

Architecture for Community Support and Urban Agriculture

by

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Dalhousie University is located in Mi'kmaq'i,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

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Abstract

Food insecurity has become a significant global challenge as food systems are controlled by large scale food retailers and supermarkets that distance the consumer from local fresh food. Alongside this model, a bottom-up approach is emerging - one that includes urban agriculture as a social asset implemented by local community initiatives.

In Halifax, Nova Scotia, these local growing systems augment the neighbourhood's community support structure by channelling existing social capital to empower people while prioritising local fresh produce. Supporting these, often transient, growing spaces is a network of buildings - community kitchens, gathering spaces, produce markets, greenhouses, community hubs, among others. This thesis asks if this architecture of local production can create opportunities for linking a neighbourhood's social support, urban agriculture and community while establishing a local fresh produce culture as a permanent social asset.

Acknowledgements

The research work within this thesis would not have been possible without the guidance and encouragement of my supervisor Susan Fitzgerald, who introduced me to the opportunities and possibilities to be explored in the subject of food and its role in shaping places and the urban environment. The stimulating and well prepared lectures introduced mapping methods that allowed a thorough study of the territory, as well as the use of rhythm analysis as a tool to understand the quotidian and formation of social space.

I was very fortunate to have Catherine Venart as an advisor through the entire process. Her guidance in the initial steps of the research were crucial in working on a research and design proposal that originated from the site, taking on a bottom up approach. All of her insights and suggested readings were relevant and a part of this thesis.

I would like to thank all my professors, classmates and especially my family for the support and friendship I found these past two years. This would not have been possible without you.

Chapter 1: Introduction

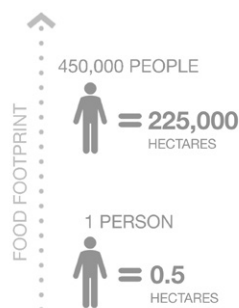
Food Insecurity

Food insecurity has become a significant challenge in Nova Scotia mostly due to a globalized food system where a few food retailers control the distribution as well as the variety of food available to consumers. Fresh produce and fruits currently found in the supermarket's shelves are not made available based on local cultures, but by prioritizing economies of scale which focus on increasing production to lower costs and maximize profit. The variety of fresh produce and fruits distributed to grocery stores is mostly selected based on its shelf life and its capability to resist the [effects] of processing and transportation of the global distribution system which aims to deliver fewer variety of products to more people (Steele 2008, 59). The major consequences of such centralized, top down, global food system is an imposed passivity regarding food production and nutrition that leads to the decline of social-justice both in the production and consumption extremities, the diminishing ecological integrity of natural resources as well as a direct negative impact on the population's health.



Nova Scotia agricultural land resources.

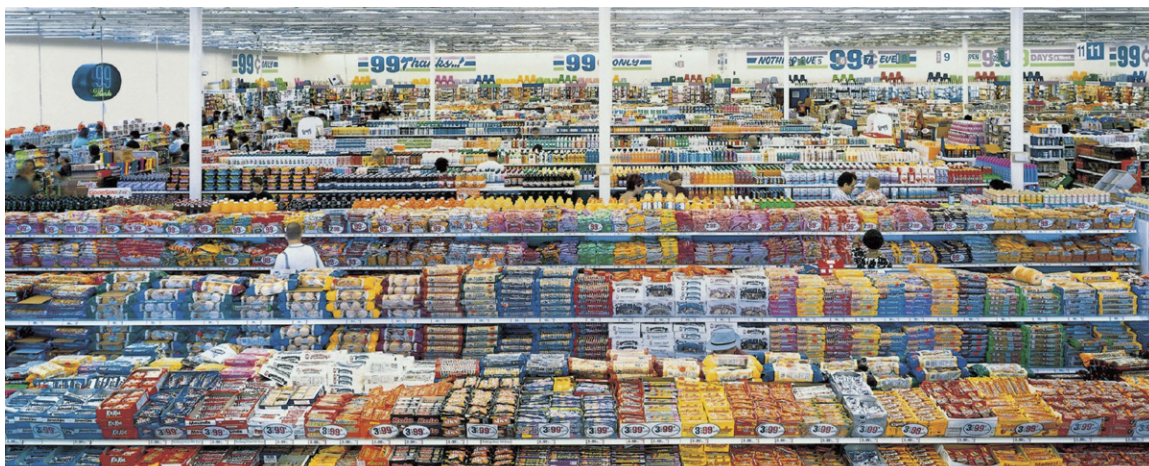
Social Justice and the Supply Chain



Halifax urban area food footprint.

To arrive at supermarkets, food is dependent on a vulnerable supply chain where the source as well as production conditions are obscured from the consumer. Nova Scotia is highly dependent on the global food system to supply its residents with nutrition, and although it is a port city, most of the food that stocks supermarket shelves arrive by land transport through the Trans-Canada highway 104 as the only access point into the province. In a province where most of the food is imported, this lack of redundancy in the food supply chain leads to an extremely vulnerable position in regards to the continuous availability of food.

Once food arrives in urban areas it needs to be distributed to retail points to be made available to consumers. The location of these retail points of sale is mostly influenced by a self-regulating market with economic criteria prioritizing areas of the city with higher income and population density. Although urban planning plays a role in defining where commercial areas are located within the city through zoning regulations, it does not guarantee an equitable distribution



The photograph titled "99 Cent" by Andreas Gursky depicts the dependency on processed food as well as the disconnect from fresh produce and agriculture. (Gursky 1999)



Hope Blooms garden with greenhouse in background (Snickerdoodle Photography; in Wade 2018).

of food retail, leading to large areas of the city to become characterized as food deserts, where the availability of, and access to nutritious food is not present. As mentioned by Morgan (2015), “From a UPE (urban political ecology) perspective then, inequitable urban food systems reflect asymmetrical power relations in the city, so much so that hunger and other forms of food insecurity are the result of the interplay of power and politics in urban space” (1384). The focus of urban political ecology theory is to transcend the binary division between nature and society with emphasis on re-naturing the city and securing social justice (Morgan 2015, 1382). The concepts of the interplay of power and politics and social justice within the urban space finds its influences from intellectuals such as Karl Marx, Henri Lefebvre and David Harvey (Morgan 2015, 1382).

The localization and sustainability in food production are terms often used to describe the focus of an improved alternative food system, but not all urban areas are capable of producing their required supply of food locally, which conveys a needed for collaboration at a regional and global level, as described by Morgan (Born and Purcell 2008 as cited in Morgan 2015), “Food system reform is often framed in terms of ‘sustainability’ and ‘localization’, implying that such terms are synonymous and necessarily progressive, when this is clearly not the case”. A major component of a sustainable food system is to contemplate social justice at a global level, which means that fairly traded globally produced food as well as locally produced seasonal food need to be included in the new food equation (Morgan 2013, 21). A food system reform needs to take in consideration the social justice aspect of the global distribution of wealth that it

currently generates.

Natural Resources

According to “Big Shoes to Fill: An Investigation of the Halifax Food Footprint”, a thesis by Stafford (2017), the food footprint for a person living in Halifax is 0.5 hectares per year (29). The Halifax urban area population is approximately 450,000 people; therefore, it would require 225,000 hectares of productive agricultural land to achieve food production autonomy for this area. Currently there are 113,672 hectares of agriculturally productive land in Nova Scotia (Stafford 2017, 2). The current food system prioritizes profit, as an example, Nova Scotia is well known for its blueberry production, in fact according to the 2019 Nova Scotia Food Self Sufficiency Integrated Report published by the Department of Agriculture, the local production has a self-sufficiency ratio of 788% (“2019 Nova Scotia Food Self Sufficiency Integrated Report” n.d.). Strikingly, regardless of producing almost eight times the amount of blueberries that are consumed in the province, local producers need to compete with blueberries imported from outside the country, that, most of the time, arrive at the supermarket shelves at a lower cost.

As a result of our current global market and mode of production, the modern food system has transitioned from the realm of the state into the hands of an elite group of global corporations that prioritizes revenue over natural resources management. The majority of the food consumed in cities today is managed by selected multinational conglomerates that control the food system from seed to the supermarket shelf (Steel 2008, 61). Conversely, food is essential to life, a resource that must be addressed by a wide range of fields



Diagram showing the research framework.

of study working towards a common understanding of the ramifications it encompasses. Food policy, once confined to a few stakeholders such as farmers, agri-business, and the state, has gained interdisciplinary interest due to its impact on social justice and ecological integrity of natural resources and landscapes. In what concerns the ecological impact, food miles are not the only factor on its carbon footprint, so the total product life cycle carbon count needs to be considered (Morgan 2013, 21).

The interdisciplinary interest, specifically of urban planning theory and urban political ecology, in the food system reform may help to overcome hindering dualisms such as town and country, urban and rural, and nature and society to point to a direction where the integration of food production and consumption can be reestablished. Concepts such as continuous productive urban landscapes (CPUL) developed by Katrin Bohn and André Viljoen create opportunities to reshape urban planning in a way to bridge the gap between urban and rural to transform urban areas into more productive and sustainable foodscapes. As described by Morgan (2015), “The CPUL concept helps the urban planning community to make good its neglect of the productive food landscape and encourages urban planners to use their substantive ‘space shaping’ knowledge to fashion just and sustainable foodscapes” (1384).

Food Impact on Health

According to Giradet (2009), “Opposition to urban agriculture has tended to come mainly from public health and urban planning circles because of concerns about water pollution and soils contaminated by heavy metals. However, research has shown that concerns about adverse

effects on public health have been exaggerated” (37). This clearly describes assemblages imposed by a bureaucratic, political and justice systems where improvements to society are curbed by the focus on the liability associated with compartmentalized governing bodies. It does not take a holistic approach to the issue, in this case public health, and ignores conditions associated with the low nutritional value and overconsumption of processed foods due to the lack of fresh produce availability within specific urban areas. As described by Paxton (2009) “Over-processed, over preserved and over-packaged foods mean that consumers are buying foods of low nutritional value. Diet related diseases such as heart disease, diabetes and appendicitis increases as societies move towards the western diet, low in fresh fruits and vegetables, and high in refined starches, fats and sugars” (45). The reliability on large chain supermarkets to allow access to fresh fruits and vegetables does not sustain public health and there need to be alternatives to supply urban areas, especially neglected low income neighbourhoods, with adequate nutrition. The employment of urban agriculture is an alternative to introduce food production in the city while increasing access to vegetated landscapes. As cited by Viljoen (2009), a study entitled ‘Measuring Access to Healthy Food in Sandwell’, undertaken in the year 2000 (The University of Warwick and Sandwell Action Zone, 2001), the study “report recognize this when they state that ‘food access has to be part of the mainstream national and regional level policy agenda for area regeneration, and for tackling poverty and social exclusion and reducing inequalities in health’ (ibid, p. 8)” (51). Moreover, diseases such as obesity are more likely to be addressed through food planning than through the

medical profession that directs its resources to treating illnesses rather than promoting health (Morgan 2013, 19).

Urban Agriculture

A alternative to a centralized food system is to introduce decentralized and diversified local fresh food production and distribution systems structured by a network linking social support, urban agriculture and the community. Cities should not only be a place to consume, but also a place to produce food. According to Morgan (2013), “Urban agriculture has always existed in hungry cities of the global south, and is reappearing in more sustainable cities of the global north, where urban designers are re-imagining the city as a farm” (19). The introduction of urban agriculture can reduce the dependency on fresh food imports while increasing the opportunities for community engagement with the production of locally grown fruits and vegetables while nurturing a connection to place.

It also needs to be acknowledged that the local focus of the food movement has significant challenges related to outreach support, environmental impact and social justice. As mentioned by Morgan (2013), “Local food planning movements must be small enough to be manageable, but large enough to make a difference beyond the neighbourhood” (21).

Existing Social Value as a Foundation

Augmenting the neighbourhood’s community support structure by working together with existing social capital to implement new urban agriculture initiatives can improve community cohesiveness while restoring mental models prioritizing local fresh food. By cooperating with the

existing social value associated with active community supporting organizations such as community hubs, community gardens, schools and childcare it is possible to engage actors that understand the community needs as well as retain prior experience with implementing such initiatives. As described by Solomon and Berg from Urbaniahoeve: “Urbaniahoeve creates ‘foodscapes’; urban landscapes that connects all elements of food related urban ecosystems, from urban green spaces, open-air kitchens and markets to groups of neighbours, high school biology students and their teachers, and social gardening clubs” (Solomon and Berg 2013, 81). Creating opportunities for a participatory environment assures the inclusion of diverse groups within the neighbourhood and increases the general community involvement and support. What people eat, and how people eat is the result of cultural transmission from previous generations. It has evolved slowly over a period, and it will take time to transition to more sustainable alternatives. Therefore, to generate enduring change, an interdisciplinary approach intersecting sociology, philosophy and architecture is necessary to structure a research and design methodology that contributes to the resilience and permanence of community led urban agriculture initiatives.

Architecture as a Means

This thesis research will initially focus on the integration of three perspectives: systems, community and social support. These overlapping approaches guide the thesis literature research, site selection and analysis to define a program that leads to an architectural design proposal that links community, urban agriculture and social support. This methodology framework is applied to bring into light gaps that may exist within the neighbourhood’s social and spatial

structure. By utilizing modes of representation to include mapping, photography, drawings and models as operational instruments in the design process it is possible to identify geographical and functional links, as well as narratives that lead to a general understanding of the site, its relationship to the city and its social support structure. The selected neighbourhood in the Halifax North End is researched at different scales, from general neighbourhood, to street, to human body, to ecosystems to compose a functional program proposed to a specific site in the area. Henri Lefebvre's concepts on urban spatial and social structure are applied to bridge the literature research and architectural design in an attempt to assure a bottom up approach with the objective to draw from the existing rhythms of everyday life and generate an architectural design proposal that supports urban agriculture by augmenting community engagement and social support. One of the goals is to draw on the neighbourhood's existing social capital by identifying possible collaboration opportunities that can gradually evolve into an expandable network that builds social interactions and community cohesion. Through the analysis of case studies within Halifax it is possible to identify consistent development patterns of urban agriculture, ranging from small private vegetable gardens to large scale urban farms and community hubs. Frequently, urban agriculture initiatives are implemented simultaneously but independently within a neighbourhood, which leads to slow development and growth, and in most cases leads to failure due to lack of structure and community support. The evolution of an urban food production culture within the neighbourhood is dependent on an understanding of the quotidian within the community and the rhythms that form

around food and other activities. Identifying existing support gaps and creating opportunities for engagement and collaboration leads to improved community cohesiveness and an increase in social capital that ultimately generates an urban environment that can promote a permanent sustainable mental model that prioritizes social justice and local fresh food.

It is important to add that in most cases food insecurity is not related to the quantity of available food, it is a direct result of income distribution. Areas with low income have high social isolation that leads to food insecurity. Therefore food insecurity is only one social deficiency among many that are directly related to poverty. As an unexpected finding, the most successful urban agriculture initiatives in the Halifax area are the ones associated to social support organizations. These organizations provide community spaces that offer an approachable and accessible environment around food, generating opportunity for people to come out of social isolation into a space where they can find support and an opportunity to heal and regain dignity. As mentioned on the documentary *Six Primrose* “We wouldn’t see as the people here in the community are lacking something, so much as the environment is lacking something that allows them to be as successful as they can be” (Hillis 2018, 20:35). Today, it is very common to have to pay to access a gathering space for socializing, and if people don’t have the money to buy those experiences they become marginalized. By providing approachable spaces where people can meet with other people from the neighbourhood to socialize, cultivate a garden, learn cooking skills, and share food may become the most important step to an improved quality of life. Therefore, one of the major benefits of urban agriculture and sharing

food may be its propensity to bring people that may need help and those who can guide and provide support together, under one roof.

Thesis Question

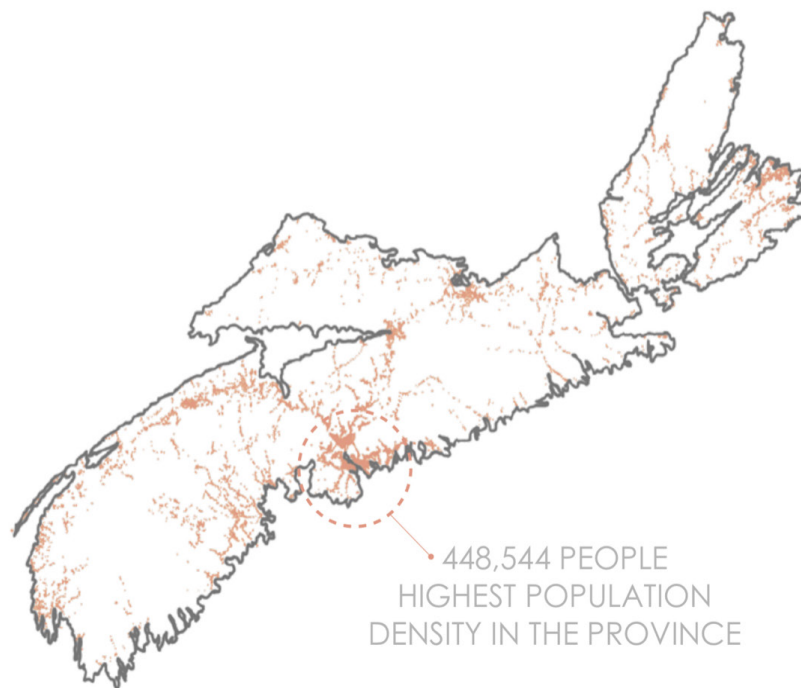
The opportunities to address food insecurity and urban agriculture in the structure of urban space and its influence on the social performance of cities is substantial. Within the realm of architecture and the current need to focus on the management of resources and its impact on climate change , the architect must also consider the social justice aspects of architectural design and its contribution in addressing food insecurity at a community level.

This thesis asks if this architecture of local production can create opportunities for linking neighbourhood social support, urban agriculture and the community while establishing a local fresh produce culture as a permanent social asset?

Chapter 2: Site Research

Nova Scotia

As previously mentioned, Nova Scotia residents are exposed to high levels of food insecurity. The amount of available agricultural land is limited and decreasing due to urban expansion and is threatened by climate change. The area with the largest population concentration in the province is the Halifax Regional Municipality (HRM) with a population of approximately 450,000 people which represents 50% of all the people residing in the province. Unfortunately, 76% of Nova Scotia's households that depend on income assistance experience food insecurity, therefore 17,000 people were supported by food banks in HRM in 2017 and one third were children ("We All Eat Infographic" 2019).



Nova Scotia's population distribution.

Nova Scotia Land Resources

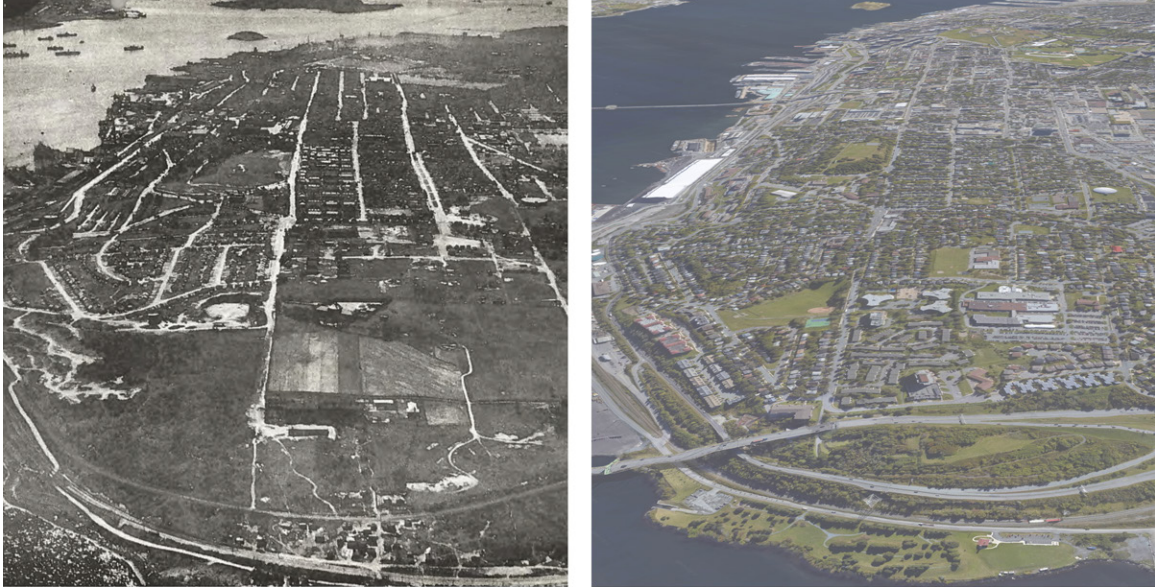
According to the Nova Scotia Profile of Agricultural Land Resources, “Land most suitable for agricultural production (Canadian Land Inventory (CLI) classes 2,3 and 4) cover slightly less than 30% of Nova Scotia’s land Area. The province’s best arable land CLI2 accounts for 3 percent of the land area, while CLI3 and CLI4 covers 18 and 8 percent, respectively” (“Nova Scotia Profile of Agricultural Land Resources” 2010).

Halifax Regional Municipality

With over 50% of Nova Scotia’s total population, Halifax Regional Municipality (HRM) is the focus of the initial research to identify areas of difficult access to fresh nutritious food. The Halifax peninsula with the largest population density represents a comparable reality common to other urban areas that may benefit from the research. Therefore



Map including GIS data showing food retail in the Halifax area.



Aerial image of the North End Halifax circa 1945 compared to recent aerial image from similar angle. (HRM Archives)

it was decided to further investigate the Halifax peninsula area to select a neighbourhood that could benefit from the results of the research. Through the use of GIS data it was possible to map the food retail spaces within the Halifax urban area and identify regions with food access deficiency and arrive at a selected site.

Halifax North End Neighbourhood

Mapping the location of grocery stores and convenience stores allowed the identification of areas with limited access to food. Based on GIS data the North End neighbourhood north of Massachusetts Avenue and west of Young Street showed a distinct limited access to food, as well as no sources of fresh food within walking distance.

Neighbourhood Site Analysis

Conceived Space

Henri Lefebvre's concepts of conceived, perceived and lived space are integrated into the framework in an attempt

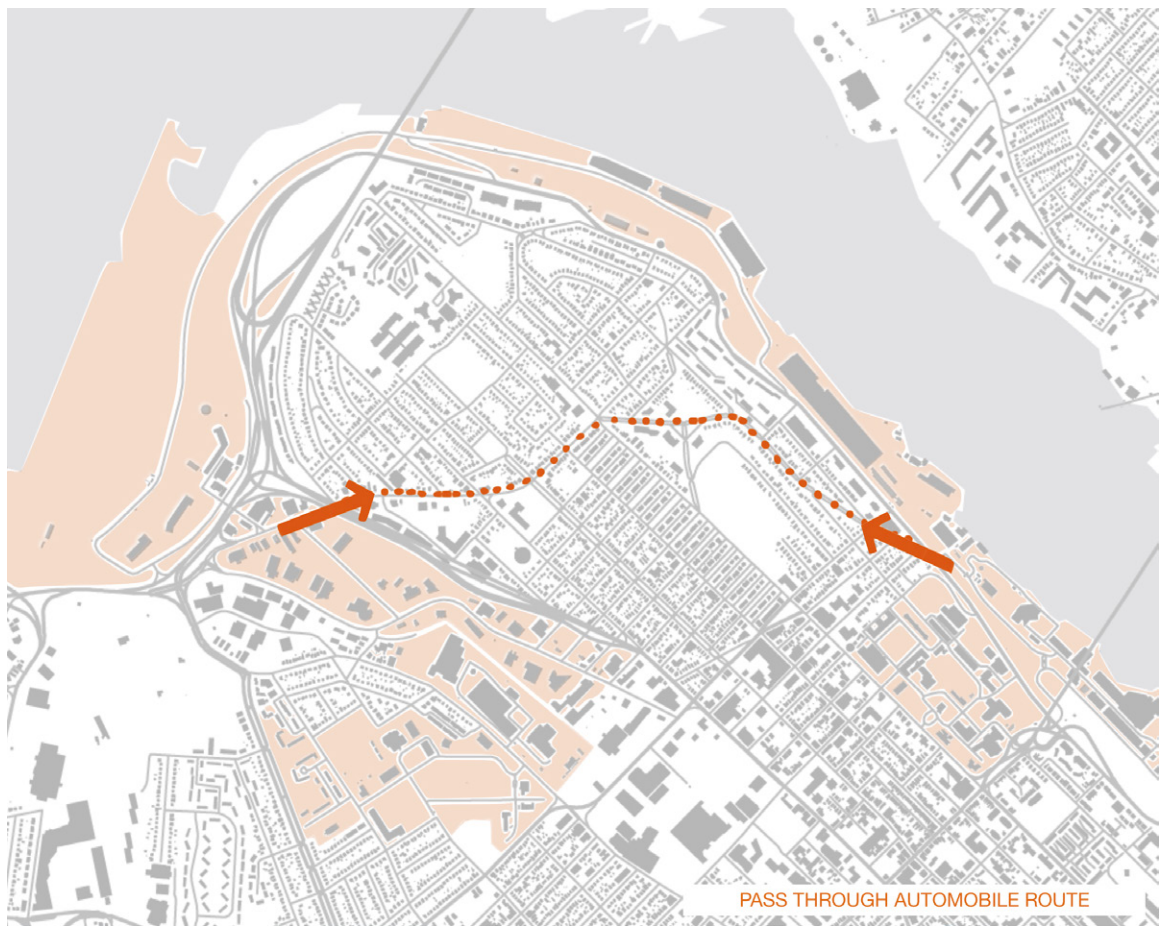
to bridge literature to the design of the future collective space. Within the dimension of the conceived space the neighbourhood has been largely isolated by the imposition of large scale transportation infrastructure as well as an encircling industrial zone, along with large scale military facilities. The only relevant connection to the city is a gap between the industrial zone and military facility to the southeast. This is also the entry point of the real estate market into the neighbourhood and its pressures that may lead to displacement through gentrification and its effect on community. The area is bisected by a pass-through vehicle route that is mostly used as an alternate access between Bedford/Clayton Park and the Halifax downtown. The wide road with considerable traffic divides the area into north and



The neighbourhood is mostly isolated by encircling industrial zoning as well as large scale military facilities.

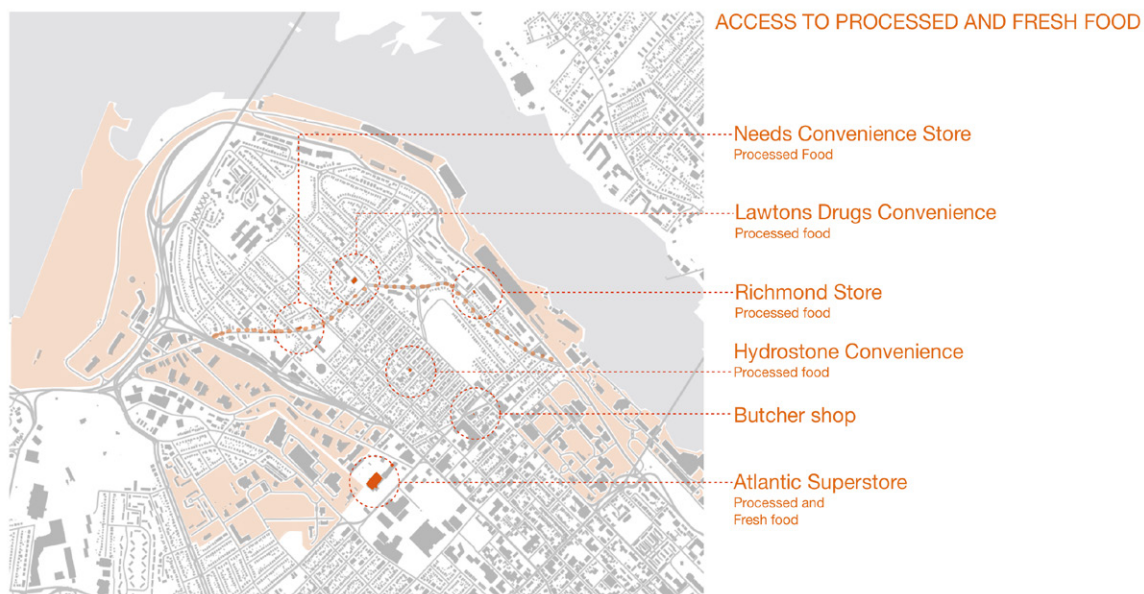
south with two contrasting social realities. The North End neighbourhood is historically loaded, with most relevant events related to the expulsion of the Mi'kmaq from the area and later displacement of established communities including the Richmond Slope neighbourhood due to the Halifax Explosion of 1917 and most recently the displacement of the Africville community. The historical displacement of these communities within the neighbourhood are well aligned with Lefebvre's criticism on urban planning and the disregard for the social aspect of the urban space. As Lefebvre mentions when referring to the general notion of space: "In scholarly use it was generally accompanied by some such epithet as 'Euclidean', 'isotropic', or 'infinite', and the general feeling was that the concept of space was ultimately a mathematical one" (Lefebvre 1991, 1). Aligned with the criticism on the general criteria commonly utilized in city planning according to Jacobs (1992), "The simple needs of automobiles are more easily understood and satisfied than the complex needs of cities, and a growing number of planners and designers have come to believe if they can only solve the problem of traffic, they will thereby have solved a major problem of the cities" (19). This North End neighbourhood certainly was the subject of urban planning strategies focused exclusively on transportation infrastructure, where Barrington Road and the adjoining railroad creates a barrier and disconnects the area from the waterfront prioritizing automobile access to the Halifax downtown. This long distance design concept of urban planning generates isolated areas within cities, which can be unintentional but, unfortunately, is often used to deliberately segregate distinct social realities within urban areas. In addition, as described by Jacobs (1992), "This is why few people, unless they live in a world of paper maps,

can identify with abstractions called district, or care much about it. Most of us identify with place in the city because we use it, and get to know it reasonably immediately” (169). The concept of the abstract space as mentioned by Jacobs when describing planned city districts overlaps Lefebvre’s notion of conceived space, which is also, at times, referred to as abstract space to describe the design of spaces removed from the social reality of everyday life. There is a great value in the knowledge about the quotidian of place, which is fundamental in the quest for the design of collective spaces that respond to local needs, as stated by Jacobs (1992), “ The basic idea, to try to understand the intricate social and economic order under the seemingly disorder of cities was not my idea at all, but that of William Kirk head of

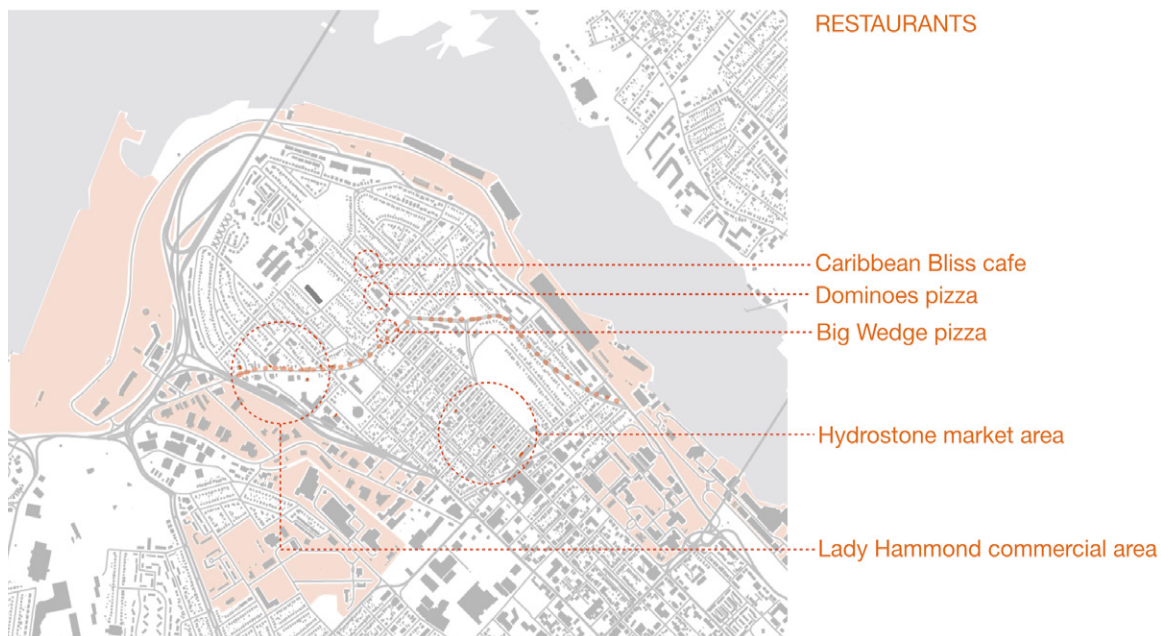


The neighbourhood is bisected by a major pass-through automobile route dividing it into two socially distinct areas.

the worker union settlement in East Harlem, New York, who, by showing me East Harlem, showed me the way of seeing other neighbourhoods, and downtowns too” (22). Moreover, the focus on the importance of diversity within the city fabric expressed by Jane Jacobs was also shared by McHarg (1992) where he mentions, “ We have become accustomed to think of a single functional land use, and the concept of zoning has done much to confirm this, a one-acre residential zone, a commercial or industrial zone, but this is clearly a most limiting concept. If we examine a forest we know that there are many species, and, thus, that many cooperative roles coexist” (128). The major urban planning abstraction imposed in this North End neighbourhood is the encircling industrial zone, that complemented by large impermeable military facilities have isolated it from the rest of the city and hindered walkability in and out of the area. This may well be one of the reasons there is a deficiency in the availability of food and commercial areas within the neighbourhood.



The area has little access to food and no walkable access to fresh food.



Existing restaurants within the neighbourhood.

Perceived Space

Within the dimension of the perceived space, with a focus on the access to food, although the neighbourhood is bisected by a major automobile route formed by Lady Hammond

Road, Duffus Street and Devonshire Avenue there is no considerable commercial uses to serve the population with food retail or other services. This leads to an urban neighbourhood with suburban characteristics mostly due to its isolation and lack of diversity, Jacobs (1992) remarks, “ This ubiquitous principle is the need of cities for a most intricate and close grained diversity of uses that gives each other constant mutual support, both economically and socially” (19). The major food retail store within walking distance to most of the neighbourhood is a Lawtons Drugs Convenience, located on the intersection of Devonshire Avenue and Novalea Drive. Within this intersection there is a liquor centre and a take-out Dominoes pizza restaurant. There are other three convenience stores in



Stepping stone created by children from the neighbourhood.



Union Street Stepping Stones Project built by community members.



The Union Street Stepping Stones project was built by the community to create a collective space. The area was previously neglected and was being used as a dump site.

the neighbourhood, Needs on Lady Hammond Road, Hydrostone on Islevile Street and Richmod Hill Store on Veith Street, all of these food retail places only offer processed foods. The closest access to consistent fresh food is the Atlantic Superstore on Young Street at a distance of 1.5 to 3km each way depending on location. Although, the Hydrostone Market area in the intersection of Novalea Drive and Young Street has a good diversity of commercial uses with restaurants, a bakery and a butcher shop, it is at the edge of the neighbourhood serving mostly the gentrified Hydrostone area and pass-through automobile traffic.

The topography in the area varies between the elevations of 76m to 3m above sea level, leading to steep inclines and abrupt grade changes, affecting walkability for those with limited mobility. This differential in topography also leads to some unused residual urban open spaces that are currently landscaped with lawns and a few ornamental trees.

Lived Space

Within the dimension of the lived space, as a result of repeated walks, visits to specific places, observations and conversations with members of the community, it is clear there is a considerable amount of social value related to community initiatives within this north end neighbourhood. There are multiple signs of a latent drive for community activism. This provides opportunities for engagement with collective spaces through urban agriculture to maximize its use value potential as food growing areas. There are opportunities to connect neighbourhood actors, such as urban farmers, local schools and social service organizations to form a network with the purpose to support fresh food flows and community resilience. This model hopes to empower the individual and the community generating

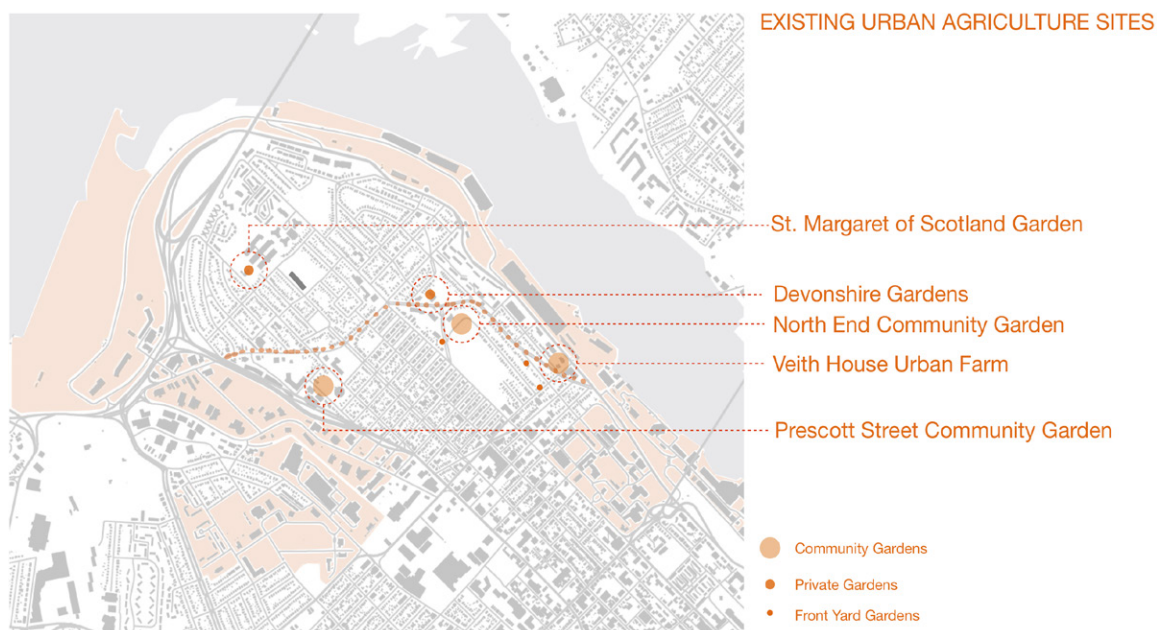


The amount Park and Community Facility spaces within the neighbourhood presents opportunities for growing areas as well as urban farms.

cohesiveness and resilience leading to a decentralized food growing initiative with a large measure of creative autonomy from the market or government.

Park and Community Facility Designation Spaces

There are opportunities associated with the number of Park and Community Facility Designation (PCF) areas within the neighbourhood. The PCF areas are Fort Needham Memorial Park, Africville Park, Seaview Look-off Park, Merv Sullivan Park, Saint Stephens Elementary School, Highland Park Baseball Field, Devonshire Arena (vacant land), Glebe Street Parkette, Memorial Drive Trail, Needham Pool and Recreation Centre, Highland Park Junior High School, Isleville Playground, Sebastian Place Park, Cabot Place Park, Mercel Place Park, Columbus Place Park, Stairs Place Park, Livingstone Place Park, Kane Place Park, Hennessey Place Park, Hydrostone Park, Kaye Street PCF,



Existing urban agriculture sites within the neighbourhood.

Saint Joseph Alexander McKay Elementary, Devonshire/ Barrington PCF, Devonshire/Veith PCF, Devonshire/Vincent PCF. As stated on the Regional Centre Secondary Municipal Planning Strategy, the planning of future urban spaces should address not only equitable access to outdoor recreation amenities, stormwater management but also socio-economic factors to address food insecurity. In addition, the Centre Plan mentions that, "Increasingly, parks also contain a wide variety of accessory uses such as urban agricultural uses, farmers' markets, food and beverage retail, club recreation, and community facilities. These accessory uses are supported in this designation to encourage diverse uses and activities" (Regionalcentresmps-Eff-22nov09-Case23820 n.d.). Most of these open green spaces have food production potential due to the amount of unbuilt available land area. Some areas such as Saint Stephens Elementary, unnamed PCF parcels in the proximity to Veith House Urban Farm, Needham Pool and Recreation Centre, Saint Joseph Alexander McKay Elementary may provide opportunities for food production associated with community and social services. The mentioned PCF already house community supporting spaces with existing social capital where active food flows can be augmented or new food flows can be implemented through urban agriculture and food related services.

Chapter 3: Halifax Urban Farms

Urban Agriculture Outside the Neighbourhood

By analysing development patterns of successful urban agriculture initiatives in the Halifax area using aerial photographs, it was possible to visualize the growth of six urban agriculture sites; three outside the neighbourhood and three within the neighbourhood.

Hope Blooms

Hope Blooms was initially a community garden with a few planting beds with the earliest aerial photograph in 2008. In 2013 the first temporary greenhouse was built. The social enterprise focuses on the production of salad dressing that can be found at local grocery stores. The proceeds from the sales of salad dressing contribute to fund a scholarship program for its members. In 2015 the construction of an off grid permanent greenhouse was completed and in 2020 the construction of a community kitchen and additional facilities was also build to house community programs.

The North Grove

The North Grove Urban Farm started in 2016 with a few planting beds and today it occupies 100% of its available area at approximately 2000m². It serves the local community with fresh produce, jobs and green space. It has two tool sheds and a temporary greenhouse along with a temporary shelter that is used as a market space during the warm months. The farm is supported by The North Grove Community hub which runs a food centre as well as a family centre to address food insecurity as well as social deficiencies within the neighbourhood.

Common Roots

Common roots had a very impressive development from 2012 to 2018 it grew to approximately 7000m². It served the local community with fresh produce, green space for hospital patients and health care professionals alike. Before its removal in 2019, it was composed by a large growing area, multiple tool sheds and a temporary greenhouse. Probably the most successful urban agriculture initiative in the city so far. Common Roots Urban Farm has been relocated to a residual urban space in the intersection of Bayers Road, Highway 102 and Joseph Howe Drive. There is an opportunity to evaluate and compare its development in its new location, where it is no longer in a central location and or supported by its close association to QEII Hospital.



Planter at Veith House Urban Farm.

Urban Agriculture Within the Neighbourhood

An understanding of the existing local urban agriculture system and community support structure is required to build a foundation to generate opportunities for growing, preparing and consuming within the neighbourhood. As advised by Meadows and Wright (2008), "Aid and encourage the forces and structures that help the system run itself. Notice how many of those forces are at the bottom of the hierarchy. Don't be an unthinking intervenor and destroy the system's own self-maintenance capacities. Before you charge in to make things better, pay attention to the value of what is already there" (178). Adding new food flows will introduce redundancy and increase resilience. Working food systems are always supported by resources and social capital that forms the community, which in turn is a social system. In her book, Meadows and Wright (2008) mention, "Some people say that in an old city neighbourhood where people

know each other and communicate regularly is a social system, and that a new apartment block full of strangers is not-not until new relationships arise and a system forms” (12). This North End neighbourhood has strong suburban characteristics possibly due to lack of collective spaces as well as a lack of a centrality offering opportunities for the production of lived spaces. Through the implementation of urban agriculture associated with social support there are opportunities to create new collective spaces that forge new relationships within the community and encourage a connection to place.

Veith House Urban Farm

The Veith House Urban Farm is being formed as part of the Veith House array of community support services. Due to its extensive social capital, structure and history within the community it was selected as a starting point to begin the research. The Veith House Urban Farm was established in 2017 with 4 raised beds, 2 hillside terraced beds, an edible perennial garden and a newly assembled greenhouse. The greenhouse is used for growing seedlings and growing season extension, as well as growing vegetables that are distributed to community members. In addition to providing the community with seedlings and fresh produce the urban farm offers resource sharing through education support programs and tools to grow food off-site. The urban farm has developed a significant network to increase its social capital related to food production by bridging to urban farming initiatives outside the neighbourhood. Among these are: Abundant Acres Farm, The North Grove and Hope Blooms. Within the neighbourhood the urban farm has as its stronger partner the Caring and Learning Centre at Mulgrave Park for whom it provides fresh produce during

the growing season as well as seedlings and educational support for food growing. The greenhouse assembly started in the winter of 2021 and due to supply shortages it was completed later than expected, in late April of that year. The Urban Farm Growth Project directs its efforts to the production of seedlings that are distributed to those that experience food insecurity and sold in an annual sale to food growing organizations, as well as direct sales to the public. The revenue from the seedling sales is directed to complementing the farm's operation. Among the distribution strategies used, a partnership with Unity Values made the seedling order process available online, where there was also an option for donation to the farm. In collaboration with the Halifax North Memorial Branch Library the farm was able to organize a pop up seedling sale. Another collaboration was with RadStorm, a collaboratively-run not-for-profit art and event space in the North End Halifax. The pop-up sales proved to be a valuable collaborative and promotional tool to make others aware of the Veith House Urban Farm. During the 2021 growing season Veith House Urban Farm donated approximately 2000 seedlings to other organizations, 720 seedlings to individual community members. The 720 seedling were distributed to community members who made direct request, or by leaving seedlings outside Veith House for passers by to pick-up as needed, as well as donated to the Veith House Newcomer's Garden Party Program. Organizations who requested and accepted seedling donations were: Immigrant Services Association of Nova Scotia, Rad-Storm, No One Is Illegal, Shelter Nova Scotia, Edible Earth Farm, The Loaded Ladle, Common Roots. The total number of seedlings distributed was

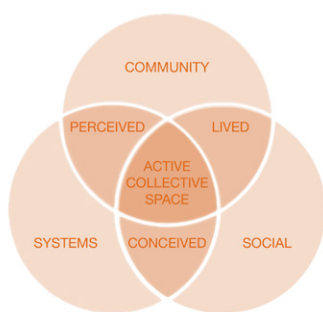


Diagram showing the research framework to include the concepts of space.

approximately 3000 with a potential to produce around 1500 pounds of food.

North End Community Garden

The North End Community Garden is located on the Union Street on the north-west corner of Needham Memorial Park. Located on a parcel of land designated Park and Community Facility (PCF), the garden has currently 22 raised beds and a tool shed. Some infrastructure for rain water harvesting has been built adjacent to the tool shed. A few of the raised beds are in need of maintenance and seem not to have been used for a while. The garden plots are rented seasonally and serves residents in its proximity.

Prescott Street Community Garden

The Prescott street Community Garden is located on Prescott street across from Highland Park Junior High School on Robie Street. Located on a PCF land partly occupied by the Halifax Regional Water Commission the community garden contains approximately 30 on ground garden beds of varying sizes, and most of the garden plots have been planted. The garden has a well maintained tool shed, and no visible signs of rain water harvesting.

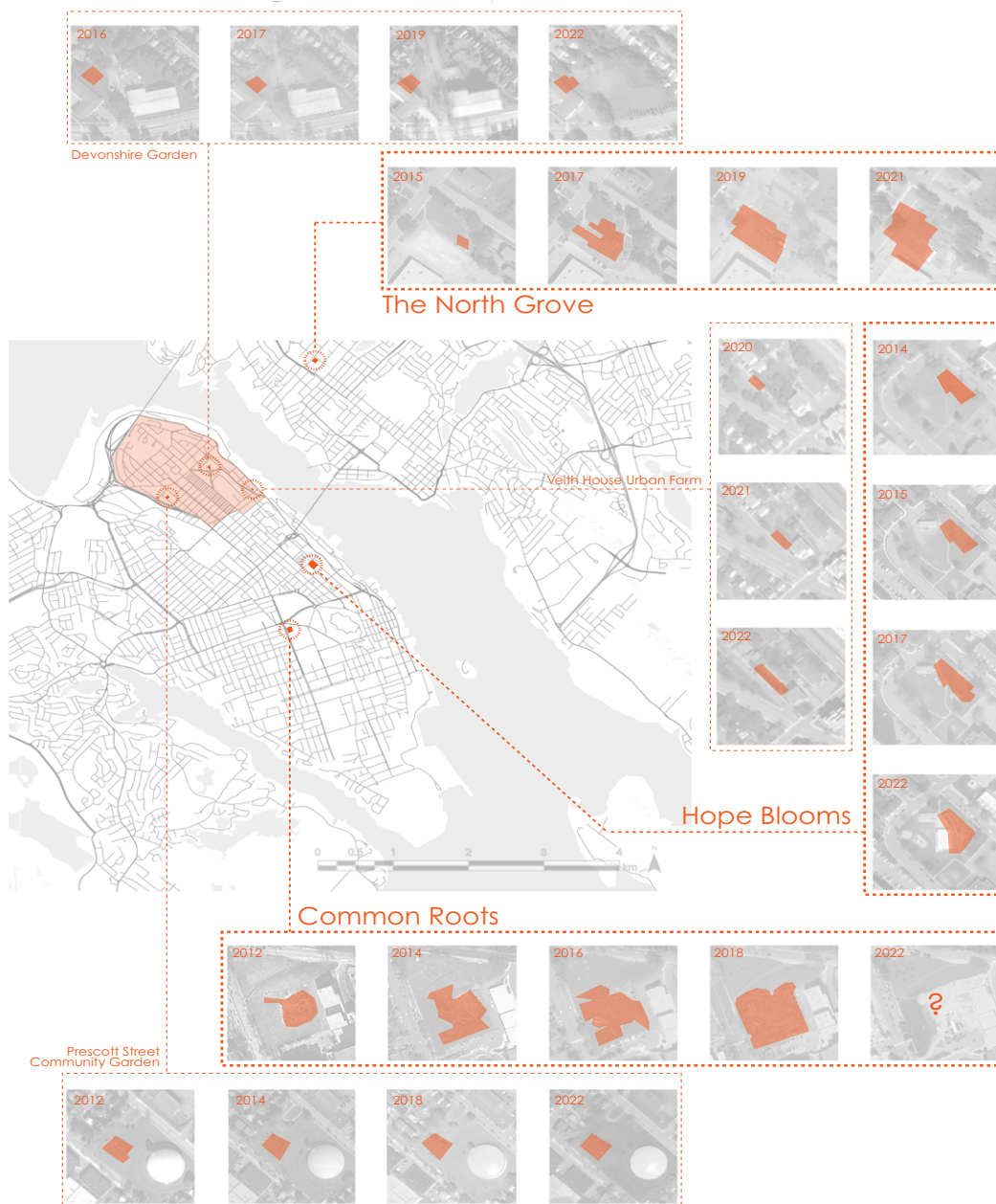
Devonshire Street Gardens

The Devonshire Street Gardens is located next to Alexandria Children's Centre and across the street from the Needham Preschool and Recreation Centre on a PCF parcel of land that used to be occupied by the Devonshire Arena. The garden has 19 on ground garden beds and most have been planted and are well maintained. There are water barrels on site but no sign of rain water harvesting. There is a tool

shed under construction, but has not been worked on for some time.

Private Gardens

Throughout the neighbourhood it is possible to identify various vegetable gardens within front yards and backyards that are visible from the street. This informs



Halifax urban agriculture development patterns.

there is a considerable amount of individual social value in food production within the neighbourhood. Through the introduction of opportunities to collaborate there is potential to generate a collective effort to develop a network of food growing initiatives

The North Grove

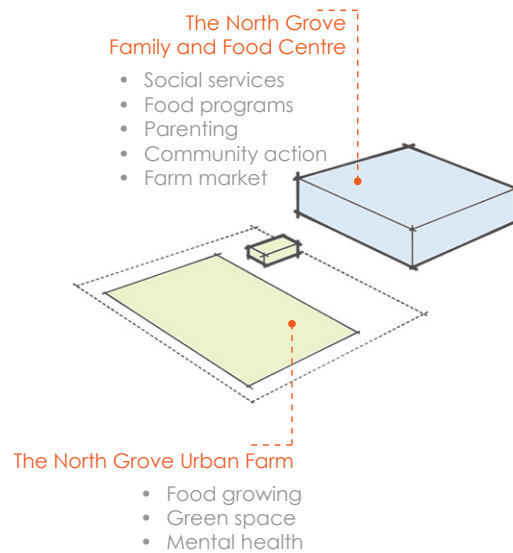


Diagram showing relationship between social support and urban agriculture at The North Grove.

Hope Blooms

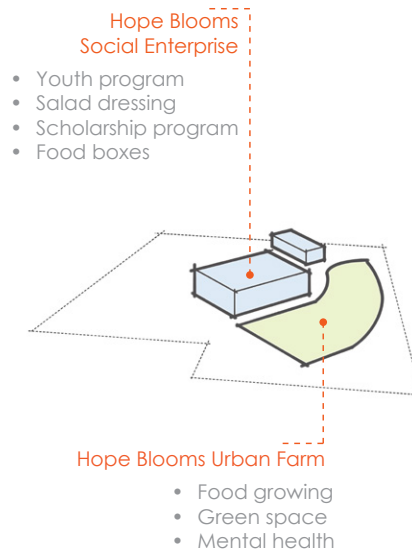


Diagram showing relationship between social support and urban agriculture at Hope Blooms.

Common Roots | QE II

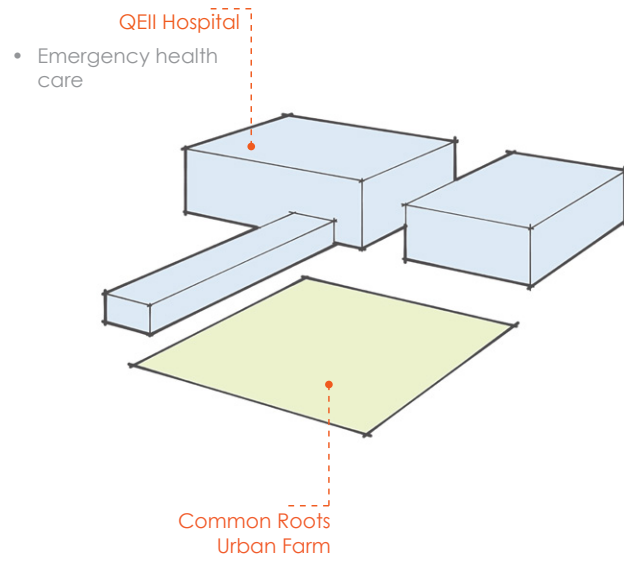


Diagram showing relationship between social support and urban agriculture at Common Roots Urban Farm.

Chapter 4: Architecture as a Means

Rhythmanalysis, Social Support and Urban Agriculture

The methodology focuses on developing a design process that responds to the quotidian and its embodied rhythms based on Henri Lefebvre's concepts of perceived, conceived lived spaces, and by utilizing rhythmanalysis as a research tool to develop a program for a building site and propose an architectural design for a collective space that enhances the neighbourhood and its sense of community. As stated by Fitzgerald:

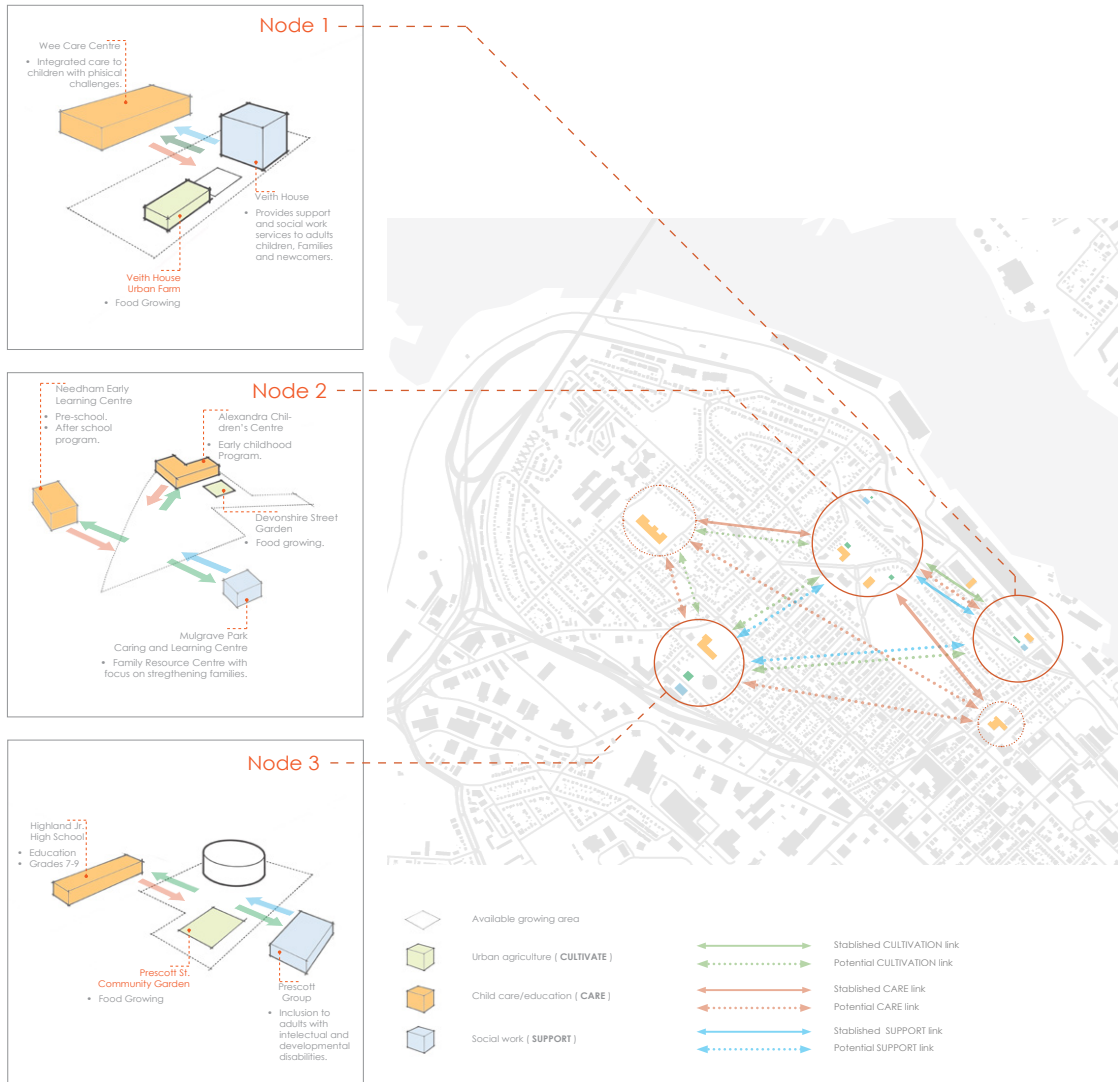
Rhythmanalysis is composed of cyclical time that encompasses seasons, circadian rhythms, and life cycles. It also consists of linear time that involves timetables that are regulated by the clock, such as work, allocated breaks, and schedules. Studying these multiple and simultaneous rhythms within the sites of cultivation that are embedded within a community reveals contradictions and connections that exist between production and consumption, and society and the state. (Fitzgerald 2022, 8)

Rhythmanalytical concepts related to linear time and cyclical time are applied to better understand the symbiotic relationship of food in the form of urban agriculture and community social support organizations. Those in social isolation as a result of socio-economic pressures imposed by a consumerist society are challenged to regain social interaction through linear rhythms of everyday life where it may seem difficult to catch up to time gone by. Lefebvre (2004) remarks, "The everyday is simultaneously the site of, the theatre for, and what is at stake in a conflict between great indestructible rhythms and the processes imposed by the socio-economic organization of production, consumption, circulation and habitat" (73). Cyclical time, on the other hand, encompasses the day and night, the months and the

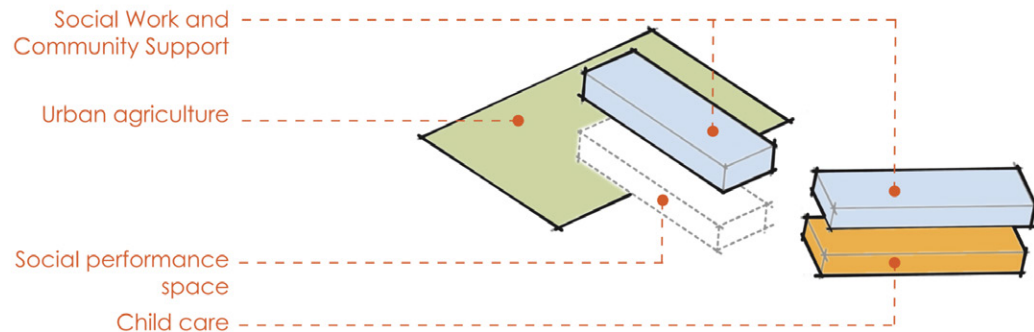
seasons along with biological rhythms that are renewed over time, as nature carries out its processes. Comparing linear time and cyclical time Lefebvre (2004) stated that “This repetition [of linear time] is tiring, exhausting and tedious, while the return of a cycle has the appearance of an event and an advent. Its beginning, which after all is only a re-commencement, always has the freshness of a discovery and an invention” (73). The daily intersection of linear and cyclical times is unavoidable in everyday life, and this may lead to situations where one becomes dominant over the other arriving at an imbalance. It is possible that in the case of social isolation linear time has become the dominant rhythm. Through cultivation in urban agriculture and the act of sharing food, social support institutions provide an opportunity for those in isolation to re-engage with cyclical time and rhythms of leisure, social interaction and support to regain strength and move on for a new beginning toward a better reality.

Neighbourhood Support Network

The general strategy of this thesis to take a bottom-up approach to identify the elements within a working system and determine how they can be augmented by an architecture design proposal that function as a catalyst to augment the symbiotic relationship between urban agriculture and social support organizations. Within this neighbourhood there is a network of existing relationships that revolve around social support, food security and child care. A clear pattern formed by established links and potential links can be identified on three major nodes within the neighbourhood.

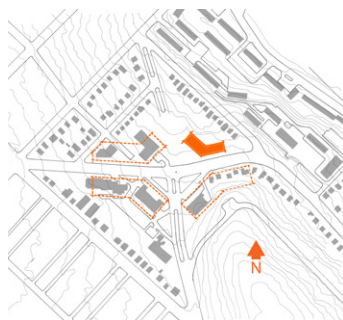


Neighbourhood support network



Proposed program diagram

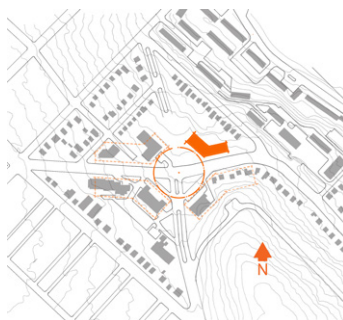
Node 1



Street space influenced by diagonal crossroads implying a node in plan.

Node one is formed by Veith House, Wee Care Centre and Veith House Urban Farm. Veith House provides community support and social work services to adults children, families and newcomers. Wee Care Centre is an early education centre with focus on integrated care to children with physical challenges. Veith House Urban Farm has a focus on the production of seedlings and fresh produce in general. Veith house rents a space in their building to Wee Care Centre's preschool program.

Node 2



Complementing the original urban design intent and conceiving the centre on the middle of the road.

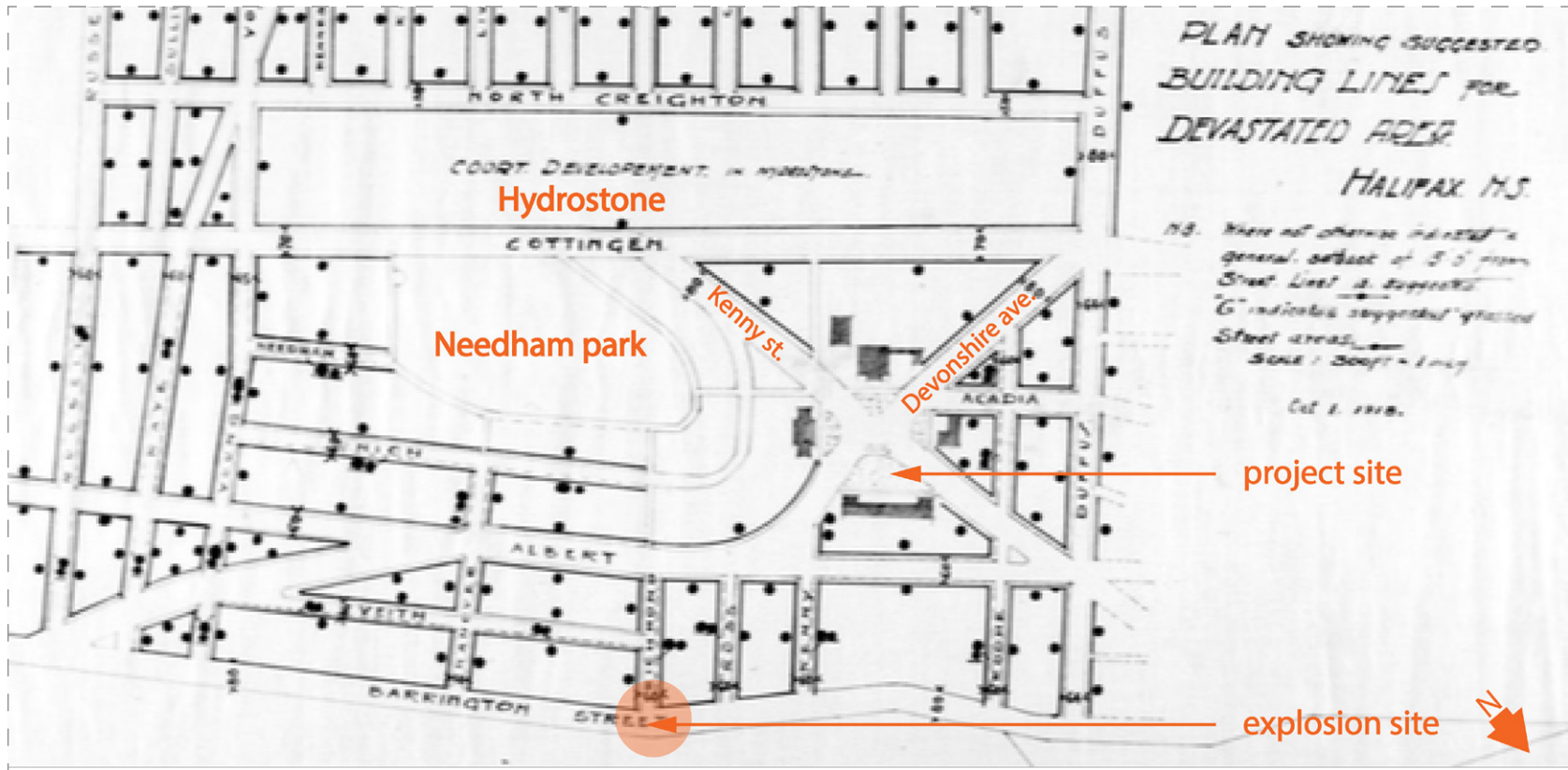
Node two is formed by Mulgrave Park Caring and Learning Centre, Devonshire Gardens, Alexandria's Children Centre and Needham Early Learning Centre. Caring and Learning Centre is a family resource centre with focus on strengthening families in the Mulgrave Park Community. Devonshire Gardens is a community garden cultivating produce in general and is formed by residents from the area. Alexandria's Children Centre offers an early childhood program that offers meals and has a cook on-site. Needham Early Learning Centre offers preschool and after school program to children attending Saint Stephens and Saint Joseph MacKay elementary schools. It provides a breakfast program to Saint Joseph MacKay children through its on-site cook.



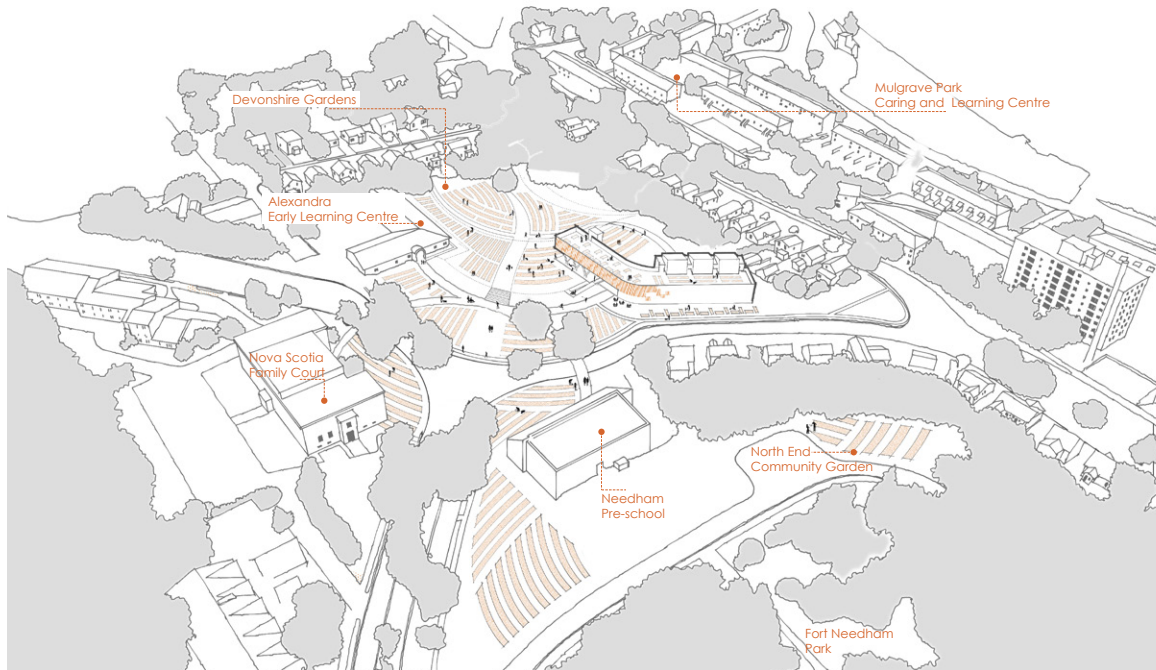
Shifting the centre and slowing down vehicle traffic.

Node 3

Node three is formed by Prescott Group, Prescott Community Garden and Highland Park Junior High School. Prescott Group provides assistance for the inclusion of adults with intellectual and developmental disabilities.



1918 urban design proposal for the devastated area affected by the Halifax Explosion (Nova Scotia Archives 2020).



Site plan perspective to show proposed project siting and urban agricultural production.

Prescott Community Garden is a produce growing space run by local residents. Highland Park Junior High School provides education for grades 7 through 9.

Secondary Nodes

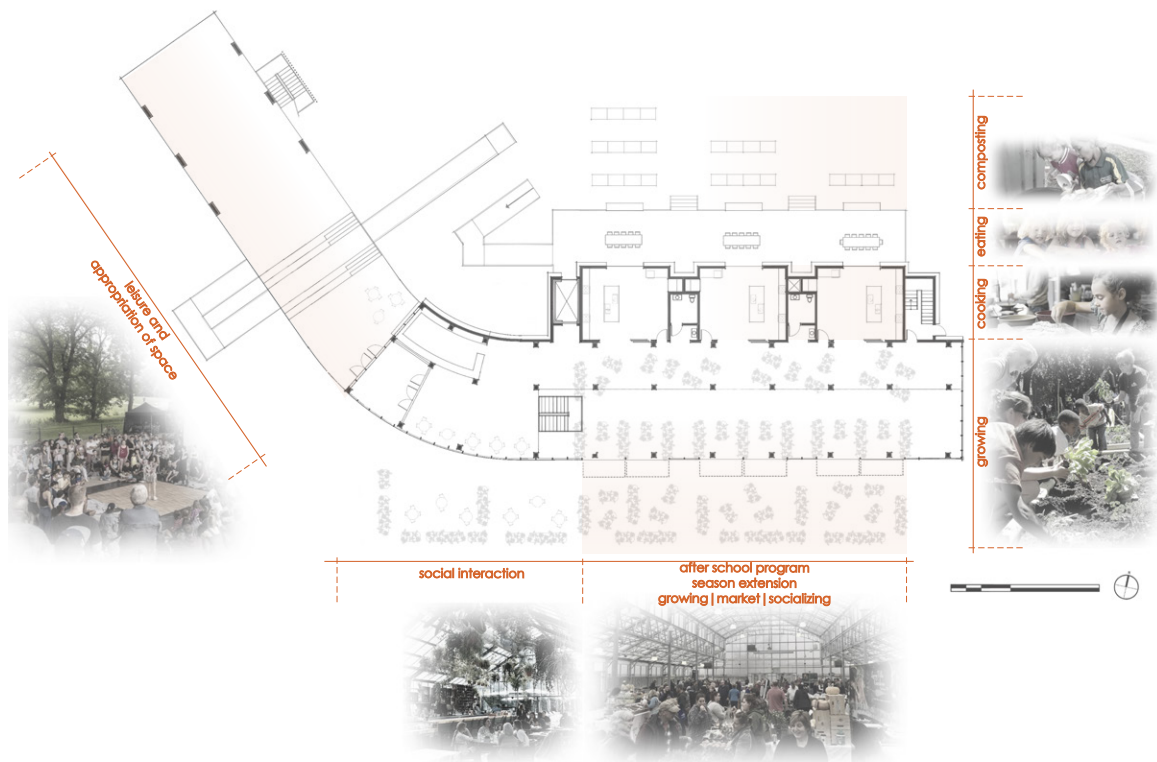
Both St. Stephens and St. Joseph MacKay elementary schools have the potential develop future on-site urban agriculture programs that could be integrated into their education curriculum in cooperation with existing urban agriculture resources within the neighbourhood network.

Network Links

Network links can be identified in relation to care (children), support (adults) and cultivation (urban agriculture). There are established links such as the after school program between the elementary schools (secondary nodes) and Needham Early Learning Centre in node 2. Social support link between Veith House in node 1 and Caring and Learning Centre in

node 2 as well as urban agriculture knowledge exchange between Veith House Urban Farm and Caring and Learning Centre in node 2. Another established link is the breakfast program provided by Needham Early Learning Centre and St. Joseph MacKay elementary. There are potential links that can be achieved between the identified nodes based on support services provided by each, but all can be connected through urban agriculture and food security functions.

Node two composed by Devonshire Gardens, Alexandra Children's Centre, Needham Early Education Centre, and Caring and Learning Centre shows the most links within the neighbourhood, as well as two established community

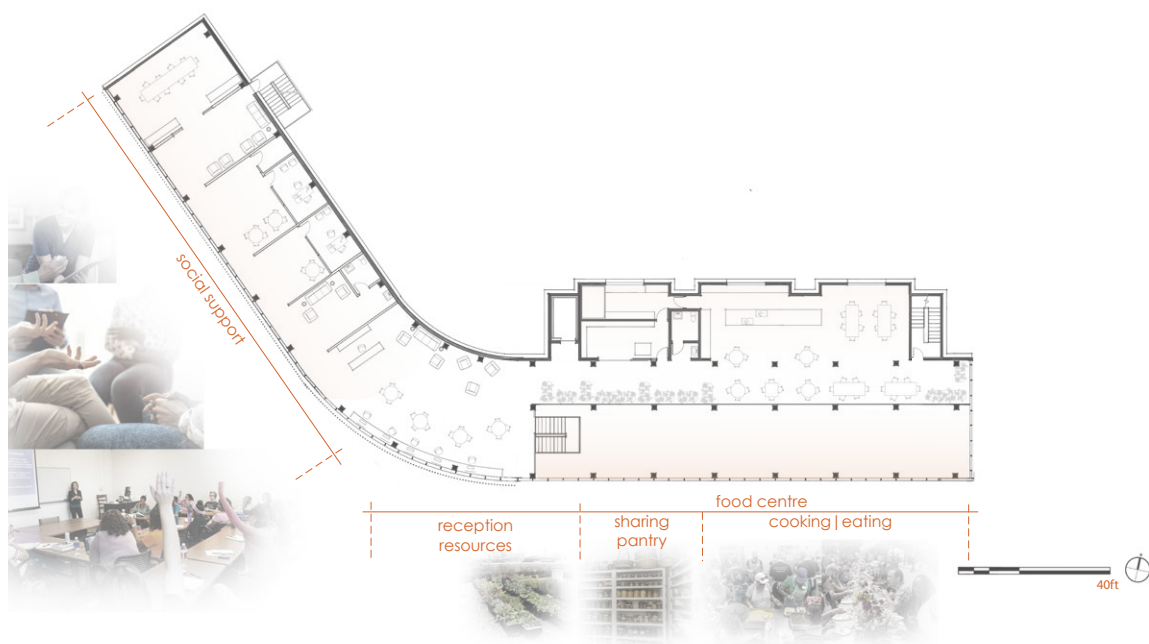


Main floor plan program diagram

gardens. The site also allows for expansion of urban agriculture and a has adequate buildable area.

Project Site

Devonshire Garden is strategically located in an area with multiple community oriented activities related to the care of children, urban agriculture and recreation. The early educational institutions within the neighbourhood function as a community collective space where there is common interest related to the care and education of children. This provides an opportunity for a cross-programming strategy to form a community hub within an urban farm to include a cooperatively managed children after school program and social support services. Based on the PCF status of the site and the open area available, there is an opportunity



Upper floor plan program diagram

to implement functions for production, processing and consumption of fresh produce along with a social support structure. Additional opportunities associated with food preparation, agricultural education may also contribute to the adoption of a mental model that prioritizes urban agriculture and fresh local food among young children and older adults from the neighbourhood.

Programming

The program is derived from the observed symbiotic relationship between social support and urban agriculture within the urban context. The North End neighbourhood shows a clear child care requirement and focus from preschool to junior high school age. This leads to a design proposal that must include a general program considering activities of social support, child care and urban agriculture.

This poses an opportunity to propose an architectural design for a community hub to be jointly managed by the local social support institutions and serve as extended infrastructure to their existing facilities to focus on social support and child care through an urban agriculture and a food system program.

Functional Program

Social Support

The social support services provided by organizations within the neighbourhood includes:

Veith House: newcomer support, conversation clubs, crisis management, short term counseling, assistance with forms, paperwork and applications, parenting, seedling sale and

Project Program Matrix		social work	community kitchen	community cupboard	child care	public space	urban agriculture	greenhouse
Prescott Group	social support	■						
Mulgrave Park Caring and Learning Centre		■		■	■		■	
Veith House Veith House Urban Farm		■	■	■			■	■
Alexandra Children's Centre	child care				■			
Needham Early Learning Centre					■			
Proposed Neighbourhood HUB		■	■	■	■	■	■	■

- Urban agriculture (**CULTIVATE**)
- Child care/education (**CARE**)
- Social work (**SUPPORT**)

Proposed neighbourhood program unifies functions in a common cooperative and collective space.



Proposed neighbourhood hub improves network by establishing potential links to improve resilience in care, support and cultivation.

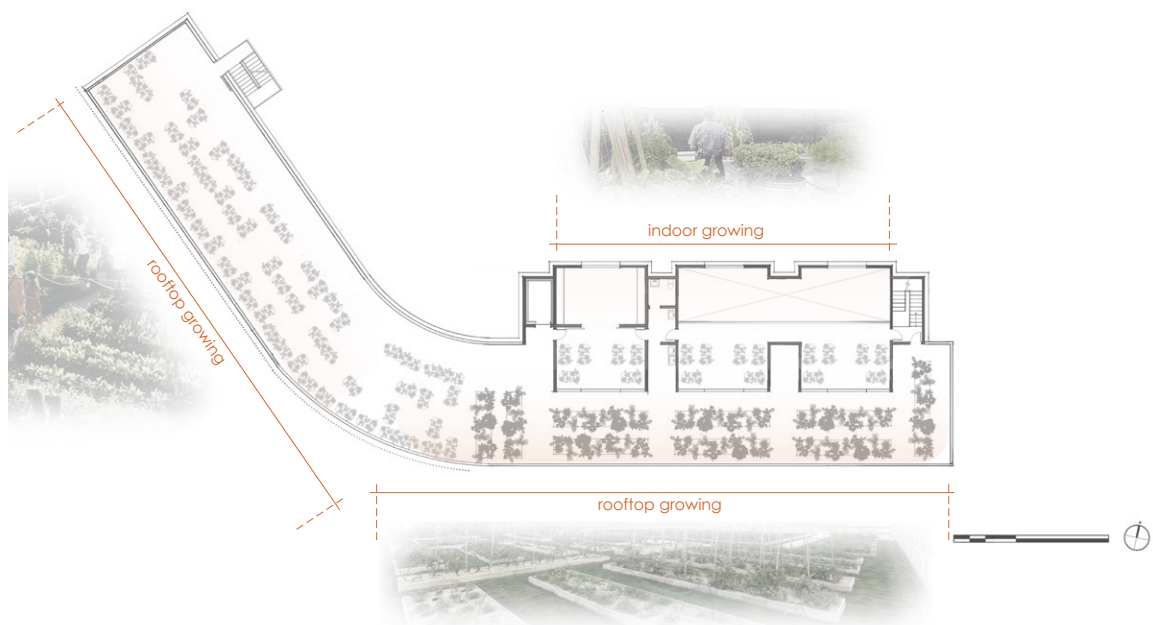
donation, produce donation, urban agriculture knowledge exchange.

Prescott Group: With focus on adults with mental challenges it provides support in life skills, arts and recreation, job skills, job placement, North End Baking C. & Cafe, business services, home services.

Mulgrave Park Caring and Learning Centre: parenting, family dinners, family game night, tea time, doula program, school break camps, after school program, community garden, technology lending, computer access, food trading cupboard, resource lending library, form filling, community market.

Community Food Centre

The community food centre will serve as a collective space to prepare, learn, teach about food and for gatherings to



Roof plan program diagram

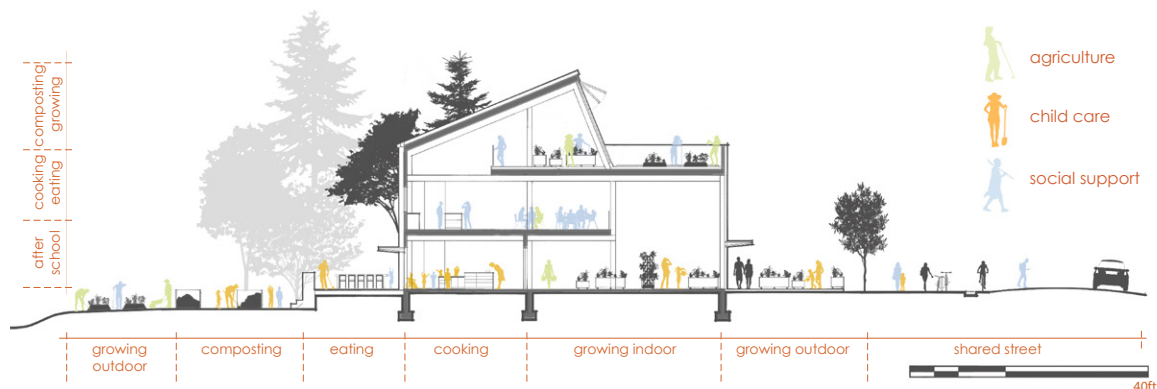
enjoy meals. The functions will range from breakfast, to afternoon tea and supper offered to the community as well as a place to run cooking classes, canning workshops, community dining events, preparation for take away dinners, food storage, food demonstrations, and preparing food boxes. The trading cupboard will allow those who chose, to trade items they don't use for items they need, as well as a place to distribute donated food items.

After School Agriculture and Food Program

The after school and summer camp program will provide additional facilities for the early learning and elementary school age children in the neighbourhood to experience and learn about local food cycle stages such as growing, harvesting, preparing, eating and composting.

Outdoor Social Performance Space

The outdoor social performance space is dedicated to improvisation and other community led activities such as



Greenhouse section.

art fairs, plays, live music, movie nights, markets, dance classes and other program directed at leisure activities.

Form

The building design form prioritizes the preservation of as much planting area as possible to maximize the food production potential of the site. To prioritize agricultural activity in the site the building will support season extension and winter production through a multistory greenhouse as the main space. The greenhouse space is designed not only as a growing space but as living space to house the after school program as well as the food centre and North End Baking Co. and Cafe to be run by the Prescott Group. The greenhouse form and orientation is based on passive solar strategies to maximize daylighting in the space during the winter months and control the sunlight on the summer months when there is possibility of overheating. On the greenhouse ground floor the transversal section is laid out to allow an understanding of the local food system and organizes outdoor growing, indoor growing, cooking, eating and composting in a logical sequence to facilitate the after school program activities.

On the second floor on opposite side of the main entry, which includes an open stairway and elevator, are the social support spaces. Due to the nature of social services, requiring private meetings and counseling sessions as well as crisis management among other, this space is organized in a floor plan layout to allow for varying levels of privacy. This space, unlike the greenhouse that is mostly transparent to transmit sunlight, is clad in a wood slat rain screen to control the sunlight as well as provide more privacy from the exterior.

Below the social support space, on the main floor exterior, a sheltered outdoor space is dedicated to improvisation and leisure activities organized by the community. This space will allow not only occupation of space but production of space with events such as plays, music, art fairs, dance classes, exercising, yoga among others to take place. This space is designed to complement the juxtaposition between public and private, leisure and work, planned and improvised to mimic the intersection of linear and cyclical time in the rhythms of everyday life where conceived space becomes the lived space.

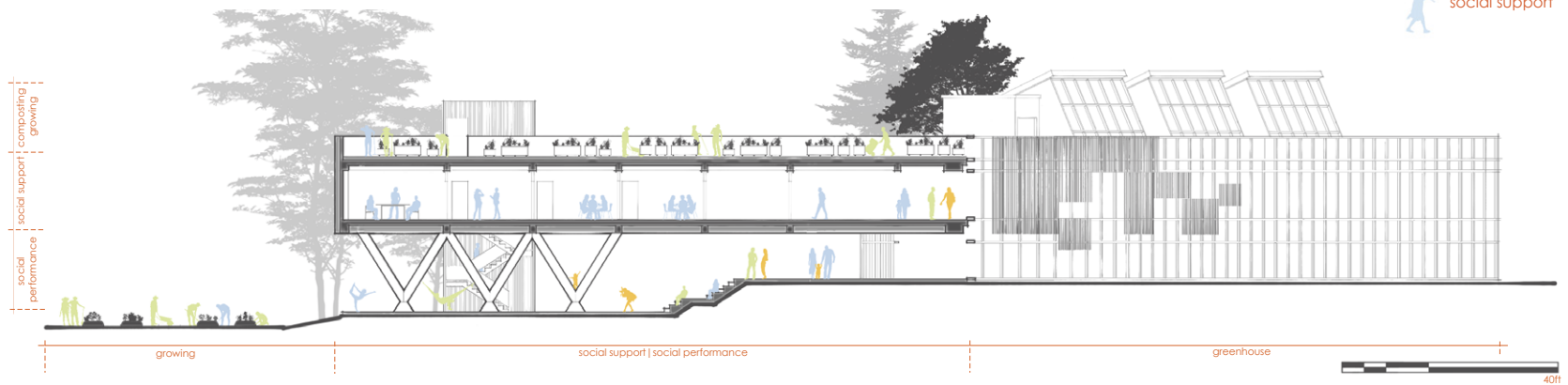


Solar exposure at Summer Solstice, Winter Solstice and Equinox.

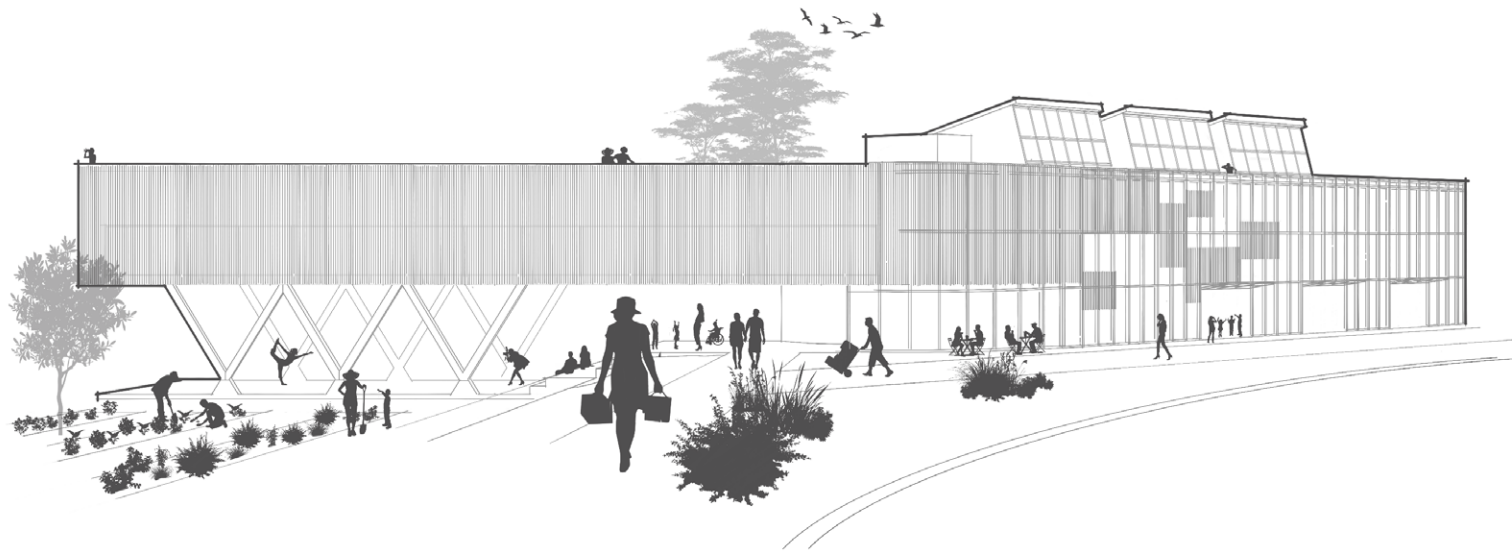


Longitudinal section through greenhouse.

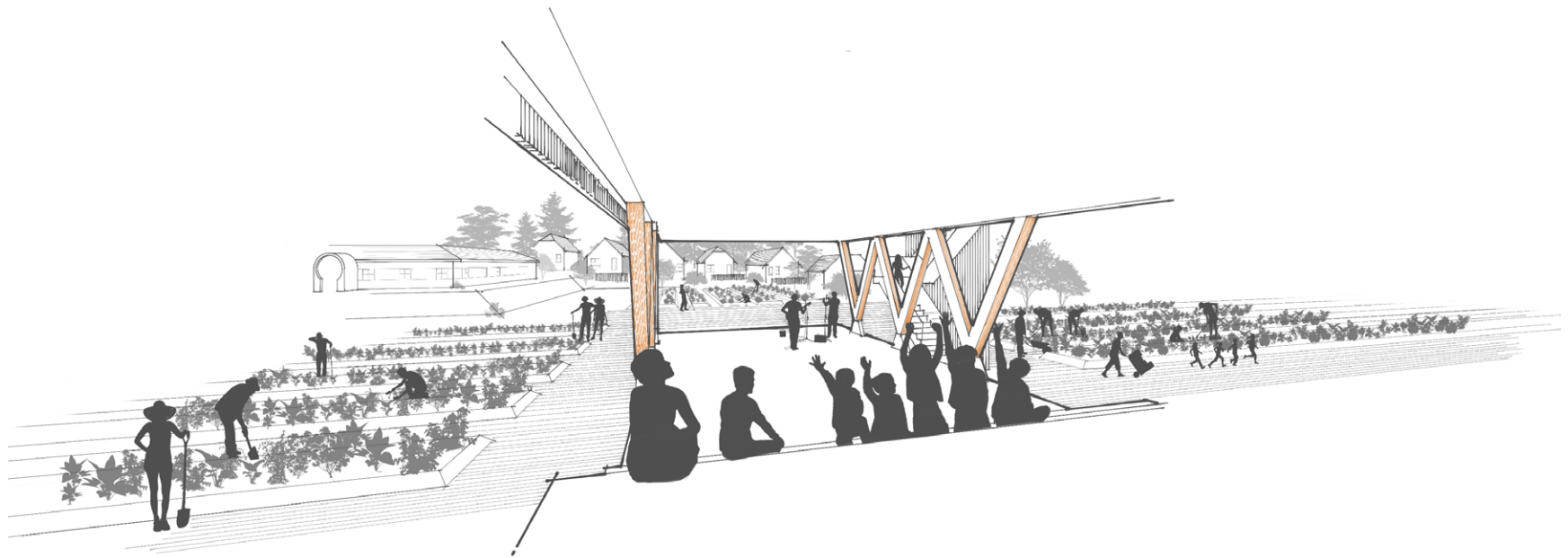
-  agriculture
-  child care
-  social support



Longitudinal section through social support space.



Exterior perspective from south-west.



Urban agriculture and social performance space dedicated to improvisation, performances, and appropriation of space.

Chapter 5: Conclusion

Currently, the topic of food brings up multiple aspects that must be taken into consideration when associating it to any other subject. In this thesis the research touches lightly on a broad array of subjects related to food and the food system in an attempt to be as comprehensive as possible within the time required. To address food insecurity through an architectural design is a challenging undertaking that requires a deep understanding of the social structure in which the project site is proposed. Food insecurity is not a problem of short supply, but a result of inequitable income distribution contributing to social injustice.

Urban agriculture is an opportunity to transcend the polarity between urban and rural, nature and society through a process of renaturing urban areas as productive landscapes. This, however, as in most built environment interventions, should not be achieved through top-down politically influenced solutions that ignore the social structure in which the project is inserted. Therefore, a transition to a continuous productive urban landscape can be best achieved through a distributed network that may not necessarily be spatially continuous, but linked by social support organizations that understand the needs and deficiencies of that environment. Also, urban agriculture alone does not solve food insecurity, therefore social issues related to income distribution, social isolation and mental health need to be simultaneously addressed. Urban agriculture is an element in a local food system that needs to be accepted and developed through community engagement and this can be achieved by reconnecting society to growing, preparing, eating and composting food

as a stock of nutrients that needs to be managed through a continuous cycle and in a collaborative setting.

In this Halifax North End neighbourhood, with its existing social support structure and urban agriculture initiatives, there is an opportunity to include child care and elementary school age children in this process of transition to a more sustainable, healthier and equitable local food system. In other areas of the city, or in other cities, along with social support organizations and urban agriculture there may be other opportunities to complement the symbiotic relationship between social support and food.

Concepts introduced by Henri Lefebvre related to the structure of urban space were indispensable to achieve the level of understanding of the neighbourhood as a whole, as well as to develop an architectural design proposal that is responsive to the social make-up of the area and its residents. It must also be acknowledged that due to time restrictions imposed on the research, historical events that fall under Lefebvre's criticism on urban planning influenced by political power could be further studied, such as the relocation of the Richmond community due to the Halifax explosion, and specially the displacement of the established Africville community.

Lastly, the community hub architectural design proposal addresses the program requirements that resulted from the thesis research based on local successful urban agriculture case studies research as well as a response to the North End neighbourhood specific social support structure and characteristics. The cross-programming design strategy poses challenges on how to propose a building layout that addresses the privacy required by social services,

climate control aspects of a greenhouse that is also a living space, and the safety concerns related to child care and education while maintaining an approachable and accessible community space. I believe that the mentioned requirements are achieved through an active space with diversified functions that is appropriated by the community and becomes a lived space.

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