPENDIX VI: SURVEY QUESTIONS - ENGLISH

Healthy Urban Environments (HUE) Initiatives

Survey Questions

Maricopa County Department of Public Health is learning about the needs of residents living in manufactured and RV homes when it is hot in Arizona. The results of this survey will help us learn if residents know about and use community services and resources related to heat. Your participation in this project is completely voluntary. The survey will take approximately 15-20 minutes to complete. You may choose not to participate or leave blank any questions you don’t wish to answer. All responses will be confidential. Results from this survey will only be reported as a total response (no individual results). If you agree to participate in this project, please answer the questions on the survey as best as you can.

Do you give your informed consent to be asked questions and have your answers recorded?

[1] yes
[0] no

This survey will be repeated in October, at the end of the Heat Season. Would you be willing to participate?

[1] yes
[0] no
Thank you for taking the time to participate.

Demographic Questions

First, we would like to ask you some general questions about your household and your home. Please respond for all members of your household.

Q1. How many people live in your household? ____________

Q2. How many people living in your household are:
   a) Less than 4 years old? ___
   b) 5-19 years old? _____
   c) 20-34 years old? _____
   d) 35-49 years old? ___
   e) 50-64 years old? _____
   f) 65-74 years old? _____
   g) 75 years and older? ____
   h) Don’t know? ______
   i) Refused? ______

Q3. How many people are employed in your household? ____________
   a) Refused to answer? ______

Q4. Is there any adult in your household who does not speak English?
   a) Yes
   b) No
   c) Don’t Know
   d) Refused

Q5. What is your race and that of members of your household (check all that apply)?
   a) White
   b) Black or African American
   c) Asian
   d) American Indian/Alaska Native
   e) Native Hawaiian or Pacific Islander
   f) Hispanic
   g) Don’t know
   h) Refused

Q6. Does your household own or rent this residence?
Q7. What is the highest level of education achieved by a member of your household?

a) Less than High school
b) High school or GED
c) Some College
d) College graduate or more
e) Don’t Know
f) Refused

Q8. What is your household’s primary means of transportation?

a) Personal vehicle
b) Walk
c) Bike
d) Public Transportation (light rail, bus, etc.)
e) Taxi
f) Agency Pick-up (dial-a-ride, shuttle)
g) Get a ride from family/friends
h) Other___________
i) Don’t know
j) Refused

Knowledge of Heat and Illness

Now, we would like to ask you about your experience with heat and other things you may know about heat related illness. There is no right or wrong answer. For the following questions, we will be asking about events that happened during this summer, which is from May through July.

Q9. Do you or other members of your household remember hearing weather warnings about excessive heat this summer?

a) Yes (if YES, Go to Q10)
b) No (if No, Don’t Know, or Refused Go to Q11)
c) Don’t Know
d) Refused

Q10. If yes, what was your primary source of information?

a) TV
b) Radio
c) Text Message
d) Automated Call
e) Local Newspaper
f) Church, mosque, synagogue or another religious site
g) Internet
h) Social Media
i) Neighbor/Friends/ Word of Mouth
j) Poster/Flyer
k) Other______
l) Don’t know
m) Refused

Q11. Can you tell me any health problems you or a household member can get from exposure to heat?

a)  ____________________________________ 

b) Don’t know 
c) Refused

Q12. Have you or a member of your household had symptoms this summer related to heat or high temperatures such as leg cramps, dry mouth, dizziness, fatigue, rapid heartbeat, or hallucinations?

a) Yes                                          (If Yes, Go to question Q13)

b) No                                           (If No, Don’t Know of Refused, Go to Q14)
c) Don’t Know
d) Refused

Q13. What was the outcome of this heat-related illness? (Check all that apply)

a) Stayed at home and did nothing

b) Called 911

c) Went to the emergency room

d) Admitted to the hospital

e) Death

Perceptions about Heat

These questions are about what steps you may take when it is hot outside.

Q14. Do you feel that your health is at risk because of high summer temperatures?

a) Yes

b) No

c) No opinion

d) Refused

Q15. At what temperature do you start to feel too hot inside your home? ______(F)

a) I don’t know
Q16. Did you or members of your household ever feel too hot inside your home during this summer?

a) Always
b) Most of the time, but not always
c) Sometimes, but rarely
d) Never
e) I don’t know
f) Refused

**Home Cooling Systems**

These questions are about what type of cooling systems you have at home.

Q17. Which of the following did your household use to cool your house this summer? (check all that apply)

a) Central air conditioning (If Air conditioning Go to Q18)
b) Window air conditioning (If other choices go to Q19)
c) Swamp or Evaporative Cooler
d) Fans
e) Misters
f) Trees and plants
g) None
h) Other________

Q18. If your household used air conditioning this summer, when did you use it?

a) Morning time only
b) Afternoon only
c) Evening time only
d) Both, All day and All night
e) I did not use air conditioning

Q19. Which cooling system works in your home?

a) Central air conditioning
b) Window unit air conditioning
c) Electric fans ceiling or portable)
d) Swamp cooler
e) Other
f) None of these

Q20. Does anything limit you from using your cooling system when you are hot?

a) Yes
b) No

Q21. What limits your household from using air-conditioning? (Check all that apply)
a) Cost of electricity
b) Doesn’t work
c) Cost of Repairs
d) Noise
e) I have a swamp cooler
f) Medical Reasons
g) I don’t have an air conditioner
h) Nothing prevents me from using it
i) Other________________

Access to Resources

Next, we would like to know if you are aware of assistance programs and other community resources

Q22. Are you aware of community programs or services to help you with the cost of utility bills?
   a) No
   b) Yes, but I never used the service
   c) Yes, I have used the service

Q23. Are you aware of community programs or services to help you with home cooling system repairs?
   a) No
   b) Yes, but I never used the service
   c) Yes, I have used the service

Q24. Have you or a member of your household ever applied for these utility assistance programs (cost of utility bills or for cooling system repairs)?
   a) Yes
   b) No. I was not aware of any utility assistance programs
   c) No, I did not need utility assistance
   d) No. I did not qualify for utility assistance
   e) Don’t know
   f) Refused

Q25. If you have not utilized any community assistance programs or resources, please select your reason(s):
   a) I am not interested in this program
   b) I don’t have the contact information
   c) I am unable to complete the application
   d) I have difficulty hearing on the phone
   e) I don’t qualify for this program
   f) It is a complicated process
Neighborhood Resources

Now we would like to ask some questions about how you deal with the heat

Q26. Are you aware of the Cooling Centers in Maricopa County (Places where an individual can go during the day to cool down during extreme heat warning days)?
   a) No,
   b) Yes, but I never used the service
   c) Yes, I have used the service
   d) Don’t know what cooling centers are

Q27. When the weather is very hot, do you or members of your household ever leave your home and go to an air-conditioned place to cool off?
   a) Yes (If Yes Go to Q29)
   b) No (If No, Go to Q31)
   c) Sometimes (If Sometimes Go to Q29)
   d) I don’t know
   e) Refused

Q28. Where do you or members of your household go to cool off?
   a) Mall
   b) Church, mosque, synagogue, or another religious site.
   c) Community Center
   d) Library
   e) Shelter
   f) Cooling Center
   g) Movie Theater
   h) Friends/Neighbours
   i) Supermarket
   j) Other_________

Q29. How does your household normally travel to the air-conditioned place? (check all that apply)
   a) Personal vehicle
   b) Walk
   c) Bike
   d) Public Transportation (light rail, bus, etc.)
   e) Taxi
   f) Agency Pickup (dial-a-ride, shuttle, etc.)
   g) Get a ride from family/friends
COVID-19 Questions

Q30. How is COVID-19 affecting your household’s daily life (check all that apply)?

a) Household member lost job
b) Household member was diagnosed with COVID-19
c) Household member was hospitalized due to COVID-19
d) Unable to provide food for family
e) Unable to pay my rent/mortgage
f) Unable to pay monthly utilities
g) Unable to provide/afford childcare
h) Unable to help my children with their school
i) Other
j) Don’t know
k) Refused

Q31. How is COVID-19 affecting you personally (check all that apply)?

a) I feel anxious
b) I fear getting sick
c) I feel lonely

a) I can’t sleep
b) COVID-19 is not affecting me personally
c) Other ________________

Thank you for your time!
La Oficina de Epidemiología del Departamento de Salud Pública del Condado de Maricopa está evaluando las necesidades de individuos que no pueden salir de casa durante eventos de calor extremo. Los resultados de este estudio ayudarán a determinar el conocimiento y el uso de servicios y recursos existentes para la comunidad. Su participación en este proyecto es completamente voluntaria. La encuesta tomará aproximadamente entre 15-20 minutos en ser completada. Usted puede dejar en blanco cualquier pregunta que no desee contestar. Estas respuestas deben reflejar las opiniones del individuo que se encuentra en casa sin salir. Todas sus respuestas serán confidenciales, y la información recopilada solo será reportada en un tomo colectivo combinado. Si desea participar en este proyecto, por favor, responda las siguientes preguntas lo mejor que pueda.

¿Da su consentimiento informado para que se le hagan preguntas y se registren sus respuestas?

[1] Si
[2] No

Esta encuesta se repetirá en octubre, al final de la temporada de calor. ¿Estarías dispuesto a participar?

[1] Si
[2] No

Gracias por tomarse el tiempo de participar
Información Demográfica

Primeramente, nos gustaría hacerle algunas preguntas generales sobre su casa. Por favor responda tomando en cuenta todos los miembros de su hogar

Q1. Incluyendo a usted ¿Cuentan a personas viven en su hogar? ______________

Q2. ¿Cuántas personas que viven en su hogar tienen (lea los grupos de edad) ?: 
   j) Menores de 4 años? ___ 
   k) 5-19 años de edad? _____ 
   l) 20-34 años de edad? _____ 
   m) 35-49 años de edad? ___ 
   n) 50-64 años de edad? _____ 
   o) 65-74 años de edad? _____ 
   p) 75 o mayores? _____ 
   q) No lo sé? ______ 
   r) Se rehusó a contestar? _____

Q3. ¿Cuántas personas trabajan en su hogar? ______________
   a) Se rehusó a contestar? _____

Q4. ¿Hay algún adulto en su hogar que no hable inglés?
   e) Sí 
   f) No 
   g) No lo sé 
   h) Se rehusó a contestar

Q5. ¿Cual es su raza y la del resto de los miembros de su hogar? (Seleccione todo lo que aplique) 
   i) Blanco 
   j) Afroamericano 
   k) Asiático 
   l) Indio Nativo Americano o Nativo de Alaska 
   m) Hawaiano o de las Islas del Pacífico 
   n) Hispanic 
   o) No lo sé 
   p) Se rehusó a contestar

Q6. En este hogar, ¿Ustedes son propietarios de esta vivienda o es rentada?
   e) Propietarios 
   f) Rentar 
   g) No lo sé 
   h) Se rehusó a contestar
Q7. ¿Cuál es el nivel más alto de educación alcanzado dentro de los miembros de su hogar?

- g) No termino la preparatoria (high school)
- h) Diploma de preparatoria (High school or GED)
- i) Estudio la Universidad o colegio, pero no se graduo
- j) Se graduo de colegio o Universidad o un nivel más alto
- k) No lo sé
- l) Se rehuso a contestar

Q8. ¿Cuál es el principal medio de transporte en su hogar?

- k) Vehículo Personal
- l) Caminar
- m) Bicicleta
- n) Transporte Público (Tren liger o Camón, etc)
- o) Taxi
- p) Transporte de Agencia (dial-a-ride, shuttle)
- q) Obtener un paseo de familiares / amigos
- r) Otros, especifica________
- s) No lo sé
- t) Se rehuso a contestar

Conocimiento sobre el Estres Por Calor

Ahora nos gustaría preguntarle sobre su experiencia con el calor y sobre las cosas que usted puede que sepa sobre las enfermedades relacionadas al calor. No hay respuesta correcta o incorrecta. Para las siguientes preguntas, le estare sobre eventos ocurridos durante el verano, entre los meses de Mayo y Julio.

Q9. ¿Usted u otros miembros de su hogar recuerdan haber escuchado advertencias climáticas sobre el calor excesivo este verano?

- e) Si (En caso afirmativo, pase a la pregunta 10)
- f) No (Si no, no lo sé, o me niego, pase a la pregunta 11)
- g) No lo sé
- h) Se rehuso a contestar

Q10. Si su repuesta fue si, ¿Cuál fue principal Fuente de información? (Seleccione todo lo que aplique)

- n) TV
- o) Radio
- p) Mensaje Texto
- q) Mensaje grabado del Sistema de emergencia 911 (reverse 911)
- r) Periódico Local
- s) Iglesia o otros grupos
- t) Internet
HUE JULY SURVEY RESULTS

u) Redes Sociales
v) Vecino/amigo/ tercera persona
w) Poster/Volante
x) Otros, específica________
y) No lo sé
z) Se rehusó a contestar

Q11. ¿Me pudiera decir algunas de los problemas que usted o los miembros de su hogar pudieran sufrir por estar expuestos al calor?

d) ______________________________________
e) No lo sé
f) Se rehusó a contestar

Q12. ¿Ha tiendo usted o algún... miembros de su hogar síntomas relacionados al calor o por las alturas temperaturas como calambre en las piernas, boca seca, mareos, fatiga, desmayo, palpitaciones o alucinaciones?

e) Yes (En caso afirmativo, pase a la pregunta 13)
f) No (Si no, no lo sé, o me niego, pase a la pregunta 14)
g) No lo sé
h) Se rehusó a contestar

Q13. ¿Cúal fue el resultado de este episodio de enfermedad por el calor? (Seleccione todo lo que aplique)

f) Se quede en casa y no paso nada
g) Llamo al numero de emergencia 911
h) Visito la sala de emergencia
i) Fue hospitalizado
j) muerte
k) No se
l) Se rehusó a contestar

Percepción de Calor

Estas preguntas son sobre los pasos que puede tomar su hogar cuando hace calor afuera

Q14. ¿Siente que su salud está en riesgo debido a las altas temperaturas del verano?

e) Si
f) No lo sé
g) Sin opinión
h) Se rehusó a contestar

Q15. ¿A qué temperatura comienza a sentir demasiado calor dentro de su hogar? ________(F)

a) No lo sé
Q16. ¿Alguna vez usted o los miembros de su hogar se sintieron demasiado calientes dentro de su hogar durante este verano?

 g) Siempre
 h) La mayor parte del tiempo, pero no siempre
 i) Algunas veces pero es raro
 j) Nunca
 k) No lo sé
 l) Se rehusó a contestar

Sistemas de Refrigeración del Hogar

Estas preguntas son sobre qué tipo de sistema de enfriamiento tienes en casa

Q17. ¿Cuál de los siguientes utilizó su hogar para enfriar su casa este verano? (Seleccione todo lo que aplique)

 i) Aire acondicionado central
 j) Aire acondicionado de ventana
 k) Cooler de Vapor
 l) Abanicos
 m) Rociador de agua
 n) Arboles y plantas
 o) Ninguno
 p) Otros, especifica________

Q18. Si su hogar usó aire acondicionado este verano, ¿cuándo lo usó?

 f) Solo en la noche
 g) Solo de día
 h) Día y noche
 i) No lo sé
 j) Se rehusó a contestar

Q19. ¿Qué sistema de enfriamiento funciona en su hogar?

 g) Aire acondicionado central
 h) Aire acondicionado de ventana
 i) Cooler de Vapor
 j) Abanicos
 k) Otros, especifica________
 l) Ninguno de esos

Q20. ¿Hay algo que te límite de usar tu sistema de enfriamiento cuando estás caliente?

 c) Si
 d) No
Q21. ¿Hay algo que evite que se use el aire acondicionado en su hogar? (Seleccione todo lo que aplique)
   a) El costo de electricidad  
   b) No funciona  
   c) Costo de reparaciones  
   d) El ruido  
   e) Tengo un enfriador de pantano  
   f) Razones Médicas  
   g) No tengo aire acondicionado  
   h) Nada me impide que lo use  
   i) Otros, especifica________

Access a los Recursos

A continuación, nos gustaría saber si conoce programas de asistencia y otros recursos de la comunidad

Q22. ¿Conoce los programas comunitarios o servicios para ayudarlo con el costo de las facturas de servicios públicos?
   d) No  
   e) Sí, pero nunca uso el servicio  
   f) Sí, he usado el servicio

Q23. ¿Conoce los programas o servicios comunitarios para ayudarlo con las reparaciones del sistema de enfriamiento del hogar?
   a) No  
   b) Sí, pero nunca uso el servicio  
   c) Sí, he usado el servicio

Q24. ¿Usted o algún miembro en su hogar ha solicitado asistencia para pagar la energía eléctrica?
   g) Sí  
   h) No, no sabía que existía un programa de asistencia para pagar la energía eléctrica o luz  
   i) No, no necesito asistencia para pagar la luz  
   j) No, no califico para recibir asistencia para pagar la luz o energía eléctrica  
   k) No lo sé  
   l) No rehusó a contestar

Q25. Si usted no ha utilizado los programas o servicios para la comunidad, por favor, seleccione sus razones:
   h) No interés en estos programas  
   i) No tiene información de contacto  
   j) No ha podido completar la solicitud
Ahora nos gustaría hacer algunas preguntas sobre cómo lidiar con el calor

Q26. ¿Conoce los centros de enfriamiento en el condado de Maricopa?

   e) No
   f) Sí, pero nunca uso el servicio
   g) Sí, he usado el servicio
   h) No sé qué son los centros de enfriamiento.

Q27. ¿Cuándo la temperatura está muy caliente usted o los miembros en su hogar salen de su casa para ir a un lugar con aire acondicionado?

   f) Sí (En caso afirmativo, pase a la pregunta 29)
   g) No (Si no, pase a la pregunta 31)
   h) A veces (Si a veces, vaya a la pregunta 29)
   i) No lo sé
   j) No rehúso a contestar

Q28. Si usted o miembros de su hogar salen de casa para ir al un lugar con aire acondicionado, ¿A dónde van? (Seleccione todo lo que aplique)

   a) Centro comercial
   k) Iglesia
   l) Centro comunitario
   m) Biblioteca
   n) Refugio
   o) Centro de enfriamiento
   p) Museo
   q) El cine
   r) Amigos/Vecinos
   s) Supermercado
   t) Otros, especifica________

Q29. ¿Cómo viaja normalmente su hogar al lugar con aire acondicionado? (Seleccione todo lo que aplique)

   i) vehículo personal
   j) Caminar
   k) Bicicleta
   l) Transporte Público (Tren ligero, camión, etc.)
   m) Taxi
n) Transporte de Agencia (dial-a-ride, shuttle)
o) Obtener un paseo de familiares / amigos
p) Otros, especifica________

**Preguntas COVID-19**

Q30. ¿Cómo afecta COVID-19 a la vida cotidiana de sus hogares? (Seleccione todo lo que aplique)

l) Un miembro del hogar perdió su trabajo
m) Un miembro del hogar fue diagnosticado con COVID-19
n) Un miembro del hogar fue hospitalizado debido a COVID-19
o) No puedo mantener a la familia
p) No puedo pagar mi renta / hipoteca
q) No puedo pagar mis utilidades mensuales
r) No puedo proporcionar / pagar cuidado de niños
s) Unable to provide school support for children
t) Otros, especifica________
u) No lo sé
v) No rehuso a contestar

Q31. ¿Cómo te afecta personalmente COVID-19?

d) Me siento ansioso
e) Temo la enfermedad
f) Me siento solo
g) No puedo dormir
h) Otros, especifica________
i) No lo sé
j) No rehuso a contestar

¡Gracias por tu tiempo!
APPENDIX VIII: SURVEY RESULTS

Survey Results Infographic

JULY SURVEY RESULTS 2020
PRE-HEAT SEASON

HEALTHY URBAN ENVIRONMENTS INITIATIVE

70% reported having limitations to using their cooling system when it is hot.

There are limitations to A/C due to cost of electricity, poor functioning of unit, etc.

94% remembered hearing weather warnings about excessive heat and 91% of these heard about these from TV.

73% reported that they or a household member had experienced heat related illness this summer.

64% reported feeling hot inside their home most of the time or always (94% said that temperatures of 80 degrees Fahrenheit or higher felt hot).

85% stated they feel that their health is at risk due to high summer temperatures.

Window air conditioning was the most commonly used cooling system (78%) and 49% of those function.

33% reported using fans; only 14% of fans were reported as functional.
1/2 of participants reported that their cooling systems are operational. 100% said cost of electricity limited their use of their cooling system.

88% were not aware of cooling centers in Maricopa County or did not know what cooling centers are. 31% said they leave their home to go to a place with A/C when the weather is very hot.

Due to the COVID-19 pandemic... 28% of participants struggled to pay utilities; 22% struggled to pay rent as a result of COVID-19.

Loss of job was the most common affect on households (74%).

73% feared getting sick, 64% felt anxious, 35% could not sleep, and 19% felt lonely in response to COVID-19.

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APPENDIX IX: HEAT TOOLKIT

I. Toolkit Contents:

1. Environmental Heat Deaths in Maricopa County, Arizona 2006-2019 – Maricopa County Department of Public Health Graph (See Figure 1. Heat Deaths in Maricopa County below)

2. Heat Kills in Maricopa County Infographic – Maricopa County Department of Public Health (See Figure 2. Heat Kills in Maricopa County Infographic below)

3. Mobile Homes: Heat-Associated Deaths, Maricopa County 2006-2019 infographic – Maricopa County Department of Public Health (See Figure 3. Mobile Homes: Heat-Associated Deaths in Maricopa County below)

4. Climate Change and Extreme Heat – Centers for Disease Control and Prevention Infographic (See Figure 4. Extreme Heat Infographic (CDC) below)

5. Top 10 Tips for Staying Safe in the Arizona Heat – Maricopa County Department of Public Health (See Figure 5. Top 10 Tips for Staying Safe Infographic below)

6. Stay Safe and Know Signs of Heat Illness Card – Maricopa County Department of Public Health (See Figure 6. Heat Illness and Safety Cards below)

7. Cooling Centers/Hydration MAPs – Maricopa Association of Governments (MAG) (See Figure 7. Map of Emergency Heat Relief and Cooling Centers below)

8. Resources by Services Provided: Maricopa County Department of Public Health (See Figure 8. List of Resources by Services Provided below)

II. Survey (both Spanish and English versions):

-See Appendix VI above for the English survey
-See Appendix VII above for the Spanish survey
Figure 1. Heat Deaths in Maricopa County

Heat Deaths in Maricopa County, Arizona 2006-2019
HEAT KILLS IN MARICOPA COUNTY

WHAT?
In 2019, excessive heat caused...

- 2,785 hospital visits
- 199 deaths

WHO?

- Half had lived in Arizona for 20 years or more
- 7 in 10 were at least 50 years old

WHEN?
Heat has killed in every month from March to November

WHERE?

- 40% of all deaths occurred indoors
- Most women died indoors
- Most men died outdoors

FOR TIPS ON STAYING SAFE IN THE HEAT OR FOR MORE INFORMATION VISIT HEATAZ.ORG.
Figure 3. Mobile Homes: Heat-Associated Deaths in Maricopa County

**By the numbers:**
- **1,491** Total heat-associated deaths have occurred in Maricopa County
- **35%** Of the total heat-associated deaths, are reported as indoor deaths
  - Of the 522 total reported indoor deaths, **29%** occurred in mobile homes

**Demographics**
- **67%** were male
- **91%** were 50+ years and older
- **85%** were white
- **72%** were living independently
- **25%** involved substance use

**AC in Mobile Homes**
- Of the 76% of people that had air conditioning in their home, 67% had AC that was not functioning

**AC Function Status**
- Present: 76%
- Not present: 24%
- 0% unknown not represented

Those who lived in mobile homes and died from heat are twice as likely to not have had AC present versus those who passed away in other home types.
Figure 4. Extreme Heat Infographic (CDC)

CLIMATE CHANGE & EXTREME HEAT

Extreme heat events, or heat waves, are a leading cause of EXTREME WEATHER-RELATED DEATHS in the United States and the number of heat-related deaths is rising!

WHO’S AT RISK?

- Adults over 65
- Children under 4
- People with existing medical problems such as heart disease
- People without access to air conditioning

WHAT CAN YOU DO?

STAY COOL

- Find an air-conditioned shelter
- Avoid direct sunlight
- Wear lightweight, light-colored clothing
- Take cool showers or baths
- Do not rely on a fan as your primary cooling device

STAY HYDRATED

- Drink more water than usual
- Don’t wait until you’re thirsty to drink more fluids
- Avoid alcohol or liquids containing high amounts of sugar
- Remind others to drink enough water

STAY INFORMED

- Check local news for extreme heat alerts and safety tips
- Learn the symptoms of heat illness

LEARN MORE!

Visit CDC’s Environmental Public Health Tracking Network to learn more about climate change and extreme heat at

www.cdc.gov/epitracking
Figure 5. Top 10 Tips for Staying Safe Infographic

Top 10 Tips for Staying Safe in the Arizona Heat

1. Drink plenty of WATER
   Drink plenty of water EVERY DAY even when you are not thirsty.

2. Do NOT rely on a FAN as your primary source of air
   A fan does NOT replace being in an air-conditioned location. It dehydrates your body.

3. Stay cool indoors
   Stay in a cool, air-conditioned location. If you need help paying your electric bill, contact your utility company for possible special programs.

4. Take care of your pets
   Make sure that your pets are provided with plenty of water, shade and a cool place to rest, since they can become dehydrated as well.

5. Cool down by taking a bath or shower
   Taking a shower helps your body cool down. However, DO NOT take a shower immediately after becoming overheated, since your body may cool down too quickly and cause illness.

6. Wear LOOSE clothing
   Allow your skin to breathe in the heat. Breathable fabrics like cotton are best.

7. NEVER leave kids in the car
   Remember to NEVER leave children, pets or those needing special care in parked cars when the temperature is high - even for just a few minutes!

8. Limit outdoor exercise
   Exercise outside during morning hours; exercise inside in air conditioning the rest of the day.

9. Check on friends and neighbors
   Open windows are a sign that a neighbor could be having an air conditioning problem. Check to make sure they are staying cool.

10. For more information
    For cooling locations or additional resources, visit HeatAZ.com.
Figure 6. Heat Illness and Safety Cards

Stay Safe in the Arizona Heat

- Drink plenty of water.
- Never leave children or pets in the car.
- Keep your head covered and reapply sunblock every 2 hours.
- Take breaks in the shade or in air conditioning.
- Plan outdoor activities in the early morning or late evening to avoid the heat.

Know the Signs of Heat Illness

- Heat Exhaustion:
  - Faint or dizzy
  - Throbbing headache
  - Cool, pale, clammy skin
  - Nausea or vomiting
  - Rapid, weak pulse
  - Muscle cramps
  - Get to a cooler, air conditioned place
  - Drink water if fully conscious
  - Take a cool shower or use cold compresses

- Heat Stroke:
  - No sweating
  - Body temperature above 103°
  - Red, hot, dry skin
  - Nausea or vomiting
  - Rapid, strong pulse
  - May lose consciousness
  - Call 9-1-1

Visit heataz.org or call 211 for information on cooling centers, utility assistance, and more tips on staying cool.
Figure 7. Map of Emergency Heat Relief and Cooling Centers

Map of Emergency Heat Relief/Cooling Centers

Information provided by the Maricopa Association of Governments Heat Relief Network for more information visit https://azmag.gov/Programs/Homelessness/Heat-Relief-Regional-Network
**Figure 8. List of Resources by Services Provided**

### RESOURCE SERVICES

#### Utility Assistance

- City of Phoenix Family Services Centers – 602 534 2433
- A New Leaf / MESA CAN – 480 833 9200
- Avondale Community Action Program – 855 204 7797 or 623 333 2703
- Chandler Community Action Plan – 480 963 1423
- Gilbert Community Action Plan – 480 892 5331
- Friendly House – 602 345 0167
- Glendale Community Action Program – 623 930 2854 x 3
- Guadalupe Community Action Agency – 480 505 5375
- Lutheran Social Services of the Southwest – 480 654 4539
- Maricopa County Human Services Department – 602 506 5911
- Salvation Army, Phoenix Family Services – 602 267 4127
- St. Vincent de Paul – 602 850 6948
- Sun City Community Assistance Network – 623 933 7530
- Tempe Community Action Agency – 480 350 5880
- Tolleson Community Action Program – 623 936 2760
- Wickenburg Community Action Program – 928 684 7894
- APS Energy Support Programs – 602 618 1974
- APS Energy Support with Medical Programs – 602 618 1974
- APS Project SHARE - 602 618 1974
- SRP Residential Rebates and Discounts – 602 236 8888
- SRP Limited Income Weatherization Assistance Programs
  - City of Phoenix – 602 495 0700
  - Mesa Community Action Network – 480 833 9200
  - Maricopa County – outside Phoenix/Mesa – 602 506 5911
  - Pinal County – 520 466 1112
- 2-1-1

#### Rent Assistance

- Avondale Community Action Program – 855 204 7797 or 623 333 2703
- Chandler Community Action Plan – 480 963 1423
- Gilbert Community Action Plan – 480 892 5331
- Glendale Community Action Program – 623 930 2854 x 3
- Lutheran Social Services of the Southwest – 480 654 4539
- Maricopa County Human Services Department – 602 506 5911

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The highlighted lines are services, programs, and/or organizations that are located in Phoenix or near the mobile home community of the report. These services would be the most convenient for them to use, but others are listed as well for those that shared resources in different areas of Arizona.
• Salvation Army, Phoenix Family Services – 602 267 4127
• Tempe Community Action Agency – 480 350 5880
• Tolleson Community Action Program – 623 936 2760
• Wickenburg Community Action Program – 928 684 7894
• 2-1-1

Weatherization

• City of Phoenix Family Services Centers – 602 534 2433
• Avondale Community Action Program – 855 204 7797 or 623 333 2703
• Glendale Community Action Program – 623 930 2854 x 3
• SRP Limited Income Weatherization Assistance Programs
  o City of Phoenix – 602 495 0700
  o Mesa Community Action Network – 480 833 9200
  o Maricopa County – outside Phoenix/Mesa – 602 506 5911
  o Pinal County – 520 466 1112
• 2-1-1

Eviction Prevention

• City of Phoenix Family Services Centers – 602 534 2433
• A New Leaf / MESA CAN – 480 833 9200
• Chandler Community Action Plan – 480 963 1423
• Gilbert Community Action Plan – 480 892 5331
• St. Vincent de Paul – 602 850 6948
• Maricopa County Human Services Department – 602 506 5911
• Salvation Army, Phoenix Family Services – 602 267 4127
• 2-1-1