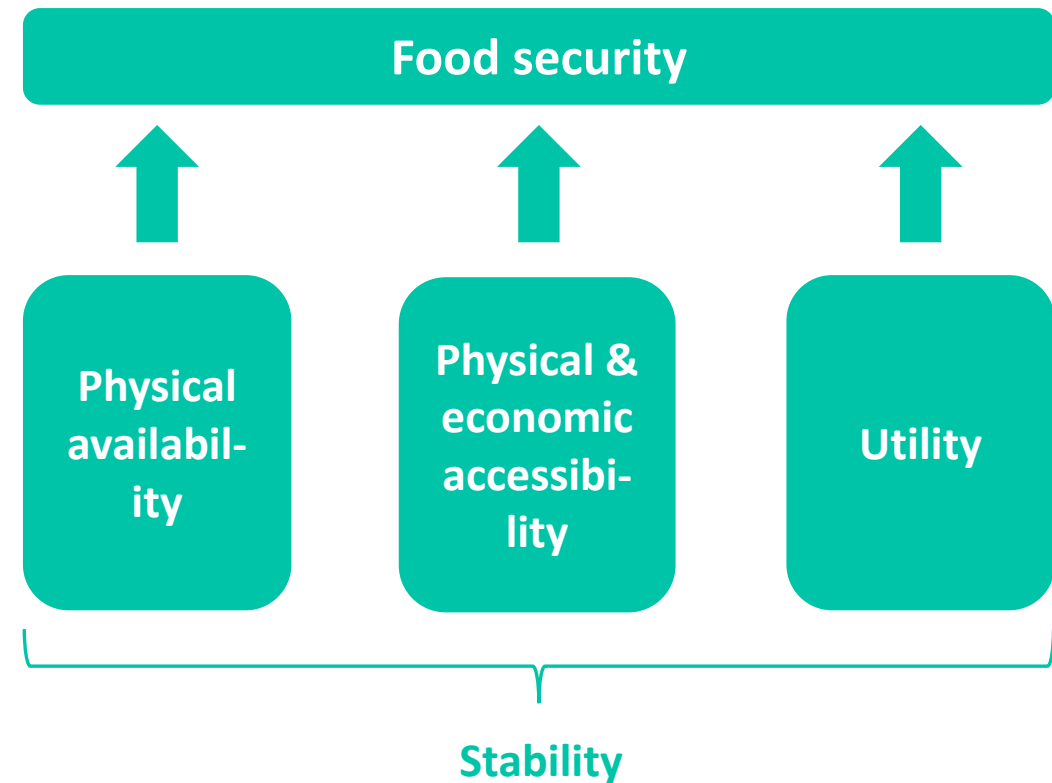


Addressing food insecurity in Canada's urban communities

Realizing food security requires action across its four mechanisms



Food security exists when all people, **at all times**, have **physical and economic access** to **sufficient, safe and nutritious food** that meets their dietary needs and food preferences for an active and healthy life.”



SOURCE: FAO Food Security Policy Brief (2006)



Individuals living in underprivileged urban areas are often unable to physically and economically access nutritious foods sustainably

- 1 **Grocery gap:** Supermarkets follow middle-class Canadians into suburbs
- 2 **Lack of reliable transportation:** Limited access to transportation options (e.g., cars, public transit)
- 3 **Socio-economic disparity:** Nutritious food not equitably accessible due to internal/external conditions



- **9.6% of Canadians** living in urban areas are affected by food insecurity
- Low-income families more commonly purchase **energy-dense, non-nutritious, fatty foods**
- **Increased healthcare costs** due to negative effects of food insecurity on physical and mental health

An effective solution would directly address the “grocery gap”, “lack of reliable transportation”, and “socio-economic disparity” challenges – **the root issues creating urban food deserts / mirages.**



The CommuniGrow process ensures sustainable and affordable access to nutritious food for individuals living in Canada's urban food deserts / mirages





Each of CommuniGrow's four phases contributes to promoting food security among residents living in urban food deserts / mirages (1/4)



Investment

- Targeted outreach to potential growers using open demographics data to ensure **optimal placement for accessibility**
- Offer **upfront investment (i.e., micro-loan) of in-kind/financial resources** (~\$59 per sq. ft.) to take on vertical farming project
 - Bear full risk as incentive
 - Provide alternative source of income
- Negotiate **repayment terms** (principal + interest)
 - % of year-end profit (dependent on expected yield, profit margins of particular produce, etc.)





Each of CommuniGrow's four phases contributes to promoting food security among residents living in urban food deserts / mirages (2/4)



Community-
based
vertical
farming

- Mix of **market and “command-and-control” mechanisms** to ensure diversity of produce yielded by growers





Each of CommuniGrow's four phases contributes to promoting food security among residents living in urban food deserts / mirages (3/4)



Procure and
go-to-market

- **Technology-enabled, P2P marketplace**, where growers are able to connect with tiers of consumers to buy/sell produce
 - **Tier One:** Consumers living in urban food deserts (target)
 - **Tier Two:** Consumers that are not living in urban food deserts / mirages, but would like to support the initiative (pay a premium to be a part of the network)
- Consumers able to see quantity of produce and their price on an **interactive map**
 - Connect with growers to pay for and collect produce at agreed-upon time



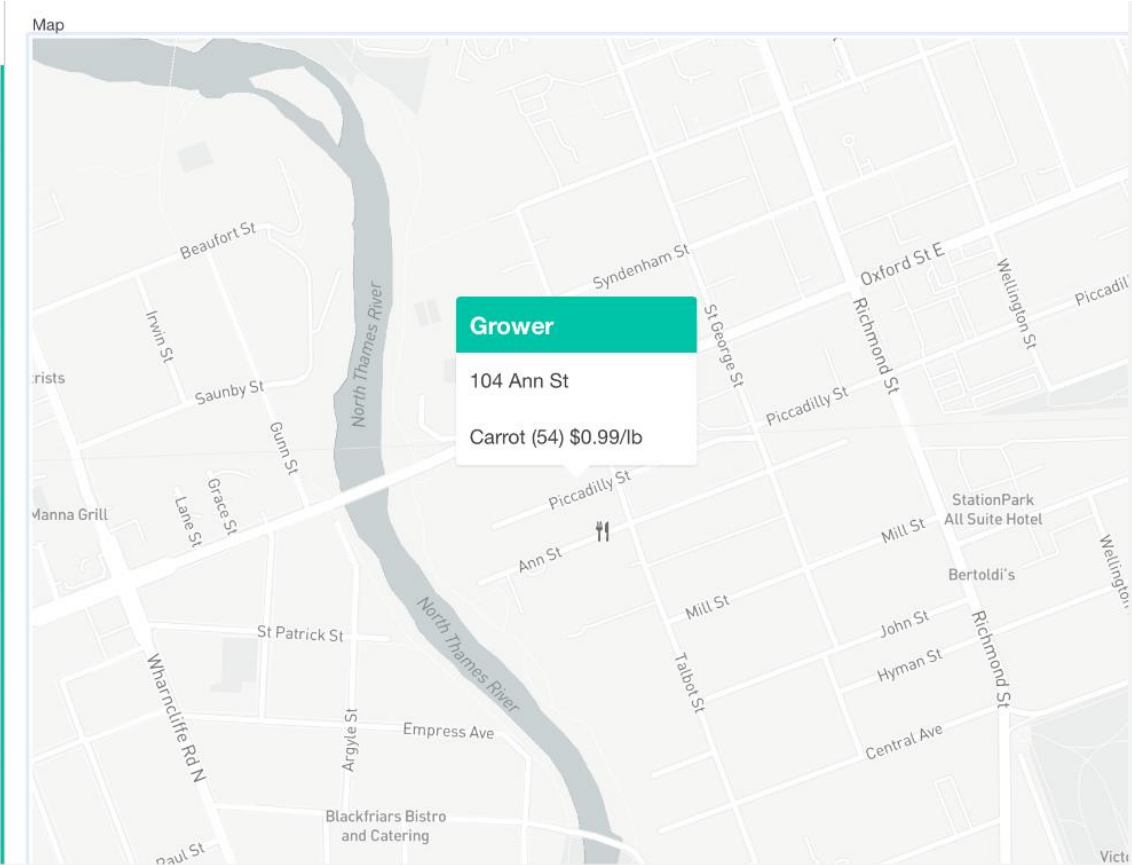


Each of CommuniGrow’s four phases contributes to promoting food security among residents living in urban food deserts / mirages (3/4)



Our locations

358 Ridout St N
London • (519) 234-7336
531 Ridout St N
London • (519) 507-8357
630 Dundas St
London • (519) 387-9338
71 Wellington St
London • (519) 337-9338
349 Waterloo St
London • (519) 547-9338
104 Ann St
London
103 Vauxhall St
London • (519) 654-7336
182 Belgrave Ave
London • (519) 203-0082
314A Oxford St W
London • (519) 522-2016





Each of CommuniGrow's four phases contributes to promoting food security among residents living in urban food deserts / mirages (4/4)



Consumption

- **Feedback loop** to inform growers
- Final impact capture



Over a seven-year payback period, the model at scale would ensure project sustainability

- **Upfront Investment:** \$59 per sq. ft.
- **Revenue per FY:** \$51.98 per sq. ft.
- **Expenses per FY:** \$37.10 per sq. ft.
- **Total Contribution per FY:** \$282.72 (19 sq. ft.), \$565.44 (38 sq. ft.)

RoR: prime + 3.5% (7.5%)

Total grower payout (19 sq. ft.): \$1,205.08

Total grower payout (38 sq. ft.): \$2,410.15



Retained Earnings (19 sq. ft.) per FY: **\$110.57**

Retained Earnings (38 sq. ft.) per FY: **\$221.13**



BENEFITS

Three key positive impacts would be attributable to the implementation of the CommuniGrow model



Localizes access
(i.e., within
walking distance)
to sustainable
supply of
affordable,
nutritious food



Promotes
entrepreneurship as
alternative source of
income via vertical
integration



Improves
community social
cohesion



CommuniGrow may face two key logistics challenges, which will be overcome with strong management and better due diligence

Risks



Given the project's capital intensiveness, the **upfront costs** used in our assumptions were **not properly scoped**



Given our limited knowledge of the industry, **scaling the business will be more difficult**

Mitigations

Work with initial investors to perform more complete due diligence (i.e., realize hidden costs, untapped synergies, etc.)

Collaborate with partners (e.g., non-profit organizations, municipal governments, existing vertical farm owners/suppliers) throughout roll-out of initiative



Works cited

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- <https://university.upstartfarmers.com/blog/9-reasons-why-vertical-farms-fail>
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Vertical farming is an economically viable solution to food insecurity (1/2)

Financial Metric	Fiscal Year End (19 sq. ft.)	Fiscal Year End (38 sq. ft.)	
Revenues	<ul style="list-style-type: none"> Base: \$51.98 per sq. ft. Low: \$19.52 per sq. ft. High: \$70.58 per sq. ft. 	<ul style="list-style-type: none"> Base: \$51.98 per sq. ft. Low: \$19.52 per sq. ft. High: \$70.58 per sq. ft. 	<p>Fixed Cost: \$59 per sq. ft.</p> <p>Total Fixed (19 sq. ft.): \$1,121</p> <p>Total Fixed (38 sq. ft.): \$2,242</p>
Operating Expenses (OE)	<ul style="list-style-type: none"> Base: \$37.10 per sq. ft. Low: \$29.68 per sq. ft. High: \$44.52 per sq. ft. 	<ul style="list-style-type: none"> Base: \$37.10 per sq. ft. Low: \$29.68 per sq. ft. High: \$44.52 per sq. ft. 	
Contribution (per total sq. ft.)	<ul style="list-style-type: none"> Base: \$282.72 Base (High OE): \$141.74 Base (Low OE): \$423.70 Low (High OE): -\$475 Low (Low OE): -\$193.04 High (High OE): \$495.14 High (Low OE): \$777.10 	<ul style="list-style-type: none"> Base: \$565.44 Base (High OE): \$283.48 Base (Low OE): \$847.40 Low (High OE): -\$950 Low (Low OE): -\$386.08 High (High OE): \$990.28 High (Low OE): \$1554.20 	<p>RoR: prime + 3.5% (7.5%)</p> <p>Total grower payout (19 sq. ft.): \$1,205.08</p> <p>Total grower payout (38 sq. ft.): \$2,410.15</p>

Assumptions are based on statistics from the City of London



Vertical farming is an economically viable solution to food insecurity (2/2)

Yearly Loan Payout (by Grower), 19 sq. ft.: \$344.30

Yearly Loan Payout (by Grower), 38 sq. ft.: \$172.15

EOY Retained Earnings (for Grower), 38 sq. ft.

- **Base: \$221.13**
- Base (High OE): -\$60.83
- Base (Low OE): \$503.09
- Low (High OE): -\$1,294.31
- Low (Low OE): -\$730.39
- High (High OE): \$645.97
- High (Low OE): \$503.09

EOY Retained Earnings (for Grower), 19 sq. ft.

- **Base: \$110.57**
- Base (High OE): -\$30.41
- Base (Low OE): \$251.55
- Low (High OE): -\$647.15
- Low (Low OE): -\$365.19
- High (High OE): \$322.99
- High (Low OE): \$604.95



Once ready for market, we would want to consider the following...

Technical

- Create a mobile application (AR-enabled) to provide comprehensive training for growers

Operational / Business

- Define scale plan and smooth out operational challenges
- Expand model beyond vertical farming in certain geographies (e.g., outdoor planting in warmer environments)
- Design customer loyalty program

