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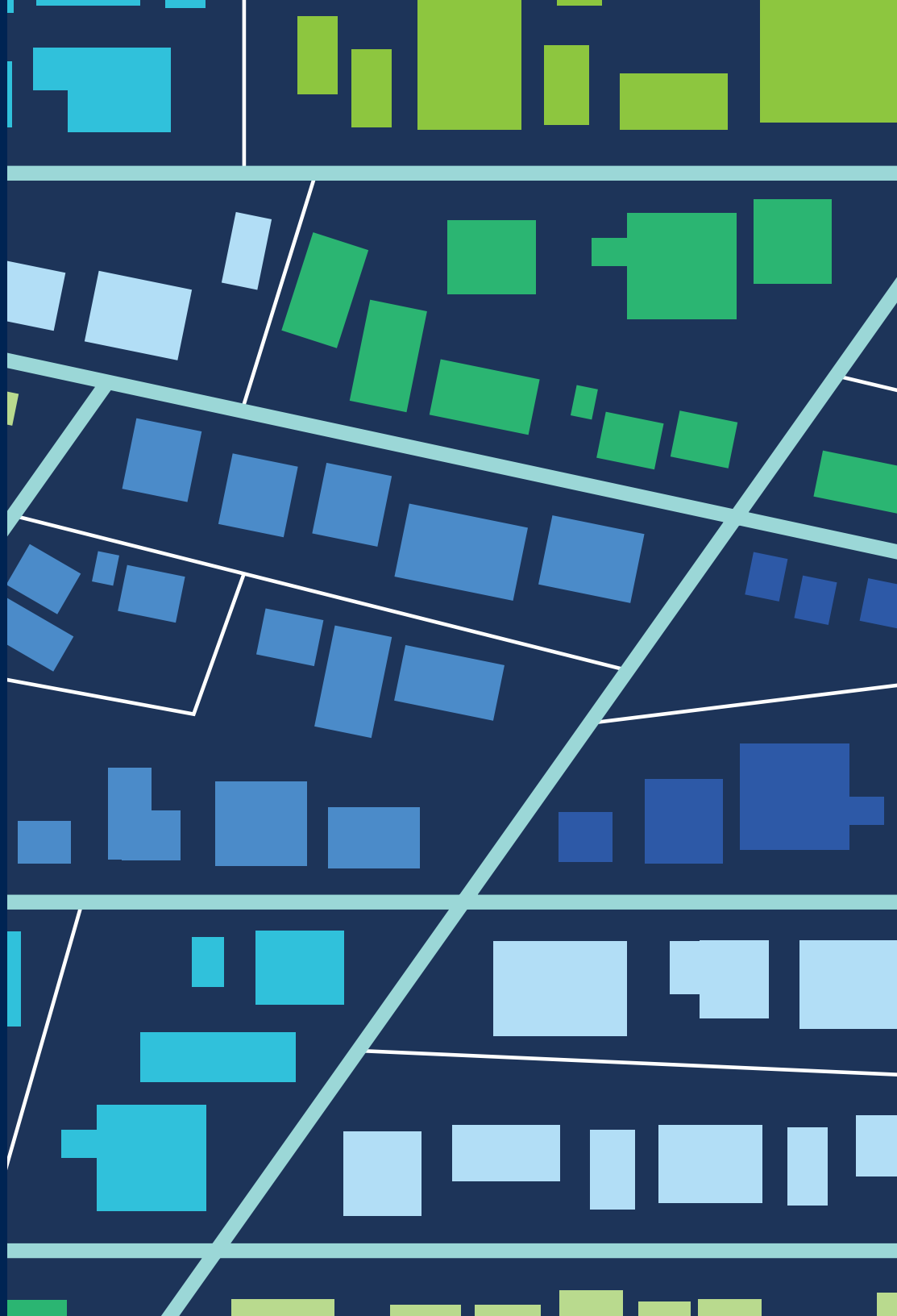
Towers in the Park: Designing equitable urban resilience in Toronto's tower neighbourhoods



City Research Insights
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Toronto's high density tower neighbourhoods represent a unique urban form in North America, and might also hold a unique key to addressing the inequitable impacts of climate change.

Typically surrounded by vast green spaces, these "towers in the park" dotted throughout Toronto's landscape were originally built and marketed in the 1960s and 1970s as an alternative to the challenges of urban living. They now provide stable housing to nearly one in five Torontonians and represent almost half of the privately-owned rental housing in the city. These tower neighbourhoods are also now home to many of the city's equity-deserving residents, and many are located in 1 of 13 of Toronto's Priority Neighbourhoods. Like racialized neighbourhoods in other North American cities, they are also disproportionately impacted by climate change and its environmental consequences, including urban heat island effects and flooding.

"**Equity-deserving**" is now often a preferred term to "equity-seeking," as it challenges the perception of racialized and marginalized populations as interlopers. Equity-deserving groups have comparatively less access to opportunities and resources, as well as greater challenges preparing for, responding to, and recovering from climate shocks and stresses.

Social and economic inequities increase the chance that a person will be exposed to the impacts of climate change like extreme heat and power outages in aging buildings. Inequities also increase the potential that a person will be negatively impacted by climate shocks. In Toronto's tower neighbourhoods, residents are often already experiencing socio-economic and health-related stressors, and are disproportionately vulnerable to climate change impacts.

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While the open and green spaces in tower neighbourhoods have been long-overlooked, a multidisciplinary team led by **Professor Fadi Masoud** is working to evaluate the social and environmental potential of these spaces to contribute to mitigating the inequitable impacts of climate change in Toronto. Supported by the School of Cities Urban Challenge Grant, the team has been working closely with local grassroots leaders, City of Toronto staff, and the Centre for Connected Communities to co-create urban design solutions. The project also advances the City's first Resilience Strategy, which has identified tower neighbourhoods as key to Toronto's future resilience.

The team's preliminary work suggests that co-creating and sharing knowledge and data about neighbourhood-specific climate challenges can help to support local leaders' efforts to advocate for policy change.

Open and green spaces in Toronto's tower neighbourhoods

Many of the open and green spaces in tower neighbourhoods – including ravines, parks, schools, and hydro corridors – are enclosed, and/or lack the features, amenities, and programs available in the city's public parks. However, their permeable surfaces and mature tree canopies have the potential to offer benefits to residents and the wider city if creative new uses are supported and promoted.

These spaces already play an important role in local place-making. Particularly with the COVID-19 pandemic and a new demand for outdoor spaces where people could meet, work, and play, the open and green spaces in or adjacent to tower neighbourhoods have increasingly become crucial for daily living. Residents use these spaces for family gatherings, to escape hot nights in unair-conditioned units, and even to receive vaccinations from mobile clinics.

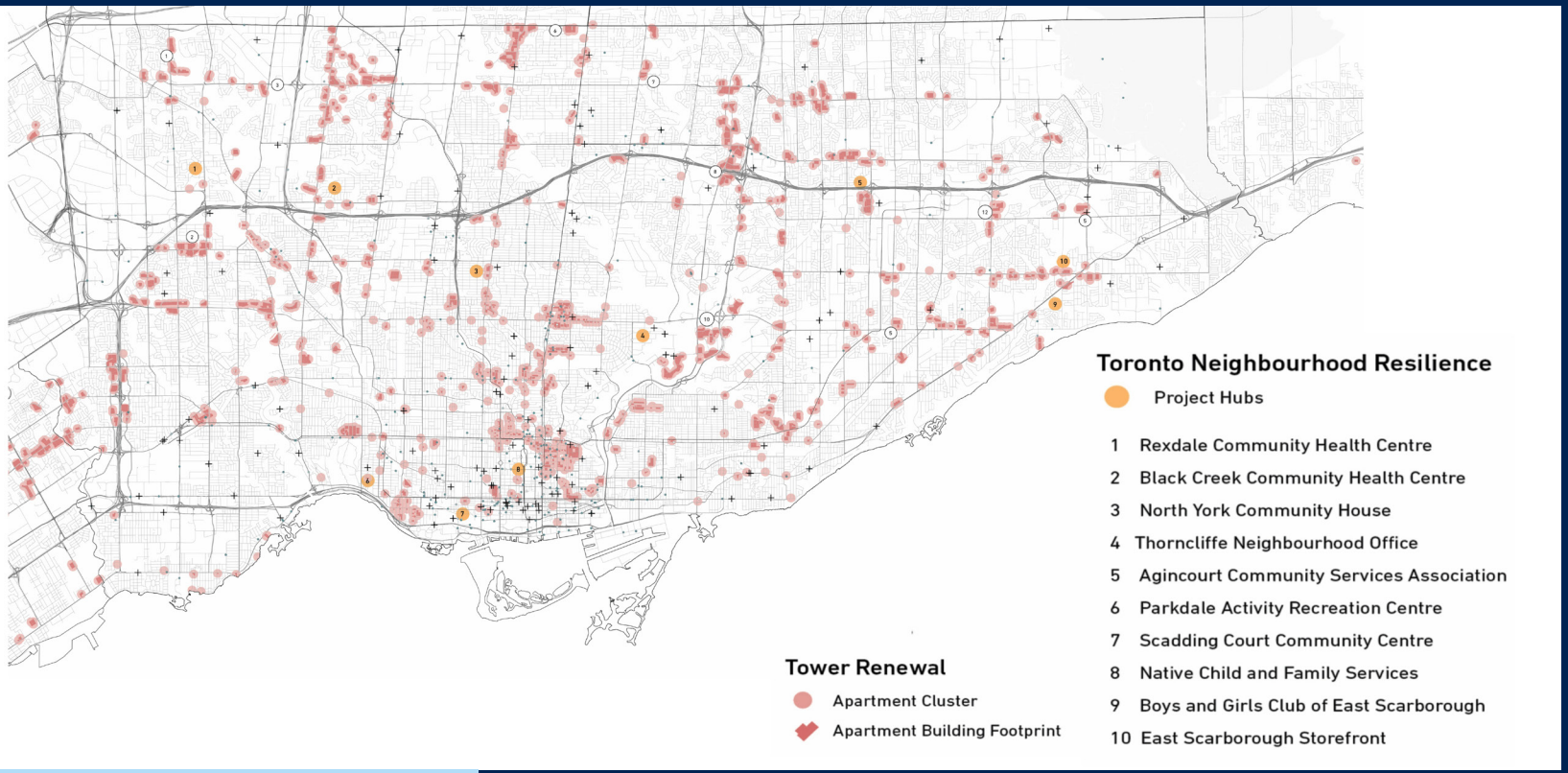
By continuing to explore the creative possibilities of these spaces, the School's researchers see enormous potential for the integration of climate adaptation and mitigation strategies to improve the social, economic and environmental sustainability of tower neighbourhoods.

Towers in the park - Finch and Weston

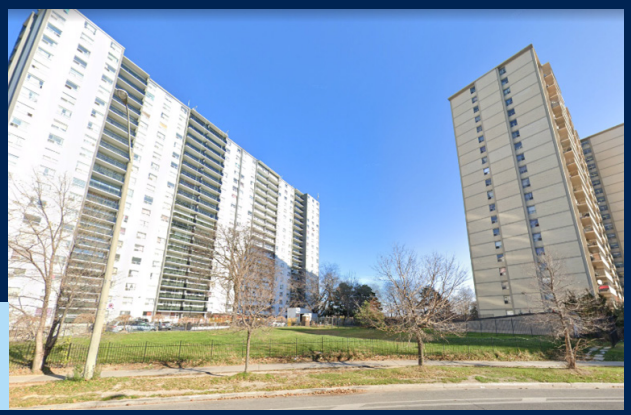
As Professor Masoud notes, "public open space assets such as roads, sidewalks, and parks, as well as in-between open spaces such as lawns, yards, driveways, and parking lots play a cumulative, critical, and integrated role in the climate mitigation and adaptation of cities. Nowhere are the pressures of reducing urban heat island effects and flooding more urgent than in Toronto's Priority Neighbourhoods – where climate and social vulnerability overlap."

See this visual essay of the Thorncliffe Park tower community that illustrates its past and current landscape, created by students in the John H. Daniels Faculty of Architecture, Landscape and Design.

Toronto's Tower Renewal program aims to drive broad environmental, social, economic, and cultural change by improving Toronto's concrete apartment towers and the neighbourhoods that surround them. The City's vision is to work with residents to reinvigorate these neighbourhoods, making them more liveable and energy efficient, while bringing new community amenities to the sites. This project seeks to compliment and expand on Tower Renewal by providing additional support specifically in the public realm and in shared open spaces.



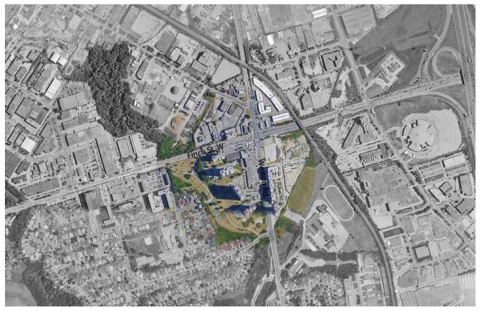
Tower communities can be found across Toronto.

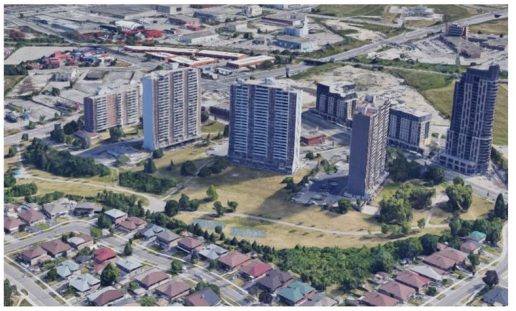


Google street view of a typical tower community.

Tower Typologies

Towers in the Park: Finch and Weston





Location:

2397 Finch Ave W, North York, ON M9M 2X1
2405 Finch Ave W, North York, ON M9M 2X2
3400 Weston Rd, North York, ON M9M 2W2
3390 Weston Rd, North York, ON M9M 2X3

Total Area: 282, 743 m²
Radius: 300 m

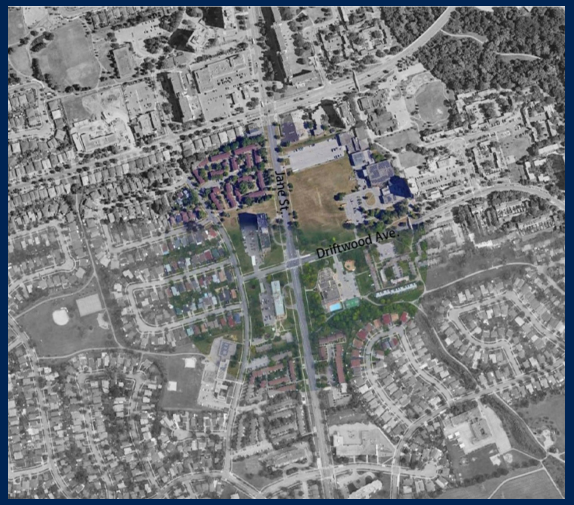
- Park & Hydro Corridor: 18%
- Dense canopy: 3%
- Mowed lawn: 26%
- Paved surface: 47%
  - Parking: 16%
  - Road: 9%
- Program: 0.3%
  - Tennis courts
  - Playing field

Adjacencies:

1. Community Plaza
2. Lindy Lou Park
3. Hydro Corridor
4. Gas Station

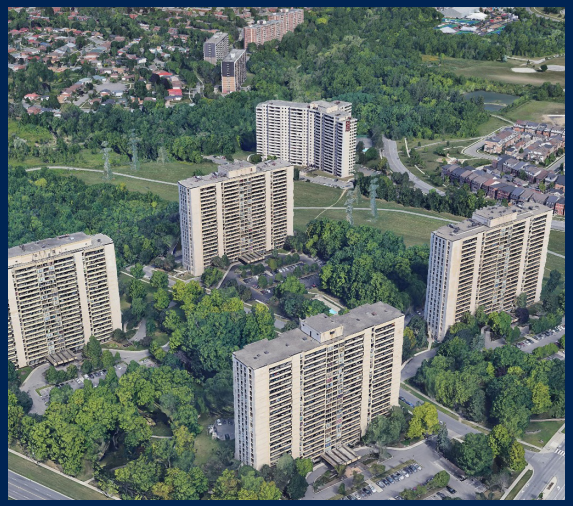
Other Towers Typologies

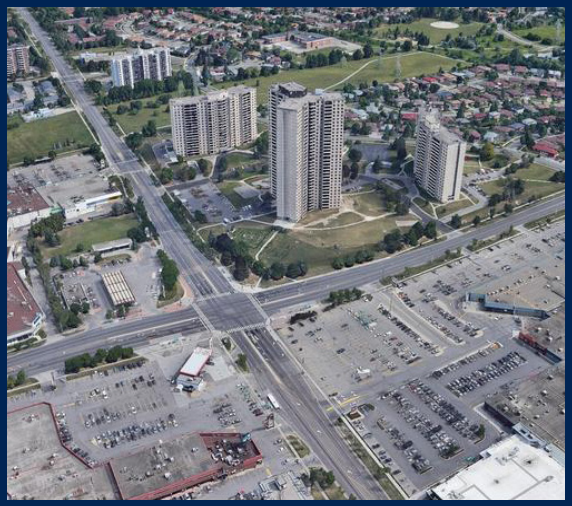
Towers in the ravine - Finch and Sentinel



Towers + School - Driftwood and Jane

Towers + Highway - Jane and HWY 401





Building shared knowledge to co-create solutions

In recognition of the diverse knowledge and wisdom of each set of players seeking to influence climate change mitigation and adaption, in early 2021 the team began working with the Centre for Connected Communities to establish a series of local Knowledge Exchange sessions in several tower neighbourhoods. The research team approached knowledge exchange as a key first step towards the co-creation of solutions. As Professor Masoud explains, "there is a deep embedded knowledge in how communities see and understand their surroundings. Different people from different parts of the world, ages, and walks of life think about climate action in different ways and in different time-horizons. Finding a way to synchronize our understanding of the situation, needs, and objectives of different stakeholders while mobilizing action is a difficult but crucial act."

Together with grassroots leaders from ten different tower communities and staff from the City of Toronto, their first Knowledge Exchange session established guiding principles that reflect key tenets of equitable urban resilience to support their present and future work:

1. Complex issues require collective wisdom across sectors and scales to design solutions.
2. Ground all action in the lives experience of communities.
3. Power imbalances and inequities are deeply connected to issues of climate.
4. Everyone has a contribution to make in mitigating the impacts of climate change.
5. Understand the interplay and historical context of intersecting issues such as:
   - ➔ Racial/social inequities
   - ➔ Climate change
   - ➔ Urban design
6. Connect small actions to larger goals; small scale actions to large scale ones.
7. Private property does not define or bound tower communities.
8. Climate action must be rooted in generational thinking.
9. Collective action requires knowledge sharing, ensuring everyone has the context, vocabulary, and tools to act.

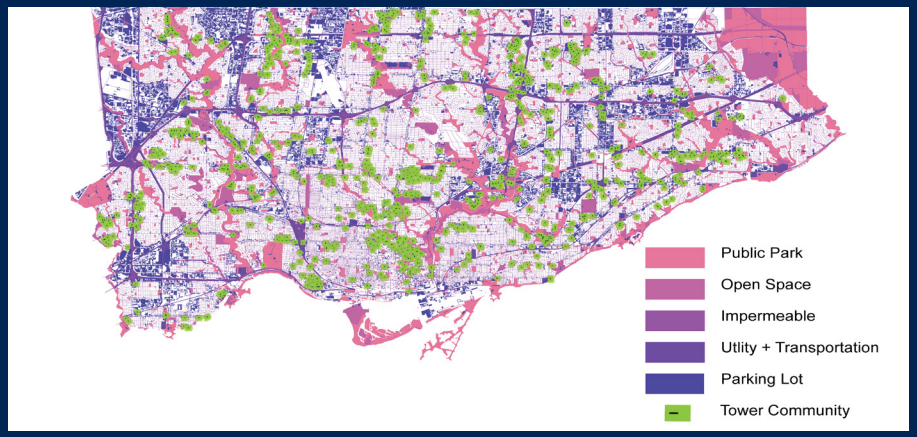
What is equitable urban resilience?

The City of Toronto defines urban resilience as the capacity of individuals, communities, institutions, and systems within a city to survive, adapt, and thrive in the face of the chronic stresses and acute shocks they experience.

Advancing equity is a core component of building resilience. The ability of a city to survive and thrive in the face of challenges is as much about the strength of its communities and neighbourhoods as it is about the design and management of its infrastructure and buildings.

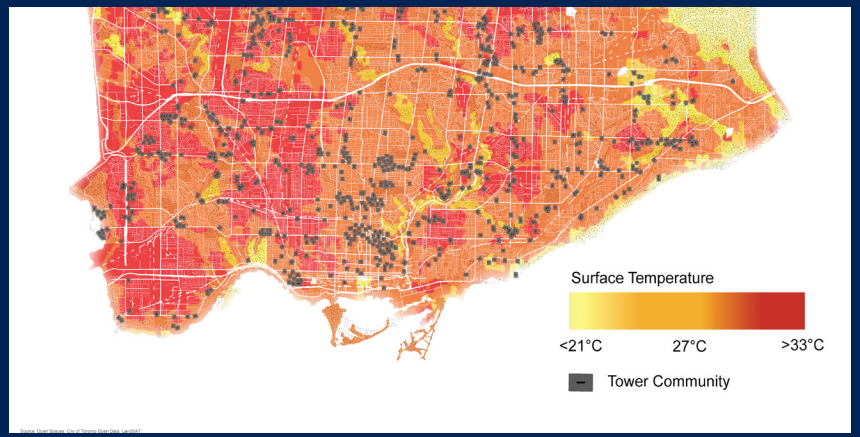
Mapping the social and physical impacts of climate change

The objective of the second Knowledge Exchange session was to build a better shared understanding of the impacts of climate change that tower communities face, and to brainstorm potential urban design solutions. The research team shared a series of maps, included here, that illustrate local conditions in tower neighbourhoods such as ground conditions, air pollution, urban heat islands, tree coverage, public park lands, and local flooding. These maps will continue to be used, shared, and refined as the project continues.



Ground Conditions + Tower Communities

Participants were able to see that many tower neighbourhoods, while close to green networks, are also surrounded by a lot of impermeable surfaces like parking lots and roadways that create higher rates of storm water runoff, increase surface temperature, trap air pollution, and lower infiltration rates of ground water than soft or grassy surfaces. There is a significant spatial disparity in how these surfaces are distributed across Toronto.

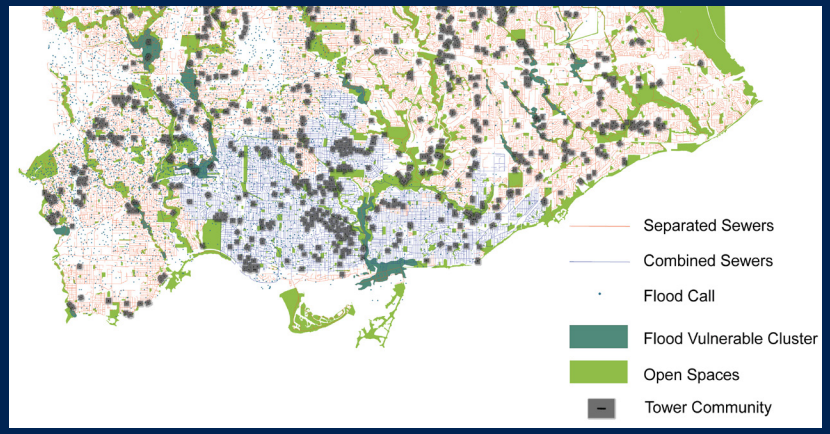


Urban Heat + Tower Communities

Many of Toronto's tower neighbourhoods are located in or near the hottest heat islands in the city. While some are located next to cooler ravine systems, few buildings have sufficient respite from harsh climatic conditions (like adequate ventilation and cooling, and emergency power backup). Toronto's tower buildings are constructed very close together, or near large paved areas, trapping heat and raising temperatures. Green spaces and vegetation help mitigate this impact and can help to counter the spatial inequality of heat islands in the city.

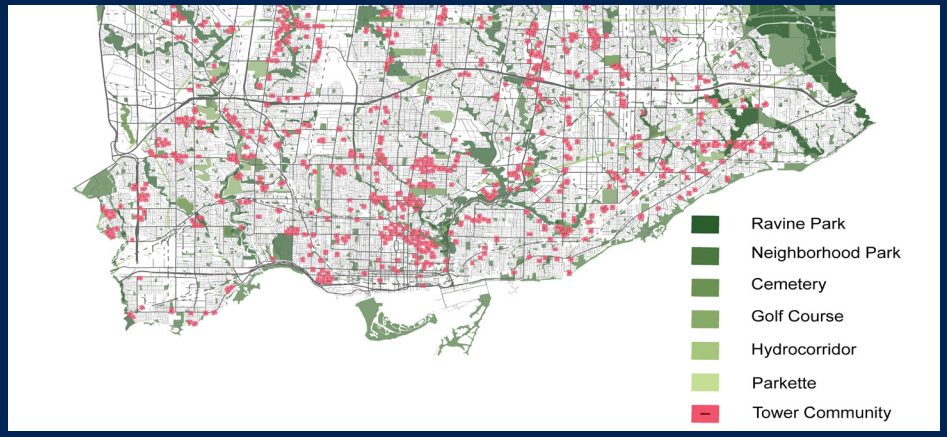
Air Pollution + Tower Communities

Air pollution is often worse in neighbourhoods near major roads, in the downtown core, industrial areas, and Toronto Pearson International Airport. Clusters of towers facing the ravines have better air quality; however, the buildings interrupt the movement of polluting particles by the wind, leaving higher concentrations in some locations.



Flood Risk + Tower Communities

Parts of the city that are most vulnerable to flooding include over 15 tower communities, as identified by the Toronto and Region Conservation Authority. Areas dominated by impermeable surfaces are at greater risk of flooding. As the atmosphere warms, precipitation levels are expected to increase, putting pressure on already-strained infrastructure.



Tower Renewal + Parks

Tower communities are located across the Toronto region, yet are not well-integrated into surrounding natural areas and public parks. Improving connections to these public assets can help connect residents to programs and facilities, better serving these diverse communities.

See the Towers in the Park website for more information on the maps, as well as detailed typologies.

Solutions and lessons learned

These Knowledge Exchange sessions highlighted the importance of putting data and knowledge into the hands of local leaders to build locally-relevant climate mitigation and adaptation strategies.

Participants were excited about the opportunities presented by the maps to educate their communities, as well as politicians and decision-makers, about the role and diversity of urban green infrastructure in local ecosystems and in climate adaptation and mitigation.

Importantly, local leaders identified the potential of connecting the data maps with existing policy to advocate for neighbourhood change. Providing data and advocacy tools to local leaders is key for ensuring that policy decisions are led by residents, while recognizing the power of City staff and private landowners for acting and delivering on change.

Climate Design Action Cards

Data maps can also be used to identify areas that are particularly high-risk and vulnerable to climate change challenges, and inform and prioritize neighbourhood improvements and pilot zones for community-driven projects. To that end, a set of **Climate Design Action Cards** was created as a result of the Knowledge Exchange sessions to encourage tower neighbourhood residents to take local climate action. The Action Cards identify a series of local urban design solutions to climate change, ranging from small and easy to larger interventions, that can be enacted or advocated by leaders and residents in tower neighbourhoods. The idea is that residents can use the Actions Cards as an interactive tool to find site-specific solutions for urban issues in their neighbourhood. For more information, see https://towersinthepark.cargo.site/Design-Action-Cards.

Examples of Design Actions across six categories:

Ecology:

Street trees

Green roofs

Stormwater management:

Parking lot swale (rainwater runoff area)

Rain garden

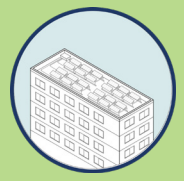
Circulation:

Bike lanes

Pathways to connect tower communities to adjacent parks/ ravines

Economy:

Community gardens



Energy + waste:

Community compost

Solar panels

Recreation:

Playgrounds

Swimming pools

Interview with Fadi Masoud

How does this initiative complement the City of Toronto's Resilience Strategy?

The City's Resilience Strategy identified Tower Renewal as the foremost priority action to ensure the city's resilience. This is because it clearly sits at the intersection of socio-economic and climate pressures.

How has collaboration through the School of Cities enabled you to advance this initiative?

Without the School of Cities this project would not have been possible. The Urban Challenge Grant provided the space and time for interdisciplinary teams and stakeholders to tackle a project of shared interest. It was hard work to find a common language, thread, and set of objectives, but the ability to exchange and truly explore overlaps was an extremely enriching experience that is just beginning.

How do you see this initiative rolling out over the long term?

In addition to the need for landlords and the City to act and deliver, the City's Parks Forestry and Recreation department and Toronto and Region Conservation Authority can work with Tower Renewal to understand the linkages between private/semi-private open space and public parks and ravines. This would establish stronger connections between all green open spaces, public right of ways, and community spaces to work towards this idea of equitable resilience (by increasing access, protecting green space, and ensuring the proper design and programming of these spaces to generate community and environmental co-benefits).

Professor Fadi Masoud, Director, Centre for Landscape Research and Assistant Professor, Landscape Architecture and Urbanism at the John H. Daniels Faculty of Architecture, Landscape and Design, University of Toronto.
Contact Fadi: fadi.masoud@daniels.utoronto.ca

Read the full text of the interview here.

What's next for this project?

To find and co-create equitable climate solutions, the School of Cities team will continue to apply its expertise – in landscape architecture and urban design, environmental science, civil engineering, geography, public health, social psychology, and climate physics – in partnership with local residents and the City of Toronto.

As Professor Masoud describes, "community members should be the drivers of what needs to change, but it is the landlords' and the City/governments' responsibility to act and deliver. The power and financial balance for true climate action is in their hands. As academics we will continue to co-create projects and knowledge to help communities mobilize action, including arming them with additional tools and information, as well as design strategies and recommendations where needed."

Over the next year, follow the team's work on its interactive website, which will provide engagement reports, policy advice, and creative participatory design initiatives.

About the School of Cities

The School of Cities is a solutions incubator for urban-focused researchers, educators, students, practitioners, and the general public to explore and address the complex global challenges facing urban centres. A living laboratory, the School leverages urban data and lived experience to improve policy and decision making and collaborates with city leaders around the world to make local decisions that make cities and urban regions more sustainable, prosperous, inclusive, and just.

About City Research Insights

Designing Equitable Urban Resilience with Toronto's Tower Neighbourhoods is the third in our series of City Research Insights, designed to link the urban research being conducted at the University of Toronto with the public, other institutions, and decision-makers.

With this series, the School of Cities seeks to leverage our extraordinary community of urbanists and urban-oriented researchers to create a rich, multidisciplinary community of urban faculty, researchers, and students across disciplines and perspectives. In addition to facilitating interdisciplinary research projects, partnerships and funding opportunities, we provide a hub for urban-focused interdisciplinary and collaborative learning.

CITY RESEARCH INSIGHTS
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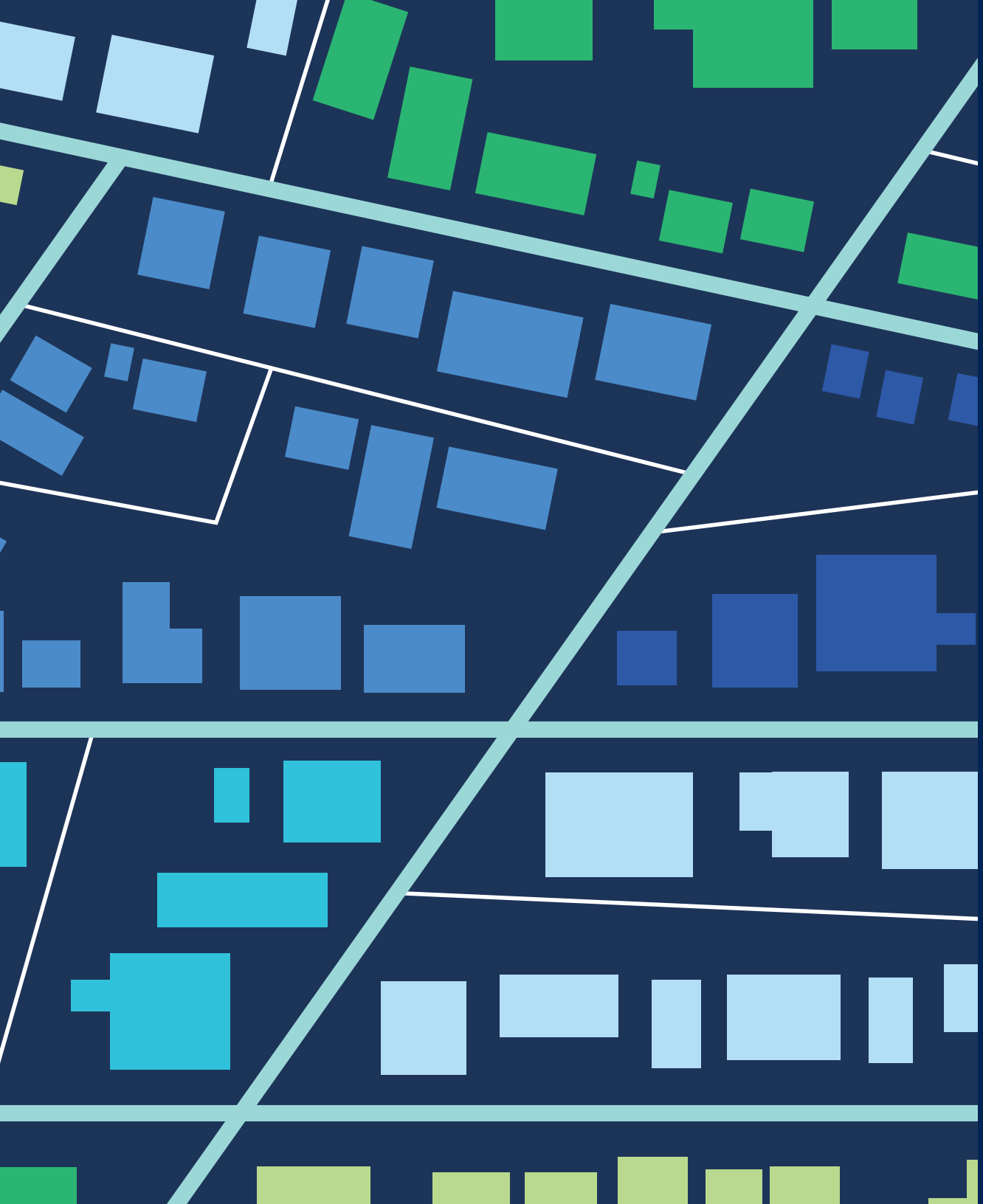
Unless otherwise noted, all information is based on the work of the Centre for Landscape Research and the Centre for Connected Communities, funded in part by the School of Cities' Urban Challenge Grant and the Daniels Faculty's Mayflower Research Fund.

Learn more about the project here: https://clr.daniels.utoronto.ca/projects/towers-in-the-park.



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