

2026

SOUTHERN ARIZONA

HEAT
SUMMIT

REPORT



CITY OF
TUCSON

Regina Romero

MAYOR REGINA ROMERO



TUCSON
Resilient Together

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Introduction

The Third Southern Arizona Heat Summit brought energy, urgency, and collaboration to Tucson on February 7. Organized by the City of Tucson's Office of Resilience, the Summit convened youth leaders, public health professionals, utility representatives, neighborhood advocates, emergency responders, researchers, and community-based organizations for a full day dedicated to strengthening heat resilience across Southern Arizona.

More than 240 participants attended this year's Summit, a 40% increase from 170 attendees in 2025. The continued growth reflects expanding regional engagement and a shared recognition that extreme heat is not a single-sector issue. It affects housing stability, public health systems, infrastructure reliability, workforce safety, neighborhood networks, and the well-being of families across the region.

As extreme heat events grow longer, more intense, and more complex, Southern Arizona faces compounding risks including rising nighttime temperatures, energy grid strain, housing vulnerability, occupational exposure, and social isolation. While the most severe heat days represent only part of the season, they account for a disproportionate share of serious health impacts. At the same time, regional data shared during the Summit highlighted measurable progress, including a decline in deaths where heat was the primary cause among unhoused individuals compared to prior years. This demonstrates that coordinated action can save lives.

The Summit emphasized moving from planning to implementation. Plenary discussions and structured breakout sessions focused on:

- Operationalizing infrastructure investments such as the Donna Liggins Outage Resilience Hub
- Strengthening cross-sector coordination during multi-day outages
- Addressing housing-based heat vulnerability, particularly in manufactured housing
- Expanding culturally responsive public health communication
- Advancing worker protections and heat safety standards
- Centering youth leadership in long-term climate resilience

Through scenario-based exercises and topic-specific working groups, participants identified decision-making gaps, coordination challenges, communication barriers, and actionable next steps. This report summarizes those findings and outlines priority areas for strengthening Southern Arizona's heat resilience in 2026 and beyond.



KEY HIGHLIGHTS

Highlights

Summit discussions reinforced that heat resilience requires coordination across housing, health, infrastructure, workforce systems, transportation networks, and neighborhood partnerships. The following themes emerged as priority areas for action

1. Community-Based Resilience

Strengthening neighborhood networks, trusted messengers, and youth leadership remains foundational to regional heat resilience.

- Expanding tree canopy, green stormwater infrastructure, and neighborhood greening efforts reduces urban heat exposure while improving community health and livability.
- Participants emphasized the importance of empowering youth as partners in climate action. Youth involvement in tree planting, community education, and advocacy is helping build momentum for long-term resilience.
- Preparing residents before emergencies through buddy systems, voluntary registries, and community education can improve response during extreme heat events and power outages.
- Building trust through consistent outreach and culturally responsive engagement increases participation in cooling and preparedness programs.

2. Public Health & Risk Communication

Extreme heat impacts are shaped by overlapping health, social, and economic vulnerabilities.

- Participants emphasized that chronic illness, medication interactions, substance use, housing conditions, occupational exposure, and social isolation all contribute to heat-related illness.
- Communication strategies must move beyond general awareness toward targeted, culturally relevant messaging that helps individuals recognize risk and take protective action.
- Trusted messengers such as pharmacists, community health workers, employers, and nonprofit partners play a critical role in delivering effective heat safety information.
- Continued coordination between public health agencies, healthcare providers, and community organizations strengthens prevention, outreach, and emergency response.

Highlights

3. Housing & Built Environment

Housing conditions are a major driver of heat vulnerability in Southern Arizona.

- Participants highlighted how building materials, insulation, shade, and ventilation influence indoor temperatures and health outcomes during extreme heat.
- Manufactured housing communities were identified as particularly vulnerable due to aging infrastructure, financing barriers, and regulatory constraints that limit upgrades.
- While long-term strategies such as building code improvements and sustainable construction practices are necessary, immediate household-level interventions—including shading, insulation improvements, and HVAC maintenance—can help reduce indoor heat exposure.
- Expanding access to weatherization programs, efficiency upgrades, and housing protections will be critical to reducing heat risk for both homeowners and renters.

4. Infrastructure & Energy Resilience

Infrastructure investments must be paired with operational planning and coordinated response systems.

- The Donna Liggins Outage Resilience Hub demonstrates progress in integrating solar generation, battery storage, and emergency facility operations to support communities during power outages.
- Breakout session discussions highlighted the need for clearly defined activation thresholds, documented authority, and operational protocols to guide resilience hub activation.
- Facility operations planning must address capacity management, staffing needs, sanitation, medical support, and communication with residents.
- Transportation coordination is also critical to ensure residents—particularly seniors, individuals with disabilities, and households without vehicles—can safely access cooling facilities during emergencies.

Highlights

5. Workforce Heat Protection

Protecting workers exposed to extreme temperatures remains a priority for regional heat resilience.

- Participants emphasized the importance of strengthening workplace heat safety standards and enforcement to protect outdoor and indoor workers during extreme heat.
- Training for supervisors and frontline staff can improve implementation of rest, water, and shade protocols and help identify early signs of heat illness.
- Clear reporting pathways and accountability mechanisms are needed to ensure workers can safely report hazardous conditions.
- Workplace protections must also account for individual risk factors such as acclimatization, age, underlying health conditions, and medication use.

6. Collaboration & Regional Coordination

Across panels and breakout sessions, participants emphasized that heat resilience requires sustained collaboration across sectors.

- Local governments, utilities, public health agencies, community organizations, researchers, and residents all play important roles in addressing extreme heat risks.
- Participants highlighted the importance of strengthening partnerships, aligning communication strategies, and coordinating implementation efforts across agencies.
- Extreme heat affects housing, health, infrastructure, and community networks simultaneously. Addressing these interconnected challenges requires long-term investment, shared leadership, and continued regional cooperation.

Morning Presentation and Panels

The third Southern Arizona Heat Summit opened the day with a blessing from Austin Nunez, Chairman of the San Xavier District of the Tohono O’odham Nation, and welcoming remarks from Tucson Mayor Regina Romero. Chairman Nunez grounded the gathering in place and culture, while Mayor Romero reaffirmed the City’s commitment and leadership to bold climate action and advancing the Tucson Resilient Together Climate Action and Adaptation Plan, and City of Tucson Heat Action Roadmap.

The morning session, *From Science to Action: Aligning Heat Resilience Across Arizona*, grounded participants in current climate trends and public health data before moving into panel discussions. Leaders from the National Weather Service, the Arizona Department of Health Services, the Pima County Health Department, and the City of Tucson described how forecasting, surveillance, and local implementation work together. National Weather Service Operations Officer Tom Dang explained that extremely hot days in Southern Arizona are increasing in number and intensity, heat seasons are starting earlier and lasting longer, and overnight temperatures are not cooling as much as they once did. As he noted, the way heat waves are defined today “did not exist prior to 2017 here in Tucson.” While the most severe heat days make up a portion of the season, they account for a disproportionate share of serious health impacts.

Dr. Livar emphasized that coordination across jurisdictions strengthens communication and ensures resources are directed where they are most needed. Dr. Cullen shared that although overall heat related deaths increased compared to 2024, deaths where heat was the primary cause have declined, including among unhoused individuals, which dropped from 45 in 2023 to 28 in 2025.

Kristina Swallow closed the session by emphasizing that heat resilience is embedded in the City’s year-round work, with Tucson advancing both heat mitigation and heat management through coordinated efforts such as expanding shade and trees, improving building performance, protecting workers, and strengthening community outreach through the Heat Action Roadmap.



Photo 1: Kristina Swallow discusses Tucson’s year-round approach to heat resilience

Morning Presentation and Panels

The first morning panel, Building Heat Resilience for Our Most Vulnerable Communities, connected health science, lived experience, and legal accountability. Dr. Robert Meade explained how the human body regulates temperature and how prolonged, severe heat exposure can overwhelm those systems, leading to thermal injury and serious health consequences. Raye Winch brought that science into lived reality, sharing how manufactured home residents experience extreme indoor heat due to poor insulation, aging infrastructure, and master metered utility systems that limit individual control.



Photo 2: Dr. Robert Meade presents on body temperature regulation during extreme heat. Photo Credit: Carlos Corcuera, FUSE Executive Fellow, City of Tucson.

Building on those concerns, Kirsten Engel, speaking on behalf of the Arizona Attorney General's Office, highlighted the work underway to strengthen protections for mobile home park residents. She emphasized that mobile homes are particularly vulnerable to extreme indoor heat and that enforcement of habitability standards and oversight of park practices are essential to protecting residents. Together, the panel underscored that extreme heat is not only a weather event but also a housing and accountability issue.

The second morning panel, Growing Resilience: Youth Visions for a Cooler Future, brought youth leadership to the center of the Summit. Students shared how extreme heat affects their daily lives in schools, neighborhoods, transit corridors, and outdoor spaces. They emphasized the importance of shade, clean water access, and safe gathering areas. Youth panelists proposed expanding tree canopy in low shade neighborhoods, extending recreation center hours during heat waves, strengthening heat safety training for coaches and educators, and improving communication that speaks directly to young people. Their contributions underscored that youth are not only experiencing the impacts of rising temperatures, but they are also ready to lead and help shape solutions.



Photo 3: Youth panelists discuss their experiences with extreme heat and ideas for cooler communities. Photograph credit: Ann Garn, University of Arizona Center for Rural Health.

The third panel, Outage Resilience Hub: A Practical Collaboration focused on infrastructure and grid reliability during extreme heat. Presenters described the battery storage system installed at the Donna Liggins Community Center, developed through partnership between the City of Tucson, Tucson Electric Power, and Pacific Northwest National Laboratory. The project integrates solar generation with battery storage to provide backup power during outages and support broader grid stability during peak demand. Panelists emphasized that evening demand remains high even after solar production drops, making storage a critical part of resilience planning. The hub represents a practical investment in community level protection and demonstrates how collaboration between municipalities, utilities, and researchers can translate climate planning into operational infrastructure.

The final panel, Frontline Partnerships for Heat Resilience, centered the organizations and outreach teams who work directly with residents during extreme heat events. Panelists described year-round engagement, door to door canvassing in mobile home communities, culturally responsive heat relief kits, expanded cooling center services, and coordinated outreach to unhoused individuals. The discussion emphasized that resilience depends on trust, strong partnerships, and consistent communication across agencies and community organizations.



Photo 4 (top): Panelists discuss the Outage Resilience Hub and grid reliability during extreme heat. Bottom: Panelists discuss frontline partnerships and community outreach during extreme heat. Photograph credit: Ann Garn, University of Arizona Center for Rural Health.

Across both the morning and evening sessions, one theme connected every conversation: extreme heat touches housing, health, infrastructure, youth, and community networks. Addressing it requires coordination across sectors and sustained investment in both immediate protections and long-term resilience. The Summit reflected a growing regional commitment to meeting this challenge together.



BREAKOUT SESSIONS



**Energy &
Our Grid**



**Built
Environment**



**Community &
Neighborhood
Action**



**Public
Health &
Healthcare**



**Workforce
& Heat
Protection**



**Youth Heat
Action**



Energy and Our Grid



Figure 1. Illustration of Donna Liggins Recreation Center with solar panels and a battery storage unit labeled as an Outage Resilience Hub.

The **Outage Emergency Protocols breakout session**, held under the Energy and Our Grid track, explored how the City of Tucson can operationalize the Donna Liggins Outage Resilience Hub following the installation of its Energy Battery Storage System (EBSS), developed in partnership with Tucson Electric Power (TEP) and Pacific Northwest National Laboratory (PNNL).

The goal was to move beyond infrastructure and identify clear, actionable steps related to activation authority, data needs, facility operations, equity considerations, and transportation coordination. This working session marked the first structured step toward developing a formal, site-specific emergency operations framework to ensure the hub functions effectively during extended power outages and extreme heat.



Photo 4 (Left Image): A young presenter speaks to a seated audience during a breakout session, with a projected slide visible behind him. Photo 2 (Right Image): Participants engage in a small group discussion around a table during a breakout session. Photograph Credit: Courtesy of Ann Garn, University of Arizona Center for Rural Health.

Session Overview

The session was intentionally designed as a working exercise focused on consequence management—not grid restoration. Utilities lead restoration efforts, while emergency managers and partners address the human impacts of outages.

Participants included regional emergency management officials, facility operators and maintainers, transportation representatives, utility representatives, the American Red Cross, public safety agencies, and community-based organizations.

Participants joined one of four tables, each focused on a specific operational area, and worked through a realistic outage scenario.

Table 1: Activation & Authority

Focus: When and how the resilience hub is activated, and who has decision-making authority.

Table 2: Facility Operations & Capacity

Focus: How the facility operates during an outage and how capacity is managed.

Table 3: Priority Populations & Equity

Focus: How vulnerable residents are identified, informed, and supported.

Table 4: Transportation & Coordination

Focus: How transportation needs are identified and how partners coordinate response.

Scenario

Incident: A late-afternoon monsoon storm damages Tucson Electric Power’s local energy grid, leaving three neighborhoods – including the one surrounding Donna Liggins Recreation Center – without power for approximately 72 hours during extreme summer heat. Daytime temperatures exceed 105°F, with overnight lows above 85°F.

Affected Population: The affected population includes seniors, low-income households, people with disabilities, and residents who rely on electricity-dependent medical equipment. Many do not have backup power, reliable transportation, or clear information about where to go for help.

Facility Status: Donna Liggins Recreation Center has been activated in emergency mode as an outage resilience hub. The facility is operating on battery power and has electricity, cooling, and basic building systems available throughout the outage.

Operational Context: At the time of activation, Donna Liggins remains an active recreation center with pre-scheduled youth and senior programs and only on-duty summer staffing levels available. Emergency activation allows leadership to adjust, relocate, or temporarily suspend programming if needed to protect life safety.

Planning Assumption: Participants should assume demand may exceed available space and that decisions must be made about space use, staffing priorities, hours of operation, service levels, capacity limits, and when the site is considered full.

The goal was not to reach consensus, but to clarify key decision points, data needs, and coordination gaps requiring follow-up.

Findings by Operational Area

This section summarizes key themes, decision points, and implementation gaps identified during breakout discussions across each operational focus area or table.

Table 1: Activation & Authority

At this table discussion, participants were asked to examine how and when Donna Liggins Recreation Center should be activated as an Outage Resilience Hub, who holds decision-making authority, and what elements of the activation process remain unclear or undocumented.

1. Activation Decision

Participants were first asked to identify the conditions that should trigger activation, what information is required to confirm those conditions, and which agencies provide that information.

Activation Conditions

Participants identified three primary categories of activation triggers.

First, extreme heat conditions were consistently cited as a central factor. Participants noted that activation should be tied to clearly defined temperature thresholds, including daytime highs exceeding dangerous levels and overnight lows that prevent adequate cooling. Time of day was also emphasized, particularly peak heat periods that pose heightened health risks. National Weather Service data and Red Cross heat risk classifications were identified as key inputs for determining whether temperature thresholds warrant activation.

Second, outage duration and geographic scope were identified as critical triggers. Participants indicated that multi-day outages, particularly those exceeding 48 hours, should strongly signal the need for activation. However, they also emphasized that smaller outages may warrant activation when restoration timelines are uncertain or when outages occur during extreme heat events. Tucson Electric Power (TEP) was identified as the primary source for outage scope, restoration estimates, and system status updates.

Third, participants highlighted the importance of considering the presence of vulnerable populations. Activation decisions should account for lower-income households, individuals with disabilities, residents dependent on electricity-powered medical equipment, and transitional housing populations such as those living at the Wildcat Inn. Participants stressed that even limited outages may require activation when high-risk populations are disproportionately impacted.

Information Required

Participants agreed that activation decisions must be informed by a combination of environmental, utility, and population data. This includes:

- Outage scope and restoration timelines (TEP)
- Heat alerts and forecast modeling (National Weather Service)
- Estimates of affected populations
- Facility capacity constraints

The City's Emergency Manager was identified as the role responsible for synthesizing this information and confirming whether activation thresholds are met.

2. Authority and Input

Participants were then asked to clarify who serves as the primary decision-maker, who provides input, how communication flows between agencies, and what partner resources may be needed before and after activation.

Decision-Making Structure

Participants identified City Emergency Management as the entity responsible for confirming activation. TEP provides outage intelligence and restoration projections, while the Red Cross supports mass care operations during significant or extreme heat events. Public safety partners, including Tucson Police Department (TPD), contribute situational awareness and operational support.

While participants generally agreed on the primary decision-making structure, they noted that alternate decision-makers and escalation pathways are not formally documented.

Communication and Coordination

Participants emphasized that communication must be timely and layered across multiple channels. Direct phone calls were identified as the preferred method for inter-agency coordination, with email considered too slow for emergency activation. Multi-agency coordination calls were viewed as especially important during extended outages.

For public communication, participants identified TEP notifications, MyAlerts, and National Weather Service alerts as key tools. They stressed the importance of maintaining multiple communication pathways—including phone, cell networks, radio systems, and door-to-door outreach—to ensure information reaches affected residents even if one channel fails.

Coordination with Pima County Emergency Management and Red Cross mass care teams was considered essential, particularly during multi-day events requiring expanded support. Participants also noted that customer confidentiality limitations restrict access to utility-specific data, which may hinder rapid identification of impacted households.

3. What's Unclear

In the final section, participants were asked to identify aspects of the activation and authority process that remain unclear, confusing, or undocumented. Several areas of uncertainty emerged.

Power Capacity and Technical Clarity

Participants expressed uncertainty about the seamlessness of the battery transition to island mode and the amount of power available during extended outages. Questions remain about how long the facility can operate at various load levels and what happens when demand approaches capacity limits.

Communication Protocols

Participants asked how residents are formally notified when power is lost and who communicates operational decisions within the facility. There was also uncertainty about who determines whether programming continues, is relocated, or is temporarily suspended during activation.

Documentation and Formalization

While participants demonstrated strong awareness of agency roles and communication practices, they noted that many processes are informal or person-dependent. Activation thresholds are not fully codified, escalation pathways lack written documentation, and communication flows between agencies are not standardized.

Participants also identified the need for a centralized operations guide or “playbook” that clearly outlines decision-making roles, contact lists, dispatch protocols, and activation procedures to ensure consistency across departments and districts.

Table 2: Facility Operations & Capacity

The Donna Liggins Recreation Center is an active summer facility serving approximately 250 people daily across youth, senior, and open recreation programs. During emergency activation as an Outage Resilience Hub, the center will be able to operate independently on battery power for up to 72 hours. While staffing support may increase during emergency mode, physical space and life-safety limits cap total occupancy at approximately 500 people, including staff and program participants. Demand is expected to exceed that capacity during a multi-day outage.

At this table discussion, participants were asked to examine how the facility would operate once activated, what information leadership needs during the first 24 hours, how operations must adjust as demand increases, and what services and partners are required to support vulnerable populations.

1. Defining Baseline Operations

Participants were first asked to identify what City and facility leadership must know in order to determine how the site should operate during the first 24 hours of activation. Participants identified several core categories of information required to establish baseline operations.

Extent of the Outage

Participants emphasized that understanding the scope and duration of the outage is foundational, including the number of people affected, geographic concentration, estimated restoration timelines, and expected daytime highs and nighttime lows. TEP was identified as the primary source for outage modeling and projected duration, with participants noting that restoration timelines directly influence staffing, food planning, sanitation needs, and decisions regarding overnight operations.

Operational Capacity of the Battery System

Participants stressed the importance of clearly understanding power limitations, including which systems remain operational on battery power, whether generator backup is available, how many devices can be supported without overloading capacity, what shared-use protocols should apply, and who monitors battery performance in real time. TEP was identified as responsible for monitoring capacity and providing updates, and participants emphasized the need for defined load-management protocols to prevent system strain.

Staffing and Site Coordination

Participants identified staffing structure as a critical operational factor, including designation of a center coordinator, procedures for reallocating staff as needs shift, and required roles such as custodial, maintenance, electrical, HVAC, medical, and Red Cross support. They emphasized that maintenance functions must continue during activation and that staffing plans should incorporate rest cycles and rotation.

Space, Sanitation, and Physical Constraints

Participants acknowledged that space limitations will directly shape operations, including how many people can safely and comfortably be accommodated, how staffing levels influence occupancy limits, how much space should be allocated per person, and what policies apply to pets. Restroom capacity was identified as a constraint, with discussion of supplemental infrastructure such as toilet trailers or porta-potties during peak demand.

Food, Overnight Operations, and Alternative Sites

Participants raised operational questions regarding multi-day food provision, transportation of meals to the site, whether the hub should operate 24 hours, and where residents would go if the facility closes overnight. They also discussed the availability of vouchers for alternative locations offering power and restrooms. Potential partners included the Food Bank, Red Cross, and external vendors, with particular concern for individuals unable to safely return home.

Prioritization Criteria

Participants discussed whether time limits per individual should be considered if demand surges. They emphasized the importance of establishing criteria to determine who remains when capacity is exceeded.

Participants also noted the need to coordinate alternative spaces, such as hotels, businesses, or other facilities, when individuals must be redirected.

Medical Needs and Compounding Emergencies

Participants discussed coordination with local hospitals, which operate on generators. Questions were raised about hospital intake capacity and what occurs if multiple emergencies happen simultaneously.

Pets

Participants suggested transporting pets to designated shelters to preserve space and maintain safety within the hub.

Transportation

Transportation was identified as a critical operational component. Participants emphasized the need for coordination within the first 12 hours with City departments and private partners to determine how individuals will travel to and from the hub, whether existing bus infrastructure can be leveraged, and how transportation information will be communicated to the public.

Training

Participants emphasized the need for staff training to manage intake procedures, prioritize vulnerable populations, and communicate operational changes clearly.

3. Services and Partner Roles

In the final section, participants were asked to identify essential services needed to support vulnerable populations and clarify which partners would provide them.

Electrical Access

Participants emphasized the need to clearly define electrical access within the facility based on backup power capacity, including the number and location of outlets, load limits, and usage protocols. They also discussed whether a designated area should be established for residents relying on medical devices, noting that while the hub can provide limited stabilization support, it is not a medical facility.

Sanitation and Overall Building System Management and Support

Participants emphasized the importance of restroom capacity, plumbing support, and custodial services. Supplemental restroom facilities may be required during peak demand. Additionally, building maintenance staff must remain available throughout activation to monitor system cooling, electrical loads, building fire safety systems, and take action when repair or restoration becomes necessary.

Medical Support

Participants discussed designating space for emergency medical care within the facility. While infrastructure would be limited, the hub should be capable of supporting basic stabilization and coordination with hospitals when necessary.

Coordination with Partners

Participants underscored the importance of early coordination with partners, including the Red Cross, Food Bank, medical providers, private businesses, and transportation agencies. They emphasized the need for clearly defined intake criteria, length-of-stay guidelines, and communication protocols to ensure consistent and equitable operations.

Table 3: Priority Populations & Equitable Access

At this table discussion, participants were asked to examine how responders identify priority populations during an outage, how residents learn about the resilience hub, and how individuals ultimately connect to services. The conversation focused on both immediate emergency response and the need for pre-event relationship building and communication planning.

1. How Do We Know Who Needs Help and Where They Are?

Participants identified multiple formal and informal data sources used to locate impacted residents.

Existing Data Sources

Participants identified formal data sources such as dispatch centers, TEP outage data, and emergency services to determine affected areas. TEP's voluntary medical device registry was noted as a useful tool, though it relies on residents enrolling in advance. Institutional sites, including nursing homes, apartment complexes, food banks, and daily meal programs, were also identified as locations where priority populations may already be known to service providers.

Community-based organizations, neighborhood associations, and volunteer networks such as BARN (Building a Resilient Neighborhood) were described as critical grassroots information sources.

Data Gaps and Limitations

Participants emphasized that privacy constraints, legal considerations, and community trust limit data sharing. They also noted that many individuals do not self-identify as "vulnerable," which complicates identification efforts during an emergency.

Rather than relying on broad terminology, participants suggested specifying needs or conditions, such as electricity-dependent medical equipment, mobility limitations, or age-related risks, to make it easier for individuals to recognize when assistance applies to them.

A recurring theme was that effective identification depends heavily on preparation before an emergency, including relationship-building, voluntary pre-registration systems, and coordinated neighborhood-level planning.

2. How Do People Hear About the Resilience Hub?

Participants emphasized that communication must be tailored to both general and targeted populations.

Communication Channels

Participants identified multiple communication channels, including MyAlerts and zip-code-targeted notifications, City and County emergency communications, 911 and 311 systems, TEP outage maps and website updates, physical signage, door-to-door outreach, faith-based and neighborhood networks, peer-to-peer phone trees, and radio broadcasts. They cautioned against overreliance on digital communication, noting that outages may limit internet access and that some residents lack digital connectivity.

Trusted Messengers

Participants emphasized the importance of trusted messengers, including neighbors, faith-based organizations, schools, and community leaders, in reaching residents who may not respond to official government messaging. Community and peer networks were seen as particularly important for older adults, individuals with limited mobility, and residents without reliable internet access.

Messaging Considerations

Participants noted that communication should be segmented between general audiences and targeted populations. Rather than using the term “vulnerable populations,” they recommended using specific descriptors that clarify who the resource is intended to support. Messaging may need to change depending on the group being targeted.

They also stressed the importance of aligning information with partners in advance so that communication is consistent and released simultaneously. A strong emphasis was placed on preparing and educating communities about the resilience hub before an emergency occurs.

3. How Do People Get Connected to the Hub?

Participants discussed multiple pathways through which residents move from awareness of the resilience hub to physically arriving and accessing services.

Pathways to Connection

Participants discussed multiple pathways from awareness to arrival, including self-selection, referrals from friends, family, or neighbors, outreach from healthcare networks, and referrals from community-based organizations and other partners. However, they acknowledged that many individuals do not self-identify as vulnerable, which may delay help-seeking behavior.

Role of Partners

Participants emphasized the need to coordinate with partners ahead of time so expectations are clear and referral networks are established. Medical providers, neighborhood organizations, and community groups should not be assumed to be part of the emergency network without prior agreement and communication.

Points of Friction

Participants identified several barriers that may prevent individuals from accessing services, including inconsistent information, transportation challenges, uncertainty about intake procedures, and not recognizing themselves as eligible for support. They also noted that some residents may not require shelter but may still need associated services such as medical stabilization, mental health support, or device charging. Clear communication about available services is therefore essential.

Table 4: Transportation & Coordination

At this table, participants were asked to examine how transportation needs are identified during a power outage, how transportation is coordinated when systems may be limited or offline, and where breakdowns are most likely to occur. The discussion recognized that transportation is a significant barrier to accessing resilience hubs during extreme heat, particularly for seniors, people with disabilities, medically vulnerable residents, and households without reliable vehicles.

1. Identifying Transportation Needs

Participants were asked to consider how transportation needs are identified during a power outage, particularly when residents cannot call or request assistance.

Pre-Event Identification

Participants emphasized that transportation needs should ideally be identified before an emergency occurs. They discussed conducting neighborhood surveys, maintaining voluntary registries, and coordinating with community-based organizations in advance. SunTran's paratransit program was identified as a source of pre-collected address information, and TEP's opt-in registry for electricity-dependent medical devices was noted as an important tool. However, participants acknowledged that both systems rely on voluntary enrollment and may miss individuals who do not self-report.

Real-Time Identification During an Outage

Participants identified dispatch centers, TPD and Fire Department personnel, Red Cross volunteers, and neighborhood associations as mechanisms for identifying residents in need during an outage. Door-to-door welfare checks, speaker announcements, and volunteer outreach were discussed as strategies when communication systems are limited. Participants suggested marking doors after welfare checks to prevent duplication of effort.

Mapping and Data Coordination

Participants discussed leveraging GIS tools and mapping platforms to overlay transportation networks with real-time outage information. Suggestions included placing markers on maps to indicate cooling center locations and identifying unimpacted transportation assets that can be deployed. Coordination with TEP outage maps was viewed as a way to align transportation resources with areas of greatest need.

Limits and Challenges

Participants identified communication disruptions, flooding during monsoon events, and privacy considerations as constraints. They emphasized that opt-in models are preferable to protect privacy and maintain trust. They also noted that some of the most vulnerable individuals may not report their needs, reinforcing the importance of advance relationship-building and neighborhood preparedness.

2. Coordination Under Outage Conditions

Participants were asked to describe how transportation is coordinated once a need is identified, particularly when systems may be limited or offline.

Command and Activation Structure

Participants identified the emergency command center as the initiating authority for transportation deployment. SunTran representatives noted that transportation resources would mobilize following formal City activation and direction. Coordination was described as flowing from emergency command to transportation and mobility services, including SunTran and SunVan.

SunTran was noted to maintain emergency vehicles and backup generators capable of supporting refueling and limited operations during outages. Participants referenced prior use of transportation assets for fire evacuations and as mobile cooling stations.

Available Transportation Assets

Participants identified multiple transportation resources that could be leveraged, including paratransit vehicles, city buses, school buses, and SunVan services. Buses were described as serving as temporary cooling environments during transport. Participants also discussed the possibility of formalizing partnerships with ride-share providers such as Uber or Lyft during designated extreme heat days, though funding mechanisms and deployment criteria would need clarification.

Communication Methods During Disruption

Participants emphasized that coordination must function even when digital systems are compromised. Radio communication, dispatch systems, in-person coordination, and speaker announcements were identified as alternatives. Physical signage, QR codes directing individuals to cooling center lookup tools, and broadcast news crawlers were discussed as supplemental communication methods. Participants cautioned against over-alerting residents and emphasized the importance of setting clear communication thresholds.

Physical Access and Wayfinding

Participants examined the physical connection between transit corridors and the Donna Liggins Recreation Center. While Grant Road and Stone Avenue routes can be leveraged, participants noted limited wayfinding signage and potential walkability barriers between bus stops and the facility. For some residents, even a quarter-mile walk may be prohibitive. SunVan services were identified as a potential solution to bridge this gap. Participants emphasized preparedness initiatives such as “know your neighbor” campaigns and buddy systems to support transportation coordination.

3. Coordination Gaps and Fail-Safes

Participants were asked to identify where transportation coordination or ownership is most likely to break down during a power outage.

Communication Breakdowns

Participants identified communication as the most significant vulnerability. Delays or gaps in information sharing between emergency command, transportation agencies, and community partners could prevent timely deployment of resources. They emphasized the need for clearly defined ownership and responsibility for transportation coordination during activation.

Fatigue and Resource Strain

Participants identified responder fatigue as a potential risk during prolonged heat events. Sustained coordination requires staffing plans that incorporate rotation and support.

Trust and Community Engagement

Participants acknowledged that some residents may be hesitant to use government facilities or transportation resources. They emphasized that trust must be built before emergencies through community engagement, preparedness events, and consistent outreach.

Preparedness as a Safeguard

Participants repeatedly emphasized that many coordination failures can be mitigated through advance planning. Encouraging buddy systems, maintaining updated registries, clarifying activation protocols, and pre-aligning transportation partners were identified as key safeguards against breakdowns during an outage.



Built Environment

The Built Environment breakout session explored how housing design, building materials, infrastructure, and community-based resources shape heat resilience in Southern Arizona. The session brought together architects, planners, community advocates, residents, and nonprofit partners to examine both long-term sustainability strategies and immediate cooling solutions.

Framed around housing as a frontline defense against extreme heat, the discussion emphasized that heat resilience begins at home, but is deeply influenced by policy, ownership structures, financing systems, and access to information.

The session included a presentation on sustainable building strategies, resources for vulnerable residents, and manufactured housing challenges, followed by four small-group table discussions focused on implementation and barriers.

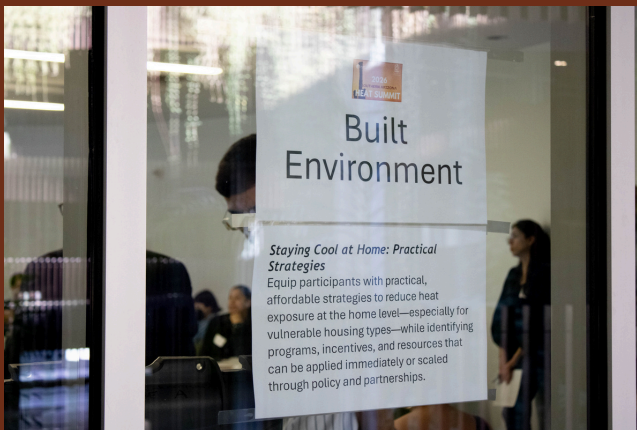


Photo 5: Participants engage in the Built Environment breakout session, discussing practical strategies to reduce indoor heat exposure and improve housing resilience at the home and community level. Photograph credit (top): Ann Garn, University of Arizona Center for Rural Health; (bottom images): Carlos Corcuera, FUSE Executive Fellow, City of Tucson.

Session Structure

Participants engaged in table-based discussions across four focus areas:

Table 1: Long-Term Sustainability in New Construction

Table 2: Resources for Vulnerable Home Inhabitants

Table 3: Mobile and Manufactured Housing Solutions

Table 4: Immediate Best Practices to Manage Heat at Home

Each table examined practical solutions, barriers to implementation, and potential impacts on residents and communities.

Key Themes Across Tables

Housing Is Infrastructure for Public Health

Participants emphasized that building design, materials, and insulation directly influence indoor heat exposure. Sustainable construction methods were discussed not only as environmental strategies, but as public health interventions that can reduce long-term heat risk.

Long-term solutions discussed included:

- Regenerative design approaches
- Alternative insulation materials (wood fiber, hemp, cork, wool, recycled textiles)
- Shade creation through landscape design
- Permaculture principles
- Updating building codes and zoning frameworks
- Integrating sustainability into Unified Development Code updates

Participants noted that building certifications exist but are not always regenerative in practice, and that codes and zoning policies can lag behind climate realities.



Photo 6: Participants discuss housing solutions and practical strategies to reduce indoor heat exposure during the Built Environment breakout session. Photograph credit: Carlos Corcuera, FUSE Executive Fellow, City of Tucson.

Barriers to Sustainable Construction

Despite enthusiasm for innovative building strategies, participants identified significant obstacles:

- Outdated building codes and zoning regulations
- Funding limitations
- Capacity constraints
- Political and community buy-in
- Fear of accountability or resistance to change
- Lack of education and awareness

Several discussions highlighted the need for bottom-up engagement, including community education, nonprofit partnerships, and school-based sustainability programs.

Resources for Vulnerable Residents

A second table focused on programs and assistance available to low-income homeowners and residents living in older housing stock.

Participants identified several existing supports, including:

- Rainwater harvesting programs
- Weatherization and insulation programs
- Utility bill assistance
- Efficiency rebate programs
- Shelter and stabilization services

However, access challenges were repeatedly raised. Many programs are restricted to homeowners, leaving renters — who often face the greatest vulnerability — without access to long-term efficiency upgrades. Income qualification thresholds and limited funding also restrict participation.

Participants emphasized the need to improve resource navigation, suggesting:

- Designated community resource hubs
- Social workers and providers trained in heat-related assistance programs
- Canvassing and word-of-mouth outreach
- Centralized information systems
- Expanded legal support for housing-related issues

Mobile and Manufactured Housing

The discussion around mobile and manufactured housing highlighted the intersection of affordability, infrastructure, and systemic regulation. Manufactured housing represents a significant portion of Tucson's affordable housing stock, yet residents often face structural and regulatory barriers to upgrades.

Key themes included:

- The concept of a “universal right to cool”
- Resident ownership models and land trusts
- Infrastructure limitations and aging utility systems
- Stigma surrounding manufactured housing
- Difficulty accessing financing for upgrades
- Jurisdictional and regulatory constraints

Participants emphasized that manufactured housing communities are not inherently unsafe or unsustainable, but that systemic barriers prevent needed improvements. There was strong interest in changing narratives from deficiency to dignity and protection.

Immediate Best Practices for Heat Management

The fourth table focused on practical strategies that residents can implement to reduce indoor heat exposure during extreme heat events.

Immediate strategies discussed included:

- Regular HVAC maintenance and air filter changes
- Closing windows and managing airflow
- Blackout curtains and awnings
- Double-paned windows
- Heat pumps
- Tool lending libraries
- Community champions or promotoras to assess housing conditions

Barriers identified included cost, landlord disinterest, absentee ownership, rising energy prices, digital access challenges, and limited awareness of available services.

- Participants emphasized the importance of:
- Legal support for renters facing neglectful property owners
- Mediators between landlords and tenants
- Clear and accessible 211 referral systems
- Education campaigns that address common misconceptions (“myth-busting”)
- Community-based outreach to reduce distrust

Findings

The Built Environment breakout session reinforced that housing is central to heat resilience. While long-term building reforms and policy updates are necessary, immediate household-level strategies and community resource navigation are equally critical.

Participants emphasized that strengthening heat resilience requires coordinated action across sectors, from building codes and zoning reform to renter protections, financing tools, and grassroots education. The session concluded with a shared recognition that sustainable, equitable housing solutions are foundational to protecting residents in an era of rising temperatures.



Community & Neighborhood Action

In this breakout session, participants explored strategies for greening and cooling Tucson, with an emphasis on community-driven action and overcoming implementation barriers. Discussion centered on practical solutions for improving urban spaces, including tree planting, green stormwater infrastructure, and neighborhood stewardship, while also addressing broader systemic challenges such as climate change, equity, and resource disparities.

Mentimeter responses revealed both optimism and realism. Participants described being inspired by “stories of success in my own community,” the visible impact of before-and-after projects, and the growing collaboration between nonprofits, residents, and government agencies. Youth involvement stood out as a powerful catalyst for change, with several responses highlighting “youth here who are so active” and excitement around recent investments, including “\$50,000 for trees!!!” At the same time, participants acknowledged barriers such as time, funding, water availability, long-term maintenance, and navigating HOA or rental restrictions. The discussion reinforced that cooling Tucson requires sustained coordination, accessible information, and equitable participation.



Photo 7: Participants engage in the Community and Neighborhood Action breakout session, discussing neighborhood-scale greening strategies and community-led cooling solutions to reduce heat exposure across Tucson. Photograph credit: Carlos Corcuera, FUSE Executive Fellow, City of Tucson.

Key Takeaways:

Collaboration and Community Engagement:

- Participants highlighted the value of collaboration between nonprofits, government, and communities in addressing heat disparities and greening Tucson.
- Poll responses emphasized that the active involvement of youth and community engagement in greening initiatives gives people hope for the future.

Youth Involvement

- The youth group's active role in tree planting and community beautification was noted as a powerful catalyst for change. This resonated strongly in both the group discussions and poll results, with participants expressing admiration for the youth's efforts.

Climate Change and Social Justice

- Climate change, along with social justice, environmental, and economic considerations, is a central theme in the conversations about Tucson's green initiatives.

Barriers to Implementation

- Despite the enthusiasm, practical challenges like funding, water availability, and labor were barriers raised in both the group discussions and poll. The concern about time and capacity to address these issues was noted in both spaces.

Hope and Inspiration:

- Poll Results: The hopefulness about Tucson's progress was evident, with poll participants feeling inspired by the stories of success, such as the \$50K for trees and the potential for local tree planting programs.
- Participants were also inspired by the before-and-after pictures of projects, further fueling optimism that small efforts can lead to significant change.

Resource Needs:

- Both groups and poll participants expressed a need for more information about tree planting programs, GSI projects, and grants, as well as techniques for invasive species management and heat-reducing materials.

Tucson as a Model for Desert Communities:

- Tucson is seen as a leading example for desert communities, demonstrating how collective efforts can create cooler, greener spaces.

Findings:

The session concluded with a shared recognition that neighborhood-scale action is foundational to Tucson's broader heat resilience strategy. Sustaining progress will require continued collaboration, accessible tools, and long-term stewardship, but participants left with a renewed sense of possibility. As reflected in the discussion, cooling Tucson is not only about infrastructure, it is about people working together to shape healthier, more livable communities.



Public Health & Healthcare

The Public Health and Healthcare breakout session focused on identifying priority health risks during extreme heat events and developing culturally relevant communication strategies to protect vulnerable populations.

Historically, public health efforts have centered on immediate response to heat-related illness and those at highest risk of heat-related death. This session marked a broader shift toward addressing illness and injury linked to heat-contributing factors and underlying vulnerabilities.



Photo 8 Left Image: A printed sign on a glass wall displays the Public Health & Healthcare breakout title and session description. Right Image: Participants engage in small-group discussions around tables during the breakout session, collaborating to identify priority heat-related health risks and develop effective communication strategies. Photograph credit: Carlos Corcuera, FUSE Executive Fellow, City of Tucson

Session Overview

Participants examined how chronic disease, medication use, substance use, housing instability, occupational exposure, aging, and social isolation intersect with extreme heat, and how communication strategies must evolve to address these realities.

Participants collaborated to:

- Discuss priority health risks during extreme heat events
- Develop clear, culturally relevant messages
- Prioritize communication approaches that maximize impact and reach
- Identify opportunities to align messaging across partner networks

Six breakout tables examined distinct intersections between heat and health risk:

Table 1:
Heat & Medication Interactions

Table 2:
Heat & Substance/Opioid Use Disorder

Table 3:
Heat & Older Adults/People on Fixed Incomes

Table 4:
Heat & Contact Burn Awareness/Prevention

Table 5:
Heat & Unhoused Populations

Table 6:
Heat & Occupational Health/Worker Safety

The goal was not to produce a single unified message, but to clarify risk factors, surface communication gaps, and identify actionable priorities for the 2026 heat season.



Figure 2: A series of five heat-safety graphics highlighting key public health messages, including staying indoors during peak heat, recognizing signs of heat-related illness, understanding medication-related heat risks, acknowledging that anyone can experience heat illness, and never leaving children or pets in parked vehicles.

Session Structure

Participants were guided by three core questions:

1. What behaviors increase risk?
2. What barriers prevent protective action?
3. What communication and messaging strategies are most effective for this group?

Each group drafted priority messages and identified top action items based on potential impact, feasibility, and reach.

Cross-Cutting Themes

1. Heat Risk Is Multi-Factorial

Across all tables, participants emphasized that heat-related illness is rarely caused by temperature exposure alone and that heat risk is cumulative rather than isolated. Vulnerability is shaped by overlapping factors, including chronic conditions, medication use, substance use, income limitations, housing quality, occupational demands, and limited access to cooling. Many individuals most affected by extreme heat do not identify themselves as vulnerable, which complicates outreach and early intervention efforts. Social isolation emerged as a major mortality driver, with participants noting that many heat-related deaths occur among individuals living alone without someone to intervene.

2. Messaging Must Evolve Beyond General Awareness

Participants noted that traditional messaging, such as “stay cool and drink water” does not fully address the realities faced by high-risk populations. Education must clearly explain the physiological risks of heat, medication interactions, and the importance of recovery behaviors to drive sustained behavior change. Effective communication must be:

- Targeted and population-specific
- Timely and tied to relevant touchpoints
- Culturally appropriate
- Reinforced across multiple trusted channels
- Designed to promote actionable behavior change

3. Trusted Messengers Are Essential

Across all groups, participants emphasized that who delivers the message is often more important than the message itself. Pharmacists, outreach workers, supervisors, peer advocates, faith leaders, community health workers, and nonprofit partners were identified as critical communication bridges. Relationship-based outreach was viewed as central to closing existing gaps.



Photo 9 (Left Image): Participants engage in small-group discussion during the Public Health & Healthcare breakout session. Right Image: Attendees collaborate at tables to prioritize heat-health messaging strategies. Photograph credit: Courtesy of Ann Garn, University of Arizona Center for Rural Health.

Findings by Topic Area

Table 1. Heat & Medication Interactions

Participants discussed widespread gaps in awareness regarding how heat affects medication safety and effectiveness. Certain medications increase sensitivity to heat, impair hydration, or intensify physiological stress during high temperatures. Prolonged exposure can also reduce medication stability if improperly stored.

Key strategies identified included:

- Integrating heat-related information into prescription pickup and refill processes
- Using simple visual cues or labeling systems for heat-sensitive medications
- Providing plain-language educational materials tailored to varying levels of health literacy
- Coordinating pharmacy messaging with public health heat alerts
- Utilizing teach-back techniques to confirm understanding

Pharmacies emerged as a key but underutilized setting for reinforcing heat-health messaging, with participants calling for standardized pictorial materials to strengthen health literacy.

Table 2. Heat & Substance / Opioid Use Disorder

Participants examined how substance use impairs thermoregulation, hydration, and perception of heat exposure. Drug and alcohol use can significantly increase vulnerability during extreme heat events.

Key risk factors identified included:

- Using substances or opioids alone
- Living alone
- Housing instability
- Dehydration and poor nutrition
- Age-related physiological vulnerability

Participants emphasized a harm-reduction approach grounded in dignity and non-stigmatizing language. Outreach workers, behavioral health providers, peer networks, shelters, and pharmacies were identified as trusted communication channels.

Clear messaging and peer support were seen as critical to reducing preventable harm, with participants calling for stronger buddy systems and clearer explanations of heat risks.

Table 3. Heat & Older Adults / People on Fixed Incomes

Participants highlighted both physiological vulnerability and financial constraints among older adults. Fixed incomes often limit air conditioning use, while mobility challenges and reluctance to seek help increase isolation.

Barriers identified included:

- Limited digital access
- Fraud vulnerability
- Misattributing heat symptoms to aging
- Reluctance to ask for assistance

Effective communication channels included:

- Community and senior centers
- Faith-based organizations
- Phone outreach
- Flyers and in-person communication
- Social media platforms commonly used by older adults

Participants highlighted the need to acknowledge cost concerns and promote protective behaviors that preserve dignity, alongside greater sharing of low-cost cooling and cost-sharing strategies.

Table 4. Heat & Contact Burn Awareness and Prevention

This group focused on injuries caused by high-temperature surfaces such as concrete and asphalt. Participants noted that contact burns can occur rapidly during extreme heat and disproportionately affect children, older adults, and unhoused individuals.

Messaging strategies emphasized:

- Clear, simple instructions
- Visual demonstrations of surface temperatures
- Transit and bus stop signage
- Partnerships with school districts and senior networks
- Multilingual, pictorial materials

Contact burn prevention was identified as an under-addressed but preventable heat injury. Participants called for clearer, practical messaging, including concrete-versus-air temperature demos, school heat-threshold guidance, time-of-day alerts, and bilingual prevention materials.

Table 5. Heat & Unhoused Populations

Participants discussed how unhoused individuals often remain outdoors due to safety concerns, limited shelter capacity, or competing survival priorities.

Barriers included:

- Limited digital connectivity
- Distrust of institutions
- Substance use cycles
- Fear of losing encampment spaces

Effective approaches emphasized:

- Direct, in-person outreach
- Peer messengers with lived experience
- Distribution of clear, printed materials
- Coordinated partnerships with faith-based and community organizations
- Consistent, repeated engagement

Autonomy, dignity, and trust were identified as foundational to effective communication. Participants also emphasized addressing feelings of hopelessness and loneliness, strengthening boots-on-the-ground outreach, and partnering with trusted faith-based and community spaces.

Table 6. Heat & Occupational Health / Worker Safety

The worker safety discussion examined how workplace expectations, productivity pressure, limited paid leave, and fear of retaliation increase heat exposure risk.

Participants emphasized the need to cultivate a “culture of care” in workplaces, including:

- Treating hydration as essential protective equipment
- Supervisory modeling of safe practices
- Required heat-safety training
- Clear break protocols
- Administrative enforcement

Protecting workers was framed not only as a safety imperative but also as a workforce sustainability strategy, with concerns raised about limited recovery time, inadequate bathroom access, PPE conflicts, and the need for right-to-water protections.

2026 Priorities Emerging from the Session

Across all topic areas, participants identified the need to:

- Standardize cross-agency heat messaging
- Strengthen coordination with trusted community messengers. Prioritize print and in-person outreach over digital-only campaigns for high-risk populations with limited technology access.
- Integrate heat education into routine service touchpoints
- Expand harm-reduction approaches
- Address structural drivers alongside awareness campaigns
- Align messaging timing with heat alerts and real-world triggers

The Public Health and Healthcare breakout session underscored that effective heat response requires moving beyond emergency messaging toward sustained, coordinated, and culturally grounded communication strategies.



Workforce & Heat Protection

The Workforce breakout session examined workplace heat exposure through both a public health and labor rights lens. Framed around the urgent reality that workers collapse every summer due to preventable heat illness, the session challenged participants to consider heat exposure not only as a climate issue, but as a power issue, shaped by policy gaps, enforcement failures, and workplace dynamics.

Participants also highlighted practical workplace strategies, including ensuring workers hydrate before and throughout the workday, implementing buddy systems to monitor workers during extreme heat, establishing worksite heat protection plans and worker safety committees, providing appropriate personal protective equipment, and expanding education for both workers and employers on recognizing and responding to heat-related illness.

The session aimed to equip participants with tools to advance workplace heat safety in Arizona, deepen understanding of how protections are structured (or absent), and identify tangible strategies for action at the employer, local, and state levels.



Photo 10: Participants engage in the Workforce and Heat Protection breakout session, discussing implementation of workplace heat standards, employer responsibilities, and strategies to safeguard outdoor and frontline workers during extreme heat events. Photograph credit (top): Carlos Corcuera, FUSE Executive Fellow, City of Tucson; (bottom images): Ann Garn, University of Arizona Center for Rural Health.

Session Overview

The breakout began with an interactive “True or False” activity that tested participants’ knowledge of current workplace heat protections in Arizona. Statements addressed hydration breaks, access to injury records, enforcement authority, protections for indoor workers, and when heat illness begins.

The activity revealed widespread confusion and significant gaps in protection:

- Arizona does not have a specific heat standard requiring water, shade, rest, or acclimatization.
- Workers do not have explicit rights to hydration breaks under state law.
- Some municipal and unionized workers have additional protections.
- Indoor workers face substantial heat risks, particularly in warehouses, kitchens, and facilities with limited ventilation.
- Heat-related illness can begin at heat index levels as low as the 80s, with cumulative exposure compounding risk.

The discussion clarified that while OSHA requires workplaces to be free from recognized hazards, enforcement mechanisms and standards remain limited and inconsistent.

Key Themes from Table Discussions

Lack of Clear, Enforceable Standards

Across tables, participants emphasized the absence of a clear statewide heat safety standard. Workers often depend on employer discretion rather than codified protections. Even when guidelines exist, enforcement is perceived as weak or unclear.

Participants raised concerns about:

- Fear of retaliation
- Lack of enforcement
- Language and immigration-related barriers
- Confusion over agency responsibility
- Skepticism about whether protections are upheld

Several groups noted that protections often depend on union membership or local ordinances, creating uneven safeguards across industries.

Indoor and Outdoor Workers Are Both at Risk

The discussion challenged the misconception that only outdoor laborers face heat danger. Participants highlighted indoor heat exposure in:

- Warehouses
- Commercial kitchens
- Manufacturing facilities
- Buildings with broken air conditioning
- Workplaces with limited control over thermostats

Workers described cumulative exposure, difficulty sleeping due to elevated nighttime temperatures, and feeling heat impacts well below 100°F.

Information Gaps and Power Imbalances

Participants repeatedly noted that workers often lack access to clear information about their rights, OSHA reporting procedures, and enforcement channels. There was uncertainty about when to contact federal OSHA versus the Arizona Division of Occupational Safety and Health (ADOSH), and skepticism about whether complaints would result in meaningful change.

Many discussions returned to the idea that personal responsibility is frequently emphasized over systemic accountability. In practice, workers are often expected to provide their own protective gear, such as hats or cooling towels, rather than employers institutionalizing protections through structured heat plans.

Action Pathways Identified

Following the discussion, participants brainstormed strategies across multiple levels: At the employer level, participants emphasized the importance of formal heat plans, scheduled breaks, water and shade access, acclimatization protocols, and worker-employer safety committees.

- At the union and worker organization level, collective power was identified as a critical mechanism for advancing enforceable protections.
- At the city and county level, participants discussed expanding local ordinances and strengthening municipal protections.
- At the state level, there was strong support for establishing a formal Arizona heat safety standard and clarifying ADOSH's authority to promulgate and enforce such protections.
- At the federal level, participants acknowledged broader OSHA standards and national momentum toward heat rulemaking.

The session concluded with a written "Commit to Action" exercise, inviting participants to identify one concrete step they would take to advance worker heat protections.

Closing Reflections

The Workforce breakout session underscored that protecting workers from extreme heat requires more than common-sense advice, it requires enforceable standards, accountability, education, and collective action. Participants expressed frustration with existing gaps but also identified clear pathways for advocacy and change.

The session closed with a shared recognition that workplace heat protection is fundamental to safeguarding health, dignity, and livelihoods in a warming climate.



Youth Heat Action

The Youth Voices breakout session focused on elevating youth perspectives on extreme heat and introducing the proposed Youth HEAT (Heat Education & Action Together) Ambassador Program.

The discussion highlighted the importance of centering young people’s lived experiences in heat planning efforts and recognizing youth as essential contributors to community resilience. By creating a dedicated space for youth dialogue, the session emphasized the value of listening to student voices, understanding how extreme heat shapes their daily environments, and strengthening pathways for youth engagement in climate and public health initiatives.

Session Overview

This session was designed as an interactive working discussion centered on lived experience, peer leadership, and youth-driven solutions.

Rather than focusing solely on awareness, participants explored how young people can serve as credible messengers, educators, and advocates within their schools and communities.

The session aimed to:

- Understand how youth experience extreme heat in school and at home
- Identify gaps in heat education and prevention
- Develop youth-centered communication strategies
- Explore how a Youth HEAT Ambassador Program can support leadership and long-term resilience

Participants included high school students, university partners, public health professionals, and community-based facilitators.

YOUTH HEAT EDUCATION & ACTION TOGETHER (HEAT) AMBASSADOR PROGRAM

What?
Training program to learn about the health impacts of extreme heat in our community and inform local, community-based solutions to build heat resilience

When?
Spring and Summer 2026

Why Join?

- Learn from climate & health experts
- Build leadership skills
- Help inform solutions
- through community-based projects

Complete **interest form** to be notified when program opens (scan below)

To learn more about this program, contact:
Harini Arumugam Gandhimathi
(hariniat@arizona.edu)

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THE UNIVERSITY OF ARIZONA
MEL & ENDI ZUCKERMAN COLLEGE OF PUBLIC HEALTH
Southwest Center on Resilience for Climate Change & Health

Figure 3: Flyer promoting the Youth HEAT Ambassador Program, including program details, contact information,

Session Structure

The session combined interactive learning activities with small-group discussions and facilitated reflection. Participants were asked to consider:

- How does extreme heat impact your daily life?
- What barriers prevent youth from protecting themselves during heat events?
- What would make heat education more engaging and relevant?
- How can youth lead and influence others?

Discussions emphasized both personal experience and structural realities.

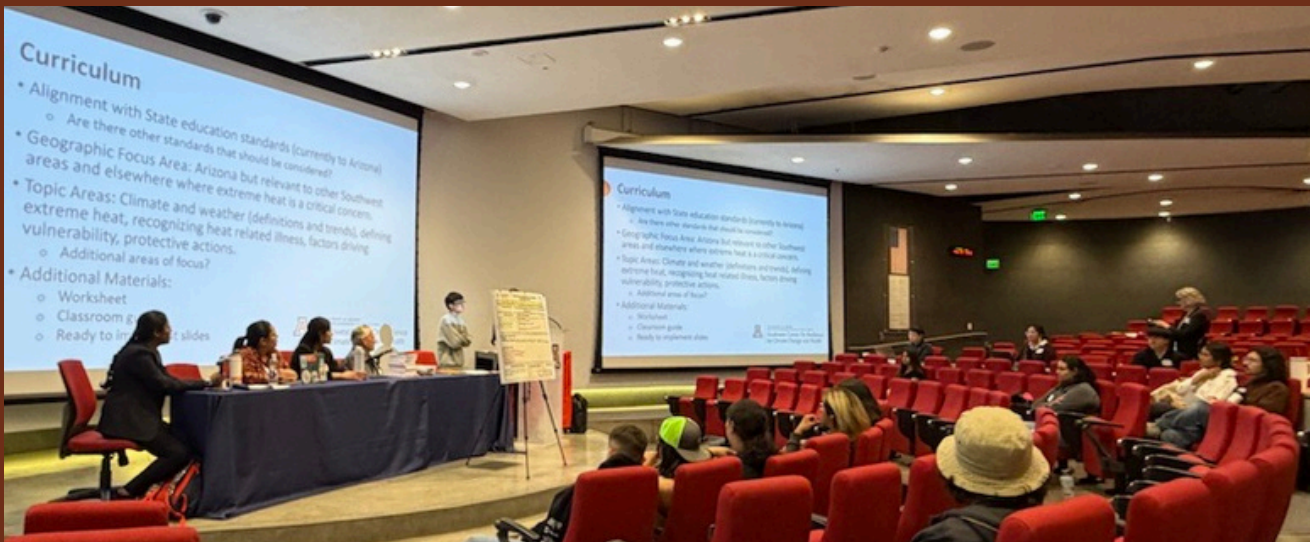


Photo 11 (Top Image): Panelists and youth participants engage in discussion during the Youth Voices breakout session in a lecture hall setting. Photograph credit: Climate Action Team, City of Tucson. Bottom Image: Youth attendees listen and take notes during the breakout discussion. Photograph credit: Climate Action Team, City of Tucson.

Experiencing Heat: “Hot or Not?”

An interactive activity invited participants to respond to common heat scenarios – from sitting in an air-conditioned library to waiting at an unshaded bus stop or working extended hours in high temperatures.

Youth responses highlighted that heat risk is highly contextual. Access to shade, cold air, and water dramatically changed how safe or unsafe a situation felt.

Participants noted that:

- Lower-income families and households with children are at higher risk.
- Cold air and shade are critical protective factors.
- Evening temperatures that remain elevated continue to pose health risks.
- Heat vulnerability is shaped by environment, occupation, and resources – not just temperature alone.

Youth Lived Experience

When asked what a “really hot day” looks like, students described wide variation in classroom conditions, with some rooms extremely hot and others cold. At home, air conditioning was often insufficient, especially in crowded households. Even when systems were running at full capacity, indoor environments could remain uncomfortable.

Students also shared that heat is often discussed casually in school settings, treated as normal weather rather than a health issue. While some schools relocate classes when buildings overheat or move sports indoors, participants expressed interest in more proactive and structured prevention strategies.

Youth suggested that schools could:

- Integrate heat education into mandatory health or P.E. curriculum
- Schedule outdoor activities earlier in the day
- Ensure teachers are trained before expecting behavior change from students
- Engage athletes and older students as leaders and influencers

Peers and coaches were identified as particularly influential during heat events.

Awareness and Youth-Led Engagement

Participants generated several ideas for raising awareness within their communities, emphasizing peer-to-peer communication and visible messaging strategies. Suggestions included:

- Student clubs dedicated to heat awareness
- Social media advocacy and interactive videos
- Brief informational slides incorporated into daily class announcements
- Sharing statistics and local data to communicate urgency
- Making heat preparedness training engaging and interactive

Students emphasized that numbers and data “tell stories” and can help people understand the seriousness of extreme heat.

Youth HEAT Ambassador Responsibilities

When discussing the Ambassador Program, participants identified meaningful responsibilities, including educating peers about heat protection strategies, recruiting others to participate, sharing information on water, shade, rest, electrolytes, and protective clothing, building skills to respond during a heat crisis, and reaching a measurable number of students through outreach.

Students expressed strong interest in gaining practical skills, particularly:

- Understanding the science of heat stroke
- Learning how to administer heat first aid
- Recognizing warning signs specific to Arizona conditions
- Understanding how heat affects chronic health conditions such as diabetes
- Exploring impacts on ecosystems, animals, and long-term climate systems

Youth emphasized the importance of focusing on present-day impacts while also understanding long-term effects. Youth emphasized the need for public speaking and advocacy training to effectively communicate extreme heat concerns to school leaders and drive meaningful change.

Structural and Resource Gaps

Participants acknowledged that education alone is insufficient without structural supports. They identified several areas where adults and institutions can strengthen protection:

- Clear heat safety policies and enforcement
- Breaks every 15 minutes during outdoor activity
- Access to indoor gym spaces
- Expanded shaded areas
- Increased access to water in the community
- Extended recreation center hours
- Cooling centers that allow pets

Notably, none of the youth participants in one discussion group had ever visited a cooling center, indicating a gap in awareness or accessibility. Parents were also identified as key stakeholders who need accessible information and training.

Implications for the Youth HEAT Ambassador Program

Feedback from the session reinforced the value of establishing a structured youth leadership pathway focused on heat resilience. Participants responded positively to a program that combines climate and health education with leadership development and community-based action, particularly hands-on learning, heat first aid training, and public speaking and advocacy skills to effectively communicate extreme heat concerns to school leaders. Youth emphasized the importance of supporting peer-led outreach and creating clear opportunities to turn knowledge into meaningful community impact. The Youth Voices breakout session concluded with a clear message: young people are not only affected by extreme heat — they are essential partners in preparing schools and communities for rising temperatures



CONCLUSION

Conclusion

The Third Southern Arizona Heat Summit brought together representatives from government agencies, public health organizations, utilities, community groups, researchers, and youth leaders to discuss the growing challenges posed by extreme heat in Southern Arizona. The broad participation highlighted the importance of collaboration and shared responsibility in preparing communities for rising temperatures.

Throughout the day, panels and breakout sessions explored how extreme heat affects housing conditions, public health, infrastructure reliability, workers, and neighborhood networks. Discussions highlighted ongoing efforts such as strengthened coordination among response partners, youth engagement in climate resilience initiatives, and continued planning for the Donna Liggins Outage Resilience Hub.

The Summit also reinforced the importance of continued outreach, preparedness education, and coordination across agencies and organizations working to reduce heat-related risks. As extreme heat events become more frequent and intense across the region, sustained collaboration and community partnerships will remain critical to strengthening preparedness.

Next Steps

Building on insights shared during the Summit, the City of Tucson will continue advancing several efforts to strengthen heat preparedness:

- **Resilience Hub Implementation:** Continue work on the Donna Liggins Outage Resilience Hub, including installation of the Energy Battery Storage System and development of emergency activation protocols.
- **Youth Engagement and Climate Action Projects:** Support selected youth-led initiatives identified during the Youth session.
- **Continued Heat Mitigation and Response Efforts:** Continue implementing actions in the Heat Action Roadmap, including heat walk outreach, heat relief kit distribution, and community education.

APPENDICES



Appendix A - Built Environment Breakout Session Detailed Responses

1. STRATEGIES FOR LONG TERM SUSTAINIBILITY IN NEW HOME CONSTRUCTION

Solutions for NEW home construction and home renovation.

Solutions Category	Quotes	Barrier Category	Quotes
Sustainable design approaches	<ul style="list-style-type: none"> • Regenerative design- how is this being incorporated now • Permaculture • Regenerative, grows • Creating shade through natural processes • Energy input to improve the surroundings • Slow movement 	Policy and regulatory barriers	<ul style="list-style-type: none"> • Building codes, but they are now national codes • Zoning • UDC written in the 90s, not updated • Change what is written
Building practices and systems	<ul style="list-style-type: none"> • Building certifications • What needs to be done to the building • Building network • LEED certification but not regenerative • David Eisenburg • Leader in codes • If they are available we can go get them • Pima County 	Knowledge and capacity barriers	<ul style="list-style-type: none"> • Lack of knowledge • Capacity is a limitation • A barrier of education: ignorance and trying to educate is the challenge • Education, know the topic, know what to do
Planning and policy strategies	<ul style="list-style-type: none"> • Zoning • Building materials • “Breaking traditional habits” • Adapting unified development code • Alternative modes of performing, safety and uniformity • Collective bargaining • How things are developed/ how things are built 	Institutional and funding barriers	<ul style="list-style-type: none"> • Funding • Monetary and community buy-in • Political buy-in

Appendix A - Built Environment Breakout Session Detailed Responses

2. RESOURCES AVAILABLE FOR VULNERABLE HOME INHABITANTS

Who are resources, who do they help, and are there constraints in using them?

Solutions Category	Quotes	Barrier Category	Quotes
Water and cooling strategies	<ul style="list-style-type: none"> • Rainwater harvesting program • Good start for a family to cool homes by providing shade by collecting rainwater instead of utility water, saves money and you can continue to grow vegetation 	Eligibility and program restrictions	<ul style="list-style-type: none"> • Families struggle with being able to participate in the Rainwater harvesting program due to income restraints. Have to qualify based on income (HUD and federal income tables) • Some people don't qualify. Low resource, vulnerable families who don't have the resources to access things like that
Energy efficiency and weatherization programs	<ul style="list-style-type: none"> • Weatherization programs to help with insulation to help keep homes cold in summer and warm in winter • Efficiency Arizona: help families make home more efficiency • Rebates for dryers, heat systems • Based on the HUD income chart. • EX. Low-income residents who participated got a new water heater, insulation in roof, HVAC cleaning, new dryer, new electric stove. After all rebates, she only had to pay \$2,000. Contractors come in to give estimates/evaluate and you pick and choose what you want to buy 	Housing tenure barriers	<ul style="list-style-type: none"> • Downside: must be a homeowner • Long-term solutions aren't always available for renters

Appendix A - Built Environment Breakout Session Detailed Responses

2. RESOURCES AVAILABLE FOR VULNERABLE HOME INHABITANTS

Who are resources, who do they help, and are there constraints in using them?

Solutions Category	Quotes	Barrier Category	Quotes
Social support and shelter resources	<ul style="list-style-type: none"> Gospel Rescue Mission (variable stay programs, long and short term and resources for stabilization) More programs like that help facilitate shelter and community assistance 	Structural access barriers	<ul style="list-style-type: none"> Strong overlap of non-home owners and those who can benefit from efficiency resources Mobile home/manufactured home families just need permission
Utility assistance programs	<ul style="list-style-type: none"> Maricopa County ex. Less on greening homes, more on utility bill assistance (ex. Wildfire (organization)) 		

Appendix A - Built Environment Breakout Session Detailed Responses

3. IDENTIFYING MANUFACTURED HOME SOLUTIONS

Who are resources, who do they help, and are there constraints in using them?

Solutions Category	Quotes	Barrier Category	Quotes
Policy and housing rights solutions	<ul style="list-style-type: none"> • Universal right to cool • Homeowner benefits and protections should apply to these tenets even if its manufacturing housing 	Institutional barriers	<ul style="list-style-type: none"> • System isn't set up to help tenants
Ownership and governance solutions	<ul style="list-style-type: none"> • Resident ownership 	Structural housing barriers	<ul style="list-style-type: none"> • Very hard to make structural changes that are needed without fixing the system
Community and social solutions	<ul style="list-style-type: none"> • Need a community of Care • Overcoming stigma (these aren't natural problems) • Shifting narrative to protecting residents 	Social barriers	<ul style="list-style-type: none"> • Change is very hard and ultimately not always accepted
Investment and improvement solutions	<ul style="list-style-type: none"> • More financial incentives for home improvement • Foundation to be created to help finance these improvements for mobile homes. • Having a better incentive to better the place around you, "creating sanctuaries. 		

Appendix A - Built Environment Breakout Session Detailed Responses

4. BEST PRACTICES/IMMEDIATE SOLUTIONS TO MANAGE HEAT AT HOME

Discuss best practices that can make an immediate impact to managing the hottest days at home.

Solutions Category	Quotes	Barrier Category	Quotes
Home cooling and efficiency actions	<ul style="list-style-type: none"> • Clean / Change Air Filter (4-5x/year) • Close windows • Heat pump • Double-paned windows • Blackout curtains • Awnings 	Cost barriers	<ul style="list-style-type: none"> • Rising energy prices • Ownership; cost • Lack of access to tools (can be expensive)
Community outreach and education	<ul style="list-style-type: none"> • Community Champions (promotora) - Survey housing conditions; working in local neighborhood • “Myth Busters” to explain heat solutions and • Educate renters and landlords on benefits • Organized list of community organizations/partners able to help 	Information and awareness barriers	<ul style="list-style-type: none"> • Lack of knowledge • Preconceived notions around certain benefits (i.e., why plant trees if they will take all my water?)
Service and assistance resources	<ul style="list-style-type: none"> • Call 211 (for personal needs or for others) • Step Up to Justice → Housing justice legal aide • Vistacore → provide services for in need 	Access and institutional barriers	<ul style="list-style-type: none"> • Digital divide; neighborhood distrust; no more neighborhood newsletter • Understaffing; access to information in a timely way • Landlord disinterested; “does not care”; corporate/absentee landlords (less personal - difficult to reach) • Funding changes
Community resource tools	<ul style="list-style-type: none"> • Tool lending libraries • Utility subsidization 	Housing condition barriers	<ul style="list-style-type: none"> • E/W homes with disproportionate sun • Volunteering

Appendix B - Community and Neighborhood Action Breakout Session Detailed Responses

1. WHAT INSPIRES YOU OR GIVES YOU HOPE ABOUT GREENING AND COOLING TUCSON EITHER BEFORE OR AFTER TODAY'S BREAKOUT SESSION?

Category	Quotes
Community engagement and collaboration	<ul style="list-style-type: none"> • Great discussion of options that are accessible to us • I'm inspired by the greening community that has grown in Tucson that includes non-profits, communities and government. I love the community engagement aspect of the programs. • Deep human connections and care for each other • Dedication by community members. • How many organizations in Tucson involved in this. It's great!
Tree planting and greening initiatives	<ul style="list-style-type: none"> • hat we have more greenery and better treatment for trees around • 50 K for trees!!! • After todays session i learned that we are planting the trees AND taking care of them. The youth group is an amazing way to get our community paid and beautify it.
Youth leadership and participation	<ul style="list-style-type: none"> • The youth panel, and how adults are able to work with then • Youth here who are so active
Visible results and inspiration	<ul style="list-style-type: none"> • I was inspired by stories of success in my own community and by examples of what could be possible • How inspiring the before and after pictures are • How inspiring the before and after photos are
Momentum and awareness	<ul style="list-style-type: none"> • That there is a focus team working on greening Tucson. • That people are aware that it needs to happen... • After today's session something that gives me, hope is that people that learn the opportunities for making Tucson, a cooler place or a way to help, fight the hear.

Appendix B - Community and Neighborhood Action Breakout Session Detailed Responses

2. WHAT HURDLES OR BARRIERS DO YOU SEE TO WORKING TO IMPLEMENT THE STRATEGIES MENTIONED TODAY IN YOUR OWN LIFE?

Category	Quotes
Time and financial constraints	<ul style="list-style-type: none"> • Time & money • Time availability • Time in my day • Time & money.
Planning and implementation challenges	<ul style="list-style-type: none"> • The careful planning of where trees should be located on my property. Also, at the neighborhood scale, care and maintenance of trees long term. • Trying to maintain what has been done
Community coordination challenges	<ul style="list-style-type: none"> • Different views about projects neighbors want...and funding. • Communication and networking with residents... the sharing of information... coordination, and support amongst residents
Housing and tenure limitations	<ul style="list-style-type: none"> • In my own life i am a renter, so i tend to stay away from the permanent options like submitting a proposal for rainwater collection on my property. • Renters may not participate fully in the programs. HOAs may not allow GSI in their streets.
Policy and institutional barriers	<ul style="list-style-type: none"> • The feds • Equity being a bad word. Silencing and censorship
Environmental or regulatory conflicts	<ul style="list-style-type: none"> • How to balance the concern for fire with the need for natural cooling from trees. Insurance companies do not like trees to be too close to houses because of the threat of fires and will deny coverage.

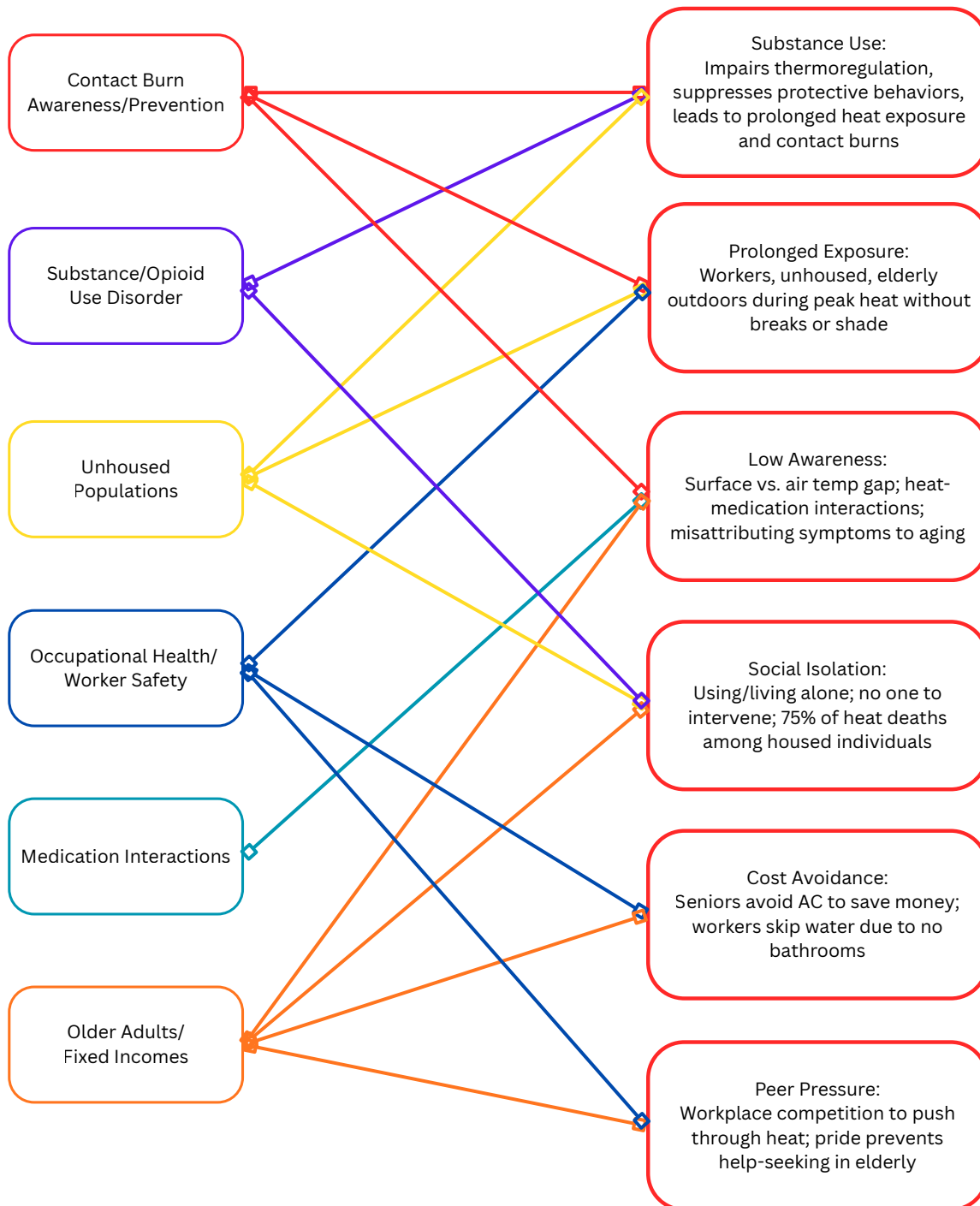
Appendix B - Community and Neighborhood Action Breakout Session Detailed Responses

3. DO YOU HAVE ANY QUESTIONS OR COMMENTS THAT WERE NOT ADDRESSED TODAY?

Category	Quotes
Tree health and planting practices	<ul style="list-style-type: none"> • What accompanying plants are best for the health of trees? Do you support soil amendments.
Accountability and urban canopy protection	<ul style="list-style-type: none"> • Addressing the commercial shopping centers being held accountable to replace parking canopy trees that are damaged or diseased. Generally, they remove the tree & never replace it.
Managing invasive species	<ul style="list-style-type: none"> • are there plants that we can plant that can help combat the invasive grasses here? almost like a passive way to treat the invasive plants
Fire risk and tree planting conflicts	<ul style="list-style-type: none"> • How to balance cooling one's house with trees coverage with the concern for fire. Insurance companies will deny you a policy.

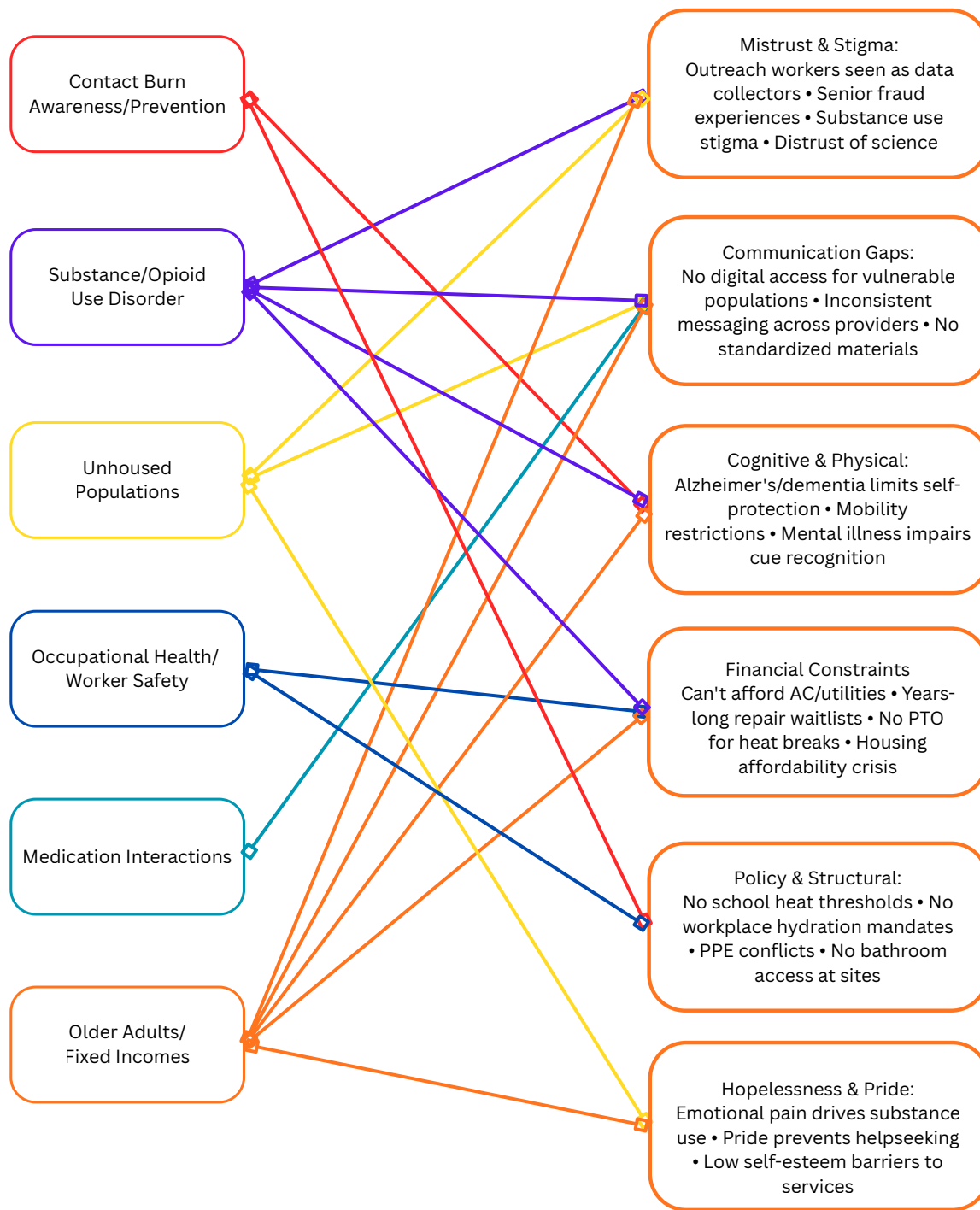
Appendix C - Public Health and Healthcare Breakout Session Prioritizing Risks and Effective Communication

Question 1: What behaviors increase risk for this population/exposure pathway?



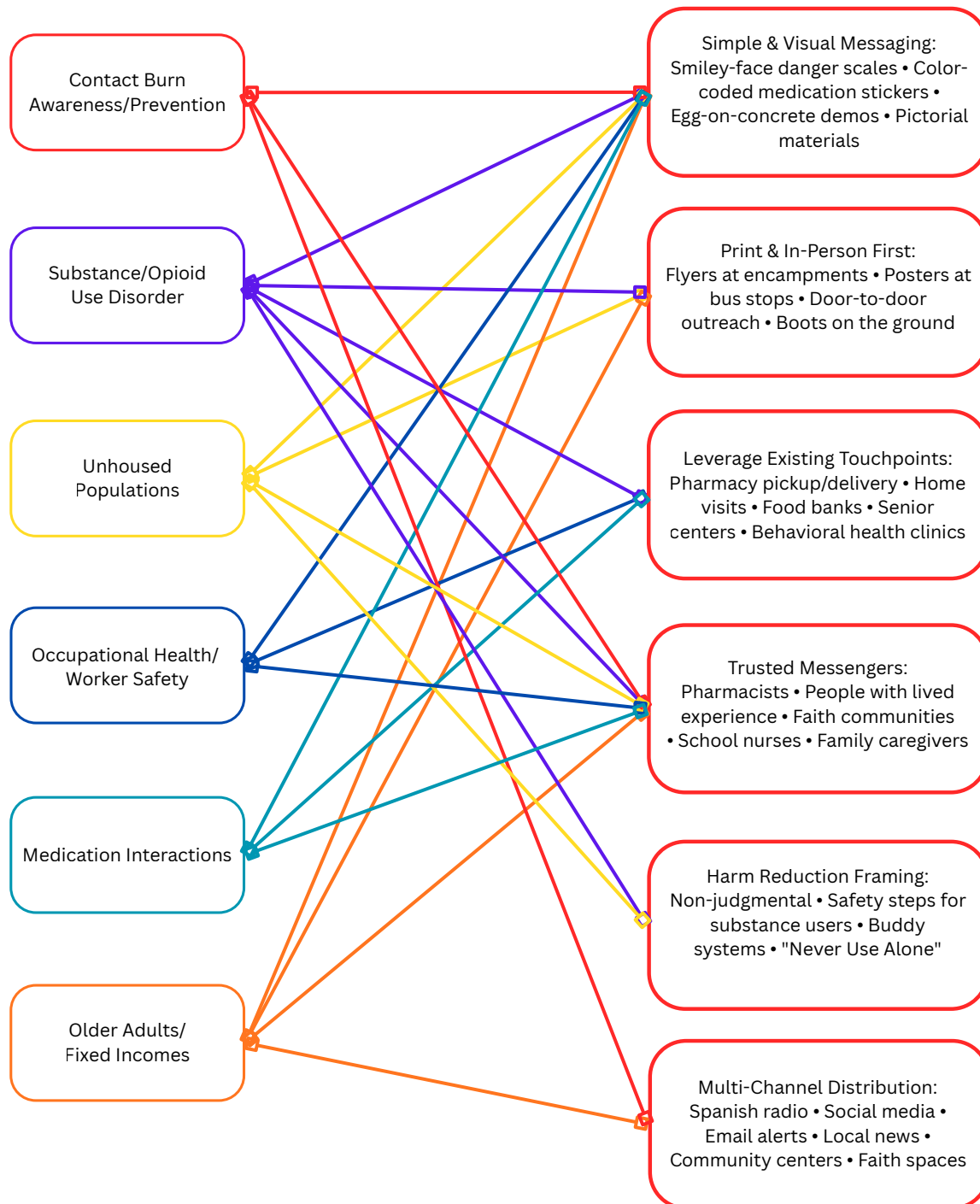
Appendix C - Public Health and Healthcare Breakout Session Prioritizing Risks and Effective Communication

Question 2: What Barriers Prevent Protective Actions?



Appendix C - Public Health and Healthcare Breakout Session Prioritizing Risks and Effective Communication

Question 3: What communication and messaging strategies are effective?





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