



Urban Resilience to Extremes Sustainability Research Network Research Experiences for Undergraduates (REU) SUMMER 2017

Opportunity 2: Phoenix, AZ

The relationship of urban design and microclimate in influencing behavior to mitigate heat exposure on public transit stops in Phoenix Metro Area

Under the guidance of Dr. Charles Redman and PhD candidate Yuliya Dzyuban at ASU, the REU student will explore the effects of urban form on human behavior in the extreme hot and arid climate. The research will concentrate on public transit stops and access routes, since public transit usage increases exposure to weather conditions and is predominantly used by vulnerable populations. Results will provide suggestions for Valley Metro, designers, and City of Tempe officials on how to optimize the design of upcoming Tempe Streetcar transit stops while mitigating the effects of extreme heat.

The built infrastructure is a major part of urban environment which drives changes in microclimate and affects human comfort. Research will explore the effects of urban form on human behavior in the extreme hot and arid climate in Phoenix Metro Area. The research will concentrate on public transit stops and access routes, since public transit usage increases exposure to weather conditions and is predominantly used by vulnerable populations. Endorsement of public transportation means that more people will be exposed to the harsh desert climate and extreme temperatures in summer. Thus, it is vital to understand the dependencies between use of public transit, urban form and heat perception in order to enhance resiliency to extreme heat and minimize its effects on people. This research aims to examine the relationships between public transit use, urban form, and sensory experiences that can impact rider's behavior and perception of extreme heat.

REU Activities:

- Observations on public transit stops and surveys of public transit riders to determine behavioral changes in relation to urban form qualities. Analysis and mapping of the results.
- Surveys of public transit riders on how heat affects their decisions on daily commute and behavioral strategies to mitigate exposure. Survey analysis.
- Determine how sensory experience and art influences perception of heat

Desired Qualifications, Interests and Skills:

- Enthusiastic and well organized
- Sustainability
- Climate change
- Careful record keeper
- Knowledge of Spanish is an advantage