Urban Agriculture as an Agent for Social Change in London, Ontario

by

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A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Architecture
in
Engineering

Waterloo, Ontario, Canada, 2015

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

London, Ontario was once closely tied to its local food production and distribution. Since 1835, this close connection with food was facilitated by places like the Covent Garden Market. London and many other cities were affected by technological advancements primarily in transportation that created the rift between producer and consumer in its food network, causing the processes and systems of food to become invisible. The goal of the thesis is to offer the residents of the Hamilton Road neighbourhood in London, Ontario an affordable alternative to their commercial food system.

Urban agriculture is also the lens through which broader themes such as inter-disciplinary urban design, biophilia, social equality, and socio-environmentalism are analyzed. The exploratory research and analysis evaluates the food system currently in place in London, and more specifically the Hamilton Road neighbourhood. The thesis outlines the advantages of the inherent strengths and proposes interventions to address the weaknesses of London's food system.

The final design proposes to use an integrated systems approach at a city-wide and then a neighbourhood scale to re-imagine the food system as a part of a larger urban network. A strategy for the implementation of urban agriculture in an existing urban setting at the scale of the neighbourhood is the proposal of this thesis. Hamilton Road is the chosen neighbourhood for implementation because it displays the ideal social conditions for promoting the uptake of an urban agricultural movement. By creating healthy, socially inclusive public spaces and private spaces that reconnect people to nature—to heal the gap between producer and consumer within the food network—the project seeks to improve the quality of life by improving food consciousness in London, Ontario.

Acknowledgments

Thank you to my supervisor Val Rynnimeri and my committee members Andrew Levitt and Elizabeth English for your continued support throughout my thesis.

Thank you to all of my friends for your kindness, humour, and encouragement over the years.

Thank you to my parents—your love and support throughout my life has made this all possible.

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Glossary

abiotic [a-bio-tic]
adjective
1. non-living components or attributes of the natural world (eg. geology, rivers, land forms, soil types etc.)
2. in biology and ecology, abiotic factors are used to refer to physical properties that affect living organisms and the functioning of ecosystems

biophilia [bio-philia]
noun
1. the inherent connection humans feel with the natural world
2. from Greek "bios", meaning life, and from "philia", meaning fondness

biotic [bio-tic]
adjective
1. living organisms that inhabit the natural world (eg. marine life, fungi, forests, plants, animals etc.)
2. the living things that shape an ecosystem
3. in biology and ecology, biotic factors are any living component that affects another organism, including animals that consume the organism in question, and the living food that the organism consumes

conviviality [con-viv-iality]
noun
1. to live with; from the Latin word "vivere" which means to live, and "con" which means with

ecoliteracy [eco-literacy]
noun
1. the understanding of the connection and relationship between ecological health and human health
2. the understanding of the principles of ecosystems and the use of those principles to create sustainable communities

empathy [em-pathy]
noun
1. compassionate expression of feeling the emotions of another
2. empathy goes beyond sympathy because it suggests a connection between people via a shared emotion

foodshed [food-shed]
noun
1. like a watershed, it refers to the food sources and systems of a specific physical area
2. a specific geographic region that provides food for a population, but also refers to the entire food flow: from the land the food is grown on, to the processes it goes through, to the distribution centre it may pass through, to the market or store it is sold at, to the home or restaurant it is finally consumed in.
3. the visible and invisible route food takes to get from the site of production to the place of consumption

holarchy [hol-archy]
noun

1. a system with varying scales or levels, called holons, of organization where each holon is interrelated, but also independently organized
2. from the Greek word “holos” meaning whole, and from the Latin word “archia” meaning government or rule

periurban [peri-urban]

noun

1. neither urban or rural, a fragmented mixture of both typologies
2. small suburban enclaves scattered amongst a rural backdrop

social capital [social capital]

noun

1. wealth and net worth are used to describe capital, therefore social capital refers to the qualitative worth of social activity and to have social capital is to have a wealth of social activity
2. the factors that influence social capital are “trust, civic engagement, the development of community leaders, and the sharing of goods, services, and information”. *From “Health Benefits of Urban Agriculture” by Bellows, Brown, and Smit (Hinrichs and Lyson; Lyson 2004; Von Hassell 2002; Feenstra et al 1999; McGuinn and Relf 2001; Oh 1999; Littman 1996; Lewis 1991)*

sustainability [sustain-ability]

noun

1. not only technically and economically efficient, but that which sustains life itself

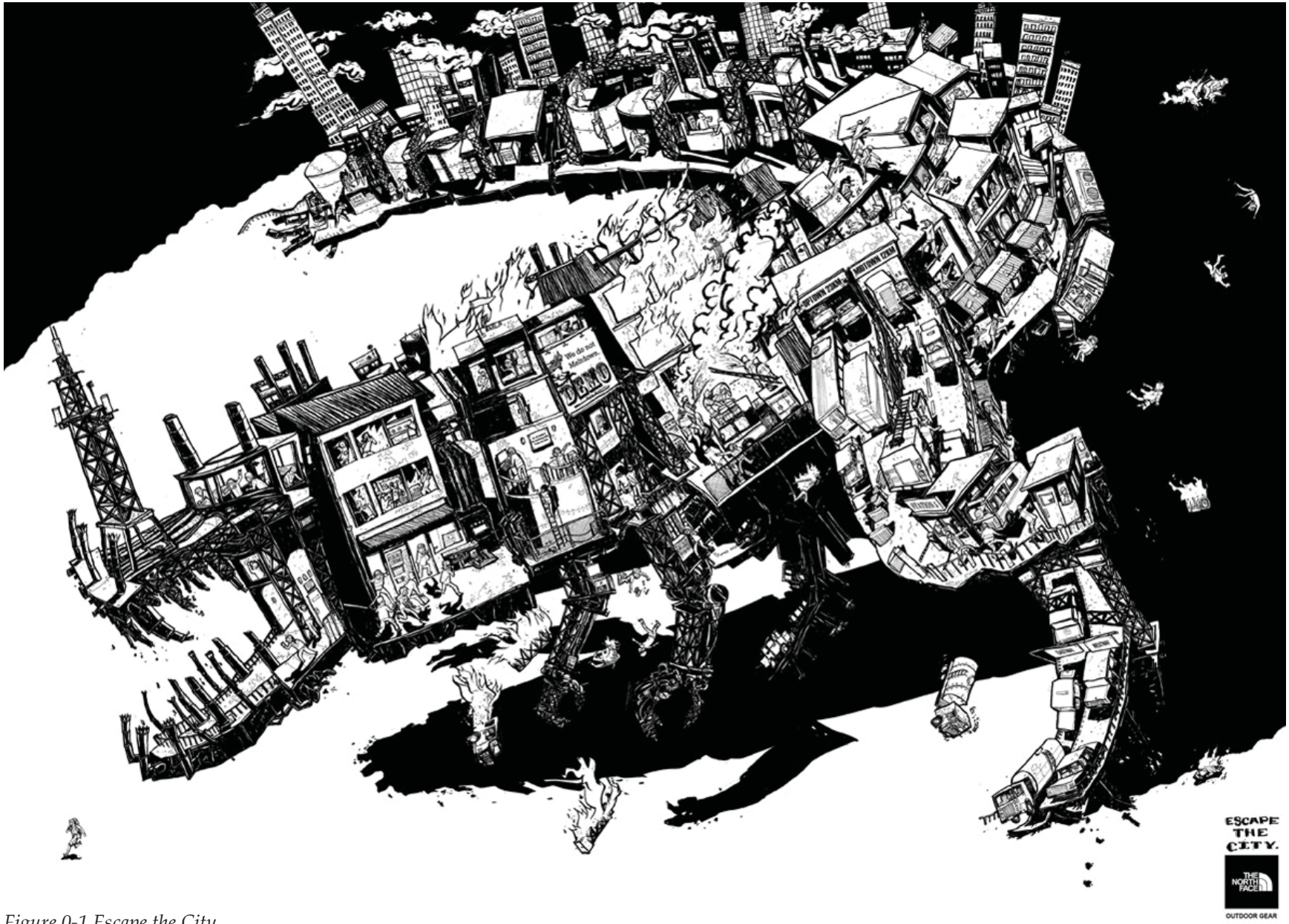


Figure 0-1 Escape the City

"Downsizing, globalization, and acceleration are fragmenting the social fabric… Work today is bad for our health, both physically and psychologically… New economy work leads to loneliness, disconnection, and a loss of identity."

- John Thackara, *In The Bubble: Designing in a Complex World,* 124-5.

Introduction

Feeding cities is fundamental to civilization, yet how it is accomplished today is taken for granted. The way in which cities are sustained through a commercialized food chain from production to distribution and consumption of food isn't necessarily a sustainable model. The need for industrial food production to sustain the world's staggering population is undeniable, yet society cannot continue to rely on it for the life source of cities. Not only does this affect people's physical health, but also psychological and spiritual health, as well as the health of the environment.

Urban agriculture is one of the key means of addressing those ills, both environmental and the inequality of urban economies. Three terms —urban escapism, involuntary separatism and selective ignorance— describe the source of these ills in relation to urban landscapes, social inclusion, and especially in feeding cities. This thesis addresses all of these conditions through the lens of urban agriculture and offers a strategic design solution to support city life that is focused around key concepts of conviviality, balance of city and nature, and food security. These key concepts will manifest themselves through a design approach which offers social, environmental and urban diversity, health, and proximity.

A Brief History of Food and its Relationship to Cities

Historically, growth of cities was once limited to the logistics of bringing food to the city. Whether by boat or raft, by herds of livestock trudging over land, by cart or carried, all of these methods had limiting factors that meant the food had to be raised or grown with relative proximity to its final destination before consumption. Transportation was limited by factors such as human and animal sweat equity, which raised the cost of the food, or by the perishable nature of food that would spoil before arrival if the distance was too great. In the nineteenth century Johann Heinrich von Thünen, a prominent German economist, theorized a model of agricultural land use that showed different land uses and their relevant proximity necessary to optimize transportation to the city in order to maximize profits. Von Thünen's model could transform if the city was lucky enough to be a port city, or located near a navigable river. In these cases the bands of production circling the city would elongate around the natural feature that accelerated transportation of goods to the city centre.

The advent of rail travel in the 1820–30s changed the centrally restricted model forever. Trains provided the same accessibility that rivers provided to cities in von Thünen's model; they made it possible for cities to flourish and expand to places where it may have been impossible before. The railways could bring food, building materials and other goods in bulk over long distances, meaning the growth of cities was no longer limited like in von Thünen's model, and the single limiting factor of sprawl—the critical distance that food could not travel beyond—no longer applied[1]. This enhanced food accessibility marked a fundamental change in how cities were fed.

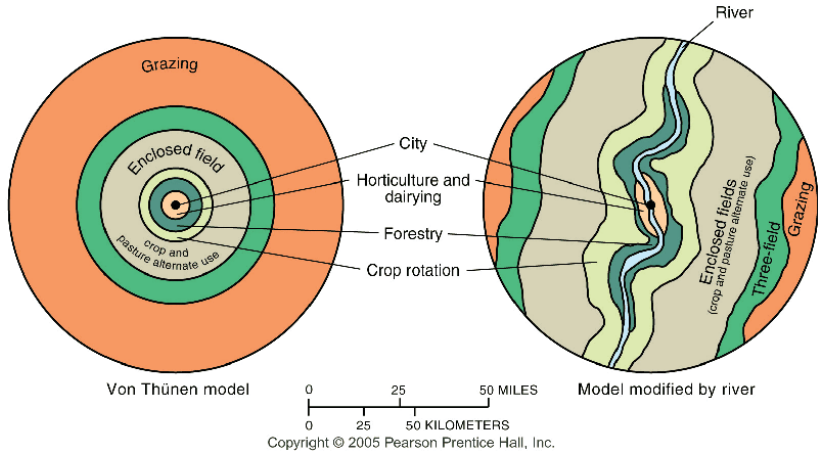


Figure 0-2 Johann Heinrich von Thünen's model of agricultural land use compared to a similar model modified by an abiotic factor: a river.

Easy and expedient transportation meant that now food could handle travelling over long distances to its final destination of consumption before spoiling. This advancement in transportation was the turning point in history from predominantly locally supplied cities to the explosion of global trade and food importation.

The other significant event in history that changed the way cities were fed was the transformation from food that was grown and raised by traditional farming methods to food that could now be manufactured using scientific knowledge to be nutritionally superior. Manufacturing processes were also implemented to engineer processed foods that used up surplus corn from the industrial farming boom. Michael Pollan is an influential American author who writes about these food issues, more details can be found in his book, *In Defense of Food.* These issues of food quality and superiority, while not central to the thesis, are relevant to the obesity epidemic, food deserts, and other food related issues caused by the industrialized world.

Carolyn Steel, an architect, lecturer, and writer from England, points out in *Hungry City* that in the developed parts of the globalized world we are "more likely to die of obesity than hunger,"[2] which may make the whole issue of food security seem like a triviality. The way we feed cities may have changed drastically in the last two centuries, but modern civilization's reliance on some form of food network is unchanged. If anything has changed, it's that our food production and distribution systems are more perilous than ever in many ways: perilous because they rely on an abundant supply of fossil fuels in a time where the end of oil is a growing concern; perilous because they cause environmental degradation and threaten future productivity;

and perilous because they compromise our own health and well being.

For a city like ancient Rome, feeding the people was the responsibility of the state. Today our modern food systems rely on a small number of private corporations to provide us with the majority of our boxed, bagged, and packaged food. What was once a concern of the state—to keep the people well fed, which kept them happy and also won the state political power—is now controlled solely by private corporations today, and they don't have such prerogatives. Their prerogatives revolve around making economic decisions that maximize profit. Ten companies own most of the familiar brands in the supermarkets today and this concentration gives them an oligopoly and political power in their own right. In ancient Rome, temples were also store houses that doled out grain to the citizens. Now we walk into supermarkets today expecting to find the food waiting for us and the shelves well stocked, when actually our food delivery system is organized to minimize the amount of time food sits on the shelf waiting to be purchased. Steel puts it best when she says, "Much of the food you and I will be eating next week hasn't even arrived in the country yet."[3]



Figure 0-3 (Above) The 10 major corporations that control most of the brands seen in supermarkets today.

1.0
Theory

1.1 Utopia

Agriculture as an Intervention in our Current Urban System

People work longer work hours today to meet the rising cost of living. Longer work hours means less time for leisure. Less time for leisure means less time to supplement our working lives with much needed down time. How can one expect these overworked people to spend time toiling in a garden? Even though gardening can provide the opportunity to feel connected and productive, people feel drained after a long day at work, whether it's physically strenuous or not, and do not want to spend physical energy gardening. Research on utopia, urban agriculture, and social well-being often leads to alternate types of community living embodied in new urban forms, and is not easily integrated into existing cities. How can one address these problems of loneliness, disconnection, and a loss of identity without re-evaluating our entire urban system? Is starting from scratch the right answer? As architects and urban planners, can we make design alterations to our existing systems in order to address our broken social fabric?

What if the supplementation of our grocery bill with home grown "free" food reduced the amount of money we needed to make at work to afford the cost of living, and therefore reduced our amount of time spent at work overall? There is a fundamental flaw in this: there seems to be an unending desire for more: more food, more money, more stuff. Social critic Ivan Illich, author of *Tools for Conviviality*, said,"...nothing less than more and more seems worthwhile in a society infected by a growth mania."[1] Are people really going to stop working less, or are





Figure 1-1 (Above top) Plan Voisin by Le Corbusier: a modern utopian plan to replace central Paris with 60 storey towers
Figure 1-2 (Above bottom) Broadacres by Frank Lloyd Wright: a new plan for a city with agriculture dispersed throughout low density housing





Figure 1-3 (Above top) HaavAda by Dror Archtiects: a contemporary utopian design for a new city of 300,000 inhabitants off the coast of Turkey
Figure 1-4 (Above bottom) Masdar City by Foster and Partners: another contemporary utopian design for a new city of 90,000 inhabitants in Abu Dhabi

they going to view that as a freed-up portion of their income to spend on other things?

Again, this train of thought brings me back to the idea that there needs to be a change to the entire system, a radical change to our lifestyles, to rid us of this consumerist mentality. Illich would support such radical lifestyle changes and suggest that "public controls over tools and institutions,"[2] such as industrial agriculture, need to be implemented to curtail industrial production which thrives on this consumerist mentality. But Illich is also a socialist, and would say that our capitalistic modes of production are at the heart of the problem: "It is now difficult to imagine a modern society in which industrial growth is balanced and kept in check... Our vision to the possible and the feasible is so restricted by industrial expectations that any alternative to more mass production sounds like a return to past oppression or like a Utopian design for noble savages."[3] Illich is suggesting that by removing industrial production from the world as we know it would cause us to revert to some prior point in history when humanity lived a more "savage" existence. He calls it "noble" because anyone consenting to live in such a fanatical world is consenting to relinquish all the luxuries of the modern world, for the motive of "the greater good," a socialist sentiment. As for why removal of industrial production would suggest a Utopian design, the reason is two-fold: inter-disciplinary design methods and impossibility.

First, Utopian designs are a product of rethinking our entire urban systems. Architect and author of *Hungry Ciy* Carolyn Steel points out that "...[utopianism] brought us 'integrated urbanism' centuries before anyone at Arup came up with the term."[4] To rethink the way

that society functions as a whole, the fundamental goal of Utopian thinking, requires the rethinking of many systems. Often designers of Utopias declare their goals as "bringing man close to nature, fusing town and country, the sharing of labour, a strong sense of community"[5] while trying to get rid of "large conurbations, globalisation, the concentration of wealth, mindless serfdom"[6], goals that require the rethinking of urban dwelling, food systems, economic systems, transportation, world trade, ethic labour, the list goes on. It may seem like an ambitious list, however Steel concedes that "utopianism represents the nearest thing we have to a history of cross-disciplinary thought on the subject of human dwelling."[7] It is in this way that we can learn from Utopia and apply this cross-disciplinary thinking to our rethinking of urban systems in the real world.

Second, Utopian designs represent an impossibility in the real world. Steel notes that "When it comes to building communities, there is no perfect formula: no instant 'good city mix' that works just by adding people."[8] Urbanism embodies more than just a slew of systems because communities are intrinsic to their unique and individual locations. Every solution to modern urban dilemmas requires a sensitivity to place, the local community, and their traditions of craft. Therein lies the fundamental flaw of utopia, as Steel points out: "'Utopia' is a philosophical ruse; a parallel universe whose chief purpose is to ask what an ideal society, unfettered by the constraints of the real world, might be like. By its very nature, utopia is an unachievable paradigm, but it can be used to inspire a vision of a better society, set within real conditions."

Alternative communities that exist in places such as Twin Oaks,



Figure 1-5 (Above) The fine line between dystopia and utopia is highly subjective

"It appears equally hopeless to expect inverse insight from humanitarian liberals who have come to feel that feeding the starving population is their vocation. They forget that people eat*, and that people die when they are* fed*... They are blind to the convergence of population growth and the failure of the green revolution, which guarantees that feeding people now will escalate starvation... only the renunciation of industrial expansion can bring food and population into balance..."*

- Ivan Illich, *Tools for Conviviality,* 44.

Virginia try to make a reality out of utopia. Twin Oaks expects 42 hours of work a week from each resident, but because every task, from cooking to childcare, is considered work, residents say they feel like they have more free time. However, intuitively I shy away from this idea of a "new alternative way of life". The anonymous writer for Bolo Bolo wrote, "Utopia is behind us!" We do not have a clean slate; we cannot, and will never, abandon our urban centres. So then by proposing a shift, an intervention in our existing urban systems, how does the architect address these social problems by working with what's existing?

An alternative to capitalistic modes of production must be found without reinventing our current forms of human habitation. But is not our ability to overcome limits to growth that makes us human? Animals have natural limits on their population such as food availability, predators, disease, but those things all contribute to birth and death rates. When all of those factors are weighted equally, when birth rates equal death rates, we declare a system to be in equilibrium and the ecosystem sustainable. Is our striving for "sustainable living" an unconscious cry for equilibrium? Is that why all sustainable technology comes off as merely a form of "green-washing"? Because we are unable to come to terms with the simplest of equations, that of sustainability: life equals death, and death equals life. Humans are innately optimistic, we are always able to see one side of the equation, life, and assume that we comprehend the bigger picture. That other side, the ignored side of the equation lacking in all of our schemes and attempts at sustainability, needs to be factored in.

1.2 Disconnect

Global Versus Local Food Systems: The Disconnect between Practicality and Desire

Cities are like coins. Take the Canadian dollar; on one side you have "heads", an image of Queen Elizabeth II as the global figure-head of Canada. On the other side "tails", an image of the loon, an animal unique to Canada, a local symbol. Keeping to the aforementioned analogy, and in light of the recent local food movements, many people have flipped their food coin and called out "tails" and opted for local food. Personally, however, I have begun to rethink my natural aversion to globalism and sympathy with localism. The local movement has gained a lot of its support as a response to the explosion of the global economy, however a city should not and cannot be only one side of the coin or the other. Rather, it is useful to imagine the city as a coin spinning on axis, much like Earth, maintaining its balance through the inertia of a dynamic compromise between both sides of the coin. Like a thaumatrope, only when both sides of the food coin are perceived at once is the vision complete, a vision of urban food and its local and global sources and networks.

Urban agriculture has become the alternative culture panacea for the food crises in the late 21st century. In the context of this section, urban agriculture specifically refers to those local, alternative farming movements. Local food movements concern themselves with how far our food has travelled to reach our plates, who has laboured to bring that food to our tables, how that food has been grown, and a higher

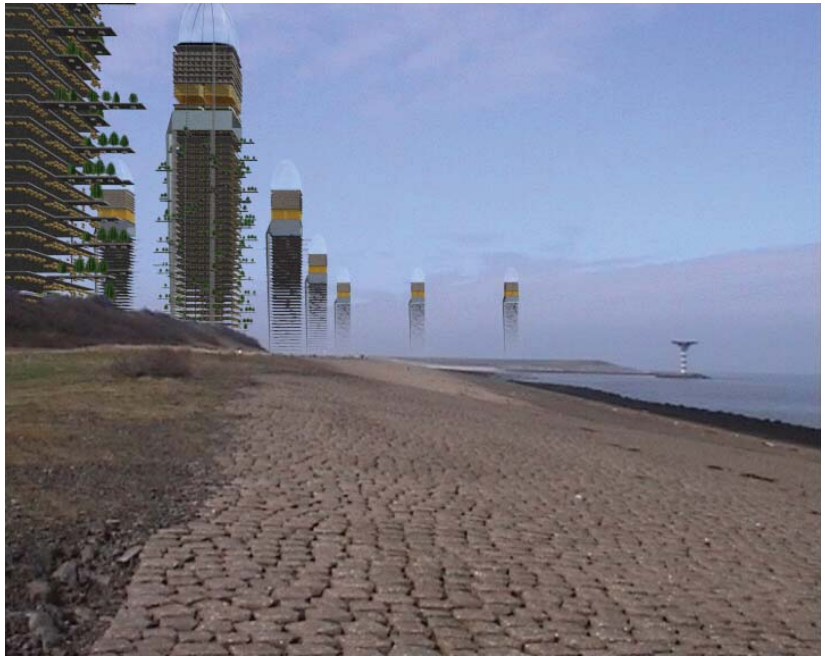


Figure 1-6 Rendering of MVRDV's Pig City

food consciousness in general. Most people automatically assume it is mostly a backwards looking fad. Prior to our industrialized and globalized mass economy people were logistically limited to eating what could be grown locally, and often what they could grow themselves, and therefore had to eat what was in season. People see urban agriculture as a harkening back to those "simpler" times. Urban agriculture is also associated with new alternative farming methods, which is an umbrella term that refers to all methods of farming opposed to mass industrial methodologies: ways such as organic, ecological farming (agro-ecology) and permaculture. Despite all the good intentions, many people are buying into urban agriculture like it's a cure-all remedy without understanding the implications and the limitations.

Take Dutch architects MVRDV's *Pig City* project for example. Though it was meant as a satirical DAR (Design as Research) project[1], *Pig City* puts into perspective how much Dutch land is required for organic versus non-organic pig farming:

> *Currently, producing feed for one pig needs about 664 m^2 of land. 50% of this feed is grain and 50% is by-products from industrial farming. In the case of organic farming, pigs are fed with 100% organic grain. This increases land intensity by 130% due to the comparatively small yields of grain crops. This increases the area needed to 1,726 m^2 per pig, including organic food processing. If all 15.2 million pigs were farmed this way, 75% of the land area of the Netherlands would be dedicated to pigs.*[2]

MVRDV outlines the spatial implications of the demand for organic pig farming. On MVRDV's website on the page for *Pig City* it states, "either we change our consumption pattern and become

instant vegetarians or we change the production methods and demand organic farming,"[3] implying that the consumption problem is simply a stark choice, an ultimatum. Changing our consumption patterns *and* changing production methods are portrayed by MDRDV as mutually exclusive options to further illustrate their point. If we assume that we have to change our production methods because we cannot all become overnight vegetarians, then *Pig City* is the obvious Swiftian solution. Forty-four Pig Towers would meet the Netherland's current demand for export, and another thirty-one to supply the entire Dutch population with sufficient meat, equaling only seventy-five Pig Towers.[4]

MDRDV's proposition is more of a critical abstraction of the architectural implications of the problem, rather than a rational solution. It's a utopian idea that *Pig City* can solve the land intensity problem of organic farming, and that the Dutch can still have their organic bacon and eat and export it too. *Pig City* illustrates the shortcomings of only changing production methods and underlines the fact that a more holistic approach to the problem is needed. MVRDV did not intend the project to be realistic, but rather to open up discussion on alternative solutions through evocative design.

Julie Guthman is another satirist of the assumed power of urban agriculture to create change. She is very critical of Michael Pollan's approach to teaching people about their food choices. She states, "I don't harbor the fantasy that individual, yuppified, organic, slow food consumption choices are the vehicles to move toward a more just and ecological way of producing and consuming food."[5] Guthman is not delusional about urban agriculture and organic farming; she does not



Figure 1-7 Joel Salatin, founder of Polyface farms, in front of his free range chickens



Figure 1-8 "Salad-bar beef" at Polyface Farms

believe it will change the consumption patterns that *Pig City* avoids transforming.

One particular hero in Pollan's book is Joel Salatin of Polyface Farms. The farm owned by Salatin boasts to be a unique, "family owned, multi-generational, pasture-based, beyond organic, local-market farm."[6] Their beyond organic farming techniques are progressive, and impressive enough to make even Guthman proud. Guthman concludes that "by codifying organic production, that is, it gives growers less incentive to incorporate an ideal practice when an allowable one will suffice."[7] But just like organic *mesclun* salad mix[8], Joel Salatin has found a profitable niche market.

There is no denying that the farming practices of Polyface Farms (further outlined in section 1.4) are admirable. All cows produce "salad bar beef", meaning they have only been pasture fed. Chickens, both egg laying and for slaughter, are pastured. Polyface Farms' methods are truly beyond organic and embody the 'ideal practice' of farming to which Guthman refers. However, Polyface produces food that can only be consumed by people that can afford to pay the premium, food otherwise known as 'yuppie chow' to its critics. Guthman uses the term yuppie to refer to "those who are wealthy, self-absorbed and *without* social conscience."[9] At first this may appear to be an oxymoron, because how can the customers of Polyface Farms be considered "without social conscience" if they are buying sustainably raised, beyond-organic food. This is where a distinction must be made between the ecological moral compass and the social moral compass. Polyface farms does a lot of good ecologically, but, from Guthman's point of view, it doesn't promote a broad sense of

well being for society at large. By targeting a select affluent audience who can afford to make ecologically good decisions about their food, Polyface ignores the social aspects of real food crises we face today, such as food deserts in fiancially poor or geographically isolated areas.

Industrial agriculture has provided a way to carefully control the outputs of nature through the use of technologies such as genetic modification, chemical fertilizers and pesticides, and the implementation of large scale farming equipment, such as irrigators, harvesters, and airplane spraying. All of these technologies have made the massive scale of industrial farming manageable, automated, and efficient. Yields have been maximized, enormous yields that cannot be matched by urban agriculture. Comparing industrial yields to urban agricultural yields, however, is like comparing apples to oranges. Much of what is grown industrially is considered cash crops, which are economically handled as commodities rather than food products.

Industrial agriculture also wields control over consumers by leveraging the globalised food system to its befenit. No doubt, this new post-WWII availability of fresh produce year round and the increase in variety of produce, both of which were products of a globalized economy, was to the benefit of people's general health and nutrition. People also *enjoy* the luxury of eating strawberries in January. The ramping up of industrial farming following WWII was accepted with much enthusiasm for many reasons. No longer did animals have to be raised and butchered on the same property; it was a hands-off solution to our squeamishness to the visibility of our food's origin in the kitchen. Long hours of tending to a household garden was no longer necessary to feed the family. Industrial agriculture, which began in



Figure 1-9 Harvesting on an industrial scale

earnest after the industrial revolution because it was boosted by the fossil fuel-based post-war expansion, offered all of the efficiencies of the technologies borne from large scale production. It was an effective way to feed the masses. It is hard to argue that industrialized farming wasn't a change for the better. Urban agriculture is often seen as synonymous with a nostalgic pining for simpler times, to which Guthman rightly rebuts: "we live in a world of 6.3 billion [people] and our [food] politics must start from the present."[10]

Commercial industrialized agriculture will always make more sense as the practical answer to providing mass society with crops such as grains and wheat. Because these sorts of crops are tedious and time consuming to harvest and process, well beyond the work required for the average crop, they simply are not economical to grow on a small scale. Mechanized production methods have done much good in the process of simplifying the growing and harvesting of these types of crops. Grain and wheat crops also do not benefit from being readily and directly available to the consumer. Once dry grains keep well, so there is no concern for reducing transport times and distances for preserving freshness and quality.

The alternative agriculturalists must be critical and realistic of the goals they expect to achieve through the implementation of urban agriculture. It is easy to slip into the idyllic trap that urban agriculture can ignite—utopian visions of a society with a closer relationship to the land abound. This thesis is also a cautionary warning to reveal the difficulties and shortcomings of the implementation of urban agriculture. It is not, however, meant to deny the benefits of urban agriculture, but merely to propose a practical approach to an alternative

food system. There are benefits to be reaped from urban agriculture and its local implementation, but it is important to understand, like many other green or sustainable strategies, that it can actually become self-defeating if its strategies are not implemented with great care and sensitivity to the context into which they will be received.

Fresh Food for the Financially Disadvantaged: The Disconnect between Price and Cost

Fast food, slow food, organic food, good food, bad food, raw food, vegan food. Food has had so many labels attached to it in recent times. The reputation of food has undergone great scrutiny, usually in favour of the tropes of nature and health present in the culture of today. The quality of food certainly seems to be a predicament of society today, but with solutions only available to the economically advantaged—those who can afford to make better food choices.

Why is it that something that can be so easily grown in your backyard costs so much? Should access to fresh, local, healthy food be limited to those that can afford it? Solutions to these questions already exist, in whole and in part. What is lacking is a coherent system that puts all the pieces together to create a working whole; an alternative food system to match the industrial food system. Many people are already becoming acutely aware of the flaws in the industrial food system. One only needs to read any of the number of books pertaining to food written by Michael Pollan to be convinced of this. So why hasn't anything been done about it?

Not every calorie was made nutritionally equal. Cheap, nutritionally



Figure 1-10 Produce on supermarket shelves



Figure 1-11 Produce on farmer's market shelves

superfluous, calories tend to come in bright, shiny packages, and often undergo many processes before arriving to our supermarket shelves. Whole factories are dedicated to that process. Carolyn Steel notes that "The great paradox of convenience food is that the 'added value' in it is all in the part (the cooking) we could easily do ourselves. The part most of us could not provide (the raw ingredients) is the one we seem most reluctant to pay for."[11] The saddest part of this reality is that even after all those extra processes the food must endure, it still ends up on the shelf with a price tag that beats out anything in the fresh produce aisles. The "profit-driven mechanized food industry"[12] has perfected the art of deceiving us and luring us in with their artificially low prices. American novelist and author of *Animal, Vegetable, Miracle* Barbara Kingsolver states, "We all subsidize the cheap calories with our tax dollars, the strategists make fortunes, and the overweight consumers get blamed for the violation. The perfect crime."[13] Beyond that, the real cost of cheap calories is not reflected in the price of the food. As Steel puts it "Our food may *seem* cheap, but that is only because the price we pay for it doesn't reflect its true cost."[14] How we really pay for it is through negative physical impacts on the environment.

Those negative impacts will never amount to much in the eyes of the consumer. An impending crisis will not be realized until it effects the average person's everyday life directly. Undoubtedly by that point it is too late. Should we begin to label our food like we label cigarettes, by showing the unhealthy side effects caused by consuming these processed foods in excess? Impressing people with all the benefits of a local food system would be a more effective approach. But more importantly, how can this incredible resource of cheap, fresh, healthy, local food help those who need help the most? Urban agriculture has the ability to be an agent for social change, by connecting those in

need with the food they need to survive.

Eating is Fundamentally an Agricultural Act: The Disconnect between What We Eat and the Environment

The food system as it is today is heavily reliant on fossil fuels, so much so that "we are effectively eating oil."[15] As we become more and more disconnected from our food source through a globalized economy, we forget that food has a direct influence on the landscapes around us. So many fossil fuels go into the process of feeding us, from processing to transportation, that we when we eat we are actually increasing our consumption of fossil fuels and hence contributing to climate change. As consumers, we have the power to change that, to become co-producers within our food system. We need to accept more authority in this role because the food industry does not necessarily have our best interests at heart. As Steel points out, "The modern food industry is a business; not the planet's caretaker."[16] The only thing that the food industry is interested in is their bottom line.

If we wish our landscapes to reflect our intentions beyond the food industry's bottom line, we must begin to make food choices that reflect this. Farmer and writer Wendell Berry said, "Eaters must understand that eating takes place inescapably in the world, that it is inescapably an agricultural act, and that how we eat determines, to a considerable extent, how the world is used."[17] The fact is that it's too easy to make food choices based on cost and availability, rather than considering the real price, locality, or environmental factors. Most people don't associate their food choices with the effect those decisions will have on

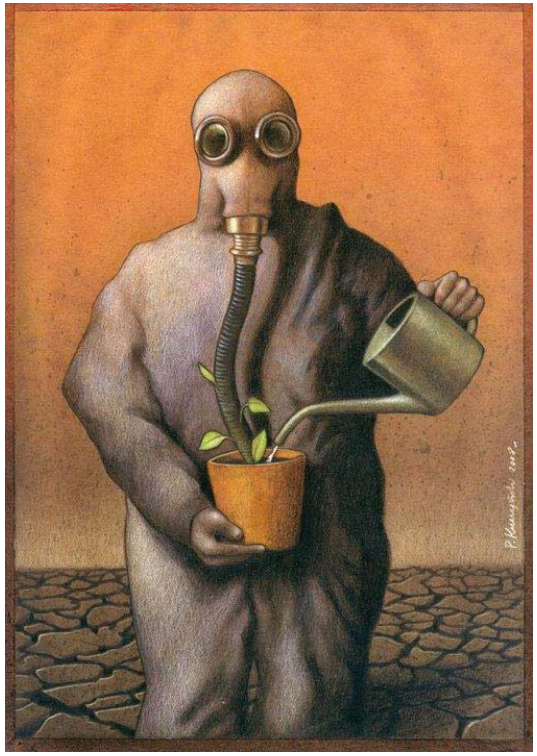


Figure 1-12 (Above) The painting by Pawel Kuczynski shows the irony of our co-dependent relationship with the biotic world. If we do not care for that biotic world, we will also suffer.

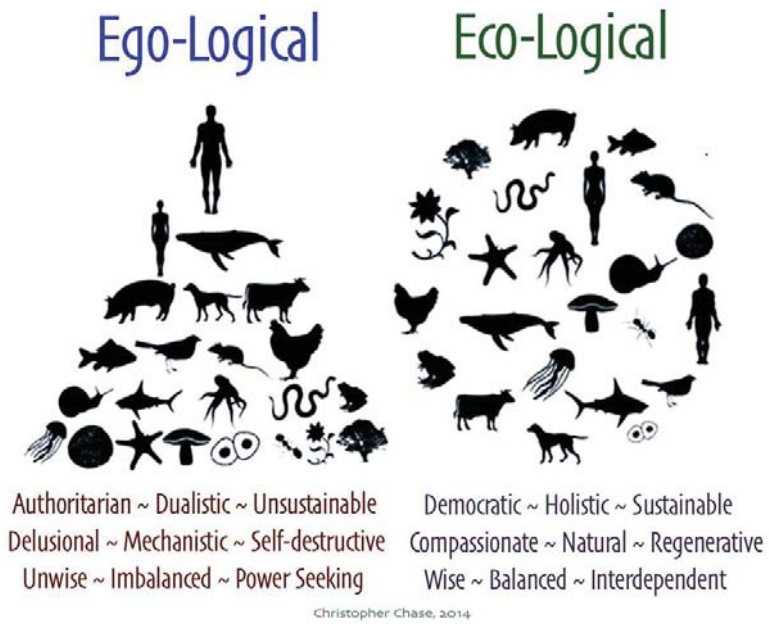


Figure 1-13 Ego-logical hierarchy versus ecological equality

physical environment. The real price we pay for food from our current system is in the form of "deforestation, soil erosion, water depletion, poisoning and pollution."[18] Not only does urban agriculture have the ability to reduce these negative affects by reducing our reliance on unsustainable farming practices, but it can beautify our immediate environment and contribute to its ecological resilience.

Urban agriculture has a wide range of applications within a city. It can drive the decision to plant fruit trees on boulevards instead of ornamental species. It can turn abandoned, unsightly lots into lush vegetable gardens. It can encourage us to turn even the smallest unproductive spaces into productive ones. It can increase the amount of green, living, permeable spaces to counter the dull, concrete, dead spaces within a city that contribute to the urban heat island effect. Michael Pollan suggested that a garden should be "...a place that admits both nature and human habitation."[19] That is also what our cities should be, a place where nature and human habitation symbiotically exist.

1.3 Mythology

From Suppression to Expression of Nature

Why is there this need to suppress the wildness of nature, especially within the city? Robin Kimmerer, a botanist, writer, and citizen of the Potawatomi Nation, combines the wisdom of traditional ecological knowledge and modern science to describe what the natural world means to her and how we should treat it. She points out that, scientifically, berries (her representational fruit for the edible kingdom) are the reproductive organs of the plant, but from her traditional ecological view they "are sovereign beings, with their own intelligences, their own wisdom, their own responsibilities."[1] This shift in thinking alone, regarding plants as more than just mere plants, as equals, as their own type of sovereign being, would be enough to create a more respectful relationship between people and nature. Kimmerer also argues for the appropriation of fruits as gifts from the earth; she says "the natural world is a source of gifts, not commodities, but gifts. Berries are given to us by plants themselves."[2] Gifts, if that›s what we choose to recognize them as, are something special, something that should be cherished and not taken for granted.

Kimmerer also describes the berries as not only sovereign beings, but as our teachers, some of the wisest and oldest teachers available to us. She makes the point that plants have been around longer than the human race: "They know how to fulfill their responsibilities while we human people are still trying to figure it out. They know how to build soil, recycle water, create homes for endless other beings; they give us

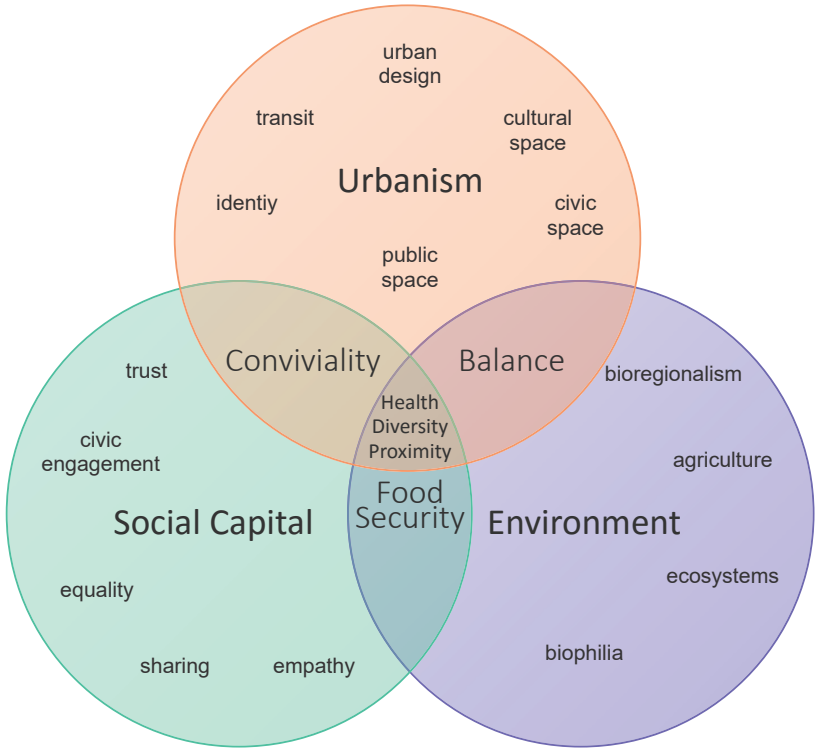


Figure 1-14 Venn diagram showing relations between urbanism, social capital, and the environment

the very air we breathe; they know how to make berries out of light. We might do well to listen."[3] The plant kingdom has also figured out how to do all of this without the need for machinery and technology, without computers and engineering, without a reliance on fossil fuel.

There is one last lesson that Kimmerer points out that berries offer us, and that is the lesson of 'one bowl, one spoon': "the earth is as one bowl, filled with everything that we need, a bowl with finite capacity. When it's empty, it's empty. And there's just one spoon, the same one for all of us."[4] This is a healthy reminder of how many of the earth's resources we use for everything we do or build, and how fast we manage to use them, to the point that we should be careful how we use even the renewable ones because we deplete them faster than they can be replenished. Kimmerer provides many examples of how we can shift our thinking, move past our urge to suppress nature, and heal our relationship with the environment.

In my own thinking I have realized this suppression of nature, and no matter how hard we fight against it, it seems to come bubbling back up to the surface from somewhere deep within us. This phenomenon is referred to as biophilia, which is defined as an innate love for the natural world[5], an affinity of human beings for other living things[6]. While exploring this idea, I used the term "urban escapism" to describe the condition I was thinking about. I defined urban escapism as the need for diversion from the city by means of retreating to nature, as an "escape" from the perceived unpleasant or banal aspects of urban life. Of course this brought on a whole wave of questions: if our environment wasn't so devoid of nature or biophilic elements, would we feel the need for this escape? How much of the

built world would have to soften to reach a balance between city and nature where we no longer feel as if we need to escape? What are the best ways to soften the city and bring more nature into our built world? What other benefits could come of this change in the urban fabric?

Urban agriculture provides an answer to all of these questions. Not only does urban agriculture address the problem of urban escapism and our inherent need to be connected with nature, but it also offers to us a way to re-connect with our food source, a connection that we have somehow lost along the way. Carolyn Steel describes how the advent of the railway system forever changed how far we can transport food.[7] Another technological advancement, the ability to manufacture, rather than grow and harvest, food that was thought to be nutritiously superior further distanced us from the roots of our food. Steel puts it very poignantly, "If we want a rich and varied landscape on our doorstep, we are going to have to start eating as though we mean it."[8] That is to say, we have to start being held accountable for our choices, which includes our choices on how we design within cities to reflect the kind of city we want to live in: a city that doesn't suffocate our need for nature.

Urban agriculture can also be used to foster a sense of community, The Stop Community Food Centre in Toronto is an exemplar of how conviviality can be encouraged by urban agriculture. The Stop provides a place within a city as big and dense as Toronto where sustainable food production, education, community outreach, a market, and many other types of programming thrive synergistically under one roof.[9] More information can be found on The Stop in

"Tools foster conviviality to the extent to which they can be easily used, by anybody, as often or as seldom as desired, for the accomplishment of a purpose chosen by the user. The use of such tools by one person does not restrain another from using them equally. They do not require previous certification of the user. Their existence does not impose any obligation to use them. They allow the user to express his meaning in action"

- Ivan Illich, *Tools for Conviviality, 22.*

Appendix C.

Urban agriculture also has an incredible power to act as a healer by healing the environment that in turn heals us, by offering a deep and complete sense of healing, physically, psychologically, and spiritually. The statistic that is being promoted today is that the majority of the world's population lives in a city; "as of 2010, more than half of all people live in an urban area, and by 2050 it is expected that 70% of the world's population will live in cities."[10] With such a majority of the world's population living in cities it is important that we focus on making these urban environments places of health and healing, not illness. Ecological architect, sculptor, and author of *Spirit & Place,* Chirstopher Day says that a "Healing environment is not just a need for those who are ill... Central to healing is growth towards wholeness."[11] The health benefits of urban agriculture have not gone undocumented: "Growing food and non-food crops in and near cities contributes to healthy communities by engaging residents in work and recreation that improves individual and public well-being... with regard to nutrition, food security, exercise, mental health, and social and physical urban environments."[12] Urban agriculture offers us a way of healing on many different levels that modern medicine is not able to provide.

When the full potential of urban agriculture is realized—the provider of nourishment, the mortar of communities, and shaman of well-being—the landscape can become more than a symbol of life and fertility, but also a source of sustenance and production, a source of conviviality, and a source of healing, like it has always been intended. Day also notes, "To improve things for both humanity *and* nature,

we need a new way of thinking–natural-process-aligned, but morally inspired, so consciously directed."[13] Urban agriculture is not just about the health of people, but also the health of the earth, the environment, and the health of nature. And it is not just physical health, but health of the psyche, health of the spirit, of both humanity and nature.

Conviviality, Food, and Spirit

A little faith needs to be restored in the spiritual realm connected to food. Michael Pollan notes that "...the ancients were entirely correct to regard the harvest's abundance as a gift from the heavens,"[14] a sentiment that Robin Kimmerer would agree with. Too much of our modern food system is reliant solely on methods of science—food science that renders inedible chemicals and constituents edible, or agricultural science that produces GMO crops reliant on chemical fertilizers, herbicides, and pesticides—and too much has vanished from our spiritual beliefs surrounding food. The modern world has an obsession with the objective—facts, science, and knowledge—and not enough respect for the subjective—feelings, emotions, and intuitions. Food should once again be remembered as a spiritual entity. This remembering will be aided by the design of tools which are subservient to the user, to use in places that will become cultural artifacts and contribute to the Genius Loci, the spirit of the place, and by implementing tools that act not as mere functional devices, but tools that will engage the community.

Ivan Illich would not say that a food system reliant on scientific discoveries is necessarily a bad thing, but that it would depend on

"Ultimately this derives from modernity's overly exclusive emphasis on the objective, the realm of scientific materialism, at the expense of the subjective, particularly culture. Among other things, this led to modern architecture's reduction of human occupation to function, our actions as understood by detached observation, rather than considered as dwelling or habitation, words resonant with subjectivity. Thus a modern building is a functional device, Le Corbusier's 'machine a habiter', subservient to the user, of value only when used and obsolete afterward. This is very different from premodern buildings, which are cultural artifacts that are mediators (thus more elevated in status than mere functional devices) between us and the world, both natural and manmade."

- Brian MacKay-Lyons, *Local Architecture*, 185.

the motives behind those discoveries and how they were intended to influence the system. Illich says, "...scientific discoveries can be used in at least two opposite ways. The first leads to specialization of power and turns people into the accessories of bureaucracies or machines. The second enlarges the range of each person's competence, control, and initiative, limited only by other individuals' claims to an equal range of power and freedom."[15] The first use of scientific discoveries creates "manipulatory tools" and a "radical monopoly" which cause the "exploitation of society as a whole."[16] Illich makes the distinction between convivial and manipulatory tools, stating that tools which are restrained, restricted or inaccessible—because of institutions (licensing), or they are limited in availability or financially unattainable for some—are manipulatory.[17] Illich also states that a radical monopoly is when "one industrial production process exercises an exclusive control over the satisfaction of a pressing need, and excludes nonindustrial activities from competition" and disallows alternative and often small-scale modes of production.[18] The current food system falls under Illich's first explanation of the outcome of scientific discovery. Something as simple as food was once easily provided by individual households for themselves but is now monopolized by commercialized agro-businesses. Commercial food production and agriculture has implemented manipulative tools, such as GMO's, to exploit their monopoly in the food system. GMO's are a manipulative tool because they propose "the new idea of plant varieties as patentable properties, rather than God's gifts to humanity or whatever the arrangement was previously felt to be for all of prior history,"[19] as Kingsolver put it. When natural aspects of biology, such as the reproductive element of a plant—the seeds—are altered and patented, something that was once available to anyone who knew

how to save seeds becomes restricted and breaking that restriction is now enforceable and punishable by law. There was a legal case where a Saskatchewan farmer named Percy Schmeiser was sued by Monsanto. Schmeiser had been in the habit of saving seeds for many years but, because of pollen transfer to his fields, his crops were found to contain Monsanto's patented canola plant genes and was sued for possession of intellectual property. A more detailed summary of the account written by Steven L. Hopp can be found in *Animal, Vegetable, Miracle*.[20] Exclusive control was then being exercised over an aspect of the food system. It is no surprise that small-scale farmers have lost the battle against industrial agriculture. Steel says, "The phenomenal scale of modern food conglomerates gives them the power to create their own reality."[21] In general, the industrial sector has exploited society writ large. It has looked for ways to take tasks from our everyday lives and commercialize and standardize them. To paraphrase Illich's similar sentiment regarding transportation, in the case of agriculture, we have passed from an era served by industrial food production to the era in which society has been reduced to virtual enslavement to industrially processed corn by-products[22], as an example of one crop system.

Illich optimistically suggests that scientific discovery can also "[enlarge] the range of each person's competence, control, and initiative, limited only by other individuals' claims to an equal range of power and freedom." But if scientific discovery can also be used for the benefit of commercial agri-businesses and at the expense of society, more than just optimism is necessary for scientific discovery to be used in morally and ethically sound ways, and for it to give us equality of freedom and power. Illich is suggesting that by using

accessible, convivial tools, the enslavement to industrial production can be reversed. If we imagine urban agriculture as the tool, it can be made accessible to the community by means of providing the proper infrastructure, in the form of materials such as seeds, gardening implements, compost, and gardening knowledge and wisdom, and would be convivial because it would be easily used by anybody, but without obligation.

People may choose to participate as much or as little as they want, or opt out altogether, in urban agricultural opportunities made available within the chosen community. Information to help select appropriate plants to grow would be made available, but the users may freely choose what to plant and what to do with the produce, and it would not affect the overall success of the system. Because the system would be designed to primarily support household consumption of food grown, no certification for the sale of goods, or for organic designation would be necessary. Urban agriculture would allow the users to express their desire for an alternative food system that would make acquiring healthy, local, fresh food less financially burdensome. If everyone grew even a portion of their own food in their backyards, the reliance on the commercialized food system would be reduced, and agro-businesses would have a more difficult time selling food as a commodity, thus the radical monopoly on food production would diminish.

What Illich is missing from the conviviality equation, to make the transition from poorly to well appropriated scientific discovery, is something that is embodied in craft. By craft I refer to skills that “have long traditions, including an expertise with local materials, as well

as specific tools and ways of working... It is a skill at working with a particular medium over which mastery is gained through patient, repetitive practice... With constant repetition and practice, the skill... becomes embodied or unconscious knowledge..."[23], as Brian MacKay-Lyons, architect and author of *Local Architecture*, puts it. There is no doubt that agricultural skills require a kind of mastery or intuition that can be achieved through dedicated practice, trial, and error, and those agricultural skills are being lost to an industrial agricultural system. American author, farmer, and environmental activist Wendell Berry said, "In the loss of [agricultural] skill, we lose stewardship [of the land]; in losing stewardship we lose fellowship; we become outcasts..."[24] It is in this sense that I refer to all non-industrial agriculture, but specifically urban agriculture, as a craft, or a skill, that is important to reclaim. It is also in this way that if you apply craft to Illich's idea of scientific discovery it would result in a new alternative food system that would allow individuals to expand their competence, control, and initiative over the food choices they make. To quote Michael Pollan, "[Craft] is also a declaration of independence from an economy that would much prefer we remain passive consumers of its standardized commodities, rather than creators of idiosyncratic products expressive of ourselves and of the places where we live..."[25]

Although Pollan was referring to sourdough bread and kimchi, it is also true that the craft of urban agriculture has the ability to produce something that is expressive of the place where we live, or farm. "Place," Pollan suggests, "is much more than a patch of earth; it is also the people who live in it and the traditions they follow..."[26] Place is different than space, space is a mere functional device where specific tasks of everyday life are carried out, but place has a connection to

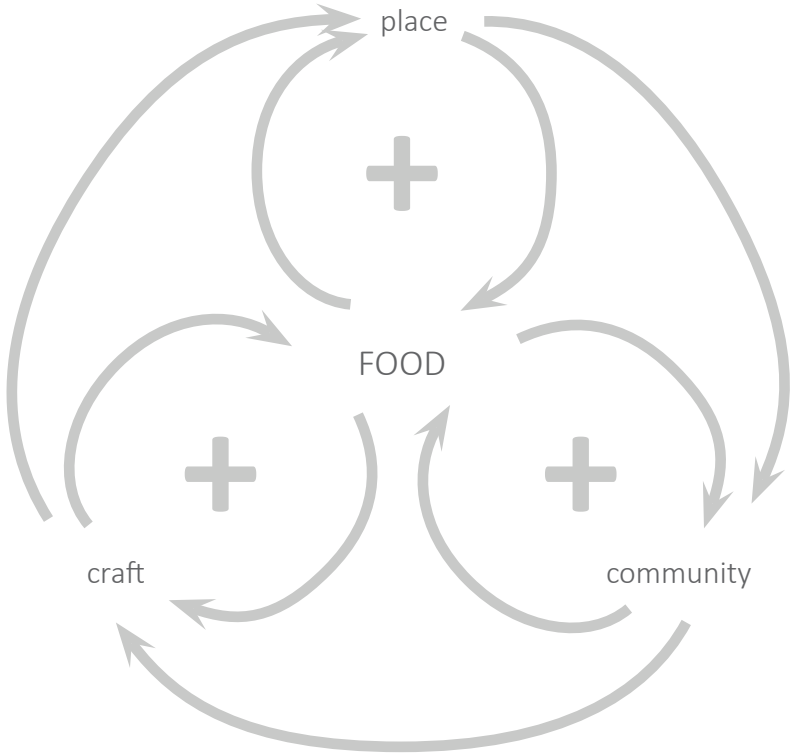


Figure 1-15 (Above) Postive feedback loops with food and place, community, and craft

an identity that is derived from people and traditions. Architect and urban theorist Aldo Rossi proposed that "urban artifacts", which are unique architectural focal points, and their interconnections with other constructs within the city are what shape the urban identity of a place. "Exactly how are urban artifacts complex?" asks Rossi; "One can agree that their statements relative to the soul of the city and the concept of permanence go beyond naive functionalism and approach an understanding of the quality of urban artifacts."[27] Places engage a deeper understanding of space that goes beyond the objective, "Euclidean spirit", and delves into the realm of the subjective, "qualitative conception of space"[28]. This is what gives spaces within the city meaning, and thus transforming them into urban artifacts. Places that are and contain urban artifacts must also have a relationship to the "soul of the city". The soul of the city, or the *locus*, comes from the classical phrase "*genius loci*, the local divinity, an intermediary who presided over all that was to unfold in [that location]."[29] A whole chapter of this thesis could be written on the meaning of *loci*, but in brief, it represents the spirit of a place derived from history and memory that resides in the collective consciousness of the people of that place, and their understanding of the relationship between psychology and ecology, between humans and nature. Space is simply a location with a function; place is a space that has an identity beyond function that relates to the people and traditions of that location; and urban artifact is a place with an identity related to the soul, the *locus*, of the city.

The modern world's obsession with the objective perspective, and its tendency to overlook the subjective perspective, has altered the evolution of our consciousness. An objective perspective inherently

asks one to become more individual by removing feelings of empathy, especially towards local community. Biodynamic gardener and author Dennis Klocek suggests that "The alienation of those who work the land from the spirit of the land has been a gradual evolution of consciousness away from feeling such as, 'I am a child of nature, at one with everything in the universe and all the people around me.' Very gradually, as the human individuality becomes stronger, human beings will start to express that individuality. Fundamentally, to express individuality is at odds with the need to be a part of a collective."[30] One can only assume this has an effect on our conception of *locus* if the spirit of the place relies on a collective identity.

The harmful effects of the industrial food system are clearly legible through the reciprocal effects of our diminishing sense of collective identity and our lack of food culture. Barbara Kingsolver suggests that, similar to *locus*, "food culture... arises out of a place, a soil, a climate, a history, a temperament, a collective sense of belonging."[31] Urban agriculture, to single out one aspect of many in a local food system, has the ability to reconnect us to a specific place, and by collective association to that place, has the power to re-establish a collective sense of belonging with others who share that association. Landscape architect and author April Philips states that "the industrial agricultural system does not add to a human being's quality of life. Slowing down to plant your own edible landscape, or taking part in a community garden, or buying from a local farmer at the market is connecting us back to our historic roots of local and meaningful food production."[32] Urban agriculture, by reconnecting with our historic roots and providing us with a collective, local food culture, offers us an opportunity to readdress the *locus*, or the spirit of the city through

a new form of urban artifact: the urban farm.

The urban farm , or, more broadly, urban agriculture has an opportunity to provide an acute sense of the spirit of the place through the food it produces. Such association to the spirit of a place by proximity is the fundamental aspect in the formation of a community. MacKay-Lyons states that "[P]lace is required in order for the public realm to come into existence. Architects take the lead in the construction of the place that houses the public realm, yet the community is essential to the caring for and maintenance of that place."[33] It is in the public realm where place and community meet. A culturally significant place, such as an urban artifact, can exist but without a community to care for it, loses all meaningfulness. Beyond caring for it, the community is responsible for its importance; community breathes life into these places. Conversely, a community needs meaningful spaces within the public realm to foster conviviality, for without these places the very foundation of communities would be compromised. It is these types of places—monuments, squares, parks—within the city that foster civic life in a collective capacity. However, as a designer, one cannot simply provide any monument, square, or park and expect the community to use and care for it. The most successful of these types of public spaces relate to the communities historic roots and embodies the *locus* of the place.

Defining a place that is connected to a community's living history is only half the battle. For a designer of urban agriculture, the most difficult task is engaging the community to care for that place. As Philips suggests, "The security and resilience of the community food supply can be strong if planning and community involvement come together to share wisdom and to create a long-term vision for a

community to thrive."[34] To engage the community in this goal, they must be involved in the process of changing the food system from the start. The community is a source of collective genius and wisdom that should not be taken for granted. By engaging these sources from the beginning, the community members' interest becomes invested in the vision for that place.

It is the communal narratives that vivify both place and craft. MacKay-Lyons proposes that "Place, craft, and community are all intrinsic to culture, which is local, imbued with traditions of making, and sustained by communal narratives that vivify place and craft practices."[35] A sense of community, of common identity, is the glue which holds this trinity together. Like Klocek, Kingsolver states that "Fundamentally, to express individuality is at odds with the need to be a part of a collective."[36] Our growing sense of individuality has an impact on the *locus.* Because the spirit of a place relies on our shared history of communal existence, when we become increasingly individual in nature we lose the connection to our community's conception of *locus*. Is our current perception of *genius locus* reliant on a former existence of a common identity, a sense of community, that is fading from the present?

Many people seem to think that an awakening of a collective consciousness is happening, and possibly with it our sense of a common identity is being revived, but how and when did it fall asleep in the first place? When our grasp on the collective began to slip is anyone's educated guess, but most people agree that it is important to revive this collectivity. Barbara Kingsolver believes that the end of oil will collectively reunite us: "A lot of people at once are waking

up to a troublesome truth about cheap fossil fuels: we are going to run out of them."[37] Dennis Klocek thinks that population pressures on food supply will change our ways: "So, as the agrarian consciousness develops and people become wedded to a particular piece of land, population pressure becomes an agent of social change."[38] Ivan Illich hopes that our collective history will save us: "the appeal of an individual to the formal structure embedded in a people's history remains the most powerful instrument to say the truth and denounce the cancerous domination of the industrial dominance over production"[39].

Throughout history food has either served to unite or divide us, separating the have's from the have not's. Survival, even at the scale of a civilization, has relied on a steady source of food. However, in an era of an overabundance of food, can the spirit of food not be used to reunite us? Not from our current food system it can't. German scientist and leading advocate for biodynamic farming in the early 20th century Ehrenfried Pfeiffer said that, "in the future, people will be sitting at groaning boards piled with food, but that the food they eat will not give them the forces to have actual spiritual perception. It will satisfy certain needs to keep the organism intact, but it will not open human consciousness to the spiritual world."[40] The spirit of food comes from understanding the importance of the craft or skill that was required to produce it, its relationship to the place it came from, and the significance of the community, family, or friends it's shared with. Food from such practices begets sustainability, and life itself. Sustainability is something that we have come to understand as meaning technologically and economically efficient, and by that definition the industrial food system excels in sustainability, but

we forget that sustainability really means that which sustains life itself. Industrial food has many advantages and flaws, but one that is constantly overlooked is that it lacks empathetic engagement with craft, place, and community, and the convivial systems of survival they offer. Those aspects of survival constitute human life, but beyond survival promote physical, psychological, and spiritual health, for what is a human but a body, a mind, and a spirit.

1.4 What's Stopping Us?

The Disconnect between What We Believe and What We Know

American systems scientist Peter Senge would say that our own ignorance of the outcomes of the systems we've created is what hinders us the most, which is true of our detrimental food system. "Our interdependence has grown but our awareness of our interdependence has declined," and by interdependence, Senge is referring to the many systems or infrastructures we subconsciously rely on daily, such as water coming out of the tap, electricity from our outlets, and food on the grocery shelves. Many of these things we rely on, including our food systems, without really understanding the processes that made them available to us. We depend on a great number of people and machines, more than we realize, working to bring us these modern conveniences.

Most people are ignorant to the industrial agricultural practices that cause a great deal of environmental degradation and health concerns but without which would leave supermarket shelves bare. Industrial farming was not designed with environmental degradation in mind, of course, it was designed to feed the masses affordably, but we are ignorant to the other "negative systemic outcomes" of the industrial food system. Despite the evidence staring us in the face, ("...we've accepted a tradeoff that amounts to: 'Give me every vegetable in every season, even if it tastes like a cardboard picture of its former self."[1]) we've chosen to ignore the consequences of our food choices.

Another factor to the problem is that we separate social and environmental concerns. There are many social activist and environmental activist groups, but seldom do they work together. Senge asserts that these are not separate issues with separate solutions, because "poor people suffer most when there's environmental stress"[2]. Part of the solution to the problem is recognizing that to solve social concerns we must address the environment, and vice versa, to solve environmental concerns we must also address social problems.

Another part of the solution, to Senge, is realizing that humans are biologically wired to be a caring species. He points out that not only have our opposable thumbs given us an evolutionary advantage by allowing us to grasp things, but also to caress. As a loving species, we innately feel empathy, and he asks us, "How can we fall in love again with the natural world?"[3]

In order to move forward, we need to accept the fact that the way we feed the masses is not sustainable and is damaging to the environment, that social and environmental problems and their solutions will be closely linked, and that we need to engage in an empathetic relationship with nature. Our complacency is feigned, and will only last as long as our oil supply does. We need to change our consumption patterns and production methods to reflect the change in the management of the environment that we wish to see. We need to encourage more inter-disciplinary design and urban planning. We need to recognize and incorporate expression of nature in urban design. We need to place value once again on where our food comes from, how it is produced, and who we share it with. And we need a system that produces healthy, affordable, local food. It seems like a

tall list of orders, but many of these goals have actionable qualities that coincide. To further bridge the seeming disparities of this list, it is also helpful to look at a similar list of goals contrived by people with similar motives.

Salatin's Principles for Polyface Farms[4]:

TRANSPARENCY: Anyone is welcome to visit the farm anytime. No trade secrets, no locked doors, every corner is camera-accessible.
GRASS-BASED: Pastured livestock and poultry, moved frequently to new "salad bars," offer landscape healing and nutritional superiority.
INDIVIDUALITY: Plants and animals should be provided a habitat that allows them to express their physiological distinctiveness. Respecting and honoring the pigness of the pig is a foundation for societal health.
COMMUNITY: We do not ship food. We should all seek food closer to home, in our foodshed, our own bioregion. This means enjoying seasonality and reacquainting ourselves with our home kitchens.
NATURE'S TEMPLATE: Mimicking natural patterns on a commercial domestic scale insures moral and ethical boundaries to human cleverness. Cows are herbivores, not omnivores; that is why we've never fed them dead cows like the United States Department of Agriculture encouraged (the alleged cause of mad cows).
EARTHWORMS: We're really in the earthworm enhancement business. Stimulating soil biota is our first priority. Soil health creates healthy food.

Salatin also provides the following list of "ethics-based contrarian business ideas"[5]:

- No Sales Targets
- No Trademarks or Patents
- Clearly Defined Market Boundary
- Incentivised Work Force
- No Initial Public Offerings
- No Advertising
- Stay Within the Ecological Carrying Capacity
- People Answer the Phone
- Stay Seasonal
- Quality Must Always Go Up

The Honourable Harvest: Robin Kimmerer's take on the principles from the indigenous environmental philosophy of the Potawatomi[6].

- Never take the first berry; it might be the last.
- Ask permission, explain why you might need these berries.
- Listen for the answer, look around and see whether they are numerous and healthy, whether they have enough to share. If the answer is no, you don't take any for they do not belong to you. Taking without permission is stealing.
- Take only what you need and no more.
- Use everything that you take. It is disrespectful of a life that is given to you to waste it.
- Take in such a way that does the least harm and in a way that benefits the growth of the plant.
- Be grateful. In an economy which urges us to always want more, the practice of gratitude and thankfulness will make you feel rich beyond measure when wealth is counted as

having enough to share.

- Share what you've taken.
- Reciprocate the gift. Leave a gift of honor or a gift of care, like scattering the seeds or planting the little ones back in the ground so that the plants will flourish after the harvest.

Principles are defined as "a fundamental, primary or general law or truth from which others are derived"[7]. The process of implementing urban agriculture can be guided by defining a set of principles that govern issues such as ethic, moral, ecological and sustainable conduct. Before defining a set of principles to guide my design I evaluated others' principles.

Michael Pollan cited the early 17th century chemist Jan van Helmont's photosynthesis experiment to prove that what a plant removes from the soil is much less in mass than what a plant produces[8]. It is by this scientific enterprise that Pollan comes to the same conclusion as Robin Kimmerer: "...considered from the vantage of the entire planet's economy of matter, [produce from a plant] represents a net gain. It is, in other words, a gift."[9] It is a gift that has been taken for granted, sullied the process of its production, and altogether has been made to produce an inferior end product, all for the conveniences of economy of scale. It is this very reasoning that needs to be undone. More importance needs to be placed on the health of the earth's ecosystem, and all its living parts, for without that, there will be no future ecosystem to support human life. It is from these morals and lists of principles that reflect them that will help establish my own set of principles for urban agriculture, outlined in section 4.6.

2.0
Site

Hamilton Road Area, London, Ontario: A Thesis Case Study

The search for the thesis case study site began with the consideration of what made the ideal conditions for the promotion of an urban agricultural strategy. A mid-sized city seemed ideal since it already possessed established urban infrastructures—public transit, an extensive educational network, a library network, a thriving network of cultural institutions, and the beginnings of an informal urban agricultural network—to support a proposal for a more developed alternative food system. Many cities in Canada would fit this description, which is good because the thesis intent is that the case study proposal is translatable to other cities.

London is a mid-sized city in Ontario's Middlessex County with a population of a little over 350,000. London was specifically chosen because it is located far enough away from the Greater Toronto Area (GTA) to be autonomous from it. London residents already exhibit a strong interest in different types of alternative food movements. At the upper end of the local economy, it has restaurants that cater to the conscientious diner. It also has an expansive network of allotment gardens, some private, some on city-owned land. These factors, along with others that are related to a network of parks and natural open spaces, create a network of green infrastructures that will help to support the idea of widespread agriculture in the city. This thesis investigates these and other types of frameworks in the city of London that could become part of such an urban agriculture ecosystem.

The Hamilton Road neighbourhood in south east London was chosen as the site of implementation because it is a promising location on

the edge of the city centre of London, Ontario. Hamilton Road has a specific location or connection within the neighbourhood itself that is associated with each of the fundamental urban infrastructure types found in cities: public transit infrastructure both in the form of a bus system and a trail system, an educational system with schools catering to a diversity of students, a library branch, cultural connections through the local arts community, and evidence of an already budding urban agriculture movement. On top of these features and qualities, the neighbourhood also has a strong ethnic diversity established through its residents' heritage, a range of local restaurant fare, and a unique seniors' home. With all of the above, it is also one of the neighbourhoods in London with the lowest income, uniquely though it also has a high dwelling ownership rate, indicating a stable community where there should be a demand for financially viable fresh food and a willingness to commit to the neighbourhood for the long term needed to develop those food resources.

In the following pages, by analyzing the existing conditions for Hamilton Road, I'm searching for the intersection of these systems where urban agriculture can thrive, while simultaneously outlining an accurate portrait of Hamilton Raod from the large scale of the region to the local scale of the streets.

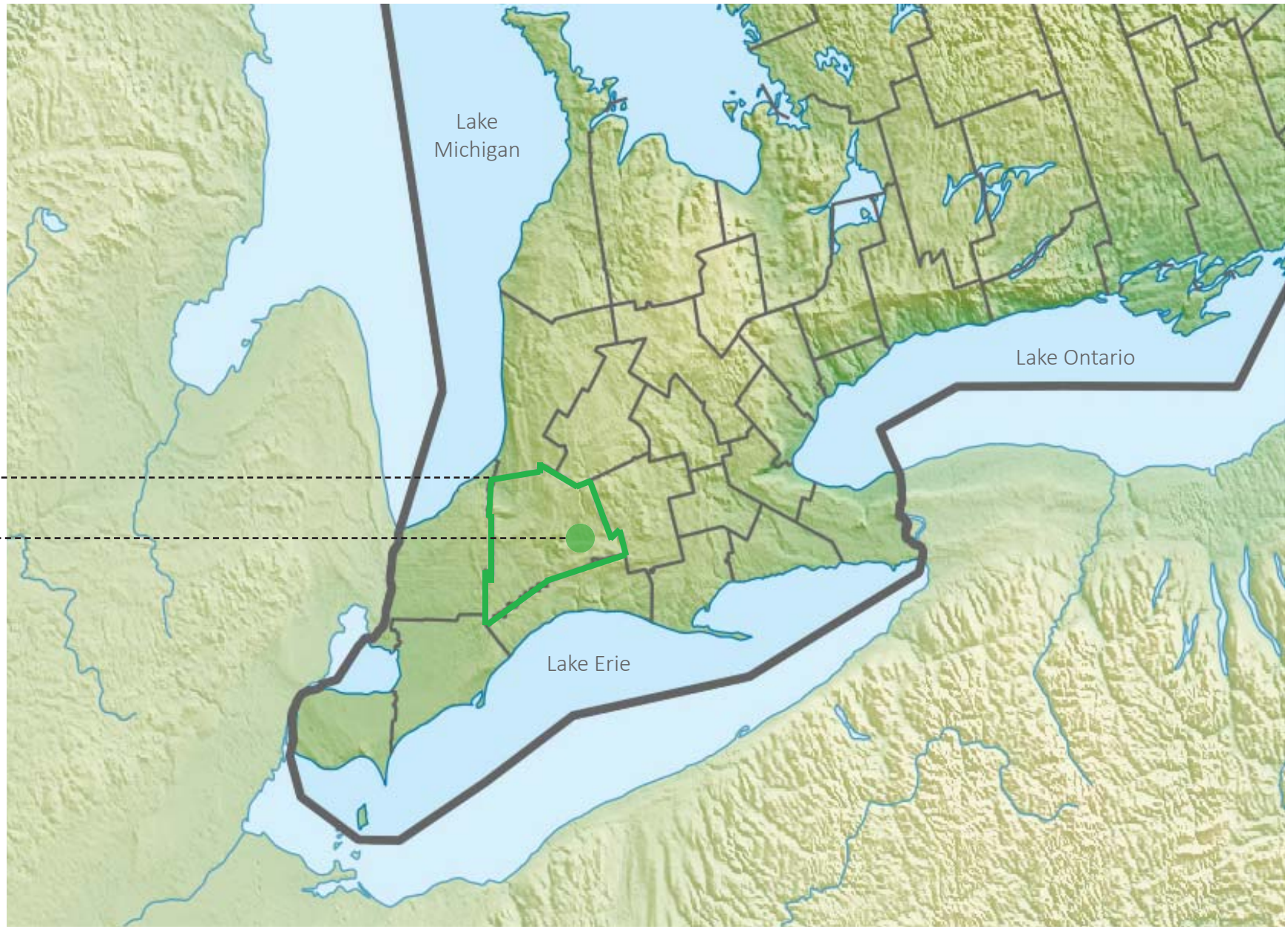
2.1 Ecoregional Scale

Topography and Ecoregion of Southwestern Ontario

The terrian in Southern Ontario is primarily low lands. The ecoregion of Middlesex County, the county London resides in, falls in this area of lowlands. The boundary of the Erie ecoregion, in which Middlesex County and London reside, follows the areas of low terrain. The qualities of the Erie ecoregion establish the growing conditions of the area such as climate, rainfall, soil types, and physiography. These abiotic factors affect the biotic life found in the area. More regional information and maps on abiotic and biotic factors can be found in Appendices A and B.



Figure 2-1 (Opposite) Topographical map of Southwestern Ontario


Lake
Michigan
Lake Ontario
Lake Erie

Foodshed of Southwestern Ontario

The areas in Southern Ontario with high concentrations of fruit and vegetable crops echo the abiotic boundaries of climate, ecoregion, and terrain. This boundary is also visible in other biotic factors like forest regions, found in Appendix B. The 200km radius is based on the distance that could be travelled to make a short day trip to a farm or for a farmer to come to a city market.

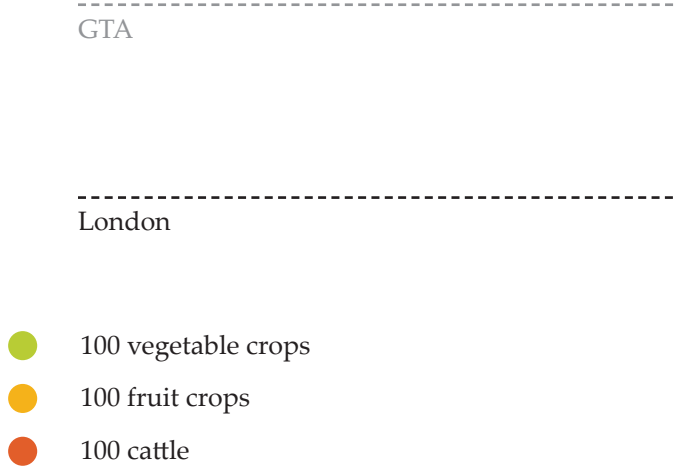
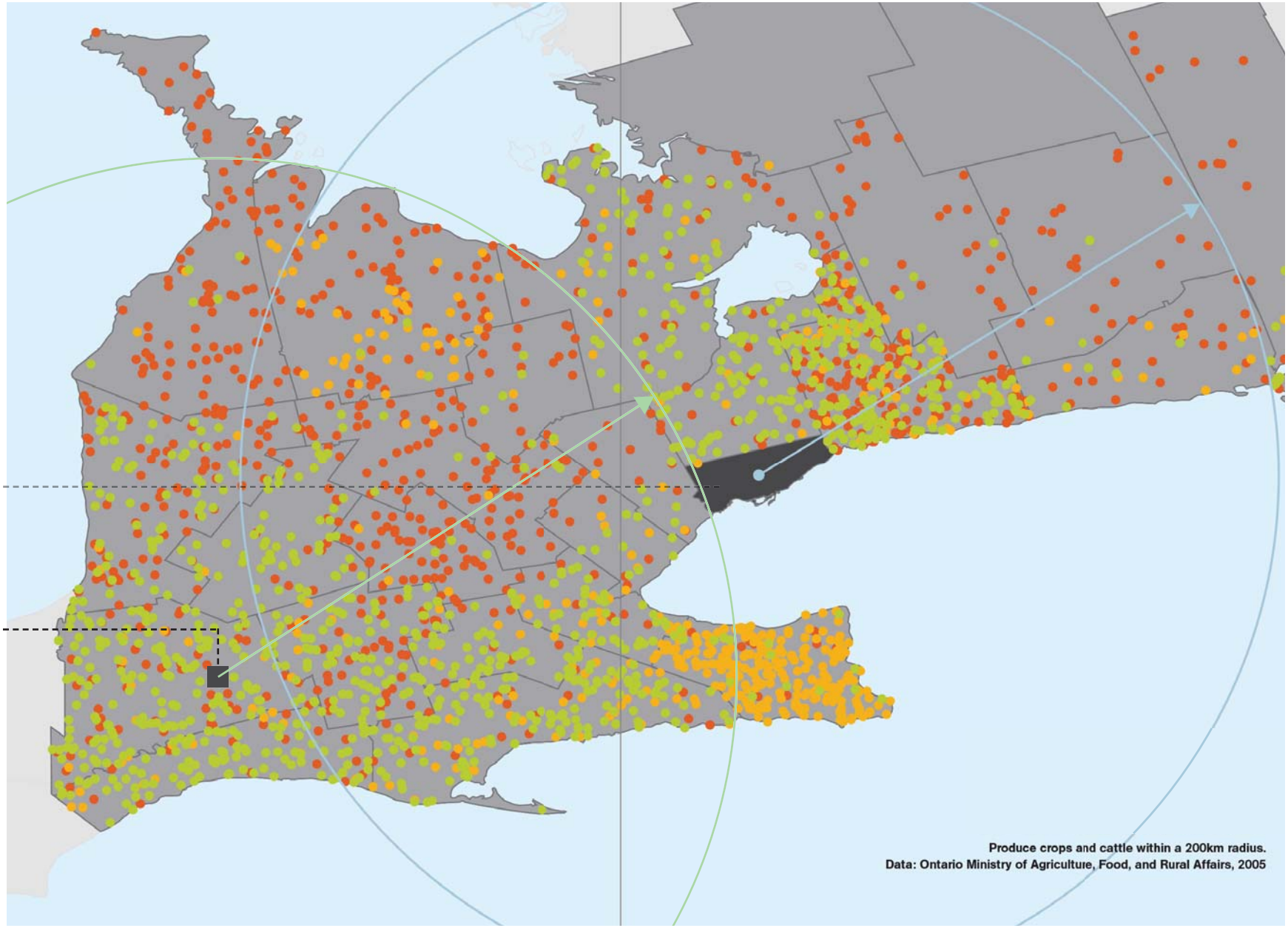


Figure 2-2 (Opposite) Map indicating the radius of London's foodshed


Produce crops and cattle within a 200km radius.
Data: Ontario Ministry of Agriculture, Food, and Rural Affairs, 2005

2.2 City Scale

Income per Household in London, Ontario

London, Ontario, like any typical mid-sized city, has a balanced mix of affluent and lower income neighbourhoods. Indicated on the map are the neighbourhoods with the second highest and second lowest household incomes (the highest and lowest are subject to be attributed to anomalies), the median neighbourhood, as well as the chosen site, Hamilton Road. One of the neighbourhoods in London with the lowest income is Hamilton Road; it falls in the bottom 25 percentile of incomes ($45,000 to $67,000)[1].

Lower income families and residents of London Ontario are the target group of this thesis, as they demonstrate a need for financial assistance as fresh, local, organic food may not be attainable within their budgets.

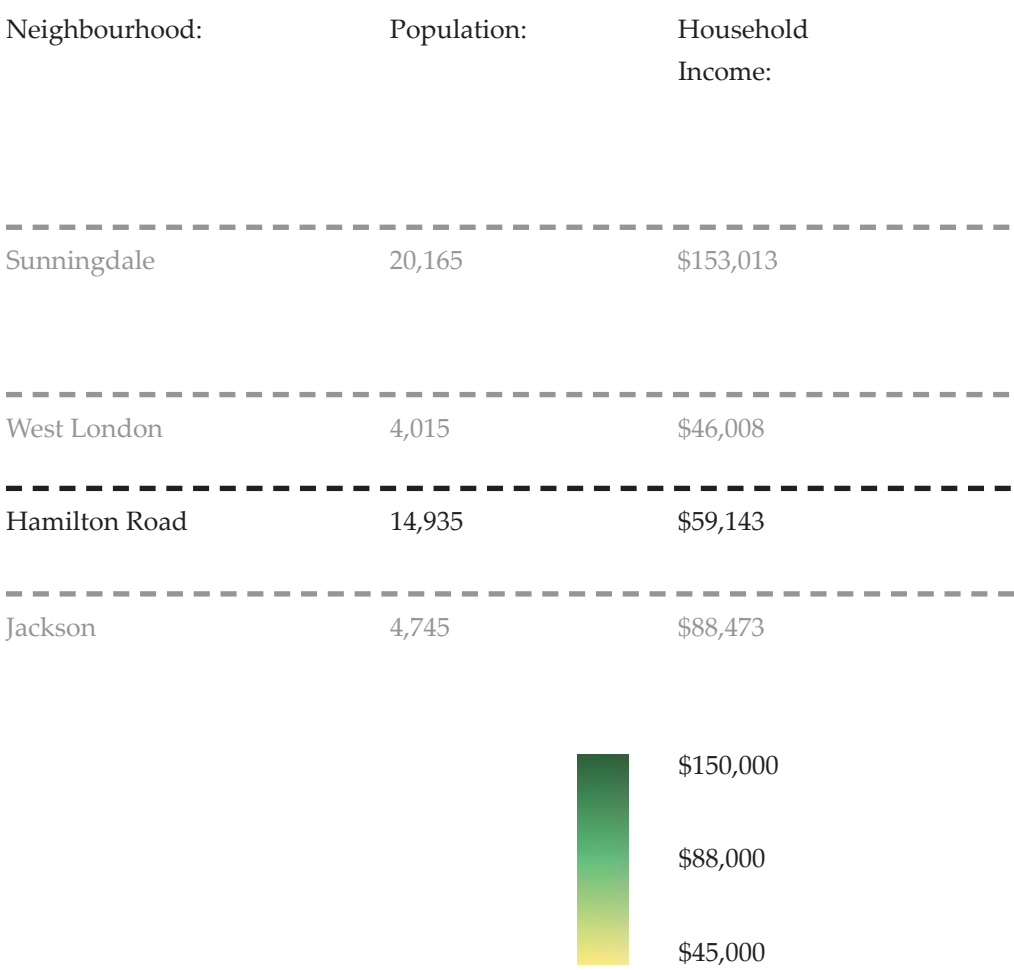
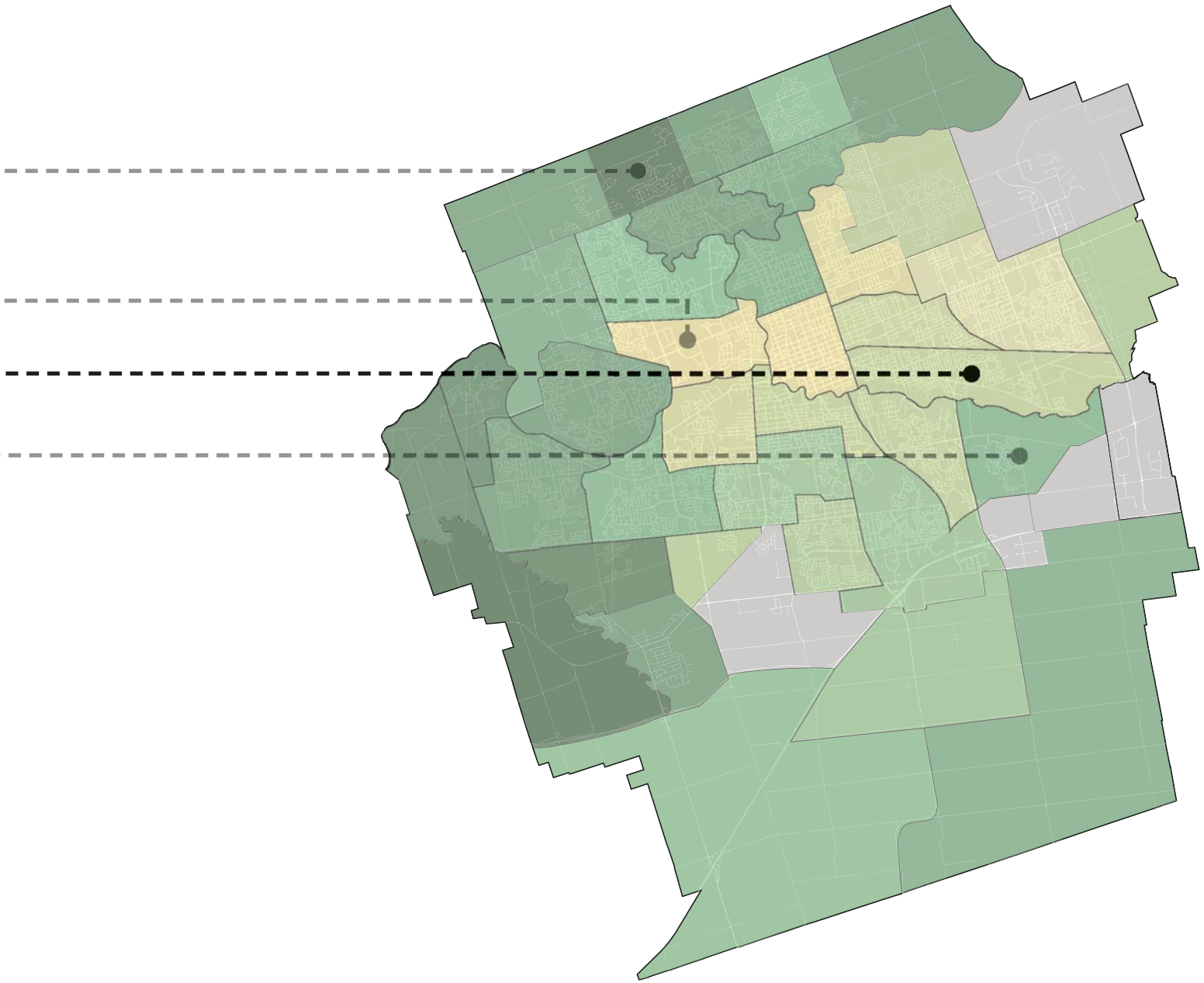


Figure 2-3 (Opposite) Map indicating the average household income of each neighbourhood, grey indicates income info is unavailable for neighbourhood



Primary Elements

Historically, London was initially settled at the convergence of the Thames, which is now the downtown core. The river flows westward and eventually drains into Lake St. Clair and then into Lake Erie. Not only do the rivers affect other abiotic factors like soil types and physiography, but also culutural factors, like river-side parks and trails.

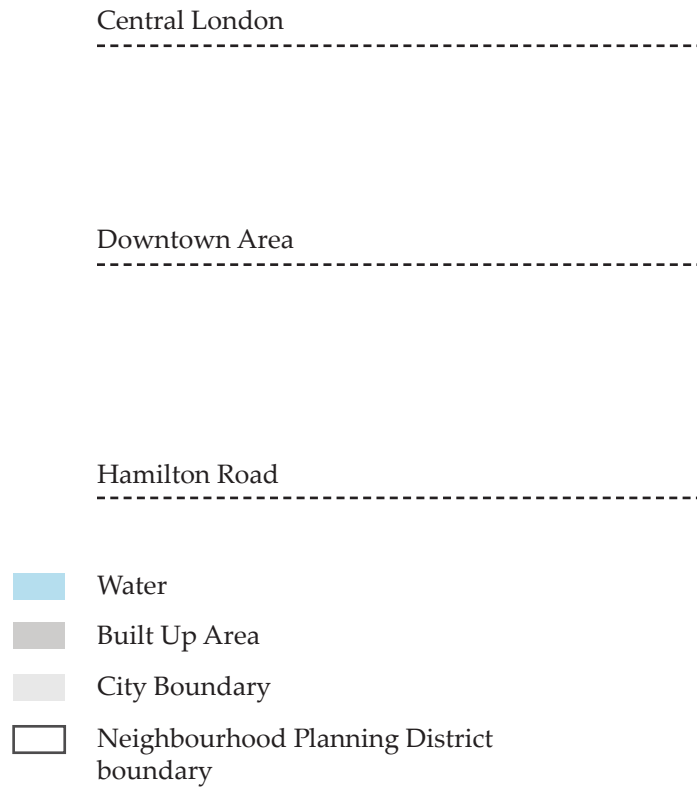
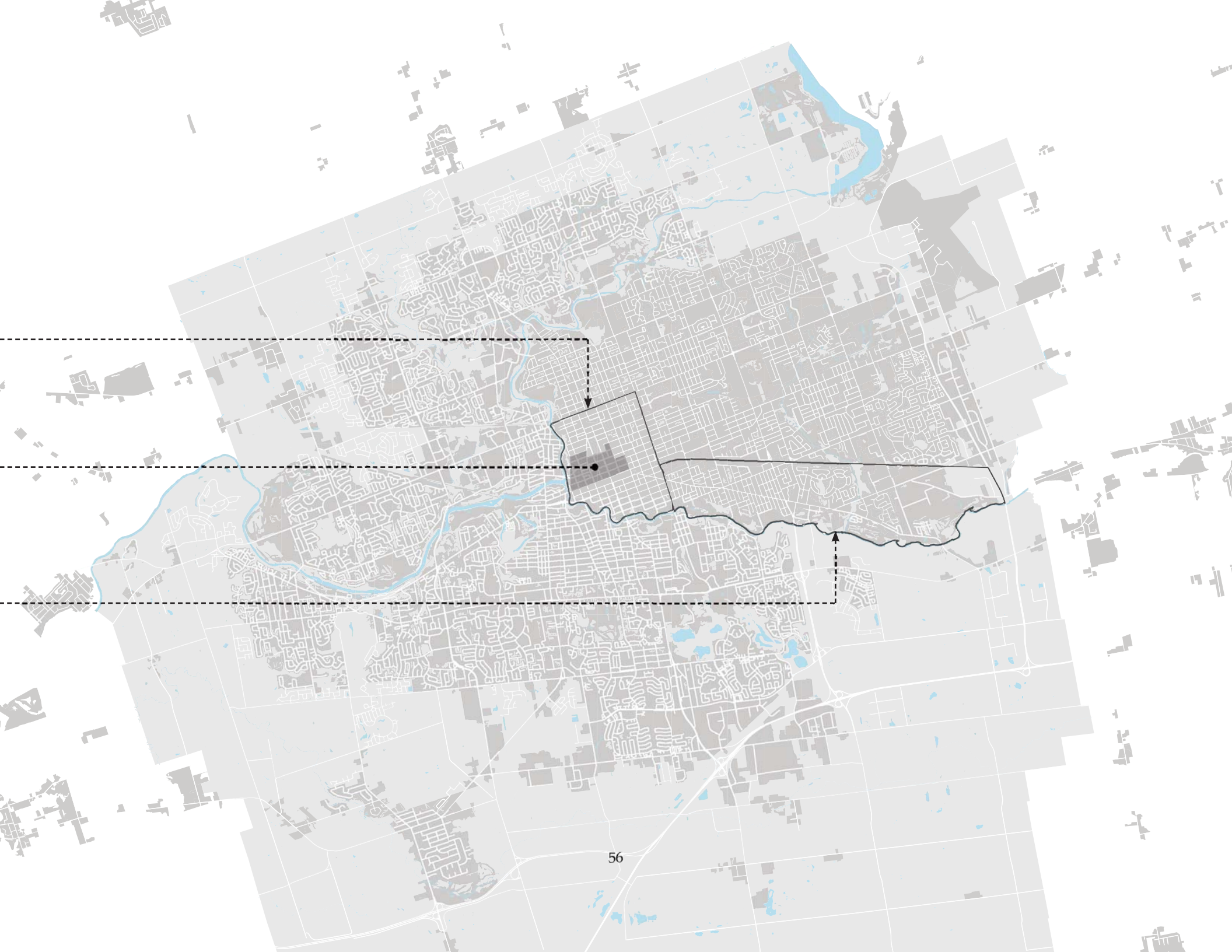


Figure 2-4 (Opposite) Map indicating important areas of London, Ontario



Parks

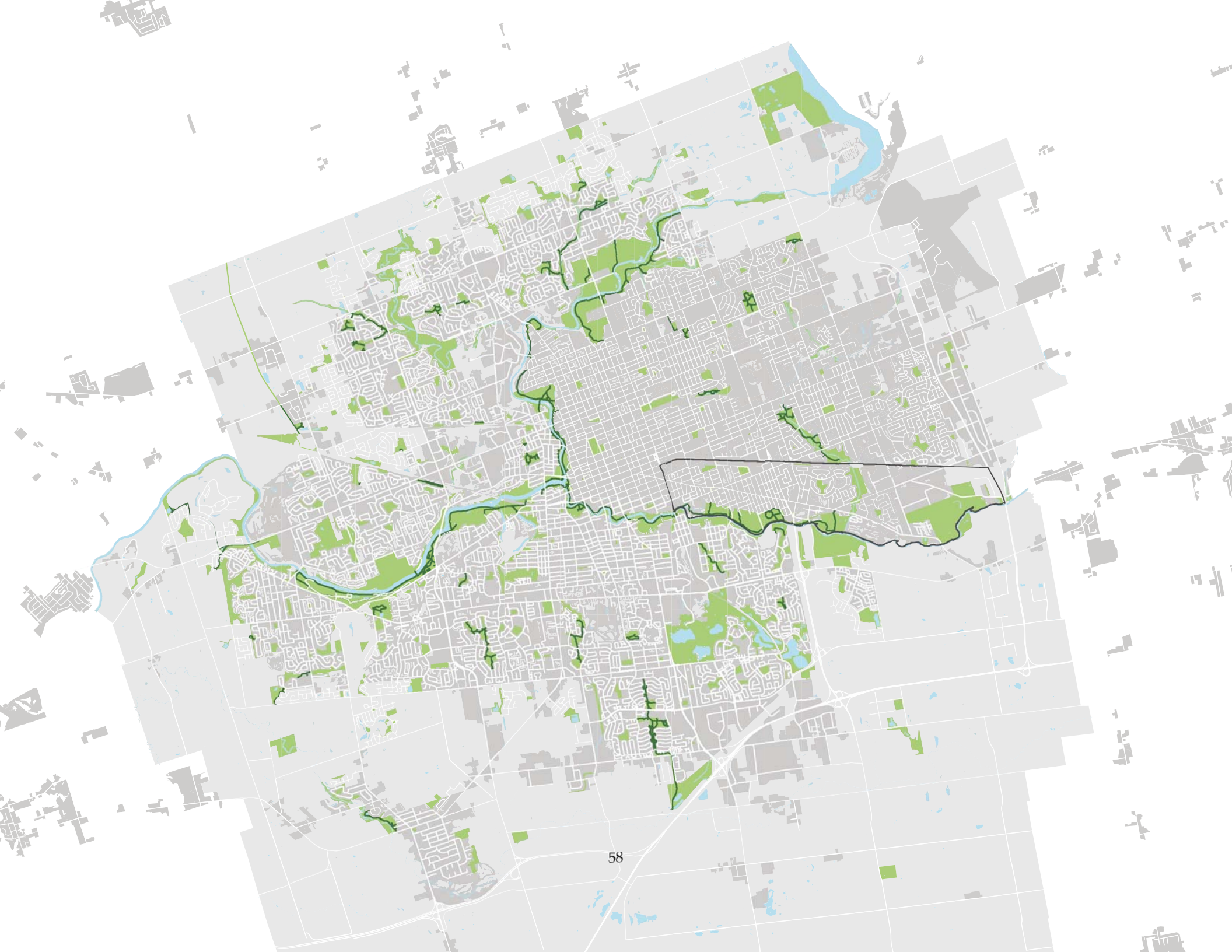
Parks already create a network of green space throughout the city and they are often already connected by trails and paths. With government initiative, municipally owned parks could begin planting edible landscapes. Parks already have gardeners and landscapers in place to care for the property. Successful parks are already valued by the public and used often so no extra effort is needed to attract people. They can also be used to encourage and spread the idea of urban agriculture. Under-utilized parks can be retrofitted or renovated to include edible landscapes to revitalize the city.

Bicycle Paths

London has an exstensive, yet somewhat disconnected system of pathways throughout the city. The majority of the paths follow the Thames River's edge, and many paths are connected by designated bike lanes throughout the road system. Biking in London is a relatively easy and scenic way to traverse the city.



Figure 2-5 (Opposite) Parks and multi-use pathways of London, Ontario



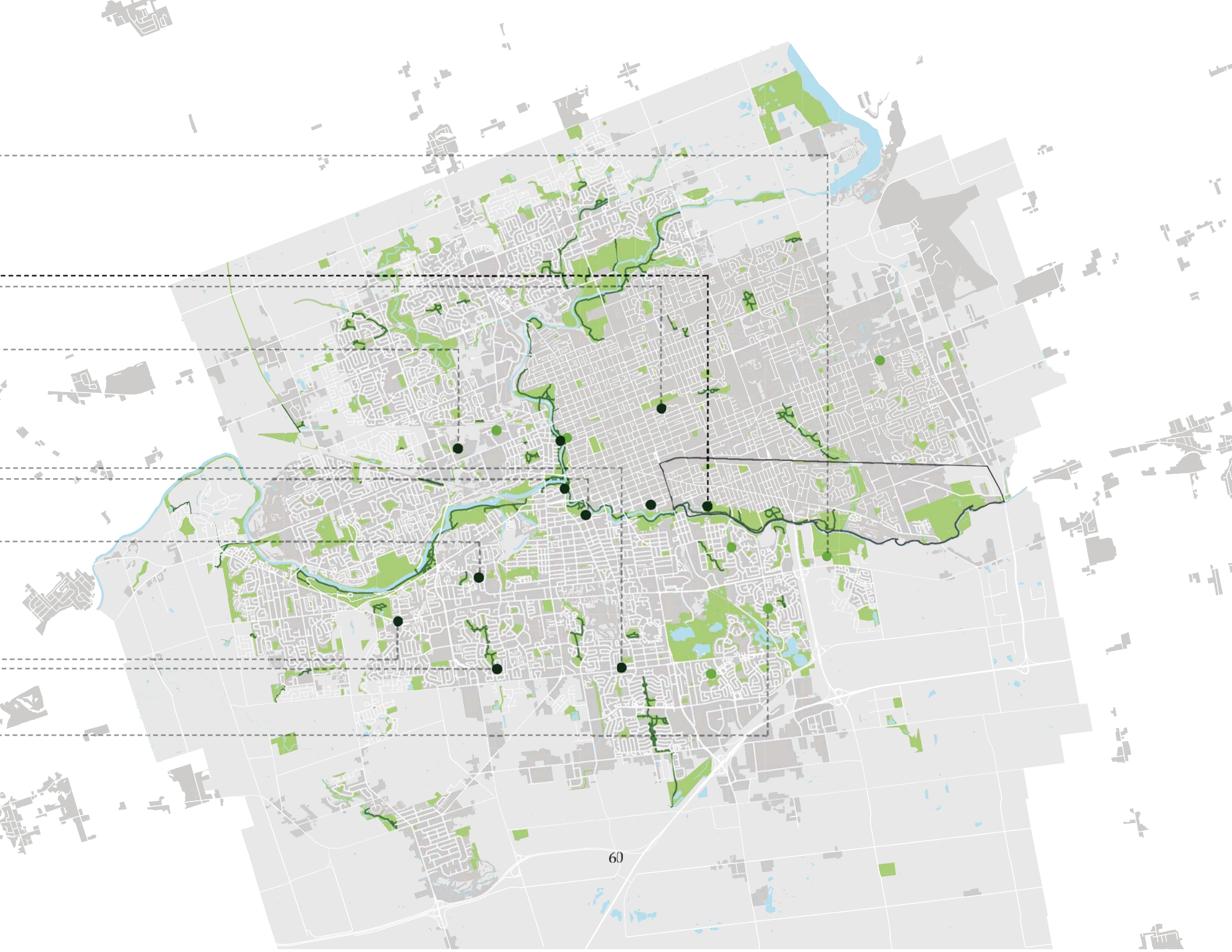
Allotment Gardens

This map shows the demand for arable, growing land within London's urban area. The inner city allotment gardens have the highest demand; many of them are full and not accepting names for the waiting list. City-provided land, such as parks, could be utilized to better meet this growing demand. Currently there is no correlation with parks and the provision of allotment gardens; some but not all parks have allotment gardens, and some allotment gardens are located on land not designated as a park. To change this, the City could legislate that every park should have an allotment garden and the size could be based on the demand from the surrounding neighbourhood for municipally provided land for urban farming. Some areas of the city have more generous park space than others. If the system of allotment gardens is reliant solely on land areas in the park system, some residents of London would enevitably be better served than others by this municpal amenity.

The average allotment garden area is 1730m². The average allotment garden plot is almost big enough to support six people's fruit and vegetable requirements for the year (see Part 3 for calculations). Only eight out of eighteen allotment gardens have vacancy, and most of these gardens with vacancy are on the periphery of the city. This means that there is a high demand for area within the city centre to grow food. Urban agriculture as an expanded initiative is a strategy to address this allotment garden deficiency.

Figure 2-6 (Right) Montage of satellite images of various allotment gardens
Figure 2-7 (Opposite) Allotment garden locations in London, Ontario





School Systems in London, Ontario

Schools already form their own networks within the city, and could be used to teach children positive ways to interact with the environment. In many ways instilling these values—healthy eating, care for the environment, land stewardship, community involvment—is an investment in a better future.

The school system provides an opportunity to integrate gardening and food education into the curriculum. Teaching the younger generations will instill in them these values for the future. Schools, especially colleges and universities tend to be surrounded by large open space that could be utilized for urban agriculture. Gardens can supply school cafeterias with fresh, healthy food to serve to the students.

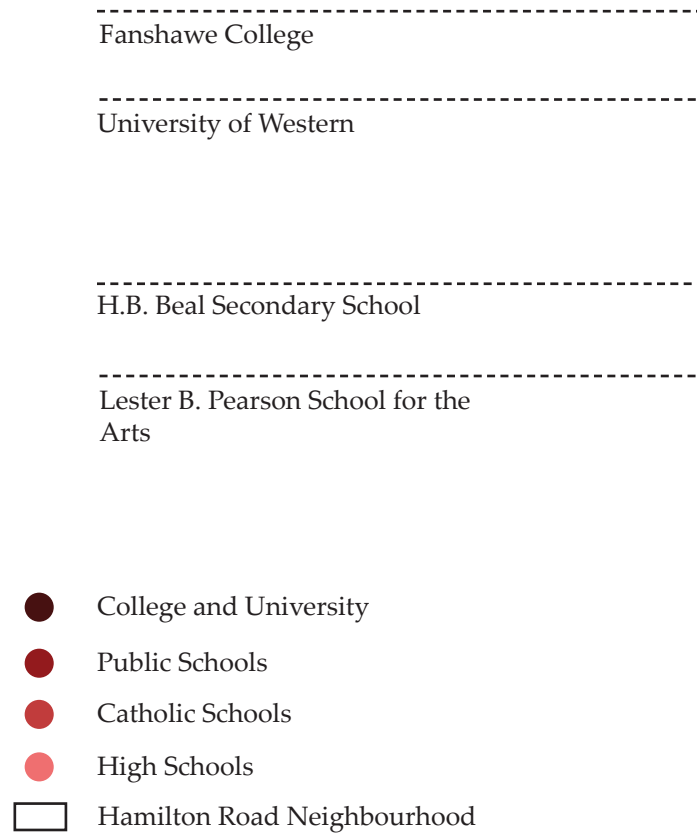
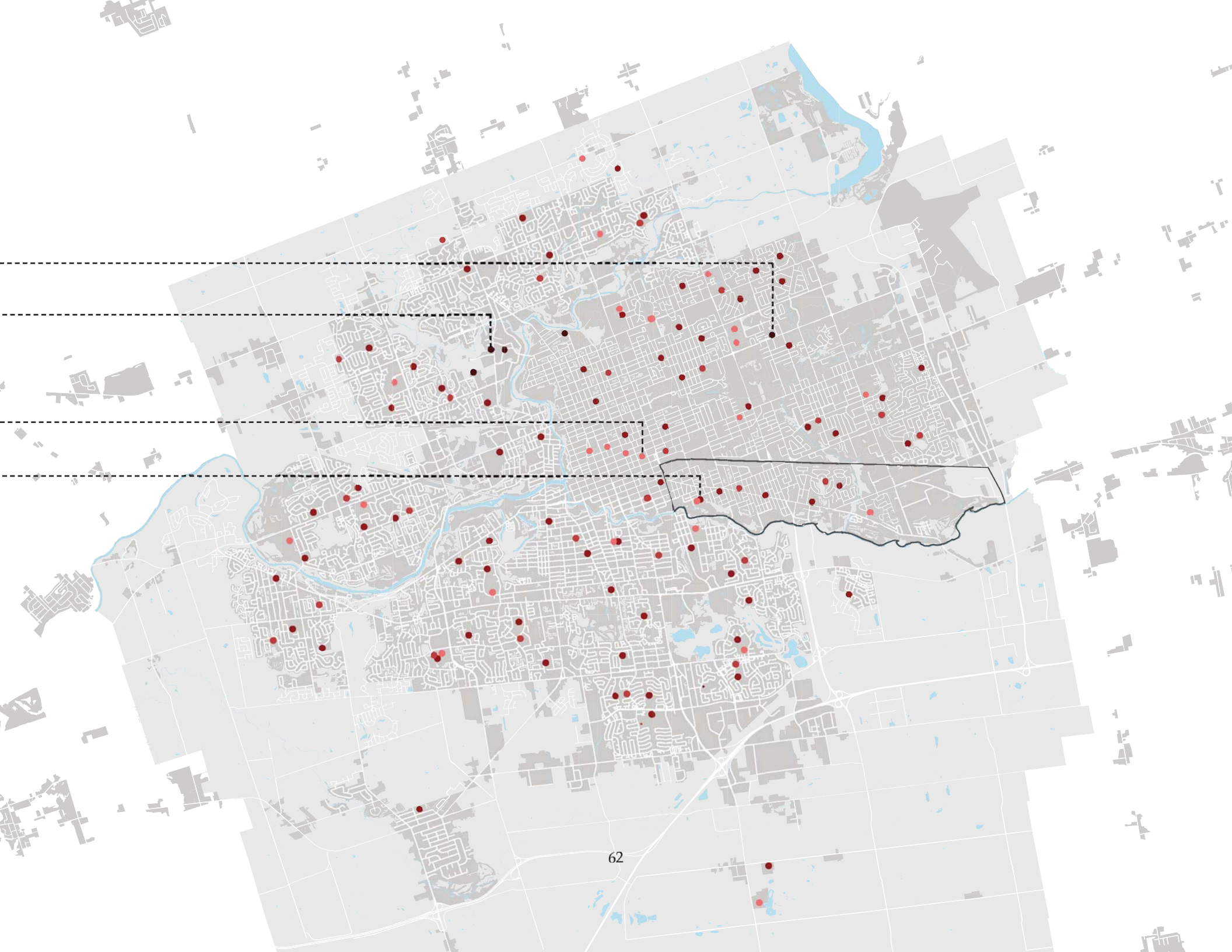


Figure 2-8 (Opposite) School locations in London, Ontario

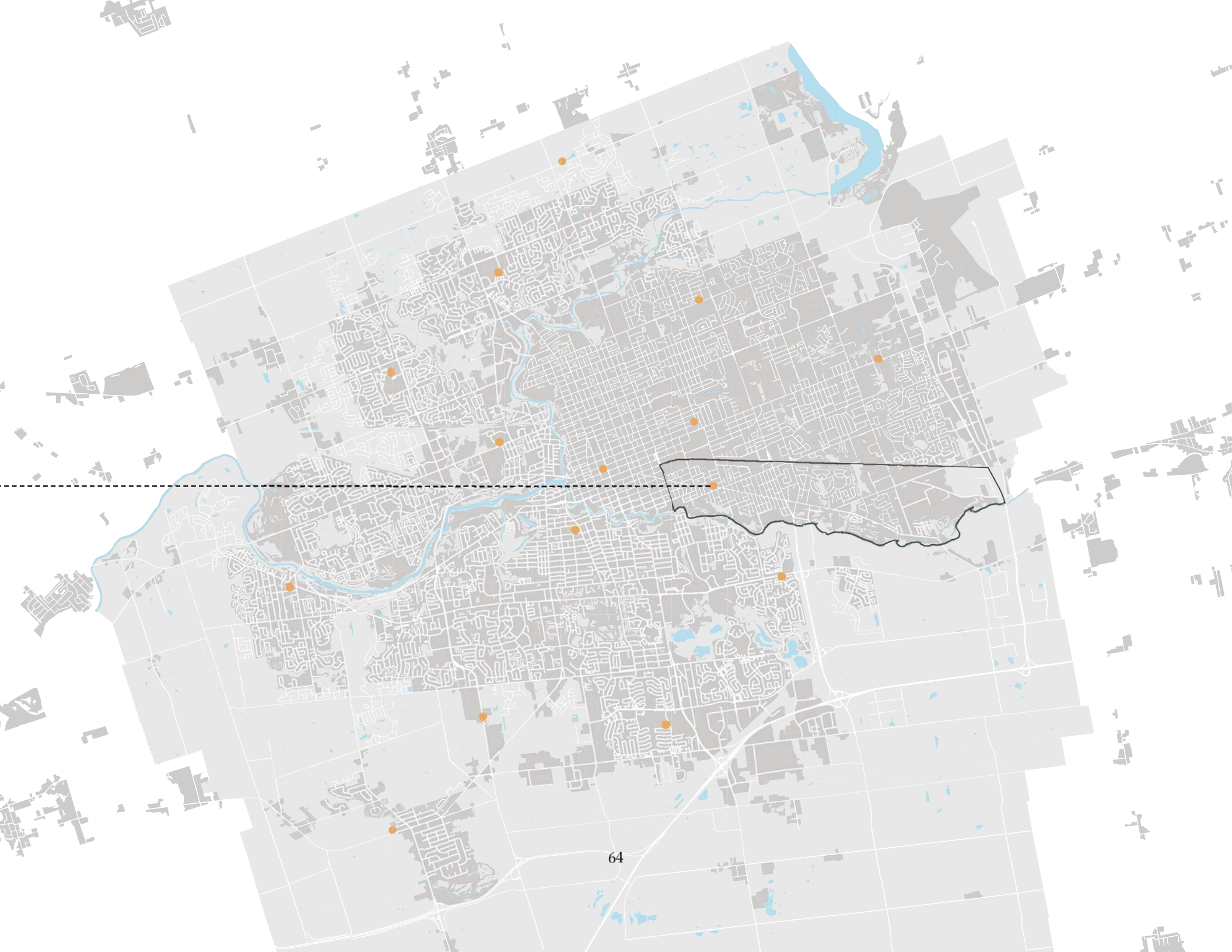


London Public Library Network

Libraries have always been a source of knowledge accessible to the public. London is served by a network of libraries dedicated to "[strengthening] people and neighbourhoods by creating connections that enrich lives, inspire discovery, foster creativity, and expand possibilities."[2] They commit themselves to providing "access, community engagement, diversity and inclusiveness, open to all and non-judgmental, intellectual freedom, privacy, respect, service excellence."[3] Libraries are an extension of the educational network that serves the public at large, and they have an opportunity to help the public by providing services and knowledge resources specific to the task of urban agriculture.



Figure 2-9 (Opposite) Public library locations in London, Ontario



Grocers

The grocers in London create a wide network of food retailers, from small-scale specialty ethnic stores, to big box chain supermarkets, and specialty markets. The network of grocers in London are evenly ditributed throughout the city, so all areas have access to food and there are no food deserts. The coverage is mostly provided by big box grocers, however, which limits the local food choices that consumers have.

The gorcers in Hamilton Road cater to their clientele by providing affordable foods at supermarket chains and ethinic foods from ethnic stores. Hamilton Road, and London in general, are not lacking in places to buy food, what they lack is an accessible network of local food vendors.

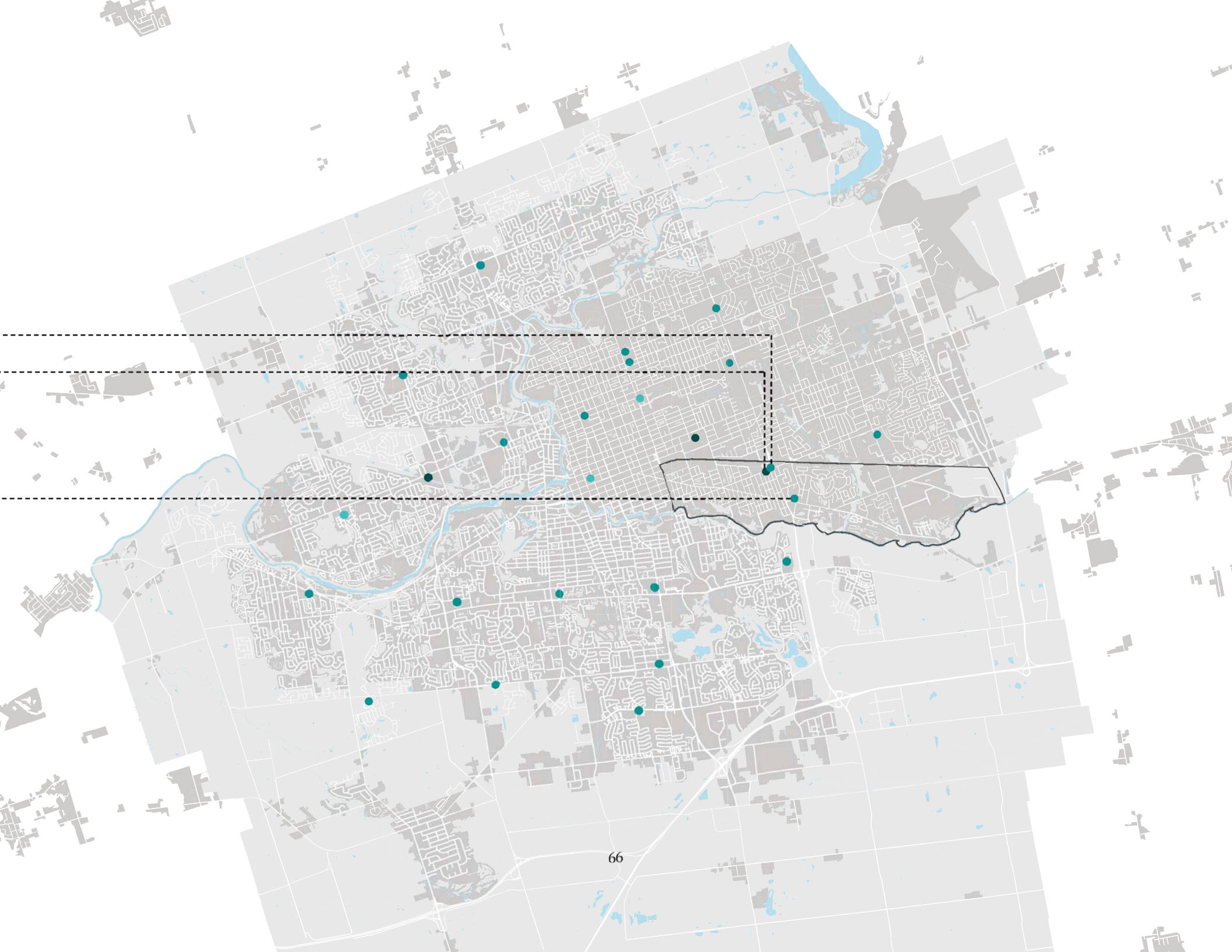
Price Chopper - Supermarket **$**

Alicia's Fine Foods - Specializes in local and imported European foods. Offers a variety of non-perishables, deli meats and cheeses, frozen foods and homemade meals, and breads **$-$$**

Paul and Cathy's No Frills - Supermarket **$**



Figure 2-10 (Opposite) Locations of grocers in London, Ontario



Makets and Vendors that Support a Local Food System

London has two notable local farmers' markets that support a local food system. Covent Garden Market is a historical farmers' market and the Western Fair District is home to a farmers' and artisanal market. The Root Cellar is an organic cafe and bakery that locally sources their ingredients and has their own micro-brewery. Edgar and Joe's is a cafe in the Goodwill Headquarters that supports social outreach programs.

All of these vendors are located West of Hamilton Road, in Central London. These are exemplars, however, of the types of bussinesses that the urban agriculture movement in Hamilton Road should seek to attract to revitalize the vacancies in its commercial sector.



Figure 2-11 Western Fair Farmer's and Artisan's Market



Figure 2-12 Root Cellar Organic Cafe and Bakery

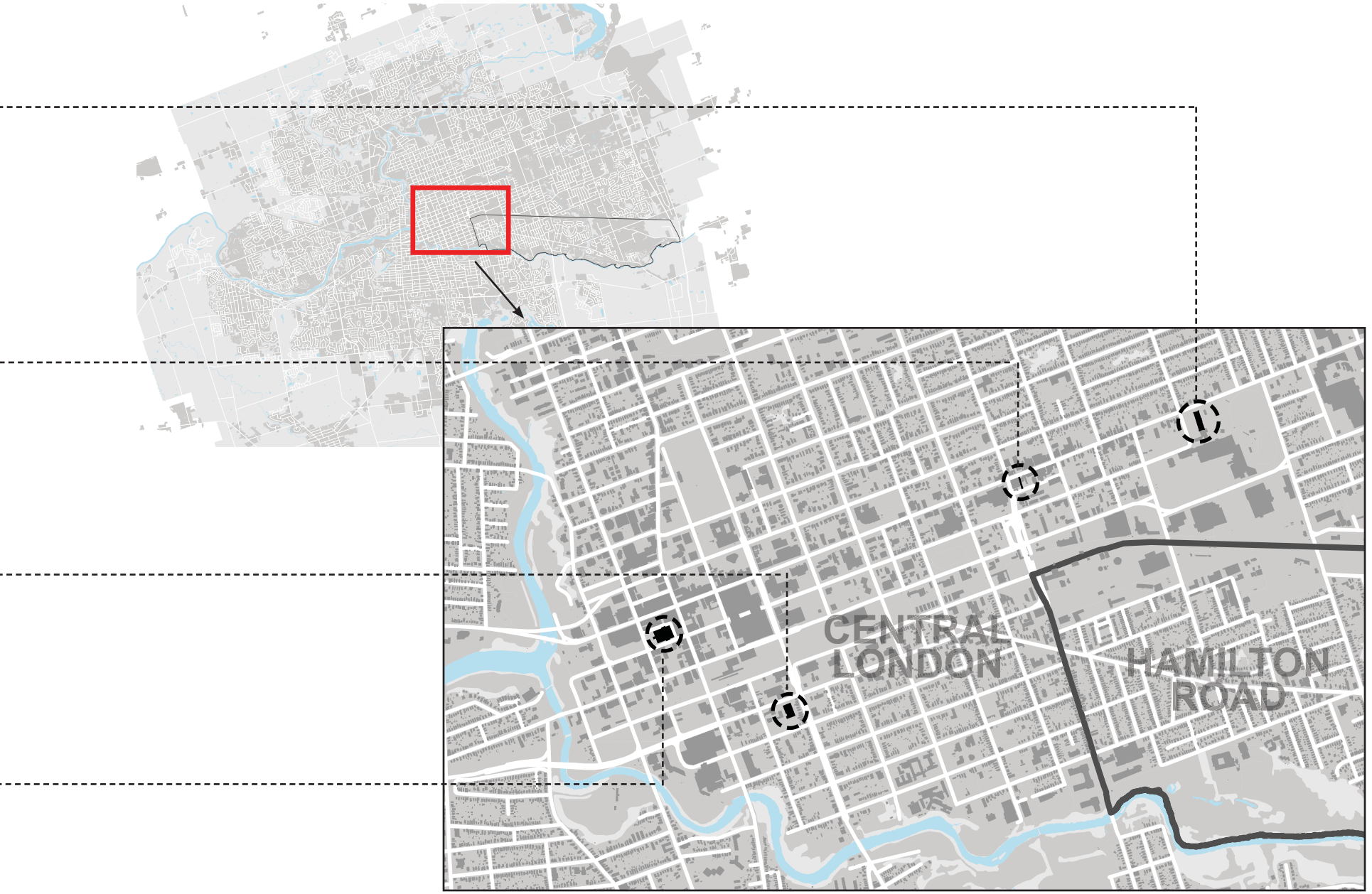


Figure 2-13 Edgar and Joe's Cafe/ Goodwill Headquarters



Figure 2-14 Covent Garden Market

Figure 2-15 (Opposite top left) Key map of London, Ontario
Figure 2-16 (Opposite bottom right) Locations of markets and vendors that support a local food system in London, Ontario


CENTRAL
LONDON
HAMILTON
ROAD

Tree Trunk Tour

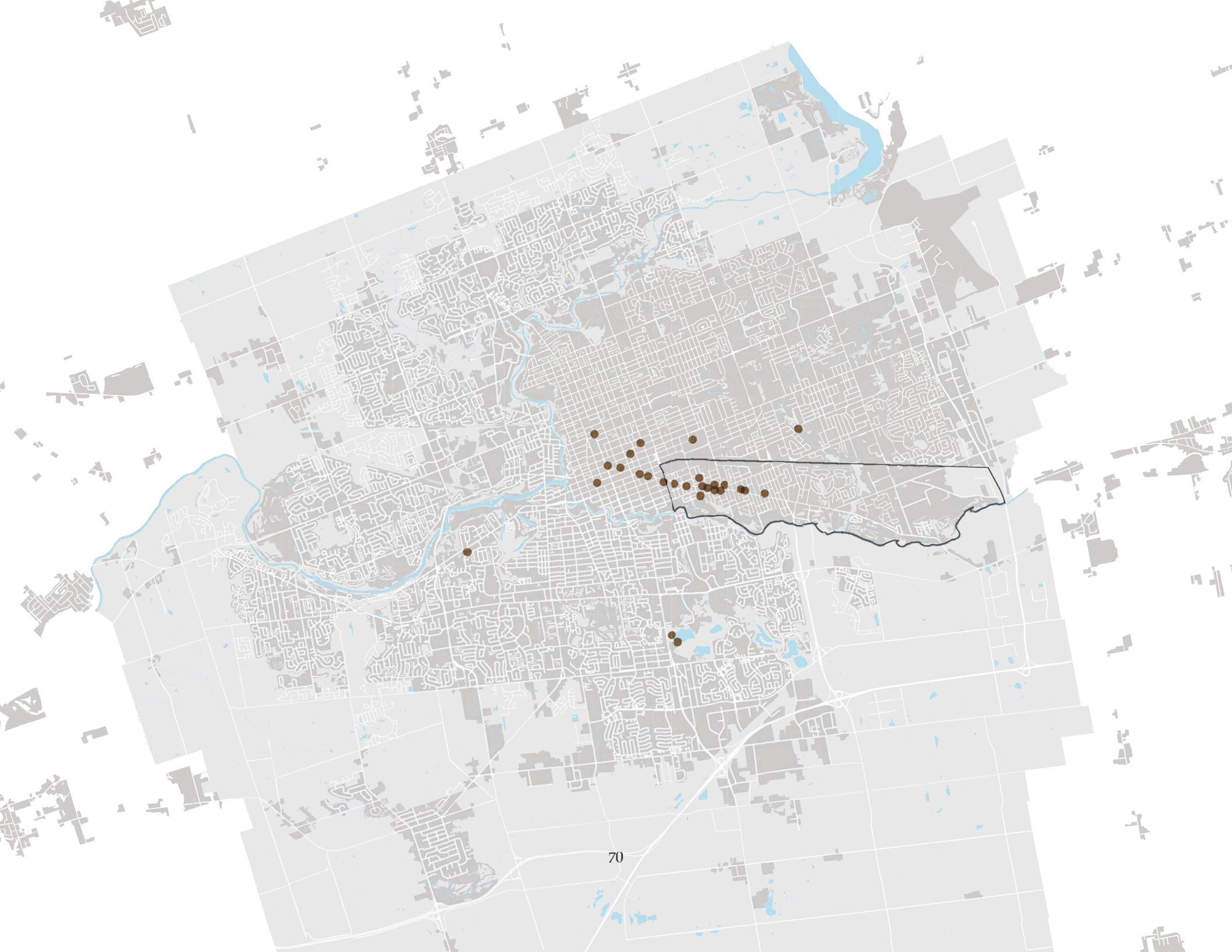
Hamilton Road Neighbourhood is home to half of all the tree trunk carvings in London, Ontario. The tree trunks are as much artistic as they are social and cultural initiatives. Tourism London and STIHL Canada fund the projects, providing artists with tools and even clothing. The tree trunk carvings began as a neighbourhood initiative by the Woodfield Community Association, but initiative has spread to support the creation of many sculptures in Hamilton Road. Many of the carvings are thematically relevant to the bussinesses and institutions they stand by, such as the book themed sculpture in front of the library.



Tree Trunk Carvings

Hamilton Road Neighbourhood

Figure 2-17 (Above) Tree trunk carving in front of Crouch Library
Figure 2-18 (Opposite) Locations of tree trunk carvings in London, Ontario


70

Food Establishments

The character of places serving food in the Hamilton Road neighbourhood is a variety of ethnic cuisines, predominantly Latin cuisines, as well as the typical diner, grill, or "continental" cuisine vendors. Many of these food places have a high turn-over rate, meaning new food establishments move in quickly and only stay open for a few months before closing down or being taken over by another business. All food establishments in this area are in the low price range, including the sit-down restaurants.

Restaurants

Restaurants range from a few Asian cuisines such as Korean and Chinese, to many Latin Cuisines such as Mexican, Cuban, Portugese, and also a few typical western diet eateries.

Chain Fast Food Vendors

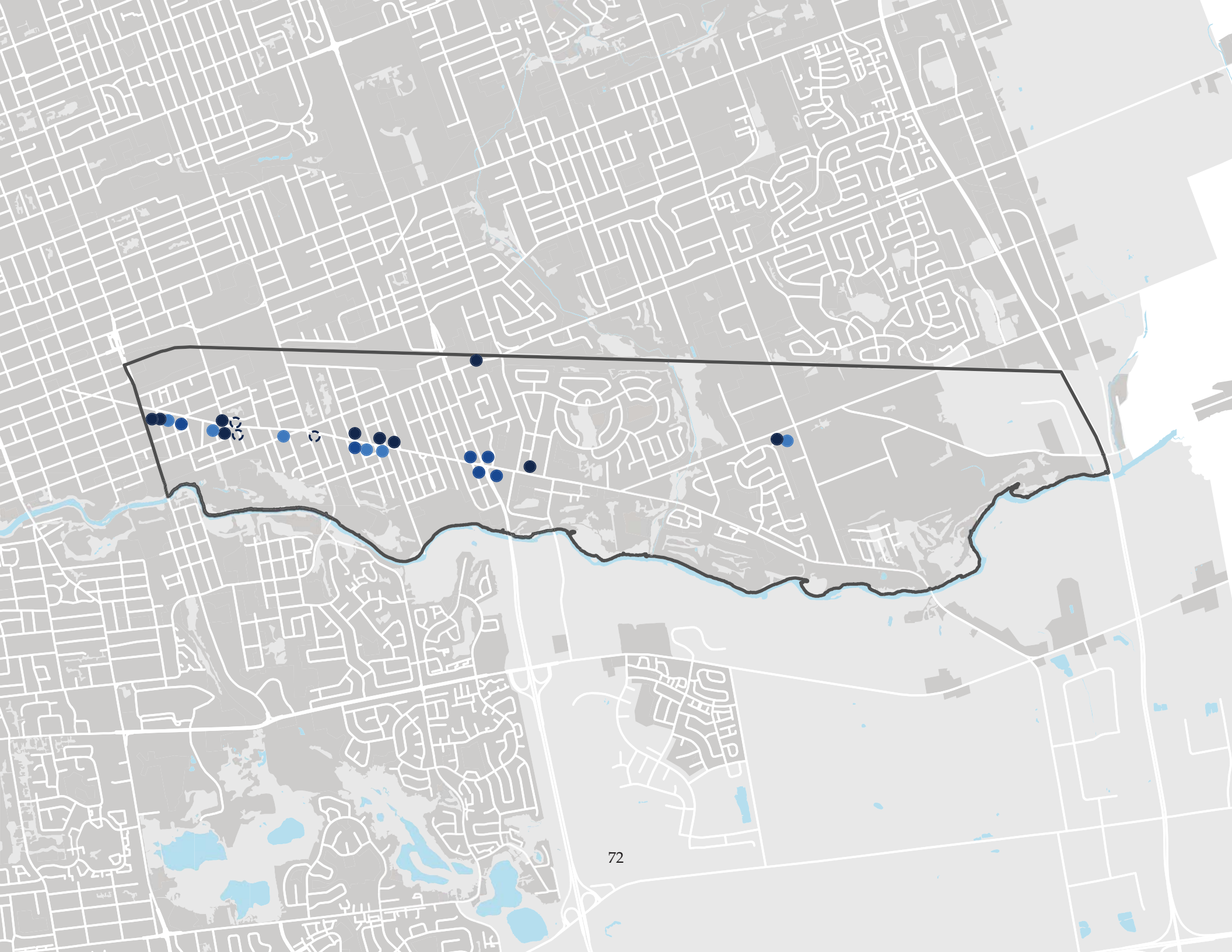
Fast food in this area includes several Tim Horton's, a Subway, a McDonald's, most of which are located at major intersections, and a KFC peculiarly located on Hamilton road halfway between major intersections.

Everything Else

This category is for food establishments that do not fall under the category of sit-down restaurant or a fast food chain. Bakeries with deli sandwich counters, butcher's with food trucks and several pizza joints all fall under this category.



Figure 2-19 (Opposite) Locations of food establishments in the Hamilton Road area, London, Ontario



2.2 Hamilton Road Neighbourhood Profile

Hamilton Road is located in the South-eastern quadrant of the City of London. The neighbourhood is bounded by the VIA Rail train tracks to the north, to the south the Thames River, by an arterial road to the east, and a highway to the west.

The neighbourhood has a reputation for being rough: stories from long-time residents of needle-littered roads, prostitutes on each corner, and riff raff wandering about are common of this area. A common acronym EOA (East of Adelaide) is defined by the street that runs north-south and bounds the western border of Hamilton Road neighbourhood. The name is colloquially used to refer to the rough side of town in London.

The sense of the place in Hamilton Road today is much different; still rough around the edges, but there is a sense of community. There may be a concentration in the area of the low income, minimally educated portion of London's population, but it also has a high rate of home owners, a sign that people are willing to care for the place, giving the neighbourhood a sense of stability.

The often mentioned locus of London as a "forest city" and also as an art hub are crystallized in the neighbourhood of Hamilton Road. London's two art schools Lester B. Pearson School for the Arts and HB Beal Secondary School are both located in and near Hamilton Road area and fuel the future of the art community. Scattered public art in



Figure 2-20 (Above) Diagram of bounding primary elements of Hamilton Road area, London, Ontario. The railway is in red, the river in blue, main roads in orange, and Hamilton Road is highlighted in white.

Figure 2-21 (Opposite) Lyrics to the song E.O.A. by Bobnoxious, a local band

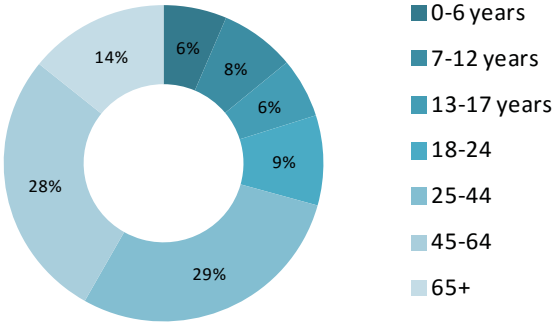
Domestic dispute just an old hat, routine
Always cops making stops, never ending
Skill saw ripping, there's a smell in the air
While the neighbour is quite entertaining.
Couches on the front porch — E.O.A.
Old abandoned shopping carts — E.O.A.
Don't worry how your yard is looking
It's OK — E.O.A
Sidewalk spitters, cars are racing the streets
At the corners your crack and your hookers
Blue-box sifters, beggars, drunkards and thieves
Bicycles towing homemade trailers
Couches on the front porch — E.O.A.
Old abandoned shopping carts — E.O.A.
Don't worry what your neighbours thinking
It's OK — E.O.A . . . everyday
Sirens in, sirens out. Sirens screaming about
While everyone is sleeping
Sirens in, sirens out. Sirens screaming about
While everyone keeps drinking
Couches on the front porch — E.O.A.
Old abandoned shopping carts — E.O.A.
Don't worry 'bout the tire fire
It's OK — E.O.A . . . everyday
Tree trunk carvings, only two liquor stores
Topless Tuesdays, empties, cold beer.
Old bars, scrap yards, stop for the train
I should know cause it's home
And I live here

the form of carved tree trunks is a testament to the value of art to the neighbourhood and to its residents.

A general sense of a community trying to better itself can be felt through all initiatives in the area. The Carolinian food forest for example is a project unique to the Hamilton Road area. It is an experimental forest focused on growing plants that are consumable, in a way that mimics a natural self-sustaining ecosystem. The busy community garden, the food forest, and the profile of food retailers in the area speak to the community's desire for a good quality, fresh food source. This is not surprising, given the local seniors' living residence dedicated to preserving Italian culture; the Slow Food Movement began in Italy after all.

Art, food, a sense of conviviality, and a preservation of tradition, these are the qualities that characterize Hamilton Road and make it an ideal site for an urban agricultural design intervention.

Hamilton Road Area



City of London

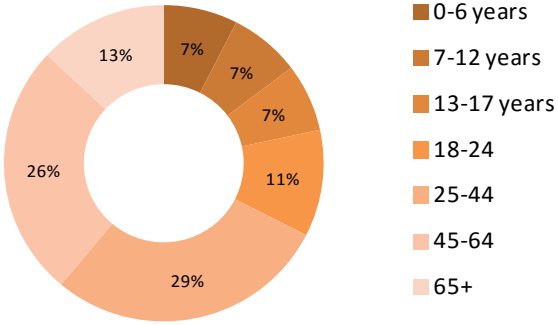
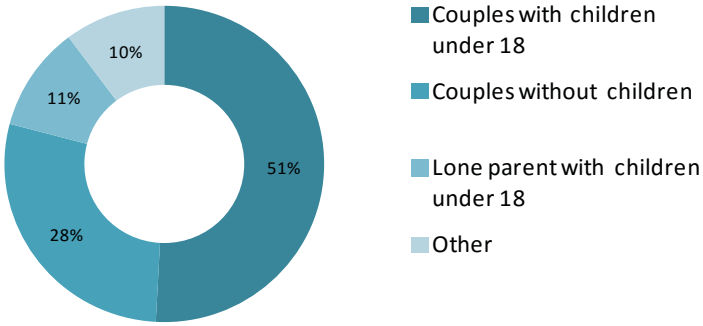


Figure 2-22 (Above) Age structure of Hamilton Road residents compared to London.

The age structure of Hamilton Road doesn't differ much at all from that of London. Both London and Hamilton Road have a relatively typical age distribution with magority over 45 years old, and a relatively equal distribution of youth and adults.



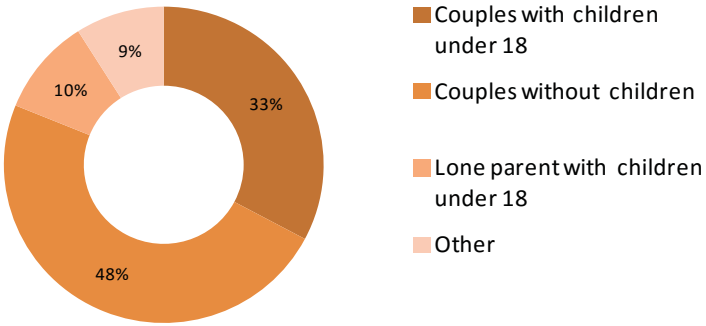
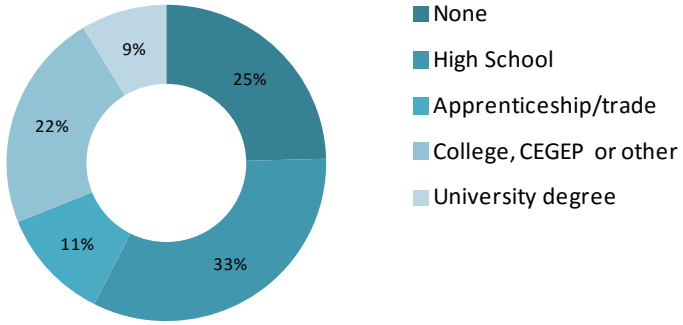


Figure 2-23 (Above) Family structure of Hamilton Road residents compared to London

Hamilton Road has a significantly higher percentage of families with dependent children and significantly fewer couples without children compared to the rest of the City of London. This shows that people who live in Hamilton Road are generally more family oriented.

Hamilton Road Area



City of London

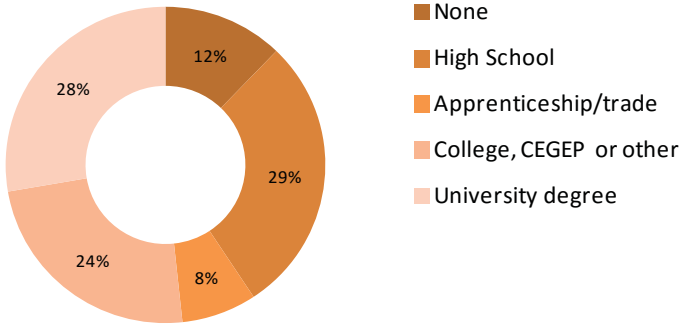
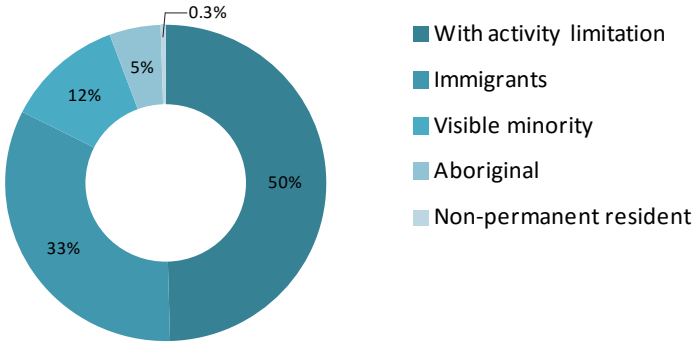


Figure 2-24 (Above) Education level of Hamilton Road residents compared to London

Compared to London, Hamilton Road residents are much less educated. A much smaller percentage of Hamilton Road residents have a university degree, and a much higher percentage of residents lack even a high school diploma. This could be attributed to the difference in incomes; Hamilton Road residents cannot afford university.



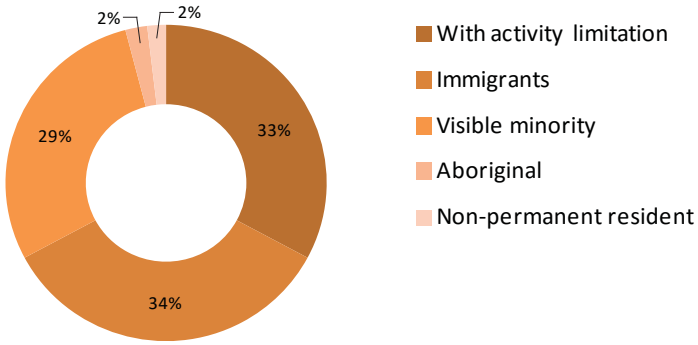


Figure 2-25 (Above) Population groups of Hamilton Road residents compared to London

Hamilton Road has a much lower percentage of visible minority and also has a much higher percentage of people with activity limitations. This is one reason why Hamilton Road offers its residents many different social assistance programs.



Figure 2-26 (Above) Dwelling ownership of Hamilton Road residents compared to London

The home ownership rate is much higher in Hamilton Road compared to London. This statistic demonstrates the residents' long term commitment to Hamilton Road, despite their lower average annual income, indicated in the graph below.

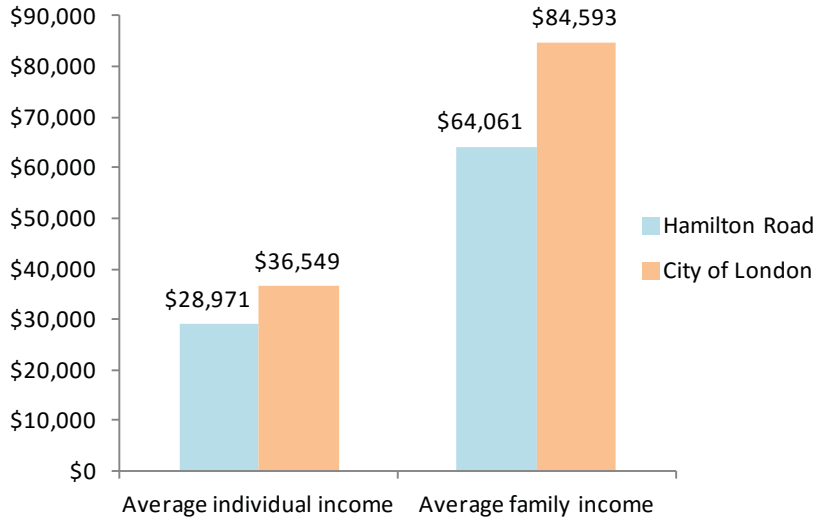


Figure 2-27 (Right) Average incomes of Hamilton Road residents compared to London.

The residents of Hamilton Road subsist on significantly lower average individual and family incomes compared to the City of London.

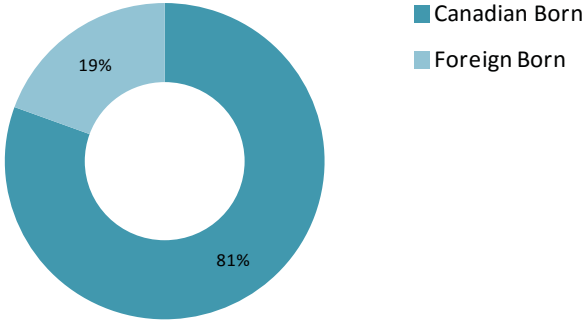


Figure 2-28 (Above left) Immigration of Hamilton Road residents

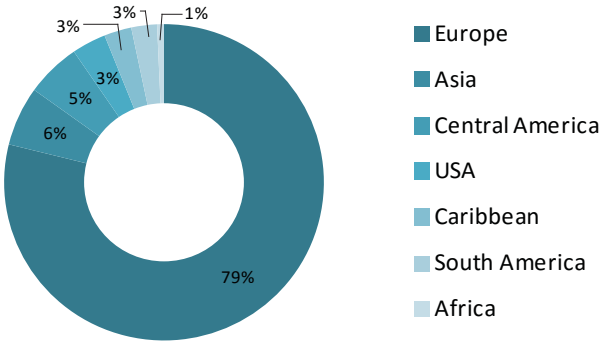


Figure 2-29 (Above right) Immigrant place of birth of residents

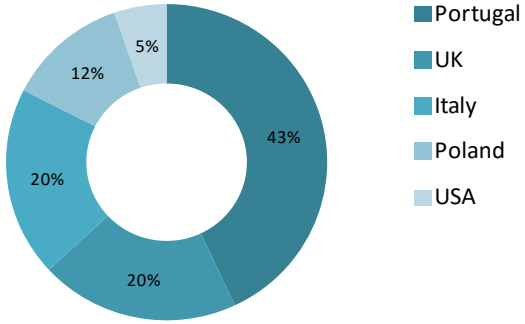


Figure 2-30 (Above) Top 5 Origins of Immigrants

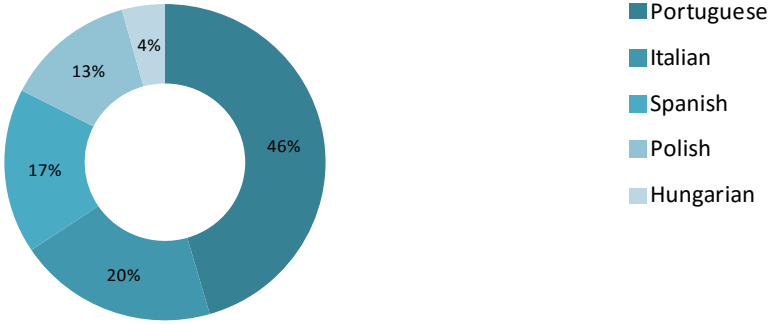


Figure 2-31 (Above) Top 5 Non-official languages spoken by residents

Land Use in Hamilton Road

Land in Hamilton Road is dominated by residential use. Forty-three percent of the land is single family homes and duplexes. These low density residential areas are described in detail in the photo essay in the last pages of this chapter. Only a mere two percent of Hamilton Road is medium density residential—townhomes and three storey walk-ups.

Four percent of land is zoned as commercial space. The major concentration of that four percent is located directly on Hamilton Road. This commercial zone is comprised of a variety of commercial bussiness types such as car mechanics, various shops and restaurants, service type businesses such as dentists, hair salons, plenty of convenience and thrift stores and vacant storefronts. Moving east from the commercial area on Hamilton Road, there is another collection of commercial buildings at the intersection of Highbury Avenue and Hamilton Road where the largest concentration of fast food and chain businesses exist. The largest pocket of commercial space in terms of area is located at the intersection of Clarke Road and Gore Road, which is comprised of a plaza that is rarely busy, car dealerships, and greenhouses.

Twenty-seven percent of Hamilton Road is open space, most of which is municipal parks located on the banks of the Thames River. Parks provide a multiplicity of amenities such as playgrounds, sports fields, pathways for walking and cycling, and disc golf courses.

Industrial space occupies twenty-four percent of Hamilton Road, most of which is located next to the railway to the north or in east Hamilton Road, where there are many car-related industries such as car wreckers and recycling lots.

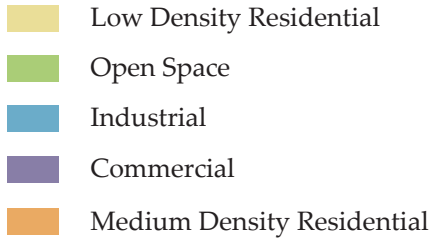


Figure 2-32 (Opposite) Land use map of Hamilton Road, London, Ontario


LITTLE SIMCOE ST
RECTORY ST
EGERTON ST
PINE ST
HUME ST
TRAFALGAR ST
HIGHBURY AVE N
HALE ST
TWEEDSMUR AVE
MANITOULIN DR
GORE RD
CLARKE RD
RIVER RD
SCANLAN ST
VETERANS MEMORIAL PKWY
ADELAIDE ST
HAMILTON RD
HAMILTON RD
HAMILTON RD

West Versus East: Two Streetscapes

Taking a drive down Hamilton road from Adelaide Road to where Hamilton Road crosses the Thames, you will experience the gradual transition from an urban setting to a suburban setting, to a peri-urban setting. The urban fabric of Hamilton Road changes gradually from East to West. Because of these transitions in the urban fabric, I have sectioned the Hamilton Road neighbourhood in two, West and East, for analytical purposes. The transition from urban to suburban clearly happens at the north-south running Highbury Avenue, the bounding road on the right for West Hamilton Road. West Hamilton Road is shown in blue in the diagram.

West of Highbury Avenue the urban fabric is characteristically pre-war: rectilinear roads with largely single family homes on small, long and narrow lots.

East of Highbury Avenue, the urban fabric is not as easily described: large areas of post-war suburban housing with multi-family residential buildings popping up irregularly, as well as peri-urban areas characterized by an odd clash of single family homes on small lots and modest estate homes on large properties with large expanses of undeveloped land and car wreckers' lots.

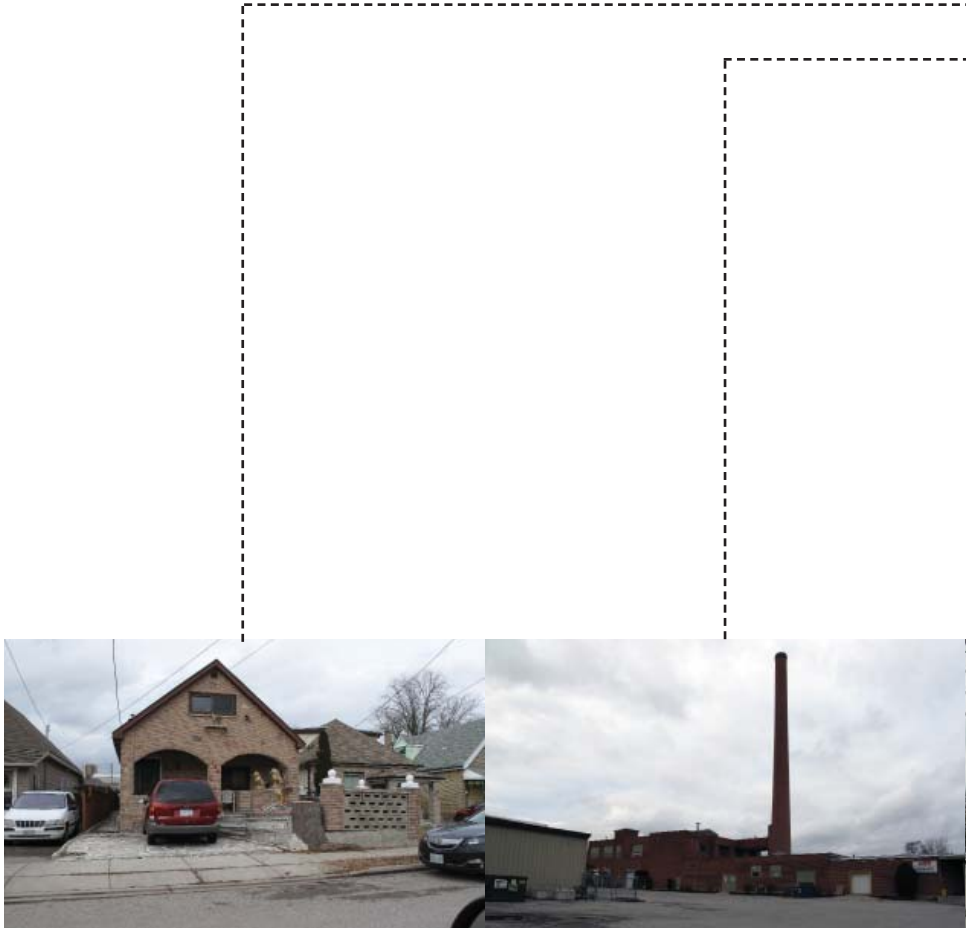


Figure 2-33 (Opposite Top) Key map of West Hamilton Road
Figure 2-34 (Above) Photo montage of West Hamilton Road








Imperio


USED APPLIANCES



Figure 2-36 (Above) Photo montage of Hamilton Road/Highbury Avenue intersection, Hamilton Road's busiest and most prominent intersection.

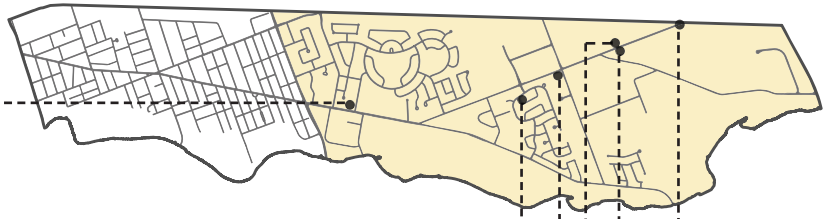


Figure 2-35 (Above) Key map of Hamilton Road/Highbury Avenue intersection.





Figure 2-37 (Opposite Top) Key map of East Hamilton Road
Figure 2-38 (Above) Photo montage of East Hamilton Road











Character of Hamilton Road's Residential Areas: A Photo Essay

What follows is a comprehensive photo documentation of the normalcies and peculiarities of the Hamilton Road neighbourhood. Much of the commercial character has already been described in the previous maps and accompanying photos. This section focuses on describing, through photos, the low density residential area that dominates as the largest use of land in Hamilton Road. Low density residential single family homes are the focus area of the design portion of this thesis, and this photo essay illustrates the charater of the area of implementation.

Circles on the key map represent a sampling of the main residential zones and a few other areas of interest within Hamilton Road.

Figure 2-39 (Opposite) Key map of areas of interest focused on in the photo essay overlayed onto land use

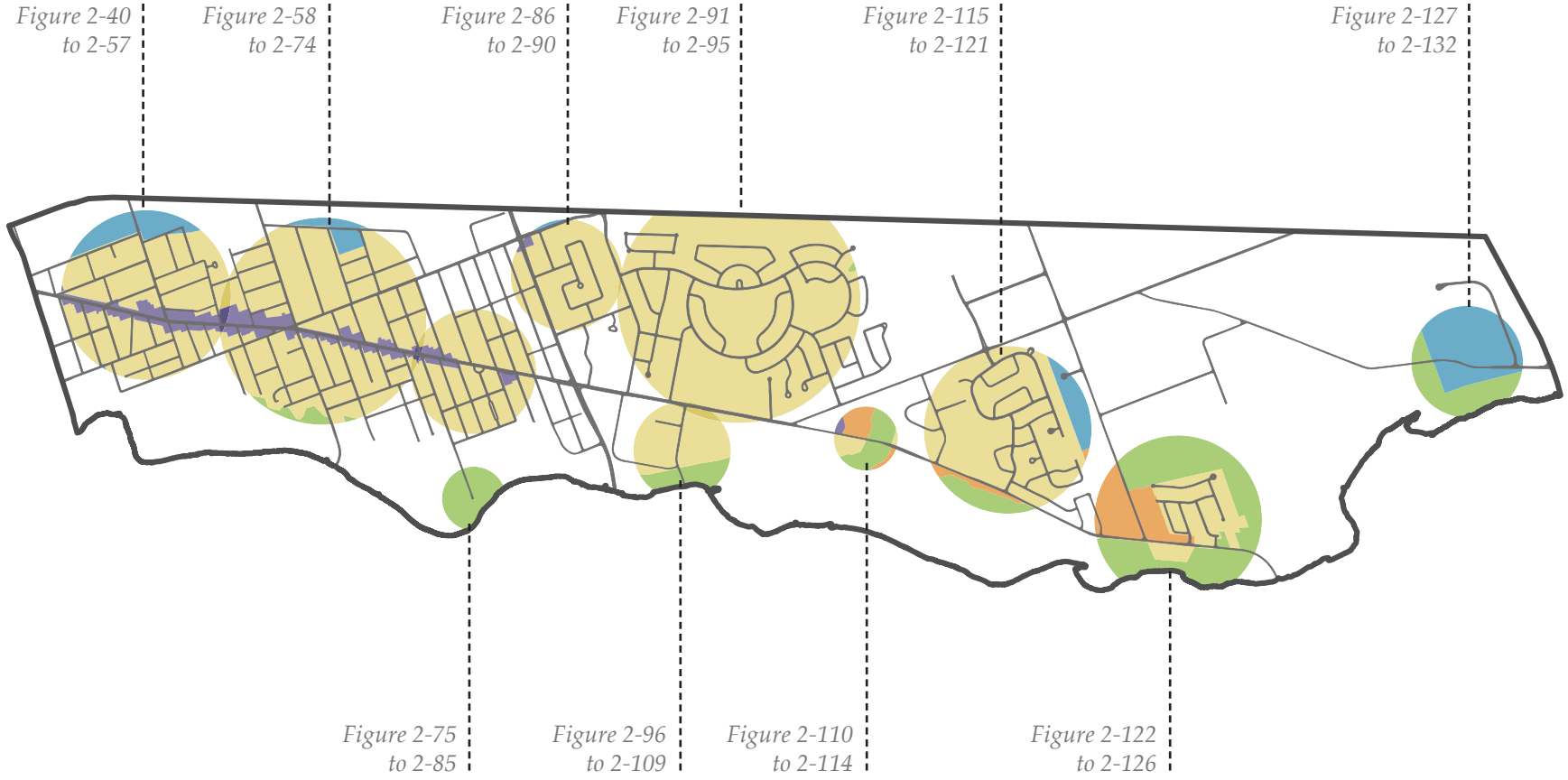

Figure 2-40 to 2-57
Figure 2-58 to 2-74
Figure 2-86 to 2-90
Figure 2-91 to 2-95
Figure 2-115 to 2-121
Figure 2-127 to 2-132
Figure 2-75 to 2-85
Figure 2-96 to 2-109
Figure 2-110 to 2-114
Figure 2-122 to 2-126





Figure 2-40 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-41 (Top left) Photo of colourful houses typical of pre-war Hamilton road.



Figure 2-42 (Bottom left) Photo of typical houses with barn-style roof.



Figure 2-43 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-44 (Right) Photo of large corner lot house, a repeated building type throughout West Hamilton Road.



Figure 2-45 (Top left) Photo of newer houses usual of this area of Hamilton Road.



Figure 2-46 (Bottom left) An overgrown vacant lot, an uncommon sight given the level of development in West Hamilton Road.

Figure 2-47 (Top right) Typical repeated house type featuring a porch,commonly seen in West Hamilton Road.



Figure 2-48 (Below) Typical repeated house type with an inset threshold, and usually detailed brick or woodwork.





Figure 2-49 (Left) The industrial zone adjacent to the residential zone.

Figure 2-50 (Below) A variety of typical house types on the same sreet.





Figure 2-51 (Top right) Identical house type lining both sides of Little Simcoe Street.



Figure 2-52 (Bottom right) One of only a few medium density residential buildings in Hamilton Road.



Figure 2-53 (Top left) Variations on the same house type.



Figure 2-54 (Bottom left) Typical houses sit at an angle on Hamilton Road.



Figure 2-55 (Above) Multi-unit corner building with an old church and a house in the background.



Figure 2-56 (Above) An abandoned house, an unusual sight in the Hamilton Road neighbourhood.



Figure 2-57 (Above) An unusual house converted from a church.





Figure 2-58 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-59 (Top left) A heavily treed residential street.



Figure 2-60 (Bottom left) House on a corner lot with large fenced yard.



Figure 2-61 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-62 (Top right) Typical two storey house types.



Figure 2-63 (Bottom right) Two storey house with intricate wood work typical of the area.



Figure 2-64 (Top left) Street view, a mixture of traditional house types and newer bungalow-style houses.



Figure 2-65 (Top right) Intricate wood work around two bay windows.



Figure 2-66 (Bottom left) Bright orange berries grafted onto a pear tree.



Figure 2-67 (Top right) A typical house retrofitted with solar panels.



Figure 2-68 (Bottom right) A view down the Egerton Street bridge and pathway.





Figure 2-69 (Top right) Typical house with intricate masonry.

Figure 2-70 (Top left) Unusual houses in a variety of colours and sizes.



Figure 2-71 (Bottom left) Unusually narrow, colourful homes across from train yard.



Figure 2-72 (Top left) Car seats on the front porch.



Figure 2-73 (Top right) Street view.



Figure 2-74 (Bottom right) Corner building similar to others in the neighbourhood.





Figure 2-75 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-76 (Top left) Modest-sized houses in the area.



Figure 2-77 (Bottom left) Street view of modest-sized houses.

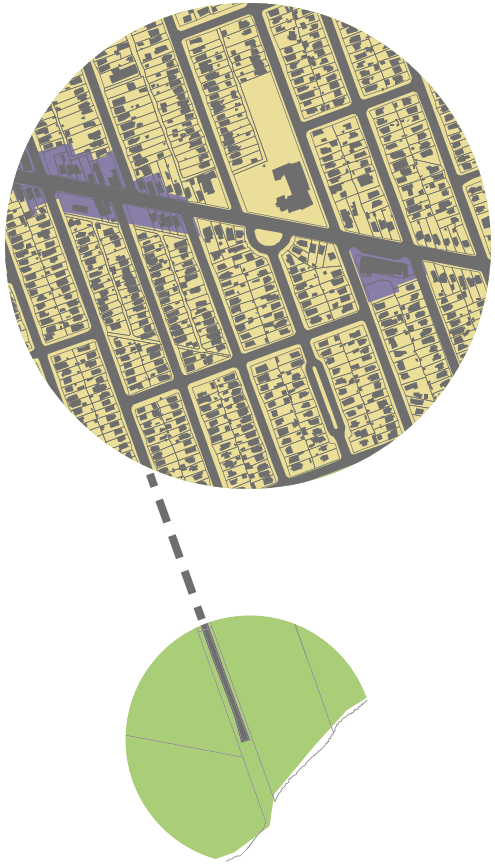


Figure 2-78 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-79 (Top right) Houses on Egerton Street looking south.



Figure 2-80 (Bottom right) Houses on Egerton Street looking north.



Figure 2-81 (Top left) Typical house on Egerton Street.



Figure 2-82 (Bottom left) Small apartment building in the area.



Figure 2-83 (Top left) St. Julien Park sign.



Figure 2-84 (Top right) View of the Thames River from the pathway through St. Julien Park.



Figure 2-85 (Bottom right) A seldom occupied skate park near St. Julien Park.





Figure 2-86 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-87 (Top left) View down the street in a newer suburb in East Hamilton Road.



Figure 2-88 (Bottom left) Large homes in the area.

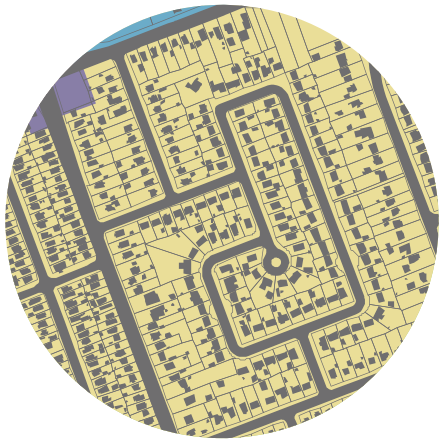


Figure 2-89 (Above) Enlarged land use map showing building footprints and land parcels.

Figure 2-90 (Below) Panorama of Fairhaven Circle lined with bunaglows.



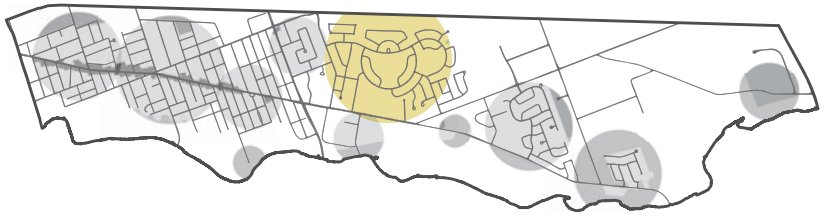


Figure 2-91 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.



Figure 2-92 Residential street view lined with bungalow type houses.



Figure 2-93 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-94 (Top right) View down the curved suburban street.



Figure 2-95 (Bottom right) View of a bus stop in front of a hydro corridor.





Figure 2-96 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-97 (Top left) Multi-unit residential building.



Figure 2-98 (Bottom right) A privately owned tree trunk carving decorating a front yard.

Figure 2-99 (Bottom left) This peri-urban street view lacks curbs and a sidewalk.





Figure 2-100 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-101 (Top right) Typical house in a peri-urban area.



Figure 2-102 (Bottom left) A house on a large estate near the river.



Figure 2-103 (Bottom right) Gates to the large estate.





Figure 2-104 (Top right) A train caboose sitting in a backyard.

Figure 2-105 (Top left) A wide hydro corridor through the peri-urban residential area.



Figure 2-106 (Bottom left) Long grassy meadow behind residential backyards.



Figure 2-107 (Top left) Heart graffiti on the Meadowlily Bridge.



Figure 2-108 (Top right) The green trusses of the historical Meadowlily Bridge.



Figure 2-109 (Bottom right) Lily pads floating on the Thames River.





Figure 2-110 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-111 (Top left) One of the highest density residential complexes in the Hamilton Road neighbourhood.



Figure 2-112 (Bottom left) House on Hamilton Road with an unusual masonry driveway.

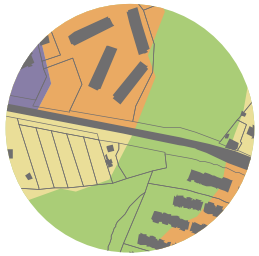


Figure 2-113 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-114 (Top right) View down the multi-use path into Pottersburg Park.



Figure 2-115 (Bottom right) Sign for Pottersburg Park.





Figure 2-116 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-117 (Top left) House in a suburban development.



Figure 2-118 (Bottom left) Suburban street view.



Figure 2-119 (Bottom right) Sign for East Park water park.



Figure 2-120 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-121 (Top right) Water slides of East Park.



Figure 2-122 (Bottom right) Houses on Hamilton Road.





Figure 2-123 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.

Figure 2-124 (Top left) New large houses on a cul-de-sac.



Figure 2-125 (Bottom left) Street view of new residential development on the outskirts of Hamilton Road.



Figure 2-126 (Above) Enlarged land use map showing building footprints and land parcels.

Figure 2-127 (Below) Panorama of entrance to suburban development.





Figure 2-128 (Above) Key map of residential zone of Hamilton Road from which the following photos are taken.



Figure 2-129 (Middle right) Pear tree on residential estate.

Figure 2-130 (Below) Panorama of peri-urban estates.



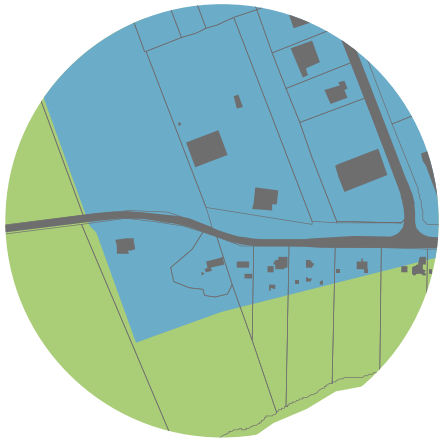


Figure 2-131 (Above) Enlarged land use map showing building footprints and land parcels.



Figure 2-132 (Bottom left) Golf clubhouse on outskirts of Hamilton Road.

Figure 2-133 (Bottom right) Overlooking the golf course toward the river.





Figure 2-134 (Above) Detailed map of Hamilton Rooad



3.0
Analysis

3.1 Yields, Metrics, and the Quantifiable

How to Measure Success

Agricultural yields are nearly impossible to predict accurately. Some variables, such as seed quality, are uncontrollable, and some, such as weather, are also unpredictable. So many variables, from farming methods to crop types, soil quality, care, pests, seed quality, weather and so on, make the equation for predicting yields complex.

Given this difficulty, it is precisely the fussing over quantitative yields that has gotten us into this food-rut, described in the introduction, that we find ourselves in today. The pressures, over the previous century, for farmers to produce higher yields is exactly why we have the contradictory nature of commercial agriculture today. For the sake of production and efficiency, farmers let their diversified farming practices disappear in favour of commodified mono-crop methods. They also began consolidating larger tracts of land to facilitate this new scale of industrial agriculture. By only focusing on one crop, and by farming much larger areas, they were able to streamline farming practices, increase yield and, ultimately, revenue. In the end, the surplus of cash crops like corn led to government subsidization of farming, and the addition of processed food substances from corn in a wide range of food products. If not by yield, though, how is a farmer in today's marketplace to measure the success of their endeavors?

What this thesis proposes, as an alternative, is that the quality of food

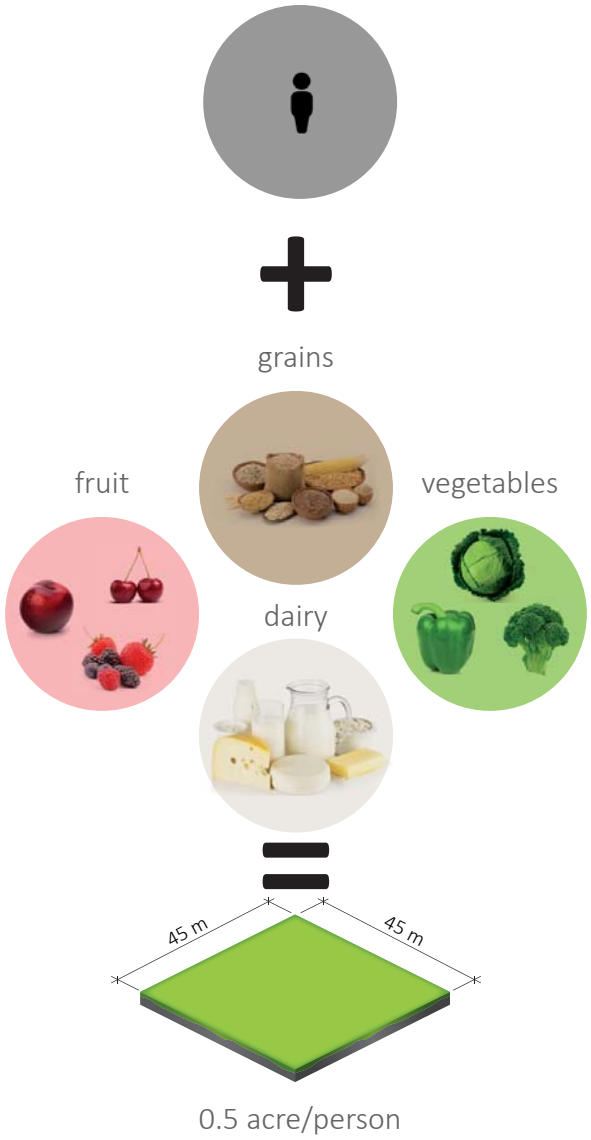


Figure 3-1 (Above) Method 1 as an illustrated diagram of space requirements for a complete vegetarian diet for one person

is a better measure of success than quantity. Instead of focusing on how many tomatoes can be grown on a plot of land, which ultimately leads to the question of how efficiently can that plot of land be farmed, the focus on how those tomatoes are being grown to minimize environmental impact should be of central importance. A focus such as how those tomatoes can replace at least a small part of our diet which is reliant on an unsustainable commercial food system needs to be examined. But without yield data, however, it is impossible to measure the impact of an alternate food system, and it is easy to pretend that you are making a difference. It is for this reason alone that some rudimentary tabulation of the quantitative outputs of urban agriculture is provided in the following sections.

Method 1: Minimum Yield per Acre per Person

According to *Land and Diet: What's the most land efficient diet for New York State?* from the Rural New York Minute, enough food can be grown for one person in approximately 0.5 acres or 2000 square meters. The report continues, "We compared 42 complete diets (2300 calorie/day) – all including the same NYS grown grains, fruits, vegetables, and dairy products, but varying in the amounts of meat and in the amounts of energy supplied by fats... A person following a low-fat vegetarian diet requires less than half an acre per year to produce the food required for their meals while a person consuming a low-fat diet with a lot of meat requires over 2 acres."[1] From these statistics, it is safe to suggest that one acre of farmed land can supply the dietary fruit and vegetable requirements for two people each year, in a case study like Hamilton Road.

Method 2: Canada's Food Guide and Calories

Canada's Food Guide suggests that adults consume approximately 8 servings of fruits and vegetables a day[2]. This equates to approximately 2 kg of fresh produce a day (1 serving = 1 cup (250g) x 8 servings/day = 2 kg/day), which means the average adult consumes approximately 730 kg (1600 lbs) of fruits and vegetables in a year. The *Urban Agriculture Feasibility Study for Youngstown, OH* report suggests that we can grow anywhere from 6,000 to 30,000 lbs of vegetables on 1 acre (depending on the chosen crop)[3] and the *Urban Farming Guide Book: Planning for the Business of Growing Food in BC's Towns & Cities* suggests that one acre can produce anywhere from 16,248 lbs of produce (a mixed crop of a variety of fruits and vegetables, as well as honey, eggs and lamb) to 31,689 (a selected variety of highly profitable crops)[4]. The average number of all these sources suggests that approximately 21,000 lbs of fresh produce can be grown on one acre. Using the amount of fruits and vegetables suggested by Canada's Food Guide, this would mean that one acre could supply the dietary fruit and vegetable requirements for up to 13 people (21,000 lbs/acre divided by 1600 lbs/person).

It should be underlined that Method 1 takes into consideration a complete vegetarian diet, which would require the growth of cereals, legumes, and possibly nuts and seeds too, as well as dairy and egg production. Dairy production in particular is quite space-intensive, potentially explaining the lower number of people supported as compared to Method 2. Method 1 proposes that the entire vegetarian diet of two people could be grown on one acre, where as Method 2 proposes that only one food group, fruit and vegetables, of the four in Canada's Food Guide, the other three being grain products, dairy,

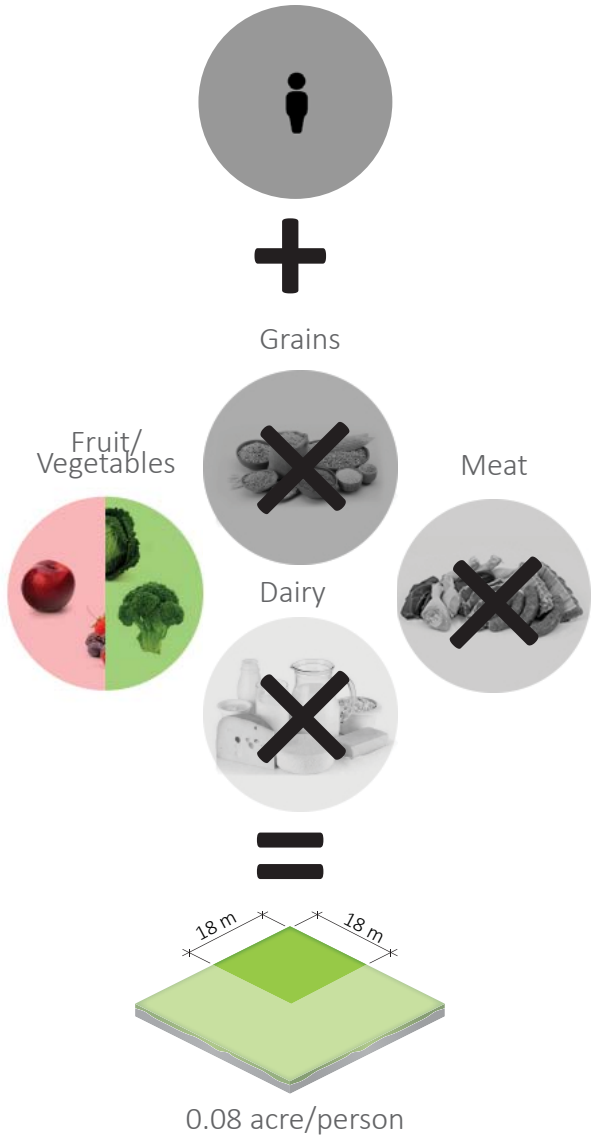


Figure 3-2 (Above) Method 2 as an illustrated diagram of space requirements for a partial diet of one omnivorous person

and protein. All four are needed for a complete diet and only fruit and vegetables would be grown on one acre in this method.

In the thesis case study, Method 2 could be considered more relevant to the chosen site because it assumes that meat is an integral part of our Canadian diet, and in general North American food trends show that we are eating more meat than ever before. Choosing Method 1, however, would be a more active alternative, suggesting that large portions, if not all of our diet, could be grown locally. There are many bad health as well as environmental impacts associated with eating meat. These impacts suggest that a more plant-based diet is a more sustainable diet. But social change must be implemented in small increments. It is unfair to suggest that everyone should wake up tomorrow a vegetarian. For this reason, the case study will use a number closer to Method 2 to compare the results, with the implication that crops can vary from year to year to suit people's changing diets, and the assumption that the alternative food system would intensify over time.

Yield is increasingly important, of course, once we start moving into conversations beyond supplementing our diets to replacing them entirely with locally grown food. Before our society had access to, and became so reliant on, imported non-seasonal food, it was imperative that families grew enough fresh food to eat, and had enough excess to store for the winter because it was a matter of survival. As much as this case study proposes becoming as independent as possible from the global food chain, it doesn't propose to abolish it altogether, for the present system acts as an important safety net if there was ever a bad local harvest.

It should be noted that the *Land and Diet* report also states that although "vegetarian diets requires less land than the meat diets, they do not necessarily feed the most people."[5] The report recognizes that food production is directly related to the quality of the soil; pasture to raise meat does not demand the high soil quality that is needed for fruits, grains, and vegetables to be grown. When determining efficiencies of food production, it is also important to determine the best use for the land based on soil type and quality.

The *Land and Diet* report also states, "A person following a low-fat vegetarian diet requires less than half an acre per year to produce the food required for their meals..."[6] It is important to understand that this doesn't necessarily mean that half an acre could support one person, but rather that every person requires about half an acre, so that 15,000 people (approximately the population of the study area) would require about 7,500 acres of land to be fed. Some food, like pasture for meat, grains, and legumes, are more efficient to grow at larger scales. You cannot reduce the size of a pasture below the requirements of one cow. Similarly, crops like grains and legumes are more effective at a larger scale because they are labour intensive and difficult crops to harvest without specialized machinery, and that necessary machinery is not efficiently scaled down to accommodate a single person's needs.

For the purposes of the Hamilton Road study, scaling down to the individual's needs should be feasible. The backyard, the individual plot, is well-suited to growing fruit and vegetable crops that do not demand economies of scale. An industrial farmer will make an argument that it is easier to grow and harvest a huge field of corn,

but the task can also be easily scaled down to an individual's needs. Growing and harvesting a few rows of corn for personal consumption is not that complicated.

Land requirements for a vegetarian diet are used not because this thesis supports vegetarianism, although the benefits of such a diet have been explored, but rather the research available for this scale focuses primarily on the production of plant crops. Food grown from plants is a more accessible means of food production for the average person and does not require much investment, which makes it a more suitable focus for the study area chosen.

3.2 Neighbourhood Analysis

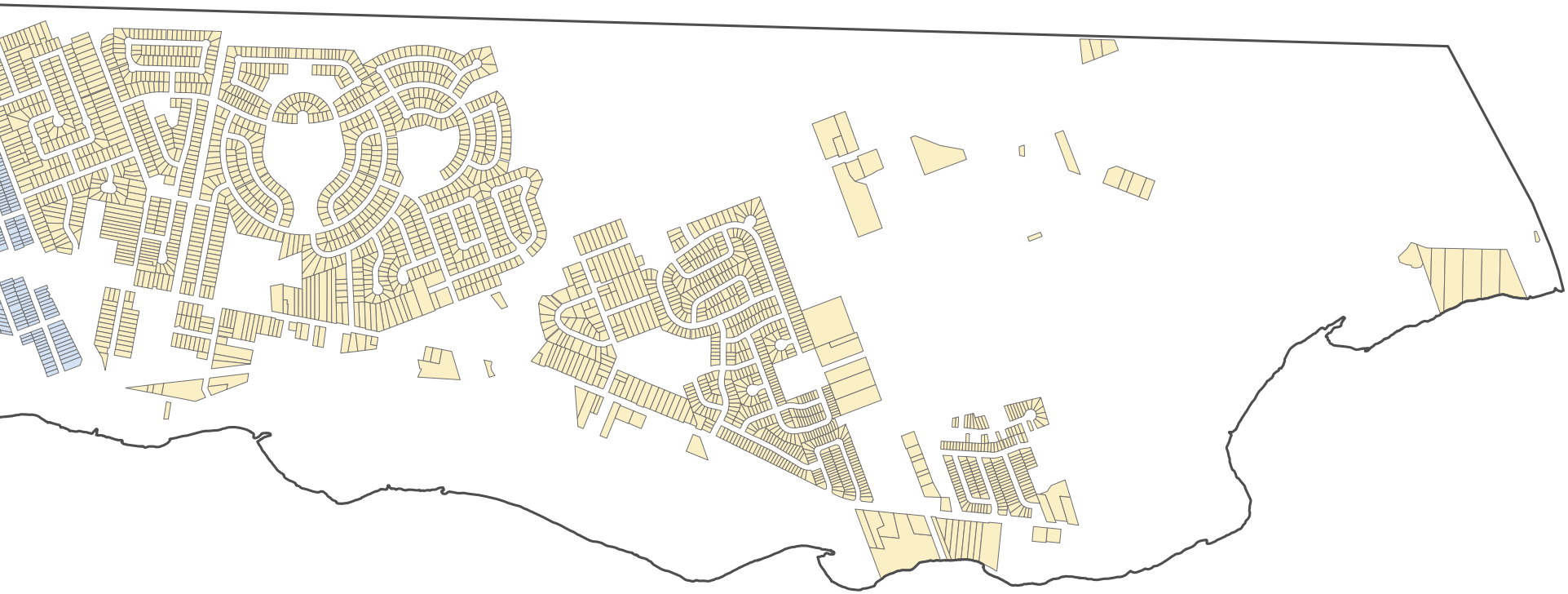
Potential for Urban Agriculture in Hamilton Road Area

In the previous chapter, it has been sufficiently determined that one acre is enough land to grow the fruit and vegetable components of an omnivorous diet for approximately 13 people. The Hamilton Road neighbourhood has 15,330 residents with an area of 2,783 acres, giving it a density of approximately 6 people per acre compared to all of London with a density of approximately 4 people per acre. Despite the neighbourhood's higher than average density, it boasts plenty of open areas where urban agriculture could take root. If the residents of the area wished to fully supplement the fruits and vegetables of their diet with local produce, approximately 42% of all the land area, which is equivalent to 1,170 acres, in Hamilton Road would have to be farmed. Of course that is not realistic in an urban setting, but how close could the residents of Hamilton Road come to achieving that target? This section of the thesis is an analysis of the free spaces within Hamilton Road as potential spaces for urban agriculture to determine how much food can actually be grown in the Hamilton Road neighbourhood.



Figure 3-3 (Above) All single family lots in Hamilton Road

Almost all of the residential buildings in Hamilton Road area are single family homes, with the exception of a handful of multi-residential buildings. As mentioned previously, West Hamilton Road is characterized by a pre-war urban fabric of single family homes on small, narrow lots, the average lot size of which is 310 square meters. Already subtracted from this number are the areas of the house and



any other buildings on the lot. 310 square meters is the area of the lot that remains consistent with the ground plane. Similarly, East Hamilton Road's characteristically larger lots are an average size of 595 square meters.

What this does not take into consideration, however, are areas that are not lawn, things like driveways, sidewalks, decks, and pools—areas that cannot be easily or desirably converted into gardens. Most laneways in Hamilton Road are the width of a single car, and they range from 10 meters from the house to the curb to 20 or more meters, reaching all the way to the backyard. Approximately 22 percent of the lot is occupied by the driveway. Not every house has a deck or a pool, but most lots probably have a section of lawn or garden that the residents would be unwilling to convert. An average area of 18 meters squared (derived from the average size of a typical deck spanning the width of the house) has been accounted for these unconvertible spaces, occupying approximately 6 percent of the lot, and another 2 percent has been allotted to account for sidewalks. In total, that means on average 30 percent of the lot is unavailable for gardening. This approximate percentage will be the same for East and West Hamilton Road, even though the example in Fig 3-5 illustrates a typical lot for West Hamilton Road. The assumption is that the larger lot sizes in East Hamilton road will also have larger laneways, larger decks, larger pools and more areas in general not suitable to be converted to gardens.

Residents of West Hamilton Road have a huge food resource literally in their backyards, and front yards should they be considered too, which are being recognized as prime growing spaces by many urban



Figure 3-4 (Above) Total potential area for urban agriculture in Hamilton Road

Figure 3-5 (Opposite) Space calculation for open arable land per lot



agriculturalists already. West Hamilton Road has a total of 220 acres of un-built residential lot area and East Hamilton Road has 350 acres, minus the 30 percent to account for un-gardenable areas, and the total approximate area suitable for converting to fruit and vegetable gardens is 400 acres.

Collectively, the front and backyards of the residential homes provide enough land to grow 34 percent of the entire neighbourhood's need for fruits and vegetables.

4.0
Design

4.1 Implementation

Encouraging Urban Agriculture to Happen

The following eleven steps are adapted from the 12 Steps in the Transition Process as printed in Designing for Urban Agriculture by April Philips, the original source is Transition Timeline: For a Local, Resilient Future.

1. Found a Committee
2. Raise Awareness
3. Networking
4. Go Public
5. Hold Public Meetings
6. Develop Practical Goals
7. Design a Supporting Local Infrastructure
8. Empower Community Members
9. Engage Local Government
10. Make it Multigenerational
11. Self-organizing System

1. Found a Committee - Homegrown Food Initiative of Hamilton Road

Invite key community members to become a core team to initially drive the project forward.

A committee is essential for starting the new initiative. They will be responsible for making important decisions during the early stages of the committee and, subsequently, they will be responsible for organizing and carrying out tasks for the initiative.

Every new initiative needs a logo to represent the cause they support. The logo serves as a visual icon for the committee that can be recognizable to the public. A logo was designed for the thesis case study on Hamilton Road so that it could be used for many applications, such as reuseable grocery bags, signage and flyers, website design, stickers etc.



Figure 4-1 (Above) Home Grown Food Initiative logo
Figure 4-2 (Opposite top left) Logo application for produce sticker
Figure 4-3 (Opposite bottom left) Logo application for bumper sticker
Figure 4-4 (Opposite right) Logo application on reuseable shopping bag


HOME GROWN
FOOD INITIATIVE


HOME GROWN
FOOD INITIATIVE


HOME GROWN
FOOD INITIATIVE

2. Raise Awareness

Spread the word of the launch of the initiative to local community members.

The poster is designed to present information to the general public in a way that is easily accessible and readable. Information presented in the poster for Hamilton Road is based on the findings from the analysis section of this thesis. In that section, 21,000 pounds was used as an average amount of produce that could be grown on one acre. Based on this number, the pounds of produce able to be grown at the household and neighbourhood scale were calculated. Also from the analysis section, 1,600 pounds of produce per person yearly was calculated as the amount of fruit and vegetable intake recommended by Canada's Food Guide. This number was calculated to speculate on how many people could be fed by the potential produce grown in the neighbourhood.

The goal of the poster is not to pose realistic outcomes; the number of people that could be fed by the neighbourhood is based on a number of simplifying assumptions, such as the assumption that one hundred percent of the single family households in Hamilton Road participate in growing food. Rather, the goal of the poster was to show the maximum possible output of the neighbourhood to raise awareness that residents of Hamilton Road have access to potentially powerful resource.

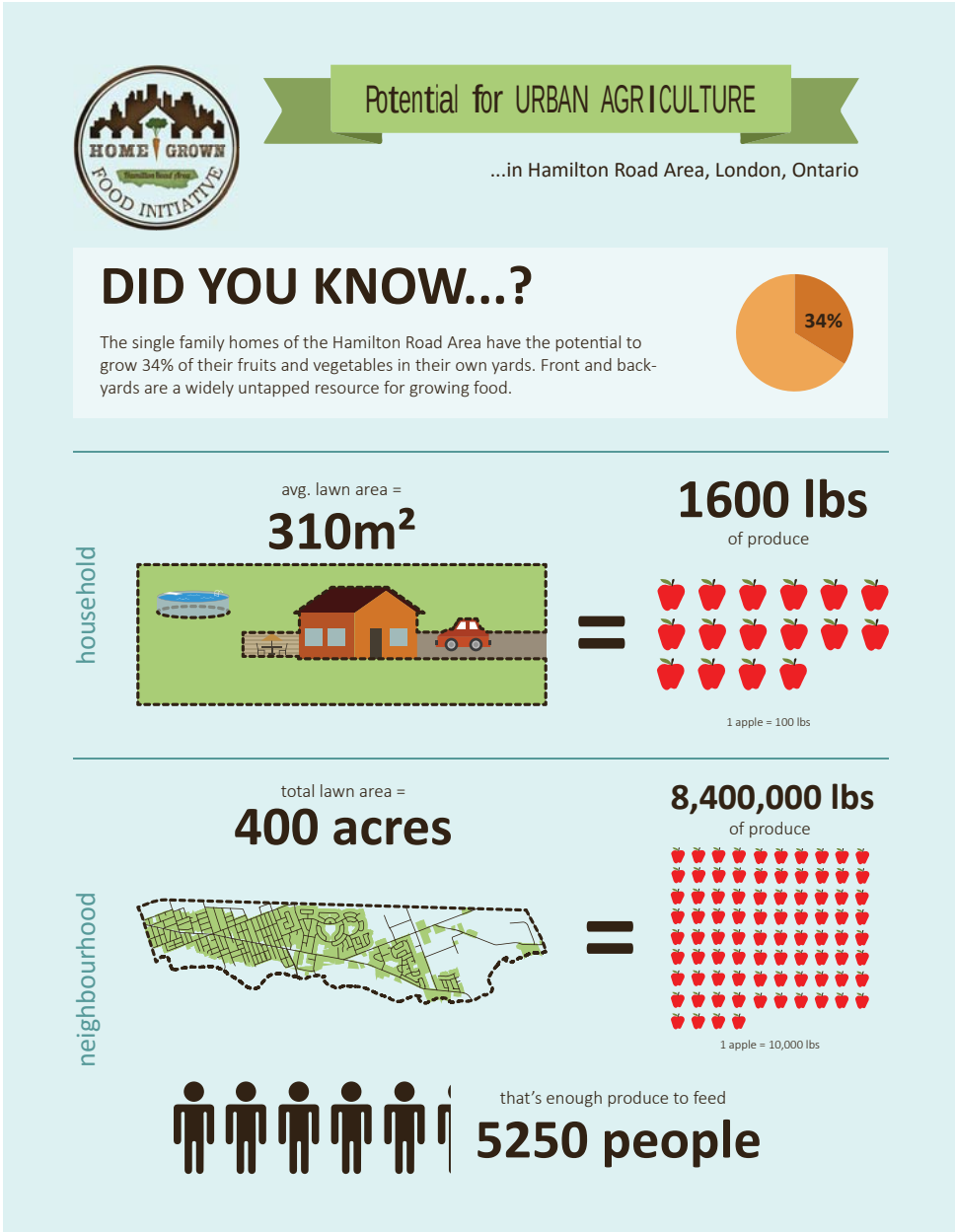


Figure 4-5 (Right) Infographic poster displaying quantifiable data specific to Hamilton Road regarding urban agriculture

3. Networking

Build partnerships with local organizations and businesses.

Partnerships are important for the success of the Hamilton Road initiative. This initiative should attempt to build partnerships in four sectors: groups and associations that serve the community, education, environment, and local businesses and economic enterprises. Ideally, such partnerships would be with local entities that have a vested interest in the neighbourhood because many of these associations already state an interest in food security in their mission statements. Partnerships with environmental organizations trying to reduce fossil fuel consumption, specific institutions within the neighbourhood, and local food-related businesses would also fit into the overall strategy of partnerships to pursue.

Official partnerships with city-wide entities is also inevitable because many of the local entities are subsidiaries of larger organizations. These types of organizations follow the same four categories of partnerships at the neighbourhood level. Many of the neighbourhood organizations are also affiliated with city-level organizations. Such partnerships also have the ability to help promote the initiative's expansion to other neighbourhoods within a city such as London, Ontario.

Provincial level organizations share many of the same goals, such as food security and environmental health, as the smaller organizations with which they are affiliated. Although Hamilton Road in London was chosen as an ideal site, many of the strategies of the Home Grown Food Initiative are highly transferable. Partnering with provincial level associations will provide the initiative with a bridge with the hope of one day translating its strategies to other cities.

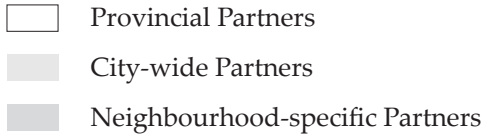


Figure 4-6 (Opposite) Network diagram of potential actors in an alternate food system


COMMUNITY
EDUCATION
ENVIRONMENT
ECONOMY
FoodNet Ontario
Grow Cook Learn
London Public Library
CROUCH
churches of Hamilton Road
schools of Hamilton Road
Residenza Italia
Italian Seniors' Project
HOME GROWN FOOD INITIATIVE
OHCC · CCSO
CAROLINIAN FOOD FOREST
parks of Hamilton Road
London Environmental Network
TREA
THE ROOT CELLAR
MARKETS
ORGANICS
ReForest London

4. Go Public

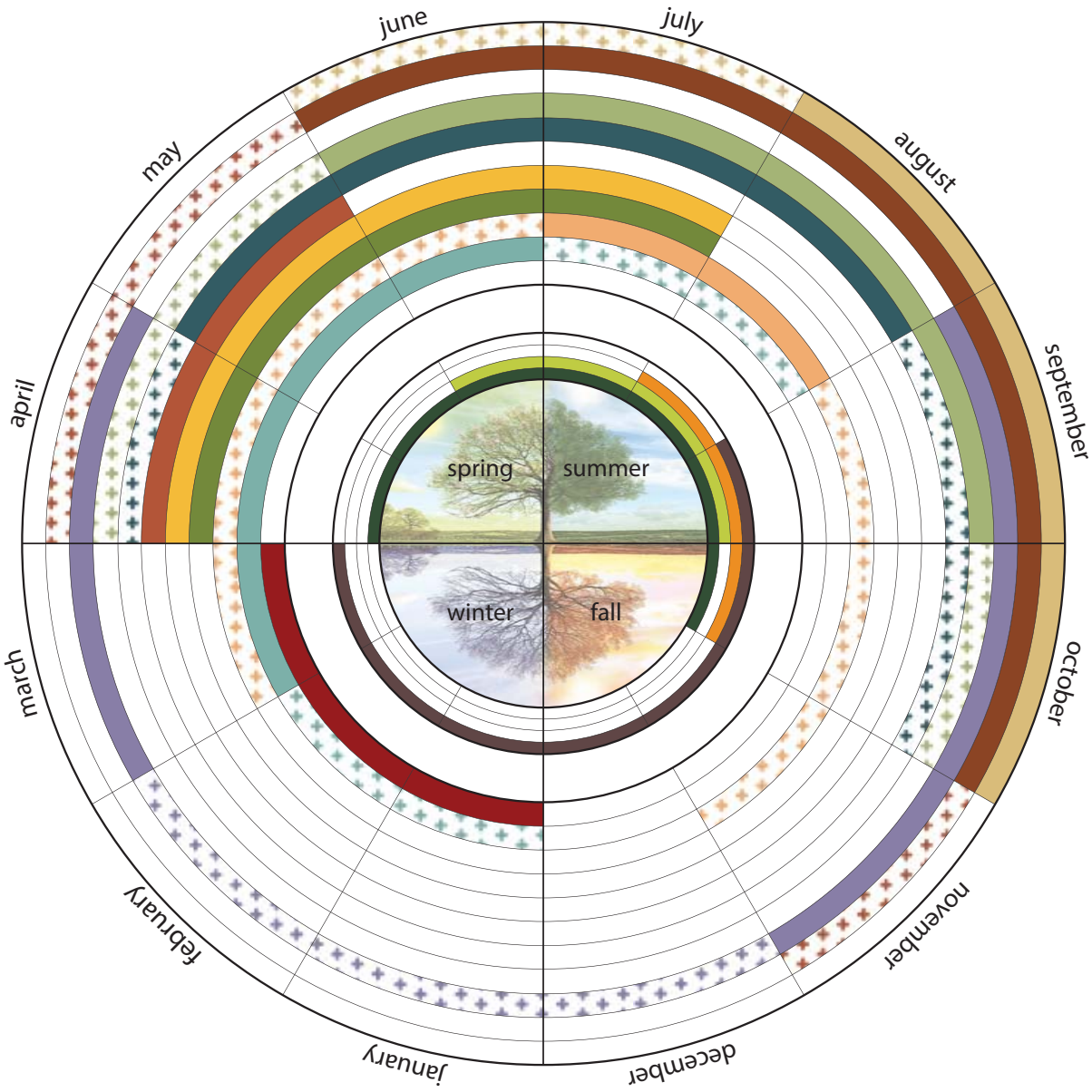
Hold a milestone event to announce the goals of the initiative.

A Year in the Life of an Urban Farmer

Before the urban agricultural movement of the Hamilton Road neighbourhood goes public, and before asking residents to sign up, they may be wondering exactly what might be involved if they choose to don the title of 'urban farmer'. To no fault of their own, many people have forgotten (or never had the opportunity to learn) what cultivating your own food involves. We are conditioned by easy acceptance of 'big ag', and supermarkets do not care about how far food has traveled to reach us. Eating locally, and therefore seasonally, does not factor primarily into their economic considerations. We have created a culture in which seasons may dictate how much clothing you should put on before stepping outside or what outdoor sports are being played, but they have little to do with influencing what we eat on a daily basis. Salad in winter, fine, butternut squash in spring, sure. We can have anything at any time of the year, as long as we're willing to pay the price. But if you think I'm referring to just a dollar value, we pay the price of any food anytime, anywhere, with many sacrifices. We sacrifice quality; food tastes better when picked and eaten at peak ripeness, instead of being picked unripe and traveling great distances. We sacrifice the environment in many ways, from the fossil fuels used to transport food, to the many environmental detriments caused by commercial agriculture. We sacrifice a peace of mind, not knowing how our food was grown or if the labourers were treated well and paid fairly.



Figure 4-7 (Opposite) Circular calendar of a year as an urban farmer


june
july
august
september
october
november
december
january
february
march
april
may
spring
summer
winter
fall

To avoid these sacrifices, but more importantly, to reconnect with the seasonal flow of life and food we need to "recover an intuitive sense of what will be in season throughout the year," as Barbara Kingsovler puts it in *Animal, Vegetable, Miracle*.

In order to do this, we can start simply by acknowledging the dominant crop type of each season. The inner four rings of the cyclical calendar represent the four crop types and when they are harvested and eaten throughout the year. Kingsolver uses the imaginary metaphor of a 'vegetannual' to explain this:

> *"… picture a season of foods unfolding as if from one single plant… We'll call it a vegetannual… Picture its life passing before your eyes like a time-lapse film: first, in the cool early spring, shoots poke up out of the ground. Small leaves appear, then bigger leaves. As the plant grows up into the sunshine and the days grow longer, flower buds will appear, followed by small green fruits. Under midsummer's warm sun, the fruits grow larger, riper, and more colorful. As days shorten into the autumn, these mature into hard-shelled fruits with appreciable seeds inside. Finally, as the days grow cool, the vegetannual may hoard the sugars its leaves have made, pulling them down into a storage unit of some kind: a tuber, bulb, or root."*

Of course the four crop types, leaves and stems, cabbages and legumes, fruit and seeds, roots and tubers, don't neatly coincide with the four seasons. Many leaf and stem crops, such as spinach and kale, can be harvested throughout the growing season, and into the winter if season-extending structures are used. But after a long, cold winter, they are only crop ready to be harvested as early as April, and one of the first crops likely to make an appearance at the local farmers' market. Then starts the slow incline of more and more harvestables, until the first frost, usually in September or October, when the natural life of almost everything in the garden comes to a close. After the ground freezes of course root vegetables and tubers are not being harvested, but are stored for the year, and make up a large portion of the locavore's diet. Hence, they are the dominant crop of winter. Kingsolver describes the cycle of a garden throughout the year:

> *"So goes the year. First the leaves: spinach, kale, lettuce, and chard (here that's April and May). Then more mature heads of leaves and flower heads: cabbage, romaine, broccoli, and cauliflower (May-June). Then tender young fruit-set: snow peas, baby squash, cucumbers (June), followed by green beans, green peppers, and small tomatoes (July). Then more mature, colorfully ripened fruits: beefsteak tomatoes, eggplants, red and yellow peppers (late July–August). Then the large, hard-shelled fruits with developed seeds inside: cantaloupes, honeydews, watermelons, pumpkins, winter squash (August–September). Last come the root crops, and so ends the produce parade."*

Once the tentative urban farmer is reacquainted with the seasonal flow of food, he or she may wonder what implications this has on tasks and commitment throughout the year. The next eleven rings in the cyclical calendar are a simplified explanation of what an urban farmer might be occupied with in any given month.

Launch of HGFI (Home Grown Food Initiative) Event

The launch of the HGFI would coincide with the beginning of the growing season as well as announcing the goals of the initiative to the public. This event would be a good opportunity to hand out free promotional seed packets to interested members of the neighbourhood to promote the initiative and raise awareness. The reusable shopping bags (Fig 4-4) could also be available at this event. This would be a one-time milestone event to mark the launch of the HGFI.

Home Grown Food Festival

The Home Grown Food Festival is Hamilton Road's second milestone event, held during peak vegetable season to celebrate the abundance of the first season of the Home Grown Food Initiative. This event is proposed as a recurring annual festival for the Hamilton Road Neighbourhood. The city of London, Ontario is well known for its many festivals that occur all summer long: Sunfest, Rib Fest, Balloon Fest . . . the list goes on. Most, if not all, of these events are held either in London's well known Harris Park or the centrally located Victoria Park. They attract crowds of locals and out-of-town visitors to the heart of the city and the nearby businesses. Many of these festivals are popular events for local artists to set up displays of their work, and for live music. An event like this in the Hamilton Road area could be used to boost the neighbourhood's economy, spread the limelight to local artists, and liven an otherwise struggling area of the city.



Figure 4-8 (Above) Vignette of the Home Grown Food Festival event

5. Hold Public Meetings

Engage the collective genius of the community by inviting them to participate in meetings.

By engaging the residents of Hamilton Road from the beginning, their wisdom and intimate knowledge of the place, and their interests can inform the decision making process. Engaging the community is important because they will inevitably be the caretakers and stewards. Their invested interest in the vision of an alternative urban agricultural system for Hamilton Road will ensure that they have a desire to look after it.

The neighbourhood residents would inform the committee on specific resources they would find useful, and the best format and way of accessing those resources. They would help the committee determine the best allocation of funds and efforts towards resource acquisition. These resources could range from community programs, to workshops and learning seminars, tools, seeds, garden starter kits, and volunteer labour for fundraising and other events. The resources acquired should respond to the specific needs and demands from the community.



Figure 4-9 (Above) Public meeting to discuss initiative goals

6. Develop Practical Principles

Guide future decision making processes by writing a set of governing principles.

Biodiversity

- Diversity of plants and animals will be encouraged to prevent stress on ecological capacity caused by monocultures
- Ecosystems will be cultivated where one organism's waste can feed another organism, creating a closed loop system

Conviviality

- Foster friendly interaction between individuals in a society where people increasingly feel lonely, disconnected, and anonymous

Cultural Growth

- Collaboration with the rich arts community in Hamilton Road will be pursued
- Sharing of knowledge will intrinsically happen provided a diversity of people are encouraged and enabled to participate
- Establish a food culture based on local, seasonal, healthy eating

Eco-Literacy

- The goal is to promote an understanding of the relationship between human and ecological health to increase each person's competence, control, and initiative surrounding their food choices

Economic Equity

- The goal is not to produce food that is considered expensive, or is grown for a niche market, but rather a system that promotes food availability and attainability for everyone

Ethnic Diversity

- Acknowledge the ethnic diversity of Hamilton Road by encouraging food to be grown that will sustain a range of ethnic diets, provided it is appropriate to grow in the local climate

Landscape Regeneration and Improvement

- Growing food in a way that doesn't strip the land of its natural resources, but also in a way that improves the quality of the soil
- Creating more meaningful green spaces in the city to promote the positive effects of biophilia

Social Capital

- The co-operation of individuals and groups from a range of demographics will enrich social interaction within the community, providing a sense of belonging and purpose

Quality Food

- The focus will always be on the quality, not the quantity, of food grown, and the sustainability of the growing practices

7. Design a Supporting Local Infrastructure

Design a network of amenities to support the uptake of urban agriculture by using the guiding principles and implementing the network of potential partners.

Supporting Infrastructure Network Map

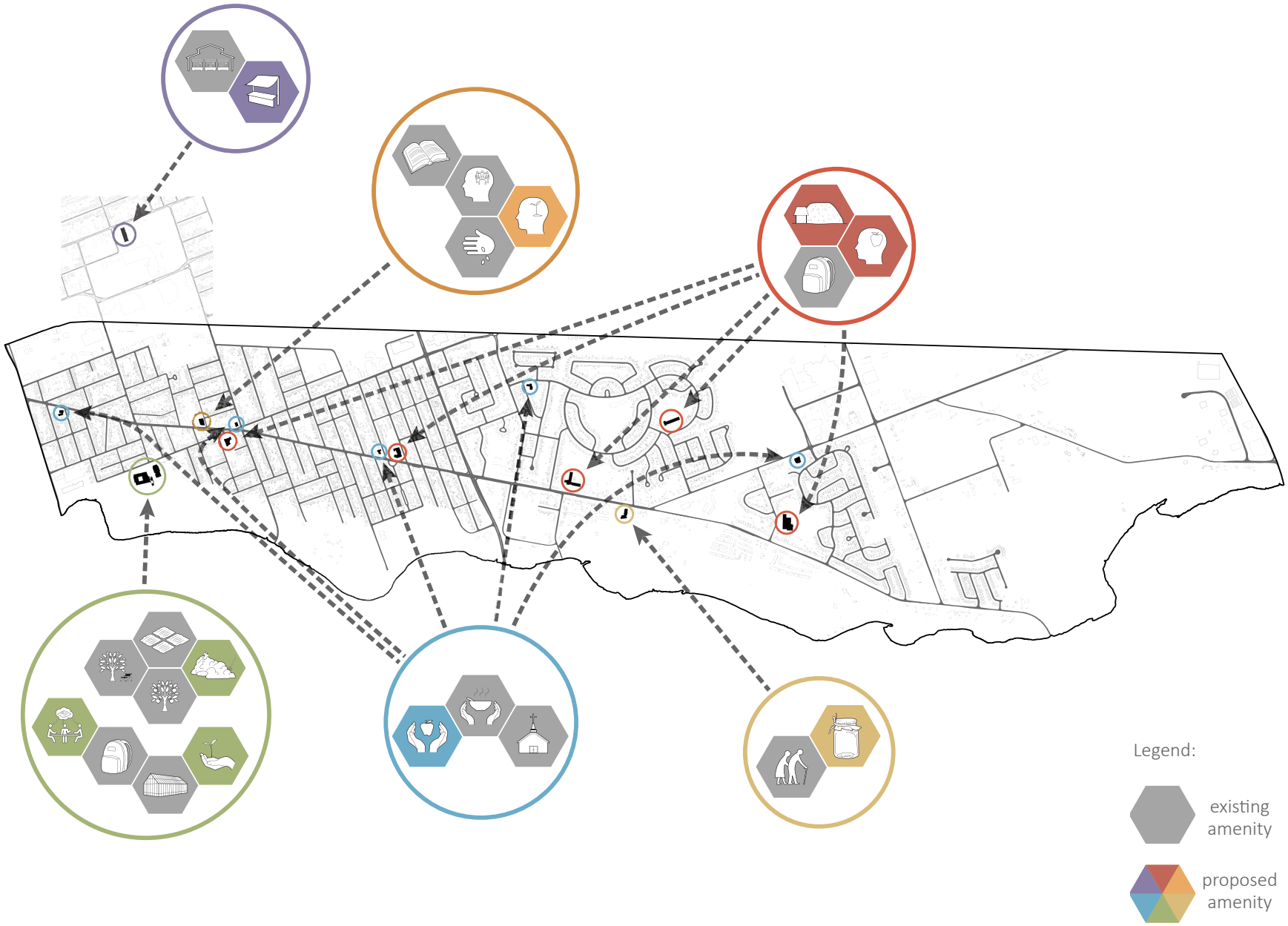
A network of supporting amenities for the urban agriculture food system is shown on the map. Once the potential Hamilton Road has for urban agriculture in the often overlooked outdoor spaces of single family homes is recognized, then the other services required for a new alternative food system to function effectively must be addressed. Amenities featured on this map include places for community members to learn about growing food, places to discuss the future of urban agriculture, and places for students, seniors, and everyone in between to get involved in urban agriculture.

There are two types of amenities shown on the map: distributed and centralized nodes. Distributed nodes are less specialized and benefit the alternative food system most when evenly distributed throughout the neighbourhood. The proposed distributed amenities piggyback onto pre-existing amenities that already provide even coverage of the neighbourhood. Both churches and schools already form their own distributed networks of education and places of worship, making them ideal candidates for distributed nodes of urban agriculture.

There is one exception; rather than forming another distributed node in the school network, a special condition created by the proximity of two schools to a park instead form a centralized amenity.

Centralized nodes are unique in the sense that they only have one location within the neighbourhood. For example, Hamilton Road has one library branch to service the entire neighbourhood. These types of amenities lend themselves to be paired with proposed amenities that do not need a network of coverage throughout the neighbourhood, like the distributed nodes require. Though centralized nodes do not create a network within the neighbourhood, they often have other corresponding locations within the greater context of the city. Hamilton Road only has one library location, but there are several locations that create a network of libraries throughout the city of London. This network provides the opportunity for supporting infrastructure to spread to other areas of the city and encourage an uptake of urban agriculture in other neighbourhoods.

Figure 4-10 (Opposite) Supporting infrastructure map showing existing and proposed amenities for multiple key locations


Legend:
existing amenity
proposed amenity

School Network

The Hamilton Road neighbourhood has several public elementary schools, two catholic elementary schools, an arts-focused grade school, one Christian secondary school, and one public high school. Many of the elementary schools participate with the Crouch Neighbourhood Resource Centre to provide children with after school programs.

PROPOSED: Food and Tool Storage

Food and tool storage is a proposed distributed amenity that piggybacks onto the existing school network. The proposition is to build a root cellar in the playground of the selected schools to provide an even distribution of this amenity. The use of the root cellar is threefold: cold storage for food for use in the school's cafeteria, tool storage for use in the edible schoolyard garden, and a mound in the playground for children to play on.

PROPOSED: Food Education

Food education is not only important for school children, but for everyone. The future of our food systems will be influenced by the knowledge and desires of future generations, and it is important to educate them. How food is grown, what the plant and not just the edible part looks like, and healthy food choices should be incorporated into the curriculum for grade school students. Current food production methods, the importance of more sustainable food production, and the impact of our food choices should be a part of the high school curriculum. This education should happen in the garden as well as the classroom, a combination of hands-on and academic learning.



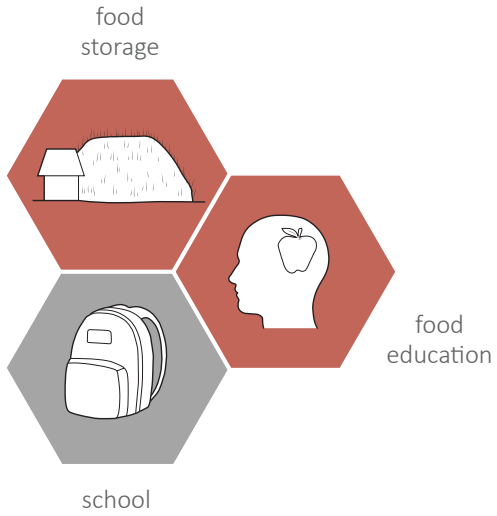


Figure 4-11 (Top) Axonometric of Ealing Public School
Figure 4-12 (Bottom) "Molecule" of existing and proposed amenities associated with the school network













Figure 4-13 (Top) Key map of proposed school network
Figure 4-14 (Middle) Ealing Public School
Figure 4-15 (Bottom) Trafalger Public School

Figure 4-16 (Top) Tweedsmuir Public School
Figure 4-17 (Middle) Fairmont Public School
Figure 4-18 (Bottom) London District Christian Secondary School

Places of Worship

There are many different religious denominations represented by churches and religious institutions, such as Baptist, United, Anglican, Buddhist, in the Hamilton Road neighbourhood. Despite their different religious focuses, many of them offer similar community support. Many churches organize soup kitchens, hold community meals for nominal fees, collect donated clothing and winter coats, and run canned food drives and toy drives, especially around Christmas.

Food Assistance Programs

From community meals to food vouchers, and emergency food cupboards to Christmas hampers, many community members in need rely on the support they receive from religious institutions to feed their families.

PROPOSED: Local Food Charity

Similar to a food drive, churches are ideal locations for distributing locally grown, fresh food to those in need. Food drives ask for non-perishable food, but this means that people in need of food assistance rarely have access to fresh fruit and vegetables. Community members who choose to grow their own food can also choose to donate their surplus fruit and vegetables to the local food charity. Looking forward, once the alternative food system is more established, the City could legislate to recognize this as equal to a monetary donation to a charity and provide financial compensation to encourage people to make fresh food donations.



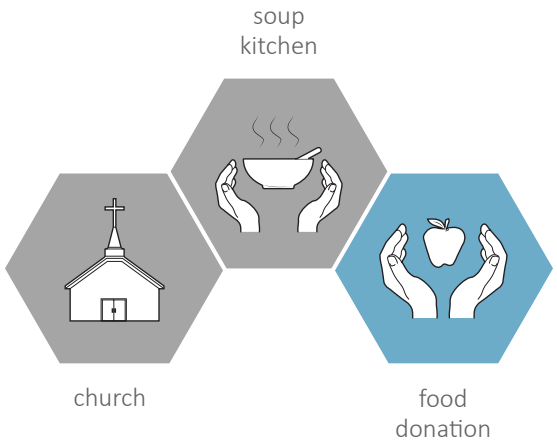


Figure 4-19 (Top) Axonometric of All Saints Church
Figure 4-20 (Bottom) "Molecule" of existing and proposed amenities associated with the places of worship network













Figure 4-21 (Top) Key map of proposed religious institutions network
Figure 4-22 (Middle) Egerton Baptist Church
Figure 4-23 (Bottom) All Saints Church

Figure 4-24 (Top) Fairmont United Community Church
Figure 4-25 (Middle) Bethel Christian Reformed Church
Figure 4-26 (Bottom) All Nations Gospel Church

Crouch Library and Resource Centre

The Crouch Library branch is already unique from other libraries in the London Public Library network because it is also a resource centre and home to the Hamilton Road Area Food Security Initiavtive.

Library

According to the London Public Library website, the Crouch branch has been in place since 1922. In 2002 the library moved to its current location. Over the years, the library was always more than a place to borrow books. Until 2012 it was also home to an Employment Resource Centre and is still home to a Community Resource Centre. The Crouch branch also has other partnerships: "Service Canada, Hamilton Road Community Association, Hutton House, TVNELP (Thames Valley Early Learning Program), Literacy London, Thames Secondary School, and 8 elementary schools in the area."[1] The typology of library has always been a place committed to literacy and learning. Crouch library in particular supports these activities by engaging with the community through its various partnerships and supported organizations.

Community Resource Centre

The resource centre provides a range of programs from recreation, education, and basic needs support to the community. Their mission statement shares similar sentiments with the abstract of this thesis: community building, diversity of people, to "nurture the well-being of all the residents in the Hamilton Road Community."[2] Services listed under the Community Resource Centre include community development, community support services, youth programs,

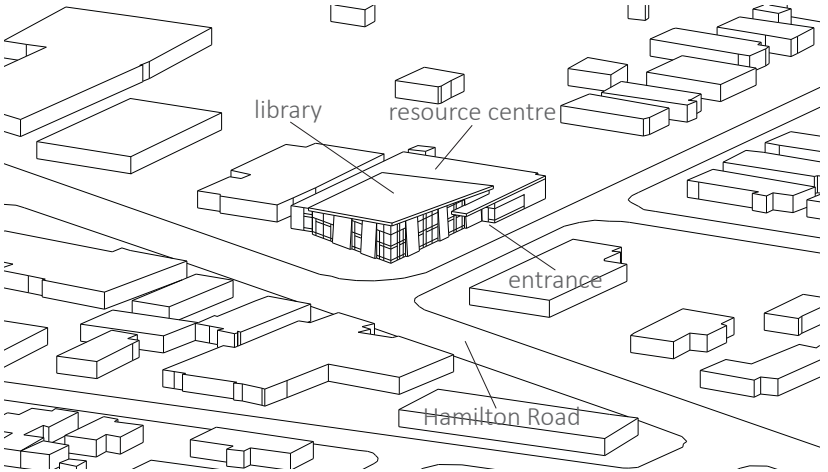




Figure 4-27 (Top) Axonometric of Crouch Library and Resource Centre
Figure 4-28 (Bottom) "Molecule" of existing and proposed amenities associated with the library and resource centre







Figure 4-29 (Top) Crouch Library and Resource Centre
Figure 4-30 (Middle) Crouch Library and Resource Centre
Figure 4-31 (Bottom) Crouch Library and Resource Centre

preschool programs, and the Hamilton Road Area Food Security Initiative.

Hamilton Road Area Food Security Initiative

The mission statement for the HRA Food Security Initiative is "to build the capacity of our neighbourhood to develop local and sustainable food systems."[3] This initiative also plans Food Coalition meetings, Food Families projects, and the building of the Neighbourhood Food Hub. Under these initiatives, the organization supports food related programs that promote seed libraries, canning, nutritious food, urban foraging, community gardens, collective kitchens, and many other food related programs.

PROPOSED: Farming Resource Centre

Because Crouch is already the location of the HRA Food Security Initiative, it is an ideal location for a resource centre with a focus on agricultural information. This resource would take form as a dedicated book stack for all paper resources on how to grow food, urban agriculture, and farming, as well as an online digital database. The digital database could become home to e-book copies of paper resources, an online forum for community members to discuss urban agriculture, a database to track weather, soil types, other microclimate data specific to Hamilton Road, and could eventually be the host of a new application to track what is being grown and where it is being grown in the neighbourhood to promote self-organization of community members.

Western Fair Artisanal and Farmers' Market

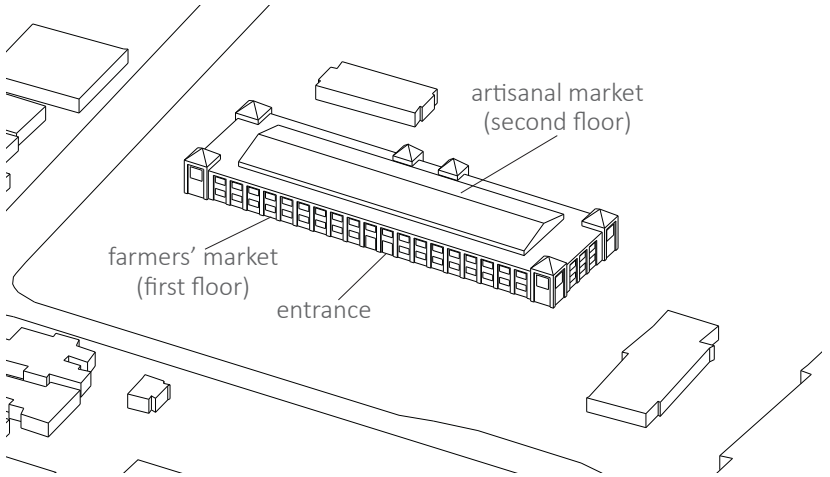
The Western Fair Market is located just outside the boundary of Hamilton Road Neighbourhood, but is the closest existing market and for that reason has been included in the map.

Artisanal and Farmers' Market

On the ground floor of the market is the farmers' market where vendors are selling fresh produce, prepared foods, and other garden related merchandise. All the staples of a successful farmers' market can be found here: fresh baked goods, artisanal cheeses, natural bath and body products, butcher meats, deli meats, heirloom seeds, fresh fruit and vegetables, breads, ice cream, coffee, tea, eggs, milk, spices and more. Upstairs are the stalls with the more artisanal focus: home and garden decor, antiques, wool and knitting supplies, even a yoga studio. To keep things interesting for frequent customers and to attract new customers the market has many different aspects to experience.

PROPOSED: Hamilton Road Neighbourhood Market Stall

The market stall would serve two purposes: it would be a place where community members could sell produce and food products for profit, and also a place to promote the urban agricultural strategies of Hamilton Road to the rest of the city. The strength of the alternative food system being proposed is that participation is optional, and participating community members have the freedom to choose what they'd like to do with the fruits of their labour. If they grow more produce than they can consume, one of the options they have is to sell the surplus at the market. Not only does the alternative system offer a way for residents to offset their grocery bills, but also a way to



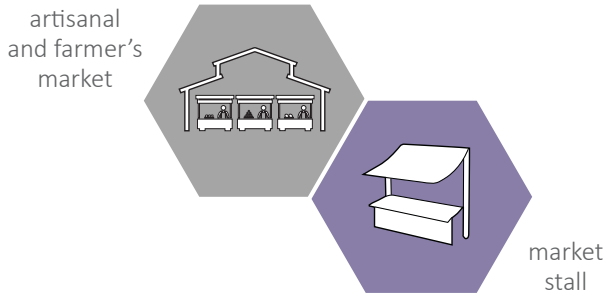


Figure 4-32 (Top) Axonometric of Western Fair Artisanal and Farmers' Market

Figure 4-33 (Bottom) "Molecule" of existing and proposed amenities associated with the market







Figure 4-34 (Top) Satellite image of Western Fair Market
Figure 4-35 (Middle) Western Fair Market
Figure 4-36 (Bottom) Western Fair Market

generate some profit, if desired. This could be a particularly attractive option for residents struggling to make ends meet.

Residenza Italia Seniors' Residence

Residenza Italia is the product of the labours of The Italian Seniors Project to fulfill their goal "of providing affordable housing to seniors who enjoy celebrating Italian traditions and culture within the context of Canadian society."[4] Similar to affordable housing, seniors who apply to live here must have an annual income of about $30,000 or less. The Italian Seniors Project caters to Italian families and will even provide an Italian interpreter for the application process.

PROPOSED: Outdoor Canning Kitchen

It is widespread knowledge among foodies and food-concerned individuals that Italy was at the heart of the Slow Food Movement, a movement that encouraged people to remember tradition and enjoy home cooking from scratch, to counteract the fast food craze. Food culture runs deep in Italian tradition; of all places for such a movement to take hold, Italy is no surprise. One of the fading arts of traditional slow food is home canning. The diminishing amount of cooking that happens at home has also led to the diminishing need for large kitchens in our homes. The smaller kitchens found in homes today are not conducive to home canning. Canning requires ample preparation space for the food to be canned, as well as a large stove top to cook the food and sterilize jars in boiling water. Because of this, canning also makes for a hot day in the kitchen and, traditionally, canning happens at the peak of tomato harvesting which coincides with summer's peak. A canner's ideal kitchen would be a large commercial scale kitchen in a detached building with lots of ventilation. The opportunity here is two-fold: many seniors in residences do not have access to a kitchen of their own, and food is generally cooked by staff and served in a dining

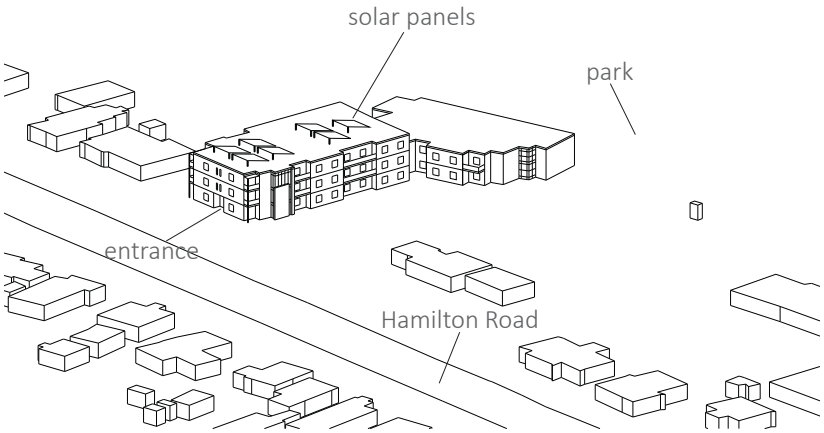




Figure 4-37 (Top) Axonometric of Residenza Italia
Figure 4-38 (Bottom) "Molecule" of existing and proposed amenities associated with the seniors' home







Figure 4-39 (Top) Satellite image of Residenza Italia
Figure 4-40 (Middle) Residenza Italia and its tree trunk carving
Figure 4-41 (Bottom) Residenza Italia

hall. By proposing an outdoor canning kitchen on the property of the seniors' residence, it would give the residents access to a kitchen once again. The second opportunity has to do with preventing the loss of canning skills. Canning has not been picked up by younger generations, and it's often parents and grandparents that hold the key to this skill. The outdoor canning kitchen would also function as a place where this activity can be shared with and knowledge passed on to other members of the community.

Lester B. Pearson School for the Arts, B. Davidson Secondary School, South Branch Park

Lester B. Pearson School for the Arts

For grades four through eight, Lester B. Pearson offers students an education enriched with an arts program in dance, drama, visual arts, and music. Creativity is valued as an essential skill to be developed as part of a student's academic education.

PROPOSED: Meeting Space

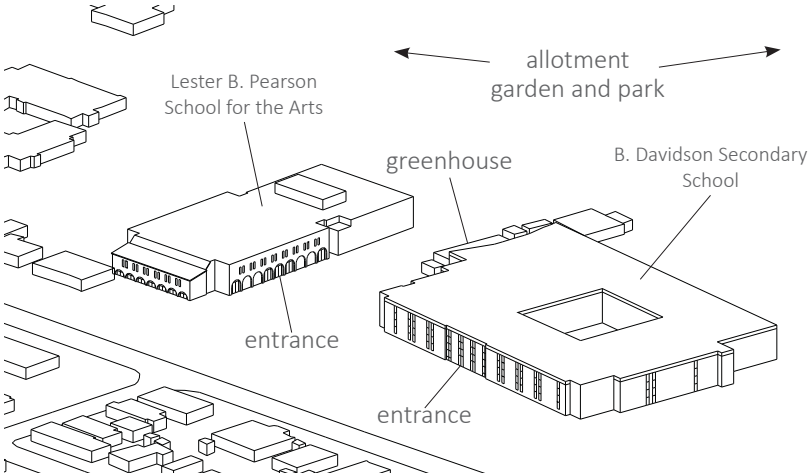
Classrooms are in use during the day, and for the most part sit vacant after school hours. The school's adjacency to other amenities in the urban agriculture system (discussed below) make Lester B. Pearson a convenient location to hold meetings to discuss urban agriculture in the Hamilton Road neighbourhood when classes are not being held.

B. Davidson Secondary School

The school was recently renamed after the teacher Basil Davidson to honour his passing. The school has a reputation for providing a specialized learning environment for students with disabilities. The school is also well known in the neighbourhood, largely due to their community involvement and their co-op program that gives senior students an opportunity to gain experience working with local businesses.

PROPOSED: Community Nursery

B. Davidson has a large greenhouse on school property. This greenhouse could be used to the mutual benefit of the urban agricultural system and the students. Community members who



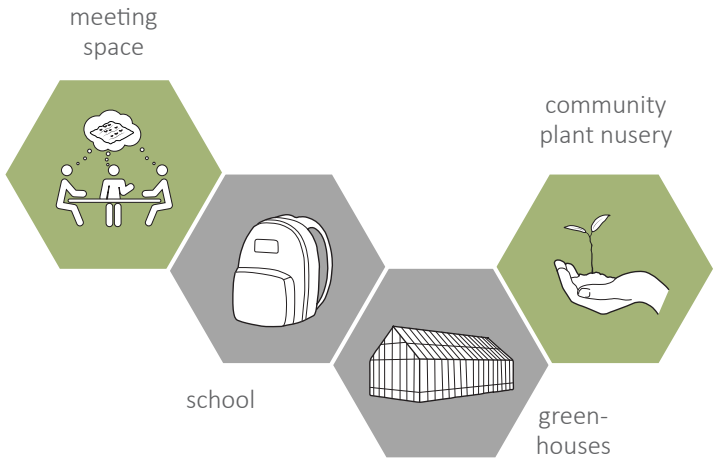


Figure 4-42 (Top) Axonometric of schools
Figure 4-43 (Bottom) "Molecule" of existing and proposed amenities associated with the schools and greenhouse

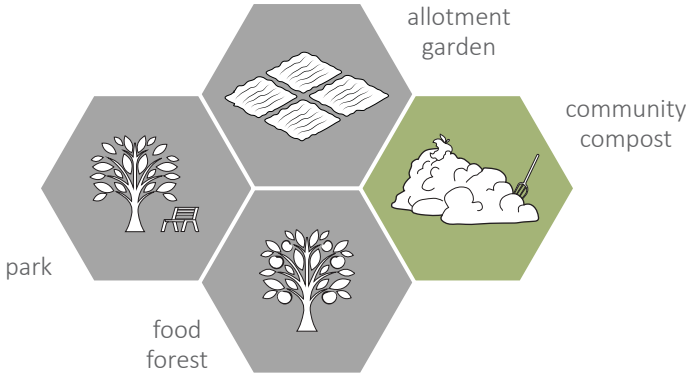




Figure 4-44 (Top) "Molecule" of existing and proposed amenities associated with the park, food forest, and allotment garden
Figure 4-45 (Bottom) Lester B. Pearson School for the Arts

wish to use this season-extending structure could provide guidance to students wishing to learn more about growing food. Not only would students get hands-on work experience with plants, but they would get to participate in a community building activity by learning from other members of the community.

South Branch Park

South Branch Park is an open green space adjacent to two schools and the Thames River. A bike path running through the park connects to the larger bike path network within the city. This park is also home to one of many allotment gardens within London, as well as a unique food forest.

Dillabough Allotment Garden

About half of the allotment gardens in London, Ontario are located on land donated by the city, Dillabough Garden is one such garden. The garden can be found by walking down to the end of Dillabough street, with which it shares its name, where a pathway leads into South Branch Park. The garden is embedded in the city by more than the pathway: it shares its water source with Madame Vanier Children's Centre, and relies on the same Yard Waste Collection Department as the surrounding residential neighourhood. Dillabough's plots are rentable on a per year basis, with the fee structure based on household annual income.

Carolinian Food Forest

London's only food forest is steps away from Dillabough Garden on the same path. According to the website, it is a "one acre experimental forest" that "mimics the pattern and structure of a natural forest

but the plants are deliberately selected to provide food, medicine and other things for us."[5] It is essentially an organic, self-sustaining ecosystem that provides its own nutrients, pest control, and provides food for people and animals. It is called the Carolinian Food Forest because London falls under the natural ecosystem classification of the Carolinian Zone. Many diverse species inhabit this ecosystem, and it is home to many rare and endangered species. Many community entities were a part of the actualization of this program, including the Crouch Resource Centre, Thames Secondary School (renamed B. Davidson), and Lester B. Pearson School for the Arts.

PROPOSED: Community Compost

South Branch Park is a large open space with a small portion of the park devoted to the allotment garden and food forest. It has ample space for a community compost area, and it's conveniently located in close proximity to the allotment garden and greenhouse, where compost would be a valuable, easily accessible resource.







Figure 4-46 (Top) B. Davidson Secondary School
Figure 4-47 (Middle) Greenhouse attached to B. Davidson Secondary School
Figure 4-48 (Bottom) Dillabough Allotment Garden







Figure 4-49 (Top) Dillabough Allotment Garden
Figure 4-50 (Middle) Fruit tree guild sign for the Carolinian Food Forest
Figure 4-51 (Bottom) Bicycle path through South Branch Park

8. Empower Community Members

By achieving practical goals, it allows people to realize their own power to solve problems in a convivial community.

Feedback Loops

By providing residents of Hamilton Road with the necessary resources to grow food in their own front and backyards, they have the opportunity to expand their own competence, control, and exercise initiative to provide themselves with a food source, thereby reducing their reliance on commercial agriculture. This expansion and reduction is the foundation of the first set of feedback loops (Fig. 4-52). By growing some of their own food, residents can realize their own ability to alter their food system, creating a positive feedback loop of empowerment. Conversely, this reduces their reliance on a commercial food system, creating the negative feedback loop.

But the system that provides these enabling resources is conditional on its own feedback loops. The HGFI (Home Grown Food Initiative) is responsible for initially providing resources such as tools, know-how, and seeds for residents to use, but the growth of the system is reliant on those residents for positive feedback in the form of maintaining those tools, sharing their own knowledge with other community members, and saving seeds for the benefit of other future urban farmers. For their labours, and in return for cultivating their property, urban farmers will receive the fruits—and vegetables—of their labours. Should urban farmers experience a bumper crop, a prolific harvest, they have many options of what to do with the surplus. They can

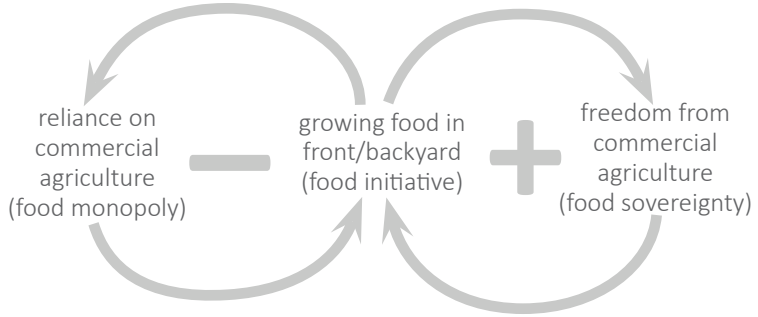
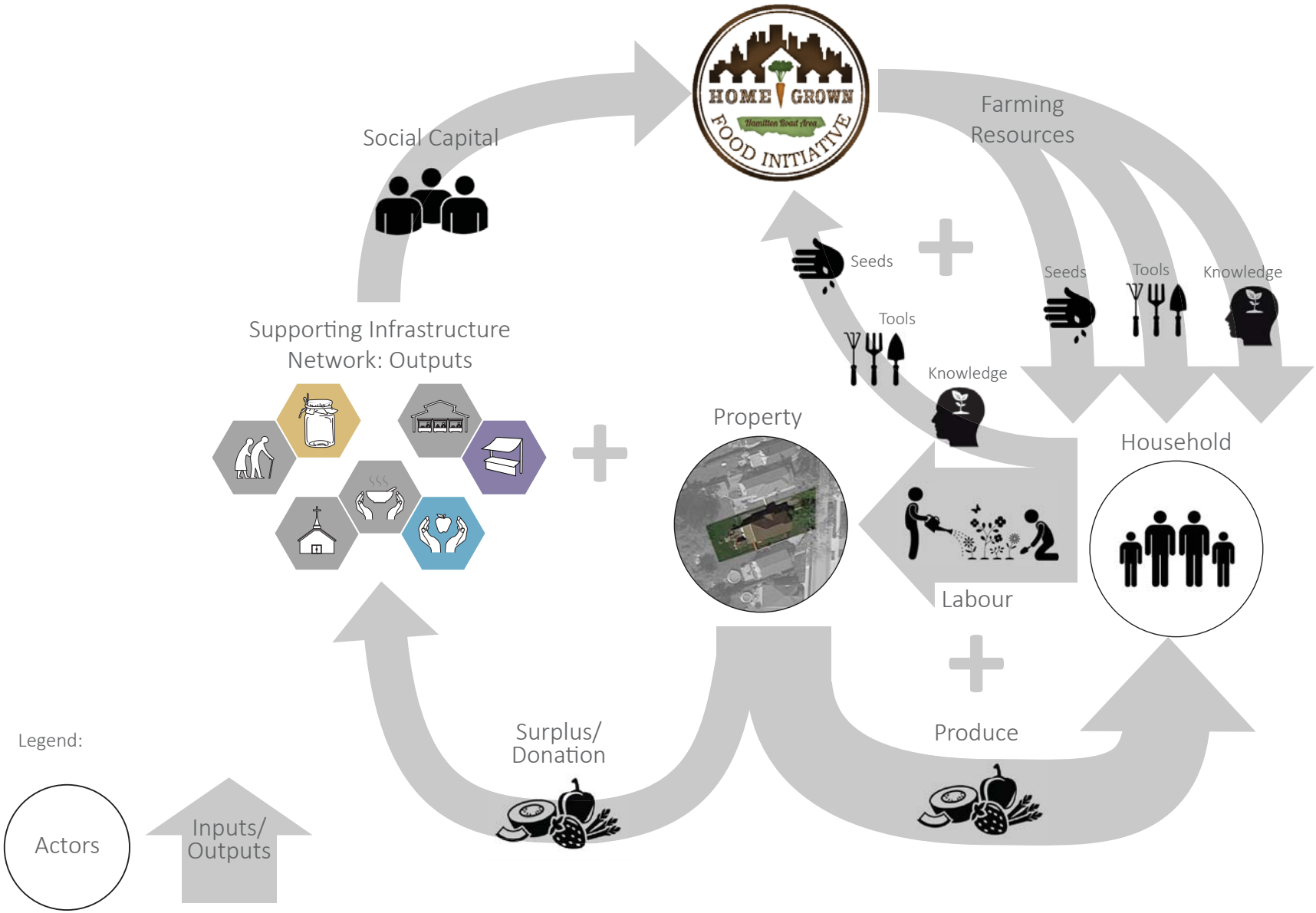


Figure 4-52 (Above) Urban agriculture feedback loops

Figure 4-53 (Opposite) Alternative food system diagram of inputs, outputs, and key actors


HOME GROWN
Hamilton Road Area
FOOD INITIATIVE
Social Capital
Farming Resources
Seeds
Tools
Knowledge
Supporting Infrastructure Network: Outputs
Property
Household
Labour
Surplus/ Donation
Produce
Legend:
Actors
Inputs/ Outputs

choose to employ another aspect of the alternative food system as a way to deal with their surplus: they can choose to sell it at the market, preserve it for future use, or donate it to local charitable organizations. They may choose to deal with it outside the system instead by trading it with neighbours, or giving it away to friends or family—the choice is entirely theirs.

The effect of positive feedback loops reach beyond the alternative food system. By cultivating the land of Hamilton Road with local labour, participants are reducing their food miles, but more importantly, they are supporting a number of beneficial outputs, both social and environmental. These positive feedback loops have a cumulative effect. Increased biodiversity is reliant on the welfare of the local wildlife, and flourishing pollinator habitats is a sign of ecosystem health, which, first and foremost, relies on the health of the soil. Similarly, a surplus of fresh, healthy local food gets fed back into the system via market, processing, or donation, in turn increasing social capital which the system is designed to promote. Through increased social capital and conviviality, urban farmers sharing their wisdom will spread eco-literacy, and the ultimate goal of the system would be to establish a food culture based on fresh, local, healthy food in the Hamilton Road area.

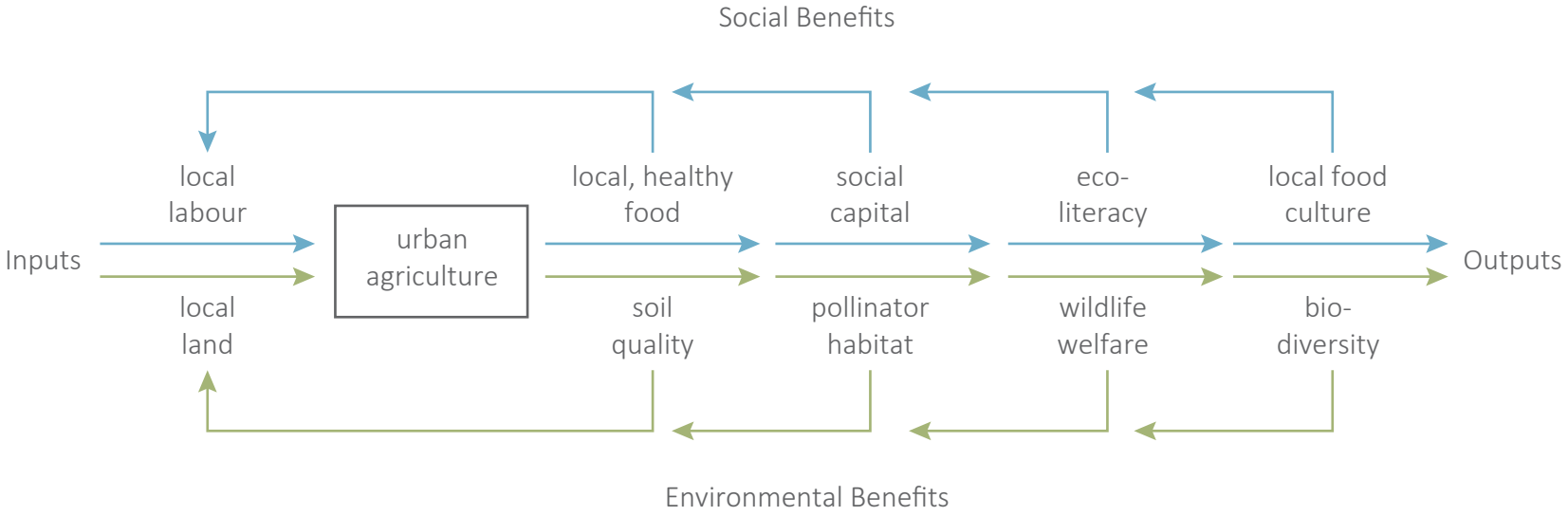


Figure 4-54 (Above) Diagram of the social and environmental benefits of urban agriculture

9. Engage Local Government

The success of certain local food system goals would require government action.

The most important step to having requests for policy change met is opening up the dialogue with local government branches. This discussion between community members, local government, and design and planning professionals will be the catalyst for change regarding policies that allow and encourage food landscapes and urban agriculture. Fig 4-55 shows the feedback loops that illustrate the process of policy change. Advocates of urban agriculture will have to request this policy change and engage the local government in that discussion. It is then up to the governing bodies to amend the policies in question to reflect that request. Of course government may refuse to change the policy, and advocates will have to reevaluate the changes they requested. However, once the policies are amended to reflect the requested change, they can be implemented into the system of urban agriculture.

Policies surrounding land use are paramount when it comes to implementing urban agriculture. Carolyn Steel notes that, "As with other aspects of the food chain, legislation geared towards industrial production often condemns small-scale practices that have worked perfectly well for centuries."[6] Changes in legislation need to be made to once again support small scale farming enterprises, except this time they need to take into consideration an urban context. Planning surrounding urban agriculture can be streamlined by establishing a regulatory and legislative framework for addressing issues of zoning

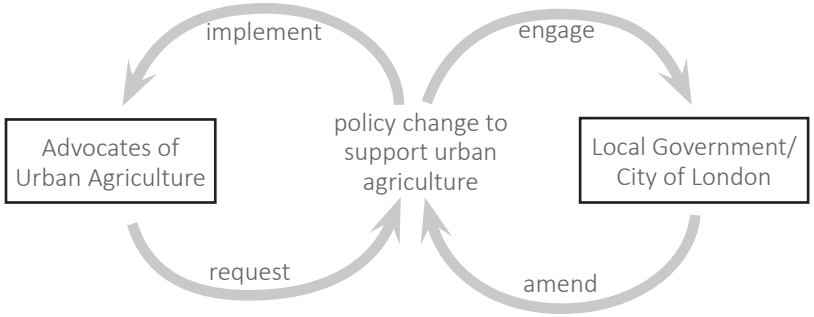


Figure 4-55 (Above) Feedback loops for the advocacy of urban agriculture

and permit applications. Currently the by-law for London states that having chickens within city limits is prohibited, a common problem that arises out of a growing interest in urban agriculture. Many cities are responding to this demand and implementing changes that allow for urban chicken coops. Another common issue that arises out of urban agriculture are the regulations surrounding the sale of produce. The city of Boston is a leading example of government cooperation with and response to the increasing interest in urban agriculture. Boston has established a new by-law to address issues of economic enterprises and zoning and permit applications for urban agriculture.

Most importantly, engaging local government and advocating for policy change is about outreach strategies for urban agriculture. By advocating for policy change in London, the Home Grown Food Initiative is paving the way for other ventures related to urban agriculture throughout the city. Rather than initiatives like the HGFI being an exception to the rule, legislation can encourage similar projects to become mainstream and have them incorporated into the city's official plan, environmental agendas, and budgets. This inclusion and recognition of alternative food initiatives can then increase uptake in other fields, such as changing the educational curriculum to incorporate more ecoliteracy goals, or increasing research initiatives within the planning departments on issues such as food security and food justice.

10. Make It Multigenerational

Engage elders who remember agricultural and food skills that would be valuable to pass on to younger generations. Younger generations will shape the future, so it is important not to forget to involve them as well.

Originally when this step was adapted from "The 12 Steps in the Transition Process" it was titled "Honor the elders." Acknowledging the wisdom that elders have, although a crucial point of view, ignores the important role that younger generations play in shaping the future. Moreover, it lacks completely the advantages gained from inter-generational social activities. Instead, the wisdom of the elders should be engaged by encouraging them to pass it on to the generation of tomorrow.

The schools and seniors' home included in the supporting infrastructure network of Hamilton Road have the ability to become mutually beneficial. Those generations that fall between elders and youth should not be excluded, however, hence the revised sentiment: make it multigenerational. The craft of agriculture still resides in the memory of some elders, and can find new life and purpose in an alternative food system if they are willing to disseminate their knowledge.

Urban agriculture can also benefit the health and well being of all age groups. Studies have shown that urban agriculture can help seniors and immigrants, which are common groups of people that often feel, alone, isolated, and disconnected, find a sense of belonging and self-



Figure 4-56 (Above) Children participating by making their own salad

worth again[7]. Similarly, Will Allen uses urban agriculture as a means of reaching out to troubled youth[8]. The social aspirations of creating a new food system are to build relationships between people that bridge the gaps of age, ethnicity, and other categorical groups of people.

11. Self-Organizing System

Be open and let the initiative go where it wants to go.

Self-governance is important because it allows the system to always meet the needs of the users as they expand their interactions and allows their activities to evolve without being driven by motives necessarily directed by the principles governing the system. Commercial agriculture is more concerned about the bottom line and does not concern itself with the needs of the user except as part of a mass market, and it implements ways of manipulating the consumer to satisfy its own profit-driven desires. Applying alternative principles to the current system will not work either. When consumers demanded organic food, the commercial food system found ways to industrialize even that. Such food is only organic in as much as needs to be to meet certain criteria for organic certification, and its purpose is not to validate a higher set of moral, ethical, or just principles by being organic.

Just as "the natural world works from the bottom up to create itself,"[9] the catalyst for a new food system must come from a demand from the consumers. However, the food system proposed in this thesis does not solely work from the bottom up, it also utilizes the power that a committee has to make decisions. These seemingly contradictory bottom-up and top-down strategies are merged in the proposal of this thesis, and instead expands outward in every direction.

More importantly than how the system operates is how it achieves its end goal of making fresh, local, healthy food more accessible. In



Figure 4-57 (Above) Self-organizing flock of birds

this light, the system is Thoreauvian, promoting an indirect form of assistance: "...it is better, by one's individual strength, to give other persons the courage to face their own lives calmly, individually, and independently, rather than to give them pity or money."[10] The urban agricultural system proposed for Hamilton Road does not suggest that to help the financially disadvantaged they need a comprehensive list of where they can pick up their hand outs, but rather that by their own sweat and toil they may reclaim some independence from the system that's consumed them, for it is only in the context of this system that they appear at a disadvantage.

But beyond putting tools and seeds into those people's hands, this thesis suggests that consumers should take a critical eye to the systems they depend on, namely the commercial food system. Just like Thoreau's statement to "mind your own business", this idea "relates to a person's own search for personal self-government, where it entails the thesis that the individual's primary activity in life is to identify what that business is, and pursue it with vigor and intelligence."[11] If consumers are searching for self-governance in their foodways, they can find it through local urban agriculture.

Conclusion

Through this thesis I have sought to better understand the polemics of urban agriculture from an environmental and social perspective, to understand the urban setting and social and environmental factors present in the site and surrounding area, and to understand the existing infrastructures that can be leveraged to support urban agriculture. Through a better understanding of all these social and environmental factors, I've proposed a practical step by step solution to promote agriculture in a way that will benefit the residents of Hamilton Road.

I began this thesis with three contrived terms: urban escapism, involuntary separatism, and selective ignorance. Each term addresses a different aspect of the environmental and social concerns surrounding our food system and how we live in cities today. None of these terms have been directly addressed in the thesis, but rather, they form a subconscious undercurrent to the issues I do address through the lens of urban agriculture.

Urban escapism I defined as the need for finding a diversion from the city by means of retreating to nature, as an "escape" from the perceived unpleasant or banal aspects of urban life. It is a term to define the actions or activities people engage in to help relieve the persistent feelings associated with the busy and hectic lifestyle associated with being a city dweller. There is a whole movement rooted in agriculture, deemed the "simple life movement", that speaks to this term: "it is not surprising that some historians have perceived the back-to-the-land impulse as 'nebulous, romantic, or escapist'."[1] However, this thesis

poses a bigger question through its proposition: what would it take to transform our cities into places we don't feel we need to escape? And that question invariably leads to another, more direct question: why do we feel we need to escape from the city?

Part of the answer to the above question is revealed in the first image presented in this thesis, and that is that we perceive the city as this monstrous machine that we have no control over. In the initial chapters of this thesis, I warn that urban agriculture is not a panacea, nor a cure-all solution, but I do believe that it can help us realize that we can have control, at least in part, of our environment, of the city. Ivan Illich speaks of tools of conviviality that enlarge the range of each person's control[1]; Carolyn Steel admits that the mayor of a city has no control over food supply, but through their buying choices the consumer does[2]; Barbara Kingsolver suggests that craft is our human desire to have control over an entire process of manufacture[3]; and Michael Pollan suggests that we can be creators of idiosyncratic products expressive of ourselves and of the places where we live[4]. All of this I believe to be evidence that urban agriculture is one small step toward reclaiming some control over one system through which we sustain ourselves on the path toward taming the urban beast.

The other part of the answer to the question above relates to the idea of biophilia, our inherent need to be connected to nature. It seems obvious to me that the only reason why we have places called "cottage country", and places like parks and beaches and campgrounds, places that people flood to on every holiday and weekend, is because they fulfill some desire within ourselves that cannot be satisfied by urban life. Parks already serve this purpose as a brevity from urban form, but is that enough? Can cities be made more bearable, more livable,

and can we reduce how often this longing for nature wells up inside us, not by removing this desire, but by fulfilling it more often? Is it possible that one day we will damage the wilderness beyond repair and that the only source of "nature" will be made by human hands and exist within the city? There's certainly no harm, and a long list of benefits, from finding ways of incorporating the biotic realm into built landscapes.

Involuntary separatism, the second in the list of my original terms, in the context of this thesis refers to the barriers that exist between food and the people who need it but have difficulty attaining healthy, local, fresh food. Under this definition, people who succumb to the marketing strategies, or the artificially low food prices of the commercial food industry, are victims of involuntary separatism. Through the theory section of this thesis, I explore the reasons of how the commercial food system has come into so much power, what we can do to stop it, and why nothing has been done yet. Through the proposition of an alternative food system, I propose ways not only to bridge this gap between people and food, but ways to create new and meaningful social, economical, and environmental links between people through food. Food becomes not only the end goal, but the medium through which relationships are formed. This is how urban agriculture can act as an agent for social change, by being the medium and not the product.

Lastly, I define selective ignorance as the psychological state of knowledge or facts that are understood but are consciously repressed or avoided. Selective ignorance is apparent in the difference between cost of the food and the real price we pay, and in the connection between the food we eat and the place it came from. The impact of

our food choices on our environment is not easily apparent. The industrial food industry is organized to hide these negative impacts from consumers. This lack of transparency has caused most of us to take for granted the implications of our food choices. Rather than highlighting the negative effects of industrial food, the proposition of this thesis tries to capture the beauty and good that can come from this correlation between our food choices and the environment.

Hamilton Road was chosen as a case study area because residents already demonstrate an understanding of the relationship of food to the place it is produced. These and other characteristics of London, and Hamilton Road, could be identified in other similar contexts, and could be used to build the foundations of an urban agricultural movement. Hamilton Road was also chosen because it could demonstrate a type of context I wanted to address through urban agriculture: a working class lower income area that falls below the average income of the rest of the city. The neighbourhood could stand to benefit from the implementation of urban agriculture, and it could demonstrate an existing yet newly cultivated supportive culture for this type of intervention. The true strength of the project lies in its ability to emphasize the need to understand one's specific context, while proposing a strategy that can be easily transferable, and adapted to suit other urban sites, whether that be in other neighbourhoods within London, or to other cities altogether.

As much as these general ideas are transferable to other sites, urban agriculture draws its most important strengths from being intricately tied to its place. The demographic analysis was key to understanding the target audience, and this understanding is necessary when addressing the specific needs of the residents of Hamilton Road.

While the basic infrastructures described are generic from city to city, identifying specific physical locations where these infrastructures manifest was the basis for creating a supporting system for urban agriculture. By creating a support system from existing infrastructure, there is no necessity for new buildings in the early phases of implementing urban agriculture. Many networked services pre-exist in mid-sized cities such as London, and the imposition and added complexity of building new infrastructure would only stifle the initial efforts to establish a local food network. In the future, as the local food movements grow, there may be demand for new infrastructure and buildings to be built to support the system. In its beginning years, however, the focus should be on gaining traction within communities, establishing roots in the networks within the city, and building partnerships to propel the alternative food system forward.

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Appendix A : Abiotic Maps

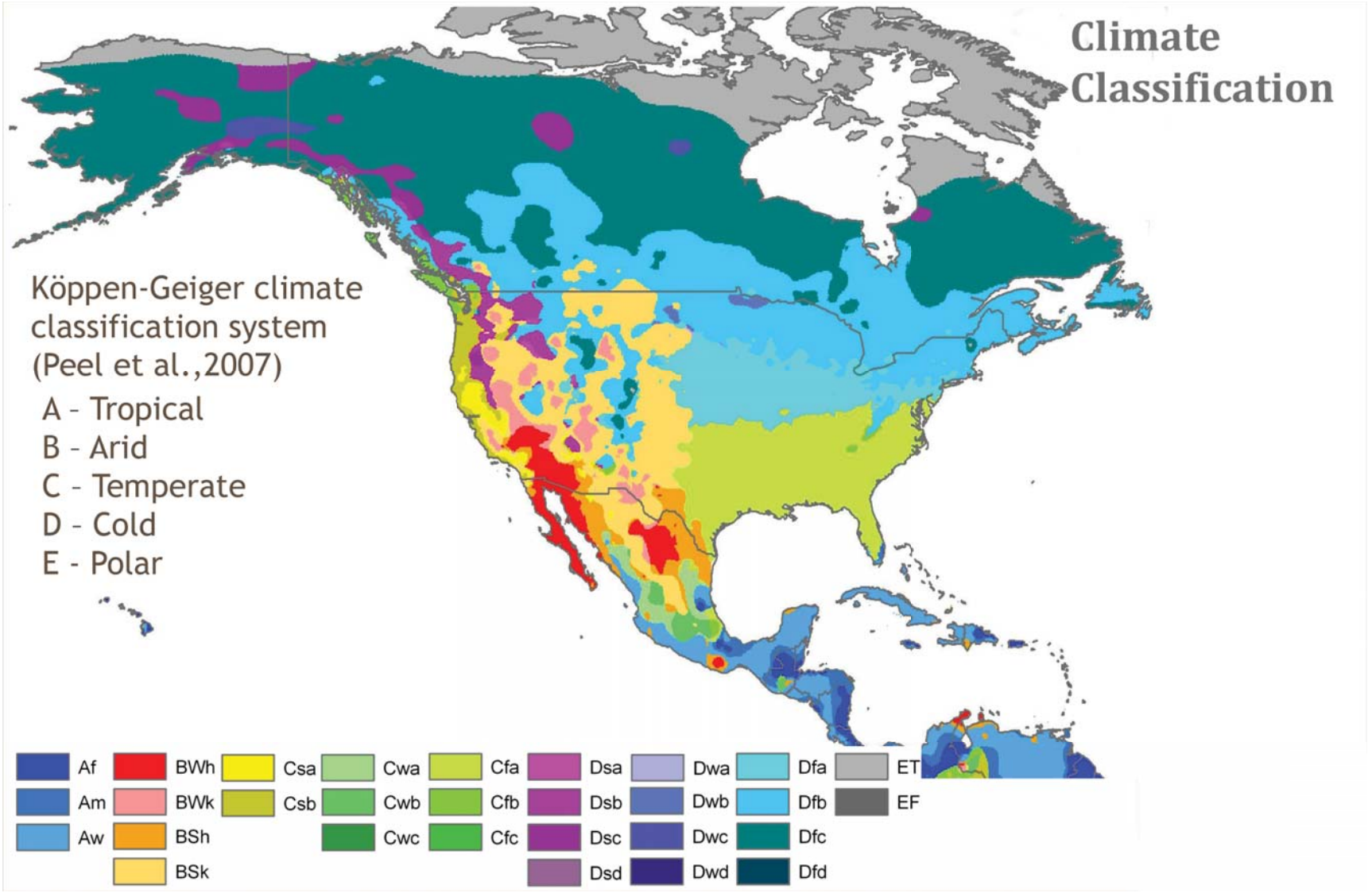


Figure a-1 Climate information for North America

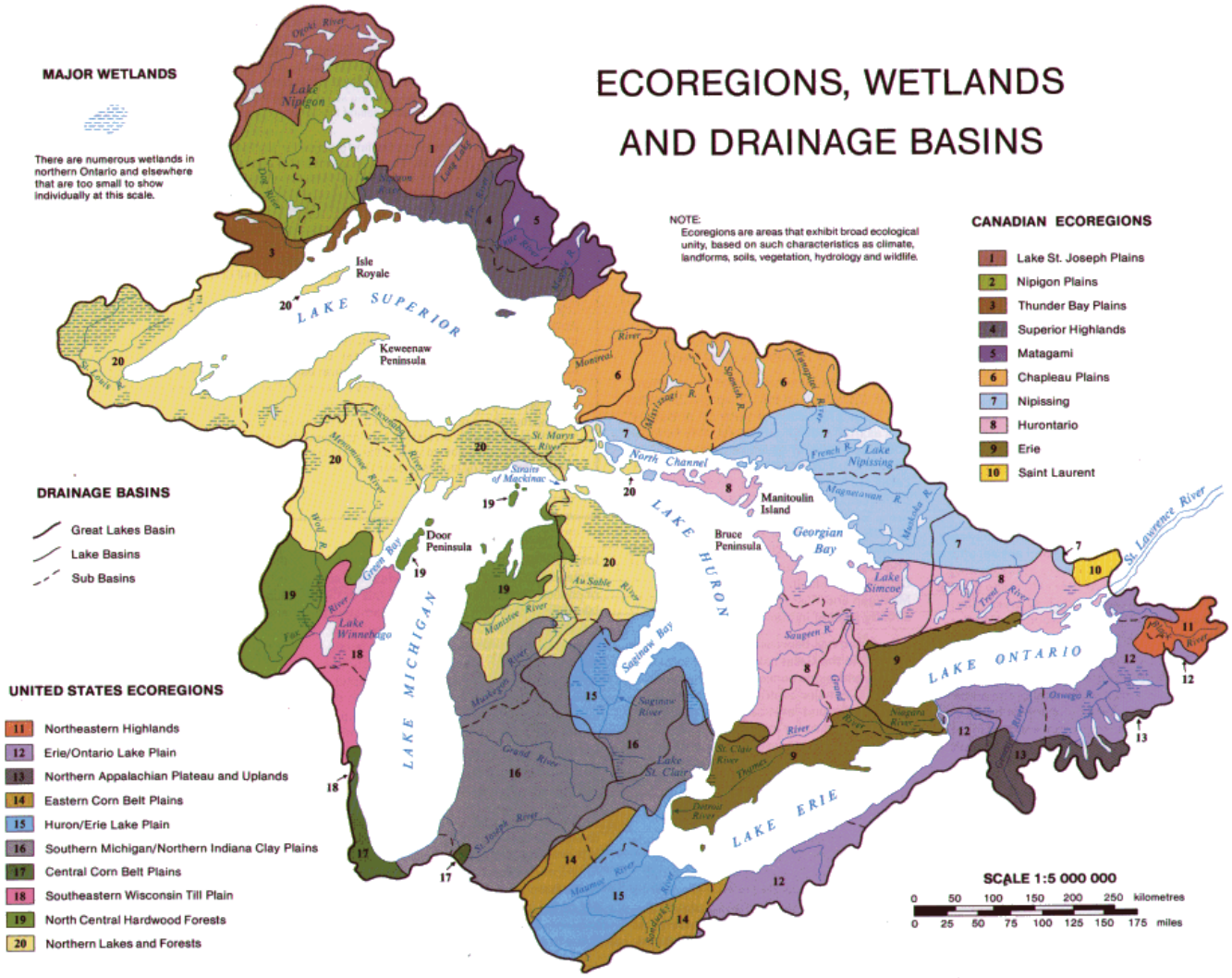


Figure a-2 London is in the "Erie" ecoregion. The biotic zones are directly linked to the Lake Erie Lowland ecoregion. A combination of factors like climate and soil types make this ecoregion particularly fertile.

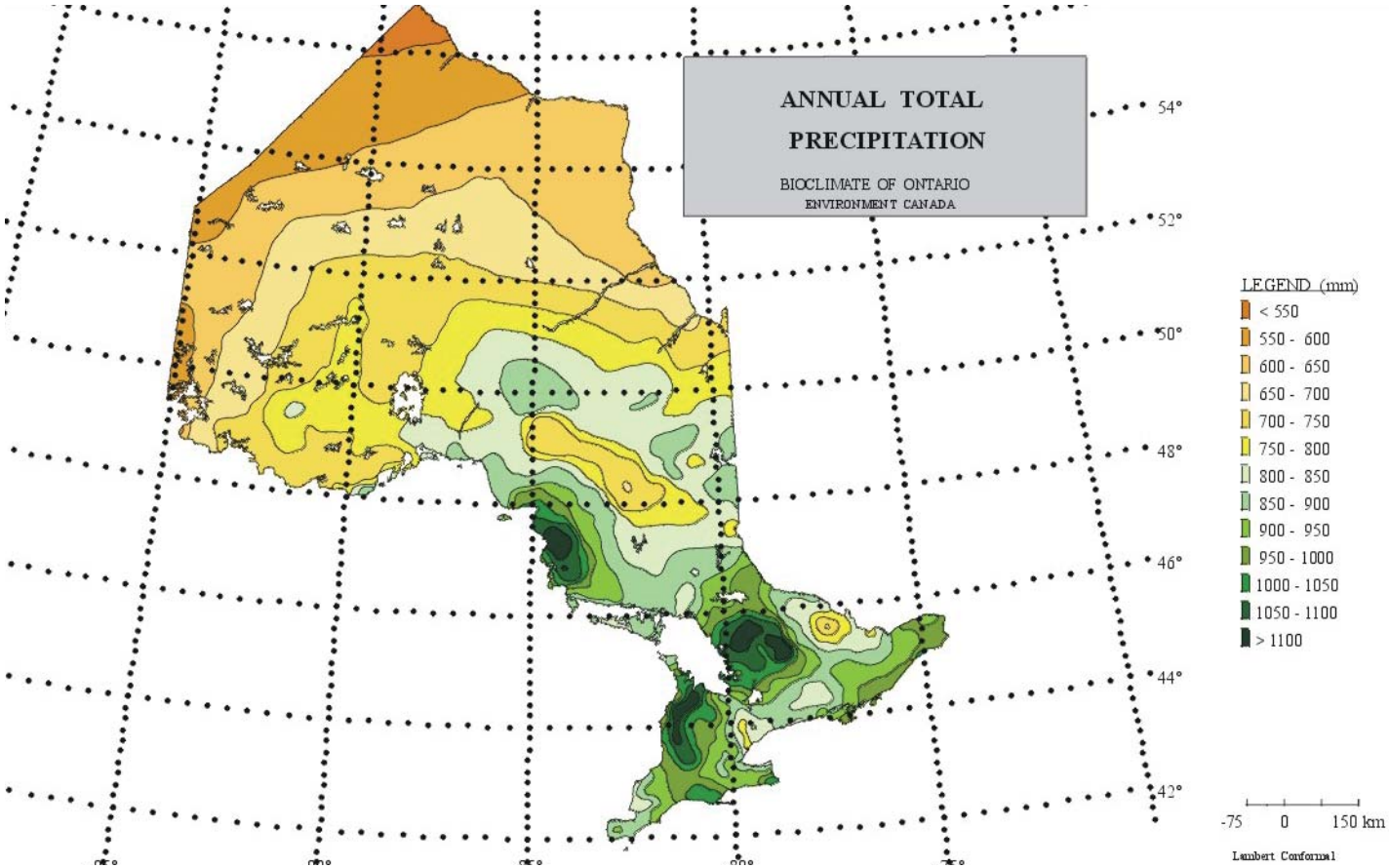


Figure a-3 London is in an area of high precipitation, with areas of very high precipitation to the North and South. This is due to the weather anomaly that is referred to as the "lake-effect". Precipitation also affects biotic factors like the type of species that grow well in that region.

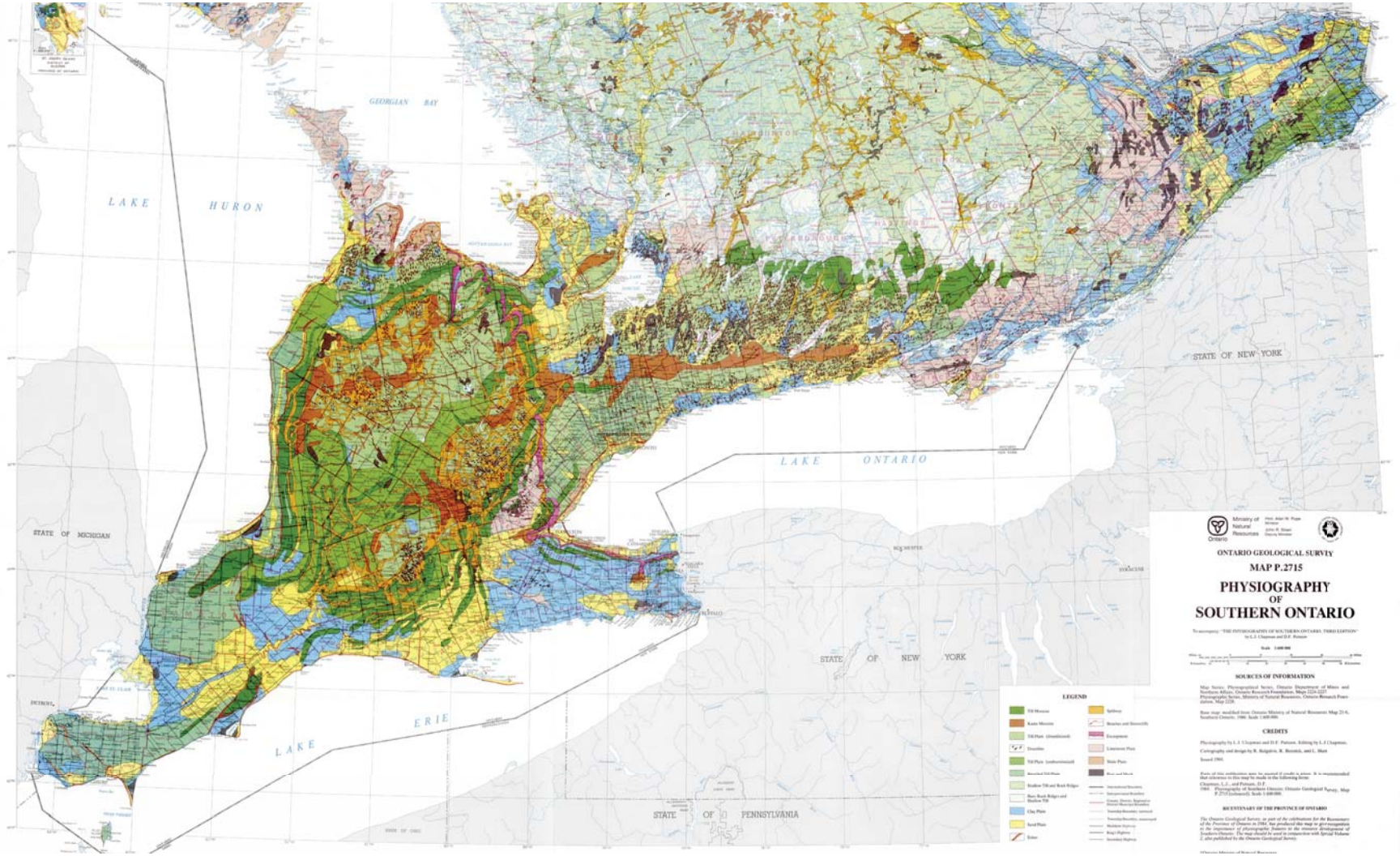


Figure a-4 London is a mixture of till moraine, undrumlinized till plain, sand plain, and spillway.

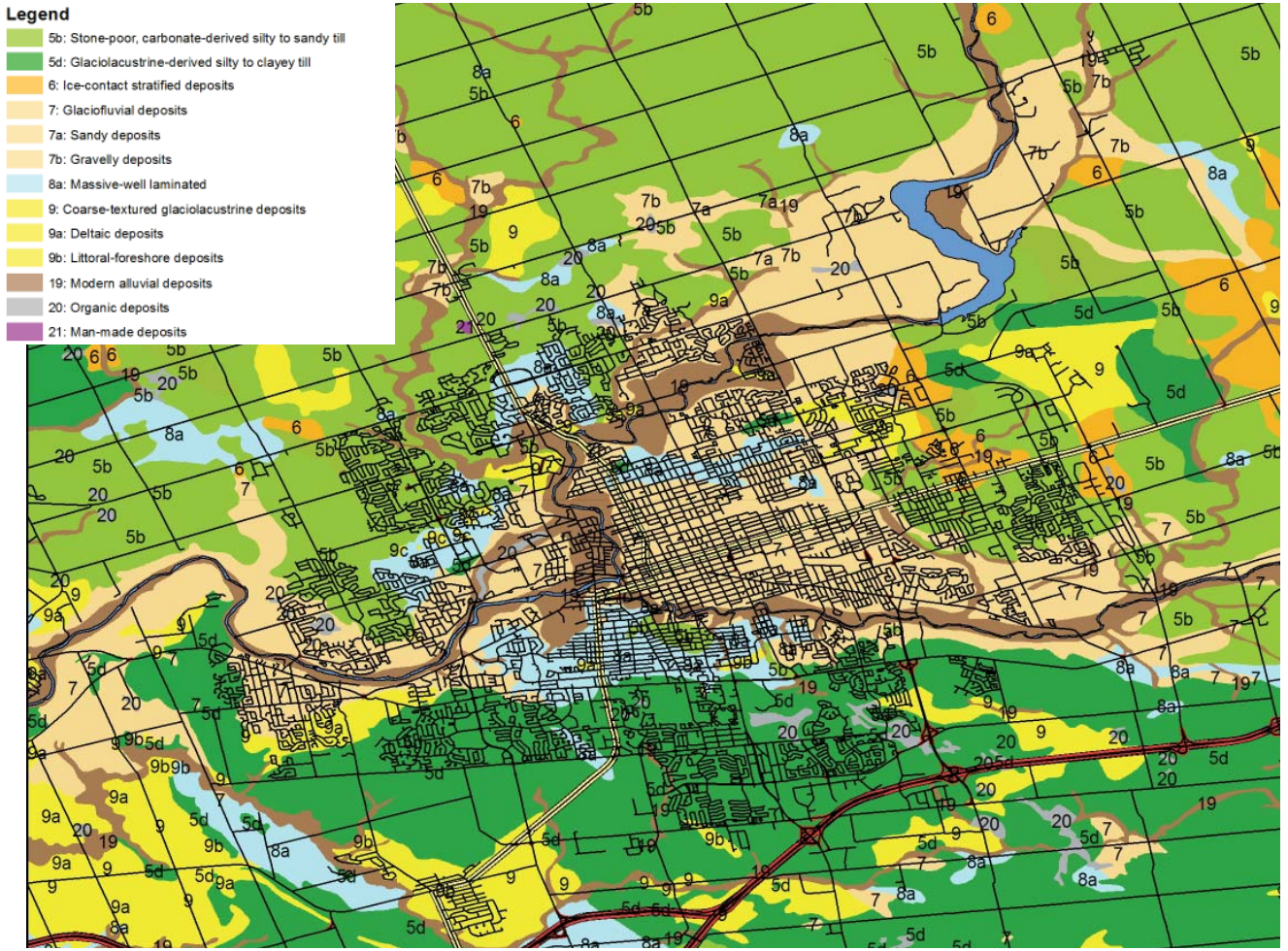


Figure a-5 Much of London's soil types are directly related to the Thames river that flows through the city. Most of the city is built on sandy, gravelly or glaciofluvial deposits; massive soil structure, well laminated; and modern alluvial deposits. Some of the outer city is built on stone-poor silty to sandy till; and silty to clayey till deposited into a glacial lake. Much of the soil near London is a product of glacial meltwater.

Appendix B: Biotic Information

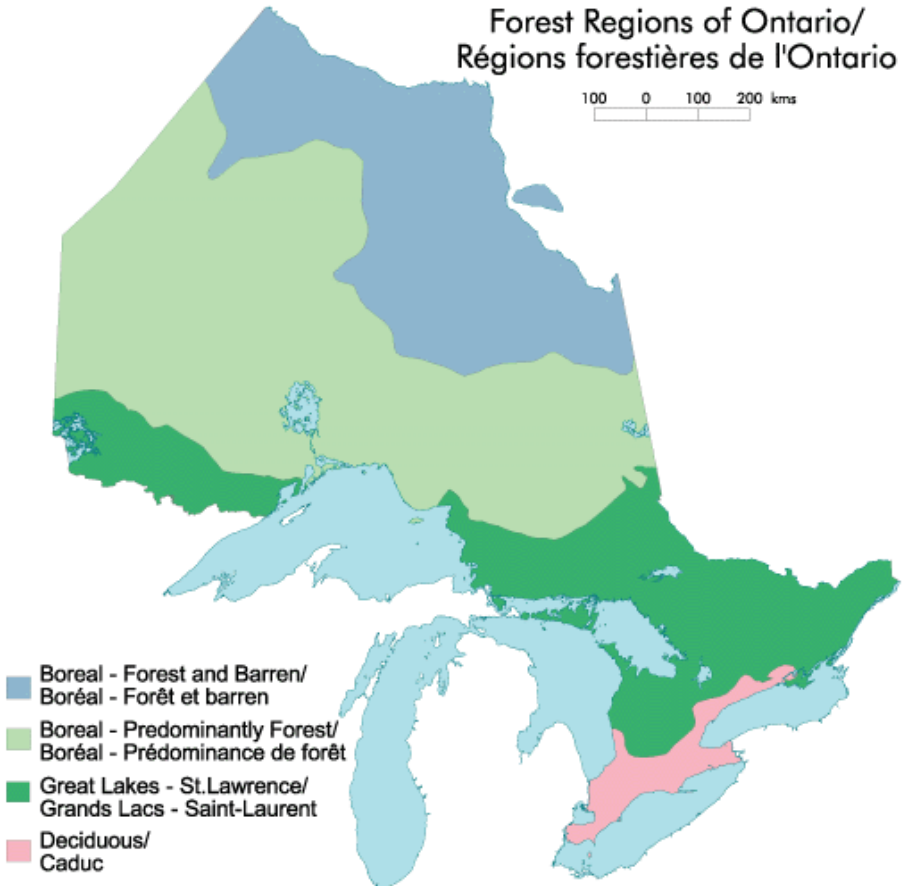


Figure a-6 The Deciduous forest region follows a very similar boundary to the Lake Erie Lowland ecoregion. This similarity is because of the climate and soil type support the species that grow in this area. In this region, coniferous trees such as eastern white pine, red pine, eastern hemlock and white cedar, commonly mix with deciduous broad-leaved species, such as yellow birch, sugar and red maples basswood and red oak. Species more common in the boreal forest, such as white and black spruce, jack pine, aspen and white birch also exist here. This forest contains many species of fungi, ferns, mosses and shrubs. It also contains black walnut, butternut, tulip, magnolia, black gum, many types of oaks, hickories, sassafras and red bud.[1]



Figure a-7 Types of crops commonly grown in Southwestern Ontario

arrowhead
asparagus
bedstraw (aka cleavers)
bistort
bittercress
bracken
bugleweed
bulrush
burdock
camas (aka blue camas)
canada lily
carrion flower
catnip
cattail
chickweed
chicory
chufa
clover
cocklebur
coltsfoot
common orache
common sweet clover
cow-lily
dandelion
devils club
ditch-stonecrop
dock
elephanthead lousewort
false solomon's-seal
fireweed
fleabane
fragrant water-lily
garden orache
ginseng
goldenrod
greenbrier
ground ivy
groundnut (aka potato bean)
high mallow
hyssop
indian pipe (aka ghost plant)
jerusalem artichoke
knotweed
lamb's quarter
marsh-marigold
mayapple
musk mallow
mustard
northern water plantain
oxeye daisy
pearly everlasting
peppergrass
pickerel weed
pickleweed (aka glasswort, sea asparagus)
pigweed
pineapple-weed
plantain
prickly-pear cactus
quickweed
salsify (aka goatsbeard, oyster plant)
sea milkwort (aka sea milkweed)
seaside sandplant (aka sea sandwort, beach greens)
self heal
sheep sorrel
shepherd's-purse
silverweed (aka cinquefoil)
sow thistle
speedwell (aka brooklime, gypsyweed)
stinging nettle
stonecrop
stork's-bill
strawberry-blite
sunflower
swamp hedge-nettle (aka marsh woundwort)
sweet gale (aka bog myrtle)
sweetflag
thistle
violet
watercress
wild bergamot (aka horsemint)
wild ginger
wild licorice
wild mint
wild rose
wood betony
wood lily
woodsorrel
yellow clintonia
yellowcress

Figure a-8 A list of native wild edibles commonly found in Southwestern Ontario

Indicator Species

Urban apiaries have been springing up everywhere lately, an interesting offshoot of urban agriculture. Honey and bees sit somewhere between produce and livestock, because it's both but it is also neither. Even vegans are contested around the idea of eating honey because its technically an "animal by-product". However, honey seems to be more of a hybrid animal-plant by-product.

Honey bees, or apiaries are also interesting because they both rely on and support a healthy biotic ecosystem. They support a healthy biotic system by pollinating plants, and "without pollination, agriculture quickly becomes less efficient—requiring more land and water to grow the same amount of food—and our diets lose nutritionally vital variety." (Pesticide Action Network North America, 2012). They require a healthy biotic system that provides them with nectar producing flowers.

Bee populations have several threats that the recently declining bee population has been attributed to: nutritional stress due to habitat loss caused by herbacides for genetically engineered crops; pathogens like parasite mites, viruses and a gut fungus; and direct poisoning from aerial sprayed pesticides.

Because of this symbiosis between bees and the environment, they have been deemed an indicator species, which means that the presense, absense or abundance of bees is an indicator of the health of the environmental conditions bees rely on.

References:
"Honey Bee Habitats." *British Beekeepers Association (BBKA)*.
"What Is an Indicator Species?" *Encyclopedia of Life.*



Figure a-9 A honey bee is an indicator of the health of an ecosystem

Appendix C: Case Studies







The Stop Community Food Centre

du Toit Architects Ltd.
Artscape Wychwood Barns, Toronto

The Stop Community Food Centre (CFC) is an organization that supports extensive outreach programming and is located in the Artscape Wychwood Barns along with live-work studios, art studios and office space. It was an adaptive reuse project that took an old streetcar repair facility and turned it into a multi-use space that served to revitalize the area as well as pay homage to its past through photos and information plaques.

The barns were saved from demolition by a partnership between two nonprofit organizations: Artscape and The Stop CFC. They were supported by heritage associations, the City of Toronto and City Councillor Joe Mihevc. The project received funding from the Metcalf Charitable Foundation and support from the Ontario government.

The Stop occupies the Green Barn, which is used for sustainable food production, education centre, a state-of-the-art greenhouse for year round food production, and also has a compost area, industrial kitchen, gathering/event space, sheltered outdoor court with masonry oven, fruit trees and other sensitive large plants, and The Stop's offices.

The events that take place here include cooking classes, gardening workshops, farmers market and after-school programs all centred around the core ideas of community engagement and healthy eating.

The Stop highlights the benefits of adaptive reuse projects as well as how food-related community programs can reinforce the importance of urban agriculture. The initiatives started here led to a feasibility report on the local food system in Southern Ontario and explores changes to policies that could support the local food movement.

Figure a-10 Greenhouses at Wychwood Barns

Figure a-11 The Stop Market

Figure a -12 Front doors of Artscape Wychwood Barns

Wood Street Urban Farm

SHED Studio
Chicago, Illinois

Wood Street Urban Farm created a transitional employment program that educates the homeless and unemployed by offering them a 6 month job and providing them with agricultural training. Growing Home is the not-for-profit organization that runs this outreach program, located in an area designated as a "food desert". "Nearly 90% of Growing Home's employees end up finding stable housing, and two thirds of them go on to either full-time jobs or further job training."

The Chicago Coalition for the Homeless acquired the federal surplus land to create an urban farm. This project is the result of a collaboration between local architects of SHED Studio and Growing Home outreach program. The area has suffered from abandonment and has declined since the 1960s. The resultant vacant land has become an incubator for illegal activity and general social despondency. Wood Street Urban Farm strives to solve two problems with one solution: providing business, job training and employment while providing low-income and vulnerable populations with fresh food.

The land was acquired from the City of Chicago for one dollar, and initial funding was provided by a special social enterprise grant and many of the materials for the building were donated. Growing Home is now an active participant in the City's "Eat Local, Live Healthy" initiative.

The partnership with local architects passionate about social justice was key to this project's success. Wood Street Urban Farm illustrates the symbiotic relationship that can exist between people and nature: plants benefit from care and cultivation by people, and in turn that biophilic relationship can build self-esteem and make people feel more connected; urban agriculture can be especially helpful for seniors with health concerns, who may feel isolated or who may feel like a burden to their family.

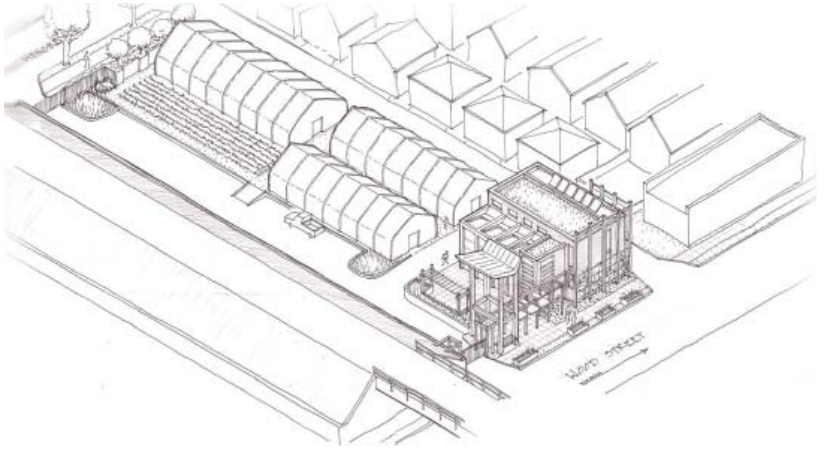




Figure a-13 Axonometric sketch for Wood Street Urban Farm
Figure a-14 Wood Street Urban Farm



Figure a-15 Kale in the garden in Centre Vale Park

Centre Vale Park

Edible Incredible
Todmorden, UK

Todmorden, UK is a unique town where a community group worked hard to make the landscaping not only flourish, but flourish productively. Flowering bushes have been replaced with berry bushes and ornamental plants by edible plants. Pam Warhurst is one of the founders of the Edible Incredible movement that transformed the town of Todmorden. In a TED talk she gave, she explained that the community group had a specific question they were trying to answer: "Can you find a unifying language that cuts across age and income and culture that will help people themselves find a new way of living, see spaces around them differently, think about the resources they use differently, interact differently?" (Warhurst, 2012). The answer they found was food.

She recognized three key goals to their cause: community involvment, learning and education, and also business support. These three goals were key to creating resiliency and re-inventing the idea of community. It began with small ideas like a seed swap and planting gardens in small neglected pieces of land. Then the new doctor's office that was built gave them permission to re-plant their landscaping with edible plants. It exploded from there; there's corn in front of the police office, planting gardens at the seniors' home, and it created shared garden beds all around the city. Everyone can be involved in some way: some people don't want to help plant, so they cook the seasonal food for community events, or there's another group of people designing educational plaques for the gardens.

Pam Warhurst admits, "Now, none of this is rocket science. It certainly is not clever, and it's not original. But it is joined up, and it is inclusive. This is not a movement for those people that are going to sort themselves out anyway.This is a movement for everyone. We have a motto: If you eat, you're in." Ultimately, it's about investing in kindness, the power of small actions and about building a kinder, better future.

Appendix D: Essay

"It's not the land that's broken, but our relationship to land. We can heal that, you and I, together. It starts by asking ourselves, 'What will I give in return for the gifts of the earth?'"

- Robin Kimmerer

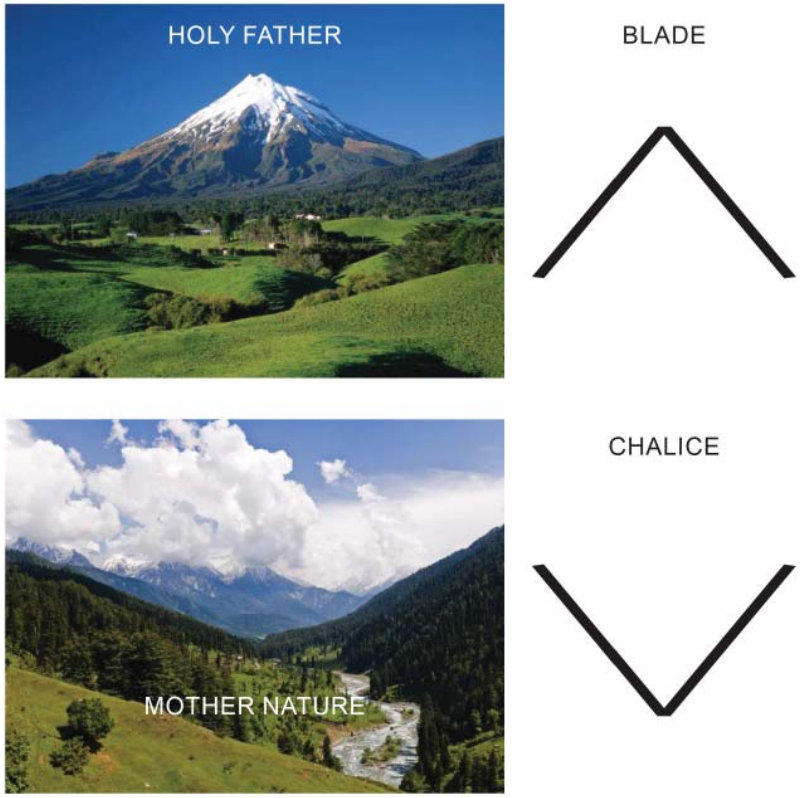


Figure a-16 (Above) Masculine and feminine qualities in the natural environment

Feminine Qualities in Urbanism

Cities have largely been planned and designed by men, historically speaking. Almost a hundred years have passed since women won a significant victory, giving them the right to vote and subsequently more influential power, but it has been a slow and steady uphill struggle. Today we see even more women holding influential positions that deal with infrastructure, urban planning and design, sustainability and architecture. It took nearly 100 years for the tables to balance, and some may still argue the gender gap isn't completely gone. However this shift has certainly changed the way we design the built world. The gender (im)balance has had a significant impact, and will continue to influence the (un)built world. This relationship reveals our relationship to the land and how it influences our design decisions.

It is easy to find male and female qualities in the natural environment. Take for example a mountain and a valley. Mountains are a symbol of power, solitude, sun, transcendence, reaching to the heavens[1]; the idiom "moving mountains" refers to accomplishing a difficult task. Even in its shape the mountain resembles the symbol of a blade: a symbol of masculine power[2]. This symbol of the blade, this mountain, points upwards, pointing towards the realm of the Holy Father. Valleys on the other hand are a symbol of life, fertility, shadow, collection of water, draining down into the earth[3]. They resemble the symbol of the chalice: a symbol of female divinity, reaching down into Mother Earth[4].

Now when these symbols are translated from the un-built to the built world, from nature to city, mountains become the buildings that stand tall above the surface of the earth, and all of the soft-scaping,

the grass, the flowerbeds, and the landscaping, acts as the valley, the channel that allows water to find its way back deep underground. But how many times do these 'valleys' within the city seem forgotten and neglected; how many times do you pass one littered with cigarette butts and other filth generated by civilization; how many times does it just seem like that sad piece of land is the leftover scrap of fabric from a carefully crafted garment? That little 'valley', that little piece of leftover land has lost its meaning as a symbol of life and fertility. Or even take the remembered pieces, the parks and the gardens, what symbolism of life and fertility do they retain when they become mere ornaments to the city, victim to regular watering and pruning for fear of becoming unruly in the eyes of society. They must reflect the health and well being of society, so they must be maintained; appearances must be maintained.

Clarissa Pinkola Estes recognizes this problem among wolves and the archetype of the Wild Woman: "They have been targets of those who would clean up the wilds as well as the wildish environs of the psyche, extincting the instinctual, and leaving no trace of it behind. The predation of wolves and women by those who misunderstand them is strikingly similar."[5] And the way we target nature within the city is also strikingly similar. Estes uses phrases like "the woman who lives at the edge of the world,"[6] to describe the Wild Woman archetype, but more specifically the Wild Woman is the archetype behind instinctive nature, the natural psyche, or the intrinsic nature of women.



Figure a-17 (Above) Tia Dalma/Calypso from the movie Pirates of the Carribean is an example of a fictional character in the archetypal role of the wild woman



Figure a-18 (Above) Wild woman archetype: woman who runs with wolves

Endnotes:

1 Fraim, John. *Symbolism.Org: Symbolism of Place: 2. Natural Places.* Symbolism.Org: Symbolism of Place: 2. Natural *Places*. <http://www.symbolism.org/writing/books/sp/2/page7.html>.

2 "The Secret Language of Symbols: A Guide to The Structure of Spiritual Emblems. *Symbol Dictionary: A Visual Glossary.* <http://symboldictionary.net/?p=1914>.

3 Ronnberg, Ami, and Kathleen Martin. *The Book of Symbols*. (Köln: Taschen, 2010.) 110.

4 *Symbol Dictionary: A Visual Glossary*.

5 Estes, Clarissa Pinkola. *Women Who Run With the Wolves*. (London: Rider, 1992.) 2.

6 Ibid.