

FROM EXCESS TO ACCESS

A NEW FORM OF FOOD DISTRIBUTION IN WINNIPEG, MANITOBA

BY

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Degree

in

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FROM EXCESS TO ACCESS

A NEW FORM OF FOOD DISTRIBUTION IN WINNIPEG, MANITOBA

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MASTER OF ARCHITECTURE
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ABSTRACT

Global food production and distribution to cities have created opportunities and difficulties, simultaneously. The problems caused by today's methods of food production continue to grow: increasing carbon emissions, the formation of food deserts, a lack of public knowledge regarding the content of food, and related health issues are examples.

Exploring global and local development and distribution, this thesis aims to explore how food production and distribution has evolved over time, as well as how agricultural technology and architectural design can contribute to a new form of food distribution in Winnipeg, Manitoba. Combining the methods of the early 19th century (through localization) and current distribution systems (using the latest technologies), a new food exchange hub in Winnipeg will be designed to focus on providing healthy, perishable foods to the community. The intent is to redirect and transform the current state of the global food system from a position of excess to a state of access, whereby affordable nutritious, locally produced food is readily available to consumers.

Research will first explore the expansion and progression of food distribution from public farmers' markets to today's big-box supermarkets. Through the rehabilitation of an abandoned pump house station in Winnipeg, a new network and form of food distribution using sourcing, localization and accessibility is proposed. By re-designing the pump house station it will act as a central hub where farmers and consumers in Winnipeg will be able to interact, giving the opportunity to consumers to know where, when, and how their food is grown, produced, and distributed.

"To turn food into the tool for future architects is simply extremely clever. It brings the subject of architecture – and everything dealing with urban development – inside a global structure of urgent possibilities. As the globe quickly is becoming urbanized, things need to be re-thought. Quickly."

- Jan Åman

JAN ÅMAN - A CURATOR, WRITER, ACTIVIST AND CULTURAL ENTREPRENEUR SPECIALIZED IN THE INTERSECTION BETWEEN FOOD, CITIES, ART AND SOCIAL PHENOMENA.
SOURCE: ATELIERSUICE <[HTTP://ATELIERSUICE.COM](http://ateliersuice.com)>

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PROLOGUE

The evolution of food distribution and retail, in general, has been, and continues to be, determined by social and economic changes. Prior to the industrial revolution in the early 19th century, consumers directly interacted with farmers. Now, with factors such as advances in transportation, technology, and globalization, consumers have little knowledge of where, when and how their food is grown, produced, and distributed.

To gain some familiarity with the production and distribution of food today, a comparison was conducted between the methods of production today and the distribution of food prior to the industrial revolution. For this purpose, we can track the differences in time, process and distribution of an apple's journey comparing the methods of the early 19th century to today.

AN APPLE'S JOURNEY

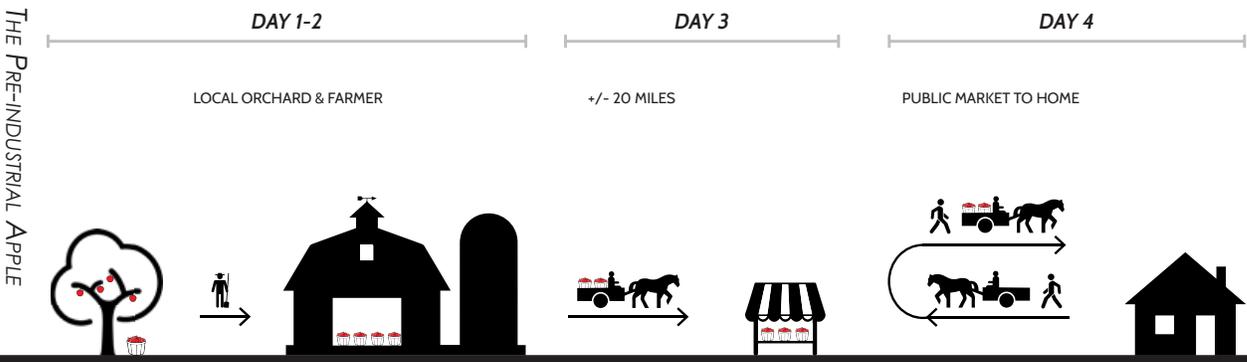
THE PRE-INDUSTRIALIZED APPLE

An apple produced in the early 19th century takes less time to travel a shorter distance, uses manual labour, and is sold fresh (in its purest definition) relative to a modern day apple.

The distribution timeline of a Canadian apple from orchard to mouth in the pre-industrialized age (early 19th century) takes less than a week:

Day 1-2 (generally between August and September): Farmers manually picked ripened apples from apple trees in local orchards and then stored them in the barn in barrels and prepared them for transport.¹

Day 3: The farmer loads his wagon with barrels of apples and heads towards the nearest public food market. Due to the limitation of transportation, this journey to the nearest town would have most likely been less than 20 miles.²



THE PRE-INDUSTRIAL APPLE TIMELINE

Day 4: The farmer sells the apples in the public food market. The consumer will either walk or take their horse drawn carriage and head to the nearest public food market to purchase the apples and other perishable foods.

THE CONTEMPORARY APPLE

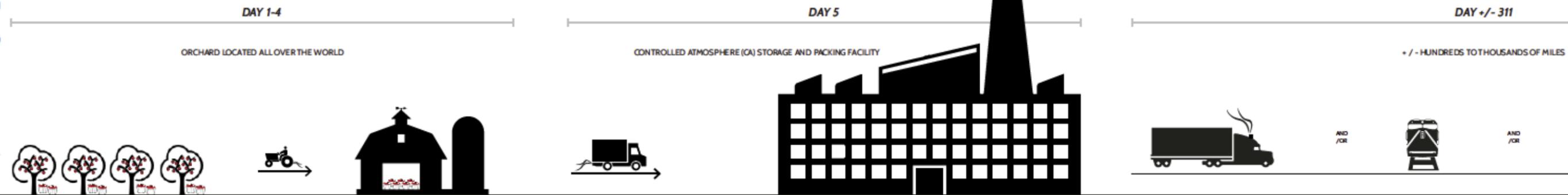
Comparatively, the distribution timeline of an apple from orchard to mouth today takes considerably longer:

Day 1-4 (in Canada this is completed generally in August and September, but the seasonal months differentiate at various locations around the world): Farmers and labourers use advanced equipment to collect un-ripened apples from shortened apple trees in large orchard farms throughout the country and the world. The apples are treated with a chemical known as 1-methylcyclopropene (1-MCP), which delays ripening and could be stored up to 12 months.³ Apples generate a natural wax, however, when they are removed un-ripened from the tree they are covered in wax to keep the apples looking 'fresh' and to also keep them from ripening during transport.⁴

³ According to Statistics Canada in 2005, Canada exported approximately 54,200 tonnes of apples
Mimi N. GO AND Erik DORFF, 2.

⁴ Many orchard operators have adopted reduced-stature trees (dwarf and columnar) to make harvesting faster and easier and also to simplify the pruning process. Compared to standard trees, reduced-stature fruit trees yield fruit at a younger age. Such agronomic changes have led to notable increases in production efficiency.
Erik DORA, 7.

THE CONTEMPORARY APPLE



THE CONTEMPORARY APPLE TIMELINE

Day 5: Apples are boxed and placed on pallets, then transported to a controlled atmosphere (CA) storage and packing facility, which can be hundreds of miles away from the orchard. Apples can be stored in CA warehouses all over the world for an average of 10 to 12 months. CA technologies work by keeping the oxygen and temperature low and carbon dioxide levels high to keep apples crisp and to prevent rotting.⁵ The storage rooms in which the apples are stored are sealed and along with the carbon dioxide, nitrogen is added to the rooms.⁶

Day (+/-) 311: Apples are transported via truck, train, cargo ship and/or airplane to distribution facilities in Canada. Depending on the final destination of the apples, the travel duration and distance can vary from hundreds of miles to thousands of miles (food travels between 1,000 and 1,500 miles).⁷ Cargo ships take approximately 2-4 weeks to travel from one port to the next.⁸

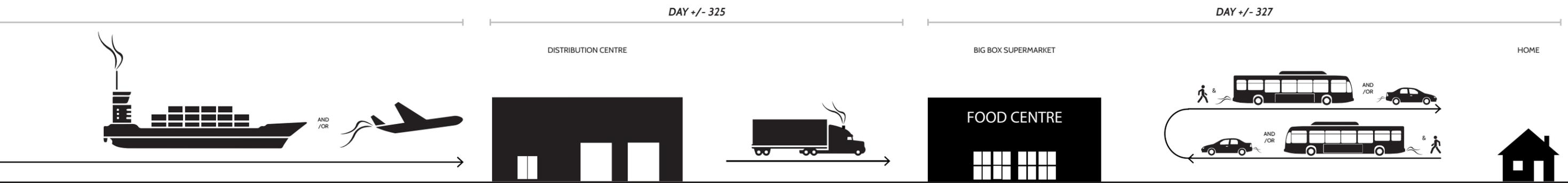
Day (+/-) 325: Apples are then distributed via trucks to various grocery stores and big box supermarket locations. Again, depending where these stores are located, travelling hundreds of miles to transport the apples can take up to 1-3 days.

Day (+/-) 327: Apples are sold in various stores (including big box supermarkets, small grocery stores, some convenient stores etc.) with an average of 10-day shelf life. Most suburban dwellers travel short distances in their vehicles to get to the nearest big box supermarket, while people living in food deserts are required to travel greater distances. The reality is, people will purchase food that is convenient and close to home, and, for those living in food deserts, this may mean unhealthy, processed, packaged foods.

"[w]hereas today, large packing, marketing, and distribution operations, both in Canada and overseas, have a relative advantage in supplying fruit products to major store chains, which often demand large quantities of products on set schedules. This tends to favour larger operations that can produce at the lowest cost."

Erik Dora, 7.

A break down of distribution facilities was conducted by a fellow Carleton University student, Zachary Woloschuk, who did an extensive study of existing wholesale produce markets and distribution facilities. Zachary's project, *The Central Food Exchange*, can be viewed in Appendix B.



THE PROPOSED APPLE'S JOURNEY

The transformation of the apple's journey from the pre-industrialized era to today is largely due to advancements in technology, which have expanded not only the timeline of food production and distribution but also the lifespan of the apple itself. The proposed food distribution will take the benefits of the local food movement presented by 19th century food distribution methods and combine it with the latest sustainable technologies in agriculture, made possible by current industrialized innovations. Improved food production and distribution can eliminate the 'middle-man' and minimize the environmental and negative health impacts of the current global food industry. The proposal will focus on a local sustainable organic food system by providing consumer access to safe, fresh and perishable foods that are affordable and accessible to all consumers.

"This culture promotes novelty and nostalgia, obsolescence and shelf life, indulgence and discipline. It surrounds us with great abundance, but not with much that feels authentic or healthful. It leaves many people yearning to connect to nature and community but too busy to spend much time in either. Above all, it's a culture that encourages us to consume both as often as possible and in ever better, more enlightened ways."

SUSANNE FREIDBERG, 3.

PROLOGUE ENDNOTES:

- ¹ Daryl Robert Hunter, "Apple Man." *Apple Man*. 2005. 25 Sept. 2014 <<http://www.appleman.ca/korchard/mainmenu.htm>>.
- ² Susanne Freidberg, *Fresh: A Perishable History* (Cambridge, MA: Belknap of Harvard UP, 2009) 132.
- ³ Roger Harker, et. al., "The Case for Fruit Quality: An Interpretive Review of Consumer Attitudes, and Preferences for Apples." *Postharvest Biology and Technology* 28.3 2003: 333
- ⁴ Kenneth F. Kiple, *A Movable Feast: Ten Millennia of Food Globalization* (Cambridge: Cambridge UP, 2007) 297.
- ⁵ Freidberg, 125.
- ⁶ "Food Unwrapped Season 2: Episode 1." *Food Unwrapped*, United Kingdom, 3 June 2013.
- ⁷ Peter Ladner, *The Urban Food Revolution: Changing the Way We Feed our Cities* (Gabriola Island: New Society Publishers, 2011) 15.
- ⁸ Kiple, 270.

THE PROPOSED JOURNEY



THE PROPOSED APPLE JOURNEY TIMELINE

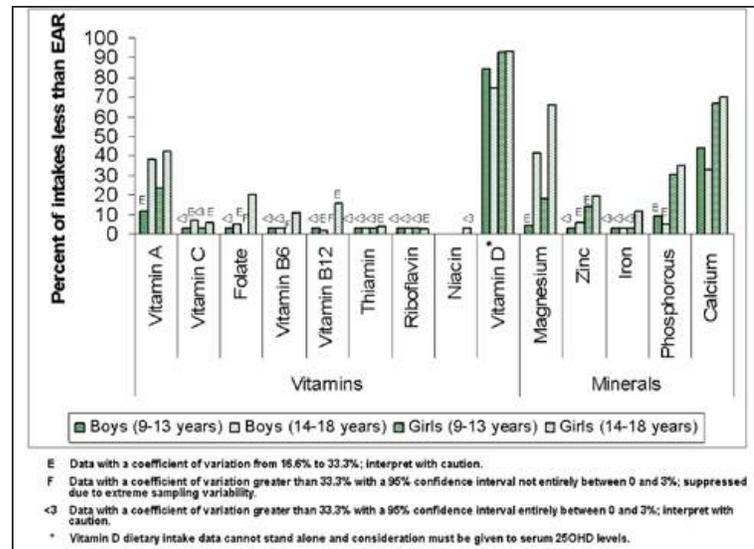
INTRODUCTION

For the human body to properly function it requires fuel provided by the nutrients found in food. The hunt for food was once the driving force behind peoples' daily lives. Today the global food industry has provided us an excess of food options available from all over the world, at any particular time of year. Providing nourishment is not food's sole purpose, however. Among its many uses, food affords opportunities to make social connections with family, friends, and members of society as a whole. Food, indeed, plays an important role in our daily lives, and it certainly has the ability to direct change in the global food industry in Canada.

In its evolution from the communal farmer's market, the big box supermarket has adapted its function into a full service storage and distribution centre for all varieties of food and consumer goods. As this research will illustrate, despite the short lifespan of the big box supermarkets, these have become the primary source for distributing excessive quantities of standardized products on a global scale. In

North America, big box supermarkets have come to represent the food industry.

Due to the lack of nutrition in mass-produced, highly processed foods often sold in big box stores, the desire for change is growing stronger. This is evidenced by the current popularity of alternative food systems and local organic foods. This research builds on the movement towards change by detailing the effects of the current global food system and suggesting alternative methods. As well, the deficiency in public education regarding healthy food choices, the formation of food deserts, and the high rates of energy consumption by current food production and distribution systems.



HEALTH CANADA STATISTICS
 CHART ON PREVALENCE OF
 INADEQUACY FOR NUTRIENTS
 WITH AN ESTIMATED AVERAGE
 REQUIREMENT (EAR) IN CANADIAN
 ADOLESCENTS 9-18 YEARS

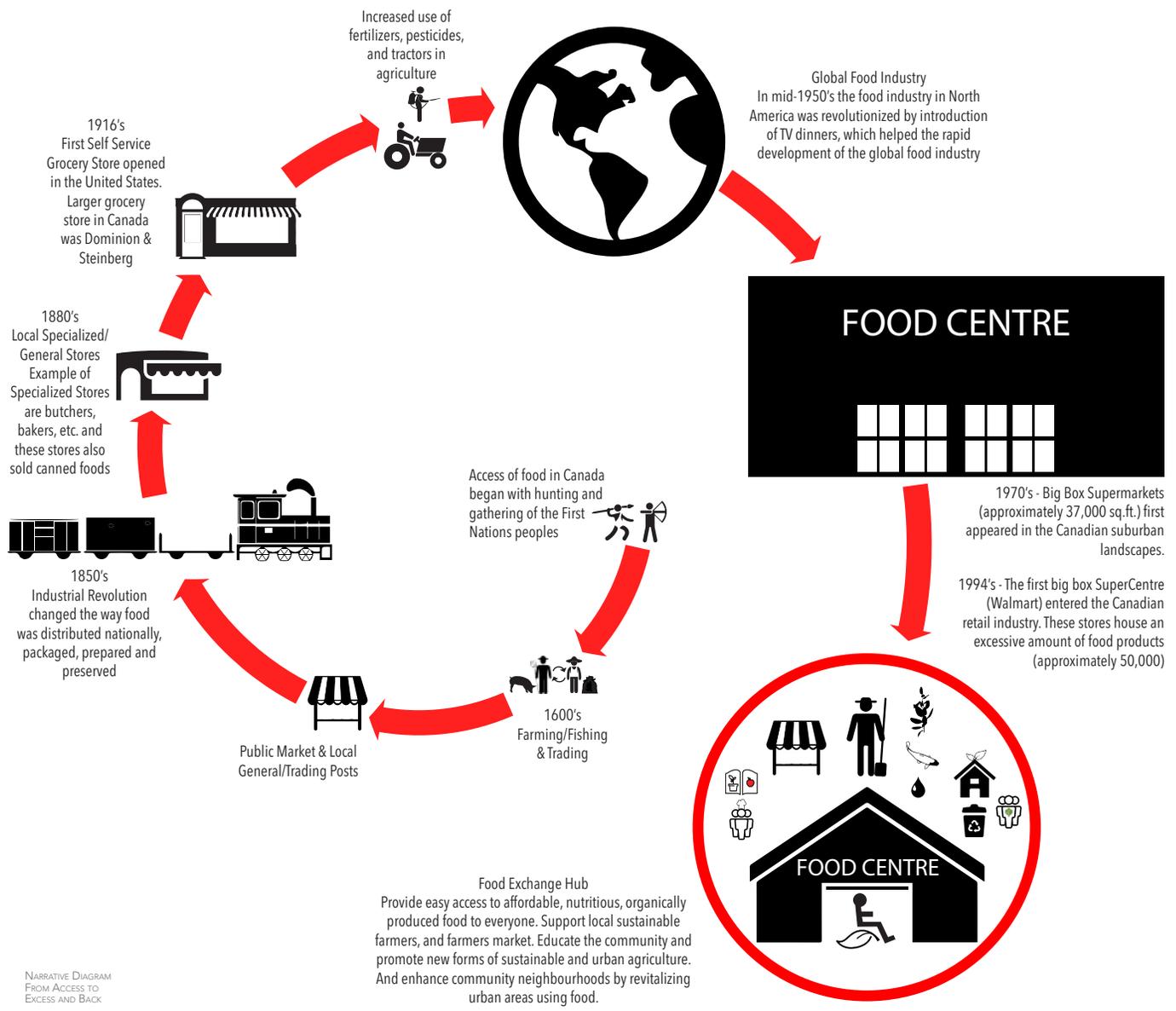
HOW CAN ARCHITECTURE CONTRIBUTE?

The location and design of the buildings that were and are used to stock, supply, and sell food continue to play a crucial role in the progress of the industry. As consumers, the main cause for this massive food chain, we contribute to the impacts food consumption has on the environment, the economy, our communities and health. How can an architectural contribution combine both the methods of the early 19th century and current distribution systems, with the focus on providing healthy, perishable foods to communities suffering in food deserts? How does architecture and the built environment respond to the escalation of the global food industry? What is architecture's role in reconnecting the farmers/producers to their consumers? Can it enhance public knowledge of food production and healthy food options, and re-establish community interactions around food?

The intent is to redirect the current state of the global food system from a position of excess to a state of access, whereby affordable nutritious, locally produced food is readily available to consumers. This will be achieved through enhanced nutrition education, information on alternative food systems and production, and the awareness and ability to access (or grow) affordable nutritious foods; out of this a new form of food exchange hub. This hub will assist in the evolution of Winnipeg, in alignment with the city's vision to provide a better quality of life for its communities. The re-designed hub in an old warehouse will re-establish community interactions around food, re-connect people with their local producers, promote the local economy, and provide choice by presenting healthy food alternatives.

• "A regional food hub is a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producer to strengthen their ability to satisfy wholesale, retail, and institutional demand."

THE USDA DEFINITION



NARRATIVE DIAGRAM FROM ACCESS TO EXCESS AND BACK



TYPICAL AISLE AT A CONVENTIONAL BIG BOX SUPERMARKET

1 FROM ACCESS TO EXCESS

GLOBAL FOOD INDUSTRY

The global food industry is a complex system and difficult to fully define. It is characterized by terms such as, big box supermarkets, mass-produced goods, highly processed foods, and super stores. Scholars have many ways to define the economic, political, environmental, social and cultural aspects of the global food industry in great detail. For the purpose of clarity in this thesis, the global food system is considered as a worldwide business that produces and distributes a mass variety of food consumed by the 21st century world's population.

As Canadian consumers there are numerous benefits provided by the global food industry. According to Statistics Canada;

"[m]any factors play a role in seeing the products featured in Canadian stores coming from farms beyond the local region, province or country. These factors include the limitations of climate, and

■ Peter Andree: Associate Professor at Carleton University and co-editor of *Globalization and Food Sovereignty: Global and Local Change in the New Politics of Food*, which examines social movements the world over seeking to build more sustainable and just food systems.

CARLETON UNIVERSITY <[HTTP://CARLETON.CA/POLISCI/PEOPLE/ANDREE-PETER](http://carleton.ca/polisci/people/andree-peter)>

■ Jeffrey Pilcher: Professor at University of Toronto in Scarborough. He is also the leading figure in the emerging scholarly field of food history and editor of *Oxford Handbook of Food History*.

UNIVERSITY OF TORONTO <[HTTP://WWW.UTSC.UTORONTO.CA/HCS/JEFFREY-PILCHER](http://www.utsc.utoronto.ca/hcs/jeffrey-pilcher)>

■ Alexander Nützenadel: Professor of Social and Economic History at Humboldt University Berlin and co-editor of *Food and Globalization: Consumption, Markets and Politics in the Modern World*. His recent research has focused on the role of clientelism and corruption in modern societies, urban real estate markets and the history of globalization in the 20th century.

HUMBOLDT UNIVERSITY <[HTTPS://WWW.GESCHICHTE.HU-BERLIN.DE/PERSONEN](https://www.geschichte.hu-berlin.de/personen)>

economic factors including government support and farm labour prices. A grocer's sourcing preferences based on volume and consistency also play a significant role . . . The expectation of Canadian consumers to maintain a certain level of food choice year-round as well as competitive pressures drive the food economy which ultimately connects all corners of the globe at your local food store.”¹

Canadian consumers economically benefit from the competitive low food prices made possible by the global food system. The Canadian economy also benefits; “Canada is now one of the top exporters of agriculture and agri-products on a world scale, with 45% of gross farm market receipts for primary agricultural products coming from exports (\$32 billion) in 2006.”² In 2012, Manitoba’s exporting agribusiness total revenue exceeded \$5.1 billion and Manitoba producers have access to markets in 190 countries.³

“Canada is fortunate to have a diverse agricultural landscape that supports nearly 230,000 farms according to the 2006 Census of Agriculture. They produce a wide range of grain, oilseeds, vegetables, fruit and animals from coast to coast. That diversity, however, does not exempt us from being part of the global food market, both as exporters and importers.”

MINH NGO AND ERIK DORFF, 2.

“[m]ore than 7.7 million hectares (19 million acres) dedicated to crop and livestock production. Manitoba annually accounts for 10% of Canada’s primary agricultural production. . . . Manitoba is Western Canada’s largest producer of potatoes and is home to three major potato-processing plants employing more than 1,000 full-time positions. Manitoba produces approximately one-fifth of Canada’s total potato crop.”

CITY OF WINNIPEG, ECONOMIC DEVELOPMENT STRATEGY 2013-2017 <[HTTP://WWW.ECONOMICDEVELOPMENTWINNIPEG.COM/](http://www.economicdevelopmentwinnipeg.com/)>

The global food system also offers a large variety of food selection possibilities and provides the consumer freedom of choice while shopping at the supermarket. A consumer can experience ethnic foods from all over the world without actually leaving their own city. North American shoppers have an average of 50,000 different food products available to them at a typical big box supermarket.⁴ This variety in food choices will continue to evolve since the global food industry allows the opportunity for companies to compete with one another to provide new, innovative foods that meet the needs of the current consumers.⁵ The availability of such variety comes at a cost,

Consumer culture: how, why and where people consume food.

TIM LANG AND MICHAEL HEASMAN, 2.

as the size and location of stores must be designed to fit the huge capacity of products; enter big box supermarkets.

To propose an alternate network and new form of food retailing and distribution system, an analysis and breakdown/logistics of spaces and layout, of the current and main basic food retailing stores has been conducted and is available in Appendix A.

Big box supermarkets dominate the food retail industry in Canada, and the design, size, and location are a result of the demands of the global food industry. The design and economic development of big box supermarkets has promoted unsustainable and unsociable areas that cater to car-dependent, fast-paced lifestyles. Susan Parham, in *Architectural Design*, describes the current conditions of the global food industry;

The current global food industry has assisted with the lack of knowledge and absent relationship with today's farmer's and food producers to their consumers and it even has redefined the term fresh.
Definition of 'fresh' in the global food system.
"In a world where other industries produce plenty of ugliness, growers push beauty as a mark of freshness."
SUSANNE FREIDBERG, 23.

*"Our prevailing food-production model reflects and mirrors these changes to where and how we live, work and eat. In the early 21st century, we primarily rely on intensive, chemically dependent and, now increasingly, genetically modified food production, intensive processing and packaging of food, and long-distance transportation, with enormous wholesaling facilities to serve very large-scale, car-dependent industrialised (and now also 'functional' and 'nutraceutical') food retailing."*⁶

This lifestyle and food retailing, described by Parham, is no different in Winnipeg, Manitoba. In Manitoba, consumers purchase an average of \$3.6 billion of food annually, of which \$2.6 billion comes from supermarkets.⁷ These big box supermarkets have helped alter the development of the city of Winnipeg and the majority are scattered in the suburban neighbourhoods of the city. With this relocation of food retail in the edges of the city, the interaction and friendly atmosphere that once was experienced in public markets has been lost.

To understand what architecture's role is in the distribution of food in the global food system, one should understand the history and development of the types of buildings/grocery stores/supermarkets that have evolved in parallel with the global food industry. This has been conducted and is available in Appendix A.



BIG BOX SUPERMARKETS
(MIN. 25,000 SQ. FT.)
LOCATIONS IN WINNIPEG
WITH A 1 MILE RADIUS

In addition to the local social dynamics lost with the global food system, several other detrimental consequences exist, including: a lack of consumer knowledge regarding how food is produced and manufactured which can include the inhumane treatment of animals, use of chemicals, and immoral labour practices. Also, other consequences include: the environmental impact, especially from industrial greenhouse gas emissions; and the negative health impacts, including acute and chronic ailments.

As illustrated in the Contemporary Apple's Journey, the greenhouse gas emissions produced by the methods of current agriculture practices, the storage and packaging facilities, and transportation practices are major contributors to the negative impact on the environment. According to the EPA (United States Environmental Protection Agency), "[g]reenhouse gases (GHGs) like water vapour (H₂O), carbon dioxide (CO₂), and methane (CH₄) [etc.] absorb energy, slowing or preventing the loss of heat to space. In this way, GHGs act like a blanket, making earth warmer than it would otherwise be."⁸ This climate change is known as global warming, and global warming has a major impact on the security for agricultural production. The constant change in temperatures and higher temperatures affect plants, animals, water supply, increase pests population, and nutrients in the foods produced.⁹ According to A. Muller and U. Niggli in their article "Food, Climate Change and Healthy Soils: The Forgotten Link," the global food industry accounts for approximately half of all global GHG's.¹⁰ If the global food industry continues in the direction it is currently

• agriculture / ag-ri-cul-ture / noun
the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products.

MINISTER OF HEALTH, MEASURING THE FOOD ENVIRONMENT IN CANADA <WWW.HC-SC.GC.CA/FN-AN/NUTRITION>

• The Environment: the use and misuse of land, sea and other natural resources when producing food.

TIM LANG AND MICHAEL HEASMAN, 2.

heading, in response to the continuous population growth and diets, the GHG emissions will rise by 35-60% by 2030.¹¹

Carbon dioxide emissions (the primary GHG contributor), generated by the burning of fossil fuels (gas, coal and/or oil),¹² are used throughout every level (storage, production and distribution) of the global food industry. As Peter Ladner indicates in, *The Urban Food Revolution*; food travels an average of 5,000 miles and the transportation of food accounts for 20% of the CO₂ emissions into the atmosphere.¹³ Different means of transportation in the distribution of food; trucks, ships, trains, and airplanes, produce different levels of CO₂. Studies have found that imported food travelling via airplanes produces 500 times the GHG emissions than locally produced and distributed food.¹⁴ Also, the modes of transportation to gain food are not limited to the distribution of food from all over the world, but also continue within cities.

• People are generating additional CO₂ while travelling to the suburban located supermarkets. Food miles and frequent trips to supermarkets/grocery stores are increasing considerably. Ladner states that the distance of car shopping between 1985 to 2011 have amplified by approximately 64% (and is still continuing to increase) and the frequency of the shopping trips have increased by 54%.

PETER LADNER, 17

Transportation in combination with storage, packaging and retailing of food accounts for 15-20% of GHG emission in the global food production system.¹⁵ An apple can be stored in a controlled atmosphere (CA) facility for an average of 10 to 12 months. CA facilities have sealed storage rooms, which allow the oxygen to be removed and replaced with CO₂, and in the case of apples, (poisonous levels) of nitrogen¹⁶ is also added into these rooms. CA facilities operate throughout the year, so that perishable foods can be available to consumers all year round, all over the world.

Surprisingly, transportation, storage and packing facilities are not the main contributor of GHG into the atmosphere. Meat production is the largest contributor of GHG emissions in the food system. Meat production can create over two billion five hundred forty-one million tons of CO₂ per year¹⁷ and accounts for approximately 26-33% of the GHG emission in the global food production system.¹⁸ Over several decades, meat consumption has increased in parallel with the industrial era and modern technologies. Reducing meat consumption and developing new methods to provide better agricultural production of meat is essential to reduce the harmful affects of GHG emission in the atmosphere.

“The major sources of GHG emission related to [meat] production are the production of nitrogen fertilizer for feed crops . . . on-farm fossil fuel consumption . . . livestock-related land-use changes . . . and methane emissions.”

FRIEDRICH OSTENDORFF, 155.

Meat production causes 25 times more energy to produce than horticulture farming, and according to Peter Ladner; “vegans, whether they eat local or imported food, can boast that their diets use 90% less energy than the average American . . .”

PETER LADNER, 18.



FOOD PROCESSING PLANTS SUCH AS THIS ONE IN WAKEFIELD, NEBRASKA CONTRIBUTE TO THE 32% OF GHG EMISSION IN THE ATMOSPHERE

The motivation to provide food for the world’s population has resulted in the advancement in the use of chemicals/pesticides in the production and storage of food. Commercial farms plant their produce on plantations of monocrops/monoculture, creating a major issue of

monoculture / mo'no'cul'ture / noun
the cultivation of a single crop in a given area.

ULRICH HOFFMANN, 207



THE AREA KNOWN AS THE 'DEADZONE' IN THE MISSISSIPPI RIVER. MISSISSIPPI RIVER COLLECTS ROUGHLY TEN THOUSAND POUNDS OF PESTICIDES/CHEMICALS (FERTILIZER) AND RAW SEWAGE POLLUTION EVERY YEAR AND FISH CANNOT SURVIVE DUE TO LACK OF OXYGEN IN THE WATER.

The unpredictable effects of chemicals and genetically modified foods (GMO) to human health is often disregarded because health authorities have indicated that the biological effects of GMO and chemicals are caused by the accumulation of consumption and exposure obtained during the course of a lifespan and therefore hard to calculate its overall affects on human health.

RACHEL CARSON, 189.

genetically modified organisms (GMO)
foods that have been modified by genetic manipulation and/or genetically engineered foods or biotechnology-derived foods

MINISTER OF HEALTH, *MEASURING THE FOOD ENVIRONMENT IN CANADA* <WWW.HC-SC.GC.CA/FN+AN/NUTRITION/POL/INDEX-ENG.PHP>

husbandry / hus·ban·dry / noun
the care, cultivation, and breeding of crops and animals

ULRICH HOFFMANN, 306

pest control. Plantation farmers react to this nuisance by spraying pesticides to protect the crops. The use of pesticides has both negative environmental and human health effects. As Rachel Carson indicates in her book, *Silent Spring* the effects of pesticides/chemicals on the lives of wildlife and fish are instantly obvious as animals are dying from exposure in their environment, yet the effects on humans do not become evident and severe until further in life.¹⁹ To diminish the effects in human health, monocrops and the use of chemicals/pesticides should be reduced or discontinued and replaced with organic fertilizers and the combination of crop farming and animal husbandry/diverse crop rotation, which prove to create the most efficient nutrient cycle with minimal harm to the environment.²⁰ The future of global food production and agriculture is therefore unpredictable. The economic, industrial, environmental and health impacts will force change in the immediate future of agriculture in the world.

1 FROM ACCESS TO EXCESS ENDNOTES:

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- ² Wayne Caldwell, "The Evolving Nature of Agricultural Production: Implications for Planners," *Plan Canada* (Ottawa: 2009) 44.
- ³ "Winnipeg Agribusiness: Grow Faster/Agricultural Powerhouse." *Economic Development Winnipeg*, Economic Development Winnipeg, 11 Dec. 2014 <<http://www.economicdevelopmentwinnipeg.com/key-industries/agribusiness/>>.
- ⁴ Ladner, 1.
- ⁵ "The Great Food Revolution Episode 2: The Battle to get on Your Plate." *The Great Food Revolution*, Canadian Broadcasting Corporation (CBC), 18 Mar. 2009.
- ⁶ Susan Parham, "Designing the Gastronomic Quarter," *Architectural Design* 75.3: 89.
- ⁷ Food Matters Manitoba, *Growing for the Future: Building a Local, Sustainable Food Economy in Manitoba*, (Winnipeg, 2013) 28.
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- ¹¹ Hoffmann, 3.
- ¹² Jamie Andrews and et. al., "What Are Carbon Emissions?" *The Carbon Account*, 11 Dec. 2014 <<http://www.thecarbonaccount.com/carbonexplained/>>.
- ¹³ Ladner, 15.
- ¹⁴ *Ibid.*, 16.
- ¹⁵ Muller and Niggli, "Food, Climate Change and Healthy Soils: The Forgotten Link," 20.
- ¹⁶ "Food Unwrapped Season 2: Episode 1."
- ¹⁷ Ostendorff, 155.
- ¹⁸ Muller and Niggli, "Food, Climate Change and Healthy Soils: The Forgotten Link," 20.
- ¹⁹ Carson, 214.
- ²⁰ A. Muller, and A. Gattinger, "Conceptual and Practical Aspects of Climate Change Mitigation Through Agriculture: Reducing Greenhouse Gas Emissions and Increasing Soil Carbon Sequestration," *Trade and Environment Review 2013: Wake up Before It Is Too Late: Make Agriculture Truly Sustainable Now for Food Security in a Changing Climate* (2013): 14-15.

"An area in which resident's access to healthy, affordable food is highly restricted, for example, of the absence of food retailers in a low-income urban neighbourhood. The metaphor of a desert inverts the idea of an oasis; food deserts, at least in developed countries, are patches of poor nutrition in an otherwise biodiverse metaphorical ecosystem that offers most people a very good diet should they choose to eat well. The metaphor was coined in the early 1990s in the UK and had been used widely in studies of socio-spatial inequality in Western countries. Poor diet is typically linked with low incomes, which are also linked with reduced life expectancy and higher rates of illness."

- Definition in A Dictionary of Human Geography

2 FOOD DESERT

Further to the use of chemicals and pesticides and the production of substantial greenhouse gas emissions, another deleterious consequence of the current food system exists. The development of big box supermarkets in suburban neighbourhoods has created areas, known as food deserts, in the city where perishable foods are not easily accessible. A food desert is a large geographic area with limited access to mainstream supermarket/grocery stores offering varieties of perishable and nutritious foods. Proximity, as a contributor to access, refers to a walkable distance of 1.6 km (1 mile) or less in urban neighbourhoods. Food deserts are often located in low-income neighbourhoods, though some researchers, such as Michael Widener and Jerry Shannon, have argued that food deserts are not limited to areas of low-income.¹ In the case of Winnipeg, as in many other Canadian cities, both economy and geography play major roles in the development of food deserts.

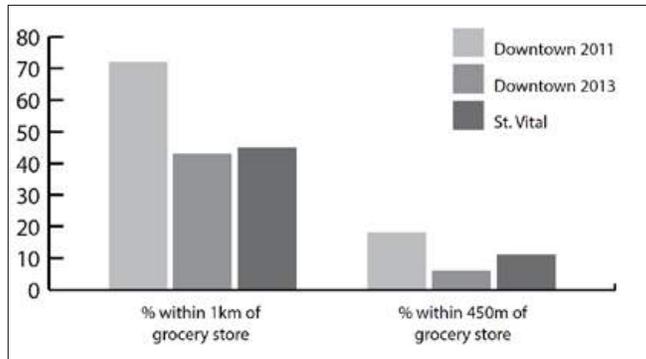
Mari Gallagher's states in a recent TEDx; "ironically, not everybody in the food desert is poor . . . people kind of think in stereotypes, the food desert is poor, the food desert is urban, but food desert is all across the country."

MARI GALLAGER, "TEDx WINDY CITY 'FOOD DESERTS' BY MARI GALLAGER," YOUTUBE, YOUTUBE, 3 NOV. 2012, 14 NOV. 2014

The issues of food deserts is evident in many Canadian cities, such as Ottawa, according to fellow Carleton University student, Rui Zou, who did an extensive study of Ottawa's food desert situation. Rui's project, *Edible City*, can be viewed in Appendix B.

Peter Ladner reveals that; “[g]rocery stores abandoned the North American inner-cities in the 1960s and 1970s, following their more lucrative customers out into higher-income neighbourhoods.”² With many big box supermarkets transitioned to suburban settings, residents of urban neighbourhoods are left stranded. Lisa Rochon, in *Up North: Where Canada’s Architecture Meets the Land (2005)* states: “[d]owntowns have been so badly displaced by strip malls and big-box retailers that the chopped-up suburban fringe of a town has now become the destination.”³ This transition of supermarkets to the outskirts of cities importantly changed the inner urban neighbourhood settings. Downtown residents now have difficulty accessing affordable, perishable, healthy foods within convenient proximity to their homes. The percentage of residents within walkable distance to healthy, affordable food in downtown Winnipeg has dropped from 2011 to 2013 due to the closure of three grocery stores in downtown.⁴ The issue of access to affordable food has thus become an urgent issue for residents living in downtown.⁵

FLUCTUATION OF RESIDENTS PROXIMITY TO GROCERY STORES IN DOWNTOWN AND ST. VITAL NEIGHBOURHOODS IN WINNIPEG





WINNIPEG FREE PRESS ARTICLE REGARDING CLOSURE EXTRA FOODS IN 2013

The City of Winnipeg’s suburban neighbourhoods continue to grow whilst rejuvenation of Winnipeg’s downtown core is needed; three downtown grocery stores have closed recently.⁶ Currently, access to affordable healthy foods is limited. This constrains downtown residents to depend on stores with inadequate food selections, accept inflated food prices, or travel farther to gain access to healthy, perishable food necessary for a proper diet. Many residents in Winnipeg’s urban neighbourhoods, such as the North End community, live with limited incomes and face economic restrictions to accessing food. While residents living in the Exchange District, predominantly young professionals earning high average family incomes⁷, are restricted not by income, but by proximity.

It is important to note, access to food is not only defined by geographical proximity to food retailers; it also pertains to those with restricted access to personal or public transportation and/or



CLOSED EXTRA FOODS STORE IN DOWNTOWN WINNIPEG

Milk Prices:

Milk is one of the basic staples that all, particularly young families, rely on for a healthy diet.

- In Downtown that average price of a 2-litre container of 2% milk was \$3.58, higher than prices in surrounding grocery stores outside of downtown and higher than other inner city neighbourhoods.

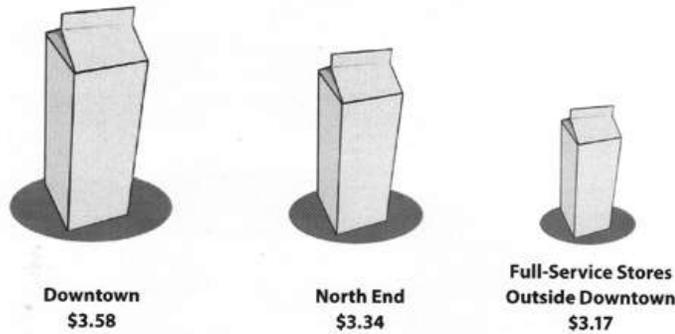
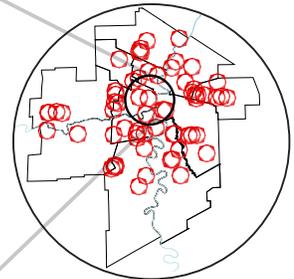
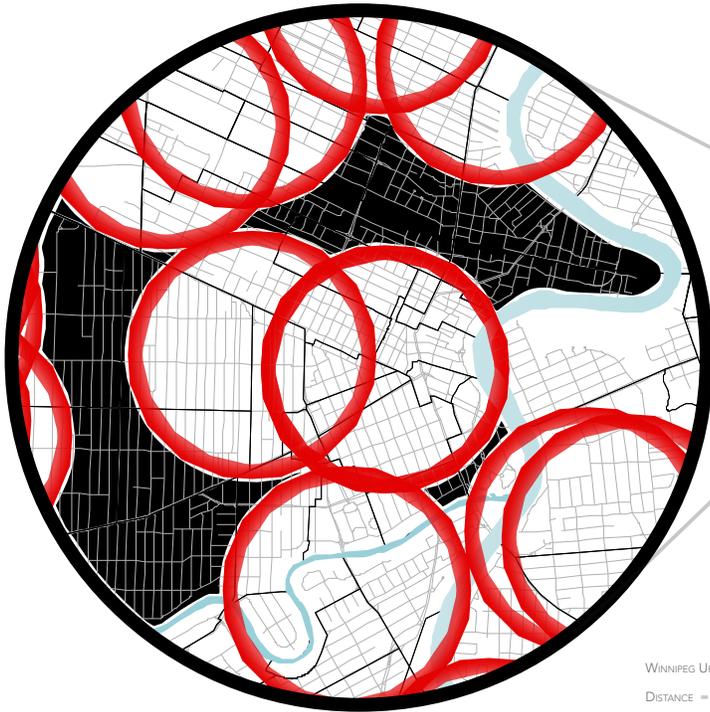


CHART COMPARING MILK PRICES IN DOWNTOWN AND NORTH END COMMUNITY STORES VS. SUBURBAN NEIGHBOURHOOD STORES IN WINNIPEG, MB

limitations in physical or mental capacity that may alter accessibility.⁸ In the case of Winnipeg's North End neighbourhood, *Food Matters Manitoba* indicated in their food assessment report, that "[p]overty is a significant issue in the area [and] there is a higher percentage of people who rely on public transportation or walking as their main means of transportation."⁹ The closures of supermarkets in downtown Winnipeg has also affected residents who are already suffering from poverty and limited mobility. Now they are forced to spend extra time and money on transportation to get access to healthier foods. Increased expense for transportation is not the only factor that challenges the economic food access within the urban communities; clearly the result is that many opt for cheaper, unhealthy, packaged foods. From *Food Matters*



BIG BOX SUPERMARKETS (MIN. 25,000 SQ.FT.)
IN WINNIPEG KEYPLAN (SUPERSTORE, SOBEY'S,
SAFEWAY, ETC.)

WINNIPEG URBAN FOOD DESERT VOIDS (INDICATED IN BLACK)

DISTANCE = 1 MILE (1.6KM) RADIUS AROUND SUPERMARKETS (INDICATED IN RED)

Manitoba: “Ultimately, more than 11,000 people live in low-income households downtown and are consequently at a higher risk for food insecurity and diet related disease.”¹⁰

According to Health Canada, many Canadian communities have completed community food assessment reports and these reports have shown that food deserts and food swamps are influencing residents’ diets and overall health.¹¹ Ladner identifies that “[n]ot being able to access decent food is synonymous with poor nutrition . . . As long as access to healthy food is difficult, people living in food deserts can expect to have greater rates of premature illness and death from diabetes, cardiovascular diseases, cancer hypertension, obesity, kidney failure and other diet-related disease.”¹² Human health and individual



FOOD ASSESSMENT REPORTS COMPILED BY FOOD MATTERS MANITOBA FOR FOUR DIFFERENT COMMUNITIES IN WINNIPEG, MB

well-being are clearly dependent on the nutrition provided within the foods that are consumed. Food-related diseases are currently high in Manitoba and downtown Winnipeg is considered to be the least healthy neighbourhood.

Urban designers, such as Karen Franck in *Architectural Design*, have indicated that the inaccessibility of healthy foods, lack of knowledge, and the closeness of convenience stores and unhealthy fast food restaurants have greatly impacted the well-being of communities and residents.¹³ As the saying goes, 'knowledge is power', and an exchange of nutrition education and food preparation training will aid the fight against poor health due to food consumption.

2 FOOD DESERT ENDNOTES:

¹ Michael Widener and Jerry Shannon, "When Are Food Deserts? Integrating Time into Research on Food Accessibility," *Health & Place* 30 (2014): 1.

² Ladner, 221.

³ Lisa Rochon, *Up North: Where Canada's Architecture Meets the Land* (Toronto, Ontario: Key Porter, 2005) 44.

⁴ Food Matters Manitoba, *Downtown Winnipeg Community Food Assessment*, 23.

⁵ *Ibid.*, 23.

⁶ *Ibid.*, 4.

⁷ *Ibid.*, 12.

⁸ Canada, Minister of Health, "Measuring the Food Environment in Canada." *Health Canada*, 11 Oct. 2013, 14 Sept. 2014 <www.hc-sc.gc.ca/fn-an/nutrition/pol/index-eng.php>.

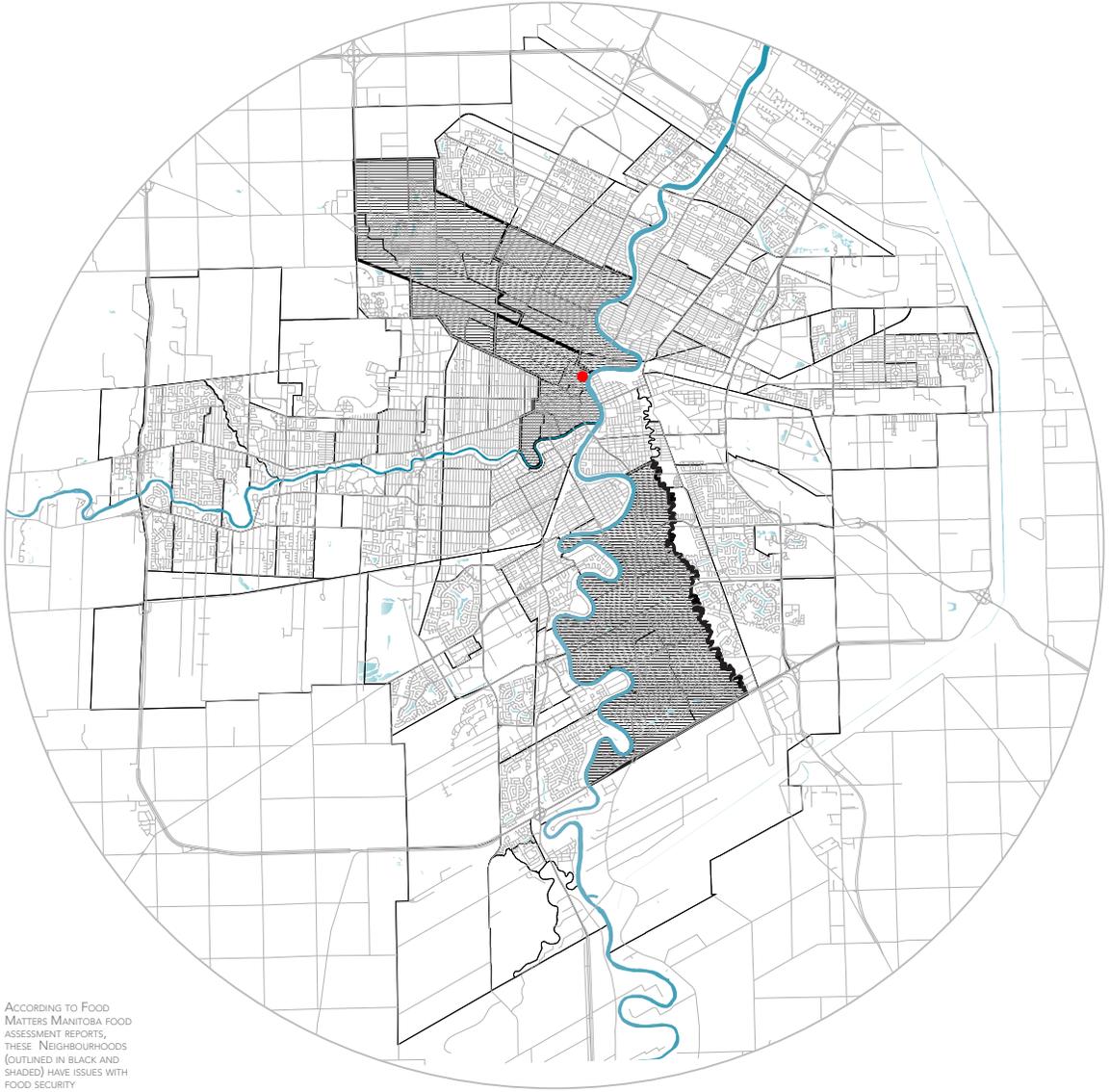
⁹ Margo Malabar and Kaye Grant, *North End Food Assessment Report Winnipeg*, (Winnipeg: Food Matters Manitoba and Public Health Agency of Canada, 2010) ii.

¹⁰ Food Matters Manitoba, *Downtown Winnipeg Community Food Assessment*, 25.

¹¹ Canada, Minister of Health <www.hc-sc.gc.ca/fn-an/nutrition/pol/index-eng.php>: .

¹² Ladner, 220.

¹³ Karen Franck, "Food for the City, Food in the City," *Architectural Design* 75.3: 37.



ACCORDING TO FOOD MATTERS MANITOBA FOOD ASSESSMENT REPORTS, THESE NEIGHBOURHOODS (OUTLINED IN BLACK AND SHADED) HAVE ISSUES WITH FOOD SECURITY



"As the tide of chemicals born of the Industrial Age has arisen to engulf our environment, a drastic change has come about in the nature of the most serious public health problems. Only yesterday mankind lived in fear of the scourges of smallpox, cholera, and plague that once swept nations before them. Now our major concern is no longer with the disease organisms that once were omnipresent; sanitation, better living conditions, and new drugs have given us a high degree of control over infectious disease. Today we are concerned with a different kind of hazard that lurks in our environment - a hazard we ourselves have introduced into our world as our modern way of life has evolved."

- Rachel Carson

RACHEL CARSON, A MARINE BIOLOGIST, ENVIRONMENTALIST AND WRITER WHO ALERTED THE WORLD TO THE ENVIRONMENTAL IMPACT OF FERTILIZERS AND PESTICIDES
(SOURCE: [HTTP://WWW.BIOGRAPHY.COM/PEOPLE/RACHEL-CARSON](http://www.biography.com/people/rachel-carson)) 187.

3 POOR DIET - A FORM OF MALNUTRITION DIET

Rachel Carson states, that it is difficult to determine the effects of pesticides and chemicals to human health as it is consumed throughout a lifespan, but the research of the effects of processed foods (made possible by the global food industry) is undoubtedly evident in the health of Canadian consumers.

RACHEL CARSON, 214.

diabetes / di'a'be'tes / noun
a metabolic disorder characterized by the presence of hyperglycemia (high blood sugar) due to defective insulin secretion, defective insulin action or both

WINNIPEG REGIONAL HEALTH AUTHORITY. COMMUNITY HEALTH ASSESSMENT 2009-2010, 71

obesity / o'be'si'ty / noun
an excessively high amount of body fat or adipose tissue in relation to lean body mass

TIM LANG AND MICHAEL HEASMAN, 64.

As demonstrated by the formation of food deserts, the damaging effects of today's global food system are not restricted only to the environment. The global food system supplies vast food selection possibilities and consumers revel in the variety of available foods, however, the foods provided are not necessarily good for human health. Many of the products are delivered in response to the demands of the busy Canadian modern-day lifestyle; fast and convenient. Unfortunately, these fast and convenient foods are highly processed, are high in saturated fat, sugar and low in fibre. To make matters worse, these processed foods are typically less expensive than their nutritious perishable counterparts, resulting in increased consumption. Diet-related diseases (obesity, diabetes, heart disease, hypertension, etc.) are key health issues in developed countries, and can be at least partly attributed to the global food system. Canadians contribute heavily to the world's overwhelming obesity and poor health statistics:

"The Canadian Diabetes Association warns that the economic burden of diabetes in Canada could escalate to nearly \$17 billion by 2020, an increase of more than \$10 billion from 2000. Nearly 10% of all Canadians risk getting or having diabetes by 2020 . . . Statistics Canada found that 26% of children age 6-11 are overweight or obese. The percentage rises to 28% for Canadian teenagers and a staggering 61% for Canadian adults."²

Many researchers refer to the obesity and diabetes epidemic as a form of malnutrition due to a poor food diet. According to the Winnipeg Regional Health Authority, the nutrition-related chronic diseases of Winnipeggers increased from the 2000 census to 2005 census. Diabetes rates have risen from 6.2% to 8.2% and hypertension rates also increased from 20.3% to 22.9%.³ In Downtown Winnipeg, for example, 10.3% of residents have diabetes.⁴ There is now concern with the rise of food related chronic diseases in Winnipeg. According to Kreesta Doucette, Executive Director for Food Matters Manitoba, "[h]ealth care [is] already eating up almost 50% of the provincial budget we can't afford to wait to start taking preventative action to increase food security in vulnerable areas like downtown."⁵ Obesity and diet-related diseases are preventable and there is a need and want for change in Winnipeg.

Health Canada, states that "[h]ealthy eating is central to overall health and reduces the risk of nutrition-related chronic diseases and obesity. To maintain healthy eating patterns, Canadians must have access to safe, acceptable, affordable, and nutritious foods."⁶

■ Martin White: Professor of Public Health at Newcastle University and has completed research on social and behavioural epidemiology, social inequalities in health, development and evaluation of public health interventions, and food policy.

SOURCE: [HTTP://WWW.NCL.AC.UK/BIOMEDICINE/RESEARCH/GROUPS/PROFILE/MARTIN.WHITE](http://www.ncl.ac.uk/biomedicine/research/groups/profile/martin.white)

■ Tim Lang: Professor of Food Policy at Thames Valley University, and has been the chair of the Sustainable Agriculture, Food and Environment (SAFE) Alliance, and is co-author of *Food Wars: The Global Battle for Mouths, Minds and Markets*.

SOURCE: [HTTP://WWW.RESURGENCE.ORG/MAGAZINE/AUTHOR196-TIM-LANG.HTML](http://www.resurgence.org/magazine/author196-tim-lang.html)

■ Michael Heasman: Honorary Research Fellow at City University London, who specializes in food and health policy, and is co-author of *Food Wars: The Global Battle for Mouths, Minds and Markets*.

SOURCE: [HTTP://WWW.CITY.AC.UK/ARTS-SOCIAL-SCIENCES/ACADEMIC-STAFF-PROFILES/DR-MICHAEL-HEASMAN](http://www.city.ac.uk/arts-social-sciences/academic-staff-profiles/dr-michael-heasman)

■ Health: the relationship between diet, disease, nutrition and public health

TIM LANG AND MICHAEL HEASMAN, 2

Companies, now more than ever, are facing scrutiny over the unhealthy processed foods provided on their shelves. As mentioned in the United Nations report, a change in the current dietary habits of unhealthy foods towards a more local available (climate-friendly) food options and consumption is a key component to the transformation of the food industry.⁷ The proposition will help fight poor diets by collectively increasing: nutrition education; food preparation training; public knowledge of food production and healthy food options; community interactions; access to affordable nutritious foods.

.....
• "Food literacy is a potent weapon in fighting childhood obesity and diet-related diseases."

PETER LADNER, 160

3 POOR DIET - A FORM OF MALNUTRITION DIET ENDNOTES:

¹ Tim Lang and Michael Heasman, *Food Wars: The Global Battle for Mouths, Minds and Markets* (London: Earthscan, 2004) 54.

² Ladner, 9-10.

³ Winnipeg Regional Health Authority, *Community Health Assessment 2009-2010* (Winnipeg: Research and Education Unit, 2010) 70.

⁴ Food Matters Manitoba, *Downtown Winnipeg Community Food Assessment*, 28.

⁵ *Ibid.*, 25.

⁶ Canada, Minister of Health, <www.hc-sc.gc.ca/fn-an/nutrition/pol/index-eng.php>.

⁷ Hoffmann, i.



LOCAL FARMER STAND AT ST. NORBERT FARMERS MARKET IN WINNIPEG, MANITOBA

4 “THINK LOCAL, BUY LOCAL, BE LOCAL” AND SUSTAINABLE

Clearly, there are serious health, environmental, social, and financial concerns that can be attributed, at least in part, to the current global food industry. As a result of these issues becoming more evident and publicly known, there is more of a demand for healthy, affordable, and locally, organically, and sustainably-produced food.

WHAT IS A LOCAL FOOD SYSTEM?

The United States Department of Agriculture defines the term *local food system* or *regional food system* as;

“[a] term used to describe a method of food production and distribution that is geographically localized, rather than national and/or international. Food is grown (or raised) and harvested close to consumers’ homes, then distributed over much shorter distances than is common in the conventional global industrial food system. In general, local/regional food systems are associated with sustainable agriculture.”¹

For the purpose of this thesis, local sustainable organic food systems are characterized by the ability to provide consumers access to safe, fresh perishable foods that are reliant on local/humane/organic production, and are affordable and accessible. Overall, the local food system can offer a more personal approach to food distribution. The local organic food movement in Canada has been around for several decades (beginning in the early 1990's),² however, it has grown in popularity only around the mid-2000's, and it's popularity increased rapidly when the "100-Mile Challenge" aired on TV in 2007. It is worth noting, the intent of the local organic food movement is not to encourage people to only eat within a 100-mile vicinity of their homes or to undo the advantages of the current global food industry, but it is a movement that provides an alternate to the food provided by the global food industry. *Food Matters Manitoba* describes the benefits of sustainable local organic food production in their report, *Growing For the Future: Building a Local Sustainable Food Economy in Manitoba*;

100-Mile Challenge was a reality TV show with 100 Manitobans who ate food grown within 100 miles for 100 days.
PETER LADNER, 11

locavore / loh'kuh'vohr / noun
the practice of eating a diet consisting of food harvested within a 100-mile radius. Was the new Oxford American Dictionary word of the year in 2007.
PETER LADNER, 12

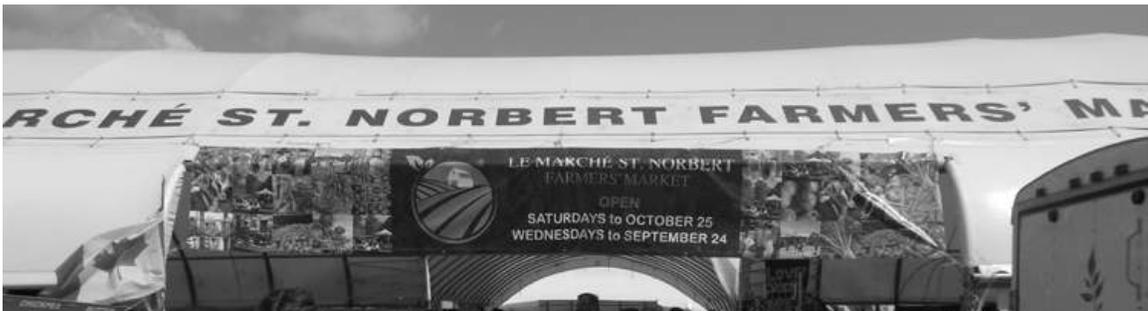
organic / awr'gan'ik / adjective
"organic farming is based on a simple principle, namely, strict respect for the links and natural balances among soil, plants and animals (animals nourish the soil, which nourishes plants). To this is added the constraint of a prohibition on synthetic chemicals and GMOs. Supporters of organic farming add a social and ethical aspect to the definition of organic farming, because they see in it a means of preserving a human dimension in agriculture, one that is respectful of the environment and in touch with the consumer."
FEDERIC FORGE, 7

"Sustainable agriculture can contribute to animal well-being, enrich soils and reduce erosion, support natural habitat coexistence with agriculture, and reduce runoff into lakes, streams, and rivers. Furthermore, sustainable food production can be an important part of broader societal environmental goals and supporting the local, sustainable food sector will benefit not only the economy but our common ecological objectives . . . A local, sustainable food economy will improve our ability to withstand external threats such a border closures, diversify our production and processing sectors, and create

jobs. It can bring communities together, building relationships between farmers and consumers. And it can contribute to a vibrant ecological landscape that support a healthy environment.”³

The popularity and sales of organic, sustainable products have increased in Canada by 17% from 2006 and 2007.⁴ Manitoba produces over 2.6 billion kilograms of food, and has 10.7 million acres of land used for agriculture and 126 of those producers/farmers are certified organic primary producers in Manitoba.⁵ Manitoba consumers purchase \$2.6 billion worth of food from the conventional supermarket and nearly \$1.5 billion of which could be produced locally in Manitoba.⁶ According to Kaye Grant and Marty Donkervoort, who conducted the *Winnipeg Food Hub Feasibility Study*, for Food Matters Manitoba, Manitobans and in particular, Winnipeggers, are interested in purchasing local food due to concerns about the quality, health, nutrition and food safety provided by the global food industry.⁷ It begs the question, why supermarkets do not have more locally grown food in their stores? One can speculate that companies lack the economic incentives to provide consumers with organic, local foods.

Winnipeggers / win'uh'peg'gers / noun
term describing residents of Winnipeg,
Manitoba



WINNIPEG'S LARGEST FARMER'S MARKET - ST. NORBERT FARMER'S MARKET

“Food System Localization has become a central goal and strategy of alternative agri-food movements . . . Instances of food system localization include the emergence and growth of community supported agriculture (CSA), the spread of farmers’ markets in the renaissance of small scale and specialty food growers and processors.”

PATRICIA ALLEN AND CLARE HINRICHS, 255.

Refer to photo on the page 38 for list additional of benefits of buying local foods.

The sustainable local organic food movement shares similar financial and economic objectives as the global food system. However, it aims to achieve these goals through different avenues: reducing the disconnect between producer and consumer (in both physical distance and personal connection); educating the consumer as to how and when their food was produced (omitting the use of pesticides/chemicals and immoral labours and animal treatment); providing unprocessed healthy foods; reducing the environmental impact by using sustainable agricultural practices.

A common deterrent from purchasing locally grown food is the assumption that local organic foods are more expensive than imported foods. According to Ladner, researchers have determined that organic products found at a local farmers market are comparable in price with other organic foods found at a typical big box supermarket.⁴ Organic foods in season are no more expensive than regular supermarket produce. Stefan Regnier, a farmer on Blue Lagoon Organics in St. Francois Xavier, Manitoba, strongly believes that everyone can afford local organic food; “you can afford to buy local, but you need to know what is in season and you need to know your local farmer.”⁵ It is easy to make an assumption that locally produced food is more expensive without the correct information and knowledge. Therefore, the education aspect and social interaction with the local farmer is very important to make rational and healthy decisions when buying food.

Themes	Claim	Rationale
Aesthetics	Improves food quality	Ensures better tasting food
Community	Increases food supply dependability	Revitalizes communities
	Is tailored to community needs	Enhances culture
	Is developed by local citizens	Links consumers and producers
	Enhances community/individual well being	Builds trust between producers and consumers
	Increases self-reliance	Builds community
	Improves bonds in community	Enhances social health
Economics	Reduces food costs	'Keeps taxes in check'
	Increases grower income/profitability	Preserves local businesses
	Increases employment	Improves customer service
	Helps local economy	Offers wider choices to consumers
	Helps develop alternative commerce	Lowers public costs
	Strengthens economies	Encourages local investment
	Supports local farm families	Adds/supports local jobs
Environment	Improves farming practices	Is adapted to local environments
	Saves energy	Preserves genetic diversity
	Preserves open space	Supports a clean environment
	Enables harmonious relationship with nature	Uses ecologically sound production practices
	Reduces emissions/pollution	Protects wildlife
	Leads to accumulation of renewable assets	Protects the environment
Equity	Is built on justice	Women play key roles
	Puts people first	Creates moral economy
	Enhances social equity	Can catalyze positive local transformations
	Accessible to everyone	Is socially just
	Improves wages and working conditions	Includes everyone
	Meets people's needs	Reduces health inequalities
	Improves food security	Increases consumer influence
	Distributes benefits fairly	Enhances democracy
Health	Makes food more nutritious	Safeguards your health
	Improves food safety	Improves health

CHART OF ASSOCIATED CLAIMS ABOUT THE BENEFITS OF BUYING LOCAL FOODS

There is also scepticism, resulting from the climatic conditions of Manitoba, that local sustainable organic farms can produce enough food to feed the population of Winnipeg and that they are capable of producing enough selection of perishable foods. It is undoubtedly true that Manitoba's extremely cold winters and resulting short growing season (approximately 119 frost-free days) is a major obstacle for locally produced foods, yet what can be produced in Manitoba (grains, root vegetables, and meat products) is available year round.¹⁰ According to the President of CitiGrow Inc., David Gingera, "if we use 5% of the city's [Winnipeg] surface area to grow food, we would be able to feed everybody in Winnipeg and have some excess."¹¹ A local Winnipeg farmer, Bruce Berry, states that countries farther north and with a shorter growing season than Manitoba has successfully produced locally grown organic products.¹²



URBAN GARDEN AT THE INN AT THE FORKS, RAN AND OPERATED BY CITIGROW

According to Leonid Sharashkin in his dissertation in 2008, *The Socioeconomic and Cultural Significance of Food Gardening in the Vladimir Region of Russia*; “. . . Russia’s 35 million families (approx. 66% of the country’s households), both urbanites and rural residents, own small garden-plots, most of which are used for growing food for subsistence and for the market [and] producing over 50% of Russia’s total agricultural output . . .”¹³ The Vladimir Region has similar cool temperatures as Manitoba, and also has a limited time span for its growing season at 115 days.¹⁴ With the knowledge and advances in technology in agriculture today, feeding an entire city with sustainable locally produced organic food is not as large of an obstacle as it once was prior to the industrial revolution.

There are numerous benefits in producing and buying local food. Patricia Allen and Clare Hinrichs in *Alternative Food Geographies: Representation and Practice*, strongly agree and



VLADIMIR REGION TYPICAL GARDEN PLOTS



URBAN GARDENS IN ST PETERSBURG, RUSSIA

believe that, “locally-based solutions are fundamental to solving hunger problems, [food insecurities and cultivate a sense of belonging through] a shared commitment to place.”¹⁵ The intent of the sustainable local organic food movement and the proposed food exchange hub is to, avoid the sterile, isolating and unhealthy conditions provided by the global food industry in food production, retailing and eating,¹⁶ and promote and educate consumers about possible alternative healthier food options while creating a direct contribution to the local food economy and encouraging relationships between the farmer and the community.

<i>TYPE OF PRODUCER-CONSUMER RELATIONSHIPS</i>	<i>WINNIPEG CONTEXT</i>
<p><u>Producers as Consumers</u> Food is grown or produced by those who consume it. Often promote healthy lifestyles. Extent of commercial orientation varies. Produce is usually sold on a local level but maybe targeted at specific groups, e.g. low incomes, ethnic minorities. Examples are community gardens, community co-ops and allotments.</p> <p><u>Producer-Consumer Partnerships</u> The risks and rewards of farming are shared – to varying degrees – due to subscription or share arrangements. Example community supported agriculture schemes (CSA)</p> <p><u>Direct Sell</u> Farmers or producers cut out the middleman and sell direct to consumers. Can be direct face-to-face or over the Internet. Examples are farm shops, farmers’ market, box schemes, adoption schemes.</p>	<p>There are approximately 48 community gardens and allotments in Winnipeg. Some are city owned, privately owned and some are owned by Manitoba Hydro. Below are some of the gardens.</p> <ul style="list-style-type: none"> - River Osborne Community Centre - Spence Neighbourhood Gardens - Fife Street Garden <p>- CSA Manitoba</p> <ul style="list-style-type: none"> - Almost Urban Vegetables - Fort Whyte Farms <p>There are 13 Farmers’ Market in Winnipeg, majority of them are only open from June to September. The most well known is St. Norbert Farmer’s Market (outdoor) and the The Forks (indoor).</p> <p>Below are a list of box scheme in Winnipeg.</p> <ul style="list-style-type: none"> - Fresh Option Organic Delivery - Winnipeg Food Share Co-op - The Good Food Box

*** CSA - Community Supported Agriculture
PATRICIA ALLEN AND CLARE HINRICH, 255.

Chart: Typology of Producer-Consumer 'Reconnection' with Winnipeg Context

MOYA KNEAFSEY AND ET. AL. 17

4 "THINK LOCAL, BUY LOCAL, BE LOCAL" AND SUSTAINABLE ENDNOTES:

¹ Steve Martinez, *Local Food Systems Concepts, Impacts, and Issues* (Washington, D.C.: U.S. Dept. of Agriculture, Economic Research Service, 2010) 25.

² Caldwell, 45.

³ Food Matters Manitoba, *Growing for the Future: Building a Local, Sustainable Food Economy in Manitoba*, 7.

⁴ Caldwell, 45.

⁵ Food Matters Manitoba, *Growing for the Future: Building a Local, Sustainable Food Economy in Manitoba*, 14.

⁶ *Ibid.*, 28.

⁷ Kaye Grant and Marty, *Winnipeg Food Hub Feasibility Study: Developed for Food Matters Manitoba*, 16.

⁸ Ladner, 170.

⁹ Stefan Regnier, Personal interview, 28 Oct. 2014.

¹⁰ Food Matters Manitoba, *Growing for the Future: Building a Local, Sustainable Food Economy in Manitoba*, 12.

¹¹ David Gingera, Personal interview, 30 Oct. 2014.

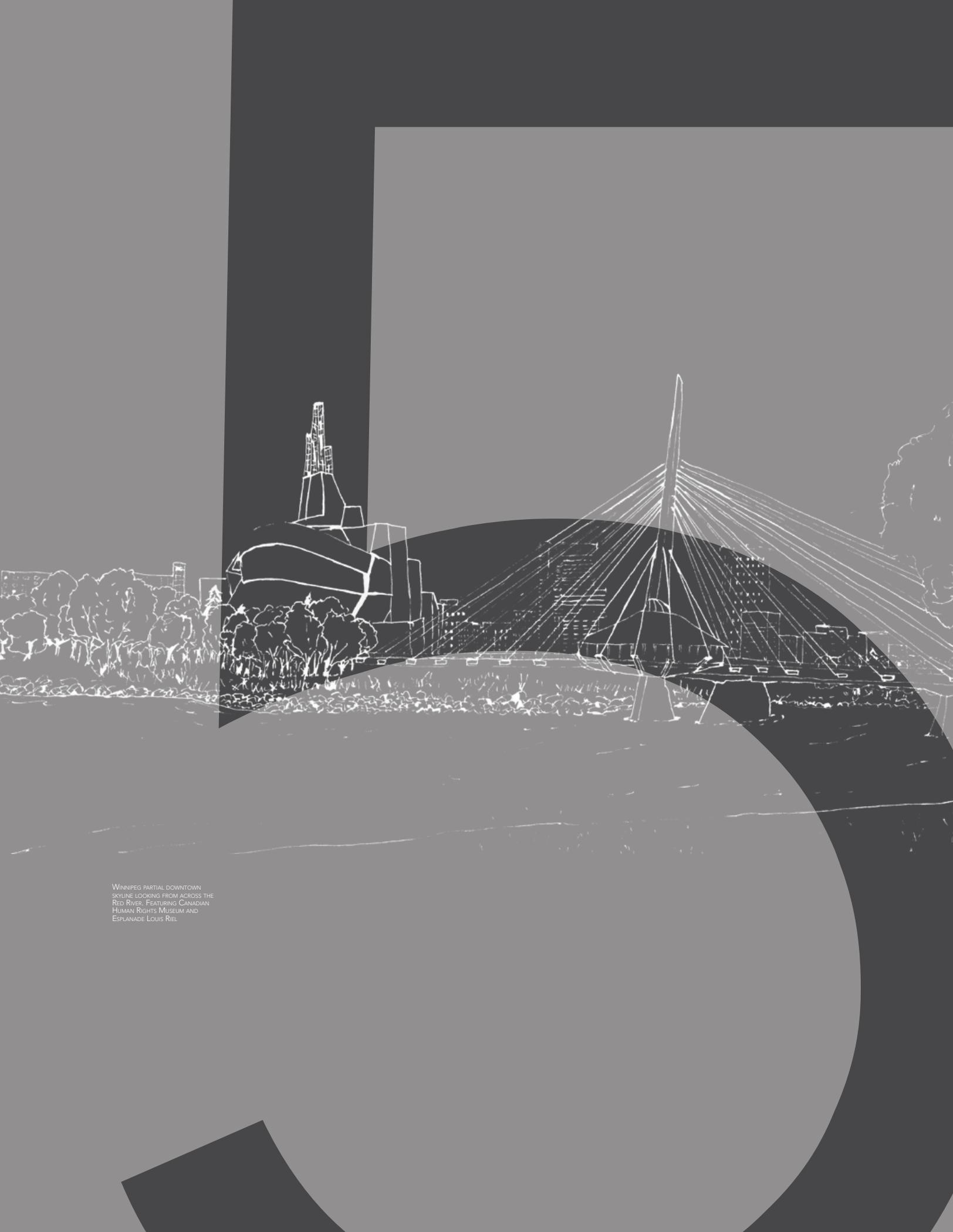
¹² Bruce Berry, Personal interview, 30 Oct. 2014.

¹³ Leonid Sharashkin, "The Socioeconomic and Cultural Significance of Food Gardening in the Vladimir Region of Russia" (Diss., U of Missouri-Columbia, 2008) 17 Dec. 014 <<http://naturalliving.org/naturalliving/russian-dacha.htm>>.

¹⁴ *Ibid.*

¹⁵ Patricia Allen and Clare Hinrichs, "Chapter 15: Buying into 'Buy Local': Engagements of United States Local Food Initiatives," in *Alternative Food Geographies: Representation and Practice*, eds. Damian Maye, Lewis Holloway, and Moya Kneafsey (Amsterdam: Elsevier, 2007) 260.

¹⁶ Parham, 95.



WINNIPEG PARTIAL DOWNTOWN
SKYLINE LOOKING FROM ACROSS THE
RED RIVER, FEATURING CANADIAN
HUMAN RIGHTS MUSEUM AND
ESPLANADE LOUIS RIEL

5 WINNIPEG: 'HEART OF THE CONTINENT'

Winnipeg is the capital city of the province of Manitoba. As per the city's slogan, 'Heart of the Continent,' Winnipeg is literally in the middle of Canada. Winnipeg's geographic location has played a major role in its history and current development.

It was not long ago that Winnipeg hit a plateau in its population growth, but as of 1999 the population rapidly increased. It is home to approximately 675,100 people as of the 2009 census poll, and its growth is expected to increase by 10,000 people a year till 2031.¹ Due to the increase in population and the desire to improve the city economically and sustainably, the City of Winnipeg conceptualized a 25-year civic improvement plan called *OurWinnipeg: It's Our City, It's Our Plan, It's Our Time*.

OUR WINNIPEG: IT'S OUR CITY, IT'S OUR PLAN, IT'S OUR TIME

The City of Winnipeg's vision is to provide its residents not just the 'basic' matter of public safety (water quality, wastewater infrastructure, and public amenities and facilities), but also to sustain and encourage various lifestyles, with different options for living, working and playing.² In general, the vision refers to Winnipeg's economic strength and stability and ensures that the city grows in a sustainable manner. In the publication, the City of Winnipeg states how they foresee the city growing in a sustainable manner;

“According to the 1983 United Nations Brundtland Commission, the preeminent standard in the definition of sustainable development, it is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” While the term is most associated with its environmental implications, it also has economic and social implications as well.”
CITY OF WINNIPEG, *OurWinnipeg: It's Our City, It's Our Plan, It's Our Time*, 14.

“By integrating transportation planning, land uses, built forms and urban design, this plan enables the city's growth to be shaped by a logical urban structure that focuses growth and change to enhance existing assets, create complete communities, complete existing communities and ensure a socially, environmentally and economically sustainable future.”³

The vision of *OurWinnipeg* included discussions around one of the most essential parts of a city, food security, however from a social perspective only. The guide encourages Winnipeggers to collaborate on local food opportunities as part of community development initiatives. It further states that providing healthy food options should be included in planning for neighbourhood revitalization strategies and that residents should pursue opportunities to support local food production and develop planning tools to manage the sustainability

“Food Security is to obtain as safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice [that is available to people at all times].”
FOOD MATTERS MANITOBA, *Downtown Winnipeg Community Food Assessment*, 5

of existing community gardens and to enable the creation of new permanent or temporary gardens.⁴ Food can easily enhance the social environment of communities by providing community gardens, farmers' markets, community kitchens, which brings a sense of place. Yet, there is much more to the topic of food security than simply enhancing a sense of community.

The food exchange hub program and design aims to bring the goals presented in the publication issued by the City of Winnipeg in the downtown core.

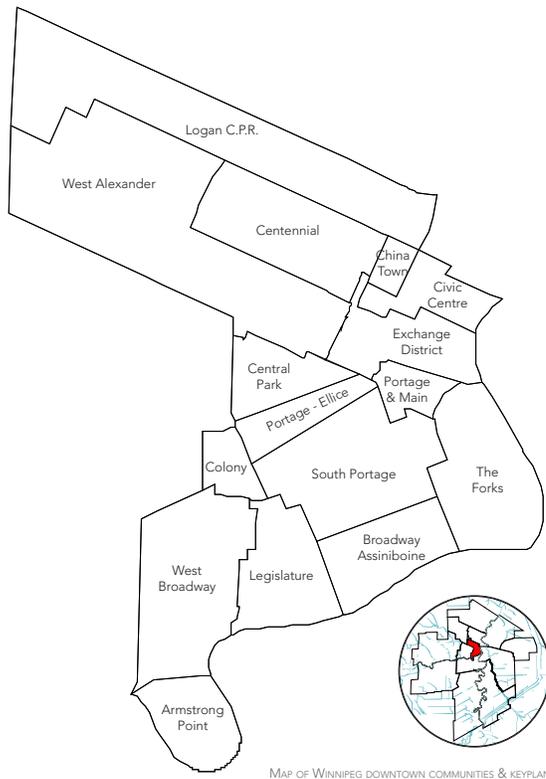


CITY OF WINNIPEG VISION SUPPORTED BY 15 CONNECTED AND INTER-DEPENDENT DIRECTIONS

DOWNTOWN WINNIPEG

Downtown Winnipeg is considered the 'heart' of the city and its revitalization has been and continues to be the main focus in the development of Winnipeg.

The objectives of its revitalization are to "establish support for organizations focused on community building activities that improve livability and vibrancy in the city, and make downtown Winnipeg a key element of the cities identity, quality-of-life, employment, and tourism offering."⁵ Downtown Winnipeg spans approximately 6.3 km² and has approximately 70,000 people who work there and 16,000 people who live downtown.⁶ There are 13 neighbourhoods downtown; Armstrong Point, Broadway-Assiniboine, Centennial, Central Park, Chinatown, Colony, Exchange District, Logan C.P.R., Portage-Ellice, Spence, South Portage, West Alexander, and West Broadway. Downtown Winnipeg's expected residential population growth is 1.9%-2.4% per year till 2021.⁷ The publication, *OurWinnipeg*, indicates that the focus in developed communities is to provide support to various lifestyles by offering the daily necessities; ". . . by enhancing existing infrastructure and assets



to ensure that most amenities for daily living are universally accessible within walking distance.”⁸ Residents’ limited access to food fails to meet the vision for Winnipeg. As mentioned in the previous chapter, Food Deserts, the downtown core has had several grocery stores close. Access to affordable healthy food is limited, by both geography (in the Exchange District) and economics (in areas where residents have low-incomes).



CITY OF WINNIPEG DOWNTOWN SKYLINE

EXCHANGE DISTRICT

Earlier this year (2014), the City of Winnipeg and the Province of Manitoba have partnered to offer up to \$40,000,000 in grants for residential development in Winnipeg's downtown⁹ (with the focus in the Exchange District).

The Exchange District is a 20-city block area, with approximately 150 heritage buildings and is a National Historic Site since 1997.¹⁰ The neighbourhood has always been the middle of the economic development of Winnipeg. Once known as the Winnipeg Grain Exchange because the area signifies the heart of the grain industry in Canada and played a significant role in the western development as the gateway to Canada's West grain trade and wholesale trade from 1880 to 1913.¹¹ Today, the Exchange District is a vibrant community with a mix of commercial retail, restaurants, arts and cultural venues, and residential uses.



NEW CONVERTED WAREHOUSE TO NEW CONDO DEVELOPMENT IN DOWNTOWN WINNIPEG, SPECIFICALLY THE EXCHANGE DISTRICT

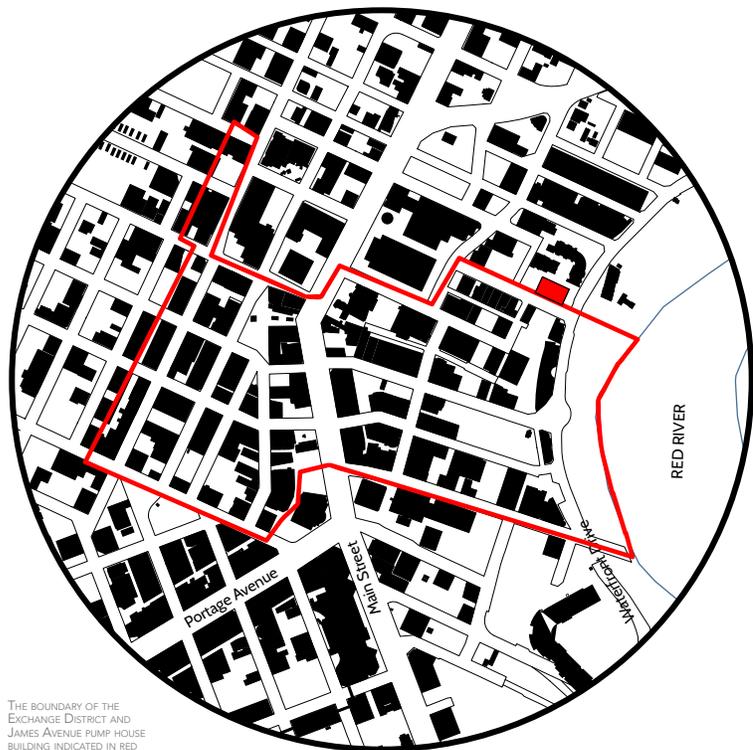
5 WINNIPEG - 'HEART OF THE CONTINENT'



OLD GRAIN EXCHANGE ON PRINCESS STREET IN 1900

FROM EXCESS TO ACCESS: A NEW FORM OF FOOD DISTRIBUTION IN WINNIPEG, MANITOBA

Due to its unique history, the majority of the historical buildings in the Exchange District have been restored and adapted and are currently used by commercial retail, businesses, and residential. James Avenue Pump House Station (a heritage designated building), however, has been left abandoned since 1986. The historical grain industry of the Exchange District and the momentous importance and unique architecture and equipment of the James Avenue Pump House Station will influence the design and programmatic layout of the proposed food exchange hub. The building and neighbourhood will once again contribute to feeding Winnipeg's history.



THE BOUNDARY OF THE EXCHANGE DISTRICT AND JAMES AVENUE PUMP HOUSE BUILDING INDICATED IN RED

5 WINNIPEG: 'HEART OF THE CONTINENT' ENDNOTES:

¹ City of Winnipeg, "OurWinnipeg: It's Our City, It's Our Plan, It's Our Time" <<http://winnipeg.ca/interhom/CityHall/OurWinnipeg/>>.

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Tom Janzen, Personal interview, 22 Dec. 2014.

⁷ Jino Distasio and Scott McCullough, *Downtown Winnipeg: Developments and Investments, 2005-2013*. The University of Winnipeg, Institute of Urban Studies, 17 Dec. 2014. <<http://www.uwinnipeg.ca/ius/docs/reports/downtown-dev-inbrief.pdf>>.

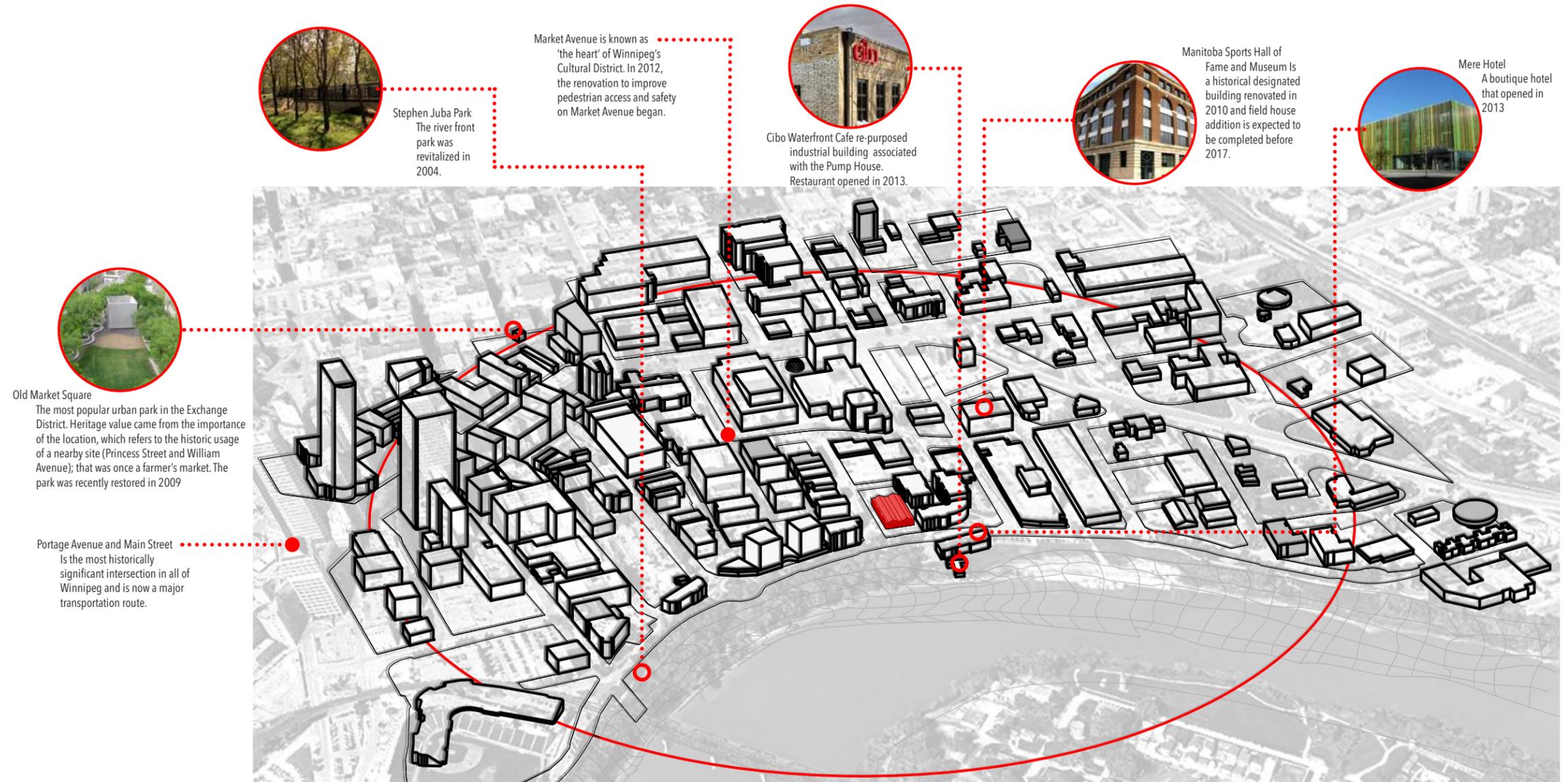
⁸ City of Winnipeg, "OurWinnipeg: It's Our City, It's Our Plan, It's Our Time" <<http://winnipeg.ca/interhom/CityHall/OurWinnipeg/>>.

⁹ City of Winnipeg, "City of Winnipeg." *Planning, Property & Development Department: Assistance Programs*, 3 Jan. 2014, 17 Dec. 2014 <http://www.winnipeg.ca/ppcd/programs_drdg.stm>.

¹⁰ The Exchange District BIZ, "Historic Exchange." *The Exchange District*, 17 Dec. 2014. <<http://www.exchangedistrict.org/tours-attractions/historic-exchange/>>.

¹¹ Ibid.

Neighbourhood Context and recent development within 1 mile radius of James Avenue Pump House Station



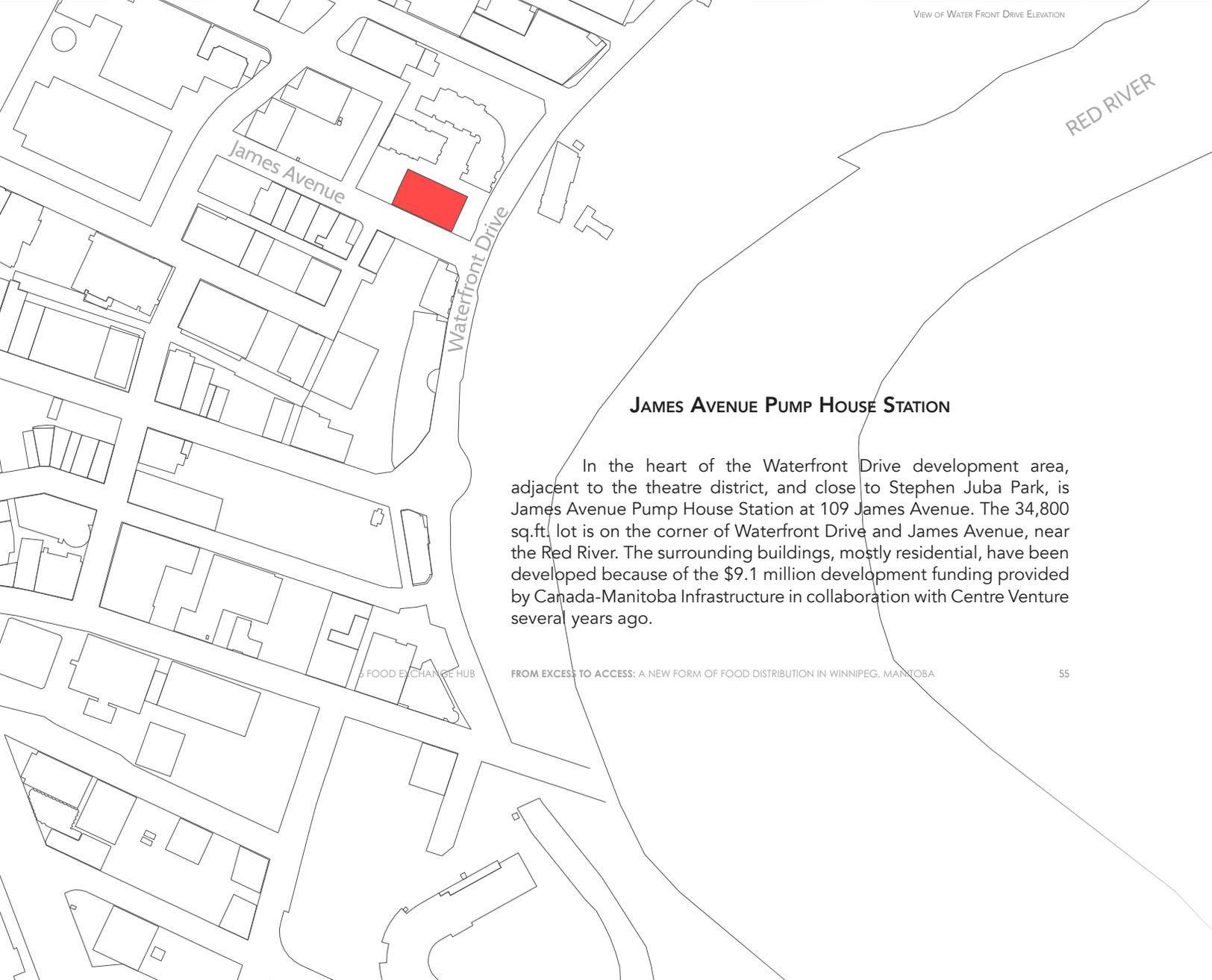
NEIGHBOURHOOD CONTEXT AND RECENT DEVELOPMENT WITHIN 1 MILE RADIUS OF JAMES AVENUE PUMP HOUSE STATION



FOOD EXCHANGE HUB



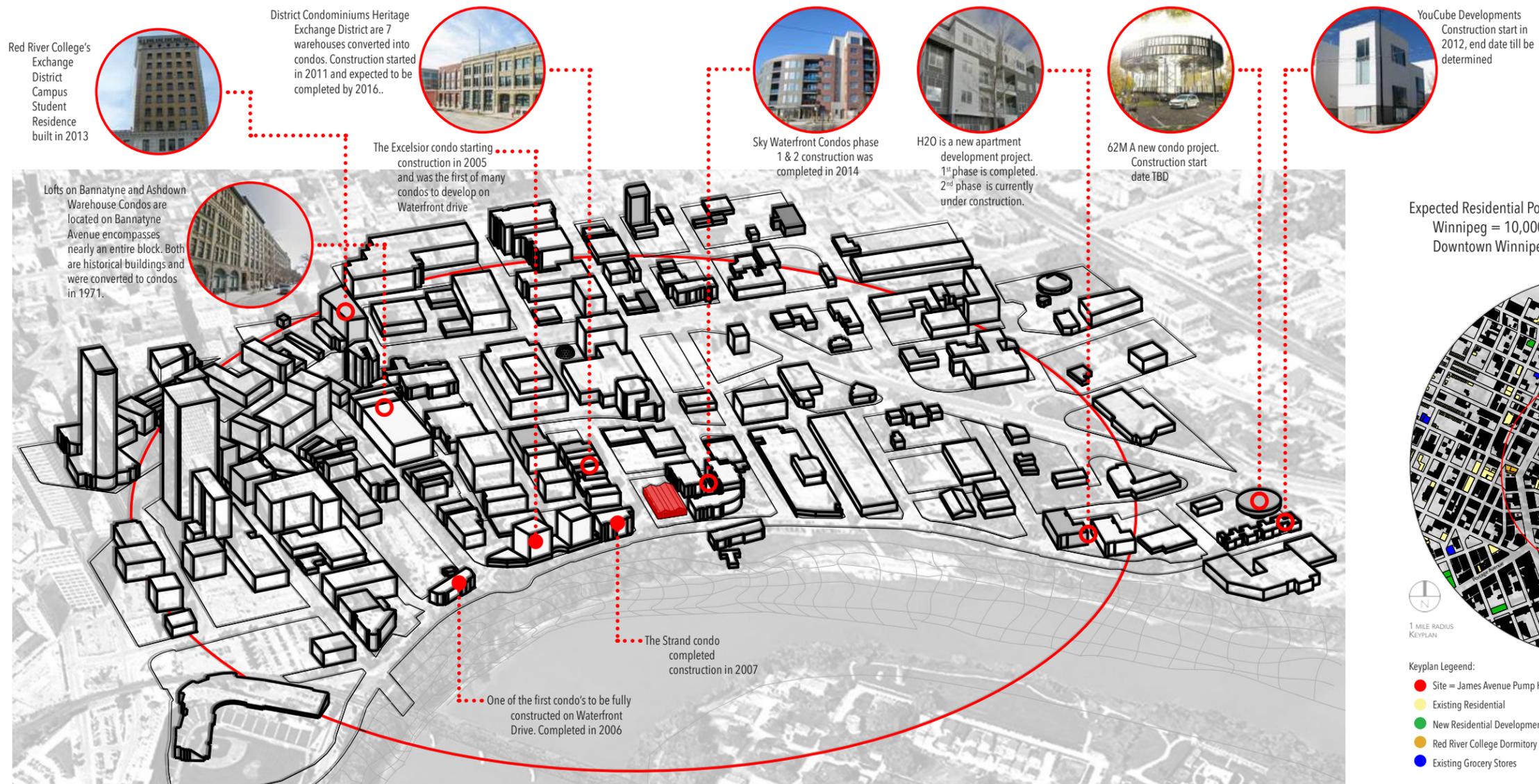
VIEW OF WATER FRONT DRIVE ELEVATION



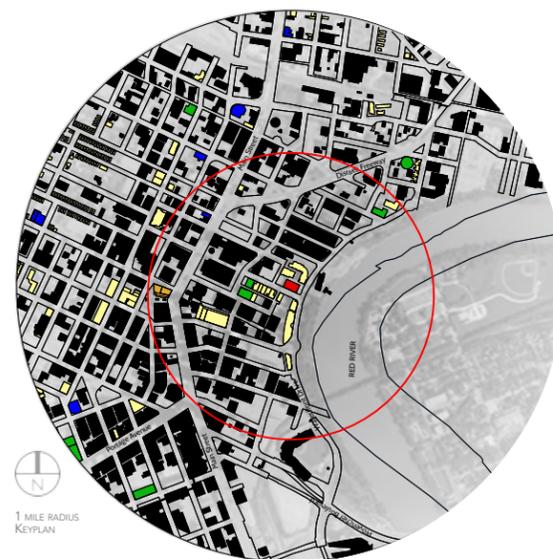
JAMES AVENUE PUMP HOUSE STATION

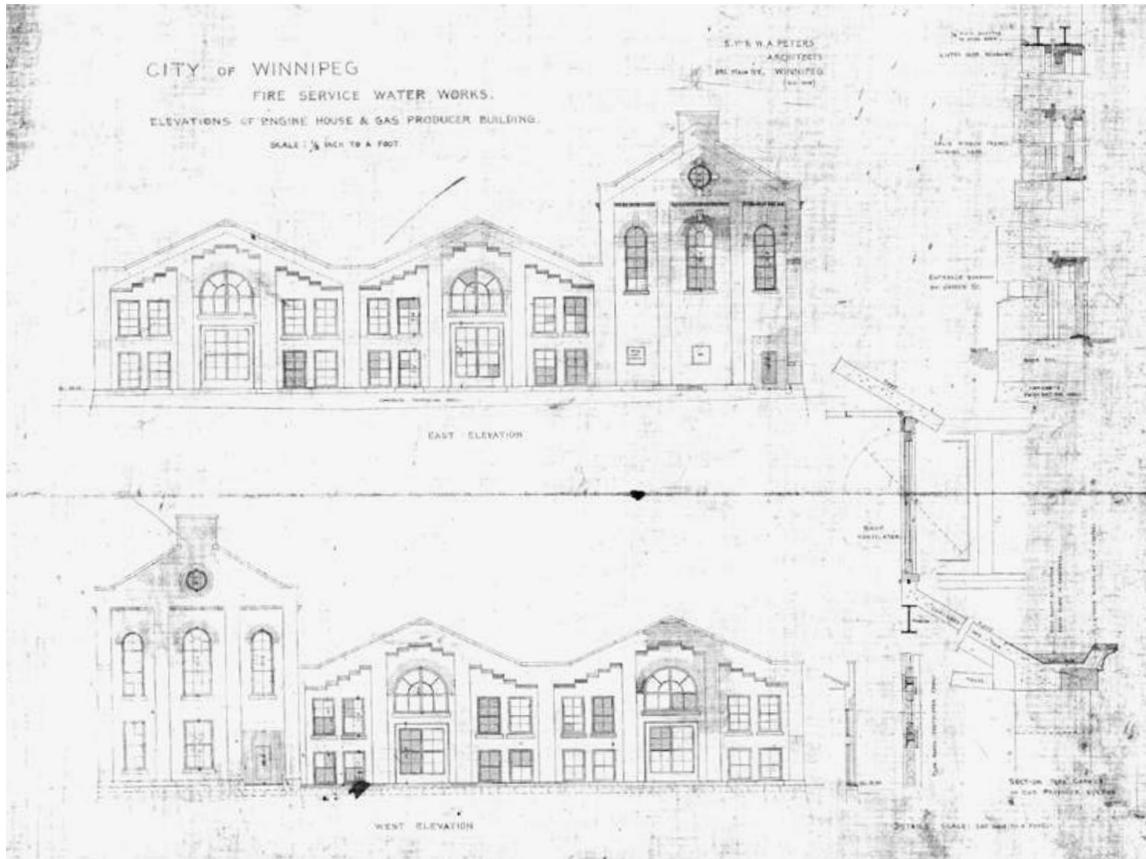
In the heart of the Waterfront Drive development area, adjacent to the theatre district, and close to Stephen Juba Park, is James Avenue Pump House Station at 109 James Avenue. The 34,800 sq.ft. lot is on the corner of Waterfront Drive and James Avenue, near the Red River. The surrounding buildings, mostly residential, have been developed because of the \$9.1 million development funding provided by Canada-Manitoba Infrastructure in collaboration with Centre Venture several years ago.

Residential growth within a 1 Mile Radius around James Avenue Pump House Station (Exchange District)



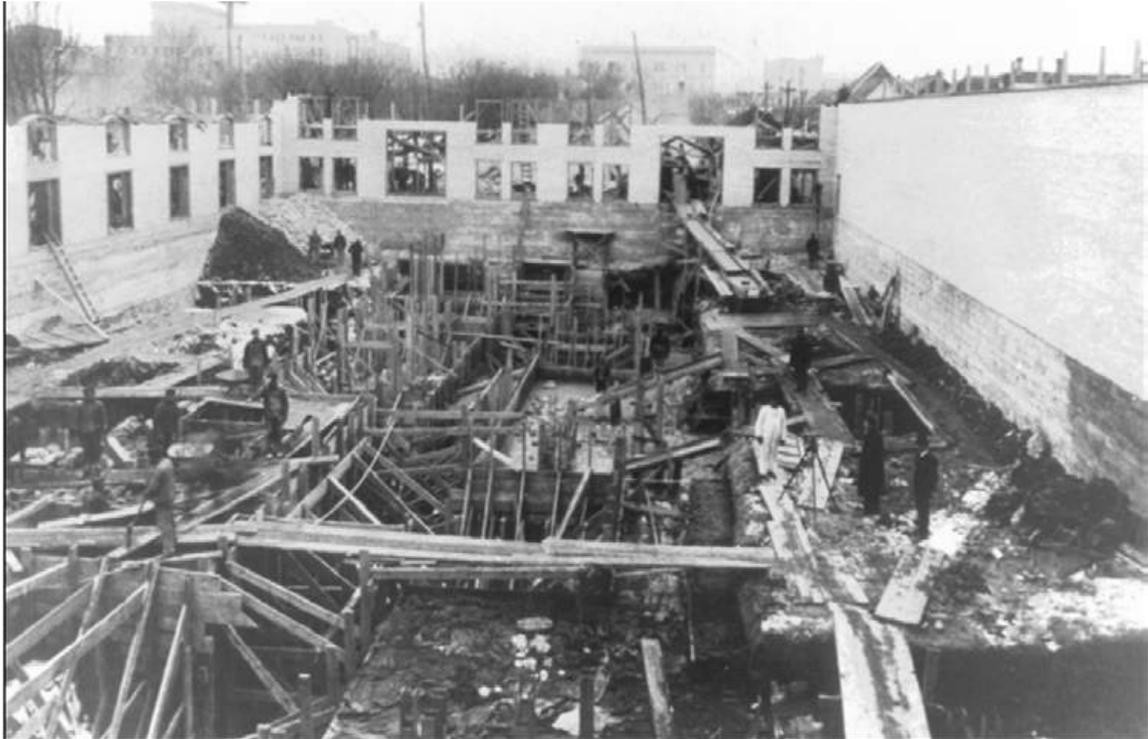
Expected Residential Population Growth
 Winnipeg = 10,000 a year till 2031
 Downtown Winnipeg = 1.9%-2.4% per year





ORIGINAL 1906 EXTERIOR ELEVATION DRAWINGS

The low, plain brick exterior structure of the 16,036 sq.ft. pump house station was originally built in 1906 to house the high-pressure water system for fighting fires (which was considered highly advanced at that time).¹ It is unique in both structure and equipment, which was described in detail in the 1982 report by the Historical Buildings Committee;



CONSTRUCTION OF HIGH PRESSURE PUMPING STATION 1906

"The total cost of high pressure pumping station reach approximately \$1 million, but this cost was only by the businesses along to 8-mile high pressure mains. When it was constructed in 1906 the system is one of the most sophisticated in the world. It consisted of three main structures: the powerhouse, the gas producing plant and the gas storage tank . . . [The powerhouse] is made of solid buff-colored brick, 158 by 92 feet, with walls 17 inches thick. The building is divided into two gable bays, each spanned with huge crane running the length of the interior. The engine-house floor is sunk 18 feet below street level with the palms in a trench below this. The six engines were manufactured by Crossley Brothers of Manchester, and ran off the gas produced in the plant. The water was pumped from the red river through concrete intake wells set 45 feet below street level, funneled through the engines and fed into the mains at a continuous pressure of 300 pounds per square inch."²

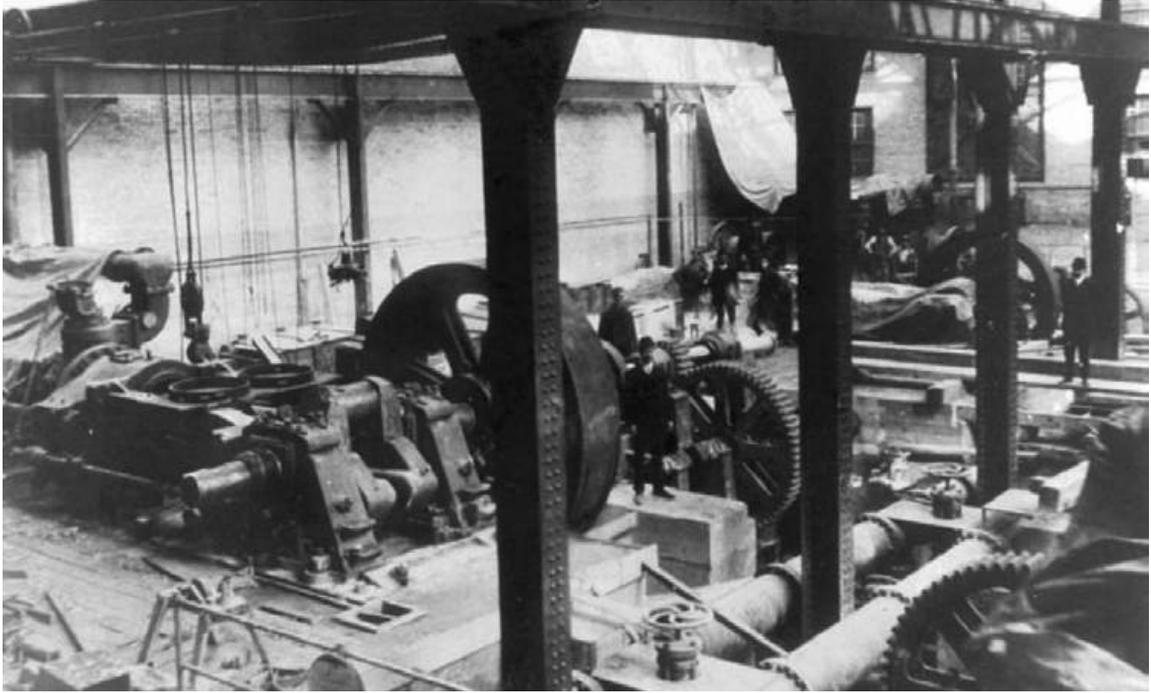
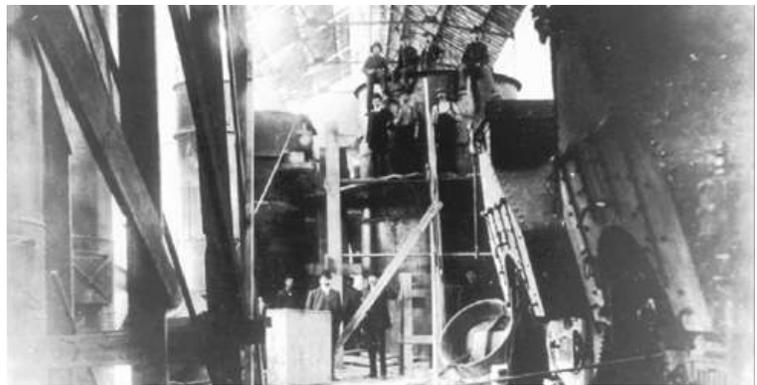
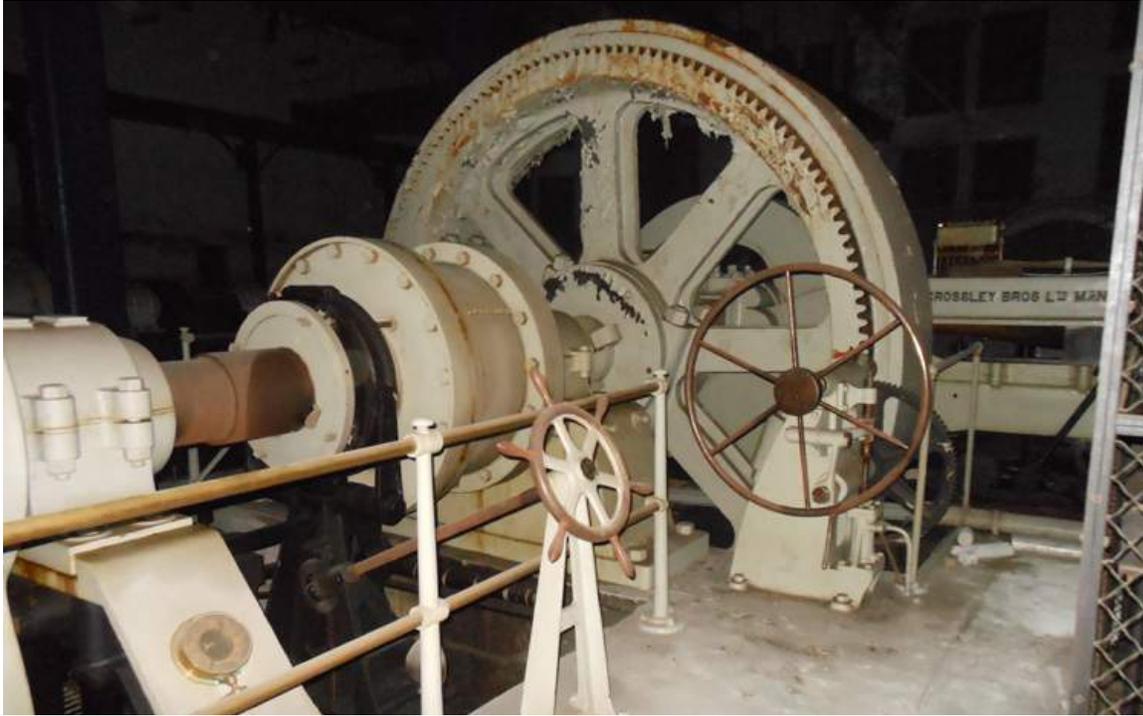


PHOTO OF EQUIPMENT IN STATION DURING CONSTRUCTION IN 1906

Due to the advances in technology and firefighting methods, the building was shut down by the city in 1986. When the building was closed, some of the equipment was still operational. Both the building and equipment have historical designations.³



INTERIOR PHOTO OF PUMP STATION DURING CONSTRUCTION IN 1906



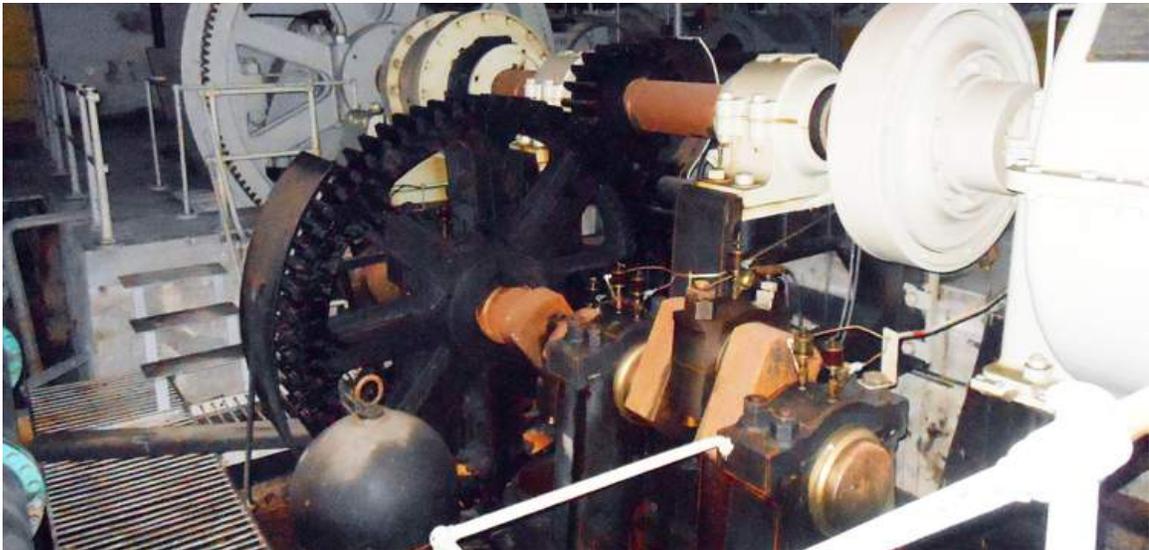
CURRENT CONDITION OF PUMP EQUIPMENT

Even with the unique and historical characteristics of its exterior façade, James Avenue Pump House Station appears desolate compared to its neighbouring buildings and surroundings. Fortunately, the beauty of the interior, which can be seen through the dirt and neglected conditions, and its equipment are nothing short of astonishing. The sophisticated equipment was considered highly advanced for 1906 and was manufactured by Crossley Brothers of Manchester.⁴



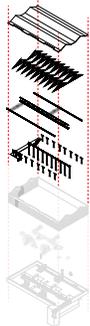
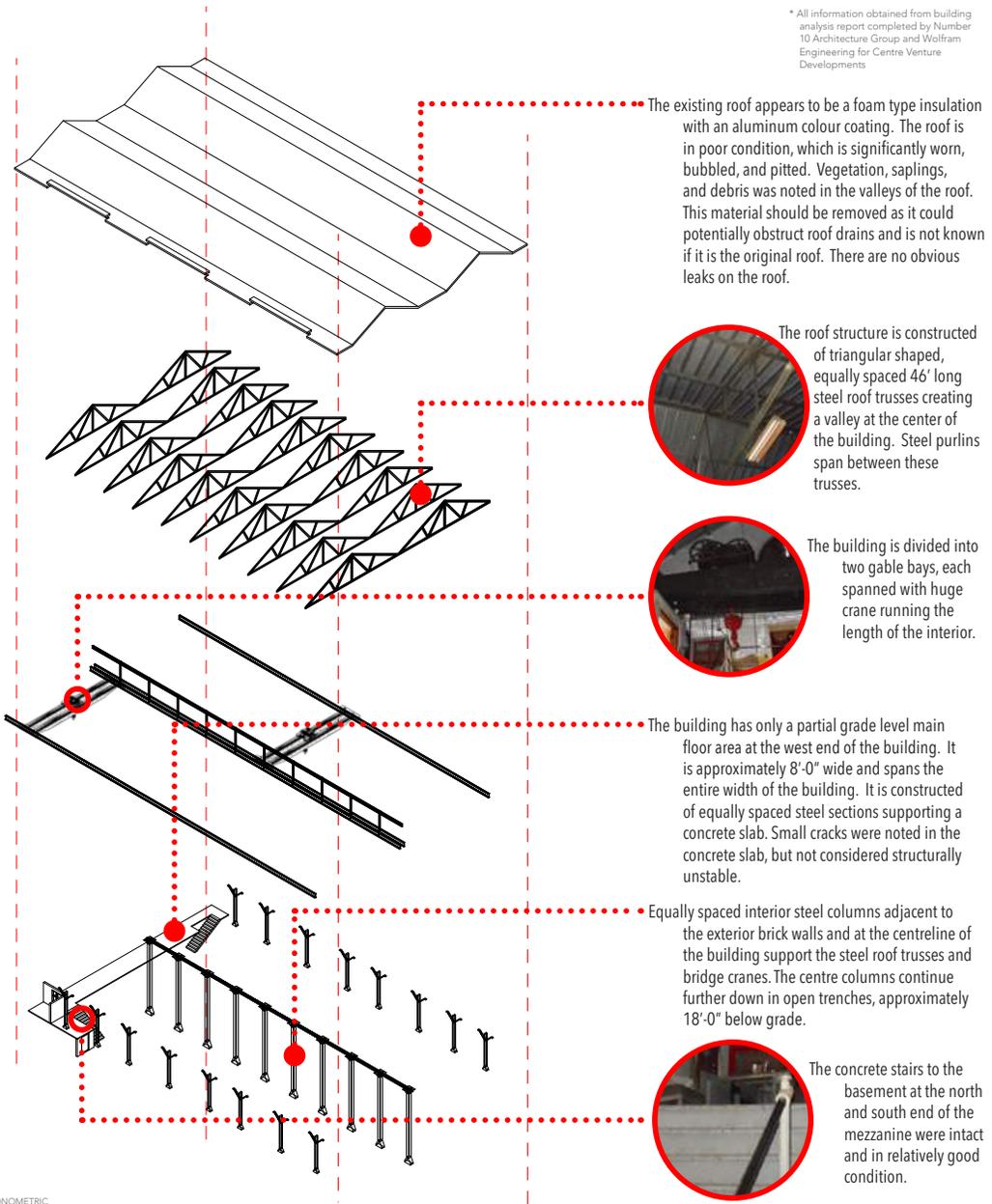
VIEW OF RIGHT BAY OF ENGINE FLOOR

Upon entering the building on the side entrance (off James Avenue), one walks into the building on a platform flush with grade. Beyond the entrance threshold, there is a set of stairs leading 8'-1/4" below grade. This level spans the majority of the building and in the drawings it is annotated as the 'engine house floor.' The equipment and centre columns continue further down in open trenches, approximately 18 feet below grade. Further below the ground, approximately 45 feet below grade, are the concrete intake wells, which once pumped water from the Red River to battle fires.⁵



CLOSE UP VIEW OF EQUIPMENT DESIGNED AND MANUFACTURED BY CROSSLEY BROTHERS OF MANCHESTER

* All information obtained from building analysis report completed by Number 10 Architecture Group and Wolfram Engineering for Centre Venture Developments



EXISTING CONDITION AXONOMETRIC

Windows and doors are currently bordered up. Concrete cracks, spalls, exposed rebar, and delamination was noted in a significant number of the concrete lintels at the exterior windows.



Generally the visible inside face of the concrete walls appeared intact with some vertical cracks noted. The cracks varied in width from hairline to approximately 1/8" thick and were random and infrequent. These cracks have developed due to a combination of small foundation movements and thermal effects combined with the lack of control joints in the wall.

Some large cracks were noted in the exterior brick walls. These cracks are significant enough to warrant repairs to restore the structural integrity of the brick walls.

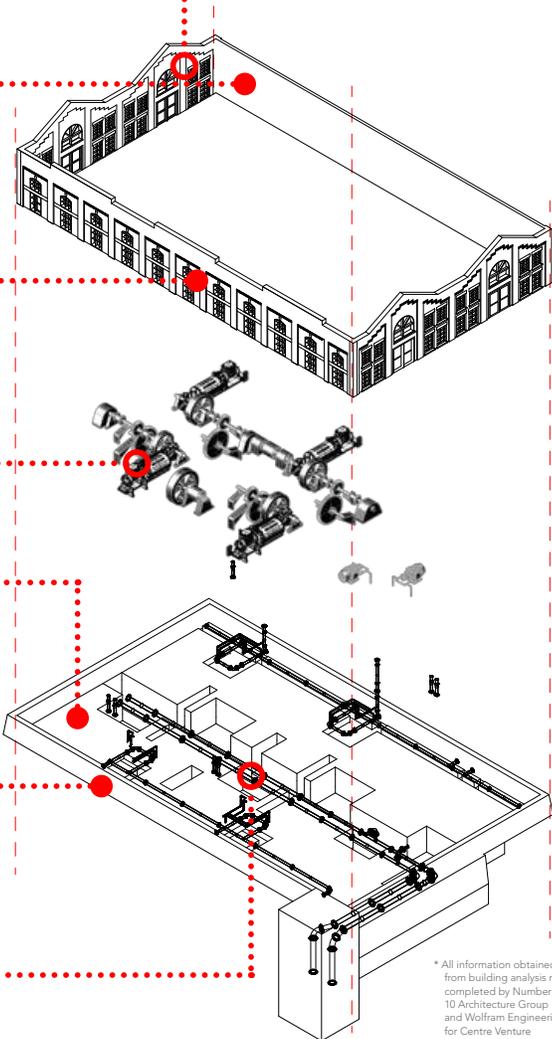
The interior pumping equipment is an example of the high technology of the time and contributes to the heritage character of the building and the community



The engine-house floor is sunk 8'-1/4" below grade. The floor slab not supporting equipment is 12" thick cast-in-place concrete floor slab. Footings of thickness up to 8'-0" thick supporting equipment. Some unevenness and cracking is evident in the concrete floor slab. The slab movements were not substantial and the cracks can be repaired.

The existing drawings indicate that a perimeter concrete wall approximately 24" thick at grade and 60" thick at its base 11'-0" below grade supports the exterior walls.

Center pit houses 20" pipe lines. The pit is usually partially filled with ice and water, which is evident in the marks and rust noted on the central columns.



* All information obtained from building analysis report completed by Number 10 Architecture Group and Wolfgram Engineering for Centre Venture Developments

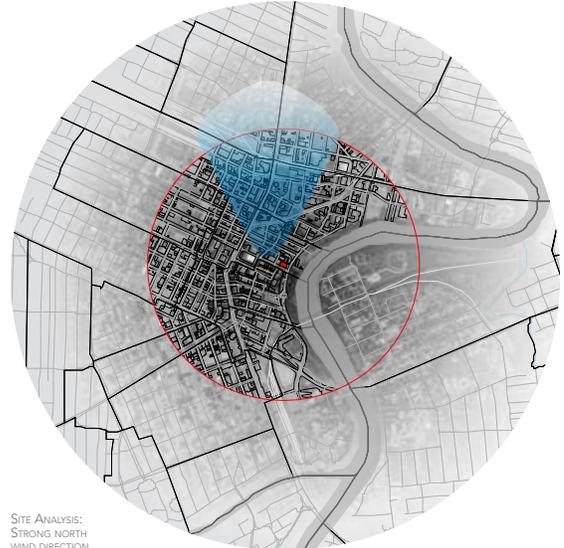
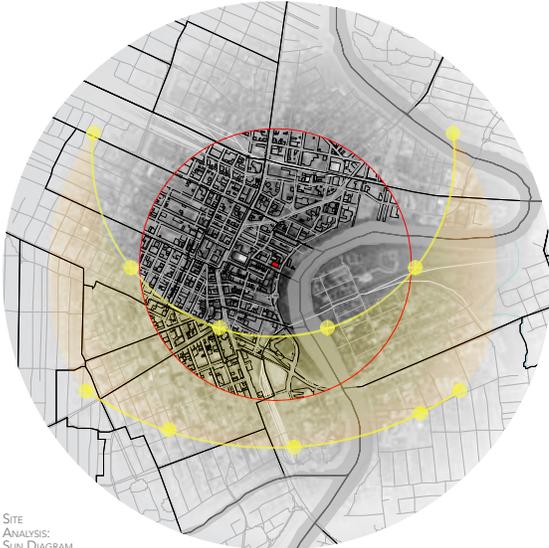


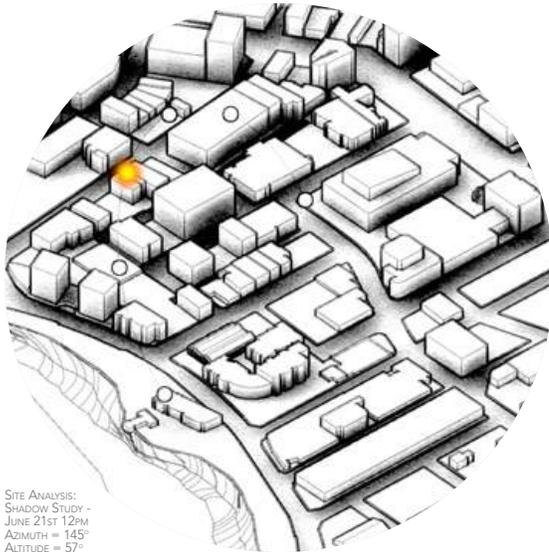
SKY WATERFRONT CONDOS ADJACENT TO JAMES AVENUE PUMP HOUSE STATION

The James Avenue Pump House Station, surrounded primarily by modern condominiums and restaurants, acts as a reminder of the history of the neighbourhood and city and connects it to modern day Winnipeg.

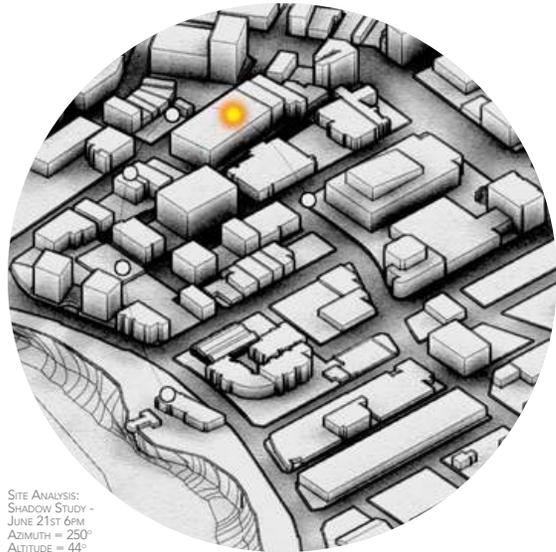
This balance of history and modernism parallels the intent of this thesis to connect 19th century pre-industrial food distribution and agricultural practices with today's advanced methods. Using the location and adapting its use, the James Avenue Pump House Station will become a model of the architectural proposition of the new Food Exchange Hub in Winnipeg.

SITE ANALYSIS

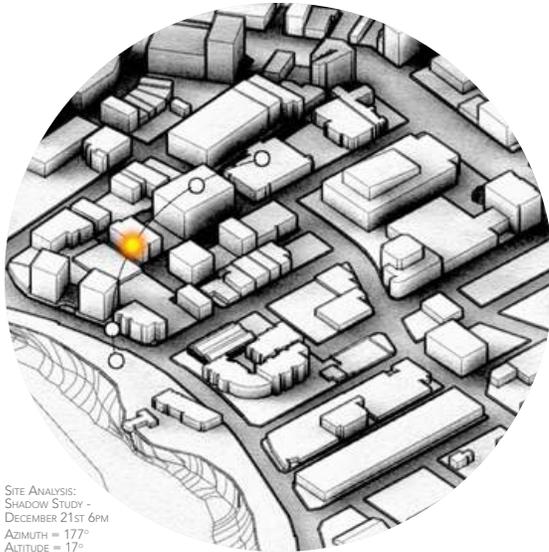




SITE ANALYSIS:
SHADOW STUDY -
JUNE 21ST 12PM
AZIMUTH = 145°
ALTITUDE = 57°



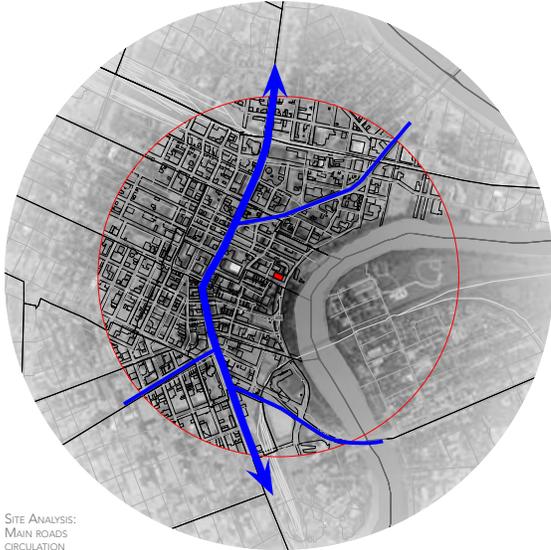
SITE ANALYSIS:
SHADOW STUDY -
JUNE 21ST 6PM
AZIMUTH = 250°
ALTITUDE = 44°



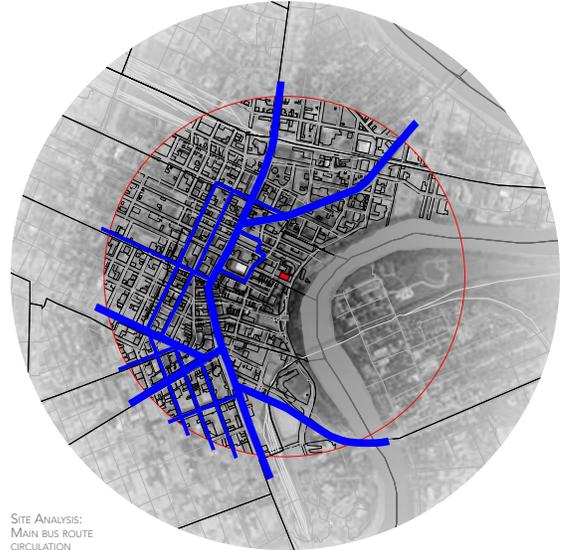
SITE ANALYSIS:
SHADOW STUDY -
DECEMBER 21ST 6PM
AZIMUTH = 177°
ALTITUDE = 17°



SITE ANALYSIS:
SHADOW STUDY -
EQUINOX 12PM
AZIMUTH = 150°
ALTITUDE = 37°



SITE ANALYSIS:
MAIN ROADS
CIRCULATION



SITE ANALYSIS:
MAIN BUS ROUTE
CIRCULATION



SITE ANALYSIS:
MAIN PEDESTRIAN
CIRCULATION
ROUTES



SITE ANALYSIS:
MAIN SITE
ACCESS ROUTE

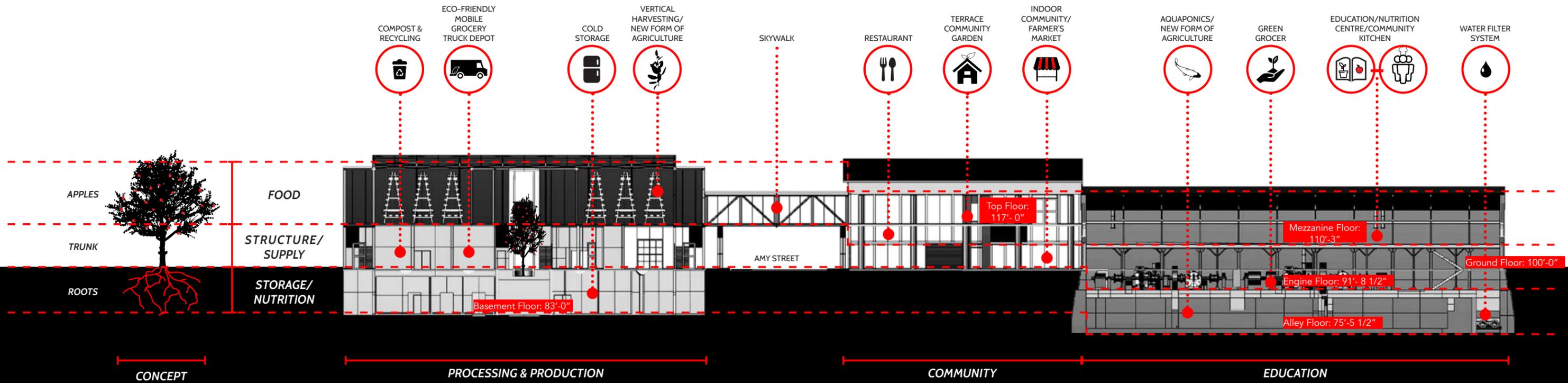


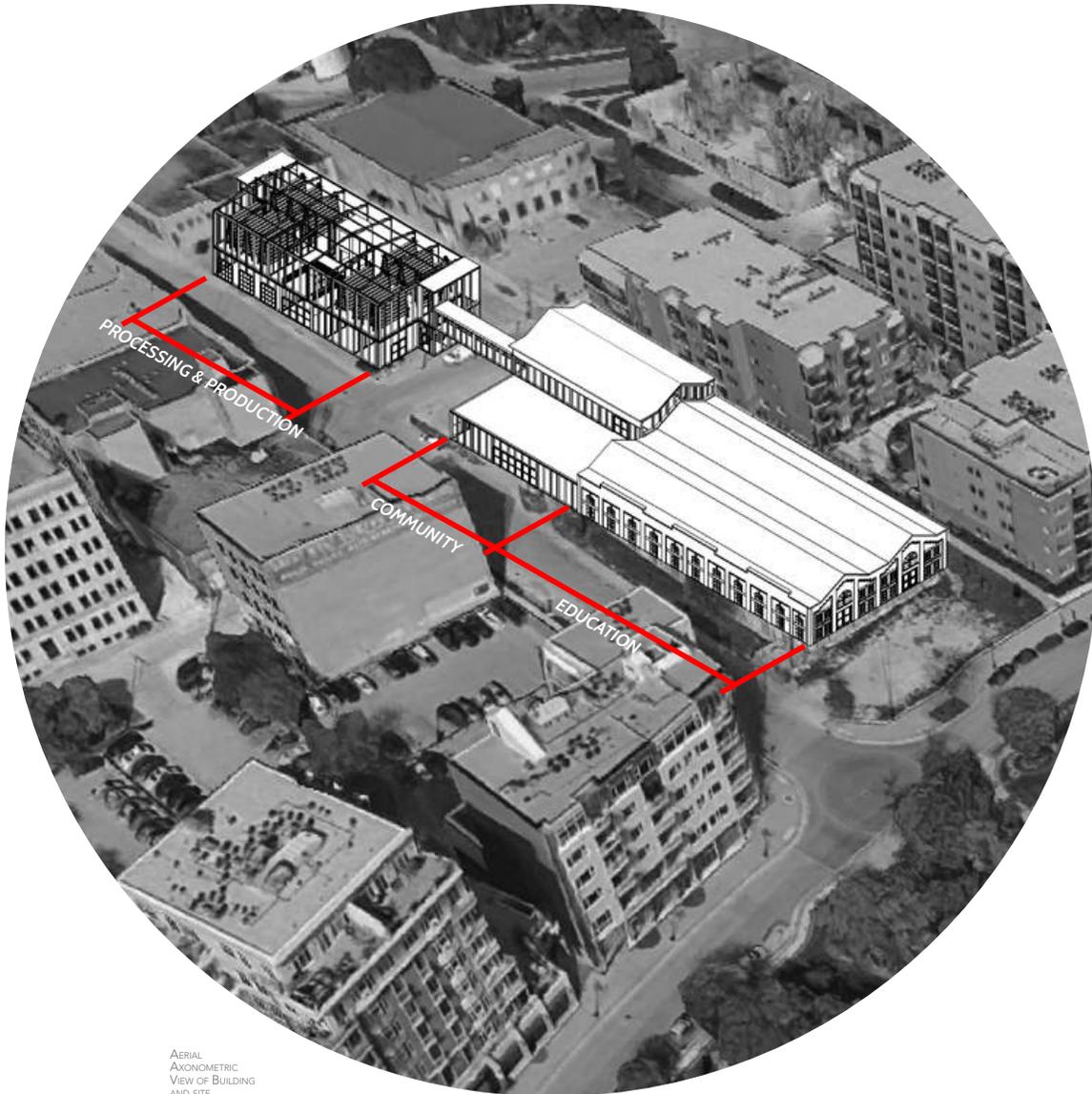
THE ARCHITECTURAL PROPOSITION: FOOD EXCHANGE HUB

The proposed food exchange hub in the James Avenue Pump House Station touches upon the visions of the city, as a sustainable healthy community; promoting environmental, economic and social prosperity through adaptive architecture and local organic food. At the same time, acting as the depot for mobile food trucks that will provide sustainable locally-produced organic foods to neighbourhoods and those people with limited access to fresh, perishable foods (i.e. those living in food deserts).

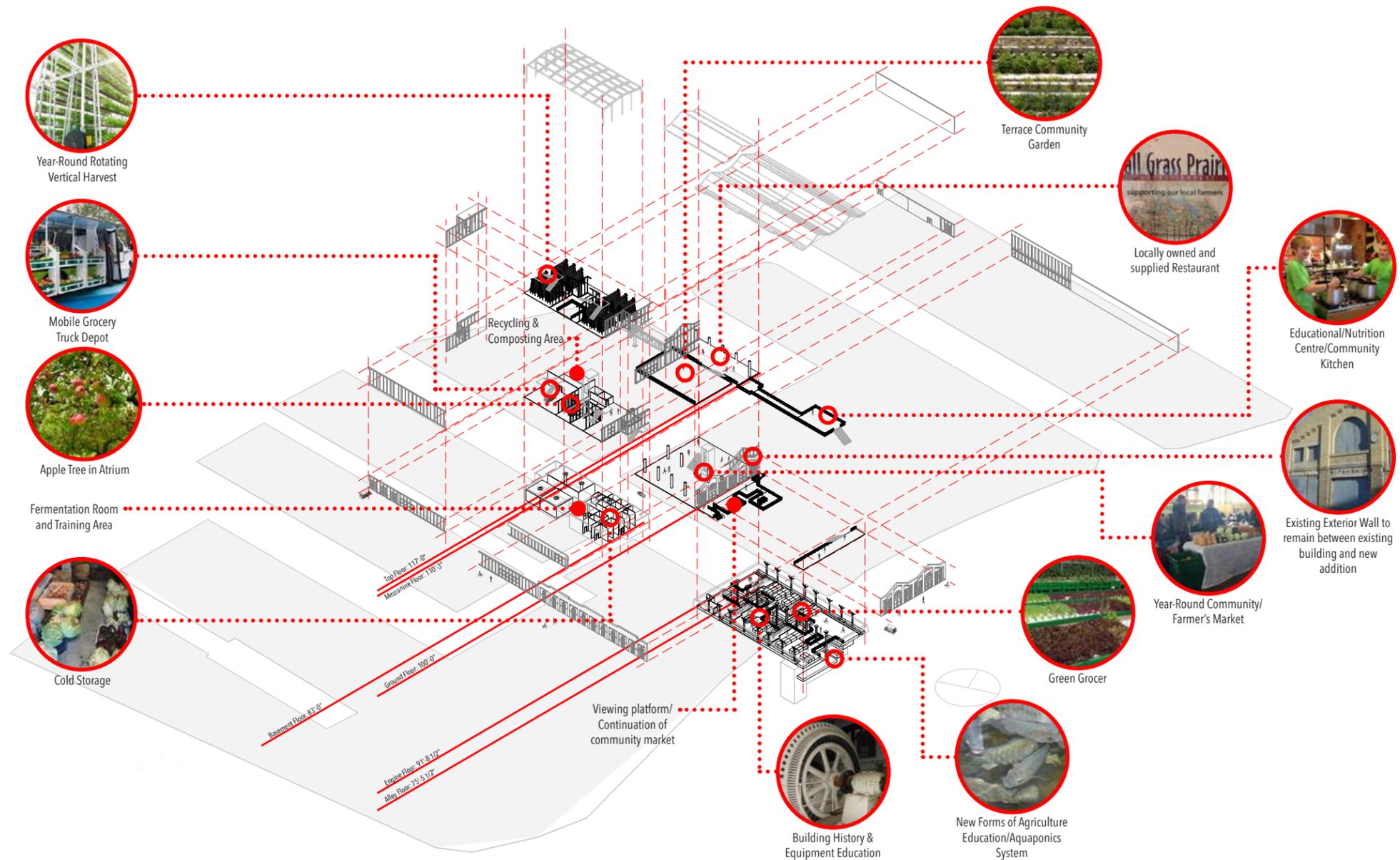
The intention is to provide a place where people within the area, surrounding neighbourhoods, local farmers, and businesses can come to exchange, share, and promote knowledge, sell locally produced goods, and participate in community kitchens and gardens and educational classes. It is a facility that encourages local production and distribution, social interaction, and information sharing of how food is grown, produced, and distributed.

THE PROGRAMMATIC STRATEGY





AERIAL
AXONOMETRIC
VIEW OF BUILDING
AND SITE



PROGRAM AXONOMETRIC

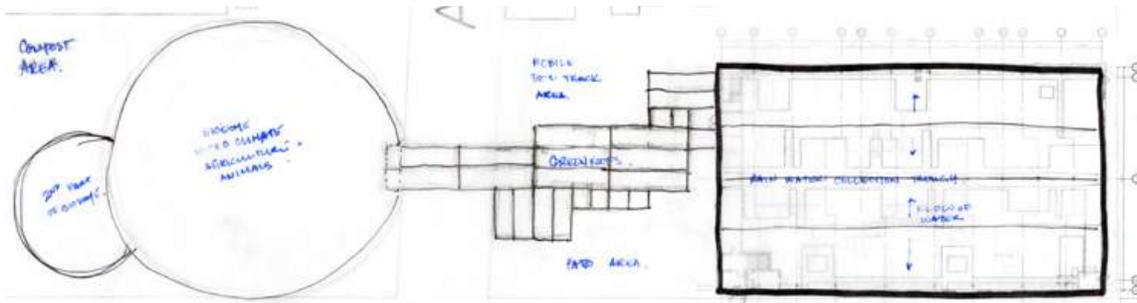
THE PROGRAM

The food exchange program will consist of: a year round farmer's market; cold storage area; educational/nutritional centre; community kitchen; indoor/outdoor community gardens and local agriculture community education centre; and a depot for mobile grocery trucks. This program will be designed in parallel with the history of the building, meaning the machines and architectural characteristics will remain intact at the James Avenue Pump House station.

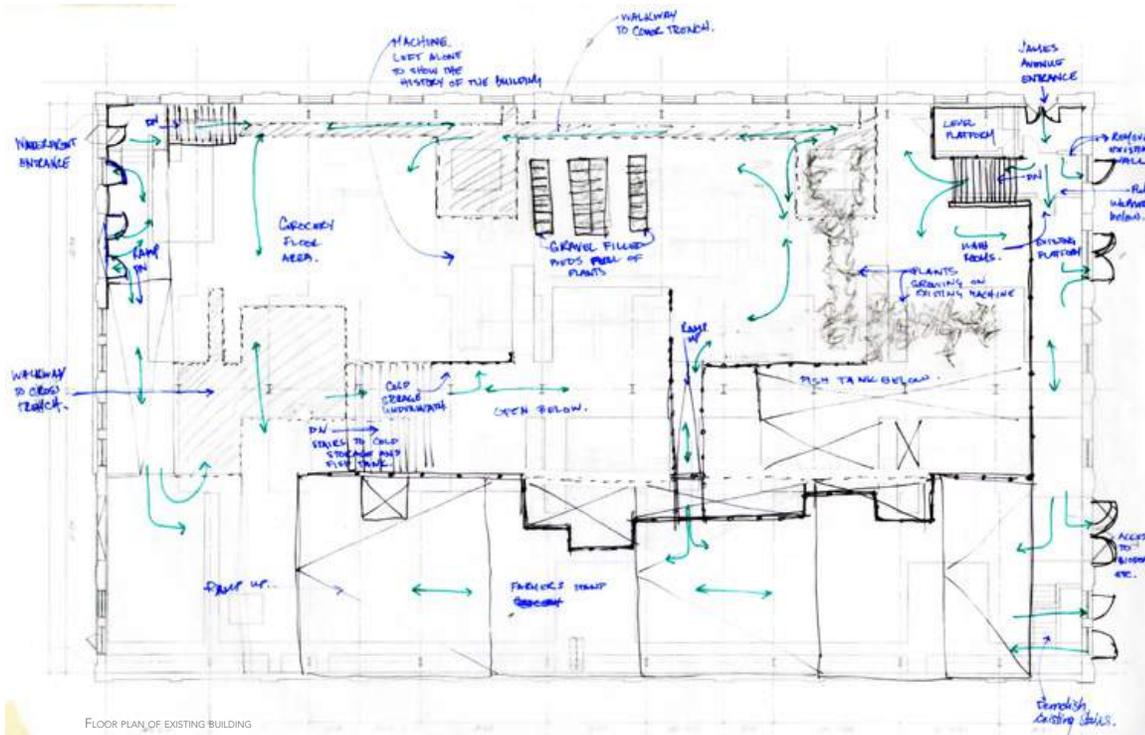
In today's busy modern day society, time is a precious commodity and the constant sense of urgency of everyday life also exists in food production and distribution. In an effort to offer patrons convenience at a high turnover rate, the global food industry progressed rapidly. The Food Exchange Hub will provide the community with an alternative method of food distribution and production that focuses on providing fresh, healthy perishable foods to its consumers, while maintaining a high level of convenience.

The proposed food exchange hub fosters access to affordable, healthy, locally produced food through nutrition education by providing information regarding alternative food systems and production, and by raising the awareness and the capability of consumers to access and grow nutritious foods. In alignment with the city's vision to provide a better quality of life for its communities, the hub will re-establish community interactions around food, re-connect people with their local producers, promote the local economy, and provide the power of choice by presenting healthy food alternatives.

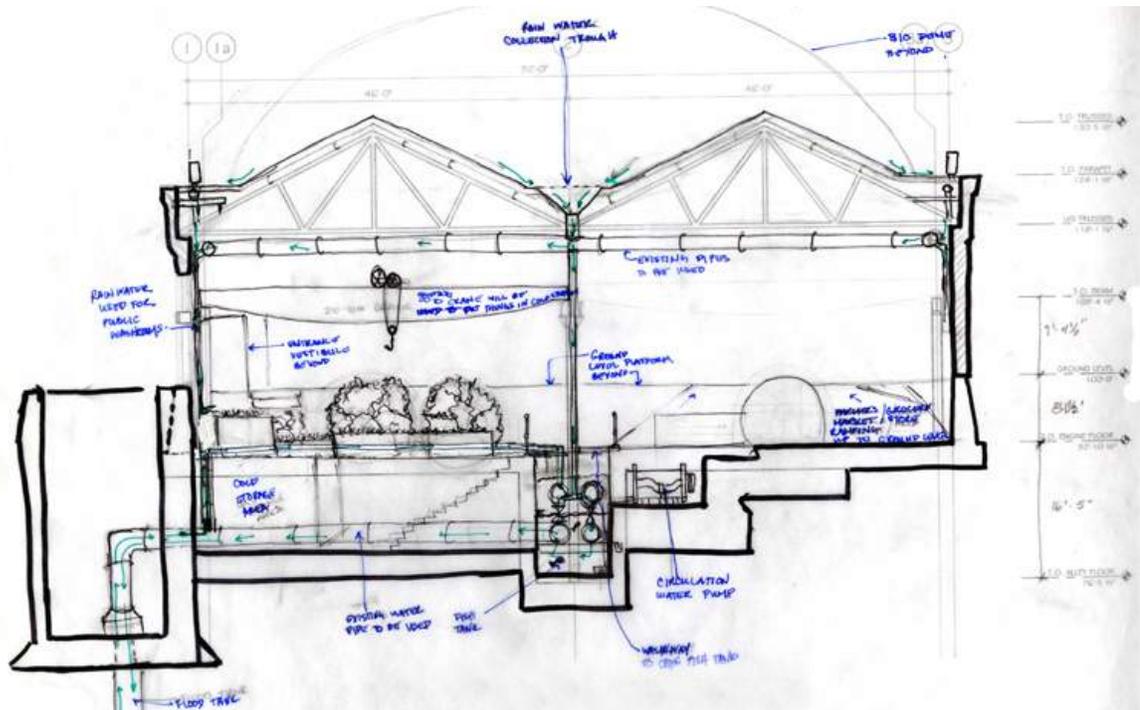
PRELIMINARY DESIGN SKETCHES



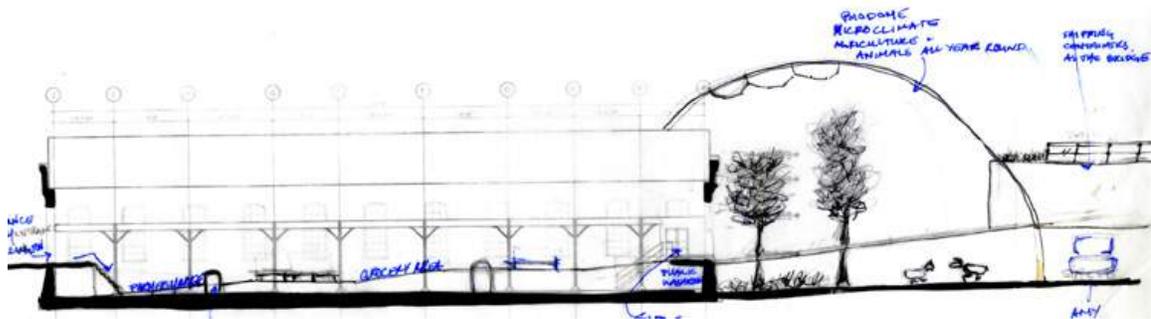
FLOOR PLAN OF EXISTING BUILDING



FLOOR PLAN OF EXISTING BUILDING

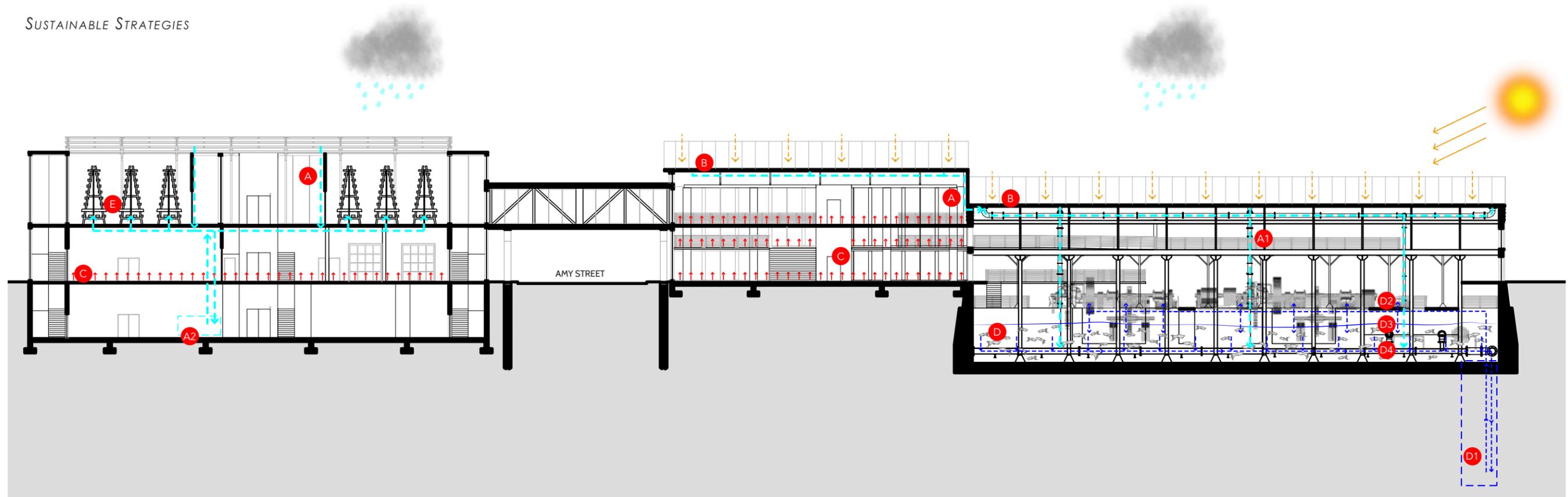


CROSS SECTION IN EXISTING BUILDING



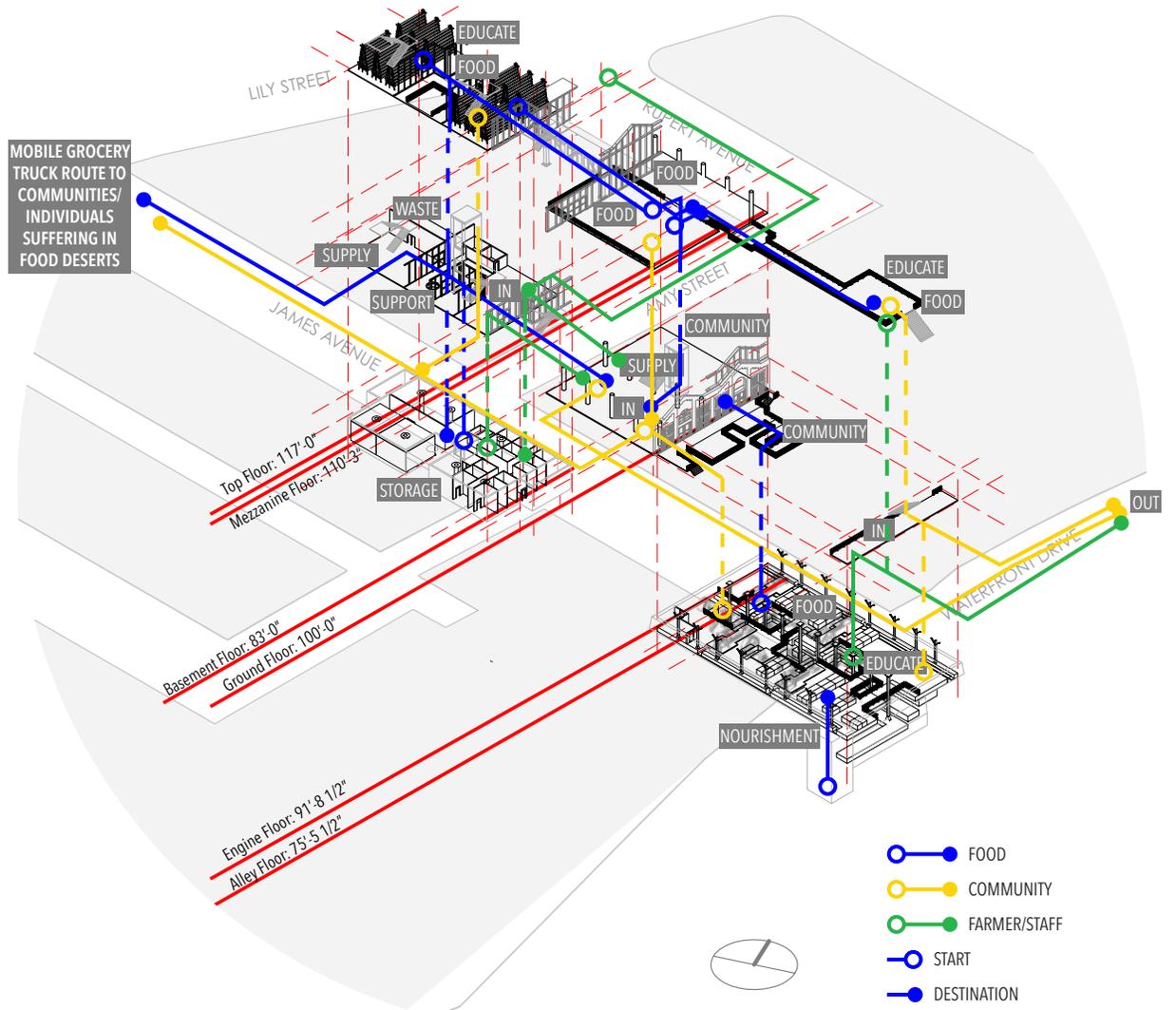
LONGITUDINAL SECTION IN EXISTING BUILDING

SUSTAINABLE STRATEGIES

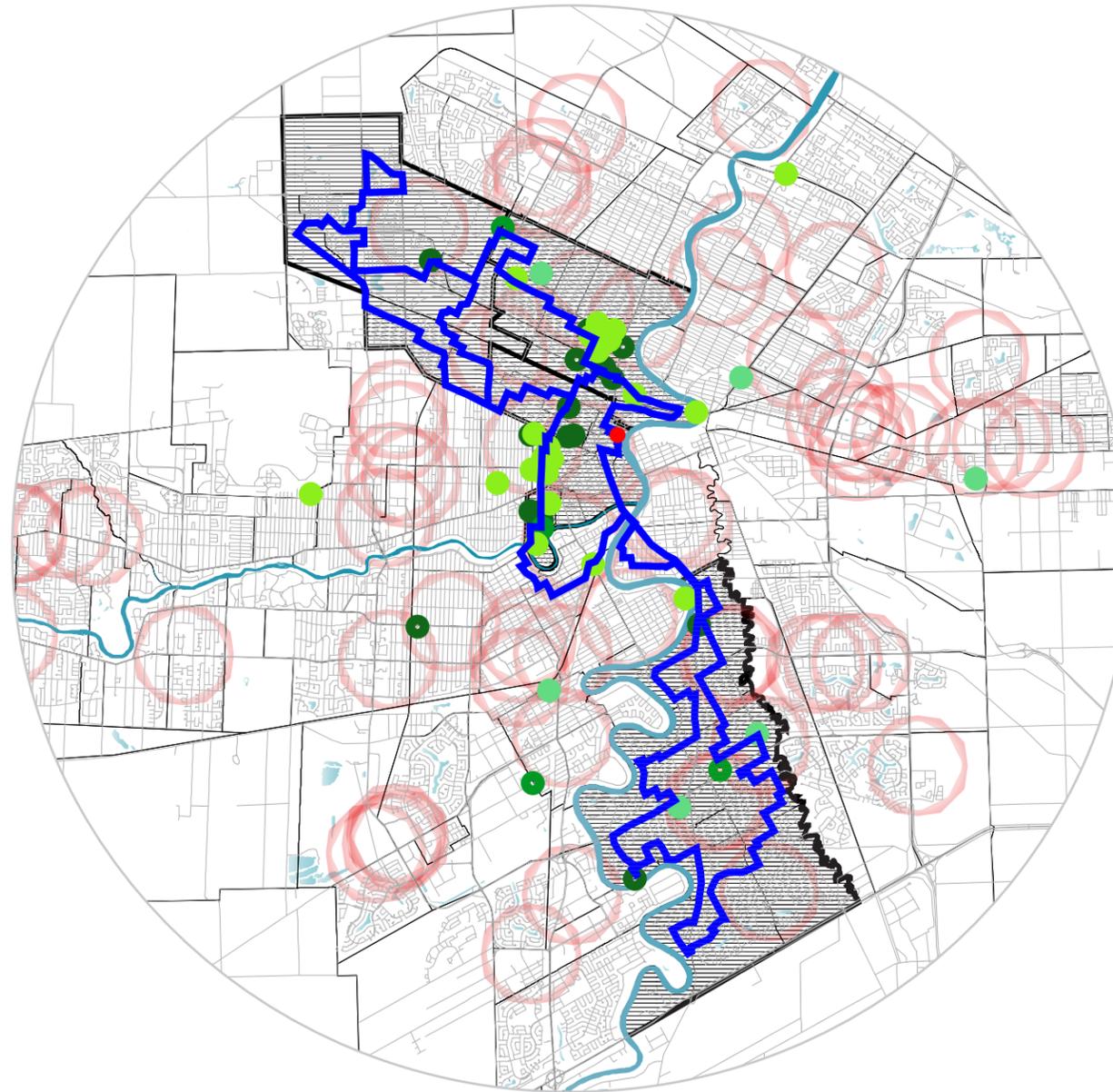


- A** RAIN WATER COLLECTION SYSTEM
 - A1** Filtration system in existing water pipes
 - A2** Rain water collection, storage, and treatment for reuse in irrigation
- B** SOUTH FACING SOLAR PANELS
- C** RADIANT HEATING AND COOLING SYSTEM
- D** HYDROPONIC SYSTEM
 - D1** Flood tank fills with water mixed with nutrient filled waste from fish tank
 - D2** Nutrient rich water flows into gravel filled beds (green grocer beds), feeding the plants that grow there. The plants absorb the nutrients.
 - D3** Aerated clean overflow water returns to the fish tank.
 - D4** Fish tank water and fish waste are pumped from the fish tank back to the food tank and the cycle repeats.
- E** VERTICAL HARVEST

THE JOURNEY . . . CIRCULATION



BUILDING CIRCULATION ROUTES



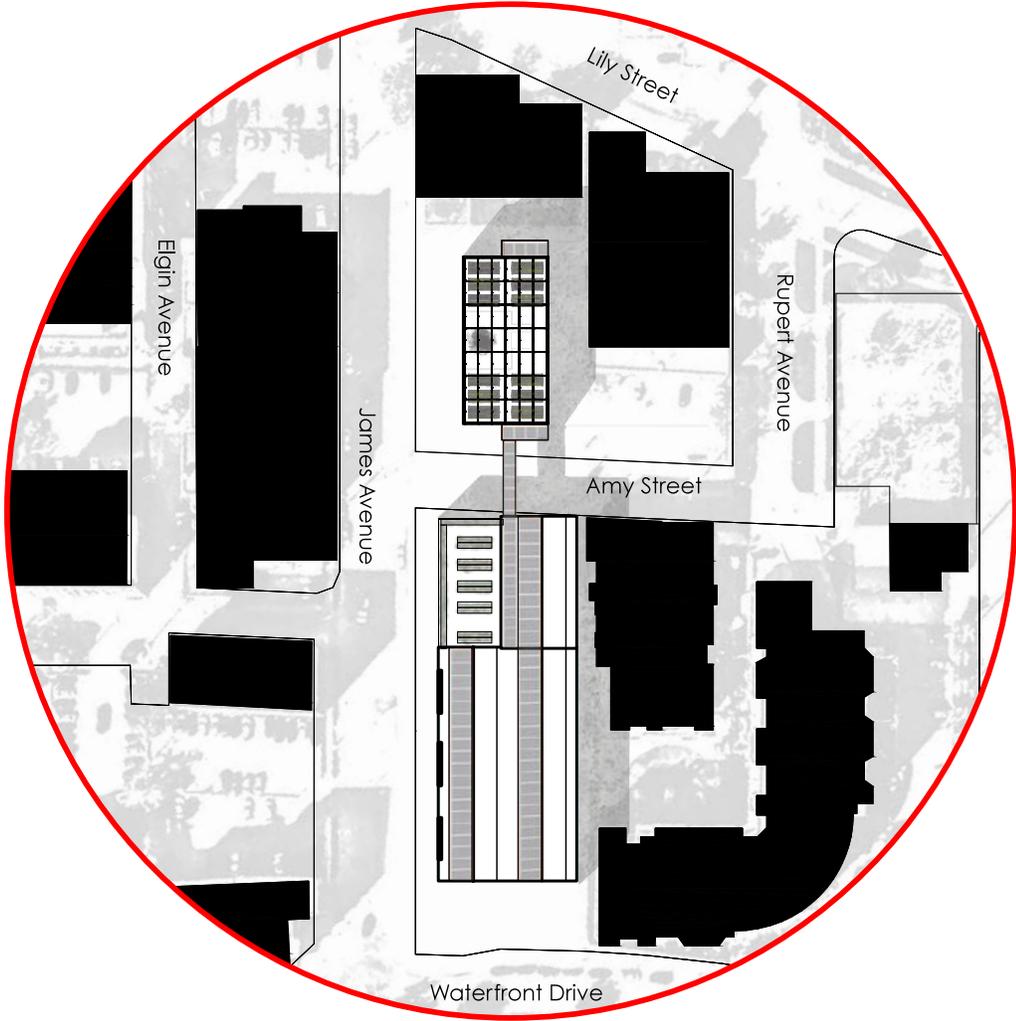
MOBILE GROCERY TRUCK ROUTE

The mobile grocery truck route will focus on neighbourhoods that are in food desert areas. Also the route will have educational pit stops in community gardens. Those community gardens will act as the exterior classrooms away from the hub.



-  MOBILE GROCERY TRUCK ROUTE
-  FOOD EXCHANGE HUB
-  CITY OWNED COMMUNITY GARDENS
-  CITY OWNED GARDENS - RENTED
-  MANITOBA HYDRO OWNED GARDENS
-  PRIVATELY OWNED COMMUNITY GARDENS
-  FOOD DESERT COMMUNITIES
-  BIG BOX SUPERMARKET LOCATIONS AND 1 MILE RADIUS

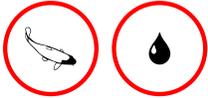
SITE PLAN



 SITE PLAN
Scale: 1/128" = 1'-0"

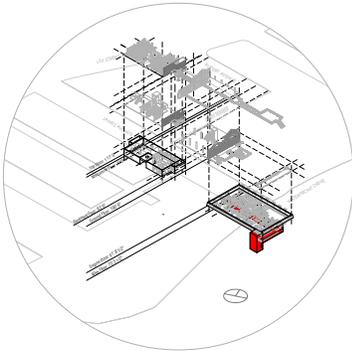
FLOOR PLANS

The design theme for James Avenue Pump House Station is to educate. The equipment and building will be redesigned to include new forms of agriculture (aquaponics) and education facilities. The aquaponics system will use the existing water pipes and the alley floor (pit) will serve as the fish tank.

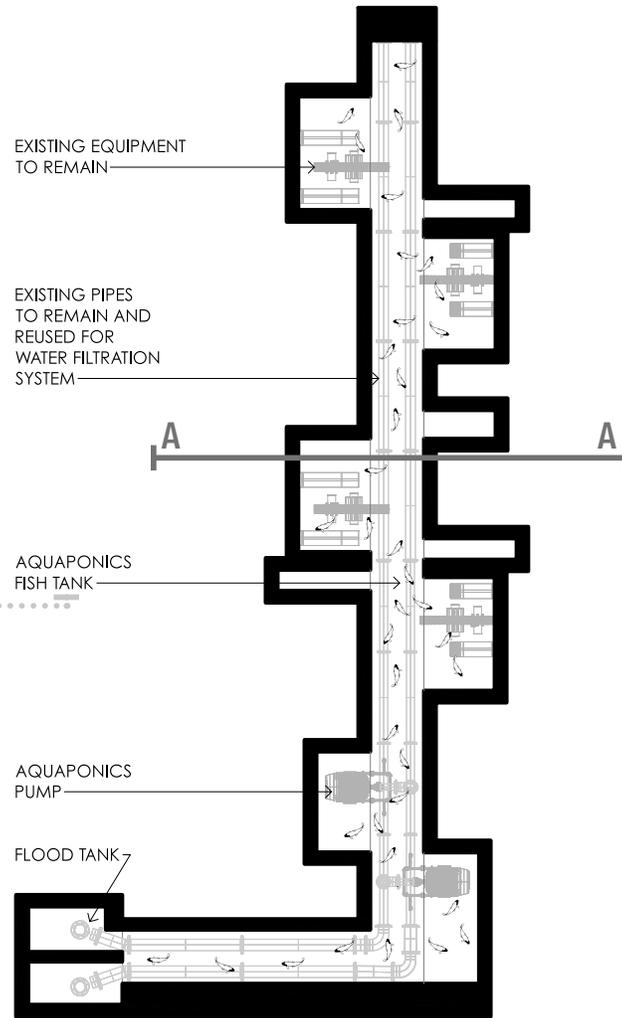


Aquaponics - a combination of aquaculture (farming fish) and hydroponics (growing plants in water).

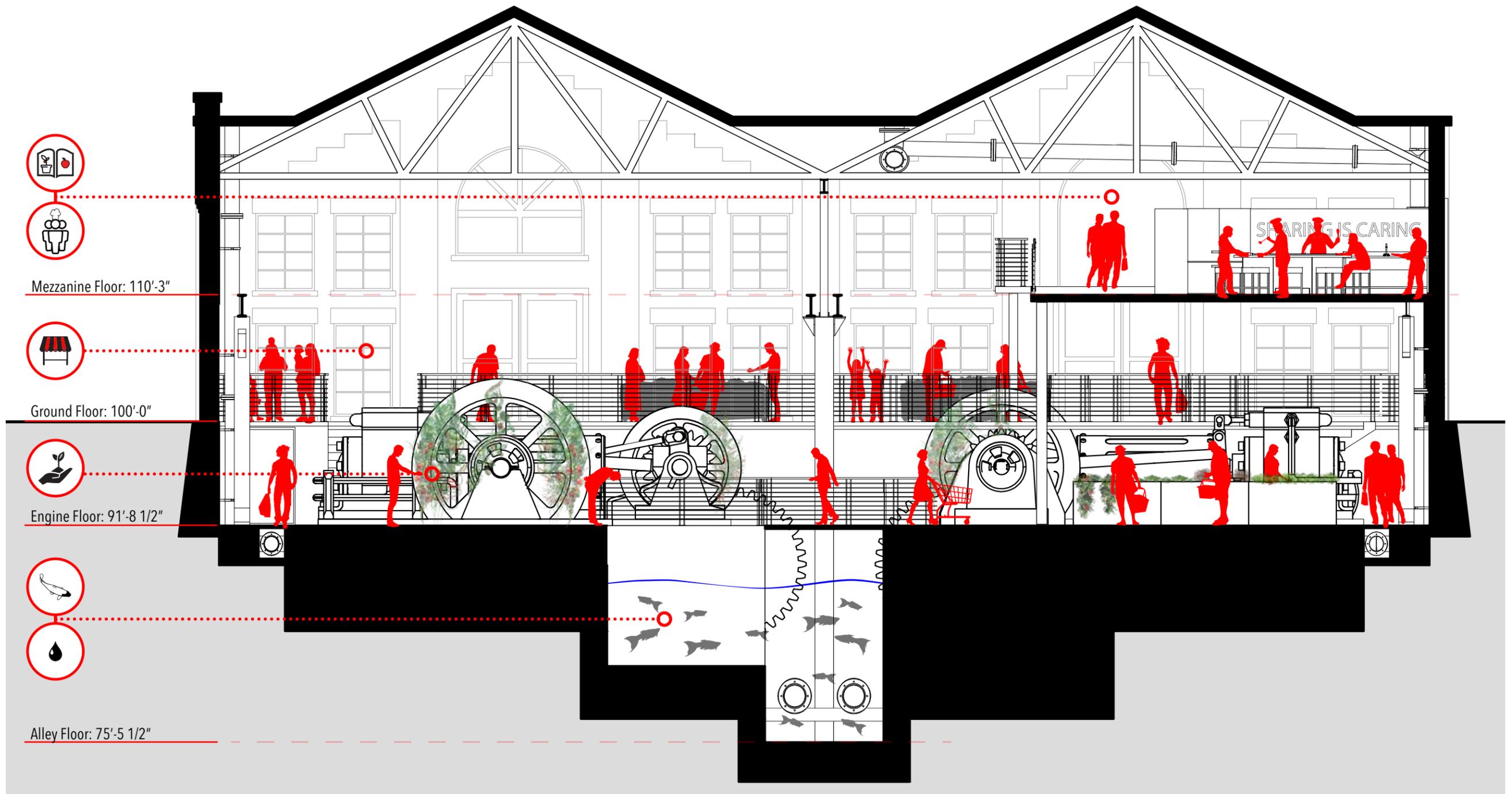
PETER LADNER, 72.



ALLEY FLOOR PLAN & KEY PLAN

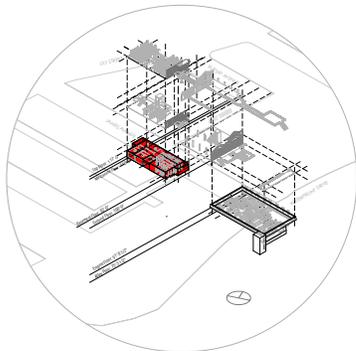


ALLEY FLOOR PLAN
Scale: 1/32" = 1'-0"

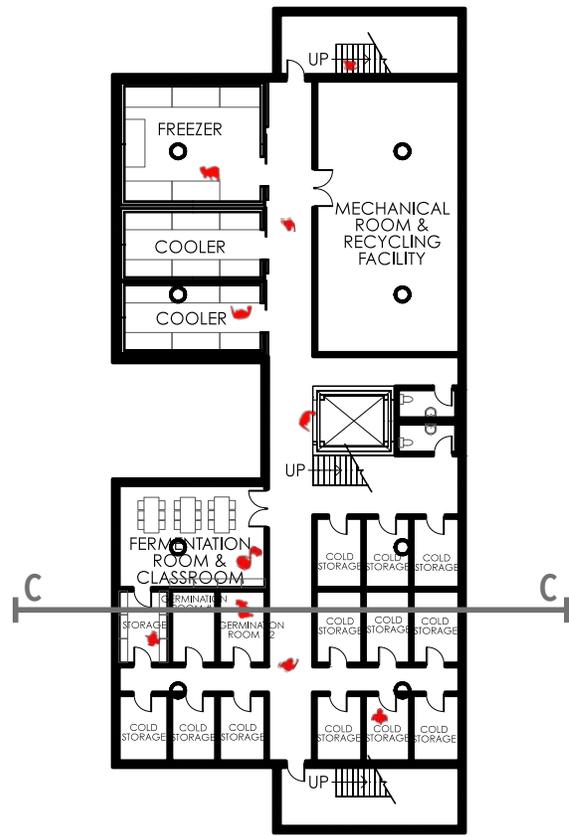


CROSS SECTION A - EDUCATION
 Scale: 1/8" = 1'-0"

The processing and production building will mainly serve the local farmers and house the mobile grocery trucks. The contents of the basement floor provide tools that service the requirements of the local farmers.

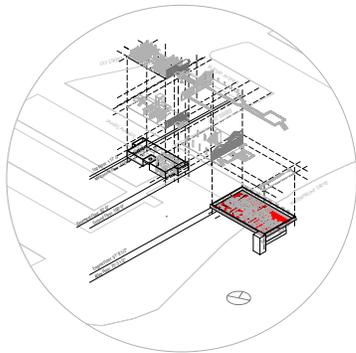


BASEMENT FLOOR PLAN & KEY PLAN

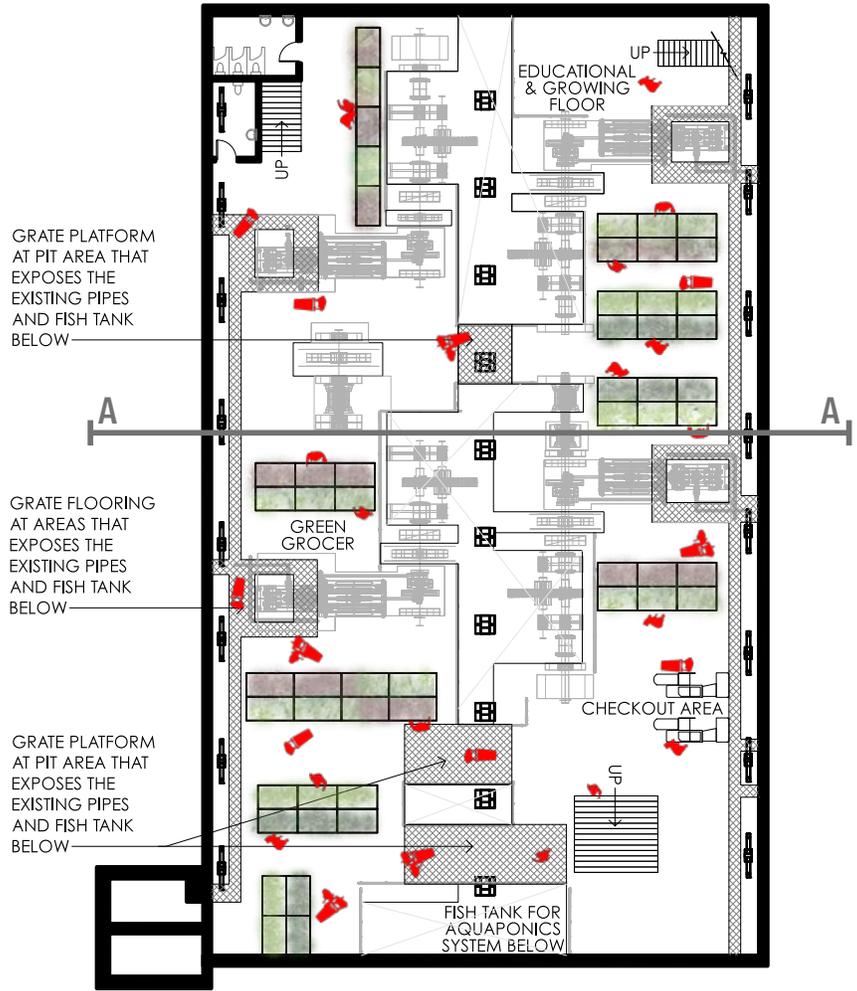


BASEMENT FLOOR PLAN
Scale: 1/32" = 1'-0"

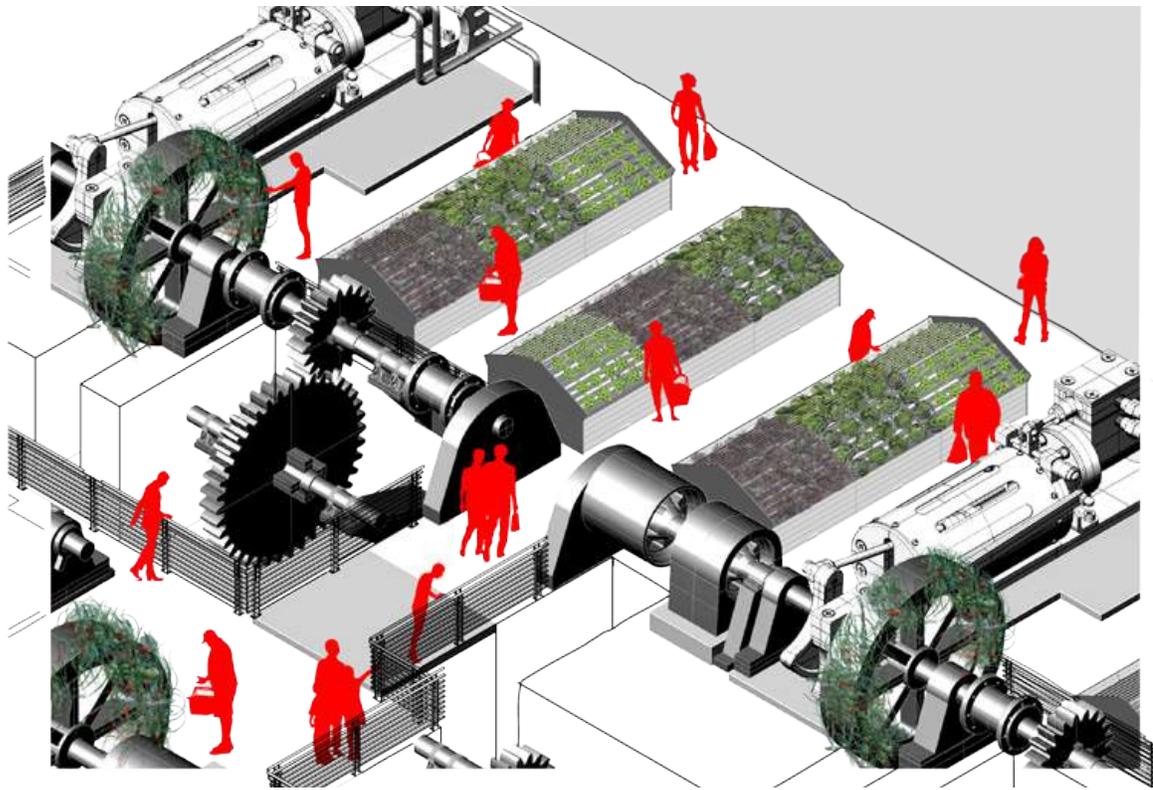
The existing equipment on the engine floor in the James Avenue Pump House Station will be restored, acting to educate the patrons about the history of the building and neighbourhood. The engine floor will also contain the growing beds from the aquaponics system. Patrons will shop on this floor and will get their fresh food directly from the growing beds (green grocer).



ENGINE FLOOR PLAN & KEY PLAN

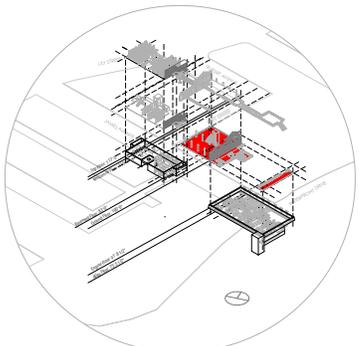
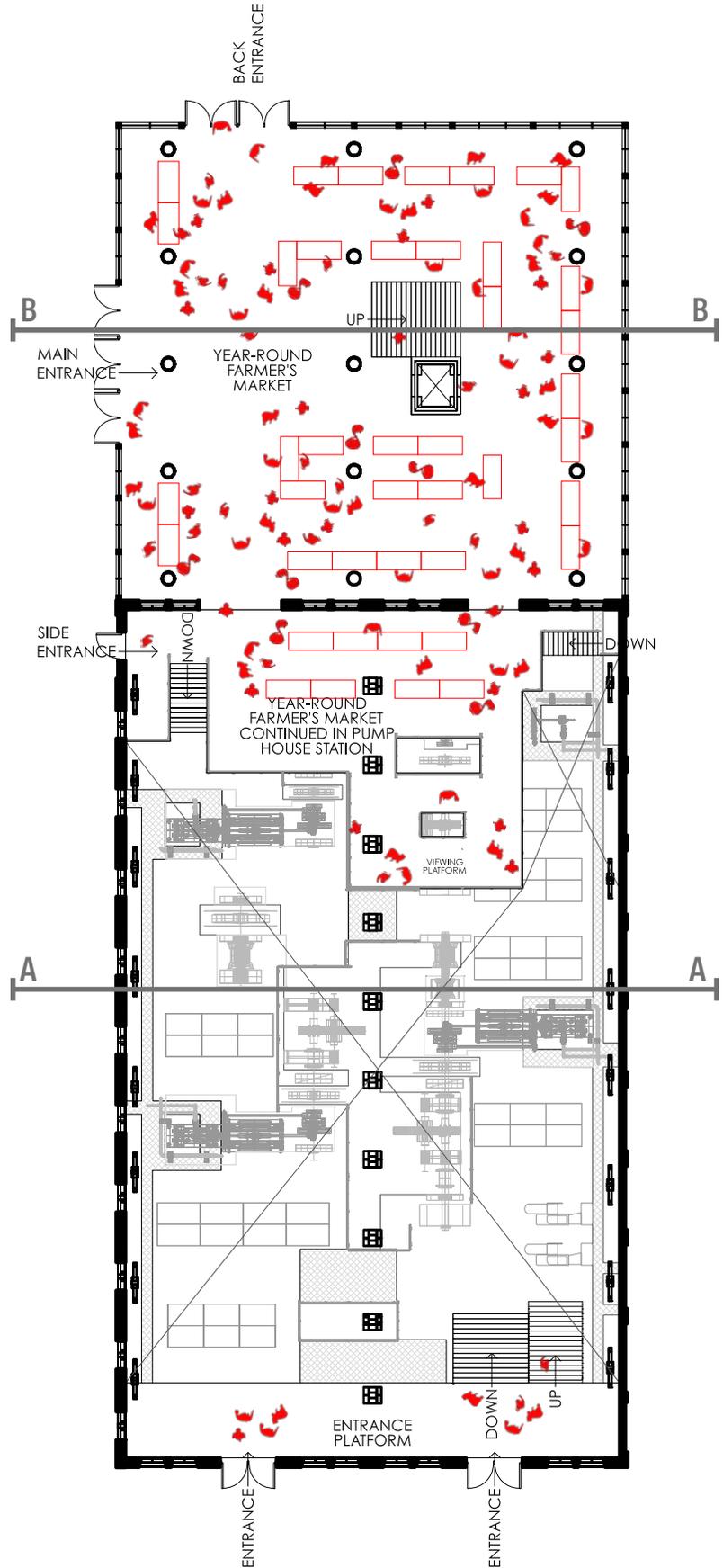


ENGINE FLOOR PLAN
Scale: 1/32" = 1'-0"



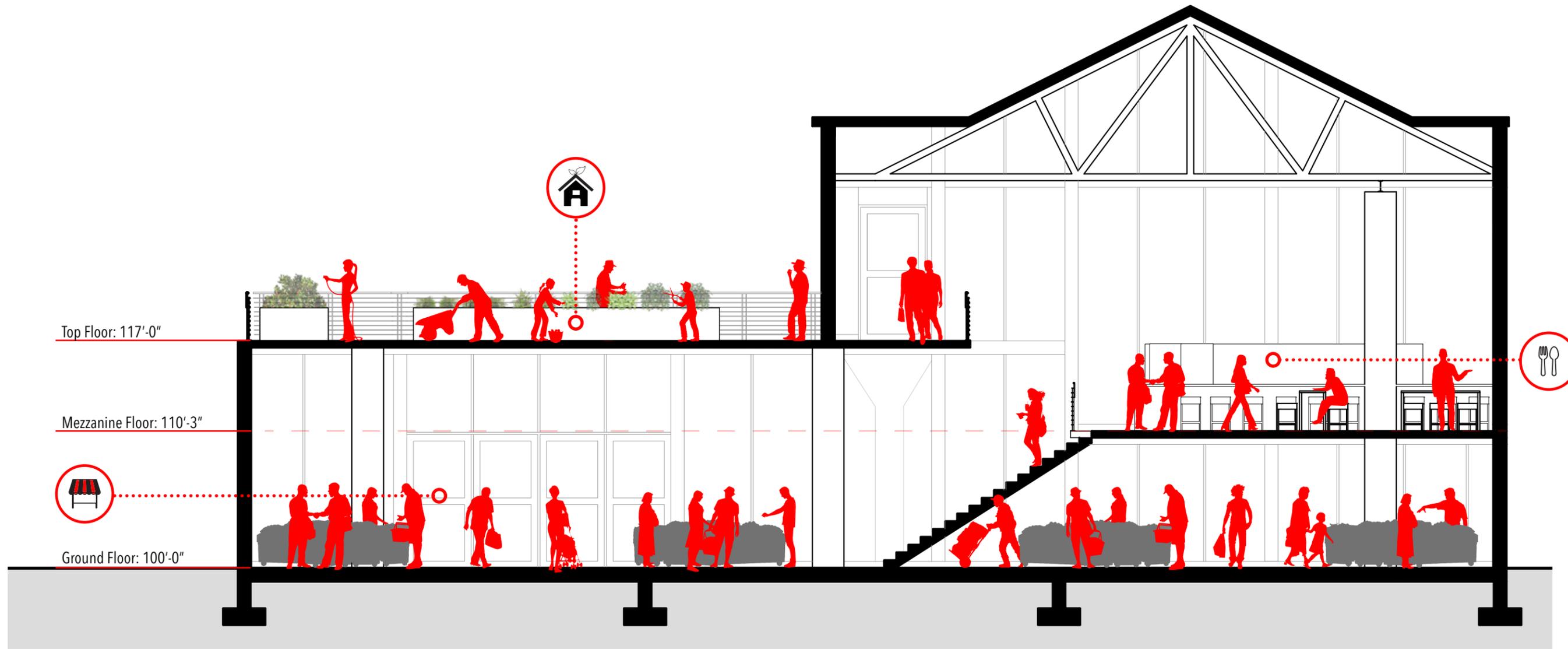
GREEN GROCER AREA PERSPECTIVE

The ground floor of the James Avenue Pump House station extends towards Amy Street. This extension serves as the year-round farmer's market. This area focuses on the integration of the farmer with the community.



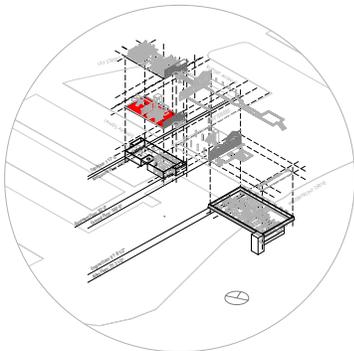
GROUND FLOOR PLAN & KEY PLAN

GROUND FLOOR PLAN
Scale: 1/32" = 1'-0"

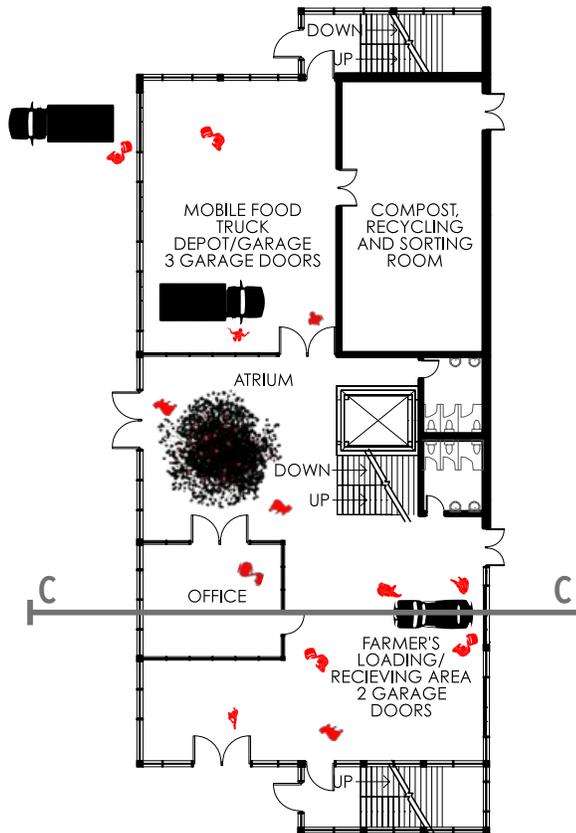


CROSS SECTION B - COMMUNITY
 Scale: 1/8" = 1'-0"

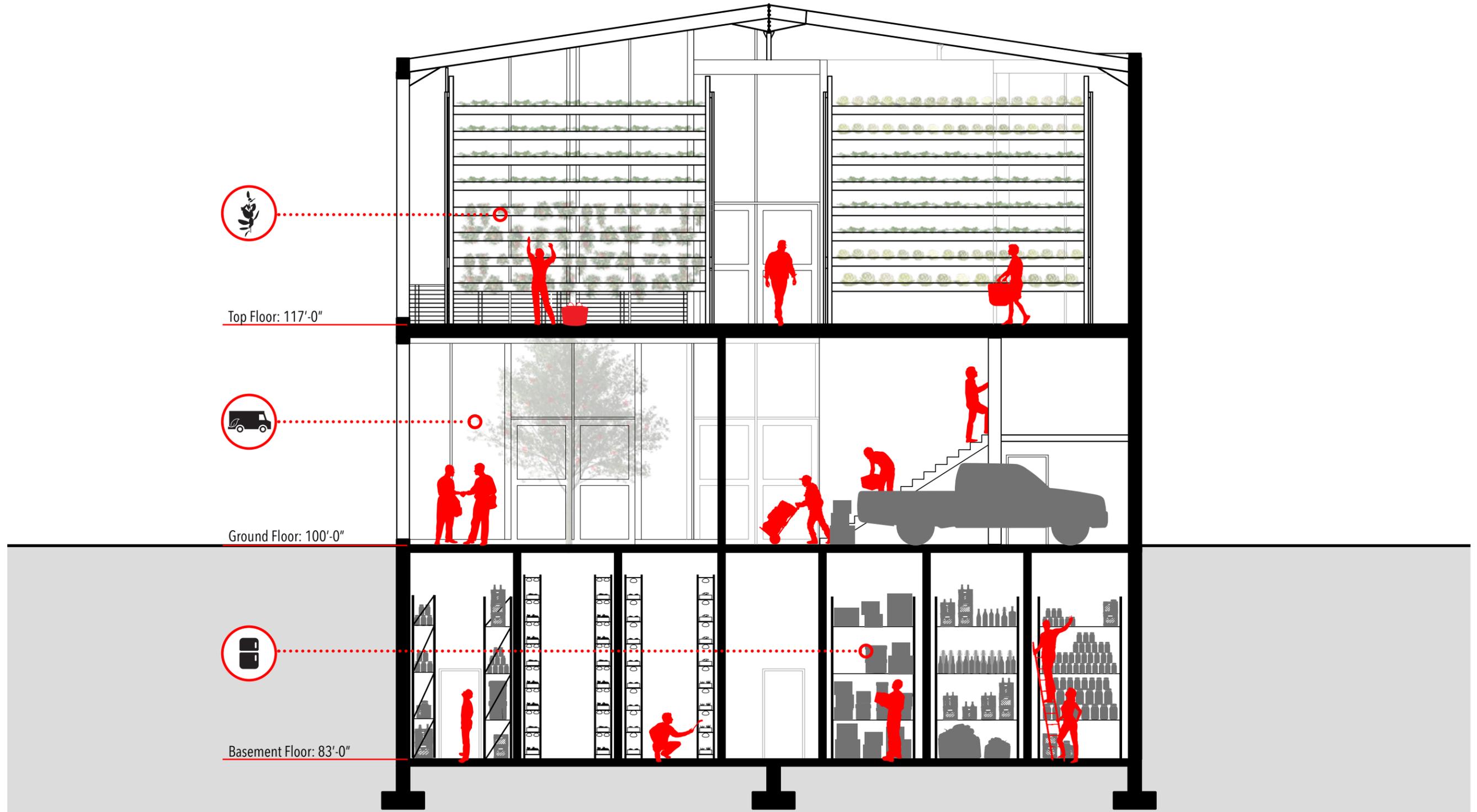
The ground floor of the processing and production building consists of administration office, composting and recycling sorting room, the garage for the mobile grocery trucks, and loading/receiving area for farmers.



GROUND FLOOR PLAN & KEY PLAN



GROUND FLOOR PLAN
Scale: 1/32" = 1'-0"



Top Floor: 117'-0"



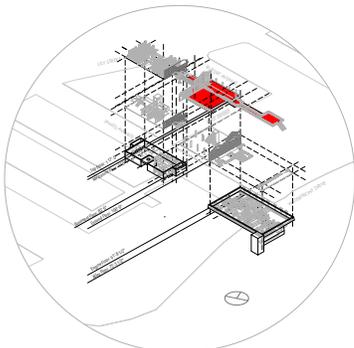
Ground Floor: 100'-0"



Basement Floor: 83'-0"

CROSS SECTION C - PROCESSING & PRODUCTION
Scale: 1/8" = 1'-0"

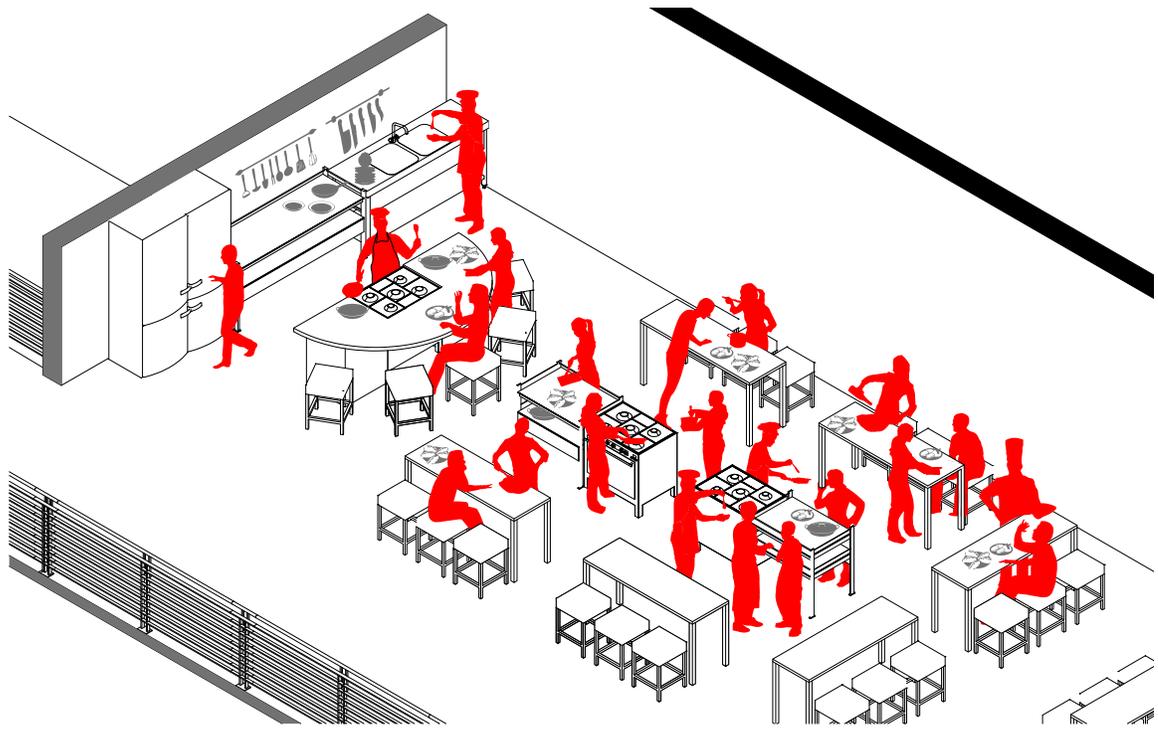
The mezzanine in the James Avenue Pump House Station hosts the community kitchen area and classroom area. This area will run classes (such as nutrition classes, cooking classes, etc.) that is open to the community. The area extends to the restaurant located in the new addition via a small catwalk. Up a level from the restaurant is the terrace community garden. The garden is operated by members of the community and a portion of the garden is used to teach the community how to grow their own food.



MEZZANINE AND TOP FLOOR PLAN & KEY PLAN



MEZZANINE & TOP FLOOR PLAN
Scale: 1/32" = 1'-0"



COMMUNITY KITCHEN PERSPECTIVE

The top floor of the processing and production building is the vertical harvesting area. These A-Frame structures grows approximately the same amount of produce of a 17,000 sq. ft. of farmland in a 4,000 sq.ft. area. This is a new form of urban agriculture that was invented in 2011.

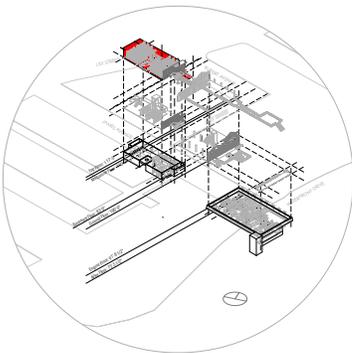


Hydroponic System - a method of growing plants in water rather than in soil. Hydroponic system saves considerable amount of water when compared to traditional soil-based farming methods.

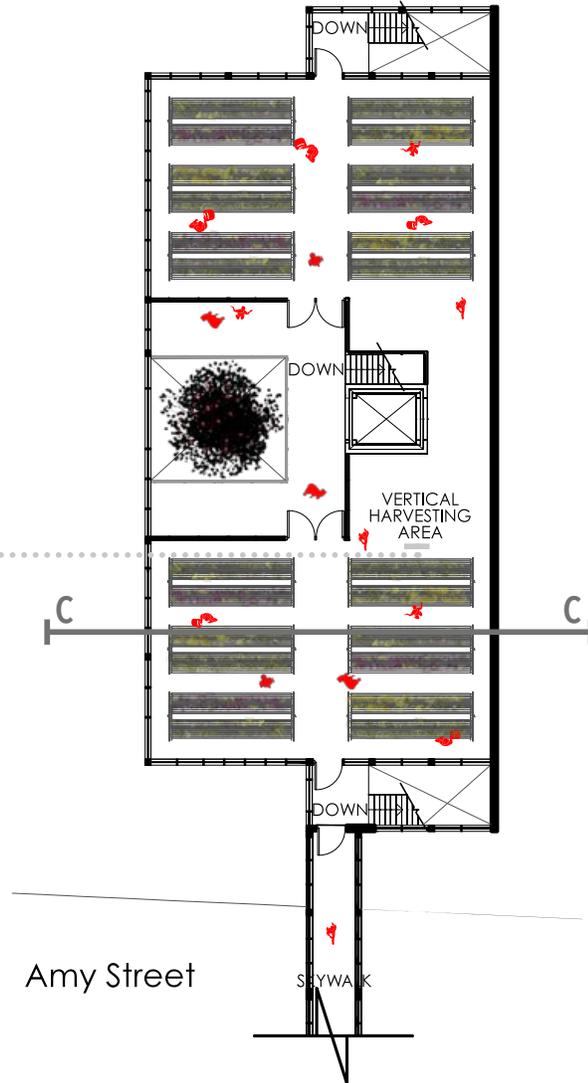
<http://www.powerhousehydroponics.com/>

Vertical Harvest - a vertical hydroponic urban farm that produces an equivalent of 5 acres of produce annually.

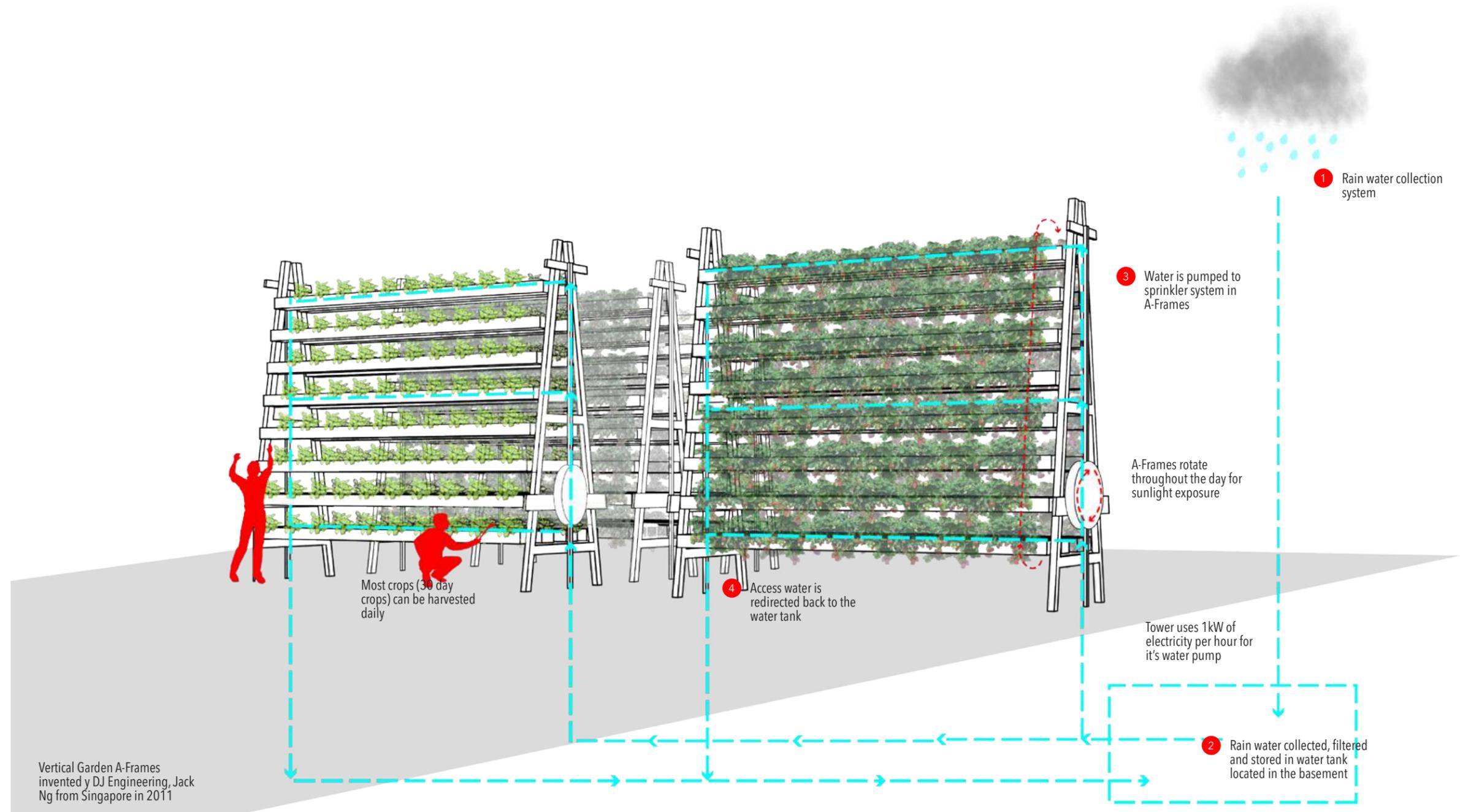
<http://www.powerhousehydroponics.com/>



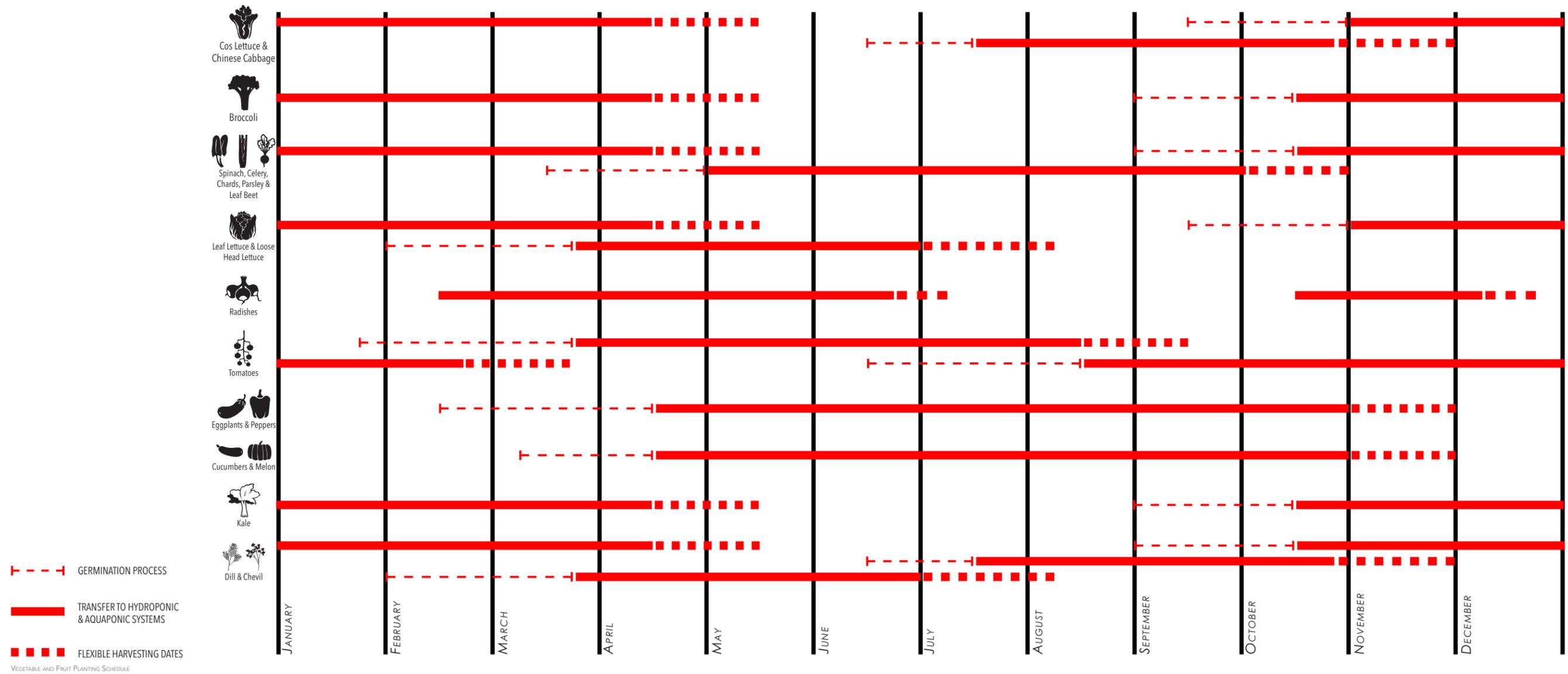
TOP FLOOR PLAN & KEY PLAN

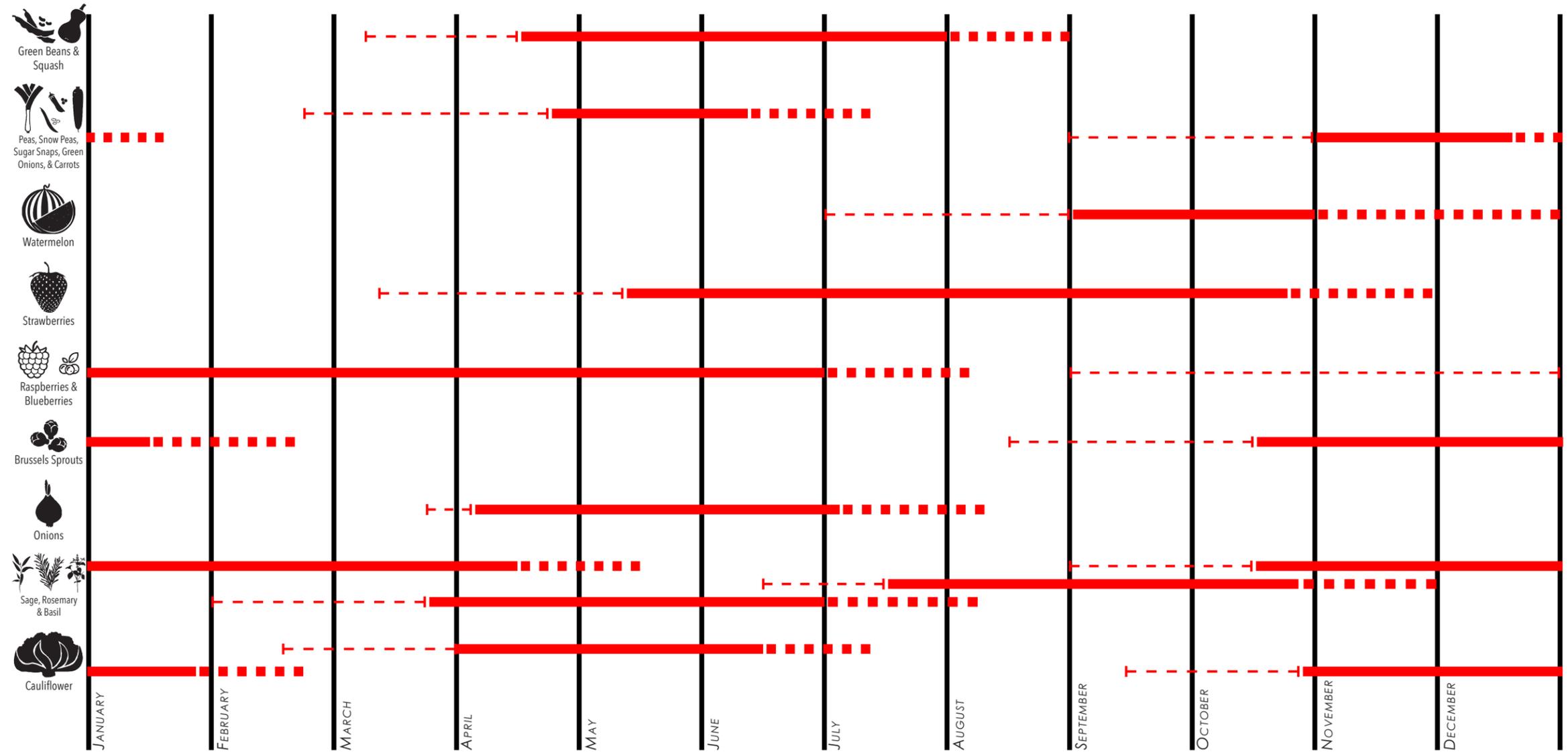


TOP FLOOR PLAN
Scale: 1/32" = 1'-0"



PLANTING SCHEDULE







EXTERIOR RENDER OF SOUTH WEST VIEW



EXTERIOR RENDER OF SOUTH EAST VIEW

CONCLUSION

The Food Exchange Hub hopes to redirect and suggest transformations to the current food system from a position of excess to a state of access, whereby affordable, nutritious, locally produced food is readily available to consumers. The hub will not act as a replacement for the big box supermarkets, instead, the hub acts as an alternative method aiming to re-establish community interactions around food, re-connect people with their local producers, promote the local economy, and provide the power of choice by presenting healthy food alternatives. It hopes to be a place where, within the area and surrounding neighbourhoods, inhabitants, local farmers and businesses can come to exchange, share and promote knowledge, and participate in community kitchens, gardens and educational classes. This hub sets out to assist in the evolution of Winnipeg, in alignment with the city's vision to provide a better quality of life for its communities. Access to healthy, affordable food is a vital component of the quality of life of the community and its citizens.

6 FOOD EXCHANGE HUB ENDNOTES:

¹ Sheila Grover, "Firewater - The James Avenue Pumping Station," *Manitoba History* 13, Spring 1987, Manitoba Historical Society, 27 Dec. 2014 <http://www.mhs.mb.ca/docs/mb_history/13/jamespumpingstation.shtml>.

² Historical Buildings Committee, *109 James Avenue: High Pressure Pumping Station, (Rep. 1982)* 3.

³ Janzen, 22 Dec. 2014.

⁴ Historical Buildings Committee, 3.

⁵ *Ibid.*, 3.

POST-SCRIPT

The global food industry is multifaceted and the scope of its issues far exceeds the scale of this thesis and will not be resolved through one architectural intervention. The purpose of the thesis however was to present the concerns surrounding the current state of the global food industry and how changing our relationships with food is necessary. Despite being Winnipeg-centric, these issues surrounding food are evident in other cities. The reality is no one race or culture is immune to the problems associated with the global food industry.

This proposed architectural intervention might be seen as 'nostalgic'. The design is influenced by philosophies of the 19th century; a return to sustainable, local organic food production and distribution. On the surface, this may also seem elitist, a program only accessible to privileged citizens. However, the hub caters to all members of the community and could service lower-income members through educational programs, the community kitchens and gardens. Additionally, the mobile grocery trucks could be developed to provide healthy affordable food for those with limited access. Again, the intent of the argument in the thesis is not to completely replace the big box supermarkets, but instead provide an alternative means to access healthy, affordable food. This is not a singular solution, but an alternative approach.

Over the past decade food research has increased tremendously, yet further research is still required into the political, social, cultural, technological and economical ramifications of the industry. One hope is that through future research and intervention, evidence-based solutions to the current problems surrounding the global food industry can focus more on the health and well-being of consumers and the environment rather than simply the economics of big business.

ACKNOWLEDGEMENTS

I would like to thank my thesis advisor, Roger Connah, for making, what seemed impossible, possible. Thank you for your encouragement and for your positive outlook, not just for my thesis, but for everyday life. A special thanks to Roger's 4th year Urbanism studio for letting me crash their studio space. And to Rui and Zach, thank you so much for sharing your knowledge, passion, and enthusiasm about food and architecture/urbanism.

Thank you to the rest of my architectural friends (you all know who you are, specially the ladies working in the 5th floor computer lab) for all your constructive criticism, your encouragement, your knowledge, your creative ideas and inspiration, especially at times when I doubted myself.

To my fiancé's family in Winnipeg and in Ottawa, thank you for taking me in and always making me feel like family.

To my brother, sister and brother-in-law, thank you so much for the emotional, financial, and constant support. It has been an honour growing up under your wings. You've inspired me to always work hard and do my best.

To my fiancé, I am extremely grateful for your support, encouragement and excellent editing skills. Your patience with me has been (and continues to be) instrumental. I am a better person because of you.

And finally, to my mother, who worked so hard to provide me the opportunity to complete several post-secondary degrees. Your blood, sweat and tears did not go to waste. There are no words to express how grateful I am. I could not have completed this without you.

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ALL ILLUSTRATIONS ARE BY THE AUTHOR AND BASED ON RESEARCH, UNLESS STATED OTHERWISE

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The early stages of my research led me to discover the history and current types of the big box supermarkets. It help clarify the advancement of the global food industry and the evolution of daily living and consumption in Canada.

APPENDIX A

THE ORIGIN OF THE CANADIAN BIG BOX SUPERMARKET

Public markets (now known as farmer's markets) once served as the original grocery stores of cities, providing locally grown/produced food, such as meats, grains, fruits and vegetables. Public markets were held in sufficiently sized towns in public areas with temporary structures and the businesses at these markets would meet the demands of both the farmers and consumers.¹ Eventually, towns grew larger and consumer populations increased, so too did the methods of food production and distribution. Prior to the industrial revolution food was grown and consumed locally due to limitations in transportation.² It was the invention of the railway near the end of the Industrial Revolution that changed the way food reached the cities.³ Advancements in transportation systems provided a progressive and efficient system of distributing mass volumes of food products over vast distances.⁴ The Industrial Revolution also provided the technological and scientific developments that led to improvements in the preservation and innovation of refrigeration of foods.⁵

• "Today, Canadian farmers market generate \$2 billion in economic spin-off ..."
PETER LADNER, 169.

• Business: the way food is produced and handled, from farm inputs to consumption.
TIM LANG AND MICHAEL HEASMAN, 2.



MONTREAL PUBLIC
FOOD MARKET IN 1900



THE ICEBOX: EARLY FORM OF REFRIGERATION

In the pre-industrial era, food preservation was limited. Early meat-preservation methods consisted of salting and smoking during warm summer days.⁶ These methods allowed meats to be eaten at a later time, however, meat often spoiled.⁷ In winter, preserving meats in cold temperature was not an issue. People used the cold temperatures during colder months to slow spoilage for perishable foods.⁸ According to Susanne Freidberg in *Fresh: A Perishable History* most meats were eaten fresh, live animals were transported to the city for slaughter and sold at butcher shops and food markets, and fruits and vegetables were grown and eaten locally, and only travelled as far as the producers could travel by foot or wagon.⁹ In combination with the developments in transportation, the invention of refrigeration in the 19th century revolutionized the geography of fresh, perishable foods.¹⁰

Advances in food preservation directly contributed to the development of grocery stores. Prior to the big box supermarkets of today, towns and cities would get their food from the local general store and public food markets.¹¹ Annie Chouinard concludes that “[i]n the 17th century French colonists founded public markets to serve towns such as Trois-Rivières, Montreal and Quebec. In the early 19th century these markets were important catalysts in these growing cities.”¹² In the pre-industrial era public markets were the facilitators of public life within the towns, but this interaction was lost in the advancement and progression of food preservation and distribution.

• wholesale / whole-sale / noun
the selling of goods in large quantities to be
retailed by others
MINISTER OF HEALTH, MEASURING THE FOOD
ENVIRONMENT IN CANADA <WWW.HC-SC.GC.CA/FN-AN/
NUTRITION>



1920's DOMINION STORE

These public markets had limitations, because they could not accommodate the cities expedited population rate. Carolyn Steel asserts that suburban city development became an impossible obstacle for public food markets, and eventually wholesale businesses were formed to help provide food to the citizens.¹³ In Canada, around 1890, grocery stores became the preferred locations to buy non-perishable foods. The location of the store played an important role. In Montreal, around 1910, the upper class shopped mainly downtown, while the working-class, who had less free time, shopped at small grocery stores near their.¹⁴ This was the early stage of the Canadian big box supermarkets. In the 1920's large food stores such as Dominion and Steinberg provided all groceries, meat, and fruits; convenient as they provided one-stop systems for consumers to meet all of their grocery needs. However, this forced food markets and small merchants to go out of business.

The Canadian food industry expanded exponentially, and in the early 1970's the first big box supermarket (approximately 37,600 sq. ft./3500 sq. m.) opened in Montreal.¹⁵ This was a time when several of the major grocery store chains endured a significant transition and most of the smaller grocery outlet stores went out of business and were replaced by big box supermarkets. Today, big box supermarkets dominate the food retail industry in Canada, and the design, size, and location are a result of the demands of the global food industry.

The numerous types of big box supermarkets and the major supermarket corporations like Loblaw, Sobeys, Costco, Jim Pattison Group, Metro and Wal-Mart continue to grow in the Canadian suburban retail landscape. Steel, describes this effect: “[suburban and] out-of-town retailing remains the ideal [location] for supermarkets, because it allows them to stick to what they do best - source food cheaply and move it around in bulk.”¹⁶ The big box supermarket is an effective building for the storage and distribution of food, especially food and products made available by the global food industry. The companies that control these supermarkets have become a beacon to the consumers, guiding them toward low-priced, processed foods generated by the industrial, global market. It is hard to believe that not long ago consumers had immediate interaction with their local farmers who provided them with their fresh perishable foods, and the knowledge of who produced their food, where, when, and how it was produced.



WALMART SUPERCENTRE IN ST. JAMES NEIGHBOURHOOD IN WINNIPEG, MB.

TODAY'S PRIMARY FOOD RETAILING OPTIONS

According to Barbara Kahn and Leigh McAlister, in *Grocery Revolution: The New Focus on the Consumer*, there are four main categories of food retailing: Premium Price Supermarkets with Extensive Product Selection, Premium Price Supermarkets with Limited Product Selection, Economy-Priced Supermarkets with Limited Product Selection and Economy-Priced Supermarkets with Wide Product Selection.¹⁷

Category 1: Premium Price Supermarkets with Extensive Product Selection

The supermarkets in this category focus on customer service, quality, and offer a variety of full service counters, such as a deli, HMR (home meal replacement), bakery, seafood, etc. The *superstores* are usually larger in size than the typical supermarket and will have more choices in perishable and non-perishable items.¹⁸ The *conventional store* (also known as a *combination store*) offers all the services mentioned above and also offers some specialty items, such as a pharmacy and chef inspired premade foods. Loblaw has a variety of

different banners and the stores that would relate to this category are Your Independent Grocer, Dominion, Zehrs Market, Provigo, and Atlantic Superstore.



CATEGORY 1: PREMIUM PRICE SUPERMARKET WITH EXTENSIVE PRODUCT SELECTION - YOUR INDEPENDENT GROCER IN LANGLEY, BC



CATEGORY 2: PREMIUM PRICE SUPERMARKETS WITH LIMITED PRODUCT SELECTION - WHOLE FOODS MARKET IN OTTAWA, ON

Category 2: Premium Price Supermarkets with Limited Product Selection

This category includes *specialty stores* (also known as *food emporiums*), which have a variety of selection on perishable foods and limited selection on non-perishable items. These stores often focus on healthy foods and provide local produced perishable foods and products, and often emphasize the 'fresh' persona.¹⁹ Great examples of these stores are Whole Foods Market and Loblaw's Fortinos and City Market.

Convenience stores also fall within this category. Convenience stores have inflated prices and very limited variety (providing mainly non-perishable foods), and are usually used for fast food, stand-in and impulse purchases.²⁰ A study found that 35% of North American shoppers use convenience stores to purchase at least some of their foods.²¹

Farmers markets would also be considered in this category. Even though farmer's markets are not necessarily located within a building or accessible daily, they are growing in popularity and are the #2 source of groceries for 62% of Canadians.²² The produce and products sold at farmer's markets are usually restricted to season and are often limited in the range of produce. The largest farmer's market in Winnipeg is Le Marché St. Norbert Farmers` Market, covering over 40,000 sq.ft.



CATEGORY 2: PREMIUM PRICE SUPERMARKETS WITH LIMITED PRODUCT SELECTION - ST. NORBERT FARMER'S MARKET IN WINNIPEG, MB



CATEGORY 3: ECONOMY-PRICED SUPERMARKETS WITH LIMITED PRODUCT SELECTION - TYPICAL GROCERY AISLE IN COSTCO

Category 3: Economy-Priced Supermarkets with Limited Product Selection

These stores focus more on low prices rather than service oriented and usually offers products in bulk. These *warehouse stores* resemble a storage depot rather than a typical supermarket.²³ In Canada, examples of these stores are Costco and Loblaw's Wholesale Clubs.

Category 4: Economy-Priced Supermarkets with Wide Product Selection

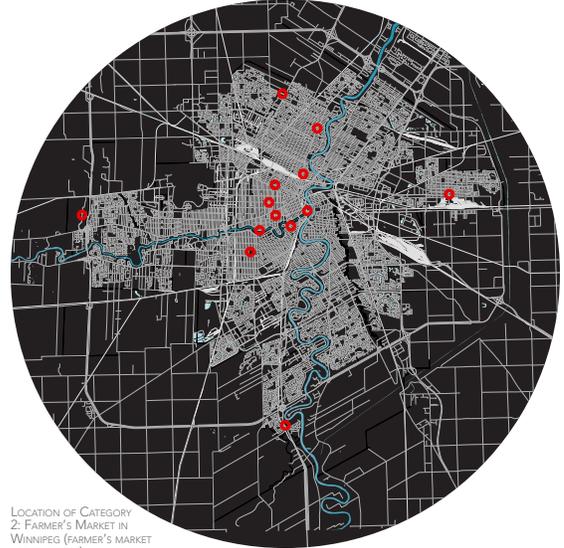
This type of supermarket is the most well known of all food retailing, known as *discount supermarkets*. These stores do not provide quality, customer services (such as the premium price supermarkets), but offers a considerable variety in both perishable and non-perishable items and in lower/discounted prices. Examples of these stores are Sobeys, Loblaw's Real Canadian Superstores/Extra Foods/Valu Mart and Metro. In Winnipeg, the ethnic stores, such as Lucky's would be considered in this category. *Supercenter supermarkets* are discount stores, such as Wal-Mart, that provides a greater variety than the conventional/combination stores at low/discounted prices.²⁴



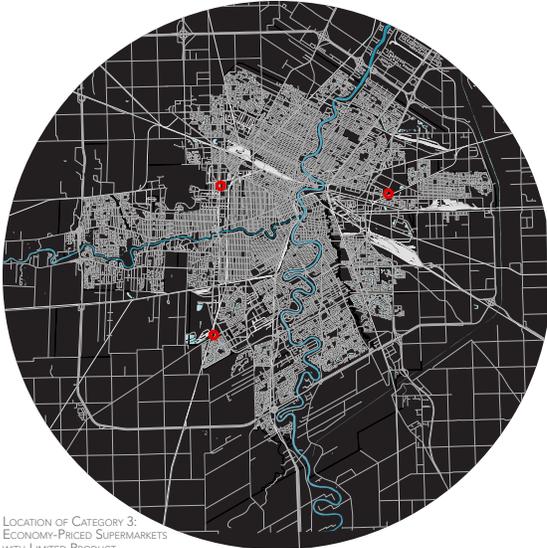
CATEGORY 4: ECONOMY-PRICED SUPERMARKETS WITH WIDE PRODUCT SELECTION - WAL-MART SUPERCENTRE IN VAUGHAN, ON



LOCATION OF CATEGORY 1:
PREMIUM PRICE SUPERMARKET
WITH EXTENSIVE PRODUCT
SELECTION IN WINNIPEG
(SAFEWAY'S, CO-OP, ETC.)



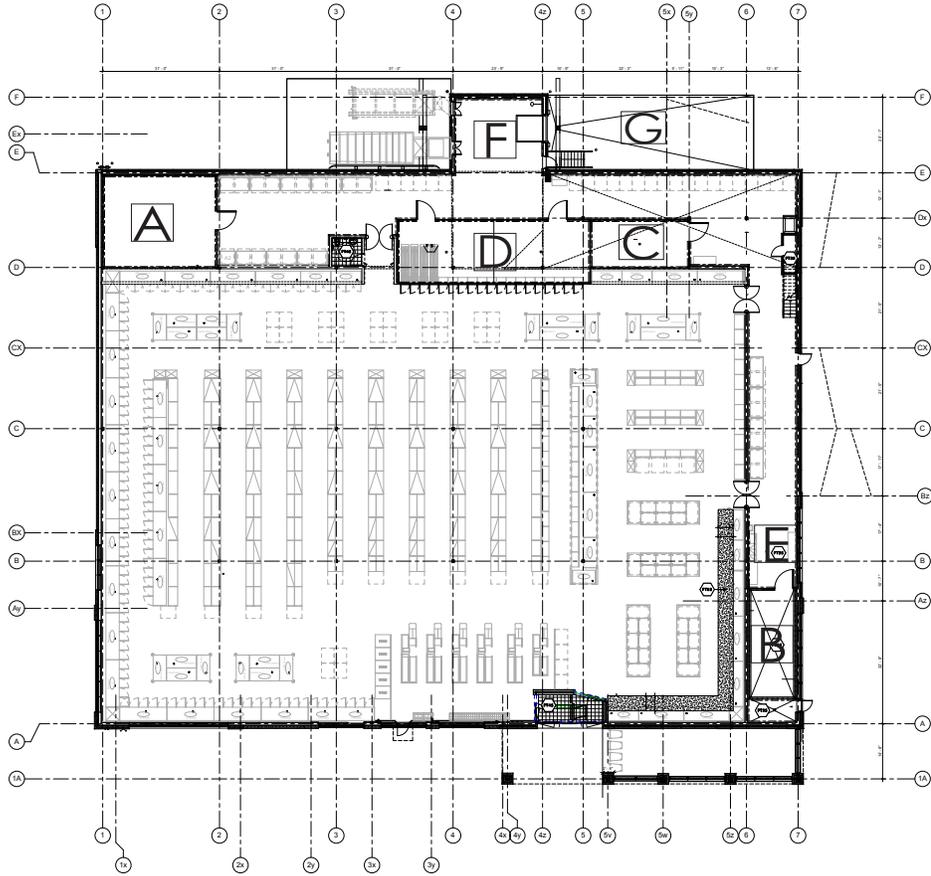
LOCATION OF CATEGORY 2:
FARMER'S MARKET IN
WINNIPEG (FARMER'S MARKET
ARE SEASONAL)



LOCATION OF CATEGORY 3:
ECONOMY-PRICED SUPERMARKETS
WITH LIMITED PRODUCT
SELECTION IN WINNIPEG
(COSTCO)



LOCATION OF CATEGORY 4:
ECONOMY WIDE SPREAD
SELECTION SUPERSTORE
(WALMART SUPERCENTRE'S)



ANALYSIS OF SPACES REQUIRED IN
A TYPICAL BIG BOX SUPERMARKET

Typical 30,000 sq.ft. Big Box Supermarket

- Total ground floor area = 28,424 sq.ft.
- Sales Area = 20,390 sq.ft.
- Backroom (storage area) = 8,034 sq.ft. which includes areas A, B, C, D, E, F and G.

A Freezer = 750 sq.ft.

B Produce Cooler = 348 sq.ft.

C Meat Cooler = 338 sq.ft.

D Dairy Cooler = 816 sq.ft.

E Produce Prep Area = 200 sq.ft.

F Interior Loading Area = 480 sq.ft.

G Exterior Loading Area = 1060 sq.ft.

APPENDIX A ENDNOTES:

- ¹ James Mayo, *The American Grocery Store: The Business Evolution of an Architectural Space*, (London: Greenwood Press, 1993) 2.
- ² Ibid., 64.
- ³ Steel, 25.
- ⁴ Mayo, 62.
- ⁵ Steel, 27.
- ⁶ Barbara Krasner-Khait, "The Impact of Refrigeration," *History Magazine [online]*, 2007, 4 August 2014, <<http://www.history-magazine.com/refrig.html>>.
- ⁷ Ibid.
- ⁸ Freidberg 19.
- ⁹ Ibid., 25.
- ¹⁰ Ibid., 47.
- ¹¹ Mayo, 44.
- ¹² Annie Chouinard, "Transformations in the Production and Distribution of Food (1850-1930)," *McCord Museum: Our People Our Stories*, 11 January 2007, 4 August 2014, <<http://www.mccord-museum.qc.ca>>.
- ¹³ Steel, 225.
- ¹⁴ Chouinard, <<http://www.history-magazine.com/refrig.html>>.
- ¹⁵ Ronal Savitt and Dennis Johnson, "Retail Trade," 7 February 2006, 4 August 2014, <<http://www.thecanadianencyclopedia.ca/en/article/retail-trade/>>.
- ¹⁶ Steel, 118.
- ¹⁷ Barbara E. Kahn and Leigh McAlister, *Grocery Revolution: The New Focus on the Consumer* (New York, NY: Addison-Wesley, 1997) 90.
- ¹⁸ Ibid., 90.
- ¹⁹ Ibid., 91.
- ²⁰ Ibid., 92.
- ²¹ Ibid., 92.
- ²² Ladner, 170.
- ²³ Kahn and McAlister 92.
- ²⁴ Ibid., 93.

APPENDIX A: LIST OF ILLUSTRATIONS

ALL IMAGED PROPERTY OF THE AUTHOR UNLESS OTHERWISE STATED

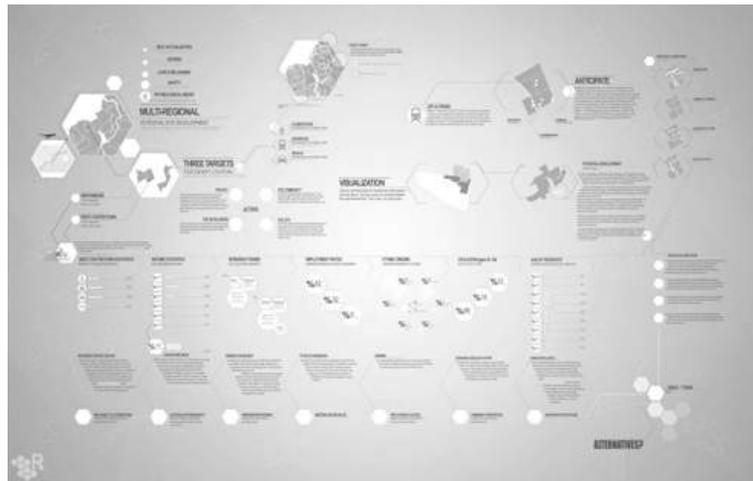
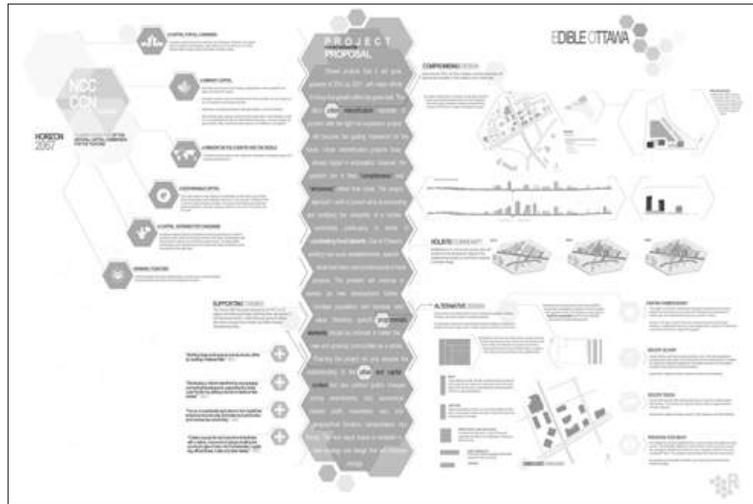
PG.	TITLE	SOURCE
107	Montreal public food market in 1900	www.shorpy.com
108	The Icebox: early form of refrigeration	www.chicagonow.com/theiceman.com
109	1920's Dominion Store	www.canadiangrocer.com/lost-ghost-of-dominion
110	Walmart SuperCentre in St. James Neighbourhood in Winnipeg, MB.	Photo taken by J. Mc. on April 29, 2014 www.flickr.com
111	Category 1: Premium Price Supermarket with Extensive Product Selection - Your Independent Grocer in Langley, BC	www.langleytimes.com
112	Category 2: Premium Price Supermarkets with Limited Product Selection - Whole Foods Market in Ottawa, ON	
112	Category 2: Premium Price Supermarkets with Limited Product Selection - St. Norbert Farmer's Market in Winnipeg, MB	
113	Category 3: Economy-Priced Supermarkets with Limited Product Selection - Typical grocery aisle in Costco	www.businessweek.com/articles/whycostcorules
113	Category 4: Economy-Priced Supermarkets with Wide Product Selection - Wal-Mart SuperCentre in Vaughan, ON	www.steelcon.ca/sites/walmart-vaughan/
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APPENDIX B: CARLETON UNIVERSITY URBANISM 4TH YEAR STUDIO PROJECTS

RUI ZOU: EDIBLE OTTAWA

Ottawa projects that it will grow upwards of 30% by 2031, with major efforts to focus that growth within the green belt. The city's urban intensification mandate in conjunction with the light rail expansion project will become the guiding framework for the future. Urban intensification projects have already begun in anticipation; however, the question lies in their "completeness" and "wholeness" rather than scale. The project approach I wish to pursue aims at uncovering and rectifying the possibility of a holistic community particularly in terms of combating food deserts. Due to Ottawa's existing low scale establishments, specific areas lack basic and crucial access to fresh produce. The problem will continue to worsen as new development further increase population and increase land value; therefore, specific programmatic elements should be enforced to better the new and growing communities as a whole. Planning the project not only requires the understanding of the urban context but also political (policy changes, zoning amendments, etc.), economical (market profit, investment, etc.), and geographical (location, transportation, etc.) forces. The end result hopes to establish a new strategy and design that will influence change.

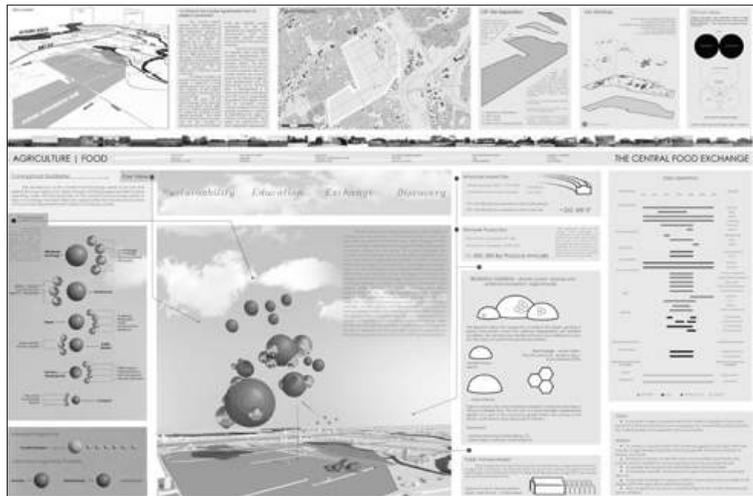
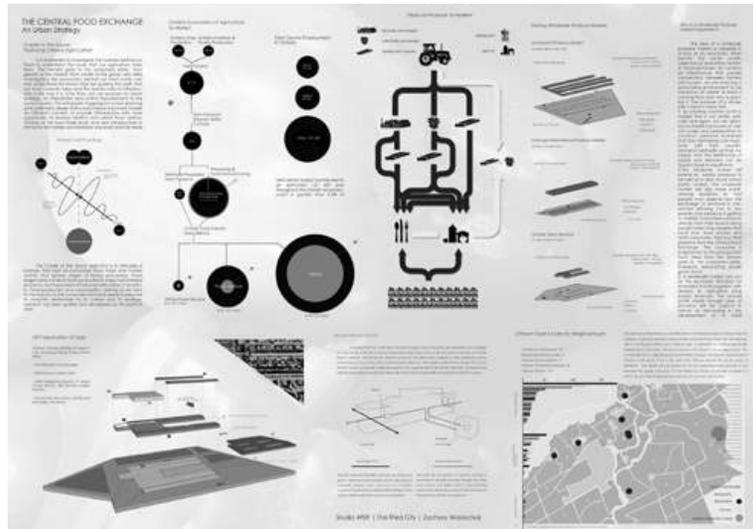
EDIBLE OTTAWA FINAL BOARDS COMPLETED BY RUI ZOU



ZACHARY WOLOSCHUK: THE CENTRAL FOOD EXCHANGE

The farm was once considered to be on the outskirts of Ottawa, but the evolution of time has farmed a farm that now exists as a part of Ottawa's core. With change in time comes change in necessity, and supplementing that necessity means progress for the future. To achieve progress, the Central Food Exchange wants to provide sustainable structures that will encourage the exchange of healthy food and extend knowledge on its production, processes and preparation. To be, and induce advocates of healthy and sustainable food is at the core of our strategy in the hopes that people will extend their knowledge beyond the Central Food Exchange helping to create a more robust and kinetic food system within Ottawa. To Learn; Discover and Enjoy Agri-Culture is the central programme. The program extends beyond the farm in support of pop-up Guerilla Gardens. The Central Food Exchange hopes to provide a platform that locates vacant and abandoned urban locations that would be possible and ideal locations for urban community gardens. The Central Food Exchange will help to finance garden construction, provide seeds, and educate members on How-To. The Central Exchange Guerilla Garden's program will be an extension of the education that is happening on site allowing individuals to carry out what they have learned.

CENTRAL FOOD EXCHANGE FINAL BOARDS BY ZACH WOLOSCHUK



APPENDIX C: EXCERPT TRANSCRIPTS OF PERSONAL INTERVIEWS

Spence Neighbourhood Association

Date: October 27, 2014

Interviewee: Tanya Suderman (TS)

Interviewer: Jaimi-Yra Bendo (JYB)

JYB I'm just recording now. I'm doing food deserts in Winnipeg and kind of rethinking of food production. And I just saw a on the side of your building there you guys have a green map. Is that online?

TS It's online, you have to go through Manitoba EcoNetwork, there is a GIS page, I think that there is a Green Map on there

JYB My thesis is still in a kind of working progress, I'm just seeing what programs Winnipeg has currently regarding urban gardens, and how people living in a current food desert within a city are getting fresh fruit and vegetables, whether they get it from a garden or a company, or community network like this one.

TS One of the programs right now that we work with in partnership is the Winnipeg Food Share Coop. They have a Good Food Box program, which I know that they have some in Toronto and it's been here for the past number of years and the West Broadway area. So we do get fresh fruits and vegetables get delivered here and it's a preordering food buying club.

JYB Do you happen to know where they get their food?

TS I'm on the board of that Co-op and we get it from distributors. The way I would describe our goal is, we are decreasing barriers to make fruits and vegetables more a priority in people's lives. One is to making sure that it is being delivered within communities. In our neighbourhood there is a depot in Spence street, there's a depot here, and St. Matthews and Maryland has also been approved, so there are like three depots within a 10 min. walking distance and decreases the location and because we use volunteers and we have grants, we are able to reduce the cost of it.

JYB Oh okay

TS So when we have done some comparisons with the Safeway here, a \$20 bag that we sell was \$33 at the Safeway down here because we use volunteers and we have grants and we can make that happen.

JYB Do you know how many people right now listed in this program?

TS Right now there are probably between 10 to 15 people or households, it can change a lot. This year we also did a community market in partnership with Winnipeg Food Share Coop and Daniel Mac St. Matthews Community Association and that we had up to 60-70 people per time buying food so no one was buying the \$20 box and they would spend \$10 to \$15, a lot less like 2 apples and that was it. And a lot more people were stopping by.

JYB What are the boundary streets of the neighbourhood?

TS The boundaries were Angus, Portage, Balmoral and Notre Dame. And because it was in partnership with Daniel Mac the location was on Toronto and Ellice/Victor and Ellice at the Mosque parking lot.

JYB I saw on your website that you have a lot of neighbourhood gardens.

TS Yes we have 11 community gardens in different shape and forms. One is a kids garden, there's a lot of carrots everyone cause kids can put them wherever they want and can have up to 25 kids participating. Then we also have regular programming during the season.

JYB Who runs these gardens?

TS I'm the environmental open space coordinator and I coordinate them. So some gardens are a little bit different where there are some strong people in there who have taken ownership like it's their backyard or front yard. Then I work with them to place gardeners in that plot. Or people sign up through me and I put them in there. The way most of it works is that people can sign up and they are responsible for their plot. Because they are only 11 and I only have staff from mid-May to end of August, then gardeners manage their plots and some of them community plots and trees and I would manage them myself.

JYB Right now if I take pictures of the garden no one will be there.

TS They are not going to look that great and there on vacant lots and your not going on someone's property and two of the lots are on the city property. But most people are not in the gardens right now because it is a little cold.

JYB In those gardens is it just fruits and vegetables?

TS No we have had, in the year before, there was a community

resident who is an artist who uses natural dyes. So she was planting flowers that she can use for her art. If people want a whole plot of flowers they can do that, there is no rules and regulations. The real goal of the community garden is food security. When I started this job, I had to do a presentation and one of the gardeners told me that in her garden, her gardening that she didn't have to use the food bank in the summer and fall because she can grow enough food and she shares a lot of it too. Its food security is definitely a huge part of it. Also getting people outside for community safety. The more people outside and taking ownership of the space so there is more capacity in the streets and stuff like that.

JYB So your goals are food security, community involvement, education for kids and general community. Because this neighbourhood immigration, do you have a lot of people coming in trying to learn what they can grow with the limited growing season?

TS The biggest thing that I noticed is to make sure that they don't put seeds in the ground. For seeds that take such a long time, it needs to be started before hand. So that is the biggest thing, because if you put a tomato seed in the ground in Manitoba you will never get tomatoes and you will have to start those a lot earlier. Kind of doing the research is people see and whether they grow them at home and sometimes I don't know all the plants and definitely don't know all the information there. But I tried to help with their research or provide people with resources and if I can find the seeds, that would be great, or provide them with the soil and pot to pie-grow them then that is part of my job to provide them with these resources. Really to encourage people to try it, and there are a lot people who come to Canada who know how to garden and grow their food and their gardens look amazing here. So there doesn't seem to be too much of a difference. There doesn't seem too big of a difference. And people use their own techniques and their own styles and I try to encourage people to keep doing what they are doing.

JYB ... 11 min.

Blue Lagoon Organic Farm

Date: October 28, 2014

Interviewee: Stefan Regnier (SR)

Interviewer: Jaimi-Yra Bendo (JYB)

SR ... Animals break down plants and use that or you can use the plants themselves ... green manure which you are breaking down organic matter into the soil, it breaks down and produces nitrogen. So there are all kinds of different ways you can do that, and then play around different combinations as well because sometimes you use those green manures or cover crops for other purposes other than just green manures, you could do a ... where you plant a cover crop and it comes up as a green manure and before tilling you actually introduce animals on to it which would then benefit for eating that young plant. Still leaving some young plants, and then would defecate there and you would till that in and that is another source. Or you could use the cover crop for wheat suppression or you can companion plant, where you would take another plant and you would introduce it by transplanting. Where you put a tomato plant into an existing green manure crop. Tomatoes is probably not the best example because it takes a longer term to crop, maybe something like lettuce that's only 30 days, where you put it in and get it out and it's still tilling. There's a host of things you can play around with and you have to do them all in conjunction with whatever else is going on. You have a long-term plan of how you are going to set up your field as in a 10-year, 5-year plan, 2-year plan and it changes all the time. Like this year we got changed around because of how the rain was coming and how water was sitting so we couldn't plant in areas where we initially wanted to plant them and some of them were beans, which never got planted and that also was going to be a soil remedy because being a legume they also feed nitrogen for that ... so you kind of make changes. Manure, he is actually hauling raw manure right now, which can be considered raw manure. So, it hasn't been composted, with that can do is burn the plant and you don't want to do it 100% and you want to make sure that you do it in the fall so it has an entire winter to become part of the soil that you can till it in. We have composted stuff, like vintage wine, we have all these different years of what this was and how long it has been composting and it has different benefits. A well composted, because if something isn't well composted it is still breaking down and is really hot. You will have compost piles that are actually still smoking and it's just the microbes that are eating and all that energy is creating heat.

JYB How do you know when it's ready?

SR It shouldn't be hot to the touch, warm is kind of nice, and you can see that there shouldn't be large particles of anything. Well

composted should look kind of like dirt, should be right back into that and it should be soft and at that point the plants can take it up, because if it is not quite ready it is also not beneficial to the producers either because then the plants can't obtain it. We also use vermicomposting, so we have worms set up in the greenhouse and then we give them compost and they process it quickly. So a red wiggler can eat its body weight everyday, it processes a lot of organic matter. And the great thing about having worms in your garden or in a process where they are eating compost is that they're castings, there called, there are able to take up the plant immediately. So you can take a raw plant and it would eat it and then the plant can actually use that to be absorbed immediately, where microbes can take up quite a period to do that. Where as then you take an animal, like chicken manure, it still has to compost before the plant can take it up as nutrients. Worm castings are like the Cadillac, they are really good.

JYB Outside ... tour of the farm ...

SR There are actually some plants still going, kale is pretty amazing, it's good till up to -10. This is mixing chicken feed ... we will need to get this area ready for next year. Kale is good till -10, you can't pick it when it's frozen but when the temperatures go above zero again then you can pick it. ... the last ball of carrots were got out yesterday, Swiss chard could take a lot too, but not as much as kale. And then we have herbs and stuff and this area is where our garlic was located this year. This is all the manure, this is how organic farms fertilize, then you just work that back into the soil and then that's how it all goes. So all that that will get leveled off and made into beds ...

JYB How often do you sell your products in farmer's markets?

SR It ended on Saturday, that was last one at St. Norbert. And we do the one in River Heights on Friday ... This alfalfa fields here gets baled made into balls here, so we also have different years ... the stuff in the front is all fresh where it's good for the animals to eat it. We are going to end up shredding most of the balls to put on the garlic and strawberries. And this is where we have our egg and chicken, I think they are inside cause it's cold ... Here we have a cover crops, last year we had a corn and ... this year we went with ... we ran the chicken on top of the wheat, and the chicken will eat the wheat and then we will turn them in, it is absolutely quite a remarkable cycle ... Here we had strawberries, those are the 2 stripes, the light brown stripes with strawberries. The one in the center are going to get spread and the other one already had chicken on them and they didn't even have physical manure on them they were already ran and probably in the next 2 years we will run chickens on there again. I am not sure exactly how we are going to set up the crop rotations next year but plan it how it suppose to ... then pretty much everything here has been plowed and I will sit for a little bit and if we have time we will till it and make raised beds. This is actually ready and this had potatoes on it and so it was harvested one of the first potatoes and this is how it will all look in the spring and hopefully the hard particles will break down. This is the soil that we have ... so it's either really dark when it's wet it's really soft and when it's hard it is really dry and when it's dry it is really hard. So anyways raised beds work out really well if we get a good season and we don't lose the crop. This used to be a really flat field and in 2002. And in 2002 we had a dry year ... so we started to realize it's better to retain water ... we have 5 dugouts on the property where we retain water and store it and then on a dry year you are good. You will probably go through all 5 dugouts and we are working on building another one.

JYB What is a dugout? Is there one at the front?

SR A dugout is just a hole in the ground that gets filled with water and you can use it for irrigation and yes there is one at the front with ducks on it.

JYB ... 11:35 min.

Fort Whyte Farm

Date: October 28, 2014

Interviewee: Danielle Mondor (DM)

Interviewer: Jaimi-Yra Bendo (JYB)

JYB How many pigs do you guys raise?

DM We just have 6 this year, there is one and her 5 piglets. This is one half of a garden that we have ...

JYB ... my project is still in a working progress and I'm still doing some research. What do you think, do you think that if the global food system broke down and Winnipeg had to survive on its own, do you think that we could survive with the current urban/local agriculture?

DM It is hard to say, humans have tenacity for survival, as a species we are not going away any time soon. But there is definitely an idea of food shortages already, and we are sort of already seeing in countries where resources are scarce and where oil is expensive, where the food distribution centres aren't like they are used to and it's moved to agriculture to large scale farming and exporting/importing all those crops. I think in Winnipeg we do live in a bread basket where lots of foods are grown here, it's not like Iowa where it's all corn that you can't eat. You can still eat a lot of things here. I think what is probably interesting in Manitoba versus lots of other places, like the States where they are highly subsidized or Alberta where there is massive ranches, there is still quite a few small farms here. I think that's the in between and the grey area between being a assistance farming and being a large scale commercial farm where you are basically growing a monocrop with a few rotations. A mixed farm that has enough capacity to make political change and put a little bit of risk in their customers and in the season, those are the ones that going to survive economically, and be able to feed the people in Winnipeg. We are just in the beginning of the movement here, compared to the West Coast or Southern Ontario, where local food is a new thing in Manitoba still because we just got into the organic and fair trade lingo game, so there is still ton of education that needs to be done. I'm actually part of Fort Whyte where a new café owner is taking over the café on the other side, which they really support local foods which mean their costs have increase and customers are asking why local food costs more. We are doing an education campaign on why it costs more, there is no subsidized agriculture, there are more things you need to store, there's less distribution because you are paying your workers more so it's not migrant labour or marginal labour. So things like that I think needs a lot more education about. But the component here, we're different than a lot of the farms in Manitoba because we are more an education facility. The rest of Fort Whyte we do education around the environment, marsh lands, sustainable forestry, a lot of wilderness stuff and conservation. All of the lakes here, 5 lakes . . . Fort Whyte owns 640 acres up to Sterling Lion, so all of this forest and lakes were once gravel pits owned by Lafarge at one point, so they dug them out and all of them do not necessarily have drainage but it would then serve a purpose of marsh land education and wetland rehabilitation. We work closely with Ducks Unlimited, Manitoba Wildlife Federation, Manitoba Conservation and lots of other organizations through the UoM to do studies in that kind of thing. So the farm is a minor piece under that umbrella about educating Winnipeggers and youth that we work with about growing your own food, sustainable agriculture, fossil fuel reduction, maintaining a smaller carbon footprint by eating locally, we do a lot of kitchen and nutritional skills and basic hands on employability skills, like showing up on work on time, communicating in the workplace, showing respect with others in your work place, we kind of work the gamut. As you can see on this side here we have we do bee keeping, Dustin is one of our bee keepers here today, we do have the pork, we raise 900 hollers on pasture, we have some laying hens and we starting raising some rabbits this year . . . so we have about an acre and a half of gardens and we run a CSA program. That's where a lot of our food has been diverted rather than going to run a large farmers market or shipping food to other places. We just realized that there are not a lot of grocery stores around here, there's no market around here, and a lot of people drive by dropping their kids at summer camp and 300 volunteers that come to this site, so we offer a very quaint market and then offer vegetables in the CSA program for people who want to participate in them.

JYB You don't participate in St. Norbert's farmers market?

DM No, we don't produce enough vegetables and this is like a 5-9 farm so it's not in our capacity to participate right now.

JYB . . . 10 min.

CitiGrow Inc.: Urban Agriculture Solutions
 Date: October 30, 2014
 Interviewee: David Gingera (DG)
 Interviewer: Jaimi-Yra Bendo (JYB)

JYB Do you mind if I record this?

DG No not at all.

JYB I don't know if my email explained a lot about my thesis because it is still in the working progress. I want to do kind of food deserts in Winnipeg, because that has been an issue these last couple of years where a lot of the grocery stores have been closing down in downtown and it's not even just downtown. St. Vital is considered a food desert where a lot of people have to use a vehicle or public transportation to get to the grocery store near them. And sometimes the most convenient for them is a convenience store, which is 1.6x more expensive for fruits and vegetables. And I was also looking at localizing, everything to be local or regionally provided. I just went to Blue Lagoon Farm, just outside of Winnipeg 30 minutes away, and they are purely organic. So my question is, if the global food system was no longer available, like the oil prices jacked up and we couldn't sustain the global food system anymore, do you think that Winnipeg or even Manitoba could sustain themselves with just regional or local foods, including winter time? It's a theoretical thing, but it might not be in like 50 years . . .

DG People don't realize the amount of strain is on our food system right now. How closely have you been following what's been happening in Detroit?

JYB We had a lecture in Carleton with a guy who is starting up urban gardens and farming in Detroit because they have available land, but that is it.

DG It is really interesting where 2 places in the States where urban agriculture has taken off the most is New York City and Detroit and they have very different models. The one in New York City is more designed out of an innovative standpoint, stuff like we have all these buildings, we have no green space, we have everything is very condensed, well how can we grow our food, we will do it on the rooftops. New York has the highest collections of rooftop agriculture in all of North America. Detroit is probably is next to it or the biggest city in terms of agriculture in North America and they are doing it out of necessity rather than out of innovation because there are so many businesses that have closed down there, major corporation don't want to go into Detroit and no body really has money to go and buy food and people have resorted in growing their own food out of necessity. The reason I bring this up, to answer your question, obviously Winnipeg has really cold winters, very hard to grow food in winter and pretty much impossible to do it cheaply but I think one thing that Winnipeg does, compared to other cities, it actually does have a substantial amount of space that could be utilized for growing food, definitely more so than in Toronto and in Calgary. Realistically we would be in trouble right now if our mainstream food system went down. I don't think that we are at the point where we would be able to adapt fast enough, which I think that is a big problem, as you know, our current food system is heavily strained.

JYB Do you think our global food system is here to stay?

DG Yeah, no 100% No. Something has to change. It is going to be the question of whether or not we change it or it changes before we are ready. So we are either going to create the change or we are going to be victims of the change, it's one of the two. I think that innovations such as urban agriculture and indoor agriculture are definitely steps in the right direction in terms in creating that change rather than just being a victim of it and having it fall in our laps and having to deal with it as it comes up.

JYB The research that I'm doing so far are saying that transportation system, depending where our food comes from, is only about 6% to 20% of carbon emissions. Everything else is about storing the food, including refrigeration, and packaging the foods, slaughtering and feeding the animals, and a lot of the carbon emissions are developed from that. And what I found is interesting is that green houses have contributed a lot to the carbon emissions, do you think that we could provide an ecofriendly greenhouse?

DG I think that has to happen, a greener model for greenhouses. It is very easy to at a green house at the surface, and say that is really good for the environment, but in reality it takes a lot of energy to heat that thing in the winter. Space in a place like here in Manitoba, virtually impossible to run a profitable greenhouse in winter because it is so expensive to heat it. And heating it also creates those carbon emissions that we are trying to eliminate in the first place. It is a tough question and I think there's a lot of potential lies in taking space that is already heated and finding a way in turning it into a food source. Like even space around here, creating cool, innovative products and systems that can grow food indoors and utilize existing space that is already being heated.

JYB Have you heard of the space, James Avenue Pump House station on Waterfront? It's an abandoned building, it's in between condo developments, and they are thinking of making it a huge tower of condos . . . do you think that would be a viable space for green houses or indoor urban gardens in that area?

DG I guess it depends on how big and in what scale. I mean very rarely is agriculture more profitable than leasing the space out for offices and even for residential. It terms of the property owners a very difficult way to justify using that space for agriculture. I think as technology advances and as indoor products get more sophisticated I think we will be able to grow higher quantities and have a faster turnover time and eventually we can get to a point where it is, at least as close as possible, to use that space for growing food and as it is for leasing. But we are not there yet and probably not viable at this point.

JYB No, okay . . . You talked about in the summer, Inn at the Forks have their own garden, what do they do for winter time? Do they can what ever they from the garden or ferment it?

DG A lot of the stuff was pickled, so it is canned and they are still using it today. A lot of the stuff they run out and they are not going to get any more from the garden obviously, because now that the weather is cold. One thing we are looking into doing for the restaurant . . . I actually just partnered with this company who built this vertical farming system, which is about 9' x 4', and has these boxes that can be stacked on top of each other. The system takes care of all of the lighting and all the watering, basically anything the plant needs to grow is taken care of. What we are looking into the next couple of years is leasing these units out to restaurants, and that way the restaurants can grow their herbs year round. They could grow lettuce but you will never be able to grow enough lettuce for a restaurant in one of these things, whereas, you can grow your entire herb supply from one of these systems year round. So that is something we are interested in doing for restaurants. For the time being, they are purchasing from the mass produced distributors such as Sisco and what not . . .

JYB . . . 10:50 min.

Almost Urban Vegetables
 Date: October 30, 2014
 Interviewee: Bruce Berry (BB)
 Interviewer: Jaimi-Yra Bendo (JYB)

JYB Just making sure that this is recording. I am an architecture student in Carleton University and I am just figure out whether architecture even plays a role in food production and distribution and what we can do differently. I met with David from CitiGrow, and he is trying to promote, for architecture wise, urban gardens. So if we design new buildings and on the roof top we should consider having an urban garden for that building. So I was thinking about that and I got into this when I was looking into the Detroit situation, and how people would travel great distances, especially when they can't afford a vehicle and it would take 2 hours to get to the grocery stores, taking several bus trips. I also looked into food deserts in Canada, but it is more popular in the States some neighbourhoods don't have direct access to fresh fruits and vegetables and they can get it only at a convenience store which cost 1.6 times more than a Loblaw's or Superstore. So I don't know where architecture plays in this role, but I am curious and trying to figure out a program of what I want to design. I'm thinking of a distribution centre of local/regional farmers and urban gardens into one building and that becoming the distribution into communities that are considered to be in the category of food desert. It would also be an education centre, sort of part of CSA kind of does and what CitiGrow kind of promotes and part education/information centre. The criticism that I am getting is that can Winnipeg sustain itself in the winter time with just local food. And I'm thinking that we're humans, we are survivors and I'm sure we can we just need the knowledge to do so. Anyway, so that would be part of the program in my design. I ask this to everyone I interview, if the global food system was to shut down, do you think Winnipeg or Manitoba can sustain itself and have local food production within the province?

BB The answer is yes to that. If you said would it be the same food system we have now, definitely not. It would require changes in people's habits and expectations about how it all works. Clearly there would be a lot of things that would happen. They type of food we are growing now in Manitoba will have to change. Because right now it is highly based on commodity, if you look at the dollars and the acreage, hugely based on commodities type stuff such as wheat and large grain crops. But I mean Manitoba right now exports huge volumes of food and so just from the high level, it does it now, it does import, but probably doesn't import as much as it exports right now, but it would have to change what it is doing. People would have to learn and prep for storage and storing it. And a lot of the built infrastructure is not made for storing food, people don't have pantries and they don't have cold rooms in their places. But that's okay, so it will have to be done for them. And right now, maybe what would happen is that a bunch of grocery stores would get turned into or could be re-purposed into places that could do that. People generally keep 3 days of food in their house and you could probably see a transition there.

JYB Imagine a building downtown, do you think that could be converted into a large storage facility?

BB Yeah, for most of the 4-5 months of the year here, the cold is kind of free for the taking here. It is more like keeping it to 5 degrees Celsius instead of letting it go to negative 30. Basically if it would be to warm stores for our root crops. You know the Peak of the Market where they sell Manitoba root crops to the retail basis, and they do that now. So, will that require a new anything? Probably require they expand or make a satellite facility, cause they have a warehouse now. To directly answer your questions, I don't think it would be a big deal to keep a large building to 5 Celsius. Not a problem.

JYB I was told that certain things cannot be in cold storage together.

BB There are a couple of types of storages, so basically there are cold and dry and cold and wet and you can mix those. But you have to engineer the building to suit.

JYB . . . 11:09 min.

Food Matters Manitoba
 Date: October 30, 2014
 Interviewee: Lissie Rappaport (LR)
 Interviewer: Jaimi-Yra Bendo (JYB)

JYB My thesis is still in the working progress, and I've met with a few farmers and I went to Spence Street Neighbourhood Association. My thing right now is food security and food distribution and food deserts and I know that food deserts are very common in the States and I looked into Detroit and what they were doing with that. But I decided to just focus on what I am familiar with and I focused on Winnipeg. I looked into and saw all the research of Food Matters Manitoba and that has helped a lot and still has helped a lot. And then I'm looking into food security and food distribution in Winnipeg as well, and I've asked this questions with all the people I've interviewed so far, do you think that Winnipeg can sustain ourselves if we get cut off from the global food system at this current time?

LR Probably not, if it happened quickly, I don't think so.

JYB What if we start doing something now, and gradually build . . . I read in my research that Vancouver can sustain itself if it was cut off from the global food industry. Even Toronto is getting there I believe. Even Ottawa, when I was doing research last year, I had to plot out the community gardens in Ottawa and there are over 100 community gardens, here when I was looking into plotting community gardens, it was over 100 each plot and not community gardens.

LR I am not sure with how many community gardens in Winnipeg, and I'm not that experienced in growing food, but my initial

perspective is that even though we have 100 community gardens we can only grow food there within 5 months of the year. And even we are growing food within that 5 months, food doesn't appear till later within those 3-5 months. I think our climate makes it harder, but with that said people have been living on this land for hundreds and thousands of years and there are animal sources and other ways for us to sustain ourselves.

JYB I went to several farmers, and some say that people don't have the knowledge to fermentation and preserving food for the winter. And a lot of the farmers that I've talked to provide a cold storage for local/regional farmers in downtown Winnipeg. That would help them sell things and help can and preserve food for people for winter, so that you can keep local food sold year round. I just came back from Victoria and they have an indoors farmers market, and a lot of cities have that, but we only have the Forks but it's not as extensive as all the other bigger cities.

LR The Forks doesn't really sell local food, it set up as an indoor market and how you would imagine a farmers market, but the majority of their food is coming from other parts of the world... A lot of my work, I work on food desert issues, and I work with Winnipeg's North End and I do a bit of work with Winnipeg Food Share Coop, which is essentially us responding to the food desert issue, but a lot of what we do is not necessarily talking about local food. But I do have a co-worker who deals with local food and local farmers. To me there's 2 sides of the issue, the consumer, which means eating and buying and potentially growing small amounts of their own foods and then there's the producer, farmers, people who are making food, jams etc. and sometimes it is hard to match both their needs and in Food Matters we kind of do programs that target consumers to get access to food in downtown and North End through purchasing and connecting them to gardens or whatever it is. And we also do, kind of separate, unfortunately, support farmers and connecting them to be able to sell more food in the city. And the reality, unfortunately, right now is that a lot of the local foods through the farmers market or community share agriculture box (CSA box) is not as affordable as it is to buy food at Giant Tiger, or Walmart and so those are 2 important issues in the food system and we have to work with both.

JYB Where do you get the food in the Food Share Program?

LR I am on the board of Food Share, so I can also speak with that. The Winnipeg Food Share Coop's goal is delivering fresh, healthy, affordable fruits and vegetables to communities that have a hard time accessing fresh healthy foods. We have about 25 depots across the inner city some are a bit further out and that's because even outside the inner city there are still neighbourhoods where poverty exist and access to healthy food is an issue. We do it every other week, every other Wednesday and we source the food from a small distributor in Winnipeg, so a lot of the food is not local. In the summer we have partnership with individual farmers, so in the summer and around this time of year we still get 10-30% of the food in the box is local, but it's not our #1 priority. There are 3 sizes of fresh fruits and vegetables and delivered to these 25 community depots and people can purchase it from these community depots.

JYB Where are these community depots?

LR They are all over the inner city, there are schools, women centres, random community organizations, some of them are even offices. And if you go to the website, they are all listed and mapped out. They are all spread out, in the North End there are like 10, the idea is that these depots are within a 10 min. walk from your home.

JYB I also saw that Food Matters completed research on food deserts in Winnipeg?

LR Just to correct you, we completed food assessments in those neighbourhoods, not necessarily food deserts, but most of them are food deserts, but it was a bit broader than that.

JYB What are the common themes and differences in each neighbourhood and how would you define the food security or food desert in general within those communities and/or Winnipeg?

LR I can speak mostly of the North End and I know a little bit of the Downtown and Inkster food assessment, but it wasn't me who completed them. And I don't know as much about the St. Vital one and my guess is that one is a little bit more different because it is a neighbourhood that relies more on cars, so I will speak to you about the other three a bit more. What was found was access to fresh, healthy foods within all those three neighbourhood was difficult because of the lack of large scale grocery stores in the neighbourhood, the fact that there are lower income people living in those neighbourhoods and people who rely on walking and/or public transportation to get around and it's harder to get your groceries if you walk or ride a bus and you have to go somewhere that is half an hour away. So around the food desert piece that's kind of what we see as a food desert, a lack of a place to buy or access to fresh affordable fruits and vegetables... within a reasonable walking distance or lack of transportation to get to those places. So if you live in River Heights or something and even if there is no grocery store in your neighbourhood, people usually living in that neighbourhood probably have a car and driving for 10 min. is not an issue and that's why they have an access to healthy, fresh foods. Whereas in the North End, a lot of people don't have cars, and if there is no grocery stores within walking distance that's a greater issue. And I think that is pretty apparent in all those neighbourhoods. I also heard a lot of people talking about this term food swamps, related to food deserts, which really exist in areas like the North End and I think the greater extent of the North End but also in Inkster and downtown where there's lots of corner stores that sell pop, chips, etc. and a lot of fast food restaurants and when those are a closer walking

distance than a Superstore or a local food store, you are going to go to those places. The problem is also that the corner stores are great for convenience style, a lot of them are not selling fruits and vegetables or staples goods, such as rice or pasta and if they are, just the nature of our food system they have to sell them at a greater price... so what are usually happening is those corner stores are usually going to Superstore buying a bag of apples and oranges and are coming back and market up a little bit so that they can make a profit. What we have here in the North End is that more corner stores are diversifying in their products because customers are asking for it and demanding it, the problem is that in a food desert people who have a hard time accessing food and less money to buy food are often paying the most, and that is a big issue. And then the other piece, or as a result or complicates it, often these neighbourhoods because they are poor or other socioeconomic issues they are often higher rates of chronic disease that are often related to diet, so like obesity, heart disease and things like that.

JYB ... 12:09 min.

Centre Venture

Date: December 22, 2014

Interviewee: Tom Janzen (TJ)

Interviewer: Jaimi-Yra Bendo (JYB)

JYB I guess I will give you a brief description of my project, so I'm looking into doing a food exchange hub in James Avenue Pump house station, I chose that location because of the development downtown, as you obviously know, I chose Winnipeg, because when I was looking in doing my thesis I looked into how food and architecture are related in a way and how architecture plays a role in food distribution. I was looking into Detroit and their issues of food deserts in the city and still, I looked into food deserts, food distribution, and growth of a city, and Detroit was more of a decrease of a city. And when I looked into all those things and Winnipeg had all the categories I was looking into. My thesis is called a food exchange hub not just because of providing food for the local people, especially downtown, but also in areas of food deserts, so I was looking into mobile grocery truck.

TJ We just did a feasibility study of mobile grocery truck... we've done 2 feasibility studies in the past few years. In 2013, we hired CB Richard Ellis to help us do a market study on the Downtown grocery market in Winnipeg. That was completed as a partnership with the Forks and North Portage, and the West End Biz, and Downtown Biz. That study was a reaction to the closure of the Bay Store. When the Zellers grocery store in the basement of the Bay closed, it closed in the same time when the Extra Foods in the West End. So both those closed on the same time, and there was a lot of media attention to "growing food desert" in the downtown. And there was a lot of public... the senior citizens who lived behind Portage Place were the most vocal group. They are a group called Downtown Community Residence Association (DCRA) both did a campaign to the City for a new grocery store to open in the place to fill that gap. We did a study, a lot of people were coming to us and saying that we need to prioritize getting a new grocery store downtown, so we hired CBRE to complete this study. It really kind of confirmed our suspicions; that one - the market is still pretty small downtown. There is not a huge amount of population downtown and it is very spread out and you don't have a sufficient cluster of density to support a new store. And then the capital cost in establishing a new grocery store, combined with a small margins of food sales. It is just not economically viable unless it is heavily subsidized, and there is just hasn't been an appetite by the city or the province to fund that kind of subsidy into a store. The study also looked at other food retail in the downtown and the surrounding area and there is a lot of it, and a lot of it is in convenience stores, so you don't get the healthy food options. But it is not... depending on how you define a food desert... it is not necessarily a food desert. There are some grocery options and some fresh food options, but we are challenged with geographically huge downtown and pretty scattered downtown population and the market realities of grocery. And at the same time we were doing the study the whole grocery landscape was changing. Loblaw's bought Shoppers, Safeway and Sobey's merged, a lot of these big food retailers that we would of hoped to have courted or attracted to downtown they were preoccupied with that and competition was getting so steep, the downtown is really challenged. At the same time, there are probably 2-3 developments proposals or plans that are kind of underway, private developments proposals, that are all proposing a grocery component. So to come in with a big subsidy and pay the capital cost of a new grocery store, doesn't make sense if we are getting one in a couple years anyways. Or what is the effect of the big subsidy that we are going to put out, existing smaller businesses of the downtown. So, nothing has really happened since that study, anyone that comes to us with an interest in opening a grocery store, we will listen to them and looked into a number of business plans with independents and major grocery operators and eventually one is going to take, but a lot of things that have to happen... Falling out of that study and realizing that even we had a grocery in hand it will take 18 months to 2 years for them to be totally operational. We started to look into what we can do interim to deal with the need, and again, the seniors that live behind Portage Place, there's a lot of density there and their ones that used the grocery stores mostly. And it was convenient, they didn't have to go outside, they could use the walkway system, they liked that location. With the absence of that, we tried to determine what kind of interim options there might be. We looked into different options, we looked into Winnipeg Transit runs its downtown Spirit Bus, which is a free downtown bus. We looked with Transit and some of the residence downtown, could you re-jig the routing and frequency so it hits

some of the grocery stores more deliberately, there's a Safeway on Sargent, or on the Safeway on Osborne, and there's one just on the other side of Queen Elizabeth bridge in St. Boniface. Winnipeg Transit looked at it and the cost associated re-routing a bus or adding a bus was a few hundred thousand dollars a year. If you are going to spend a few hundred thousand dollars a year for an interim option, you might as well invest that in a new store, so that prove to be not viable. So we looked into smaller scale things, and talking with groups such as Food Matters, and Food Share Co-op, Knox United Church, just across from Central Park, several years ago, probably 2 years ago, Centre Venture and couple other agencies made a big investment into a state of the art commercial kitchen in the basement of the Knox Community Kitchen. Building on that investment, both in the park and kitchen facility, was there a way of maybe do some kind of food hub or community food store based on the Knox Church at the same time looked at some sort of mobile grocery option. Looking into what other cities are doing, Toronto, Chicago, Seattle, we are just wrapping up this study, looking at this 2 prong thing, this mobile food piece and then it would be kind of be headquartered at Knox United and have a some kind of permanent community food store at Knox and this mobile piece acts a kind of extension to that...

JYB ... 10:11 min.

Visions of James Avenue Pump House Station

Date: December 22, 2014

Interviewee: Bryce Alston (BA)

Interviewer: Jaimi-Yra Bendo (JYB)

JYB Do you mind me recording?

BA No I don't, would I be featured in the report?

JYB I don't know, there will be a transcript in the back, you can also opt out if you want, I will give you the ethics form afterwards. Okay, what is your concept for this building?

BA There are 4 components to it, there's a residential component which is in 2 phases, there is a 6 story wood frame building in the back, the National Building Code is changing so we are allowed to do wood frame in that height. So the idea is keep it low rise measures, don't interfere with the pump house, and max out the density to a point which you can in low rise measures in keeping with wood frame construction. The other component to residential is these townhouse style units along James Avenue. They are shortening James Avenue, the width of it, therefore we are actually to gain 15 feet of property line off this James Avenue facade. So there is going to be staggered parking all along here for the commercial component, which is the 3rd component. There is going to be 3 townhouse style units. Each unit will have 2 big windows, and we will have to cut out all the steel, but apparently we can do that but we will have to position a huge I-beam in a spot that works. Which I imagine at the very end of the commercial space and just before the townhouse units start. So these townhomes are going to be built into the pump house. And each will take up two bays, and split level, two-plus stories, plus a loft possibly. I'm not too sure how the floor plate all works out on this, but that's the 2nd component. The 3rd component is a commercial space. There is a 4700 sq. ft. in the front here on Waterfront Drive, so we basically max. out the floor plate on to that front lot and than build commercial space into the pump house station as far as we can without really getting into structural issues in the station. So there is 7 foot foundations actually below the big pumps, the depth of the foundation is 7 feet. So you can pick up the load of the foundations without having to drill through. So that is the idea and than you can just go back into the perimeter walls and than carry this column line right through to the back, and than you will have to have a column line in here as well. Basically the commercial floor plate will depend on where you can anchor your structure, so that we don't have to go through the slab at all. Where ever these 7 foot foundations are for these big pumps, that's where we need to attach into. I think it will work out to around 8000 to 8500 sq. ft. of commercial space and it will all be just one massive open area. And then there is the left over space within the pump house that is going to be about 8000 to 9000 feet and that will all be public space and it can be viewed from platforms above, so no one will be able to come down to this basement floor down here to see the pumps directly. That's the idea... so the elevation is basically a new floor plate, that will be the top of your floor plate, so it will be 6' below so it will be interfering with the pump. But it is not too bad, only a portion of the pump will interfere...

JYB ... What made you look into this building?

BA I guess the interest, and the concept. I think we have a pretty realistic concept compared to other parties... you can't come in here and get into major structural issues, you can't get through the slab and you can't afford to reinforce the shit out of this thing because it is way too expensive and you get into too many unknowns. The idea is to keep it simple and work with what you have and design around the existing structural conditions that you have...

JYB ... 6:42 min.

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Food is a mechanism of change in a great variety of ways – for entire neighbourhoods as well as individuals. . . . a true mixing of land uses that incorporates places (and ways) for growing and selling local produce as well as for consuming it.

- Karen Franck

KAREN FRANCK, 10.



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