

**Planning for Resilient Food Systems: How COVID-19 helped to Further Expose Gaps in
the Land Use Planning process and the Food System**

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Abstract

Peri-urban regions face many challenges and opportunities concerning land use planning, policy, and food planning. The COVID-19 pandemic has exacerbated these challenges. This paper outlines how some regions in peri-urban Southern Ontario are faring far better than others concerning food systems and land use planning. The paper utilizes various theoretical frameworks, interviews, personal experiences, and documents to help better understand what challenges and opportunities exist in Southern Ontario's land use planning system and food systems. This paper touches on research and work implemented in York Region and Waterloo, Ontario, prior to and during the pandemic. The goal of using these two regional municipalities is to draw attention to their success in how they have approached the food system in planning, while also addressing these challenges. Although some interventions being used in regional municipalities have had success, others need to be implemented on the provincial/federal level to create a fully resilient food system emersed in land use planning. This research paper contributes to the field of knowledge dedicated to planning for food, people, and agriculture in these regions.

Keywords: Food planning, food system vulnerabilities, land use planning, peri-urban, COVID-

Foreword

This paper follows the proposed themes and focuses as set out in my Area of Concentration by addressing the direct relationship between agriculture, food system planning, and land use planning in Southern Ontario. Core questions in my Plan of Study and the Proposal include:

1. How does land use planning directly impact and influence the Southern Ontario Food system?
2. What gaps have the COVID-19 pandemic exposed?
3. What can be implemented to help stop the issues related to food and planning from happening again in peri-urban regions of Southern Ontario.

In doing so, this paper has a few main objectives. The first objective is to understand why these gaps exist. The second is to understand if these gaps have been made clear to all regional municipalities in Southern Ontario. If so, what, if anything, have they been doing to close these gaps? Finally, how can land use planning help to close these gaps? These objectives all align with and elaborate on the learning objectives put forth in my Plan of Study. Specifically, this paper helps to elaborate on the importance of incorporating food systems into the overall land use planning practice, understanding peri-urban growth, and agricultural resilience and protection.

The hope is that this research will help to engage local and regional municipalities further to identify gaps within their local food and land use planning systems. Doing so will help address the areas that need fixing while promoting the importance of food, agriculture, and land use planning within communities.

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Key Terms and Instruments

A. Provincial Policy Statement (PPS)

According to the Government of Ontario, the Provincial Policy Statement (PPS) is a document that determines governments policies on land use planning in Ontario (Ontario, 2020a). The PPS determines the direction that land-use planning will take and what issues should be the ones in focus due to their impact on the communities within (Ontario, 2020a). Furthermore, the PPS ensures that provincial interests are always being met, along with public health and the natural and built environments.

B. Planning Act

The Planning Act in Ontario is best known as “provincial legislation that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them” (Ontario, 2020b).

C. Official Plan

All regions in Ontario are required to have and update their Official Plans (OP). With that being said,

An official plan describes your upper, lower or single– tier municipal council’s policies on how land in your community should be used. It is prepared with input from you and others in your community and helps to ensure that future planning and development will meet the specific needs of your community (Ontario, 2010, para.1).

OPs are one of the most critical tools used by municipalities to ensure that the policies and actions outlined in the PPS are being completed and fulfilled (Ontario, 2020a). The reason for this is that OPs are needed to guide land use planning to suit the needs of the individuals that live within the communities while also supporting future economic growth (Ontario, 2010).

Therefore, the OP provides insights on how and why municipalities have focused on food system planning (Ontario, 2021a).

D. Peri-urban / Urban Fringe /Exurban

The areas of focus in this paper are areas considered Peri-urban, Urban-fringe, or exurban issues. The term can be understood as the areas surrounding cities or other urban areas (Merriam Webster, 2021a). According to Statistics Canada (2009), the term refers to “small urban areas (with less than 10,000 population) within a CMA or CA that are not contiguous with the urban core of the CMA or CA.” This is also similar to the definition of the exurbs as “a region or settlement that lies outside a city and usually beyond its suburbs” (Marrim-Webster, 2021b).

E. Food System versus Sustainable Food System

Understanding the food system is essential to this paper. The food system is very complex and involves a variety of interrelated factors. The Food and Agriculture Organization of the United Nations (FAO) explains that

Food systems encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption, and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded” (FAO, 2018, p.1).

A sustainable food system focuses on ensuring and maintaining food security and the overall nutrition of individuals. This is done while keeping in mind the three pillars of sustainability (i.e., social benefits, economic benefits, and environmental benefits; FAO, 2018).

F. Food Desert and Food Swamp

One of the gaps that this paper will explore is the notion of a food desert. Dutko and colleagues (2012) define a food desert as areas where people that live within the community have limited access to healthy, affordable, and nutritious food. Whereas food swamps can be described as “...an urban environment where there is a lot of food for sale that is not nutritious, or worse, and therefore is seen to be a threat to public health” (Elton, 2018).

G. Local Food

Defining the term local food is somewhat challenging and ambiguous because of varying understandings of what constitutes locality. For the case of this paper, the term local food will refer to any food product that is produced, distributed, purchased, and consumed all within close proximity. Typically, local food is found at community farmer's markets, on-farm shops, community-supported agricultural programs, value-added farm shops, etc. (USDA, 2021).

H. Food Insecurity

The term Food Insecurity can be defined as a measure of inadequate access to food by individuals and households (PROOF, 2021). This can be caused by various factors, but the leading factor is income (PROOF, 2021). Household food insecurity is measured on three levels:

- Marginal Food Insecurity: This is the worry experienced by some about being able to have access to enough food and the food that is accessible is not of the best selection (PROOF, 2021).
- Moderate Food Insecurity: The forced consumption of limited amounts of food due to financial reasons (PROOF, 2021).
- Severe Food Insecurity: limited food consumption and missed meals, sometimes for several days (PROOF, 2021).

I. Agri-Food Network

The Agri-Food Network is the system that looks at everything to do with the provisioning of agri-food. This Network includes all the infrastructures, agricultural services, farmers' markets, distributors, distribution facilities, etc. (Agriculture, Food and Rural Affairs, 2021a). Due to the broad scope of the Agri-Food Network, the functioning typically occurs throughout multiple municipalities (Agriculture, Food and Rural Affairs, 2021a).

J. Agricultural Land Base

The Agricultural Land Base is part of the Agricultural System. Typically, the Agricultural Land Base is comprised of areas known to be prime agricultural land, and areas that are home to specialty crops and other rural land, which ultimately come together to create an ongoing system for agricultural production (Agriculture, Food and Rural Affairs, 2021b).

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1.0 Introduction, Importance, Goal, Issue and Motivation

The COVID-19 pandemic has exposed many of the pre-existing vulnerabilities that exist within the Canadian food system. Many of these issues are interconnected with the planning practice in the social, environmental, and economic realms.

These issues mean that the food system lacks resilience and is susceptible to vulnerabilities that begin outside of its operating realm (MacRae, 2021a). This is especially concerning given that the population relies on the food system for nourishment. The effective operation of the food system can be identified by an individuals' ability to access, gain from, and consume food and products from local restaurants, farms, and grocers (MacRae, 2021a). Unfortunately, the effectiveness relies on millions of actors within the system (MacRae, 2021a). Typically, local/provincial/federal policymakers do little to help ensure the planning and coordination of the food system (MacRae, 2021a). This lack of collaboration and coordination has led to many hiccups within the food system and in the land use planning practice. Examples include labour disruptions, long-distance supply chain shortages, extreme climate events, political disputes, and food safety and public health emergencies (MacRae, 2021a).

The outcomes of these disturbances can have significant impacts on the communities within which they work. For example, food prices in Canada, and globally, have been heavily inflated as a result of stockpiling and limited availability (Savary et al., 2020). By-laws and policies imposed by varying levels of governments have altered consumer spending, forcing many consumers to rely on big box stores as smaller shops in parts of Canada were deemed non-essential (MacRae, 2021a). There was also a considerable increase in the amount of excess food

that manufacturers and producers threw out because of the sudden shift away from restaurant provisioning (MacRae, 2021a). Likewise, thousands of Canadians are unemployed due to the pandemic (Statistics Canada, 2021a). This added stress puts even more pressure on vulnerable populations within Canada.

Unfortunately, poor coordination between various actors involved within the system has led to this situation. These actors include policymakers, food firms, agricultural economists, planners, and others (MacRae, 2021a). For many of these actors, especially those within agricultural economics, there is a limited understanding of the relationship between supply chains and the broader food system (MacRae, 2021a). Limited policy coordination and planning exists within the local, provincial, or federal levels of the Canadian government. This exposes how the food system, both locally and nationally, functions with little resilience leaving many vulnerable. An example of this poor functioning is the launch of Canada's first-ever food policy in June 2019 (Yasmeen et al., 2020). The goal of this food policy was to help create a roadmap for Canadians to have a healthier life, all the while creating a more sustainable food system (Agriculture and Agri-Food Canada, 2017a). Unfortunately, the release of the food policy had very little, if any, counteracting effect on the vulnerabilities of the food system when the pandemic hit.

Focusing on Southern Ontario specifically, this paper examines whether urban and regional planning is sufficiently robust to promote food access for the entire population and the overall resilience of the food system. This will be achieved by exploring the degree of planning for a sustainable and health-promoting food system in Southern Ontario, particularly in peri-urban/fringe communities. This paper aims to highlight the current processes that are being used within the land-use planning practice and how it is either inclusive or non-inclusive of food

systems in Southern Ontario. Likewise, this paper also hopes to draw attention to the work that key regional municipalities are doing to include food into the planning narrative to see what is working and what is not working. This is so better, and more inclusive strategies, can be employed throughout regional municipalities in Ontario. The pandemic experience of Ontario regions will help shine a light on these questions.

Importance

This topic is imperative because many, if not all, of these gaps in the food system have previously existed. The pandemic has exposed these gaps making their impacts ever more apparent. The lack of adequate planning of communities to incorporate spaces for food, agriculture, and other food-related industries will have many adverse effects on communities.

Furthermore, the pandemic has also shown the importance of closing these gaps; first to ensure that healthy and adequate food is available in communities, and second, that agriculture production remains intact now and into the future, ensuring that food and agriculture play an integral role in the economy.

Before the pandemic, many planners and policymakers were considering the rapid rate at which Canada was losing farmland, most of it to sprawl and urban expansion (Sustainable Society, 2021). This is even more concerning considering that only approximately 7% of Canadian land can be used for agricultural purposes, and of this 7%, only about 5% is designated as prime agricultural land (Francis et al., 2012; Hein, 2020; Turner, 2020). This number is even smaller in Ontario, where urban expansion continues to be a problem. According to the 2016 census, there has been a 2.5 % decrease in farmland and farm numbers have dropped by approximately 4.5 % in the last five years (Statistics Canada, 2017).

As small as this number may seem, this decline has significant implications. In Southern Ontario, where a large portion of the agricultural land loss occurs (Epp & Caldwell, 2018), will likely have notable impacts on the economy, food production, food access, and food connections. To put this into perspective, Ontario's food system (which includes agriculture) plays a significant role in feeding local communities, the province and Canada at large. Ontario's food system generates approximately \$63 billion in food product sales (MacRae et al., 2015), a prominent role in the provincial economy.

Many regions in Southern Ontario, specifically fringe/peri-urban regions such as York Region, also referred to as the Regional Municipality of York, and the Region of Waterloo, had sought to close these gaps well before the pandemic made them conspicuous. However, others are now beginning to see the importance of refined land use planning and policies that promote local food and agricultural land for all its local, regional, and provincial benefits. Some regions in Ontario have been working closely with agriculturalists, planners, and other Agri-food and Agri-industry workers to close these gaps. In contrast, other regions have yet to move forward to remedy the issue.

York Region and the Region of Waterloo will be used as examples to explore two regions that have and continue to do work to close these gaps within the food system. This will highlight the pros and cons of their approaches and the various challenges these regions face, specifically around land use planning and how the practice needs to better include the whole food system. Proposals are offered on how the urban and regional planning process could better prepare us to deal equitably and sustainably with future disruptions.

Goal

Overall, this paper aims to look at how land use planning directly impacts the many food system-related vulnerabilities that the COVID-19 pandemic has exposed. This discussion will create an opportunity for integrated planning in peri-urban regions for sustainable and resilient peri-urban growth to occur while reducing the likelihood of food-related vulnerabilities being present.

1.1. Structure

The paper is divided into eight main sections. The second section of this paper provides an overview of the literature surrounding topics discussed within the paper. The third section gives an overview of the methodology used to conduct the research for this paper. This includes the theoretical frameworks, research design, and the document and policy analysis. The fourth section provides background on agriculture in Canada, what the province of Ontario is doing to support agriculture and what is missing when it comes to supporting the whole food system. The fifth section analyzes both regional Municipality Examples. This section highlights the strengths and vulnerabilities both these Municipalities are facing when it comes to incorporating food systems into land use planning. The sixth section is focused on discussing these vulnerabilities and understanding how land use planning needs to better incorporate the food system. Section seven briefly goes over the recommendations to address the vulnerabilities discussed throughout the paper and outlines the limitations of the study. Finally, the last section of this paper provides a high-level summary and concluding remarks of the paper.

Section Two: Literature Review

2.1 Peri-Urban Landscapes, Food and Agriculture

Peri-urban spaces are best understood as mixed spaces between urban and rural environments (Wandl & Magoni, 2016). These areas are generally built up but are predominantly made up of scattered and low-density developments (Wandl & Magoni, 2016). Usually, peri-urban spaces have open areas, woodlots or agricultural lands (Nilsson et al., 2013).

When looking at peri-urban areas, is it essential to view them as outcomes of sprawl or expansion from nearby urban areas (Wandl & Magoni, 2016). This influx of population from these nearby urban areas typically leads to competing land uses within the region. This typically leads to tension for planners when figuring out how to accommodate all needs and uses of the land (Antrop, 2004). Peri-urban regions cannot be distilled down to a unified definition (Iaquinta & Drescher, 2000). However, they explain that key trends typically characterize peri-urban regions. They are somewhat located near or adjacent to a city. They are experiencing an increase in population growth, and they are expecting constant expansion of land used for urban activity (Iaquinta & Drescher, 2000).

Another seemingly interchangeable word for peri-urban is the term exurbs or exurbia. According to Taylor (2009), this zone can be understood as country living while directly connecting to an urban area. The two main competitors for the land are agricultural production and housing development. These competing uses create a lot of tension because, on one end, there are those who want to preserve the land for agricultural purposes and see peri-urban regions as opportunities for those within the agricultural industry to develop long-lasting, sustainable food hubs (Akimowicz et al., 2016). To back this, there is a considerable collection of literature that highlights the significant roles that peri-urban agricultural land plays in

maintaining ecosystem services (Wilhelm and Smith, 2018). The development-based approach is summarized by Leo and Anderson (2006, p.169) who state that, “there is no such thing as bad growth and no such thing as too much of it”. These different approaches lead to drastically different outcomes in peri-urban regions.

That being said, many fringe/peri-urban regions in Southern Ontario are vying for development, but remain essential regions for agricultural production, which plays a significant role in promoting the economy, food access, and distribution. Unfortunately, many of these communities are now in a state of constant change (Epp et al., 2017). This has resulted in an alarming amount of Southern Ontario’s prime agricultural farmland being disrupted and paved over (Epp et al., 2017). Although this may seem like common practice to many, regrettably, these agricultural lands are home to some of southern Ontario’s prime soil (Epp et al., 2017). Without these prime agricultural lands to produce the foods that individuals living in cities consume, there will be significant impacts on local and regional food supply chains. Since it is such a valuable resource, this begs asking why agriculture is not always included within the scope of planning.

Similarly, Tomalty (2015) argues that better land-use planning is needed to ensure the longevity of agriculture in Ontario. He explains that the Greater Golden Horseshoe (GGH) is Canada’s largest and fastest-growing region, and this has caused many adverse impacts on agriculture (Tomalty, 2015). Further, he argues that poor land-use planning is the cause of much of this stress on the agricultural system. This is critical to understand because the agricultural system in the GGH area makes up a large portion of the economic sector, vital not only to Ontario’s success but also to Canada’s GDP (Tomalty, 2015). For this reason, Tomalty looks at how land-use planning has been historically problematic for agricultural production, food access

and food distribution. Further, Tomalty (2015) argues that “if carefully planned and smartly managed, growth can present an opportunity to build a more prosperous, healthy, and sustainable Ontario, with vibrant urban and rural communities that offer more (and better) options to live, work, and play” (Tomalty, 2015, p. 4).

2.2 Understanding the Relationship Between Urban Planning and Food Systems

Planning plays a significant role in understanding food system-related vulnerabilities. To understand these vulnerabilities, many scholars have attempted to analyze the food system, but its complexity makes it difficult. The Food and Agricultural Organization of the United Nations (FAO; 2018, p. 1) explains that the food system

...encompasses the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption, and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded.

With this complexity in mind, many stressors are impacting the effectiveness of food system operations, including economic structures, governing bodies of the system, its sustainability, the impacts that the food system currently has on the natural environment, agricultural land pressures and, finally, the impacts that the food system has on both individuals and the population at large (University of Oxford, 2021). Other elements, such as food access and food security, are faced on a global and local level. Various socio-economic and socio-demographic influences contribute to these and are exacerbated by poor planning and poor food access (Tarasuk & Vogt, 2009).

2.2.1 Lack of Integration

The notion that food is not well integrated into urban and regional planning is not a new concept, nor is it a place-specific issue. In 2018, FAO released a report titled *Integrating Food into Urban Planning*. Typically, land use planning has focused on housing, transportation, the economy and the environment, and usually ignores food issues (Pothukuchi & Kaufman, 2000; Raja et al., 2017). The report outlined the potential links that can be made between food and urban and regional planning while detailing how, unfortunately, food issues are still predominantly missing from urban planning literature (FAO, 2018). Similarly, Slade and colleagues (2016) outlined the roles that urban planning should play in addressing and responding to issues of food access and food insecurity. The authors research the various systemic barriers imposed on places attempting to mitigate food insecurity while making recommendations on how this is to be done in the future.

An example of how food is not well integrated into urban and regional planning can be seen within Southern Ontario. There is, unfortunately, a misconception that preserving agricultural land within the Greenbelt designated areas is enough to support a healthy and resilient food system. Alas, this is not the case, because even with the protection of areas designated as Greenbelt, we still see a decline in prime agricultural land directly adjacent to the Greenbelt due to mass developments within these agricultural regions (Tomalty, 2015). Likewise, we also see constant lobbying from developers and other speculators to expand the development boundaries without any buffer between residential and prime agricultural areas (Tomalty, 2015). Therefore, poor planning leaves many agricultural communities fragmented and disconnected from integral environmental resources (Tomalty, 2015).

The Ontario Professional Planners Institute (OPPI) has put out a call for food to be better incorporated into planning because of how interconnected the food system is to the social, economic, and environmental factors that comprise planning practice (OPPI, 2011). Many elements of the food system are not incorporated into the framework of planning policies, such as the Planning Act, the PPS, Places to Grow Act, and Official Plans.

Desjardins et al. (2011) explore the benefits of incorporating more progressive policies about food systems into land-use planning in Waterloo, Ontario. They highlight how planning is an essential tool to redirect food systems to be more sustainable and equitable (Desjardins et al., 2011). They also highlight the importance of incorporating both urban and rural food related planning policies to foster greater collaboration, which will in turn, increase political will. They name two important contradictions: (1) the importance of agriculture to the economy while rural/agricultural land is in decline, and (2) an abundance of rich farmland but a lack of access to healthy food (Desjardins, 2011). The article posits that land use planning can help re-envision the current food system as inclusive and promoting health, social wellbeing, the environment, and the economy.

2.2.2 Planning, Food Deserts and Food Swamps

A food desert can best be understood as areas where people have minimal ability to access healthy, nutritious, and affordable food (Dutko et al., 2012). Larsen and Gililand (2008) explored the impacts of poor urban planning and food deserts in Ontario. They concluded that various socio-economic factors coupled with poor urban planning have increased food deserts in different cities in Ontario (Larsen & Gililand, 2008). According to Florida (2010), food deserts have become a common aspect throughout Toronto and the Greater Toronto Area (GTA). More recently, a news article released in 2019 explains that inadequate zoning by-laws led to the

creation of a food desert in Guelph, Ontario (Bell, 2019). Ultimately, this shows that food system planning and land use planning must work together to close gaps that have and continue to exist within the food system.

2.2.3 Planning and Development

It is clear that planning predominantly focuses on residential, commercial, and city development as the main drivers in peri-urban development. However, what is important to note is that consumers play a significant role in the disruption of agricultural land and local food systems to favour peri-urban development. This desire for housing has, in the current approach, encouraged urban sprawl (Bunce, 1985; Environmental Defence, 2013; Habibi & Asadi, 2011; Suttor, 2007) As defined in the Britannica Encyclopedia, sprawl can be understood as the disorganized and unnatural spread of urban and industrial uses into the adjacent countryside (2021). This disorganization of development and urbanization leads to escalated degradation of the environment and loss of agricultural lands (Ewing, 1997).

However, this is not to say that planning for population growth and housing is not important. According to the government of Ontario (2020c), the population in the province is expected to increase by 31.5% over the next 27 years. Most of this growth is expected to occur in peri-urban and fringe areas surrounding the Greater Toronto and Hamilton areas (Ontario, 2020c). This makes our current moment a crucial time to critically think about how to adequately plan for development and food in peri-urban regions in Southern Ontario.

2.3. Understanding the Food system

2.3.1 Sustainable Community Food System

To achieve a healthy and sustainable community food system, it is first important to understand what is included in a local food system. According to Feenstra (2002), a sustainable food system can be best understood as inclusive of various elements and factors within the economic, social, and environmental realms. These factors include the afforded access to all members within the community to have adequate, healthy, and nutritious food. There must be sustainable production practices on local family farms (Feenstra, 2002). Next, there needs to be enhanced production methods and marketing practices to ensure that there are direct links between farmers and the everyday consumer. There also has to be constant promotion of businesses and jobs in and through the whole food and agricultural industry within the area (Feenstra, 2002). Subsequently, more suitable living and working conditions are required for those that work within the industry. Finally, the community needs enhanced policies that directly promote the food system. Planning practices to include food systems need to be aware of all these factors to ensure that the food systems needs are being met to reduce the vulnerabilities present (Feenstra, 2002).

2.4 Understanding Vulnerabilities

The past two years have revealed how the COVID-19 pandemic magnifies many pre-existing vulnerabilities present within the global system. These include issues related to food access, access to housing, and many more. Although many were present before the crisis, these vulnerabilities have since been shown to be crucial indicators of the need for changes to be made to our current global systems.

The topic of food-related vulnerabilities has been increasing recently due to the COVID-19 pandemic. However, this is not a new subject for scholars as many have been researching and writing about the numerous vulnerabilities related to the current food system for quite some time. Food security is usually the desired outcome to the overall food system (Paloviita et al., 2016). However, achieving this is typically limited by the various vulnerabilities within the system (Paloviita et al., 2016).

Food system-related vulnerabilities need to be viewed and studied as place-based concepts (Cutter et al., 2003). The reason for this is because food systems globally operate differently depending on a variety of factors, such as the climate and various environmental and locational factors, but the system is also impacted by social factors, which unfortunately all contribute to the degree of system vulnerability (Bohle et al., 1994; Leichenko et al., 2010). These impacts are broken down into exogenous (e.g., natural drivers) and endogenous drivers (e.g., social drivers) (Khazai et al., 2014). Furthermore, due to these varying degrees of impact there is no one specific way to completely quantify or observe vulnerabilities (Hinkel, 2011). However, attempting to understand these vulnerabilities and their root causes, will help to remedy them in the future.

2.4.1 What the Pandemic Further Revealed about the Weak Relationship between Planning, Food Systems and Vulnerability.

In Ontario, and much of Canada, the first COVID-19 pandemic lockdown occurred on Friday, March 16th, 2020. Many disruptions were felt and noted in the first few weeks and the months to follow. At the beginning of the lockdown, grocery stores were rapidly selling out of supplies such as flour, toilet paper and paper towel, so much so, that grocery stores had to

impose limits on items for purchase to constrain hoarding of goods. Other impacts included increases in food insecurity experienced, and manufacturing shifts from food service to retail.

Moreover, there has been evidence that the pandemic has caused disruptions to the local and regional food supply chains (Aday & Aday, 2020; Savary et al., 2020). The pandemic has caused unprecedented perturbations to food production, processing, transportation, distribution, and demand (Aday & Aday, 2020; OECD, 2020). For example, producers dependant on air transport for their goods were faced with increased flight costs with increased supply demands (Pratt, 2020). Producers dependant on ship transport were also impacted due to various reasons, including that ship crews not being allowed to disembark in some countries due to COVID-19 restrictions (Marschke et al., 2020), and the decline in availability of shipping containers, as a result of them being stuck on ships or at ports (Cross, 2021; Goodman et al., 2021). Further, the pandemic experience has drastically imposed worker movement and trade restrictions (Aday & Aday, 2020). Even more, with the drastic shift from food service to retail, manufacturers were forced to reorient production to focus on retail food distribution (Dekay, 2020; Hailu, 2020).

Many other areas of the agri-food system have also had their vulnerabilities brought to the forefront. For example, food processing plants across Canada were linked to outbreaks of the COVID-19 virus (Reuben, 2020). Another example, due to the shift in food demands, manufacturers sometimes found it cheaper to completely discard food rather than repackaging the food items for supermarket retail needs (MacRae, 2021a). These were just some of the vulnerabilities that emerged.

2.4.2 The Vulnerable Sector Labour Issues and Shortages

A. Temporary Foreign Workers.

Many labour-related issues exist within Canada. However, the agriculture and agri-food industry by far has the most labour-related issues and shortages. Even before the pandemic, the Canadian agricultural sector heavily relied on the work of Temporary Foreign Workers (TFWs) (Gross, 2014). The TFW program is best understood as temporary short-term solutions to occupation shortages (Gross & Schmitt, 2012). Over the last decade, there has been an increase in TFWs (Marsden, 2011). In 2019, Canada set a record by employing approximately 64,000 TFWs, with nine of every ten working in the many food system sectors (Falconer, 2020). The Canadian Federation of Agriculture (2021) explained that in 2018, the agriculture sector faced a labour gap of about 63,000 positions. This shortage existed even after extensive marketing and advertising of agricultural industry jobs to local citizens. The TFW program has been increasing in popularity because it acts as a tool that allows employers to meet their production needs and skill requirements when workers are not found within Canada (Gross, 2014).

Another area of labour concern was the health and well-being of the TFWs and Canadian workers within the industry, especially those workers within the food processing sector (Larue, 2020). The working conditions can lead to infection of workers within the processing facilities, which can lead to the temporary closures of these facilities (Larue, 2020).

Overall, the COVID-19 pandemic has highlighted how reliant Canadians are on TFWs for the continual operation of the Canadian food system (Falconer, 2020). Without them, scholars agree that our food system is put at risk (Falconer, 2020). This view is similarly shared by Cranfield (2020), who explains how limited labour supply within the agriculture and agri-

food industry had varying impacts on the prices of food, which will in turn impact those who are already vulnerable as a result of COVID-19 related income declines.

B. Other Industries.

The pandemic had a significant impact on the Canadian Labour Force. In March of 2020, practically everything had shut down. Overnight, hundreds of thousands of individuals were laid off from their jobs. There was approximately a 15% decline in employment and, on average, a 32% decrease in total hours worked weekly (Lemieux et al., 2020). Even more startling, about half of all jobs lost were to those earning within the bottom quartile (Lemieux et al., 2020). Most of these losses are seen in public-facing industries (Lemieux et al., 2020). The restaurant industry was the hardest hit industry within the food system. As of March 1, 2020, the pandemic led to approximately 800,000 restaurant workers being laid off across Canada, with many restaurants never opening back up (Ker & Cardwell, 2020; Restaurants Canada, 2020). Many other industries were also hit, but the numbers were far less than those within the restaurant industry. These impacts on the labour force and food system have also highlighted the many pre-existing vulnerabilities within the sector.

2.5 Food Insecurity/Food Access Canada

Canada has always had an issue with food insecurity across the country. This is true as approximately 12.7% of Canadian households experienced some level of food insecurity before the COVID-19 pandemic (Tarasuk & Mitchell, 2020). Notably 4% of this 12.75% were classified as individuals/households experiencing marginal food insecurity, 5.7% were classified as moderately food insecure, and approximately 3% were categorized as experiencing severe food insecurity (Tarasuk & Mitchell, 2020). Various factors that have led to this situation,

including poor access to food markets, lack of local food, issues surrounding transportation, and purchasing cost (Ontario, 2019a).

2.5.1 Food Access and Food Security Ontario

Food access means having access to healthy affordable foods (Coveney & O'Dwyer, 2009). Yet, Ontario faces the contradiction of the highest percentage of grocery stores among all provinces, with approximately 5,460 in 2019 (Statista, 2020), and approximately 57,211 farms (Statistics Canada, 2014). However, according to the Government of Ontario (2019), more than 595,000 households in Ontario are experiencing some form of food insecurity. This means that 13% of households or 1,700,000 people are experiencing some form of food insecurity in Ontario (Tarasuk, 2020). The rates of food insecurity disproportionately affect marginalized and immigrant populations. For example, according to the First Nations Information Governance Center (2012), approximately 48% of First Nations living on reserves throughout Ontario are experiencing food insecurity (with approximately 14.5% experiencing severe levels and approximately 33.1% experiencing moderate levels). This shows how planning, and the poorly structured food system has impacted vulnerable populations.

2.5.2 Food Insecurity/Food Access and COVID-19

According to PROOF Food Insecurity Policy Research (2021), approximately one in every eight households nationally were experiencing food insecurity in 2018. This translated to approximately 4.5 million Canadians struggling to put food on their table (Community Food Centres, 2020). However, during the first two months of the COVID-19 lockdown, the number of individuals and families experiencing food insecurity increased to approximately one out of every seven households (Community Food Centres, 2020). This increase in food insecurity was followed by an increase in funding to support food charities to provide emergency aid to those in

need (Community Food Centres, 2020). A survey conducted on 220 food bank clients in May to June of 2020 showed that there had been a 200% increase in new clients (Canadian Institute of Food Safety, 2020). This increase in food bank use can be associated with what Deaton and Deaton (2020) call income shock, as a result of the pandemic. This jump in unemployment led to over 500,000 applications being submitted in only one week in mid-March 2020 for unemployment insurance in Canada (Breen, 2020). This is up from only 27,000 applications the year before in the same week (Breen, 2020). What is even more shocking is that this data is comparable to what was seen during the Great Depression in the 1930s (Inman, 2020). Ultimately, income is an important aspect to draw attention to because household/individual income typically determines the level/severity of food insecurity a household is experiencing (Deaton & Deaton, 2020).

To recapitulate, this literature review has highlighted that there is an ever-growing body of literature which focuses on land use planning and food systems. Moreover, it emphasizes the disconnect within the two sectors. This review has showcased that there is a lack of integration between the planning practice and food, a shortcoming which has acted as a catalyst for many vulnerabilities within the realm of planning and food systems. Albeit many of these vulnerabilities existed prior to the pandemic, however most, if not all of them, were worsened as a result of the COVID-19 pandemic.

Section Three: Methods

3.1 Theoretical Frameworks

3.1.1 Agricultural Urbanism and Food Systems in Urban Areas

According to De la Salle and Holland (2010), Agricultural Urbanism can best be understood as the design of urban areas through development and planning that can adequately reflect the various dimensions of agricultural production. Its related concept, Food Urbanism, can best be understood as food used as a force that can completely transform the organization of a city while promoting urban experiences (Darrell, 2007). More so, Food Urbanism aims to understand and assess the overall impact that food has on urban design in order to address how food can better be incorporated into city living (Parham, 2020; Verzone, 2012). These theories help provide a better understanding of how agriculture and food can be incorporated into urban and regional planning. This is a critical aspect to understand because the areas in question have experienced large amounts of growth, ultimately impacting agricultural production and food access. Therefore, using the agricultural urbanism framework provides a lens into understanding how fringe communities in Southern Ontario can develop and grow more effectively.

Similarly, this report will also be looking at food systems in urban areas as a guide to the inquiry. Although not as well recognized by Canada, planning for Food Systems in Urban Areas or urban food system planning, as MacRae (2020) explains, is designed to “integrate a just and sustainable food system into the core planning areas of focus.” This means that planners need to better integrate food and food systems into land use, housing, and transit infrastructure, which have typically been omitted from planning practice (Morgan, 2009; Pothukuchi, & Kaufman, 2000). This theory is a crucial element of this paper.

3.1.2 Agricultural Systems Approach

The Agricultural Systems approach uses a mixed approach to obtaining Agricultural Objectives. This approach requires interdisciplinary cooperation between various fields, including land-use planners, economic developers, different levels of government, communities, and the agri-food sector (Geerts & Churchyard, 2020). This mixed approach typically uses conventional/traditional approaches to agriculture, planning, and economic development and will slowly build and incorporate new elements to these traditional approaches (see Appendix A, Figure 1; Geerts & Churchyard, 2020, p. 7).

3.1.3 Critical Planning Theory

To better understand the role that urban and regional planning has had on agricultural food production and food access in communities, this research will use Critical Planning Theory. This framework predominantly explores the various powers and interests at play within the planning field (Yiftachel & Huxley, 2000). This theory's primary goal is to engage with various relations of power, past and current knowledge systems, and various other questions relating to the collective system to critique contemporary and past planning methods (Yiftachel & Huxley, 2000). This is done to shed light on the potential consequences they create while challenging the notion of what "good" and effective planning are (Yiftachel, 1998; Yiftachel & Huxley, 2000). However, it is important to note that although Critical Planning Theory has gained substantial traction in contemporary planning inquires, the theory has been met with tensions and criticism. Critical Planning Theory provides an opportunity for planners to bridge the gap between scientific and reform approaches to planning (Albrecht & Lim, 1986). This theory provides an excellent outlook on how planning must be viewed through a critical lens to be more inclusive of the needs of communities.

3.1.4 Emergency Management Theory

Emergency Management Theory will also be used throughout the paper. The theory helps to understand better the role that the current global pandemic experience has had in exposing the gaps in the food system and urban and regional planning practice. According to Haddow and Bullock (2006), the Emergency Management discipline is focused on gaining a better understanding of how to deal with potential risks from disasters and how to plan better to avoid these disasters in the future. This is similar to Ontario's definition, which states that Emergency Management is a set of "Organized activities undertaken to prevent, mitigate, prepare for, respond to and recover from actual or potential emergencies" (Ontario, 2016a).

Given how recent the pandemic experience is, minimal research is available which outlines the long-lasting impacts and effectiveness of pandemic responses. For that reason, Emergency Management Theory can reveal, at least conceptually, how these gaps can be closed so it does not happen again in the future. Emergency Management Theory aims to incorporate various principles related to disaster preparedness and improvisation (McEntire, 2004). Overall, Emergency Management Theory provides an opportunity for planners and policymakers to make the gaps in the food system more evident so that they can structure and plan for the future to make sure that issues related to agricultural land use, food accesses, and development are more inclusive to the needs of the community.

3.1.5 Efficiency-Substitution-Redesign.

This is a transition framework that aims to help identify the embedded problems in the food system and their solutions. A transition is best described by Loorbach and Rotmans (2010) as the radical push for a change in the way that structures are organized and operate. This framework aims to shed light on key issues in the food system that has been ignored and or

excused (MacRae, 1996). However, what is important to note is that these changes will be taken care of at the ground level and through government intervention, cultural shifts, behavioural changes, economic changes, and technological advances (MacRae, 1996).

This framework will be helpful to better understand the broad range of factors influencing the food system and, more specifically, the agricultural system in communities. As MacRae (1996) points out, the framework helps sort through the “wicked” problems of the food system and their resolution. Wicked problems are difficult to change, mainly because they take place on various scales and touch on various issues (Chalifour & McLeod-Kilmurray, 2016). The Efficiency-Substitution-Redesign Framework can be looked at in three different stages, with efficiency being the first and easiest stage. This is because the efficiency stage looks at making minor changes or adjustments to whatever practices are currently in place (Hill & MacRae, 1996). Substitution, the second stage, focuses on the actual physical replacement of current practices in place (Hill & MacRae, 1996). This stage looks at making new arrangements for the structures and practices (MacRae, 2020). Finally, the third stage is the implementation of fundamental changes to the way the food system operates. This stage looks at redesigning the way the system works. However, it is essential to note that the earlier stages have to be implemented prior to the final stage. Only when this has occurred can the system redesign occur (Hill & MacRae, 1996; MacRae, 2020).

3.2 Research Design

This research uses a mixed-methods approach, which is helpful in addressing the underlying qualitative elements, factors, and themes. Further, utilizing a mixed-method approach in the research design allows for an inclusive and interdisciplinary lens to be applied, which is helpful considering the interwoven nature of food, agriculture, and land use planning systems in Southern Ontario.

3.2.1. Data collection

A. Work Experience/Field notes.

A lot of the information referred to throughout this report has been gathered through personal work experience. From May 11th, 2021, to April 29th, 2021, I was employed at the Regional Municipality of York as an Agriculture and Agri-food Project Assistant. Here I was tasked with various projects about the promotion, provisioning, and protection of the agricultural industry within the Region.

Throughout this work term, I engaged with many key stakeholders within the agriculture and agri-food industry. Likewise, I was also able to attend meetings such as the Agriculture and Agri-Food Advisory committee and other stakeholder meetings that would occur throughout the workweek. Using these experiences, I was able to collect field notes. To do so, I paid close attention to the themes that were constantly being brought up. These included promoting local food, agri-tech/agri-food innovation, supply chain, and land use planning.

Overall, ten interviews were conducted for this study. Research interviews were conducted because interviews play a significant role in the production of knowledge. The interviews were formatted in a semi-structured format to ensure ease for both the interviewer and

the participant. Likewise, the semi-structured format in collecting qualitative research was also crucial in the probing and asking for clarification of the issues discussed.

B. Online Format.

Initially, the interviews were to be conducted face-to-face. However, due to the COVID-19 pandemic, this structure had to pivot to a synchronous online format. The interviews either took place via Microsoft Teams or Zoom, depending on what worked better for the participant. This format worked well to ensure that the interviews remained casual (Stieger and Göritz, 2006).

All the interviews ranged from 25-40 minutes. They took place during workhours (9 am to 5 pm) Monday to Friday, as this seemed to work the best for the participants. All interviews occurred during the month of April, 2021.

C.1) Selecting Participants.

To select participants, the snowball sampling method was used. This means that participants identified others that would be interested in being interviewed (Marshall, 1996). Each of the interviewees had to have a few characteristics to qualify for the study. The first was a robust understanding of food systems and the agricultural industry within Southern Ontario. The second was that they were willing to participate and share knowledge. The third was knowledge of York Region and the food and agriculture system within the region. Fourth, they either had to be a worker attached to some form of organization that worked within the Food/Agricultural sector or be on an advisory committee. Also, they had to have some knowledge of land use planning practices occurring within the York Region. Finally, all participants needed to be 18 years of age or older.

C.2) Preparing for the Interview.

Prior to the interview the primary and secondary questions were approved by the York University Research Ethics Board. Each of the interview questions (see below) were directly related to agriculture, agri-food industry, and land use planning. These questions were used as a guide to frame the semi-structured interviews. Therefore, each question did not need to be asked, especially if they were answered throughout the interview conversation.

Q1. In your opinion how effectively has urban and regional planning in York Region protected agricultural land use?

Q2. How has COVID-19 exposed gaps with regards to food supply chains, distribution, and local food in York Region?

Q3. If there are gaps, what is York Region doing to close these food and agricultural related gaps? Are these actions different from what you see in nearby regions?

Q4. How has York Region approached land use planning and food planning differently other local municipalities in Southern Ontario?

Q5. How has this approach been proven beneficial?

Q6. How has York Region's approach to land use planning and food system planning positively influenced the agriculture and the agri-food industry within the Region?

Q7. How in your opinion do you think urban and regional planning has impacted local food manufacturing and distribution in York Region?

Q8. What is York Region looking to implement in the future to enhance local food distribution?

Q9. How do you believe the refreshed York Region Official Plan will positively impact the Regions Agricultural Strategy?

Q10. Are other municipalities using York Region's Agricultural strategy as a template for their own work in this domain?

Q11. Moving forward, what areas of urban planning and food system analysis should be given the greatest emphasis so that do not persist into the future?

Before the interview, participants were each sent a consent form. This consent explained the nature of the interview and what the data would be used for. Next, the consent form outlined how every participant would remain anonymous when referenced within the report. Therefore, throughout the report if the interviewees were referenced, they are labelled as participant 1, participant 2, participant 3, etc. Next, the participants were also told about any potential risks associated with them participating in the research. However, in the case of this research, no major or direct risks were identified. Minor risks included mild boredom while answering questions or minor discomfort when sitting for the length of time needed to conduct the interview. Finally, the consent form informed them that once the report had been submitted and approved, they could choose to receive a copy of the research paper or a condensed two-page overview. This overview would highlight all the key findings and recommendations from the research. This consent form was signed and sent back before the interview took place.

C.3) Confidentiality.

The confidentiality of the participants are of the utmost importance. All data collected, including personal information, was stored on a private computer which remained in a locked room. Once the data is no longer needed, the data will be corrupted and then completely removed. All handwritten notes will be destroyed and discarded. Furthermore, to ensure the confidentiality of all participants when quoted, they will be referred to by only their participant identification number.

3.3 Document and Policy Analysis

3.3.1 Constitutional Authority and Legislative Powers

In Canada, the Constitution distributes legislative power to different levels of government, including dividing authority over food system functions to the federal, provincial and municipal levels (Government of Canada, 2018). For this reason, this paper looks at the powers and policies of each level to understand how each impacts the policies and practices put in place for other levels. The federal government holds Constitutional Authority and is responsible for making laws for peace, order and good government (for a visual representation, see Figure 2 in Appendix B; Gall & McLellan, 2020). Some of the powers of the federal government include regulation of trade and commerce, the census, money and banking, and citizenship. Some of the powers of the provincial government include enacting and amending laws directly related to, hospitals, property, civil rights, education, and social services. However, there are some instances where the federal and provincial governments share powers. For example, agriculture is considered a shared power. Nevertheless, as long as the agricultural policy does not interfere with any federal matters, agriculture is typically under provincial authority (MacRae, 2021b). The provincial government also has power over all municipal institutions. Therefore, all powers of the municipal government have been given to them by the province, including the maintenance of road infrastructure, public transit, planning new community developments and fire services (Toronto, 2020).

What this means for land use planning is that the federal government plans for any land uses that are under federal jurisdiction (e.g., national waterways and parks) and can also impact and influence provincial land use planning through financial supports (e.g., infrastructure programs; OECD, 2017) but has no national plan in place for land use planning policies and

practices. The provincial government has full control over land use planning within its boundaries that are not federal, First Nations, Metis or Inuit lands and the ability to structure their own legislative frameworks, major laws, regulations and policies for the provincial planning systems (OECD, 2017). For example, Ontario has the Place to Grow: A Growth Plan for the Greater Golden Horseshoe, the Planning Act, and the PPS, which the Province of Ontario issues under the Planning Act (Ontario, 2021b).

3.4 Role of Policies

Within this research paper, various policies and plans from different levels of government will be examined. Decisions occurring at any level of government are likely to have impacts on the agricultural land base and the local food system, with some impacts being worse than others. The policies explored look at a variety of important factors such as the overall land use planning, the size, and distribution of agricultural land and lots, and food-related policies, specifically addressing food access, distribution and food insecurity.

3.4.1 Policy Scan

A policy scan was completed for the provincial and federal levels. This included the Planning Act, PPS, Greenbelt Plan, and others. These play a very important role in framing municipal policies and plans that will be outlined below.

Once the sample regions were selected, a policy scan was conducted of regional documents. For each of the examples, the region's OPs were looked into, as well as the various By-laws, frameworks, and guides within the Regional Municipality. The aim in doing so was to see if there were any pre-existing policies or by-laws that directly related to food access, distribution, temporary foreign workers and any other related matters. These documents were

used to help identify what work is being done and how they work or do not. This is to see how policies play a role in agriculture, food, and planning within the region.

3.4.2. Key themes

When scanning and analyzing the policy and plan documents, the key themes were: (1) mention of local food, (2) farm uses, (3) farm structures (including those for farm sales), (4) local land use and development, (5) farm size, (6) economic growth, (7) on-farm diversified uses, (8) land designation, (9) dedicated focus on agricultural preservation (e.g., the separation between rural and agricultural land), (10) local food access, (11) food deserts, and (12) food distribution.

Key terms within each of the documents related to these themes mentioned above were noted. The information gathered was then sorted by document and government level (for a document list, see Table 1 in Appendix B). This was to help gain a better understanding of what each level of government and document focused on, with regards to food systems and land use planning.

Section Four: Background

4.0 The Changing Face for Agriculture in Canada

For the most part, federal, provincial, and municipal policy documents focus primarily on agriculture rather than the other elements of the food system. This is largely to do with the pivotal role that agriculture plays in the food system, and the economy.

There is no surprise that agriculture has played a significant role in the development of Canada. Likewise, the agricultural industry continues to be a significant contributor to the growth of Canada. In 2015, Canada's agricultural industry and the agri-food industry generated

about \$49 billion to the economy, accounting for approximately 2.6% of Canada's GDP (Statistics Canada, 2019a; Pemberton, 2019; Ontario, 2021c).

However, this is not to say that agriculture throughout Canada has remained stagnant throughout the years. According to data retrieved from Statistics Canada (2017a), agriculture has experienced a tremendous amount of change. For example, the average number of acres per farm operation versus the number of farm operations has drastically changed throughout the last century. Starting in 1901, there was a gradual increase in acres of farmland where the number of farms during this period remained pretty consistent. However, both of these factors changed drastically in 1971 when the average amount of acres of farmland per farm surpassed the number of agricultural operations (Statistics Canada, 2017a). This trend has remained consistent, and as of 2016, there were approximately 193,492 agricultural operations throughout Canada, and the average acre per agricultural operation was approximately 820 (Statistics Canada, 2017a; Statistics Canada, 2017b).

More on this, productivity growth in Canada has also seen a change. From 1961 to 2013, there has been a stark increase in total gross agricultural output throughout Canada (Statistics Canada, 2021c). With this increase in output, farmers have also experienced an increase in farm cash receipts and farm debts. For example, farm debt in 1996 was about \$27.6 billion and farm cash receipts were about \$29 billion. In 2016, the average farm debt outstanding total was about \$96 billion, and the total for farm cash receipts was \$60 billion. What is important to note is that much of these changes to the profile of Canadian agriculture throughout the Century, especially around the 1970s and onward, can be heavily attributed to technological advancements surrounding production. These technological advancements help to assist farmers in managing

larger operations (Statistics Canada, 2021c). Another area that is seeing a change within agricultural production is the diversification of crops and farming practices.

A growing challenge for the agricultural industry is the conversion of farmland for non-agricultural uses. This conversion presents many challenges surrounding the industry as a whole and for the country's economy and the future of food production (Francis et al., 2012). This challenge makes the preservation of agricultural land even more of an important topic for discussion, including adequate and effective land use and food system planning, especially when considering the impacts that the current COVID-19 pandemic has highlighted within agriculture land use and the food system.

4.1 Consequences of Farmland Conversion

Farmland plays a vital role in the functioning of society. Therefore, the conversion of farmland to any other use could lead to several negative implications. These will impact not only the local/surrounding community but also could have far-reaching impacts (Francis et al., 2012). Some of these impacts include but are not limited to, a direct loss in access to local food, a loss of food production from both large-scale and small-scale operations, increases in cost for the transportation of goods and products, and a potentially drastic decline in ecosystems services that the land once was able to provide (Francis et al., 2012).

However, we see that the short-term economic return occurring from the selling off and developing of farmland seems to be on a continual uprise (Francis et al., 2012). These changes lead to sometimes devastating impacts on the local economy where agriculture once existed. These impacts are happening across Ontario, especially with the increase in urbanization of agricultural land in peri-urban regions in Southern Ontario. Southern Ontario is home to Canada's most fertile agricultural land, much of it located in the GGH (Environmental Defence,

2015). This region boasts over half of Canada's Class one soil (Ontario, 2021b). It also has the ability to grow specialty crops, which are crops that require specific soil and climatic conditions and can only be found in select locations throughout Canada (Francis et al., 2012). This is just one example of how farmland conversion to other land uses can have major implications on an area or region. This is especially difficult as population growth and its expansion into surroundings or adjacent regions directly impact the preservation of prime agricultural land (Tomalty, 2015).

Not to be forgotten is that the loss of agricultural production has economic knock-on effects. This phenomenon can be described as the agriculture economic multiplier effect, whereby the purchase of one local farm product in a store triggers an array of economic activity (Armstrong & Taylor, 2000). Overall, this shows the need for directed policies that promote farmland as an economic investment for the community at large.

4.2 What is Ontario doing to Protect Food and Agriculture

The preservation of farmland for its productive capabilities was not always the trendy topic that it is now. Over the years, the commitment of both the government and the public for the long-term preservation of agricultural land has more or less wavered but, in the end, has led to the creation of various policies (Cladwell & Hilts, 2005). However, since the early 2000s, there has been a heightened focus on the need to preserve agricultural land. This interest spans various groups, organizations, farmers themselves, academics, and others (Cladwell & Hilts, 2005).

Ontario's approach to dealing with agricultural land loss has typically been policy-driven at the provincial level allowing for some autonomy to be held by municipalities (Cladwell &

Hilts, 2005). These policies include the PPS, OPs, and zoning by-laws. Regions and municipalities are required to ensure that all developments meet the requirements set out by each of these plans and policies.

Ontario has rolled out various projects and initiatives in an attempt to alleviate food insecurity. To do so, the Government of Ontario has worked with partners to promote improved production capabilities amongst farmers and greater diversity in food selection (Ontario, 2019a). Some of the programs that the Government of Ontario has rolled out include the Healthy Eating, Active Living (HEAL) program, Fresh from the Farm program, Student Nutrition Program, and others in an attempt to help all Ontarians to understand better the value and various benefits associated with consuming nutritious food from Ontario (Ontario, 2019a). Furthermore, the Province of Ontario has also rolled out the Food Security Strategy. This Strategy aims to target the key areas impacting Ontarians and the food system (Ontario, 2019a).

4.2.1 Provincial Policies

A. Provincial Policy Statement.

In 2004 the government of Ontario instated three significant changes to the way that farmland was managed and preserved within Ontario (Cladwell & Hilts, 2005). The first notable change in favour of agricultural preservation can be seen in the 2005 version of the PPS in two distinct ways. The first is that the development/ creation of new residential lots was strictly prohibited in areas designated as prime agricultural land. The only exception to this was for the expansion of residences to support farming operations (Cladwell & Hilts, 2005; Municipal Affairs and Housing, 2005). The second major change was that all areas designated as prime agricultural land shall be protected for the long-term use of agriculture (Cladwell & Hilts, 2005; Municipal Affairs and Housing, 2005). The PPS aimed to promote a more diverse rural economy

while providing a guide on how to mitigate impacts of non-agricultural development that is occurring and can have lingering issues on farmland (Ontario, 2020a). This is done through new land use designations that helped to limit the creation of rural lots while requiring livestock operations and new developments to comply with the minimum distance separation formulae. Overall, the main goal of the PPS is to encourage the growth and protection of prime agricultural lands and specialty crop areas from the many impacts that are associated with expansion (Ontario, 2020a).

The PPS now includes the definition of an Agricultural System in the official document (Ontario, 2020a; Ontario Ministry of Agriculture, Food and Rural Affairs, 2020). This is not a new approach. As discussed by Greerts and Churchyard (2020), efforts to enhance agriculture and the agri-food sector and incorporate them into economic development have been occurring for the last 40 years. This can be seen in the Government of Ontario's 1976 Farmland Strategy, also known as A Strategy for Ontario Farmland. This Strategy aimed to maintain an economically sustainable, long lasting agricultural industry that included farms and farmers as producers of food and as a critical component in the economic value base (Ontario, 1976). This was then followed by various additions of the PPS in the years 1997, 2005, and 2014 (Greerts & Churchyard, 2020). Therefore, by taking this approach allows for a more refined understanding of how "farmland and clusters of agri-food infrastructure, services and assets need to coexist and be compatible with rapidly growing communities. To be successful, deliberate and strategic planning should address the needs of the agri-food sector so it can grow and prosper" (Greerts & Churchyard, 2020, p. 7).

The recent addition, as well as the release of the Implementation Procedures for the Agricultural System in Ontario's Golden Horseshoe, helps to outline the vulnerabilities of the Agricultural System in Ontario and how Ontario is attempting to change that.

B. Places to Grow Act.

The Ontario provincial government put the Places to Grow Act in place, which enables growth plans in Ontario (Ontario, 2005a). This Act has an aim to help Ontario “grow and develop in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life” (Ontario, 2012). This Act helps to determine where it is possible to grow and how that growth can occur. For example, first through the use of population growth projections and the promotion of intensification rather than sprawl and then by determining what infrastructure will be needed to ensure that the growth occurs and is successful (Cladwell & Hilts, 2005). Caldwell and Hilts (2005) stated that a key example of this would be to ensure that all transit infrastructure is adequate to support future needs. The Act also includes the protection of valuable land for the significant resources that they provide (Caldwell & Hilts, 2005; Ontario, 2005a).

4.2.2 Provincial Plans

In total, there are four provincial plans required to be used within the GGH. These required plans include the Greenbelt Plan, A Place to Grow: Growth Plan for the Greater Golden Horseshoe, Niagara Escarpment Plan, and the Oak Ridges Moraine Conservation Plan. Each of these plans plays an integral role in protecting food and agriculture within Ontario while also maintaining growth rates (OMAFRA, 2020). The Lake Simcoe Protection Plan also plays an important role in land use planning and will be discussed.

A. Greenbelt Plan.

The Greenbelt Legislation is one of the significant actions made to farmland preservation in Ontario. In February 2005, the Greenbelt Act was made law in Ontario (Caldwell & Hiltz, 2005; Ontario, 2005b). The Greenbelt Act and plan were predominantly implemented as a direct response to the significant amount of agricultural land lost to development. This was done to support the sector and to ensure its longevity (Li & McEwan, 2016). In 2005 the legislation and the plan protected a total of about one million acres of land within southern Ontario to be protected from all future urban growth (Caldwell & Hiltz, 2005). The Greenbelt Plan identifies where urbanization should not occur, in doing so, provides unwavering protection to agricultural lands and natural heritage that exists within the area (Ontario, 2017a).

The plan's goal is to give the provincial government all necessary authority to promote objectives for the protection of the environment and agricultural land (Caldwell & Hiltz, 2005). Furthermore, one of the key elements of the Greenbelt legislation is that it ensures that the areas designated as Greenbelt land are only allowed to grow in size and are not allowed to shrink (Caldwell & Hiltz, 2005). Other objectives laid out by the Greenbelt plan include the establishment of a network of countryside and open spaces to support areas such as the Niagara escarpment, recognize the importance of the agricultural sector, and control urbanization (Ontario, 2005). It is important to note that since this Act was instated, the Greenbelt has nearly doubled in size, with approximately 1.8 million acres of land protected from development (Li & McEwan, 2016).

B. A Place to Grow: Growth Plan for the Greater Golden Horseshoe.

The goal of the Growth Plan is to look at land use planning as a means to include “infrastructure planning and investment, demographic changes, economic development,

employment trends, land use planning, and population health to support the government’s vision for future communities” (Ontario, 2021e, para.1). Doing so will help to support all realms that exist within a community. These include the social, economic and environmental realms. The growth plan understands that for a community to achieve a high quality of life, all these elements must be brought to the forefront and be given equal prioritization. For this reason, the growth plan supports agricultural productivity by recognizing the importance of agriculture.

C. Oak Ridges Moraine Conservation Plan.

This plan is used to understand the resources that the land provides to better understand resource management within the area. This plan is important as it provides protection and direction for understating management of the 1,900,000 hectares of protected land and water that exist within the Oak Ridges Moraine. This plan reflects the importance of the Oak Ridges Moraine and the continuation of agriculture within the area (Ontario, 2019b).

D. The Lake Simcoe Protection Plan.

This Plan addresses the overall health of the lake and its surrounding watersheds. The Plan helps to support agricultural production because it addresses key ecological factors that impact agriculture and surrounding ecosystems. These include but are not limited to runoff, soil erosion, invasive species, etc. (Ontario, 2021e).

4.2.3 Permitted Uses

A. Guidelines on Permitted Uses in Ontario’s Agricultural Areas.

This Guideline is used to determine what uses are permitted within agricultural land use designations. This Guideline also includes language on the permitted agricultural uses on areas designated as agricultural land (e.g., on-farm diversified uses). These guidelines also force developers to conduct an agricultural impact assessment during a comprehensive municipal

review prior to development. If approved, the guidelines also include various stipulations that need to be abided by to minimize disturbance and any adverse impacts that can happen to the agricultural land due to the development (OMAFRA, 2016).

4.3 What is Ontario Missing?

What the above analysis reveals is that Ontario places most of its focus on agriculture and not on the other elements of the food system, such as supporting local food access and distribution. This is reinforced with an analysis of the Local Food Act. Established in 2013, the legislation does not provide concrete policies or directions that help to foster a more robust food system. Rather, the Act only highlights three main aspirational goals with limited direction on how to achieve them.

Finally, there is very restricted collaboration between the provincial and municipal governments. The limited collaboration is clear throughout documents especially those at the municipal level. Regional municipalities are left to structure ad hoc policies with limited support from the provincial government, which ultimately leads to fragmented approaches by Regional Municipalities. All policies within the regions' OP must conform to those within the PPS (Ontario, 2020a). However, given that there is no clear direction for how municipalities are to approach food systems within their regions, this has left much of the decision making on actions and initiatives pertaining to other elements of the food system up to regional municipalities or local governments.

Section 5: Understanding the Regional Examples

5.1 Understanding Municipalities

In total, the Province of Ontario is home to 444 municipalities (Ontario, 2020a). These municipalities have differing statuses, including upper-, lower-, or single-tier municipalities. These designate the types of powers and responsibilities that each municipality is given (Ontario, 2021d). Each of these powers and responsibilities has been determined by the 2001 Municipal Act and over 100 other provincial Acts (Ontario, 2021d). Each region in Ontario is experiencing different challenges as a result of location and the different industries the regions are home to. For this research, it was important to ensure that both regions selected face similar challenges.

5.2. Example Regions: York Region and the Waterloo Region

Given the broad nature of this topic, two peri-urban Upper-tier Regions within Southern Ontario were selected for more detailed discussion. The selection also was made based on their agricultural capacity and the work that is being done to support the local food systems within the region. They highlight what is being done within the agricultural and agri-food sector and what is still missing.

Some regions have done better than others in attempting to close the gaps before the COVID-19 pandemic, with the Regions of Waterloo and York Region being two key examples. They both have placed considerable emphasis on the preservation of agriculture and local food within the last decade. These regions proudly showcase a range of agricultural activities and are experiencing an influx in populations to the region.

5.2.1 York Region

The most current population estimate for York Region is approximately 1,109,909 (Statistics Canada, 2016). The region is home to 9 local municipalities and is an upper-tier

municipality (York Region, 2020b). York Region is also home to a bustling cluster of industries. These industries include manufacturing, retail trade, technical services, transportation, and agriculture (Yorklink, 2021a). In mid-year of 2019, York Region had approximately 654,650 jobs, which was up 2.2% from the previous year (York Region, 2020b). For these reasons, York Region is a very desirable region for work and living.

Furthermore, York Region also has a thriving agriculture and agri-food sector, with eight of nine of the local municipalities having an agricultural designation (York Region, 2018). According to the York Region website, the whole agri-food sector, which includes processors, farmers, grocery stores, “provides approximately 57,000 jobs and contributes \$2.7 billion to the economy” (York Region, 2021a, para. 1). Currently, there are more than 140,000 acres of farmland located in the Region with a higher gross farm receipt per acreage than the provincial average (York Region, 2021). This total acreage means that about 43% of the Region is designated for agricultural use, and about half of the Holland Marsh is within York Region (York Region, 2021). Per hectare the Region generates \$856 in gross farm receipts, which is the second highest in the Golden Horseshoe (York Region, 2018). Even more, there are over 700 farm-based businesses located within the Region and over 270 food and beverage manufacturers (York Region, 2021a).

The importance of agricultural land within the region goes beyond economic benefits. Access to agricultural land for residents offers an opportunity for them to connect with nature, view open natural spaces, access open gate farms and more (York Region, 2018). Likewise, Agriculture in the Region also provides many environmental benefits, including stormwater storage, runoff control, erosion, carbon sequestration, (York Region, 2018). Even with all of this, unfortunately, York Region’s agricultural land is still being threatened by growth and other

various pressures that exists within the Region (York Region, 2018). Between 2011 and 2016 alone the Region lost approximately 4,400 hectares of farmland to non-agricultural uses (York Region, 2018).

5.2.1.1 What is Working and What is not Working in York Region

A. What is Working.

1. Agricultural Advisory Committee.

A key component in York Region highlighting and better supporting agriculture was through the Agricultural Advisory Committee. This committee comprises elected board members, who essentially are tasked with reviewing the work done within the Region and providing feedback and advice on actions or activities that are currently being worked on or will be worked on in the near future. This is to ensure that the best interest of York Region Community members, specifically those within the agricultural community of York Region, are being heard and listened to.

The Committee was created in 2001 and was named the York Region Agricultural Advisory Liaison Group (YAALG). During this time, the Liaison group mandated to intervene and advise on key elements pertaining to agriculture within the region. Some examples of the work that they did include, (1) Solicit agricultural related issues and concerns and make recommendations (2) Assist Regional Council in implementing Regional and area municipal official plan policies (3) Enhance public awareness for rural issues (York Region, 2009, para. 3). Although now under a different name, their goal and mission remain the same. In general, the group will meet a few times a year, typically once every 2-3 months, to help advise the work occurring within the agricultural portfolio at York Region.

Through experience gained by working for the region, it was clear that the regular meetings with the Advisory Committee helped guide and structure the work that is being done to support agriculture and agri-food systems within the region. Furthermore, this is also supported by various participants who explained the benefits of having an Agriculture and Agri-food Advisory Committee. The third participant explained that “Well, the establishing of the a committee helped to support agricultural industry, and well also helped to bring regional and local food and agricultural issues to the table.” The Agriculture and Agri-Food Advisory Committee allowed for major issues and vulnerabilities impacting food and agriculture within the Region to be brought forward and discussed in a meaningful setting, where future actions can be addressed and discussed.

2. LEAR Study.

As mentioned, York Region has and continues to do a lot to help maintain and support the agricultural integrity of the region even though it is experiencing rapid urbanization. What is even more interesting is that even throughout the various interviews conducted for this research, many of the interviewees had brought up the fact that those at the region took it upon themselves to conduct a Land Evaluation Area Review (LEAR) before the Province of Ontario did. The LEAR study took place in 2009 and essentially aimed to bring the regional Official Plan into conformity with the Greenbelt Plan (York Region, 2009).

A LEAR study essentially was created by the Provincial Ministry of Agriculture Food and Rural Affairs in order to help identify agricultural lands based on a variety of local factors while also paying key attention to the regions soil capability to help them identify areas of prime agricultural land (York Region, 2009; Planscape, 2009). A study of this kind is important to a

region such as York Region because it helps frame how to handle and evaluate key physical and social-economic factors within a region (York Region, 2009; Planscape, 2009).

The study in York Region was separated into two parts, the Land Evaluation (LE), which specifically looked at factors directly related to any physical and environmental characteristics pertaining to agriculture and agricultural lands, and the Area Review (AR), which essentially focused on factors that pertained more to the socio-economic dimensions of the environment, to identify the potential for agriculture (York Region, 2009). Ultimately, the study's goal was to inform policymakers on key results to help them make more informed decisions on the planning of York Region (Planscape, 2009).

The study was undertaken all over York Region. However, it excluded urban areas, towns, villages, and areas not within the Greenbelt Plan designation (although, the study did occur in areas known as Whitebelt Lands, defined as areas potentially slated for development; York Region, 2009). This study is an excellent example of how York Region has focused on supporting the agri-food and agricultural industry. Undertaking this study before the province highlights the fact that York Region understood the value of food and agriculture.

3. York Region OP.

Another area that York Region has done to preserve agriculture within the Region has been to include Agriculture within the OP. The Plan itself notes that Agriculture and Rural Areas form an important part of the fabric of York Region (York Region, 2019). For this reason, chapter 6 looks at the various elements that make up agriculture and the agricultural sector. These elements include the Greenbelt plan, The Oak Ridges Moraine Conservation Plan, Agricultural and Holland Marsh Specialty Crops Areas, Rural Areas, and Mineral Aggregate Resource Areas. The Official Plan also posits the goal of agriculture being “To protect the

Agricultural, Rural, and Holland Marsh Specialty Crop Areas and support the agricultural industry as essential components of the Regional fabric” (York Region, 2019, p. 101).

The policies within the section help clearly outline lands within the Greenbelt Plan and other protected countryside in the Region. This designation helps to prevent new multiple units or multiple lots from being developed on the land. Furthermore, although the Plan highlights the importance of agricultural land within protected land designations, the Plan also points to the importance of agricultural land outside these protected jurisdictions and within areas known as new community areas. If these lands are slated for development, the Plan encourages the continued use of agricultural practices until development occurs (York Region, 2019). Other areas of interest in this chapter include encouraging open gate farm sales and promoting the agri-industry, and promoting environmentally friendly farming practices (York Region, 2019).

a) The Plan and Food as a Human Right

The Plan mentions that having access to a safe, secure and steady food supply is a human right. So, in order to support this, the region promotes a variety of activities that help encourage the provisioning of local food. This focus has many other benefits on top of ensuring access to food for residents in the Region. For example, promoting local agriculture helps to support the local economy, provides healthier and fresher food options to those within and surrounding the region, and helps sustain small farms within the region (York Region, 2019).

Policy 6.3.17 highlights precisely this notion. The Policy outlines that, to support York Region’s Agricultural industry and help the industry respond to the rapidly changing conditions that are being experienced within the sector and markets, there needs to be a shift in how agriculture is viewed. The examples that the OP uses to help identify ways that York Region and those within the York Region can support the valuable sector includes

a. supporting local farm organizations in promoting the availability of local food and value-added products, including the development of local farm markets and farm-gate sales, subject to public health and safety standards; b. promoting a variety of agricultural products originating within the Region and where possible assisting local farmers in diversifying agricultural products; c. encouraging continuing agriculture on lands adjacent to all communities in York Region as a source of local food; d. encouraging the provision of community gardens and other urban agriculture practices, but not including animal agriculture in new and existing communities; e. developing local food-sourcing policies for Regional facilities and encouraging other public sector agencies within the Region to adopt similar policies; and, f. encouraging dialogue with other levels of government, local farmers and farm organizations in York Region to ensure that the agricultural industry remains competitive, sustainable and viable in the long term. (York Region, 2019, 116)

4. Long Term Planning.

a) Agriculture and Agri-Food Sector Strategy

York Region, as can be seen, recognized the importance of agriculture for various reasons. To further this, the Region hired an agricultural specialist, who created with the help of various stakeholders and the Agriculture Advisory Committee, the Agriculture and Agri-Food Sector Strategy in 2017. The Strategy focuses on ensuring the industry remains strong and viable now and into the future by addressing the current strengths, opportunities and challenges that York Region is facing (York Region, 2017). From personal experience in working within York Region, the Agriculture and Agri-Food Sector Strategy was used daily. This was to ensure that all objectives that had been mentioned within the strategy were being met. On top of this, every

time an objective was met, the outcome was brought up at the Agriculture and Agri-food Advisory Committee meeting to hear any of the committee members' feedback. This document helped to minimize vulnerabilities as it offers a clear direction and was supported by various policies and plans that are already in place.

b) Vision 2051

Vision 2051 is part of York Regions Long Term Planning goal. The document aims to set the stage for what the York Region should expect within the next 40 Years. The document looks at the various stressors that York Region is expected to encounter within this time, such as population increases, maintaining the natural environment, building thriving communities, etc. (York Region, n.d.). What is interesting is that this document includes the importance of supporting the agricultural industry. Overall, the Visions goal is to ensure a resilient natural environment and agricultural system are maintained. This is so that the various benefits that they provide may be accessible in the future. Both the Agriculture and Agri-Food Sector Strategy and Vision 2051 play a very important role in ensuring that a resilient and long-lasting food system is maintained. Even more, both of these documents are supported by high-level policies that ensure their legitimacy. This is shown by a quote from the eighth participant, “Agriculture and Agri-Food strategy and Vision are supported by very high-level policies to make sure a resilient agricultural system is maintained and to make sure that they are protected and thriving to give resources to a growing region.” Overall, this shows how these two documents have been created to reflect the important role that the agriculture and agri-food system play within the Region.

5. *Agricultural/Local Food Promotion.*

Through the Agriculture and Agri-Food Sector Strategy, Partnerships and outreach, York Region has made it a point to highlight local food and Agriculture throughout the Region.

Throughout the interviews and personal experience working within the Agriculture and Agri-Food portfolio at York Region, there was a significant emphasis placed on public engagement and stakeholder collaboration. This was between both governmental and non-governmental groups, individual farms, and the general public itself. It was clear that the main goal was to strengthen collaboration between communities, groups, towns, and in general, the people living and working within them. In order to do so, sector successes are shared with these groups in weekly meetings and with the public in the form of KPI statistics shared on the York Region Website (see Figure 3 in Appendix C). Other methods include email blasts and a monthly newsletter that the public can subscribe to receive updates on events and important information about the industry. Within the newsletter, individuals will find information such as the following: the number of events, meetings, workshops that York Region has hosted and/or participated in, website/social media engagement and activity/impressions on agricultural-related posts, York Farm Fresh news, and more. Likewise, York Region also now has two dedicated pages to Agriculture and Agri-Food within the Region. The one being the York Region website and the other being York Link that was released earlier this year.

This promotion is important because although one may think that eating local may only be benefiting the individual it actually has a far wider impact on the surrounding community and the economy at large.

York Region has a strong partnership with York Farm Fresh. The organization aims to promote local food available within the Region. York Regions' engagement with local food and York Farm Fresh is shown as the Region has a section dedicated to their website on the Local Food Page. Similarly, while working for the Region, one of my final tasks was to email and call local farmers and producers and update their information for the local producer's directory. One

of the questions asked within the short survey was if they were part of York Farm Fresh and if they would like more information about York Farm Fresh. This shows the focus that York Region placed on Agriculture and Local Food within the region.

6. *Agri-Food Innovation.*

York Region has also done a lot to explore the realm of Agri-food innovation. The York Link website mentions that York Region is home to over 270 food and beverage manufactures and food processors (Yorklink, 2021b). This means that the Region is home to the fourth-largest food and beverage processing hub in Ontario (Yorklink, 2021b).

To further this promotion, York Region has also partnered with YSpace at York University, home to the York Region Food and Beverage Accelerator Program. Working at York Region, I got to experience first-hand the work and dedication that goes into the running of this program. As outlined on the YSpace website, the program explains that it is a partnership between York Region, the Canadian Agricultural Partnership, and a federal-provincial-territorial initiative (YSpace, 2021). The program's goal is to help "high growth food and beverage ventures through customized workshops, expert mentorship, and peer-to-peer circles... expand their ventures into new distribution channels" (YSpace, 2021, para. 1). This is a very important vulnerability area within the food system to address because the value-added food processing sector is not as strong as it should be in Canada, let alone York Region. As a result of this we are more dependent on imports as we do not have a robust processing sector (AAFC, 2015). York Region aims to increase local food processing, by supporting local food entrepreneurs, which will make the region more resilient.

B. What is Not Working.

Even with all that York Region is doing, there still seem to be some gaps in how the food system is addressed.

1. *Food Systems in the Official Plan.*

As mentioned throughout this paper, the food system is comprised of various interrelated parts, with Agriculture being only one of them. However, what was found is that in the York Region OP, the main focus was on agriculture. Unfortunately, this leaves many other vital factors out of the land use planning narrative and practice. For example, food access issues and policies supporting adequate access to local healthy food are not found within York Region's OP. This leaves a large portion of the population susceptible and, speaking from an economic standpoint, misses out on a whole sector of the population. Similarly, as the policy scan indicated there are also no clear York Region By-Laws that support the access to and distribution of local food. This shows a lack of policies in planning that are in place to support the local food system. The interviews all support this theme.

2. *Interdepartmental Collaboration.*

Another area that York Region needs to pay closer attention to is creating greater interdepartmental collaboration for food systems. During my time working at York Region, the Agricultural department was situated within Economic Development. Even though Planning and Economic Development had a good working relationship, they worked separately from each other, leaving most activities focused on agriculture and food systems up to the Economic Development Department. This is quite a large gap as food systems work within many sectors, such as planning, environment, and health. This lack of collaboration means that many elements

are potentially being missed that would help ensure that many of the current vulnerabilities would be fixed.

3. *Agri-Tech Industry.*

York Region also is lacking in Agri-food and Agri-Tech. Throughout the various conversations with participants, many responded by saying that there needs to be a greater emphasis placed on Agri-Tech within not only York Region but also in Ontario. For example, Participant 8 explained that,

It is important to address that there are gaps and to close these gaps we can do better to integrate Agri-Tech and innovation to those areas, but we have the innovation piece (in York Region) – we just need the companies with the resources.

Separately another participant explained that benefits of greater Agri-Tech are huge.

Society needs to understand what modern ag looks like – if York can help facilitate and promote on how farmers have adopted to embrace tech, the investment in that tech is huge, if people knew the tech and were able to build on this to map on the field, to use less spray etc., to help the environment and they are doing things differently – application of herbicide and pesticides – it's all amazing. (Participant 5)

An example of the type of Agri-Tech that needs to be looked at in greater detail is vertical farming. Many of the interviews brought up this topic as a means of maintaining and encouraging local food production year-round to support a growing population.

This is a critical vulnerability that York Region needs to address because, as Sullivan (2021) mentioned, most of the equipment primarily relied upon by food manufacturers is

manufactured elsewhere. Likewise, the technicians are also typically located either out of province or even country. Therefore, having access to these technicians during the COVID-19 pandemic has been seen to be challenging.

4. *Food Incubation Spaces.*

Food incubation spaces was a topic that was brought up a variety of times throughout the interviews. For example,

What we have been hearing food incubation space, we are seeing this in other jurisdictions... there is room in York to start doing this.... Also, kitchen incubation we need public kitchen spaces, there is space in some religious institutions and community spaces but the people who want to use these places to have access to storage, but that is something in the sector that we have to consider and if we don't have these facilities that can't support small businesses.

(Participant 2)

What is interesting about this is that York Region is doing an excellent job in promoting food innovations, as mentioned above. However, for those not participating in the YSpace program, York Region seems to be limited regarding food innovation spaces that individuals can either rent out or utilize. This is a significant vulnerability in the food innovation sector for York Region.

5. *Supply Chains.*

Early in the pandemic, it was noticed that supermarkets across York Region were sold out for long portions at a time. Many of the interviewees agreed, with most pointing to the fact that many of the consumers in the York Region rely on supermarkets to get their goods. Unfortunately, because of this, there is an excessive reliance on global food supply chains.

Participant one explained that this was and still is an excellent opportunity for local food, beverage producers within York Region to promote local. While working at the region, it was noted that many open gate farms made attempts to do this by switching to e-commerce platforms, which allowed them to operate through contact-free pickup. However, the issue is that not enough individuals made the switch to supporting local, leaving many vulnerable should another hiccup occur.

6. *Labour Issues.*

A significant vulnerability that marked York Region was labour shortages and other labour-related issues. The labour shortages were primarily experienced with TFWs. Many of them had issues obtaining a visa to get into Canada due to border closures. This had many major impacts on York Region farmers who rely on these TFWs for planning, tending, harvesting and processing.

Another labour related vulnerability within York Region is those working the front lines such as in grocery stores. This was a major issue that was brought up throughout many of the interviews. For example, Participant 2 explained that the

Biggest vulnerabilities and inequalities are in retail, specifically looking at retail grocery store employees... their pay is not living wage. Yes, they got hero pay but it that didn't last long... these are people on the front lines, and they were at risk.

(Participant 2)

7. *Transportation and Food Access.*

Transportation is another vulnerability within York Region. The Region is primarily autocentric, even though it is currently serviced by four transportation providers: the York Region Transit (YRT), Viva (a YRT Subsidiary), GO Transit, and a small portion of the Toronto

Transit Commission that extends up to Vaughan Metropolitan Center. However, even with these four transit services a large majority of York Region does not have access to public transit. This is because a majority of transit lines are situated in the southern more populous portions of the Region (see Figures 4 and 5 in Appendix D). Therefore, if individuals lack adequate transportation, they will likely struggle to have access to supermarkets and other local farms or food markets. Likewise, lack of transportation is linked to food deserts (Hamidi, 2019; Shannon, 2015), and, although York Region does not have an analysis of food deserts at this point, food deserts are likely to be an issue due to the limited public transportation availability.

5.3.1 Region of Waterloo

The Region of Waterloo is located in the southwestern part of Ontario's Greenbelt (Region of Waterloo, 2021a), approximately 100 km from the City of Toronto. In 2020, the population of the Region is about 623,930 people, which is up from 2016 when the population was about 583,500 people (Region of Waterloo, 2021a). This population increase equals about 9% each year, which is higher than Toronto's population growth rate, which is currently 6.5% per year (Statistics Canada, 2021b). The Region of Waterloo is home to seven municipalities. Within these municipalities, there are three cities and four townships. The cities include the City of Cambridge, the City of Kitchener, and the City of Waterloo. The Region of Waterloo is also home to four Townships: Township of North Dumfries, the Township of Wellesley, the Township of Wilmot, and Woolwich Township (Region of Waterloo, 2021b). Like many other regions, groups of people are moving to Waterloo for the different industries offered there, which include but are not limited to advanced manufacturing, aerospace, automotive, food processing, and Tech/digital media (Region of Waterloo, 2021a; Region of Waterloo, n.d.). These industries

are just some of the few that make Waterloo one of the fastest growing regions in all of Canada (Region of Waterloo, 2021a).

Another important industry within the Waterloo Region is the agricultural industry. In 2016 there were approximately 1,374 farms, which in total covered an area of 214,975 acres (Region of Waterloo, 2021c; Region of Waterloo, 2016). To narrow this down, about 70% of this land is used to raise livestock, with the remaining area used to grow a variety of other crops (Region of Waterloo, 2021c). Even more, agriculture in the region generated approximately \$563.6 million in revenue, which according to the Region of Waterloo, is over \$90 million more than 2010 (Region of Waterloo, 2021c).

According to Cummings (2003), the agricultural sector in Waterloo plays a very important role in the region's economic vitality, thus leading to the need to protect agricultural lands within the region. More recently, the Region of Waterloo in 2016 outlines that "74 percent of agricultural land in the region was used for crops; for example, field crops, hay, fruits, field vegetables, and sod or nursery crops" (3). Cummings (2003) also mentions that certain crops are grown within the Region, such as oats and rye, which is typically used as animal feed, and traditionally had been grown in very large quantities in the Region but has since declined.

The Region of Waterloo also makes for a very interesting example because, as mentioned the region has very dispersed city urban areas, one with more than one center, focused on low-density development and overreliance on the automobile (Filion et al, 2007; Filion et al., 1996). This, alongside the growth that the region is experiencing, led the Region of Waterloo to start supporting and encouraging urban agricultural activities within the area (Port & Moos, 2014). Overall, for these reasons and many others, the Region of Waterloo makes for an excellent example to highlight food systems in planning.

The Region has been a champion in linking the importance of food, agriculture, planning and local population health (Desjardins et al., 2010). Waterloo is an example of how to support agriculture in a growing and thriving region. This is because findings from a 2014 study conducted by Port and Moos showed that between 49%-58% of land in the Region of Waterloo could be used for urban agricultural practices. This is hugely important because it helps to show the innovative approach that Waterloo can and has taken in order to support planning for agriculture and food systems. Port and Moos (2014) outline this notion of bridging the divide between planning and agriculture as well as suburban land and agriculture for food production. These lands included both public and private property that can be used.

5.3.1.2 What is Working and What is not Working in the Region of Waterloo

A. What is Working.

1. Cross Collaboration.

The Region of Waterloo has done a lot to ensure that intergovernmental collaboration is occurring. Many of the documents referenced throughout this paper have been constructed in a partnership between public health and planning departments within the Region of Waterloo. Likewise, the Region also has worked to bridge the gap between food and health with a series of public health documents that address the various needs of the food system within the Waterloo Region. An area in the Region's OP is dedicated to access to locally grown and other health foods. This shows how the Region of Waterloo is utilizing an interdisciplinary approach to understanding the food system.

2. Food and Agriculture in the OP.

Waterloo was the first-ever region to include food systems in their Region's OP (Desjardins, et al., 2011). Having the support of solid policies and government leadership usually

fosters a more successful outcome. Waterloo is a prime example of how local governments have started to shift policies to focus on the importance of local food. According to Port and Moos (2014), local governments support local agricultural initiatives by including policies directly related to suburban agriculture in the OP. Moreover, the Region of Waterloo indicates that one of the main goals that the OP wishes to address is how to protect farmland and agriculture communities in a growing region (Region of Waterloo, 2015). For example, the OP states that

Agriculture forms an important part of the region's economy and provides many positive benefits. Each job in the primary agriculture sector has been shown to support an additional four jobs in the wider regional economy. As providers of fresh, locally grown food, area farmers play an important role in the health of the community. Local agriculture also promotes sustainability by reducing reliance on longer distance food imports. Although the region has some of the best farmland in Ontario, this Plan recognizes that simply protecting farmland will not guarantee that it will be actively and viably farmed. Farm businesses today face many economic challenges in a globally competitive environment. To help keep farmers on the land, this Plan contains policies that support on-farm diversification strategies as a means of supplementing farm income.” (Region of Waterloo, 2015, Chapter 6, p. 1)

The policies that follow this statement essentially outline specific actions that are directly related to land uses, how to support sustainable agricultural practices, agricultural-related uses, secondary uses, and the expansion of employment in the countryside (Region of Waterloo, 2015). Each of the policies that have been mentioned within the OP help to outline the many ways that the local government has been trying to address the gaps in planning for agriculture

within the Region. Overall, this shows how the Region of Waterloo has addressed many of the food system-related vulnerabilities within the OP.

3. Research and Innovation.

Waterloo is a hub for research. There are multiple schools within the Region, and each has taken a degree of interest in either agriculture, food or the whole food system. The government has also collaborated with institutions to produce a wide range of reports on the food system. Similarly, the Region of Waterloo is home to various food-related innovation centers and hubs. This includes both Conestoga College's Institute of Food Processing Technology and the SMART Center. Similarly, the Region is also home to the University of Waterloo's RoboHub.

4. Food System Round Table.

Although the Region of Waterloo does not have an advisory committee, they do have a Food System Round Table. In many regards, this round table acts in a very similar manner as the Agriculture and Agri-Food Advisory Committee that is in York Region. The mission of this Round Table is to encourage and support actions that enable a healthy and resilient food system through policy, education, and engagement (University of Waterloo, 2020). This, like the Agriculture Advisory Committee, helps the Region to identify food system issues within the Region while working together to mend them.

A. What Is Not Working.

Unfortunately, there are areas of the food system within the Region of Waterloo that are either missing or not working effectively.

1. Food Manufacturing.

Although the Region of Waterloo is home to food technology and food innovation, the COVID-19 pandemic has drawn attention to the vulnerabilities related to the food manufacturing sector. This also seemed to be the case within the Province of Ontario, where food processing plants such as Cargill were constantly linked to COVID-19 outbreaks and were forced to temporarily cease operations (Bueckert, 2020). In Waterloo, there were many instances where local food processing plants were linked to COVID-19 outbreaks, such as the Conestoga Meat Packers Facility (Kitchener Today Staff, 2021). This led to individuals being worried about supply-related issues resulting from factory closures (Canadian Meat Council, 2021).

2. Labour issues.

There are also many labour-related issues within the Region of Waterloo. The first concern is directly related to the processing factories, as mentioned above. The factory outbreaks also led to many individuals questioning the unjust labour conditions that individuals were being forced to work under in these processing facilities. Moreover, like York Region, the Region of Waterloo faced labour issues related to TFW and front-line grocery store workers.

3. Food Deserts and Food Swamps.

Although the Region has done a considerable amount in implementing food system related policies (e.g., local food distribution) into the Region's plans and practices, it still faces an increasing number of food deserts and food swamps. Luan et al. (2015) looked at the Region of Waterloo between 2011-2014 and concluded that although food swamps were more prevalent throughout the Region than food deserts, reducing food deserts still needed to be a priority (Luan et al., 2015).

4. Supply Chains.

Even with all the Region of Waterloo is doing to support local food the Region still unfortunately relies excessively on the global supply chain. This reliance was especially shown during the early months of the COVID-19 when many supermarkets in the Region of Waterloo experienced food shortages (Senoran, 2020).

5.3 Overview of Findings

The above highlighted not only the various policies and plans used by the provincial and regional municipal governments for land use planning but also the various elements that are working and are not working when it comes to land use planning and food systems. For many of these policies and plans, the overall food system is the main element missing. However, by looking at examples of regions that are doing well in their approach to food systems, it is shown how it is possible to support food, agriculture, and the planning system to the benefit of their communities. Not everything is perfect, as these municipalities have drawbacks to their approaches, but they provide examples for other municipalities to build on.

Section Six: Discussion of the Impacts of Planning on Food System Resilience

Including food and agriculture in land use planning is a key factor for the provisioning of health, resilient communities, and the food system. However, it is also important that food systems be included within the land use planning practice because they interact within the same realms that land-use planners plan within. For this reason, food plays an integral role because the land use, provisioning of food, food access, food production, and more, all fall within the realm of land use planning. Below discusses the various vulnerabilities within the food system and the vital role that land-use planning plays.

6.1 Incorporating Food with Planning

This paper highlighted the heightened need for the planning practice to be inclusive of the food system. According to Morgan (2009), weaving food into local land use planning policies is happening all over North America and Europe. In 2011, the Ontario Professional Planners Institute called for action linking healthy communities and planning for food. Interestingly, this report brought food, land use, and healthy communities together by focusing on three things that encapsulate each of them: the economy, the environment and social sustainability. These three pillars of sustainability all work together to foster a high quality of life (Ontario Professional Planners Institute, 2011). Looking at these three sustainability factors, it is easy to recognize that the food system plays a vital role in each.

Planners are faced with many barriers when planning for food systems. However, planners are some of the leading players addressing this issue. The reason for this is because not only do planners have the expertise, they also have a community-oriented focus (Pothukuchi & Kaufman, 2000). If planners incorporate more and better food planning principles within

practice, it will allow them to better address the needs of urban, rural and peri-urban communities by creating livable, healthy, environmentally sustainable and economically viable communities (Campbell, 2004; Ontario Professional Planners Institute, 2011). Next, there needs to be an enhanced integration of the overall food system in key planning acts and policies, such as the Places to Grow Act, Greenbelt Plan, and PPS (Ontario Professional Planners Institute, 2011). The Places to Grow Act has made progress in integrating food into the overall Plan. Nonetheless, the Plan still offers limited direction regarding policies in support of food. Section 2.2.1. Managing Growth 4.d. ii. of the Plan mentions that applying the policies of the Plan will help to support the building and growth of complement communities. Doing so would help to include and expand convenient access to healthy, local, and affordable food (Ontario, 2020d). However, there is no clear direction for how local municipalities are to incorporate food; besides the few mentions of food within the Plan, there is no dedicated section on the food system. Instead, the notion of having a health-promoting food system is scattered throughout the Plan, predominantly within the agricultural and the climate change sections.

The Greenbelt Plan shows a very similar narrative with regards to the integration of food. Like the Places to Grow Plan, the Greenbelt Plan mentions the Agri-food network several times throughout the document. For example, in section 1.2.2 Protected Countryside Goals 1. Agricultural Viability and Protection, the main focus is to ensure that specialty crops are protected. In 1.2.2 f) the greenbelt plan mentions that there need to be increased strengths in the Agricultural System when considering how development impacts agriculture and local food. Interestingly, there is no clear direction for the provisioning of local food (Ontario, 2017a). Overall, the document mainly focuses on the agricultural practice and planning for protected countryside rather than the various other food system components.

This is also the case in the PPS. The statement outlines that there is very little focused policy direction that looks at local food, food access, and food distribution as a separate agriculture entity. Rather, the predominate focus is placed on agriculture and not the other elements in the food system. Although they go hand in hand, there are various other elements of the food system missed in this document and other key planning documents within Ontario. This makes it exceptionally hard for a planner to adequately incorporate planning for food systems in everyday planning practices when so many crucial elements remain missing.

Separately, plans must also begin to consider how to better integrate food and food system terminology into local municipal planning by-laws, zoning by-laws and public health reports. Some areas, such as York Region, have seen some positive outputs but also drawbacks. York Region has made strides in connecting agriculture and local food to different sectors within the Region, which has been shown by situating the agricultural portfolio in the Economic Development Department. Likewise, the creation of the Agricultural and Agri-Food Sector Strategy for York Region helped to home in on key goals of the industry that help promote agriculture, local food, business entrepreneurship, and planning. Likewise, within York Regions' 2010 Official Plan with 2019 amendments, there is a clear objective that indicates that the region wants to ensure that agricultural land remains available for producing and providing local food that can be accessed by all communities situated within the area (York Region, 2019). However, there is still no clear food systems references within the Official Plan and therefore still a lack of policy that would flow from the OP.

Finally, a challenging barrier that needs to be addressed by planners is the understanding of stakeholder connections. This is important to better understand all the deeply rooted institutional barriers that currently exist within the food system and planning, which will hopefully lead to them creating impactful policies (Ontario Institute of Planners, 2011).

6.2 Food system Planning in Economic, Social, and Environmental Realms

6.2.1 Economic

A. GDP.

As mentioned above, the agriculture sector plays a very valuable part in our GDP. These numbers show the significant role that not only agriculture but food plays in the GDP. Therefore, if any of these elements were to experience a decline, there would be many negative repercussions for the whole system. This is the case for York Region and the Region of Waterloo, as both are strong players within the agriculture and agri-food processing industry. Furthermore, the agriculture and agri-food sector's crucial role highlights some of the many reasons why planning for the food system needs greater integration into policy. It is important to address vulnerabilities so both Regions can thrive into the future.

B. Employment.

When thinking about food and the agricultural industry, it is essential to understand the whole of Ontario's agri-food and agriculture sector. Therefore, this sector makes up a large portion of the economic stability within a region such as Waterloo. The Region of Waterloo, as mentioned throughout this paper, has also seen success regarding agriculture, generating approximately 563.6 million in total revenue in 2015 (Region of Waterloo, 2021c). This is up over \$90 million compared to 2010. The Region employs thousands of individuals to work within the agriculture and food sector each year (Region of Waterloo, 2021c). However, what the

pandemic has shown is that this is a very vulnerable sector with regards to employment, especially among TFWs and foodservice industry workers.

Throughout many agricultural zones in Ontario, including the York Region and the Region of Waterloo, the vulnerability of TFWS was evident during the pandemic. This vulnerability was demonstrated as many temporary foreign workers were not able to enter the country. Many became ill with COVID-19 due to overcrowding in workplaces and living quarters (MacRae, 2021a). Temporary foreign workers in the agricultural sector play a vital role in the overall food system, including filling in labour shortages to help continue production while keeping labour and production costs lower (Gross, 2014). Furthermore, without temporary foreign workers, the productive capabilities of farmers would significantly decline as there would be minimal workers to plant, tend and harvest crops and other agricultural activities. Many farmers have already reported that they have reduced plantings or have resulted in leaving crops in fields due to labour shortages (MacRae, 2021a).

This is a similar situation to what is being seen in the restaurant and foodservice industry currently. Although some food firms have recorded record sales, many restaurants have unfortunately not been able to do the same, with many forced to close (MacRae, 2021a). The restaurants that have survived the pandemic have experienced a drop in employment rates of about 27% from 2020 to 2021 (Hannay, 2021). What is even more concerning is that an overwhelming majority of restaurant workers have reported that they will not be returning to the restaurant industry once everything begins to resume. This has been explained by Brown (2021), who found that within the city of Toronto, one food service management company reported that approximately 30% of its managers, 40% of its front-end staff and 60% of its chefs would most

likely not be returning to the restaurant industry. This means that there will be a significant employment gap within the foodservice industry.

The fluctuations experienced in labour have already taken a toll on the whole industry, including in regions such as the York Region and the Region of Waterloo. This shows that more needs to be done to support all food and agri-food related sectors. Doing so will not only ensure the viability and success of the industries but will also help to support industry workers.

C. Agri-tourism.

What many do not realize is that Agri-tourism also plays a vital role in the economic food system. All over the province, farms open their farm gates to welcome tourism. Another example of the food system's importance to the economic sector has been shown through the increase in demand for local Agri-tourism due to the pandemic. Not only does the industry offer activities to the local community, but the sector is also a great business opportunity for many individuals as it incorporates many aspects of the agricultural sector (Sali, 2019). The pandemic forced many individuals to stay within Ontario. There was a considerable increase in local tourists partaking in outdoor Agri-tourism activities (Ford, 2021). This was happening across Ontario, including in the Regional Municipality of York and the Region of Waterloo. As mentioned, both regions have made attempts to enhance the agricultural sector. An excellent example of what York Region has been doing can be seen through its partnership with York Farm Fresh. As mentioned above, York Farm Fresh is a pay-for organization that promotes local farm businesses. To complement this initiative, York Farm Fresh also released an interactive multi-lingual app to try to engage with more people within the community. The website offers guide maps to different farms within York Region. Furthermore, many of the farms listed on the York Farm Fresh website offer

individuals more activities than just open farm gates and fresh produce picking. This helps to better promote the many benefits of food and agriculture.

D. Food Entrepreneurship and Food Processing.

Food entrepreneurship offers another excellent opportunity for planners to engage further within the food system. This is because local food entrepreneurship provides a perfect opportunity to support the promotion of local food. The reason for this is because local food products offer great potential for value-added processing. This can lead to more significant local economic development through job creation, local spending, local food innovation etc., (Kwil et al., 2020).

Both York Region and the Region of Waterloo are critical players in the food processing industry. The Regional Municipality of York currently has over 270 food and beverage manufacturing facilities (York Region, 2021a). The Regional Municipality of York has identified the importance of the food and beverage manufacturing industry and has recognized it as one of five key goals that the Agriculture and Agri-Food Sector Strategy hopes to achieve and or strengthen. The Strategy explains that one of the key goals is to "Support increased capacity for value-added agri-food processing and support services" (York Region, 2017, p. 8). Further, the objective attached to this goal is to "Connect local producers with value-added & processing opportunities, while attracting new investment" (York Region, 2017, p. 8). This provides opportunities for local food farmers, producers, entrepreneurship, and manufacturers to connect and ultimately strengthen the sector within the Regional Municipality of York. Even more, the Region has tried to build this through the York Region Food and Beverage Accelerator Program. This helps show York Region's work to further promote food entrepreneurship and food processing in the sector.

The Region of Waterloo has a very similar situation. The region is also home to various post-secondary institutions, including the Institute of Food and Processing Technology from Conestoga College (Region of Waterloo, 2021d). Further, the Region of Waterloo also makes it a point to mention food production and processing within their OP showing the region's focus on sustainable and long-lasting food and agricultural systems within the Region. This focus and process are described as being "a collaborative effort to build more locally based, self-reliant food economies— in which sustainable food production, processing, distribution and consumption are integrated to enhance the economic, environmental, and social health of a particular place" (Feenstra, 2002, p. 100). Overall, this shows how important the sector is to the local and regional economy and how more needs to be done so that hubs such as the York Region and the Region of Waterloo can continue to thrive.

E. Corporate Concentration.

COVID-19 has shown how genuinely volatile Canada's food system is, especially with regard to corporate concentration. Corporate concentration is an area that needs to be further addressed in Canada. This is especially true because Canada has one of the most highly concentrated food systems in the industrialized world (Clapp, 2018; MacRae, 2021c). This then transpires throughout all the provinces and municipalities. When corporate concentration becomes overpowering, there will typically be many negative social and economic consequences (MacRae, 2021c). This is because corporate concentration typically leads to a very volatile system, which has been seen in the food system. For example, both consumers and suppliers can be negatively impacted by corporate concentration. This is because concentration forces consumers to pay higher prices, as there is limited competition (MacRae, 2021c). This, as one

can imagine, had a considerable impact on those individuals who lost their means of income due to the pandemic.

Similarly, corporate concentration typically impacts suppliers who are forced to sell their goods at a much lower price (MacRae, 2021c). When trying to determine the corporate concentration, it is typically viewed as 40% of the market controlled by four leading firms (MacRae, 2021c). Unfortunately, the experienced corporate concentration within Canada surpasses 40% (MacRae, 2021c). A key example of this in the Canadian context is the fact that although there is a constant decrease in the number of farmers, the number of cooperating managed farms has increased (Qualman et al., 2020).

Another example is the foodservice industry. Although 60% of restaurants within Canada are classified as independent, they only account for approximately 35% of total sales (MacRae, 2021c). The last example is food retail. As of 2016, Canada was dominated by three main food retailers: (1) Loblaws, (2) Metro, and (3) Empire (Agriculture and Agri-food Canada, 2017b).

Longo's is a prime example of how corporate concentration occurs. Once a local family-owned food retailer turned to a Southern Ontario-based independent food retailer chain was purchased in the recent acquisition by Empire (Sobey's) Company Ltd (Bundale, 2021). This is a prime example of how the top three food corporations aim to remove all competition.

Regrettably, there is little that can be done currently to minimize the expansion of corporate concentration due primarily to weak competition laws (MacRae, 2021c).

6.2.2 Social

A. Local Food.

The provisioning of local food is an area of food system planning that needs to be given more attention by the planning practice. Local food encompasses the ability to grow, produce,

innovate, and distribute food locally to local suppliers and consumers (Irshad, 2010; Smithers et al., 2008). Local food also offers a variety of social, economic, and environmental benefits, including new social networks, local farmland preservation and the promotion of local spending (Brain, 2012; Hughes, 2015; O'Hara & Pirog, 2013).

For these reasons and many others there has been an increase in demand for local food (Benedek, et al., 2020). This has been a critical theme raised in all of the interviews. Although, in theory, there is increasing government support in promoting local food, as typified by the Local Food Act, though the Act is weak and needs to be strengthened. "The main issue with the Act is that it is very broad and relies on the civil service, through the Minister, to make changes. Therefore, the implementation measures carried out to date do not fulfill the purposes of the Act" (Roderick J. MacRae, personal communication, July 23, 2021).

The promotion of local food has been on the rise for nearly two decades (Pirog et al., 2014), and should be an essential element of planning on the provincial as well as the municipal level. The provisioning of local food provides an opportunity for the province of Ontario and local municipalities such as York Region and the Region of Waterloo to be more self-reliant. Currently, both York Region and the Region of Waterloo have enough agricultural land capacity to produce enough food to feed their local populations. However, their current production mix is not sufficient to attain this. This has been explored for the Region of Waterloo by Desjardins and colleagues (2010), who discovered that it would be feasible to shift about 10% of the production to local fruits, vegetables, legumes, and grains. The authors further determined that this would have a positive impact on the local food economy as well (Desjardins et al., 2010). Given the unique soil and climatic conditions throughout the province of Ontario, producers can grow an abundance of ethnocultural foods, which ultimately allows them to offer various and culturally

sensitive foods to consumers (Ontario Ministry of Agriculture, Food and Rural, 2017). The ability to access affordable and culturally sensitive local foods has many benefits for the consumer, producer, and community at large (Pradhan et al., 2014).

The Local Food Act is an example of the work done by the provincial government in helping to promote local food. This act helps, as mentioned above, to promote and encourage local food, even going as far as to designate the first Monday of June each year as being Local Food Week (Ontario, 2013). However, one of the main issues with the Local Food Act is that, for the most part, all food-related policies are at the discretion of the municipality. This makes for a very disjointed and unconnected system regarding food system management. Although many Regional Municipalities have attempted to mend this gap, many have not.

Both the Regional Municipality of York and the Region of Waterloo have attempted to mend this gap within the local food system. York Region has worked cooperatively with various food networks, and channels to foster a collaborative stakeholder relationship. For example, York Region's Local Food Webpage highlights York Farm Fresh. Likewise, the York Region Agriculture and Agri-Food Sector Strategy (2017) also mentions that a critical opportunity for the Region is to promote local food by leveraging the Region's proximity to the GTA. A series of action items follow this to help York Region to achieve this goal. What is interesting, though, is the collaborative approach that the York Region has taken to do so. For example, local food innovation has been a key focus for the region, as York Regions' relationship with the food innovation hub shows. This provides a huge opportunity for local food entrepreneurs to source local products and produce innovative foods locally.

The Region of Waterloo has made it a point to feed the population with local food. The Region has shown their commitment to local food, so much so they incorporate specific land-use

policies directly related to food in their OP (Desjardins, 2011). Given the soil's productive capability in Ontario, this offers the Region of Waterloo an excellent opportunity to promote the diversity of agriculture provided. This is especially important when looking at the food environment within the Region of Waterloo as the ability to produce local cultural foods (Rodriguez et al., 2016).

B. Access to Food.

Food access is another essential vulnerability that needs to be addressed throughout individual municipalities and the Province of Ontario. For this paper, the vulnerabilities related to food access will be broken down into two separate factors. The first is the cost of food, and the second is accessing fresh local food. Regarding cost and food access in Canada, it is estimated the food prices are expected to increase anywhere between 3 and 5 % in 2021 (Charlebois, 2020; Charlebois et al., 2021). This will have a considerable impact on those experiencing food insecurity. This is important to consider because from 2009-2014, an estimated 24,700 households in York Region were experiencing some form of food insecurity (York Region, 2021b). Now, as a result of the pandemic, this number is expected to be higher. In the region of Waterloo, it was expected that 19,465, or about 10% of households, were experiencing some form of food insecurity between 2013-2014 (Nethery et al., 2019). The increase in food costs leaves many households with poor nutrient uptake (Kirkpatrick & Tarasuk, 2008; Kirkpatrick & Tarasuk, 2011).

Another area of food access is access to physical places to buy food. Unfortunately, communities in Ontario are still subject to food deserts (Florida, 2010). York Region partnered with the York Region Food Network to create the York Region Food Charter. Within the Food Charter, it is mentioned that York Region values having access to healthy, affordable foods in

the community (York Region, 2013). Although food is mentioned in passing in York Regions OP, there is no mention of ensuring that people within the Region have adequate and affordable access to food. This is a very different case in the Region of Waterloo, especially given that the Region has directly incorporated food into their OP, under the section of Livability within the Region of Waterloo (Region of Waterloo, 2015). Furthermore, that the Region of Waterloo's OP directly incorporates food and food system planning into the planning practice. This is shown as food is incorporated into sections that are addressing mixed-use housing, transportation, and the environment (Region of Waterloo, 2015). However, with or without these interventions, both York Region and the Region of Waterloo have struggled with food deserts as a result of fragmented access.

Another element related to food access is transportation access. Access to quick and affordable transportation is also involved in fostering greater food access. Within Ontario, it is clear that there is a gap in transportation access and equity (Fok, 2017). This limited access to transportation plays a significant role in communities' ability to access food. Another limitation to lack of access to transportation apart from the distance and limited viable transit options is cost. As explained by Sengupta and colleagues (2013), income is a significant variable that limits an individual's ability to access necessary goods and services. The lack of access to transportation is, unfortunately, the case for many in-between/peri-urban communities. These areas have traditionally been neglected from fast, effective, and affordable transit (Collens, 2016).

This limited access to transportation is, unfortunately, a lived reality for many in the York Region. This can be partially attributed to the fact that public transit within York Region is heavily concentrated in the lower, more populated parts of the Region, with limited access

elsewhere (Mozayani, 2019). Unfortunately, this also seems to be a lived reality for those in the Region of Waterloo. Before the 2010 Regional OP being released, along with the 2004 OP, the Region of Waterloo, released an article outlining the issues related to food access within the Region. The report noted that approximately 71% of people within the Region of Waterloo in 2004 were not within a reasonable walking distance for a large grocery store, and 47% of the urban population was not within walking distance of a large/small grocery store or convenience store (Region of Waterloo, 2004). However, on the positive side, the article also mentioned that within the Region Waterloo, approximately 94% of individuals that lived in urban areas of the Waterloo region lived within a short walking distance from a transit route that went past a significant supermarket (Region of Waterloo, 2004).

The issue of food access and transportation has been highlighted as a result of the COVID-19 pandemic. For example, transit providers across Ontario reduced transit service frequency (Ontario, 2021). This reduced service and overcrowding also causes a strain on individuals' ability to access food. Even more, there have been various news articles with associated images outlining the terrible and overcrowded riding conditions that individuals using public transit had to endure as a result of the COVID-19 pandemic. This shows that there are opportunities for York Region and other municipalities to include food access, specifically access to supermarkets within the transportation plans.

6.2.3 Environment

A. Ecosystem Services.

Another area of vulnerability experienced throughout both of the Regions and Ontario is the impact that land development will have on the environment and the food and agriculture system. Sadly, the conflicting planning mentioned earlier in this report has typically led to peri-

urban regions having an increased percentage of agricultural land being developed. When agricultural land is developed, it limits the agricultural sector's ability to provide ecosystem services and other vital agricultural services. The term ecosystem services can be best understood as the complex natural interactions and processes that occur within ecosystems, that help to add value and sustain human life (Daily, 2013; Zhang, et al, 2007). Further, what this means is that these ecosystem services provide an essential service for many is not all the factors that comprise an ecosystem. Likewise, these services also benefit agriculture and contribute to human well-being, by providing social and environmental value (Daily, 2013).

Agriculture plays a large role in the maintaining of ecosystem services. The provisioning of food is a key ecosystem service that is provided by agriculture (Palm et al, 2014). Smith et al. (2001) explains that agricultural land acts as a carbon sink, also known as a soil sink. In doing so, the Greenbelt agricultural lands store approximately 40 million tons of carbon. Depending on the conditions of the agricultural land, the amount of carbon that can be stored per hectare ranges between 71 and 90 tons (David Suzuki Foundation, 2008, p. 38). These elements as well as the other ecosystem services are included in the Lake Simcoe protection plan. This shows the importance of maintaining agricultural land for the future and the necessity for planners to better incorporate food systems planning into land-use planning, especially in York Region and the Region of Waterloo, where agriculture still makes up a large portion of the land base.

B. Soil Health.

Soil health and agricultural land loss are very important topics when addressing vulnerabilities within the food system and planning. As mentioned above, soil health is diminishing for a wide variety of reasons. These reasons include: an increase in developments is happening in areas deemed to be prime agricultural land, nutrient runoff, increase in soil erosion,

and more. Each of these has been exacerbated by the urban system or the contemporary urban processes of living. For example, although a natural process, soil erosion has drastically increased as a result of industrialized agriculture (Lynde, 2020).

Moreover, Ontario's soil health is quite literally the heart and soul of the Canadian agriculture and agri-food sector. In Ontario, these declines in soil and soil health are drastic. Approximately 82% of Ontario farmland has experienced a reduction in soil organic matter (Rotz et al., 2018). Even more, about 54% of Ontario's croplands have experienced concerning levels of soil erosion (Rotz et al., 2018). Therefore, maintaining the health of soils is paramount in maintaining and fostering a thriving agricultural sector and food system. These both could have detrimental impacts on farming and agricultural production in the GGH. As mentioned, Ontario's soil profile is broken down into different classes, with class one being the most productive and class seven being the least productive. Class one soil is typically the best for growing as there are no significant impacts and or limitations in the soil (Ontario Ministry of Agriculture and Rural Affairs, 2017). Areas designated with class one soil, for this reason, have the greatest growing capability.

There are several areas designated as prime agricultural land or specialty crop areas in Ontario. The Holland Marsh is one of the designated specialty crop areas in the Greenbelt. York Region is home to approximately 50% of the Holland Marsh and has approximately 43% of the Region designated for Agricultural Use (York Region, 2021a). In June of 2021, the province announced that about 360 hectares would be added to the Greenbelt in York Region (Ontario, 2021f). And, for the most part, the Greenbelt had protected these areas as they are essential areas in agricultural and agri-food production (Ontario, 2017f). This highlights the importance of maintaining soil health for food production.

C. Agricultural Land Loss.

Before the pandemic, authors warned about the threats that agricultural land loss will have on the economy, society, and the environment. Unfortunately, agricultural land continues to be lost at unprecedented rates, which will ultimately impact the province's ability to procure and distribute food to local, regional, and international supply chains. For example, Rotz and colleagues (2019) explain that changes to farmland and agriculture land impact tenure, capital and agroecological stewardship. Likewise, Cladwell and Hiltz (2005) also provide insights into the importance of farmland preservation as part of public need and benefit and to protect the agricultural economy. Ultimately, protecting farmland is a critical non-renewable resource for current and future generations. To ensure long-term food security, urban and scattered non-farm development should be prevented in productive agricultural areas (OPPI, 2011). Overall, the protection of agricultural land for ecosystem services and food production potential is integral to ensure the sector's longevity.

Section Seven: Recommendations and Limitations

7.1 Recommendations

This paper has reviewed the various vulnerabilities being experienced by Southern Ontario's Food System. This was done by addressing the lack of food systems within land-use planning which has contributed to the lack of resilience that we see today. Two Regional municipalities have attempted to build a robust local food system. However, many of the vulnerabilities that have been discussed within this paper are prevalent throughout Ontario and nationally. The paper has reviewed what is working, what is not working and what is missing. This next section recommends how these gaps can be closed, and this will be done by utilizing

the Efficiency-Substitution-Redesign framework of Hill and MacRae (1996). All three of the recommendations listed and explained below would most likely fall within the efficiency stage of the framework.

The first recommendation is that there needs to be an increase in intergovernmental collaboration between various levels and departments of the government. This can be achieved through round table discussions about policies and plans and collaborative reports. When planning for the food system, the planning sector, the economic sector, and the health sector should be included as food touches on each of these realms, as the Region of Waterloo did for its Growth Management Plan. This is an issue because there is no enforced collaboration at the local, or regional level within Ontario. Instead, it is left up to the municipality to navigate how food is incorporated into their region. Typically, agricultural production is not guided by population nutritional needs and requirements (Buzby et al., 2006; Desjardins et al., 2010; Peters et al., 2007). This has a trickle-down effect on local municipalities, who then keep planning in silos. Sadly, we fail to see how food, health, the economy, and land use are all connected. Unfortunately, governments do not understand these crucial links (Ross, 2011). This lack of intergovernmental collaboration is mainly due to Canada's constitutional divisions, which assign legislative authority to different levels of government.

The second recommendation is that each Regional Municipality should have a land-use planner who is specifically focused on agricultural and food systems planning. Doing so will ensure that, for the most part, the priorities of the food system within the local region are being met. And incorporating food systems into land-use planning will, in turn, lead to a more equitable and unifying approach to planning practice.

Both York Region and the Region of Waterloo continue to do leading work in Ontario regarding food systems and land use planning. For this reason, the following recommendation would be for all Regions to attempt to incorporate food systems within their OP as the Region of Waterloo has done. Doing so will solidify the food system as an essential element within the planning practice.

The last Recommendation is for regional municipalities to have an agriculture and agri-food sector strategy. York Region's Agriculture and Agri-Food Sector Strategy should be used by other peri-urban regional municipalities as a framework to guide the construction of their own strategies. The Strategy draws attention to the many vulnerabilities that the York Region faces and includes dedicated actions on how these vulnerabilities will be mended. This Strategy offers other municipalities a template to address the land use planning, agriculture and agri-food planning needs within their regions.

Although there is a lot more that needs to be given attention, starting with these three recommendations will allow for more cohesive policies, greater collaboration, and a more refined focus. Overall, there needs to be a greater focus on communities, municipalities, and other levels of government to come up with and utilize different policy-driven and directed strategies that work to the needs of the communities members, and food system. These strategies must include protecting farmland while accommodating future growth that might be occurring within the region, preventing the impacts of fragmented growth from developments while still supporting diversified economic bases (Francis et al., 2012). In doing so, policies must also be directed towards better farm management practices within the industry to remain socially and environmentally viable (Francis et al., 2013). These strategies must also include further

engagement on incorporating more components of the food system into the land use planning practice.

7.2 Limitations

There were various limitations to this study. The first is that the COVID-19 pandemic prohibited interviews from being face-to-face. This might have impacted the level of comfort between the individuals that were being interviewed and me. Another limitation is that only individuals from, or who worked with or in York Region were interviewed. Should this study be replicated in the future, other elements of planning and the food system should be included to create a more robust understanding of the vulnerabilities.

Section Eight: Conclusion

Overall, this report highlighted how the food system was already vulnerable before the COVID-19 pandemic, and how the pandemic further exposed these vulnerabilities. Within Canada, food systems are not fully included within the land use planning practice. The main reason is a lack of government coordination regarding the development of policies that would have direct positive impacts on the local and regional food system.

Unfortunately, this lack of adequate policy has led to populations being left vulnerable in a poorly functioning food system. These gaps and vulnerabilities contribute to the lack of reliance that we currently see in our local, regional, and provincial food systems.

However, this paper has shown that it is not all dim. Municipalities such as the York Region and the Region of Waterloo have and continue to incorporate the food system strategies and policies into their mandate. York Region developed the Agriculture and Agri-Food Sector Strategy, which aims to highlight agriculture and local food and the key stakeholder relationships that are encouraged within the region. The Region of Waterloo's work has focused on creating a

healthy, viable community connected to the whole food system, as shown within some of the region's key documents, such as the Regional Official Plan. This paper has shown that planners, just as much as the federal and provincial governments, need to play a key role in planning for a more resilient food system. Likewise, more government direction is ultimately needed to ensure that food system planning policies are incorporated into subsequent planning documents now and into the future. Doing so will help to reduce some of the direct vulnerabilities impacting communities while ultimately helping to create a more resilient planning system that includes food.

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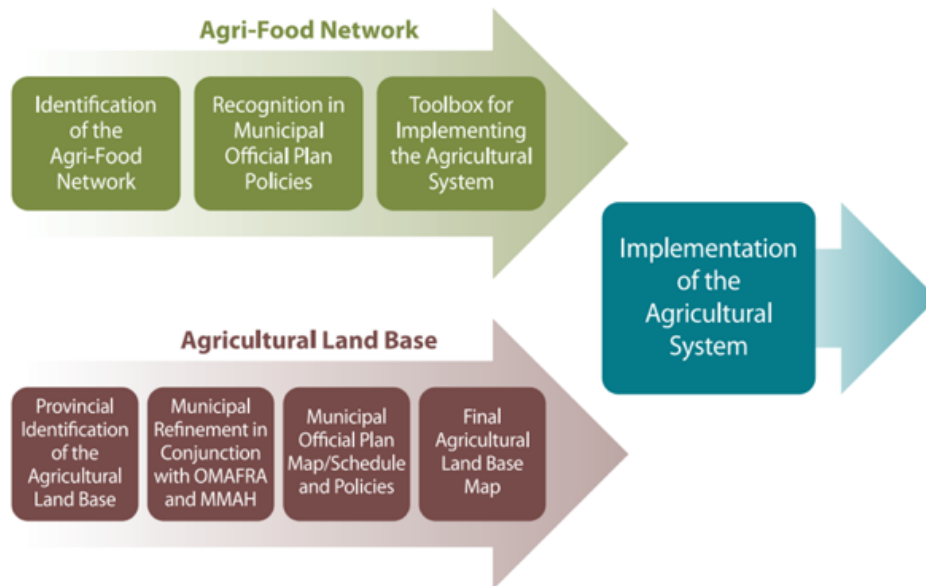
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Appendix A

Agricultural Systems Process



Steps to Implement an *Agricultural System* in the *Greater Golden Horseshoe*

Figure 1. The figure displays the process of implementing the Agricultural System. (Retrieved from Greerts & Churchyard, 2020).

Appendix B

Canadian Policies and Plans

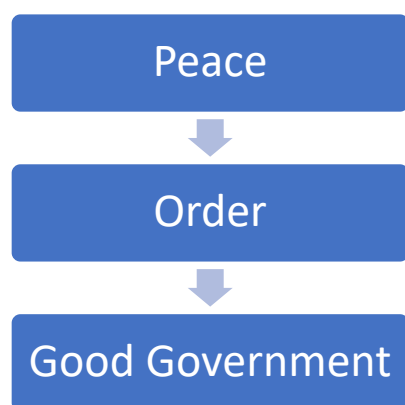


Figure 2. Highlights what the requirements within the Canadian constitution for the federal government.

Level of Government	Location	Docuemnts
Federal Government	Canada	Food Policy for Canada
Provincial Government	Ontario	Planning Act
Provincial Government	Ontario	Provincial Policy Statement
Provincial Government	Ontario	Green Belt Plan
Provincial Government	Ontario	Local Food Act
Provincial Government	Ontario	A Place to Grow: Growth Plan for the Greater Golden Horseshoe
Provincial Government	Ontario	Oak Ridges Moraine Conservation Plan
Provincial Government	Ontario	The Lake Simcoe Protection Plan
Provincial Government	Ontario	Guidelines on Permitted Uses in Ontario's Agriculyural Areas
Municipal Government	York Region	York Region Official Plan
Municipal Government	York Region	Agriculture and Agri-Food Sector Strategy
Municipal Government	York Region	Vision 2051
Municipal Government	York Region	York Region Food Charter
Municipal Government	Region of Waterloo	Official Plan
Municipal Government	Region of Waterloo	Growth Management Strategy

Table 1. All government documents used in the research.

Appendix C

York Region KPI metrics

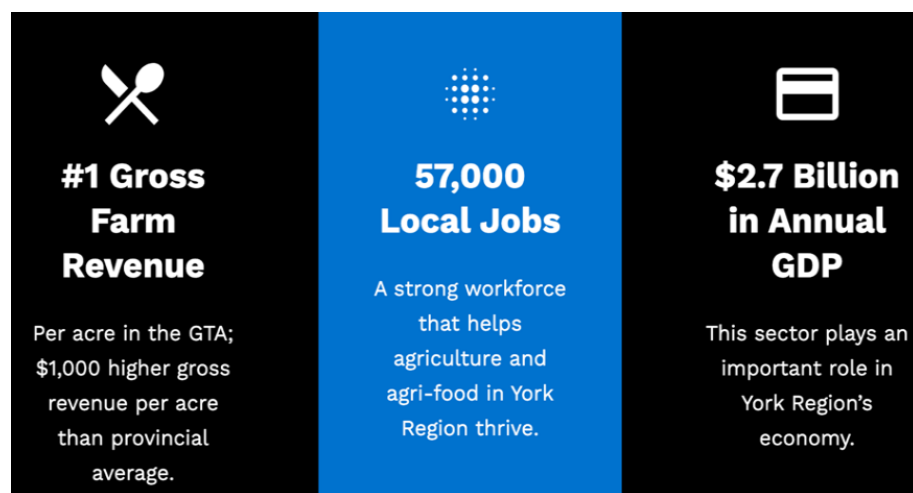


Figure 3. The image highlights how York Region displays Agriculture and Agri-Food sector KPI metrics to the public. (York Link, 2021b).

Appendix D

Public Transit York Region

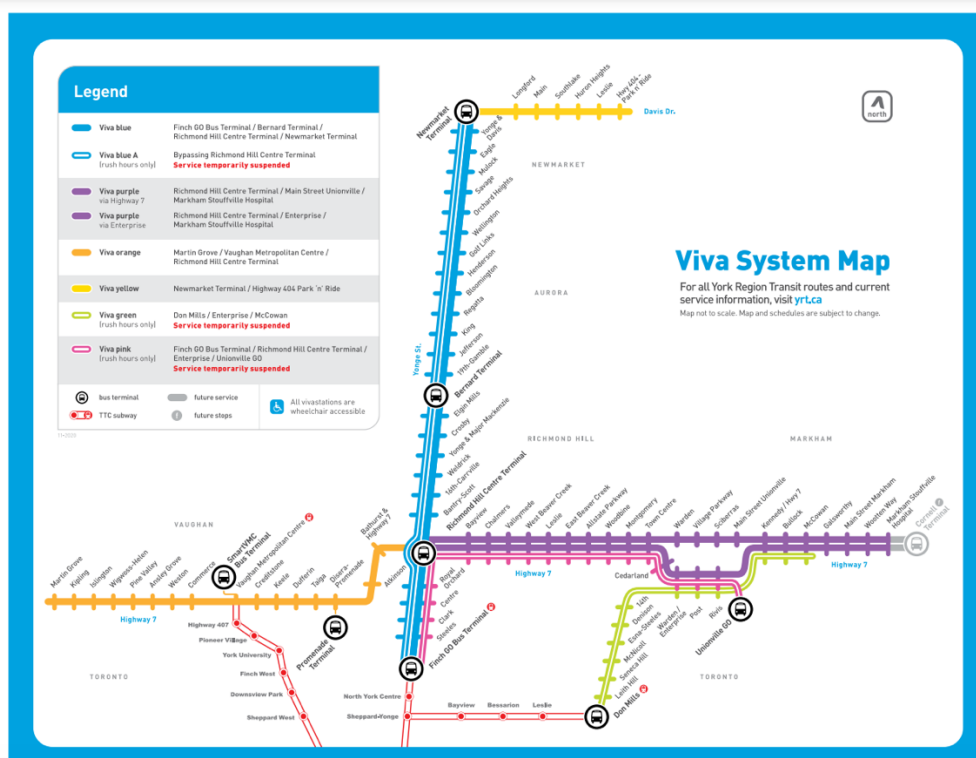


Figure 4. Shows Viva transit system map. (YRT,2020a)

Figure 5. Shows the YRT transit system map for all of York Region. (YRT,2020b)