FLOWLINES

C40 REINVENTING CITIES: REIMAGINING THORNCLIFFE PARK



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Land Acknowledgement

The City of Toronto acknowledges that we are on the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples.

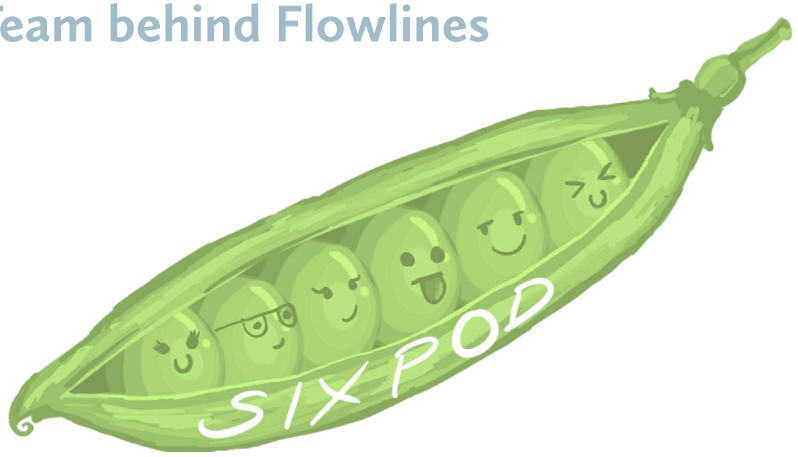
INTRODUCTION

With the rapid urbanization and densification of cities, the 21st century has been called the 'urban century'. Faced with the challenges of climate change, designer's need to develop innovative approaches to adapt to a changing world. The C40 Cities program has provided a framework that designer's can follow to create more sustainable and adaptive cities. As noted, climate action can be taken with collaborative approaches with science-backed targets to help protect people and communities. Through presenting our ideas in this report, we hope to provide C40 mayors with ideas that they can implement in future projects.

Like the environment we live in, cities are living entities that are in a constant state of flux. Between tall buildings and along paved streets, cities support an interconnected flow of environmental and cultural processes that are constantly reshaping each other. Understanding how these processes interact within cities can help designer's plan and design smarter and greener cities.

The selected site for this project was Thorncliffe park in Toronto, Ontario, Canada. Near Thorncliffe park is the incredible Don River valley that winds its way through the city. Symbolic of 'flow', the Don River was the key source of inspiration for the design concept. Additionally, the movement of the ecology and water through the valley can be compared to the flow of people through Thorncliffe. Given that this site is planned to become a major transportation hub, facilitating the flow of all aspects of the cultural and environmental processes in the neighbourhood was the key goal for this project to create a more functional and resilient city.

Team behind Flowlines



Site Developments

The Ontario Line is a new addition to the TTC transit network that is set to be finished in 2031. This line will connect Exhibition Place to the Ontario Science Centre with a total of 15 stops on this line. This will provide more people access to public transit.

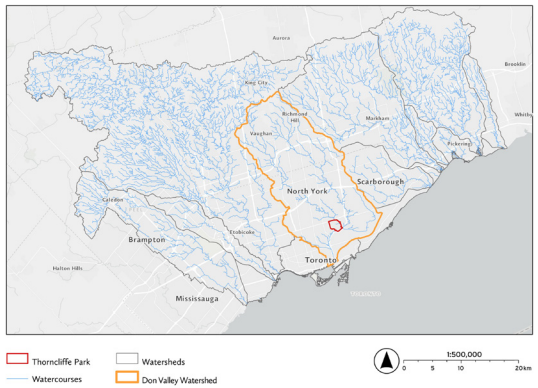
Additionally, Infrastructure Ontario has collaborated with SvN Architects to propose a transit oriented community on the North end of site. This project consists of 6 apartment buildings spanning up to +50 storeys with mixed use zoning and various housing opportunities. Flowlines takes these restrictions of site and works with what will benefit the future community.





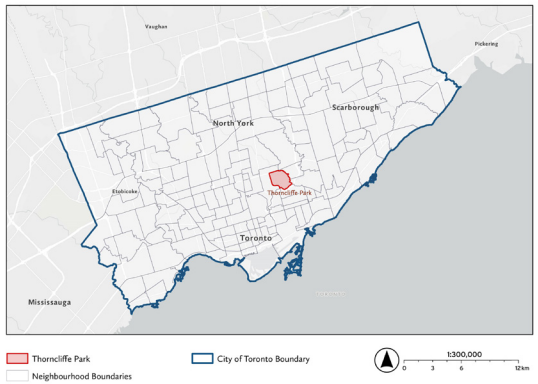
SITE CONTEXT

Watercourses in GTA



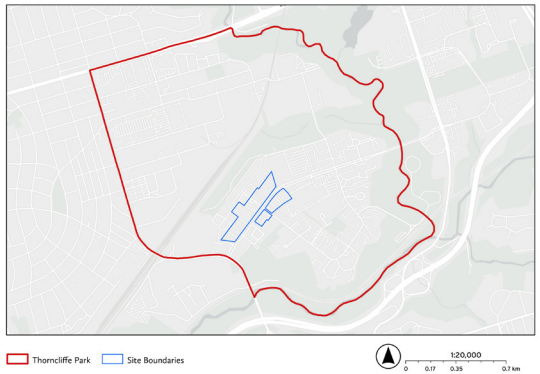
The proximity of the site to the Don River profoundly shapes our design approach. This close relationship with the river inspires our focus on different kinds of flow, sustainable water management, native planting, and ecological connectivity.

Location In Toronto



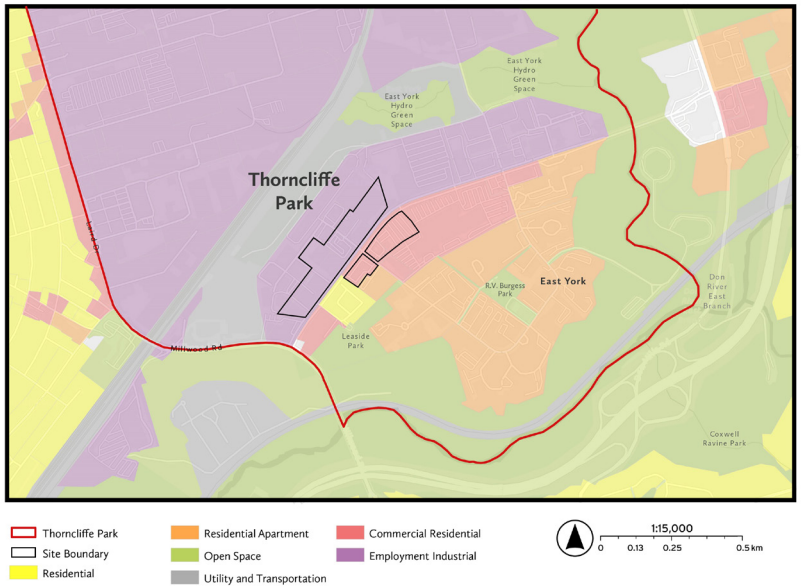
Location in Toronto. Ideal location for commuters traveling to Downtown for work, school, or recreation.

Site in Thorncliffe Park



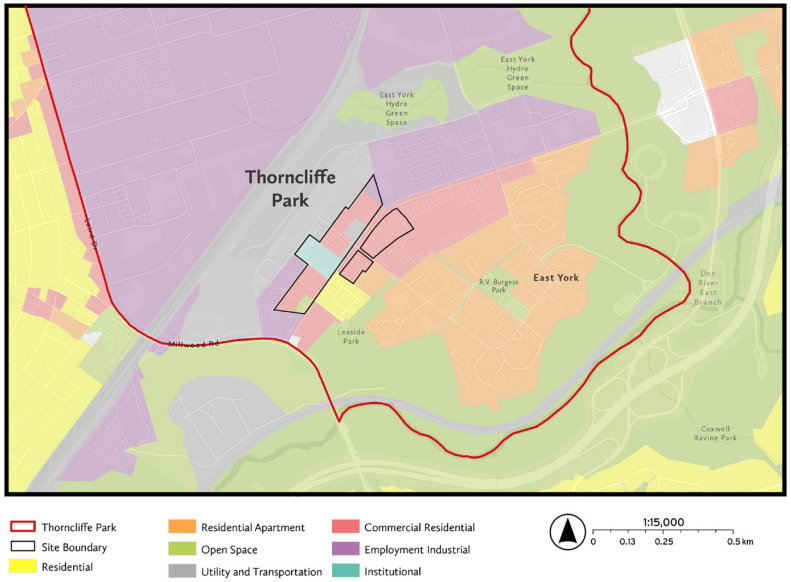
Within the area itself, site sits in the Thorncliffe Park Neighbourhood Boundary. The Boundary is determined by the Don Valley and high traffic roads: Eglinton Ave. and Bayview Ave.

Thorncliffe Existing Zoning



Currently the site resides in mainly business zoning and commerical space.

Thorncliffe Future Zoning



The new developments of the Ontario Line and the transit oriented communities have changed the zoning

COMMUNITY ASSESSMENT

Evaluating Community Needs and Resources

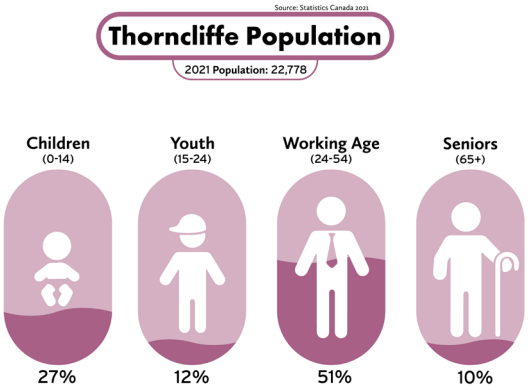


Figure 1.1

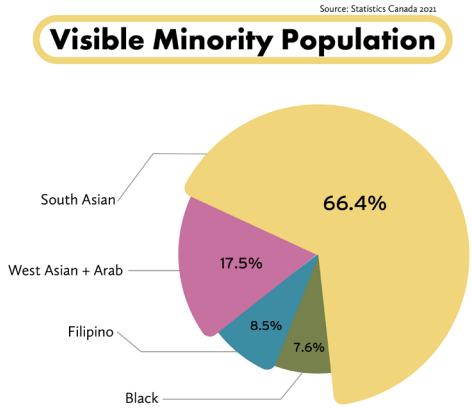
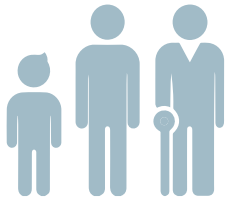


Figure 1.2

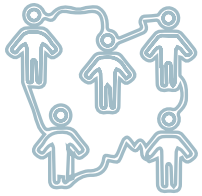
Age Distribution

We have found a wide range of population age groups with a higher percentage of young adults and children. Flowlines thus considers programming opportunities for every age group, with a focus on mobility and convenience for the working age and education & recreation for children.



Ethnic and Cultural Diversity

As Thorncliffe is known as the Newcomer neighbourhood in Toronto, there is a large population of visible minorities to add to Toronto's melting pot. Flowlines celebrates cultures and diversity through public art and flex space programming opportunities.



Interview responses

The addition of the Ontario Line leaves business owners and residents unsure of what will happen to their businesses and homes. This addition can both bring business owners under and bring in more traffic to Thorncliffe. The residents also complained about the lack of space they have. In adding the Ontario Line, their already limited space will become flooded with traffic. By preparing these affected businesses with Flowline's proposed changes hope to improve the capacity and flow of traffic in the area.

By consulting with the business owners and residents, there needs to be a solution for the inefficient use of space on 25 Overlea Blvd, 8 Thorncliffe Park Dr., and 45 Overlea Blvd. From the complaints about the jammed parking lots to concerns about gentrification, the proposed developments take these inputs into consideration to create a healthy urban environment.



COMMUNITY ASSESSMENT

Exploring the existing site

Site Visit and Analysis

During site visits, we observed active community interactions. East York Town Center is always busy with elderly and youth, and surrounding areas have people chatting. Inside the mall, a teen attempted to steal from a dollar store, indicating crime prevalence. South of the mall, R.V. Burgess Park was filled with children playing sports and parents selling cultural clothing. Mid-day streets are populated with elderly and mothers with young children, often jaywalking. Thorncliffe Park residents show a strong sense of community despite a 45% poverty rate (City News, 2020), and no homeless people were observed near the sites.

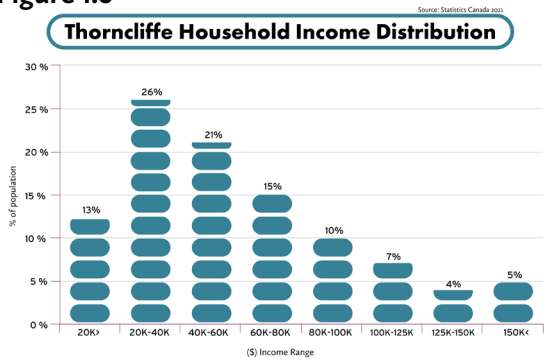
Many parallels exist between our interviews and site analysis in Thorncliffe Park. The community's cohesion is its cornerstone, evident in how newcomers bond over shared experiences and cultures. This unity is reflected in the proximity of businesses to the community, the frequent gatherings in parking lots and mall grounds, and the bustling Central Park. Despite this strong community fabric, the area grapples with a significant crime presence, particularly with assault rates on the rise, as indicated by the Assault Graph.

New developments cause concerns about safety and displacement. Flowlines aims to strengthen community bonds and safety by creating safer gathering spaces, encouraging community interaction, and improving pedestrian and transit safety. To address gentrification, Flowlines will propose petitions and work with policy amendments to keep housing prices stable and support current businesses in new developments.





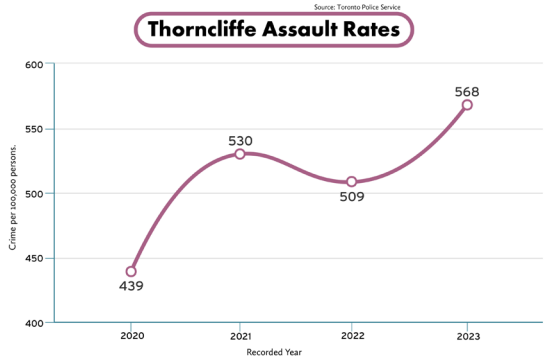
Figure 1.3



Household Income

With a higher population with lower incomes, it is important to provide affordable & accessible programming.

Figure 1.4



Crime Rates

Thorncliffe struggles with a rise of criminal activities. The neighbourhood would benefit with more people using the streetspace as a use of civilian surveillance.

CONCEPT

Inspiration and vision

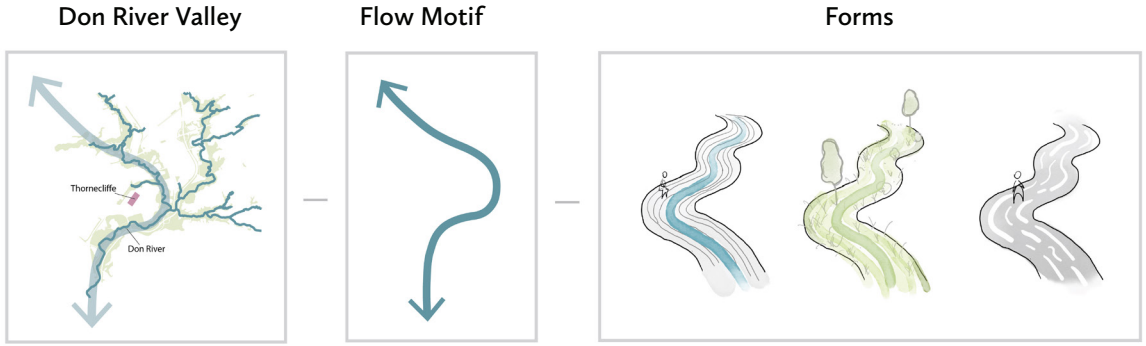


Figure 2

Flowlines emerged from a thorough site context analysis and researching future proposals. The design motif was inspired by Thorncliffe's natural landmark, the Don Valley River, and its waterflow. Considering the Thorncliffe community and the future Ontario Line, it became clear that various flows permeate the area. These flows encompass Thorncliffe's ecology, hydrology, transportation, social dynamics, culture, art, and business. Flowlines reactivate Overlea Blvd and its adjacent sites to improve the flow of what makes Thorncliffe, Thorncliffe.

PROPOSALS

Programming

Elements of Interest

We are proposing various amenities and engagement opportunities throughout the site. The recreational programming includes outdoor calisthenics for all ages, a playground, a splash pad, a music stage in the parkland, and a sports field. Additionally, there will be an outdoor classroom for the Islamic Society of Toronto, outdoor dining at 25 Overlea Blvd, and a local marketplace at the East York flex space.

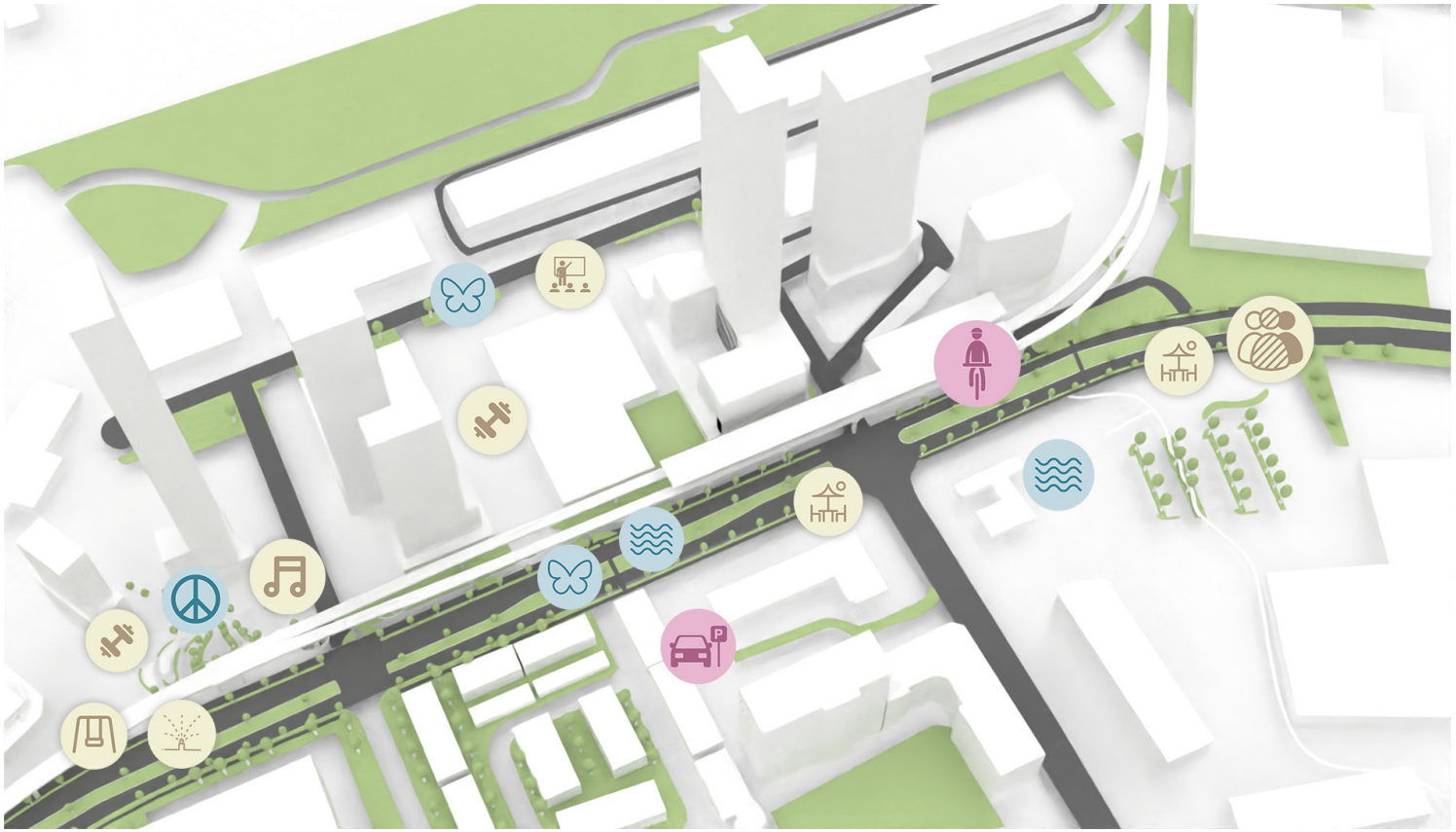
The environmental programming features a stream divide for the parkland, native planting in the boulevard, pollinator gardens, and rain gardens at Overlea and 25 Overlea Blvd. The transport-oriented programming includes bike lanes in the proposed road redesign and limited parking at 25 Overlea Blvd.

Legend

Recreational Programming

Enivironmental Programming

Transit Oriented Programming



PROPOSALS

Social and Cultural flow

25 Overlea Blvd

To encourage social dining activities and foster community connections, a temporary setup of picnic tables will be arranged to occupy three parking spots at 25 Overlea Road. This location is chosen for its convenient access from the main road, making it an inviting and easily reachable spot for residents and visitors alike. By repurposing these parking spaces for communal dining, we aim to create a welcoming environment that promotes interaction among neighbors and visitors. Additionally, this initiative prioritizes pedestrian safety within parking lots, transforming typically car-centric spaces into vibrant, people-friendly areas where the community can gather, share meals, and strengthen social bonds.

Programming events will be the strongest way to bring out the community to work towards the same ambitions. SixPod proposes to collaborate with the Salvation Army HQ and Thrift store to improve its circular economy through community dinners, food banks, and second-hand marketing.

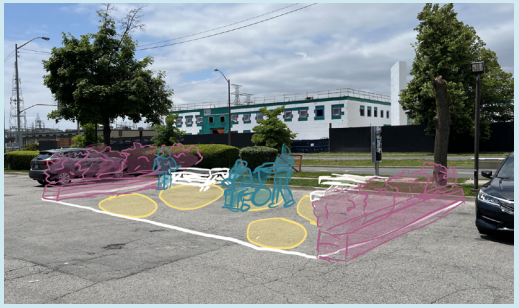


Figure 3.1

East York Marketplace

The East York Center's flex spaces will improve the connection of the Thorncliffe community with pop up markets, holiday events, and cultural celebrations.

This provide opportunities for small business owners or Thorncliffe residents to sell their goods and services. The inclusion of small businesses will create a sense of belonging and circular economy.



Figure 4

Social Activation

Diagram of key social spaces and the flow of people through the site and surrounding context. These spaces were further activated in our site design.



Figure 5

PROPOSALS

Art, Transportation and Business flow

Wayfinding Design

The wayfinding reflects the future Ontario maintenance facility with corten steel and includes educational nature related art to fuel the imagination of the Thorncliffe children.



Figure 3.2

Arches under Ontario Line

Contemporary arches underneath the Ontario Line to represent Thorncliffe supporting the prevalent Islamic community with publicly made art tiles.

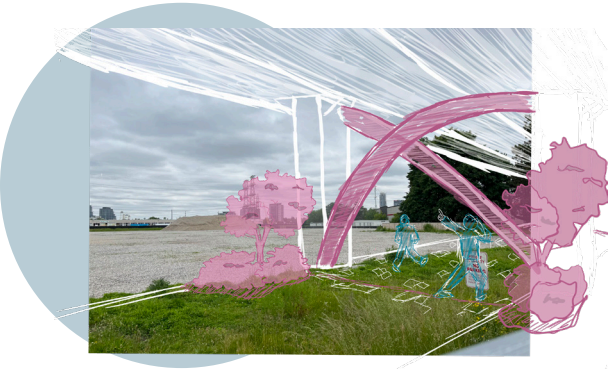


Figure 3.3

Insect Hotels

Provision of Insect Hotels, and crosswalks along the Overlea Boulevard for more accessibility and enhanced pedestrian safety.

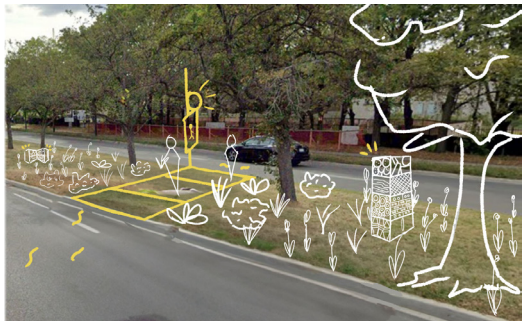


Figure 3.4

Painted Pathway

A key design feature throughout the site are painted pathways with flow lines. This path design for crosswalks acts as a means of wayfinding and connecting current parks and new urban landscapes further stitching together the neighbourhood.



Figure 3.5

Transport and Business

Flowlines aims to enhance Thorncliffe's transportation network by improving the flow of various transit options. This includes increasing bus frequency and extending bus lengths to reduce congestion, as well as upgrading bus shelters with solar-powered LED screens displaying bus route ETA times. Additionally, pedestrian mobility will be enhanced through the redesign of Overlea Street, which will feature a multiuse trail, wider sidewalks, pedestrian-friendly crosswalks, exercise and rest areas, and improved accessibility, shifting the focus away from car dependency.

Flowlines anticipates increased pedestrian traffic with the Transit Oriented Community development. To accommodate this, the project plans to temporarily remove three parking spots to create additional seating areas for businesses. Moreover, Flowlines intends to generate revenue through digital advertising boards located underneath the Ontario Line and in bus shelters. Additionally, the project aims to support small businesses and community engagement by incorporating flex spaces in the Parkland and East York Centre, fostering a sense of belonging and contributing to a circular economy. Furthermore, Flowlines aims to create new job opportunities in green industries, focusing on maintenance and research for a greener economy.

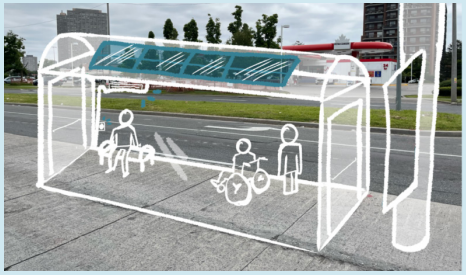


Figure 3.6

PROPOSALS

Ecology and Hydrology

Flow of Flora and Fauna

The flow of flora and fauna from the Don Valley River to the Flowlines is foundational to the site's environmental design concept. By integrating native plants from Don River Valley into the site, strong ecological connectivity can be formed. This will help facilitate the flow of wildlife onto the site.

Ecological flow is present in the boulevards & side buffers in Overlea Boulevard as there is a mix of native pollinator gardens, rain gardens, and tree plantings. This will in turn improve the overall biodiversity of the site.

As noted, the urban heat island effect is significant in heavily paved areas such as the East York Centre parking lot. To combat the urban heat island effect, tree-lined avenues have been proposed intended to increase shade coverage and cool down winds.

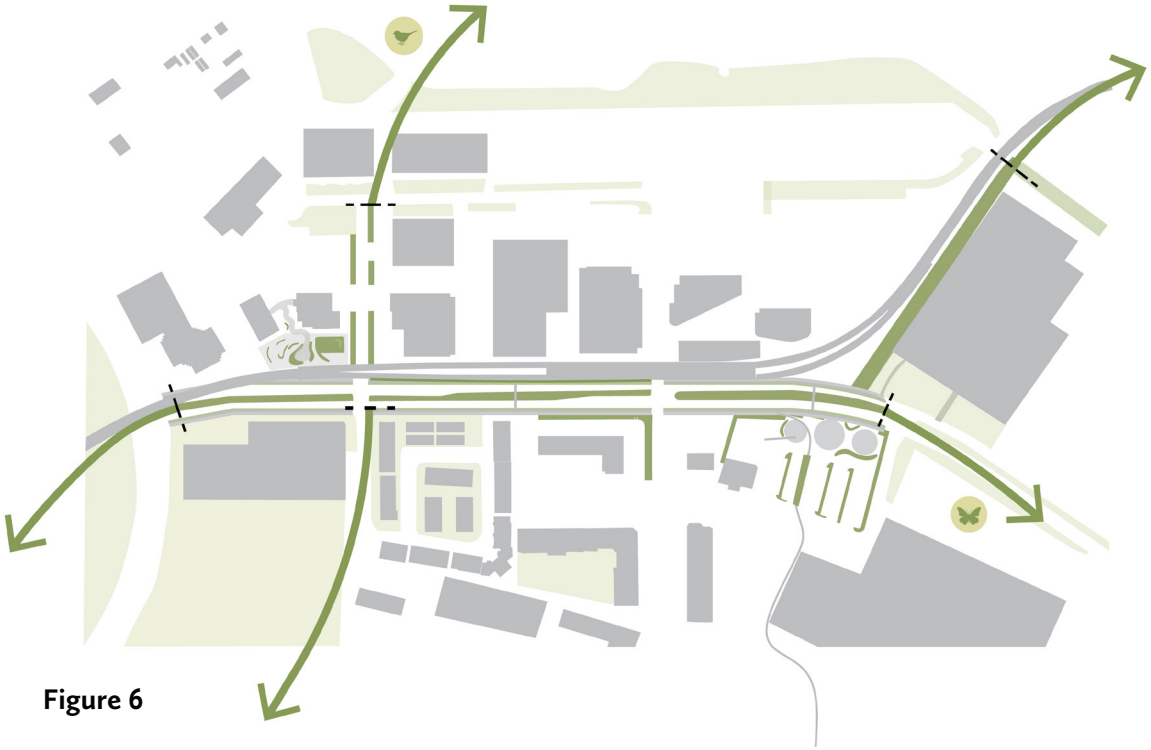


Figure 6

Rain Chain

The rain chain captures the natural flow and movement of water, enhancing both aesthetics and functionality.
As the rainwater travels down the chains, it creates a visual and auditory experience reminiscent of a gentle stream, culminating in a rain garden filled with native plants. This garden not only captures and filters rainwater but also represents the continuous flow and connection inherent in natural water cycles.

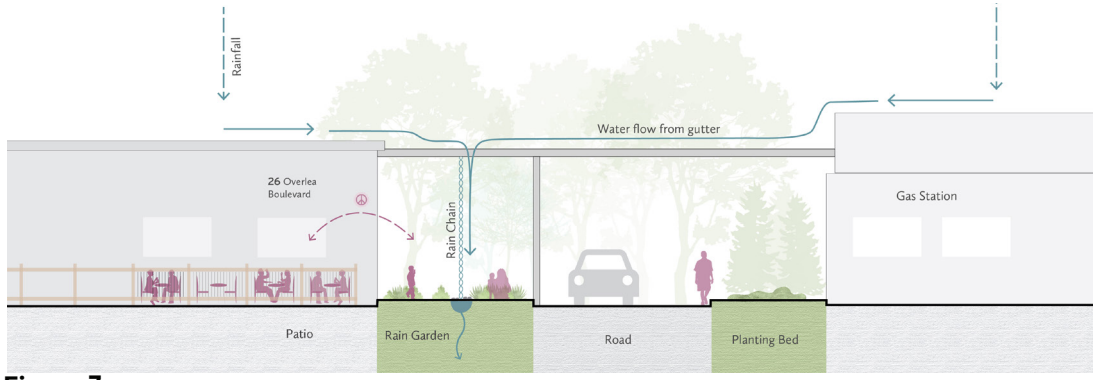


Figure 7

ENVIRONMENTAL ASSESSMENT

Deductions and Projections

Connection with the Don Valley River

The connection between our site and the nearby Don River is pivotal in understanding the ecological dynamics and hydrological processes that influence our design. The Don River, an integral part of the local watershed, plays a critical role in shaping the environmental conditions of our site. By incorporating sustainable design strategies, such as buffer zones and native vegetation, we aim to mitigate stormwater runoff, reduce erosion, and improve water quality before it reaches the river. This diagram highlights the interconnectedness of the Don River with our site, emphasizing the importance of maintaining and enhancing these natural linkages to promote a resilient and thriving ecosystem.

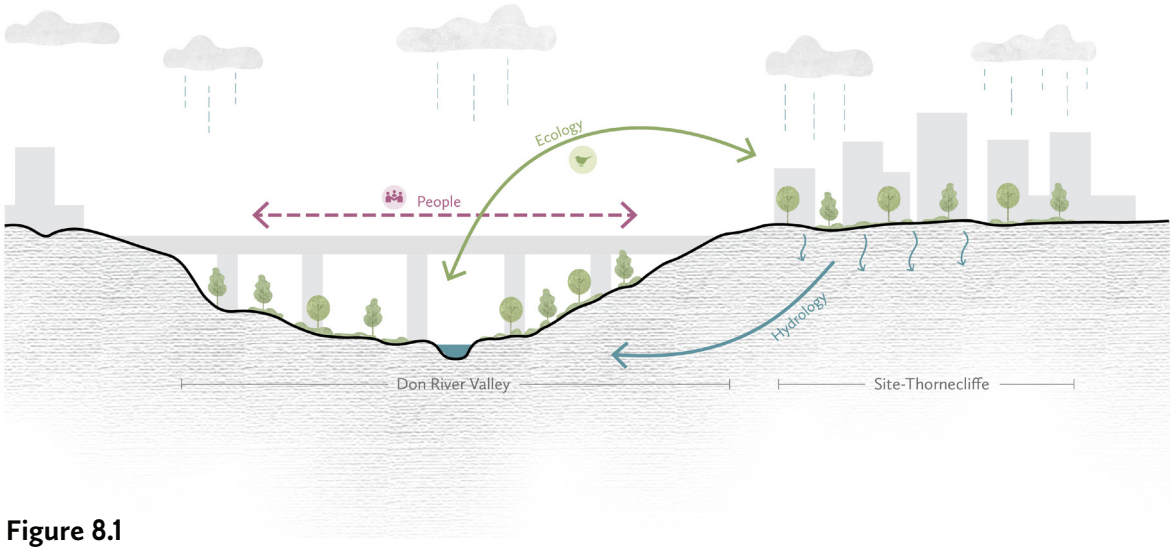


Figure 8.1

Projected Benefits

We proposed planting pollinator meadows and 142 trees along the boulevards of Overlea Boulevard, using native plants from the Don River Valley (see Appendix for plant list). Additionally, we will integrate planted boulevards and rain gardens in the parking lot at 26 Overlea Blvd. These enhancements will provide significant environmental benefits, including a 57% increase in CO_2 absorption, reduced air temperature, and mitigation of the urban heat island effect due to the added tree cover. The project will also enhance insect and bird habitats, promoting ecological connectivity throughout the site.

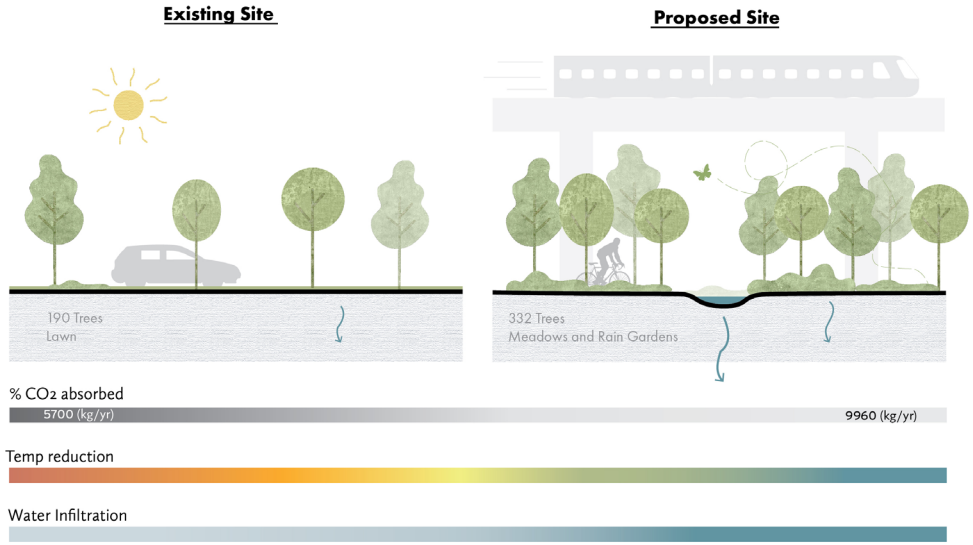


Figure 8.2

APPENDIX

Questionaire and References

Semi Formal Interviews

Business

	What are your thoughts on the Ontario Line being added? And how are you affected by it?	How is the traffic the car traffic in the plaza?	Would you rather have the outdoor space used for parking or used for seating area?
Order Mo Luto Ko:	With the addition of the Ontario Line, it is still unknown as to what is going to happen to their business. It can either be a good thing and bring more people into the plaza for business, or make the rent so high that it forces them to shut down.	The car traffic is really bad and limited, and parking is usually first come first serve. Sometimes store owners don't even have the space to park their own cars so they have to use the parking lot across the plaza.	The business owners would rather have parking spaces rather than seating, again because of the limited space.
Shirin Mahal	The Ontario line forced them to move their business from within Banigan Dr into the 25 Overlea. This resulted in the business losing customers and having an overall worse business	The car traffic in the plaza is really bad, especially during the weekends and Fridays.	Business owners said that they would prefer having parking spots having a time limit so that more people can come in and out of the plaza resulting in more business for the owners.
Almina Naan and Kebab	No Response	It's terrible, there's often altercations over parking and cars idling. Yet the popularity of this business compared to my other location is greater because they see access to free parking.	I am indifferent to it, the landlord won't allow any seating on the sidewalk right now because of accessibility concerns.

Resident

	What are your thoughts on the Ontario Line being added? And how are you affected by it?	What are your favourite parts about living in Thorncliffe?	What are your concerns about development of the new TOCs and urban landscapes in Thorncliffe?
Individual: Young Adult in Thorncliffe	It will eventually be good but the implementation is taking too long to be beneficial. A lot of local businesses are going under because of it.	The current bus system is good and being so close to the Don Valley River because of the interesting bike trails.	With the new businesses like Costco and the new proposed apartments, it feels like the City of Toronto is trying to gentrify the neighbourhood. I also never hang out outside or bike on Overlea Blvd. Similar to my friends and family.

Figure 9

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APPENDIX
Budgeting and Environmental Calculations

Pricing Breakdown

Estimate of Construction Cost (Landscape Scope Items)

Student Name: Sixpod

Notes
1. Removals scope not to include underground piping / servicing removals
2. Silt fencing assumed by others

Section A - Site Removals & Preparation

Item #	Item	Notes	Unit	Unit Cost	Quantity	Subtotal
A.1	Site Mobilization costs	Fleet, site office set-up, etc.	allowance	$25,000.00	1	$25,000.00
A.2	Supply and install site perimeter fencing & signage	Assume moduloc panel and feet	lin. m	$125.00	6178	$772,250.00
A.3	Supply and install tree protection fencing	Per TMP drawing details	lin. m	$75.00	1680	$126,000.00
A.4	Existing tree removals	Each, all sizes	ea	$500.00	81	$40,500.00
A.6	Existing asphalt removal	Includes removal of existing base materials	m2	$12.00	1422	$17,064.00
A.9	Existing curb removal	All types	lin. m	$15.00	54	$810.00
A.11	Remove and store existing light pole (LP)	Owner pick-up for re-use	ea	$350.00	55	$19,250.00
A.14	Remove existing sod areas		m2	$6.00	165	$990.00
A.15	Remove existing planting beds	Inclusive of all shrub, perennial materials, etc.	m2	$7.00	8151	$57,057.00
					Section A Subtotal	**$1,058,921.00**

Section B - Landscape Paving (Flatworks)

Item #	Item	Notes	Unit	Unit Cost	Quantity	Subtotal
B.4	Install asphalt paving - pedestrian areas	Light duty asphalt	sq. m	$105.00	643	$67,515.00
B.6	Install concrete paving - pedestrian areas	150mm thickness, standard broom finish	sq. m	$175.00	859	$150,325.00
B.9	Asphalt paving - surface enhancements	Colour, stamp, surface paint, etc. (all enhanced finishes)	sq. m	$60.00	450	$27,000.00
B.11	Install unit pavers / natural stone	All types	sq. m	$185.00	1026	$189,810.00
					Section B Subtotal	**$434,650.00**

Section C - Site Furnishings & Structures

Item #	Item	Notes	Unit	Unit Cost	Quantity	Subtotal
A.1	Supply & install bollards - removeable	Includes footing	ea	$750.00	14	$10,500.00
	Supply & install tactile matting	600mm x 600mm units - lay-by and crosswalk areas	ea	$125.00	18	$2,250.00
	Supply & install bench	All types	ea	$2,700.00	15	$40,500.00
	Supply & install waste receptacle - type 1	Pedestrian unit (above grade)	ea	$1,800.00	16	$28,800.00
	Supply & install waste receptacle - type 2	Deepwell unit (below grade tank)	ea	$3,000.00	2	$6,000.00
	Supply & install picnic / cluster seating tables	All types, includes barrier-free units	ea	$4,000.00	18	$72,000.00
	Umbrellas - type 1	Picnic / cluster table inserts	ea	$1,600.00	18	$28,800.00
	Supply & install custom shade structure	All types, includes all footings	sq. ft	$90.00	24	$2,160.00
	Supply & install moveable tables	All types	ea	$1,000.00	34	$34,000.00
	Supply & install moveable chairs	All types (bistro, muskoka, etc)	ea	$500.00	76	$38,000.00
	Supply & bike racks - single unit	Assume surface mount	ea	$600.00	2	$1,200.00
	Supply & bike racks - cluster unit	Assume surface mount	ea	$1,300.00	5	$6,500.00
	Supply & install fencing - wood privacy	Low, pressure treated lumber, includes footings	lin. m	$275.00	13.02	$3,580.50
	Supply & install stage / riser	All types	sq. m	$1,200.00	30	$36,000.00
	Supply & install concrete stairs	Assume per sq. m plan area	sq. m	$750.00	653	$489,750.00
	Supply and install streetlights	All types	ea	$7,500.00	55	$412,500.00
	Supply and install metal arches	Stainless steel	ea	$30,000.00	1	$30,000.00
	Supply and install digital boards	wiring included	ea	$10,000.00	4	$40,000.00
	Commercial paint		sq. m	$15.00	502	$7,530.00
	supply and install callinthenics equipment		ea	$2,000.00	5	$10,000.00
	supply and install sprinker		ea	$20,000.00	1	$20,000.00
	supply and install playground equipment		ea	$1,700.00	2	$3,400.00
	supply and install Water fountain for drinking		ea	$250,000.00	1	$250,000.00
	supply and install Water fountain statue		ea	$150,000.00	1	$150,000.00
	supply and install raised planter wall		lin. m	$900.00	31	$27,900.00
	supply and install insect hotels		lin m.	$500.00	36	$18,000.00
	supply and install plastic igloos		ea	$2,200.00	5	$11,000.00
					Section C Subtotal	**$1,780,370.50**

Section D - Landscape Planting & Materials

Item #	Item	Notes	Unit	Unit Cost	Quantity	Subtotal
D.1	Supply & install topsoil - 600mm depth	All planting bed areas	m3	$75.00	5218	$391,350.00
	Supply & install topsoil - 150mm depth	All sod areas	m3	$75.00	655	$49,125.00
	Supply soil & fine grade bermings	All berm areas	m3	$125.00		$0.00
	Supply & install mulch - 100mm depth	All planting bed areas	sq. m	$10.00	8697	$86,970.00
	Supply & install the following species - per Planting Plan Schedule					
	Species / Common Name	60mm cal W.B. (all deciduous trees)	ea	$550.00	161	$88,550.00
	Species / Common Name	200cm height W.B. (all coniferous trees)	ea	$625.00		$0.00
	Species / Common Name	60cm - 3 gal (all dedicuous shrubs - adjust size per spec)	ea	$50.00	2185	$109,250.00
	Species / Common Name	40cm - 3 gal (all coniferous shrubs)	ea	$65.00		$0.00
	Species / Common Name	1 gal (all perennials and grasses)	ea	$22.00	2489	$54,758.00
	Species / Common Name					$0.00
	General Annuals	15 cm/ 6 inch pot	ea	$10.00	11	$110.00
	Supply & install sod		sq. m	$18.00	655	$11,790.00
	Supply & install seed mixture	Per seed mix detail - sheet ##, hydroseed	sq. m	$8.00	655	$5,240.00
	Supply & install tree grates - all trees in plaza area	includes curbing	ea	$450.00		$0.00
	Supply & install soil cells - all trees in paved areas	Assume 30 sq. m per tree, includes soil and all maintenance valves	sq. m	$550.00		$0.00
	Install river cobble / rip rap		sq. m	$450.00	253	$113,850.00
	Supply & install rubber safety surfacing	Rubberized play surfacing, includes base buildup and drainage	sq. m	$250.00	1229	$307,250.00
	Supply & install artificial turf	Supplier / Series - includes profile build-up and base	sq. m	$150.00		$0.00
					Section D Subtotal	**$1,218,243.00**

Landscape Costing Summary

Section A	Site Removals & Preparation	$1,058,921.00
Section B	Landscape Paving (Flatworks)	$434,650.00
Section C	Site Furnishings & Structures	$1,780,370.50
Section D	Landscape Plantings & Materials	$1,218,243.00
Subtotal	Sections A to D	$4,492,184.50
Taxes	HST - 13%	$583,983.99
TOTAL	Full scope, inclusive of taxes	**$5,076,168.49**

Notes
1. Electrical standards and servicing not included in the landscape cost estimate.
2. Below grade surfacing and earthworks (rough grading) not included - refer to Civil Cost Estimate (N/A for Submission

Calculations for Total Co2 Reduction

	Number of Trees	Avg CO_2 (kg/yr) absorbed per tree	Total CO_2 (kg/yr) absorbed	Percent reduction CO_2
Existing	190	30	5700	-
Proposed	332	30	9960	57%

Figure 10

Figure 11