2016

Urban systems of survival: Building a resilient capacity of food and housing in the city
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URBAN Systems of Survival
Building the Resilient Capacity of the Built Environment
This paper focuses on the intersection between affordable housing and access to affordable, culturally appropriate food in the context of urban human-centred settlement.
What makes a “well designed” city is one that meets both the fundamental necessities of dwellers; basic needs of air, food, shelter and clothing, and more secondary needs of sanitation, education, healthcare, and a sense of social and cultural belonging.
Basic Human Needs

This basic needs approach was introduced by the International Labour Organization’s World Employment Conference in 1976 and according to John A. Denton, the list of immediate “basic needs” is air, food (including water), shelter and clothing. (Denton)
As the global population increases and crop yields decline due to environmental factors, the availability of imported food in the future becomes uncertain.
"Over the next 50 years, our societies and cities will therefore need to effectively respond to these challenges, or suffer significant economic and social consequences."

(resilientcity.org)
Understanding
AFFORDABILITY
Understanding Affordability

Along with exponential growth comes the challenge to house and feed the increased population. As the city of Toronto’s population expands so does its need for affordable housing and access to affordable, nutritious, culturally appropriate food.
**EXPECTED FOOD PRICE INCREASES IN 2016**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEATS</td>
<td>2.5-4.5%</td>
</tr>
<tr>
<td>FISH AND SEAFOOD</td>
<td>1.0-3.0%</td>
</tr>
<tr>
<td>DAIRY AND EGGS</td>
<td>0.0-2.0%</td>
</tr>
<tr>
<td>GRAINS</td>
<td>0.0-2.0%</td>
</tr>
<tr>
<td>FRUIT AND NUTS</td>
<td>2.5-4.5%</td>
</tr>
<tr>
<td>VEGETABLES</td>
<td>2.0-4.0%</td>
</tr>
<tr>
<td>FOOD FROM RESTAURANTS</td>
<td>1.5-3.5%</td>
</tr>
<tr>
<td>OVERALL FOOD EXPENDITURES</td>
<td>2.0-4.0%</td>
</tr>
</tbody>
</table>

**Figure 1:** Source: Future Proofing Cities: strategies to help cities develop capacities to absorb future shocks and stresses, Craig Applegath, 2012.
Understanding Affordability

There are only 3 days of perishable goods, 8-9 days of frozen food and 14 days worth of dry goods in distribution centers around Toronto at any one time.

(Elton, 147)
The need for a local food system, is emphasized by the competing need of an affordable place to live. This has created a high demand market, with increased real estate prices, and costly and scarce rental accommodations.

“In 2015, approximately 100K persons moved into the (City of Toronto) GTA area around and in Toronto. To satisfy these demands for housing, Toronto has to make available approximately 45K units per year to meet this demand.”

T. Tyndorf, Perspectives on Housing Affordability, Toronto City Policy Planning & Research, July 2006.
St. Lawrence Housing Development

District Lofts
368 Richmond Street, Peter Clewes, Architects
Alliance, 2000

Aura Tower
Gerrard and Yonge, Graziani + Corazza Architects, 2015
Toronto committed to building 1,000 new units of affordable housing a year between 2010-2020

In 2015 it built 103 units

(Toronto Vital Signs Report 2016)
What is the reasonable definition of affordable in this context?
More Renters face greater affordability problems than owners. They have shelter costs to income levels that are about 50% higher than owners in the large cities across Canada. Almost 100,000 renter households paid more than 50% of their income on shelter.

One-third of all Toronto households spent more than 30% of their income on shelter in 2001: 65% of these were renters. Low to moderate income households that spend more than 30% of their income on their housing are generally considered to have an affordability problem.

By this measure about 30% of Toronto’s households face an affordability problem.
The vacancy rate in the Toronto region in 2015 was only 1.8%  
(Toronto Vital Signs Report 2016)
"Rent and housing is the most pressing non-negotiable expense from which other necessities including food are sacrificed."

(www.dailyfood.ca)

1 in 10 households in the Toronto region are food insecure

(Toronto Vital Signs Report 2016)
As a systemic problem case, Toronto has become a city with a serious need for affordable food, and affordable housing to serve primarily young families, the working poor, new Canadians, most of which are looking for rental accommodations.
The INTEGRATION of Housing & Food
There are a number of systemic approaches to integrate housing and food to build capacity and create a more resilient city system.

There is a need to look at mixed-use space that includes low, medium and high-density residential space and food access based urban agricultural practice to increase access to affordable housing and nutritious, culturally appropriate food.
The needs of a resilient local food system
According to Gene Giacomelli, the director of the Controlled Environment Agriculture Centre, “indoor farming can produce as much as 20 times the amount of food per unit area as conventional outdoor farming.” Giacomelli is also a professor in agriculture and biosystems engineering at the University of Arizona. (Zimmerman) (Zimmerman, Eilene. 2016.)

**Verticle farms – Aerofarm**
AeroFarms’s Ed Harwood, chief science officer; Marc Oshima, chief marketing officer; and David Rosenberg, chief executive, in front of vertical farming trays at the company’s location on Ferry Street in Newark. Credit Bryan Anselm for The New York Times

**Rooftop farms – Lufafarms**
File:Lufa_Farms_Montreal_rooftop_greenhouse_in_Sunlight.
“The answer to local, urban food production lies in a vertical approach to farming that contrasts with land-intensive methods. A high-efficiency hydroponic farm needs just 0.1 acres to feed a person for a year. A 95% reduction in acreage.”

(Craig Applegath 8)
Benefits of Urban Agriculture

Benefits of Urban Agriculture Adapted from IAASTD (2008)
Source: Assuring Food Security in Developing Countries under the Challenge of Climate Change
Key Trade and Development Issues of a Fundamental Transformation of Agriculture
Helsinki Sustainable Ecological Community Housing, Van Valkenburgh Assoc., Jatkasaari, Helsinki, Finland
Richmond Street Coop
60 Richmond Street, Teeple Architects, 2009-10
The built environment of the alternative city of the future must be self-sufficient building the capacity to generate its own resources in terms of energy and food from within the city itself.
Second suites Program
Photo By Jeremy Bowes

Rooftop Garden Designed by TWS Partners

Residential Car Port Roof Garden
MAKING CHANGE

A program of Recommendations
Creating change to increase affordable housing and food access at both the community and individual level requires engagement from a large number of stakeholders.
Critical areas of recommendations for changing fall into four broad categories.

1. Access
2. Changing Attitudes
3. The need for policy and legislative change
4. Investment
Critical areas of recommendations for changing fall into three broad categories.

1. Access
2. Changing Attitudes
3. The need for policy and legislative change
4. Investment

Innovations and Opportunities can be broken down further into:
   - Hard solutions
   - Soft Solutions
   - Organizational Solutions
All new housing development should include the infrastructure for food sustainability including growing, processing, storage and distribution. This could be in the form of a rooftop productive garden for low-rise buildings or multiple floors of vertical farming space in high-rises with the number of floors being determined by the housing capacity of the building
To be resilient food system planning needs to be integrated into city planning that includes the coordination of all municipal departments and stakeholders.
thank you
Resources ..to be integrated
Resources

Applegath, Craig. (2012) Future proofing cities: strategies to help cities develop capacities to absorb future shocks and stresses. Resilientcity.org


Greater Toronto.org
www.greatertoronto.org/why-greater-toronto/economic-overview/population


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Reference.com www.reference.com/world-view/basic-necessities-life-ee9698e73e2558e5#

Resources


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Toronto Plan: Flashforward Addendum: Projecting Housing Demand by Tenure to 2031, Ted Tyndorf, City Planning, 2006

Profile Toronto, Toronto’s Housing Bulletins, City Planning Division, Policy and Research, City Planning Division, December 2003 – July 2006

City of Toronto Official Plan Housing Policies, Approved by the OMB on April 3, 2007