Design for Health

The Social Life of Heat: Designing for connection in a warming city

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Designing for connection in an increasingly warming city.

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The Social Life of Heat

Designing for Connection in a Warming City

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Land Acknowledgement

This work is rooted in the concept of place and in our connections to the land. It invites reflection on our roles as stewards, not only of the environment, but of the relationships and communities it sustains. In doing so, it is essential to acknowledge the profound toll that settler colonization has taken on both the land and its peoples.

OCAD University is situated on the treaty lands of the Mississaugas of the Credit and the traditional territory of the Wendat, the Haudenosaunee, and many other Indigenous nations. Toronto, a name which originates from the Mohawk (Kanien'kehá:ka) word Tkaronto (meaning "place in the water where the trees are standing"), is now home to many diverse Indigenous peoples. Today, this city remains home to a diverse Indigenous community whose presence, knowledge, and stewardship continue to shape it.

Klysen, *We go up river*, Jordan Bennett, 2025

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Section 1

Introduction

1.1 Introduction

Toronto's cold, dark winters are a source of dread for many. Freezing temperatures, unshoveled sidewalks, and short days enforce a sort of communal hibernation, keeping residents tucked away in their homes. In winter, isolation becomes routine, amplified by shorter daylight hours and fewer casual encounters with others. Loneliness peaks during these months, which are often associated with heightened feelings of disconnection and social withdrawal.

Summer offers a sharp contrast. Longer days and warm air bring the city to life: public events spill into streets and parks, friends gather to celebrate, and casual encounters multiply. Sunshine and warmth draw people out into shared spaces. But, with climate change driving hotter, more frequent heat waves, a pressing question emerges: will extreme summer heat push us back indoors, mirroring the social retreat of winter? How will this shift our patterns of interaction as a society? And who will find themselves left out?

These are important questions. As the impacts of climate change worsen worldwide, the need for communities to adapt to warming temperatures is becoming inescapable. But while there has been extensive scientific, geographic, and even architectural attention paid to heat adaptation efforts, little attention has been paid to the social effects of heat in communities and how individuals adapt (Falzon et al., 2024). This represents an important knowledge gap, as a long history of research on social isolation shows that people who are isolated within their communities face climate hazards more acutely, with a heightened risk of mortality during heat waves (Kafeety et al., 2020). Thus, this report considers heat through the lens of communities that experience it most acutely, asking: as cities warm, how can social infrastructure serve as a mechanism for building community resilience?

The name of this report, The Social Life of Heat, draws inspiration from the seminal work The Social Life of Small Urban Spaces by sociologist William H. Whyte, which builds on the principle that urban life is shaped by people, not just by planners or infrastructure (Whyte, 1980). As such, the work uses observation and community participation to understand how individuals and communities use and adapt the spaces around them to respond to heat. It demonstrates how adapting to extreme heat should be understood and designed as social infrastructure, recognizing that social connection itself is a mechanism for keeping people safe.

1.2 Problem Framing

How can social infrastructure such as public spaces, community centres,

and local networks be developed to build resilience to heat waves across Toronto's neighbourhoods?

Research Questions

- What are the lived experiences of populations most at risk to both heat exposure and isolation?
- How do current interventions meet, or fail to meet, their needs?
- How can urban design strategies reduce dependence on individualized cooling while supporting collective resilience?
- Which forms of social infrastructure are most effective at serving those most at risk of heat exposure and social isolation?

Key Terms

Heat Wave; Climate Adaptation; Social Infrastructure; Community Resilience; Participatory Research

1.3 Background

In the summer of 2025, Toronto sweltered. There were six heat waves in two months. Streets shimmered with heat. And climatologists say this is just a preview, a glimpse into what summers are going to be like in 2050 (Lang, 2025). Extreme heat in Toronto is only going to get worse—more days over 30°C and longer heat warnings will place mounting pressures on people and places alike (City of Toronto, 2025).

Heat doesn't just make us sweat; it changes the way we move, live, and connect. On hot days, life slows down. People leave the house less. Overall, outdoor life shrinks, indoor life expands, and social mixing drops. City centres quiet down (Renninger et al., 2025). This shift leaves people isolated in their homes and threatens the dynamism of cities as hubs for social exchange.

Most of our current responses to heat are privatized: air conditioning, pools, and fans. This "cooling economy" favours technological fixes that benefit some while leaving others behind. Making the act of cooling off an individualized task has major social consequences. It creates a troubling paradox: by cooling ourselves, we contribute to broader warming. This not only exacerbates the climate crisis but disproportionately affects those who contribute the least (Bloch, 2025). But the consequences go beyond energy use. Cooling resources become available only to those who can afford them. Those without air conditioning are left to endure the heat alone.

Eric Klinenberg's study of Chicago's 1995 heat wave shows just how deadly this isolation can be. In this heat wave, hundreds died alone, behind locked doors, cut off from friends, family, and neighbours. Individual risk factors, such as living alone, being bedridden, lacking transport, and no air conditioning, were shown to have exacerbated this cultural phenomenon (Klinenberg, 2002). British Columbia's catastrophic 2021 Heat Dome mirrored similar findings (Henderson et al., 2022). This forces reflection: should we consider the effects of these heat waves to be a natural disaster or a social one?

Cities have begun to recognize the outsized risk faced by certain communities. In Toronto, for example, programs are being developed to get seniors and other vulnerable residents air conditioning units (Alevato, 2025). Cooling centres are being opened for underserved populations (City of Toronto, 2025b). But these measures are reactive. We have built cities that depend on air conditioning. Consider condominium towers: 36-storey buildings wrapped in glass, with sealed windows. These spaces would be uninhabitable without mechanical cooling. In a heat wave, they put every resident at risk. Modern buildings, dense construction, and new materials make it almost impossible to live without air conditioning. As Brent Toderian, Vancouver's former chief planner, says: "We have become entirely lazy and dependent on the assumption of air conditioning," which also has a climate cost (Labbé, 2024; Huston, 2025).

Air conditioning should not be our first line of defence against climate change. We need solutions that cool people without leaving them isolated or warming the planet further.

Some cities are trying collective solutions. Toronto has designated public pools and other public spaces as cooling spots (Wilson, 2025). These places provide respite from heat and, importantly, a chance to be around others. Cool spaces should also be social spaces, even fostering a sense of social cohesion (Latham et al., 2019). They can create a social infrastructure in cities to provide cooling places where people can meet, talk, and reconnect, sometimes for the first time in months (Klinenberg, 2019).

Climate change isn't just a technical problem; it's a cultural one (Klinenberg, 2024). Adapting to extreme heat should be understood and designed as social infrastructure: we can't just hand out air conditioning units or plant a few trees instead; we need to find ways to generate social cohesion as a climate adaptation strategy. Designing for social connection in a warming city isn't a luxury; it's a lifeline. Thus, adapting to extreme heat should be understood and designed as social infrastructure, as social connection itself helps to keep people safe.

1.4 Partner Organization

St. James Town Residents Council

The St. James Town Residents Council is a resident-led group that serves as a critical social connector and advocacy organization, amplifying residents' voices and supporting community-driven solutions. To do so, it is committed to co-producing knowledge with researchers, ensuring that community-based initiatives are informed by local perspectives and rooted in lived experience (St. James Town Residents Council, 2026). St. James Town Residents Council was chosen as the partner organization for this project because of its deep, long-standing connection with community members and its understanding of their day-to-day lived experience.

1.5 Community Focus

St. James Town is a community of both significant need and remarkable innovation. It is one of the most diverse and densely populated neighbourhoods in North America, with 25 high-rise towers housing approximately 20,000 formally registered residents, or an estimated 30,000 residents when including informal occupants, within a single block. Built as "Tower in the Park" communities during the rise of modernist architecture in the early 1950s, these towers were originally designed to house single individuals or couples, but now accommodate entire families, many of whom are newcomers to Canada (Heritage Toronto, 2026).

When a heat wave hits the city, it doesn't impact everyone the same. The residents of St. James Town are exposed to heat in various ways: they live in homes with limited or no access to air conditioning, and those who do have it often struggle with its cost. They are at high risk of illnesses exacerbated by extreme heat, such as diabetes and heart disease. They have fewer parks and trees in their neighbourhoods, a situation compounded by the limitations of the surrounding urban conditions. They're more likely to work in hot conditions, such as construction or manufacturing, or physically intensive roles that require them to be on their feet all day (Roy, 2022). Finally, the high-rise concrete towers contribute to heat retention, absorbing and re-radiating heat, while the vertical, closely spaced buildings restrict airflow. This creates localized "heat islands" that amplify temperatures for residents. Dense population and vertical living inherently restrict individuals' ability to adapt to heat, making community members acutely susceptible to climate hazards.

At the same time, St. James Town is a hub of innovation and grassroots social infrastructure. Affectionately called "A World Within a Block," the community is home to countless initiatives that demonstrate adaptive ingenuity. The Corner, for example, is a resident-founded community hub organization, which is home to 40+ local agencies that integrate health and social services to support residents' physical and mental well-being (The Corner, 2025). Community Resilience to Extreme Weather is a group of community organizers that fosters social connection to support residents with climate response (Community Resilience to Extreme Weather, 2026). Doctors in the community have sat in building lobbies and issued government-assisted "social prescriptions" to residents for air conditioners (Spurr, 2025). These community-based efforts demonstrate the social infrastructure that is already being built within the community, providing innovative place-based case studies for applied learning.

For these reasons, the community of St. James Town was selected as the focus for this study. Its residents embody both lived experience with the challenges of climate exposure and deep, decades-long place-knowing that informs grassroots adaptation strategies.

Klysen, St. James Town, 2026

Section 2

Literature Review

2.1 Heat in Toronto

As a four-season city, Toronto's heat impact on urban life remains underexplored.

Toronto's climate has long been defined by the winter season. Short days, freezing temperatures, and precarious walking conditions affect how people interact with the city during winter months. In response, people have made adaptations from the city-wide to the individual level, whether through extreme cold weather alerts, school "snow days", coordinated snow removal systems, or everyday practices such as installing snow tires or shovelling a neighbour's driveway. This orientation is reflected institutionally through the Toronto Cold Weather Program, implemented in 1996 to protect residents during extreme winter conditions (Benmarhnia et al., 2019).

This long-standing focus on the cold is currently being unsettled by a new climate reality. Summers in Toronto are becoming hotter, longer, and more unpredictable. In 2025 alone, the city experienced six heat waves in two months, which some experts have described as a "dress rehearsal" for the future (Lang, 2025). Climate projections suggest that by 2080, Toronto's average daily temperature could reach 38°C, with the number of days above 30°C increasing from roughly 12 per year to 30-80 (Bu et al., 2024).

Extreme heat is already a serious and growing public health threat in Canada. It is among the deadliest climate-related hazards, surpassing other disaster types, such as wildfires and hurricanes, during extreme events (Government of B.C., 2026). The 2021 heat dome, for instance, was the deadliest weather event in Canadian history (Eglison, 2022). Each summer, thousands of Canadians seek emergency care for heat-related illnesses. Yet, the true toll of heat is likely higher, as deaths are often misclassified (Sutinen et al., 2025).

In urban environments the effects of heat are even more pronounced. The urban heat island effect means that cities are often significantly warmer than their rural surroundings (Oke, 1967). Dense concentrations of buildings and paved surfaces absorb and retain heat, while sources such as vehicles and air conditioning generate additional thermal load (Bu et al., 2024). In some cases, temperature differences between urban and rural areas can reach up to 10°C, with significant variation across neighbourhoods (Tam et al., 2020).

Despite these trends, institutional responses to heat have lagged behind those for cold. While Toronto's Heat Alert & Response System was introduced in 2001, a more comprehensive Heat Relief Strategy was not implemented until 2019 (City of Toronto, 2002; City of Toronto, 2019).

The temporal gap between these policies suggests that extreme heat has only recently been recognized and systematized as a major public health risk. This delay points to a broader need for research and design approaches that account for how Toronto experiences and responds to heat.

2.2 Heat Adaptation

While work on climate adaptation in cities has been done, it tends to focus on institutional interventions rather than community or individual adaptations.

As a society, we are only beginning to grapple with how to adapt to the emerging reality of a changing climate. This process is referred to as climate adaptation: the set of adjustments made within social, environmental, and infrastructural systems in response to climate change, with the aim of reducing risk and harm to those most affected (Orlove, 2022).

To date, however, climate adaptation has largely been framed as a top-down, planned process. Existing research and practice tend to focus on formal climate adaptation strategies developed by governments and transnational organizations (Falzon et al., 2024). These efforts often produce standard policies and frameworks that promote the implementation of solutions at large institutional scales (Castro et al., 2022). Much of this work focuses on strengthening what engineers term “lifeline systems,” such as power, transportation, and communication networks, which are critical during and after extreme weather events (Klinenberg, 2012).

This dominant framing overlooks a critical dimension of adaptation. In many cases, the responsibility for coping with climate change, particularly extreme heat, has been quietly shifted onto individuals. Air conditioning, personal fans, or seasonal retreats are often treated as primary solutions to heat, despite their uneven accessibility (Bloch, 2025). At the same time, most literature remains focused on future responses, paying comparatively little attention to the ways people are already adapting their everyday lives (Castro et al., 2022).

Individuals and communities are continuously adjusting to climate change through “everyday adaptations” (Castro et al., 2022). These are the subtle but cumulative shifts in how people work, move, and socialize in response to changing environmental conditions. They include altering daily routines to avoid peak heat, choosing new gathering places through the city, or reorganizing social life around weather patterns. Over time, these incremental adjustments aggregate into broader societal change, shaping patterns of movement, investment, and urban development (Castro et al., 2022).

In this sense, the body becomes a site of climate adaptation (Falzon et al., 2024). This framing highlights that adaptation is not abstract or uniform, but deeply embodied, place-based, and relational (Castro et al., 2022). It unfolds differently depending on where people live, the resources they can access, and the conditions they face. As such, adaptation can be meaningfully studied through its social dimensions, as a set of practices embedded in everyday life.

Then, taking adaptation seriously requires conducting research that looks beyond future climate projections to the present, lived, social dimension of climate adaptation.

2.3 Social Dimensions of Heat

Are heat waves an environmental or social disaster? When it comes to adaptation efforts, it is critical to consider the social dimensions of heat, perhaps more so than with other climate disasters. Heat presents several unique sociological differences that make it unique as a climate disaster, most notably, in the way that is experienced. There are several factors that make heat a social rather than climate disaster.

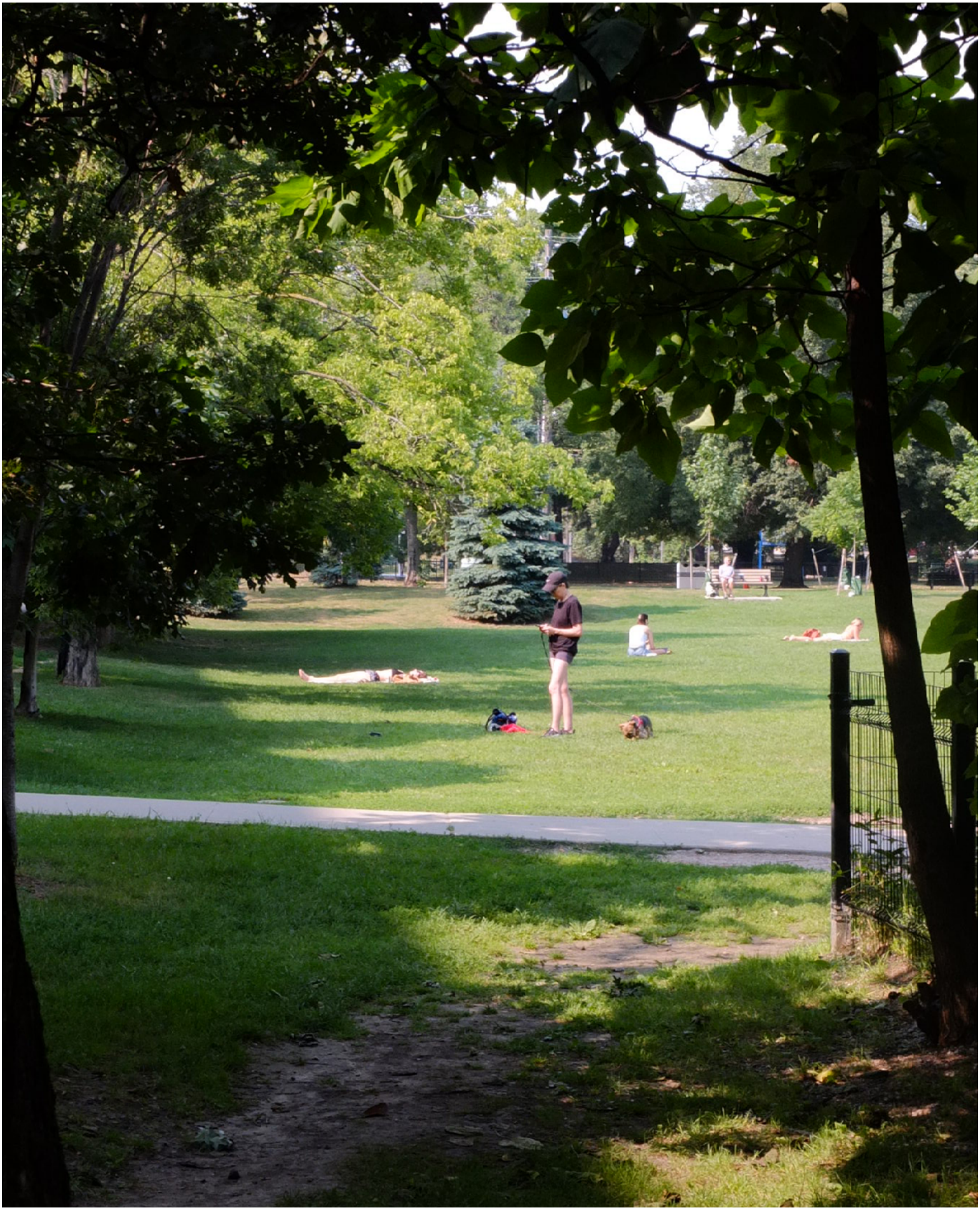
In Toronto, heat is sporadic.

Heat is not experienced as a constant threat, but as a temporary and often anticipated feature of summer. Research shows that perceptions of heat risk increase during heat waves, and then decline steadily afterwards, suggesting that awareness is episodic rather than sustained (Domingos et al., 2024). In a four-season city like Toronto, where winters dominate the collective climate memory, this fluctuation is particularly pronounced.

Cultural associations further complicate this dynamic. For many, heat is tied to positive experiences: summer, leisure, and time outdoors. People often look forward to warm weather, only recognizing its risks once they are already exposed (Boni et al., 2023). As a result, memories of heat are often softened or distorted, making it harder to build lasting awareness of its dangers.

This cyclical pattern of awareness and forgetting has been described as a form of “seasonal amnesia” in which the impacts of heat are repeatedly experienced but not durably remembered (The Bentway, 2025). The result is a limited capacity for sustained, proactive adaptation.

Addressing extreme heat, therefore, requires proactive research that considers not only immediate responses during heat events, but strategies that keep risk visible throughout the year.



Klysen, Photographing Heat, 2025

Heat is, in many ways, invisible

Unlike other climate hazards, it rarely announces itself through dramatic visual cues. Extreme cold brings snow and ice; storms bring flooding and destruction. Heat, by contrast, settles gradually. Its effects accumulate quietly, often going unnoticed until they become overwhelming. As Eric Klinenberg observes, heat waves tend to avoid the kind of media attention that accompanies more visually spectacular disasters, such as wildfires or hurricanes. Instead, they are often communicated through understated public service announcements (Klinenberg, 2024).

This invisibility shapes how people respond. Research shows that individuals frequently underestimate the risks associated with extreme heat, with public perceptions diverging significantly from expert assessments (Marlon et al., 2025). These gaps are shaped by personal experience, contextual cues, and cognitive shortcuts, all of which influence whether protective action is taken (Marlon et al., 2025). In this sense, adapting to heat is not only a technical or infrastructural challenge, but also a behavioural one.

Communication plays a key role. Studies show that how heat is defined and communicated can significantly influence public perception (Hass et al., 2021). Some researchers have even proposed naming heat waves the same way as hurricanes are, arguing that doing so may increase perceived urgency and public engagement (Klinenberg, 2024). Making heat legible, rather than ambient, is one way to address its invisibility.

The invisibility of heat also shapes perception and decision-making. Those with access to cooler, greener, and more resource-rich environments may underestimate the severity of heat risks for others (American Forests, 2026). At the same time, periods of extreme heat often coincide with times when decision-makers are physically absent, away on vacation or outside the city, further distancing them from the lived realities of those most affected (Bloch, 2025). This disconnect can dampen the perceived urgency of heat and delay meaningful action.

Thus, there is a need for research and design interventions that help to make the effects of heat visible.

Heat does not impact everyone equally.

Extreme heat tends to concentrate its impacts along existing lines of inequality. It seeps into places where infrastructure is inadequate, resources are limited, and health vulnerabilities are already present. While extreme heat can put everyone at risk of heat illness, the health risks are greatest for older adults, young children, people with chronic illness, people who work in the heat, people experiencing illness, and people with low incomes (Health Canada, 2024). As a result, heat waves often amplify the very conditions that make certain communities vulnerable in the first place (Yucel et al., 2025).

Research consistently shows that those most at risk during heat waves are not only those with pre-existing health conditions, but also individuals who are socially isolated. In his study of the 1995 Chicago heat wave, Eric Klinenberg found that many of the individuals who died were living alone, disconnected from social networks that might otherwise have checked in on them, offered assistance, or provided access to cooling environments (Klinenberg, 2002). Similar patterns were observed during the 2021 heat dome in Canada, where social isolation emerged as a key risk factor (Government of B.C., 2022).

This points to a broader urban condition. Rates of social isolation are rising in cities, including Toronto, even as populations become denser (Murthy, 2023; The Toronto Foundation, 2023). In the context of extreme heat, this social fragmentation can become a matter of life and death. Adaptation, therefore, cannot be understood solely in terms of physical infrastructure; it must also account for the presence, absence, and quality of social relationships.

This has important implications for how cities respond. First, it highlights the need for interventions at the local scale: approaches that are grounded in the specific social and spatial conditions of individual neighbourhoods (Falzon et al., 2024). Effective responses must be rooted in an understanding of community context, rather than applied uniformly across the city.

Taken together, these dynamics suggest that extreme heat is not only an environmental condition, but a social and spatial one, deeply embedded in the structures of the city itself. Thus, a broader examination is required of how these conditions play out across Toronto and its communities.

2.4 Designing for Heat and Connection

What design solutions currently exist to address the impacts of heat across the city? Current interventions for heat adaptation do not address the root issue. Interventions are individual, but it is this exact sense of individuality that puts isolated individuals at risk.

Currently, the most protective factor against heat is access to home air conditioning (Yucel et al., 2025). However, reliance on air conditioning introduces significant challenges, including affordability and high energy consumption, which, over the long term, perpetuates and contributes to climate change (Bloch, 2025). For many households, the barrier is not only the cost of purchasing a unit, but the ongoing expense of operating it (Riva et al., 2023).

As a result, access to alternative cooling environments becomes critically important. Public spaces such as parks, libraries, and community centres can serve as informal heat refuges, particularly for those unable to cool their homes effectively (Klinenberg, 2002). Research shows that, during extreme heat, lower-income populations are more likely to shift their activity patterns, seeking out green spaces and other cooler environments (Tian et al., 2024). These patterns reflect underlying inequalities in residential heat exposure and access to cooling, prompting individuals to leave their homes in search of relief (Yucel et al., 2025).

These alternative cooling environments can also serve as social infrastructure, playing a critical role in climate resilience (Rashidfarokhi et al., 2026). Places that foster interaction, familiarity, and mutual care can function as informal safety systems during extreme events, ensuring that vulnerable individuals are seen, supported, and not left to cope alone.

In this sense, the built environment plays a dual role. On the one hand, its design can allow individuals to access cooling resources and find respite from the heat. But its design can also connect people, fostering social networks and forming resilient communities. Thus, there is a need for interventions that develop the built environment to fulfill this dual role.

2.5 Design Opportunity

Taken together, these dynamics suggest that extreme heat is not simply an environmental condition to be mitigated, but a social and spatial phenomenon that is produced, experienced, and negotiated through the built environment. If this is the case, then adaptation cannot be understood solely through policy frameworks or technological solutions; it must also be understood as a question of spatial design. The spaces we inhabit shape not only our exposure to heat, but our capacity to respond to it.

Designing for extreme heat, therefore, is not just a technical exercise in reducing temperatures. It is also a social project,

one that requires redistributing access to cooling and strengthening the social fabric of communities.

Section 3

Methodology

3.1 Research Methodology

Research Philosophy

This report builds on the principle that urban life is shaped by people, not just by planners or infrastructure. Inspired by The Social Life of Small Urban Spaces and the concept of Everyday Urbanism, it emphasizes observing how individuals use and adapt space in daily life (Whyte, 1980; Crawford et al., 1999). Community organizations, mutual aid groups, and grassroots initiatives have long demonstrated that people actively shape their environment, often in direct response to local needs.

Heat adaptation is deeply relational and context-specific. Individual experiences vary widely; seniors, children, and other vulnerable populations experience heat differently, and social networks play a critical role in shaping outcomes. The literature shows that social isolation increases risk during heat events, highlighting that adaptation is not only about physical infrastructure but also about fostering social resilience (Klinenberg, 2002).

Guided by these insights, this research adopts a relativist, critical-theory approach, integrating participants' lived experiences to understand and advocate for meaningful, human-centred adaptations in both social and physical infrastructure. Qualitative methods form the foundation of this work, as they are uniquely situated to capture how heat is experienced: how it is felt in the body, how it shifts across time and space, and how social relationships shape one's ability to cope.

The research is grounded in community-based participatory methods, recognizing the irreplaceable knowledge held by those who live within and know a place intimately. In this approach, participants serve as contributors, actively shaping insights, surfacing priorities, and informing directions for action. In this sense, knowledge is not extracted, but co-produced.

"First life, then spaces, then buildings. The other way around never works." (Gehl, 2010)

Research Approach

This study employs abductive reasoning to explore how social connections influence vulnerability during extreme heat. It begins with the observation that isolated individuals are at greatest risk, then investigates how social infrastructure and community practices can foster resilience.

Primary data are analyzed for emergent themes and connected to existing literature to expand understanding of the intersection of heat, social vulnerability, and urban adaptation.

“There is no logic that can be superimposed on the city;

people make it, and it is to them, not buildings, that we must fit our plans.”

(Jacobs, 1961)

Research Design

This research uses a sociological imagination to link personal experiences of heat to broader urban and societal structures. Ethnographic methods such as observation, engagement, and participatory design capture how individuals navigate heat in the city, how social connections form, and how urban spaces enable or constrain adaptive practices. The goal is to produce a rich, participant-centred understanding that informs design strategies for climate adaptation and resilience.

3.2 Research Methods

Data Collection Methods

Data collection was designed to capture the diverse ways individuals experience heat in an urban setting, examining adaptations at the corporeal, spatial, and systemic levels:

Corporeal

Participatory design workshops with members of the St. James Town community explored the lived experiences of heat and collective strategies to enhance resilience.

Spatial

Observational research at the neighbourhood level examined how the design and use of space shape behaviour and adaptation.

Systemic

Interviews with subject matter experts at community, city-wide, and global levels captured the broader systems, interventions, and policies shaping heat response.


workshop
ideal hot day places
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THE SOCIAL LIFE OF HEAT
ideal hot day places

Participatory Design Workshops

Approach

Workshops were organized with the St. James Town Residents Council to understand individual experiences of heat and to co-create ideas for neighbourhood resilience through social infrastructure. The workshops employed a method called Fostering Hybrid Invention, encouraging participants to integrate features from private and public spaces to create imaginative, yet practical solutions (Pechet, 2020). Collage techniques allowed participants to express ideas visually, capturing experiences and feelings that might be otherwise difficult to verbalize.

This method was chosen for its accessibility, insightfulness, and reflexivity providing a versatile platform for participants with diverse needs.

Participants

Two sessions, 10 participants each (20 total) from the St. James Town Residents Council, balancing diversity and interactive engagement. Participants represented a range of ages, abilities, cultures, socioeconomic backgrounds, and gender identities.

Location

Activity room at 200 Wellesley Street East, the residence of most participants. This was intended to foster accessibility and comfort, while encouraging interaction with familiar surroundings. The space also allowed participants to bring pets, supporting inclusivity.

Materials

Participants used architectural renderings representing diverse communities and National Geographic magazines to expand creative possibilities, and markers to incorporate ideas from imagination.

Workshop Design

The workshops were co-designed with the community partner to ensure accessibility, inclusivity, and cultural relevance. Their input shaped every aspect of the sessions, from structure to materials, underscoring the principle of designing with, not for, community members.

Food and Compensation

Homemade breakfast and lunch were provided, fostering community connection and trust among participants. All participants received a digital or physical gift card of their choice, reflecting varied needs and preferences.

Format

Each workshop lasted three hours, separated to reduce bias and allow cross-session comparison.

Subject Matter Expert Interviews

Approach

Given the interdisciplinary nature of heat adaptation, semi-structured interviews were conducted with community leaders, professionals, and academics to fill expertise gaps and connect individual and neighbourhood experiences to broader systemic insights.

Structure

- Format: Online interviews for geographic flexibility and scheduling convenience
- Duration: 45 minutes each
- Questions: Semi-structured questions were tailored to each expert while maintaining consistent thematic categories, including:
    - Background and professional experience
    - Lived experience in adaptation and mitigation
    - Leadership, strategy, and decision-making
    - Insights for future adaptation initiatives

Subject Matter Expert Backgrounds

Healthcare

Understanding health risks of heat for underserved populations

Community Organizing

Developing social networks to build resilience in high-rise communities

Arts and Culture

Using art and culture to foster social cohesion and reimagine urban spaces

Urban Planning

Supporting vulnerable populations to adapt to heat

Social Connection

Building neighbourhood-based engagement to reduce isolation and promote resilience

Accessible Architecture

Placing the philosophy of accessibility at the forefront of the design of the built environment

Observational Research

Approach

Observational research provided a “written photograph” of the neighbourhood, capturing how people move through, use, and interact with urban spaces (Kawulich, 2005). Non-intrusive, place-centred observation focused on the park behind Wellesley Street in St. James Town, documenting patterns of behaviour, pathways, and spatial interactions. Sketching and manual mapping tools were used to record activities, movement, and the environment’s physical features.

Focus Areas

- Relationship of space to the broader neighbourhood
- Pathways and movement patterns
- Amenities and accessibility
- Sightlines and visibility from key points
- Water, green, and play features
- Sun and shade distribution
- Likelihood of lingering or congregation

Structure

- **Duration:** 5 hours of observational research, primarily in the park behind 200 Wellesley Street East
- **Tools:** Sketching and note-taking

This method complemented the participatory workshops and subject matter expert interviews by providing insight into everyday spatial behaviours and adaptations, allowing the research to connect individual experiences to physical design and neighbourhood infrastructure.

Klysen, Observational Research, 2025

3.3 Data Analysis Approach

Data Analysis Methods

Data collected from multiple sources were analyzed to uncover patterns, insights, and opportunities to improve community heat resilience. Analysis was tailored to each data type while maintaining an integrative approach for cross-validation.

- **Literature Review:** Thematic and gap analyses were conducted to identify key concepts, frameworks, and underexplored areas related to social infrastructure and heat adaptation.
- **Observational Research:** Social Interaction mapping documented patterns of public space use, focusing on how physical environments and social interactions can contribute to comfort, cohesion, and mutual support during heat waves.
- **Subject Matter Expert Consultations:** Thematic coding and network analysis identified relationships among ideas, actors, and practices. Comparative synthesis and triangulation were used to validate findings across workshops, observations, and literature.
- **Participatory Design Workshops:** Thematic analysis and affinity mapping synthesized participants' sketches, discussions, and ideas, identifying emergent priorities for enhancing neighbourhood heat resilience and informing community-centred design interventions.

3.4 Ethics

Ethical integrity guided all stages of the research, ensuring participant rights, safety, and privacy.

- Informed Consent: All participants in workshops and interviews provided informed consent and could withdraw at any time without consequences.
- Confidentiality: Identifiable contributions and quotes were kept strictly confidential. Only aggregated, non-identifiable information is present in this report.
- Anonymity: All collected data was anonymized after workshops and interviews to protect participants' identities.
- Ethical Approval: This research was reviewed and approved by the OCAD University Research Ethics Board (REB reference number: 102852).

These measures ensured that the study upheld rigorous ethical standards, respecting participants while producing reliable, trustworthy insights for both academic and practical applications.

Section 4

Data Analysis

4.1 Approach

The following insights were derived from the synthesis of findings across the participatory design workshops, the observational research, and the subject matter expert interviews. Grounded in a pragmatic approach that is rooted in place, they are intended to reflect both the lived realities of residents and the spatial constraints of high-density urban environments. Each insight identifies underlying needs from conversations and translates them into design implications, expanding notions of how heat adaptation can be understood and implemented at the neighbourhood scale.

4.2 Key Findings

Cooling is not just physical, but experiential

Individuals tend to prefer and rely on cooling methods that provide a sense of comfort, pleasure, or social engagement, rather than those that simply reduce temperature. Cooling is most effective when it supports activity, gathering, and enjoyment.

Social infrastructure is a critical form of heat protection

Across all methods, the importance of social infrastructure emerged as a key protective factor. Social networks, shared spaces, and opportunities for connection play a central role in how individuals cope with and adapt to extreme heat.

Societal attitudes shape our relationship with heat

In a four-seasons city like Toronto, perceptions of heat are shaped by cultural and seasonal expectations. Associations with summer, leisure, and sunlight influence how heat is understood and responded to.

Existing barriers can undermine even the best design

Community members possess deep knowledge of the spaces they inhabit, including the constraints and challenges that shape them. Ignoring these realities risks limiting the longevity and effectiveness of design interventions.

Belonging requires designing beyond a “universal” user

A sense of belonging is rooted in the ability to see oneself reflected in a space. This highlights the need to design for a diversity of needs, identities, and experiences, rather than relying on a singular or standardized approach.

Designing within constraints is essential

Communities most affected by heat often face layered constraints, such as finances, environment, or other resources. Effective design must work within these conditions, using them as parameters for innovation rather than obstacles to overcome.

THE SOCIAL LIFE OF HEAT

ideal

What are your favourite parts of this space? What elements allow you t

Participant Collage, 2026

hot day places

o feel comfortable on a hot day? Do you feel connected to others here?

Cooling is not just physical, but experiential

Water is used for both cooling and active engagement

Design Implication

Cooling interventions must expand to include natural water features designed for a broader range of users, particularly adults.

Again, across most collages, water features appeared. The prominence of water across the participants' work signals its perceived importance as an important experiential element of cooling. However, upon further discussion, it became clear that many felt that water features were often imagined primarily for children, with less consideration for adult use. Despite frequent use of indoor pools, some participants expressed hesitation around engaging with water in outdoor public settings, suggesting social or cultural barriers to use.

Additionally, across participants, there was a preference for natural water features over built ones. While some participants expressed pleasure in being able to sit and admire these natural water features, others highlighted their accessibility as sites for activity. One participant in particular spoke about how meaningful it was to go out on the water with their canoe and senior dog. Again, this signals the importance of water not just as a cooling feature but as a space that provides a feeling of emotional connection.

Despite the clear attachment to water, subject matters highlighted that installing water systems is expensive and often difficult to maintain. Particularly in Toronto, as a four-season city, these features are used sparingly in the Fall and Winter months. Seasonality and implementation costs are thus understandably important considerations for the implementation of water systems.

Nighttime is a preferred time for cooling

Design Implication

Public spaces must be designed for safe and accessible nighttime use.

During the workshops, residents frequently described shifting their routines to the evenings to cope with the heat, from taking late-night walks with pets to hosting social gatherings. While many are motivated to take advantage of the longer days, others do so out of necessity, seeking ways to escape stifling apartments and enjoy the cooler nighttime temperatures.

Access to nearby spaces at night is integral for individuals without air conditioning, as personal living spaces can become traps for heat. Despite this, most urban spaces are designed primarily for daytime use, overlooking the potential of cooler nighttime conditions (Khazaei et al., 2026) . As a result, some individuals may not feel comfortable accessing public spaces at night to cool down.

Trees provide more than shade

Design Implication

The emotional and functional benefits of trees must be considered when developing heat-adaptation strategies, while accounting for existing community constraints.

Trees were universally included in workshop participants' visions of ideal hot-day spaces, highlighting their importance not only as sources of shade but also as symbols of comfort, beauty, and life. Several participants mentioned the personal connection they felt with the trees in their neighbourhood and the comfort that came from knowing they would always be there. Others discussed their desire to be in forests on hot days, nestled comfortably in the trees and away from the sun. Trees as living, breathing organisms introduce movement and colour to an environment, fostering a sense of emotional connection that other forms of shade do not. These findings reflect desire-based design, which suggests that meaningful social change requires shifting the focus of design processes from user needs to agentic desires (Leitao, 2022).

Beyond their emotional function, subject matter experts discussed the functional attributes of trees that make them unique devices for cooling. Trees change seasonally. This means in the summer, when shade is needed, their leaves provide cover, and in winter, when we crave access to the sun, they shed their leaves so that the sun is readily available. In a four-season city like Toronto, their ability to adapt across seasons makes them invaluable cooling devices. Additionally, trees cool through water, sucking up water from the soil and releasing it through their leaves. This process significantly cools the environment around the tree. These two functional features of trees contribute significantly to cooling in a manner unique among other shade mechanisms.

Finally, trees provide a convenient, sustainable, and inexpensive way for residents to cool down on hot days. One subject matter expert noted that St. James Town is bordered to the North and East by a section of the Rosedale Ravine, and that the descent into the ravine can provide heat respite, with a drop in temperature as people descend below the ravine canopy.

However, based on both observational research and community consultation, it became clear that planting trees in St. James Town is not as simple as one might hope. In addition to the extended time it takes for a tree to reach maturity, the area's underground parking infrastructure limits the feasibility of large-scale tree planting. Constraints such as these are very common in high-density, lower-income communities, where green space is limited, underground infrastructure is prevalent, or sidewalks are narrow (Bloch, 2025). This reality must be factored in as a design constraint when considering the role of trees in communities.

THE SOCIAL LIFE OF HEAT

ideal

Participant Collage, 2026

hot day places

Societal attitudes shape our relationship with heat

Summers are increasingly less anticipated

Design Implication

Public spaces must be designed not only to enhance usability but to encourage feelings of pleasure and joy.

Research suggests that, in North America, individuals are likely to forget the impact of hot summer days when winter rolls around (Domingos et al., 2024). Rather, they look forward to the heat, as it provides respite from the winter and a time to reconnect. As a result, we often experience "seasonal amnesia" in which we forget just how difficult summers can be (The Bentway, 2025).

But in communities such as St. James Town, this is not necessarily the case. Based on conversations within the workshops, summers are widely seen as a source of anxiety. One participant, a youth, created a collage that depicts this. They used old photos and a camera to convey their nostalgia for the summers of older generations, when they could enjoy the heat rather than live in fear of it. This demonstrates percolating feelings of eco-anxiety that already exist amongst younger generations (Léger-Goodes et al., 2022).

Additionally, it became evident that communities affected by summer temperatures do not experience the same seasonal amnesia as those with access to cooling resources. In conversation with subject matter experts, it was shared that the community of St. James Town had been working on its Heat Response Strategy over the course of the winter, emphasizing how rising temperatures are a subject that remains top of mind year-round.

Cooling resources are treated as a luxury rather than a necessity

Design Implication

Cooling resources must be made public, democratizing access to cooling across community members.

During subject matter expert consultations, an urban planning professional shared a past project in which they spoke with seniors about their ability to stay cool. One senior reported feeling excessively hot but was uncomfortable asking for a fan because they did not want to feel like a “burden”. This brief anecdote illustrates how our society views access to cooling resources as a luxury rather than a necessity. Someone would not hesitate to ask for a painkiller if they had a headache, but for heat, things are approached differently.

This sentiment was echoed by a community organizer, who emphasized unequal access to cooling resources across communities. They stated that this is because we do not yet see these resources as life-saving and thus do not have policies which reflect their foundational role in creating a safe society. Many subject matter experts advocated for the introduction of a minimum cooling standard across Toronto to ensure these life-saving measures were applied equally.

Individuals are more responsive to emergencies

Design Implication

Social interventions must be flexible and adaptable to be timely, enabling rapid responses before, during, or after an emergency.

Across subject matter expert consultations, most individuals highlighted that the 2021 Heat Dome was the beginning of a fundamental shift in collective understanding of the risks of heat and the ways that heat disproportionately affects those who are socially isolated. One expert expressed frustration, noting that they had spent years advocating for preventive interventions, but before the Heat Dome, most were unaware of the risks posed by heat.

This observation demonstrates how emergencies galvanize individuals to come together and respond. One community-based climate response organization was formed in the aftermath of a community disaster, emphasizing the role these emergencies play as vehicles for action and response.

This insight emphasizes the importance of using emergencies as a starting place for conversations surrounding community resilience.

THE SOCIAL LIFE OF HEAT

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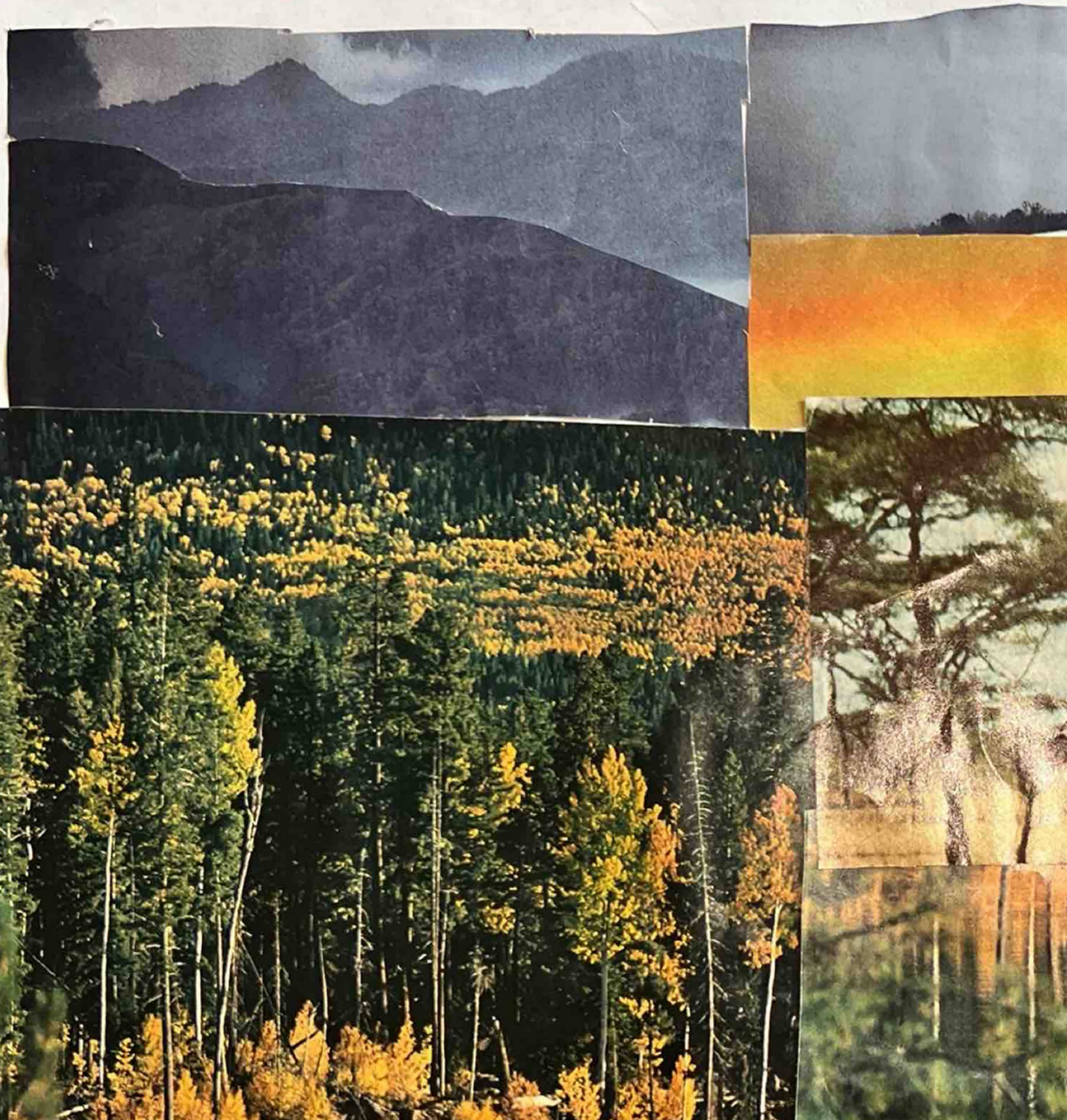
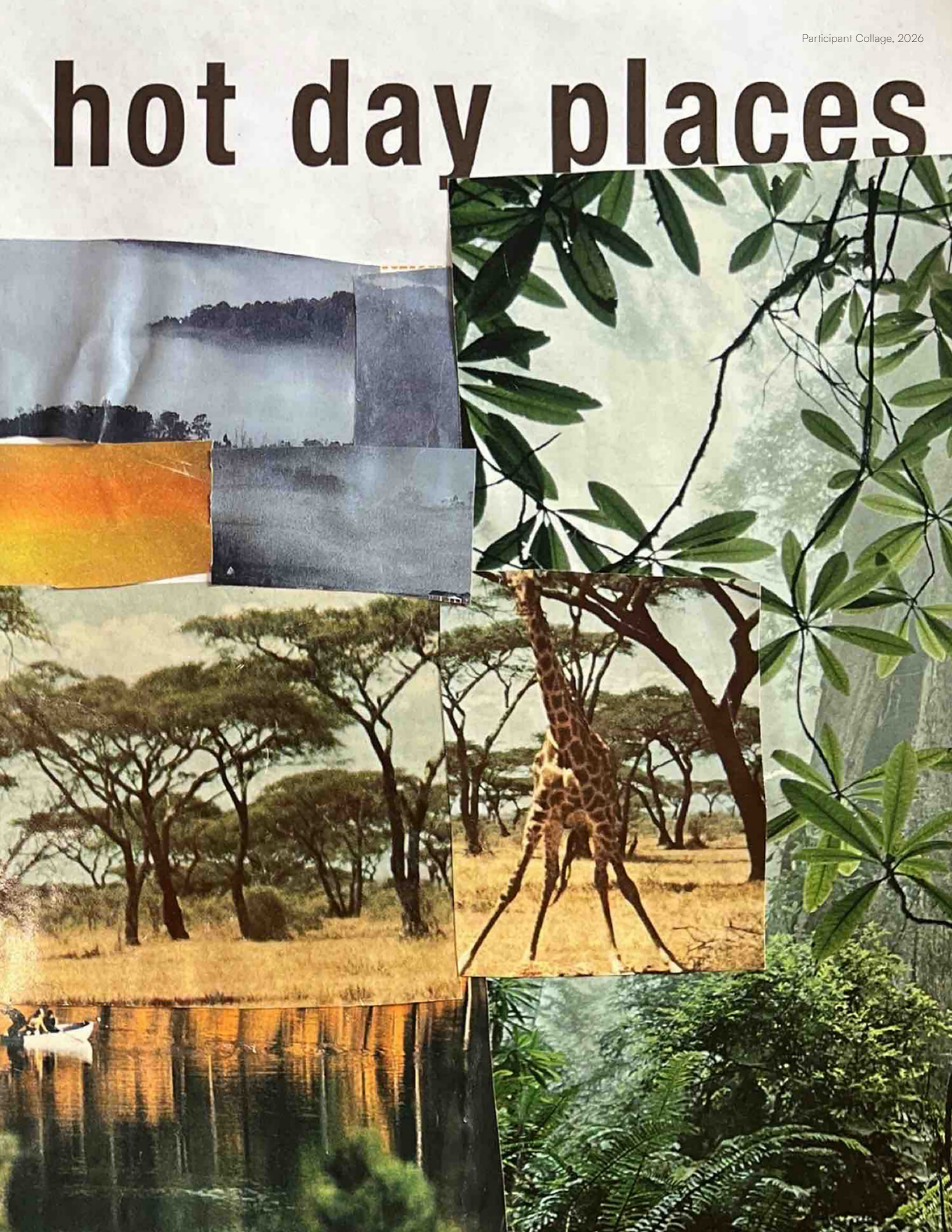


Participant Collage, 2026



Belonging involves designing beyond a "universal" user

People respond differently to heat

Design Implication

Public spaces must be designed to accommodate a broad range of needs and experiences with heat, providing spaces to relax and enjoy the sun, and others to seek protection.

During the workshops, it became clear that the diverse group of participants felt very differently about the heat. When asked their favourite place to be on a hot day, one participant responded with "nowhere" and elaborated that summers were completely insufferable for them. When another participant was asked their least favourite place to be on a hot day, they also responded with "none", mentioning that they had grown up in a warm country and that, to them, there was no such thing as too much heat. These varied responses indicate the different ways that people feel about both the summer and the heat.

This sentiment was echoed in the subject matter expert interviews. A healthcare professional highlighted that what might be a normal temperature day for one person could be death for another person with existing health conditions, or who uses a mobility device. A community organizer echoed the same. With the diversity of Toronto's community and the wide range of immigrants, each individual experiences and responds to heat differently.

People need to see themselves reflected in the places around them

Design Implication

Public spaces must be designed to reflect the diversity of their communities.

Workshop participants consistently incorporated personal and identity-reflective elements into their designs, highlighting a desire for spaces that reflect who they are. A pilot added a plane to their collage, while another integrated a wheelchair user and cut out a dog that looked like their own to see themselves reflected in their piece. This tendency to incorporate oneself indicated how a sense of belonging might promote usage.

This observation was reinforced by expert insights. Community organizers noted that many newcomers feel out of place in parts of the city, such as outdoor spaces, that they perceive as not reflecting them. As a result, they tend to avoid these spaces.

This demonstrates how the ability to see yourself in a place contributes to a sense of belonging. This aligns with the concept of person—place congruence, which posits that people are more likely to use and feel comfortable in spaces where they see their identities, experiences, and values represented (Feng et al., 2022).

History deepens embeddedness within a place

Design Implication

Design processes must begin with the act of place-knowing, integrating local histories and community narratives into spatial interventions.

Workshop participants expressed a strong desire to see their community's history reflected in public space—from Indigenous recognition to local narratives of change and resilience. Moments of intergenerational storytelling during workshops revealed how deeply residents value learning about the past, not only as information but also as a way to build pride and connection. This reflects the concept of place-knowing, where understanding local history is foundational to meaningful connection to a place and also its design (Jojola et al., 2020).

This was a less prominent discussion point in the subject matter expert consultations, but resonated strongly with one community organizer who was formerly a practicing architect. This individual discussed how they would never begin a community-based project without first understanding the space's history and how they could learn from it.

This was also noted during observational research on the mural, Phoenix Rising, painted on 200 Wellesley Street East. This piece is the tallest mural in the world, a community-based art project that commemorates a catastrophic fire in St. James Town in 2010 (Heritage Toronto, 2025). The mural depicts a Phoenix, rising from the ashes, eliciting a sense of pride, inspiration, resilience, and memory for community members.

Pets shape individual behaviour and mobility during heat

Design Implication:

Heat adaptation strategies must consider pets as part of the social fabric of communities.

Pets emerged as a central part of daily life in the community, influencing how and when residents move through space. During the workshop, pets were allowed to participate, a suggestion from the community partner to help promote inclusion and diversity among workshop participants. During the session, participants expressed concern about leaving pets in overheated apartments and noted that this often limits their willingness to leave home during extreme heat. Research supports this, showing that individuals may remain in unsafe conditions to care for animals (Heath et al., 2001).

Incidentally, the importance of pets and their effects on behaviour did not come up in any of the subject matter expert interviews. This perhaps indicates a blind spot in the development of spaces and programming for community-based groups.

During observational research, it became clear that pets were also a way to foster social connections among community members. Many who were using public spaces such as the lobby, the front of the building, or the park at the back were with their animals. Also, several of these individuals stopped to allow their pets to interact, often greeting one another by their pets' names. The role that pets play in strengthening social connections within communities has been demonstrated by research at UofT (Chapple, 2024).

THE SOCIAL LIFE OF HEAT

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ments allow you t

Participant Collage, 2026

hot day places

o feel comfortable on a hot day? Do you feel connected t

Social infrastructure is a critical form of heat protection

People will shift their patterns of behaviour to cool off

Design Implication

Alternative cooling spaces must be made accessible and/or subsidized to support cooling.

In participant workshops, individuals emphasized that they will find alternative places where they feel comfortable to cool off. Countless individuals relied on the community centre across the street for air conditioning when they were overheating. Another individual emphasized the senior benefits, which offer subsidized memberships to various places across the city, and discussed cooling off in stimulating places like Ripley's Aquarium.

In subject matter expert interviews, several individuals talked about patients who went to the homes of family members to gain access to cooling. This suggests that, if people are capable, they will shift their behaviour to cool off. This aligns with existing theories of everyday adaptation, which hold that people make small incremental changes to their daily lives to accommodate the shifting ecologies in which they live (Falzon et al., 2024).

Programming activates space and draws people in

Design Implication

Public spaces must be available for communities to run and activate programming.

Participants emphasized the importance of programming, music, performance, and shared activities in making spaces feel vibrant and inviting. After integrating cooling features into their collages, most participants' immediate next step was to go back and include programmatic features.

In the subject matter expert interviews, sound, in particular, was identified as a powerful attractor, drawing people into space even if they were not initially planning to engage. It provided a way for participants to respond to audio rather than visual cues and participate, even if from afar.

Finally, in the observational research, the role of programming became relevant, even for those required to remain at home. As a high-rise community, public spaces across St. James Town are visible not only to those who occupy them, but also to the people in the buildings that sit above them. This was emphasized by a subject matter expert in the community, who noted that the visibility of these public spaces allows for vicarious engagement, which is beneficial to those who are housebound.

Consistency builds trust and connection

Design Implication:

Heat resilience strategies must prioritize consistent, long-term programming and accessible spaces.

Across interviews and workshops, participants stressed that meaningful social infrastructure depends on consistency, listening, and the gradual development of relationships over time. One-off events or pop-ups are insufficient to build lasting relationships or trust, key underpinnings in a socially connected community.

Community spaces like The Corner were repeatedly referenced by community members and subject matter experts as vital community assets, not just because of what they offer, but because they are reliable resources within the community.

While consistency was a priority, this does not necessarily mean that a singular person or source of programming must be consistently available. Conversely, it could help individuals connect to consistent, reliable resources. For example, one healthcare professional visits the community infrequently, but when they do, they hand out prescriptions for air conditioners to individuals who cannot otherwise afford them. While this individual is not necessarily a constant fixture in the community, they are providing connections to access a resource that will have a consistent, long-term impact.

Interdependence is at the heart of a connected community

Design Implication

Interventions must create spaces that allow for gathering and mutual aid.

Again, while consistency is a priority, it also does not mean that a singular individual needs to sit at the heart of facilitating a connected community. This was referred to by subject matter experts as interdependence formed through ecosystems of support. It acknowledges that we do not exist on our own and instead that, within society, we all rely on one another. This concept comes from the disability community but can be applied more broadly to recognize how groups of people can work together to create more resilient communities.

This insight was reflected across subject matter experts in two ways. The first was through a community organizer, who identified finding leaders within a community as a key strategy for their work. This individual recognized that they could not be everything to everyone and instead built mechanisms to empower others to support those in their community. The second was a social connector, who discussed how their program implementation strategies took a strengths-based rather than a needs-based approach. This meant they sought to gain a deeper understanding of the different ways residents could contribute to their community and to connect them with the individuals who needed those forms of support. In both instances, these experts applied interdependence as a strategy to develop and maintain their programming.

Individuals feel a sense of community at the level of “building” or “block”

Design Implication

Interventions must be hyper-local, operating at the block or building level.

Subject matter expert interviews revealed that when seeking to foster social connection within neighbourhoods, individuals tend to respond best and feel the most connected to their community at the “building” or “block” level. This was emphasized by a social connector, who discussed how they initially began developing their work at the community-wide level, but realized that the connections that they were forming were not ‘sticking’ over the long term. When they narrowed the aperture of their work to the building and block level, individuals began to experience greater connection and resonance with the individuals they were connecting with.

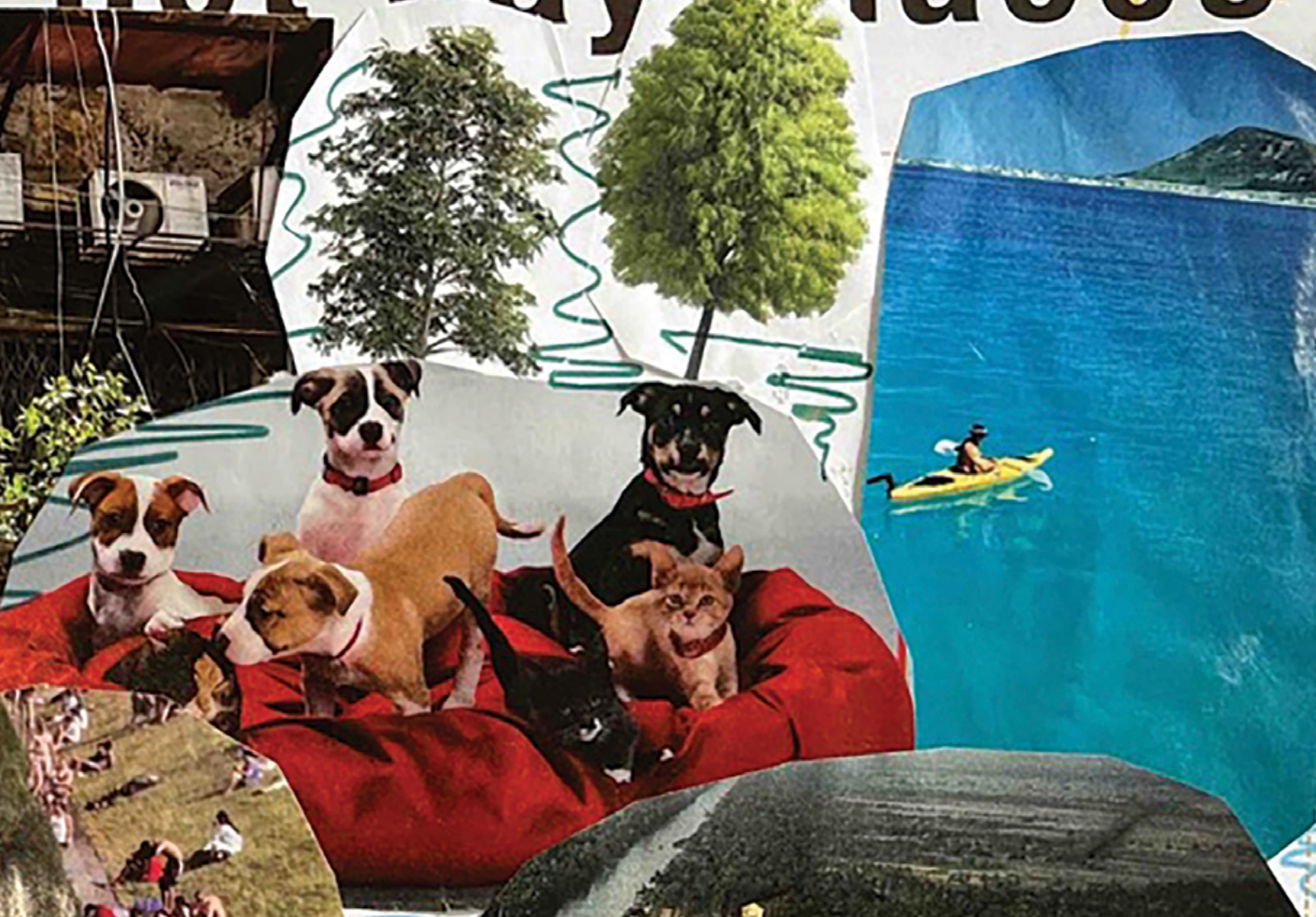
This could be seen through the design workshops as well, with the majority of participants being residents of 200 Wellesley Street. While individuals, of course, had different perceptions and experiences of the space around them, in discussion, they tended to share common goals and interests.

THE SOCIAL LIFE OF HE ideal

What are your favourite parts of this space?

Participant Collage, 2026

hot day places



able on a hot day? Do you feel connected to others here?

Existing barriers can undermine even the best design

Safety is foundational to social connection

Design Implication

Interventions must prioritize both physical and psychological safety for community members.

Concerns around safety were deeply embedded in participants' experiences, shaping how and whether they engage with public space. Residents described strategies to protect themselves in daily life. Several individuals voiced concerns about not using the park behind the building because the above-ground concrete pool blocked sightlines across the park. Others discussed FaceTiming their child on their walk to school to ensure their safety. And when it came to the collages, several participants included safety features to ensure that the park they were designing remained usable.

At the same time, experts noted that fear and mistrust can prevent the formation of social connections. Some worried about forming connections with people who might then learn personal information, such as where they live. Safety was the most common barrier to developing social connections amongst the subject matter experts who were interviewed.

Stewardship determines long-term success

Design Implication

Mechanisms for community-led, long-term stewardship must be embedded into design strategies.

During the workshops, participants expressed frustration with poor landlord maintenance of public spaces, citing issues like litter and unsafe conditions as barriers to use. They also voiced the lack of accountability for security guards responsible for overseeing the space, highlighting that their disconnection from the community reduces their motivation to ensure the space is properly monitored and tended to.

The way a space is cared for signals its value. Poorly maintained environments discourage use and erode trust, while well-maintained spaces foster respect and engagement (Sampson et al., 1999). While this was a prominent focus in the workshops, it did not come up in the subject-matter expert interviews, suggesting a potential gap between the priorities of the individuals developing the space and those living in it.

Designing within constraints is essential

Adaptation must respond to real-world limitations

Design Implication

Heat adaptation strategies must be grounded in the specific constraints of place.

Physical constraints, such as underground infrastructure, urban density, and limited resources, shape what is possible not just in St. James Town, but in most dense North American neighbourhoods.

Rather than viewing these as barriers, participants and observations highlight the importance of designing within these realities to create solutions that are both implementable and scalable. At the same time, features such as the community's density and diversity, as well as active community participation, can be considered among the community's greatest strengths and opportunities.

4.3 Key Findings Synthesis

Across these insights, a clear pattern emerges:

Heat adaptation in cities is not solely a technical challenge, but a deeply social one.

The effectiveness of any intervention depends not only on its ability to reduce temperature but on its capacity to foster belonging, trust, and connection.

Social infrastructure, when designed with intention, consistency,

and care becomes a critical and often overlooked form of climate adaptation.

Section 5

Concept Design and Vision

5.1 Design Approach

“People don’t typically think of architects as first responders. But they can be if they use the right tools.” (Mahrouki, 2024)

In recognizing the built environment’s dual role in thermal comfort and social connection, this report focuses on interventions at the spatial scale where climate risk is most immediately felt and where everyday adaptation unfolds.

While social and systems-level responses remain essential, spatial interventions offer a more immediate and tangible means of action. By reimagining public space, this work positions access to cooling as a civic resource that is accessible to all.

5.2 Design Principles

Design principles are developed to guide interventions, creating public spaces that address the dual challenges of extreme heat and social isolation by supporting thermal comfort, accessibility, and sustained community use over time. Informed by insights from primary research, these principles ensure that every design decision enhances the human experience and environmental adaptability.

All design interventions should be:

Adaptable

Design for seasonal variation and shifting patterns of use, particularly as heat alters when and how people occupy space.

Application: Incorporate elements such as movable shade, multi-season surfaces, and flexible programming to ensure usability across both hot summers and cold winters.

Outcome: Spaces remain comfortable and active year-round, supporting continuous opportunities for connection despite changing climate conditions.

Consistent

Prioritize reliability in both spatial design and programming to build familiarity and trust over time.

Application: Ensure that cooling features, seating, and gathering spaces are predictably available, and that programming occurs regularly rather than as one-off events.

Outcome: Consistency fosters habitual use, allowing social networks to form and strengthening community resilience during periods of stress, including extreme heat.

Local

Respond to the community's cultural, spatial, and climatic context.

Application: Design with an understanding of how residents already use and navigate space, incorporating local identities, histories, and everyday practices into interventions.

Outcome: Spaces feel relevant and welcoming, increasing the likelihood of use and supporting place-based forms of connection and adaptation.

Inclusive

Create environments that accommodate a wide range of needs and comfort levels, particularly during heat stress.

Application: Provide diverse seating, options for low-exertion activities, multilingual communication, and features that accommodate different ages, abilities, and social preferences.

Outcome: Inclusive spaces reduce barriers to participation, fostering belonging and enabling more people to safely access and benefit from cooling environments.

Collaborative

Engage community members as active participants in shaping space and programming.

Application: Co-design interventions with residents, community organizations, and local leaders, drawing on lived experience to inform decision-making.

Outcome: Shared ownership strengthens stewardship, ensures relevance, and builds social networks that are critical during climate-related events.

Accessible

Ensure that cooling and social infrastructure are easily accessible, understandable, and usable by all.

Application: Prioritize proximity to residential buildings, barrier-free design, clear wayfinding, and equitable distribution of features across the site. Consider mobility, language, income, and time-based access (day vs. night).

Outcome: Increased access enables broader participation, ensuring that vulnerable populations are not excluded from essential cooling and social resources.

Maintainable

Design for long-term care, durability, and ease of upkeep to ensure sustained performance over time.

Application: Select robust materials, minimize overly complex systems, and incorporate community-led stewardship opportunities where appropriate. Plan for maintenance from the outset, including cleaning, repairs, and seasonal adjustments.

Outcome: Well-maintained spaces remain safe, functional, and inviting, reinforcing their role as reliable sites of cooling and connection rather than deteriorating into underused or avoided areas.

These design principles are intended to be flexible rather than prescriptive, offering a framework that can be adapted to different contexts, constraints, and community needs, allowing other neighbourhoods to translate them into locally responsive strategies for heat resilience and social connection.

5.3 Demonstration Site Conditions

To translate research into practice, a demonstration site in St. James Town was selected to illustrate how the design principles could be applied in context. While grounded in a specific location, the conditions of this site are representative of many dense urban neighbourhoods, making it a useful model rather than a singular case. The intent is not to propose a one-off solution, but to demonstrate how similar strategies can be adapted and scaled across comparable environments.

Sites that may benefit from similar interventions may be characterized by:

- Underutilized or transitional community open space
- Proximity to high-rise residential buildings with limited private outdoor space
- High solar exposure and limited shade, particularly during midday hours
- Constrained planting conditions (e.g., underground infrastructure limiting tree canopy)
- Limited access to affordable or nearby cooling resources
- Presence of heat-vulnerable populations and/or limited private cooling capacity
- Existing but under-supported community networks or social infrastructure

5.4 Demonstration Site

Located at the centre of four high-rise residential towers in St. James Town is a parkette that serves as a shared “backyard” for more than 5,000 residents who directly border it. In a neighbourhood defined by density and vertical living, the park represents a critical accessible outdoor environment for daily life, social interaction, and relief from indoor conditions.

But currently, this site is underutilized. Prior to 2010, the site included a Toronto Community Housing-operated pool that served as a vibrant social and cooling hub during the summer months. Following structural and maintenance concerns, the pool was decommissioned and has since remained inactive at the centre of the park (St. James Town, 2023). The existing above-ground concrete pool structure reduces sightlines and visibility within the park, contributing to a sense of safety and taking up space for other amenities. This, among several other features, contributes to the park’s underutilization.

In 2017, the City of Toronto initiated a redesign process for the park, incorporating community feedback to envision new amenities including natural play areas, water features, open lawn space, and planting strategies. Phase one construction is scheduled to begin in 2026, with completion anticipated by 2028 (City of Toronto, 2025). While this plan reflects a significant investment in

the space, it does not explicitly address extreme heat or individual adaptation as defining conditions shaping how the park is used and experienced.

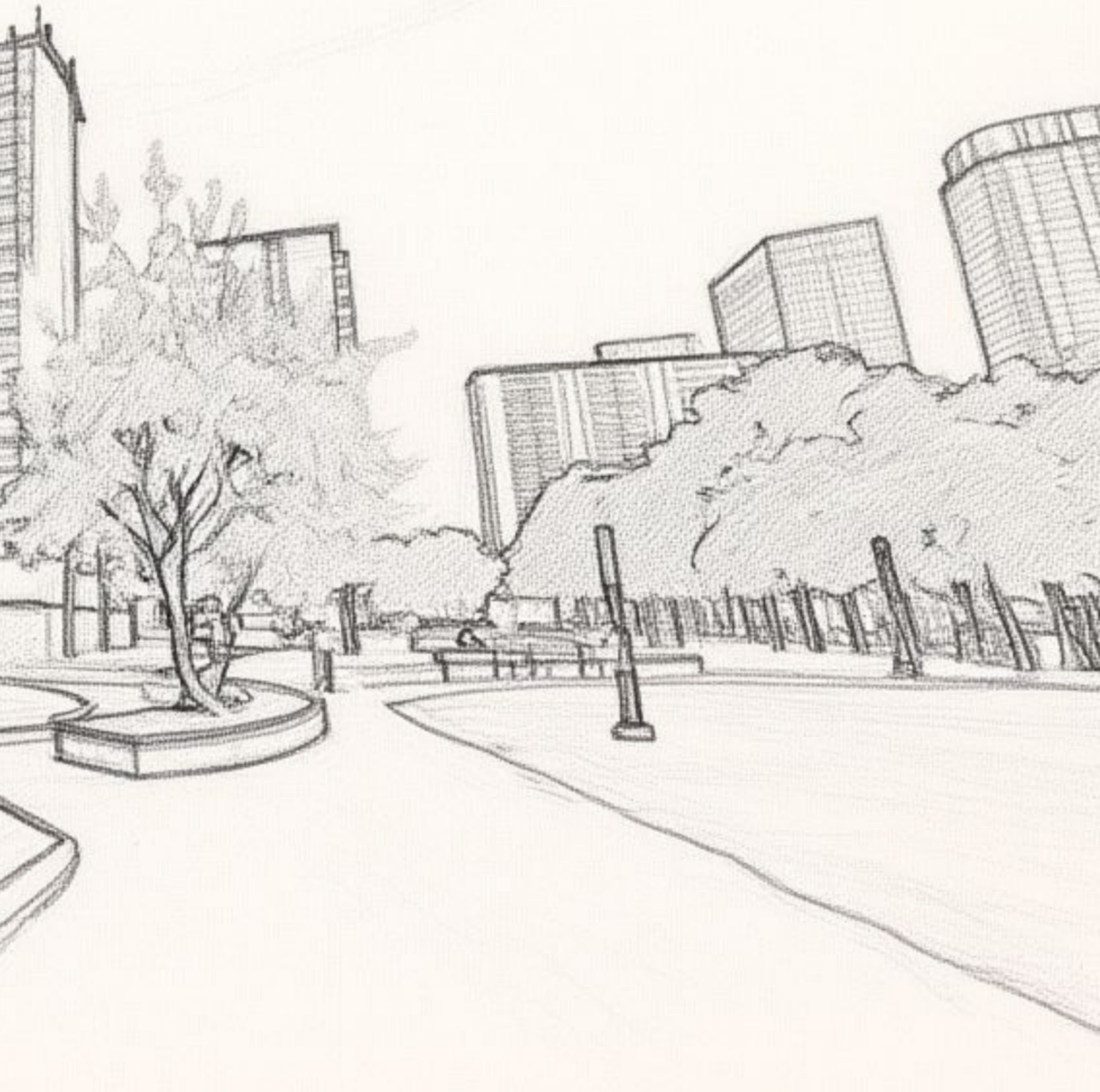
Knowing this, at the recommendation of the St. James Town Residents Council, this site is used for this report as a demonstration site to explore how heat-responsive design strategies can be integrated into existing redevelopment plans. The intention is not to propose a singular, site-specific solution, but to test and illustrate approaches that can be adapted to other high-density communities facing similar constraints.

A shadow study of the site underscores the urgency of this approach. During peak summer conditions, the park receives minimal shade during the hottest months (July and August) at the hottest hours of the day, exposing both the open space and surrounding building façades to prolonged solar exposure (ShadeMap, 2026). This presents a dual challenge: raising individual apartment temperatures while significantly limiting the park's usability during extreme heat, thereby increasing physiological strain and discouraging sustained use during the hottest hours of the day. This reinforces the need for intentionally designed cooling interventions to enable and support adaptive behaviours during extreme heat.

By grounding this report's design explorations within this context, the demonstration site provides a tangible framework for translating research insights into adaptable, climate-responsive urban interventions.

Shadows on St. James Town Parkette at 12:00pm, ShadeMap, 2026

St. James Town Parkette Illustration, 2026



5.5 Site Design and Vision

The Vision: Cooling Commons

A centralized, outdoor public space co-designed with local community organizations providing cool, shaded, inviting spaces for people to gather, linger, and connect.

These spaces transform underutilized areas into cooling hubs of social life and comfort.

The following image offers a snapshot of how the demonstration site could be activated, translating the design principles into a spatial scenario. It is intended to illustrate possibilities rather than define a complete solution.

Cooling Commons, 2026


WELCOME
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歡迎


Collaborative Mural
Adaptable Seating
Safety Features
Trail System


Signage
Trees, Plants,
and Vegetation
Lighting
Dog Park
Water Features
Children's Play
Environment

Children's Play Environment

The following features are key design elements intended to support a children's play environment that is both a site of cooling and connection—supporting accessibility, low-exertion play, caregiver comfort, and extended social use during extreme heat.

Removable Shade Sails

Seasonally adjustable canopy systems that provide targeted shade during peak summer conditions while allowing solar access in cooler months.

Rationale: While shade is critical in summer, subject matter expert consultations emphasized the importance of sunlight during colder months. Adjustable shade systems balance thermal comfort across seasons, extending the space's usability year-round.

Impact: This increases the likelihood that the space remains consistently active during extreme heat, strengthening social ties and making it a reliable place for play during heat events.

Pinterest, 2026

Natural, Heat-Moderating Materials

Permeable, low heat-retaining surfaces (i.e. wood, rubber, light-toned aggregates) used in place of conventional hardscape.

Rationale: These materials reduce surface temperatures and improve thermal comfort, enabling longer and safer use during extreme heat. Their texture and appearance also reflect natural landscapes, echoing participants' associations of trees with comfort and emotional well-being.

Impact: By making the space physically comfortable to inhabit, these materials support longer stays and increase opportunities for spontaneous social interaction during hot periods.

Wonoxion, 2026

Sensory-Cognitive Play Elements

Low-exertion, multi-sensory play features designed to support cognitive engagement over physical intensity.

Rationale: Workshop participants highlighted the need for more inclusive play environments, particularly for children with diverse abilities. These elements support inclusive, heat-appropriate play while reducing physical strain during high temperatures.

Impact: This could allow a wider range of children and caregivers to remain present in the space during heat, reinforcing inclusion and sustaining social interaction across diverse user groups.

Nurselik, 2026

Suzuki, 2025

Auditory Play Features

Interactive sound-based installations designed to engage both active users and surrounding observers, calibrated to minimize disturbance to nearby residents.

Rationale: Workshops and observations revealed the socially connective value of sound, particularly the joy and connection it generates by hearing children at play. Auditory features extend participation between direct users, drawing people into the space and enabling passive engagement, including for those in surrounding buildings who may be home-bound.

Impact: This extends the space's social reach, increasing the likelihood of fostering connection even among those who are not physically present or able to participate directly during extreme heat.

Lucat, 2026

Permeable/Non-Intrusive Fencing

Visually open boundary elements that define play areas without fully enclosing or obstructing sightlines.

Rationale: Caregivers expressed that clearly defined boundaries increased their sense of safety, particularly for children with diverse needs. Permeable fencing supports supervision and security while maintaining visual openness and social connectivity within the space.

Impact: Increasing caregiver confidence helps enable longer, more frequent use of the space, supporting sustained social presence and allows individuals to use the space who might not otherwise be able to access it.

Collaborative Mural

One of the most prominent features of belonging and participation in public space includes fostering a feeling of person-place congruence, ensuring that people feel reflected in the spaces around them. A collaborative mural serves as a method to allow residents to reflect themselves in the park, both through the act of creating the art and also through the art itself. It serves as a reflection of the community's past, present, and future, allowing residents to connect over stories of place.

Seasonal Rotation

Mural art that is rotated and updated seasonally.

Rationale: Seasonal rotation allows more individuals to participate in the work, and for a more diverse range of voices and stories to be reflected through art. Additionally, allows for a pre-planned change in the circumstance that the mural is vandalized.

Impact: Creates an ongoing sense of engagement and belonging with the space, promoting feelings of accountability to community members who created the mural.

Honore, 2026

Collaborative Process

The process of developing the mural is multi-generational and community-wide, finding artistic ways to depict the community's past, present, and future.

Rationale: A collaborative development process brings people across the community together around a shared vision to connect, tell stories, and work collectively.

Impact: The process of creating the art itself is connective and a tool for sharing oral histories.

Designs, 2026

Signage and Communication

Signage functions as both an informational and social layer within the space, shaping how people navigate, understand, and feel a sense of belonging. In high-density, multicultural communities, it can also act as a tool for inclusion, visibility, and collective expression.

Dick's Sporting Goods, 2026

Customizable Signage

Adaptable signage systems that allow community members to update content based on events, seasons, or community-led initiatives.

Rationale: Subject matter expert interviews highlighted the challenges of fostering belonging in dense urban environments, particularly for newcomers. Customizable signage can create a call to join, enabling communities to reflect their presence and activities within the space supporting ongoing visibility and participation.

Impact: By allowing the space to evolve with its users, this fosters a sense of ownership and belonging, encouraging continued engagement and strengthening social connections over time.

Generative AI, 2026

Multi-Lingual Lettering

Signage elements that incorporate multiple languages and character systems reflective of the community's linguistic diversity.

Rationale: Workshops emphasized the community's multicultural nature and the barriers faced by individuals who do not speak English as a first language. Multi-lingual lettering increases accessibility and ensures that communication reflects the identities of those who use the space.

Impact: By making the space welcoming to a broader range of users, multi-lingual signage acts as an explicit invitation to participate, supporting inclusion and enabling diverse communities to gather, interact, and remain connected.

Dog Park

During heat waves, many are afraid to leave their pets alone in the house and will stay home to be with them. Dog parks serve as shared spaces for both animals and their owners, functioning as important sites of daily routine, social interaction, and outdoor activity. In extreme heat, these spaces must support thermal comfort, safety, and prolonged use for both dogs and caregivers.

Wood Fibre Ground Surface

Engineered wood fibre surfacing applied across primary circulation and play areas.

Rationale: Animals' paws are extremely sensitive to hot pavement during the summer months. This material remains cooler than conventional hardscape, is soft on paws, and absorbs moisture, improving thermal comfort, hygiene, and usability during hot conditions.

Impact: The space becomes safe for dogs to be in during the heat and allows owners to stay with their dogs for prolonged periods.

Pinterest, 2026

Integrated Shade Features

Built elements such as tunnels, canopies and overhead structures provide continuous shade in the play environment).

Rationale: Creates localized cooling zones for rest and play, reducing heat exposure for dogs.

Impact: Increases the likelihood of longer, more comfortable stays for owners and pets.

Dallas, 2026

Bryan Bark Park, 2026

Waste and Disposal Stations

Distributed garbage and pet waste stations (with bags) located at key access and activity points.

Rationale: One significant reason that workshop participants did not want to use the park behind 200 Wellesley Street is due to individuals not picking up after their pets. This can help support cleanliness and stewardship, maintain usability, and encourage shared responsibility among users.

Impact: Helps improve the cleanliness and desirability of the space, encouraging individuals to use and connect there across seasons.

Bimbear, 2026

Seating and Edge Conditions

Benches and informal seating integrated along the perimeter and within shaded zones.

Rationale: Workshop participants and observational research emphasized the importance that pets play in fostering community connectedness. This supports rest, observation, and social interaction not just among owners but also passersby, reinforcing the park's role as a social space.

Impact: Helps to promote lingering, increasing the chance of connection between pet owners and engaged passersby.

Trail System

Trail networks structure movement through the site, supporting circulation, visibility, and everyday use. In high-density communities, they function not only as routes of travel but as social corridors that enable interaction and access to shared spaces.

Shaded Circulation

Continuous or intermittent shading elements integrated along primary pedestrian routes.

Rationale: Observational research identified trails as the most consistently used spaces within the park. Subject matter experts noted that extreme heat can significantly restrict mobility, with some individuals choosing not to leave their homes due to unsafe transit conditions. Shaded routes mitigate heat exposure and support safe movement through the space.

Impact: By enabling comfortable, continuous circulation, shaded trails can help individuals remain mobile and connected, supporting access to amenities and sustaining everyday social interaction during extreme heat.

ArchDaily, 2026

Permeable/Light-Coloured Surfaces

Permeable or high-albedo materials that reduce heat absorption and allow for integrated planting where possible.

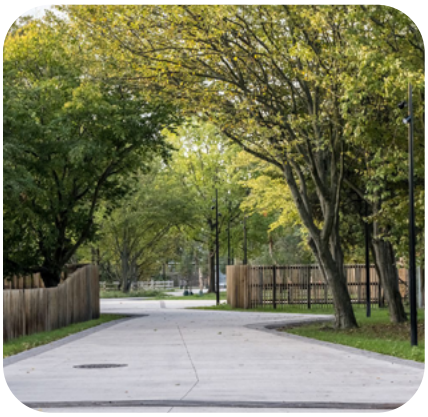
Rationale: Conventional hardscape contributes to heat accumulation and can become unsafe for walking, particularly for children and animals. Heat-moderating surfaces reduce thermal gain while improving comfort underfoot.

Impact: By lowering surface temperatures and mitigating localized heat buildup, these materials make movement through the space safer and more inviting, encouraging continued use and reinforcing the park as a connective social environment during hot conditions.

Quintana, 2026

Safety Features

Safety is foundational to social connection. Well-designed safety features expand who feels comfortable using public space, particularly for children, seniors, and women, and are essential to enabling sustained and inclusive use.



Pinterest, 2026

Open Sightlines

Clear visibility across the park, minimizing visual obstructions and hidden areas.

Rationale: Observational research and participant feedback indicated that obstructed views, such as those created by the existing above-ground pool, contribute to feelings of unease. In observational research, spaces with clear sightlines were more frequently used and perceived as safer.

Impact: Encourages use and lingering by increasing perceived safety, supporting greater social interaction and more consistent occupation of the space.

Pinterest, 2026

Safety Alert Systems

Discrete, accessible emergency call stations distributed throughout the park.

Rationale: Workshop participants identified a need for accessible safety infrastructure beyond residential buildings, noting that security within buildings does not extend into public space.

Impact: Increases confidence and expands who feels able to access the space, supporting broader and more inclusive participation.

Seating

Seating structures how people occupy space, transforming circulation areas into places of rest, interaction, and exchange. In high-density communities, comfortable, adaptable seating is essential to support lingering, particularly during extreme heat when indoor cooling may be limited.

Building-Adjacent Seating

Accessible seating located in shaded, thermally comfortable zones directly adjacent to residential buildings.

Rationale: Observations and subject matter expert consultations indicate that residents, particularly seniors and mobility-device users, often gather immediately outside building entrances to escape overheated indoor conditions. Placing seating in close proximity reduces mobility barriers and provides a more comfortable microclimate.

Impact: Creating accessible, nearby cooling refuges supports vulnerable populations in remaining outdoors safely, enabling informal gatherings and sustaining social presence during periods of extreme heat.

Sink, 2026

Flexible Seating

A range of movable and adaptable seating options that accommodate different postures, group sizes, and activities.

Rationale: Workshops and interviews revealed that individuals often spend extended periods outdoors to cope with heat, requiring spaces that can support varied uses such as resting, reading, or socializing. Flexible seating allows users to configure the space to suit their needs.

Impact: By supporting longer stays and diverse patterns of use, flexible seating increases opportunities for interaction and inclusion, reinforcing the park as a socially active environment during hot conditions.

Vestre, 2026

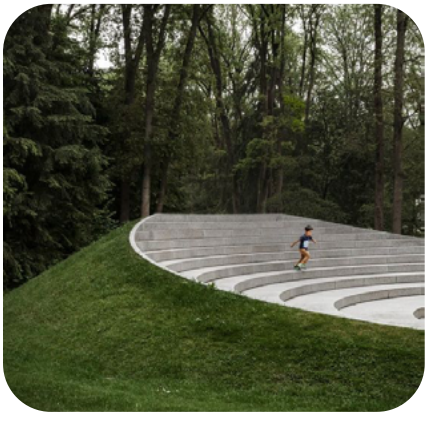
Outdoor Design, 2026

Shaded Seating Integration

All seating elements are integrated with shade through trees, canopies, or built structures.

Rationale: Without protection from solar exposure, seating becomes unusable during peak heat. Integrating shade ensures thermal comfort and usability.

Impact: By maintaining comfortable conditions, shaded seating supports prolonged occupancy and interaction, making social use of the space viable during extreme heat.



Shen, 2026

Amphitheatre Seating

Inward-facing, accessible seating arranged to support informal gatherings, performances, and community-led events.

Rationale: Community feedback highlighted the importance of shared events, ranging from town hall meetings to performances, as key moments of connection. Defined seating arrangements create a defined space for different forms of gathering while accommodating different group sizes and activities.

Impact: By enabling collective use of space, arena seating helps strengthen the park's role as a social anchor, supporting organized and spontaneous gatherings that foster connection, even during periods of extreme heat.

Trees, Plants, and Vegetation

Vegetation plays a critical role in shaping microclimate, comfort, and experience within urban space. Beyond their environmental performance, trees and plants carry strong emotional and cultural significance, as reflected in workshop discussions. In a four-season climate, they offer dynamic, seasonally responsive design elements that support both cooling in summer and solar access in winter.

Shallow Soil Tolerant Trees

Strategic planting of small to medium canopy trees suited to constrained soil conditions (e.g. serviceberry, crabapple, select maple species), prioritizing species tolerant of shallow soil depths.

Rationale: Subject matter expert consultations identified underground parking as a key constraint limiting deep root growth. Where planting is feasible, selecting appropriate species allows for tree integration despite these limitations. Workshop participants also expressed a preference for fruit-bearing trees, highlighting opportunities for interaction, seasonal change, and access to edible landscapes.

Impact: Trees provide significant cooling through shade and evapotranspiration, reducing ambient and surface temperatures. This improves thermal comfort and encourages longer stays, supporting lingering, social interaction, and sustained use of the space during extreme heat.

Pinterest, 2026

Tree Maintenance and Preservation

Prioritize the protection, maintenance, and integration of existing mature trees within the site.

Rationale: Workshop participants expressed strong emotional attachment to existing trees, often tied to memories, identity, and everyday experiences. From an environmental perspective, mature trees provide substantially more shade and cooling than newly planted trees, which can take decades to reach comparable canopy size.

Impact: Preserving existing trees helps maintain both immediate cooling benefits and social continuity within the space. It supports ecological stability while reinforcing residents' connection to place, contributing to both environmental and social resilience.

Pinterest, 2026

Landezine, 2026

Potted/Raised Planting Systems

Use of planters, raised beds, or contained soil systems to support vegetation where in-ground planting is not viable.

Rationale: Subsurface infrastructure limits the ability to establish traditional root systems. Above-grade planting systems enable vegetation growth while bypassing these constraints.

Impact: While offering less cooling than mature tree canopies, these systems still contribute to localized temperature reduction, improve comfort, and introduce greenery that enhances the space's attractiveness and usability, encouraging people to gather and linger.


Rajasekar, 2026

Vegetated Structures

Integration of trellises, pergolas, or vertical supports for climbing plants and vines to create shaded, vegetated surfaces.

Rationale: In conditions where trees cannot achieve full canopy growth, structural supports allow vegetation to extend vertically and horizontally, compensating for limited root depth.

Impact: These hybrid systems provide additional shade and cooling while creating defined, comfortable microclimates. By improving thermal conditions, they help support longer occupancy and enable social use of the space during hot periods.


Grounded Space, 2026

Native Plants

Integration of native plants, flowers, and trees across the park.

Rationale: Native plants help support a thriving ecosystem, making them low-maintenance, resilient, and better able to withstand and reduce flooding, drought, and other environmental pressures. They also provide essential food and habitat for local pollinators and wildlife, a consideration that was ongoing in the collages of workshop participants.

Impact: Native plants help create a resilient ecosystem and attract wildlife, increasing the likelihood that individuals will interact with the space.

Water Features

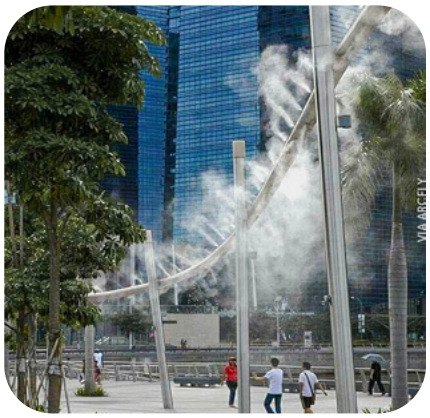
Water functions as both a thermal regulator and a social attractor within public space. It provides direct, perceptible cooling while also drawing people together through play, sound, and sensory engagement. Its presence supports both active and passive forms of interaction, making it a critical component of heat-responsive social infrastructure.

Distributed Misting Features

Low-intensity misting elements dispersed throughout the site, integrated along primary paths and gathering areas.

Rationale: Workshop participants expressed varying comfort levels with direct water interaction, with some hesitant to engage in features that require full immersion. Misting provides a low-barrier cooling option accessible to people of all ages and user groups, including seniors and pet owners. Distributing these features across the site prevents cooling from being concentrated in a single zone (e.g., children's play areas), supporting more equitable access.

Impact: Misting provides immediate evaporative cooling while allowing users to remain mobile and comfortable.



Arcfly, 2026

In-Ground Interactive Water Features

Flush-mounted splash elements that can be seasonally activated.

Rationale: Participants frequently associated water with joy, particularly through the sounds and presence of children's play. In-ground systems allow for flexible, multi-seasonal use of space, functioning as active water play in summer while remaining open and usable during cooler months.

Impact: These features provide direct cooling through contact and evaporation while activating the space socially.

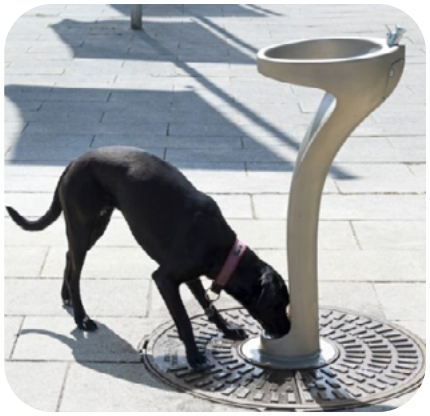

SWA Group, 2026

Water Fountains

Accessible drinking water stations designed for both human users and pets, integrated at key nodes throughout the site.

Rationale: Access to potable water is a fundamental requirement for heat resilience. During workshops and interviews, the importance of basic, reliable cooling resources was emphasized. Providing inclusive water access ensures that cooling infrastructure supports a wide range of users, including unhoused individuals and pets, who are often excluded from formal public amenities.

Impact: Water fountains provide essential hydration during extreme heat, directly reducing heat-related health risks.


IonDesign, 2026

Lighting

Lighting is a critical component in extending the usability of public space beyond daylight hours, particularly in response to shifting behavioural patterns during extreme heat. As daytime temperatures rise, individuals increasingly rely on early morning and evening hours to access outdoor environments, making safe, visible, and comfortable nighttime conditions essential for continued social use.

Yonoh, 2026

Low-Glare, Downward-Facing Lighting

Shielded, downward-directed fixtures integrated along primary pathways, seating areas, and key activity nodes.

Rationale: Observational research and subject matter expert interviews indicate that heat waves shift patterns of park use toward cooler evening and nighttime hours. Lighting must therefore balance visibility with minimizing light spill into adjacent residential units. Downward-facing, low-glare fixtures support wayfinding and comfort without disrupting nearby residents.

Impact: Enhances perceptions of safety and enables continued use of the space after dark, supporting nighttime activity as a form of heat adaptation while maintaining respectful coexistence with surrounding buildings.

Leung, 2026

Well-Lit Pathways

Continuous, clearly defined lighting along circulation routes to support safe movement throughout the space.

Rationale: Participants noted a tendency to walk—particularly with pets—during cooler nighttime hours. Adequate pathway lighting ensures these activities remain safe and accessible.

Impact: Supports safe movement and navigation, encouraging use of the park during cooler periods and helping maintain social activity beyond daytime hours.

Section 6

Discussion

Discussion

This research set out to understand how four-season cities can better respond to extreme heat, not only through physical infrastructure, but through the social systems that shape how people experience and survive it. Across the literature, data collection, and community engagement, one finding became consistently clear: heat is not only an environmental condition, but a social one. Its impacts are mediated as much by relationships, trust, and access to shared space as by temperature itself.

A major finding of this report echoes its starting premise. It was reinforced that the ways people are affected by heat are highly social. Toronto's Thermal Comfort Guidelines recognizes this, noting the city's diversity and the varied ways individuals experience outdoor conditions (City of Toronto, 2025). This was further echoed across expert interviews and participatory workshops, where individuals highlighted differences in how heat affects people based on age, health conditions, and level of connectedness within a community, among other factors. Together, these insights illustrate the importance of applying a sociological lens to research on heat.

Another key finding is that heat manifests differently across environments. Research revealed that environmental conditions shape how heat is experienced not only at the city-wide level, but also at the neighbourhood scale, where certain populations are significantly more susceptible due to the design of the built environment (Yucel et al., 2025). Expert interviews and participatory workshops further extended this insight, illustrating how the built environment can influence one's ability to adapt to heat at the individual scale. For example, one senior may live in an air-conditioned apartment on the first floor, with easy access to outdoor cooling spaces, while another in a similar situation may live on the 25th floor, making access far more difficult. This contrast highlights the profound role that the built environment plays in shaping adaptive capacity.In this context, responding to heat presents a clear design opportunity.

The research demonstrates the dual function of public spaces. On one hand, they can serve as civic resources, democratizing access to cooling. On the other hand, they can support climate resilience by fostering social infrastructure and strengthening community connections.

However, it is important to recognize that adapting to heat is largely experiential. A key gap between the literature and primary research emerged in approaches to cooling. Literature often focuses on dedicated cooling centres, designed primarily for thermal relief. In contrast, workshop participants gravitated toward multi-functional spaces, places where they could rest, socialize, participate in activities, or enjoy their surroundings, in addition to cooling off. This suggests a need to design cooling environments that respond not only to needs, but also to desires (Leitao, 2022).

When considering social connection, a consistent theme was that, at the heart of successful community spaces, is a sense of belonging. Designing for socially isolated individuals presents a particular challenge, as these individuals are often the hardest to reach. Feng and Astell-Burt's concept of lonelygenic environments speaks to this, highlighting how spaces can exacerbate loneliness (Feng et al., 2022). The counterpoint is person-place congruence: ensuring that individuals can see themselves reflected in the environments around them. This was evident throughout the workshops, where participants incorporated personal elements into their collages to represent themselves within the space. This reinforces the importance of beginning design processes from a human-centred perspective.

Two notable gaps emerged through the research. The first relates to the role of pets in shaping behaviour during heat. While this was rarely discussed in the literature and expert interviews, it was central in participatory workshops. This suggests a disconnect between formal research priorities and lived experience, and highlights an opportunity for further study. The second gap relates to ongoing stewardship. While not entirely absent from the literature, it was rarely emphasized, yet it was a clear priority for community members. As individuals who interact with these spaces daily, participants emphasized how poor maintenance can render spaces unusable. Although stewardship was not a central focus of this study, it offers a valuable opportunity for future research, particularly to explore community-led models of care.

There are two main limitations to this study. The first relates to methodology. This research relies on qualitative data to explore how people experience heat at the corporeal, spatial, and systemic levels. It does not include primary quantitative analysis and is therefore limited by the number of participants and the depth of perspectives gathered. The second limitation relates to scope. While there are many possible ways to intervene across environmental, social, and policy dimensions, this research focuses primarily on the spatial aspects of these challenges. As a result, it places greater emphasis on people's desires and experiences of space, rather than fully identifying unmet needs or measuring existing gaps.

The findings point to several directions for future research. There is an opportunity to further investigate the specific adaptations individuals are already making in response to heat. Additionally future work could expand to explore the design of systems and social networks, rather than spaces alone.

This research contributes to an underexplored area of climate adaptation: the social dimensions of heat in cities. Engaging with lived experience and operating at the intersection of research, design, and justice, it highlights the potential for social infrastructure to serve as a critical tool in building more resilient and equitable communities.

Section 7

Conclusion

Klysen, Toronto Summer, 2025

Conclusion

Heat is more than temperature; it is lived, felt, and experienced across the patterns of the city and its people. How we design our streets, buildings, and public spaces shapes who suffers, who survives, and who thrives. In this sense, the built environment is both a risk and a remedy: it can intensify heat and isolation, or it can provide cooling, refuge, and the social networks that make urban communities resilient.

As a four-season city, Toronto has the unique opportunity to look at places that have endured heat for centuries, while also examining how people currently interact with the city to create spaces responsive to the shifting rhythms of our own climate. But the bigger design challenge is a social one: moving from an individualized, private approach to "cooling off" towards a public, collective vision that asks how each decision we make can foster social connection and dismantle existing inequities to create community resilience. What is exciting about this work is its breadth of possibility; it can be as simple as inviting over your neighbour who does not have air conditioning on a hot day, or as aspirational as retrofitting public spaces across the city to make them cooling commons.

This research explored the lived experiences of populations most at risk of both heat exposure and isolation, seeking to understand which forms of social infrastructure proved most effective at protecting against the heat and nurturing social connection. The intention was to deepen collective understanding of how urban design strategies could reduce dependence on individualized cooling while supporting community resilience. Through this, it found that the public places that surround us can act as powerful antidotes to heat and disconnection when they take a place-based design approach, responding to the specific needs of a community, developing person-place congruence, nurturing a feeling of belonging across community members, and focusing on the experiential dimension of heat, shifting from a needs-based approach to desire-based design. If we take this approach, we can meet heat waves not with retreat, but with creativity—designing spaces that bring us together, strengthen the fabric of our communities, and nurture a sense of shared care. In doing so, we remind ourselves that the creation of social infrastructure is a critical, yet often overlooked, way to adapt to rising temperatures.

Acknowledgement

This report is for anyone who has ever wondered, on a hot day, whether a neighbour or a loved one can keep cool and decided to check in on them. In an era of rising temperatures, this kind of collective care is more than just a kind gesture; it is a form of collective climate resilience.

At the heart of this work is the power of collective research, a recognition of the importance of many voices shaping the direction and depth of a pressing question. I am so grateful to the people who contributed their time, insight, and care to its development.

For my faculty supervisor, Associate Professor Maya Desai: you bring depth and rigor to everything you do, and that standard has shaped this work in such a meaningful way. Thank you for the generous time you spent in calls and over coffee, helping refine ideas and push my thinking further.

For my community partner, Randy Alexander: I have never met anyone more actively engaged in their community. Your knowledge is grounded not only in expertise but in genuine relationships. Thank you for your insights, your openness, and the warmth with which you welcomed this work.

To my partner John, thank you for always being the calm and care that I need. I am grateful not only for you but for the comfort of the home we've created together.

To the individuals who shared their voices, members of the St. James Town Residents Council and subject matter experts from across North America, your generosity and creativity throughout the process were invaluable. Your willingness to imagine new possibilities expanded not only the scope and ambition of this project but also made it more human.

Section 8

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Abstract

Heat waves are among the deadliest climate hazards in cities, yet their risks are often underestimated. Research shows that the people most likely to die during extreme heat are those who are isolated and socially disconnected, a growing concern as loneliness in cities rises. This project examines how social infrastructure, the physical places, facilities, and organizations that support community life and foster social connection, can help build resilience to extreme heat in Toronto. Focusing on the lived experiences of residents in St. James Town, a densely populated and diverse high-rise community, the study combines participatory design workshops, observational research, and expert interviews to explore how both physical environments and social connections shape climate adaptation strategies within communities. The findintgs highlight the built environment's dual role in both protecting residents from heat and fostering social networks that support collective climate resilience. By centring social connection as a strategy for promoting climate adaptation, this research demonstrates that investing in community-focused social infrastructure is crucial for creating equitable and resilient urban futures.

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