

# Multidisciplinary Urban Capstone Project (MUCP) & International Multidisciplinary Urban Capstone Project (IMUCP) Design Showcase

2023-2024



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# MUCP and IMUCP

A joint initiative of the School of Cities and the Urban Studies Program at the University of Toronto, the Multidisciplinary Urban Capstone Project (MUCP) / International Multidisciplinary Urban Capstone Project (IMUCP) is a full-year academic course open to undergraduate students in their final year from all U of T faculties, departments, and campuses. Students are placed in multidisciplinary teams and matched with a community partner that has identified an existing urban challenge that they would like the students to consult on. Over the course of the academic year, these student teams research, propose, and ultimately prototype an intervention to address the community identified challenge.



The project descriptions in this book – and on display at our Community Exhibition – are the outcomes of this seven-month process that began in September 2023.

The International Multidisciplinary Urban Capstone Project was a new addition to this year’s course. As part of IMUCP, we were able to bring two teams of students to India to conduct fieldwork in February facilitated by the U of T India Foundation. Given the success of this pilot, we are already exploring ways to expand and deepen the international components of this course.

Our community partners, the urban needs and challenges they have identified, and the projects that the students have produced address a wide range of urban issues reflecting the complexity of contemporary cities and urban life. The interventions the students have designed represent concrete ways to make cities more livable, just, and sustainable.

We thank you for your interest in this work. If you would like to know more or have a project idea that you would like to discuss, please do not hesitate to reach out.

**David Roberts**, Associate Professor, Urban Studies Program and Academic Director, MUCP - [d.roberts@utoronto.ca](mailto:d.roberts@utoronto.ca)

# Space and needs assessment for Ward 9 cultural organizations

## Team

Maria Fares, Menglin Guo, Yan Lu Lau, Jia Jun Li, Mengze Zhang

**Community Partners:** Community and Cultural Spaces Trust (CCST)

**TA:** Brownwyn Clement

## Background and problem statement

Rising rents and development pressures in Toronto's Ward 9 (Davenport) have led to closures and displacements of arts, cultural, and community spaces. Founded in 2022, the Community and Cultural Spaces Trust (CCST) manages a \$2 million settlement for the Bloor-Dufferin community and aims to acquire and maintain properties for Community and Cultural Spaces Trust (CCST). Our project aims at providing research to synthesize and catalogue, the displacement pressures facing Ward 9's arts and cultural organizations.

## Research process

We conducted site visits, meetings with CCST, and literature reviews. Utilizing survey development toolkits, we ensured unbiased and informative survey questions, focusing on both internal (CCST decision-making) and external (stakeholder engagement) uses of the data.



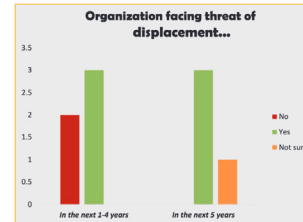
BLOOR COLLEGIATE INSTITUTE - closed due to development



KENT PUBLIC SCHOOL - closed due to development

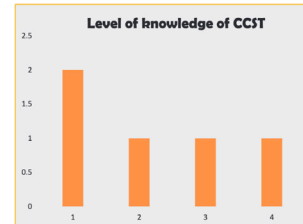
### DISPLACEMENT PRESSURES

Always in Ward 9	Rent or Own
No	
Yes	Rent
Lease Type	Rent form
3+ years fixed...	An artist c...
Month-to-m...	Private co...
(blank)	(blank)
Founding Sources	Budget
Don't know	\$100,000 - \$...
Operating gra...	\$500,000 - \$...
Project grants	Below \$100,...



### CCST KNOWLEDGE

Primary Activity	Funding Source
Art Street Fe...	Don't know
Community a...	Operating gr...
Media Arts	Project grants
Music	
Experienced Difficlt	Budget
No	\$100,000 - \$...
Yes	\$500,000 - \$...
	Below \$100,...



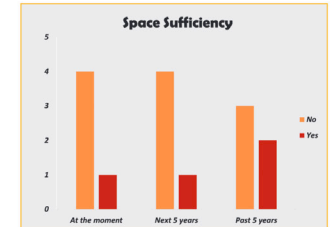
### SPACE NEEDS

Budget	Lease Length
\$100,000 - \$50...	3+ years fixed l...
\$500,000 - \$1.0...	Don't know
Below \$100,000	Month-to-month...
Experienced	Organization Size
No	0
Yes	1-10
Funding Sources	Organization Type
Don't know	Art Street Festival
Operating grants	Community arts
Project grants	Media Arts
	Music



### SPACE ASSETS

Budget	Lease Length
\$100,000 - \$50...	3+ years fixed l...
\$500,000 - \$1,000,000	Don't know
Below \$100,000	Month-to-month...
Experienced	Organization Size
No	0
Yes	1-10
Funding Sources	Organization Type
Don't know	Art Street Festi...
Operating grants	Community arts
Project grants	Media Arts
	Music



## Design interventions

Our intervention comprises three interconnected sections

1. Space Assets & Needs Survey: Conducted via Google Forms, this survey gathers data on space assets and organizational demographics for arts and cultural entities. It features quantitative and qualitative questions. Additionally, there's a Feedback section fostering a reciprocal relationship between CCST and the community.

2. The Survey Dashboard: Done in Excel, this is a visualization for the survey results, stratifying responses by demographics to compare variations in space assets and needs. It updates automatically with new data and includes a prototype for qualitative analysis if manual coding is desired.

3. Methodological Guidebook: An accompanying guidebook that explains the meaning and intention of the survey questions and the rationale behind choosing our questions. This ensures that the survey is easy to understand and modify for future iterations of the survey.

# Aging subsurface infrastructure

## Team

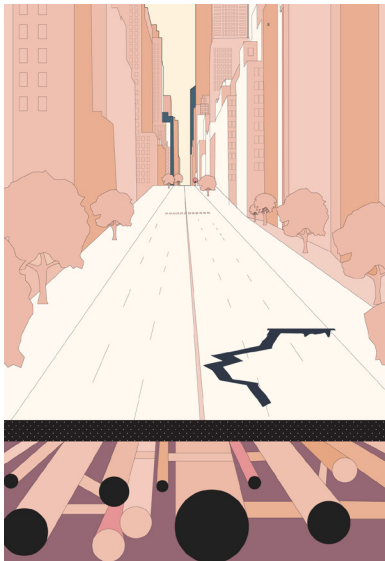
Michaela Tsvetkova, Vlada Taits, Zubin Gell

**Community Partners:** Town+Gown NYC

**TA:** Faizaan Kahn

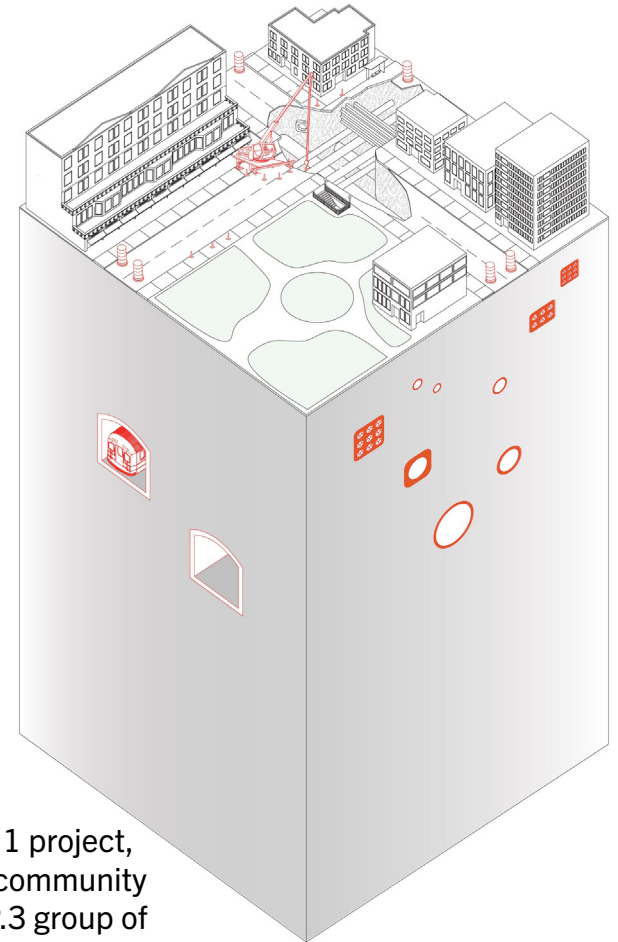
## Background and problem statement

New York City, the largest in the United States, faces an aging subsurface infrastructure crisis. This includes water, sewer, electricity, gas, and telecom systems, often unnoticed until maintenance or failures occur. Currently, no publicly available locational data exists for this infrastructure, but surface data can indicate potential vulnerabilities. Annually, from September to January, the Office of Management and Budget collaborates with city-wide agencies to plan subsurface infrastructure projects based on the capital budget decided in June. The lack of subsurface infrastructure disruption in New York City creates a scenario where there is a lack of publicly available regional information regarding the aging substructure infrastructure. The other half of the problem rests with the lack of efficient communication channels between city agencies and community boards during the budget planning process.



## Research process and design interventions

We conducted original research and built upon the 2023 MUCP.1 project, aiming to integrate infrastructure needs identified by NYC's 59 community boards into an early submission to OMB. Additionally, the LAMP.3 group of students from NYU assessed publicly available data, creating a Disruption Occurrence Index (DOI) heatmap for New York City. Our geospatial two-level platform tool utilizes social network theory to enhance knowledge transfer between communities and capital agencies, offering three versions of a weighted DOI to address incidents such as closures and safety concerns. Combining the LAMP.3 tool with our DOI creates the first part of a platform to aid citywide agencies in planning, potentially serving as a standalone resource to educate communities on aging infrastructure.



# Connected communities in TO

## Team

Emily Sakaguchi, Chloe Thierstein, Olivia Ou, Cameron Fairchild, Asad Jessani

**Community Partners:** City of Toronto Technology Services Division, Connected Communities

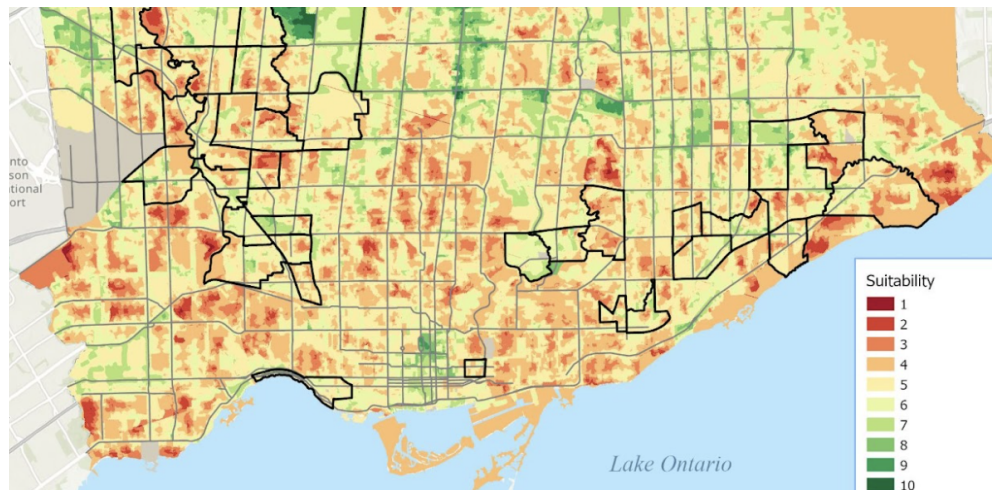
**TA:** David Di

## Background

Access to high-speed, reliable internet is becoming increasingly essential, and the lack thereof has further deepened the digital divide within Toronto. This divide disproportionately disadvantages low-income households, recent immigrants, single parents, seniors, people experiencing housing precarity, and many racialized groups, leading to greater disparity in job opportunities and income.

## Problem statement

The City of Toronto acknowledges the urgent need to bridge the digital divide by expanding its city-owned public Wi-Fi program in alignment with its four main pillars—digital equity, universal accessibility, security and transparency, and community safety. To help bridge this gap, our team developed a framework that identifies areas where public Wi-Fi hotspots will have the highest impact on equity-seeking communities.



## Design interventions

We moved forward with a mixed methods approach to ensure our intervention incorporates equity (qualitative), topographic (spatial), and technical (quantitative) considerations. We produced the following interventions:

1. Policy report: Combines insights from community leaders to identify prevalent barriers to Wi-Fi access, recommending initiatives such as installing Wi-Fi in third places and supporting digital literacy needs, alongside translating landing pages and promoting services through signage.
2. Suitability map: Recommends prioritizing public Wi-Fi interventions in specific areas of the York University Heights neighborhood, including the northern portion of Yonge Street and neighborhoods around Yonge Street and University Avenue south of Bloor Street, which show high suitability despite being outside formally defined Neighbourhood Improvement Areas.
3. Web-based site selection tool: The web map allows users to click on suitability areas to identify nearby third spaces that are ideal for implementing public Wi-Fi.
4. Usage data analysis: Time-of-use data suggests focusing on spaces that are open around the clock. Usage analysis further supports the recommendation to install Wi-Fi in third places.

# Curb usage & possibilities: campus accessibility intervention strategy

## Team

Cyanne Chun, Jerry Zhang, Raymond Liu, Sakura Ariga,  
Karna Goswami, Keona Fontaine

**Community Partners:** Arcadis IBI Group Inc.

**TA:** Faizaan Kahn

## Background and problem statement

University students commonly face the challenge of traversing campus, with many turning to micro-mobility options like scooters and skateboards. However, inaccessible campus transport infrastructure hinders student usage. Collaborating with Arcadis IBI Group, we developed the Campus Accessibility Intervention Strategy (CAIS) using their CurblQ software to assess and address these accessibility issues, focusing on St. George St. and Huron St. at the University of Toronto St. George campus. Our four-part strategy involves scouting, mapping, grading, and presenting data to policymakers, offering tailored solutions to address identified challenges.

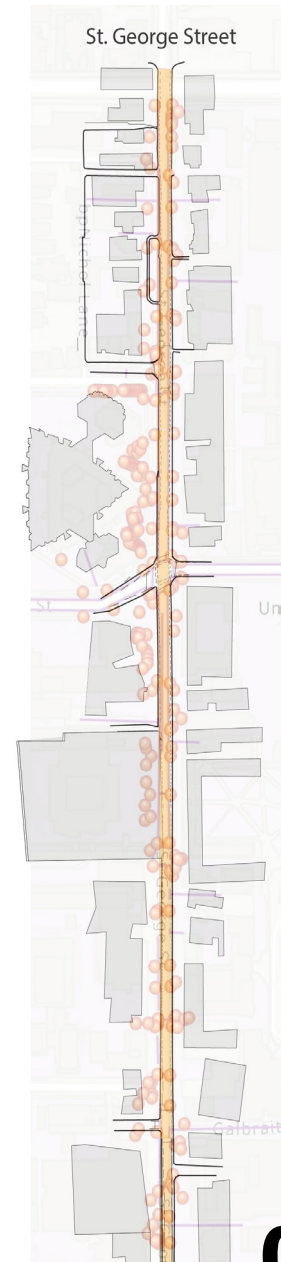
## Research process and design interventions

We provided Arcadis IBI Group with a case study demonstrating the utility of CurblQ software. We utilized Toronto Bike Share data using NodeJS and SQL to identify what type and which areas on campus had high micromobility traffic. Our main place of focus are from St. George St. to Huron St. Then, we created an ArcGIS Field Maps to plan interventions and designed a Transport Security Index-based survey to identify infrastructure issues, and produce a graded map layer that is visualized in CurblQ. Due to ethics approval constraints, the survey was not deployed, instead the focus of the project was on summarizing the research process.



## Solutions

Our final product, the CAIS, outlines a detailed strategy on how Arcadis IBI Group's CurblQ can be used to assess and improve micro-mobility accessibility across university campuses. The four-part strategy involves scouting Bike Share open data, mapping in FieldMaps, grading using the TSI-based survey, and presentation in CurblQ. Each step works to gradually filter data into clear intervention points. We applied CAIS to the aforementioned two streets on U of T St. George campus and identified areas of improvements, with key recommendations including: adding sheltered bike lanes to Huron St., consolidating curb cuts at crossings to enhance traffic flow, transitioning sidewalk materials to sustainable rubber for longevity and reduced maintenance, and relocating obstructions like drain coverings to the street. Collectively, these recommendations outline an optimal curb structure envisioned for the University of Toronto and the broader urban landscape of Toronto, and exemplify how CAIS and CurblQ can be used to promote micro mobility on campuses.



# Making way for the subway in Pune, India

## Team

Salsabil Salek, Sean Yi, Alec Mak, Noah Cazabon, Najiya Hoque

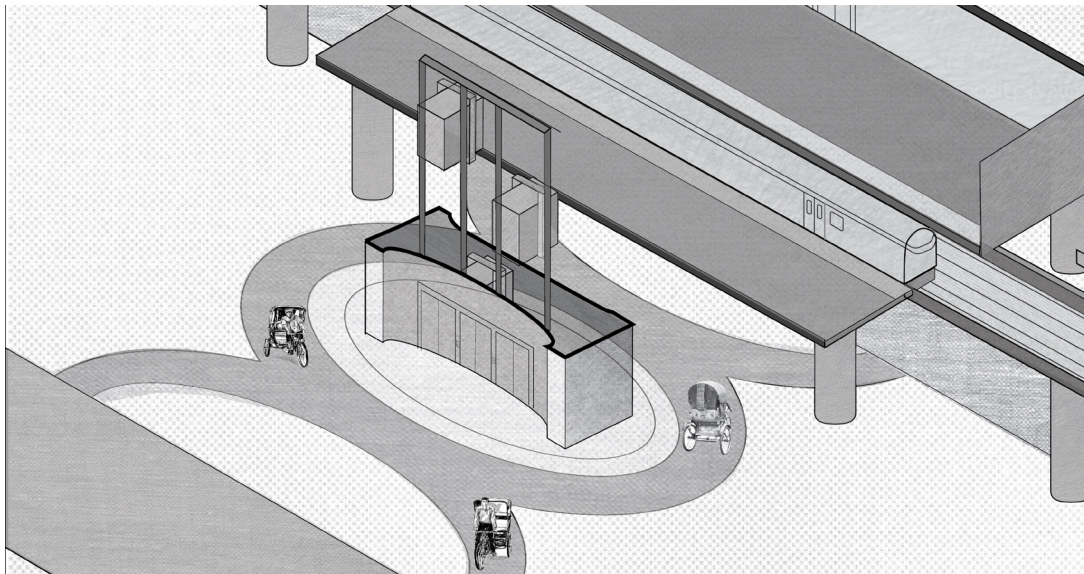
**Community Partners:** Pune Municipal Corporation

**TA:** Luc Kortenaar

**Faculty Advisor:** Aditi Mehta

## Background and problem statement

Pune is India's 9th largest city, with a population of 3.1 million. As with the rest of India, Pune is rapidly growing and urbanizing, with a corresponding increase in demand for transportation. A significant number of Pune-kars are choosing private motorized vehicles over other means of moving around, greatly contributing to the high rate of emissions in the city leading to poor air quality. Compounding this emissions issue is that as private motor vehicles become more common, greater traffic congestion occurs leading to more emissions from delayed vehicles. The Pune Municipal Corporation (the civic body governing Pune) has requested an investigation into means for decision makers to better manage the transportation network in Pune with the purpose of improving congestion and thus air quality.



## Design interventions

Further investigation into the situation via secondary research and interviews with experts eventually led us to focus on two problems. Firstly, decision makers lack the capability to predict the impact of new transportation policies and infrastructure. This leads to inefficient (and sometimes detrimental) use of resources meant to improve the transportation network. Second, despite significant investment into the city's metro system meant to alleviate traffic and provide an alternative mode of transport, the system is unpopular with Pune-kars and is underutilized. Considering the capacity of public transit to reduce congestion, this presents a high-impact opportunity to reduce the city's emissions.

## Solutions

A two-part solution was implemented. First, a travel demand model was created to assist transportation decision makers in assessing the impact of their choices on transportation networks. This city-scale model mimics human and vehicular movement and serves as a decision-making tool by projecting delays and congestion. In addition, a subway station design guide was created to increase metro popularity among Pune residents, emphasizing on accessibility and implementing worldwide best practices to promote the metro as an alternative to private vehicles, with the goal of reducing congestion and improving air quality in the area.



# Net zero by 2040

## Team

Jonathan Angell, Noor Chehabeddine, Leah Walsh,  
Minh-Ly De Reboul, Audrey Melkoumov

**Community Partners:** Toronto Climate Action Network (TCAN)

**TA:** Brownwyn Clement

## Background and problem statement

As a group of University of Toronto students who are dedicated to fighting the climate crisis, we have been working with our community partner - the Toronto Climate Action Network - to find novel ways of engaging vulnerable communities in reaching the City's goal of Net-Zero by 2040. While Toronto's youth stand to be disproportionately affected by climate change, they remain severely underrepresented in the City's plans of action. Our project is focused on understanding and advocating for ways in which art can be used to bolster youth engagement in climate action.

## Research process

We began by analysing community engagement principles outlined by organisations such as the Tamarack Institute and the Toronto Environmental Alliance. In doing so, we paid particular attention to their strategies for art-based engagement. One significant challenge we identified in our initial research was engaging university-aged youth without initiating climate anxiety - a significant barrier to effective engagement. To mitigate this challenge, we sought guidance from relevant professionals such as Grace Nosek, an author and activist who actively incorporates accessible conversations around climate change into her work.



## Design interventions

- Arts-based community engagement: Our main deliverable for TCAN is a 'Best Practices Guide' intended to help their member organisations use creative projects to better engage youth in climate action. This deliverable is informed by secondary research, relevant existing guides, and firsthand experience with our own creative forms of engagement.
- Art installation: To better understand what (not) to do in creative engagement pursuits, we undertook a survey for interested university-age students and created a mixed-media installation based on survey findings. The installation was featured in an event on March 18th that focused on engaging youth in conversations on climate action during games and sporting activities. The installation featured two large hands with a blank globe held between them, on which participants were invited to write about the change they would like to see in Toronto's approaches to climate action.
- Next steps: We will share our guide with TCAN so that they can disseminate it among their member organisations. We hope that this guide will help Toronto's climate-oriented organisations in better engaging youth - therefore filling gaps in the City's current approaches. By bolstering youth engagement in such ways, we hope to foster more inclusive and impactful responses to the climate crisis that account for the needs of those who stand to be affected the most.

# Pathways project

## Team

Umayrah Chonee, Jalen Rosario, Jaya Xue

**Community Partners:** Canadian Urban Institute (CUI)

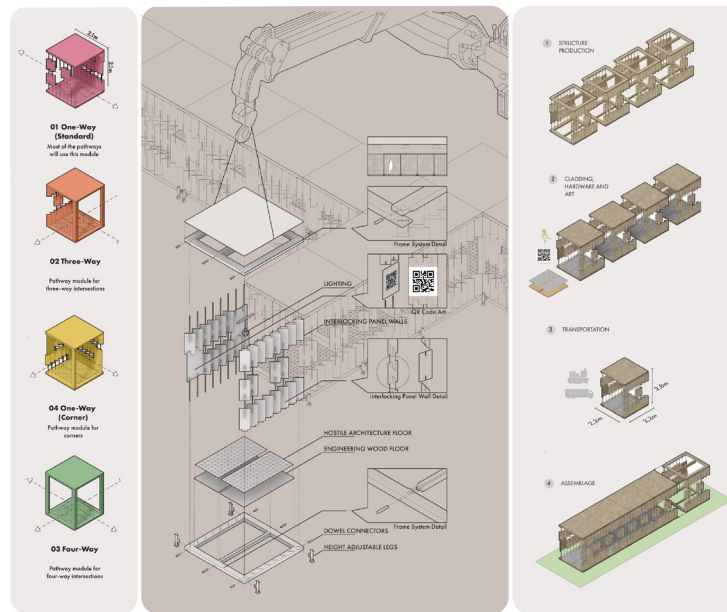
**TA:** Erin Gao

## Background

The ongoing construction of the Ontario Line in downtown Toronto has adversely affected local businesses and communities. Construction projects have altered the visual landscape, restricted accessibility within Business Improvement Areas (BIAs), and hindered economic viability. The challenge is to mitigate these impacts and ensure the resilience and vitality of Toronto's businesses amidst massive infrastructure.

## Problem statement

Our team – in collaboration with the Canadian Urban Institute – conducted extensive research to understand the multifaceted challenges faced by businesses and communities during infrastructure projects. This involved formulating the idea and testing it against others, as well as gathering information and guidance from the Canadian Urban Institute. Our research process mainly involved gathering relevant literature and similar topics related to the field and intervention we were trying to implement, supplemented by professors and urbanism professionals that provided additional input and information.



Physical Pathway

## Design interventions

1. The Physical Pathway initiative improves safety, accessibility, and aesthetics near construction zones, facilitating easy access to local businesses. Utilizing protective features from existing infrastructure and innovative, sustainable design, it offers adaptability to various terrains with modular construction and adjustable legs. Prioritizing safety and accessibility, the project incorporates strategically placed emergency exits and local artwork with hidden QR codes, enhancing the urban landscape while fostering community engagement. Ultimately, it ensures seamless pedestrian navigation around construction areas, supporting interaction with local businesses and enhancing the urban environment.

2. Our technology integration strategy enhances the urban experience by placing QR codes along Business Improvement Area (BIA) pathways and key zones. These codes serve as digital portals, directing users to the BIA's website for tailored information. We've ensured inclusivity by incorporating descriptive text for images and implementing "text-to-speech" (TTS) technology for accessibility, enabling all users to engage with our content easily.

3. Supportive policy implementation complements physical and technological interventions by offering BIAs added flexibility and resources to manage ongoing projects effectively. These policy recommendations create a conducive environment for businesses and foster community well-being, drawing inspiration from specialized benefits tailored for BIAs.

# PSK for all

## Team

Jason Ng, Samantha Wu, Haifeng Sun, Lam Vu, Brandon Mahoney

**Community Partners:** Kensington Market Business Improvement Area

**TA:** David Di

## Background

Kensington Market, a unique neighbourhood in Toronto shaped by successive waves of immigrants, is renowned for its welcoming, affordable, and multicultural atmosphere. However, contemporary challenges hinder its renewal and gentrification. Various citizen-led groups, including the Kensington Market Business Improvement Area (KMBIA), have emerged to address these issues. Representing over 240 businesses, KMBIA assists new business owners in navigating bureaucracy and fosters a conducive environment for economic success.

## Research process

Our research process commences with a review of available literature, followed by on-site investigations with interviews with local businesses. Through extensive research, our team pinpoints the root cause of this issue as the lack of accessibility in the vendor registration process, particularly within the diverse Kensington community.

## Statement of need

The KMBIA identifies the immediate need to organize external vendors for PSK street festival at Kensington Market in 2024, while also tackling long-term general safety issues in the Kensington neighbourhood post-pandemic.



PSK Site Commerical

**KENSINGTON**

**Oct.9 Pedestrian Sunday Vendor Registration**

■ PSK Zone

OpenStreetMap

Locations marked on the map include: Gathers Street, Decit Street, Balfour Street, Dundas St, Spadina Avenue, and various streets in the Kensington Market area.

Review Vendor's Handbook before registration

Contact Kensington Market BIA:

# Queen Street West BIA multiuse public space

## Team

Jenny Zhang, Alikhan Orynbassar, Young Luk

**Community Partners:** Canadian Urban Institute (CUI)

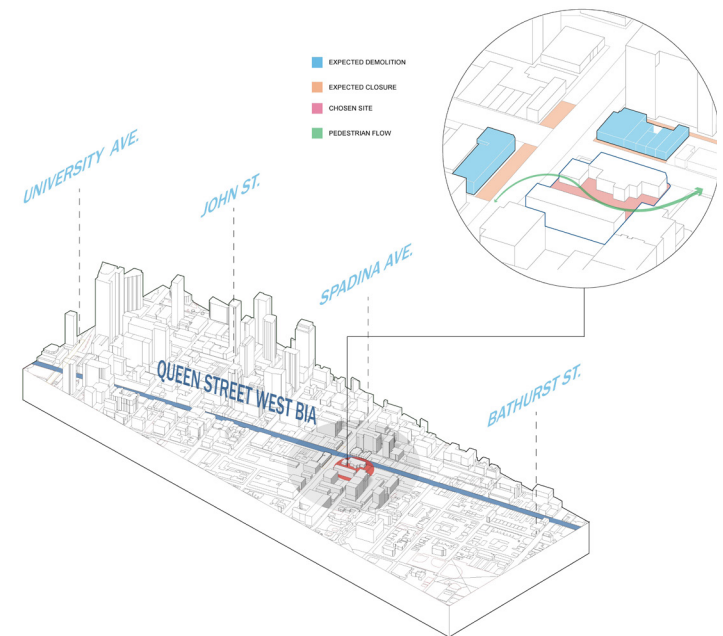
**TA:** Erin Gao

## Background and problem statement

Given the Ontario Line's construction, there is an increased pressure for short and long term disruption to the main streets where subway stations and rail are being constructed. One main street set for transit construction is Queen Street West (QSW), where rail is being constructed underneath the street, with a new subway station being built at the Queen-Spadina intersection. There is a need to both minimize short term disruption to local businesses, and to mitigate the long term gentrification of QSW's. The goals of the design are thus twofold: To reduce the construction's disruption to movement and business, and second, to strengthen Queen Street West's existing local identity.

## Research process

We investigated prior approaches to construction disruption reduction, with a focus on interventions that limit interruption to mobility and enterprises while still incorporating local character. Site investigations of QSW intended to identify disruption regions and potential intervention sites, with Queen-Spadina being the most affected. An adjacent unoccupied property was found as a potential diversion. We investigated temporary urban design case studies such as Montreal's pedestrianised streets and spoke with a Toronto public art specialist about incorporating urban art into our design, with a focus on QSW's character, including Graffiti Alley.



## Design interventions

- 1) A pathway diverting movement away from construction at Queen-Spadina
- 2) Public art, inspired by Graffiti Alley on the Spadina side of the site to attract pedestrians
- 3) Create blank space for ad hoc urban art
- 4) Modular wooden structures for various purposes supporting QSW businesses
- 5) A green spot/relaxation hub near Cameron Street
- 6) All structures will be temporary and prefabricated for easy relocation during development changes/construction changes

# Reimagining 805 Wellington St. West

## Team

Bruce Dimaranan, Hiral Patel, Lianne Harrison, Minhan Lee, Cathalyn Francis

**Community Partners:** Housing Now TO

**TA:** Faizaan Kahn

## Background and statement of need

Housing Now is a City of Toronto initiative and component of its HousingTO Action Plan to build affordable rental housing on under-utilized city-owned sites to help alleviate the affordable housing crisis. The HousingTO plan includes 40,000 units of new affordable housing within the next 10 years and an additional 25,000 units with rent-controlled and rent-g geared-to-income units added to these targets.

805 Wellington Street West has been selected for proposed further development. vA Wellington is a former shelter, Strachan House, run by the Homes First Society, that was evacuated in 2021 due to unsuitable conditions. Considering the pressing need for increased affordable housing in Toronto and the under-utilized nature of the site, our team was tasked with conducting comprehensive background analyses and developing well-informed recommendations for affordable housing development interventions at the site.

## Research process

The team conducted a thorough site investigation to understand the physical constraints that would guide our design choice regarding the shape and size of the floorplate, the building setback, and the number of storeys possible. Upon conducting a demographic analysis and services study of the neighborhood, we found a clear need for childcare centers and fewer couples with children in this ward compared to the City of Toronto average. We also consulted the Growing Up Guidelines which emphasized designing in a way that is considerate of young people and families. The Growing Up Guidelines also influenced our choices of unit mix and unit size, again catering towards families.

## Design interventions

Our final design emphasized affordable housing taking into account variables such as shadow impact, green roof area, and planning framework compliance. The 30-story building promotes environmental sustainability and family compatibility, with 238 residential units, 52 of which are designated as affordable accommodations. Sustainable features such as bike storage, solar panels, and a community garden were included, as well as facilities such as community gardens, daycare, and lounge spaces encourage community engagement. This purpose-built rental flat supports the city's goal of developing a mixed-income, sustainable neighbourhood.



# Reimagining 75 Elizabeth St.

## Team

Ben Murphy, Joyeh Meng, Kristina Antonio-Peralta, Pavani Mande, Suzan Ye Htwe, Derek Yi

**Community Partners:** Housing Now TO

**TA:** Faizaan Kahn

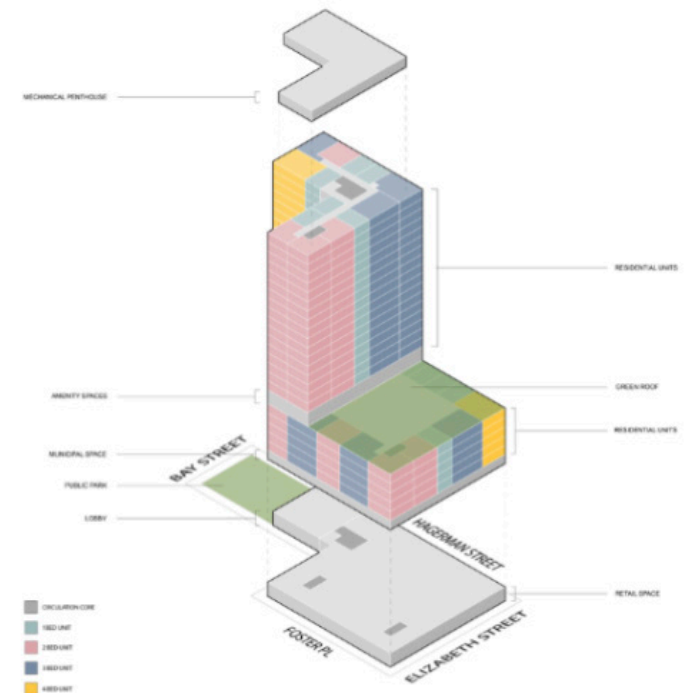
## Background and problem statement

Toronto is facing a housing and economic crisis, with many inhabitants unable to afford basic shelter expenditures. HousingNowTO, an affordable housing advocate, has responded by focusing on underutilised municipal development areas. As directed by CreateTO, our team investigated and recreated 75 Elizabeth St. to determine the viability of affordable housing on the property.

Our proposal included conducting significant research on 75 Elizabeth's social, political, cultural, and economic surroundings in order to create realistic massing and zoning plans for our planned development. We reviewed scholarly material, went on site inspections, and looked into funding programmes, construction procedures, and zoning protocols. Despite city laws limiting site development, such as active construction projects and heritage view cones, our demographic research validated the area's demand for affordable housing. We lobbied for compromises in current regulations to alleviate the housing issue, and presented our results to Toronto developers and the Housing Secretariat.

## Design interventions

We developed three proposed designs for 75 Elizabeth, each of which maximised affordable housing by waiving key zoning bylaws, and evaluated them based on economic affordability, environmental sustainability, public benefits, architectural appeal, and zoning requirements. Our intervention is a mixed-use, mixed-income rental construction with 25 stories and 334 units, 101 of which are legally defined as affordable. Panelized modular construction saves money and time. The building features a variety of unit options, significant retail space, municipal offices, amenities, study places and a green roof to promote community living and sustainability. While lowering zoning restrictions, we adhere to city regulations by prioritising transit-oriented development and environmental standards. Our design demonstrates the opportunity for compromise in addressing the housing crisis.



# Moss Park neighbourhood changes

## Team

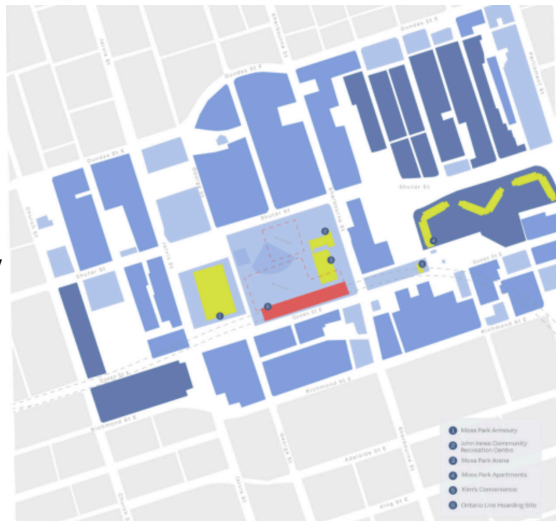
Anna Clark, Sahana Gunaratnam, Yamini Kanwal, Cary Liu, Vanessa Zhang

**Community Partners:** Toronto Community Benefits Network(TCBN)

**TA:** Brownwyn Clement

## Background and problem statement

The Ontario line has created significant problems and laid the foundation for continued problems in the neighbourhood of Moss Park. Toronto Community Benefits Network (TCBN) and the Moss Park Coalition are looking to create a community benefits framework (CBF) which codifies residents' community priorities and ensures that they are considered during large development projects whose presence could cause harm to the neighbourhood. However, prior to creating a CBF, it's crucial to first identify residents' needs and concerns. Therefore, our team has worked on creating a Community Engagement Plan (CEP) to facilitate clarifications of the magnitude and importance of the major issues facing Moss Park residents. Our multi-pronged plan includes a survey application guide, a template for community workshops and pop-ups, multiple posters, and a development list. We liaised with TCBN to create this crucial stepping stone towards a CBF and long term sustainable change in Moss Park.



## Research process

After extensive literature review and consultation with our community partner we approached a nuanced problem with a nuanced solution. Each one of the prongs provides vital strategies to best engage with the community so that the CBF is as accurate as possible. The components and their role are as follows:

1. Survey Guide - This guide contains both theoretical application advice and practical phrasing of questions. The goal is that our community partner can quickly create an applicable survey for the data they wish to collect.
2. Community Workshops - To supplement the survey data, our team has created a series of community workshops designed to facilitate conversation and better understanding of the issues in a way a traditional survey could not.
3. Pop-up Workshops - To supplement both, the pop-up workshops are designed to create informal situations where the surveys and conversations from the community workshops meld. The goal is to include as many groups of people as possible.
4. Posters - The posters' role is to share information regarding the initiatives around the CBF by TCBN and Moss Park Coalition in the Moss Park area. Ultimately, increasing resident engagement.
5. Development List - This auxiliary guide shows all active developments in Moss Park. It's goal is to identify the key stakeholders in the development sphere.

## Moving forward

This plan creates a community benefits framework where residents who are disregarded in the engagement and political processes get their voices heard regarding the future of Moss Park during this period of rapid change.

# Building Roots: Designing a pathway to community leadership

## Team

Nashaat Rahman, Mahlet Berhanu, Taylor Simsovic-Peters, Nicolas Martinez-Gonzalez, Malak Gaafar

**Community Partners:** Building Roots

**TA:** David Di

## Background

Moss Park is a transitional neighbourhood in the Downtown East area of Toronto. Currently, the area has found itself in the midst of multiple redevelopment plans, including the introduction of the Ontario Line subway construction, a series of high-rise residential buildings, and a revamping of the local community centre. In 2013 the small non-profit organization Building Roots was created with the primary goal of addressing the absence of agricultural spaces and fresh produce in Toronto. The organization started by running a pay-what-you-can market every Saturday from 11am-3pm, which they still operate. As they grew, they began to extend their impact on the community with other services such as its Coffee and Conversations series, themed repair fairs, book exchanges, as well as urban farming initiatives to support the market.

## Problem statement

Building Roots has identified a critical need for increased support for residents to develop leadership skills relevant for their community. This demand has been heightened by the area's current transitions which have increased concerns about the future of Moss Park by its inhabitants.



## Design interventions

Our team worked with Building Roots to create a program that engages residents to provide training to future community leaders. We examined a multitude of approaches including a Participant-first approach, Community-first approach, Building Roots-centred approach, and career-focused approach. We adopted a multifaceted approach, one which is highly personalized and offers a diverse array of community-centred skills. The final structure of the program has four stages:

1. The development and application process: The creation of promotional material and application forms to advertise and kickstart the program.
2. The onboarding stage: A comprehensive community resource list and series of one-on-one meetings with chosen participants.
3. The main program stage: Community Leaders will start the primary learning and training phase of the program. They will maintain regular communication with Building Roots.
4. The Offboarding Stage: A celebratory graduation ceremony



# Climate change effects: A vision for downtown Toronto

## Team

Sariah Hurd, Manjula Bhandari, Elaine Zhou, Mai-Yin Johnston, Igal Cano Shor, Anouk de Gouvello

**Community Partners:** Tata Consultancy Services

**TA:** Brownwyn Clement

## Background and problem statement

Climate change has impacted cities worldwide, necessitating attention toward developing urban resilience. As one of Canada's largest cities, climate threats to Downtown Toronto (DT) can be categorized as increased temperatures, more frequent and intense precipitation, and more frequent extreme weather events. Accordingly, increasing urban resilience involves retrofits to existing infrastructure systems and thoughtfulness in new builds.

In light of accelerating climate threats in DT, strengthening the city's urban resilience is key to future prosperity. Tata Consultancy Services (TCS) seeks to understand DT's climate risks and associated retrofiting priorities in order to support insurance clients in recalibrating their risk models and building urban resilience based on systems-level risks in DT.

## Research process

Through extensive research, a comprehensive set of initial recommendation pathways (ie. infrastructure recommendation directions we could take, such as transportation vs. waste management) were identified to assess which the team should focus on based on TCS needs and on what is most influential upon building DT's urban resilience. Note that this research process focused on evaluating different content for the final intervention, a recommendations report, rather than identifying different interventions because TCS specifically wanted only a report.

### 1. Energy production

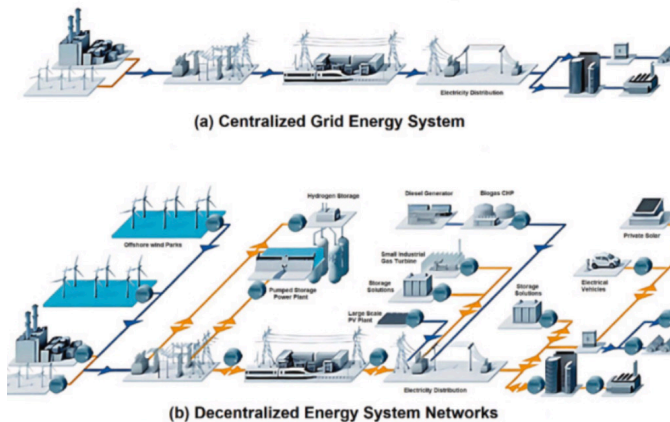
A localized clean energy mix: diversified local clean energy sources to enable spatial autonomy and resilience and to shift away from fossil fuels.

### 2. Energy distribution

A decentralized energy grid that can withstand extreme weather events and in which neighborhoods of homes and commercial buildings can maintain access to electricity in the face of grid failures.

### 3. Water management

Upgraded sewers with increased flood-prevention capacity, allowing the withstanding of increased precipitation and extreme weather events, alongside other flood-preventing retrofits in buildings to address overland water flows.



Energy Distribution: comparing current centralized energy grid system to design of recommended decentralized grid system. [Bin Nadeem, T., Siddiqui, M., Khalid, M., & Asif, M. (2023, April 23). Distributed energy systems: A review of classification, technologies, applications, and policies. <https://doi.org/10.1016/j.esr.2023.101096>]

# Voice of the customer (Pune): Amplifying urban voices through city archives

## Team

Jared Ren, Rae Zhang, Shreya Shourie, Sharon Fung

**Community Partners:** Pune Municipal Corporation

**TA:** Luc Kortenaar

**Faculty Advisor:** Aditi Mehta

## Background and statement of need

The Municipal Corporation in Pune (PMC), India lacks an accessible archiving system. Newspaper articles regarding past projects are digitally scanned and stored. Additionally, PMC lacks a comprehensive organization system for social media posts related to its projects. Because of this, PMC cannot gauge citizens' opinions regarding their work and cannot incorporate their suggestions into municipal projects. To address this issue, we aim to create a framework for city archives that retains urban memory while informing the municipality and policymakers of citizen feedback and elevating the accessible information available to Pune citizens. We hope our platform will foster an engaged online community, thereby elevating the transparency of the PMC.

## Research process

Our research process began with initial research of the city of Pune. As Canadian students creating an intervention for a client in an international context, our team was aware of the importance of building an extensive knowledge base of the specific cultural and contextual nuances of Pune and India that would undoubtedly affect our final product. As a team, we researched and compared multiple designs, including digital libraries, government archives, public forums, and internet archives. Employing Figma (a browser-based web design tool), we created low-fidelity and high-fidelity prototypes of the platform. We also researched PMC staff's user habits to inform our design and, done through a "User Habits Survey," which aimed to understand what features PMC staff would like to see in the archive to make it as user-friendly as possible and what features they thought would be helpful to citizens. Additionally, we became familiar with their needs and expectations through consultations with the PMC staff and other stakeholders throughout the year, and during an in-person visit to their office in Pune. Through our method and research, our team developed the framework and platform for the prototype; in the next few years, we hope to begin backend development.

## Design interventions

Our team created an Internet Archive repository model prototype for news articles and social media posts related to PMC's projects. Five main criteria informed our design. These include dashboard features, engagement metrics, source and content, accessibility features, and a database summary. Our final prototype is designed based on the needs of three main stakeholders: internal PMC staff, policy makers, and Pune citizens. It is a fully functional high-fidelity prototype suitable for remote user testing, additional UX and UI testing, and is populated with a mock dataset to showcase its practicality in different types of use-cases of the stakeholders.



# The homelessness digital service map

## Team

Jessica Hu, Lisa Paramonova, Sarah Wilczynski, Bonnie Hu, Raluca Geampana

**Community Partner:** Sistering

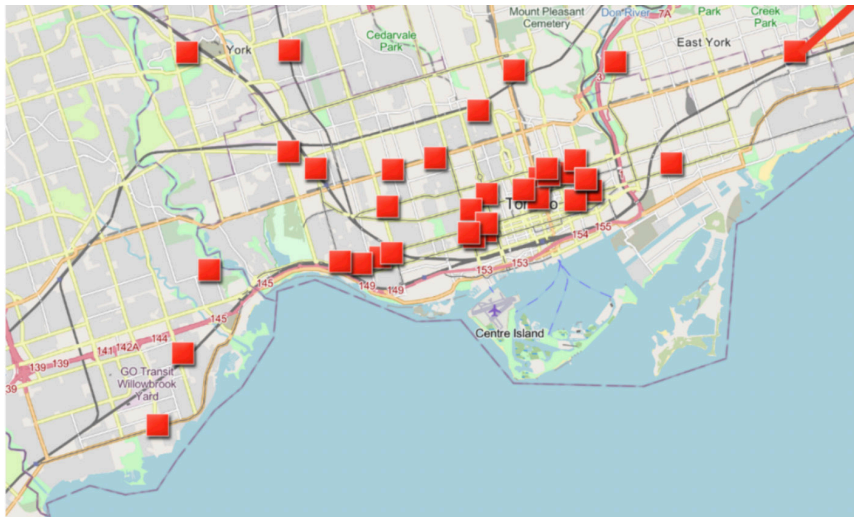
**TA:** Luc Kortenaar

## Background

Sistering is a nonprofit multiservice drop-in shelter that services women and gender-diverse people in Toronto. Hidden homelessness entails seeking temporary housing via means beyond streets and shelters, such as couch-surfing, living in one's car, and abandoned buildings. Our team has been tasked with identifying an outreach tool that Sistering can distribute to people experiencing hidden homelessness.

## Problem statement

Women and gender-diverse people make up a considerable amount of the populous experiencing hidden homelessness. They often have difficulty accessing services due to shelters being male-only/dominant and not being made aware of the available relevant resources. Given a severe lack of enumeration, however, government agencies and service providers cannot provide service provisions appropriate to the scale and scope of need. A lack of enumeration is attributed to people's desire to remain hidden for fear of violence in streets and shelters, as well as the highly transient nature of hidden homelessness.



## Design interventions

We conducted a literature scan of scholarly and white papers. The barriers identified included the policing of gender expression, assaults occurring in shelters, higher incidences of indigenous people experiencing hidden homelessness, and high rates of trauma for women and gender-diverse people. Considering the vulnerable nature of experiencing hidden homelessness, Sistering advised us on the appropriate criteria that an intervention would entail: affordability, being client-centred, anonymity, accessibility, cultural sensitivity, low-barrier access, and flexibility and scalability. We decided to create a digital map with resources specific to women and gender-diverse people. We compiled open-source and geospatial data and then transferred the data to ArcGIS. The map includes labels for each data point to direct people on how to access services, and an additional Story Map feature, which provides visuals and educational awareness on hidden homelessness. Given the challenges that women and gender-diverse people face, the map addresses this by providing resources that are uniquely catered to each individual's experiences of gender-based and racial oppression to break down the barriers they face.

# Regent Park youth violence prevention program

## Team

Nujhat Rashid, Vansh Ruhela, Ellie Ho Huang, Debi Jin

**Community Partners:** Toronto Centre of Learning & Development (CL&D)

**TA:** David Di

## Background and statement of need

The Toronto Centre of Learning & Development (TCL&D) seeks to enable individuals, particularly newly immigrants, to make contributions to their community. Our team was charged with developing a programme to combat escalating youth violence in Regent Park by involving young people in the neighbourhood. Regent Park, noted for its diversity, is facing issues such as high household poverty rates and a rise in gang violence, particularly among youths. The goal of this project is to create a bespoke, one-of-a-kind, accessible, and cost-effective youth programme to prevent and address youth violence in Regent Park, while also assuring long-term practicality.

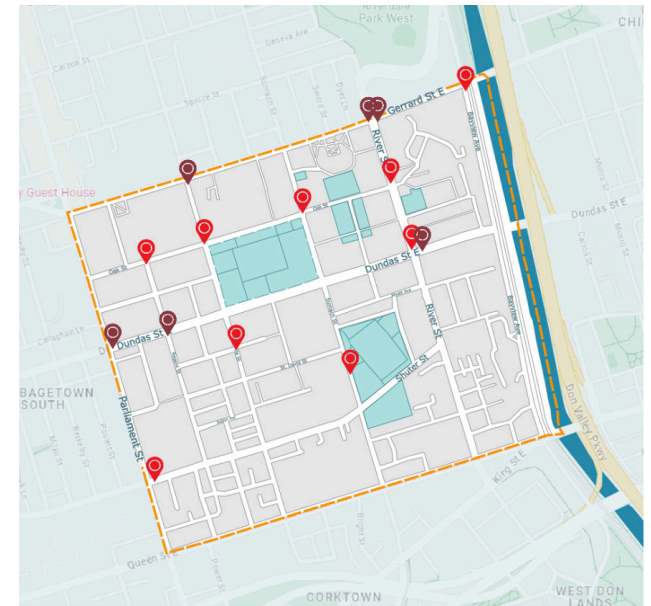
## Research process

The research findings led to the proposal of a Peer-Mentorship program, which addresses youths' desires for leadership skills, social wellness, community safety, and staff who relate to their lives. TCL&D has done a similar Youth Summer Camp program in the past, where youth had the opportunity to receive training and skills related to organizing their own community projects. This design solution will be expanding on that by including a curriculum that not only aids youth in creating a community project, but also includes cultural and arts-based activities to encourage self-actualization, as well as physical movement to keep their minds stimulated and engaged.

It includes mentees (13-16 years) and mentors (16-18 years) attending the program which runs for 4 weeks (July-August). The program curriculum also includes relevant courses like Identifying a Community Problem, Public Speaking, Interpersonal Skills, Accessibility, Financial Literacy, Budgeting, and Fundraising Marketing and Promotion, Digital Literacy, Project Management & Problem Solving, Evaluating the Success of a Project, as well as various physical and creative activities.

## Research process

Research and surveys found that kids choose programmes that provide leadership skills, mentorship, and community engagement. Previous research has highlighted successful programmes such as Turning Point Youth Services and the Regent Park School of Music, which provide musical expression avenues for youth. Furthermore, projects such as the Daniels Spectrum cultural community hub and Community Peers Elevating and Extending Resources and Supports (P.E.E.R.S.) addressed youth autonomy and mental health awareness, which influenced effective engagement tactics.



### Legend

- Violent Incidents in Regent Park
- Violent Incidents In Regent Park involving youths

# Rerouting the TCS Toronto Waterfront marathon

## Team

Hoi Ying Crystal Chu, Spencer Bezruki, Jia Hao Choo, Cody Wang, Joshua Der

**Community Partners:** Tata Consultancy Services

**TA:** Erin Gao

## Background and problem statement

The TCS Toronto Waterfront Marathon, part of the Canada Running Series (CRS), aspires to be Canada's most sustainable race. TCS and CRS aim to improve sustainability, community engagement, and participant experience by obtaining Council of Responsible Sports Evergreen certification. They want to modify the marathon route to reduce traffic congestion and emissions while also increasing the economic impact on local companies and communities.

## Research process

Primary data collecting, case studies, and academic research contributed to a better understanding of the key aspects of a good marathon route. Observation data from the 2023 TCS Toronto Waterfront Marathon revealed existing strengths and opportunities for improvement. The evaluation of notable marathons throughout the world provided insights, while comments from community partners helped to limit down design choices. This project defined criteria for developing and evaluating prototype routes, with a particular emphasis on the east end.



*The 2023 TCS Toronto Waterfront Marathon Course, highlighting the east-end as the area of intervention.*

## Design interventions

An analytical framework and program were developed to systematically evaluate prototype routes. Using GIS analysis and leveraging a wide variety of data, a suite of metrics capture performance across the three objective categories. Metrics include: traffic emissions, traffic delays, high traffic intersections; subway stations, business improvement areas, trapped condominiums and residential areas; elevation gain, sharp and wide turns, places of interest, covering relevant aspects of the objective categories respectively. A composite score considers each route's overall performance across the metrics facilitating comparison across alternative routes and to the baseline 2023 route.

The highest scoring prototype route emerges as the proposed route. Its score is driven by consistent performance across the metrics and categories, outperforming overall other routes which had higher performance in certain areas.

The framework and program were developed to be dynamic and flexible including tuning parameters intended to adapt to the evolution of relevant characteristics and considerations and remain a useful tool into the future.

# Urban sprawl and climate resilience

## Team

Sara Angod, Daniel Endale, Hardy Gu, Spencer Liu, Asees Sandhu, Brandon Terry

**Community Partners:** Tata Consultancy Services

**TA:** Erin Gao

## Background and statement of need

Our team works with Tata Consultancy Services Ltd. (TCS) to better understand and solve urban and suburban sprawl in the Greater Toronto Area (GTA) as the environment changes. TCS seeks to improve regional economic stability by increasing suburban climate resilience, recognising climate change as a serious risk. We investigate how these communities will respond to climate change in order to identify strategies for increasing their resilience.

## Design interventions

Our recommendations seek to improve climate resilience and sustainability by lowering weather-related degradation in communities and investigating the environmental impact of the built environment. These solutions, which prioritise sustainable development, aim to decrease preventable losses, reduce property damage, and improve financial resilience in urban and suburban communities. They include smart city principles into infrastructure development, increase housing efficiency through sustainable design and construction methods, and improve building resistance to harsh weather events while promoting sustainable living through better public infrastructure.

## Research process

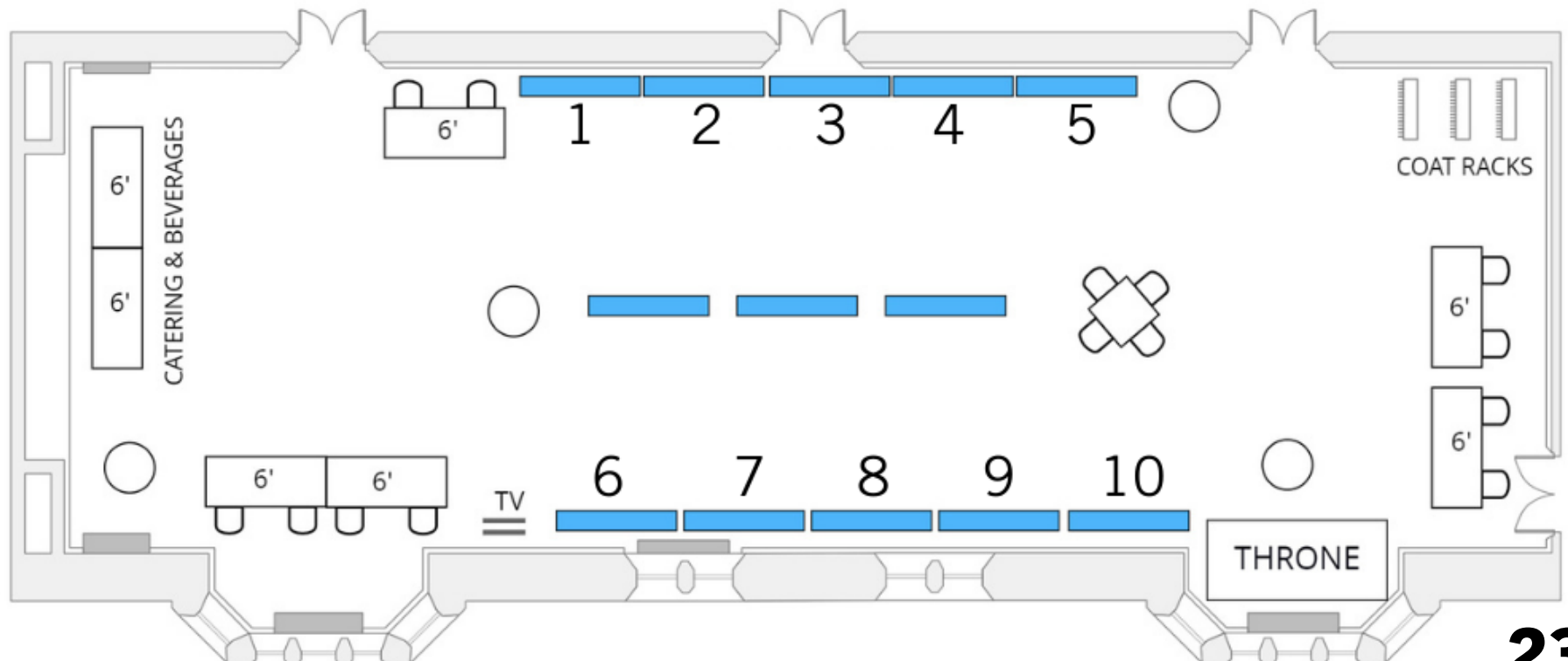
To develop successful solutions, we undertook extensive study, including urban intervention studies, academic reviews, and a review of relevant literature. By investigating the influence of changing climatic conditions on GTA communities, we developed techniques to improve climate resilience. Our research also emphasised sustainable infrastructure guidelines in line with Infrastructure 4.0 principles, with a focus on communities such as Markham, Brampton, and Burlington, with the goal of finding solutions that may be applied beyond the GTA.



Want to assess your city's resilience in the face of urban sprawl? Scan this QR code to take a quiz

# Floor Plan - Debates room

1. Aging Subsurface Infrastructure
2. Climate Change Effects: A vision for Downtown Toronto
3. Space Needs Assessment for Ward 9 cultural organizations
4. Connected Communities in T.O.
5. Curb Usage & Possibilities
6. Homelessness Digital Service Map
7. Building Roots: Community leader program
8. Moss Park Neighbourhood Changes
9. Net Zero by 2040
10. PSK for All



# Floor Plan - Music room

11. Regent Park Youth Violence
12. Reimagining 805 Wellington West
13. Reimagining 75 Elizabeth St.
14. Rerouting the Toronto Waterfront Marathon
15. Pathways Project
16. Queen Street West BIA Multiuse Public Space
17. Urban Sprawl and Climate Resilience
18. Making Way for the Subway in Pune, India
19. Voice of the Customer, Pune, India

