

**Food for Thought:
Re-imagining the Ontario Food Terminal**

by

Sacha Ferro-Townsend

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

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ABSTRACT

Toronto is experiencing a food renaissance. Although there has been a resurgence in the popularity of local food and speciality products, neither supermarkets nor farmers' markets have adequately responded to meet the demand. Contemporary retail infrastructure, comprised mainly of supermarket chains and independent farmers' markets, is insufficient. In the supermarket reliable global imports are valued over regional products that support local farmers and the economy. Chain retailers prefer global players that produce consistent results in order to feed consumers who have become accustomed to seasonless food. On the other side of the spectrum, farmers' markets do not generate the economy of scale required to keep the food industry afloat. As a convenience-driven consumer culture, the limited hours and seasonal variability associated with the farmers' market typology inadequately fills the desire for locally sourced products.

Simultaneously, wholesale distribution nodes have created a closed circuit of food delivery. In Toronto the main distribution point of wholesale produce stems from the Ontario Food Terminal, which feeds the city's myriad grocery stores and restaurants. This 'just in time' food delivery system relies heavily on moving food in and out as quickly as possible. How can it be reimagined as a dynamic space of interaction among a diverse group of vendors, purchasers and consumers?

This thesis looks at the spatial impact of the food distribution network in Southern Ontario by reimagining the Ontario Food Terminal as an organism of both local and global agricultural distribution. It attempts to respond to the growing desire of the public for locally sourced food products and fill a void that is currently missing: that of a reliable network to support local agricultural products. Local food can only survive by leveraging the global system. The reconciliation of two seemingly incompatible systems - local and global - will create a dynamic hybrid that captures the authenticity lacking in contemporary food culture.

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To Tony - thank you for putting up with all of this for the last two years. You are the reason for my hard work and I am ready for our next challenge.

DEDICATION

This thesis is dedicated to the farmers all over Southern Ontario who supply the grocery stores and markets with the food we eat - your hard work and commitment to the agricultural industry is something to be admired.

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“On the table, seasons no longer matter; nor does distance travelled, cost, or the farmer’s name. Like other cosmopolitan urban regions, Toronto is a city with the menu of the world. So how is it that so much of this food diversity seems to come from nowhere in particular, while consumers -who are otherwise increasingly gastronomically knowledgeable- neither notice or care?” Lister, 2008

INTRODUCTION

In Toronto, like all major metropolitan areas, the economy relies heavily on global imports coupled with local supplements to survive. Nowhere is this more apparent than in the food industry. The homogenization of food sources has created a culture of food that no longer relies on regionalism or seasonality to exist. Increasingly dependent on global imports, the city's food supply is not self-reliant. Only fifty years ago the majority of Toronto's food came from within 350km of the city (Lister 2008, 164). Today over 80 per cent is grown in other countries, mainly the United States, Mexico and Brazil, with emerging economies like China and India set to take a greater share over the next decade. The value of American food imports alone averages \$13 billion per year (Statistics Canada 2003). As a result the local agricultural industry faces a constant struggle to survive and consumers have become disconnected from the vibrant culture of food and agricultural production that was once the backbone of Ontario's economy.

The modern food industry is composed of four divisions: production, processing, distribution and retail. Though topics such as food miles and local eating have begun to receive a lot of interest, the reality is that local agriculture cannot sustain the current population of Toronto. Food distribution is arguably the most chronically overlooked part of the industry by the public. It requires a systematic overhaul to respond to the resurgence of locally produced foodstuffs for which consumers are asking. This distribution works on a multitude of different scales: in farmers' markets, independent retailers, supermarkets and wholesale markets. At the farmer's scale, this network is too small- too expensive and too limited - to feed the city. At that of supermarket chains, it is far too large. Monopolistic, seasonless and massive in scale, the supermarket has created its own system of obtaining and distributing food that bypasses wholesale distribution centres altogether.

Decades of agribusiness investment and technological advancement have allowed for the creation of a massively globalized system that supplies the world with cheap, seasonless produce. Because of this, food spending is at an all-time low. The average Toronto household spends roughly seven percent, or \$134 per week, on groceries (Statistics Canada 2003, 54). Almost all of it is spent in chain

supermarkets that favour the consistent, yet flavorless, products of global producers (Statistics Canada 2003, 54). Though these same supermarkets have begun local product programs, they are expensive to maintain and supermarkets end up losing money on the local products they stock. The chains justify stocking them for marketing and public relations purposes; in the long term this is not a sustainable venture for the supermarket or the consumer. Why is locally grown food often significantly more expensive than comparable global products? Can subjecting local farmers to a larger market, thereby creating the economies of scale necessary for their survival, aide in making them more cost-effective in the long term? The thesis seeks to address the questions of economies of scale of distribution while integrating local food production networks.

The population of the Greater Toronto Area is projected to grow by over two million inhabitants to 7.45 million by 2031 (Toronto City Council 2000). Will the current system, which is at capacity and almost exclusively dependent on external sources of food, be able to handle the population increase? In order to provide for the growing population, the creation of infrastructure able to support more regional farmers and provide local food for city inhabitants in the city is vital. Furthermore, a sustainable, local food system would benefit the city in myriad ways: supporting the local agricultural economy; generating regional jobs in the farming, distribution and retail sectors; and providing a supply of healthy (and reasonably priced) food for city residents. Coupling the local industry with the global network will ensure that the city can feed itself into the future.

Wholesale food distribution is an industry that remains mysterious to consumers. Though there is renewed importance in food origins, the grocery store gives few answers. Wholesale terminals - typically located in peripheral or industrial areas of cities - are off limits to the public, making their inner workings unclear. Where does food in the wholesale terminal come from and where does it go? These are questions that must be answered in order to understand the greater food delivery system.

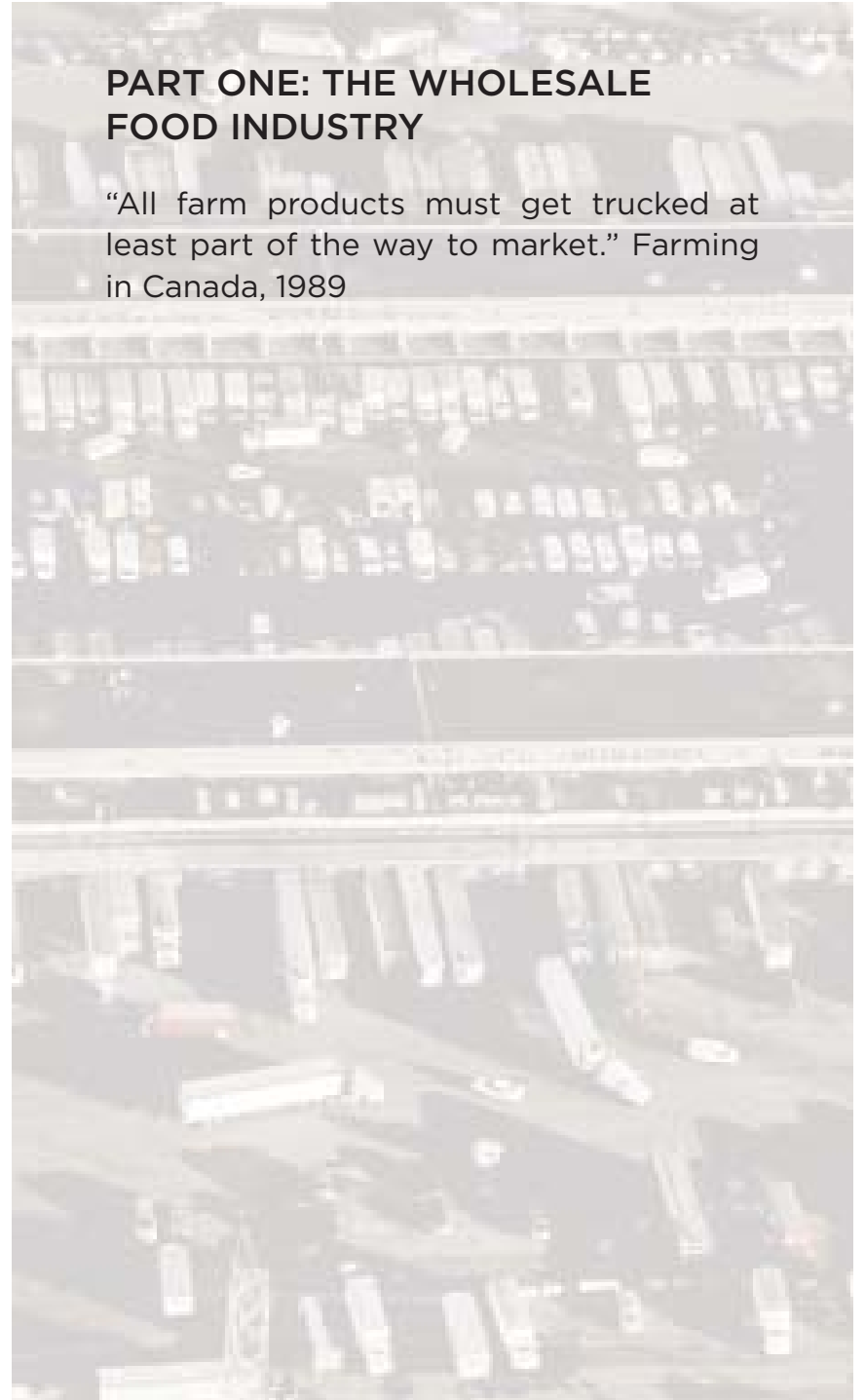
This thesis examines what does and does not work within the existing conditions of the Ontario Food Terminal and the food economy in Toronto, and strives to create a new model for distribution

that includes distribution, retail, and consumption, filling a void in the system. In the new scenario the Ontario Food Terminal is conceived of as an interconnected node for the distribution of food, working at a variety of scales simultaneously (wholesale-retail, global-local, and fresh-stored). As the city encroaches on this once peripheral site, how does its role change? To become a more lucrative entity, the experience and relationships existing on the site must become reconfigured, emphasizing the importance of local farmers and buyers within the economy. No longer overlooked as viable producers of food for the city, the local agricultural industry becomes an important economic generator.

The ultimate goal of this thesis is to extend the reach of locally grown food. By constructing a hybrid food distribution centre that allows local food to leverage itself through the extensive international system it is able to compete with the larger and better-funded global import network. It attempts to respond to the growing desires of the public for locally sourced food products and fill a void that is currently missing: that of a reliable network to support local agricultural products. Toronto needs a civic building, one that can relate the history and future of the local food economy and connect its urban population to the agricultural lands that have traditionally fed it. In this vision, the footprint of the Ontario Food Terminal is an interconnected network of markets, restaurants and circulation: a hybridized market complex that benefits the city physically and psychologically.

PART ONE: THE WHOLESALE FOOD INDUSTRY

“All farm products must get trucked at least part of the way to market.” Farming in Canada, 1989



We are at a crisis point. As the food industry continues to expand into an ever more complex web of industrial farming and global distribution systems, the public is growing more curious and demanding increasing accountability as to how food gets to the table. In the future, not only will the global food network come under increasingly intense scrutiny (but potentially also under economic pressure as transport costs rise), but people will be informed enough to ask the right questions of it. How does food get to the table? Who puts it there? What are the steps involved? And finally, what can we do about it?

As with all global networks, a layer of secrecy covers the industry of food distribution. Society has been purposefully cut off from investigating this vital step in the chain, and the industry is slow (perhaps also unwilling) to open up for fear of widespread operative criticism and governmental scrutiny. It is virtually impossible to figure out where and how the nodal hubs that feed food into the city operate. It is harder still to understand how food arrived at these centralized distribution terminals in the first place. Not so long ago, it was understood that what we ate was produced and trucked into the city from nearby farmland. However, over the last half century, an invisible network has grown to feed the increasingly complex tastes of urban centres with little regard to how the food got there.

Recently, a resurgence of ‘farm-to-table’ eating has raised questions of the food industry, and public awareness of the globalization of the food system is growing almost daily. Long



1.01 Transport trucks from all over North America deliver produce to the Ontario Food Terminal 24 hours per day, 365 days per year to ensure the city is never without food.

disconnected from the producers and food products that supply the city's grocery stores, urbanites are finding renewed interest in forming relationships with the sustenance of their everyday lives. What is really involved in the just-in-time supply lines that have been created over the last century?

Revealing the multifaceted systems behind the food we eat will be a start toward a better understanding of how distribution has evolved and what it has become. By looking at the historical expansion of cities and transportation routes, along with technological advancements in shipping, sanitation and refrigeration, and more complex consumer relationships, the complexities involved in getting food from the farm to the table can be understood in greater detail. This thesis attempts to address the complexities inherent in the food distribution system that has been created.



1.02 As transportation evolved, deliveries became increasingly difficult. Trucks created massive amounts of congestion while attempting to squeeze through narrow streets designed for pedestrians and carts.



1.03 Newer wholesale distribution facilities were designed with wide traffic lanes and individual docks to accommodate the increased number of truck deliveries. This system has expanded further to accommodate even larger trucks with semitrailers.

1.1 DEVELOPMENT OF A GLOBALIZED FOOD DISTRIBUTION SYSTEM

Up until the early part of the 20th century wholesale food distribution throughout North America occurred on a relatively small scale. Distribution facilities were located in the core of the city, adjacent to the port and rail infrastructure that brought food in from exotic growing regions in the south of the continent. Farmers with horses and pull carts supplied food products from surrounding rural areas. The warehouses were basic structures, often hastily erected, and usually involved some form of retail component that allowed consumers to buy directly from farmers and wholesalers. Distribution of produce, meat and poultry, dairy, seafood and dry goods were not separate though there were distinct differences in how each was transported, stored, bought and sold.

Rapid urbanization began to create significant problems for downtown wholesale markets, which quickly filled to capacity. As the population of many North American cities grew, due to an influx of new immigrants and urbanization of rural people, so did the amount of food required to feed them. Wholesale markets were not able to expand as quickly as the population due to space constraints and traffic congestion; mounting sanitation concerns added another level of complexity. The need for efficiency and modernization were of growing importance in the post-industrial landscape. Inevitably, wholesale market buildings outgrew the downtown location, pushed out of the core by both necessity and government agencies (Tangires 2008, 232).

It was also more desirable to move wholesale markets out of the city centre since they no longer relied on rail and port infrastructure to distribute food. Complex centralized wholesale terminals emerged in peripheral areas in the 1950's and 1960's with ample space to grow and in proximity to major continental transportation routes. Not only did the wholesale terminal unify the arrival of food by various means of transport, but it also stored, processed and facilitated its redistribution through the numerous retail outlets of the city (Tangires 2008, 24). Consumers favoured the new, and more sterile, grocery store environment, abandoning the retail markets of the past. Meanwhile, wholesalers made it clear that consumers were no longer welcome in the fast-paced world of globalized distribution. Mainly this was due to food and personal safety issues, as well as gate access monitoring.



1.04 A commission merchant inspects boxes of produce at the Chicago Wholesale Produce Market, 1941. In Canada food inspection is enforced on multiple levels by national, provincial and municipal government agencies.

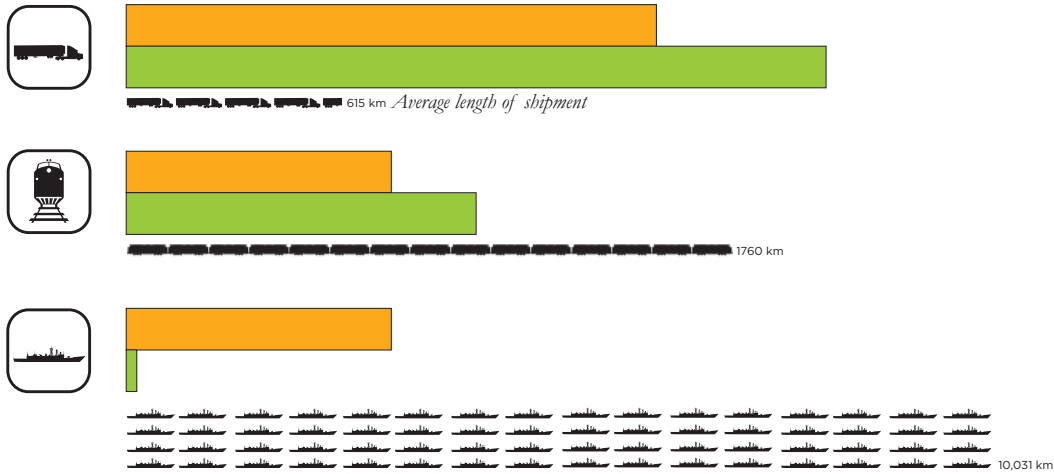
To fulfil this need, farmers' markets - temporary organizations that did not require permanent infrastructure - sprang up around the city. The modern farmers' market phenomenon started in the 1970's in the United States, when the government passed the Farmers-to-Consumers Direct Marketing Act in 1976; it funded the legalization of an act that allowed farmers to sell directly to consumers (Smith 2007, 49). Since then the number of farmers' markets across the continent has exploded. It seems like a new one opens every week. Typically held once a week, farmer's market cater to an urban population interested in connecting to local farmers and have become a niche market in the food retail industry. Small-scale and provisional by nature, they have endured but do not generate the economies of scale to warrant more permanent constructions.

Sanitation has always been a point of concern in urban areas, one that every government struggles to manage. With respect to food, each day is a struggle to beat the clock. If food products cannot make it in and out of the marketplace quickly enough they will rot. Relocating wholesale markets to the periphery of the city was fully supported by government because a tainted food supply is one less potential disaster for them to deal with and it adhered nicely to the 1960's zoning ideal of segregating uses.

The centralized wholesale terminal typology was the first to address food sanitation and hygiene on a large scale. The initiation of modern integrated garbage collection, compost management and recycling systems was integral to the operations of these new distribution centres; their upkeep seamlessly integrated into the daily maintenance of the market buildings.

Wholesale terminals are also responsible for implementing the food safety standards that were created and monitored by Agriculture Canada and provincial agricultural ministries in the early half of the twentieth century. Storage and refrigeration, modern inventions when the idea of the centralized wholesale terminal was being envisioned, provide sellers with the means of storing food for continuous periods of time at an appropriate temperature. Highly monitored systems regulate temperature, light and humidity.

Comparing Modal Share of Produce Transportation



1.05 By looking at the averages, it is clear that Canada is heavily dependant on truck deliveries, though internationally there is actually more balance between truck, rail and marine shipping methods. Almost 100% of the deliveries at the Ontario Food Terminal arrive by truck.

International
Domestic



1.06 Up until the end of the nineteenth century, refrigeration was relatively primitive. Methods of cooling were basically derived from man-made ice blocks and were used almost solely for keeping seafood and dairy products. (Anderson 1953, 31)

The advent of continental truck and highway systems played a substantial role in the evolution of food distribution. It was a much more flexible mode of transportation than rail or marine shipping methods, and had the advantage of being cheaper, requiring less infrastructural input, more frequent deliveries and smaller cargo sizes. Traditionally cities relied on regional - and sometimes national - farmers that shipped their produce by train and boat while they stayed behind on the farm. The popularity of truck transport eventually overtook the industry, impacting trade at all levels.

Shipping distances lengthened with the technological advancement of refrigerated transportation, which allowed produce to be picked in an unripe state and stored in climate controlled bins to inhibit ripening. Until the invention of refrigerated train cars in 1867, only seafood and dairy were refrigerated during transport (Refrigeration n.d.). Refrigeration changed yet again in 1949 with the invention of cooled trucks, because it allowed smaller quantities of food to be shipped further and further from the original source (Refrigeration n.d.). Produce is now essentially dormant during its travel period. Eventually it is unloaded in ripening rooms and placed on grocery store shelves.

Air haulage has created even more opportunity for expansion of the global network, to the point where essentially any product is within reach of the modern consumer. Tulips from Holland, lamb from New Zealand and tuna from Tokyo are fine examples - readily available at most grocery stores for purchase and consumption.

The expansion of North America's highway system created the ability for more transportation-based industry which, coupled with new ripening and refrigeration technology, allowed for mass marketed food products. With this came the need for a new form of food infrastructure - one that would be able to simultaneously relieve traffic congestion in the city core, centralize daily exchanges between buyers and sellers, institute food quality and sanitation standards and moderate prices (Belanger 2008). The modern wholesale food terminal was the answer.

1.2 AN UNDERVALUED INDUSTRY

Food distribution has been a pervasive industry for as long as recorded history. Treasured products, such as exotic spices, sugar, chocolate, coffee, salt and tea, were valued like gold and trading was an incredibly lucrative career for merchants. Only the best products were carried across the globe, landing in the wealthiest of homes, until the globalization of the food industry in the last century.

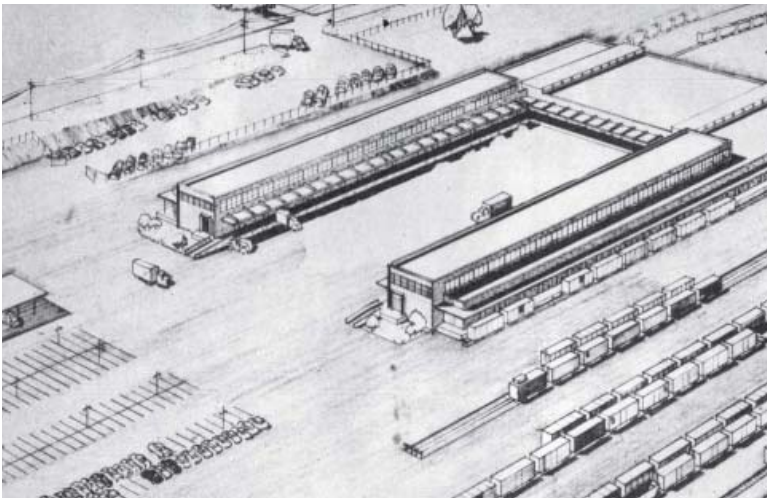
As cities of the 20th century swelled, transportation systems became more sophisticated and food networks enlarged. This introduced new ingredients to growing populations, especially in affluent countries where the population was service-based and not agricultural. The industrialization of food production saw the means to grow food products in one country and distribute to a multitude of others. In Canada it meant that there was more choice in grocery stores and restaurants, as foods like oranges and pineapple - unable to grow in our climate - could be imported quickly and cost-effectively at an unprecedented pace.

The contemporary distribution network is a product of modern refrigeration, transportation and geography and just-in-time logistics systems. An interconnected web of complex delivery systems consists of truck, rail, air and marine shipping methods that track food from the beginning of the journey to the end. The individual transportation modes work together to move food products from rural farming areas to cities, whose food supplies are concentrated in centralized wholesale distribution centres. Each of these hubs store, sort and process the fresh food products that wind up in the stores and restaurants of the city.

Industrialization and technology provided the food distribution system yet another layer of complexity. As tractors and industrial equipment made farming production more efficient, small-scale operations gave way to larger agribusiness production, necessary to the survival of the food supply but also detrimental to the health of the planet as they involved the use of less sustainable growing practices. Large farms sprang up in temperate climates, creating even more nodes for the growing network. Small farmers found themselves without a consistent consumer base and turned to artisanal methods of growing, curing and preserving to stay alive, establishing the trend for modern artisanal cuisine (Citation and historical data needed).



1.07 Traffic congestion around the Toronto Wholesale Fruit Market at the intersection of Yonge and Front Streets in the 1930s. As the city expanded, the downtown location was unable to handle the chaotic delivery schedules of trucks, boats, rail and horse-drawn carts that brought food into the market.

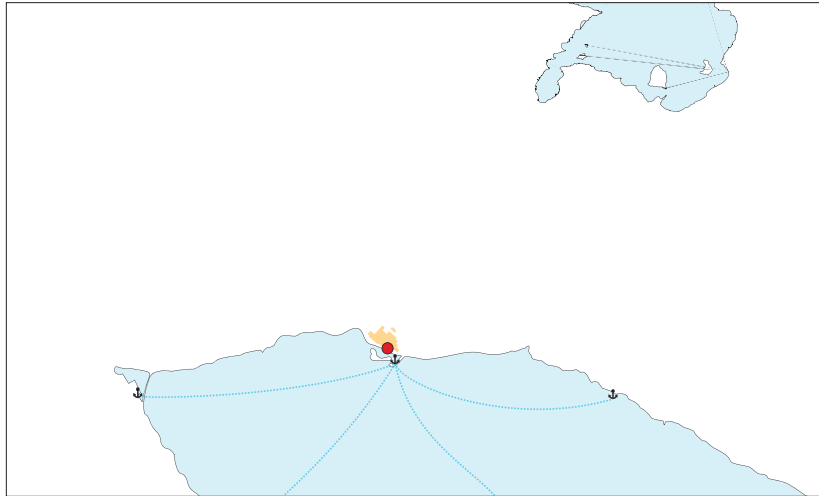


1.08 A sketch of the Ontario Food Terminal in 19___ shows the distinct U-shaped, dual-storey design of the terminal that has since been copied by many wholesale facilities around the world.

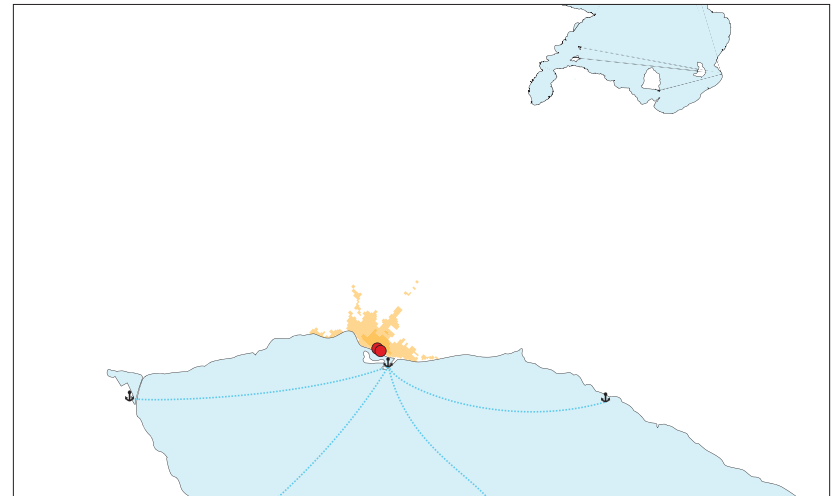
The Ontario Food Terminal, located just outside of Toronto's downtown core, is the hub around which food-related industry revolves in Canada. The wholesale terminal - largest in Canada and third largest in North America - has set a precedent for the wholesale distribution of fresh fruit and vegetables, and people come from all over the world to observe and learn from its inner workings (Belanger 2008, 213). This terminal provides an uninterrupted supply of affordable fresh food to Toronto's grocery stores and restaurants year-round.

The Ontario Food Terminal sees itself as a public institution, an arms-length agency of the Ontario government under the jurisdiction of the Ministry of Agriculture (Iarocci 2010). In 1946 the Ontario Food Terminal Act was created, spearheaded by Thomas L. Kennedy and G.F. Perkin, as a small component of the Ontario government's post-war policy to develop provincially regulated and operated produce-marketing boards. It was an attempt to raise declining farm incomes facing Ontario's farmers and deal with increased competition for American growers (Bird 2001, 8). The Ontario Food Terminal building opened eight years later in 1954.

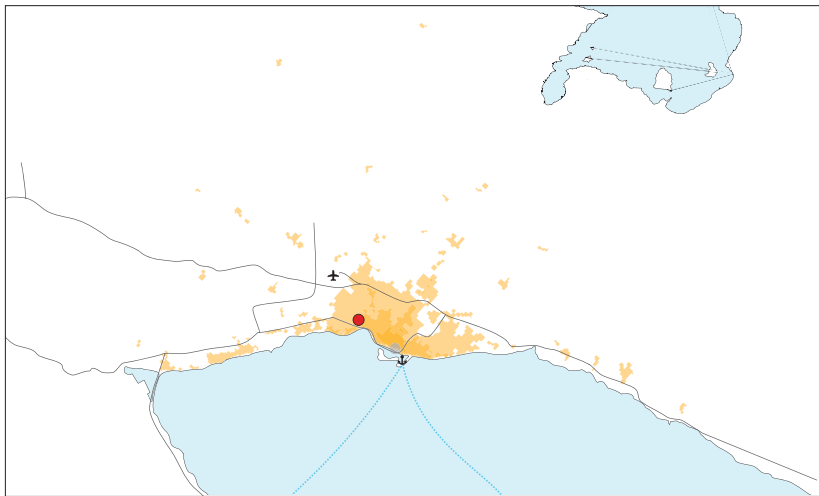
Originally Toronto's wholesale market operations were located downtown in two buildings: St. Lawrence Market just west of Jarvis and Front Streets, and the Wholesale Fruit Market on the south-east corner of Yonge and Front Streets (Belanger 2008). By the early part of the twentieth century, wholesale market operations were at capacity due to an influx of immigrants. Adding to the chaos was a gridlocked delivery system that, due to its highly urban location, was unable to handle the new larger delivery system. The effects of cramped space and inadequate facilities, along with limited competition resulted in both increased prices and lower product quality (Bird 2001, 9). As a result the government stepped in to create the Ontario Food Terminal Act in 1946 and plans were made to move the facilities to a new site further out of the city (Bird 2001, 23). In addition to providing Ontario farmers with access to the lucrative wholesale market without the need for a middleman, it was thought that the new Terminal would facilitate governmental regulation of the industry by ensuring that low quality (often foreign) produce would not be dumped on the Ontario market (Bird 2001, 10).



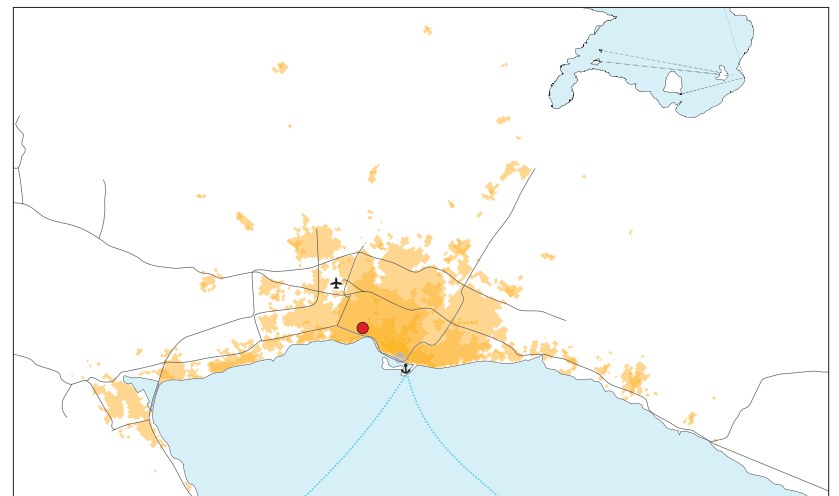
1876



1932

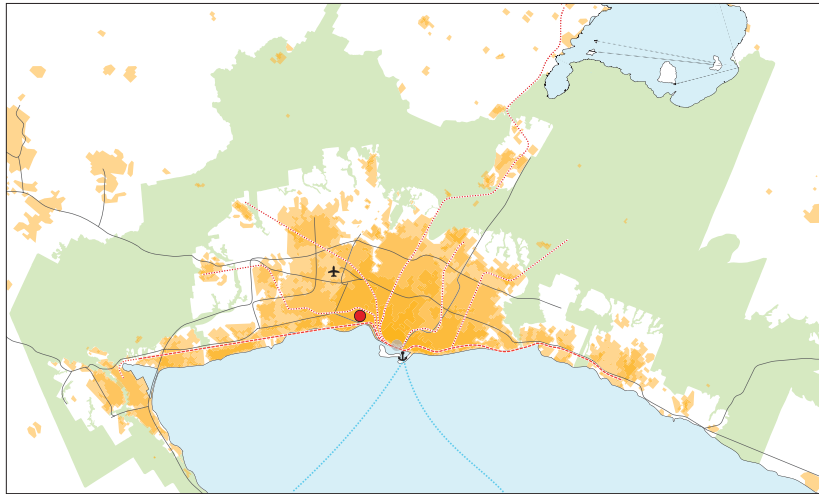


1967

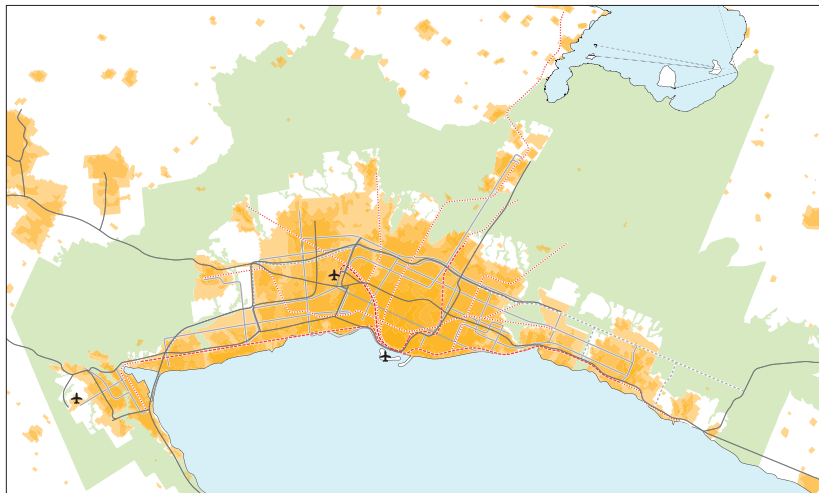


1992

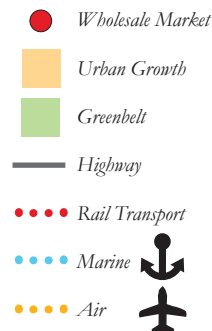
1.09 The evolution of Toronto's wholesale market network from the inner city to the periphery, in relation to the surrounding transportation infrastructure. The introduction of the Greenbelt has helped to preserve some of the agriculture land that surrounds the city.



2004



Projected growth_2031



Construction on the new terminal was delayed due to steel shortages during WWII. On May 17, 1952, a fire destroyed the Wholesale Fruit Market, necessitating the erection of the wholesale building (Belanger 2008, 216). The new building quickly became a welcome establishment in Toronto's food economy. In order to encourage wholesale tenants to occupy the new terminal they were offered thirty-year perpetual leases, which are now each worth well over a million dollars in economic returns annually. These leaseholders effectively 'own' the Terminal in partnership with the government, who operates the institution (Bird 2001, 12).

Today, the smoothly run operating system oversees the distribution of 2.2 million kilograms of produce each day, from as close by as the Ontario Green Belt and as far away as New Zealand (Elton 2010, 139). Two markets occupy the site, running separately yet simultaneously. A 550-stall farmers' market contains food from regional and national farms, while a wholesale market receives and distributes foods from all over the world (Ontario Food Terminal Board 1997).

The Terminal is perceived as an obstacle for local food since it facilitates long-distance distribution. However, not everyone sees it that way. Bruce Nicholas, the terminal's manager, argues that it supports local food because it provides a market for the local farmers that sell their products there. They estimate that 30-35 percent of the produce sold at the terminal comes from local sources (Leo 2010). In contrast, retail farmers' markets simply do not turn over enough business for the farmers to make a living and chain retailers are reluctant to stock local products because they do not want to injure the relationships they have created with global producers.

Though the Terminal provides farmers' access to Toronto's wholesale buyers without the help of a middleman, the farmers market at the Ontario Food Terminal never fulfilled its original intention to fully integrate producers into the wholesale market (Bird 2001). As a result, they are seen as only marginal players in its operations. An original policy that required farmers' surplus produce to be purchased by wholesale tenants was never enacted (Bird 2001, 10). Initial plans for the farmers' market at the Terminal also included a covered, lit area with raised loading docks. The current farmers' market covering is merely the residual outcome of a parking deck project completed in 1984. A cold and dry storage facility has the capacity to hold an extra 80,000 square feet of produce (Ontario Food Terminal Board 1997).

The Ontario Food Terminal operates 365 days per year, 24-hours per day. A monitored gate controls access into the site, where 3:00am line-ups are not uncommon occurrences. Local and worldwide deliveries alike are moved from truck to storage to warehouse and back to truck within a matter of hours. Farmers, wholesalers, grocers, food-service professionals and middlemen (called jobbers) make up the network that sells and buys food on the site. Transport trucks, along with flat body trucks, pick-ups and forklifts move across the site in a seemingly endless pattern. The terminal is advantageously located beside highway infrastructure that runs all the way to Florida, Texas, California and Mexico (the four major produce growing regions of North America). The port of Philadelphia, where food has likely been unloaded from freighters travelling across the globe, is only 12 hours away (Elton 2010, 144).



1.10 Aerial image of the Terminal as it existed in 1956, two years after its opening. Though the main terminal building is present, the parking deck has yet to be constructed. Rail lines on the south end of the site, integral to operations then, have since been removed.



1.11 The Farmers' Market area in 1959, prior to construction of the parking deck.

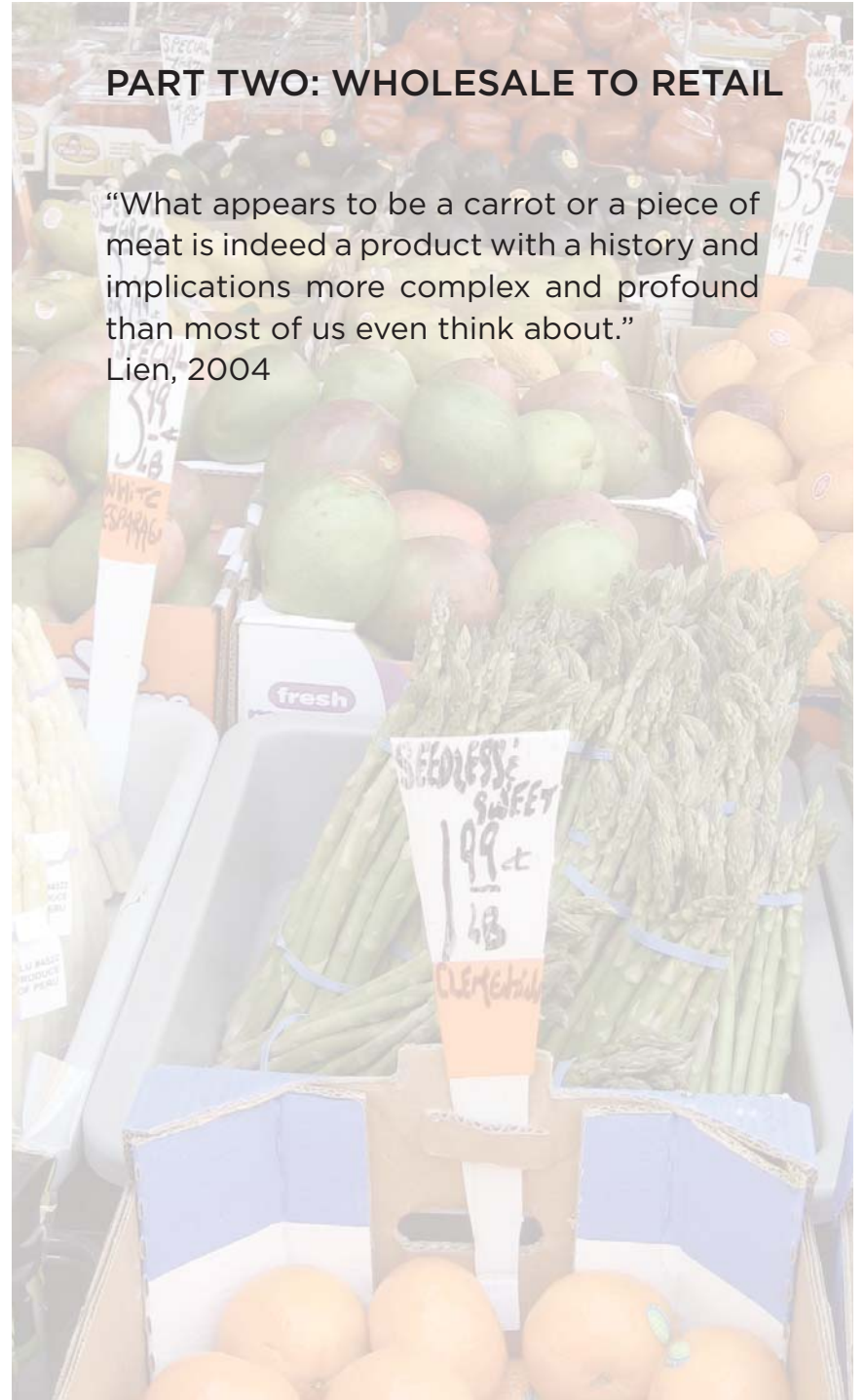
The Terminal runs like a small city with its own security network, sanitation and recycling facilities, two cafes and a restaurant. A security perimeter of cameras and an interior network of guards keep unwelcome visitors out and keep peace within. All disputes are settled by the OFT management. Sanitation and waste management is a package deal: every day the floors get mopped and hosed down and any waste gets reverted back into the regional farming system as organic compost. Pallets and boxes get broken down and recycled.

Unlike most other large industries, warehousing is not a customary practise when related to food distribution. Not only does storage cost money - in an industry where the lowest prices are always the most desirable - but fresh food products only last on the shelf for a limited amount of time. Thus the idea of just-in-time supply and demand dictates how the industry works. The fragility of supply and demand, especially in a globalized industry, became apparent in 2003 when a blackout in central Canada and the Northeastern United States left Toronto dependent on its current food supply (Belanger 2008, 210). It quickly became evident that Toronto, as is the case with many cities in the developed world, only carried a reserve to last three days. Our survival is inextricably linked to our dependence on the global food network.

PART TWO: WHOLESALE TO RETAIL

“What appears to be a carrot or a piece of meat is indeed a product with a history and implications more complex and profound than most of us even think about.”

Lien, 2004





2.01 Canada imports approximately 80 percent, or 52 billion tonnes of fresh produce each year.

A burgeoning food movement is changing the way our society eats and thinks about food. Though the modern consumer has no shortage of food choices in the grocery store, it is a struggle for consumers to find the local foods that they are interested in purchasing. When they can be found, they are often expensive and in limited supply. Farmers' markets are the most popular source, but their restricted hours can make patronizing them inconvenient and unrealistic for contemporary lifestyles.

Like the majority of cities in the developed world, Toronto residents can get whatever they want, whenever they want it. Food that was once considered exotic or luxurious is now ordinary for many, and access to fresh fruits and vegetables, such as mangoes and lettuce, is seasonless. Yet contemporary methods of food retailing have left the consumer with little information other than the ambiguous tags in produce aisles. How fresh is the produce? How did it arrive at the store? How many channels did it go through to get there? These are questions that no one has asked until now. People are demanding a more tactile and authentic experience, both in and out of the grocery store. Furthermore, the recent economic recession has caused consumers to be more mindful of how their retail dollars contribute to the economy, both locally and globally, understanding that what they spend has a direct effect on the local economy. It is for this reason that how retail food-purchasing dollars are spent is so important.

“Few sectors can match food for distributed benefits. That’s why it’s such a false economy to select food exclusively on the basis of its sticker price. The corporate chains that enforce and deliver cheap food come up short when it comes to chain reactions that create a vibrant local business community.” (Roberts 2008, 141)

The food industry is big business: in fact, it is the largest industry in the world (Roberts 2008, 15). As recently as the 1960s, most of Toronto’s food came from within a 350km radius of the city (Lister 2008, 162). During the 1970s, worldwide exports began to take off, quadrupling over the decade and then doubling again from the eighties to the nineties (Goldfrank 2005, 43). Approximately \$172 million

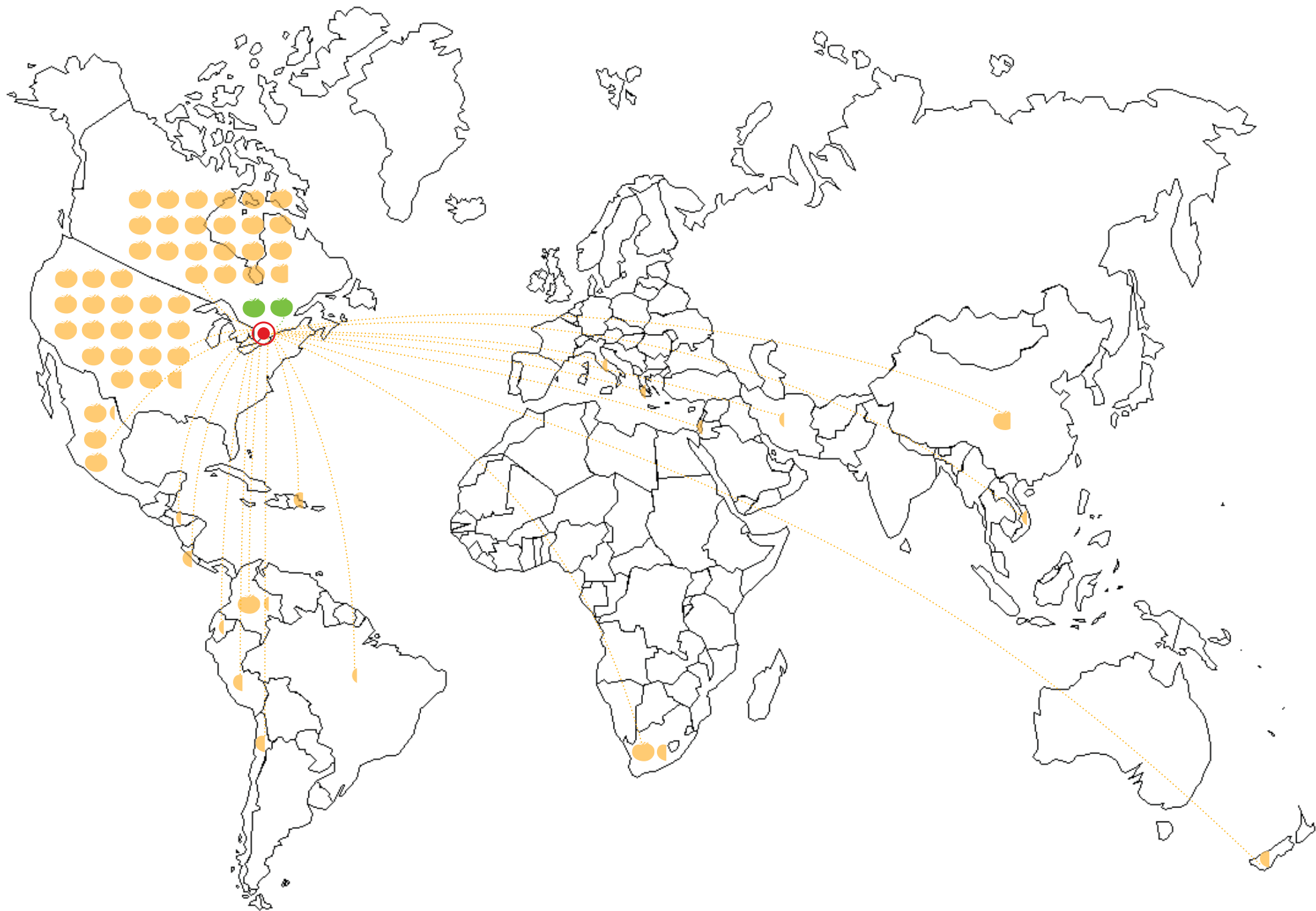


2.02 Shoppers browse at the street stands in Kensington Market. Most of the food found in stores there came through the Ontario Food Terminal.

is spent annually on fresh food imports in Toronto, where almost all produce is now brought in from other countries (FHAC 2001, 13). Many of these fruits and vegetables could be grown on regional farms. As worldwide exports of fresh fruits and vegetables continue to expand, how will the local network perform under more intense competition?

The role that centralized wholesale terminals play in the chain of distribution is to promote competition in the food industry. This is achieved by providing high-quality, yet economically priced, products to all food retailers. The Ontario Food Terminal is unique in that it is able to provide Toronto's myriad small-to-medium sized grocers with wholesale produce from both local and global sources. Yet where does this food go once it leaves the terminal? A network of retail outlets further distributes the city's food supply from wholesale sources. From small retailers to supermarket chains, how much of it ends up in the largest supermarkets - the Loblaws and Metros - of the city?

The modern food retail economy is comprised of supermarkets, big-box stores, independent grocers and farmers' markets. It seems like every retail provider is selling food these days, from the dollar store to the drugstore. As a capital-intensive business, not all retailers are able to employ their own network for food distribution. Thanks in part to government ventures like the Ontario Food Terminal, independent retailers are able to survive in the highly aggressive industry and provide the competition necessary to keep big supermarket chains from taking over the market entirely. Their exposure to a range of high-quality, low-cost produce allows them to pass cost savings down to consumers and permits them to maintain smaller retail stores located closer to customers.



2.03 Distribution of origin for the fresh produce found at an average grocery store, October.

● = 5 Products

2.1 THE OLIGOPOLY OF CHAIN RETAILERS

The supermarket has drastically changed consumers' relationship to food over the last century. Consumers, initially drawn to supermarkets because of their efficiency and convenience, can find everything required in assembling one, or several, meals at a time in one place. Since grocery stores started to replace open-air markets, the grocery aisles have evolved into complicated 'who, what and where' maps of our contemporary food culture. The average store carries between 30,000 and 40,000 food products (Elton 2010, 146).

Food retail is an oligopolistic market dominated by a few corporate players. These chains have spent decades establishing an industry of exclusivity by creating their own networks of food distribution and forging relationships with international producers who are able to supply consistent food products on a seasonless basis. Over 60 percent of Ontario's food retail industry is controlled by supermarket chains (Bird 2001, 14). In Toronto alone, over half of the foods in the city stream through three corporate providers: Loblaws (Weston), Metro (formerly A&P), and Sobeys (Empire). The large chains are highly competitive and offer little diversity from store to store.

These grocery monoliths have the capital and sales infrastructure necessary to build and operate their own wholesale produce facilities. They use their facilities exclusively to supply their retail stores and shovel huge amounts of money into logistics and supply-chain research. Streamlining methods of supply chain distribution save these national companies millions of dollars per year. As a result they employ their own fleet of transport trucks and distribution terminals to move food from global suppliers to their network of retail stores. Most often they choose to bypass local producers and local distribution networks, like the Ontario Food Terminal, in the process. Bruce Nicholas, manager of the Ontario Food Terminal, estimates that about 10% of the produce at the terminal ends up in chain retailers like the Loblaws and Sobeys of the city who use it as a supplement to their own produce when a shipment shows up late or with quality issues.

Big box retail giants - the Costcos and Wal-Marts of North America - have also claimed their share of the food chain, able to entice customers with volume sales at discount prices (Belanger 2008,



2.04 Supermarkets are starting to stock more local products in an attempt to satisfy consumer interests. A large part of this initiative can be credited to Foodland Ontario, a government established consumer promotion agency whose main objectives over the last thirty years have been to create relationships with regional producers and promote local, seasonal products to consumers.

210). Big-box companies each possess their own incredibly complex distribution network that is used to transport everything from strawberries to flat screen televisions, and have essentially commoditized food products in the same way that they do hair products and athletic shoes. Their produce selection is often very limited and entirely globally sourced. Big-box retail stores are most prolific in suburban areas where consumers are vehicle-dependent and able to accommodate larger purchases associated with this method of shopping. In suburban areas, chain grocers and big-box stores represent the majority of food retail outlets. Almost every day one new box store opens across America (Peled 2001).

Nevertheless larger urban centres have created a model for food retail in the core that promotes small-to-medium sized businesses (Belanger 2008). The model is based on government-controlled, centralized wholesale food distribution whose goal is to provide a competitively priced supply of high-quality fresh fruit and vegetables for retailers to stock in their stores. These public-private ventures, such as the Ontario Food Terminal Board, were put in place to keep retail giants from taking complete control of the food retail market. The Ontario Food Terminal is a non-profit government agency that allows any incorporated individual - anyone with a business number - to purchase food from the terminal.

2.2 INDEPENDENT RETAILERS AND THE ROLE OF WHOLESALE MARKETS

In Toronto's Kensington Market neighbourhood, independent grocers (small-to-medium sized businesses) far outnumber corporate chains. The neighbourhood's urban 'hippie-chic' retail philosophy caters to a specific demographic that is interested in the natural local foods that the area has become known for. Most of the retailers in the neighbourhood obtain the majority of their produce inventory from the Ontario Food Terminal; the rest is sourced directly from local farmers. Having access to a diverse range of high-quality, low-cost, fresh and predominantly local produce at the Ontario Food Terminal has enabled them to price their products competitively with their corporate chain competitors as they pass their cost savings down to consumers.

Stores like those found in Kensington Market are able to compete with large, capital-intensive supermarket chains that have their own distribution networks because of wholesale distribution facilities like the Ontario Food Terminal in Toronto. The non-exclusive nature of the terminal allows it to supply most of the small-to-medium grocers, artisanal shops and independent restaurateurs of the city. The competition facilitated by the terminal is essential to Toronto's diverse and vibrant food retail economy.

Local businesses contribute more to the local economy than national corporations. A 2004 report done by the Andersonville Study of Retail Economics found that for every \$100 spent at local stores in Chicago, \$68 was contributed back into the local economy. In contrast, only \$43 was contributed back for the equivalent spent in a chain store. Additionally, for every foot of retail space, a local company generates \$179 compared to a chain's \$105 (Civic Economics 2004, 3). In an area like Kensington Market, which has 16 independent grocers and over 20 independent restaurants, local businesses are vital generators of economic impact and growth.

Without facilities like the Ontario Food Terminal, it is difficult to speculate whether independent retailers would be able to survive against larger retail chains and big-box stores, even in highly urban areas. Due to the nature of the terminal's public-private ownership policy, the independent retailers

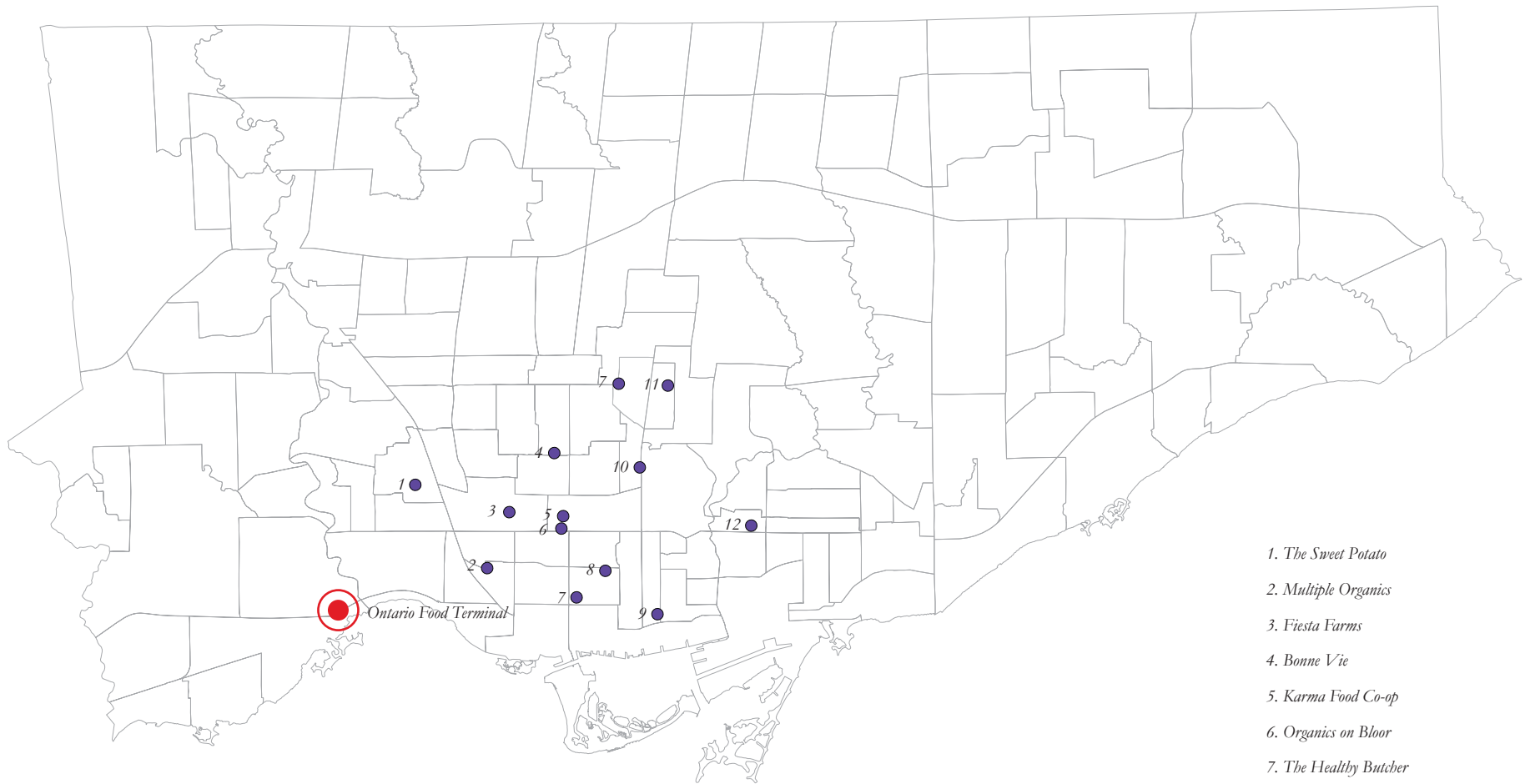


2.05 A poster from a wholesale terminal in the early half of the twentieth century.

of the city are able to provide real value competition for the large chains in the produce retail market (Bird 2001, 15). If the Ontario Food Terminal were to cease functioning (or become privatized) its retail customers would be less able to provide maximum value to customers. Wholesale tenants would no longer be able to pass their savings - in the form of government-controlled rents and shared capital expenses and facilities - to the retailers. Eventually wholesale prices would go up, food quality would go down and independent retailers would be forced to charge more for less to consumers. The larger corporations would ultimately absorb the smaller players who are unable to price their produce competitively.



2.06 Independent grocers line both sides of the street in the Kensington Market neighbourhood.



1. *The Sweet Potato*
2. *Multiple Organics*
3. *Fiesta Farms*
4. *Bonne Vie*
5. *Karma Food Co-op*
6. *Organics on Bloor*
7. *The Healthy Butcher*
8. *Viva Tastings*
9. *Golden Orchard Fine Foods*
10. *All the Best Fine Foods*
11. *Culinarium*

2.07 A map locating independent food stores that stock almost solely local products in Toronto. These stores have been crucial in bringing local agricultural products into the city.



2.08 Producers at St Lawrence's North Market hand out samples and give explanations of their products. To some farmers the marketing involved in selling their products is the best part of the job. To others, it is a hassle—unnecessary time away spent from the farm.

2.3 FARMERS' MARKETS AND THE PLIGHT OF THE PRODUCER

Until the early twentieth century, farmers' markets were the most popular method of food shopping. All of this began to change as an early food regime, located predominantly in Britain, saw the creation of a network that,

“...was characterized by a new system that sourced cheap food from the colonies - sugar and tea from the tropics, wheat from Canada, animal products from Argentina and New Zealand - for Britain's urban population, which was growing rapidly during industrialization.” (Elton 2010, 149)

After the Second World War, a second regime of mass-produced food for widespread urban consumption took hold to create the basis of the modern grocery network. Recently a new dual regime has started to solidify, according to Harriet Friedmann, a professor of sociology and fellow at the Centre for International Studies at the University of Toronto. One is a global food network controlled, for the most part, by supermarkets. The other, newer, system starting to emerge is based on a more diverse 'grass-roots' regional approach to food distribution (Elton 2010, 150).

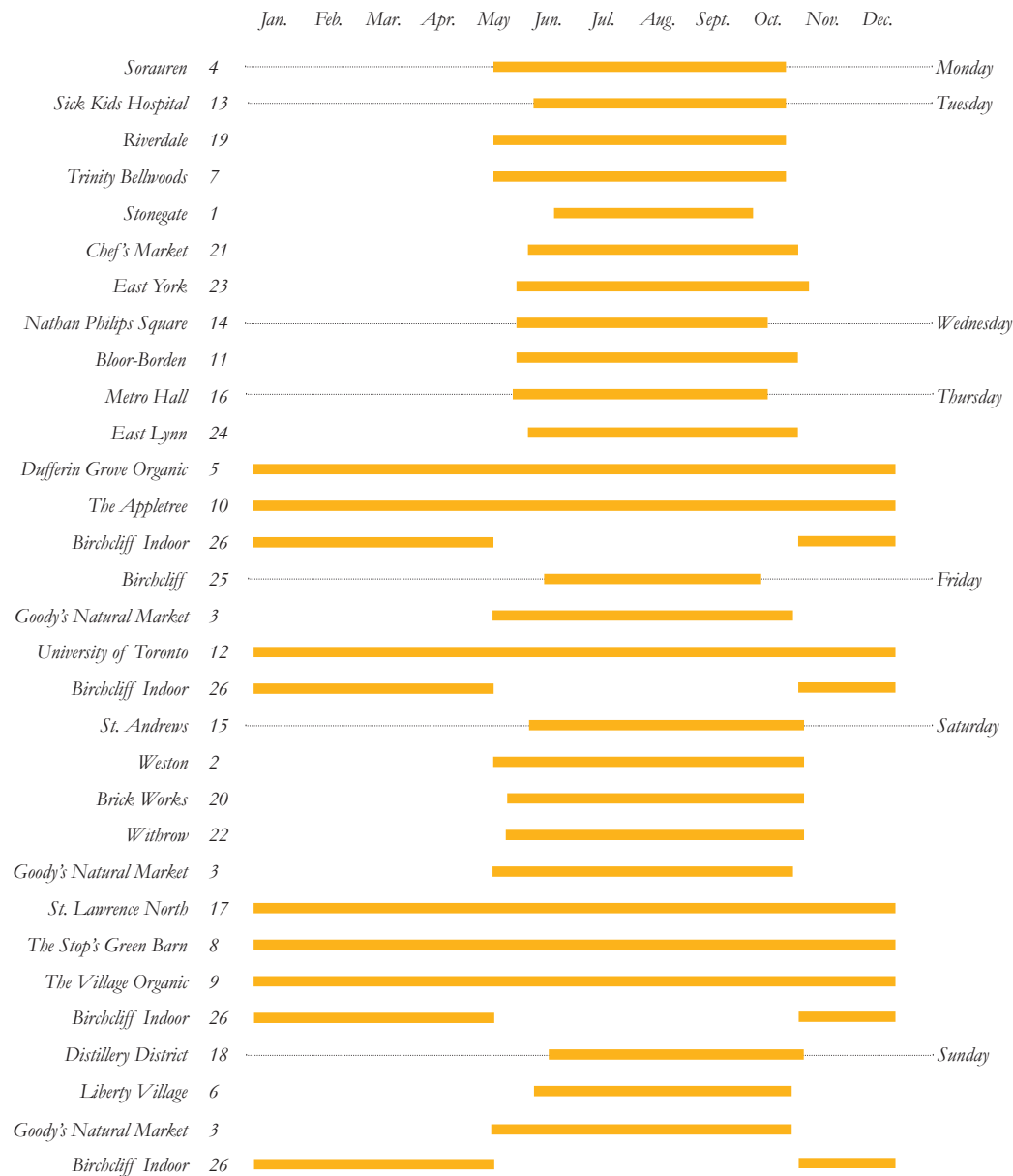
Thanks to this new regional system there has been an explosion of local food support and farmers' markets are going through a resurgence. Over the last decade new farmers' markets have opened up in every corner of the country and local food and farmers' markets are being written about in books like *The 100 Mile Diet*, by Alisa Smith and J.B. MacKinnon, which bring more awareness to the task of local eating. In Toronto alone, there are now almost 30 markets open on a seasonal or annual basis.

Economically, it is hard to argue that farmers' markets do not benefit the local economy. Farmers' Markets Canada reported that the market industry contributed \$1.03 billion in annual sales and another \$2.06 in distributed benefits to the economy in 2008. Furthermore 55 percent of market vendors reported that they were able to create an additional one to five jobs in the local economy.

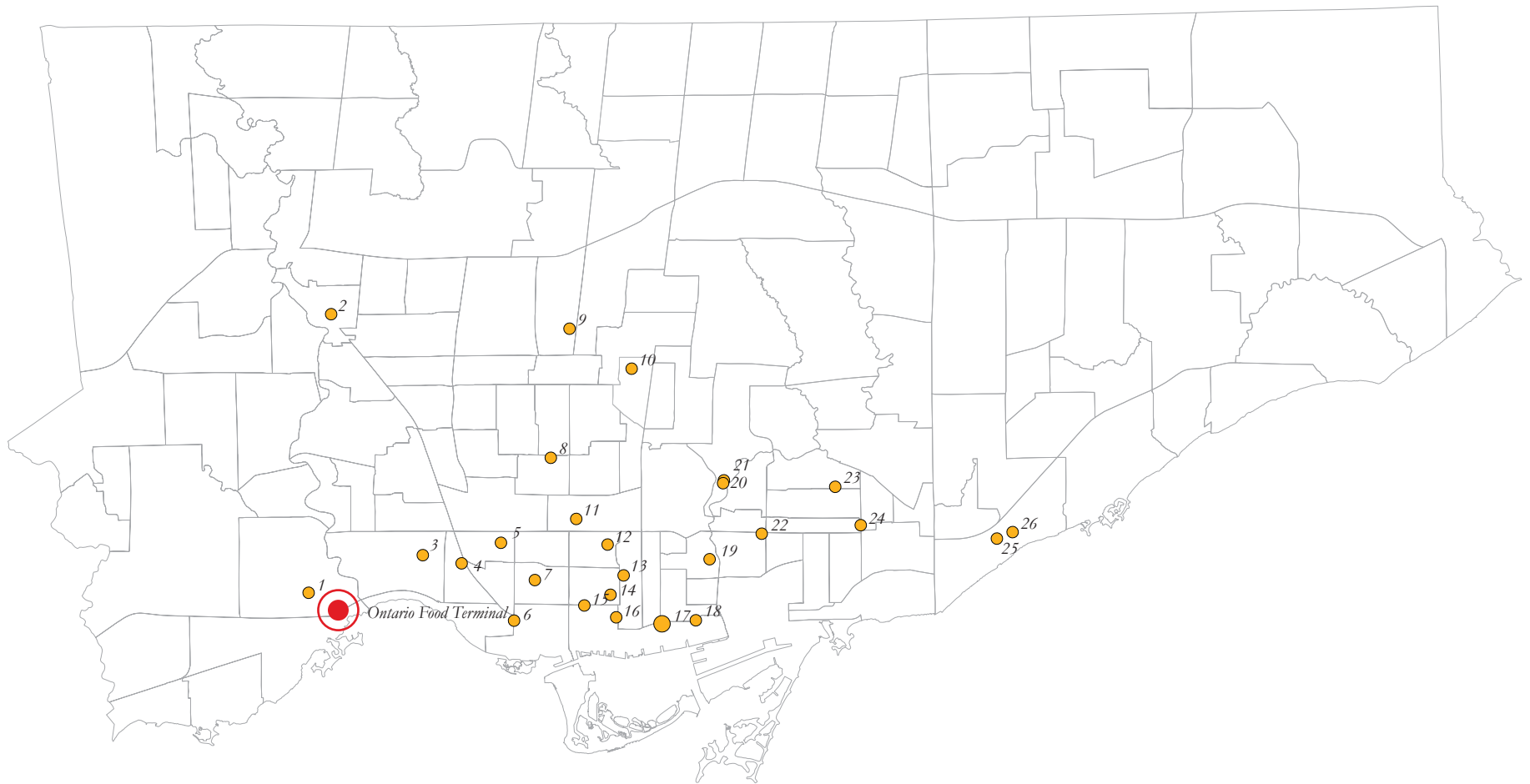
Yet farmers' markets do not generate the economies of scale needed in order to sustain the local agricultural industry. Though shoppers spend an average of \$32 per visit, the produce sold there is often supplementary to weekly grocery store purchases (FMC 2009). According to Rich Pirog, a

researcher at the Leopold Centre at Iowa State University, only 1.5 percent of fresh produce sales come from enterprises such as farmers' markets. Farmers can make up to \$1,000 a day at some markets, but doing so also takes them away from the farm where their attention is needed (FMC 2009). Additionally, not all farmers are good at marketing their own products, and find it tiresome to attend markets regularly.

Farmers' markets cater to a specific demographic of people who are willing to pay more and go out of their way for local food products. The reality is that these products are too expensive for the average consumer to eat on a regular basis. Yet at the Ontario Food Terminal these products are able to compete with global ones because the economies of scale necessary to make a profit are there. Farmers find that selling from the terminal exposes them to a broader range of customers who are able to buy their products in larger quantities. At the same time they are taken away from the farm, and must make up the time lost from being at the market when they return home.



2.09 Schedule of Farmers' Markets in Toronto categorized by season and day of the week.

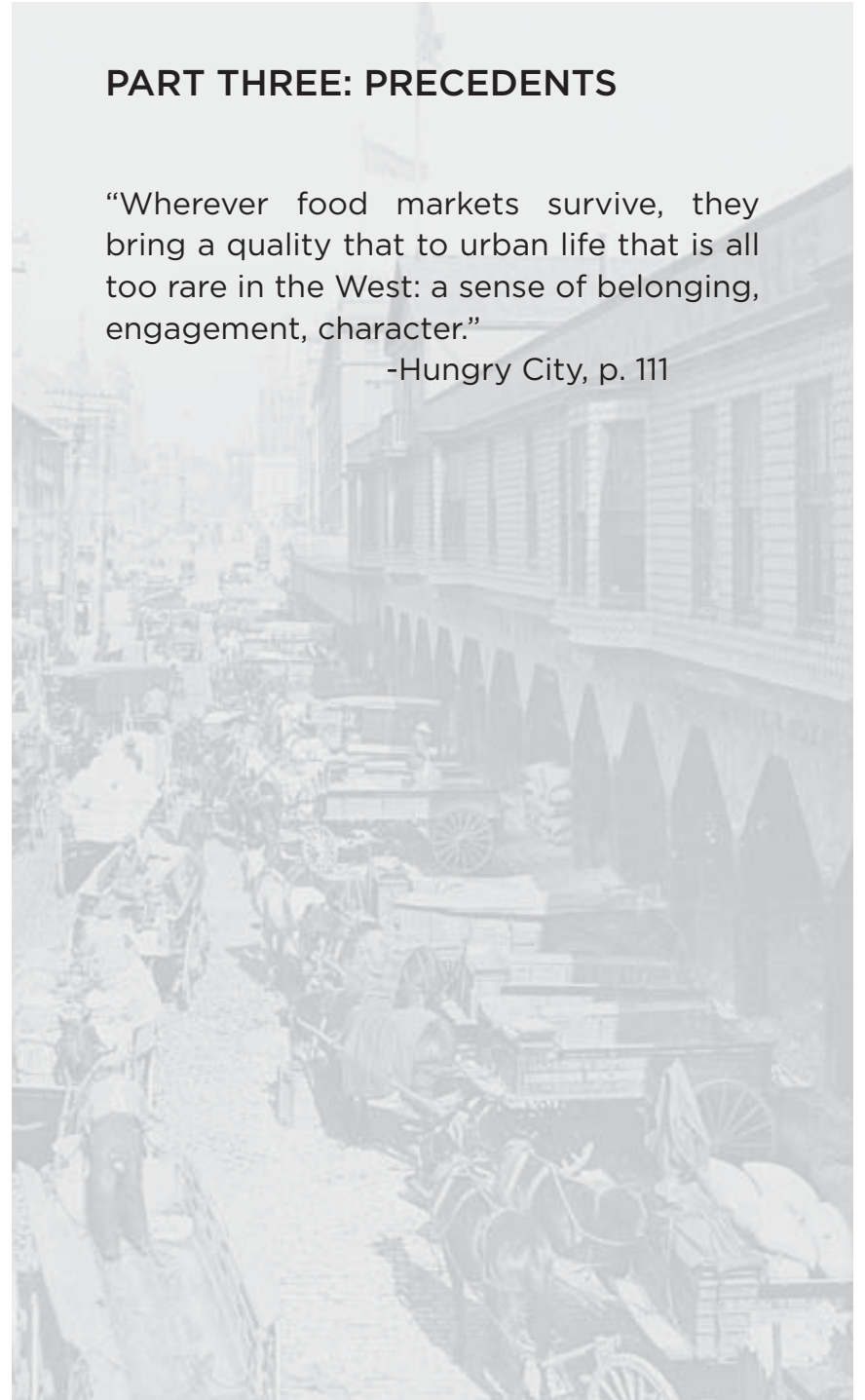


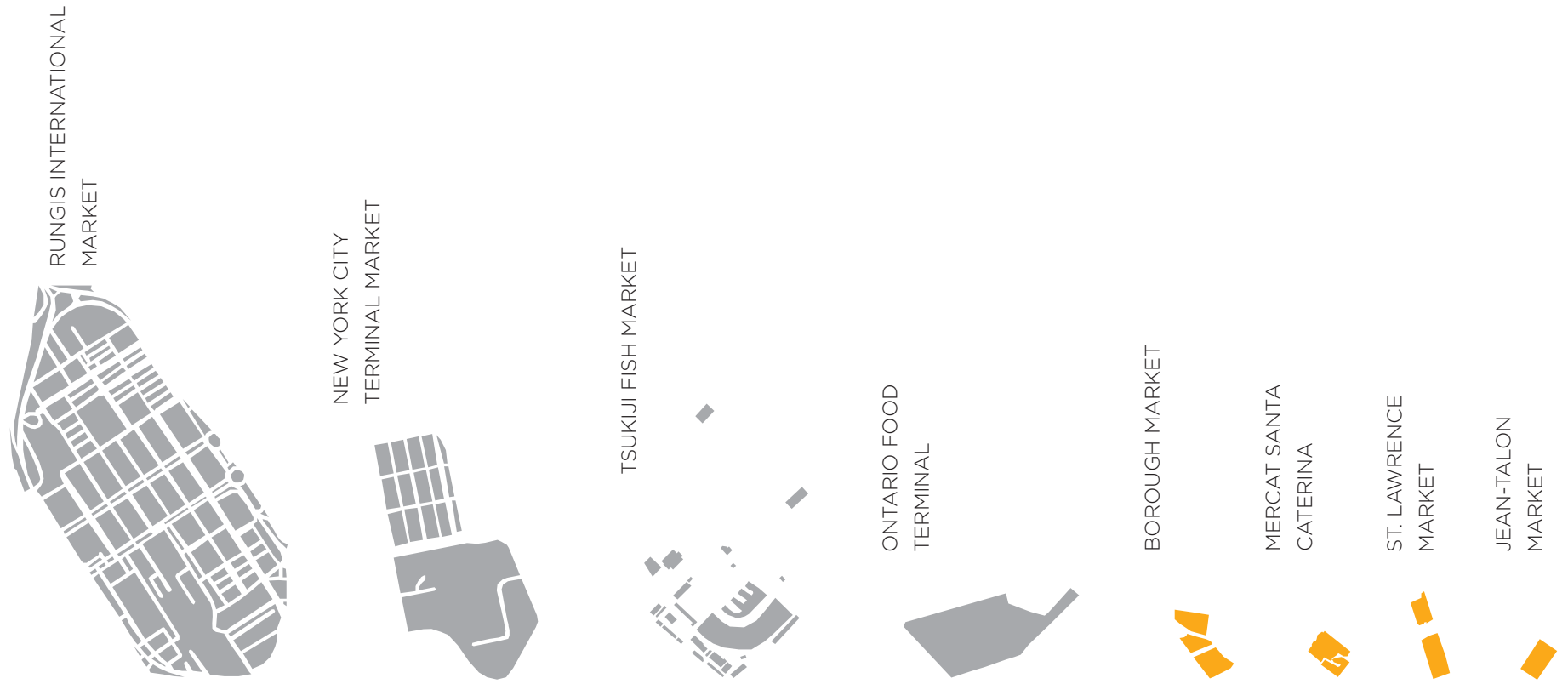
2.10 Dispersion of Farmers' Markets in the city of Toronto.

PART THREE: PRECEDENTS

“Wherever food markets survive, they bring a quality that to urban life that is all too rare in the West: a sense of belonging, engagement, character.”

-Hungry City, p. 111





3.02 The scale difference between wholesale and retail markets is inherently obviously when comparing them side by side.

look to see what is available. Unfortunately it is more difficult for buyers to see individual boxes of produce, and the central aisle can make delivery and pick up more challenging. In that sense, the singly loaded layout of the Ontario Food Terminal is advantageous, as food flows in a continuous line. However buyers must visit each wholesaler individually, making the process of purchasing more drawn out. They are more likely to develop relationships with specific vendors than to navigate the entire market daily.

The inner circle at the Tsukiji Fish Market is a unique auction model, set up to allow the greatest number of buyers to access each product. It is a system that would not work efficiently for smaller items, such as fruit and vegetables, that have little variation across the field, but in the fish industry, where each item is distinctive and worth thousands of dollars, it is ideal.

Wholesale terminal markets are frenzied places, with forklifts, carts and all sizes of trucks zooming around terminal facilities at high speeds. Yet, there is organization to the madness; an inherent hierarchy among the varying scales of transportation that is respected by market workers and patrons. Interior roads are used to connect the various operations on each market site, clearly delineated for specific vehicle types.

Like many logistics centres in our cities (such as airports and seaports) food terminals can almost be understood as cities unto themselves. As such, convenience facilities adjunct to the wholesale premises are necessary to keep the terminal operations running smoothly. Wholesale terminals frequently accommodate restaurants, cafés, cold storage and food processing facilities in addition to the standard mix of loading docks, warehouses and offices (Tangires 2008). Some of the larger ones, such as Rungis Terminal, even employ their own laundering services, post offices and banks.

Consumers are unaware of the intricacies involved in running wholesale markets, often shut out of distribution facilities. Currently, knowledge of these facilities is very limited, and most often negatively associated with big box stores and other large-scale distribution systems. Yet the opportunity exists within these terminals for consumers to learn about the origins and processes that food undergoes before making it to the table.

RUNGIS INTERNATIONAL MARKET, PARIS

Rungis Terminal Market is a massive wholesale food distribution centre, second in size only to La Central de Abasto de la Ciudad in Mexico City. Rungis Market is located seven kilometres outside of Paris, at a crossroad between Orly airport, major highways and rail infrastructure. It is this central location, with its proximity to global infrastructure networks, provincial producers and Parisian buyers, which allows for the logistics required by the complicated distribution terminal. Food deliveries from all over the world are distributed through the market and dispersed to Paris, the rest of France, other European countries and, in some cases, far-off locales like Japan and Dubai (Rungis n.d.). Open 24 hours a day, the market receives and processes deliveries as quickly as possible.

At 232 hectares, Rungis is essentially a self-contained city (Rungis n.d.). Opened in 1969 as the predecessor of Marche Les Halles, it is a complete one-stop food depot housing multiple wholesale markets: fruit and vegetable, meat, seafood, dairy and cut flowers. The Rungis wholesale facility also houses restaurants, cafés, and a laundry service, which allow the centre to operate as a small internal city. A digital video surveillance system monitors the huge site, ensuring that unwanted visitors do not enter the premises.

Nothing at the market is wasted: a programme is in place to collect and distribute unsold, yet edible, products at the end of each day to provide to Paris's neediest citizens. Inedible produce is



3.03 Small motorized vehicles load and unload pallets of produce on delivery trucks.



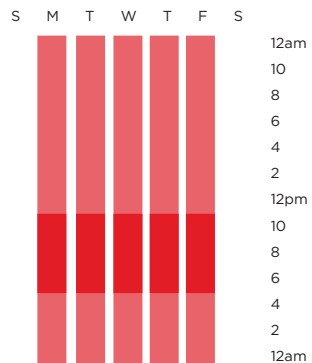
3.04 A worker power washes the market floor after selling is over for the day.



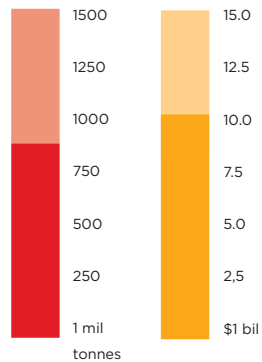
3.05 Context Plan, 1:15000



OPEN HOURS



ANNUAL VOLUME of Produce



3.06 Open Hours and Economic Information

composted and fed back into the system. A sorting and recycling centre deals with leftover packaging (Semmaris 2008).

One of the more interesting aspects of Rungis Market is its apparent transparency. It is one of the few (perhaps the only) wholesale facility that offers an informative website and promotional materials. Perhaps it is this willingness to embrace technology as an educational tool that has made it so successful. The Market has also used technology to pioneer a unique ordering system that does not require buyers to physically enter the market to buy food products (Rungis n.d.).

The lack of emphasis placed on local food products at Rungis is noticeable. For a country that is known for its protectionist food policies (such as the ones regarding Paris's bakeries or French farmers) it would be expected that local food procurement would be a top priority. Though there is a local market at the facility, it pales in comparison to the rest of the facility; perhaps the scale at which Rungis operates makes local food seem insignificant.

NEW YORK CITY TERMINAL MARKET, NEW YORK

Hunts Point Distribution Centre is New York City's major food cluster; a wholesale distribution terminal divided into fruit and vegetable, meat and seafood markets. Its establishment was an endeavour undertaken by the city's government to unite the multiple wholesale markets in the city, providing more efficient modern facilities. With revenues exceeding \$2 billion per year, the New York City Terminal Market at Hunts Point is one of the largest fruit and vegetable terminals in the world (Hunts Point Terminal Market 1997).

The produce market processes and distributes over 3.3 billion pounds of fruit and vegetables per year (Press 2008). Forklifts run 24 hours a day, unloading produce from truck, rail and air cargo. The terminal is well known for the wide variety of items it distributes, due in large part to its proximity to New York's 15 million inhabitants.

Like most wholesale markets, the New York Terminal Market and Hunts Point complex operate a tight security network and are not open to the public. However, a recent move by the former Bronx Terminal Market vendors to the Hunts Point Distribution Centre has led to an overhaul of the market's logistics. The Bronx vendors, mainly local and regional farmers, felt negative business-related impacts of moving from a small-scale operation to the massive Hunts Point location without the support of their regular buyers who were intimidated by the larger market (Keh 2009). Consequently, a new initiative called The Greenmarket has been established, opening up the distribution centre Monday



3.07 Stevedores unload trucks packed with produce boxes before the sun rises.



3.08 Produce is shipped around the site with electric forklifts at Hunt's Point



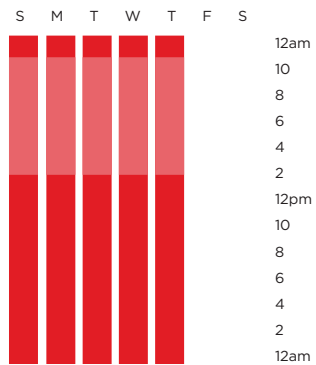
3.09 Context Plan 1:15000



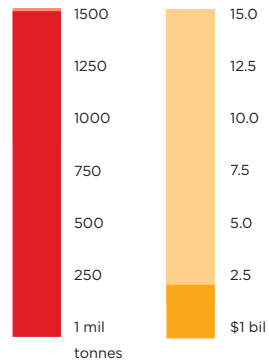
through Saturday to serve small-scale buyers, such as restaurants, schools and bodegas, and also to serve the public (Grow NYC 2010). A large part of the Greenmarket’s function is to facilitate business between wholesale buyers and small- to medium-scale local growers (Grow NYC 2010). This market model suggests the potential to bring diverse stakeholders together, and combine large-scale wholesale with retail in one location.

Though this initiative intended to promote local producers and vendors, its opening hours, which consist of early mornings six days per week, clearly cater to wholesale buyers. The opportunity to create a vibrant public market has been lost. A simple solution to attract more consumers would be to open during the day on weekends when the site’s wholesale market is closed.

OPEN HOURS



ANNUAL VOLUME of Produce



3.10 Open Hours and Economic Information

TSUKIJI FISH MARKET, TOKYO

“A kitchen for 12 million people in Tokyo.”

Tsukiji Fish Market in Tokyo – the world’s largest fish market – has become a landmark for fishermen, wholesalers, retailers, sushi chefs and foreign tourists alike. The spectacle generated by its tuna auction, coupled with the global popularity of sushi and Japanese cuisine, has made it a popular destination in the city. The facility is organized into two rings, a wholesale market in the inner circle and a retail market and shops in the outer circle.

Shaped by its cultural traditions, the vendors, stevedores and auctioneers of today’s market are descendents of the first fishmongers who established the market, passing down ownership through generations. Their level of expertise brings legitimacy to the marketplace and their reputation for the best quality and service in the business, along with the market’s efficient operating system, has proven Tsukiji to be a leader in the distribution of seafood products.

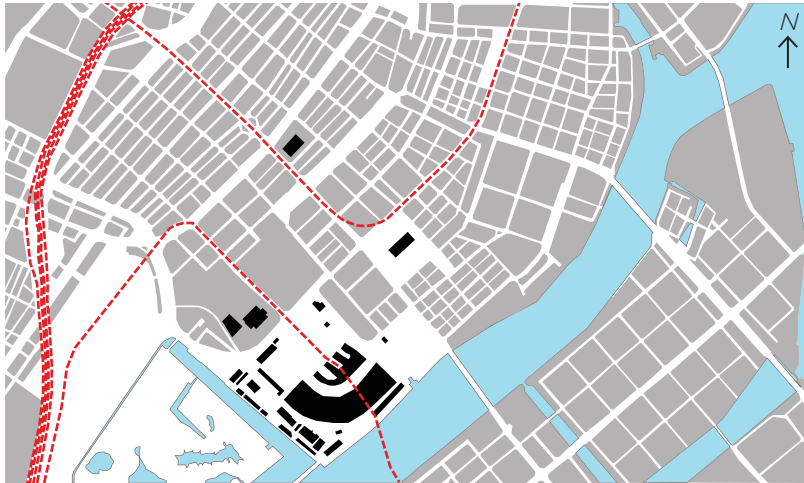
Tsukiji Fish Market is truly a global business; truck, air and marine shipments are received from all over the world. Forklifts and carts distribute products around the floor of the market. The market maintains strict temperature controls over fish storage areas for food safety reasons. Any fluctuations require that produce be disposed of, and the market management often threatens to bar the public if they feel sanitation or trading operations are being comprised. Sprinkler trucks clean the market areas daily after auction and Styrofoam containers are recycled. (Tsukiji Market



3.11 Workers drive fish shipments around Tsukiji on small electric vehicles and forklifts.



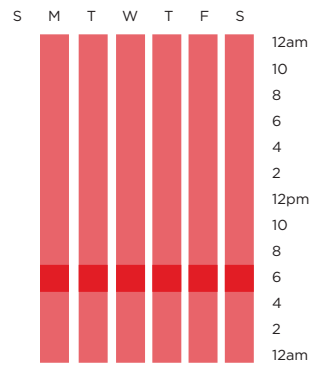
3.12 Buyers inspect the ends of gigantic tuna for quality before the start of auction.



3.13 Context Plan 1:15000



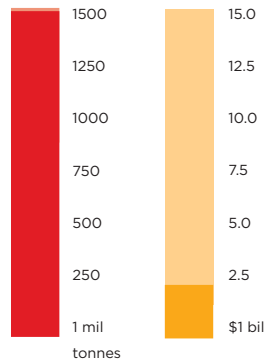
OPEN HOURS



Closed every 2nd & 4th Wednesday of the month

3.14 Open Hours and Economic Information

ANNUAL VOLUME of Produce



Association 1999) The market is able to exist in downtown Tokyo because of these strict sanitary operations.

However, Tsukiji's future is unknown. Japan's modernisation has threatened the market, as more consumers shop at large corporate grocers. From the 1930's until recently, the fish market supplied the majority of sushi-grade tuna to Japan and the rest of the world. Today it accounts for only 11 percent (Whipp 2005). Large grocery corporations, who were once big buyers at Tsukiji, have started to obtain their products directly from the source, employing a more westernized approach to food distribution in the attempt to streamline their operations (Whipp 2005).

Yet the market continues to persevere, capitalizing on the popularity of Japanese cuisine, the markets stellar reputation and its nostalgic heritage to retain workers and draw in tourists. It is these tourists, along with the small-scale buyers who ring the outer circle and populate small restaurants across the city, who are now leading the future of Tsukiji. Its reputation as a purveyor of the highest quality tuna will also keep global buyers vying for its products.

PUBLIC MARKETS

Modern retail food markets are often the last vestiges of former wholesale markets that remain in the city centre. When wholesale markets decentralized and relocated in more suburban areas, the buildings left behind were frequently transformed into retail food markets. Of course not all of these were as lucky – one only has to look at the demolished grandiose spaces of Marche Les Halles in Paris, which were replaced with an uninspired modern shopping centre. The characteristics of those markets that have survived vary widely from city to city. Borough Market in London, for example, still has a small number of wholesale tenants that serve local grocers. However, the majority of vendors are local artisanal producers. As such, the market building has dual operations and is occupied almost 24 hours per day.

The dual markets at St. Lawrence in Toronto are prime examples of the two key types of food markets found in most western cities. One is the farmers' market, ideologically rooted in local agricultural production and connecting the consumer to the producer directly. The other market type is based on artisanal production, with retailers that do not necessarily source local food, but rather the highest quality possible. Though both cater to specific (often similar) demographics, their objectives are different.

These markets range not only in use but also in formality. Farmers' markets are often set up in temporary spaces such as parking lots. 'Stalls' are typically tables, sometimes with an awning or tent structure covering. More formal farmers' markets have dedicated buildings, such as Jean Talons Market in Montréal. Not only is the building used specifically for the farmers' market operations but its architecture has been modified to aid its function. Panels on the sides of the building open and close to navigate the seasons. The most formal markets, like Santa Caterina in Barcelona, can be show-stopping buildings, often with millions of dollars spent on facilities meant to draw in consumers.

In these formal retail markets the logistics that encompass delivery, sanitation and clean-up are often hidden from customers. In this regard it is similar to the supermarket, as vendors assume that



3.15 Public markets, like Paris' Les Halles, were the primary source of fresh food for consumers before refrigeration and modern grocery stores were invented.

customers are not interested in seeing the logistics associated with food distribution. Even at less formal farmers' markets, it is common practice for trucks to unload their produce and park off-site.

Public markets are a vital alternative to chain grocers, bringing genuine artisanal food to the heart of the city. They are constantly evolving, as both seasons fluctuate and consumers become savvier. Carolyn Steel describes the marketplace as a '...manifestation of our overwhelming disconnection with food...' (Steel 2008, 111). It is in these vibrant places that the products take precedence over convenience and cost. Here the consumer becomes aware of the disconnect that has occurred between people and the provenance of what they eat.

ST. LAWRENCE MARKET, TORONTO

St. Lawrence Market is not only Toronto's oldest retail food market, but also its most popular and vibrant. The two components to St Lawrence – the daily South Market and the weekly North Market – cater to specific niches of clientele in the city. The South Market, with established vendors, is associated more with an upscale boutique than a collection of farmer stalls. The vendors there are mainly artisanal producers who have been part of the market for generations and, as such, are intrinsic to the culture of the place. It is a popular destination, not only on weekends but also during the week. Many downtown office workers visit the market for its well-known lunch options. The building itself, though old, has a lot of character, reminiscent of traditional European markets like Les Halles or Borough Market, with soaring interior volumes and classic architectural elements.

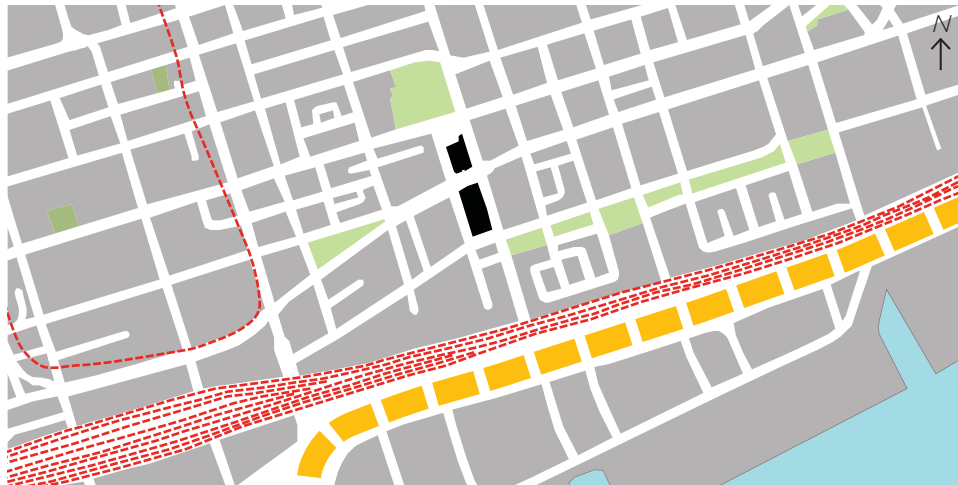
The North Market, a weekly farmers' market, is more utilitarian. The 1960's construction is more evocative of a barn structure than a market. Perhaps it was a deliberate design as it was built to house a farmers' market. The stalls are makeshift, essentially folding tables laid out with produce. The market hosts a diverse range of produce items, from fresh-picked strawberries and tomatoes to artisanal olive oils, jams and baked goods. A few local dairy and meat producers also sell their homemade cheese and meat products. The food there is local, though often supplemented in the winter months.



3.16 The loading docks at St Lawrence Market, located on the south end of the building, front directly onto urban streets.



3.17 The floor of the North market building gets hosed down after hours. Due to extremely limited exterior loading space at the North market vehicles are able to pull directly into the building to load large equipment.

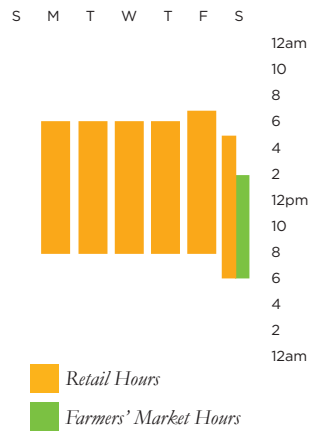


3.18 Context Plan 1:15000



Though St. Lawrence is a popular destination on Saturday mornings when the farmers' market is in full operation, the North building sits empty for the majority of the week. The South Market's weekday hours also make it inconvenient for the city-dwelling professionals who prefer to do their grocery shopping after work. The lack of parking provided on and around the site also limits the number of daily shoppers at the market.

OPEN HOURS



3.19 Open Hours

BOROUGH MARKET, LONDON

Borough Market is an icon within the city of London. It was informally established during the thirteenth century as a gathering place for rural farmers to sell their products. The market's advantageous location underneath London Bridge allowed traders to sell their produce to both North and South Londoners, eventually moving to its current site on the Borough High Street.

Today the market has become a 'haven for anybody who cares about the quality and provenance of the food they eat...' (Borough Market 2009) operating both a thriving retail food market and small-scale wholesale market. The wholesale market operates at night, supplying London's grocers and restaurants with the highest quality fruit and vegetables. By the time the retail market opens, wholesale functions have packed and cleaned up. In this sense, it is a rare example of a market that embraces both retail and wholesale functions.

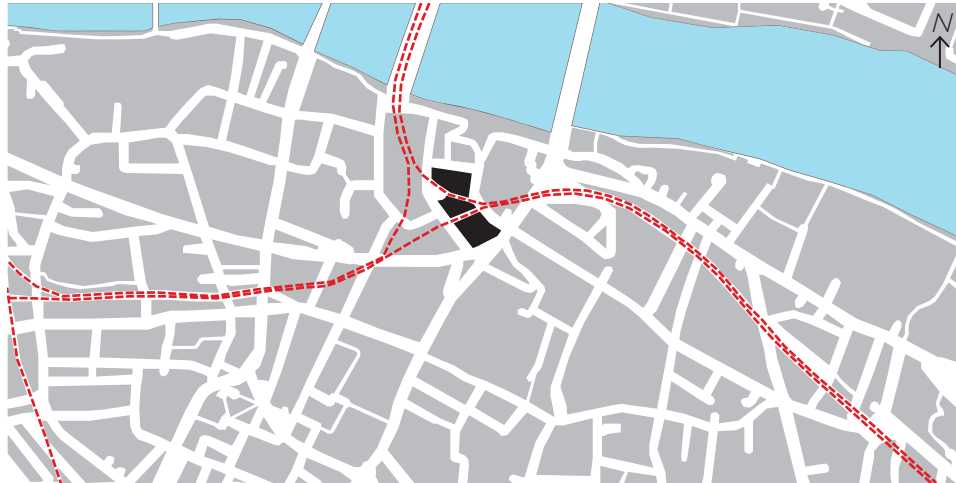
Borough caters to a specific demographic of food-cultured individuals, both local and foreign, who are interested in the wide variety of artisanal products sold there. Though there are a few fruit and vegetable stalls, the majority of vendors are specialty producers who focus on creating specific products that are the best available. Eager to share their extensive knowledge of ingredients, many of the 160 vendors are producers themselves. As such, they are able to create a relationship between the food they produce and their customers. The market also ensures that food products



3.20 The wholesale market of the night makes way for the farmers' market of Boroughs day.



3.21 In the deliveries area, a stevedore on a forklift whizzes around moving pallets of produce.



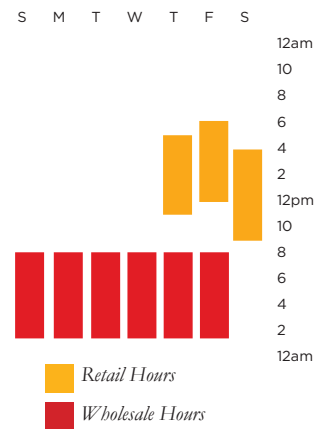
3.22 Context Plan 1:15000



found there are of the highest standard by employing a panel of impartial food quality experts (Borough Market 2009).

Borough Market's major success comes from the fact that, despite being located in a marginal urban condition, tucked under rail lines and a subway station, it has revitalized the surrounding neighbourhood at the same time as maintaining the livelihoods of genuine food trade professionals. It is a place to learn about unique food products that are specific to regions of the country from producers who are passionate about what they produce.

OPEN HOURS



3.23 Open Hours

MERCAT SANTA CATERINA, BARCELONA

Barcelona's Santa Caterina Market was established in 1845 and renovated by EMBT Architects in 2004 (Mercat de Santa Caterina 2004). It is located in an incredibly dense area of the city and surrounded by a mixed group of residential buildings, commercial storefronts and offices. Not only is the new market building an icon within the city, but 'the reconstruction of the Santa Caterina Market - and the architect's related urban renewal plan for the streets around it - bring life and light into one of the worst slums of Barcelona's Gothic Quarter.' (Cohn 2006)

In the new market, interior spaces are congruous with their surroundings. A piazza in front of the market leads visitors inside, pavers continued from the exterior bring the outside in and the colourful, undulating tiled roof is reminiscent of a produce stand. Soaring interior volumes mimic the grandiose ideals of the piazza, creating a heightened sense of importance. It is no doubt that Santa Caterina is one of the world's more showy retail food markets. Everything about it hints at carefully executed, contemporary architecture

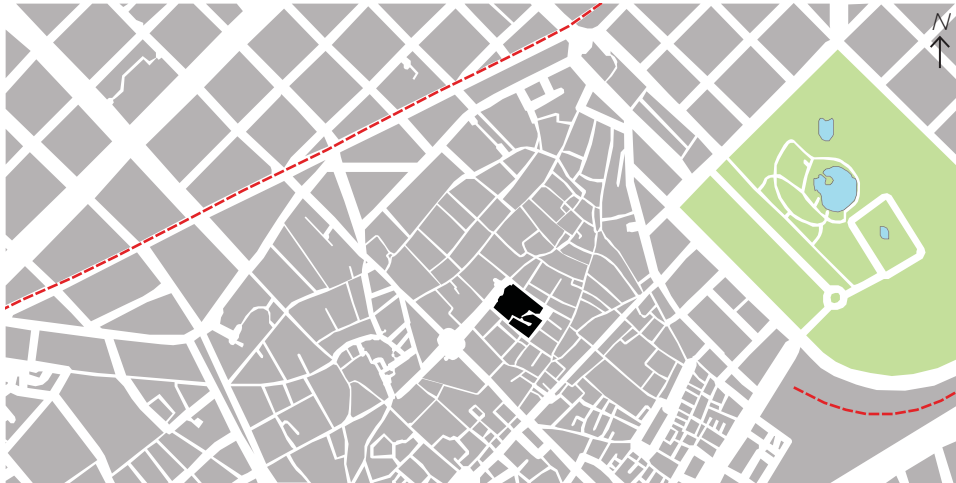
You would be hard pressed to find an article written about the market's food over its architecture, yet sixty market stalls house a variety of food-related products, mixing retail programme with cafés, restaurants and a supermarket (Cohn 2006). During the most recent renovation, modern systems were put in place to deal with product deliveries, processing and clean up efficiently though the urban location continues to make manoeuvring large delivery trucks through narrow streets challenging.



3.24 The iconic roof of Mercat Santa Caterina extends out to a public piazza where city residents meet to enjoy the scenery.



3.25 In contrast, the back end of the market is all business, where the essential activities needed to run the market occur. In this alley the daily deliveries arrive and waste is disposed of.

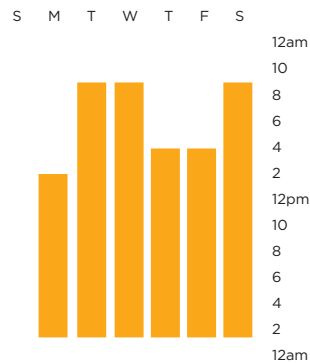


3.26 Context Plan 1:15000



Santa Caterina fails in one major respect in that the market seems to be more about the experience than the food. While its architecture may personify beauty and function, there is very little publicized about the actual products that the market carries aside from its restaurant scene. Though it has a long history of selling food, it seems as if Santa Caterina may be a highly publicized tourist trap instead of a genuine food market in the city. Luckily other markets in the city, like La Boqueria, can fill the need for authentic market culture in Barcelona.

OPEN HOURS



In July, the market is open on Fridays only. In August, it is open only in the morning.

3.27 Open Hours

JEAN-TALON MARKET, MONTREAL

“Every day of the year, country and city meet.”

Marché Jean-Talon, Montréal’s largest fresh food market, has played a vital role in shaping the surrounding neighbourhood since 1932 when it opened in the newly formed Little Italy district (Montreal’s Public Markets n.d.) (Lazar 2003, 215). It is predominantly a farmers’ market known for the diverse range of fruit, vegetables and other food products that vendors sell. Almost all of the food sold at Jean-Talon comes from regional suppliers, who cater not only to the Italian influences of the area, but also provide ethnic products to the varied population of the city (Lazar 2003, 215).

Jean-Talon is a unique building that has hybridized itself over the years, converting from an open-air marketplace into a closed market during the winter months with the use of large panels that wall in the space (Living in Montreal 2008). This works in the favour of the market, as its size fluctuates seasonally and, in the summer months, there can be up to three hundred vendors selling fresh food products, speciality foods and pre-made meals.

The success of the market became a focal point for development in the neighbourhood and the area directly surrounding the market is known for its speciality food shops, bakeries, cafés and restaurants, also mainly of Italian influence. Jean-Talon has helped define the character of the area and is simultaneously, “an intimate part of the neighbourhood and a landmark known throughout the region.” (Project for Public Spaces n.d.)



3.28 Farmers stalls overflow from interior to exterior at Jean-Talon Market during the summer months. In the winter, walls enclose the building.



3.29 An aerial view of Jean Talon Market from 1977 shows its prominent location in the centre of a city block.

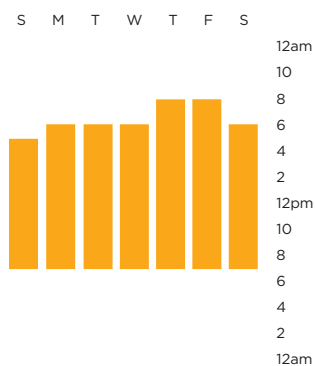


3.30 Context Plan 1:15000



The market's location in a highly urban area poses challenges. It is a constant struggle to manoeuvre large trucks in and out of the site and, as a result, the majority of local producers and vendors are forced to bring smaller loads. The area is also completely off-limits to vehicles on weekends during the summer, posing a problem for wholesalers trying to buy large quantities from the market and surrounding stores (CBC News 2006). However, as a proven successful economic and social generator, not only for the neighbourhood but also the city and local agricultural region, it is likely that Jean-Talon will remain a thriving space within Montréal.

OPEN HOURS



3.31 Open Hours

PRECEDENT TAKEAWAYS

These seven wholesale and retail markets are not merely interesting places to explore. Each reveals different aspects of distribution and retail relationships with the city, its patrons and the products that pass through them. The variety of relationships created give each market unique character and experience. For example, while they are both wholesale entities, Rungis market and Tsukiji have very different and distinct relationships with their users and the surrounding city. Each of them is site-specific and plays a vital role in the local economy.

Though the roles of wholesale and retail food markets appear unique on the surface, their differences are essentially a matter of scale and timing. Both strive to provide good quality fresh food products to consumers at an affordable price, yet the volume of flow and pace of movement are dramatically different. Wholesale markets are highly regulated places of exchange, working at a rapid pace to ensure a consistent food supply for millions of people each day while retail markets move at a decidedly slower speed, encouraging consumers to linger and learn about their food.

Infrastructure too is a point of differentiation between the two types of markets. Retail markets, though frequently housed in large and often celebratory architectural buildings, are more organic in nature and allow for size fluctuations caused by seasonal shifts and other factors. Wholesale markets, though somewhat dependent on seasonally fluctuation, have a much greater network of suppliers and buyers and therefore more permanent infrastructure. They also tend to have a greater number of complimentary systems at work: wholesale sites typically include recycling facilities, compost systems, cold/dry storage and amenities for employees.

There is an almost romantic quality to shopping at food markets, meandering from stall to stall and stopping to make conversations. This applies to both wholesale and retail markets, though the two operate very differently. The appeal of retail markets lies in the ability to ask questions about the products that they purchase directly from the producer. Their informal quality makes the shopping

experience unique from other retail outlets. Wholesale markets are highly regulated warehouses that are all business, all the time, yet there is a sense of pride and kinship among the employees that make going there an enjoyable experience.

Yet there are potential efficiencies in combining retail and wholesale markets, from both the perspective of the farmer and consumer. Like St. Lawrence Market, both a retail and farmers market, the objectives of two market types could be combined to attract a wide variety of consumers and wholesalers to one site.

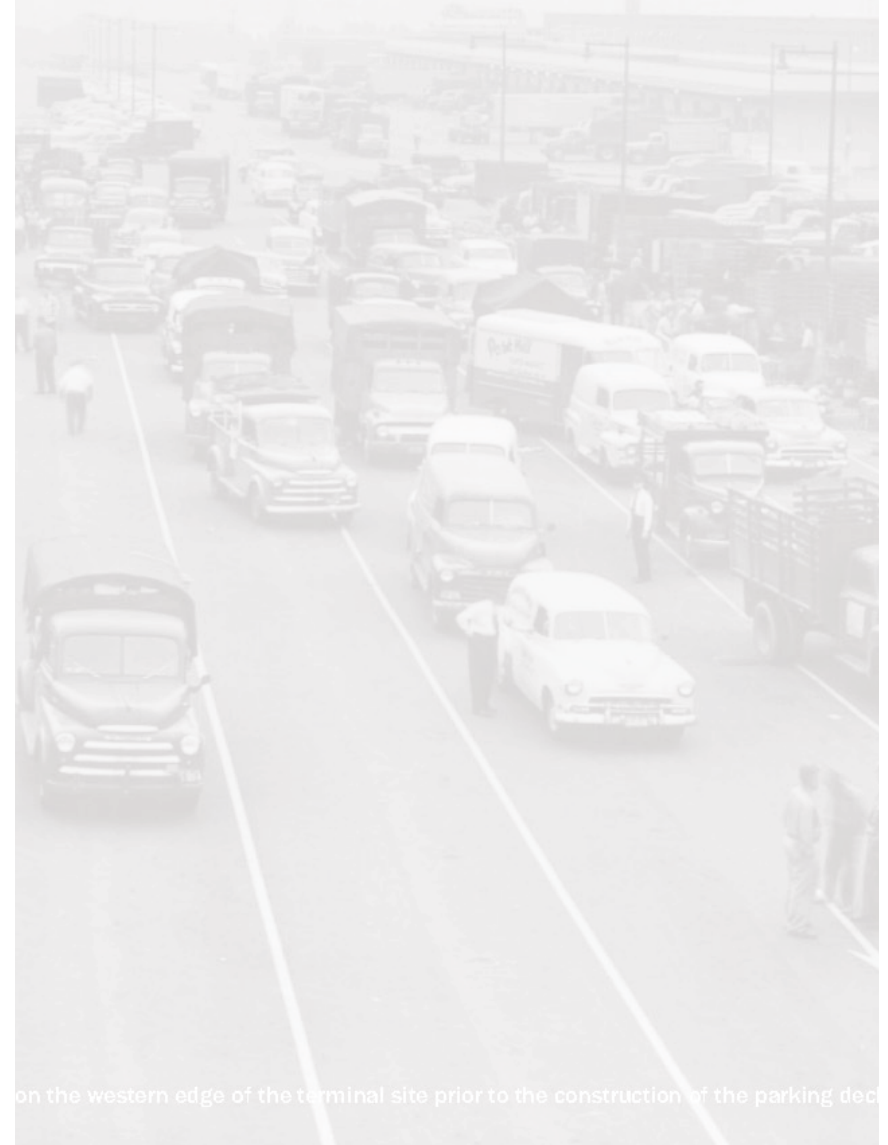
Newer market examples, like the New York's Greenmarket, can be seen as role models for my thesis proposal, which looks at the opportunities available in creating a multi-functional market hub that takes advantage of wholesale quantities, quality and choice and retail convenience and costs to benefit both the producer and consumer in the system.



3.32 On weekdays shoppers at St Lawrence Market are able to easily navigate the aisles. However on the weekend these aisles are so packed with people shopping that it takes almost 30 minutes to get from one end to the other.

PART FOUR: ANALYSING THE ONTARIO FOOD TERMINAL

“Who are they, the people of Toronto, who consume all of this food?” Lister, 2008



on the western edge of the terminal site prior to the construction of the parking deck

SHIFTING BOUNDARIES OF THE CITY

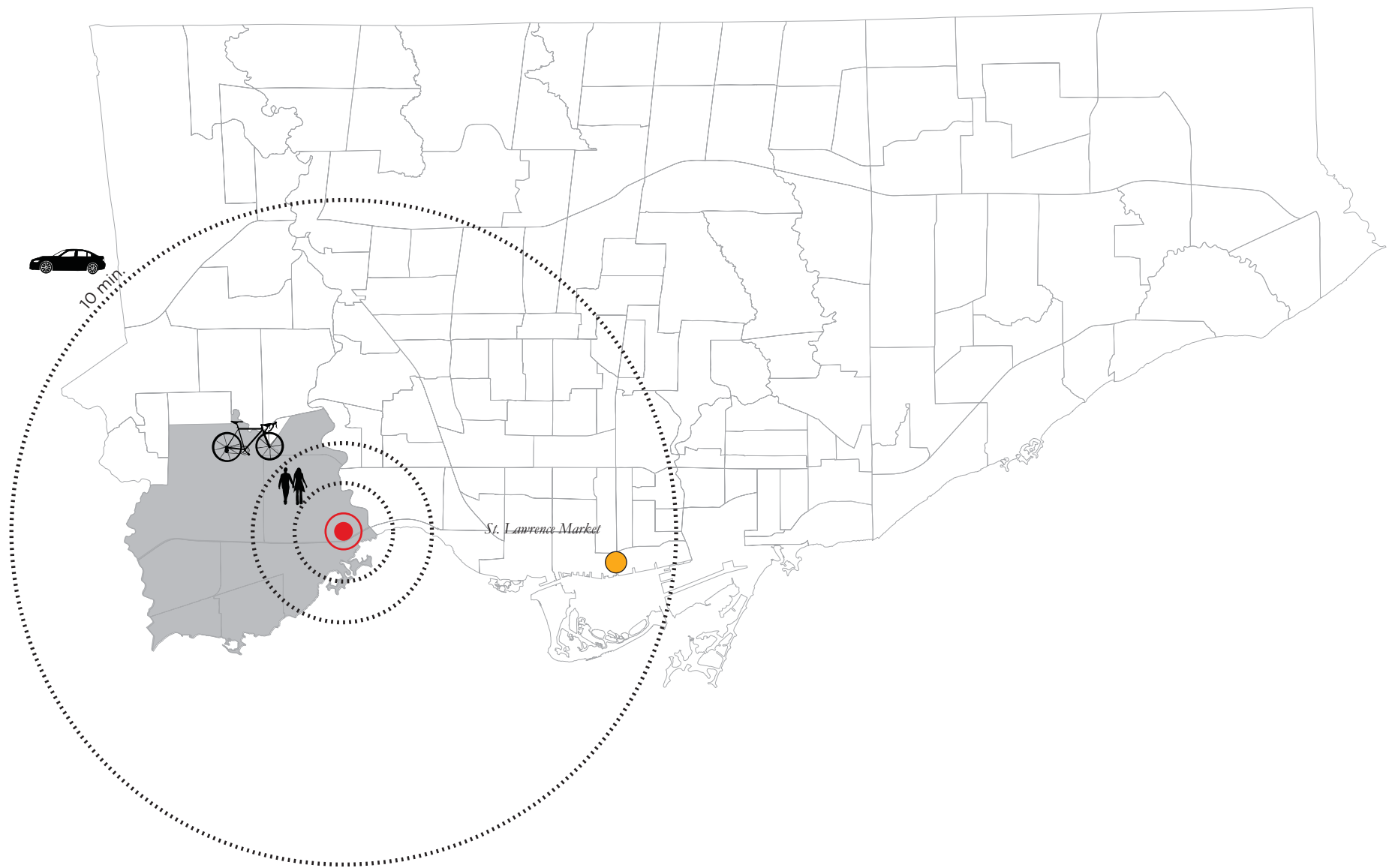
The Ontario Food Terminal is located in Etobicoke, an area of the city that was considered peripheral to Toronto until 1998 when the former municipality amalgamated with it (City of Toronto n.d.). Originally developed as a bedroom community to house Toronto's working class citizens in single-family homes, the region has started to experience an influx of high-rise condominium development and commercial revitalization. This has resulted in more urban conditions and population diversity, particularly along Lake Ontario and the Gardiner Expressway.

South Etobicoke continues to be a mix of residential and industrial uses, with mainly affluent, high-value properties thanks to its waterfront location and proximity to the city. Coupled with its lack of adequate public transportation and dependence on vehicles, the neighbourhood is in flux as it struggles to shake its suburban community image.

The region is also an important food cluster for the province and country, with a large quantity of food and beverage manufacturing facilities situated in proximity to the Terminal. The creation of a defining public market building would bring awareness to this vital industry and generate an identity for the neighbourhood as Toronto's defining food region.



4.01 The neighbourhoods directly surrounding the Ontario Food Terminal are Stonegate-Queensway and Mimico with a combined population of 113 880. See Appendix B for additional information regarding the neighbourhoods.



4.02 Approximately 30,000 people live within walking distance of the Ontario Food Terminal. Almost half of the city lives within acceptable driving distance.

Transportation Networks



- Major Routes
- Minor Routes

4.03 Major highway networks connect the Terminal to important growing regions across North America in order to navigate the seasons of different growing climates and provide fresh food products year around.

“All farm products get trucked at least part of the way to market.” Farming in Canada



- Major Highways
- Minor Highways
- GO Transit Line
- Border Crossing Point
- The Greenbelt
- Concentration of Farms

4.04 Ontario's major highways, connecting to Canada's east and west provinces and the United States, converge at the point where the Ontario Food Terminal lies. Minor highways connect these routes to the provinces major growing regions.

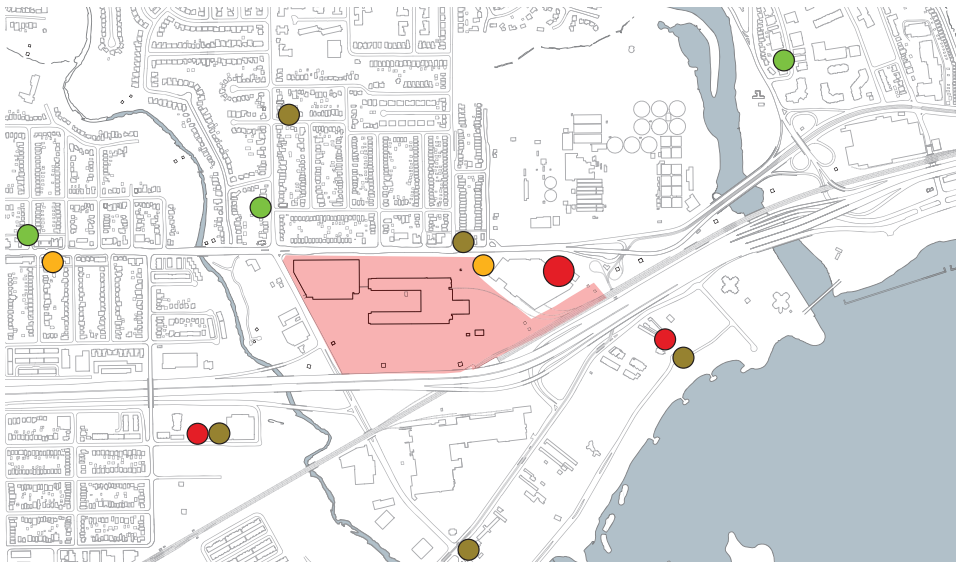


SCALES OF INTERMODAL TRANSPORTATION



4.05 The Ontario Food Terminal site is surrounded by single family homes, condominiums, a few industrial sites and a few clusters of retail/ commercial programme

- Residential
- Commercial
- Industrial
- Public Green Space
- TTC Streetcar



4.06 The Ontario Food Terminal is located in Canada's largest and most vital food cluster, surrounded by multiple other food and beverage companies. Yet the dispersal of supermarkets, speciality food, convenience, and other food related stores selling fresh food products (as opposed to restaurants) in the area surrounding the Terminal is meagre. The number selling local products is even less plentiful.

- Supermarket
- Speciality Food Store (bakery, butcher, etc.)
- Convenience Store (selling food items)
- Other Food-Related Store

The Ontario Food Terminal Site

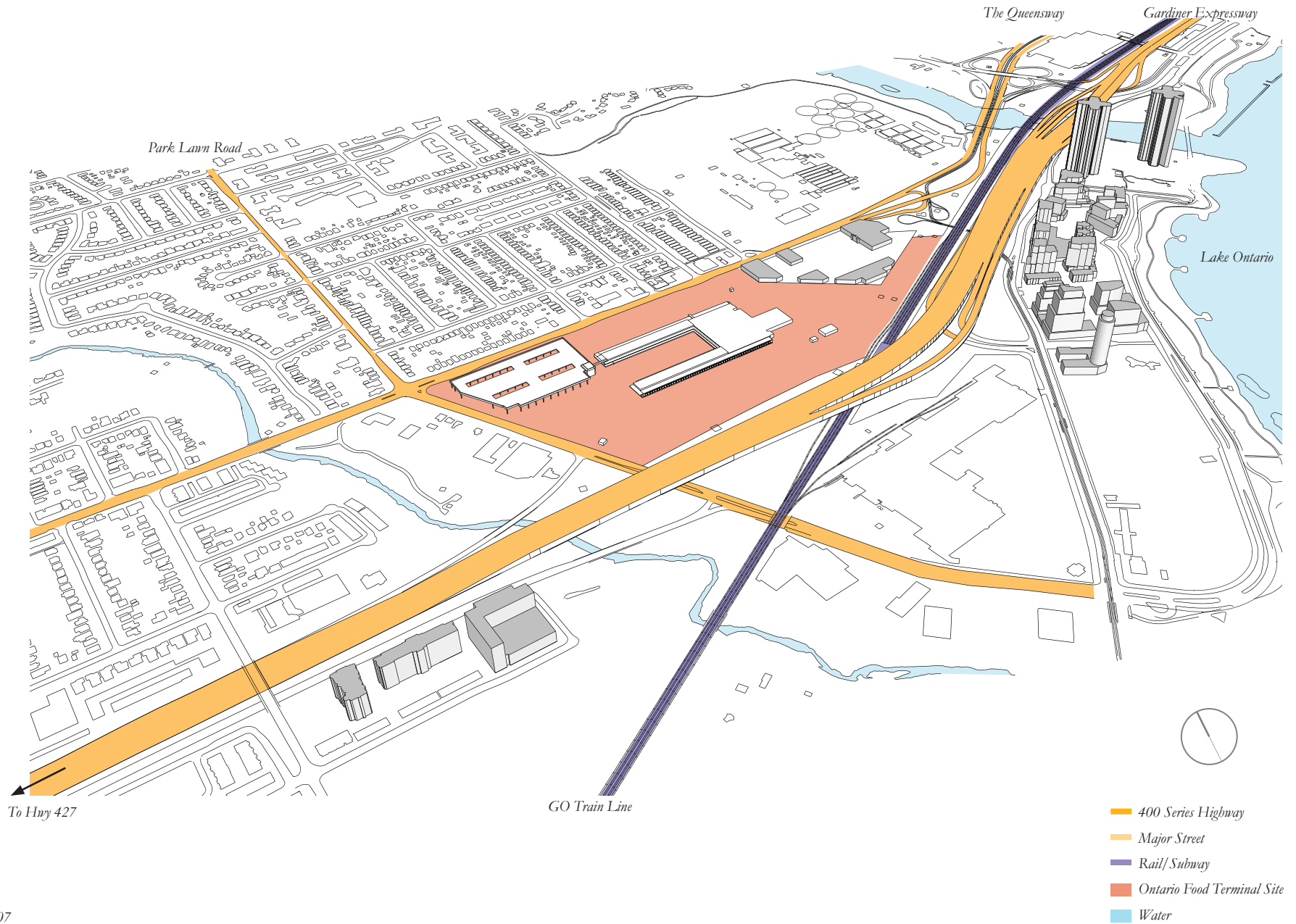
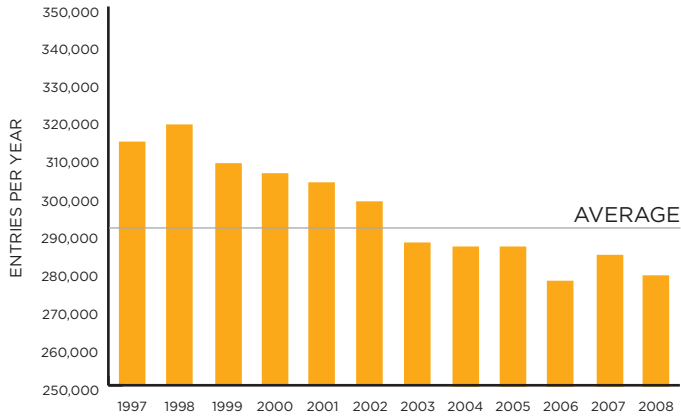


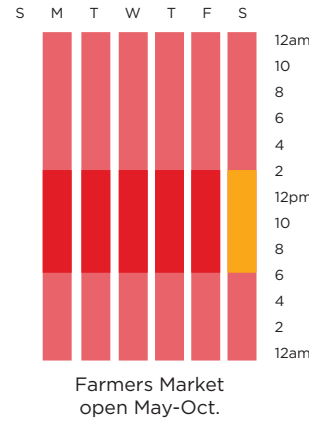
Fig. 4.07

BUYER ENTRIES AT THE ONTARIO FOOD TERMINAL



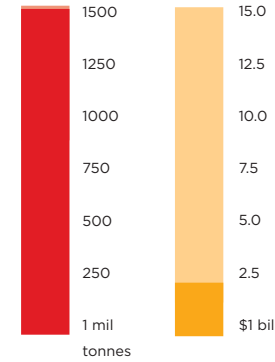
4.08 Fewer buyer entries in recent years may indicate that small businesses are closing or being taken over by larger enterprises. Alternatively, independent grocers may be sourcing food from local producers without going through the terminal due to the recent interest for local goods by consumers.

OPEN HOURS



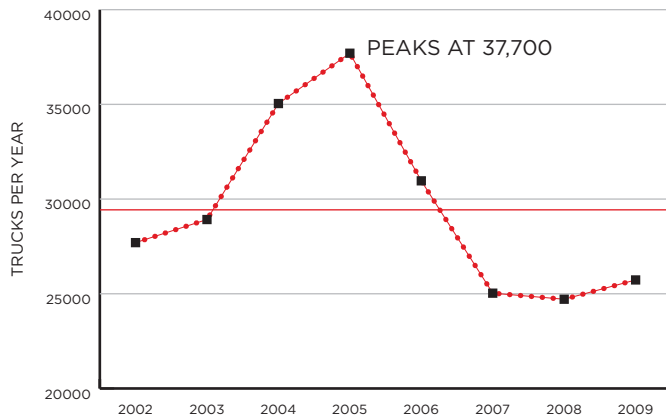
Farmers Market open May-Oct.

ANNUAL VOLUME of Produce



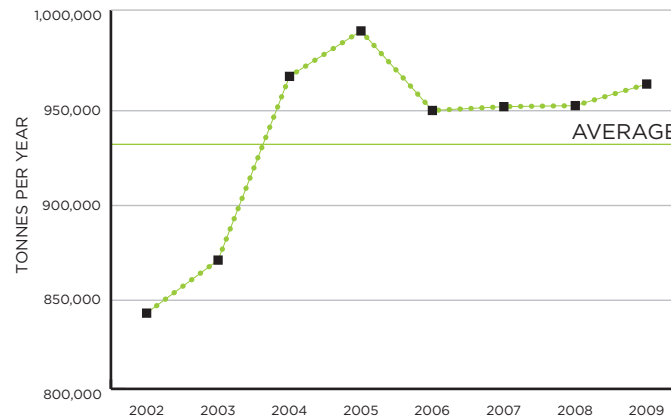
4.09 The Ontario Food Terminal is an important economic generator for the city and region, bringing in over \$2 billion per year. Extended economic benefits are much greater. The Terminal handles a large amount of food for its size in comparison to other wholesale terminals.

TRUCK DELIVERIES TO WHOLESALERS AT THE OFT



4.10 - 4.11 A dip in truck deliveries (and buyer entries) at the Ontario Food Terminal in recent years may be an indication of growth for chain retailers who have their own logistics and distribution network. The annual volume of produce, however, has not dropped as drastically, potentially indicating that fewer trucks deliver more produce.

ANNUAL VOLUME OF PRODUCE



THE STOCK EXCHANGE FOR FRESH PRODUCE

The Ontario Food Terminal is Canada's largest wholesale food distribution centre, a 'stock exchange for fresh produce'. With 22 warehouse tenants and 550 farmers' market stalls. It is ideally located, less than ten kilometres from the city centre, at the crux of the province's main transportation routes. The major highway infrastructure comprised of the Gardiner Expressway, Highway 427 and Highway 401 connects the Terminal to popular agricultural regions in southern Ontario, the United States and Mexico. Pearson International Airport is only a few kilometres away.

Each aspect of the facility is thoroughly controlled and standardized (Belanger 2008). Food is inspected on the way to, and sometimes also at, the Terminal. Transport trucks, vans, forklifts and carts – in a perpetual state of loading and unloading – travel in harmony on regulated circulation routes. The infrastructure has been stripped down to its essentials: buildings are meant for food storage and flat surfaces for circulation.

Everything at the terminal moves in a circular loop system. Nothing is wasted; everything flows back into the system. Food packaging is recycled, unsold food is donated to local food banks, wood pallets are reused and the sludge from the floor is composted (Belanger 2008).

Buying at the Ontario Food Terminal starts long before sunrise, around 2:00 am, and usually winds down around 10:00 am. By 11:00 am, almost all of the farmers have packed up and returned home to resume farm duties. Jobbers (terminal employees) cart the last boxes of merchandise out to trucks; maintenance crew's hose down common areas and wholesalers unload trucks for the next morning's market.

Though there is no doubt that the Ontario Food Terminal is a fascinating place to visit (if you are able to get inside the gates), there are also many opportunities that can be capitalized on by combining retail and wholesale functions both from the perspective of consumers and farmers. From the farmers' perspective, less time spent travelling between markets means more time in the fields.



4.12 The gate at the Ontario Food Terminal is monitored 24 hours a day to prevent non-terminal employees from entering the premises.



4.13 The Farmers' Market operating under a parking deck, which is plagued with deficiencies and constantly in need of repair. Motorized forklifts make deliveries to buyers trucks.

A larger consumer base and more exposure would also increase quantities and profits, allowing them to reinvest money into their businesses to become more efficient. For consumers a market hub means being able to understand the cycle of their food, cost savings, and increased variety.

Creating a market hub gives the possibility for gains in efficiency; reducing the number of intersections that food must travel through results in fresher goods. In economic terms, costs would be reduced as food passes through fewer hands. A market hub would be an ideal location for food-related organizations such as CSA's, food banks and agricultural promotion programmes.

Some of the most interesting moments within the terminal lie in the parts that get revealed to the consumer through their interaction with the site; the routines of the buyers, the language of the trade, and the virtual obscurity of the industry are a few examples. Like the milk storage room that consumers catch a glimpse of in between the blue cartons in the supermarket, the Ontario Food Terminal holds a level of appeal simply because it is off limits. Opening to the public would allow the Terminal to become Toronto's Western counterpoint to the celebrated St. Lawrence market.



4.14 At the Ontario Food Terminal, pedestrian and vehicular paths are clearly delineated (and separated) with signage, painted lines, guardrails and walls to keep traffic flowing properly.



4.15 A parking lot handles overflow from the wholesale farmers' market during the height of the agricultural season. Farmers display their products on metal carts to maximize prime floor space. The remainder of produce is stored in the back of their trucks.



4.18 In tenant units produce is displayed in rows of neatly stacked boxes. Because this food is transported from all over the world it is packed into cases. Most tenants specialize their products, so that one will carry tropical fruits while another will stock solely Canadian products. Buyers know who carries what and plan their trips to the Terminal accordingly.



4.17 A communal loading dock maximizes efficiency by working double duty: during market hours buyers can load their purchases and wholesalers can unload produce in off-hours. They also free up precious tenant floor space for product storage and office operations. Forklifts and motorized carts, used to deliver produce to and from trucks, are shared amenities.



4.16 Lower level storage in tenant units are accessed by private elevator. Being below ground helps regulate temperature, as does the material choice - concrete block and poured concrete construction.



4.19 If it is beyond the point of donation to food banks, spoiled produce is dumped into the on-site composter. An effort is made to reduce the amount of garbage generated through the terminal by composting, recycling, or reusing as much as possible.



4.20 Existing interior road conditions within the main Terminal building accommodate small motorized carts and forklifts on the left and right sides. A central path for pedestrians is marked with guardrails.

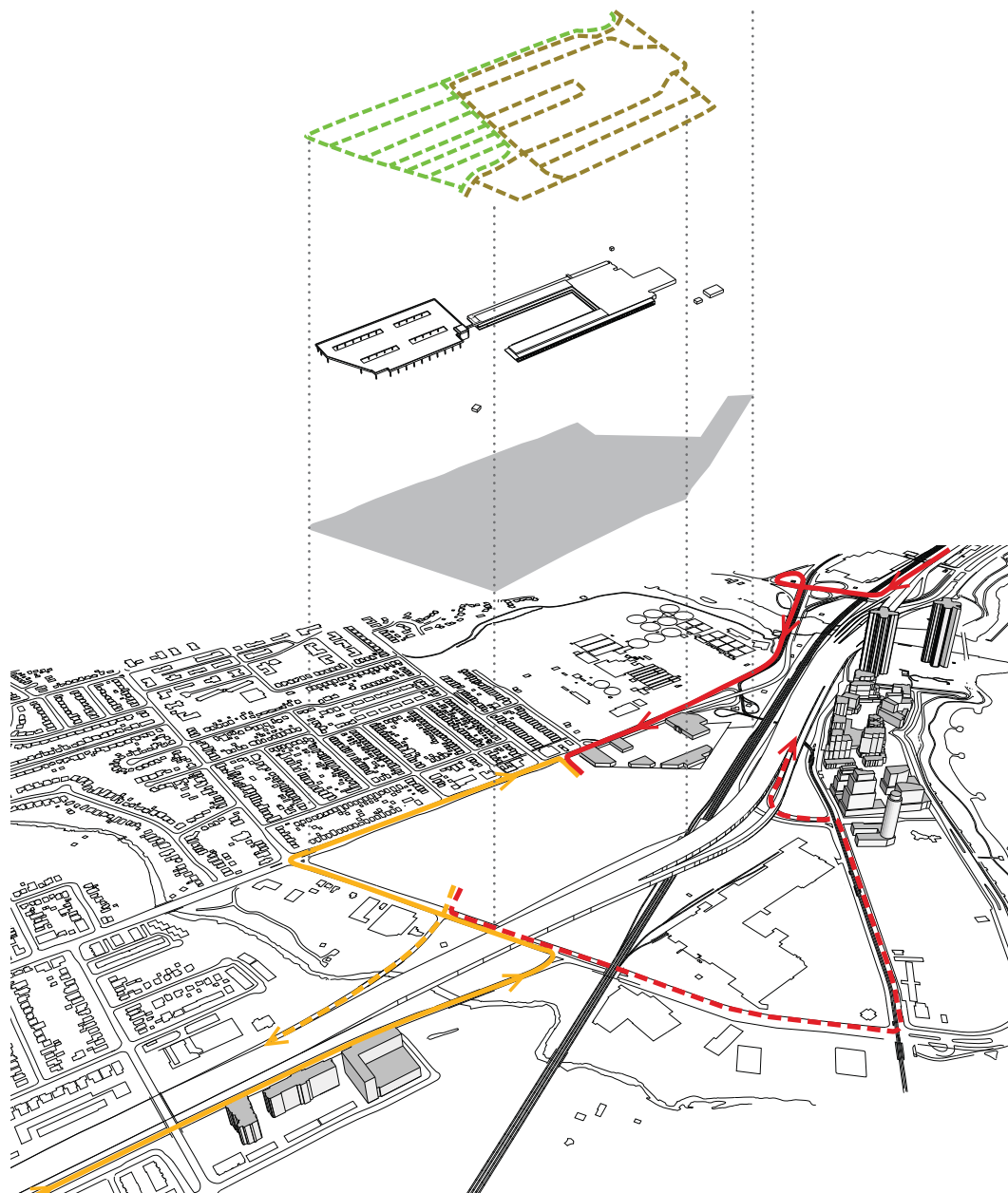


4.21 A common exterior path links the tenant units of the main Terminal building. Signage and barriers indicate travel paths for those who are unfamiliar with the Terminal's layout.

Fig. 4.22 Site Programme



Anatomy of the Ontario Food Terminal Site



Interior Circulation

Interior circulation and parking comprises 61% of the Ontario Food Terminal site. Two distinct loops separate the wholesale and farmers market.

- Farmers
- Wholesale Tenants

Infrastructure

The site's buildings comprise 24% of the site's surface area. They are mainly utilitarian structures designed for the practicalities and efficiencies demanded by the food distribution industry.

Site Boundary

The Ontario Food Terminal site is 182 385m² (40 acres), and has been at capacity since the 1960's. On two sides it is bounded by local roads. One side is bound by the Gardiner Expressway, and the fourth side is bound by a retail plaza containing a pharmacy, bank, some stores and a supermarket.

Entering and Exiting

Entering and exiting the site from adjacent major highways and arterial roads is a smooth process thanks to its prime location.

- From the East
- From the West

Fig. 4.23

Components of the Ontario Food Terminal

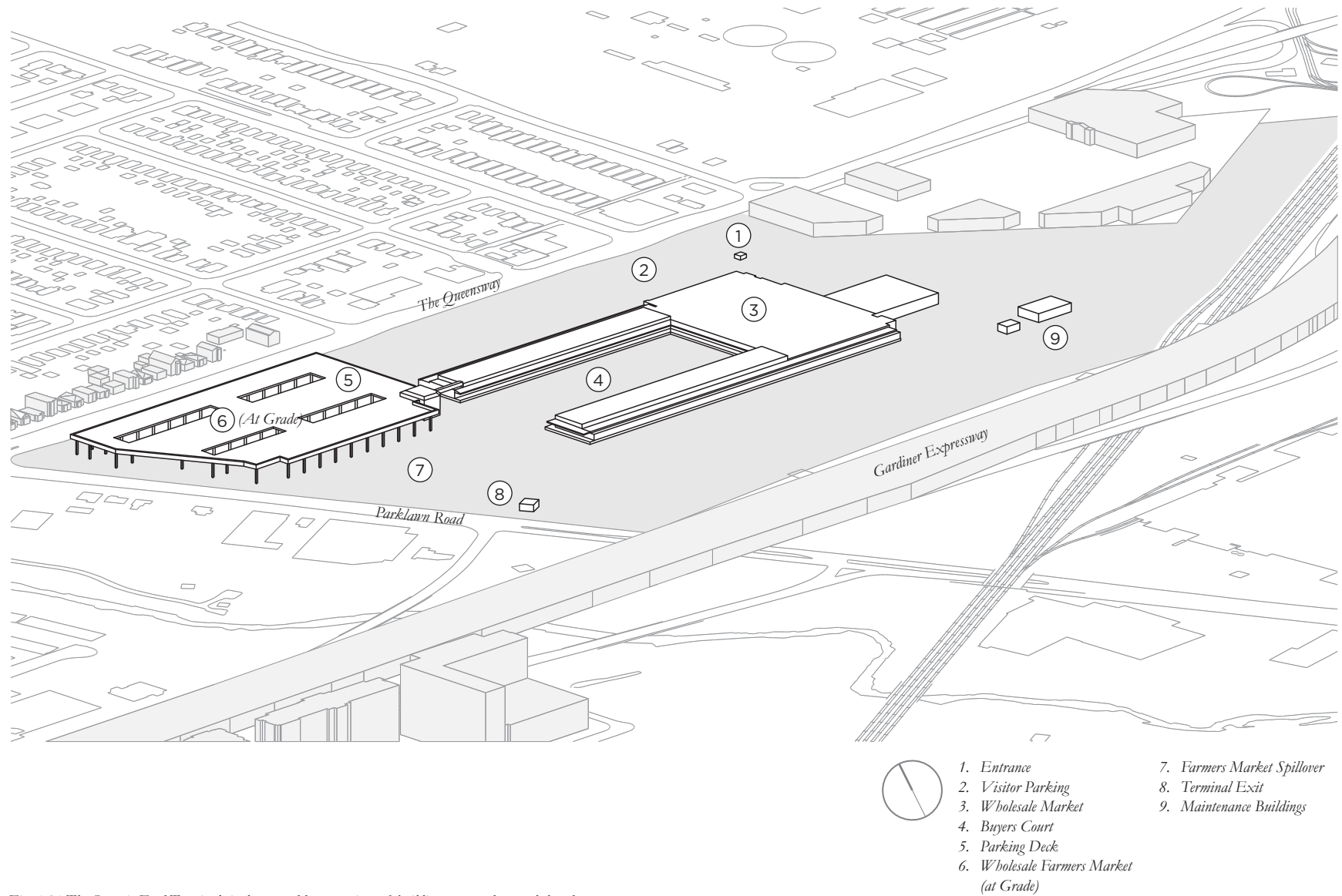


Fig. 4.24 The Ontario Food Terminal site has an ad hoc groupings of buildings scattered around that do not take full advantage of the site's geometry. The buildings themselves are basic industrial structures.

The Wholesale Terminal

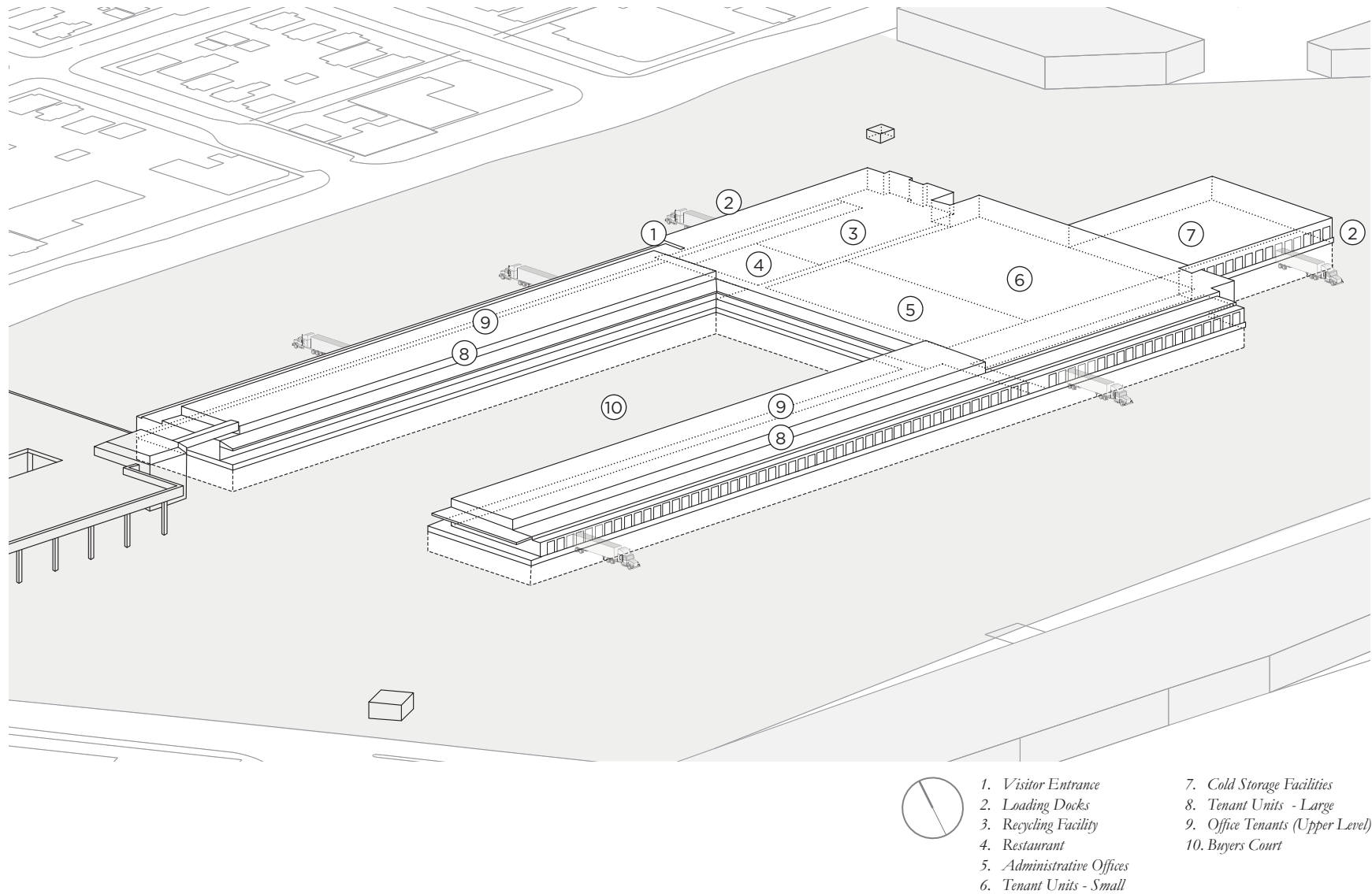


Fig. 4.25 The Wholesale Terminal is a U-shaped building with two arms that extend to form a courtyard called the Buyers Court. It is here that the main exchange occurs between wholesale tenants and local buyers. The building also houses the Terminals' administration offices, tenant offices, a small cafe, cold storage and recycling facilities.

Single Tenant Unit at the Ontario Food Terminal

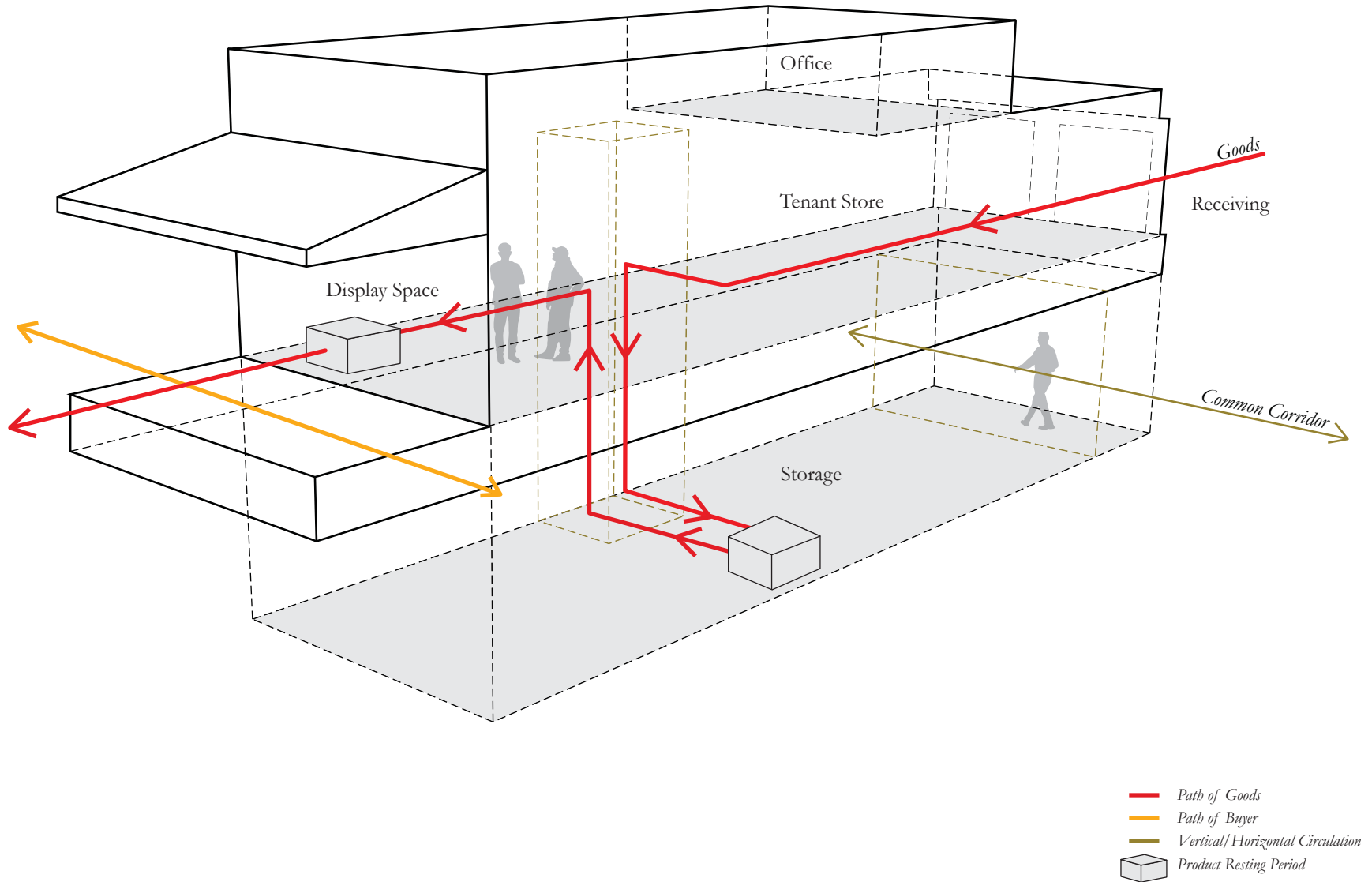


Fig. 4.26 Each tenant unit at the Ontario Food Terminal has its own docking area, storage unit, storefront and office which are linked to one another through an exterior promenade and subterranean corridor. This diagram depicts a typical path of travel for food products from truck delivery through to buyer pickup, stopping momentarily in storage.

Wholesale Distribution Typologies

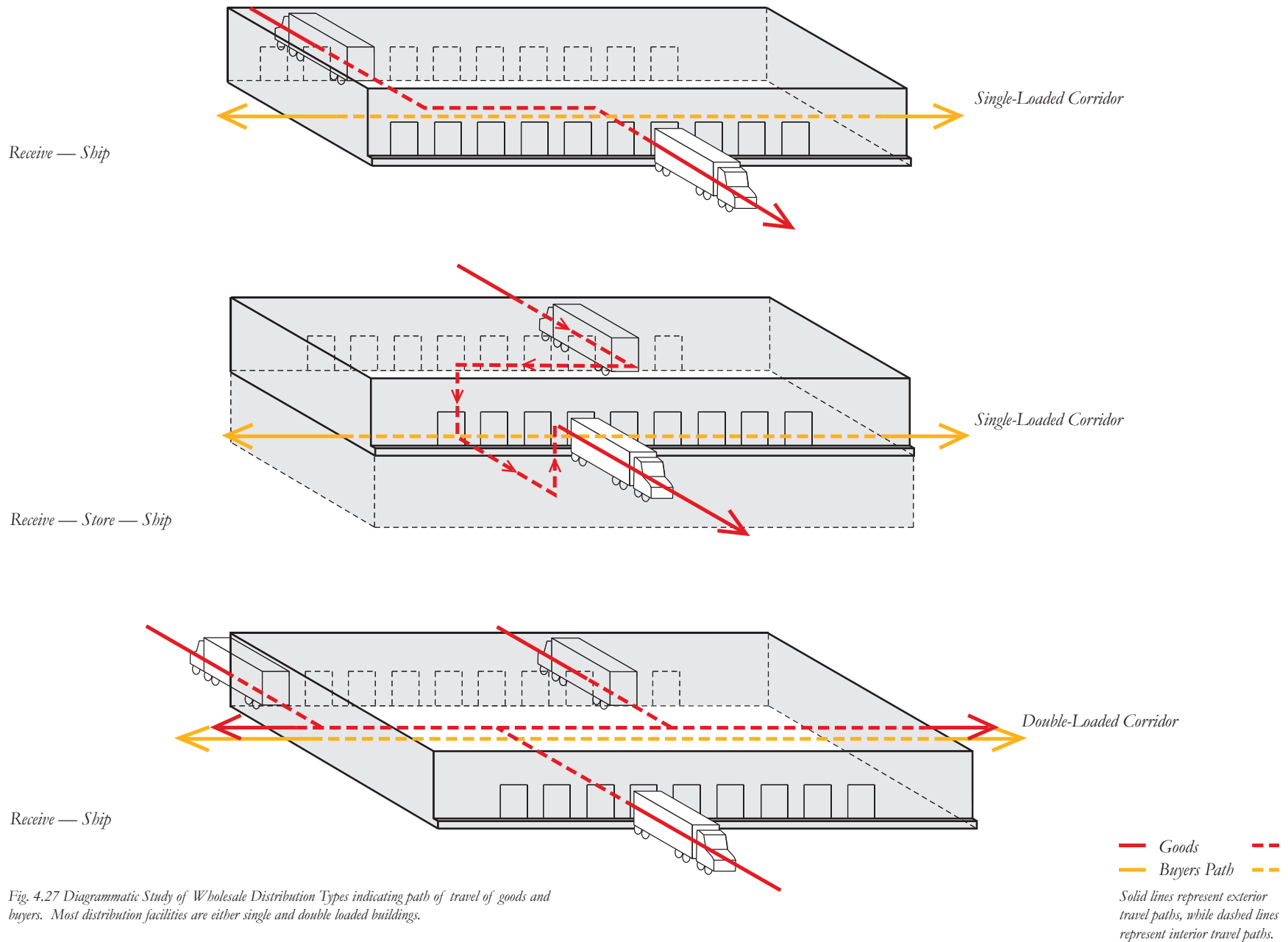


Fig. 4.27 Diagrammatic Study of Wholesale Distribution Types indicating path of travel of goods and buyers. Most distribution facilities are either single and double loaded buildings.

Preserving the Cold Chain

The 80,000 square foot cold storage facility at the Ontario Food Terminal is available to Terminal tenants, buyers, and individuals looking to store produce for extended periods. The temperature of each room is electronically monitored by the Terminal administration, who are able to respond to fluctuations (and possible spoilage) quickly.

An essential component of the Terminal, the storage facility allows momentum to continue unhindered on the site when large shipments come in that are unable to be accommodated elsewhere. These facilities also provide a small food reserve in the instance that shipments are delayed or unable to make it to the Terminal on time.

As the Terminal expands, it will become necessary for the cold storage facility to increase as well. It is a vital component of not only the market's operations but also the city's, providing infrastructure necessary for small to medium sized businesses that have limited storage and handling capacity to function efficiently in a cost-effective manner.



4.28 Inside a tenant's tropical fruit store. The wood paneling not only brings an aesthetic quality but also regulates temperature, which is held above average due to the nature of its contents.



4.29 Each room within the cold storage facility is regulated by a sophisticated computer monitoring system to maintain consistent temperatures. The floor is marked with numbers so that tenants can find their goods.

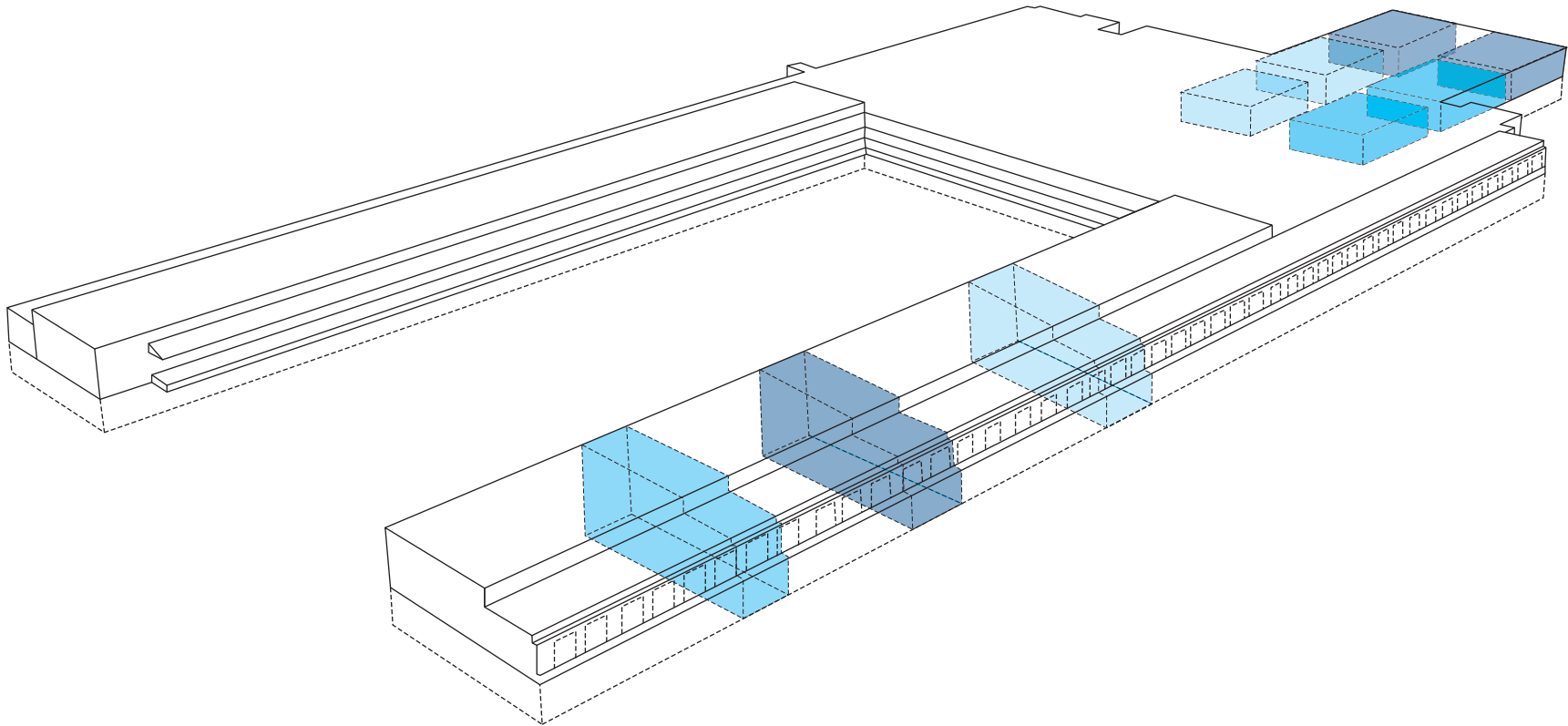


Fig. 4.30 Each tenant unit at the Ontario Food Terminal regulates temperature separately depending on the needs of the produce they stock. The storage rental spaces are regulated at varying temperatures to accommodate products that require various optimum storage temperatures. Most are between 32 and 42 degrees Fahrenheit. For example, tropical fruits like bananas and pineapples are ideally stored at 52° F, while potatoes and onions are ideal at 32-38° F.

- 0° Celsius (32° F)
- 6° Celsius (42° F)
- 11° Celsius (52° F)

PART FIVE: DESIGN PROPOSAL

“The challenge... is to figure out how to feed the majority of Canadians, who live far away from the fields.” Elton, 2010

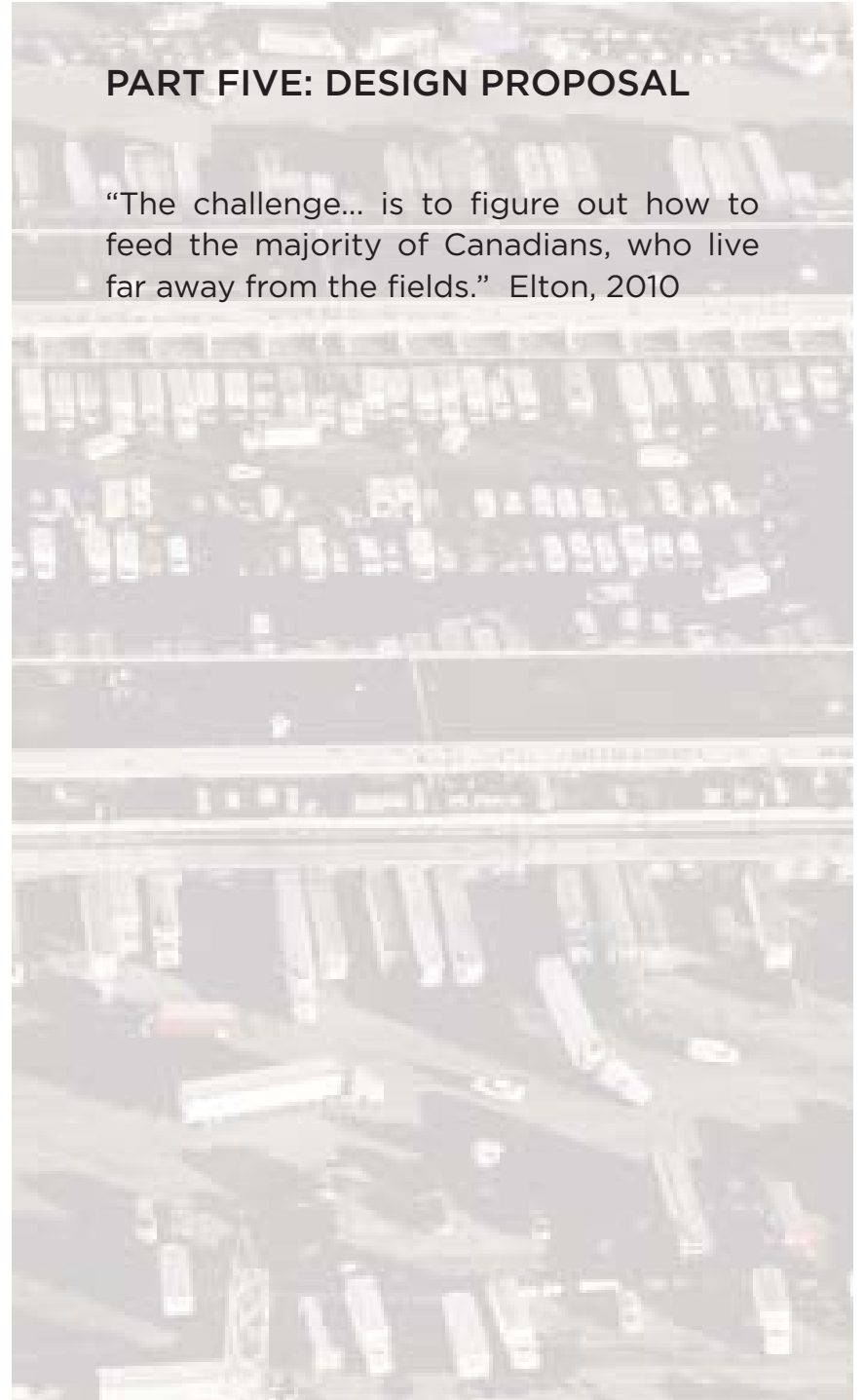




Fig. 5.01 The re-designed Ontario Food Terminal engages the previously-neglected Queensway street front.

The Ontario Food Terminal, along with Southern Ontario's rich agricultural history, can be credited as the foundation that has driven Toronto's diverse and plentiful independent food industry. The following design proposal re-imagines the future of the Ontario Food Terminal as a dynamic place of interaction among a diverse group of users. It is as an organism of local and global food distribution that acknowledges the benefits of interweaving multiple systems to create a progressive model for future food distribution.

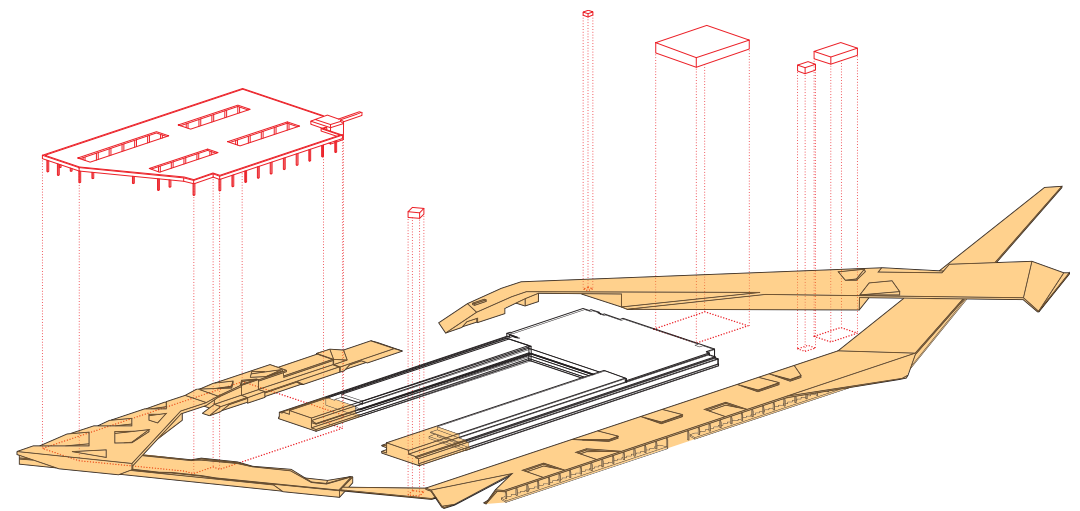
The Terminal's current objectives, supplying competitive food products to the city's myriad independent and small-scale grocers, can be built upon to respond to consumers desire for locally sourced food products and creating transparency in the distribution chain.

CHALLENGES AND OPPORTUNITIES

Toronto's rapid population expansion and lack of year-round farmer's markets will continue to place stress on the city's food system. As the city's population grows, the terminal is set to come under increasing pressure to expand to meet the demands of the grocers who depend on wholesale foodstuffs to survive. This design seeks to accommodate expansion in a comprehensive and sensitive manner, while at the same time adding another layer of programme that the city lacks – that of an easily accessible, year-round farmer's market for city residents. Simultaneously, the re-envisioned terminal will provide residents with the food products they demand and expose them to the inner-workings of the complex distribution systems that surround them.

Though it has been paramount to the success and diversity of Toronto's food culture, the Ontario Food Terminal misses opportunities that have the potential to make it more dynamic and lucrative. One of these major shortcomings lies in the infrastructure provided for local farmers, who presently use the understorey of a parking garage as a marketplace. The parking deck is plagued with repairs, and farmers operate without the requisite docking and utility infrastructure that would allow them to function more efficiently and feel like an integral component of the terminals' operations. Part of the design strategy sees the removal of this parking structure, replacing it with a new wholesale farmers market building on the south side of the site that provides infrastructure for farmers to operate efficiently.

Buildings Removed and Added

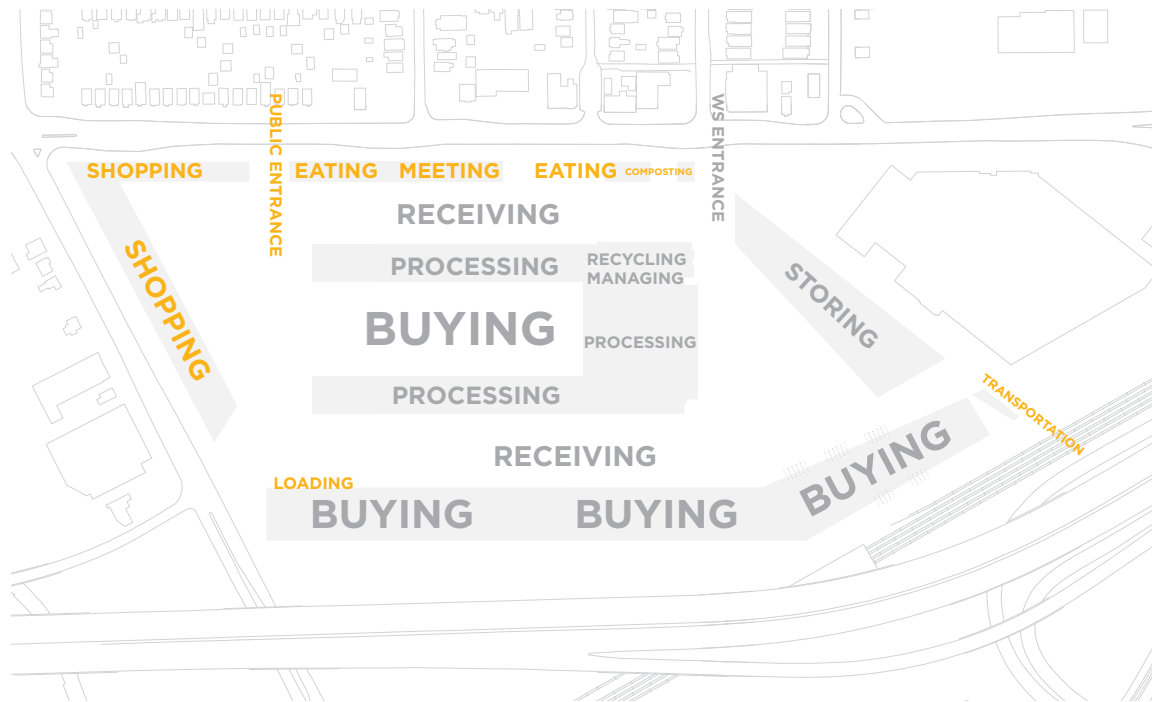


5.02 The new design utilizes the space encircling the main exchange building of the Ontario Food Terminal, re-routing circulation patterns to flow from east to west and separate the private and public functions of the site.

- Removed Buildings
- Added Buildings

Circulation paths have also been tightened in the new strategy. Removing the storage facility from the main wholesale building permits traffic to flow in a tighter route. It is replaced with a new building on the east side of the site with expanded cooling facilities, additional wholesale tenant units and composting facilities.

Fig. 5.03 Programme Parti



Programme Profile

In 1984 the Ontario Food Terminal Board developed a set of nine cost centres within the Terminal’s operations. These cost centres include short-term leaseholders, restaurants, cold storage, farmers’ market, tenant warehouses, road and gate, railway and parking (Ontario Food Terminal Board 1997).

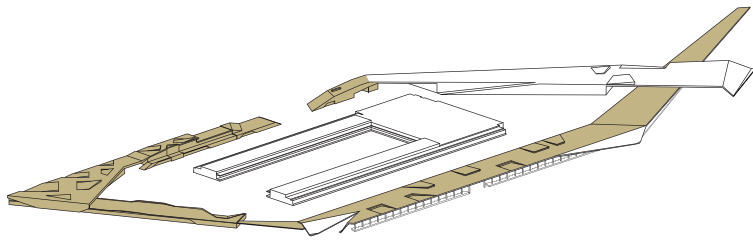
In the new design, the goal is not only to increase the efficiency of the nine cost centres, but also to identify new opportunities. A programme profile outlines the additions and new components .

Parking	250 Public Spots 100 Spots in the Wholesale Facility 500 Spots in the Farmers Market 45 Spots elsewhere throughout the site
Wholesale Farmers Market	500 Stalls
Public Farmers Market	80,000 ft ² has the capacity to hold 300 stalls
Food Boutiques/ Vendors	75 units (for a total of 120,000 ft ²)
Wholesale Tenant Units	22 + 15 additional (for a total of 80,000 ft ²)
Storage Facilities	100,000 ft ²
Business Development/ Office Space	300,000 ft ² (inc. shared classrooms, meeting space and support services)

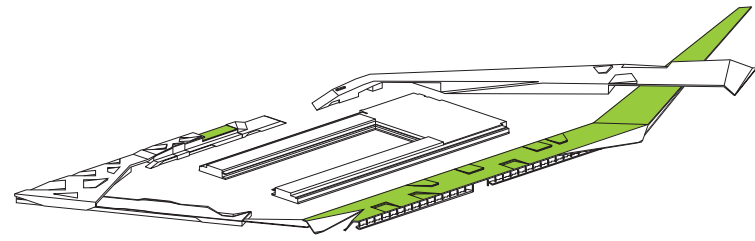
Fig. 5.04 Proposed Additional Programme to Fill the 24 Hour Cycle



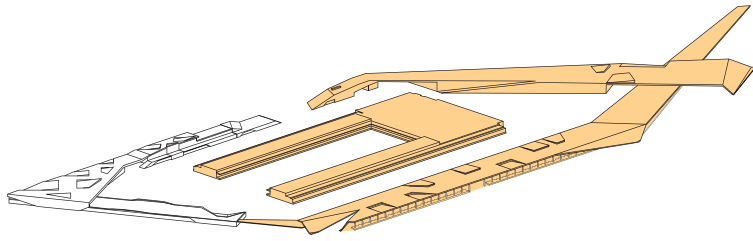
Fig. 5.05 Diagrammatic Studies of Site Conditions



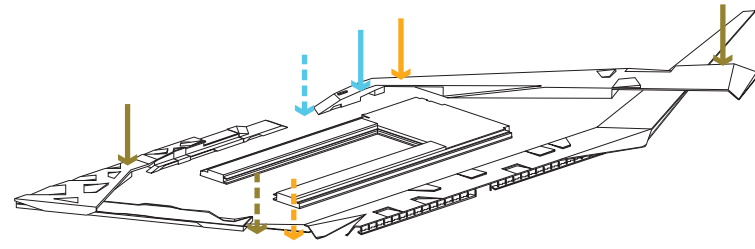
Public Programme



Green Space

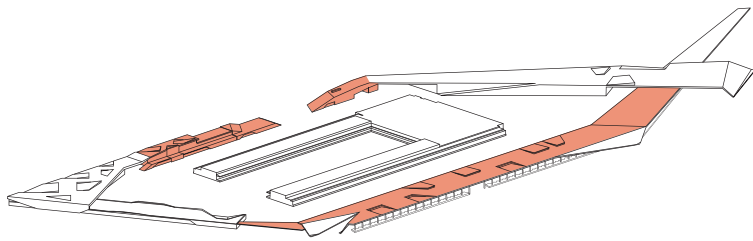


Wholesale Programme

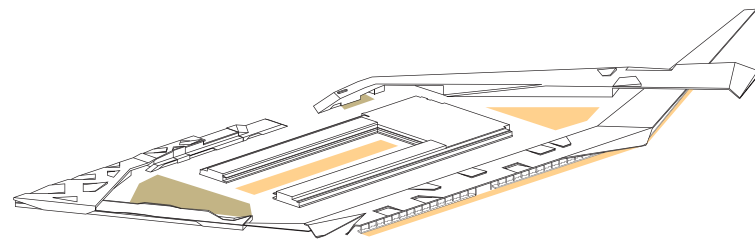


Entrances and Exits

- Public
- Wholesale
- Compost Pickup
- - - Public
- - - Wholesale
- - - Compost Pickup



Overlapping Programmes



Parking

- Public Spots
- Wholesale Spots

DESIGN APPROACH

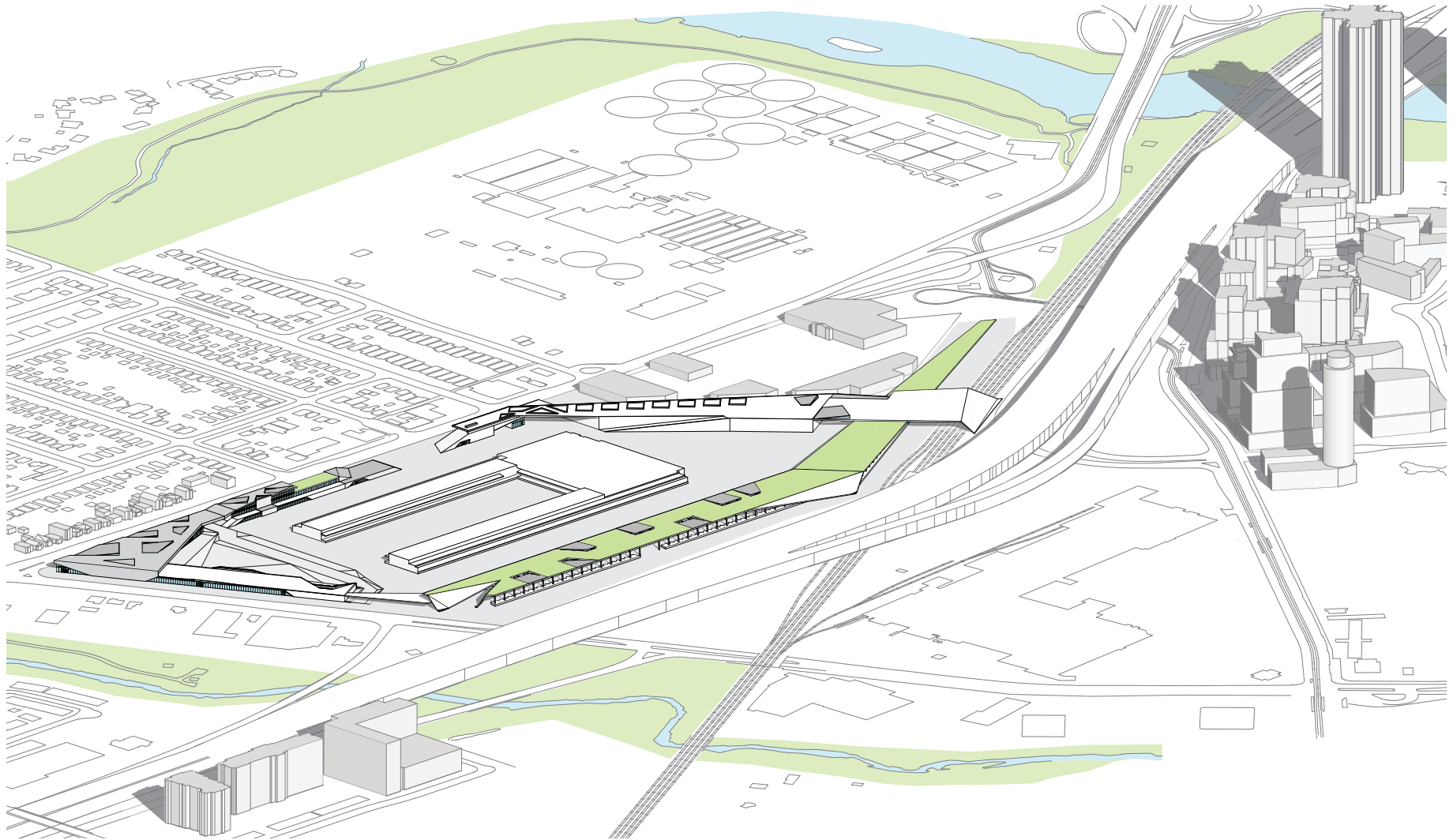
Integrating the knowledge gained from the previous chapters, the redesigned Terminal strives to create both local and regional outreach. For local residents, it is meant to be a consistent source of food products from the surrounding agricultural lands and small-scale producers. For the Terminal's buyers, it provides an expanded resource of local products, knowledge and support. The redesign also provides a common ground for local organizations that are seeking out like-minded individuals and hope to integrate themselves within a larger group. On the regional level, the terminal provides stability for farmers and a destination for those interested in food.

The expanded Terminal endeavours to create transparency within the distribution system by integrating wholesale and retail functions on the same site and granting access to the public. The new market complex is a stage for the amalgamation of local and global food distribution systems, allowing both wholesale and retail buyers to purchase directly from local producers. Conceiving a multi-functional market hub that takes advantage of wholesale quantities, quality and choice and retail convenience and costs to benefit both the producer and consumer in the system.

The terminal redesign also invigorates the Queensway, a neglected transportation corridor lacking street presence, with additional retail and commercial programme. Wide pedestrian-friendly sidewalks, attractive signage and an appealing façade create an engaging entrance to the Ontario Food Terminal site.

Yet the new market is not solely about the added public components. Above all else, the new terminal is an amplified place of exchange for all cycles of food. It builds on the current infrastructure with the addition of a permanent wholesale farmers market, communal office facilities, and additional commercial and storage space, creating a dynamic place of food-related exchange. Composting facilities deal with the sites waste, intertwining wholesale and public programme. Food groups with offices at the Terminal are encouraged to develop relationships with each other, the wholesale and retail users, and the neighbourhood to develop their policies, strategies and plans.

5.06 Birds Eye View of the Ontario Food Terminal Site



The thesis proposal takes advantage of the sites complex multi-modal programme as an operational landscape, creating multiple inhabitable planes. For example, an agricultural landscape roof on the wholesale farmers' market provides food for the retail market and acts as a learning garden. As a public space, it links to adjacent public transportation facilities, and surrounding rivers and green space. Finally, the visible green roof also acts as an advertisement for the Terminal, perceptible from the Gardiner Expressway and neighbouring condominiums.

ARCHITECTURAL EXPRESSION

The architectural language is focused on the articulation of movement and convergence of multiple exchange courts. The site is dominated by circulation; vehicular and pedestrian travel use as much of the sites footprint as buildings do. A hierarchy of roads filter the various transportation types. The public and private routes are separated by subtle shifts in the ground plane and distinct entrances.

The architecture is flexible, organic, pliable and elemental. It is conceived of as an operative landscape, one that is constantly in motion. Roof planes on the new buildings push and pull, allowing light into the interior of the markets and commercial spaces. Hard, semi-hard and soft material treatments further differentiate the various programmes of the roof planes by creating distinctive areas for agricultural production, seating, and pedestrian occupation. This roof wrapper creates movement across the expansive 40 acre site, acting as a moving device to transport people and products from one level to another.

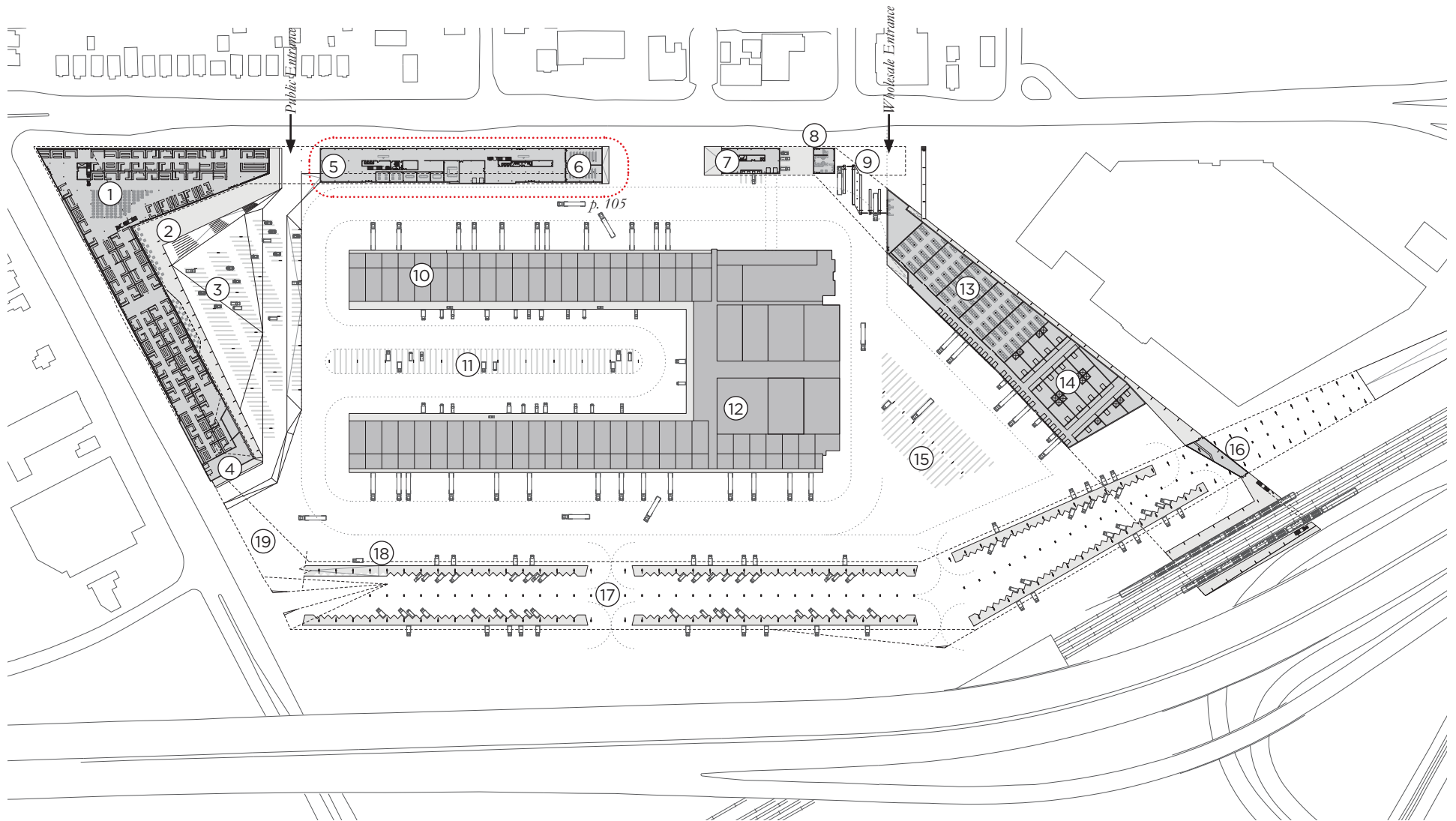


5.07 Meydan Umranliye by Foreign Office Architects, a multi-use site similar in scale to the Ontario Food Terminal site, were used as a precedent for the design. Multiple planes tilt and shift to address changes in height and create flow on the site.



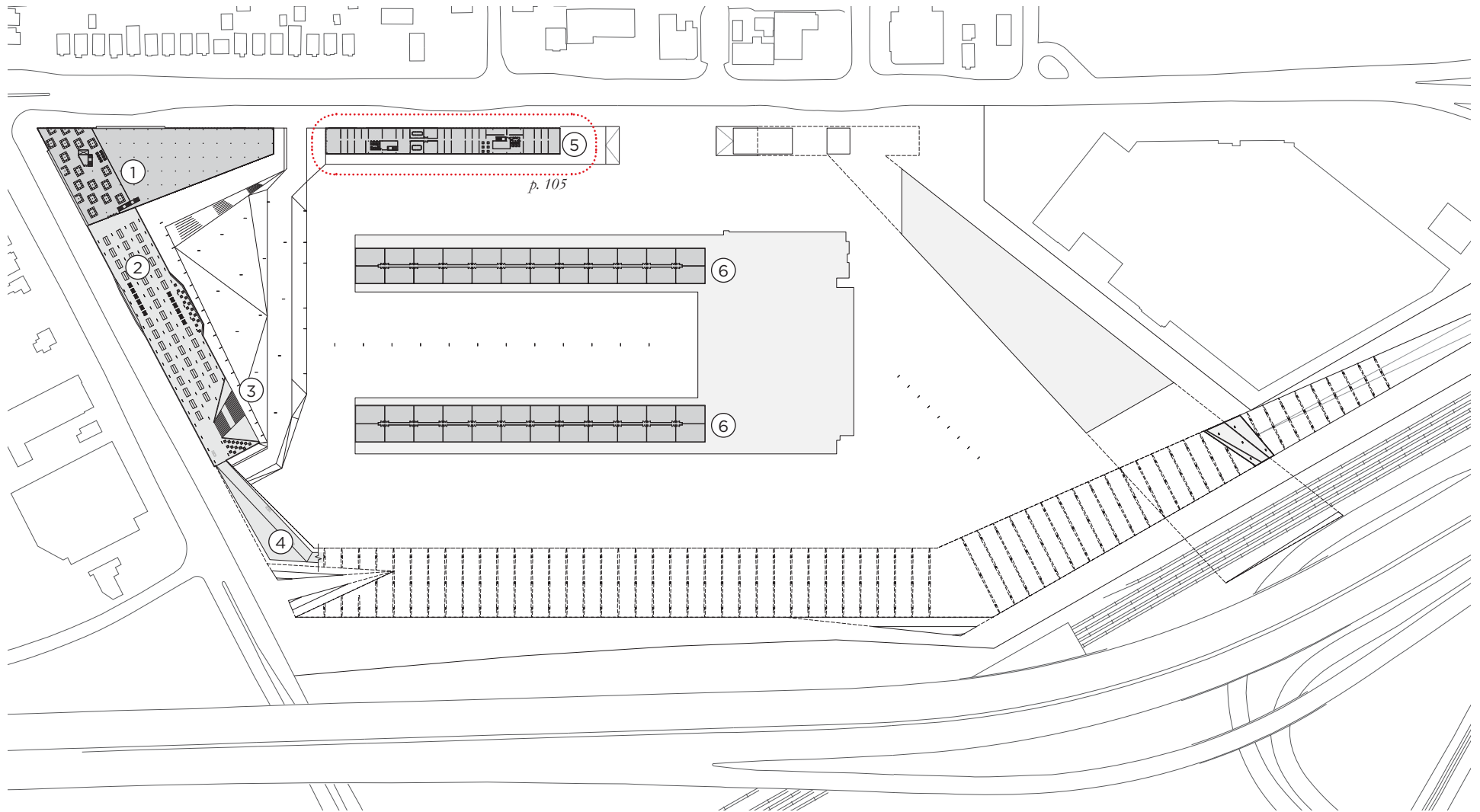
5.08 Other architectural precedents were transportation-based projects that deal with circulation flows and multiple transportation types. They included Zaha Hadid's Terminus Hoenheim, a transit station and car park in Strausburg, France.

5.09 Ground Floor Plan, 1:2000



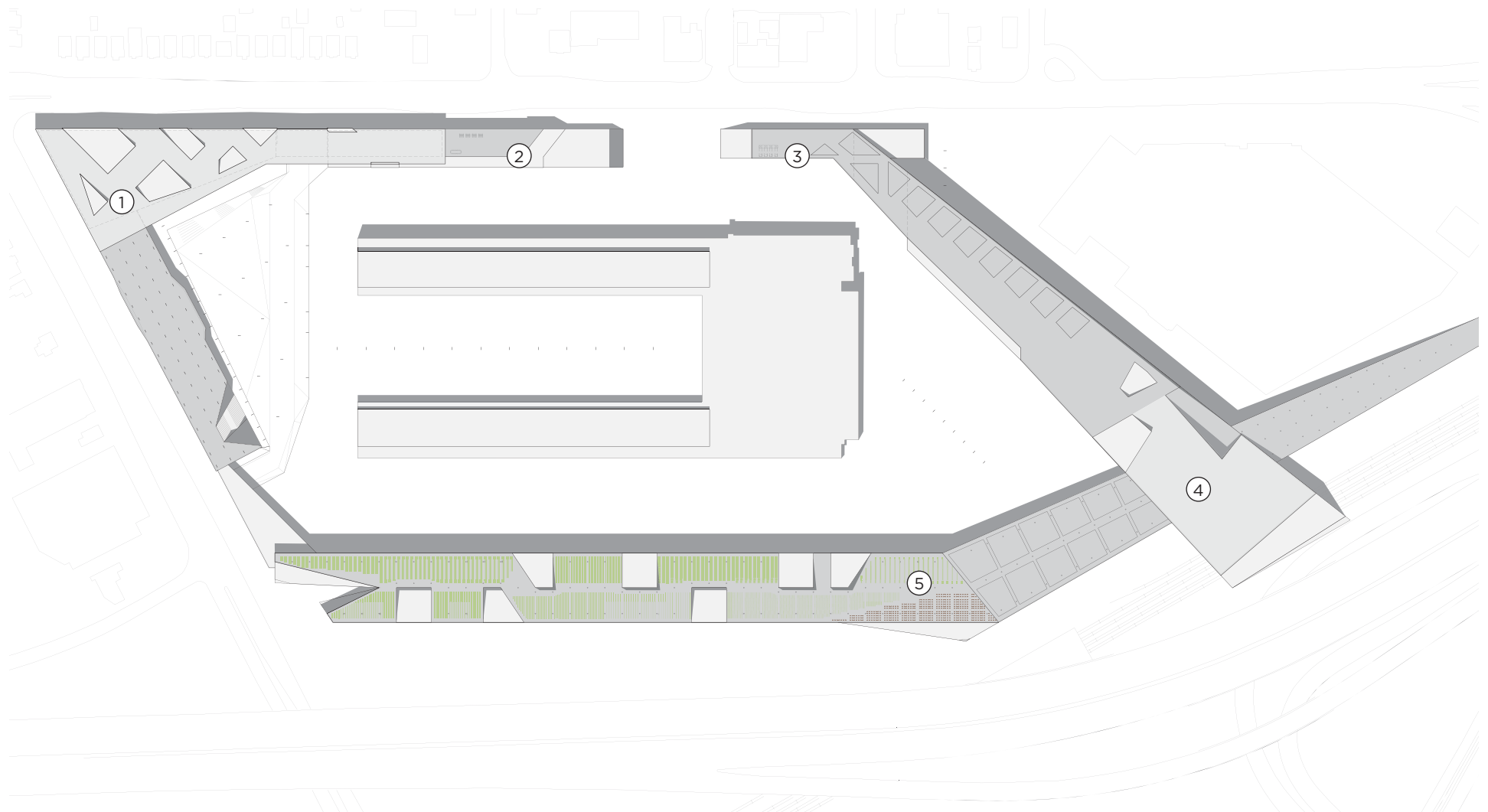
- | | | |
|--------------------------------|-----------------------------|---------------------------------|
| 1. Public Market | 8. Administration | 15. Temporary Wholesale Parking |
| 2. Outdoor Promenade | 9. Entrance Gates | 16. Train Station |
| 3. Public Parking | 10. Wholesale Tenants | 17. Wholesale Farmers Market |
| 4. Market Loading | 11. Buyers Court | 18. Retail Market Drop off |
| 5. Business Development Centre | 12. Administration | 19. Terminal Exit |
| 6. Education Facility | 13. Cold Storage Facilities | |
| 7. Compost Pickup | 14. Wholesale Tenants | |

5.10 Second Floor Plan, 1:2000

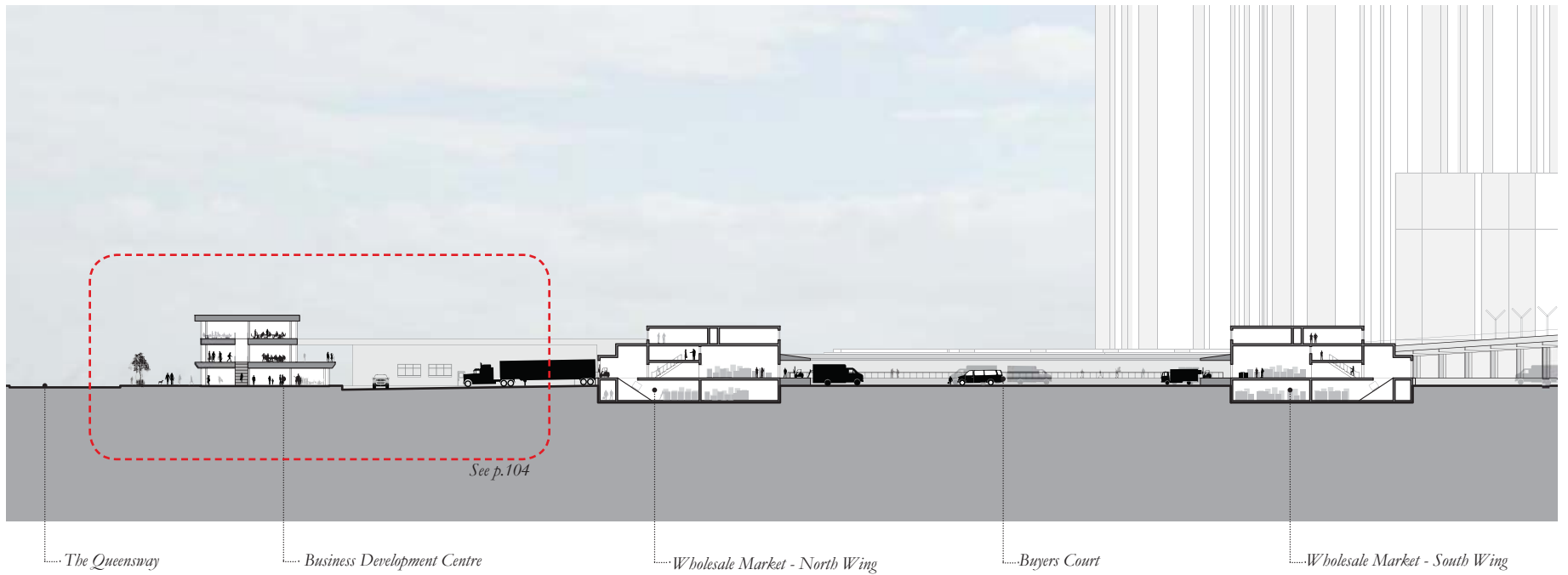
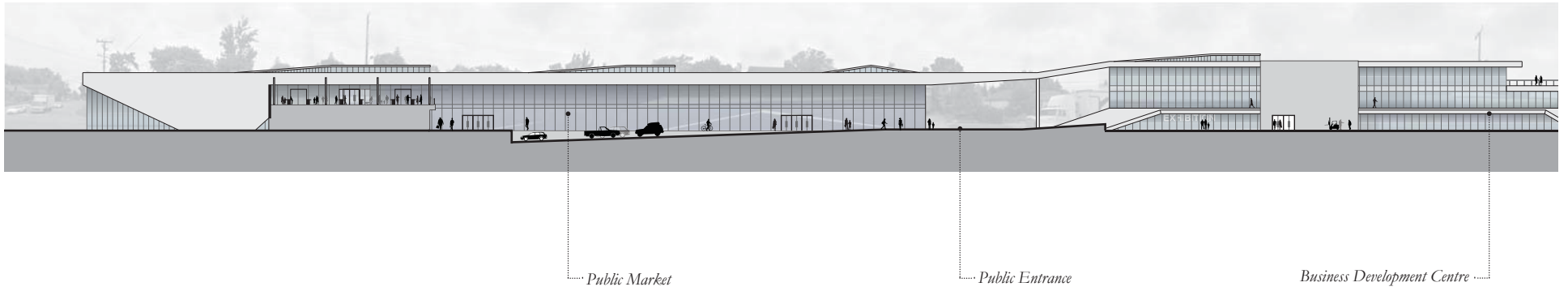


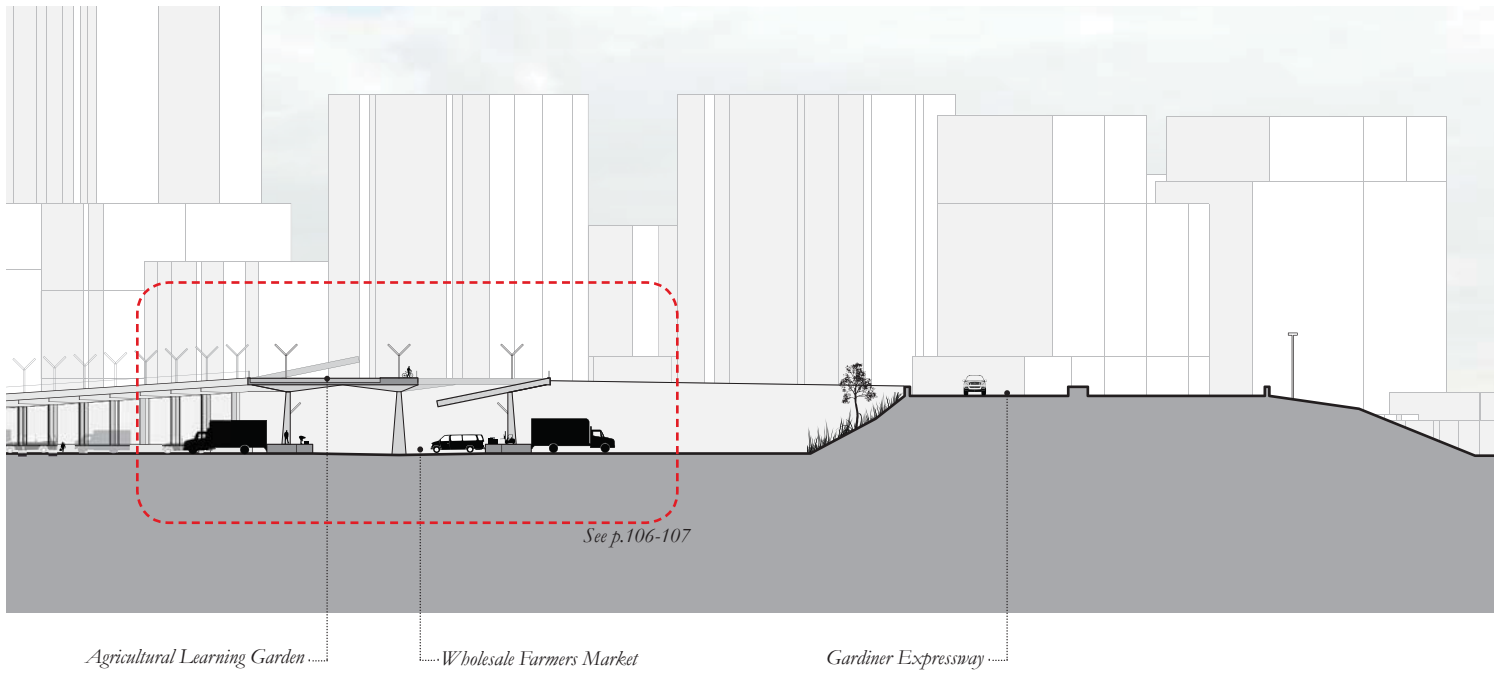
- 1. Upper Public Farmers Market
- 2. Outdoor Public Farmers Market
- 3. Access to Ground Level
- 4. Ramp from Wholesale Farmers Market Drop off
- 5. Business Development Centre
- 6. Wholesale Office Tenants

5.11 Roof Plan, 1:2000



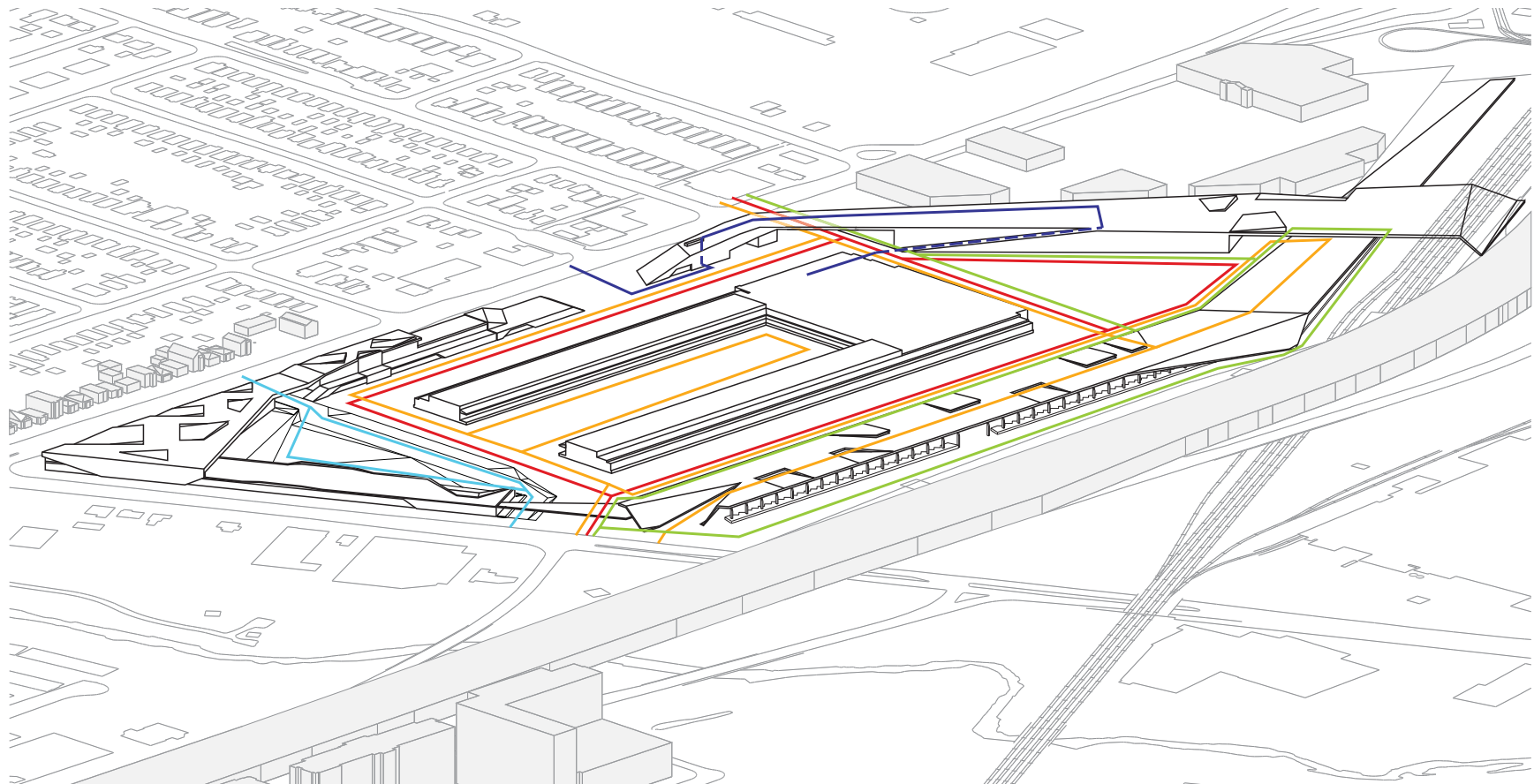
- 1. *Skylight Roof*
- 2. *Business Centre Patio*
- 3. *Compost Facility*
- 4. *Ramp from Grade*
- 5. *Agriculture Learning Garden*





CIRCULATION

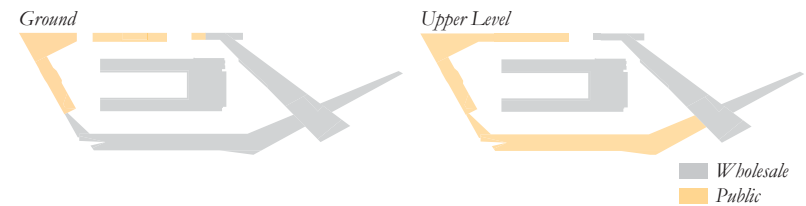
5.14 Essential Circulation Paths



- Public
- Buyers
- Wholesale Deliveries
- Local Farmers
- Compost Cycle

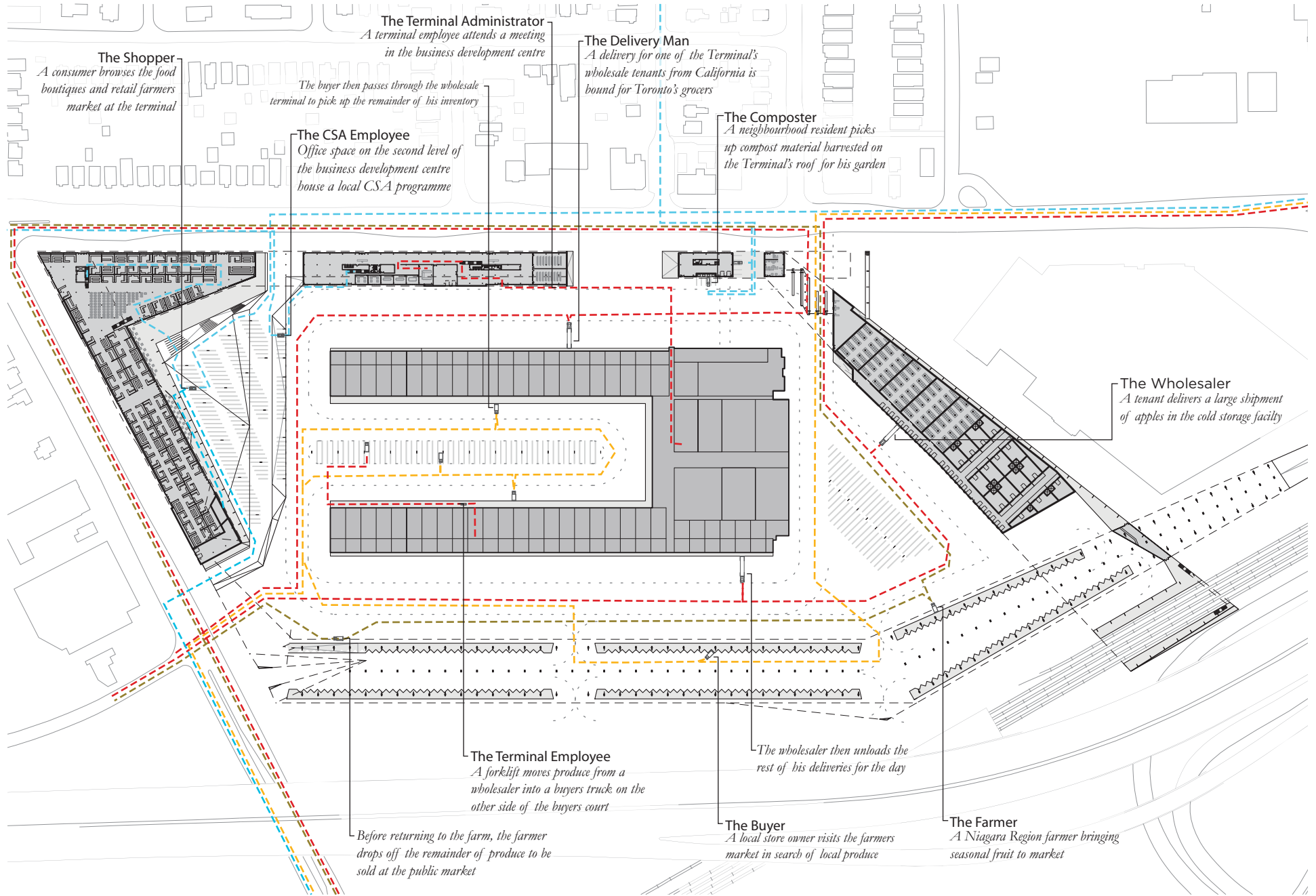
Solid lines indicate horizontal movement (exterior and interior). Dotted lines indicate lateral movement.

The site's efficiency is dependant upon the flow of goods and vehicles. This diagram depicts the most common circulation paths taken throughout the site for wholesalers, buyers, farmers and the public. Wholesale circulation zones are separated from public circulation zones (in blue) by shifting ground planes.



- Wholesale
- Public

5.17 Circulation Routes of Specific Site Users

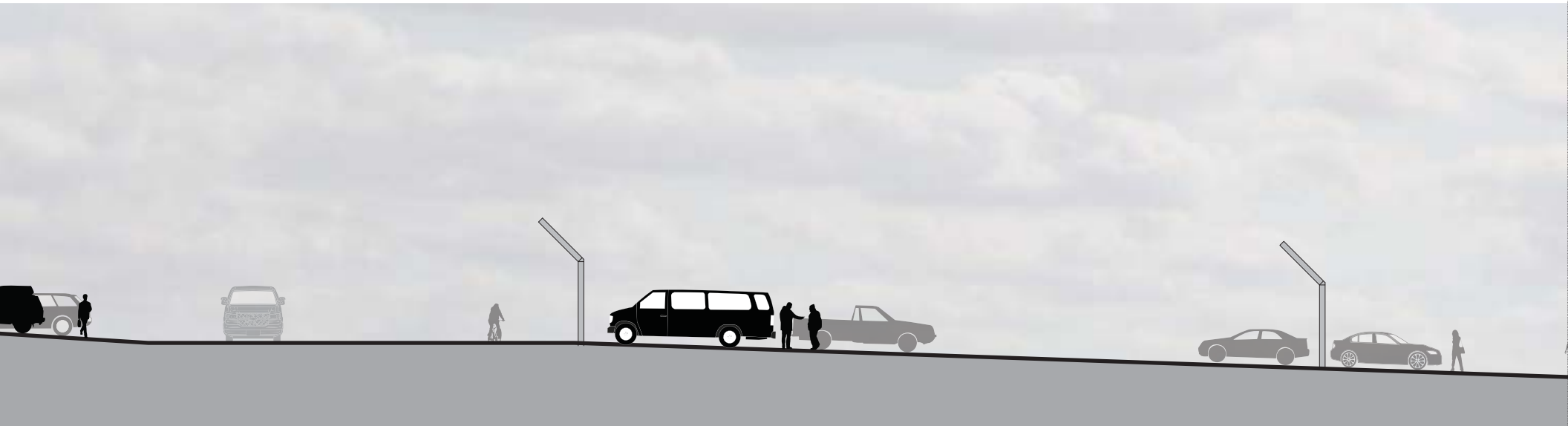




Looking north into the public market courtyard.

5.18 Perspective

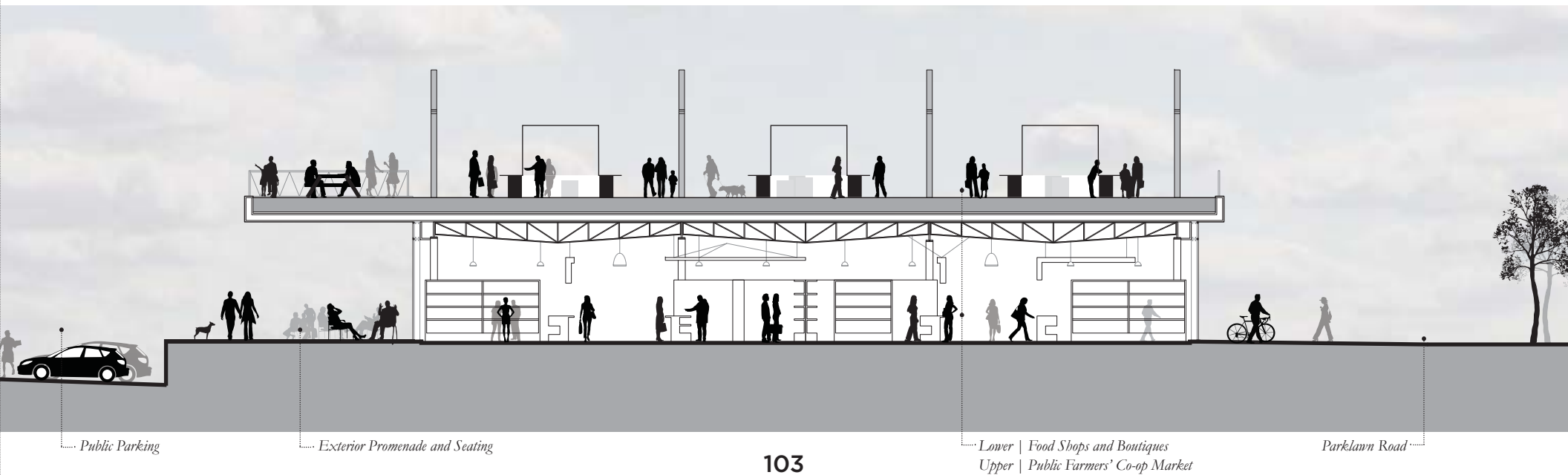
5.19 Public Market Section, 1:200



PUBLIC MARKETPLACE

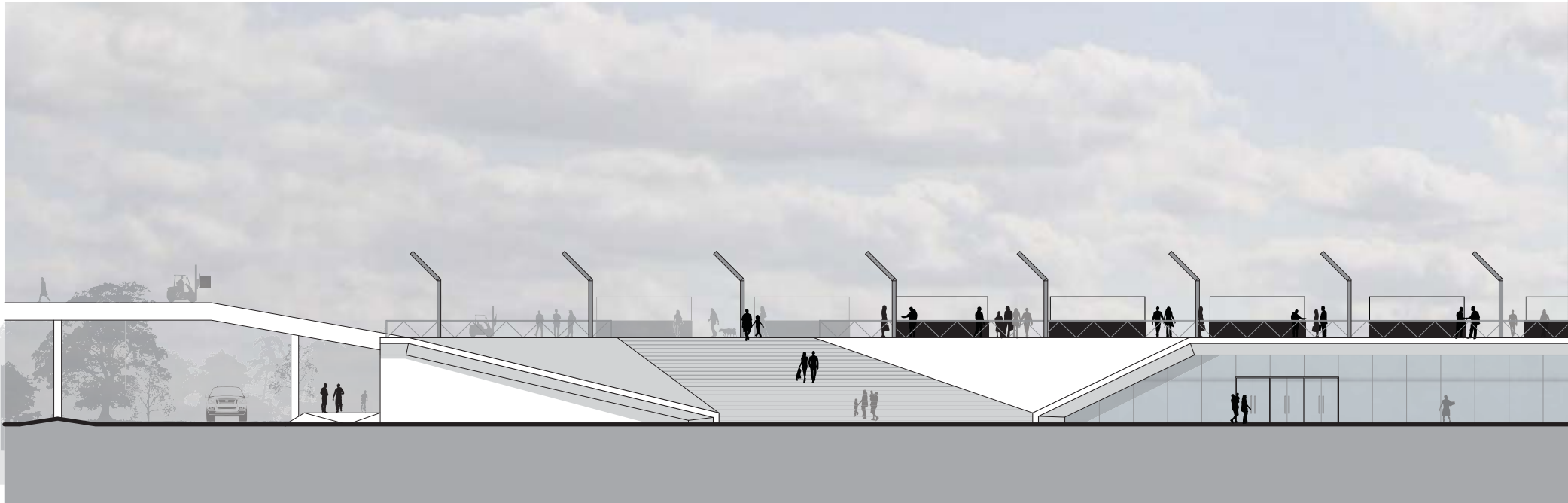
The public market is envisioned as the western counterpoint to downtown's St Lawrence Market, an iconic marketplace for the city, celebrating not only the diversity of Toronto and its residents but also of the surrounding regions which are rich in agricultural variety. Daily access to the best, most fresh food products is an obvious advantage for establishing a new public market on the existing Ontario Food Terminal site. Its location, in a newly urbanizing part of the city, will draw a large number of residents to the site.

The public marketplace is located on the northwest corner of the site, space that was formerly occupied the inadequate parking structure. It is a fusion of farmer's market stalls and artisanal shops, sourcing food from a plethora of sources. The

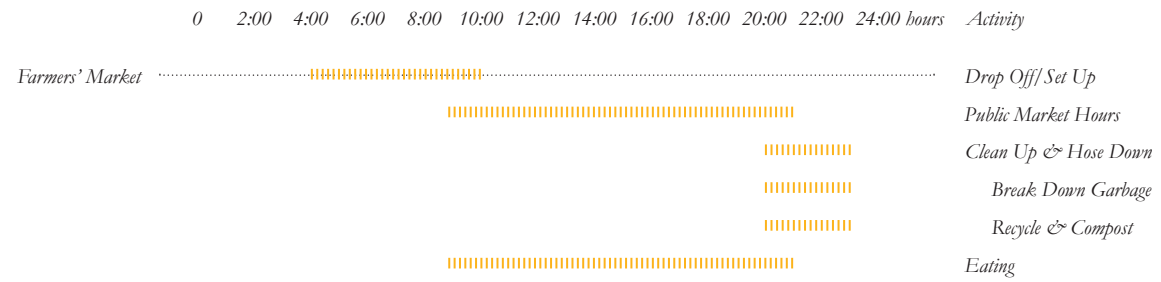


ground floor space is comprised of local stalls, selling everything from honey produced on-site, to regional artisans selling cured meats, cheeses, produce and preserves. The second floor, operating both indoor and outdoor, is the Terminal's farmer co-op. Farmers have the ability to drop off their products and continue to the wholesale farmers market or operate an individual stall.

The market is accessed by vehicle through a separate entrance off of the Queensway. Street entrances from the Queensway and Parklawn Road encourage local residents to enter the site. A ramp connection to the agricultural roof is accessible from the outdoor market space. The unique shape of the building forms a courtyard with a pedestrian promenade, outdoor seating, and parking facilities.



5.20 Public Market Programme



5.21 Public Market Elevation, 1:300



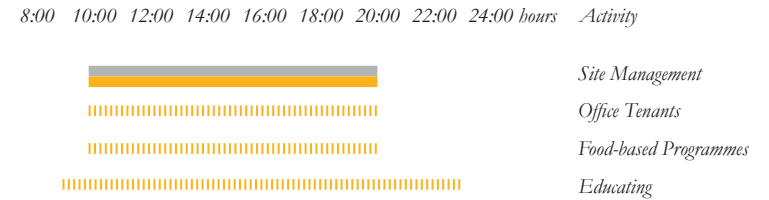
BUSINESS DEVELOPMENT CENTRE

Revitalization continues on The Queensway with the addition of a business development space. The building is meant to be an axis for creating new business opportunities, placing like-minded organizations in contact with one another and lowering operating costs for non-profit city services by sharing amenities. Focus on food-related businesses has the opportunity to create new partnerships and foster growth of the existing economic cluster.

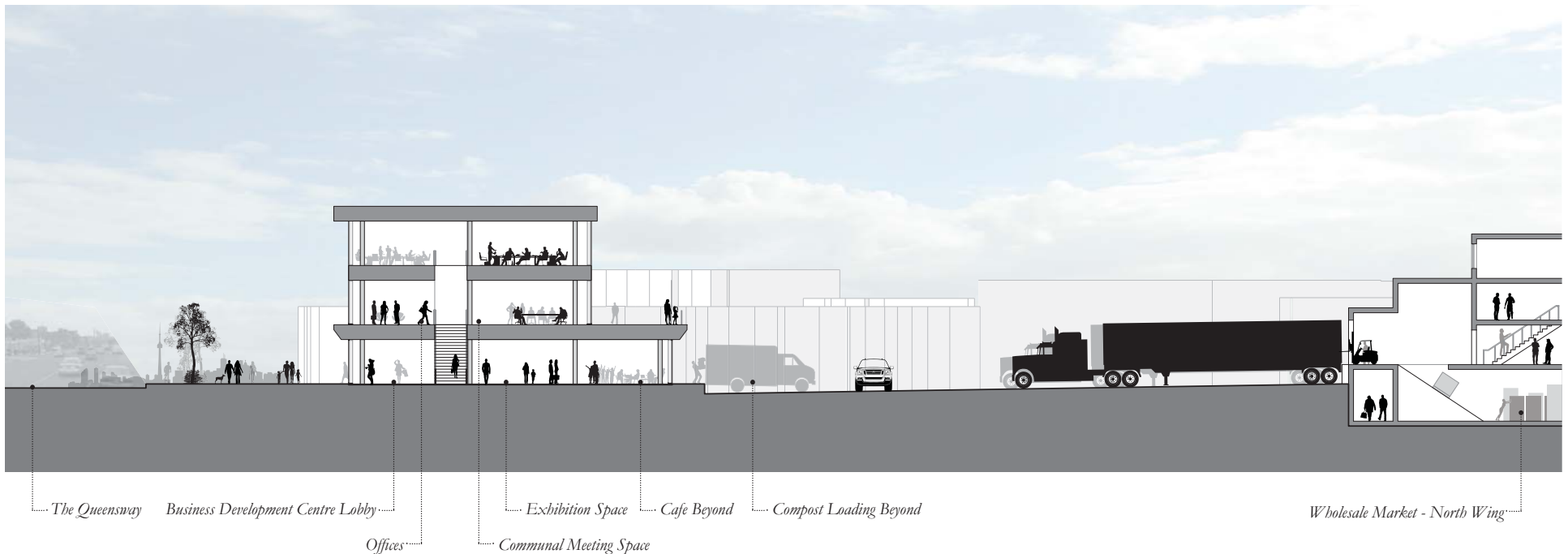
The lower level contains a gallery for exhibitions, communal resource centre and meeting rooms, a locally run café and classrooms. The two upper floors contain flexible space for office rentals, communal meetings rooms and tech infrastructure, as well as shared outdoor space.

The centre is also meant to act as a community space for the surrounding Etobicoke neighbourhoods, who are encouraged to use the facility for meetings, events and exhibitions.

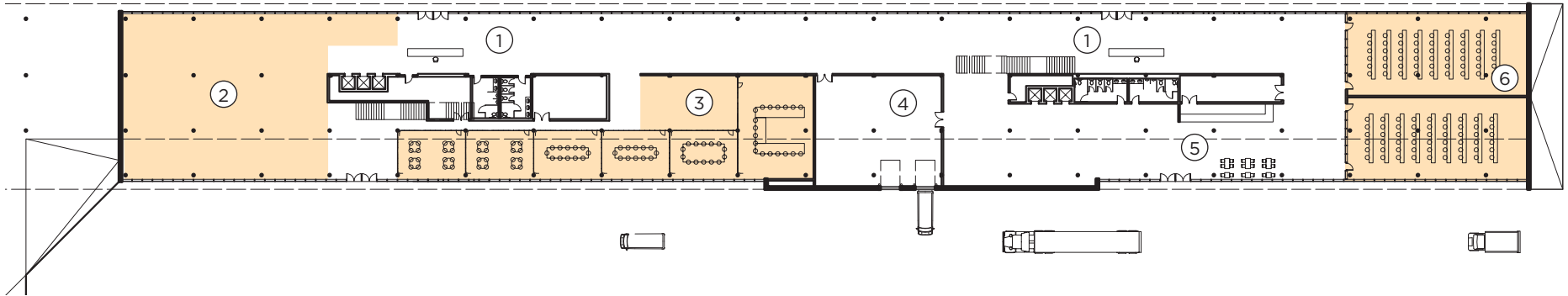
5.22 Business Development Centre Programme



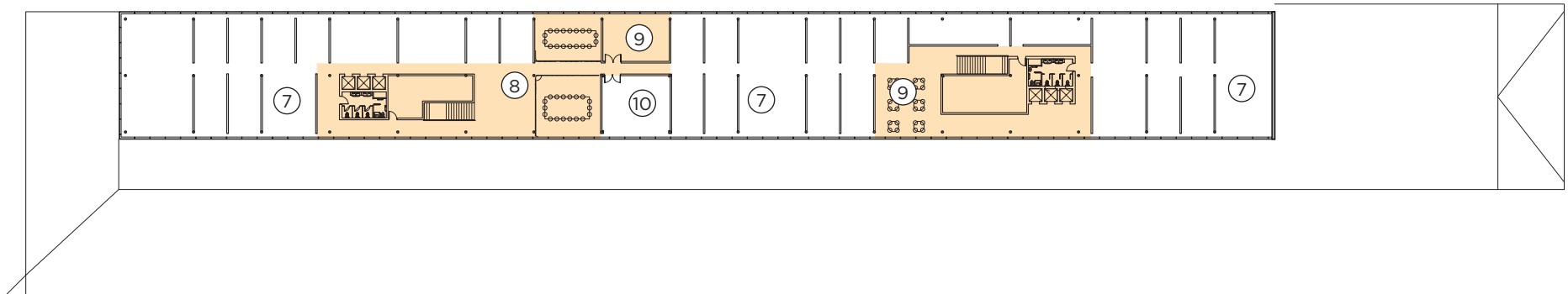
5.23 Business Centre Section, 1:300



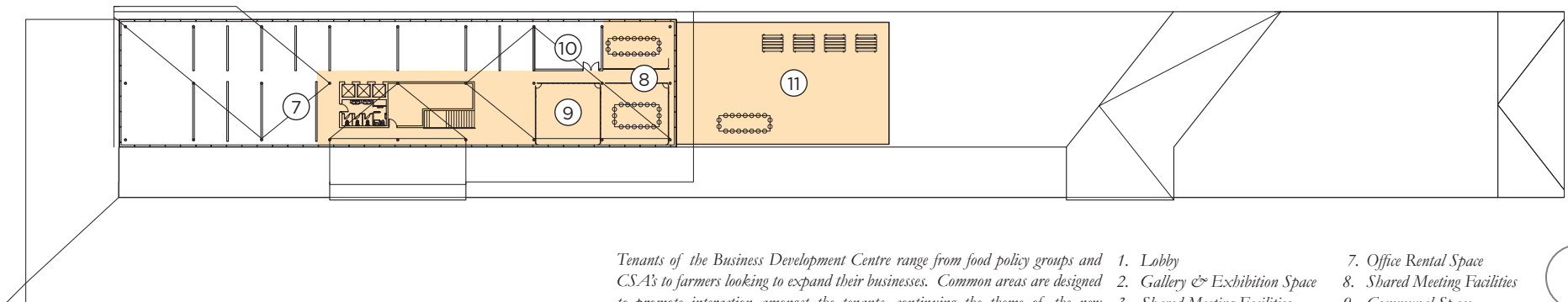
5.24 Ground Floor, 1:1000



5.25 Second Floor, 1:1000



5.26 Third Floor, 1:750



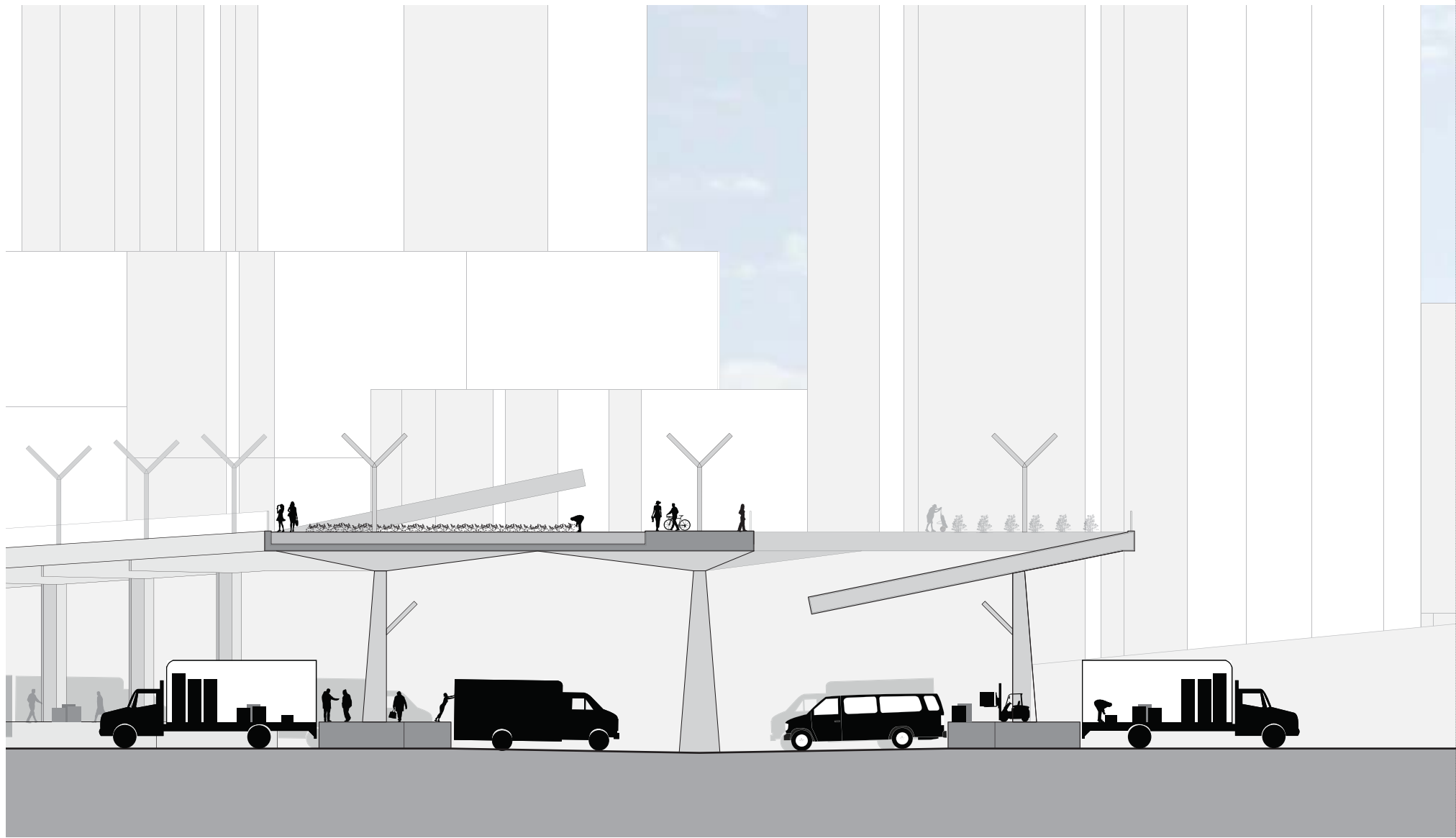
Tenants of the Business Development Centre range from food policy groups and CSA's to farmers looking to expand their businesses. Common areas are designed to promote interaction amongst the tenants, continuing the theme of the Terminal as an expanded place of exchange.

Common Areas

- 1. Lobby
- 2. Gallery & Exhibition Space
- 3. Shared Meeting Facilities
- 4. Loading and Storage
- 5. Cafe
- 6. Classrooms

- 7. Office Rental Space
- 8. Shared Meeting Facilities
- 9. Communal Space
- 10. Maintenance and Tech
- 11. Patio



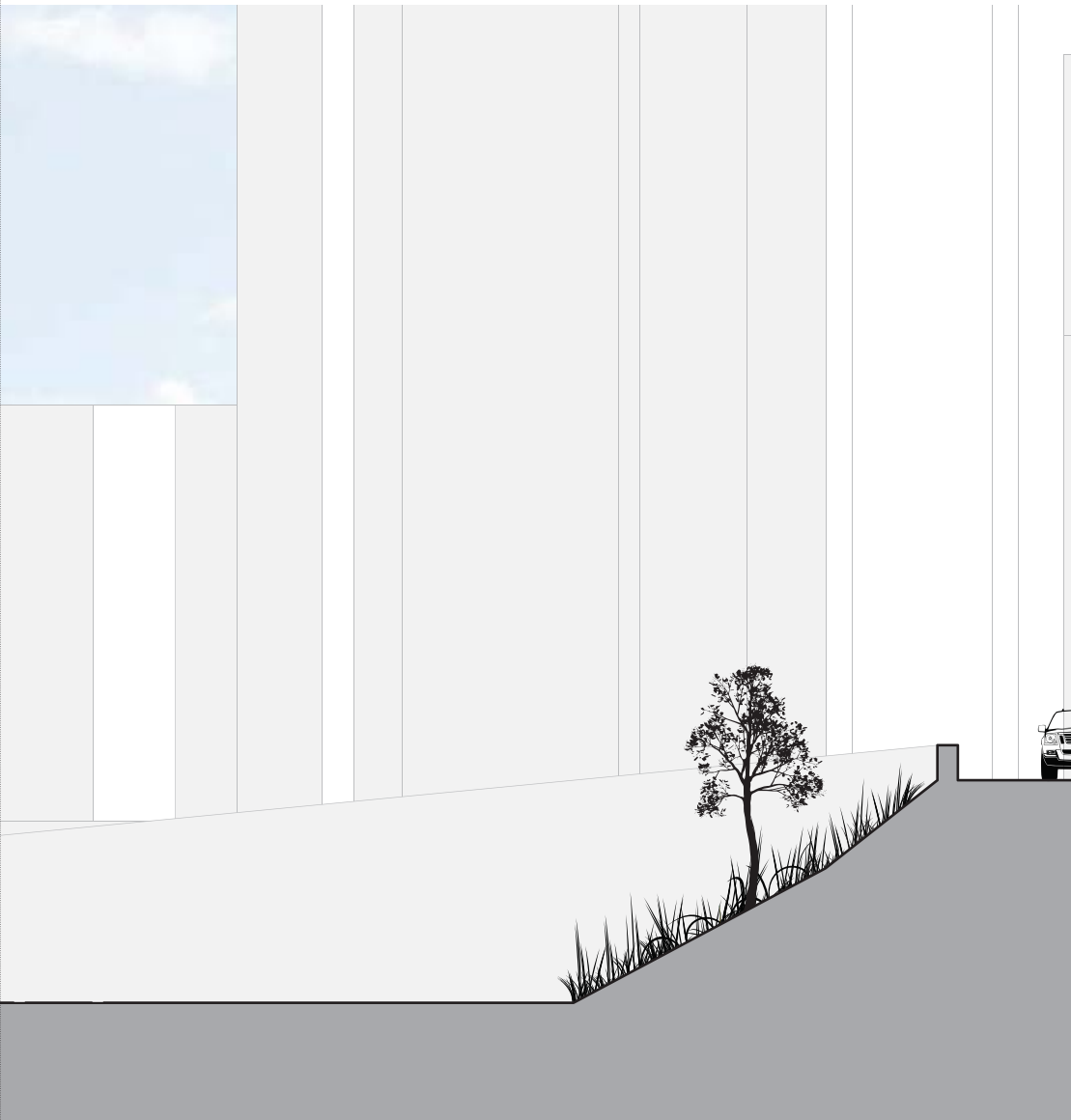


WHOLESALE FARMERS MARKET

Due to Southern Ontario's extreme climate, the wholesale farmers market capacity fluctuates drastically (and rapidly) during the year. Taking this into account, an open-air structure that is capable of adapting quickly to seasonal demands was developed. The new wholesale farmers market provides farmers with the infrastructure needed to function efficiently.

Farmers are able to store the majority of products within their trucks, while displaying their goods in a storefront manner, similar to the Fulton Fish Market wholesale model. Each tenant is provided with signage, power, water, loading docks and communal motorized lifts. The market is double-loaded, allowing farmers to park on the two outside edges and buyers to drive up the middle.

The proposal also provides farmers with access to support from food-based groups and the opportunity to rent office space and storage units to facilitate their business operations. Additionally, they are able to expand their market by dropping off products to be sold at the retail farmers market without taking additional time away from their crops.



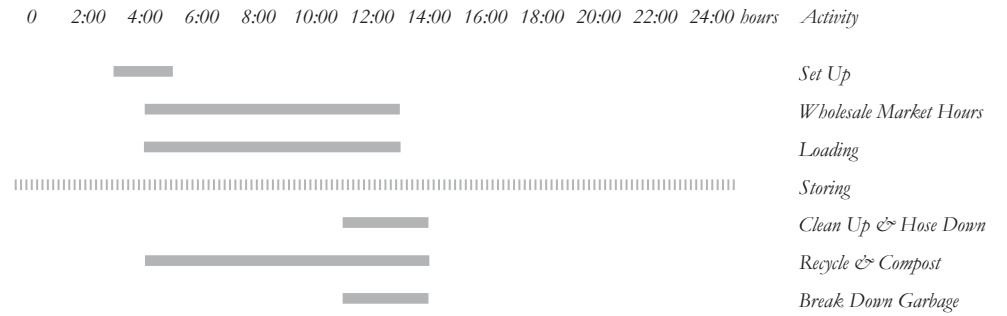
5.27 Market Section, 1:200





5.28 Currently, the farmers market overflow area at the terminal is a parking lot without any facilities.

5.29 Wholesale Farmers' Market Programme



5.30 Wholesale Farmers Market Typologies

The Terminal has three main types of wholesale farmers tenants, each of which have different requirements for leasing, space, infrastructure and transportation. The flexibility of the new design allows for quick adaptation to accommodate.

	Required Infrastructure	Average Crop Size	Vehicle Types Used
1 <i>Permanent Tenants</i>	Loading Dock, Parking, Office, Signage Heat, Electricity, Debit/Credit Capabilities		
2 <i>Seasonal Tenants</i>	Loading Dock, Parking, Signage, Display Space Heat, Electricity, Debit/Credit Capability		
3 <i>Sub-seasonal Tenants</i>	Loading Dock, Parking, Signage, Display Space Heat, Electricity, Debit/Credit Facilities		

AGRICULTURAL LEARNING GARDEN

The roof surface of the wholesale farmers market is utilized as a working landscape, comprised of a series of gardens that are used as a learning tool for school groups and the public. A central promenade is wide enough to accommodate groups of people or small tractors. Secondary paths branch off to each of the gardens. Tilted planes provide skylight glimpses of the wholesale market below and spaces for gathering on top of.

Each section of the roof tells a story about agriculture and production in Southern Ontario: the dominant crops, methods of growing, and harvesting techniques. Plants were chosen to represent the dominant agricultural crops found in the province, and subdivided into varieties. One section brings awareness to the problem of declining bee populations, which is a serious threat to food security around the world. A rooftop hive colony can be used locally to pollinate crops. The final section is less structured, planted with pollinating fruits and flowers that bees are naturally attracted to. The harvested produce and honey will be sold in the retail market.

The upper realm reads as a public space to vehicles moving along the adjacent Gardiner Expressway. This green loop expands the awareness of the site to millions of people daily, and creates a unique experience for those who would otherwise have no idea what the Ontario Food Terminal means to the city's food system.

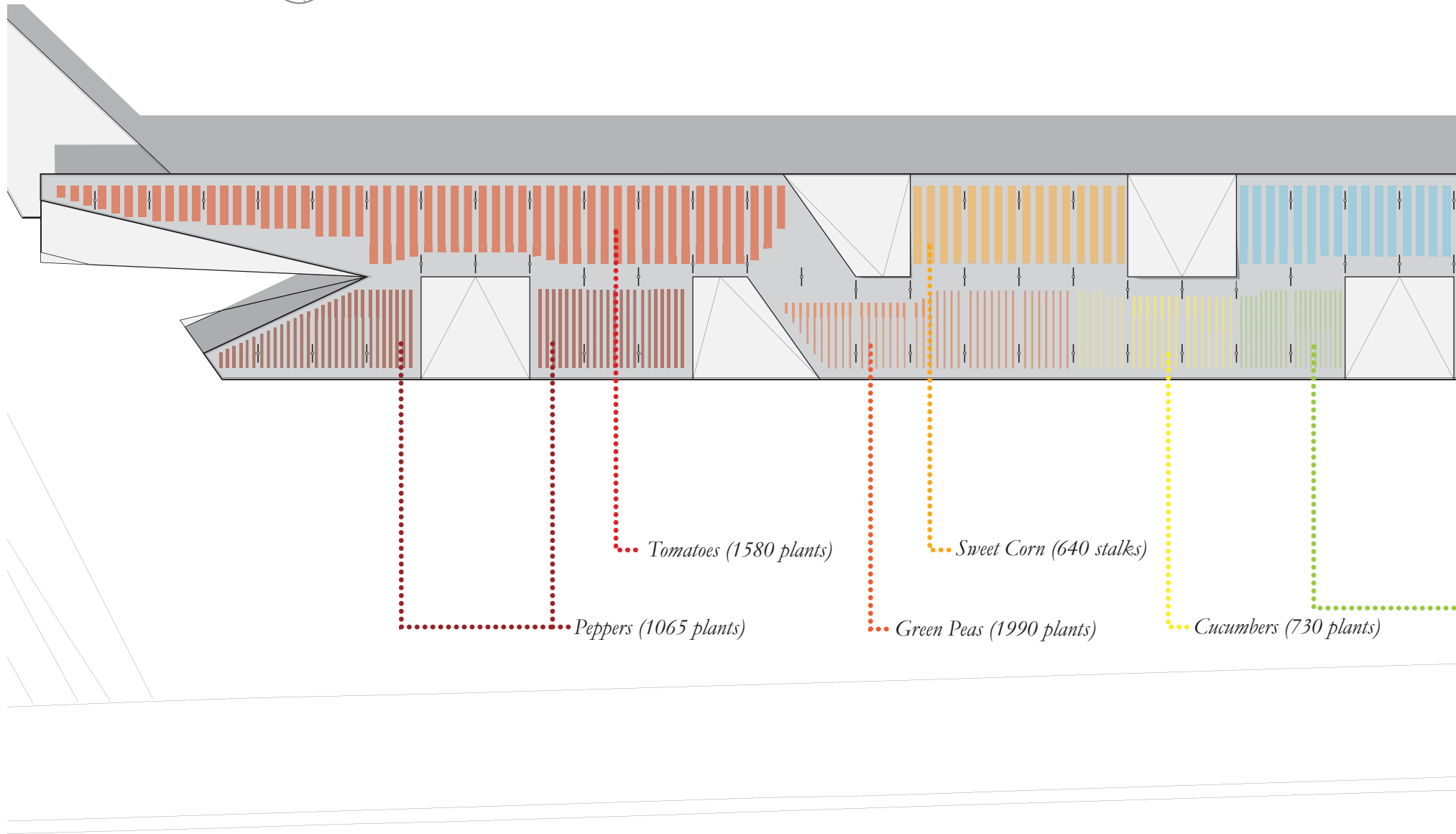


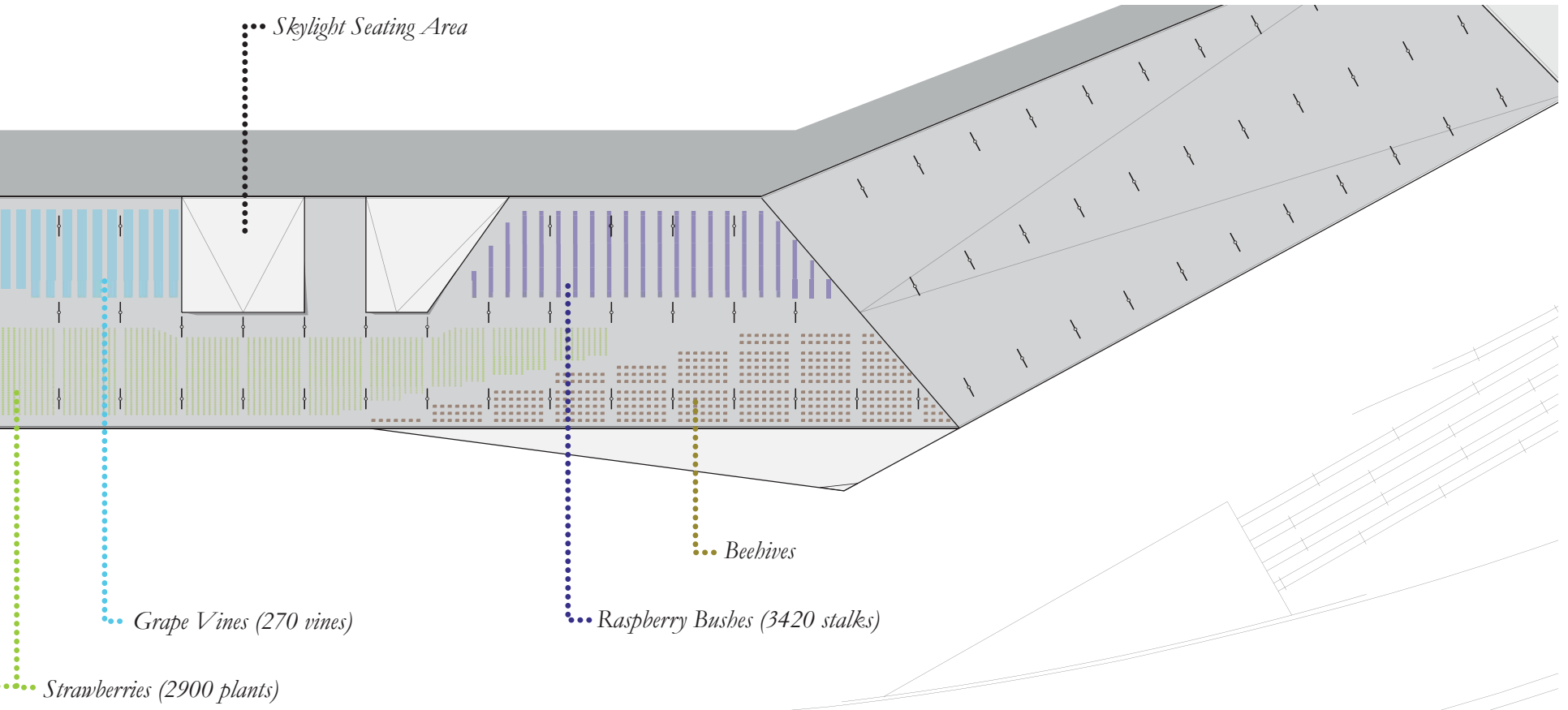
5.31 *The declining bee population is a serious threat to the security of the food system as bees are crucial to the pollination of approximately 80% of the earth's plants.*



5.32 *Over 300 varieties of tomatoes are grown commercially in Ontario, yet a very small selection is available in regular grocery stores. The agriculture garden exposes people to a wider range.*

5.33 Agricultural Learning Roof





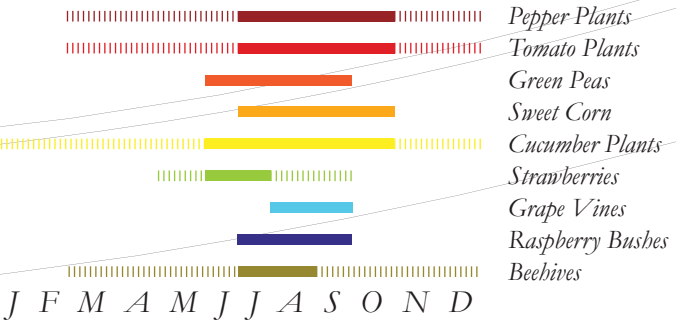
Skylight Seating Area

Beehives

Grape Vines (270 vines)

Raspberry Bushes (3420 stalks)

Strawberries (2900 plants)



WHOLESALE BUILDINGS AND COMPOST FACILITY

To see the city into the future, the entire site needs to become an intensified place of exchange. Part of this requires the addition of new buildings, while simultaneously creating efficiencies within the remaining structures. The wholesale market building is one piece of the former Terminal that remains on the site, yet it has been modified to increase circulation efficiency on the site. Cold storage rooms, formerly located on the east side of the building, were removed to improve circulation patterns. The north and south arms of the building have been extended to accommodate ten additional tenants. Recycling facilities have been expanded.

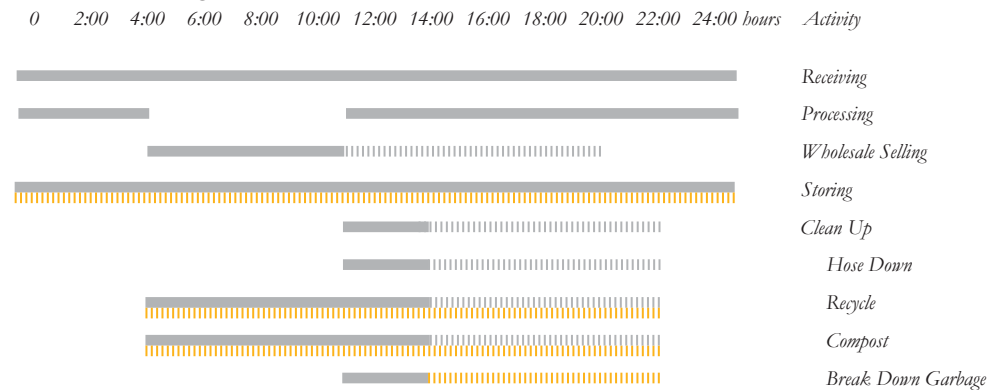
A new wholesale building on the east end of the site is a flexible space that houses cold storage rooms, and wholesale tenants. Integrated composting facilities gather spoiled produce and waste from the rest of the site, starting the decomposition process. The roof of the building continues the composting process, which terminates on the North side of the site.

Though the site's programme and logistics are sophisticated, the wholesale buildings are basic structures; essentially shed architecture that is capable of adapting quickly as seasons, functions and needs evolve. Materials such as concrete, paving stones, and wood are chosen for their efficiency; hard surfaces are easy to hose down at the end of the day.



5.34 At the height of trading hours the buyers court, the main exchange floor of the Terminal, is packed with activity.

5.35 Wholesale Facilities Programme



5.36-5.38 Sections through Wholesale Facilities

There are two types of tenant units in the proposal. The first is a classic wholesale model, in which product flows from one side of the building to the other. The second model, gaining in popularity, maximizes floor space with shared facilities.

A | Wholesale Distribution Typology 01

In this scenario, tenants have private loading facilities. Produce flows from the loading docks lining each unit to the buyers court, which is located on the other side of the building. Buyers walk a common corridor (exterior to the building) and enter wholesale units separately.

The current Ontario Food Terminal uses this model, which maximizes efficiency, as product flows continuously from one side to the other.

B | Wholesale Distribution Typology 02

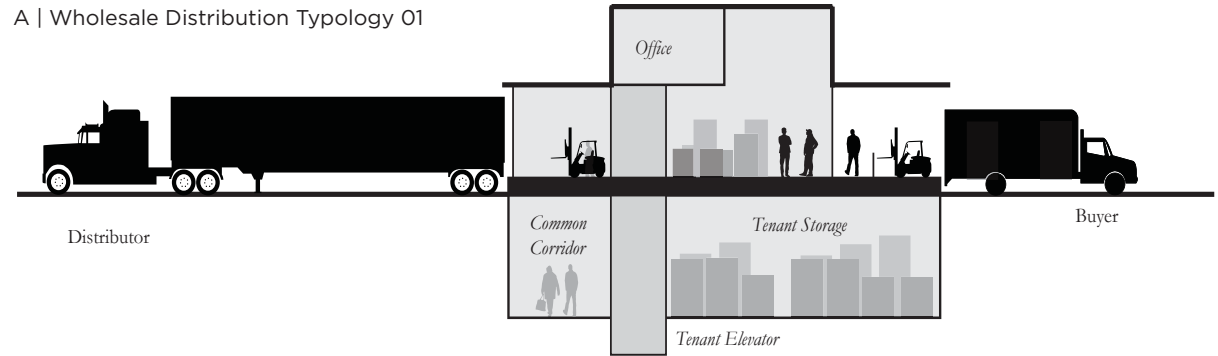
In this scenario tenants share loading facilities. Buyers walk a central path to visit each wholesale tenant. Storefronts are more compact, reminiscent of grocery aisles, and the bulk of produce is stored inside of the tenants unit. Motorized carts deliver produce to buyers trucks.

An example of this model is New York's Fulton Fish Market (located adjacent to the New York Terminal Market). This model is particularly suited to highly urban sites because it maximizes the building footprint.

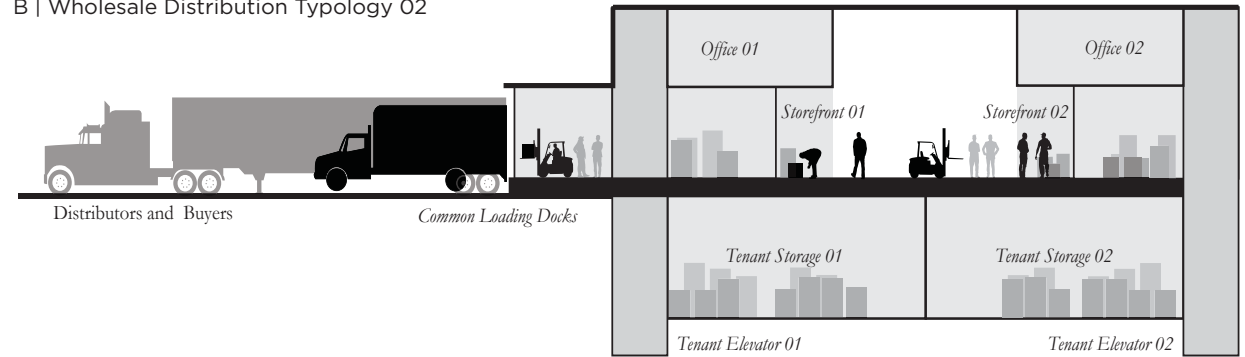
C | Wholesale Storage

The wholesale storage facility has a communal loading dock area, and 16 temperature controlled rooms. Ground level rooms house produce stored at higher temperatures (such as tropical produce and dry goods), while underground units take advantage of thermal massing to maintain a consistent cool temperature. These facilities are available to wholesalers, farmers and buyers looking to store large amounts of produce.

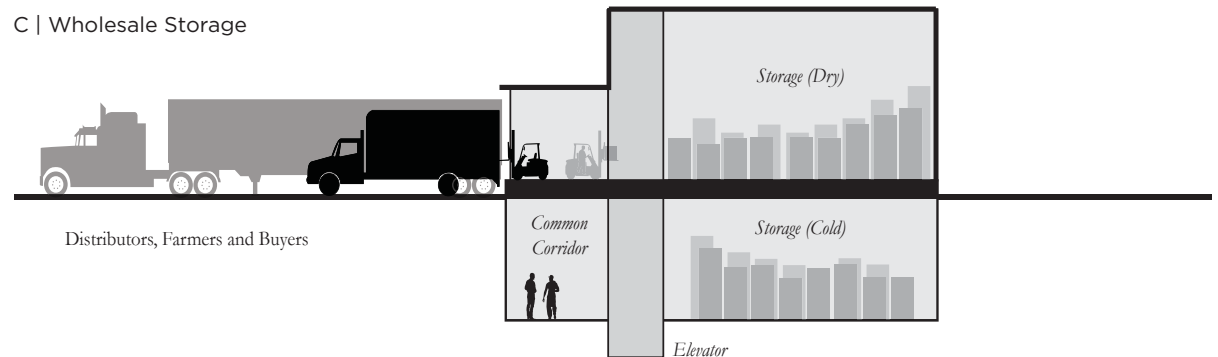
A | Wholesale Distribution Typology 01



B | Wholesale Distribution Typology 02



C | Wholesale Storage





PART SIX: CONCLUSION

“Today, the demand for locally grown food might be on a steep rise, with people in cities clamouring for free-run eggs and heirloom vegetables tenderly raised by farmers in neighbouring rural areas, but are there enough farmers left to meet this demand tomorrow? Is it already too late to have discovered the pleasures-and environmental benefits-of local eating?”

Elton, 2010

“What can Toronto do to ensure the long-term sustainability of a safe, healthy, and accessible food supply? This is a significant challenge faced by cities all over the urbanizing world: too much reliance on food from ‘elsewhere’ unbalances our food systems; provenance is lost, along with the ability to adapt to changes...”

Lister, 2008

A resurgence of popularity for local food, artisanal production and sustainable agricultural practices has put a spotlight on the network and infrastructure in place for food distribution. Not only is it timely to look at food distribution networks and their related infrastructure - the markets and stores that sell the food - in greater depth, but also to think in terms of the future of supply and distribution. Toronto has grown into a polynucleic city – for the first time it is able to sustain multiple nodes. In order to respond to the demands of an increasingly complicated and diverse city, an expanded market must be introduced.

The food industry is a complex organism of local and global systems, both sustainable and industrial. Yet there is opportunity to create an even more sustainable system by integrating more producers who focus on small-scale crops and sustainable growing methods. Generally addressing economies of scale, from minute farming operations in rural Ontario to agribusiness ventures in California or Brazil, creates the complexity that will ensure that our food system is diverse in the future.

The next question is whether or not there is infrastructure robust enough to deal with this diversity and also address other prevalent, converging issues – government initiatives, public space, global and local networks, etc. They are complicated systems that do not necessarily seem to work together and the ability to respond to them is crucial to the future of the markets that we build in the future.

How does the Ontario Food Terminal address the shortcomings or limitations of the other markets? Though its intentions are good, New York City's Green Market falls short because its hours are inconvenient and site is intimidating for the public. The creation of dual markets allows for both the public and wholesale users to engage the site simultaneously and at a scale that is appropriate for the activities. The global nature of markets like Rungis in Paris can be detrimental to the economy of local farming communities, who are unable to compete with larger agricultural producers in scale and price. The new Ontario Food Terminal enhances and encourages local agriculture by providing farmers with a diverse consumer market to compete with global players.

Secondly, how does the new design build on the strengths of these other markets? Borough market's confluence is a prototype for the converging programmes, site conditions and transportation systems that the Ontario Food Terminal will have to deal with in the future as the neighbourhood urbanizes and becomes denser. The success of the public spectacle generated at Tsukiji Market in Japan can be seen as a catalyst to encourage new public spaces in the city and Jean Talon's wider influence is an example of the potential for the South Etobicoke area to become a food-centric neighbourhood.

A local system that is economically, culturally and ecologically sustainable is able to benefit the city and surroundings in myriad ways: supporting the regional agricultural economy, generating jobs in the farming, distribution and retail sectors, and providing city residents with a supply of healthy, reasonably priced food products. By leveraging the local agricultural system against the global network, a hybrid that has the ability to meet the demands of consumers and producers alike can be created.

The new Terminal is an expanded place of exchange that works at multiple scales by adding a retail market and business development centre and placing importance on the education of consumers. This approach envisions the Ontario Food Terminal as a precedent for future food distribution facilities as a node for the distribution of both wholesale and retail food systems. The footprint of the Ontario Food Terminal is a unified network of markets, restaurants and circulation; it is a hybridized market complex that benefits the city physically and psychologically.

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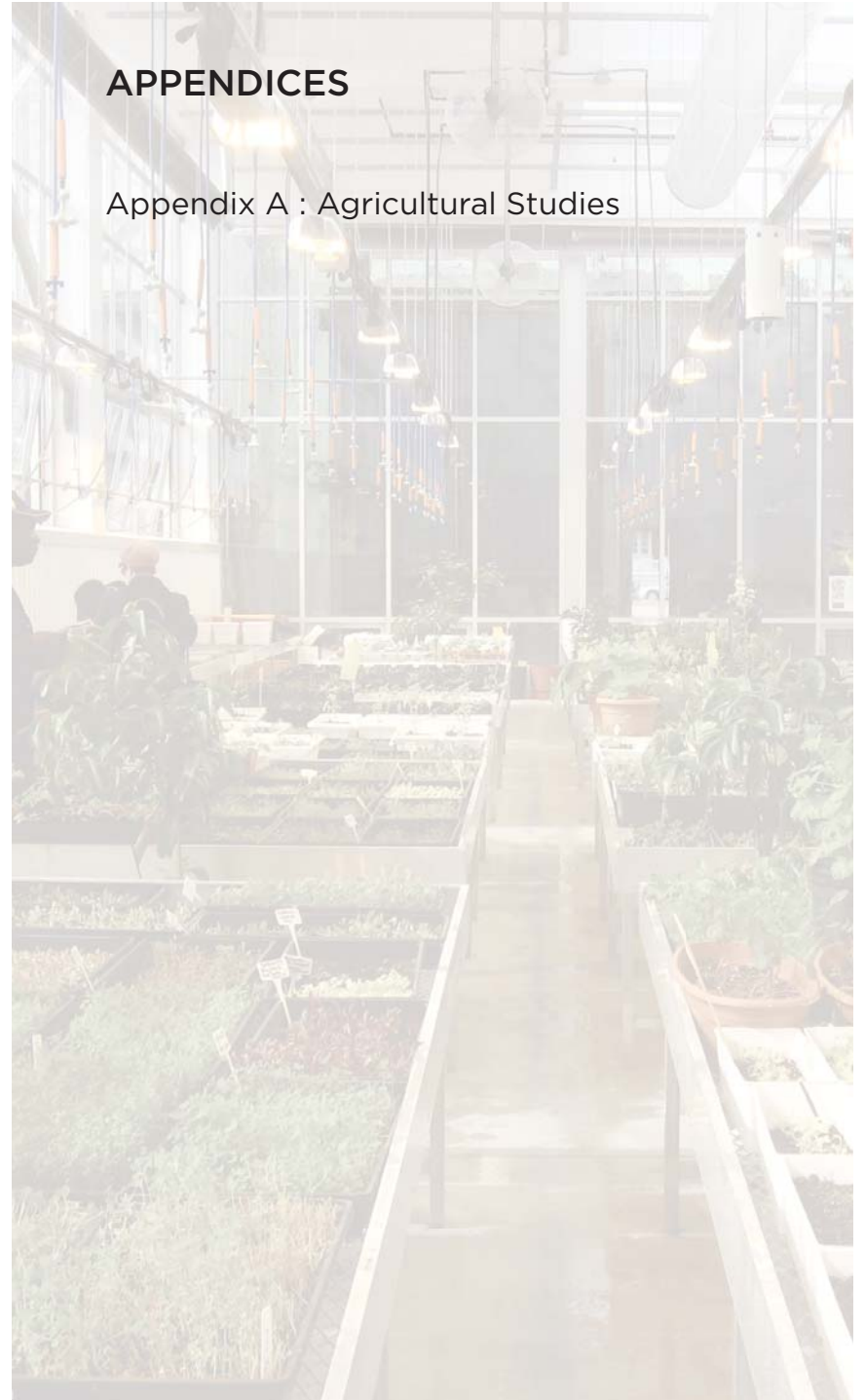
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APPENDICES

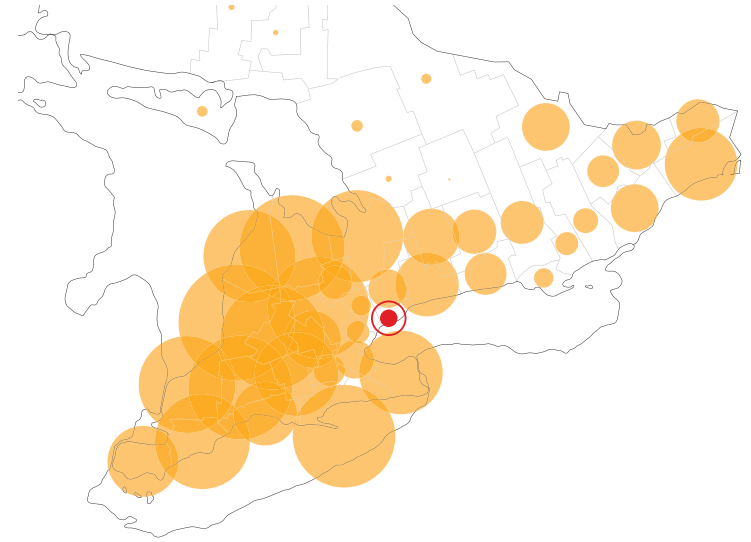
Appendix A : Agricultural Studies



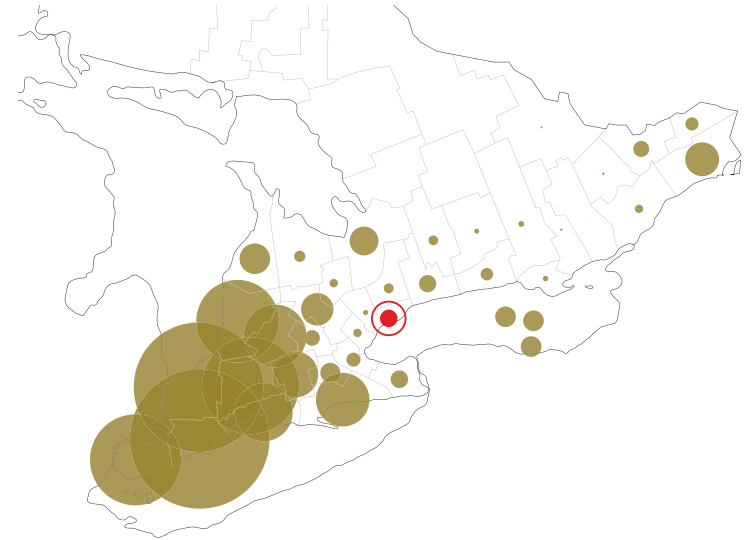
FARM DISTRIBUTION IN SOUTHERN ONTARIO

Agriculture has a long history in Southern Ontario as both a lifestyle and economic generator. The following series of diagrams map out the current agricultural landscape in terms of crop types and distribution, as well as their proximity to the Ontario Food Terminal.

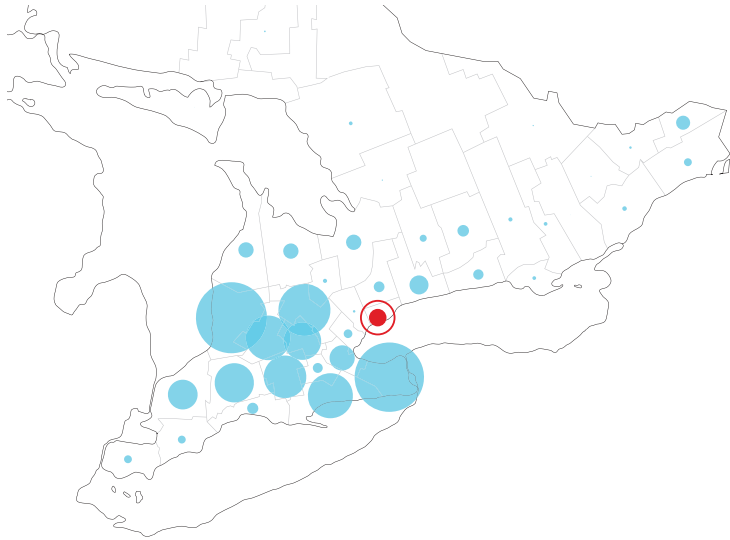
Additionally, a duo of diagrams map the seasonal nature and diversity of these crops. Greenhouses provide seasonal extension virtually year-round for key products, including tomatoes, cucumbers and peppers.



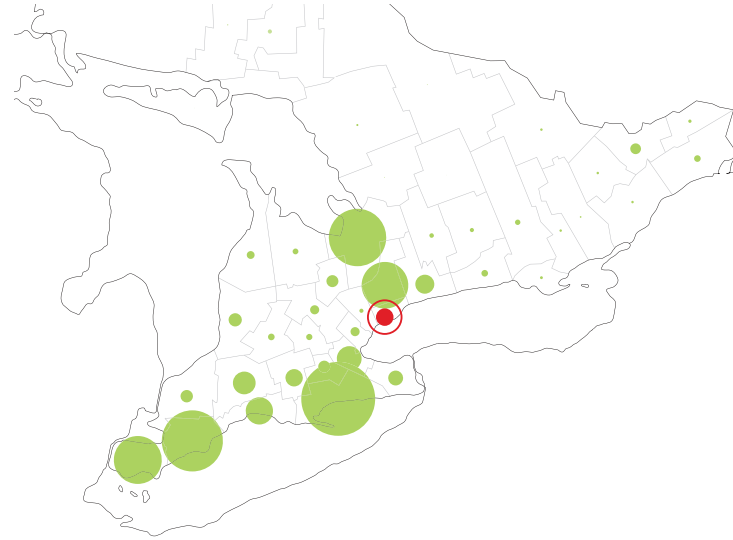
All Farm Types



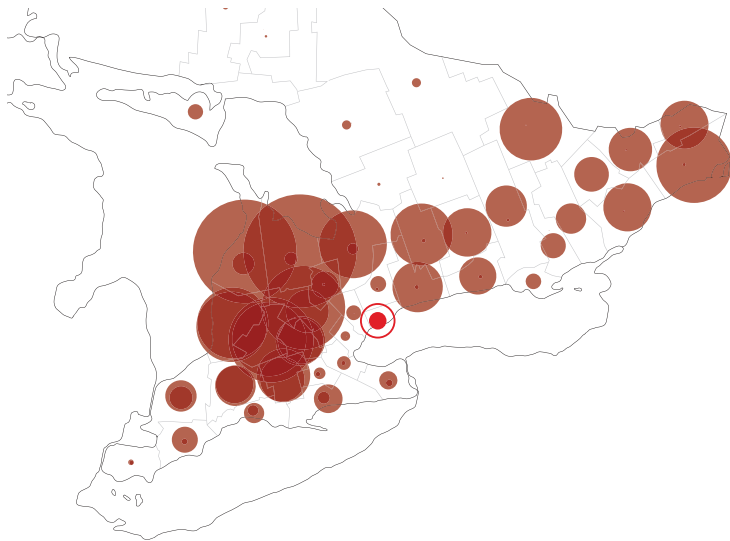
Grain



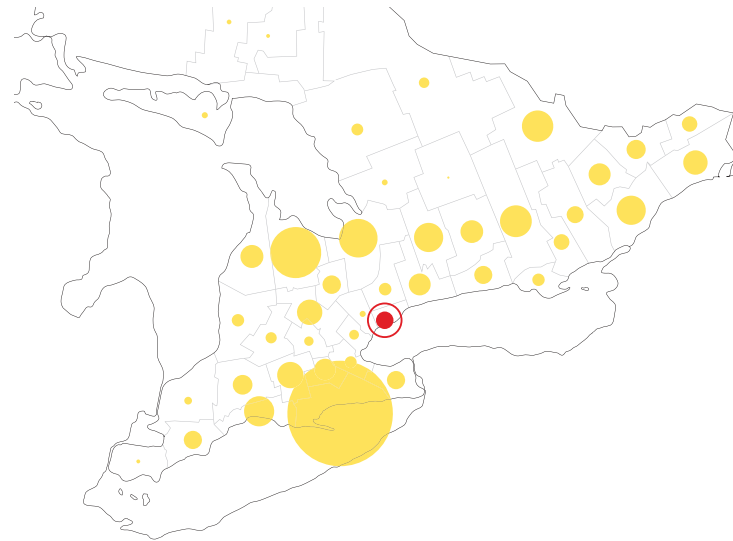
Poultry



Vegetables



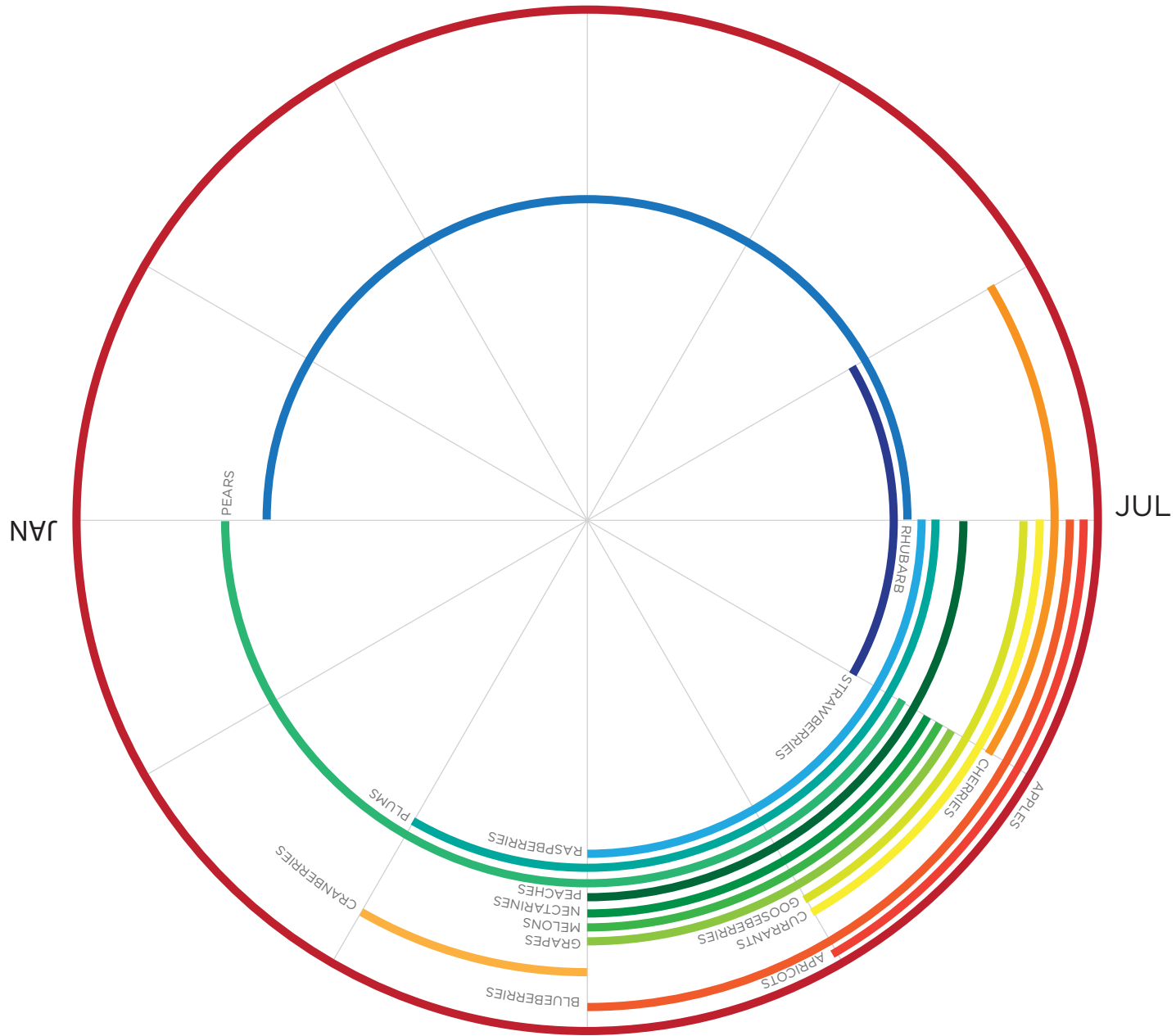
Hogs and Cattle



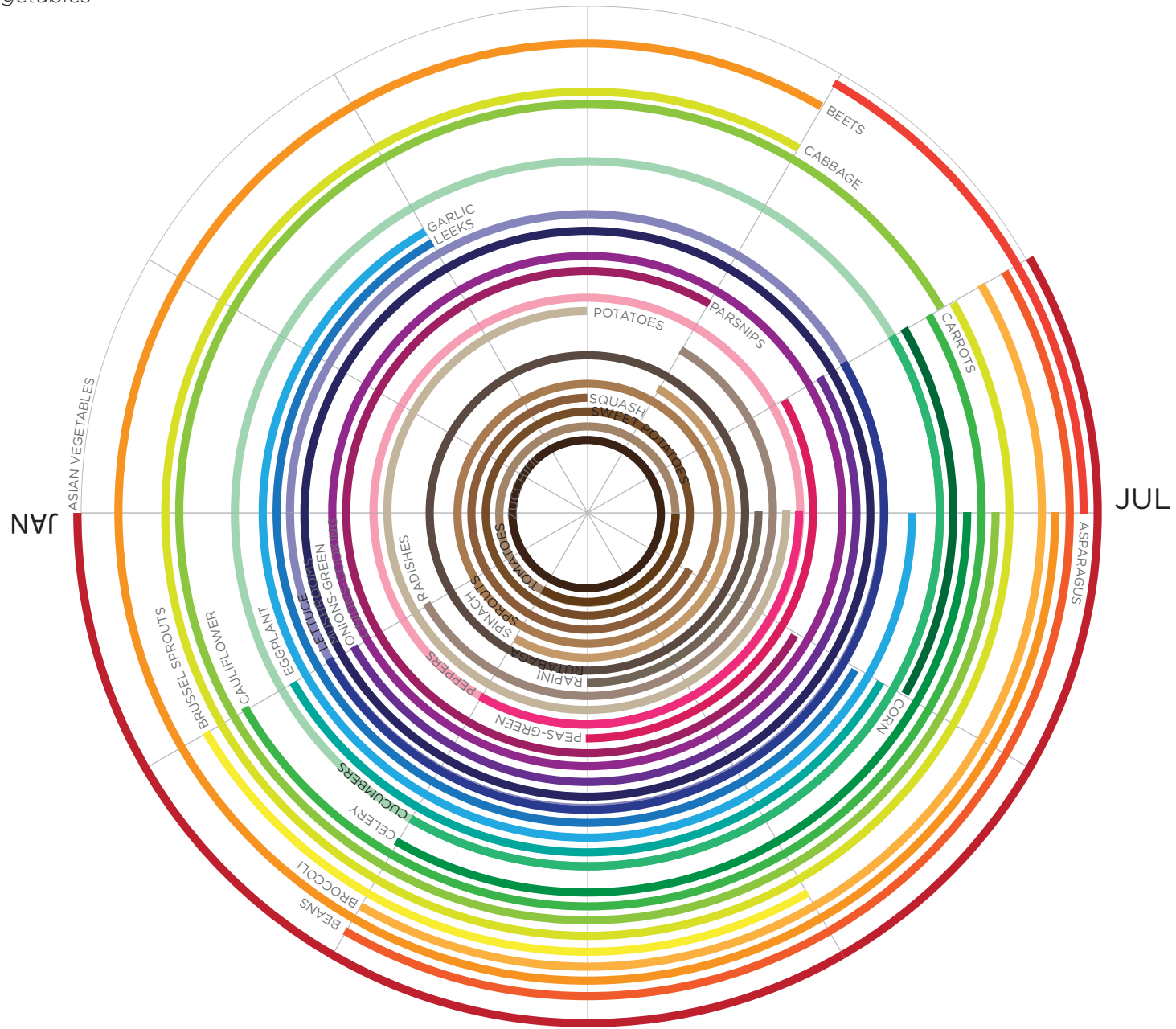
Other Crops

SEASONAL PRODUCE DIAGRAMS

Locally Grown Fruit



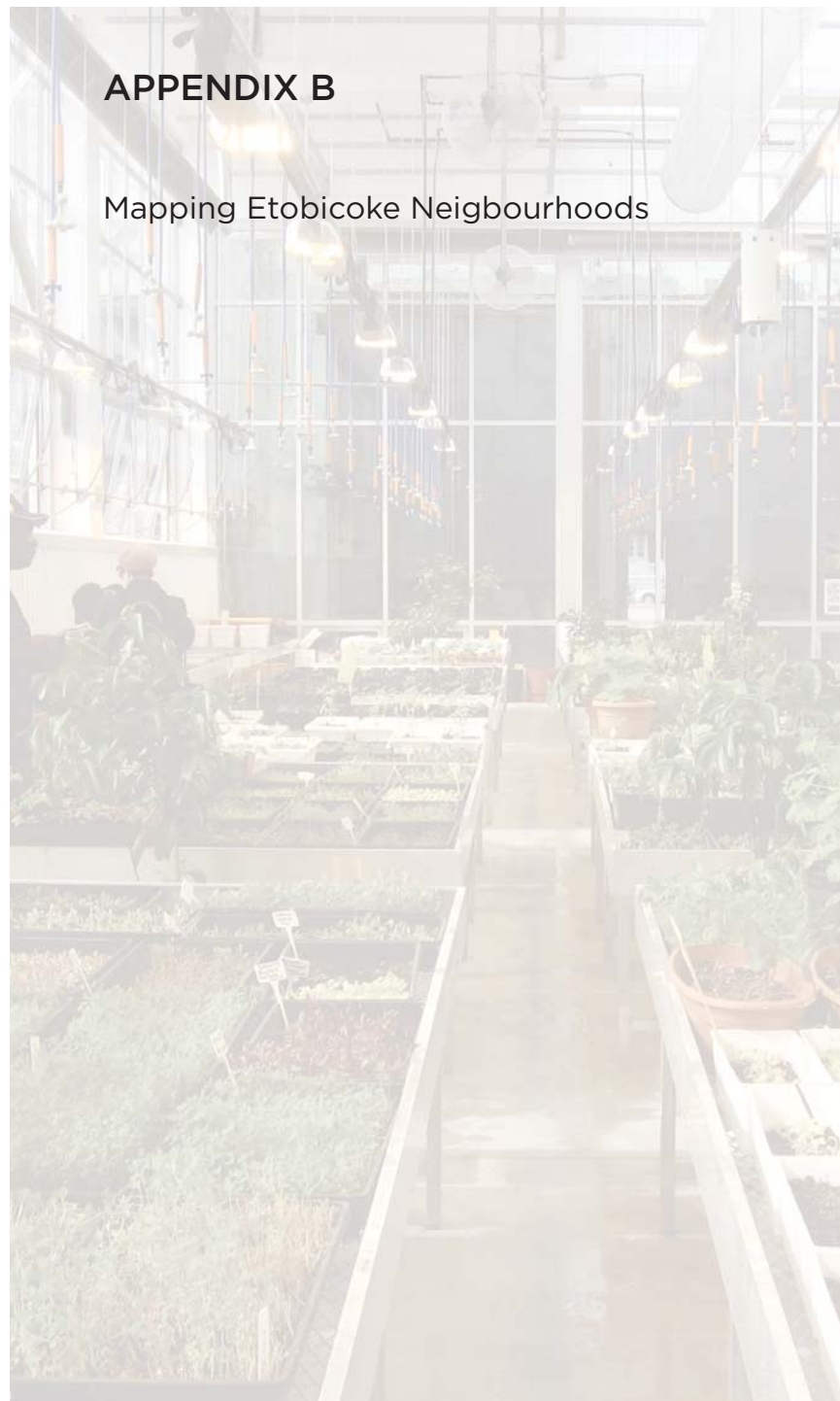
Locally Grown Vegetables



With Information from Foodland Ontario

APPENDIX B

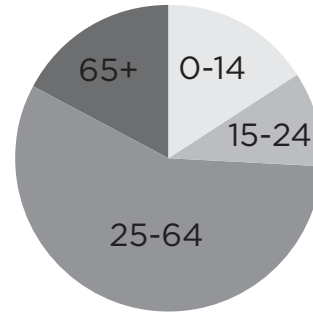
Mapping Etobicoke Neighbourhoods



MAPPING THE ONTARIO FOOD TERMINALS ADJACENT NEIGHBOURHOODS

Stonegate-Queensway

The average family has three people.



Almost 60% of residents are WORKING AGE though there is an above average number of seniors in the neighbourhood.

38.4 percent of households make over \$100,000 per year.

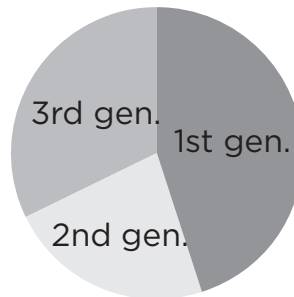


Mimico

The average age is

43

45 percent of residents are first generation Canadians.



The most common leisure activities are aerobic exercise and attending exhibitions.



\$567,107
(average)

Over 50% of residents live in single-family homes

40 percent of residents hold a university degree,



over 5 percent higher than the city average.



Over fifty percent of residents prefer to shop in chain stores like Sobeys, Loblaws, or Metro. There are ten Sobeys within ten kilometers.



56 percent of residents own their homes,

higher than the Toronto average.



Over six percent of residents work in wholesale trade.

Mimico residents commonly subscribe to nature magazines.

