*Sub***urban** Metabolism

in the Greater Toronto Area

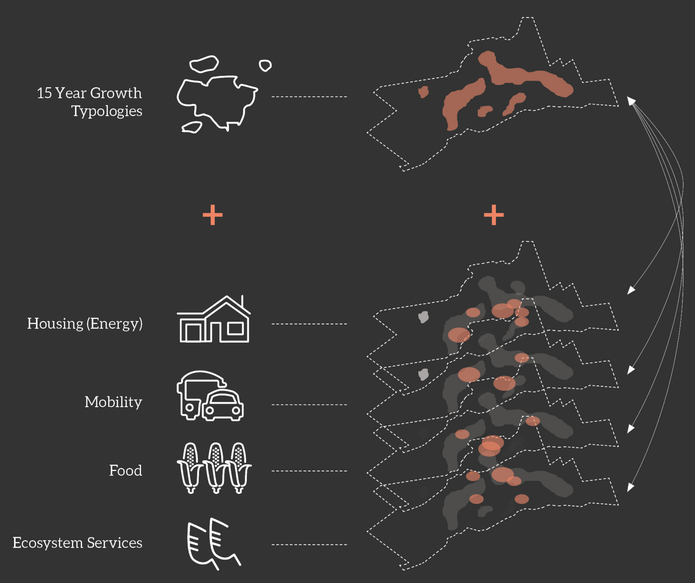
Project Description

The issue of suburban sprawl in the Greater Toronto and Hamilton Area (GTA) has been increasing the pressures of land consumption, infrastructure development, resource consumption, and population growth over the past 50 years. The same can be said for many peripheral regions of Canada's urban areas. In 2011, two thirds of the population of Canada lived in some form of suburban neighbourhood, and for the GTA a larger percentage of 86%. Though this growth continues, the vast expansions of automobile-dependent neighbourhoods have shown to have prolonged effects on resource consumption, carbon emissions, ecosystem devastation, declining health rates, social segregation, and the destruction of available agricultural land in Ontario.

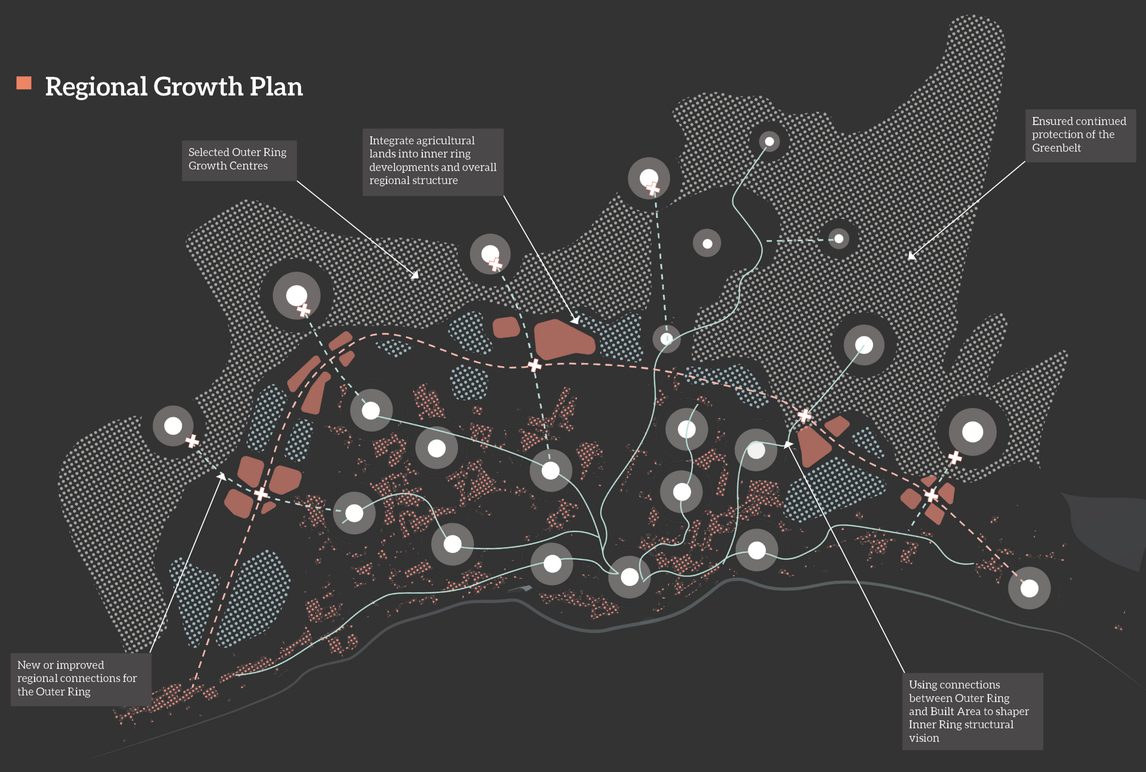
Yet these problems are not new. Neither are the solutions. Suburbs have been the centre of angst for many contemporary urban planners in North America for over thirty years. This has been the motivation for theories such as New Urbanism, Smart Growth, and Sustainable Development, three ideologies which have already been integrated into Provincial and Municipal Policies in Ontario. Most of which are focused on general themes of traditional aesthetics and densities of suburban development and most of which have failed to change the form of suburban development in Ontario.

In order to explore these issues, this project looked at the current consumption data through ecological footprint analysis. The largest contributors to consumption included housing (energy), mobility, food, and threats to ecosystem services. In order to explore sustainability in the region, these themes were broken down into indicators which would analyse the growth patterns of the city. In order to compare these findings to current and future growth, growth typologies were created and ranked on performance through the process. Based on the performance conclusions, strategies, scenarios, and future recommendations were developed for future growth planning in the region.

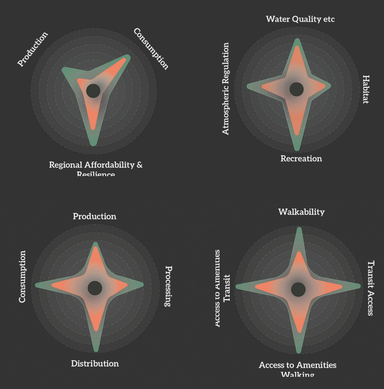
Project Analysis



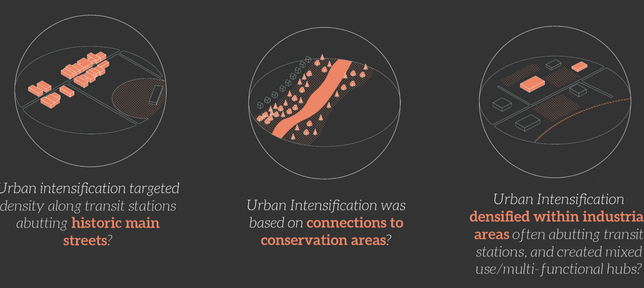
Regional Growth Plan



Urban Intensification
Performance Findings



Urban Intensification
What if Scenario



Urban intensification targeted density along transit stations abutting **historic main streets***?*

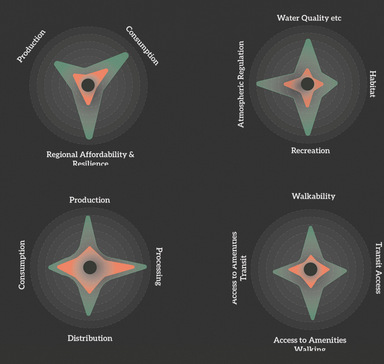
Urban Intensification was based on **connections to conservation areas***?*

Urban Intensification **densified within industrial areas** *often abutting transit stations, and created mixed use/multi-functional hubs?*

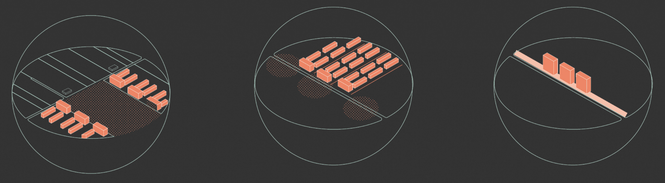
Urban Intensification
Scenario Result

Urban Intensification
Impression

Inner Ring
Performance Findings



Inner Ring
What if Scenario



Inner Ring Expansion **incorporated existing agricultural land** *into new developments creating a local food production network?*

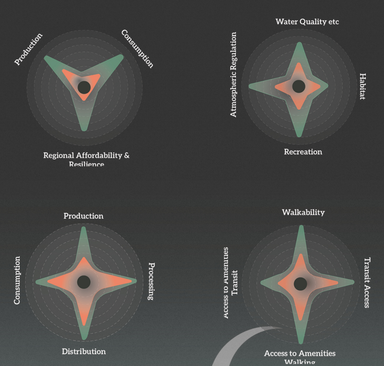
Inner Ring Expansion used **district heating to incentivise walkabillity** *to transit in winter?*

Inner Ring Expansion increased zoning densities along secondary connector roads if **mixed-use and mixed income units** *are incorporated into these developments?*

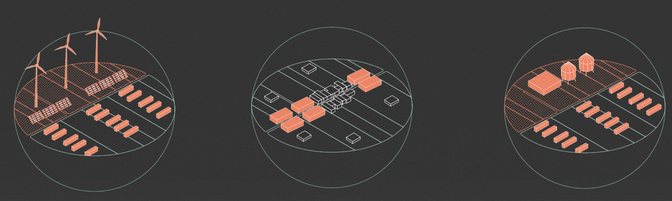
Inner Ring
Scenario Result

Inner Ring
Impression

Outer Ring
Performance Findings



Outer Ring
What if Scenario



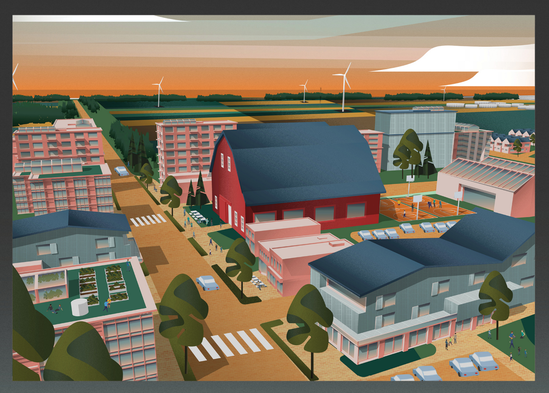
Outer Ring Expansion developed satellite cities, using limiting expansion by creating 'sub-greenbelts' containing **productive landscapes** *to condense development?*

Outer Ring Expansion **re-imagined the rural town "centre line"** *with access from all points of the city?*

Outer Ring Expansion accepted the lack of infrastructural preparedness for development, and encouraged **decentralized systems for heating, water treatment, and waste***?*

Outer Ring
Scenario Result

Outer Ring
Impression



Michelle Blom
4749073
Studio: Urban Metabolism
Mentors: Alex Wandl & Dominic Stead
TU Delft MSc Urbanism 2018-2019