2023

Extreme Heat Existing Efforts Report

CITY OF SCOTTSDALE – OFFICE OF ENVIRONMENTAL INITIATIVES

JULY 14, 2023

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Prepared by the City of Scottsdale, Office of Environmental Initiatives, City of Scottsdale

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A. Introduction

The Scottsdale City Council prioritized extreme heat action planning in its 2022 Organizational Strategic Plan. Under the category, Conserve and Preserve the Environment, one of the objectives was "To lead the region in the stewardship and sustainable management of the Sonoran Desert environment, conduct public outreach, adopt a **sustainability plan**, and initiate a heat mitigation plan based on the *Cooler Scottsdale* study…"

To begin the heat mitigation planning process, the Office of Environmental Initiatives (OEI) sought to identify actions, activities, and observations of how the various departmental staff have responded to extreme heat. Through written responses and in-person interviews, staff shared information on existing programs and gaps in efforts to mitigate and respond to heat. The questions were based on modified structure from the American Planning Association (APA) PAS report 600 *Planning for Urban Heat Resilience.*[1]" Click here for a link to this document. An attached infographic is also provided at the end of the document.

Responses were compiled and summarized below and provide insights on how the city might approach developing an extreme heat mitigation plan.

The APA report has two categories for the approach to heat mitigation. The first, **Heat Mitigation**, includes physical ways to minimize heat like urban greening, urban design, controlling waste heat and consideration of land use effects. The second, **Heat Management**, includes the human behavioral management side of the equation such as public health, emergency preparedness, personal exposure, and energy usage. Please see Attachment #1. Additionally, the Ladd and Meerow report provided an infographic that is Attachment #2.

Staff also examined several other heat plan structures and has amended this two-discipline approach to use "**Heat Response**" instead of "**Heat Management**".

A new working structure for the city's **Extreme Heat Mitigation and Heat Response Plan** is proposed:

a) **Expand heat relief communication and education**
b) **Protect people from the health effects of extreme heat**
c) **Identify urban design improvements including structured shade in the built environment**
d) **Utilize nature-based solutions and balance benefits of natural shade and water usage**

[1] Ladd Keith PHD (University of Arizona) and Sara Meerow, PHD (Arizona State University)

B. Abbreviated Summary of Findings from Staff Input

1. Community Based Considerations:

Input from Staff:

- Need for better communication of location of cooling and hydration centers
- Consider a centralized source/funding for water, ice, and supplies for cooling centers
- Explore value of pop-up cooling stations
- Search for additional funding sources for air conditioning payment, repairs, or replacements for seniors or other fixed or low-income residents
- Support and expand programs like "Beat the Heat"
- Shade trees placed closer than 8' to sidewalks and multi-use paths can cause concrete heaving
- Current LED lighting appears to be able to perform well in extreme heat
- Plan for emergency actions related to heat (such as the failure of the power grid in Texas in 2021)

2. City Employees Working Outdoors:

Input from staff:

- Most workgroups do adjust schedules to deal with the summer heat except for Code Enforcement
- No standardized citywide policy of start time and shift for heat exists
- Not all heat PPE for workers is paid for through a Safety/Risk cost center, meaning not everyone has equal access to protection
- A centralized source and funding for items such as bottled water and Gatorade similar hydration items might be something to consider
- Most departments have safety meetings that include heat-related health warning issues
- Air conditioning in solid waste and other trucks and cars that serve as the main office for employees needs to always be operational

3. Current Programs Staff is Working on to Respond to and Mitigate Heat:

Input from Staff:

- Low to moderate income assistance programs through Federal CDBG and funds for weatherization of homes and repair and replacement of AC units
- Utilizing citizen assistance centers, senior centers, and libraries as cooling centers during business hours including providing cool water
- List of current cooling centers:
    - Civic Center Library – Cooling Center/Collection Site
    - Mustang Library – Cooling Center/Collection Site
    - Arabian Library – Collection Site (thinking about cooling center)
    - Appaloosa Library – Collection Site (thinking about cooling center)
    - Vista del Camino – Hydration Station/Collection Site
    - Via Linda Senior Center – Hydration Station/Collection Site

    - Granite Reef Senior Center – Hydration Station/Collection Site
    - Paiute Neighborhood Center – Hydration Station/Collection Site

- **Collection/Donation Sites**: Water bottles can be donated here for use at cooling center locations and hydration stations. Some sites also accept other donations such as clothing, hats and toiletries.
- **Cooling Centers**: Indoor, air-conditioned location that offers hydration. Example: Libraries or places of business that offer spaces to sit and distribute water.
- **Respite Centers**: Indoor, air-conditioned location that offers hydration *and* allows for uninterrupted rest, sitting, or lying down (depending on each facility) during hours of operation. Example: Places of worship or facilities with the ability to allow visitors reasonable rest options.
- **Hydration Station Sites**: Locations where individuals can go to receive bottled water and other collected donated items. These can be indoors or outdoors.

- City programs such as "Beat the Heat" providing cooling care packages to low-income senior citizens
- Intergovernmental Agreement with Maricopa County for Heat Relief and Supportive Services for 2022-2023 and 2023-2024 FY Totaling over $648,200. See full Council Report approved May, 2, 2023
- Design guidelines for Oldtown/Downtown Scottsdale strongly recommending shaded or covered walkways
- Design guidelines for commercial development setting minimum requirements for tree planting including trees for shade in parking lots
- Mandatory commercial green building codes requiring reflective or "cool roofs"
- References acknowledging Scottsdale's need to follow shared procedures found in the Countywide Emergency/Disaster Plan
- Shifting to earlier work schedules for city field workers
- Parks and Recreation Maintenance staff utilize a buddy system during the summer to spot employees suffering from heat related health problems arising during the working period

4. Next Steps for Extreme Heat Mitigation and Heat Response Plan:

- Begin development of the Shade and Tree Plan, including establishing a core staff team, writing a proposed scope of work, establishing a project schedule, and issuing a Request for Statements of Qualifications as a consultant selection process
- Expand outreach to the public for the Extreme Heat Mitigation and Heat Response Plan and the proposed Shade and Tree Plan
- Coordinate heat and shade work with other active plans such as the updated Transportation Action Plan and the Oldtown Character Area Plan
- Study the value of shade on a return-on-investment basis for structured shade and tree shade
- Study the value of shade versus the value of water for expanding the tree canopy in developed urban and suburban Scottsdale
- Seek grant funding opportunities to expand human services efforts and other similar citizen education and service programs
- Establish single source for funding, procurement, and monitored equitable distribution for heat mitigation items such as bottled water, protective clothing, and other personal protective equipment for all staff teams

- Develop a more robust and detailed plan for large scale heat disaster response through Emergency Management

C. Process of the Extreme Heat Existing Efforts Report

To begin the heat plan scan process, staff gathered and reviewed several plans for communities which experience similar heat situations as the city of Scottsdale. As a result, a new working structure for the city's **Extreme Heat Mitigation and Heat Response Plan** is proposed:

e) **Expand heat relief communication and education**
f) **Protect people from the health effects of extreme heat**
g) **Identify urban design improvements including structured shade in the built environment**
h) **Utilize nature-based solutions and balance benefits of natural shade and water usage**

Summary of the studied plans' structures are found below:

1. Common Structures from Other Plans Researched:

Most plans had a continuous decision-making, action, and analysis loop for making sure the efforts were ongoing. They generally began with work around the focus of urban heat solutions by engaging through participation, design workshops for social common concerns, and developing a plan which linked social ideas of the community, and implementation through collective actions. The process was then to continue the same loop of actions to continue to improve the outcomes and make corrective adjustments to the problems encountered in the earlier plans.

In reviewing these external plans staff also found that most if not all have these properties in common:

- Start with an overview defining climate change, note rise in extreme heat in over recent past, and establish a call to action
- Provide unique sections to organize heat mitigation goals for the community, commercial development, and municipal operations
- Quantifiable tasks are established to mitigate or manage extreme heat and extreme heat events (e.g., a percentage of overall tree canopy over a period of time)
- Provide an appendix including a glossary of terms to allow the general public to better understand the language in the plan

An ongoing search of other heat plan examples will continue during the early phase of any following action planning.

2. Brief Examination of Several Additional Plans Reviewed:

Miami-Dade County Extreme Heat Action Plan: Plan Link

This plan tends to focus on educational outreach for workers and citizens to identify methods of protection from the heat through multi-media communication. The plan also has a focus on major disaster preparedness in the case of a large-scale power outage. Water is not an issue in expanding the tree canopy in the Miami area, and there are actions that discuss grants for private and public implementation of tree planting projects.

Structure is based on three goals:

1) Inform, prepare, and protect people
2) Cool our homes and emergency facilities
3) Cool our neighborhoods

Heat Action Planning Guide for Neighborhoods of Greater Phoenix: Plan Link

This plan was developed in cooperation with the Nature Conservancy, Vitalyst and the ASU Urban Climate Research Center. Although it doesn't appear that it was formally approved by the Phoenix City Council there seemed to be a large amount of public outreach. The methodology used was adapted from Semenza et al. (2007) who addressed urban blight by increasing social capital and improving well-being through community projects. Beyond building a community Heat Action Plan and completing demonstration projects, this participatory process was designed to develop awareness, and agency and social cohesion in underrepresented communities. The heat planning process was anticipated to serve as a model for future development of urban heat solutions and to create a common vision for more thermally comfortable, and cooler future development. The City of Phoenix created and staffed an Office of Heat Response and Resilience in 2021 to implement the plan.

Strategic Themes:

1) Advocate and Educate
2) Improve Comfort/Ability to Cope
3) Improve Safety
4) Build Capacity

Additionally, there is a pyramid relationship described from the pinnacle down to the base:

1) Implementing resident visions (at the pinnacle)
2) Envisioning local appropriate strategies and plans
3) Empowering local leadership
4) Building networks and collaborations
5) Evolving under city/regional goals and policy to promote well-being (as the base)

State of California- Protecting Californians from Extreme Heat: a state action plan to build community resilience: Plan Link

This plan was adopted by the state in 2022 and is part of an update from a report established in 2013. In 2021 California included $300 million for two years to support investments that reduce urgent risks and build long-term resilience to impacts of extreme heat across California. Progress on the Extreme Heat Action Plan will be tracked through the Climate Adaptation Strategy's annual implementation reporting process.

Plan Structure:

1) **Action Tract A: Build Public Awareness and Notification**
    a. Goal 1: Build public awareness about extreme heat through targeted communications campaigns
    b. Goal 2: Support actionable climate science and research to inform risk assessments and decision-making
    c. Goal 3: Improve accuracy and accessibility of heat modeling and data to inform decision-makers
2) **Action Tract B: Strengthen Community Services and Response**
    a. Goal 1: Invest in social resilience
    b. Goal 2: Protect California's workers and economy from the impacts of extreme heat
    c. Goal 3: Support local planning and response measures to extreme heat events
3) **Action Tract C: Increase Resilience of our Built Environment**
    a. Goal 1: Protect critical infrastructure
    b. Goal 2: Support heat resilient and cooler communities through relevant regulations and codes
    c. Goal 3: Invest in cool buildings and surfaces
    d. Goal 4: Utilize science-based frameworks and tools
4) **Action Tract D: Utilize Nature-based Solutions**
    a. Goal 1: Promote nature-based solutions to reduce extreme heat risks
    b. Goal 2: Support nature's ability to withstand and adapt to increasing temperatures
    c. Goal 3: Reduce heat risk to water supply and systems

City of Tempe's Heat Resilience Planning: Page Link

The City of Tempe has a series of web pages for citizens related to heat resilience. Highlights include City of Tempe 2022 Climate Action Plan Update, City of Tempe Urban Forestry Master Plan, and other documents related to lowering Tempe's carbon footprint.

D. Expanded Summary and Additional Highlights of the Staff Responses and Interviews

1. Community Based Needs:

Staff Ideas and Suggestions:

- It was noted that for cooling centers there didn't always appear to be coordinated efforts regarding communications of when and where they are available as well as providing the needed supplies (water) in a coordinated manner across the city
- A centralized source of funding or acquisition of bottled water should be considered and sourced
- Another identified need is a single source for water that could be distributed by human services, emergency management, or other front-line groups like fire and police.
- The city should continue and strengthen programs that oversee the population of elderly and low-income people to assure their air conditioning is working and that they can afford to use their HVAC systems during the heat
- A suggestion was made to add an emergency hotline to allow the senior population to contact a staff member to get something similar to a 911 call response (without engaging the 911 network). That may also be something to consider for a separate track for the underserved and homeless population. Both will require more communication efforts
- The city does have programs to assist the low to moderate income citizens with AC repair or replacement, but often there are still other citizens that have not participated in the programs who need the help, so it is necessary to find a way to better communicate the availability of the limited resources the city does have to offer
- There continues to be a need to provide senior citizens known to human services with heat mitigation packages including gifts of water, sunscreen, and additional products to help them to survive the heat. This program, Beat the Heat, also helps to identify seniors who need assistance for AC payments or improvements
- A suggestion was made to investigate the need for pop-up cooling stations.
- There needs to be a study to determine the value of shade (structured or trees) and the return on investment for these amenities that includes all water-related needs for new and existing trees and maintenance of shade structures
- There needs to be a plan that discusses the value of shade from trees versus the cost and usage of water to show the offset benefits to the public
- Emergency Management should also be active in the coordinated efforts for the city's cooling center activities as this may well become a major priority in the event of a major power failure such as the one faced recently in Texas in 2021.

- There is a need to create a listing and a way to communicate how to find extreme heat cooling and day relief centers. Additionally, there should be some consideration of a plan to expand the locations and to make sure the staffing at these locations is prepared for extreme heat events to allow residents to come together in a place that can become a cooling center during a more major or extreme extended event. This may also include localized fire stations, libraries in addition to the service centers of Paiute and Vista Del Camino. The problem is how to find a way to make communication to reach the people who are in need
- There was a concern of placing shade trees too close to multi-use paths or sidewalks (closer than 8'). The root structure of some trees tended to heave the concrete. A related suggestion was to ensure new tree canopies do not decrease required visibility or illuminations levels after dusk. Additional research should be conducted to find trees with non-invasive root systems and proper canopies.

2. City Employees Working Outdoors:

Staff Ideas and Suggestions:

- Personal Protective Equipment (PPE) such as sunscreen, Gatorade, hats with rear draperies (or boney hats), loose fitting, air wicking long sleeved shirts and other heat resistant and passive cooling clothing should be standardized and approved by the Safety and Risk Management department to include approved sources/contracts for procurement. This review, approval, and standardization process would assure that all staff are protected at the approved level
- A standardized start time may not make sense as certain services need to be dispatched at different times, however, when possible, adjust the start times to make sure the productive hours are during the cooler mornings. (It was noted that Solid Waste and other departments cannot have all of their employees start at the same time. Doing so would create truck congestion and safety issues at the North Corp Yard)
- Parks and Recreation maintenance staff use a buddy system during the summer months. This allows them to watch their partner if they are starting to show signs of heat stress
- One suggestion was for Fleet Maintenance to prioritize the effective operation of air conditioning systems in all vehicles used in daily public work. This is especially critical for all divisions operations that require employees to perform 75% or more of their shift times in vehicles

For more detailed information regarding staff concerns please continue to read the specific sections of the staff responses and staff interviews.

E. Outreach to Staff Teams

Initially OEI staff sent out a modified plan structure (below) developed from the American Planning Association (APA) PAS report 600 *Planning for Urban Heat Resilience* with a list of six questions. This information was sent to the Scottsdale Staff Sustainability Steering Team and to department teams for response prior to individual team interviews. These questions helped to gather initial information and set a base for the follow-up interviews. Next, OEI staff conducted interviews with multiple city departments to review and discuss the initial responses as a way to solicit additional detailed information.

Original Modified Plan Structure Used for Interviews:

Heat Mitigation (the built environment):

- Greening Scottsdale's Urban and Suburban Areas
- Emphasis of Urban Design Strategies
- Emphasis of Building Design Strategies

Heat Management (the behavioral side of the equation):

- Public Health & Personal Exposure
- Emergency Preparedness
- Energy Generation and Usage

Initial Staff Questions for Response and Interview Use:

1. Which of the of the 6-elements do you believe your department teams work efforts fit within? More than one is appropriate, and please provide examples.

2. Has your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.

3. Can you describe any proactive work your teams are doing or considering to mitigate heat problems within your department teams and the citizens you serve? Please expand on your response.

4. What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts.

5. What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.

6. If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.

Staff teams interviewed prior to the writing of this document included:

- Facilities Management
- Human Services
- Transportation Planning and Engineering
- Transportation Streets Maintenance, Signals, Streetlights, and Pavement Management
- McDowell Sonoran Preserve
- Community Services Parks and Recreation (including median and ROW landscape maintenance)
- Code Enforcement
- Inspection Services
- Safety and Risk Management
- Solid Waste
- Emergency Management

Additional teams and leaders to be interviewed included the list below:

Westworld staff

- Airport staff
- Scottsdale Water
- Police & Fire

Other staff work groups to consider future interviews include:

- Fleet
- Capital Project Management
- Information Technology
- Public Transit Operations (includes a large number of contract staff)

Staff will continue to pursue interviews with these workgroups and will revise this report as new heat related information is received.

Initial city staff responses to the questions sent to the work groups throughout the city and follow up in-person interview comments (staff answers and comments are in purple):

Facilities Management:

1. **Which of the of the 6-elements do you believe your department teams work efforts fit within? More than one is appropriate, and please provide examples.**
    - Emphasis of Urban Design Strategies – Feedback provided on park areas material usage – drinking fountains, ramadas
    - Emphasis of Building Designs Strategies – Feedback provided on materials usage, Energy Efficiency, equipment specifications, solar, parking / shade structures with solar
    - Emergency Preparedness- Maintenance on systems backup, generators, emergency response, stock of materials on hand, spare parts
    - Energy Generation and Usage – Solar system maintenance and repair, Water conservation, scheduling equipment for energy savings, load shedding, replace infrastructure with energy efficient, photo eyes on path lighting dusk to dawn

2. **Has your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.**
    - Short answer yes – Scheduling work performed
    - When to perform outside roof top Preventive Maintenance
    - Portable shade structure use.
    - Drinking water, coolers, and supplements (electrolytes)
    - Uniform specifications – light materials, boney hats
    - Personal Protective Equipment
    - Frequency of breaks

3. **Can you describe any proactive work your teams are doing or considering mitigating heat problems within your department teams and the citizens you serve? Please expand on your response.**
    - Changing schedules to perform more outside work during lower temperature times of year. Work, Preventive maintenance etc.- Outside in the morning, inside in the afternoon. Collaborative team work especially on roof repairs or maintenance of HVAC units on a roof or exterior atmosphere. Park projects
    - Paint colors, paint types or coating types (reflective vs absorbent)
    - Provide recommendations on new construction shading, parking covers with solar, types of materials used, best practices for cooling in areas that aren't necessarily inside (truck bays)
    - Temperature settings or set points

4. **What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts.**
    - Excessive lengthy exposure to the elements due to location of equipment – work areas such as roofs, parks, outdoor mechanical rooms, any areas without climate control
    - Types of tasks that create more heat – Welding
    - Equipment life cycle – extreme conditions
    - Operator error – temperature thermostat mis adjustment by customer/ No instructions
    - Longevity of the hot season – seems to get longer every year

5. **What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.**
    - Outside activities -No shade from the elements
    - Cold water – Drinking fountain chillers can only cool so much
    - Water temperature Splash pad – sometimes difficult to get it cooled down pipes infrastructure not buried deep enough.
    - Ignorance of the environment
    - Expectations / entitlement

6. **If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.**
    - Multiple shifts (three)
    - Tint on service vehicle windows

Facilities Management additional notes from interview:

Attendees Jody Pierce, Robert Franklin, Lisa McNeilly, and Tim Conner

General Interview Highlights:

- Move PM schedules to avoid heat. Have Staff do paperwork in the afternoons on heat days
- A policy might be helpful based on temperature. E.G., work smarter, have a consistent broad policy that recommends that only emergency work should be done in extreme heat, standardize earlier start times for all employees exposed to heat…
- Consider providing portable showers for cooling centers (maybe exterior temporary to attempt to cool citizens and employees exposed to heat)
- Exterior drinking fountains should be shaded to allow them to function properly
- Allow Facilities to provide input at the start of a project (New Buildings, Remodels, Parks, etc.)
- Design with common sense, keep it simple, made in the USA for ease of access to repair parts
- Plan designs of buildings by lifecycles – want vs. need should be used in judgement
- Design to reduce waste
- Very few complaints regarding heat are received from citizens, 98% received from staff

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Human Services Initial Survey Reply and Interview Comments:

1. **Which of the of the 6-elements do you believe your department teams work efforts fit within? More than one is appropriate, and please provide examples.**

Rachel Smetana- Public Health and personal exposure – we are dealing with vulnerable populations including the unhoused on a daily basis.

I want Vista to move into the emergency preparedness, energy generation, and focus on the built environment through our work to make Vista a Resilience Hub.

Jennifer Murphy - The elements that our teams work efforts fit within are Public Health & Personnel Exposure and Emergency Preparedness.

Mary Witkofski - The Community Assistance Office efforts fall within emphasis of Building Design Strategies and the Public Health and Personnel Exposure.

CAO oversees and manages Community Development Block Grant Funds, HOME Investment Partnership Program funds and Housing Choice Vouchers, that also include special allocations for Emergency Housing, Veterans Housing and Foster to Youth Independence. We also have applied for Stability Vouchers through Housing and Urban Development (HUD). HCV is also referred to as Section 8 and helps keep individuals stable housed and has emergency vouchers through the coordinated entry points the homeless coordinate with in receiving services. This program helps low-moderate income based on HUD income thresholds to keep residents stably housed with only 30% cost burdened. The office employs a Landlord Liaison who coordinates with landlords and property owners in Scottsdale to participate in the HCV program through incentives available through the Housing Partnership Program, which includes up to $1,000 signing bonus, damage claims and emergency security deposit coverage for the tenants. Housing Specialists work directly with the HCV participants to make referrals for any additional services they need so this could fall under Public Health.

Funding through the Community Development Block Grant and HOME focus on building design strategies. There is an emergency repair program that is administered through our office that can replace or repair an air conditioning unit and when replaced a more energy efficient one in installed up to $10,000 per year. The Emergency Repair Program focuses on serving those that are low to moderate income, and they may apply for up to $10,000 in grant funds for these kinds of repairs on an annual basis to coincide with the City's fiscal year. We also have a Green Housing Rehabilitation Program which is a revolving loan program that remodels older homes and to make them more energy efficient up to $80,000. This is a one-time remodel program, and after three years 50% of the loan is forgiven. If they move or sell their home, then they must repay the loan (due to a lien), otherwise it just remains as open.

Community Development Staff also work with other city departments to include public works, streets, and parks and recreation to help with facility and capital improvement projects that do allow for shade structures, shaded bus stops, and landscaping to provide shade as a component to the project.

Resiliency is a top priority for HUD and heat mitigation can be considered within the projects that CAO sets aside for the City of Scottsdale.

Lastly, Community Assistance Office provides an annual competitive funding process for the CDBG funds, Scottsdale Cares, Endowment Funds and sometimes General Funds and Salt River Pima Maricopa Indian Community (SRPMIC) to agencies that provide the public health management piece such as Phoenix Rescue Mission, Day Relief Center, and other homeless services.

Michael Lopach - The City of Scottsdale's Brick by Brick program fits in with the following elements: Emphasis of Urban and Building Design Strategies, and Public Health & Personnel Exposure. Brick by Brick is a community development program that is intended to be an engine of social enterprise and engagement with the wider public on a variety of issues. One such issue is increased environmental awareness about the building materials we use and the impact they have on the environment. The program produces an earthen brick called a Compressed Earth Block or CEB. These CEB's are primarily made from local soil with a small percentage (roughly 7%) of Portland Cement. Unlike other bricks used in modern building envelopes like fired clay bricks or Concrete Masonry Units (CMU's) these blocks are not fired and are not involved in processes that produce a large carbon footprint. The bricks are produced by a manual process and achieve a high compressive strength through a curing process that also does not involve any additional energy. The product is a low-cost highly energy efficient brick that exceeds International Building Code standards for earthen materials. In addition to Urban and Building Design Strategies the Brick-by-Brick program is under Human Services which, of course, is intimately tied to Public Health.

Deanna Owens - Paiute Center's efforts would fit in the Public Health & Personnel Exposure category. The Human Services Department deals with the impact heat has on people's daily lives (health, finances) and on the City's staffing resources used to support the needs of the community.

2. **Has your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.**

Rachel Smetana- Not really enough in my short tenure commensurate to the potential impacts, but I've only been around a few months.

Jennifer Murphy - Our department has discussed the effects of the scorching summer heat on the senior clients we serve. Dehydration amongst the elderly can be deadly. Also, a malfunctioning or broken air conditioner is a serious situation for the elderly in the summer. Staff who are out on multiple home visits need to be sure to hydrate as well.

Mary Witkofski - Yes, the Community Assistance Office has had initial discussion on sustainability and climate action through an equity lens. Initial discussions have only included sharing educational articles.

Michael Lopach - Yes, every year there are people that interact with Human Services staff that struggle with heat related issues. The problem is significant enough for some, especially those experiencing homelessness, that it may even lead to death. There are also a consequential number of people throughout Scottsdale that struggle with high utility bills during the summer. Earthen bricks and the building envelopes in which they are contained offer two benefits that assist in heat mitigation. One, an earthen wall has been shown to more effectively moderate internal temperatures than standard building materials. In the summer earthen walls will cause an 'evaporative cooler' effect to occur in the interior living space that cool it. In a number of university studies earthen structures have performed far better than wood framed, fired brick, and CMU building envelopes. In some studies, internal temperatures have been 10-15 degrees cooler on average than the other building types. This is beneficial not only because of the natural lowering of temperatures in dwellings but also because there is then less of a strain on HVAC systems and the power grid that is often still reliant on coal-fired generating plants that may be causing damage to our ozone layer. Finally, these earthen bricks, in addition to all the energy efficiency and carbon footprint advantages, are not costly to produce. One of the often-discussed possible solutions to the issue of homelessness is 'Housing First'. Using a low-cost and energy efficient earthen brick to provide 'housing first' options seem like a win for heat mitigation and homelessness both.

Deanna Owens - Every year, Paiute Center and the entire Human Services Department supports the community through water distribution and senior citizen house visits.

3. **Can you describe any proactive work your teams are doing or considering to mitigate heat problems within your department teams and the citizens you serve? Please expand on your response.**

Rachel Smetana - Working with Lisa on the city's adopted heat mitigation plan and meeting with ASU next week to discuss resilience hubs. We are also a hydration station, help to pay for water and electric bills for eligible low-income citizens, and a new member of the "heat relief network." We also have a day relief center to get the unhoused out of the elements one day a week.

Jennifer Murphy - The Senior Centers have a summer outreach program targeting our most vulnerable homebound seniors. We take them out summer relief items in the middle of the summer and do an in-home assessment to be sure they have all their needs met. There have been situations when we discover a senior has no working air conditioner. We will complete an emergency repair application and have Code enforcement bring them a portable A/C unit until their unit is repaired or replaced. We also try to have water bottles for our senior patrons when the heat gets above 110 degrees. In addition to the Beat the heat program, my staff of case workers do regular home visits to check on vulnerable seniors. We provide educational information regarding heat related illnesses to staff and our senior patrons. The Granite Reef Senior Center is also an emergency heat relief center. Many years ago, a senior apartment complex lost air conditioning and the senior center served as a relief center on a Sunday until the units were repaired. We also provide emergency utility assistance through a program called HEAF to provide some financial relief especially during the summer.

Mary Witkofski - There is an outreach done by Human Services where they provide water and heat stations for the elderly. Also, we have an Emergency Repair program in our CDBG Dept. where low-income citizens can receive air conditioners and/or repair when they go out. Responding to clients' needs when it is heat related, provide water for citizens coming into our agency, modify schedules and not requiring in person appointments during the hottest part of the day. We complete inspections of unit that are going to be rent to make sure the A/C units are working.

We provide chilled bottled water to clients when requested and allow them to rest or cool down in the lobby.

Michael Lopach - Our program and department will continue to produce CEB to utilize them more both for City capital projects and for potential housing. We are planning to break ground on a project in January of 2023 that will yield two 'proof of concept' tiny homes. These tiny homes will be a template that may lead to further projects and a wider use of the brick for the public benefit.

Deanna Owens - Same as above - Every year, Paiute Center and the entire Human Services Department supports the community through water distribution and senior citizen house visits.

4. **What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts.**

Rachel Smetana - Higher utility costs increase client demand of resources. Also, if the grid goes down, we are not prepared at this time to help those most susceptible to heat related deaths.

Jennifer Murphy - The largest challenge my team faces with the extreme heat are the vulnerability of the senior population. We have a sense of urgency to address a heat related situation and we don't always have staff availability. I often collaborate with other City departments to be sure the problem is taken care of and the senior is safe. In addition, many of the seniors we serve live on a limited income from social security and keep the air conditioning temperature too high for fear they can't afford their utility bills.

Mary Witkofski - – A/C units going out, and the process it takes to get low-income citizens immediate assistance to repairs/replacements.

- The complaints from renters when there are issues with their ac units. Landlords not responding or providing alternative housing for the tenants. Providing services to customers that are homeless seeking shelter. There is no place for them to get out of the heat in Scottsdale.

- A challenge with the extreme heat is that you become thirstier more often and there is a lack of drinkable water in the offices. Another challenge is keeping the office cool when the windows are not tinted.

- Not having shaded parking or a shaded sidewalk, this would be beneficial to both staff and clients. Staff -cars are sitting in the direct sunlight all day causing heat damage; Clients- may have to be in the office over 10 minutes which give their vehicle plenty of time to reach excessive temperatures. Planting a "shade" tree or providing awning would help reduce the heat impact to vehicles.

Michael Lopach - From my perspective the biggest challenge faced by our department and program is that people experiencing homelessness struggle mightily when exposed to the summer conditions. Additionally, energy inefficient homes in our region add to higher utility bills which are more difficult for working families and seniors on limited incomes. Also, the increased use of HVAC systems during the summer months further strains our energy grid and exacerbates our reliance on energy from coal-powered generating stations.

Deanna Owens - Paiute Center social work staff assist citizens with applying for financial assistance to pay their summer utility bills. Paiute Center staff also encounter homeless individuals needing heat relief and requesting cold water.

5. **What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.**

Rachel Smetana - Unaffordable utility costs, not enough access to cooling centers, no emergency plan for long term electricity loss, and the isolation of the elderly.

Jennifer Murphy - The largest challenges that our senior clients face are they are at higher risk for heat related illnesses and death. Health factors that put older adults at greater risk are cardiovascular, lung or kidney disease. In addition, older adults can't adjust to sudden temperature changes as fast as younger people. For seniors who have any cognitive declines, they may find it hard to recognize when it is too hot or if they are dehydrated.

Mary Witkofski - Not enough Heat Stations: transportation, many people don't have their own vehicles, so they have to take public transportation, and waiting in the heat is very problematic for them.

Some of the citizens that we serve do not have cars to get necessities, such as groceries or go appointments. They are forced to walk. Low-income residents can't afford to pay A/C especially with units that let all the cold air out because the landlords do not maintain them. Doorways are not properly installed or there don't seal properly when they are closed, let the cold air escape.-Not having a reliable vehicle to get from place to place and having to sit out in the sun to catch the trolley or walk/ride a bike is definitely a challenge to some of our clients. Some clients are not able to effectively utilize public transit due to their disabilities. Also having to carry large amounts of water to stay hydrated can become burdensome to some clients and they forego their need for water causing them to suffer heat related illnesses.

Michael Lopach - As stated above in Human Services we work with many marginalized individuals and families who are already under economic strain. High energy bills add to this strain and for the most marginalized, people experiencing homelessness, there is the actual possibility of the loss of life with summer conditions on the street.

Deanna Owens - The homeless face extreme heat conditions that could result in death; the biggest challenge for them is having access to heat relief facilities and services. In addition, the high cost of summer utilities is challenging for many families in the Paiute Center area.

6. **If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.**

Rachel Smetana - Build redundant power source, plan for emergency, increase funding for emergency utility needs, weatherize older homes, have more information on where the most vulnerable people live, increase days per week we are assisting homeless, and build chilled water fountains around the park.

Jennifer Murphy - If resources were plentiful, an increase in staff especially in the summer to be able to readily act upon any heat related crisis situation immediately. In addition, having cool water available all summer to promote hydration is another important consideration.

Mary Witkofski - Provide more water and cooling stations around the city so more people have access. Provide transportation and/or taxi or uber vouchers to clients so they don't have to wait for the bus in the heat. More education about how to prepare for the extreme heat because many people are transplants from other states and may be unfamiliar about how hot it actually gets here and how dangerous it can be for them to be out in it during the day.

A Full-time relief center for citizens to be able to escape the heat of the day. In South Scottsdale accessible to citizens along the trolley route. Provide showers, laundry, cold water, hydration packs, provide basic toiletries, The homeless population is severely impacted by the excessive heat. With this location the city could tie in other resources that would be valuable to the population being served. For example, • Housing • Medical/Mental Health Services • Legal Assistance • Employment & Educational Opportunities • Income/Benefit Assistance • Clothing • Additional Wraparound Services

Provide windows to offices with tint. Collaborate with APS/SRP to perform energy efficient inspections and have incentives for landlords to upgrade units.

We could provide those "stay cool" towels to clients so they can wet them and use around their necks. We could provide single use bus passes to clients in need or $10 gas cards to those with a vehicle. I would also suggest rehydration stations (water fountains) at bus stops or every mile along the bus line and having shaded bus stops or tree lined bus lines. It would reduce the overall road temperature while providing an ecosystem for our wildlife. The trees would of course need to be drought resistant and not require a lot of water due to the current drought.

Michael Lopach - With more resources and staff capacity I believe our program would try to do more of what we already have in place. More production of energy efficient bricks. More education and outreach to the community about our program and the way in which we can be an engine of effective community development and a possible solution for both environmental and societal problems. More collaboration with internal and external stakeholders to produce energy efficient affordable housing for the public good.

Deanna Owens - To reduce the impacts of heat at Paiute Center, I would add more shade areas and water fountains. The city could also add more heat relief services for the homeless.

Transportation Planning and Engineering:

Mark Melnychenko provided the following:

- In the Transit Element of the TAP, it says "to increase shade at bus stops and modify structures to address solutions for full-day coverage." Many of the shelters are designed for overhead shade. During the peak times there is a strong need for vertical shade for passengers, to sit or stand behind a well-designed (art) screen. I provided some photos of what we did when I worked for City of Phoenix. Bus stops as opposed to the transit park-and-rides shown in the photos could be accomplished on a much smaller scale.

- In the Pedestrian Element of the TAP, it states Roadside Landscaping: Orient shade tree placement to maximize shade on the sidewalk during the summer months (west of the west side sidewalk on north/south roads, north of the north side sidewalk on east-west roads). This would maximize shade and the greatest benefit for pedestrians and even bicyclists.

- Residential tree program. Provide trees for area residents to plant and maintain on their property as opposed to the city planting in the right-of-way which is severely lacking or nonexistent in certain areas of the city.

- Greater use and promotion of parking structures in Old Town to help lessen the need for front door parking. Some of the property designated for parking could be redesigned for tree planting. In addition, micro-transit vehicles could be used to provide visitors with connections to the parking garages from area businesses in specific sections of the downtown.

Thanks for the opportunity to share thoughts on this.

Mark Melnychenko Transportation Director

Transportation Planning Interview Highlights:

Interview meeting attendees:

Mark Melnychenko, Nathan Domme, Lisa McNeilly, Tim Conner

Meeting date February 7, 2023

- Maintenance funding over time is a big issue. Who will take care of our Infrastructure to assure it is still functioning properly?
- In the past maintenance has not been properly funded for the staff responsible to continue operations especially for “extra street enhancements”.

- The removal and replacement of trees is an important emergency response that must be funded to keep our citizens moving safely.
- Consider the vertical and horizontal shade structures for pedestrian comfort. Please see the above pictures.
- Always use pilot projects to find out if things such as "cool coatings" for streets works for our community. Their thoughts were that it is too early to make a call of good or bad after the Phoenix failure noted earlier in 2022.

Transportation Streets Maintenance Interview:

OEI staff received no information from the survey request, but did receive a meeting with the Transportation and Streets Maintenances supervisors:

Interview attendees: Joseph Zappanti, Ed Padron, Hong Hou, Tim Conner (virtual)

- The group agreed that higher heat creates more frequent break down of the equipment. This attributes to higher maintenance cost and effects scheduling of construction projects. This also affects traffic inconveniences that make our public unhappy.
- All equipment owned by the city with the exception of a wheel roller and any other asphalt smoothing device are enclosed with air conditioning. If the air conditioning is not working neither, are our crews.
- Some of the solar equipment equipped with batteries (especially painted darker colors) seems to fail earlier than the projected life expectancy.
- The Transportation maintenance crews have no current set policies about (or SOPs) of operations. They do have tail gate meetings, discuss hydration, proper clothing and other needs provided by Risk Management as per OSHA.
- Generally, the crews try to run 4-10's to avoid some of the heat and start as soon as daybreak.
- Sometimes crews work overnight to miss the heat of the day if possible. This depends on the locations of the work.
- Staff has noticed the relationship over the past 5 years between citizens patience and the heat. Meaning that during the extreme heat seasons the citizens tend to be less understanding and more frustrated with city services.
- When asked about the use of cool coatings for asphalt pavement such at that used by Phoenix, the response was that with the failure that Phoenix had experienced, the use for Scottsdale seemed premature. Staff felt that more research was needed prior to investing such treatments.
- When discussing multi use paths and the use of other possible treatments such as pervious concrete, the discussion led to the problems of current concrete paths with the heaving caused by adjacent tree roots. Staff suggested that trees be planted at least 8' from the pathways. They wanted the DS &PM to reflect this restriction.
- Heat expansion of the concrete multi-use paths also was seen as a problem that needed to be addressed. The best way to make changes was not to grind surfaces, but to remove and replace areas where the heaving was a problem.

- No real discussion about the use of previable pavement took place with the exception that staff does use a PM-10 sweeper which will take care of the silting factor.
- Shade over multi-use concrete paths helps, but there needs to be an understanding of the effect of tree roots and the cause of heaving.

McDowell Sonoran Preserve Staff Interview:

Attendees: Kroy Ekblaw, Scott Hamilton, Tim Conner, and Lisa McNeilly

Interview highlights:

- Regarding shade in the parking lots of trial heads need to be reconsidered. Tree thinning needs to be practiced reducing the fire threats in the parking areas.
- Cool coatings in the parking lots have been considered, but not adopted. In the past parking fields were built with decomposed granite, but the longevity did not work.
- Solar shade structures in trail head parking lots may work well if there is the ability to connect to the power grid to reduce the power costs. Some trail heads are more remote than others.
- Trail closures are not something supported by staff or the preservation commission. The trail closure rules in Phoenix only work on two heavily used trails in Phoenix.
- The current response to heat with trails is to offer better educational signage. There are several messages that are used to get people to reconsider the usage of trails in the high heat times. "Why not consider taking a swim instead of hiking today?" Regarding animal cruelty… "Desert heat can kill you and your dog".
- Reinforcing education is the best way staff has found to limit the problems with unexperienced hikers in heat situations.
- Last year only 4 heat rescues were required in July and August of 2022, believe that is due to the messaging that can be installed at trail heads.
- Temperatures at different trail heads varies widely depending on the time of day so it would be very hard to set a temperature related shut off trail access, also there are multiple access points which would be unreasonably enforceable during any heat season or day.
- There are trail ambassadors who also communicate the dangers of heat and the need for hydration.
- Messages should be simple and regional.
- Let Phoenix messages spill over to help keep people off the trails on high temperature days, but do not try to control access.
- Volunteers can also help to project the right message of the dangers of high heat.
- Bottle fillers are available at all trail heads that have water access.

Note: there was no discussion about needing a heat rescue type of office for the population as most will end up with a trip to the hospital, but as a note from the outside, maybe we should consider cool down and temporary treatment for hikers out of their elements. (Commentary from Tim Conner).

Long Range Planning:

1. **Which of the of the 6-elements do you believe your department teams work efforts fit within? More than one is appropriate, and please provide examples.**

Long Range Planning (LRP) has work efforts that fit with all elements with exception to Emergency Preparedness and Energy Generation & Usage. Please see the responses provided on the survey form. LRP can assist in areas of GIS, data and analysis.

2. **Has your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.**

LRP has not discussed the impacts of heat on *our* operations. However, we have had community conversations about ways in which the community can mitigate and adapt to heat at a policy and regulatory level – most recently with the General Plan Citizen Review Committee.

3. **Can you describe any proactive work your teams are doing or considering mitigating heat problems within your department teams and the citizens you serve? Please expand on your response.**

LRP is currently working to develop an Old Town Tree and Plant Palette which focuses more on the right tree right place – and less from a shade/heat standpoint. It could be possible to get input from OEI to adapt measures of this effort into that work product.

4. **What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts.**

LRP generally work indoors and therefore does not have regular challenges with extreme heat. However, as public servants we are focused on all citizen and the affect extreme heat is experienced throughout Scottsdale.

5. **What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.**

- For populations that don't have vehicles, shade at pedestrian environments (sidewalks, bus-stops, etc.) as well as access to water and reasonable frequencies.
- Leveraging solar for durations of power outages.
- Drought and Water Management.

6. **If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.**

LRP is a small workgroup similar to OEI. LRP has always been at the forefront of assisting with the establishment of policies, as well as regulation, that implement the community's General Plan. To this end, LRP could be available (given we have the bandwidth with other LRP work efforts) to assist in any work effort that will help manage extreme heat.

Solid Waste Initial Response:

1. **Which of the 6-elements do you believe your department team's work efforts fit within? More than one is appropriate, and please provide examples.**

   Public Health & Personnel Exposure

   Solid Waste provides Heat Awareness, Exhaustion, and Heat Stroke training to all field staff.

2. **Have your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.**

   Staff regularly meets to discuss the effects of heat exposure and how we can reduce its effects on our employees and equipment.

3. **Can you describe any proactive work your teams are doing or considering mitigating heat problems within your department teams and the citizens you serve? Please expand on your response.**

   On an annual basis, we provide heat awareness and exposure training. Additionally, during the summer months, we provide weekly heat safety reminders to our field staff and allow them to take extra breaks when needed.

4. **What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts**.

   Dehydration and Heat Illness.

   To avoid dehydration and heat illness, we encourage our employees to drink plenty of water before and during their shifts and not skip their scheduled breaks and lunch.

5. **What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.**

   NA

6. **If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.**

   NA

Solid Waste Summary Submitted After Interview:

1. How our department directly is affected by this project.
    - Public Health and Personnel Exposure
    - Emergency Preparedness
2. The following teams are directly affected by heat:
    - Brush (Highest level of exposure due to role and responsibility)
    - Residential
    - Commercial (Including Container Repair)
    - Program Reps (field-based role)
3. Challenges seen in field work:
    - Direct work in the heat (entirety of shift) including start times and length of time exposed at hottest parts of each day.
    - Staff Safety and Education for staff on handling heat (protocol)
    - Vehicle maintenance (a/c functionality on the trucks, truck still considered "running" even if a/c doesn't work)
    - Access to resources consistently (electrolyte replacements, additional uniform standards like wide brim hats for shading or cooling materials like gators)
4. Discussions on SOPs for the department, working with Tim and his crew to identify protocol drafting for department or city-wide standards on how field employee processes should look. SW will work internally to draft a breakdown of our current heat exposure procedures to send to Tim.

Solid Waste Interview notes:

Date: February 27th, 2023 9:00 am

Attendees: Dave Bennet, Gina Azima, Waymond Allen, Louie Gutierrez, Saul Anaya, Oscar Espinoza, and Tim Conner (author of notes)

- Stand up safety meetings take place on a regular basis
- Residential and Commercial routes start all year round at the same time, but start times are staggered to not have a full fleet rushing out on San Salvador
- Brush and Bulk crews begin at 5:30 am. to 4:00 am. depending on the time of sunrise
- Generally, start times are adjusted on October 1st for winter schedules, and May 1st for summer hours
- There is no formal SOP document to make sure these instructions are clear and consistent
- Program representatives (E.G. Residential, Commercial and Brush and Bulk) are field based and work to provide crews with cold water, electrolyte popsicles and Gatorade during summer shifts
- PPE includes sun block, gator protections for necks, hats with brims, long sleeve UV resistant clothing, high visibility class 2 reflective day and night vests
- Teams follow OSHA heat stroke and heat stress guidelines to identify workers that may be having trouble
- May need to include a SOP that begins with calling 911 if signs are seen
- May need a SOP to address encounters of homeless in alleys

- Trucks sometimes will not have working or effective AC. An SOP may be needed to make sure the drivers do not continue their routes in this situation, and also set standards for Fleet testing of AC system operation to assure the AC in trucks is working properly.
- Group expressed the need for all employees exposed to the heat need to have the same access to all the PPE at the same level for standardized protection
- Standardized education regarding heat policies required through Scottsdale University may be a good method. This should also include the need for employees to begin to hydrate during the night before and what to do if an employee "goes down" (suffers from heat stroke, heat stress etc.)

Code Enforcement:

1. **Which of the of the 6-elements do you believe your department teams work efforts fit within? More than one is appropriate, and please provide examples.**

Heat Management (the behavioral side of the equation):

1. Public Health & Personnel Exposure
    a. This is always a concern for our team since the majority (60-70%) of their work is spent outdoors and in their trucks.
    b. We encourage outdoor field work in the summer months to be isolated to the morning hours and to avoid extreme heat.
2. Emergency Preparedness
3. Energy Generation and Usage
    a. Trucks a/c running more during this time, but difficult to cool the vehicle due to extreme heat.

2. **Has your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.**

Yes, this is always something we are concerned about, and we try to prioritize is heat relief and management. Try not to engage residents in the outdoors for extended period of time. Switch to electronic means when possible.

3. **Can you describe any proactive work your teams are doing or considering mitigating heat problems within your department teams and the citizens you serve? Please expand on your response.**

Adjust the amount of time spent outdoors and work in the field.

4. **What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts**.

Being in the outdoors. Weather elements of heat and monsoons.

5. **What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.**

   Unable to correct violations due to the heat. They cannot work in the heat due to the potential dangers to the person. In addition to painting is not an option during this time.

6. **If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.**

   Hydration drinks, water and ice for residents, mitigating heat clothing, vehicles that can handle long term use in the heat. Computers and equipment that can handle extreme heat.

Code Enforcement Interview:

Present Alyssa Yanez, David Pino, and Tim Conner

- Team mostly does 4-10s from 7:00 to 5:30 pm. Due to the timing it makes sense to do inspections and possibly communicate with citizens.
- The exception may be the Graffiti abatement person, but generally they work the same hours.
- To work with heat the team is encouraged to consider changing their work habits
- Trucks tend to get too hot, and the AC doesn't always keep up with overriding the heat
- Some trucks in use are older and need to be upgraded to limit the concerns they have with heat.
- Managers ask staff to go out early in hotter weather and then com in during the afternoon to do follow-up calls and other paperwork
- Today all notices are don by mail instead of by in person handwritten notices which helps to limit the heat exposure issues
- It would be beneficial that all Code Enforcement have extra window tinting to lessen the heat exposure. The vehicles are their offices.
- Code staff is provided with a small cooler, sunblock. hats, and protective clothing for the heat.
- Computers left in the trucks also become overheated. In the past they had printers in the trucks, but the printers could not take the heat.
- There is a need for a hydration/ and special clothing allowance for the employees in the field
- A consideration of future vehicles being diesel might help with the ongoing need to keep the trucks cool.
- May be a need to do more employee emergency training for heat incidents to know how to help citizens as well as our employees.
- More education about heat is always welcomed, not enough safety training is happening today
- Additional PPE such as cooling towels could be helpful

- Code enforcement actually helps residents by providing AC rentals for portable AC units for residents in transition of having cooling systems fixed. This is done in cooperation with the Human Services Department.

Parks and Recreation:

Parks and Recreation only provided an in-person interview:

Attendees: Nick Molinari, Brett Jackson, Stephanie Tippett, Lisa McNeilly, and Tim Conner

Actions taken by staff exposed to the heat:

- Start as Early as 3:00 am.
- Work in pairs to be sure the partner is OK
- Take frequent breaks and provide Gatorade
- Provide PPE such as hats, hats with neck covers, neck coolers, sunscreen etc.
- Safety meetings with Erin McKallor-Quill to stress education during summer months
- Maintenance groups do modify work schedules, but park hours remain the same (sunrise-10:30 pm.)
- No outdoor recreation classes are held during the day
- Tennis courts close during mid-day during hot days at Indian School Park and Scottsdale Ranch Tennis centers. Other open courts remain open even during high heat days
- There is a need to have some Bermuda turf to help control erosion so it should be placed in areas that people use for recreation. Trees in those areas for shade also are beneficial
- Whenever new trees are planted there needs to be an understanding of the need to have irrigation close by to extend to help the trees survive.
- In CIP projects there needs to be an understanding of the need to get water to the streetscape which is often much more expensive than just the planting of trees.
- If there is to be an urban forestry team, there needs to be a lot of coordination about the necessary maintenance of our trees.
- Currently replacement of trees due to storms does not have a funded center. Citizens expect that damaged trees will be replaced.
- Palms are not a useful tree for shade and are very expensive to maintain. We need to move away from installing them in our community landscapes.
- Astro turf is not a good replacement for real turf. We still must water it to keep it clean and to reduce the temperature of the turf.
- Worker safety:
    - Usage of all cell phones in now the common communication
    - Irrigation teams tend to work more in the summer
    - Pop-up tents for temporary shade helps
    - Regarding lifeguard staff they are trained on heat/hydration and the need for breaks, so they rotate roles frequently.

Inspection Services Interview:

Attendees: Brian Dick, Steve Gallant, and Tim Conner

Date:

- Inspectors start at 6:00 am. and work through 2:30 pm. during the summer months
- Inspectors' trucks are provided with access to ice and water (Ice Islands and Corp Yard)
- Computers and cell phones need to be cooled during the day to work properly
- All trucks are air conditioned but as they leave the trucks, they need PPE during the summer heat
- Vehicles are inspectors' offices at least in the field
- PPE can include cool towels, cool hats, city sweat wicking shirts and sunscreen
- Inspection Services teams holds monthly safety team meetings which during the summer months include information regarding how to deal with the extreme heat
- Inspection Services notes that some of the most exposed activities are asphalt contractor activities, and pipeline work

The following answers to our 6 questions were provided by Brian Dick:

- Which of the of the 6-elements do you believe your department teams work efforts fit within? More than one is appropriate, and please provide examples.
  Heat Management- Personnel exposure: (Inspection staff) work outside90% of the time
  Emergency Preparedness – Workers have cell phones, water coolers, and first aid (kits) in trucks
- Has your department teams discussed the impacts of heat on your operations and the citizens you serve? Please expand on your answer.
  (Heat is) mentioned in tam meetings during the summer months
- Can you describe any proactive work your teams are doing or considering mitigating heat problems within your department teams and the citizens you serve? Please expand on your response.
  We (supervisors) provide water coolers on trucks, hats for inspectors, drink supplements, cooling towels, and sunscreen

- What are the largest challenges your department teams face with the extreme heat we experience here in Scottsdale? Please provide details of your thoughts.
  (Inspectors) being exposed all day long – only relief is the A/C of the vehicle

- What do you believe are the largest challenges the citizens you serve face with the extreme heat here in Scottsdale? Please be specific as possible and provide multiple answers if needed.
  (Citizens) not being prepared. Not realizing how fast heat exhaustion sets in

- If you could have the resources and staff capacity, what would your workgroups do to reduce the impacts of heat on your department teams and the citizens you serve? Please provide details of your vision.
  Provide more inspectors to cover workload so they can slow down and not rush through inspections

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Safety and Risk Management:

Attendees: Kevin Cullens, Saul Anaya, and Tim Conner

- Team utilizes OSHA 22 Initiative for Heat Emphasis Program
- Provides training link to OSHA Document to employees. An attached infographic from OSHA is included at the end of this document
- Also follow and utilize several other resources:
  - Arizona ADOSH and Workers Compensation reporting to ICA
  - National Institute for Occupational Safety and Health (NIOSH)
  - NFPA (Building and Occupational Health)
  - SWANA (for Solid Waste)
  - Association of Safety Professionals (ASSP)
  - National Safety Council (NSC)
  - Arizona State University OSHA Center
- Newly reestablished City Safety Committee has not yet discussed heat. They are still going through a rebuilding process
- The team is working on how they process SRA's which could include heat related problems.
- Developing a more defined Injury review process similar to the accident/incident review board to address other issues including heat exposure
- Basic hierarchy to consider is OSHA is a regulatory standard, NFPA/ASTM/ANSI for standard setting group, and NSC, NIOSH, ASSP, and others for accepted best practices
- Developing a centralized authority that would audit heat related injuries for the past 3-years
- There is no standard process being followed or budget plan for PPE for all workgroups throughout the city. Budget amounts, the process for purchase, determination of minimum requirements etc. greatly vary across divisions and departments
- Attachment #3 provides an infographic from OSHA regarding heat

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Emergency Management:

Attendees: Troy Lutrick, Jason Johnson, and Tim Conner

Date: March 27, 2023

- Regarding the County Emergency Plan, Scottsdale only has a few pages. These pages are included in an appendix, this document was updated last year (2021-2022)
- Emergency Management have been included in Scottsdale cooling centers, but have no resources to provide
- Suggested that possibly there should be some type of an emergency contract established with a group like the Red Cross to engage them as needed to help with cooling centers and possibly provide water for the city
- The Office has noticed that EMT and Fire calls for dehydration tend to spike during the months of April and May
- Shoulder seasons including the fall are similar to the spring calls rising. Could be due to visitors or just citizens not thinking about the need to hydrate
- Cooling stations and water stations are needed at special events such as the WM Phoenix Open and other similar events
- In the past Cigna had provided some water pallets, but not sure how it was procured and if this was a onetime situation or not
- As noted above, the city might need to consider having standing contracts with a retailer or wholesaler like Costco to be able to order water at a rate that is fixed and not tied to temperature
- Storage for such a contract needs to be also considered
- Providing water seems to be at the top of Emergency Management and probably Human Services, so some type of coordination between both with a contract as mentioned above seems like a good move. Still there is the need to find a funding source
- There is a need to provide education element to the public
- There is also a need to have water bottle filling stations at all city facilities (example there is no water bottle filling station at the PD/FD HQ

Dailyn Little provides the annual updates and the 5-year major changes to the county

Attachments:

1. Urban Heat Resilience Strategies Diagram -Ladd Keith and Sara Meerow 2021 from Arizona Planning Association Planning for Urban Heat Resilience PAS 600
2. Urban Heat Resilience Infographic from Arizona Planning Association Planning for Urban Heat Resilience PAS 600
3. OSHA Heat Infographic

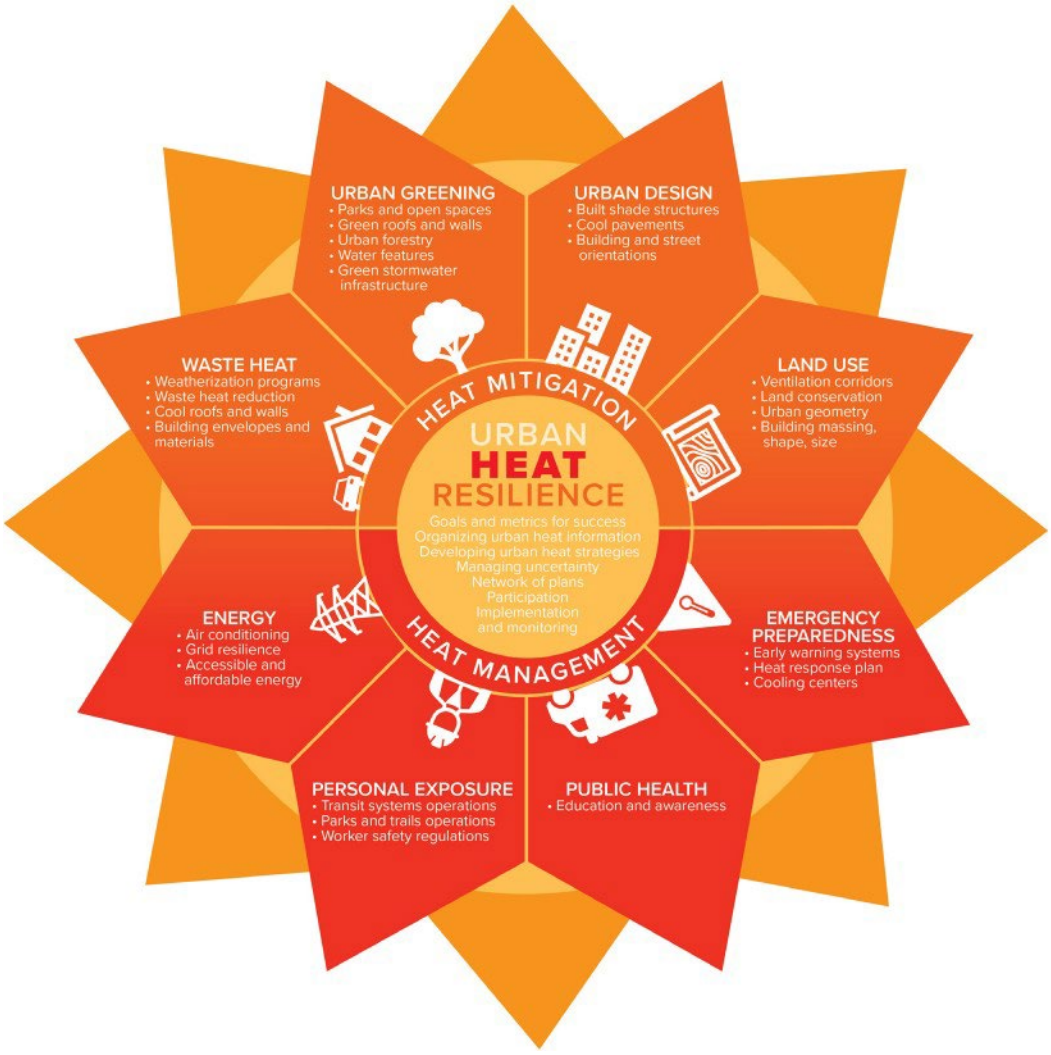
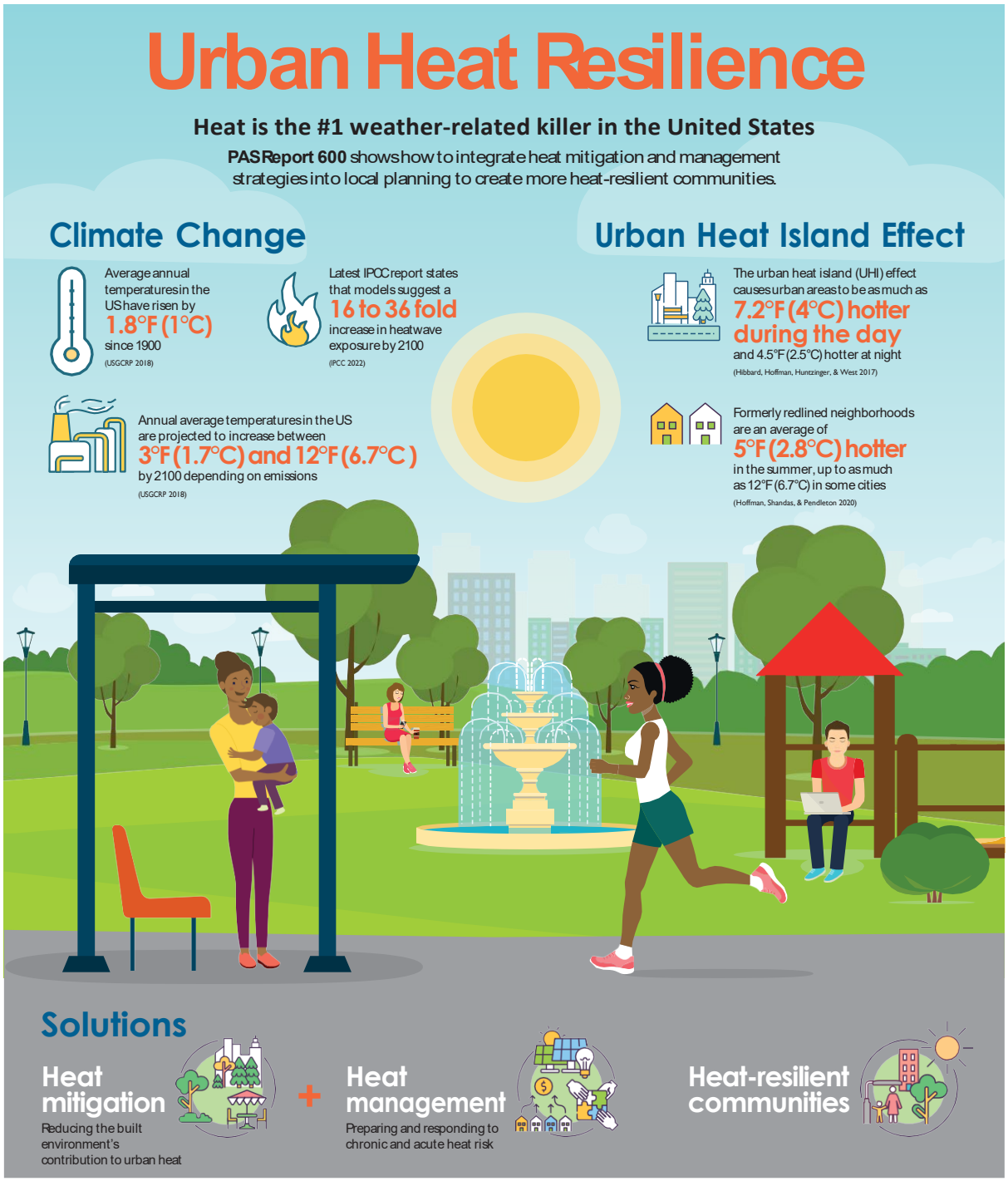
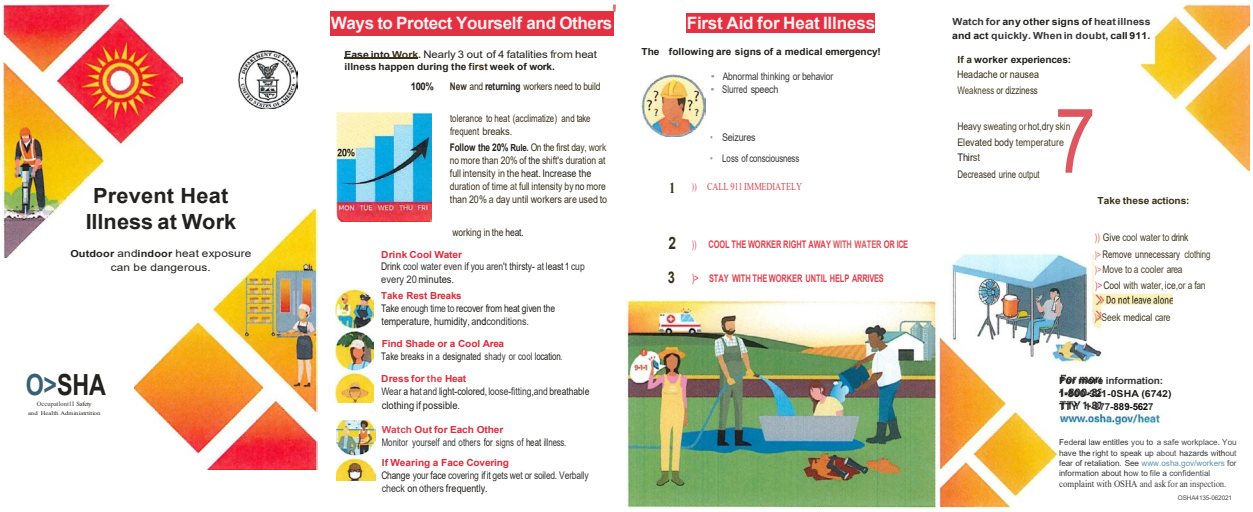


Figure 4.1. Urban heat resilience strategies (Ladd Keith and Sara Meerow; adapted from Meerow and Keith 2021)


Urban Heat Resilience
Heat is the #1 weather-related killer in the United States
PASReport 600 shows how to integrate heat mitigation and management strategies into local planning to create more heat-resilient communities.
Climate Change
Average annual temperatures in the US have risen by 1.8°F (1°C) since 1900
(USGCRP 2018)
Latest IPCC report states that models suggest a 16 to 36 fold increase in heatwave exposure by 2100
(IPCC 2022)
Annual average temperatures in the US are projected to increase between 3°F (1.7°C) and 12°F (6.7°C) by 2100 depending on emissions
(USGCRP 2018)
Urban Heat Island Effect
The urban heat island (UHI) effect causes urban areas to be as much as 7.2°F (4°C) hotter during the day and 4.5°F (2.5°C) hotter at night
(Hibbard, Hoffman, Huntzinger, & West 2017)
Formerly redlined neighborhoods are an average of 5°F (2.8°C) hotter in the summer, up to as much as 12°F (6.7°C) in some cities
(Hoffman, Shandas, & Pendleton 2020)
Solutions
Heat mitigation
Reducing the built environment's contribution to urban heat
+
Heat management
Preparing and responding to chronic and acute heat risk
Heat-resilient communities



Prevent Heat Illness at Work

Outdoor and **indoor** heat exposure can be dangerous.

OSHA
Occupational Safety and Health Administration

Ways to Protect Yourself and Others

Ease into Work. Nearly 3 out of 4 fatalities from heat illness happen during the first week of work.

100% **New** and **returning** workers need to build tolerance to heat (acclimatize) and take frequent breaks.

Follow the 20% Rule. On the first day, work no more than 20% of the shift's duration at full intensity in the heat. Increase the duration of time at full intensity by no more than 20% a day until workers are used to working in the heat.

Drink Cool Water
Drink cool water even if you aren't thirsty- at least 1 cup every 20 minutes.

Take Rest Breaks
Take enough time to recover from heat given the temperature, humidity, and conditions.

Find Shade or a Cool Area
Take breaks in a designated shady or cool location.

Dress for the Heat
Wear a hat and light-colored, loose-fitting, and breathable clothing if possible.

Watch Out for Each Other
Monitor yourself and others for signs of heat illness.

If Wearing a Face Covering
Change your face covering if it gets wet or soiled. Verbally check on others frequently.

First Aid for Heat Illness

The following are signs of a medical emergency!

- Abnormal thinking or behavior
- Slurred speech
- Seizures
- Loss of consciousness

1 CALL 911 IMMEDIATELY

2 COOL THE WORKER RIGHT AWAY WITH WATER OR ICE

3 STAY WITH THE WORKER UNTIL HELP ARRIVES

Watch for any other signs of heat illness and act quickly. When in doubt, call 911.

If a worker experiences:
Headache or nausea
Weakness or dizziness
Heavy sweating or hot, dry skin
Elevated body temperature
Thirst
Decreased urine output

7

Take these actions:

- Give cool water to drink
- Remove unnecessary clothing
- Move to a cooler area
- Cool with water, ice, or a fan
- Do not leave alone
- Seek medical care

For more information:
1-800-321-OSHA (6742)
TTY 1-877-889-5627
www.osha.gov/heat

Federal law entitles you to a safe workplace. You have the right to speak up about hazards without fear of retaliation. See www.osha.gov/workers for information about how to file a confidential complaint with OSHA and ask for an inspection.

OSHA4135-062021