



Shaping the Don River Valley

A design for the Don River Valley to improve the quality of neighbourhoods in Toronto

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Area analysis



Research framework



Design tools



Design



Reflection

Area analysis





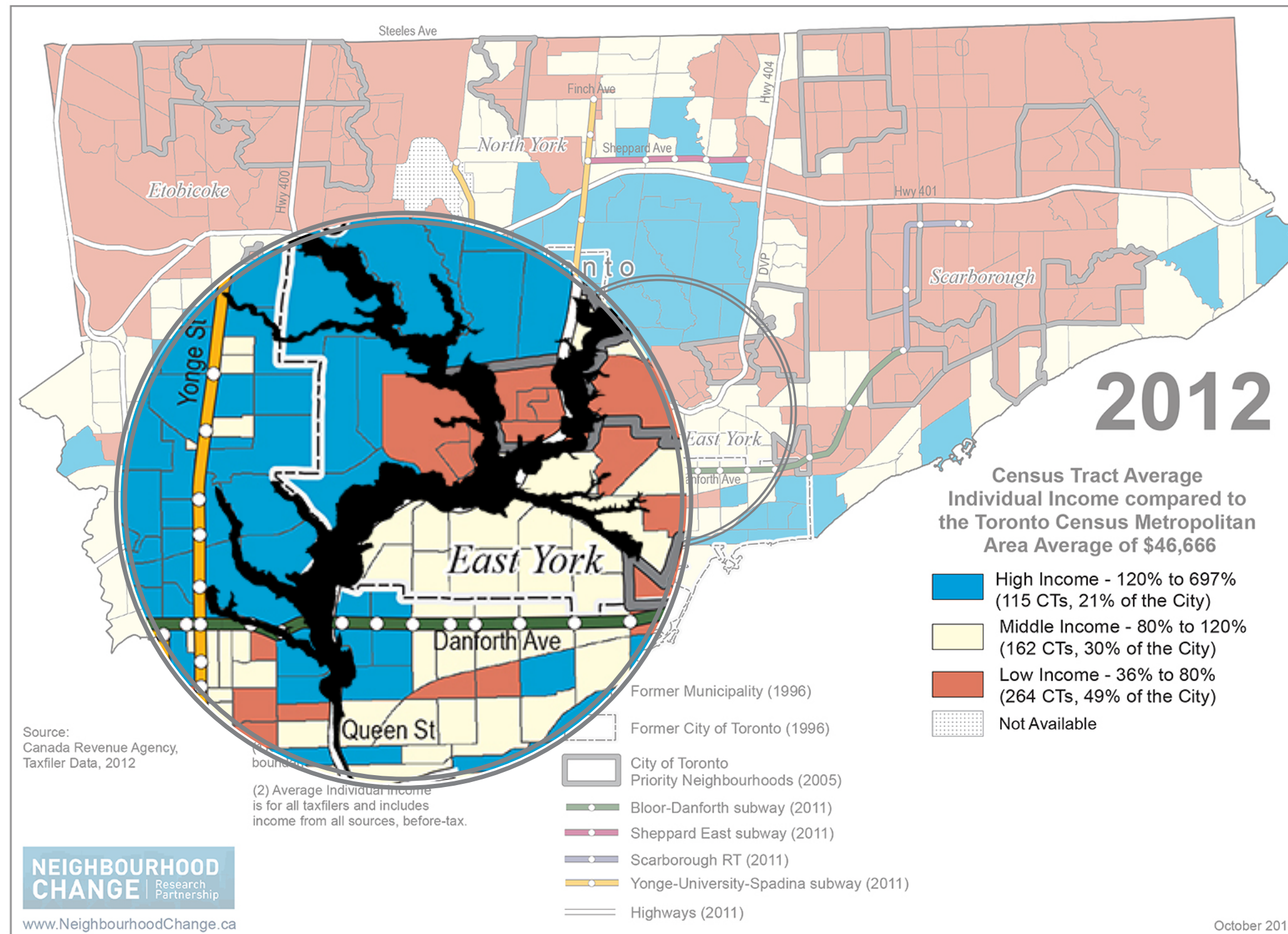
Area analysis

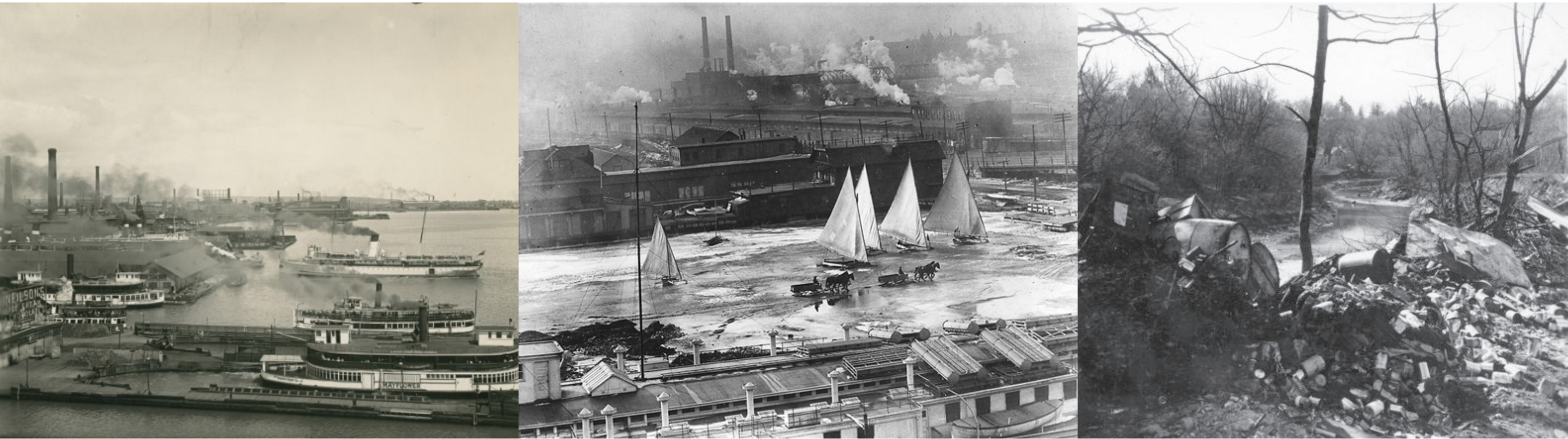






Average Individual Income, City of Toronto, 2012





1931: Oil-slicked ice on the Don ignites, destroying a footbridge. When the Cleveland's Cuyahoga burns in 1969, the waterway — which “oozes, rather than flows,” according to Time — rallies the nascent environmental movement.

‘Death and rebirth on the Don River’ by Ray Ford (June 1, 2011)

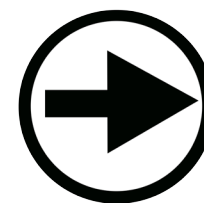
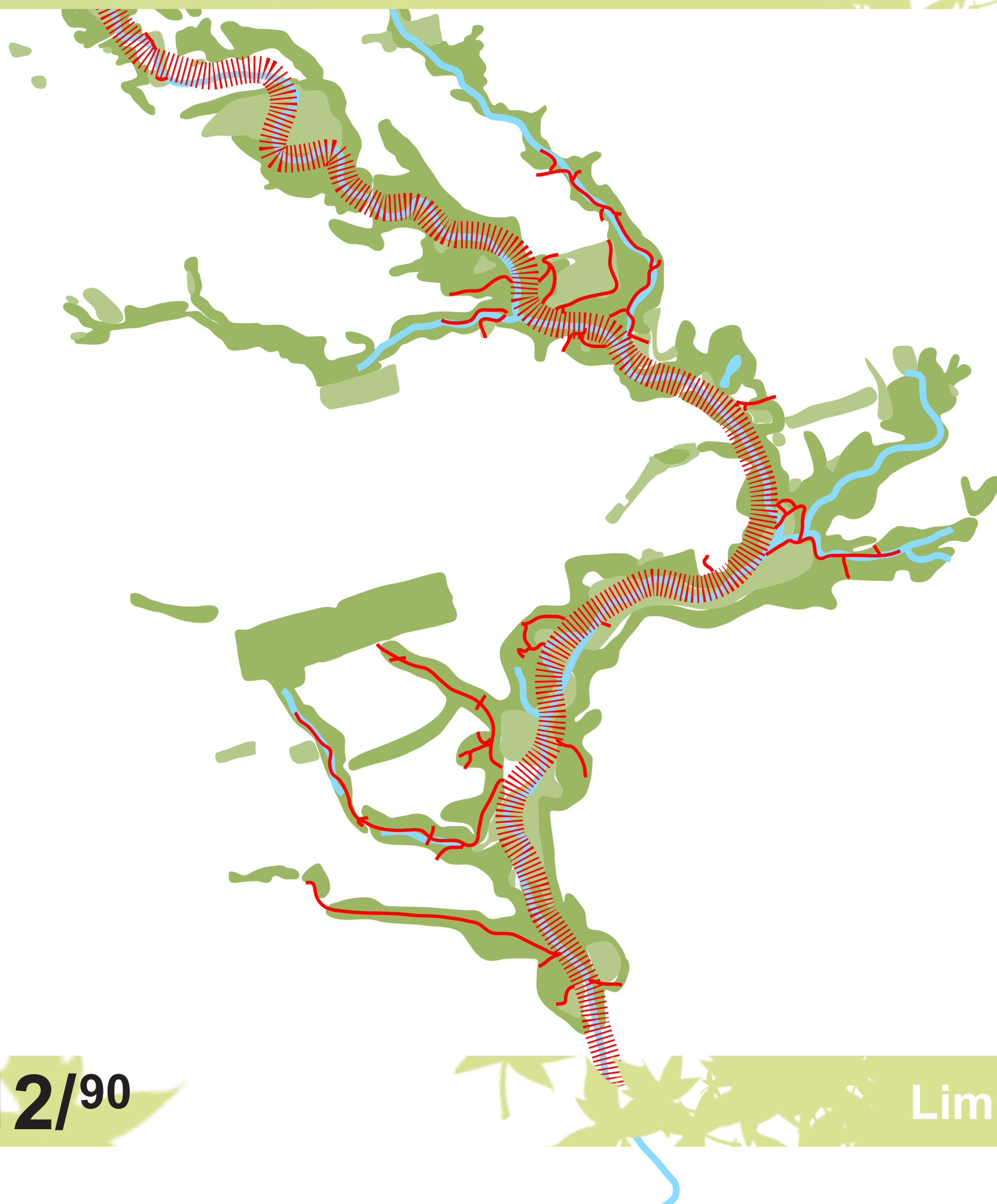
Area analysis



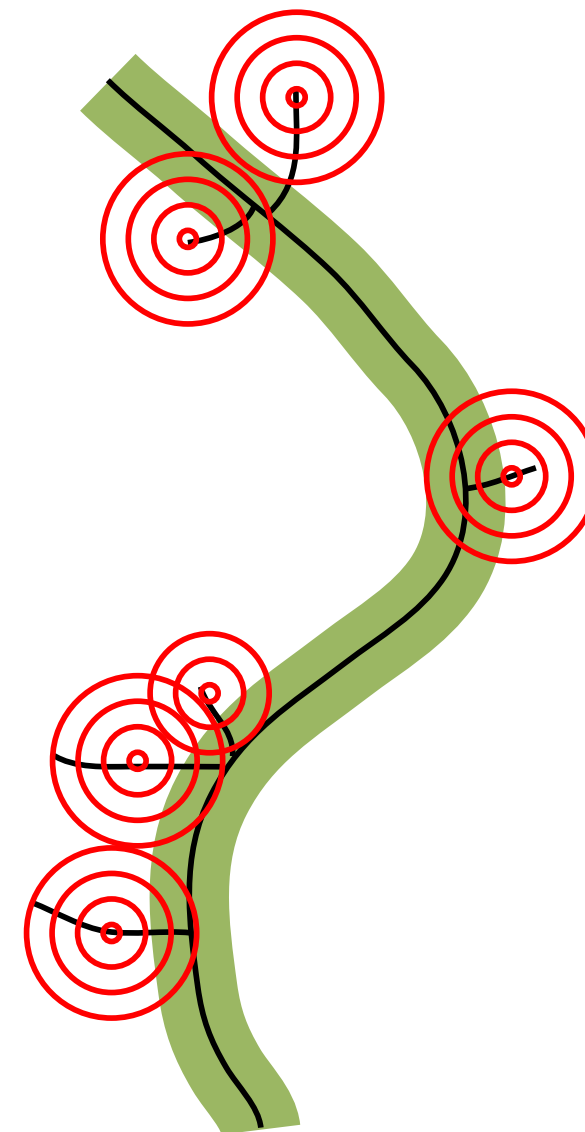
Area analysis



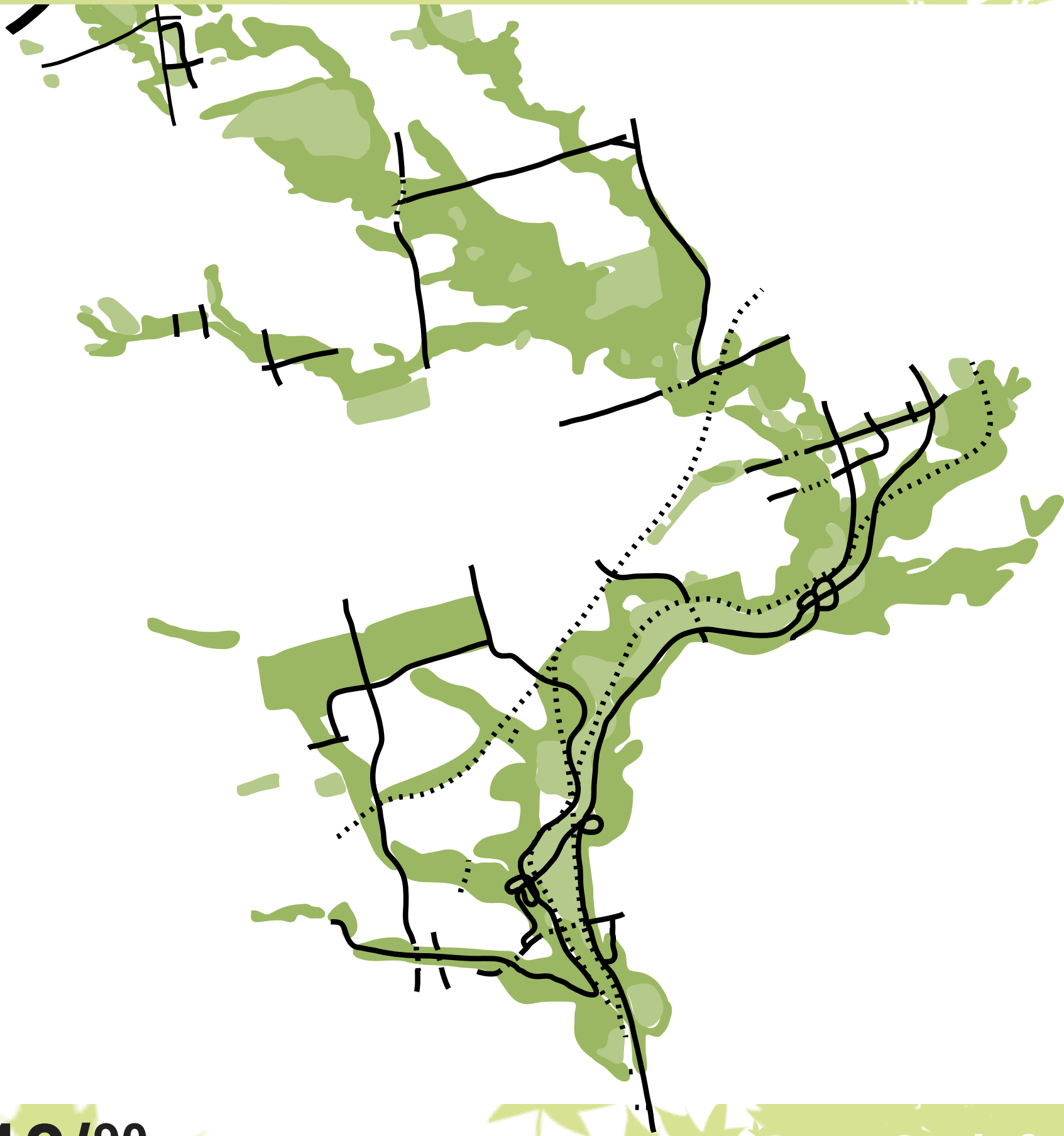
Area analysis



Effective reach



Area analysis

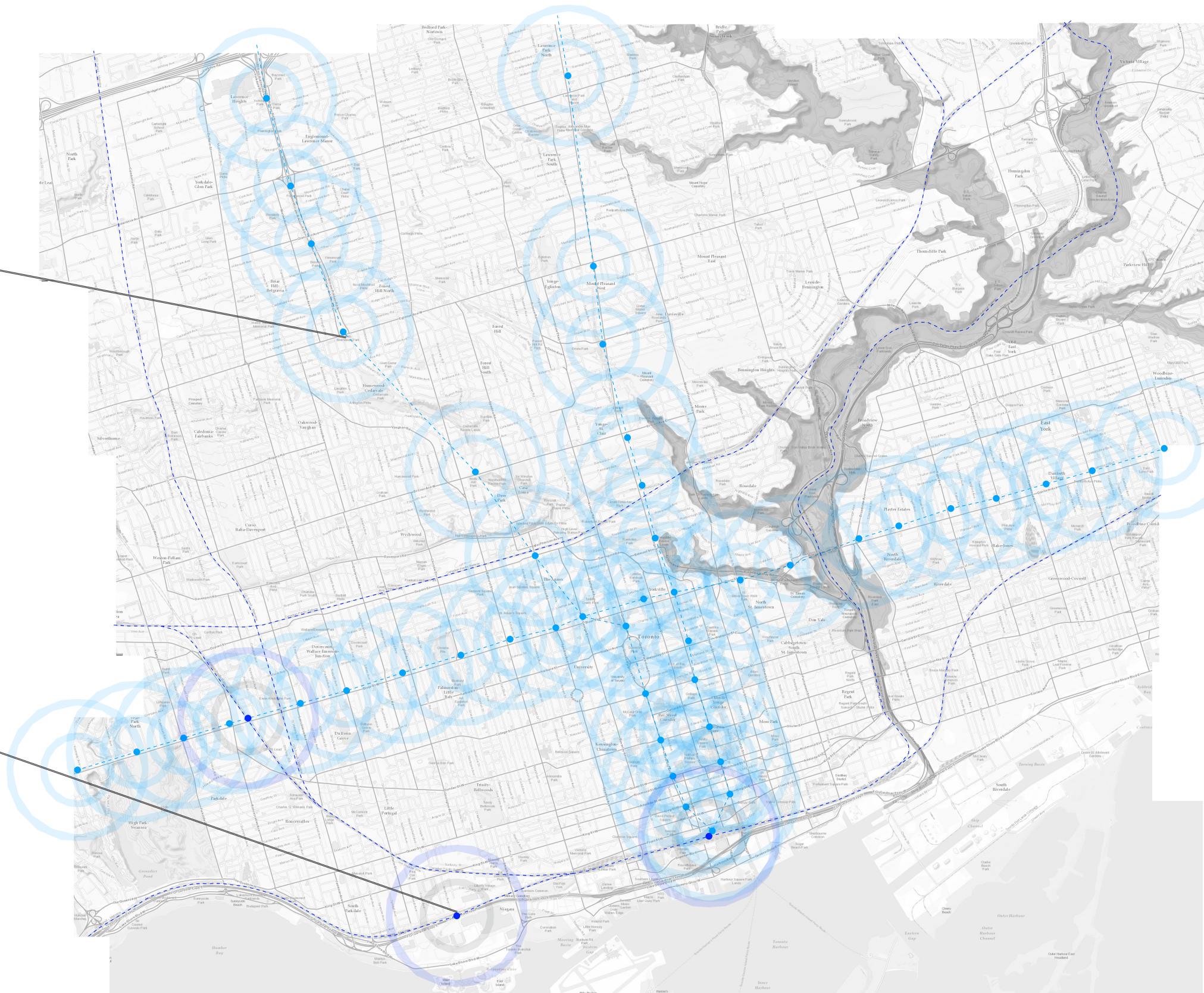




Toronto Metro



GO train



Valley is a dead vein in the urban tissue



Neighbourhoods surrounding the valley are at the edge of this urban tissue



These neighbourhoods are isolated and have little connection to the public transport system



This results in an attraction of residents with low incomes



These residents are least likely to own a car



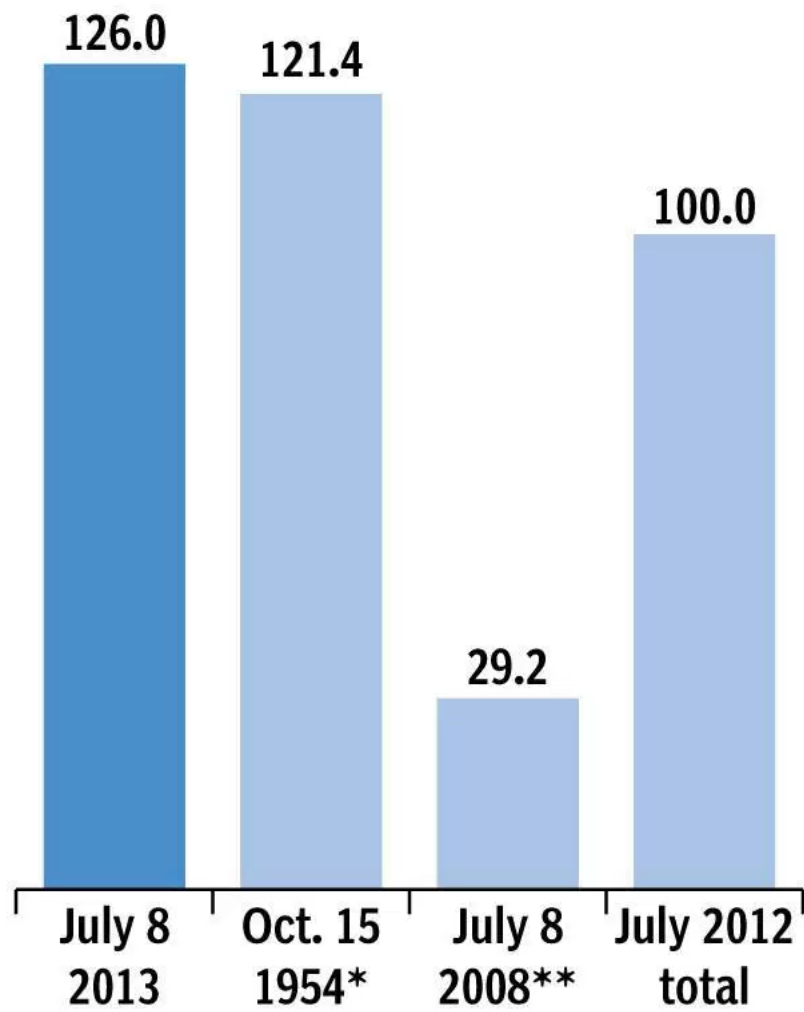
Resulting in further social isolation

Area analysis



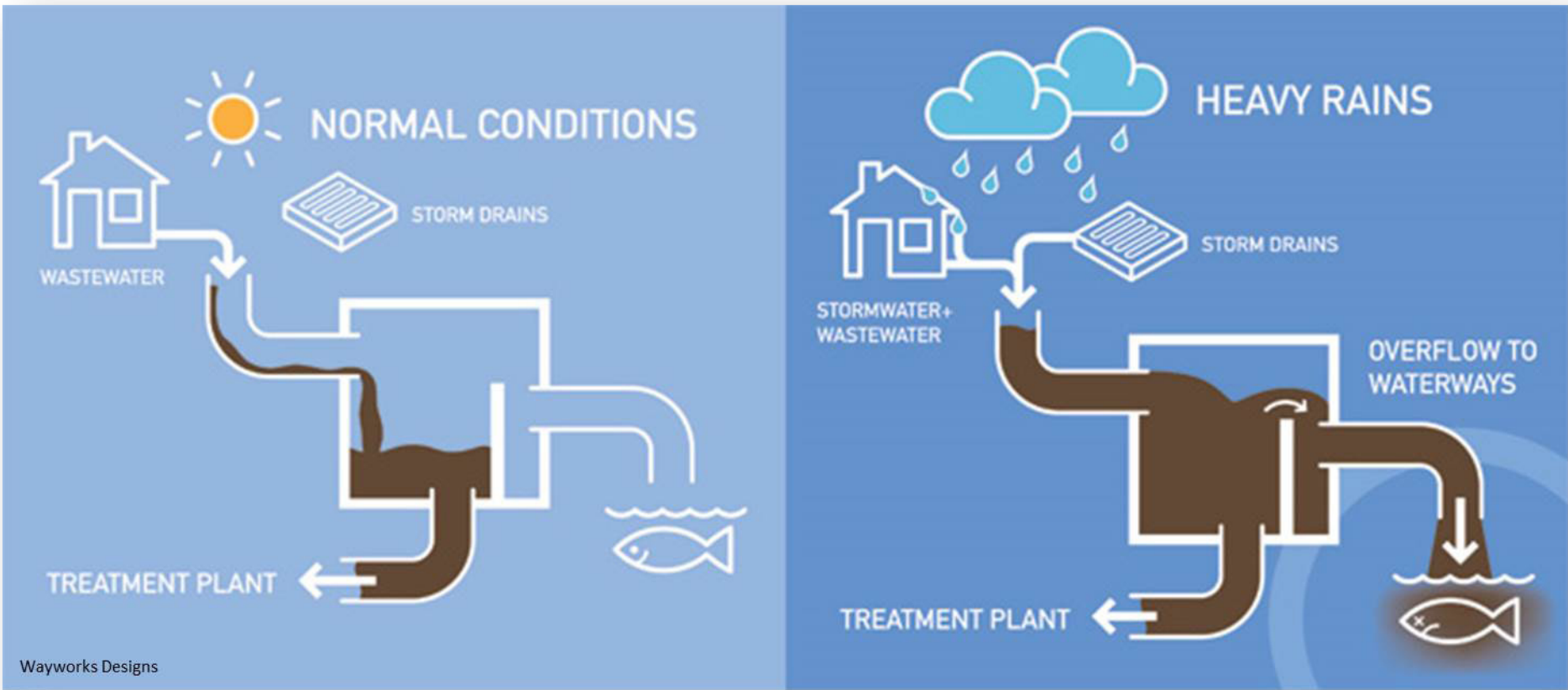
RAINFALL IN TORONTO

IN MILLIMETRES



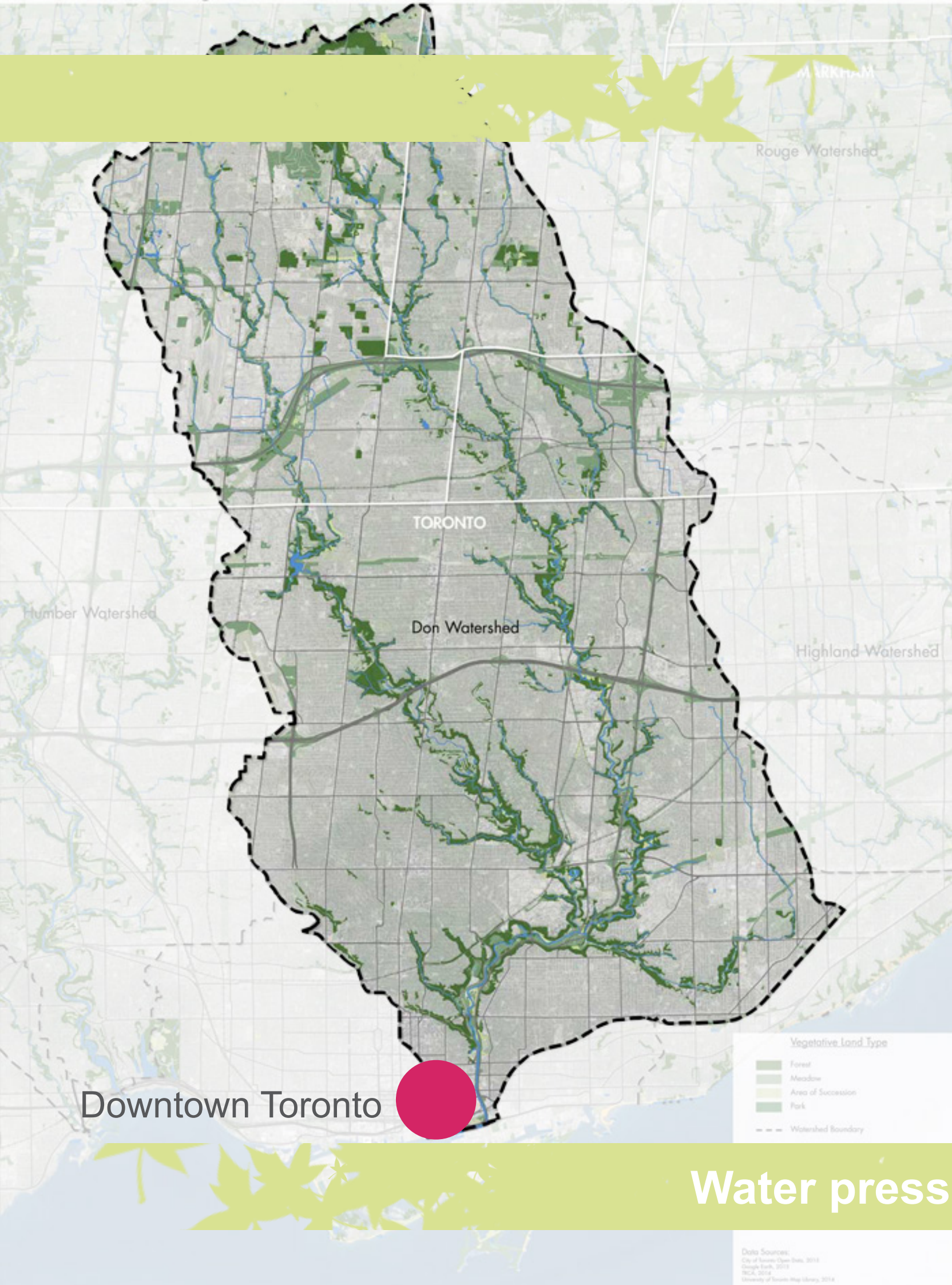
*Single day record for rainfall
**Previous record rainfall for July 8

NOTE: All data recorded at Lester B. Pearson International Airport.
SOURCE: ENVIRONMENT CANADA
JONATHON RIVAIT / NATIONAL POST



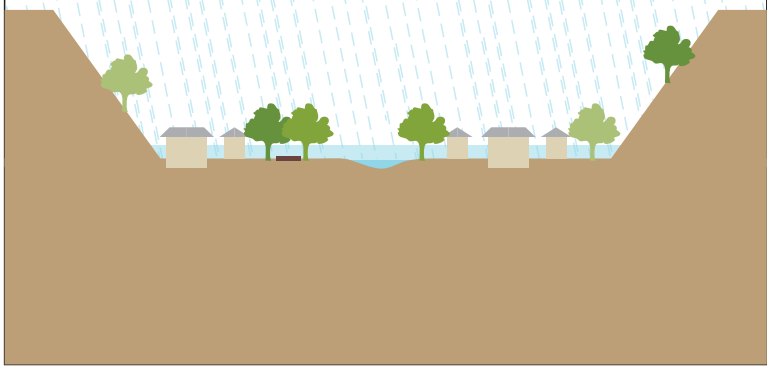
Sewage flows into the Don river at times of heavy rains

Area analysis

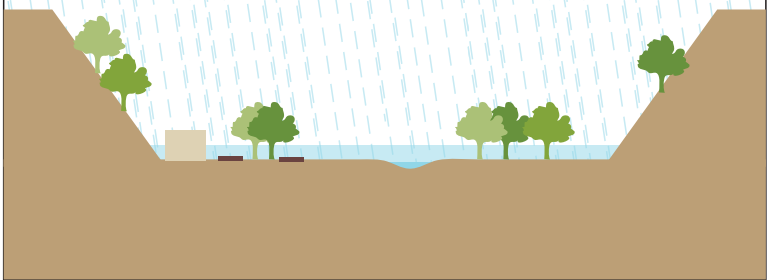


Area analysis

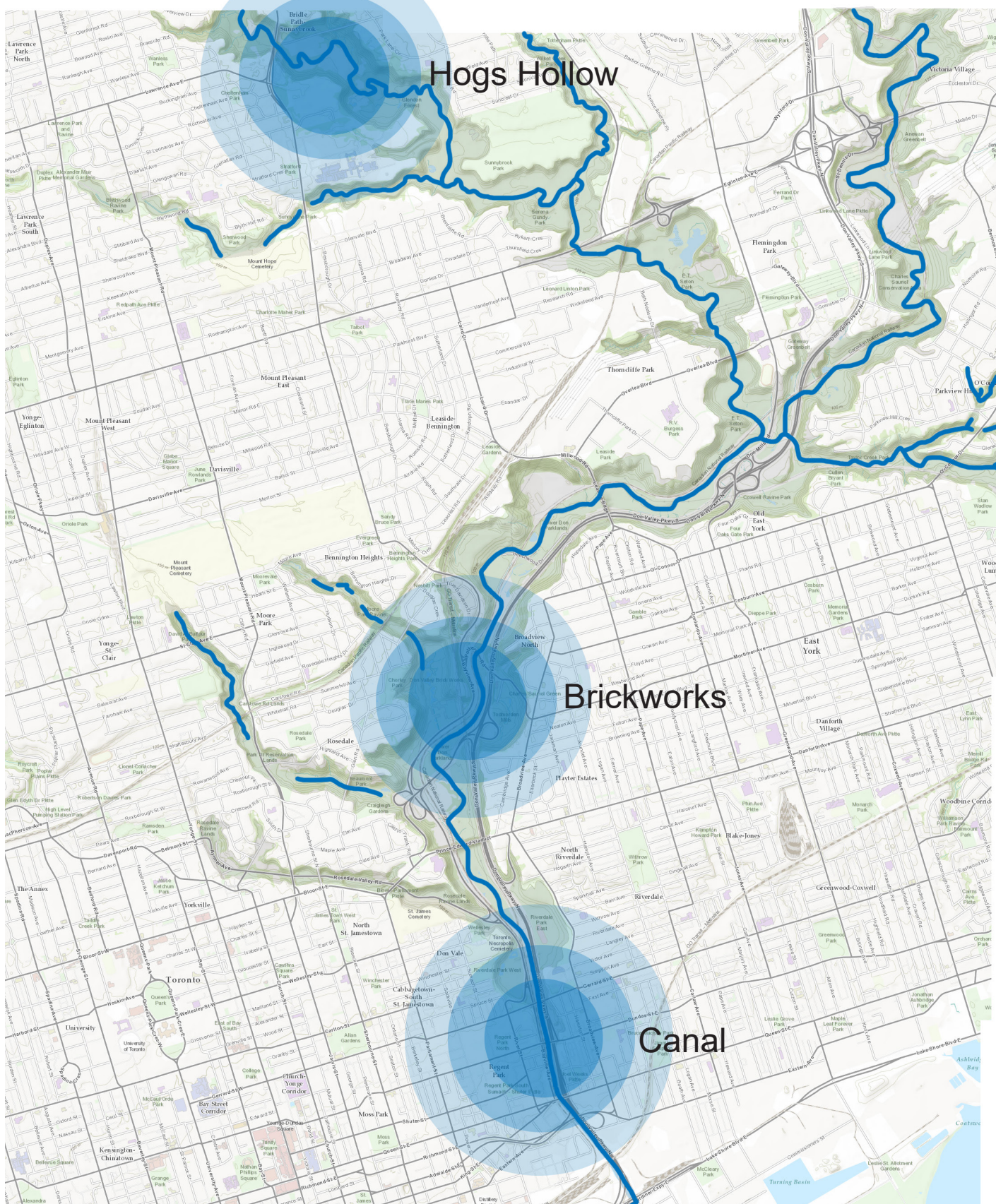
West Don | Hogs Hollow



Lower Don | Brickworks



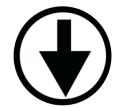
Lower Don | Canal



Area analysis



Toronto has to deal with high annual high rainfall peaks



Water from a large catchment area ends up directly in the Don River Valley



Polluted water collected in the sewer system gets redirected into the valley



Next to pollution this leads to flood problems in multiple areas along the Don river



Local efforts to solve the water problem only redirect the problem to other areas



A final solution has to be found in a large-scale capacity increase and supply reduction



Area analysis



Research framework



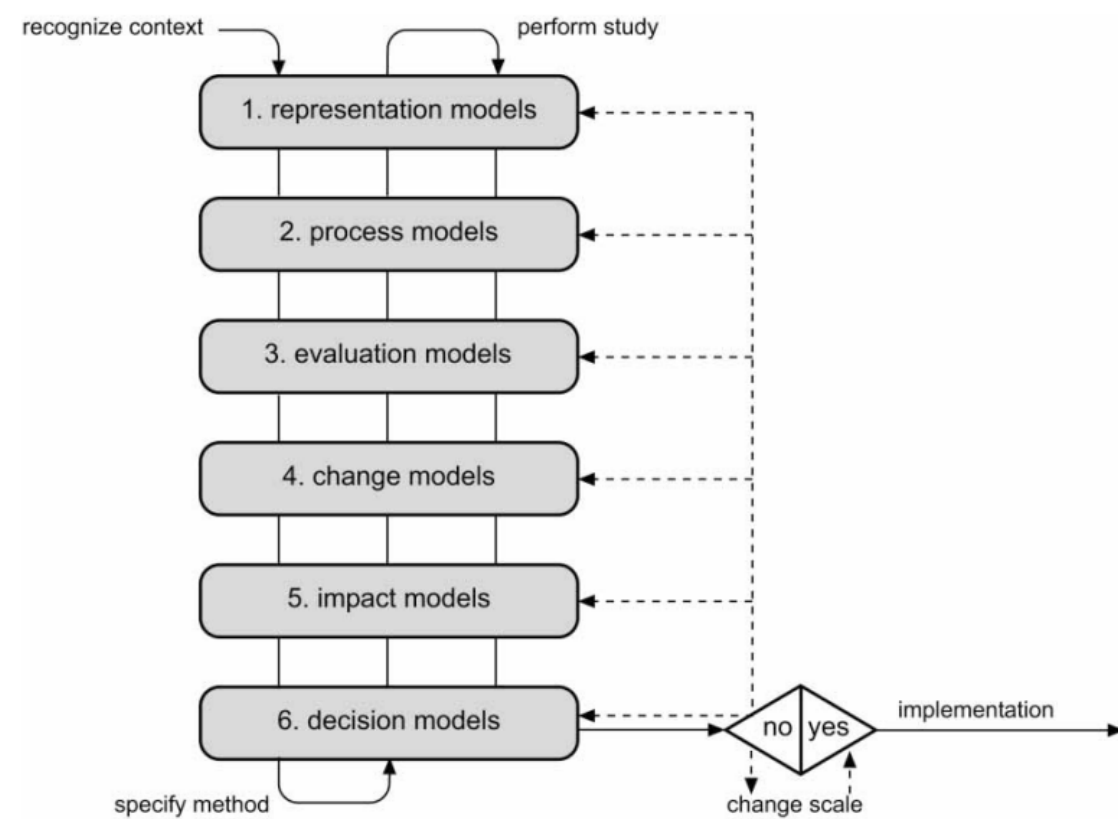
Design tools



Design



Reflection

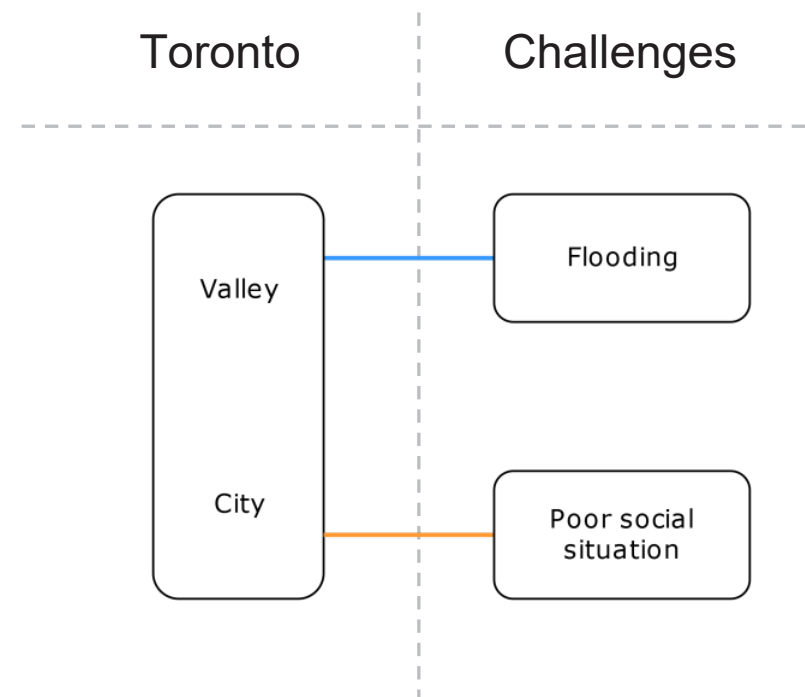


Stremke, S.; Kann, F.M.G. van; Koh, J. (2012) Integrated Visions (Part I): Methodological Framework for Long-term Regional Design. European Planning Studies 20 (2012)2. - ISSN 0965-4313 - p. 305 - 320.

Design process



Peter C. van Oosten (2016), Deduction and recombination



Along the Don River Valley there is a gathering of **lower social classes**, related to the valley being a **backside** within the urban tissue, leading to **isolation**

Meanwhile the Don River Valley deals with annual **flood problems** and **limited accessibility**, resulting in **neglect of valuable area** which **lacks a multi-scale vision**

What is an effective design strategy to reconnect the City of Toronto to the landscape of the Don River Valley at the metropolitan, district and local scale?

- In which way can this strategy improve the social structure of neighborhoods surrounding the Don River Valley?
- How can this strategy deal with challenges regarding water management?
- How can design solutions for the Don River Valley and the solutions for the surrounding neighborhoods strengthen each other?

By transforming the Don River Valley from a series of loose cross-sections into a lively and continuous metropolitan park which connects to its surroundings and at the same time works as a system



Area analysis



Research framework



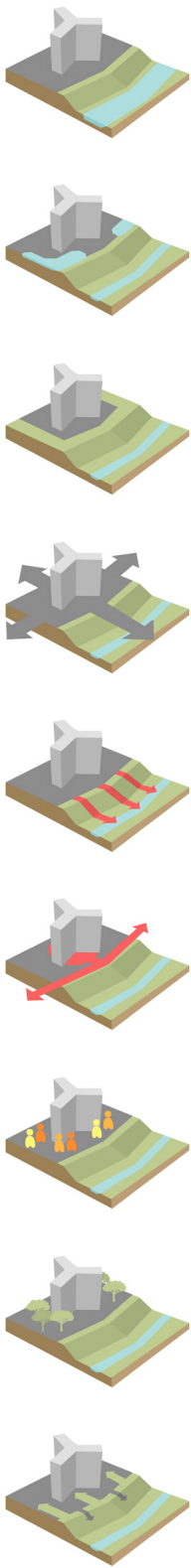
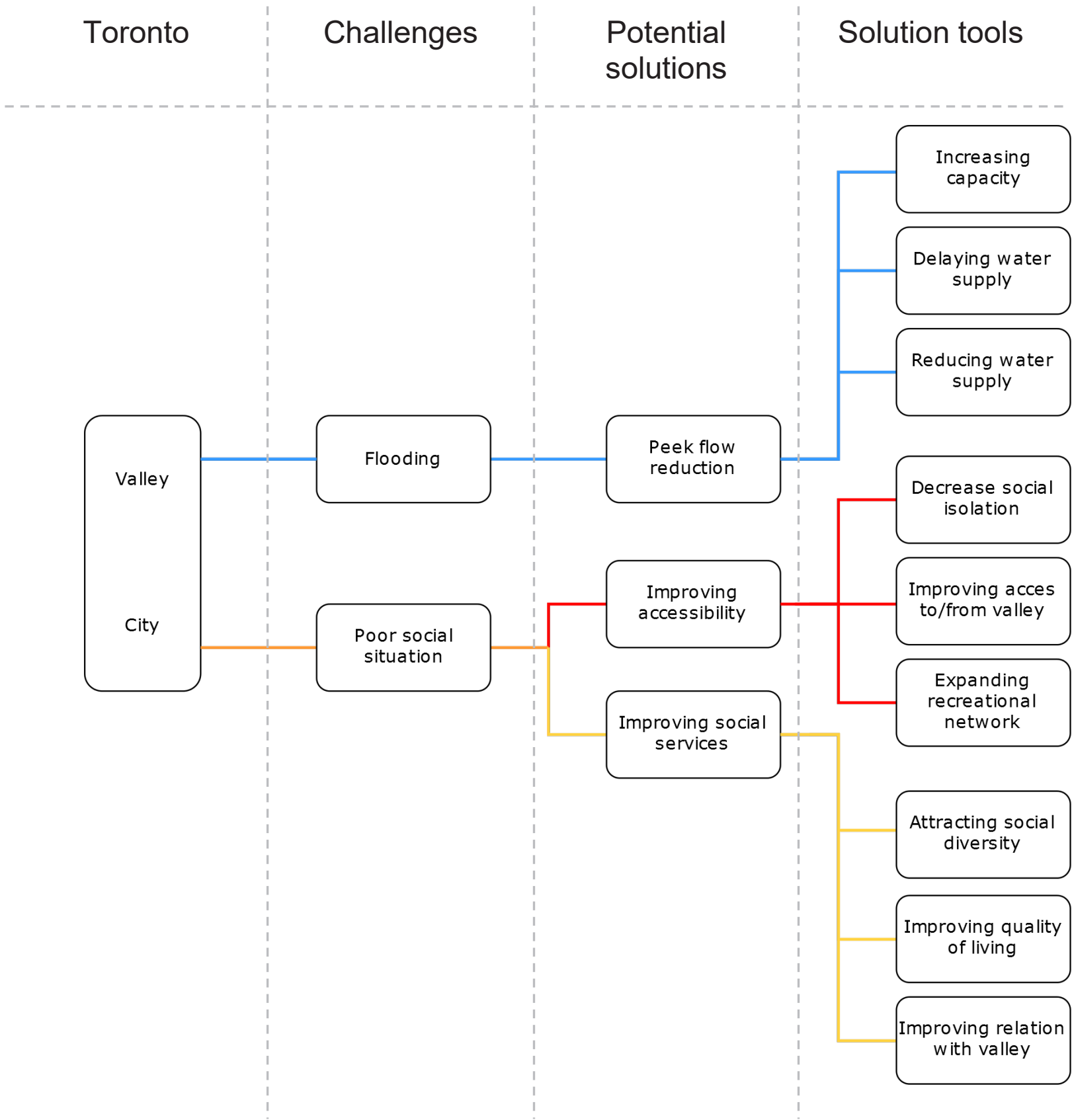
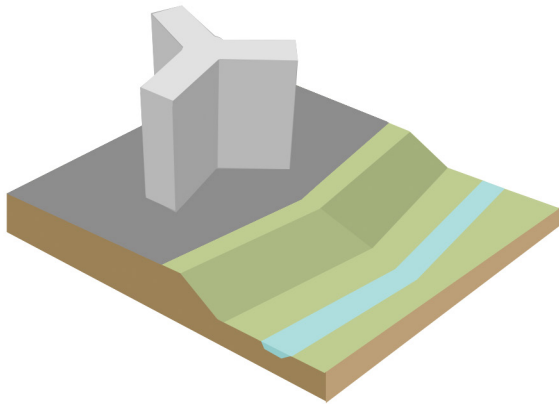
Design tools



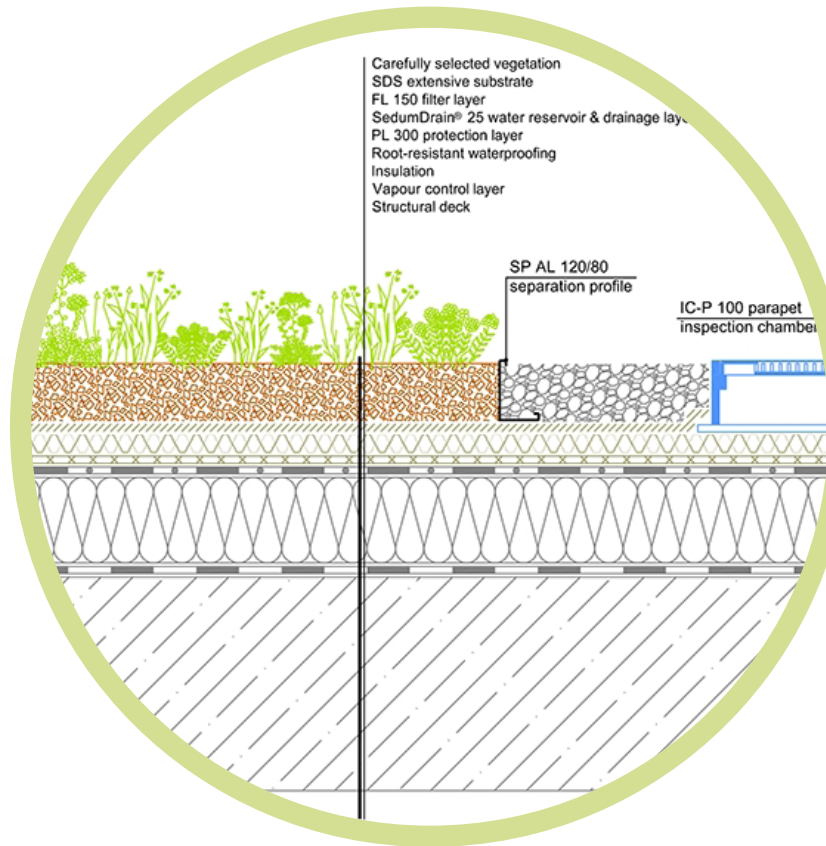
Design



Reflection



Design tools



54% of precipitation uptake

Mentens, J. (2005) Green roofs as a tool for solving the rainwater runoff problem in the urbanized 21st century?



Up to 100% of precipitation uptake

Design tools



GO train

30/90



Richmond Hill Line

Design tools



Toronto Metro

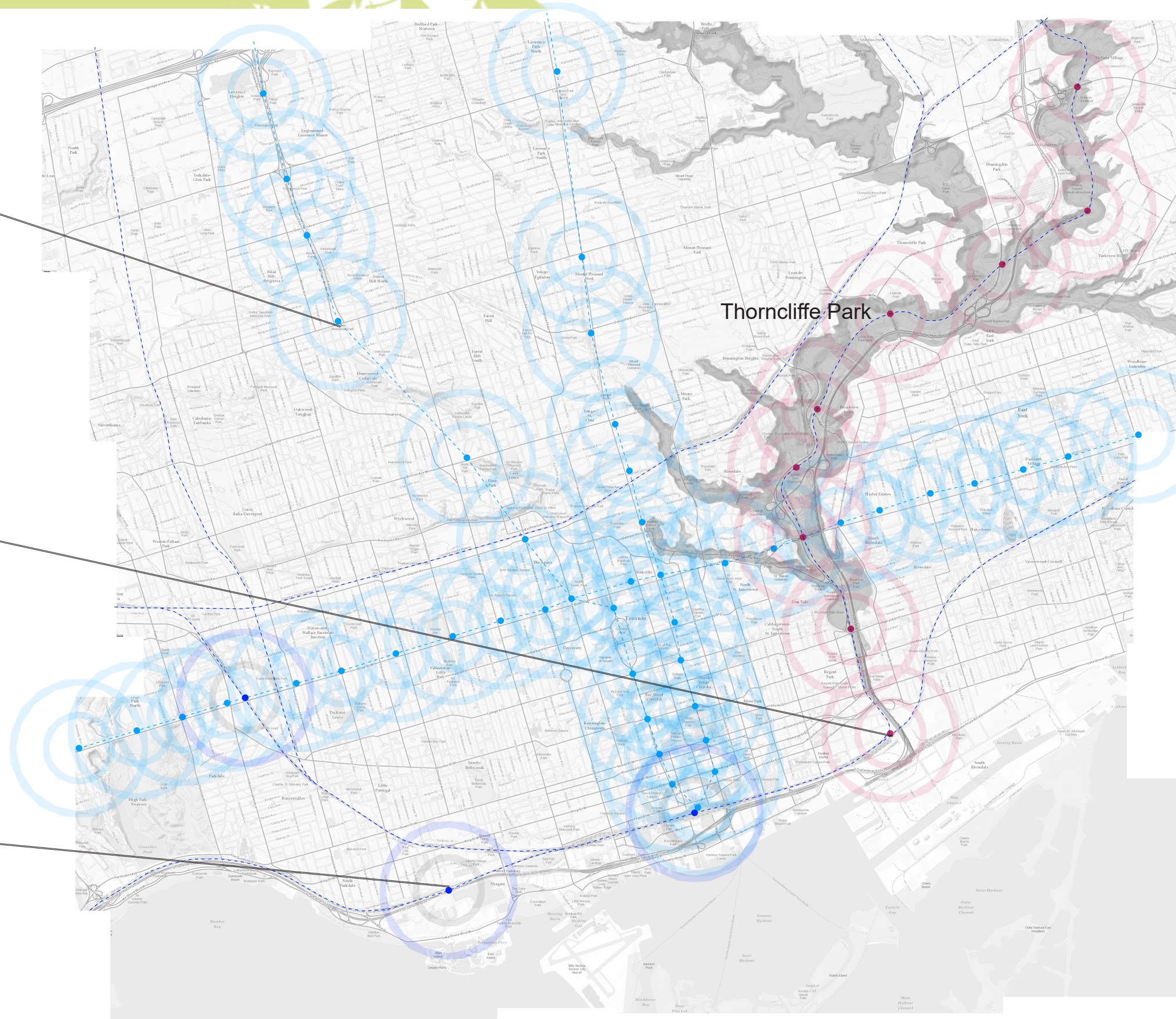


Toronto Lightrail



GO train

31/90



Introducing Lightrail



Area analysis



Research framework



Design tools



Design



Reflection

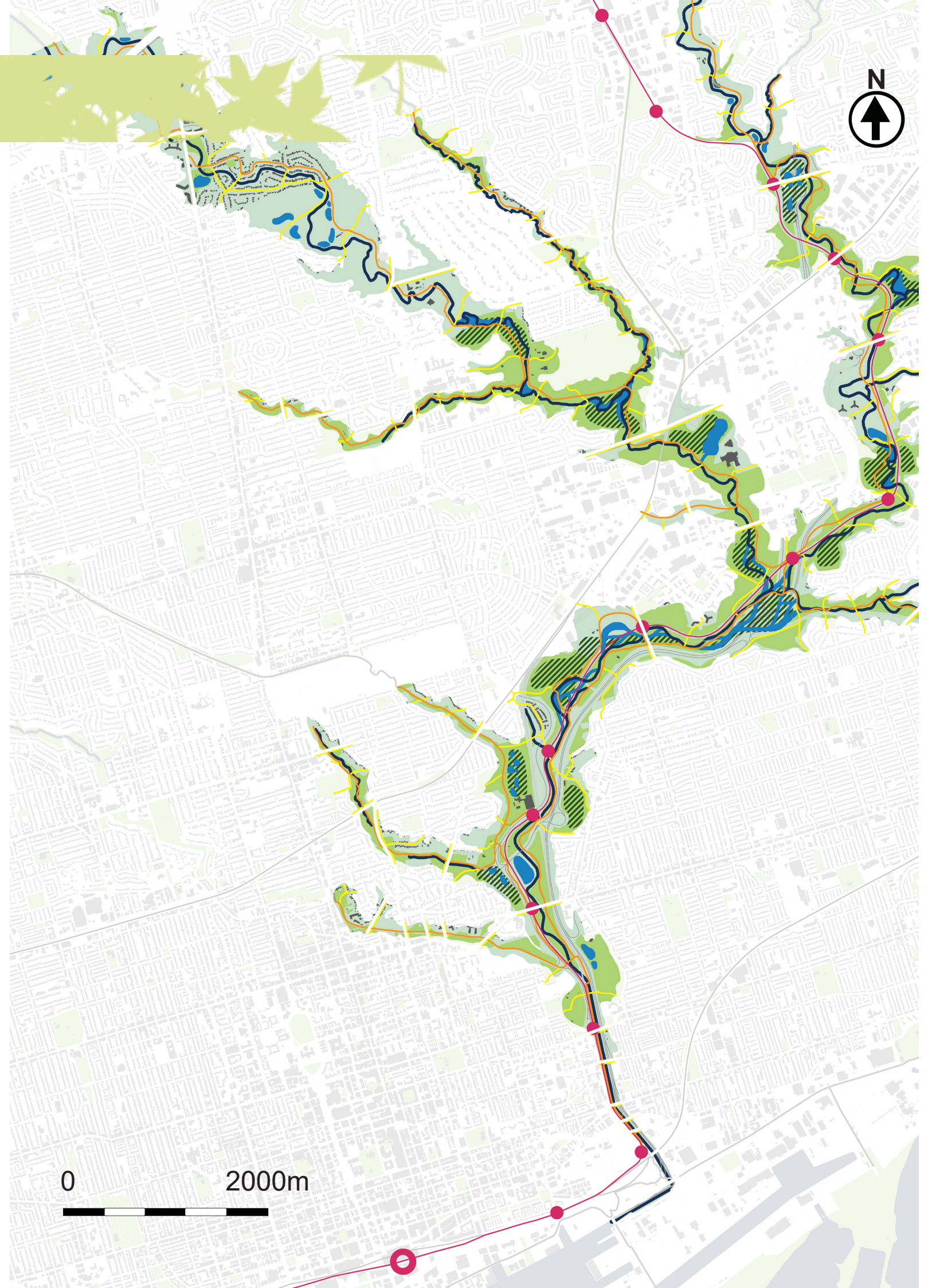
Don River Valley Park



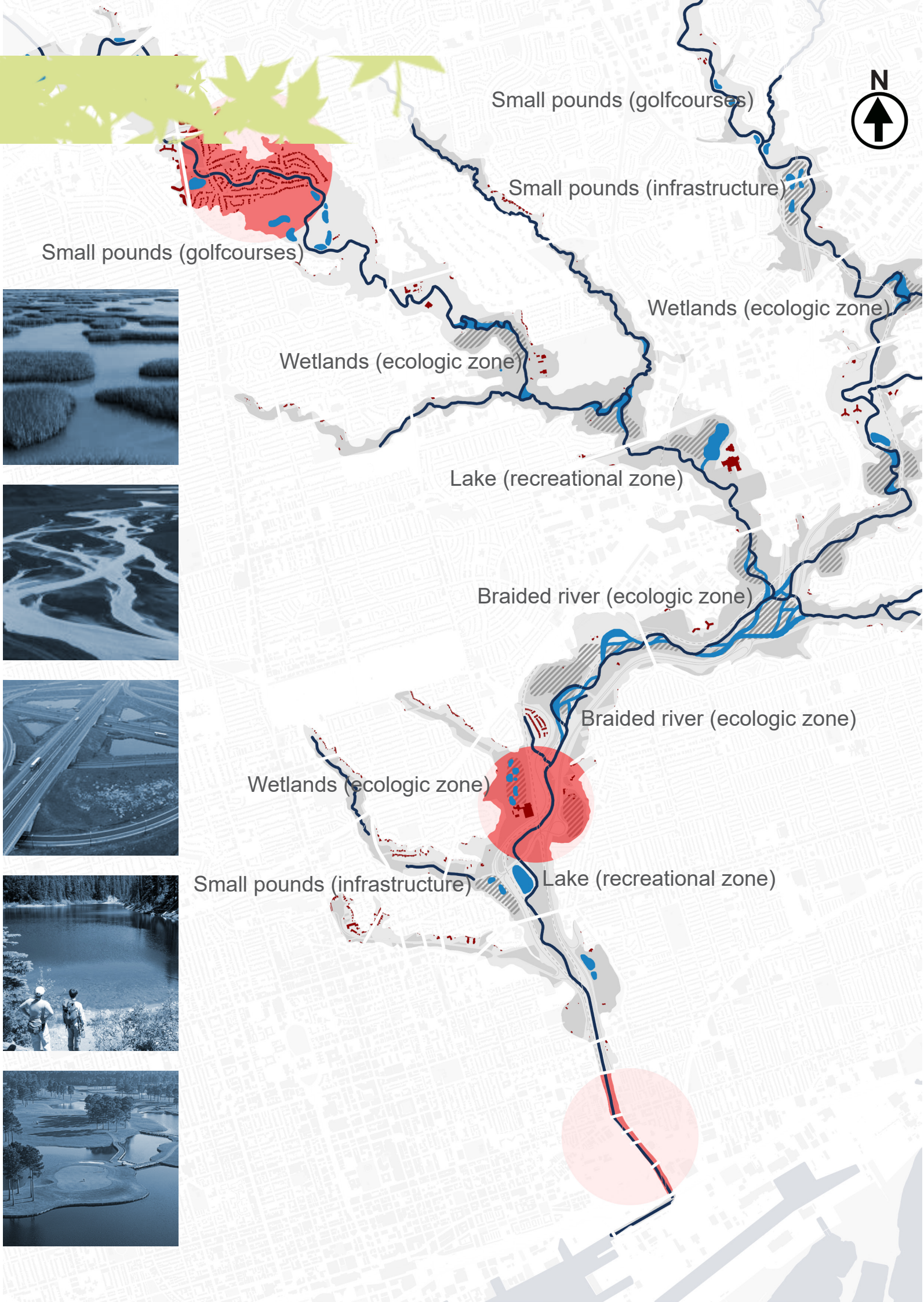
Masterplan Don River Valley Park



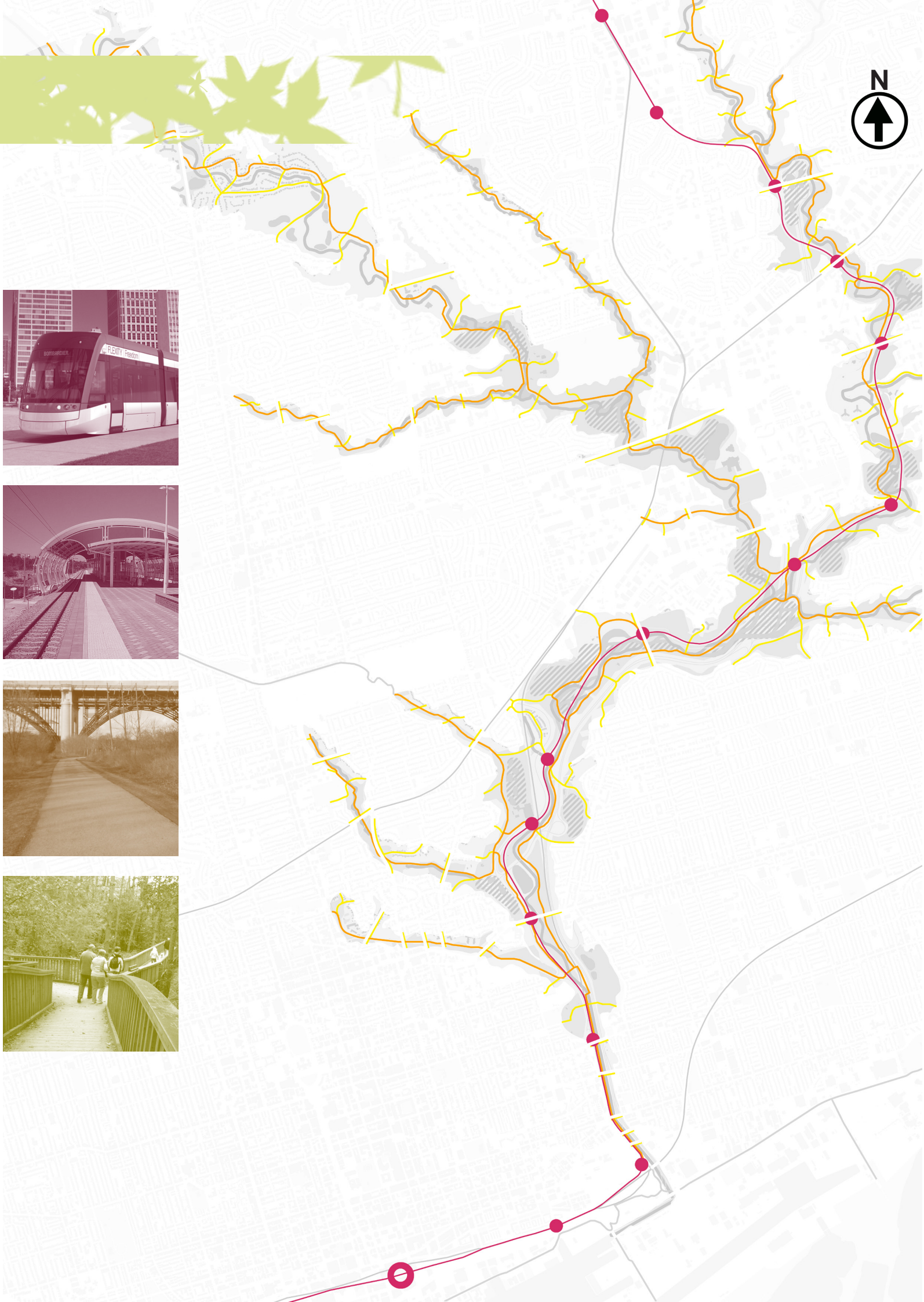
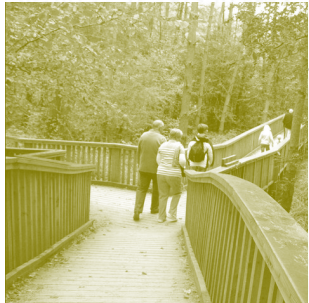
34/90

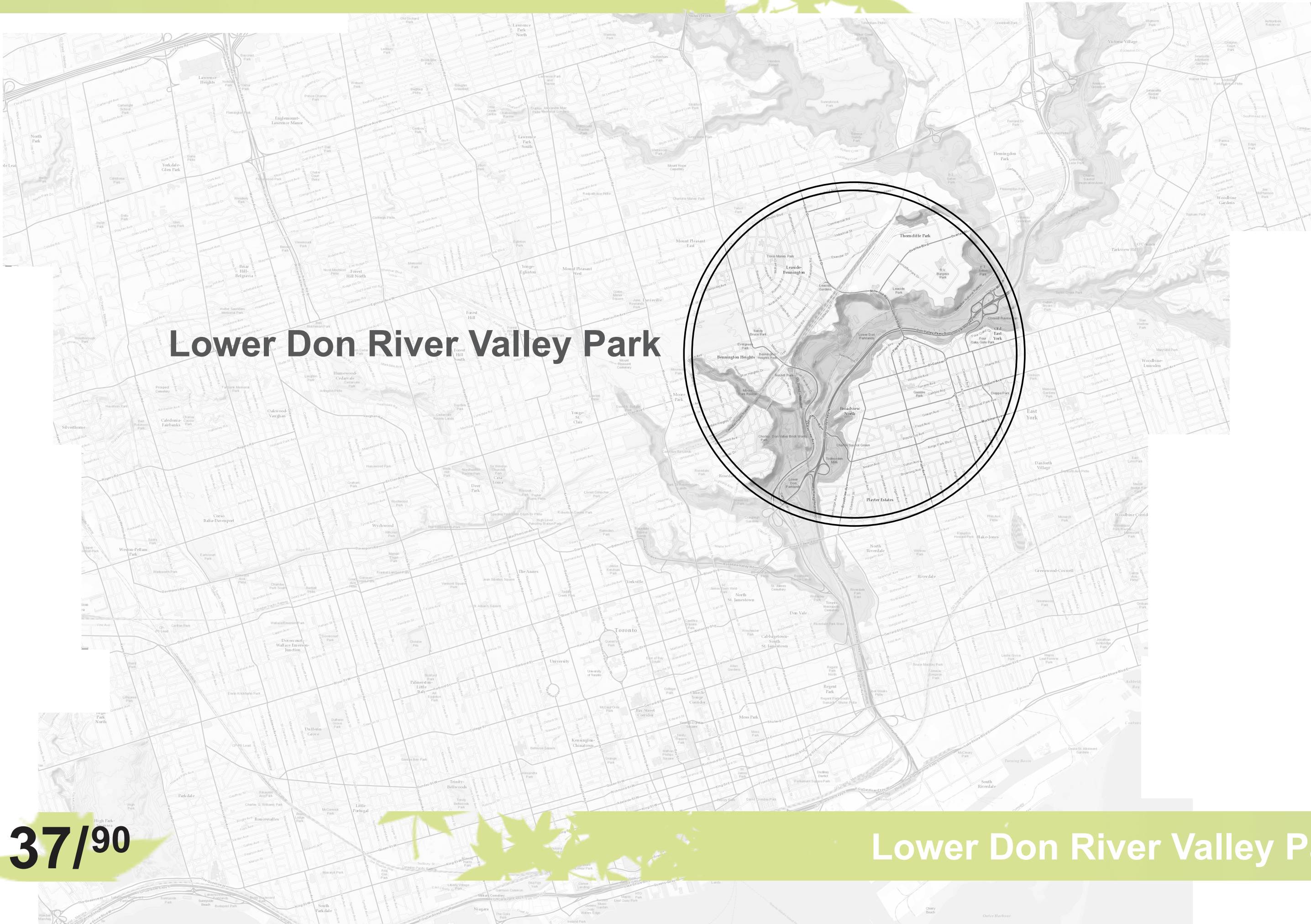


Water design themes



Access network





Lower Don River Valley Park



Design with nature

Fauna species of high regional concern*

*L1-L3 rating according to Ecological Land Classification (ELC)
System of the Ontario Ministry of Natural Resources (MNR)

Mink
Mustela vison
L3, Lower Don East



Eastern red-backed salamander*
(*occurrence needs confirmation)
Plethodon cinereus
L3, Lower Don



Northern leopard frog
Rana pipiens
L3, Lower Don



Beaver
Castor canadensis
L3, Lower Don



Pileated woodpecker
Dryocopus pileatus
L3, Lower Don

least flycatcher
Empidonax minimus
L3, Lower Don



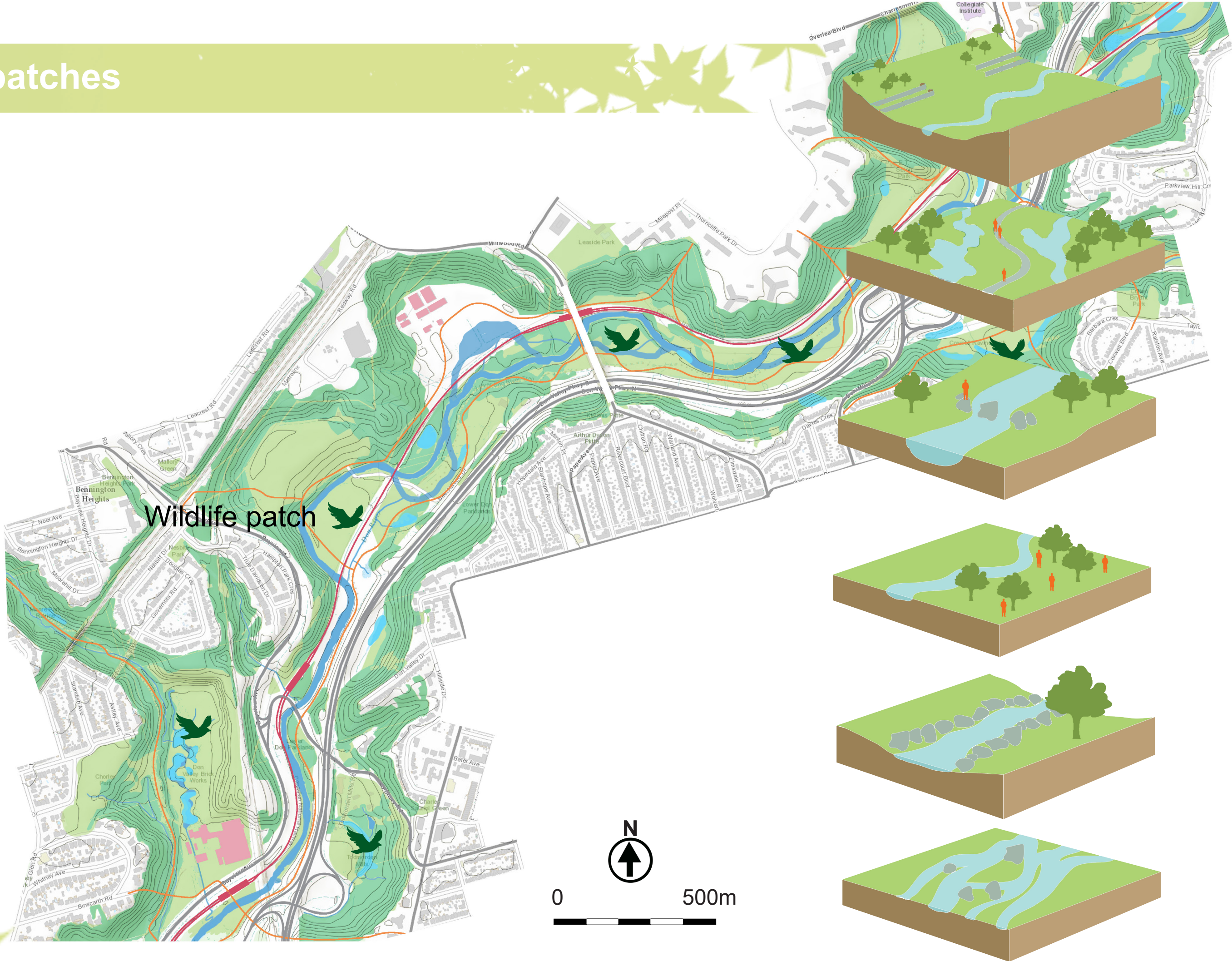
Wood duck

Aix
L3

Masterplan Lower Don River Valley Park



Wildlife patches

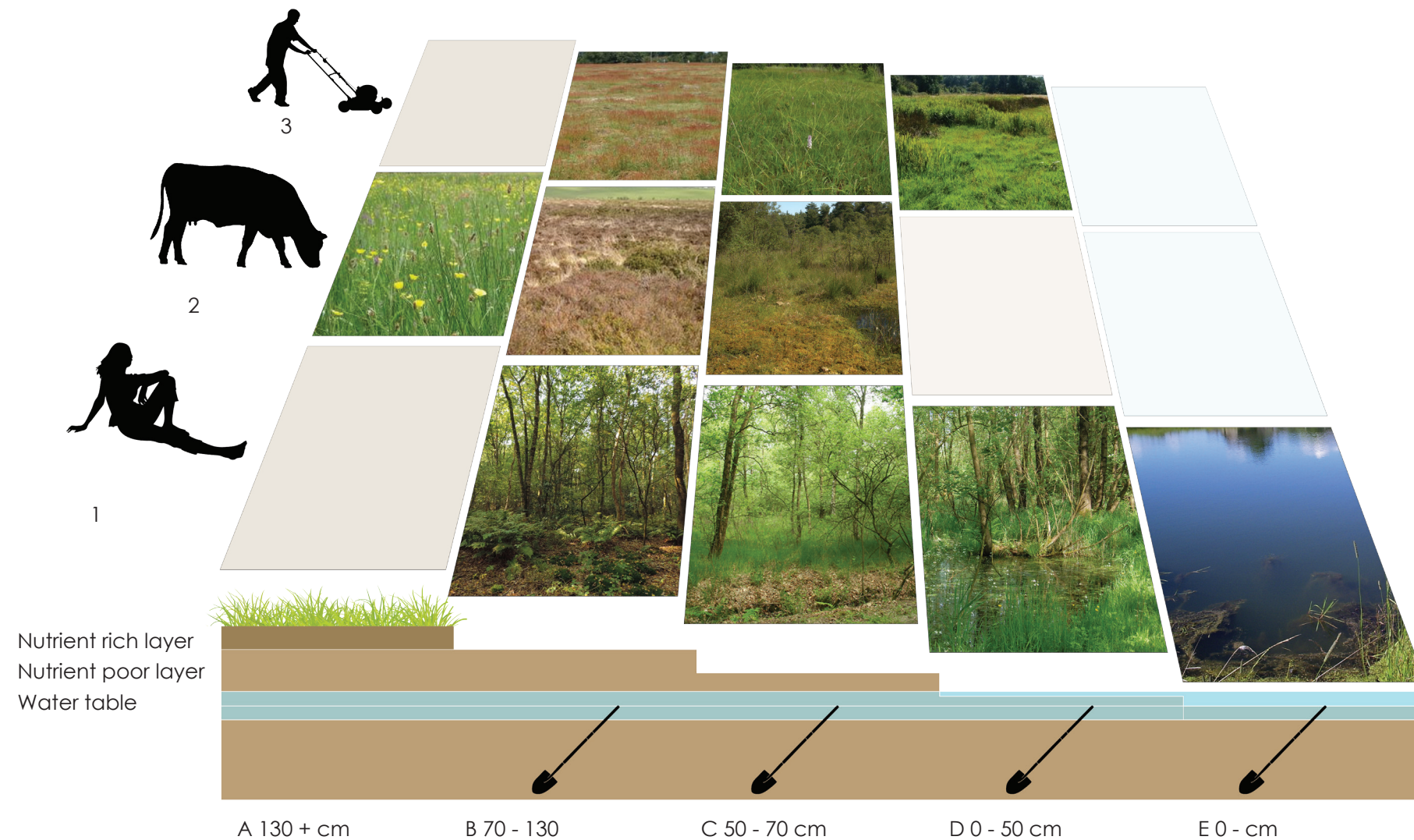


Wildlife patch



Wildlife patch





- A2 Rich grassland
- B1 Dry forest
- B2 Dry heath
- B3 Poor dry grassland
- C1 Moist forest
- C2 Moist heath
- C3 Poor moist grassland
- D1 Swamp forest
- D3 Poor wet grassland
- E1 Pond

Wildlife patch



0m

20m

Exploration & education







- 1. Analyse spatial structure**
- 2. Analyse functional structure**
- 3. Improve spatial structure**
- 4. Create connections to valley**
- 5. Reducing water runoff**
- 6. Improve social spatial structure**

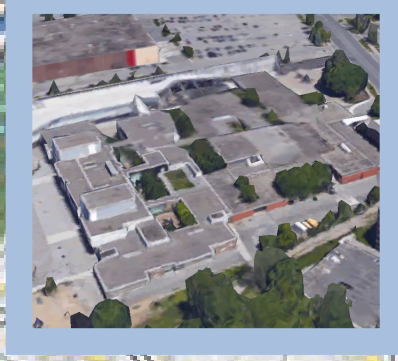
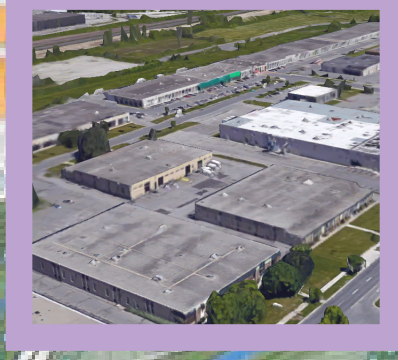
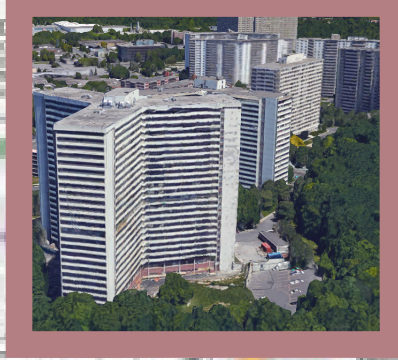
Thorncliffe Park



50/90

Aerial view

Thorncliffe Park



Thorncliffe Park






- Small green patches
- Large grey area
- No clear spatial structure

52/90



1. Analyse spatial structure

Thorncliffe Park

-  Sport facility
-  Supermarket
-  Religious building
-  School
-  Library

- Poor relation between space and function

53/90



2. Analyse functional structure



Thorncliffe Park








55/90

4. Create connections to valley



Thorncliffe Park

-  Neighborhood park
-  Cliff park
-  Valley park entrances
-  Sport facility
-  Event and market square



A: Green veins



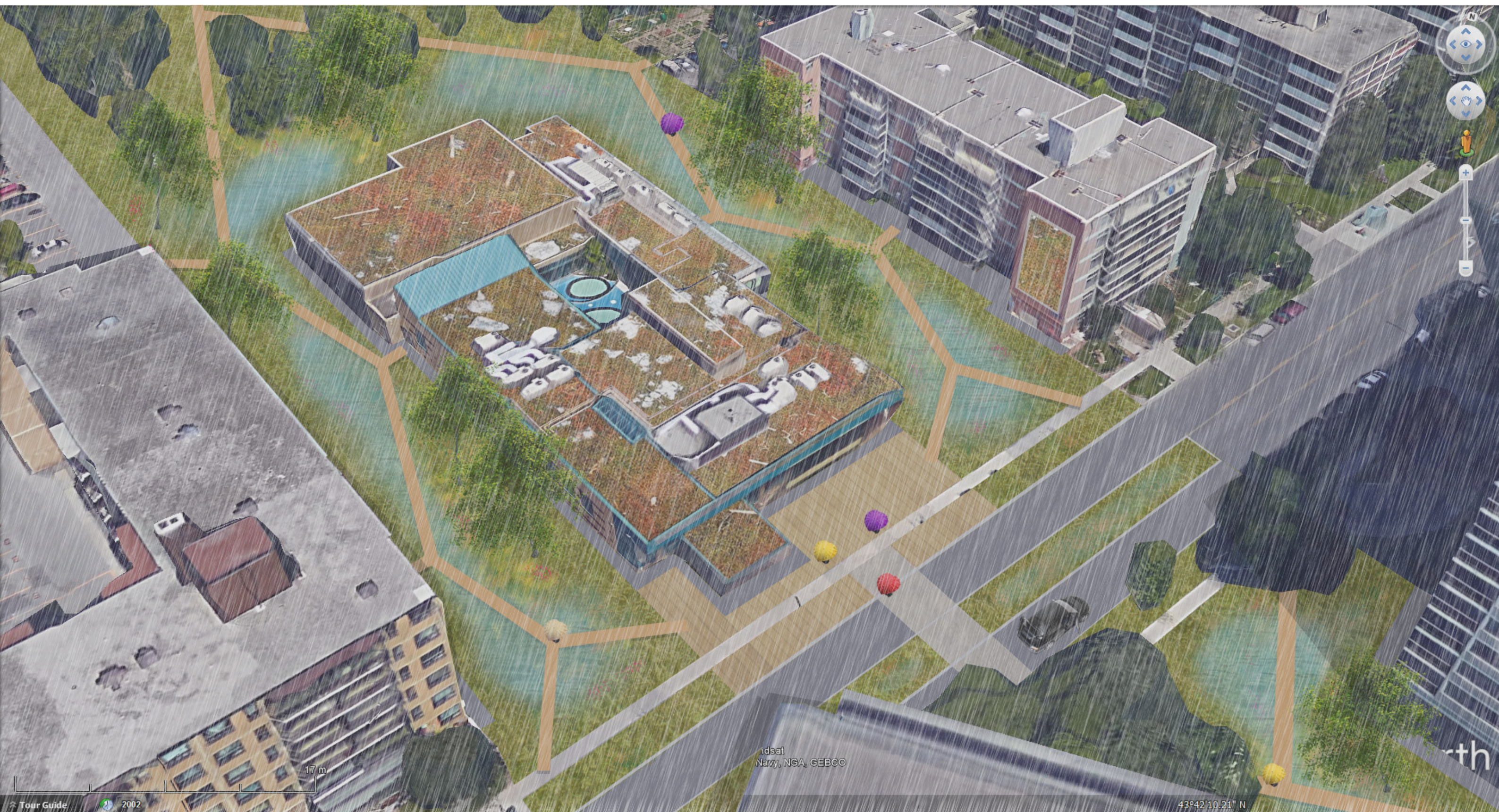
A: Green veins



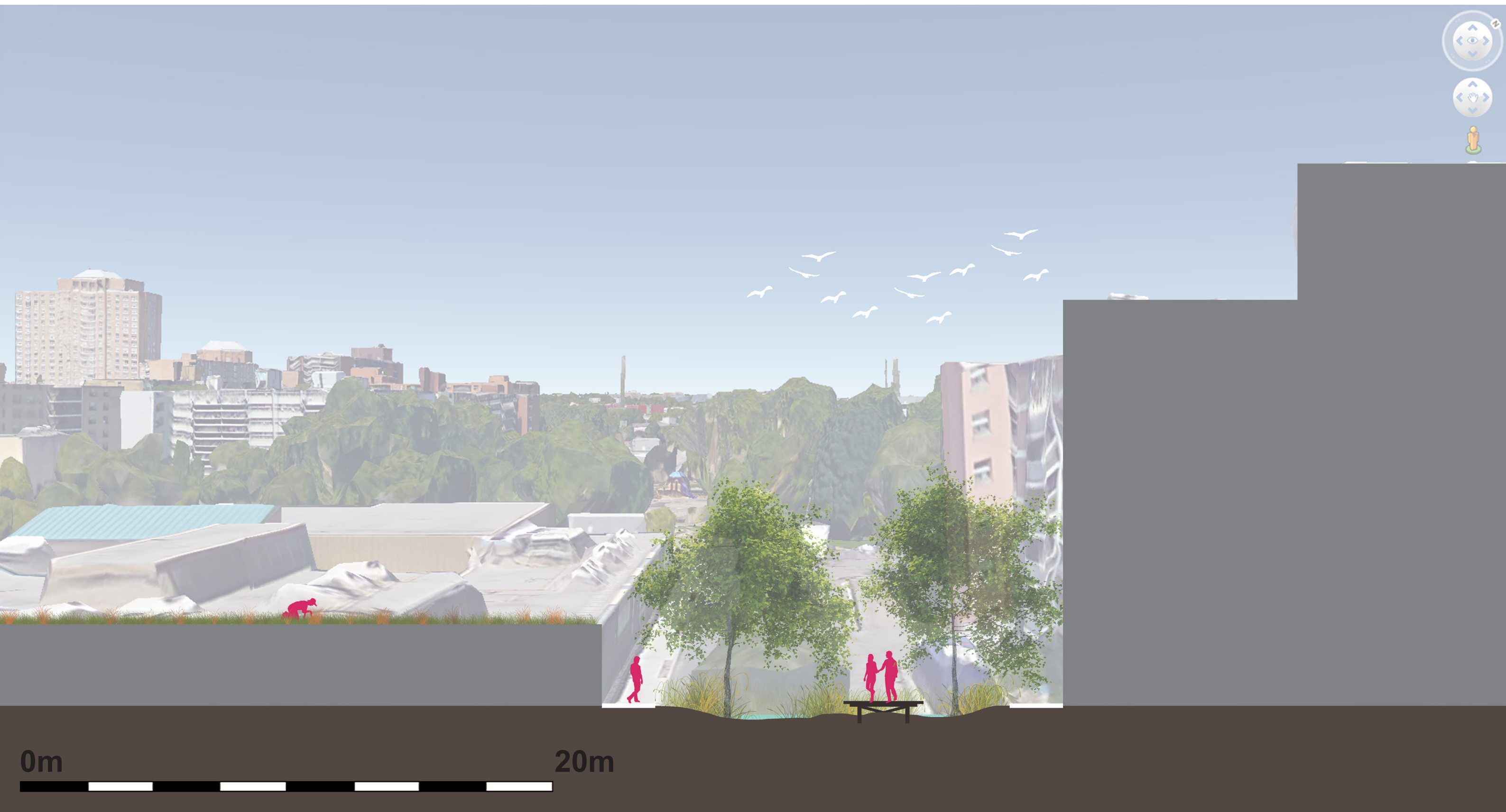
A: Green veins



A: Green veins



A: Green veins



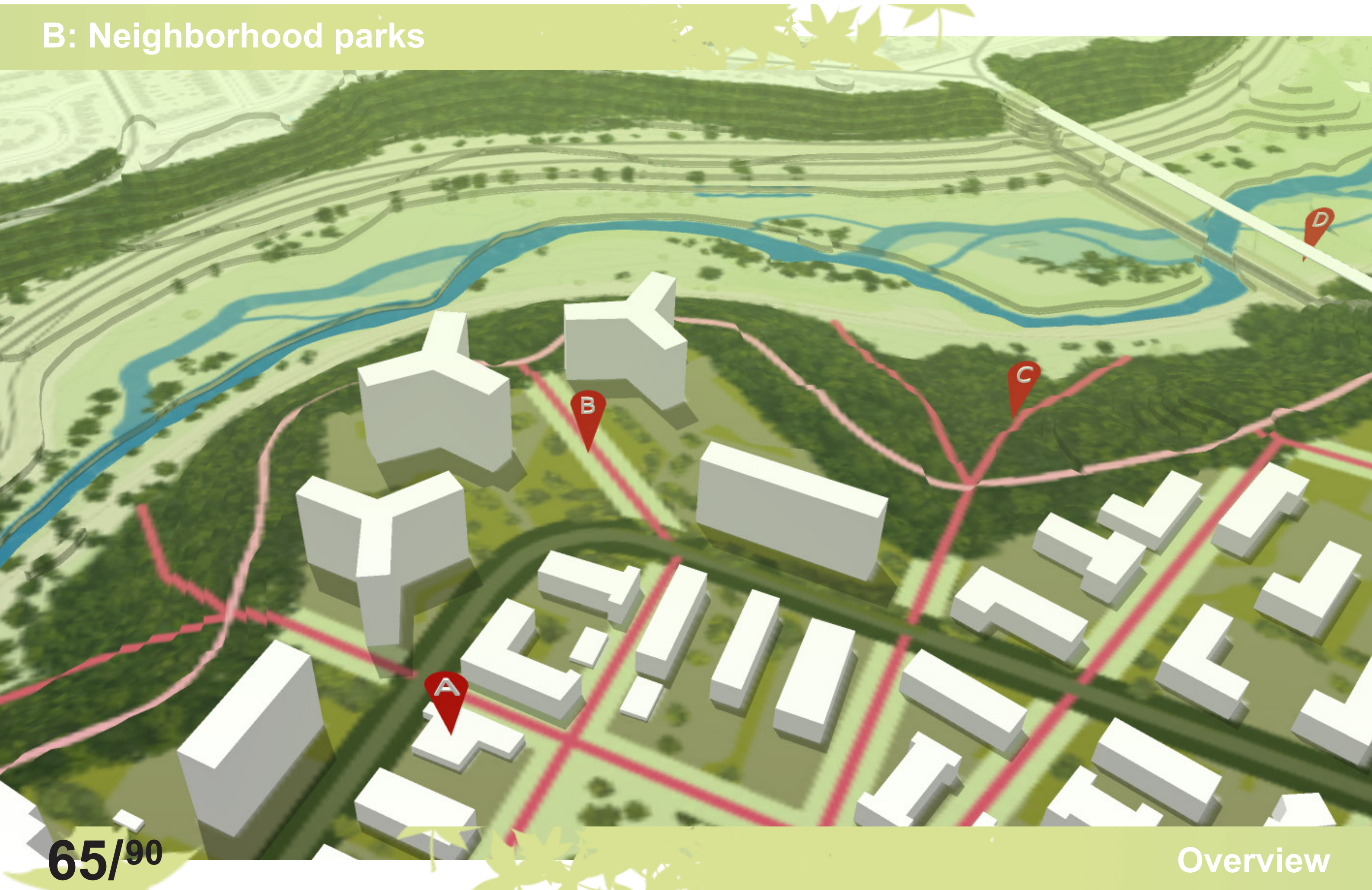
Unwinding & refreshing



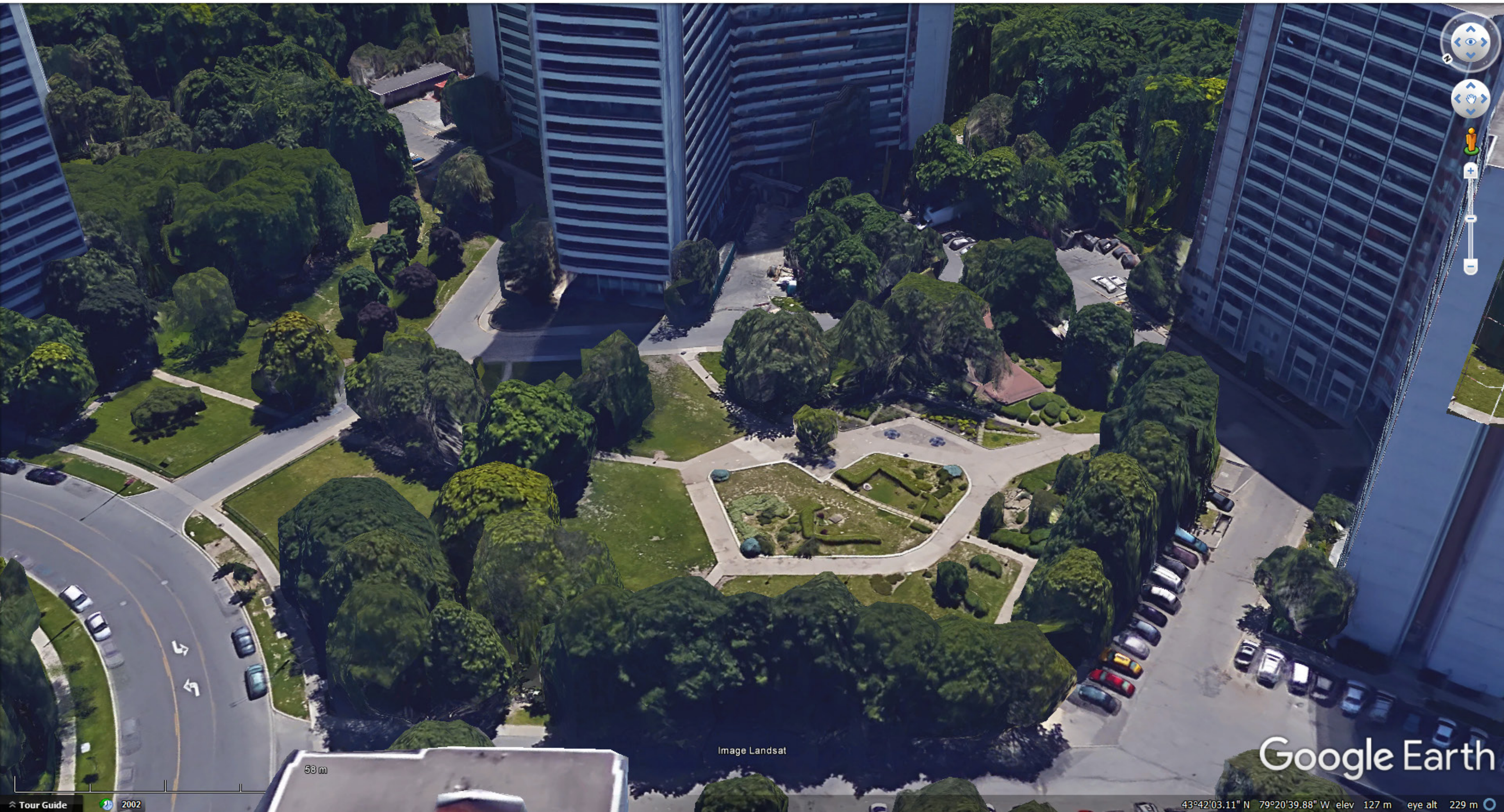
A: Green veins



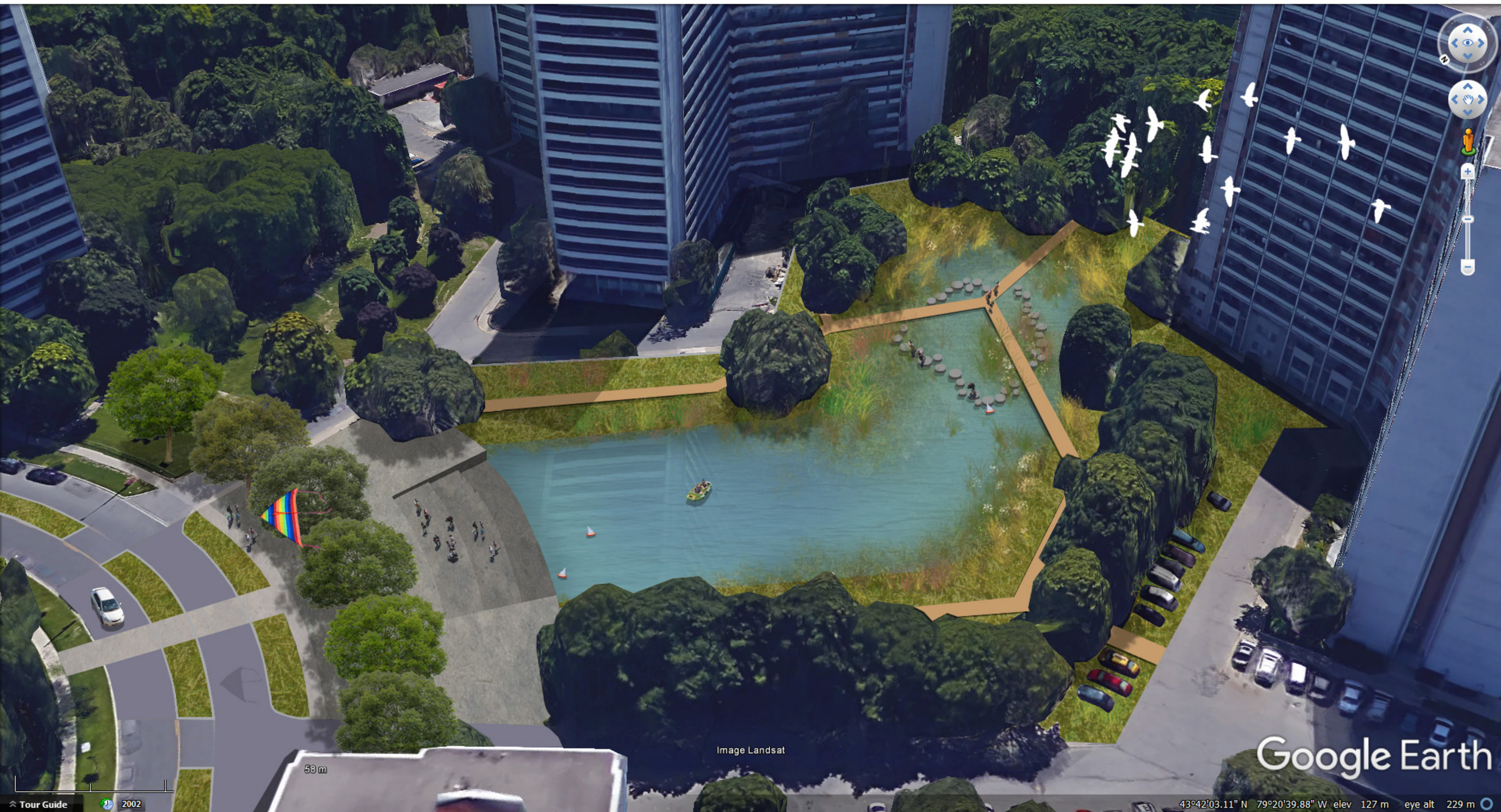
B: Neighborhood parks



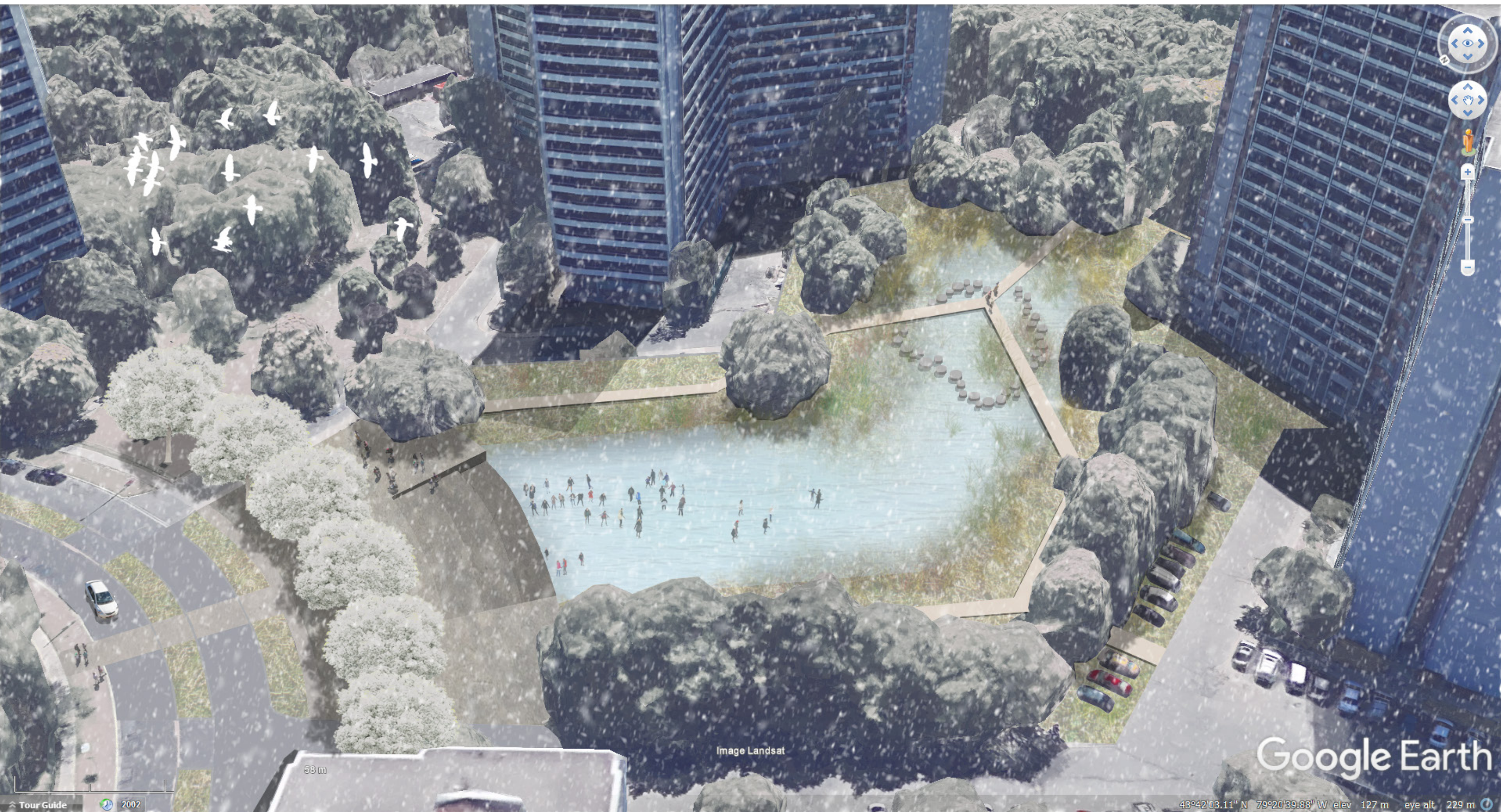
B: Neighborhood parks



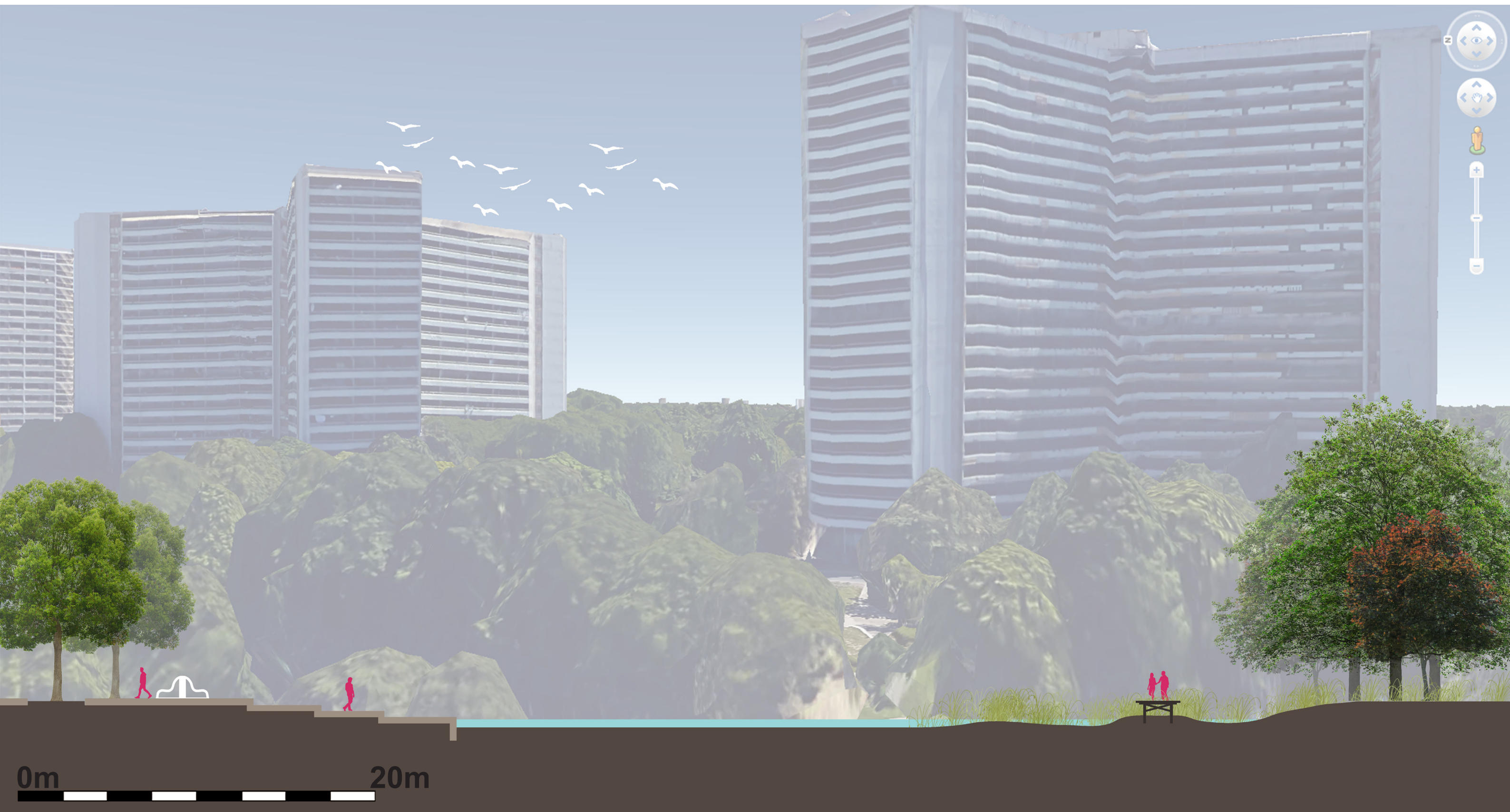
B: Neighborhood parks



B: Neighborhood parks



B: Neighborhood parks



Gathering & playing



B: Neighborhood parks



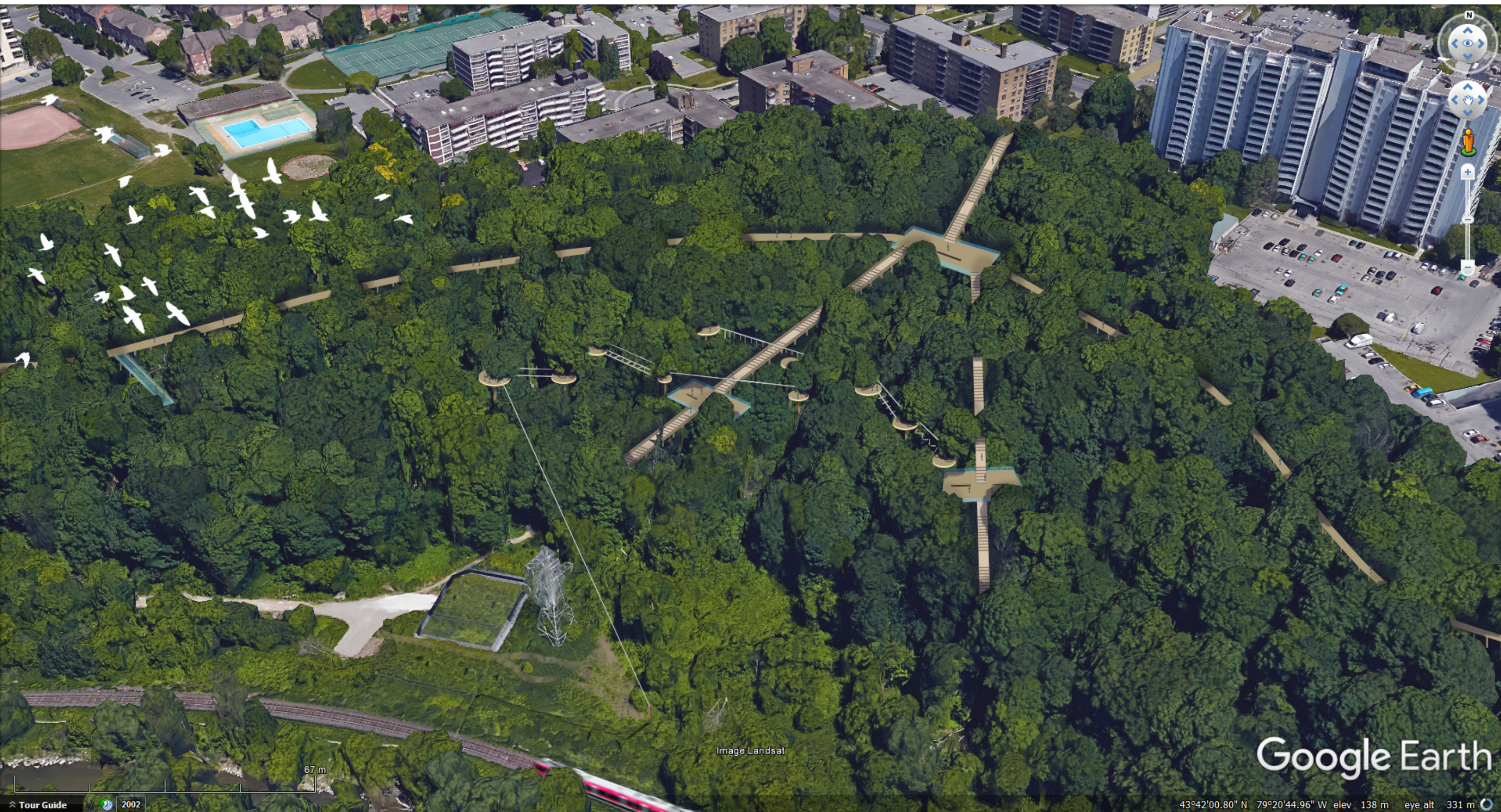
C: Cliff park



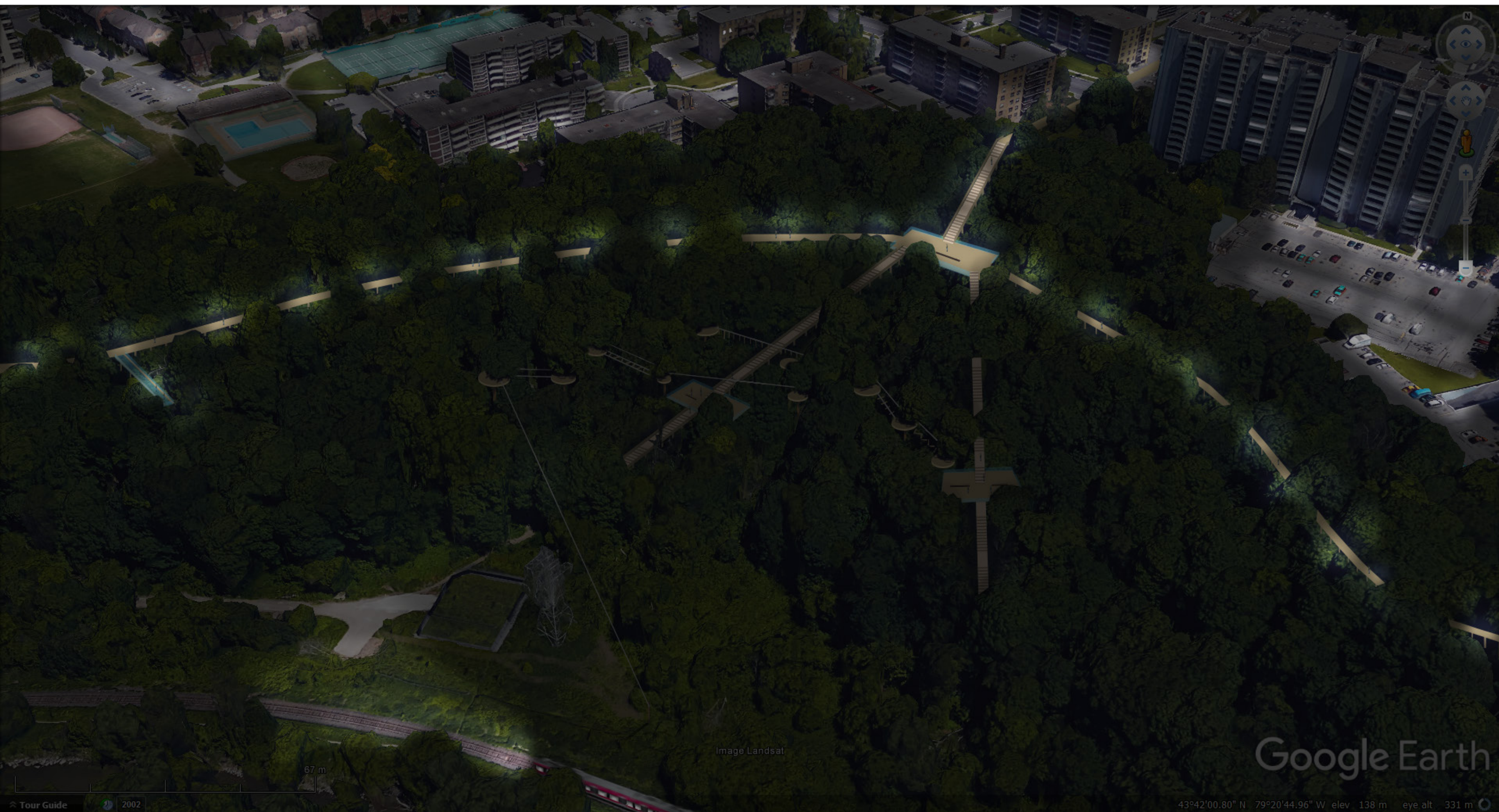
C: Cliff park



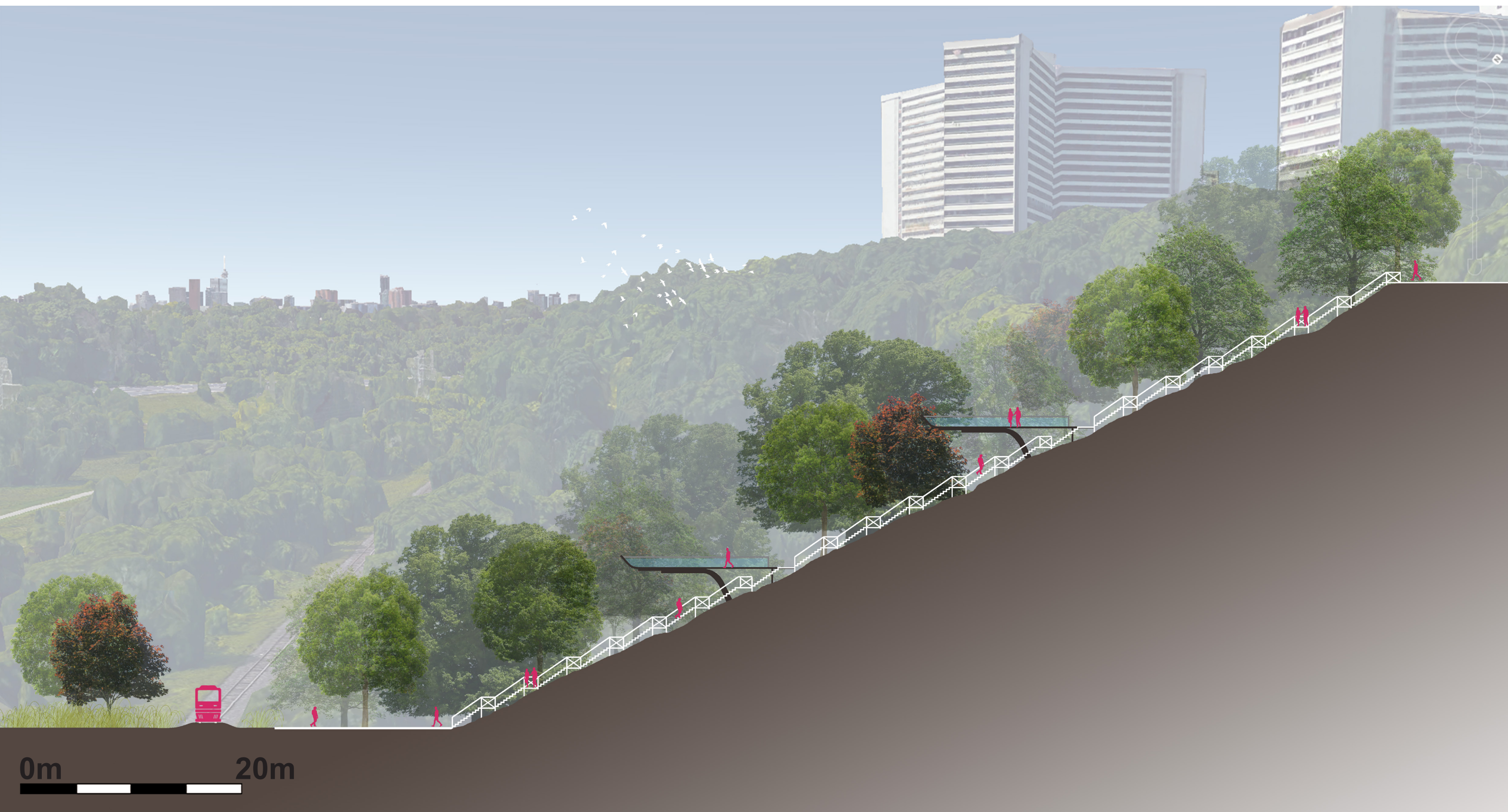
C: Cliff park



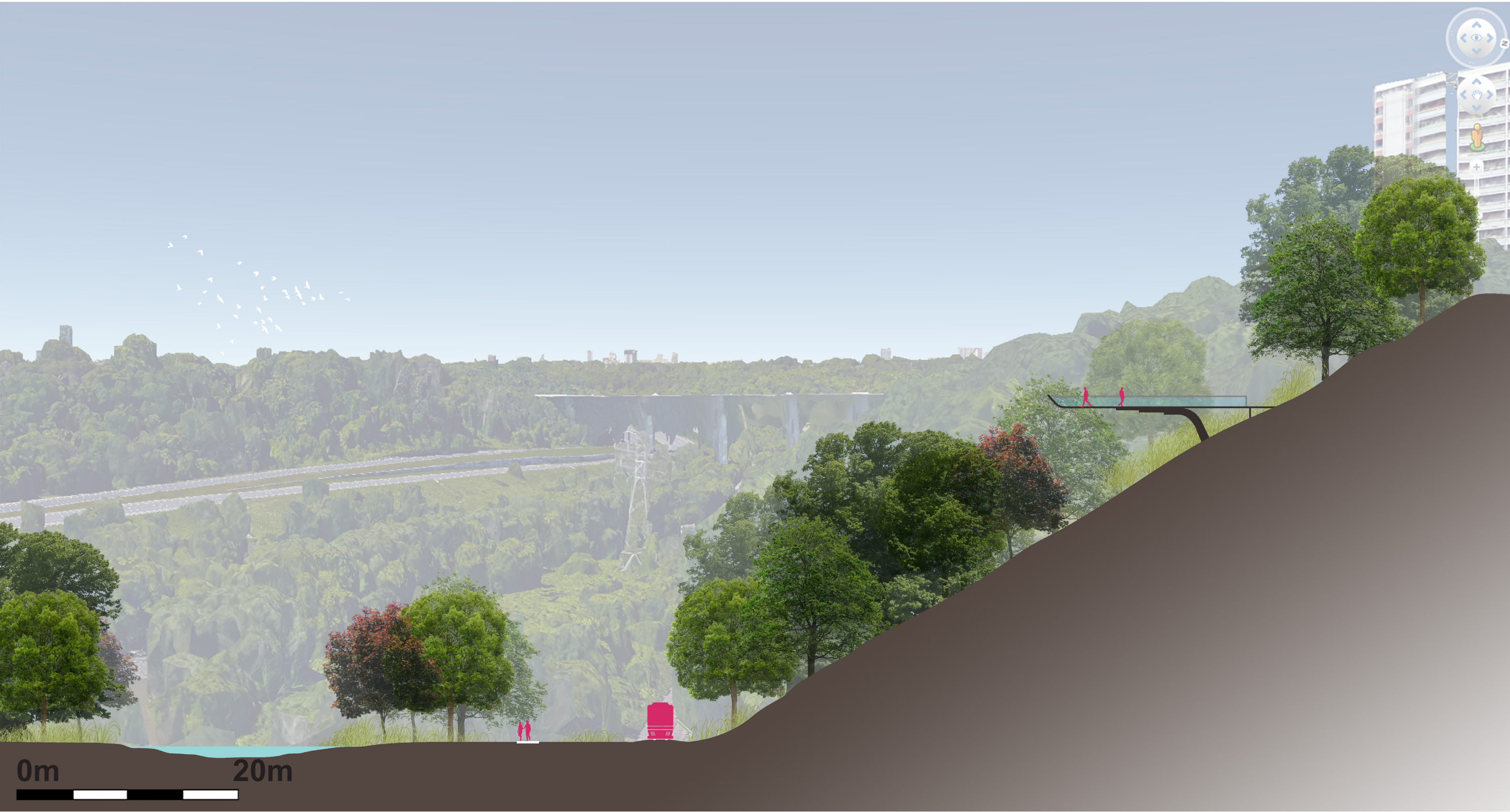
C: Cliff park



C: Cliff park



C: Cliff park



Exercising & adventuring



C: Cliff park



D: Thorncliffe station



D: Thorncliffe station



D: Thorncliffe station



D: Thorncliffe station



Outdoor recreation & travelling



D: Thorncliffe station





Area analysis



Research framework



Design tools



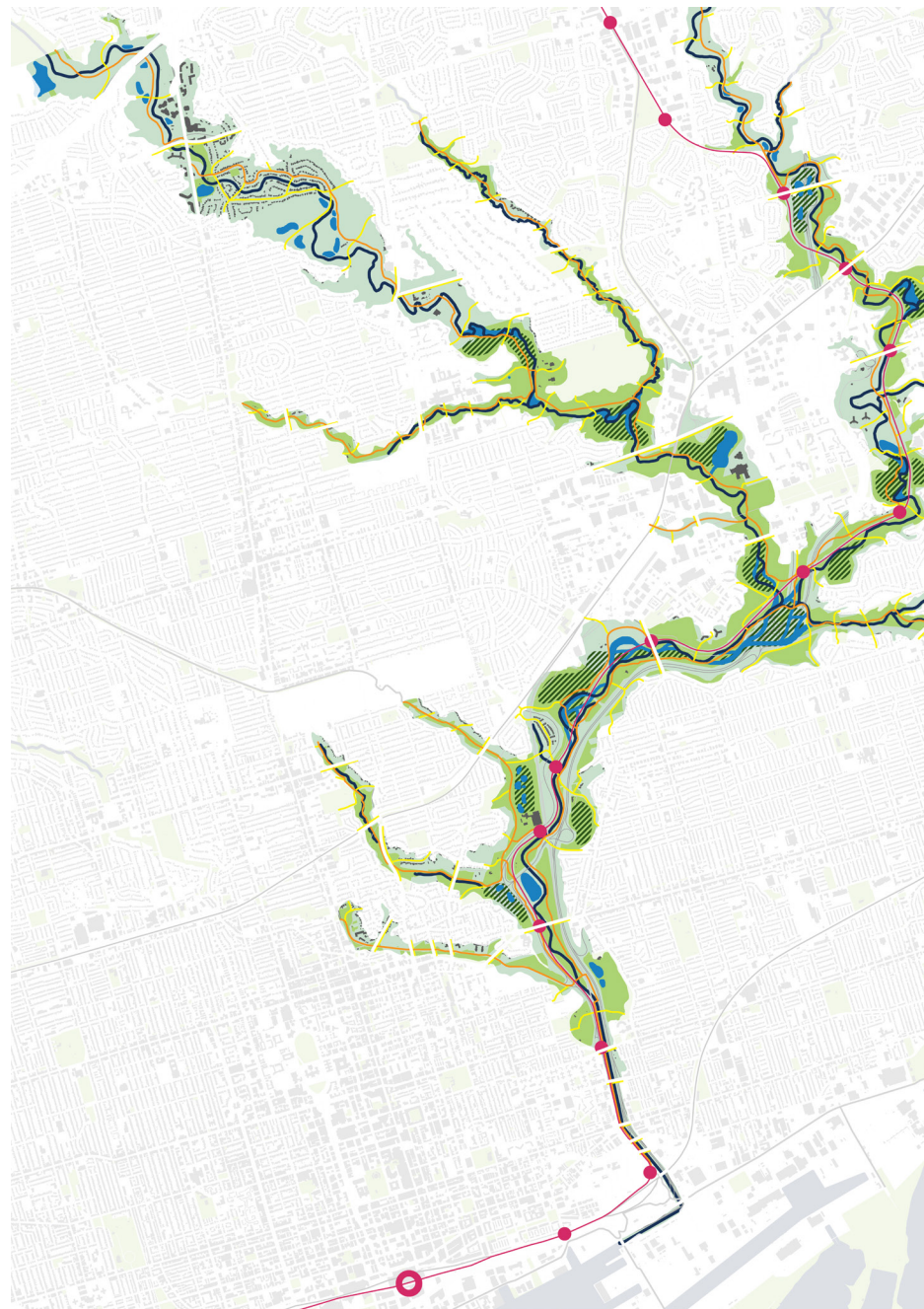
Design



Reflection

What is an effective design strategy to reconnect the City of Toronto to the landscape of the Don River Valley at the metropolitan, district and local scale?

Reflection



Don River Valley Park
Metropolitan scale

88/90



Lower Don River Valley Park
District scale



Cliff Park & Neighborhood parks
Local scale

Multi-scale design

