

Supporting Community-Based Informal Cooling Centers in Charlotte, North Carolina: Opportunities and Barriers

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Applications

- 1) Place-based community organizations in Charlotte face multiple barriers regarding informal cooling center provision and would need significant support from government, private businesses, or other entities to take on that role.
- 2) Organizations can play an important role in supporting heat health education and providing cooling resources within their current operations and capacities.

Background + motivation

- Extreme heat is the #1 weather-related killer (NOAA 2025), and the greatest heat health burden falls on already-vulnerable communities, particularly those that have experienced systematic disinvestment due to racially and socially unjust policies (Hoffman et al. 2020, Wilson 2020)
- Heat action planning comprises resilience, emergency management, and public health strategies such as cooling centers (Keith & Meerow 2023)
- Official cooling centers are not accessible to everyone, especially disadvantaged groups (Adams et al. 2023, Allen et al. 2023, Fraser et al. 2016)

Research questions

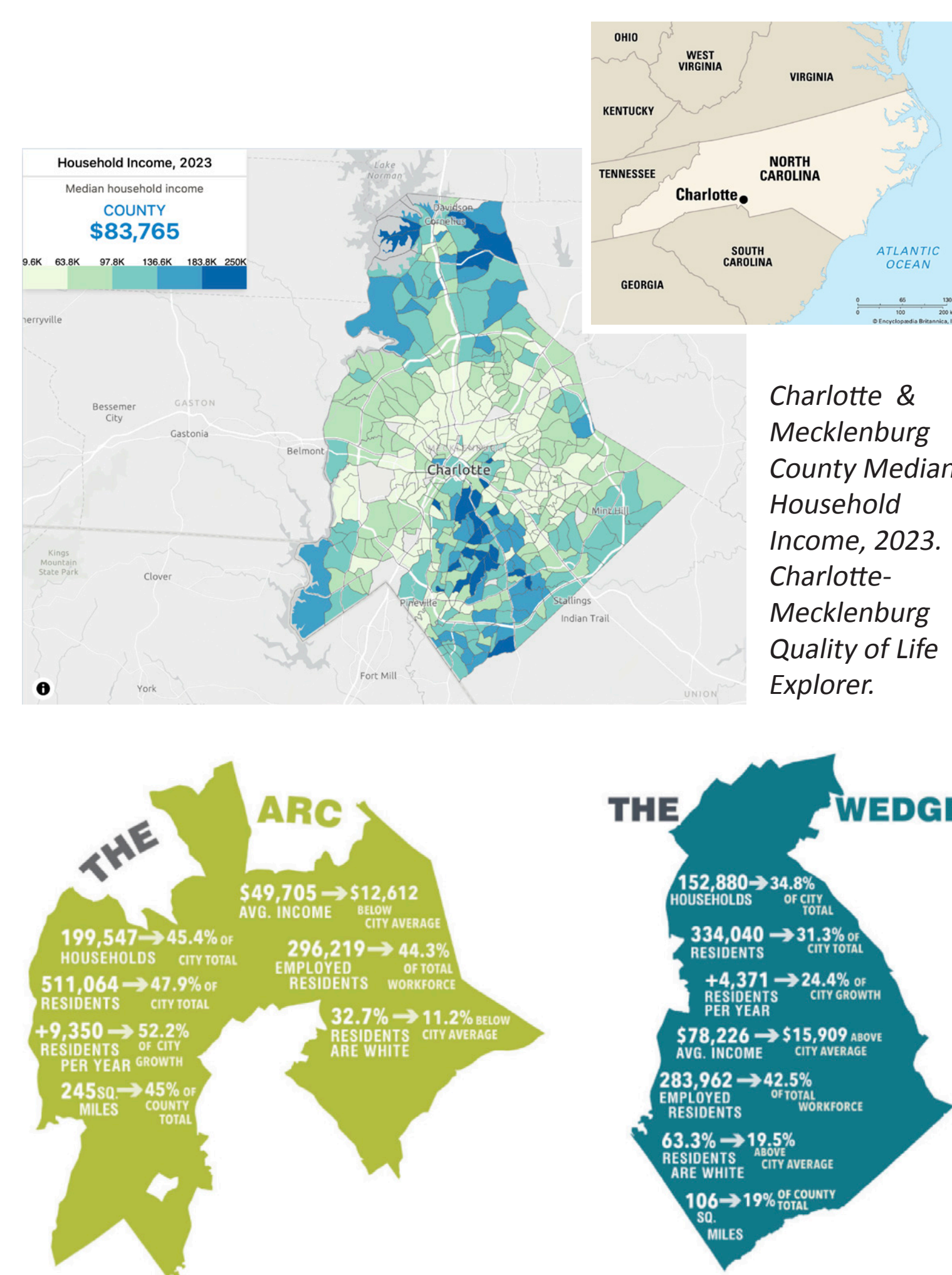
What is the capacity of place-based community organizations to serve as informal cooling centers in Charlotte, North Carolina?

- What resources would organizations need to serve as informal cooling centers?
- What barriers might organizations face to becoming informal cooling centers?

Charlotte, NC context

Charlotte, NC is one of the fastest-growing cities in the U.S. and is rapidly losing tree canopy to new development. Charlotte's "Arc and Wedge" divide points to areas that are likely to be more vulnerable to extreme heat due to historic disinvestment. The North Carolina Department of Environmental Quality projects that by 2036-2065, Mecklenburg County will be experiencing 24-25 more extreme heat days – 95 degrees Fahrenheit or hotter – than during the 1976-2005 baseline period.

Arc and Wedge phenomenon. Charlotte Future 2040 Comprehensive Plan: Built City Equity Analysis (2019).



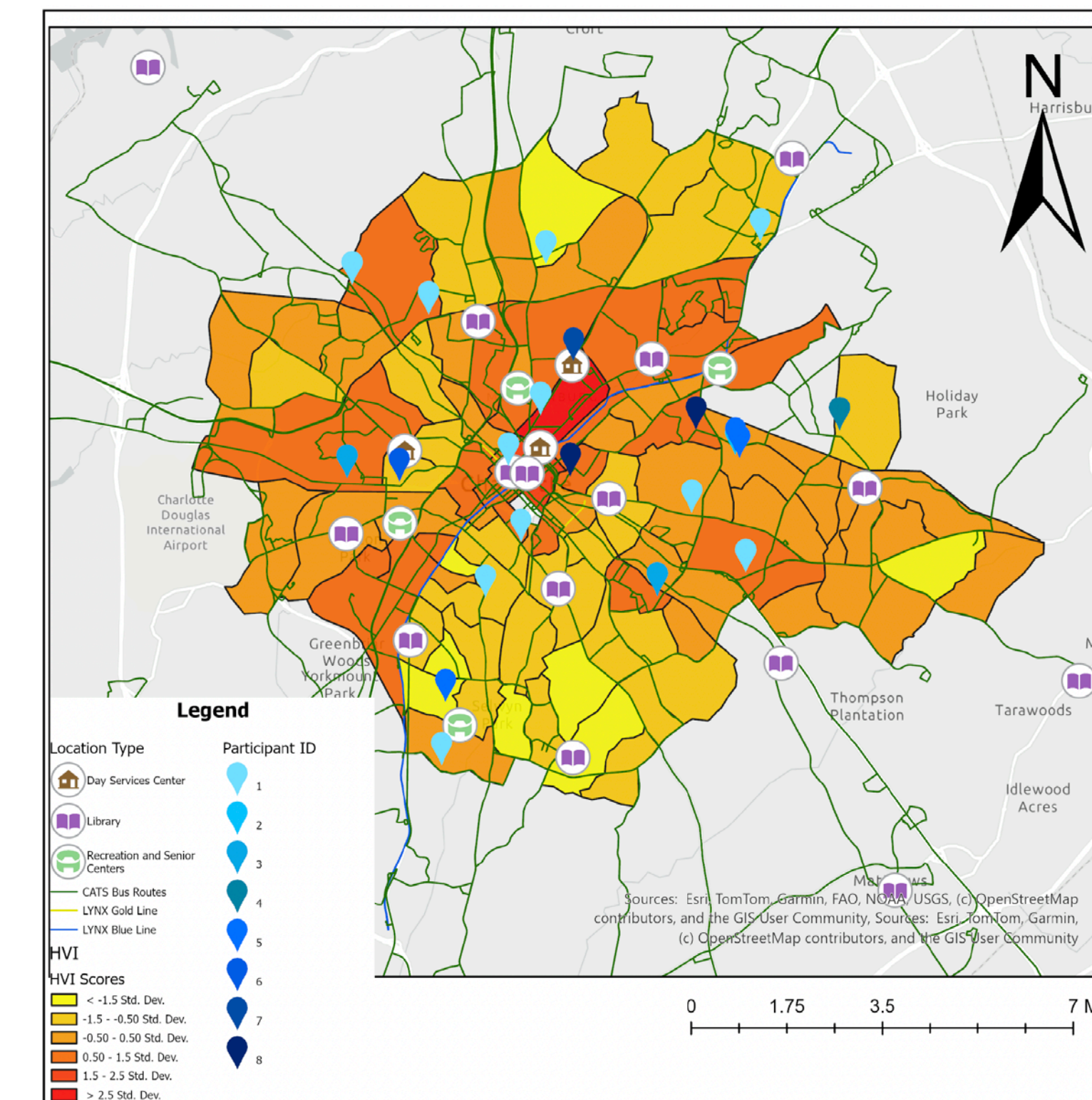
Methods

- Semi-structured, 30-45 minute interviews were conducted with staff of place-based community organizations (n=8); participants received a \$50 Amazon gift card in appreciation of their time.

Table 1: Organization focus and staffing

ID	Organization focus	# Staff
1	Food insecurity	35-40
2	Community building; Economic development; Education; Food insecurity	3
3	Housing	200-250*
4	Religion/spirituality	8
5	Community building; Education	40
6	Community building; Religion/spirituality; Wellness	5
7	Housing	4
8	Food insecurity	8

*Some staff work outside study area



Heat Vulnerability Index (in terms of standard deviation), indoor cooling center locations, and public transportation routes within the study area.

- Thematic analysis combined *a priori* codes from previous studies with inductive codes developed during the coding process.
- A list of common cooling center resources was developed based on existing programs.

Perspectives on extreme heat

- **Impacts on community:** Seven of eight interviewees (88%) perceived extreme heat to be an issue in the community they serve. Four participants focused on the *reason* that extreme heat was an issue in the community, specifically citing land surface cover characteristics, density, and/or the Urban Heat Island effect.
- **Impacts on facility use:** Only two interviewees (25%) mentioned that they do *not* see changes in their visitor numbers for various programs during times of extreme heat. Another interviewee noticed that people get uncomfortable during times of extreme heat, making it more difficult to manage "the usual community friction."
- **Current heat-related programs:** Four of the eight participants (50%) shared that their organizations did not currently have programs in place focused on extreme heat response. One interviewee explained that his organization does not have any programs in place because they simply do not have the capacity. One participant said that her organization tries to increase awareness of county programs that provide resources like free fans during times of extreme heat, especially for the homebound residents without air conditioning that her organization serves.

Interest + capacity

- Seven of the eight interviewees (88%) stated their organization would be interested in serving as an informal cooling center *if* they had the capacity to do so.
- Three participants (38%) alluded to or explicitly said that providing unofficial cooling for their constituents would align well with their organization's mission.

"In a perfect world, if we had all the money that we needed, there would be no question that our heart would be to make [informal cooling centers] available for people because everyone deserves to be able to get out of the heat. Nobody should lose their life due to extremity of the weather. There's just too many spaces available in Charlotte where that should not be the case..."

Resources + barriers

- Most of the organizations would require assistance with procuring multiple needed resources in order to support an informal cooling center.
- Half of the organizations had basic amenities (public restrooms, seating) and cooling supplies (air conditioning, fans, utility infrastructure) on hand.

- All organizations (100%) would need pet-friendly supplies, and all but one (88%) would need additional staff and extended operating hours in order to support a fully operational informal cooling center. Five organizations (63%) needed adequate space and refreshments. Four organizations (50%) needed all other resources.

Recommendations

The interview responses demonstrated that place-based community organizations in Charlotte, NC are overburdened and would need significant assistance to serve as informal cooling centers in addition to carrying out their current operations. Support from local businesses, government entities, or other funding sources would be required.

"While I understand the importance and the need for these informal stations, I think the accountability [is on] the formal one[s] to expand access for the people that need the resources and the support."

While place-based community organizations generally do not have the capacity to serve as informal cooling centers for various reasons, particularly due to their limited financial and human resources, many have the ability and resources to support heat response for their constituents in ways that align well with their current operations:

- **Heat health education.** Share information about official cooling center locations, heat health impacts, and preventative measures via social media or e-newsletters.
- **Youth outreach.** Organizations that work with children could include youth outreach focused on staying cool during extreme heat and where to go if they do not have access to air conditioning at home; flyers could be shared with families.
- **Hydration stations.** Hydration stations providing bottled water could be located in or outdoors and combined with information about official cooling center locations.
- **Joint informal cooling center.** PBCOs that want to serve as informal cooling centers but do not have all the resources required to do so on their own could coordinate with other organizations to host one together.

Key references

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Table 2: Current organizational resources relevant to informal cooling center provision

Category	Resource	Organizations (n=8)
Required	ADA accessibility	7
	Basic amenities	4
	Cooling supplies	4
	Health and safety supplies	3
	Adequate space	2
	Staff	1
Desired	Transportation	4
	Entertainment options	4
	Child-friendly supplies	4
	Refreshments	2
	Extended operating hours	1
	Pet-friendly supplies	0

