Cannabis and Rural Land Use Conflicts in Southern Ontario

by

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Author's Declaration

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

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

Abstract

With the recent introduction of the Cannabis Act, S.C. 2018, c. 16, cannabis production for recreational and medicinal purposes has significantly increased which has resulted in impacts on rural communities. This research explores the impacts that legalized cannabis production has had on communities but understanding how municipalities in rural Ontario have utilized policy tools to respond to increasing cannabis production pressures, and what are the challenges and benefits of cannabis production for rural municipalities. Local zoning bylaws were reviewed in addition to interviews with key informants to answer the research questions. The research found that there were both benefits and challenges as a result of cannabis production for rural communities which resulted in a wide range of regulatory practices in Southern Ontario. The research also found that there were specific challenges for policy makers. A standardized methodology and guideline for siting cannabis production facilities, similar to what has been done in Ontario for livestock facilities, would assist rural municipalities and policy makers in achieving greater compatibility.

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ACMPR - Access to Cannabis for Medical Purposes Regulations

AGCO – Alcohol and Gaming Commission of Ontario

LULU – Locally Undesirable Land Use

MMAR - Marihuana Medical Access Regulations

NIMBY – Not In My Back Yard

OMAFRA – Ontario Ministry of Food, Agriculture, and Rural Affairs

1.0 Introduction

Cannabis is one of the oldest crops cultivated by humanity for textile and medicinal purposes. However, the widespread prohibition in the late 18th and early 19th century stopped its legal cultivation across the world (Russo, 2007). Cannabis is a tall herb native to Asia with a fibrous stalk and usually contains psychoactive flower buds and leaves (Merriam-Webster, n.d.). Despite intense efforts to curtail its illegal cultivation, countries like the United States saw a significant increase in illicit cannabis production over the last 25 years (Gettman, 2006). In recent years both cannabis for medicinal use and recreational use has been permitted and legalized by several US states and countries such as Canada (Stoa, 2017; Pardo, 2014, Caulkins et al., 2013), with more states and countries expected to follow suit (Caulkins et al., 2016).

In 2001 the Federal Government of Canada legalized cannabis for limited medical treatment through the Medical Marijuana Access Regulations (MMAR). In 2018 the Government of Canada, led by Prime Minister Justin Trudeau, legalized the recreational use of Cannabis (Health Canada, 2018[2]). Canada is one of only two countries globally to fully legalize recreational cannabis nationally, with more countries considering its legalization (Murphy, 2018). While some countries and states have decriminalized cannabis, such as Colorado, Washington, California, South Africa, and The Netherlands, only Canada and Uruguay have legalized it nationally (Resko et al., 2019; Schlag, 2020). The regulations put in place through The Cannabis Act S.C. 2018, c. 16 has given provinces and territories in Canada the power to regulate and implement its production and distribution (Health Canada, 2020).

Legalization has brought forward many public health and safety issues regarding its use and consumption (Ontario Public Health Association, 2016; World Health Organization, 2016;

Kilmer, 2017; Kilmer, 2019). As there are unknown impacts related to use, regulations have been put in place in many jurisdictions (Hurd et al., 2014). For example, cannabis is regulated in Canada to control distribution to prevent youth access and by placing possession limits on adults. The focus on use, sales, and distribution has exposed a lack of research on understanding the land use implications with cannabis cultivation and production (Stoa, 2017).

1.1 Canada's Approach to Legalized Cannabis Production and Distribution

There have been different routes to cannabis legalization and several iterations of legalization schemes implemented over the past two decades. These have impacted the way cannabis is currently produced for both medical and recreational purposes in Canada. In Canada the legalization of cannabis was initially brought about through numerous court decisions supporting the medicinal use and cultivation of cannabis (Health Canada, 2019). In October of 2018 Canada legalized cannabis for recreational use. It allowed each province to establish its own production and distribution schemes with the focus of eliminating the black market and protecting public health while providing a new revenue stream (Department of Justice Canada, 2018).

As Pardo suggests, the creation of policy and legislation for cannabis legalization has been difficult as there is limited information and research on the use, production, and legislation of legal cannabis (2014). Regulation of cannabis has also been made very difficult due to the nature of the product and its ease of cultivation, as compared to products like tobacco, industrial hemp, and alcohol which are harder to grow and process (Stoa, 2017; Fischer et al., 2016;

Cherney and Small, 2016). Cannabis can be easily cultivated in various climates and can easily be grown in small, low yield quantities (Stoa, 2017).

Cannabis production in Ontario is regulated by both Health Canada, at the federal level (for all production including medicinal use and large-scale licensed producers, and the Alcohol and Gaming Commission of Ontario (AGCO) for recreational distribution and retail sales at the provincial level. Ontario has adopted a typical model where the government maintains strict regulations over its production and distribution but allows private sector, for-profit companies to cultivate and distribute cannabis (Gettman and Kennedy, 2014). This was the favoured approach, as evidenced by a survey completed by Ontarians in 2016 before implementation (Fischer et al., 2016).

Since the enactment of the Cannabis Act there has been a significant increase in the number of cannabis producers, both for medicinal use and recreational use, leading to nuisance complaints and land use conflicts for residents around these facilities and rural host communities in Ontario (Henschel, 2018; Vaughan, 2018; OMAFRA, 2019). As with most legalization schemes, the focus is typically given to the revenue and public health components of legalization and not production (Caulkings et al., 2013; Kilmer, 2017; Stoa, 2017). Another common objective is to reduce or eliminate illicit or black-market cannabis (Rolles and Murkin, 2013). Environmental considerations such as water and energy use, pollution, waste management, and light and odour emissions are not considered in areas where legalization has occurred (Stoa, 2016; 2017; Mills, 2012; Nevius, 2015; Public Health Ontario, 2018; Vaughan, 2018; Cherney and Small, 2016).

In Canada licenses and registrations are required to cultivate and produce medicinal cannabis and recreational cannabis beyond four plants per household (Health Canada, 2020[2]). Since the legalization of cannabis for medicinal use and recreational there has been a significant increase in the number of licenses issued by the Federal Government.

As of September, 2019, there were 369,614 active medical production registrations in Ontario (Health Canada, 2019[2]) that allow individuals to grow a limited amount of cannabis for their personal medical use. This number increased by 150% since 2017 (Health Canada, 2019[1]) (See Figure 1). Further, the total number of registered medical cannabis users has grown from zero users in 2016 to just under 30,000 in 2019 (See Figure 2).

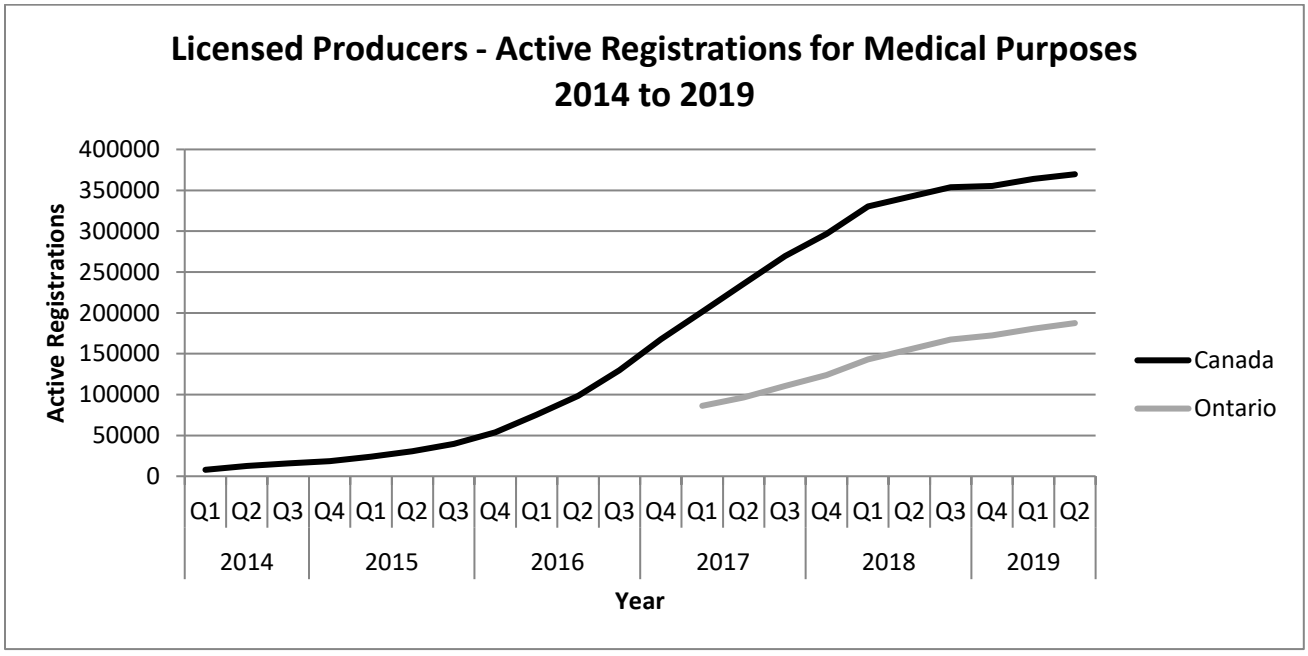


Figure 1. Active Registrations for Medical Purposes – Licensed Producers 2014 to 2019 (Health Canada, 2019[1]; Health Canada, 2019[2])

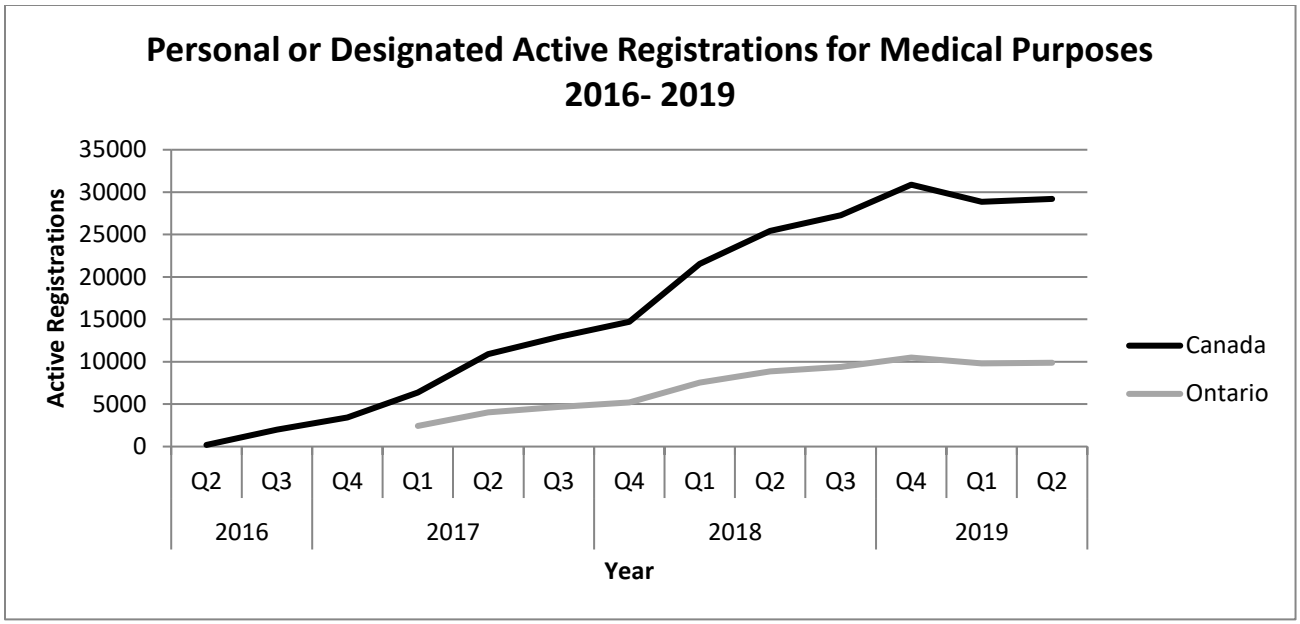


Figure 2. Active Registrations for Medical Purposes – Personal and Designated 2016-2019 (Health Canada, 2019[1]; Health Canada, 2019[2])

While there are many cannabis growing facilities and sites within urban areas, a large proportion of individual, designated, and commercial licenses and registrations are locating and expanding on rural and agricultural lands mainly because of the agricultural nature of the crop, cheap land, existing agricultural infrastructure, and nearby access to major markets (Federation of Canadian Municipalities, 2018; Mills, 2020; Greig, 2020; Carruthers, 2019). Rural communities immediately outside of larger metropolitan areas are the centres for cannabis production, which in Ontario includes the Niagara Region, Middlesex County, Grey County, and the Leamington area, which are sometimes referred to as the 'Cannabis Belt' (Greig, 2020; Carruthers, 2019).

There are growing facilities within urban centres, but those are typically found within industrial and employment areas, whereas the facilities located in rural areas are typically found on agricultural and rural lands. However, local media reports indicate that those within urban

centres have not generated the same land use impacts and issues as cannabis grown in a rural setting (Carruthers, 2019).

Due to the legalization of recreational cannabis, cannabis production is expected to increase by over 35 percent (Deloitte, 2018). If the trend continues, rural communities may be host to the majority of these new or expanded facilities in order to meet demand as they currently are the epicenters for production (Carruthers, 2019; Greig, 2020). To date there has been little research done concerning the community impacts of the legal cultivation and production of cannabis as much of the focus has been on health and safety related impacts of its use (Stoa, 2017). Specifically, there is a lack of research on cannabis cultivation and its apparent implications for rural communities (Kelly & Formosa, 2020). Without this information rural municipalities might not be adequately prepared for regulating cannabis production to maximize its economic impact on the community and mitigate land use conflicts.

1.2 Economic Development from Cannabis in Rural Communities

Several factors could contribute to the expansion of cannabis production in rural Ontario. The first factor is land values as agricultural land is worth much less than lands within urban areas such as employment or commercial properties. On average, the price of farmland in Canada is approximately 250 times less expensive per acre than non-farmland (Farm Credit Canada, 2019; McLean, 2018). Regional differences occur with industrial lands around the Greater Toronto Area being much higher, and farmland with high productivity soils valued much greater. However, farmland is one of the cheapest forms of available land and is desirable for growing crops such as cannabis.

Another factor that may draw cannabis growing facilities to rural areas is the changing agricultural sector and the availability of existing growing infrastructure, such as greenhouses previously used for the floral and produce markets, and disused livestock barns (Carruthers, 2019; Wallace, 2017). These buildings are already existing and most often only require minor modifications to commence growing. As cannabis is a high-value crop, generating nearly twice as much revenue per acre as typical crops such as corn, every growing season has the potential for large gains (New Frontier Data, 2016). Producers are also looking for areas where there is an available labour pool, as cannabis is a labour-intensive crop (Murphy, 2019). This may be why cannabis facilities have located in rural communities near large metropolitan areas and not in more remote locations.

Cannabis growing facilities can create new economic growth within rural communities through property tax assessment growth and creating employment opportunities. In the United States, where approximately two-thirds of the country has some form of decriminalized cannabis, employment in legal cannabis in 2019 was more than 211,000 full-time jobs, with an additional 90,000 indirect jobs (Murphy, 2019). Employment numbers are rapidly growing and are not just limited to general labour positions, but also include professional positions (Murphy, 2019). Similarly, in Canada employment in 2018 in the cannabis sector was just under 10,000 jobs, with 60 percent being growing positions (Statistics Canada, 2019). Employment numbers are not yet available for 2019.

The cannabis sector is a new, rapidly expanding sector with the potential to provide economic benefits to rural communities through employment opportunities, taxation, and other direct and indirect benefits (Kelly & Formosa, 2020). However, economic benefits need to be

weighed against the potential negative impacts that cannabis facilities may have (Vaughan, 2018).

The sudden influx of cannabis growing facilities and expansion of existing facilities has resulted in strong reactions, especially in rural Ontario communities, evidenced by the tone of local media coverage: “Neighbours frustrated by nearby cannabis operation” (Pin, 2019); “Complaints about smelly cannabis, not just a problem in Gatineau” (McEwan, 2019); and “Pot ‘skunk smell’ pits producers against residents of small Ontario farming town” (Ligaya, 2019). Further, the Ontario Ministry of Food, Agriculture, and Rural Affairs (OMAFRA) notes that cannabis production complaints have gone up significantly from 2016 to 2018 (Figure 3).

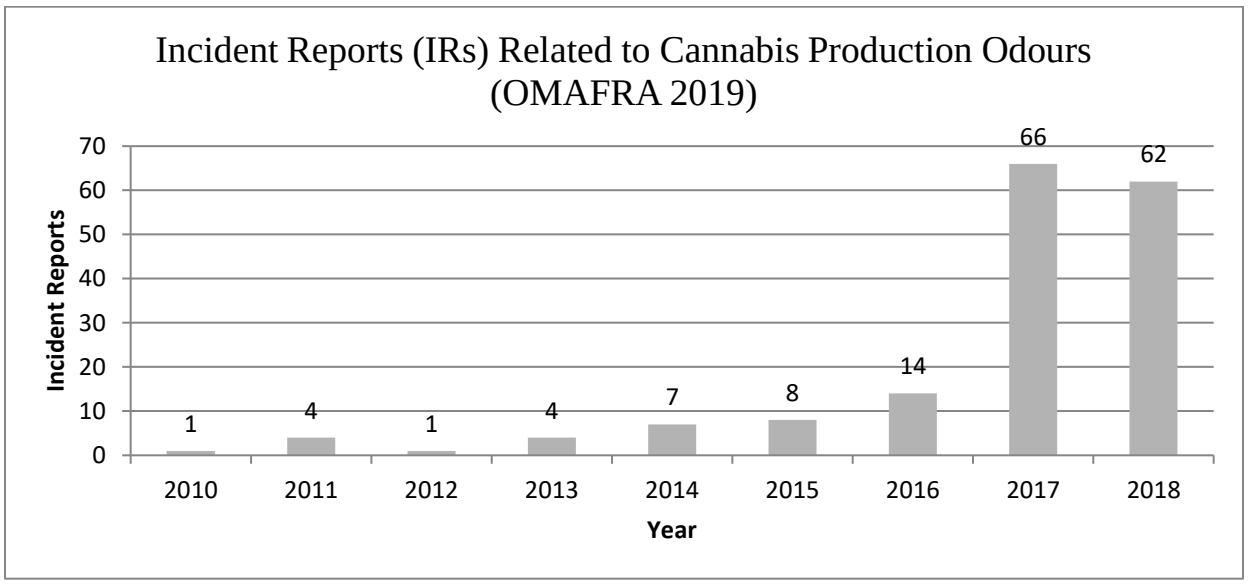


Figure 3. Incident Reports related to Cannabis Production Odours (OMAFRA, 2019)

Cannabis-related complaints to OMAFRA spiked before recreational legalization but are in line with the increase in medicinal licenses issued, as seen in Figures 1 and 2 (Health Canada, 2019[1]; Health Canada, 2019[2]).

In response to the increasing pressure of cannabis production, communities throughout Ontario have passed interim control bylaws or zoning bylaw amendments stopping or restricting new cannabis production facilities and further expansions, citing odour and compatibility concerns (Henschel, 2018; Vaughan, 2018). However, other communities have passed resolutions supporting the cannabis industry to attract investment (Harford, 2018). There appear to be communities and municipalities which support cannabis cultivation for potential economic benefits, and communities which prohibit or regulate cannabis production based on potential land use conflicts. As the legal cannabis market is expanding (Delloitte, 2018) and there are increasing concerns around cannabis production (Vaughan, 2018), it is essential to investigate the land use planning implications of cannabis production to mitigate land use conflicts and to maximize the benefits to rural communities.

1.4 Objectives and Purpose of the Study

With minimal evidence and research linking cannabis production to community impacts, municipalities have responded by creating policies and regulations to control cannabis production without significant research and evidence supporting the legislation.

Accordingly, this research study explores the impacts of legalized cannabis production on municipalities in rural Ontario to better understand the economic, health, socio-cultural, and political implications for communities. Specifically, this study is guided by the following research questions:

1) How have municipalities in rural Ontario utilized policy tools to respond to the increasing pressures of cannabis production?

2) What are the challenges and benefits of cannabis production for rural municipalities?

The study is one of the first studies to examine the general economic, health, socio-cultural, and political implications of cannabis production in Canada and Ontario. Further, this study's findings could support the development of best practices for municipalities to regulate cannabis production to reduce conflicts and maximize potential benefits from this new land use.

1.5 Outline of the Thesis

The structure of this thesis is comprised of six chapters. The introductory chapter is followed by a literature review which deals with the current literature available, starting with cannabis legalization history, regulatory framework, and production methods. The literature review also summarizes the available information on the siting of cannabis facilities including medicinal and recreational dispensaries and production facilities, and what community impacts have been noted. Finally, the literature review examines the topic of planning for locally unwanted land uses. The literature review is concluded by identifying the gaps within the current literature.

The third chapter explores the research methods used for this thesis. It provides a rationale for the methodology used, which is a mixed-methods approach. It also discusses challenges with some of the sampling and data collection methods used and how the data collected was analyzed.

In the fourth chapter, Findings/Results, the data collected is separately presented according to the research study's two main objectives and emerging themes. The data and key findings are discussed in detail in the fifth chapter titled Discussion. Discussion includes the three key findings and the limitations and challenges of the research completed. The final chapter concludes the research with eight recommendations for federal and provincial governments,

municipal planners and policy makers and future researchers with a discussion on areas where this research and the findings can be applied for future research.

2.0 Literature Review

In order to address the two research questions this study requires on understanding of three bodies of literature including: the history of cannabis legalization in Canada; cannabis facility siting and community impacts; and planning for locally unwanted land uses. The history of cannabis legalization provides the context for the current regulatory framework in place in Canada for cannabis and plays a role in the current land use issues. The second body of literature is cannabis facility siting and community impacts, including other cannabis related facilities such as medicinal dispensaries and recreational retail outlets. Finally, the third body of literature reviewed is planning for locally unwanted land uses and land-use planning methods for siting undesired land uses.

2.1 Cannabis Legalization and Framework in Canada

2.1.1 History of Legalization

Since cannabis was deemed illegal in 1923, many steps have been taken over the past decades to legalize cannabis for medicinal and recreational use (Schwarz, 2014; Stoa, 2017). The pathway taken to both recreational and medicinal cannabis legalization has created the regulatory framework present in Canada and has a role in the current land use planning issues experienced in rural communities. The steps taken to legalization have mainly resulted from multiple court challenges against prohibition. In addition, the various legislation that has been enacted has taken place over a relatively short period of time which may also be contributing to land use planning issues (Stoa, 2017). Table 1 below summarizes the key events and legislation that took place and the significance of certain events contributing to impacts seen today in rural municipalities.

Table 1. Cannabis Legalization Timeline in Canada

Date	Event	Significance
1999	Two Canadians suffering from illness were given federal permission to use cannabis. This legal access was granted using 56 exemptions under the Controlled Drugs and Substances Act (Health Canada, 2016).	Seen as the starting point for the legalization of cannabis in Canada.
2000	R. v. Parker Case results in the decision that Canadians have a right to use cannabis for medicinal purposes (Health Canada, 2016).	Allowed individuals that had a medical need to use and possess cannabis for their medical purposes.
2001	Introduction of the Marihuana Medical Access Regulations (MMAR).	Granted legal access to cannabis for individuals suffering from illness as recommended by their healthcare practitioner. The MMAR was revised many times as a result of many legal challenges.
2013	Introduction of the Marihuana for Medical Purposes Regulations (MMPR) (Health Canada 2016).	The Government prioritized purchasing medicinal marihuana from federally approved commercial growers.
2014	Several appeals on the MMPR are filed in courts arguing that cannabis should be available in different forms.	Appeals argued that cannabis should be permitted to be grown by individuals.
2015	Supreme Court of Canada ruled in R. v. Smith that restricting access to dried cannabis only was unconstitutional and individuals with medical needs have	As a result of the R. v. Smith ruling, the number of individuals

	the right to use other forms of cannabis products. (Health Canada, 2016)	authorized for medical cannabis use increased from less than 100 individuals in 2001 to over 37,000 in 2014 (The Canadian Press, 2014).
2015	Justin Trudeau, leader of the Liberal Party of Canada, promised as part of his election campaign to legalize cannabis for recreational use (Elliot, 2015). Following the Liberal Party victory, the Government proposed new legislation creating a framework around the legalization of recreational cannabis in Canada through Bill C-45.	A significant number of Canadians no longer supported cannabis prohibition.
2016	Federal Court of Canada, Allard v. Canada found that limiting individuals who need cannabis for medical purposes from producing their own cannabis violated individuals' rights under the Canadian Charter of Rights and Freedoms as individuals did not have reasonable access (Health Canada, 2016).	Allard v. Canada forced the government to develop new regulations once again regarding cannabis cultivation.
2016	In 2016 the Federal government responded to the Allard v. Canada case and replaced the MMPR with the new Access to Cannabis for Medical Purposes Regulations (ACMPR) (Health Canada, 2016). The ACMPR allowed for ongoing commercial licensed production and distribution of cannabis, and permitted individuals to grow cannabis for themselves or designate another individual to grow it on their behalf for medical purposes. This was similarly permitted under the MMAR.	Permitted cannabis to be grown by individuals on their or another individual's property.
2018	On October 17, 2018, recreational cannabis was legalized in Canada.	Provinces set up their own production and distribution models.

Cannabis for recreational purposes in limited forms and amounts was legalized on October 17, 2018, through the passing of the Cannabis Act through Bill C-45. Regulations regarding medicinal cannabis production and use originally under the ACMPR were transitioned and revised under the Cannabis Act S.C. 2018, c. 16 (Health Canada, 2018[2]). It took just over one year for the federal government to create the regulations for production, distribution, and sale. There were less than one and a half years for the provinces and territories to develop their own regulatory structures for production and distribution (Wesley, 2019).

2.1.2 Current Regulatory Framework

The Cannabis Act continues to allow cannabis for medicinal purposes with the direction of health care providers. However, due to the many different medicinal regulatory regimes that the Federal Government went through, current medicinal cannabis producers may fall under various different regulations (Health Canada, 2018[1]). This has created a cannabis production landscape where there are multiple regulations for different growing facilities, whether personal and commercial, and whether medicinal and recreational.

Cannabis in Canada is regulated by a legal framework that includes regulations regarding the general production of cannabis and the growing of cannabis for medical purposes. The Cannabis Act (S.C. 2018, c. 16) received royal assent in October of 2019 and is the legal framework that controls production, distribution, sales, and possession of cannabis nationally (Health Canada, 2019). The Cannabis Act permitted adults 18 years of age or older to legally possess or share up to 30 grams of cannabis in public and purchase dried or fresh cannabis from a provincial retail establishment (as set out by the provinces and territories). The Act also allows adults to grow up to four plants for personal use from a licensed seed or seedlings and make

personal cannabis products at home (Government of Canada, 2019). Provinces and territories were permitted to make limited additional restrictions beyond what the Federal Government had put in place, such as increasing the minimum age for use (Hood, 2017).

Ryan Stoa, in a research paper comparing regulatory approaches between the United States and Canada, argues that production and agricultural regulations of cannabis often take 'a back seat' to other, bigger issues such as distribution, sales, marketing, and use (Stoa, 2017). Stoa further suggests that not adequately addressing cannabis production does a disservice to the producer, the regulator, and the public (Stoa, 2017). Some jurisdictions have taken a strong stance in support of strong regulations against cannabis producers while others have offered greater levels of support with relaxed regulations (Stoa, 2017). Stoa concludes that a regulatory framework that balances small and medium sized farmers with best agricultural and environmental production practices will achieve common goals and provide the greatest benefits to communities. Further, Stoa suggests that involving local governments in the regulatory approach has proved to be successful (Stoa, 2017).

According to the Canadian Department of Justice, the cannabis regulatory system is split between federal and provincial oversight (Department of Justice Canada, 2018). The Federal Government is responsible generally for production, including product and ingredient legalization, while the provinces and territories are primarily responsible for the distribution and retail sales of cannabis. Table 2 presents the responsibility split in greater detail.

Table 2: Federal and Provincial Regulatory Responsibilities (Department of Justice, 2018)

Federal Responsibility	**Provincial Responsibility**
To set strict requirements for producers who grow and manufacture cannabis.	Developing, implementing, maintaining, and enforcing systems to oversee the distribution and sale of cannabis.

To set industry-wide rules and standards, which include: • Types of cannabis products available for sale • Packaging and labelling requirements • Standardization of serving sizes and potency • Prohibitions on the use of certain ingredients • Good production practices • Tracking requirements of cannabis from seed to sale to keep it out of the illegal market • Restrictions on promotion	Add safety measures such as: • Increasing the minimum age within the province or territory • Lowering the personal possession limit within the province or territory • Creating additional rules for growing cannabis at home, such as lowering the number of plants per residence • Restricting where adults can consume cannabis

There are additional regulations that apply to legal cannabis production, which require licenses for the cultivation and processing of cannabis, the sale of medical cannabis, and the testing and research of cannabis.

The steps taken to legalization in Canada has resulted in a regulatory framework split between the federal and provincial governments with multiple ways in which cannabis can be legally grown for both recreational and medicinal purposes. The variety of production methods have different regulatory structures which impact the siting, odour, and security requirements for each production operation.

2.1.3 Cannabis Production Methods in Ontario

Cannabis can be legally grown in eight ways which include several sub-categories for production and distribution. The differences in production types have various regulatory requirements and therefore impact rural communities differently. These different ways are summarized in Table 3 below.

Table 3: Cannabis Cultivation Methods in Ontario (Hillborne, 2019; Health Canada, 2020[2])

#	Grower Type	Regulatory Permission	Number of Sites as of 2019
1	Illegal production,	Not Permitted	Unknown,
2	Producers operating in accordance with a Federal Court injunction	Permitted through Court Injunctions (licensed prior to ACMPR),	>1000,
3	Licensed producers	Permitted under Part 1 of ACMPR.	86 (with an unknown number of additional applications in progress), 177 approved Canada wide.
4	Registered individuals and designated producers.	Authorized under Part II of the ACMPR	Up to 100 large scale designees >1000 registered individuals.
5	Indoor cultivation* facilities with new licenses issued under the Cannabis Act.	Newly Permitted under the Cannabis Act	322 Standard Cultivation 153 Micro-Cultivation
6	Indoor processing facilities with new licenses issued under the Cannabis Act.	Newly Permitted under the Cannabis Act	45 Micro-processing 322 Standard Processing
7	Registered individuals and designees authorized to produce cannabis under the Cannabis Act.	ACMPR and the Cannabis Act	±43,000
8	Outdoor cultivation* facilities with new licenses issued under the Cannabis Act.	Newly Permitted under the Cannabis Act	56 (Deschamps, 2020)
9	Individuals growing non-medical cannabis at home for personal use (up to 4 plants)/	Newly Permitted under the Cannabis Act	NA

*Includes standard, micro, nursery, research cultivation, and analytical testing.

There are also different security and odour control requirements depending on the type of cultivation. Table 4 below summarizes the differences between security and odour control requirements for each type of cultivation, as described above in Table 3.

Table 4. Summary of Requirements of the Cannabis Act (Health Canada, 2016[1,2];2017;2018;2019[1,2,3]; 2020[2]; Government of Ontario, 2019)

		Notification requirement for local government	**Restrictions/ limitations**	**Authorization for use and distribution**	**Locational requirements**	**Security and other requirements**	**Odour control requirement**
1	Illegal production	-	-	-	-	-	-
2	Producers operating in accordance with a federal court injunction (licensed prior to ACMPR)	No.			-	-	None.
3	Licensed producers under Part 1 of ACMPR	Yes.	None (indoor & outdoor).	- Authorized to sell to wholesalers and distributors supplying provincial and territorial cannabis retailers. - Individuals who have registered to obtain cannabis products for medical purposes.	"It is the applicant's responsibility to comply with all applicable provincial or territorial laws as well as municipal bylaws (e.g. zoning and building permits)." (cite)	The site must be designed to prevent unauthorized access. The site must be surrounded by a physical barrier to prevent unauthorized access and consist of a fence, wall, or other means. The site must have access control, including control of storage areas. Constant visual monitoring and recording of the site's perimeter using visual recording devices to prevent or detect unauthorized access. Intrusion detection system operating at all times to detect unauthorized site access or tampering.	"Any building or part of a building where cannabis is produced, packaged, labelled, stored, or tested shall be equipped with a system that filters air to prevent the escape of odours associated with cannabis to the outdoors." (cite SOR 2018/144 s85(1)(a) etc.)
4	Registered individuals and designated producers authorized under Part II of the ACMPR	No.	Four registrations per location.	Personal medicinal use or production for another individual's personal medicinal use.	Outdoor production: property boundary where growing is occurring cannot abut a property used for a school, public	You may wish to take measures so that other people do not know that you are growing cannabis. The grower's responsibility is to make sure the cannabis products are secure, and others cannot access them. Consider installing strong locks on the doors where cannabis is	None.

						playground, or other public place frequented by persons under 18. Indoor: none.	stored and install a home monitoring system. Outdoor production: May consider installing a tall fence with a locking gate and alarm to secure the production area.	
5	Indoor cultivation* facilities with new licenses issued under the Cannabis Act	Standard \cultivation	Yes.	None,	- Authorized to sell to wholesalers and distributors supplying provincial and territorial cannabis retailers. - Individuals who have registered to obtain cannabis products for medical purposes.	"It is the applicant's responsibility to comply with all applicable provincial or territorial laws as well as municipal bylaws (e.g., zoning and building permits)."	The site must be designed to prevent unauthorized access. The site must be surrounded by a physical barrier to prevent unauthorized access and consist of a fence, wall, or other means. The site must have access control, including control of storage areas. Constant visual monitoring and recording of the site's perimeter using visual recording devices to prevent or detect unauthorized access. Intrusion detection system operating at all times to detect unauthorized site access or tampering.	"Any building or part of a building where cannabis is produced, packaged, labelled, stored, or tested shall be equipped with a system that filters air to prevent the escape of odours associated with cannabis to the outdoors." (cite)
		Micro-cultivation	Yes.	Plant surface area cannot exceed 200 square metres (indoor and outdoor).		Must meet municipal zoning requirements for the cultivation of cannabis.	The site must be designed to prevent unauthorized access. The site must be surrounded by a physical barrier to prevent unauthorized access and consist of a fence, wall, or other means. The site must have access control.	
		Other	Yes.	Seed	Cannabis plants or seeds	Must meet		

		(nursery & research)		production a ma area of 50 square metres, maximum of 5 kilograms of flowing heads and must destroy everything but seeds within 30 days of harvest (cultivation indoors and outdoors)/	to a license holder authorized to sell cannabis for medical purposes or a person authorized to sell under a Provincial or territorial (license).	municipal zoning requirements for the cultivation of cannabis.		
6	Indoor processing facilities with new licenses issued under the Cannabis Act		Yes	Cultivation not Permitted. Micro Processing Limited to 600 kgs of dried flower per year. Standard Processing not Limited.	Authorized for distribution according to the license limitations.	Facility must be constructed prior to license issuance. Applicant's responsibility to comply with local regulations including zoning.	The site must be designed to prevent unauthorized access. The site must be surrounded by a physical barrier to prevent unauthorized access and consist of a fence, wall, or other means. The site must have access control, including control of storage areas. Constant visual monitoring and recording of the site's perimeter using visual recording devices to prevent or detect unauthorized access. Intrusion detection system operating at all times to detect unauthorized site access or tampering.	"Any building or part of a building where cannabis is produced, packaged, labelled, stored, or tested shall be equipped with a system that filters air to prevent the escape of odours associated with cannabis to the outdoors." (cite SOR 2018/144 s85(1)(a) etc.)
7	Registered individuals and designees authorized to produce cannabis under the Cannabis Act		No.	Four registrations per location.	Personal medicinal use or production for another individual's personal medicinal use.	Outdoor production: property boundary	Indoor production: "You may wish to take measures so that other people do not	None.

						where growing is occurring cannot abut a property used for a school, public playground, or other public place frequented by persons under 18. Indoor: None	know that you are growing cannabis. The grower's responsibility is to make sure the cannabis products are secure, and others cannot access them. Consider installing strong locks on the doors where cannabis is stored and install a home monitoring system." Outdoor production: "May consider installing a tall fence with a locking gate and alarm to secure the production area." (cite)	
8	Outdoor cultivation* facilities with new licenses issued under Cannabis Act (permitted through Standard and Micro Licenses).		Yes	See Standard and Micro cultivation requirements	See Standard and Micro cultivation requirements	See Standard and Micro cultivation requirements	Limited Access Area requires an eight feet high fence from the ground, made of a secure material but not wood. All supports should be steel and firmly secured including entry gates. The fence needs to conceal the Limited Access area. Fence needs to be lit for at least 20 feet from the fence.	None.
9	Individuals growing non-medical cannabis at home for personal use (up to 4 plants)		No.	Four plants per residence.	Personal use.	Cannabis plants are prohibited anywhere visible from a public space. It must be located at your own dwelling. Prohibited from growing in an	None.	None.

						area authorized to operate as a community care facility or provider of child care. Cannot grow in leased or condominium property if forbidden through agreements.		

As can be seen from Table 4, the type of production and the approvals issued have significant variations in locational, security, and odour requirements. While some forms of cannabis production, such as licensed Producers under the ACMPR, now under the Cannabis Act, have to notify municipalities of their intentions to grow cannabis and have security and odour control requirements, other forms such as designated and individual grower registrations do not have any such requirements. They also have different application and approval processes where individual and designated growing requires only a medical prescription and a simple plan, but in contrast licensed standard growing requires detailed security plans and criminal background checks, among other things, before license issuance (Health Canada, 2019).

Licenses issued to individuals under previous cannabis legislation can also be subject to different regulations than current licenses and registrations issued. These 'grandfathered' agreements often have no time limitations and do not have the same security and regulatory measures as facilities currently being licensed under the Cannabis Act (Health Canada, 2016).

The variation in the type of growing facilities can have implications for municipalities as there is greater federal regulation over certain facilities. In contrast, other facilities have little to no regulations regarding location, public notification, and odour control, which may contribute to land use related issues outside of a municipality's control (Vaughan, 2018).

2.2 Cannabis Facility Siting and Community Impacts

2.2.1 Siting Medicinal Dispensaries

For a number of years prior to the legalization of recreational cannabis, cannabis for medicinal purposes was permitted in a large number of jurisdictions including Canada (Wesley, 2019). Medicinal cannabis is typically distributed and sold through medicinal dispensaries.

Planners and policy makers have struggled with finding appropriate sites and areas to locate these facilities (Nemeth and Ross, 2014). Work on the land use impacts of medicinal dispensaries is also fairly recent, with one of the first articles being published in 2014 on research that looked at how policy makers are siting dispensaries and if they are being regulated in an equitable manner (Nemeth and Ross, 2014). The study found that when siting dispensaries planners should take a different, more localized approach than approaches for other undesirable land uses which have a broader regulatory framework. The study also found that due to the disproportionally higher number of institutional uses in affluent communities such as schools, dispensaries were not able to be located in the affluent communities due to zoning restrictions (i.e. setbacks to institutional uses). As a result, Nemeth and Ross found that planners should be consulted as this impacts the less affluent and minority communities (2014).

A more recent study dealing with medicinal dispensaries in Toronto by David Johnson further suggests that planning and siting these unwanted facilities is a complex challenge and that a singular regulatory approach does not work (2018). The study also found that although consultation and public participation is an important aspect of land use planning, there is a lack of consultation regarding the siting of medicinal cannabis dispensaries. Consultation appeared to focus on enforcement rather than siting in an appropriate area as in Toronto they are, for the most part, illegally established (Johnson, 2018).

2.2.2 Siting Recreational Cannabis Retail Outlets

Many jurisdictions where cannabis for recreational use has been legalized also have to site recreational cannabis retail outlets in addition to medicinal cannabis dispensaries, Solmaz Arniri in his research on retail facility siting found that, similar to medicinal cannabis

dispensaries, licensed cannabis retail outlets in Washington State have a greater density within most-deprived, or marginalized, areas while more affluent communities are not impacted by as many retail facilities (Armiri et al., 2019).

In another study completed in 2018, researchers in Colorado found that the introduction of recreational cannabis retail outlets in communities where recreational use of cannabis was not significantly supported by the public resulted in medicinal dispensaries trying to differentiate themselves from recreational retail facilities (Hsu, Kocak & Kovacs, 2018). The study also found that public perceptions of legitimacy also played a role in the siting and function of recreational and medicinal dispensaries. In jurisdictions such as Colorado, where both recreational and medicinal dispensaries are well-licensed, there seemed to be greater acceptance than in jurisdictions such as Washington State where there was no licensing structure (Hsu, Kocak & Kovacs, 2018).

In Canada distribution was left up to the provinces to regulate. As an example, the Northwest Territories and Nova Scotia have controlled and sited recreational cannabis retail sales within provincially and territorially run liquor sales establishments, while Ontario implemented a distribution network involving the establishment of provincially licensed private retail outlets (Lancione et al., 2020). Municipalities were given a one-time option to ‘opt-out’ of having these retail facilities within their jurisdiction. Seventy-seven of the over 400 municipalities in Ontario opted out of having retail shops within their jurisdiction (AGCO, 2019).

2.2.3 Production Facilities

Production facilities are where cannabis is both grown and processed, either for recreational or medicinal use (Hillborne, 2019). Production facilities are regulated federally in

Canada and by individual states in the United States. Spatial and locational information on cannabis production facilities is not widely known and there are significant knowledge gaps on production facility siting and its impacts (Butsic, et. al. 2017).

Where cannabis production facilities are permitted, they are often regulated by zoning ordinances (or bylaws in Canada) as researched by Kali Hollenhorst in the State of Washington (2014). Hollenhorst found that in Washington state and local governments were being reactive and not proactive in their response to state-level legislation. Hollenworst also found that there is a lack of specific knowledge of the impacts of legalized cannabis, specifically regarding land use impacts. Additional findings included great variation in zoning regulations and that local governments were not as willing to regulate cannabis production and processing operations as they were retail locations (2014).

Hollenworst provided a number of recommendations as part of the research which included the importance of an evidence-based approach when creating local zoning ordinances, adequate public participation, flexibility. adaptability, and greater involvement in state-level policy and regulations (2014).

Although Butsic's work is focused on environmental impacts of production in California, they found that cultivation sites tend to cluster together in certain rural areas, more based on being in close proximity to other cultivation sites rather than factors such as optimal water, weather, and slope conditions (Bustic, et al., 2017). Butsic's main argument is that understanding why cannabis producers chose certain locations to produce cannabis will help policy makers mitigate impacts of future production facilities.

Ryan Stoa, in two research studies, found that cannabis production can have further environmental effects, especially concerning the use of water in arid regions such as California (2016). Stoa concludes that, due to the many ways that cannabis can be grown and its fragmented and diverse production, it is difficult to determine its true impacts on water use (Stoa, 2016).

In Stoa's second study, which reviewed agricultural policy and law, he concluded that there is an attitude of ignorance for cannabis as an agricultural crop which has resulted in a gaping hole in regulation (Stoa, 2017[2]). Although the study was centred on the State of California, many of the conclusions can apply to several jurisdictions. Stoa states that regulatory regimes greatly vary, with the public concerned about the ability of regulators to enforce their proposed regulations.

Stoa also argues that cannabis production has agricultural components but does not define it solely as an agricultural use (2017[2]). As it has agricultural components, regulations over its production are complex as agriculture is regulated at the federal, state, and local levels of government. Stoa suggests that cannabis regulation should be either within state control or local control to minimize confusion and jurisdictional issues. Stoa suggests a 'Goldilocks' approach should be taken for regulation as not to be too onerous on the cannabis industry, stifling growth, or too lax, not serving the public interest (2017[2]). Stoa also suggests that as regulation is in its infancy a flexible and adaptive regulatory model should be adopted to address the changing needs and concerns of governments, the public, and the cannabis industry (2017[2]).

2.2.4 Community Impacts

Cannabis facilities, such as medicinal cannabis dispensaries, have been generally regarded as unwanted land uses (Nemeth & Ross, 2014). A factor contributing to their

undesirability are the impacts or perceived impacts on the community. While the legalization of cannabis for medicinal use has strong public support, support for the legalization of recreational cannabis was not as strong in most jurisdictions where now permitted (Hsu et al., 2018). As a result of the various levels of public support, jurisdictions have begun further regulating cannabis facilities and, in some cases, prohibiting them from their communities (Salking & Kansler, 2010; Daley, 2012).

While all cannabis facilities appear to be locally undesirable land uses, impacts to the community varied based on facility type. Real and perceived impacts to the community were similar for medicinal dispensaries and recreational cannabis retail stores, but were different from impacts generated from cannabis production facilities.

Medicinal and recreational cannabis dispensaries and retail stores appear to impact the communities socially through real or perceived increase access for youth, addiction, and other health impacts (Johnson, 2018; Nemeth & Ross, 2014).

Impacts from cannabis production facilities have also been noted. In jurisdictions such as California and Washington State, environmental concerns have arisen including impacts on water supply, waste and wastewater disposal, and energy consumption (Bustic, et al., 2017; Stoa, 2016). There have been other impacts noted from cannabis production including noise, traffic, light, and security concerns (Stoa, 2016; 2017; Mills, 2012; and Nevius, 2015).

In Ontario compatibility issues, mainly surrounding odour emissions from cannabis production facilities, have arisen (Vaughan, 2018). Cannabis when grown can emit a pungent smell often compared to the odour from a skunk (Turpin, 2020). Concerns about odour emissions has also led to concerns around potential mental and physical health impacts, although there is no

evidence to back these claims (Agar, 2020; Public Health Ontario, 2018; Grochowski, 2020; McEwan, 2019)

2.3 Planning for Locally Unwanted Land Uses

The third body of research important to understand in relation to the research objectives is the siting of undesirable land uses. New and expanding cannabis production facilities have generated strong opposition and resistance in rural areas of Ontario (Vaughan, 2018; Bricken, 2017). When reviewing opposition and land use conflict generated by a land use, such as cannabis production, it is important to understand the underlying factors which lead to opposition and methods to gain acceptance.

2.3.1 LULU and NIMBY

Two common terms synonymous with land use opposition are LULU (Locally Undesirable Land Use) and NIMBY (Not in My Back Yard) (Hodge & Gordon, 2008). LULU and NIMBY are social responses to facilities that are unwanted (Schiverly, 2007). LULU facilities are typically perceived by the public to have negative environmental and health impacts.

LULU facilities can be divided into two categories, human services and public services. Human services could include facilities such as affordable housing or intuitional uses such as prisons and mental health facilities (Schiverly, 2007). Individuals believe that these facilities can have impacts on their quality of life, the value of their properties, and potentially the environment. The second category is public service facilities which can include waste disposal sites, energy facilities, and agricultural operations which can generate broader concerns not

concentrated in one jurisdiction (Schiverly, 2007). LULU's, although undesirable, are often necessary and provide some type of public benefit or fill a public need (Rephann, 2000).

NIMBY is a term originating from the 1980's and is often used synonymously with LULU, referencing the public's opposition to a certain undesired land use. As Michael Dear suggests, NIMBY is simply the "protectionist attitudes and oppositional tactics" to "protection of one's turf"(1992). NIMBY is the response to a local undesirable land use where typically the public knows the use is necessary, but do not want it in their community or in close proximity to themselves (Dear, 1992). NIMBY responses to the siting of new facilities remain a very relevant concept in land use planning (Schiverly, 2007).

2.3.2 Attitudes and Factors of Opposition

Dear also suggests that attitudes of acceptance and opposition in a community to human service facilities are based on a number of factors including the clientele and the facility characteristics (type of service, size, number, reputation of the agency, appearance, and characteristics of the host communities) (1992). Attitudes around the clientele follow a spectrum from toleration to repulsion based on the public's perceptions of the activity or use (1992). As an example, Dear suggests that illnesses relating to old age are tolerated by society, while on the opposite end of the spectrum illnesses such as alcoholism are repulsive.

Dear also suggests that the characteristics of the facility(s) also plays a significant role in community acceptance or NIMBY responses. The type of service being provided, the size and number (density) of facilities within the community, the reputation of the agency or owner, and the characteristics of the host community are all factors that influence community attitudes and can generate NIMBY responses (Dear, 1992).

In addition to Dear's work, it has been found that NIMBY responses can also be generated as a result of feelings of powerlessness, of not being informed or informed late, and the perception of hasty decisions (Hodge and Gordon, 2008). As Hodge and Gordon (2008) surmise, NIMBYism at its heart is the public's desire to raise awareness in planners and decision-makers of local concerns and to provide local knowledge, and in some cases is a reaction to not being adequately informed.

Maartin Wolsink, in his research on NIMBY responses to wind energy, also notes that factors of opposition can be on a policy-level as well as on a facility-level. He notes that for wind energy NIMBY responses have been generated against specific wind farm projects, but the opposition targets national wind energy policy (Wolsink, 1996).

Typical NIMBY responses made by individuals or communities include property value decline, the communities' inability to stop the undesirable land use once it has been situated in their community, and the decline of their quality of life due to impacts of noise, traffic, and odour. Additional arguments include the decline of the community's image, overburdening of community services and budgets, and the objectional aesthetics of the buildings (Schiverly, 2007).

Another critical aspect of NIMBY and LULU is the difference between perception and reality on the effects of the proposed use, specifically regarding health impacts, property values, and general risks (Schiverly, 2007). Often the reality of the impacts on health, the environment, and property values are minimal compared to the perceived impacts (Kasperson, Golding & Tuler, 1992). Perceptions typically also exist about those involved in decision-making and

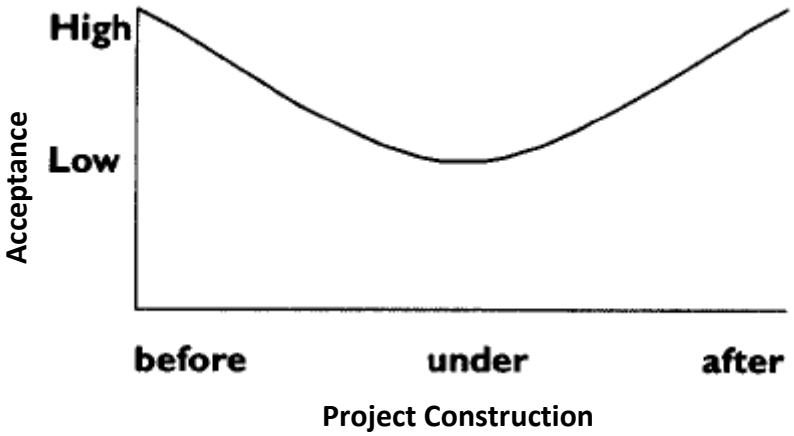
planning processes, specifically a lack of trust in government when siting facilities (Hunter & Leyden, 1995).

2.3.3 Patterns of Opposition

Opposition and acceptance are also not stagnant in time. Dear suggests that opposition and conflict over specific land uses are cyclical with periods of intense opposition followed by longer periods of calm related to external events in society (1992). Dear describes this in three different phases: youth, maturity, and old age. The cycle essentially describes the growth of opposition from a small gathering of opponents (youth) to a larger, stronger force of opposition (maturity), to a long, drawn-out battle which often results in arbitration or stalemate (old age) (Dear, 1995). As an example, Dear references the collapse and restructuring of the US economy as a factor that overcame NIMBY opposition to affordable housing.

In more recent research on opposition to renewable wind energy, Paul Gipe notes that opposition and acceptance of undesirable land uses typically follow a curved pattern. Gipe noted that undesirable land uses, such as wind farms, typically have high levels of national support to start with, but once a specific project begins the siting and construction process, acceptance becomes low and opposition is at its strongest point. Following the construction phases public acceptance increases over time (Gipe, 1995). This curve of acceptance, as shown in Figure 4, has been noted in more recent wind energy research studies including by Devon-Wright (2005) and Krohn and Damborge (2007).

Figure 4. The Curve of Public Acceptance (Gipe, 1995)



Greenberg, Popper, and Truelove also show in their research that what once was considered a LULU may no longer be considered undesirable (2012). With more uncertainty in the economy and stronger pressures to grow the economy, people have become more accepting of a wider spread of undesirable development. Additionally, LULU's such as landfills and industrial facilities have undergone transformations and decommissioning as a result of increased regulation (Greenberg et al., 2012). Greenberg also echoes Dear in stating that existing uses that may not be considered that undesirable may, through external events, become undesirable or more undesirable (Greenbert et al., 2012; Dear, 1992). An example of this would be the increasing undesirability of nuclear power stations following disasters such as Chernobyl and Fukushima (Greenberg et al., 2012).

NIMBYism and other forms of opposition remain valuable to the planning process as a form of public participation. The public can communicate their desires, views, and local knowledge about a particular situation (Schiverly, 2007). Policy makers and planners need to balance the concerns from members of the public on LULU's to the broader need for such facilities (Greenberg et al., 2012).

2.3.4 Public Participation

Public participation has become one of the most critical planning strategies for addressing land use conflicts in rural and periurban areas (Mann & Jeanneaux, 2009). Public participation involves both the depth of participation, i.e. the degree to which the public has power in the process, and the breadth, which is the extent to which participation is offered (Hodge and Gordon, 2008). Further, the degree of meaningful participation can be viewed as rungs on a ladder, the lowest rung being manipulation, where participation is intended only to educate and persuade, to the highest rung, citizen control, where citizen groups govern actual projects and plans (Arnstein, 1969).

Schiverly also speaks to the importance of public participation and the impacts it can have on the siting of LULU's. Schiverly notes that where the public participates in LULU siting processes, the approval of such facilities is not as likely compared to what would happen if the public were not involved (Schiverly, 2007). Schiverly argues that addressing NIMBYism involves a number of factors including communicating the impacts, empowering affected individuals and groups, building consensus, and implementing institutional changes (Schiverly, 2007). These can all be included as forms of public participation. As Freudenberg and Pastor note, the public can be seen as the experts on community values and how LULU's can affect them (1989).

Planners cannot ignore NIMBYism and other forms of opposition as planners have a responsibility to build consensus and reach mutually beneficial agreements on planning issues (Hodge and Gordon, 2008).

2.3.5 Precaution

In the context of land use or activity proposed where there are many potential unknown impacts, the precautionary principle is often applied. Although there is not one singular definition of the precautionary principle, the most commonly referenced definition is from the United Nations and states “Where there are threats of serious or irreversible damage, lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (1992). In summary, the precautionary principle is about anticipating impacts and taking action in advance of certain developments or projects to ensure that there is not irreversible damage to the environment when the full impacts are not scientifically known (Moreno, Todt, & Luja, 2010). In recent years the principle has been applied as a regulatory guideline in Europe, impacting not only environmental legislation but food production and health care among other areas (Moreno et al., 2010).

There are many dissenting views on the precautionary principle, one of the predominant criticisms being that although it may in some cases prevent environmental harm it can also be used to oppose needed innovation and progress (Weiss, 2003). This is because the precautionary principle does not require evidence to support precaution and does not adequately review the costs and benefits of alternative options (Weiss, 2003). In some cases, the precautionary principle has led to inaction and has slowed the progress of certain innovations (Sand, 2000). Charles Weiss argues that there should be a stronger burden of proof required for inaction or measures taken to prevent harm (2003).

2.3.6 LULU’s in Rural Settings

NIMBY responses to LULU's are very prevalent in rural and agricultural areas in North America (Rephann, 2000). This conflict may be attributed to the rising popularity of rural areas (the countryside) by urban residents, which may conflict with the traditional land uses found in rural areas such as agricultural operations (Mann & Jeanneaux, 2009; Caldwell, 2001; Caldwell et al., 2004; Lapping et al. 1983).

Typical examples of common land uses found outside of urban areas that generate conflict are landfills, energy production facilities (such as gas power plants and wind farms), quarries, and other types of mineral extraction and livestock operations (Heiman, 2010). In some cases, rural communities have sought LULU's for economic opportunity, where these land uses have faced resistance elsewhere (Rephann, 2000).

Terrance Rephann in his research on the economic benefits of rural LULU's studied the economic benefits of interstate highways, large dams, medium to maximum security prisons, commercial nuclear power plants, and casinos to assess the true level of benefit (2000). He created seven categories for levels of economic impacts resulting from LULU's including fizzlers (which only provided economic benefits during construction), islands (weak links to the local economy), deniers (harmful effects), competitors (outside firms displacing local firms), deadbeats (insufficient contributions to tax base), repellers (negative effects on firm formation) and deserters (only temporary presence in the region) (Rephann, 2000). Rephann found through his research that there were very few real negative impacts on these rural communities, but also there were negligible benefits, with exception of interstate highways (2000).

Evolving agricultural practices have also been considered LULU's and have been the focus of many conflicts in Canada, with the number of issues continuing to rise (Carter & Owen,

2000). To prevent or reduce the impacts that nuisance complaints have on farmers and agricultural operations, many governments have passed right-to-farm legislation to protect farmers and farm operations that some residents may find offensive (Lapping et al., 1983). Right-to-farm legislation is intended to protect food and other agricultural products. In Ontario the Normal Farm Practices Protection Board has been established to rule on municipal bylaws and nuisance complaints to determine if they are negatively impacting farming (McCormally, 2007). It can be controversial as its legislation is often vague and prioritizes agriculture over other property rights including the potential to use one's land in the way one wishes (McCormally, 2007; Lapping et al., 1983; Duke and Malcolm, 2002).

2.4 Literature Gaps

As the legal production of cannabis is such a new land use, and large-scale production and commercialization are so recent, there is a significant gap in the literature regarding cannabis production and land use. Much of the focus on cannabis in the literature deals with public health and safety aspects and, to a lesser extent, its legalization, use, and distribution (Stoa, 2017; Butsic et al., 2017).

There were only a small number of peer-reviewed scholarly articles solely on the subject of cannabis and land use impacts, with more of a focus on the environmental impacts of production (Kelly & Formosa, 2020; Stoa, 2016; Butsic, et. al. 2017). There were no articles found on best growing practices which mitigate potential land use conflicts.

There are many local and national newspaper articles in Canada on the subject of cannabis and land use conflicts, but not in other countries where cannabis has been legalized and decriminalized. There was some indication in some government publications, planning journals,

and newspapers that there is a lack of understanding of the impacts of cannabis production (Public Health Ontario, 2018; Vaughan, 2018; Henschel, 2018).

This literature review identified three bodies of literature: cannabis legalization and regulatory framework in Canada and Ontario, cannabis facility siting and community impacts, and planning for LULU's.

3.0 Research Methods

3.1 Introduction

To address the research questions, a two-phased exploratory qualitative study was conducted in the Province of Ontario to examine the economic, health, socio-cultural, and political implications for rural communities. In phase 1 of the study a review of municipal zoning bylaws was completed to assess how municipalities have responded to cannabis legalization and the increasing production pressures. In phase 2, semi-structured interviews were conducted with a sample of municipal planners and policy makers to explore the challenges and benefits of cannabis production found in rural Ontario communities.

Qualitative research was selected because the research sought to understand how and why municipalities, planners, and policy makers react to cannabis production. Qualitative research can be defined as research that does not use ordinal values (Nkwi, Nyamongo & Ryan, 2001). Although there was some quantitative data used in the study (e.g., setback values from zoning bylaws), it solely would be inadequate for this purpose, as qualitative data can better explore the underlying attitudes and reasoning around cannabis production (Farthing, 2016; Burgess et al., 1988). Specifically, semi-structured interviews were selected for the method of data collection. There has been little research done on cannabis production and having less structure to the interviews allowed more open-ended responses required for exploratory research (Farthing, 2016).

3.2 Methodology

An inductive thematic approach was the preferred approach because the research around cannabis production is very limited and the research involved the collection and analysis of raw

qualitative data to discover emerging themes and concepts. The inductive analysis approach can be defined as "a systematic procedure for analyzing qualitative data in which the analysis is likely to be guided by specific evaluation objectives" (Schwandt, 2006). Inductive analysis is the approach where detailed qualitative raw data is derived into themes and concepts by the researcher (Schwandt, 2006). Inductive analysis approaches can be used to summarize a wide variety of raw data from multiple sources into a condensed report, establish a clear and transparent connection between the raw data and the research questions posed and to develop an underlying theory that is within the qualitative data (Schwandt, 2006). The inductive approach allows the researcher to discover findings and themes directly from the raw qualitative data, without being restrained by other more structured methodologies (Schwandt, 2006).

The inductive approach in summary allows the researcher to examine the qualitative data for core themes relating to the research questions. It then allows the researcher to develop and identify themes from the qualitative research and present the most important themes as findings (Schwandt, 2006).

The thematic analysis approach is an inductive approach designed to identify and explore themes that emerge from textual data, in a rigorous and trustworthy way (Guest, MacQueen & Namey, 2012). The thematic analysis approach allows the researcher to identify key themes from textual data, and summarize those themes into codes, using a variety of techniques including word searches and data reduction (Guest, MacQueen & Namey, 2012).

Legal cannabis production in Ontario and in most parts of the world is relatively new. As a result, there are few studies that have been completed and theories created concerning cannabis production and land-use compatibility. There is a wide variety of qualitative data available

regarding cannabis production and land use compatibility, including municipal policy documents and stakeholder experience and knowledge. The objectives of the research study and the availability of raw qualitative data from multiple sources makes the inductive thematic analysis approach the most appropriate approach for this research study. The inductive thematic analysis approach will allow the extensive available raw qualitative data to be summarized in a condensed format using coding and other techniques, and allow the researcher to draw clear connections between the research objectives and the raw data to develop themes. This is an exploratory approach where the researcher develops themes to help analysis the data by reviewing repeatedly the raw data available (Guest, MacQueen & Namey, 2012).

3.4 Research Setting

The research was focused on rural municipalities throughout Southern Ontario. Although the legalization of cannabis occurred across Canada, the research needed to focus on one geographic area as legislation and other variables across the province are too great to be studied in a landscape where there has been little research done. Findings from a smaller-scale study focusing on a smaller geographic area completed first can then be compared across a larger geographical area. Southern Ontario is an ideal research site because it is one of the largest consumers and producers of cannabis in Canada. The production of cannabis can be readily found throughout the province's southern portion (Flanagan, 2019). Southern Ontario also has a high concentration of agricultural lands combined with one of Canada's highest population densities. Its climate and existing agricultural system, including access to labour, have made it an attractive area for cannabis production (Riches, 2020). There are also numerous local newspaper articles concerning opposition to these facilities (Henschel, 2018; Vaughan 2018).

Southern Ontario includes 22 Counties, 8 Regions, and nine single-tier municipalities. Figure 5 below shows the extent of Southern Ontario. Within these counties and regions there are over 200 lower-tier municipalities.

Figure 5. Map of Southern Ontario

(Fed Dev Ontario, 2013)

3.5 Research Methods

The first research method used was a review of municipal zoning bylaws and websites to better understand how municipalities have responded to cannabis legalization for medicinal and recreational growing and use (Research Question No. 1). Content analysis of municipal bylaws

was the preferred approach as it allows for the entirety of the municipal bylaws to be analyzed and systematically compared to other municipal bylaws across Southern Ontario.

The second research method used was key informant interviews with a sample of municipal planners and officials across Southern Ontario identified through the first method (municipal bylaw review) and sampled based on factors including municipal land area and originality of the cannabis-related zoning bylaw. Key informants were selected who were municipal planners and officials with active roles as part of their decision making and influencing positions in responding to cannabis legalization on a local level. They also worked with their communities and other stakeholders in developing bylaws and other forms of responses to legalized cannabis production.

Data collected from the first method, the municipal bylaw review of publicly available zoning bylaws, were analyzed to understand how Southern Ontario municipalities respond to cannabis production legalization. The analysis started with categorizing municipalities that do regulate cannabis production, those undergoing a process to regulate cannabis production, and those that don't regulate. Further analysis included categorizing different regulations and components of bylaws so that municipal bylaws could be compared using a standard approach. The municipal bylaw review and content analysis was used to inform the second research objective and the second method, being the key informant interviews.

Key informant interviews were coded using an inductive open coding approach to allow for key themes to emerge as the data was being reviewed. The themes from the key informant interviews were then used to inform and provide further understanding of the first objective,

understanding why municipalities have responded the way they have to legal cannabis production.

3.5.1 Municipal Bylaw Review

A content analysis and review of municipal bylaws was the chosen method to determine how municipalities respond to the legalization of cannabis production facilities. Only rural municipalities in Southern Ontario were considered within this method. Content analysis, using inductive coding methodology allowed the wide variety of municipal bylaws (qualitive date) to be condensed and summarized into a range of themes relating to the research questions.

3.5.1.1 Identified Sources

There is no universally agreed-upon consensus for the definition of rural (Hart et al., 2004). Rurality is not homogenous, and therefore the term can take a different meaning depending on its context and situation (Hart et al. 2004). In this study rural was defined as a relatively low population density and having a need for agriculturally designated lands, as it appears based on media reports that agricultural lands are increasingly becoming hosts to cannabis facilities which has resulted in conflict (Henschel, 2018; Vaughan 2018; Flanagan, 2019; Riches, 2020).

Municipal bylaws and websites used in this study were sourced from municipalities with a population density of fewer than 400 people per square kilometer based on the 2016 Statistics Canada census, and had agriculturally designated lands in their official plan. Municipalities with a population density of over 400 people per square kilometer were excluded and not considered rural (e.g., City of Toronto, City of Mississauga). These excluded municipalities also did not have any agricultural lands. Additional municipalities were also excluded from the study if they

did not include any agriculturally designated lands. Those additionally excluded were small towns surrounded by agricultural lands but not included in their jurisdiction (e.g., Town of Hanover). These typically had higher densities as well. Further research should investigate the impacts on these smaller towns and cities surrounded by agricultural lands that could be hosts to cannabis facilities or be adjacent to cannabis production.

3.5.1.2 Data Collection

Municipalities selected for the study based on the above criteria were then individually analyzed to see their response, specifically regarding the creation of a new regulation within their municipal zoning bylaw. The search and collection of municipal responses took place during Fall 2019. The search was limited to publicly available resources found on municipality websites.

The zoning bylaw of each municipality posted on their respective websites was reviewed by searching for the following key terms: "cannabis," "marijuana," and "marihuana." These terms reflect the three different ways cannabis is typically referred to by government bodies and regulators. If the zoning bylaw referenced any of these terms the bylaw was downloaded and saved for further analysis.

As some municipalities may not have the most current zoning bylaw available online, the researcher also used the search tool on the municipal website for the same three terms to identify any other location on the website for information regarding cannabis. If any of the search results contained zoning bylaw amendments, these were downloaded and saved for further analysis. If a report or notice appeared in the search result indicating that the municipality was currently in the processes of adding cannabis regulations or policies to their planning documents, this was also

noted. The reports and notices most often took the form of an interim control bylaw or a municipal council report.

Each municipality that had a bylaw referencing “cannabis,” “marijuana,” or “marihuana” was marked as having “bylaw or regulations in place,” and any municipality undergoing a process was marked as being “in process.” Some (how many) municipality websites did not have a zoning bylaw posted and did not have a search tool. These municipalities were marked as “unknown” for neither having a bylaw nor being within a process to have regulations.

At least five municipalities did not have any reference to cannabis within their zoning bylaws, but through the website search cannabis was indicated as a prohibited use requiring some type of zoning amendment. These municipalities were also marked as “bylaw or regulations in place.” The data collection was completed by December 2019, and at that time over twenty municipalities were in the process of implementing new bylaws that may now be completed.

3.5.1.3 Data Analysis

Municipal bylaws collected through the initial review were then individually analyzed for their components. Cannabis zoning regulations were typically found within three sections of the zoning bylaw. First, cannabis or marijuana (or marihuana) was defined in the definitions section of the zoning bylaw. Second, cannabis zoning provisions, which typically included setbacks, were found in each zoning bylaw's general zoning provisions. Finally, if permitted, cannabis was listed as a permitted use in specific zone categories.

Setbacks, zone requirements, odour control requirements, and other components were recorded in a table along with any other unique aspect to the bylaw. The components were

simplified to allow for comparisons to be drawn across municipalities. For example, specific zones where cannabis facilities were permitted, such as General Industrial ‘M1’ and Heavy Industrial ‘M2’, were classified under ‘Industrial”.

Once tabulated, statistics on quantitative data collected were generated, including mean and median setbacks for facilities and the number of municipalities that prohibit cannabis facilities in certain zones. Cannabis bylaws were also categorized based on the geography of the municipality (e.g. land area, population, and density) and the uniqueness of the specific bylaw as the basis for identifying sample key informants to interview for the second research method.

3.5.2 Key Informant Interviews

To understand the underlying factors causing municipalities to adopt bylaws and other regulations, and the rising number of complaints relating to cannabis production (OMAFRA, 2019), sample interviews with key informants were used.

3.5.2.1 Participants

Interviews were conducted with planners and senior staff from selected municipalities. The selection of these municipalities was based on several assumptions and factors. The researcher only wanted to interview staff from municipalities that have undergone or are undergoing a process of implementing cannabis regulations. This selection specifically addresses why municipalities respond to cannabis production and how they understand the issues and opportunities they are facing. This limited the number of possible interviewees to the 71 municipalities that have passed a cannabis related zoning bylaw, and also 28 municipalities that were within a planning process reviewing cannabis zoning provisions identified through the

municipal bylaw review. Further research should be done to look at municipalities that have not regulated cannabis within their municipality.

The research assumes that land use conflicts might be due to the proximity of agricultural lands to population centres or areas of a higher population density. It has been shown that landuse conflicts are based on interactions with individuals and groups with different opinions (Havel, 1986), such as between residential landowners and agricultural land users (Carter & Owen, 2000). Further, from the complaint data provided by OMAFRA, complaints appeared to be focused within two areas, the Niagara Region and Hamilton, both with relatively high population densities and containing larger urban centres (See Figure 3); however, officials from municipalities from across Southern Ontario were interviewed.

The sampling criteria used was taking three municipalities from each of five categories, which were: 1) municipalities within the highest tenth percentile of population density; 2) municipalities within the lowest tenth percentile for population density; 3) municipalities within the highest tenth percentile for land area; 4) municipalities undergoing a process of establishing a bylaw; and, 5) municipalities with a unique bylaw.

To determine the tenth percentiles for highest and lowest population density, and for land area, data was used from the 2016 census from Statistics Canada.

Municipalities with a unique bylaw were those that had unique regulations such as extremely high setbacks or land use regulations not seen in any other municipality.

Municipal planners and senior staff from these municipalities were recruited through an initial phone call with a telephone script, which can be found in Appendix C. A follow-up email

was then sent to the municipal representative containing the background information letter (found in Appendix C), the interview request form, and the consent form (found in Appendix A).

Ethics approval for the key informant interviews was granted on November 27, 2019, by the University of Waterloo Research Ethics Office. Identifying information about the informants and the municipalities that employed them was removed from this study to ensure minimal risk to participants,

Unfortunately, due to municipal closures and staffing changes resulting from the COVID-19 pandemic, not all the interviews could be completed. In total, eight interviews were completed with two from the higher density tenth percentiles, two from the lower density tenth percentiles, two from the highest tenth percentile of agricultural land area, and two municipalities undergoing a process to revise their cannabis bylaws.

3.5.2.2 Data Collection

Data collection was done through semi-structured interviews with municipal planners and officials identified through the means described above. The interview was structured around four main sections: background, existing situation, planning opinion and regulations, and bylaws. The interview contained 20 main questions with several follow-up questions. The interview script can be found in Appendix D.

The background section contained the questions that included the interviewee's role at the municipality, how long they have been in that role, what characterizes that municipality, and whether they consider it rural. The purpose of these questions was to understand who was being interviewed and what characterizes their municipality.

The second section dealt with the existing situation concerning cannabis production. The questions were focused on the number and type of cannabis facilities within the municipality and inquiries received by the municipality about cannabis production. One question explicitly dealt with the municipality's zoning bylaw concerning cannabis, why it was established, and how it was developed. This question helped provide insight into the research question of what the municipal response was to cannabis legalization. Additional questions in this section were on the municipal council's and the public's response to cannabis cultivation and growing, and if the municipality had ever reached out to the Federal or Provincial Governments for assistance in addressing cannabis growing.

Part 3 contained five questions regarding the planning opinion of the interviewee. The first question asked the interviewee if they believe that the current federal and provincial regulatory framework dealing with cannabis cultivation is an issue, and if so, why. The second question was if the municipality regarded cannabis as an agricultural crop. The third question in this section asked what the interviewee believed were the public's issues and responses to cannabis production, followed by the fourth question asking what the interviewee believed the issues were around cannabis production. Finally, the last question in part three of the interview was if they believed these issues to be real or only perceived.

The final four questions in part 4 discussed regulations and bylaws concerning cannabis production and benefits to the municipality. The first question asked if there should be any regulations or legislation at a provincial or federal level guiding cannabis cultivation and growing. The second question was if the municipality had additional regulations for cannabis production, such as site plan control. The third question was whether the interviewee believed that cannabis provided economic or other benefits to the municipality. The final question of part

4 asked if there were any challenges associated with having cannabis facilities. The last question allowed the interviewee to provide any additional information that may not have been covered in the interview. There was some overlap in questions, which intended to separate what the interviewee thought about cannabis production compared to what the public or council may think about cannabis production.

All interviews were conducted over the telephone and were one-on-one. Notes were taken during the interviews and recorded to obtain a complete audio transcript. The researcher fully transcribed interviews following the interview. They were then sent to the interviewee for review prior to coding.

3.5.2.3 Data Analysis

Following the complete transcription of each interview, open coding was completed on the transcripts to ensure important aspects of the responses were fully captured. All interviews were conducted, fully transcribed, and coded in the same manner by the same researcher. Eight interviews were completed in total. The first interview was also coded by the research supervisor to ensure that any important data or themes were not excluded, and to calibrate coding.

The coding was tabulated by municipality and by the themes which emerged from the interview data collection. Quotes that emphasized the themes or highlighted the codes were added to the table from each interview. Quotes were used in the data findings and analysis as permitted in the ethics approval granted as part of this research.

3.6 Summary

The methodology used for this research was the inductive analysis approach, as there has been very little research completed on cannabis and land use, and the data available is predominantly qualitative from multiple sources. Under the inductive analysis approach, the researcher is able to condense large amounts of qualitative information from multiple sources into a succinct summary format, as well as establish relations between the research objectives and the summary findings of the raw data (Schwandt, 2006). Under this methodology, two methods were used: a review and content analysis of municipal bylaws and websites in Southern Ontario and sample interviews with key informants. Both used a format of inductive coding to summarize and categorize the many different qualitative data sources.

Data collected as part of the municipal bylaw review was analyzed to discover any municipal response trends and was used to help identify municipalities where key informant interviews should be conducted. Data collected as part of the key informant interviews were transcribed and coded using an inductive coding process to develop themes and sub-themes that could be compared to other municipal official interviews.

4.0 Findings/Results

This chapter of the thesis provides the results of the methodological approach presented above to address the objectives of this research paper, namely how rural municipalities in Southern Ontario have responded to legalized cannabis production and the challenges and opportunities they face. This chapter is divided into three sections outlining the main findings from both the municipal bylaw review and the key informant interviews.

The findings are organized into three broad areas: (1) the variations in regulatory practices in Southern Ontario; (2) the benefits and challenges of cannabis production on rural communities; and, (3) the regulatory challenges for policy makers. These are further broken down into the themes below.

4.1 Regulatory Practices in Southern Ontario

This section of the results chapter covers the regulatory practices that rural municipalities in Southern Ontario have taken to address the issues of cannabis production. This section provides the results of the review of the municipal bylaws of Southern Ontario showing where cannabis is permitted and where it requires approval, and shows what tools and practices municipalities are using to regulate cannabis including zoning, setbacks, air treatment, licensing, and site plans to achieve compatibility.

4.1.1 Overview of Regulatory Approaches (68 Approaches)

Over three hundred municipal bylaws and websites were searched as part of the content analysis and review of municipal bylaws. Municipal websites and zoning bylaws were searched and resulted in 233 bylaws reviewed as part of this process. The bylaw review indicated that 68 municipalities had established a bylaw regarding cannabis production, and 28 municipalities

were in a planning process relating to cannabis as of December, 2019. In some cases, some of the municipalities within a planning process also had existing cannabis regulations in their zoning bylaw. One hundred and thirty-seven municipalities did not have any indication of cannabis regulations in their zoning bylaw or on their website, but that does not mean they do not have cannabis-related zoning. Rather, they may have not posted all of their zoning amendments on their website. An analysis was conducted on the bylaws, which included a comparison of all 68 bylaws that were available on websites and addressed cannabis production, as well as 28 additional draft bylaws under consideration by the municipalities.

Some additional municipalities may have had cannabis zoning bylaw regulations but did not post them on their website, or may have prohibited cannabis by using existing bylaw definitions and wording without actually defining cannabis. This was the case for at least one municipality that the researcher was familiar with. The full municipal bylaw review results can be found in Appendix F.

4.1.2 Prohibition and Permissive

None of the zoning bylaws reviewed prohibited cannabis growing and production (i.e., listed cannabis production under prohibited uses). However, there were some bylaws written in such a way that had the effect of prohibition. Through the municipal bylaw review it was found that some municipalities used very restrictive zone limitations, high setback requirements, and had undefined zoning regulations to restrict cannabis production. These limitations result in cannabis producers needing amendments to the local zoning bylaws or variances to setbacks in order to be considered a permitted use in the municipality. A few of the key informant

interviewees said they believed cannabis production could not be prohibited outright, but could be made impossible through regulation based on legal advice.

Municipalities within their zoning bylaws restricted what zones cannabis production could be located. There were 19 municipal bylaws out of the 68 approved bylaws that required a zoning bylaw amendment for any new cannabis growing facility. This was referred to as a site-specific zoning bylaw amendment allowing cannabis production to be added to the list of permitted uses on a specific property. Municipalities mostly achieved this through providing a definition of cannabis production within their zoning bylaw, but not listing it as a permitted use in any zone. Some municipal bylaws listed cannabis production as a prohibited use, only permitted through a site-specific zoning amendment on specific properties. One bylaw, for the Township of West Lincoln, had cannabis production listed under prohibited uses, but still permitted it through a site-specific zoning amendment subject to a number of setback and air quality control requirements.

> Section 3:13 Prohibited Uses
>
> r) Cannabis Production of more than four (4) plants, unless otherwise permitted through a zoning bylaw amendment (West Lincoln Zoning Bylaw, 2017, 56)

The requirement for a site-specific exception gave the municipality the ability to review each cannabis facility as it relates to a specific property.

Other municipal bylaws implemented very high setbacks which appeared to have the effect of prohibiting or limiting cannabis production to very large remote lots which may not even exist in the municipality. Cannabis was a permitted use in certain zones, such as the agricultural and

rural zones, but high setbacks to property lines or sensitive land uses were required, essentially requiring cannabis producers to need a variance prior to establishing the use.

One example of this is the Township of Highlands East located in Haliburton County which had a setback requirement for cannabis facilities of 1,000 metres from neighbouring dwellings.

> Section 3.40 Marijuana (Cannabis) Facilities
>
> A marijuana (cannabis) facility shall be permitted in the Rural (RU) Zone, subject to the following requirements:
>
> a) The minimum lot area shall be 20.23 hectares (50 Acres)
>
> b) The minimum separation between the marijuana (cannabis) facility and any existing residential dwelling not located on the same lot as the marijuana (cannabis) facility shall be 1,000 metres
>
> c) …. (Comprehensive Zoning By-Law for the Municipality of Highlands East, 2005, 24)

In addition to the large setback, the Township of Highlands East also required a minimum lot size of 50 acres and limited the cannabis facility to 2,500 square, feet which would exclude larger growers.

The third method of zoning regulations that had the effect of prohibition was for municipalities to not define cannabis production within their zoning bylaws and so, by default, not permit them. This was found to be the case for the municipalities of West Perth and Perth East where cannabis was not defined or found within their zoning bylaw, but the municipality interpreted, through their existing zoning bylaws, that the use would not be permitted in the

agricultural areas if it was not located within a greenhouse, which would fall under the greenhouse regulations. This was only found within these two municipalities, but, as there is no information within the zoning bylaw, and only limited information is available on municipality websites, there may be other municipalities.

4.1.3 Setbacks and Zoning

As previously mentioned, the municipal bylaw review showed that municipalities used zoning limitations and setbacks to regulate cannabis facilities. Nearly all of the 68 zoning bylaws regulated which zones cannabis production could be located in. Even municipalities requiring site-specific zoning bylaw amendments still referenced zones that cannabis could be grown in (following the approval of a site-specific zoning amendment).

Zone names varied between the municipalities, but typically there were two groups of zones where cannabis production was directed to. These zones were industrial zones, including employment, manufacturing, and commercial zones, and agricultural zones, including rural zones for simplification. No bylaw permitted cannabis production on residential or institutionally-zoned properties.

Of the 68 municipal bylaws reviewed, 22 of them only permitted cannabis production in industrial/commercial zones. Cannabis was not permitted to be grown in agricultural or rural areas for these municipalities. As mentioned previously, the zone names varied, but for simplification, industrial and commercial zones were considered as the same in the findings.

Five of the 68 municipal bylaws only permitted cannabis production in exclusively agricultural zones and did not permit them in industrial or commercial zones. Twenty three of the

68 municipal bylaws permitted cannabis production in both agricultural/rural and industrial/commercial zones.

It is important to note that although the municipalities stated new cannabis facilities were permitted in certain zones, a site-specific zoning amendment still may have been required in that specific zone. This, in effect, meant that cannabis facilities were not permitted in any zone without the municipal council's approval.

Most cannabis zoning bylaws provided special setbacks for cannabis growing facilities and, in some cases, outdoor growing. Setbacks typically were from sensitive land uses such as residential dwellings, schools, churches, and parks, as well as lot lines.

Some cannabis zoning regulations did not list special setbacks, mostly with municipalities that did not permit cannabis in any zones without the need for a site-specific zoning bylaw amendment. In those cases, the setback would be determined through a planning process. Other bylaws specifically stated that cannabis facilities were to use the standard general zone setbacks and no special setbacks applied. There were 17 zoning bylaws where no setbacks were listed and 6 where the standard zone setback applied.

Setbacks separately defined for cannabis facilities or growing ranged from 0 metres to 2,000 metres. Most municipalities provided multiple setbacks based on how cannabis was grown, what type of facility it was, if air treatment was provided, and what type of sensitive land use surrounded it.

Table 5. Summary of Setback Findings (metres)

Setbacks	**Default Property Line**	**Settlement Boundary**	**Residential Use**	**Institutional Use**	**Open Space/ Parks**	**Outdoor Growing (Property**	**Outdoor Growing (Sensitive**

						Line)	Use)
Average	Standard zone setback.	314.5	181	160	160	157	92.5
Median	Standard zone setback.	150	150	150	150	150	110
No. of Municipal Bylaws With Specific Setback Provision	All bylaws had default setbacks for buildings structure.	12	36	36	31	4	8

Twelve municipal bylaws referenced different setbacks for facilities that had air filtration and odour control versus facilities that did not. In almost all cases, facilities that did not have air filtration or odour control had a setback that was double the setback for facilities that did have the filtration and control equipment. The table below shows the average and median setback requirements between facilities that did provide odour control and those that did not. Licensed producers of cannabis have Health Canada requirements for odour control, so the larger setbacks would only apply to individual or designee growing facilities that did not have odour control.

Table 6. Municipal Bylaws – Air Quality Control Setbacks

	With Air Quality Control (m)	**Without Air Quality Control (m)**
Average	121	278
Median	150	300

Another variable found in many municipal bylaws was differences between growing facilities within industrial zones versus within agricultural and rural zones. Setbacks in industrial zones were shorter to property lines and sensitive uses than facilities located on agricultural and rural lands. Table 7 below shows the average and median setback differences between zones. As identified throughout the key informant interviews, many policy makers associated cannabis production closely with industrial land uses and typically these industrial zones are protected through existing setbacks from sensitive land uses.

Table 7. Municipal Bylaws – Industrial vs. Non-Industrial Setbacks

	Industrial Zoning Setback (m)	**Non-Industrial Zoning Setback (m)**
Average	81	180
Median	70	150

There were other municipalities that had unique setbacks. One municipality, Thames Centre, structured their setbacks on the Ministry of Environment D-6 Series Guideline, which is an industrial use setback ranging from 70 metres for Class I use, 300 metres for Class II use, and 1,000 metres for a Class III use. The class of the use is a result of its compatibility with surrounding land uses. A broader discussion on the D-6 Series Guideline can be found in the discussion section (Chapter 5). The municipality of Kingsville had a special setback of 200 metres to Lake Erie which appeared to be trying to protect coastal communities and cottages along the lake. The municipality of Melancthon had a setback of 2,000 metres from other cannabis facilities as well as from settlement area boundaries, which had the effect of limiting the number of cannabis production facilities in any one area.

There were five municipalities that had various setbacks based on facility type. Micro-cultivation operations had smaller setbacks than standard cultivation. Similarly, some municipalities also separated facility types based on whether they were licensed producers (which have a higher degree of federal regulation) versus individual and designated growers (who have little federal regulation). The setbacks for licensed production were often half of the required setbacks for individual and designated growing operations.

Some municipal bylaws directly addressed outdoor growing, providing setbacks or other regulations such as fencing for growing that was not within a building or structure. Most municipal bylaws did not reference outdoor growing, and their regulations appeared limited to facilities and buildings. Through further investigation in the interviews with officials from a

sample of the municipalities, it appeared that there was no clear understanding about whether or not outdoor crops such as cannabis could be regulated in a zoning bylaw.

In summary, municipalities used zone limitations and setbacks to regulate cannabis production within their municipality. Some municipalities limited cannabis to agricultural zones while others limited it to industrial zones. Municipalities also implemented various setback requirements to sensitive land uses based on the provision of air-quality improvement measures or facility type. This was all done in an effort to achieve greater compatibility with sensitive land uses.

4.1.4 Licensing and Other Approaches

In addition to the zoning bylaws reviewed as part of the municipal bylaw review, there were other methods and approaches municipalities were taking to regulate cannabis. Key informants indicated that site plan approval was typically needed for cannabis production facilities. However, in some circumstances such as the use of existing agricultural buildings in the case of one municipality, a site plan was not required. It was stated by one interviewee that site plan control allowed for regulating things that could not be regulated within the zoning bylaw. The interviewee suggested that these factors included light, noise, and odour emissions.

> There are certain things that you can do with zoning bylaw and not site plan, and there are certain things that you can do with the site plan that you can't do with the zoning bylaw. (Interviewee 5)

In addition to the requirement of a site plan, one municipality was in the process of initiating a licensing program for cannabis facilities where cannabis facilities would have to

renew a municipal license to legally operate within the municipality, which would involve inspections and review of things like odour emissions. The full details were not yet worked out at the time of the interview, but the licensing would require regular inspections and include penalties for facilities that were not operating under the requirements of their license.

The site plan and licensing approaches both indicate municipalities are trying to fill gaps within the current legislation to have greater control in the day-to-day operation of these facilities and not just at the start of the operation or through zoning controls. One key informant indicated that using more planning tools, such as zoning and site plan approval, the municipality was able to achieve greater compatibility.

4.1.5 Achieving Compatibility

Policy makers through the key informant interviews indicated that the regulations that they had or were in the process of creating had the goal of achieving compatibility without being overly restrictive to the cannabis production sector. It was evident that compatibility was a priority for residents, the municipal council and the key informants, while protecting the cannabis sector was of secondary importance.

Informants through the interviews all stated that there was a lack of evidence-based research available when creating their zoning bylaws (section 4.3.4) and this resulted in regulations which were not fully informed and may not be defensible if challenged. Additionally, interviewees expressed that the regulations they created or were in the process of creating would not remove all of the public opposition as there are underlying perceptions and stigmas within rural communities associated with cannabis use and therefore production (section 4.2.2). This

further supported the need for an evidenced-based, province-wide guideline, as expressed in all key informant interviews.

> At the times there was concern a little bit to do with odour, safety, and a lot had to do with the stigmas around drug use and addictions and things like that. It is hard in an official plan amendment to deal with that because that is a public health issue that was in the scope of what we were doing. (Interviewee 6)

Informants suggested that a guideline similar to the MDS Formulae or the D-6 Series Guideline should be created as it could resolve a lot of the same land use compatibility issues that have arisen on similar land uses types as odourous livestock barns and manufacturing.

> Whether it is a matter of amending the MDS Guidelines (Formulae) or creating a supplement guideline for it that is plant-based. I see it more as a provincial matter because what is happening is every municipality is regulating it, all very different with different controls and setbacks. (Interviewee 5)

The key informants also suggested that having a uniform set of guidelines would benefit both rural municipalities as well as the cannabis producers. It would create consistency across Southern Ontario giving cannabis producers confidence in their ability to start up new cannabis facilitates and expand existing facilities under a clear set of regulations. Interviewees indicated that similar to the situation with large livestock facilities in the 1970s and 1980s when there was significant public opposition, a guideline was implemented that balanced the interests of large livestock farmers with the interests of rural residents and other sensitive land uses.

Interviewees believe that the creation of this guideline at the provincial level would over time achieve compatibility for the most part, while allowing the cannabis sector to continue to grow under a standard set of industry regulations. One interviewee also suggested that, together with provincial guidelines, the industry could regulate itself, creating best management practices

for controlling and mitigating impacts such as odour, light, and noise. Similar industry standards can already be found in agriculture, especially in the livestock industry, with multiple agricultural boards regulating the industry.

4.2 Community Benefits and Challenges

The predominant theme that emerged from the key informant interviews and from the municipal bylaw review was that cannabis production can provide rural municipalities with a number of benefits, mainly economic growth and employment, but can also create unique challenges that have resulted in the creation of municipal cannabis production regulations. The benefits and challenges to rural communities were discovered through the key informant interviews. The interviewees were asked a series of questions on the benefits and challenges associated with cannabis production within their municipality, including what they personally believed to exist and also what they believed the public's opinions were. The responses of the key informants addressed the research question about how communities have responded to cannabis production.

The key informant interviews showed that benefits to the rural community from cannabis production were mainly limited to economic growth and employment opportunities, but also included more social benefits such as a positive, progressive community image. The key informant interviews also found that there were challenges with cannabis production in regards to its odour and other physical impacts, but also the public's perception of cannabis and how it affects the community image and values. These benefits and challenges were reflected in the regulations that the municipalities created, as found through the municipal bylaw review. The benefits and challenges are discussed in greater detail in the following sections.

4.2.1 Economic Development

All key informants stated that there were general economic benefits to their community, which included employment opportunities. As cannabis production is a labour-intensive crop with little mechanization a large number of employees are needed, especially during certain periods such as harvest. In addition to general labourers, interviewees indicated that cannabis facilities can often employ higher skilled labourers in sales, accounting, and other higher paid, more skilled positions. However, some interviewees stated that the employment opportunities generated by cannabis production are generally seasonal, part time, and lower paid minimum wage jobs. These jobs can also be difficult to fill with local residents, and foreign labour is often required similar to other greenhouse operations. One of the interviewees stated that certain types of cannabis facilities offer higher skilled labour opportunities and generated more employment opportunities than others. Larger-scale, commercially licensed producers provided many good employment opportunities, but designated grower facilities, intended for individual medicinal production, did not provide any noticeable employment opportunities.

Key informants also indicated that employment opportunities were not just limited to direct growing and production positions, but there were indirect employment opportunities for local construction and design firms generated from the construction of new facilities and expansions. Interviewees cited that there has been a large amount of investment in new and repurposed facilities within commercial licensed production since it was announced that recreational cannabis would be legalized. This investment has had a positive impact on various construction trades and growing supplies manufacturers. Even more indirect employment opportunities were identified by interviewees with how cannabis production facilities can benefit

local shops and restaurants that employees would shop at, or services the facility would employ such as catering or cleaning.

In addition to the employment opportunities generated, key informants identified the diversification of the agricultural sector as another benefit of cannabis production. In most rural communities, agriculture was identified as an essential component of their economy and an important identifying aspect of what makes their municipality rural. Half of the interviewees stated that cannabis production provided another type of crop that would diversify and strengthen the local agricultural sector and make it more resilient. An example of this view can be found in the following quote:

> I have a lot of optimism about the economics of it [cannabis production] and the jobs. Agriculture is a major basis of our economy in [redacted]. Anytime there is diversification in the agricultural sector, that represents positives. (Interviewee 8)

A few interviewees identified the increased tax assessment as good for the rural municipality. However, they did note that agricultural assessment was low and did not generate significant revenue itself, but processing components like drying and packaging were considered industrial and provided higher tax revenues. Interviewees also noted that the impacts and wear on municipal infrastructure might not be offset by the tax revenues generated.

Most of the benefits discussed were related to economic growth and employment. However, two interviewees also suggested more social benefits to rural communities such as reducing and eliminating the black market for cannabis through legal cultivation and, more broadly, a progressive identity as a legal cannabis growing municipality. One of the interviewees that put forward this progressive community identity concept, further suggested that there was a strong relationship between how the community viewed cannabis legalization and use and how it viewed production. Further discussion on this aspect can be found in section 4.2.2.

In all but one of the discussions on cannabis production benefits, interviewees suggested that the benefits have to be weighed against the compatibility issues of these facilities with the surrounding land uses. The interviewees stated that cannabis production needs to be regulated to maximize the benefits to rural communities while minimizing the negative impacts on their residents.

> They [council] recognize the economic potential of it, but they also recognize the requirements for regulation and control as it relates to land use planning. (Interviewee 5)

Interviewees stated that, as with many land uses that have economic potential, the benefits need to be weighed against the impacts, and regulations need to exist to ensure the impacts are mitigated. This was further confirmed in the municipal bylaw review findings where very few municipalities prohibited cannabis production.

4.2.2 Perceptions, Community Image, and Values

As mentioned in the previous section, one interviewee stated that a benefit of cannabis production on their rural community is the progressive identity it creates. However, half of the interviewees suggested that the public believes it has a negative impact on the community image. Underlying the community image and values is the community's perceptions on how cannabis production impacts that image and their quality of life.

The interviewees suggested that how the public perceive cannabis production's impact on the community's image may be rooted in an underlying stigma against cannabis use and legalization, as well as perceptions that production within a community leads to increased cannabis use, possession, and addiction. Public opposition to cannabis production is a result of

these fears and impacts community image. The quote below describes how general opposition to cannabis use is a factor in opposition to cannabis production.

> Some people have been adamant that they don't like it [cannabis] and don't want it in the town. (Interviewee 3)

Some of the interviewees suggested that the stigmas and perceptions were grounded in the community's political makeup. Older populations and more rural communities with a conservative background were opposed to cannabis because of its perceived negative influence on the community and its impact on the community's values.

> Some of them [impacts of cannabis production] are definitely more perceived (than real) concerns. The municipality is a very conservative municipality. Some of the residents don't believe that cannabis should be legalized, so at the end of the day, if you can mitigate all of the land use impacts, you will have people that still don't like it at all. That is a lot of the issues we have here. (Interviewee 4)

Two of the interviewees stated that since some of the impacts of cannabis production are perception only and are grounded in a general opposition to cannabis legalization, policy and regulations will not be able to eliminate public opposition. Over time, as cannabis use becomes normalized, communities opposed to legalization will begin to accept its use, and in turn be more accepting of cannabis production.

> For many, many decades this was an illegal product, so people associated the smell or use with something bad or illegal, but now society will change and evolve to accept this as a legal product, as a part of our community, and the smells and growing will become a part of our everyday lives. We are experiencing the worst of the land use conflict now as we are adjusting to the reality of legalization, but it will become more normalized. (Interviewee 8)

Many of the interviewees suggested that these stigmas exist from many years of prohibition, and that the public will continue to have negative perceptions of cannabis use and

cannabis production. Over time the uses may normalize and public acceptance increase. However, interviewees indicated that policies and regulations are still needed to address the current compatibility issues.

Several of the interviewees also discussed multiple perceptions that the community had on cannabis use and production. The response to allowing cannabis production was a perception that it negatively affected their community values and image because of the stigma.

> There are also a lot of people upset about the character of the place where they live changing, and they don't feel like the chain and barb security fences are good, and don't feel like it fits the area where they used to see a cherry orchard. (Interviewee 4)

These public perceptions about cannabis became apparent in the opposition to cannabis facilities and the potential impacts they posed to their community and quality of life. Impacts including odour, noise, light, and the appearance of the facility were all raised by members of the public, as stated by the interviewees. However, the extent of these issues appeared to be perception only and potentially embellished.

> The issues are real, but the impacts are perceived. (Interviewee 1)

The public, as stated by the interviewees, believe that cannabis production would have significant harm to both the community image and their personal quality of life. An example of this stated by a number of the interviewees was the concern around crime and illicit activity associated with cannabis production. Crime was one of the predominant concerns from the public (second to odour) as stated by the interviewees. However, all but one interviewee suggested that the impacts of crime may be only perception due to the surrounding stigmas and not based on reality, and they cited a lack of evidence to confirm this.

The key informant interviews revealed that there was a belief by the public that cannabis production within a rural community could change the character of the community and had an impact on the community's values, whether for a more positive, progressive identity, or the degradation of the rural charm and innocence of the community. Impacts to the community's image and values were largely based on individual perceptions on cannabis use and legalization, which in turn can result in perceptions around impacts to quality of life. These real and perceived impacts to the community's image and an individual's quality of life have created a challenge for municipalities trying to maximize the benefits of cannabis production.

4.2.3 Odour Impacts

Challenges relating to cannabis production and land use compatibility for rural municipalities identified by key informants included light emissions, noise emissions, fencing, associated criminal activity, traffic and road conditions, visual impacts, impacts on youth, site security, health impacts, economic impacts, land use availability impacts, property values, waste disposal, overall compatibility, and quality of life. It appeared to the interviewees that the impacts listed above were mainly between cannabis producers and rural residents. There was no evidence of compatibility issues between cannabis production and other agricultural operations through the key informant interviews, nor were there zoning regulations requiring setbacks between these facilities and agricultural operations found through the municipal bylaw review.

The most frequently mentioned impact discussed in every interview was the impact of odour emitted from cannabis production. The impact of odour on land use compatibility can also be seen within the municipal bylaws, with 12 municipalities out of the 68 requiring some type of odour control. Further, Health Canada also requires odour controls for certain cannabis

production facility types such as licensed producers. Odour was identified as the main differentiator from other crops and was seen as the main source of concern for residents and the main cause of land use conflict. Two quotes from two separate interviewees summarized the issue of the odour that was seen throughout all the interviews:

> I am putting more weight on the issue of odour. That is what makes it different from other greenhouse crops. You can grow flowers and have the light emissions. There are not many other plant-based agricultural crops that have odour. (Interviewee 5)

> We have to be sensitive to how the smell has affected people's ability to enjoy their properties and how it affects the perception of their communities. (Interviewee 8)

As mentioned by Interviewee 5 in the quote above and by other interviewees, odour was what made cannabis production different from other crop production, and made it more similar to odourous livestock operations. While cannabis production can have other impacts on the community, such as light pollution, noise, and increased traffic, those can also all be associated with traditional agricultural crops, especially greenhouse crops in the floral and produce markets. Interviewees suggested that since odour is such a predominant issue with cannabis production, it should be seen less as an agricultural plant crop and more as a livestock facility when it comes to land use compatibility and regulation. Some interviewees suggested that cannabis production should be considered as an industrial use due to the odour and other land use compatibility issues associated with it.

Odour is an issue in municipalities with operational cannabis production facilities. However, key informants in municipalities where there were no known existing cannabis operations also indicated that odour was a major concern for the public, revealed through the

public consultation process when the municipality was establishing regulations. This could indicate that odour issues exist but there may be purely perception-based concerns about the degree odour impacts one's quality of life. As stated by one interviewee, the issues around cannabis production are real, but the true extent of the impacts can be perceived.

Interviewees also stated that odour emissions from cannabis facilities have had negative impacts to residents' quality of life, and in some cases have impacted residents' health and wellness. Residents in these communities not living near existing facilities are fearful of new facilities being located in proximity to their dwellings, mainly due to the impact of odour.

There was strong support among interviewees for addressing the issue of odour. Although required for certain facilities, interviewees noted that Health Canada was not able to adequately address the odour concerns of residents and enforce odour control requirements for a variety of reasons. Interviewees stated that Health Canada was difficult to get in contact with and appeared not to address concerns around odour from the public. Further, odour control was not a requirement in other types of facilities, such as individual growing operations and designated growing operations. One interviewee stated that part of the issue is most of these facilities are re-purposed agricultural buildings such as greenhouses which were never designed to contain air and odour emissions, but rather constructed to allow for easy ventilation.

There were different levels of concern about the issue of odour among interviewees. Two interviewees suggested that as they see cannabis as an agricultural crop, odour emissions were not a major concern and residents in agricultural areas needed to accept them as an agricultural practice. Although there were different levels of concern among interviewees around the true impact that odour had on the community and residents, there was a desire among all interviewees

to address the issue of odour and to mitigate it through different means, including zoning bylaw regulations, site plan approvals, and the desire to have a standard guideline across the province.

All interviewees suggested that a guideline similar to the Minimum Distance Separation (MDS) Formulae or the Ministry of the Environment D-6 Series Guideline (Compatibility between Industrial Facilities) should be implemented for cannabis production. The MDS Formulae is a provincially regulated setback calculation which determines a setback between new and expanded livestock facilities and sensitive land uses such as schools, dwellings, and other settlement areas. It also regulates the proximity that new sensitive land uses can be located near existing livestock facilities in order to reduce odour complaints. The D-6 Series Guideline contain a number of setbacks which separate different classes of industrial uses from sensitive land uses and vice-versa.

Both of these guidelines were created to achieve greater compatibility and are discussed in greater detail in section 4.4.4. As they relate to odour, they are evidence-based guidelines regulated by the province dealing solely with odour, in the case of the MDS Formulae, and noise and other impacts as well in the case of the D-6 Series Guideline.

One of the interviewees stated that odour was a difficult issue to resolve through local planning policy and regulations. If the municipality regulates odour with their zoning bylaw or site plan agreement, they then need the resources and tools to be able to enforce their odour control requirements. Another interviewee suggested that since odour was difficult to measure and enforce, they did not wish to regulate odor control beyond what Health Canada has regulated.

In summary, odour was the primary challenge regarding cannabis production among the key informants. This has made it unique among traditional agricultural crops and has led to a large number of municipalities regulating cannabis production in their zoning bylaws, as evident through the municipal bylaw review.

4.2.4 Additional Impacts (Light, Crime, and Security)

There were other challenges mentioned beyond odour such as security, crime, noise, and light in all the interviews. Although odour and security were unique to cannabis, a number of interviewees stated that noise and light impacts can be found in other traditional agricultural crops. Table 8 below identifies some of the quotes from the key informant interviews associated with each identified issue.

Table 8. Identified Cannabis Production Issues

Issue Identified	**Interview Quote**
Light & Noise	There is light, there are fans. and there is smell associated with the growing of it. The setbacks would help mitigate the smell and would help with light and noise with the exhaust of the building. (Interviewee 8)
Security	Even when we talk to OMAFRA, it is very confusing. They see it as a crop, but this crop has different issues than other field crops: fencings, lights, and security requirements, where by comparison it is not like growing canola and other crops. (Interviewee 1)
Traffic and Road Conditions	Yes, there are [challenges]. I would think (about) if these facilities will increase traffic and impact roads, rural roads especially. (Interviewee 1) Part of it is that there is a significant cost accrued but the municipality, and because these facilities are taxed as agricultural facilities, so sometime the use of town infrastructure doesn't jive with the amount of taxes being paid. Roads not designed for the employment and would impact the life of the road. One of the things people are upset about is that they don't feel like they (cannabis operators) are paying fair property taxes. (Interviewee 4)
Visual Impacts	This [cannabis building?] can start looking like a prison. Nobody wants to look out their window and see that. (Interviewee 1)

Impacts on Youth	There is definitely (a) cost to policing it [Cannabis] and access to the youth, but I am not sure (about) impacts on youth. (Interviewee 1)
Health Impacts	Whether or not it has been proven, my observations in speaking with people that live around these facilities, it is causing mental health stress. (Interviewee 5) It is possible that cannabis is similar [to wind turbine health issues]. They may be people in their homes that perceive a negative personal impact, maybe even just a nuisance, and they may feel like their health, enjoyment of their property is being impacted, or may even feel that the character of the community is being impacted. (Interviewee 8)
Land Availability	From a staff level we are weary of these facilities being established within our employment lands because that can take away valuable lands for cannabis that could be used (for) other uses. We need to protect those lands (that) could be used for other industry. (Interviewee 3)
Property Values	Property values of being next to a grow-up was also a concern. (Interviewee 2)
Quality of Life & Amenity Spaces	Once that was address(ed) the main issue was their concerns about their enjoyment of their property and their perception of being within a good community. It was impacted by having the smell of cannabis in their backyard. (Interviewee 8)

4.2.4.1 Noise & Lighting

Interviewees suggested that cannabis facilities do generate noise and light impacts on surrounding residents and land uses. However, these impacts are not unique to cannabis production but can also be found with other greenhouse crops. The public in those circumstances did not complain about those operations to the municipality. Noise impacts are attributed to the 24/7 operational nature of the growing facilities, their requirements for generators, fans, air filtration systems and other equipment, and traffic and delivery noise. The larger the facility, the more of an impact noise had on surrounding land uses. Light impacts were attributed mainly to greenhouse operations where artificial lighting is used, and also security lighting. Artificial lighting is used for other floral and produce crops in Ontario and can often light up the sky. In one municipality where there was an observatory there was a concern that cannabis production lighting would impact the observatory and other astronomy activities. At least one municipal

bylaw provided additional regulations for lit cannabis greenhouses requiring additional solid fencing between any adjacent residential uses in an effort to block out light.

In addition to the growing lights, cannabis facilities have different security requirements, with certain facilities required to have continuous surveillance requiring security lighting. Although not unique to cannabis production, interviewees suggested that the public believed that it did not belong in the agricultural areas as it did not fit the rural character and traditional forms of agriculture.

Noise and lighting were issues brought forward by the public to the key informants. The key informants suggested that there may be impacts from both noise and lighting, but overall, they believed that the impact of these on residents was only perception as there were other types of agricultural production which generate the same noise and lighting, but in those non-cannabis operations there were no complaints.

Interviewees suggested that noise and lighting issues could be mitigated through zoning bylaws and site plan agreements and were not as significant a concern or challenge to deal with as odour. Interviewees also stated that health impacts, property value impacts, impacts on youth, and environmental concerns were also issues raised within their communities and created challenges when trying to regulate cannabis production.

4.2.4.2 Health Impacts

Health impacts were attributed to the emissions of air and odour from the facilities, of which some interviewees believe to be perception only, and two others believe they may be real but in need of further research. Comparisons were made to similar health concerns raised from

the introduction of wind turbines in rural Ontario, claiming that it has caused mental and physical health impacts.

While two of the interviewees indicated that there may be possible health impacts, there may be more potential for mental health impacts in particular. The interviewees suggested that residents who lived near cannabis facilities did experience health impacts, mainly relating to the odour emissions. Although there is no evidence to support whether or not there are physical health impacts from odour emissions, interviewees believed it would be possible to have health impacts as a result of the nuisance of the use, as opposed to some compound physically found within the air or from odour emissions from these facilities. Similar to wind energy, individuals in close proximity may feel their health is impacted from increased stress and anxiety from living near these uses. Both interviewees stated that potential health impacts should be further researched.

The remainder of the interviewees did not believe there were any significant health impacts but rather that these were in fact perceptions only based on the use being a nuisance. These interviewees did not call for any further research.

4.2.4.3 Impact on Youth

Beyond the physical and mental health concerns of those living near the cannabis production facilities, there was public concern that cannabis facilities could have health impacts on youth. Two key informants stated that the public believed there was a connection between cannabis production and youth cannabis access and use. This in turn also had health impacts including addiction to cannabis and other substances. However, it was not certain to the interviewees the true extent that production had impacts on youth.

This may be related to the perceptions that the public had on how cannabis cultivation has affected the image of their community. It also relates to the community's opposition to cannabis legalization and by association cannabis production. The link between cannabis production and impacts on youth in the community appear to be weak as cannabis facilities are only able to sell and grow through a specific distribution networks and not from the facility itself. Cannabis dispensaries and retail outlets are only located in a few communities, most of which are not rural and none of which were located within any of the communities whose officials were interviewed. Additionally, cannabis can be purchased online in Ontario through a government website and there is little connection between the location of production and retail and online sales. As stated, the association of negative impacts on youth may be perception only based on the public's opinion of cannabis legalization and the image and values of the community.

4.2.4.4 Impact on Rural Infrastructure

Also identified by the key informants were impacts associated with rural infrastructure, mainly roads. As cannabis production requires a large labour force and can have more truck traffic than traditional agricultural operations, interviewees indicated that there was concern by both the public and council that the rural roads are not designed to support the additional traffic. Additionally, a number of the interviewees had concerns on the amount of taxes that these operations contributed versus the impact on local infrastructure.

Agricultural land is typically one of the lowest property tax brackets of a municipality, meaning that they are taxed substantially less than residential and industrial uses. Interviewees stated that cannabis cultivation is assessed as agricultural, but processing can be classed industrial. However, the processing component is often only a small proportion of the land area.

Interviewees had concerns that the economic support that the municipality received from increased tax assessment did not benefit the municipality due to the increased infrastructure maintenance costs to support a high-traffic rural land use. Members of the community also felt that these uses were not paying their fair share in property taxes due to the increased traffic and impact on the rural infrastructure.

4.2.4.5 Impact on the Environment

The final impact noted through the interviews was the public concern about cannabis production's impact on the local environment. Waste disposal, water use, and water treatment were all concerns raised by the public to the key informants. On this issue cannabis production could be compared to most other agricultural greenhouse operations where waste plant material is often composted and water is consumed as part of the growing operation. Interviewees did not put much weight on this impact as they believed the impacts were similar to traditional agricultural operations.

In summary, there were many impacts that cannabis production facilities had on communities and surrounding residents. While these impacts were all real, as stated by the interviewees, the extent of these impacts appeared to vary. For example, light and noise emissions would be limited to residents living in very close proximity to cannabis production facilities. However, these came up consistently in every key informant interview, even those that did not have facilities within their municipality. Further, some of these impacts can also be found with more traditional forms of agriculture, such as other greenhouse crops, yet there does not appear to be the same concern from the community about those uses.

These impacts, especially odour, appear to create a challenge for policy makers in how to address the real and perceived land use compatibility issues while trying to maximize the benefits for their rural community.

4.3 Regulatory Challenges for Policy Makers

The second main finding of the municipal bylaw review and key informant interviews is about the regulatory challenges that policy makers face concerning cannabis production. Key informants indicated that they faced many challenges, and the municipal bylaw review showed there was no consistency in cannabis production land use regulations.

The key informant interviews and the municipal bylaw review found that there is a disconnect and gap between federal legislation and municipal regulation, difficulty with categorizing cannabis production within a land use designation, and a lack of evidence-based research and best practices to assist municipalities in siting cannabis production facilities. Many of the interviewees believed that the Cannabis Act and the provincial regulations focused on the financial aspects of cannabis and retail and distribution schemes, but not on growing and production, which has led to several regulatory challenges for policy makers in rural Ontario communities.

4.3.1 Federal and Municipal Disconnect

The key informants all indicated that there is a gap in knowledge and expertise within municipalities about the cannabis legislation and many aspects of cannabis production regulation. These aspects include jurisdictional and regulatory uncertainties, rapidly changing federal cannabis legislation, a lack of notification requirements and information sharing from the federal government with the municipality, and a lack of direction from the province.

4.3.1.1 Jurisdictional and Regulatory Uncertainties

Key informants during the interviews described many uncertainties they faced when trying to develop cannabis regulations. One of the primary challenges was the uncertainty about the extent and how a municipality could regulate cannabis production while staying within its jurisdictional boundaries. Interviewees were mixed in their understanding of whether they could regulate production beyond what Health Canada and the Province of Ontario have regulated. For instance, one interviewee believed that they could not regulate designated growers when it came to air quality control as that was not a Health Canada requirement. Other interviewees believed that they could be further regulated on air quality control but their understanding of the extent of regulation permitted varied.

> I was surprised at the time that such a large-scale growing could occur in the town and there was very little federal and provincial approval involvement. (Interviewee 8)

When the key informants reached out to Health Canada and the provincial agencies responsible for cannabis production legislation, they were often not provided with a response, and if a response was given it was several months later, after the planning process was completed. The responses given were often generic and only directed the municipalities to the legislation.

> I, as the lead researcher on this, put out some questions to Health Canada and they were not useful at all. They responded 9 months later. By the time we received a formal response the project was done. We did reach out on certain things. We wanted information on security requirements and things of that nature, and clarification on outdoor growth, and we did not get much, and the response did not do much for us. (Interviewee 6)

> Through that review, we reached out to Health Canada to ask particularly about odour and if we had any control over odour. So that was a long process, and I don't think we received a response from them for about six months. (Interviewee 3)

In addition to the jurisdictional challenges, interviewees cited challenges with determining the extent they could regulate an agricultural use. They cited the protections of normal agricultural practices under the Farm Practices Protection Act which prevents undue regulations upon normal farm practices. Several interviewees stated that as there has been no precedence set through the Normal Farm Practices Protection Board in Ontario, municipalities are unsure of how much regulation they can place on cannabis production. This was also evident throughout the municipal bylaw review where there was very little consistency among municipal regulations, with some regulations essentially prohibiting cannabis production within the agricultural area. More information on this can be found in section 4.4.2.

> There might be other very smelly crops out there like lavender and hyacinth bulbs that may be considered a nuisance, but we don't have setbacks for those types of crops. I was fearful in admitting that it is an agricultural crop. Is someone going to question the validity of our zoning? (Interviewee 8)

Municipalities were uncertain if their regulations would hold up if challenged in court or at the Normal Farm Practices Protection Board and cited that no precedent or case has yet been created. One case was brought forward to the Normal Farm Practices Protection Board but the Board would not make a decision, based on cannabis regulations being under federal jurisdiction.

4.3.1.2 Rapidly Changing Federal Cannabis Legislation

In addition to the jurisdictional and regulatory uncertainties, interviewees cited the significant challenges that have been brought about as a result of the many changes to the cannabis regulations over a short time. This results in municipalities and policy makers trying to "catch up" with the current legislation around cannabis production. In addition to the rapidly

changing legislation, most of the interviewees also cited that the regulations were complex and challenging to understand.

All key informants cited a municipal knowledge gap where the federal cannabis legislation under the Cannabis Act was not adequately explained to municipalities and where municipalities did not feel adequately consulted by the Federal Government. This appeared to be a result of a lack of communication and explanation from the Federal Government to the municipalities about the changing legislation and how it impacts the municipality. Smaller rural communities do not have the staffing and legal resources to keep track of and understand the federal legislation. As indicated earlier, when key informants tried to reach out to Health Canada for more information, Health Canada did not respond in a timely manner to incorporate into the regulations, and when they did receive a response, they did not provide valuable information to assist municipalities, rather they just cited the federal regulations.

4.3.1.3 Lack of Notification Requirements for Cannabis Facilities

In addition to the rapidly changing legislation and the jurisdictional and regulatory uncertainties, interviewees stated that there seemed to be no requirement to notify the municipality of the establishment of certain types of cannabis production facility and no federal requirement to ensure proper zoning is met. This led to instances where facilities were being constructed or used for cannabis production where the municipality had not been consulted or informed.

> When the designated grower first established in [redacted], and there was no warning that they were coming, they just moved into the building. They did not consult with the municipality, and there did not seem like there was any regulations requiring them to consult. There was no

> consulting – in my opinion as a planner, I found that surprising. I was surprised that designated growing didn't trigger that. (Interviewee 8)

Interviewees expected that in the current planning systems in Ontario and across Canada, where public participation is a major focus, cannabis facility approval would have some sort of notification requirements to the municipalities. The lack of notification requirements and information provided by Health Canada on new or operating licensed or registered cannabis facilities has left municipalities unsure of how many operating cannabis facilities there are within their municipality.

> The short answer is that we have three that we know of. I say that because there could be designated producer operations that we do not know about. (Interviewee 6)

> To my knowledge there are two…. There are probably more out there. The only way I found out about these two is … because of complaints about smell to council. (Interviewee 8)

> It is tough to answer that because we do not know how many are ultimately in the Township. (Interviewee 2)

Interviewees appeared to support greater notification requirements for cannabis facilities and consultation with the municipalities to ensure zoning conformance prior to Health Canada approval.

Interviewees also experienced a disconnect between Health Canada and the municipality dealing with the federal enforcement of legislation of cannabis facilities. Some interviewees believed that the legislation for cannabis production may be adequate, but the enforcement by Health Canada is not.

> I think the biggest problems have been enforcement. The cannabis regulations require that no odours escape the buildings, but odours are escaping the buildings, and that is where we have

> issues. Health Canada has come on numerous times to investigate and either have not cited problems or it has not found solutions that people were looking for. (Interviewee 4)

This was mainly found for licensed production facilities which have legislation requiring no odour emissions during operation but in many cases have generated odour complaints, as stated by the key informants. It appeared to some of the key informants that Health Canada did not adequately enforce the requirement for no odour emissions which left the municipality to create and enforce their own odour regulations.

In summary, interviewees believed there was a disconnect between the federal legislation and the local municipalities, specifically in regards to jurisdictional and regulatory uncertainties, the rapidly changing federal cannabis legislation, and the lack of notification requirements for cannabis facilities.

4.3.2 Operation Type

Another regulatory challenge for policy makers as discussed by all interviewees was how certain cannabis operation types resulted in land use conflicts while others did not. As discussed in the literature review, out of the eight types of growing and production there are four main types of legal cannabis growing for use. The first two types are licensed production under Part 1 of the ACMPR and licensed production under the Cannabis Act, which is typically large-scale commercial production that has many regulations. The second two are designated growing, which can vary in size and scale and does not have many regulations, and individual growing, which is the same as designated growing but on an individual basis.

Each municipality had different facility types and had varying numbers of these facilities. Most municipalities could not provide an exact number of facilities as the Federal Government

does not require that designated and individual growing facilities notify local municipal governments, as is required for licensed producers. As stated by the interviewers, some designated and individual growing facilities were "under the radar" and operating without municipal knowledge.

Seven of the eight interviewees indicated that the issues with cannabis production within their municipalities resulted from designated and individual growers. In particular, one interviewee highlighted that all cannabis issues in their municipality came only from designated facilities and not from any of the licensed producers within their municipality.

> The complaints are really focused on the [designated facilities]. We have had no complaints regarding license(d) facilities. The problem is very isolated to the unchecked, not well-regulated [designated facilities]. Odour, light emissions, crime, there has been a couple of gun violence, some shootouts around them, illegal gang-related activity, break and enter(s), reported illegal growing activity. (Interviewee 5)

Interviewees stated that designated facilities could be of a similar size and scale as licensed facilities. However, they were largely unregulated in the Cannabis Act and former Access to Medicinal Cannabis regulations.

> You can put four [licenses] together based on prescriptions, you can have more than 1,000 plants. And that is not insignificant. I think the lack of legislation around that is alarming. (Interviewee 6)

In two municipalities the designated facilities have been around for some time and are "grandfathered in", pre-dating the zoning bylaw regulations, but are still causing compatibility issues. One municipality indicated that they only had licensed producers and there was still strong opposition against those facilities around issues such as odour and traffic.

Overall, facility type seemed to play a large role in the level of compatibility with surrounding land uses and the level of control that municipalities had over their operation. This created difficulties in how policy makers regulated facilities. The municipal bylaw review showed that at least five municipalities have separate regulations based on the facility type, further providing evidence that there are greater compatibility issues with designated and individual grower cannabis facilities.

4.3.3 Land Use Categorization Debates

One of the regulatory challenges that emerged from both the municipal bylaw review and the interviews was the difficulty policy makers had when categorizing cannabis production into a land use category. The municipal bylaw review showed that a number of municipalities, within their zoning bylaws, had either referred to cannabis production as an agricultural use or excluded it entirely from its definition of agriculture. Some zoning bylaws listed cannabis production as a permitted use within industrial zones, while other excluded it from their industrial areas.

In the key informant interviews, interviewees struggled with how to categorize cannabis production and how to define its land use. There was a wide range of thoughts from the interviewees with the majority of them suggesting that cannabis production could not be categorized into just one designation.

> Even when we talked to OMAFRA, it is very confusing. They see it as a crop, but this crop has different issues than other field crops: fencing, lights, and security requirements, where by comparison it is not like growing canola and other crops. (Interviewee 1)

This uncertainty around what to designate cannabis production and how to categorize it led to difficulty for the key informants in determining how it should be classified and regulated.

Uncertainty in categorization has also led to very non-uniform zoning bylaw regulations across Southern Ontario which was evident though the municipal bylaw review.

The key informant interviews were structured to identify what the interviewee thought about what land use category cannabis production and growing best fit within. Opinions were mixed among interviewees, and within each municipality opinions differed between planners, the public, and councils on whether cannabis should be considered an agricultural crop and whether its facilities belonged better in the agricultural zones or industrial zones.

There were variations in how the public saw cannabis growing within each municipality compared to how staff and council viewed growing. In most cases, staff believed that cannabis was agricultural land use, but the public and council were not as convinced. In one municipality, it was reversed with the interviewee not convinced it was agricultural but with the municipal council believing that it was.

All interviewees provided direct comparisons of cannabis to other agriculture forms, mainly to field crops and livestock. Interviewees stated that what sets cannabis apart from other field crops is the odour emissions and security requirements. While there are some odorous field crops, none compare to cannabis. Some compared cannabis to mushroom farming, which is odorous due to livestock waste being used as the growing medium. However, those are typically more extensively regulated in each municipality and not seen on the same scale as cannabis production.

> [Do you believe cannabis is an agricultural crop?] Agricultural because it is actually a plant being grown. Any crop like corn or canola would be permitted to grow because it is agricultural. Processing of agriculture is also permitted in agricultural zone(s). If there is a field or greenhouse of cannabis, that can be done in agriculture. If there is processing or drying associated with

> cannabis, then it can be permitted there as well…we can still acknowledge it as an agricultural crop and maintain the rights to regulate it as a land use. (Interviewee 8)

There was a wide range of perspectives among the interviewees, with one interviewee stated that they did not believe cannabis was different from any other crop except its novelty.

> Yes, you have the odour impacts, but that is no different than a mushroom farm, or a chicken barn, or a hog farm that you still have those odour impacts. It is a crop, and often with crops, you have odour impacts. To me, it is no different than those other agricultural facilities. (Interviewee 3)

Interviewees also expressed that cannabis production was an industrial land use, or at least had similarities to industrial uses. Many key informants compared the odour, noise, and light impacts to industrial uses. All of the municipalities whose officials were interviewed allowed cannabis production within industrial areas, although some required site-specific zoning amendments, some as right (permitted in the zoning without additional approvals), and all required site plan control.

Interviewees compared cannabis growing facilities to industrial and institutional uses such as prisons and manufacturing due to factors such as security requirements, processing, and traffic, odour, noise, and light impacts similarly generated by industrial uses.

> [Cannabis] is permitted in the industrial area because there is an industrial component to cannabis production. Generally, when you have a product that is being produced with an industrial character to it, that is appropriate in the industrial zone. (Interviewee 8)

Difficulty with how to classify and categorize cannabis production into one category appeared to be a result of the different components involved with cannabis production. There is the actual growing of cannabis, which most interviewees agreed was an agricultural land use, but there also was a processing component, which interviewees struggled with. The processing can

involve drying, oil extraction, packaging, and other types of processes to prepare cannabis for sale, which interviewees believe to be closer to industrial than agricultural use. Half of the interviewees indicated that cannabis facilities were better suited for industrial areas. However, another municipality's official stated that they had concerns about using up prime industrial areas for agricultural uses. As seen by the quote from interviewee 2 below, while interviewees were of the opinion that the growing of cannabis was agricultural, any processing, even drying, would be classified as industrial.

> If it is straight growing, it is okay in the agricultural area, but as soon as there is processing, it needs to be in the industrial areas. (Interviewee 2)

One interviewee who did not support cannabis production within the industrial area stated that planning policy in Ontario allowed for limited processing of agricultural crops on agricultural lands, often referred to as "value added". As such, if cannabis growing is permitted in an agricultural area, so should limited processing in order to get the crop to a saleable state.

In summary it appeared that cannabis production was not easily defined by interviewees solely into one land use designation or category. It appeared that there was general consensus (except for one interviewee) that cannabis growing was an agricultural land use, but there was no consensus if it should be considered industrial or whether it belonged in agricultural zones or industrial zones.

4.3.4 Lack of Evidence-Based Research and Best Practices

The final regulatory challenge raised by the key informants was the lack of evidence-based research and available best practices on siting cannabis production facilities and creating land use regulations to achieve compatibility. This was also apparent through the municipal

bylaw review where there was little uniformity in cannabis production zoning bylaws across Southern Ontario, indicating that there is no standard province-wide guideline on cannabis production.

A common theme emerged throughout the interviews where interviewees as policy-makers felt they did not have the experience or knowledge to address the land use compatibility issues of cannabis production. When the interviewees tried to further research cannabis and reach out to the federal and provincial governments, there was no information available to them in how to site cannabis facilities. The interviewees cited that as cannabis production is a new and novel land use, compatibility challenges have arisen, but there is no information available or research that has been completed to help address these issues. Nearly all interviewees stated that there was not any available information specifically on mitigation and compatibility for cannabis production.

> It is a very new industry, and we are all still trying to grapple with how they should be regulated. (Interviewee 3)

There seemed to be a high level of expectation among interviewees that Health Canada and OMAFRA should have researched the potential impacts of cannabis production and land use compatibility. The research they were looking for would have then provided an evidence-based basis for a province-wide guidelines or regulation for siting cannabis facilities.

As a result of the absence of any research and guideline, key informants stated that they created their own regulations often based on the regulations created by a neighbouring or nearby municipality but often altered the bylaws to address local concerns. This absence of guidelines resulted in the wide variations of setback requirements and other zoning requirements throughout Southern Ontario which was evident through the municipal bylaw review.

They specifically suggested that further research on odour emissions and setbacks would be beneficial and could help create an evidence and science-based guideline that would guide municipalities on regulating cannabis production facilities and how to mitigate negative impacts.

> As a new land use, there were some compatibility challenges which resulted in direction from council to develop zoning provision to more appropriately regulate the use and mitigate potential for conflicts related to issues such as odour, lighting, and activity levels. (Interviewee 7)

All municipal officials interviewed stated that a federal or, more preferably, provincial guideline similar to the MDS Formulae, used for livestock facilities and anaerobic digesters, or the Ministry of Environment D-6 Series Guideline for industrial uses, would be beneficial for municipalities. This would create a uniform set of guidelines that would create some consistency across Ontario and provide municipalities with some assistance in developing their own zoning and site plan controls.

One of the interviewees stated that there should be industry standards combined with zoning and site plan regulations. These industry standards would be regulated by the cannabis industry and could assist by providing the best growing and management practices to mitigate conflicts with neighbours.

> Some industries there are smells, light pollution, or noise associated with it. There are best practices for those uses, and the Ministry of Environment has guidelines on how much air pollution is acceptable. I think it is important that those regulations dovetail with the local zoning control to help avoid things like smells. (Interviewee 8)

One municipality in particular used a holistic approach in developing regulations surrounding cannabis production. This approach involved extensive stakeholder engagement, public participation, and used existing separation guidelines (MDS Formulae and D-6 Guideline)

to develop zoning regulations around cannabis production. Other municipal officials interviewed used this municipality's bylaw as the basis for their own bylaws.

Similar to comments made regarding the MDS Formulae, all interviewees also referenced the D-6 Series Guideline created by the Ontario Ministry of Environment, Conservation, and Parks, which provide setbacks for different industrial uses classes. All interviewees suggested that a guideline such as this would be beneficial for cannabis cultivation and production.

> I think my one ask would be to implement D-6 Guideline for marihuana in terms of odour impacts so that we have some guidelines for setbacks. So that we have some type of defined formula to go to when we are talking about these facilities and the impacts they have. (Interviewee 3)

It appeared that municipal policy makers needed an evidenced-based guideline or regulation to assist them in the creation and implementation of their own regulations at a local level. Having a province-wide guideline would also help policy makers with some of the jurisdictional challenges mentioned above and would create a more uniform set of regulations across the province, similar to how the MDS Formulae for livestock facilities and the Ministry of Environment D-6 Series Guideline for industrial uses, have standardized setbacks for other uses.

In summary, policy makers continue to face regulatory challenges regarding cannabis production and how to regulate it at a local level. This is a result of a disconnect between federal legislation and Health Canada and local municipalities. This is also a result of the complexity of some of the legislation and how rapidly the legislation has changed. Further, this has resulted in various types of cannabis production operations which have different regulations from Health Canada and make it difficult for policy makers to create regulations that acknowledge the different operation types. Policy makers also struggled with siting cannabis facilities as there was

little consensus of what land use category cannabis production is best suited under. Finally, policy makers had difficulty in creating regulations due to a lack of evidence-based research and guidelines available for cannabis production.

4.4 Summary

The municipal bylaw review and key informant interviews revealed several main findings which have addressed the research questions. The municipal bylaw review and key informant interviews showed that there is a wide range of cannabis production regulations in Southern Ontario, with little uniformity. Interviewees described the regulatory challenges that they face as policy makers including feeling disconnected from federal cannabis legislation and Health Canada. This has led to jurisdictional and regulatory challenges such as trying to update local policies and regulations to match federal legislation. The interviewees also had a belief that the municipality does not have any control as there are inadequate notification requirements for cannabis producers.

Key informants believed that an evidence-based guideline, such as the MDS Formulae or Ministry of Environment D-6 Series Guideline, combined with other planning tools, could achieve compatibility for cannabis production while balancing the growth of the new industry.

5.0 Discussion

The purpose of this study was to discover what the economic, health, socio-cultural, and political implications of cannabis cultivation are on rural communities in Southern Ontario. This was done by answering the two research questions:

1) How have municipalities in rural Ontario utilized policy tools to respond to the increasing pressures of cannabis production?

2) What are the challenges and benefits of cannabis production for rural municipalities?

This chapter will discuss the entire research study addressing the key findings of both methods used to answer the research questions and objectives. This chapter will also discuss the limitations of this research and identify areas for further research and study. The purpose of this study will be discussed in detail, looking at the economic, health, socio-cultural, and political implications of cannabis production on rural communities by looking at their responses to cannabis legalization in Southern Ontario and how land use planning can be used to reduce conflicts associated with cannabis cultivation and maximize benefits.

5.1 Summary of Key Findings

This research paper found three key findings relating to the research objectives. These three findings are summarized below and then explained in further detail.

1) Cannabis production can provide rural communities with economic and employment benefits and can also provide social benefits from a progressive community image.
2) Rural communities need to weigh these benefits with the challenges that cannabis production can create including its impacts, primarily odour.

3) Rural communities and policy makers also have to deal with underlying perceptions and stigmas of cannabis use and how they relate to public opposition to production.

The first key finding was that Southern Ontario, similar to other jurisdictions that have legalized cannabis use, has a fragmented regulatory approach. The regulatory framework is fragmented at the federal level, with so much different legislation and so many court cases that have impacted the current framework, and it is fragmented on a regional level with municipal variations across Southern Ontario. This fragmented regulatory framework is a major barrier for growth of the cannabis industry. A more uniform framework, as Stoa argues, would benefit cannabis producers, the public, and local government.

The second key finding was that cannabis is considered a LULU by policy makers who have noted NIMBY responses from their communities. Attitudes towards cannabis production followed the typical trends as identified by Dear (1992), Schiverly (2007) and Wolsink (1996). Specifically, there were negative attitudes concerning the clientele, cannabis facility characteristics, and federal cannabis policy. NIMBY arguments opposed to cannabis production were typical, including property value decline and impacts on quality of life. In addition to the typical NIMBY arguments, the issue of odour became the most relevant, both concerning its relation to agriculture and its land use compatibility.

A contributing factor for NIMBY arguments identified through the research was the lack of public participation and consultation with the public and local municipalities regarding cannabis production. Increased participation and meaningful consultation can build consensus and reduce conflict (Arnstein, 1968).

The final consideration under the second theme was that although cannabis production is considered a LULU, it may become a more acceptable use as time progresses, as noted with other LULU's (Gipe, 1995; Devon-Wright, 2005; Greenberg et al., 2012).

5.2 Limitations and Further Research

It is essential when presenting the key findings to discuss several limitations with the research study and areas in which further research is needed. There were limitations with both of the research methods, and therefore also the results.

For the first method, the review of municipal bylaws for responses to cannabis legalization, logistical issues presented themselves as mentioned previously. Firstly, not all municipalities post their most current zoning bylaws on their website for public access. In some cases, the bylaw posted on the municipal website was an originally approved bylaw decades old, with no bylaw amendments included. This was found mainly in the more northern rural communities where staffing resources may be limited. As legal cannabis cultivation is a relatively new land use, within the last ten years approximately, cannabis was not found within many of these documents.

Similarly, some websites were not searchable, or their council minutes or agendas were not posted. This resulted in many rural municipalities being identified as 'unknown' as to whether they had a zoning bylaw that addressed cannabis or were undergoing a process of creating one. More extensive supplementary research should be to contact all municipalities by phone or email to get a more fulsome picture.

Another limitation briefly mentioned in a previous chapter was the municipalities' interpretation of their zoning bylaws. In at least one case cannabis cultivation was not defined or

mentioned in the zoning bylaw, but the staff at the particular municipality interpreted that it was therefore not a permitted use.

These unique circumstances were found throughout several municipalities where the bylaw was subject to much interpretation. Therefore, the numbers from the municipal bylaw review should be seen as a more general understanding of how municipalities have responded to cannabis cultivation.

Limitations were also apparent for the second method, the interviews with a sample of municipal staff. Seventeen municipalities were selected using the methodological approach mentioned in a previous chapter based on municipality size, population density, bylaw status, and bylaw uniqueness. Only eight interviews were able to be scheduled and conducted. This was due to a variety of reasons. Despite multiple points of contact, two of the larger municipalities did not respond to the interview request through email or telephone. A few smaller municipalities did not have planners on staff but hired a planning consultant for their land use related planning work. There was no response when reaching out to the planning consultants. Staffing may have played a role in the response rate.

Another impact on the completion of the interviews was the COVID-19 pandemic. Municipal officials had higher priorities in March and April of 2020, the mid-point of the interviews, and could not be made available for interviews.

Another limitation of this method was the interviews were conducted only with municipal staff. It would be beneficial if future research included interviews and surveys of residents of rural communities, specifically in proximity to cannabis facilities. That was outside of the scope of this research.

The final noted limitation is the geographic extent of this study. Southern Ontario was selected due to the researchers' background knowledge in the planning system and the issues that have developed due to legalization. Future research can expand upon this geographical area and explore what other provinces and territories are doing from a land use perspective, as well as other US states and countries.

Despite the limitations of this research, the study resulted in new knowledge relating to cannabis production and land use conflict. Three main themes emerged as a result of the study which are discussed in greater detail below.

5.3 Southern Ontario, has Responded to Cannabis Production in a Fragmented Regulatory Approach.

The first main theme that emerged as a result of this research, which addressed the first research objective, was that Southern Ontario, similar to other jurisdictions such as in the United States, has responded at a local level to cannabis production in a fragmented regulatory approach. This is apparent as only a third of municipalities in Southern Ontario appear to have further regulated cannabis production beyond federal regulations by using zoning controls. Further, the zoning regulations implemented in the 68 municipalities which have enacted cannabis bylaws, and the 28 municipalities with bylaws under consideration, varied greatly, creating an inconsistent and fragmented regulatory framework at the local level.

An example of this fragmentation and variation was the spectrum of permissive to prohibitive zoning bylaws in Southern Ontario. As shown in the findings, some municipalities essentially prohibited cannabis production through large setbacks and requirements for site

specific zones, while other municipalities that did not have any regulations appeared to permit production, treating it as any other agricultural crop.

As Hollenhorst suggests in her research, since there are agricultural elements of cannabis production, regulators in local counties in Washington State were uncertain about whether they could regulate beyond state and federal legislation, which has in part led to an inconsistent regulatory landscape at a local level there (2014).

Ryan Stoa noted that this same fragmented regulatory approach at the local level also exists in other states that have decriminalized cannabis use (2017[1]). He notes that a fragmented regulatory approach creates challenges for cannabis producers trying to site new facilities and operate, and this often results in producers trying to operate without local approval (Stoa, 2017[1]). Stoa additionally notes that it is to the mutual benefit of producers, communities, and local governments to have a uniform regulatory approach (Stoa, 2017).

Policy makers interviewed also echoed Stoa in that the regulatory framework is fragmented and currently there is no uniform approach. Interviewees suggested that this was a result of a lack of communication and notification from the Federal Government, being Health Canada, and the Province, being OMAFRA. Interviewees stated that there should have been more direction provided from these agencies prior to the legalization date and better information provided to municipalities when they were crafting their own regulations. Ultimately interviewees believed that there was a disconnect between the Federal and Provincial Governments and local government.

As Hodge and Gordon state, opposition can often be a result of not being adequately informed or being informed late (2008). Local municipal policy makers who were interviewed

felt that they were not adequately informed by higher levels of government. Additionally, they stated that these sentiments were also expressed among the public within their communities.

It also appeared through the key informant interviews that municipal planners were taking a precautionary approach to cannabis regulations. Key informants stated that as a result of many unknowns, including potential health impacts, jurisdictional challenges with federal legislation, and right-to-farm legislation, cannabis bylaws were written and implemented following the precautionary principle. In order to address the potential risks, policy makers stated that they crafted bylaws to mitigate land use conflicts, which they were uncertain about whether these were real or merely perceived. On the other hand, some policy makers created zoning bylaws which took into greater consideration legal changes relating to right-to-farm legislation and regulating what is already federally regulated. In both circumstances, the precautionary principle was applied and has been shown to impacted either cannabis producers or the community.

5.4 Cannabis Production is Considered a LULU and has Generated NIMBY Responses

The second theme that emerged as a result of this research was that cannabis production is generally seen as a LULU which has in turn generated NIMBY responses. As Schiverly notes, LULU's can often be classified into one of two categories: human services or public service facilities (2007). While cannabis production could generally be categorized under human services. it also has characteristics of a public service facility. Key informant interviews and the municipal bylaw review found that although cannabis production is undesirable, it can provide a benefit and fill a need for the broader public, as Rephann also noted in his research on LULU's (2000).

5.4.1 Limited Benefits

While most key informants did identify potential benefits that cannabis production could have on their communities, they acknowledged that the benefits were limited. Rephann also noted that while most LULU's sited in rural areas often have a great expectation of economic benefits, in reality most of the benefits are negligible (2000). For example, in the Municipality of Smith Falls a former food processing plant was converted to a cannabis facility and created 800 jobs as reported in a media report (Blachford, 2018). However, Statistics Canada reported approximately 10,000 jobs across Canada in the cannabis sector in that same year which across Canada may not seem like a large workforce (Statistics Canada, (2019).

The largest benefits identified by key informants were economic and employment benefits, but as mentioned already the true extent of the benefits was not known. Unlike recreational cannabis retail stores, which provide additional provincial funds to the municipality if sited locally, cannabis production does not provide any additional funds to the municipality, with exception of property taxes.

A number of interviewees also suggested that cannabis production can provide a benefit in the diversification of the agricultural sector. Increased diversification of the agricultural sector can add increased value and resilience to the agricultural system (Blade, 2018). However, there was still a mix of opinions on whether cannabis production should be considered agricultural.

One key informant also identified that one benefit beyond economic and employment gain was the positive progressive image cannabis production could project on to the community. This opinion was not shared among the other seven interviewees which considered cannabis production as a LULU which has strong opposition from the community.

5.4.2 Attitudes of Opposition

Attitudes of acceptance of and opposition to human service facilities are based on a number of factors including the clientele and the characteristics of the facility such as the type of service, size, number of facilities, reputation of the agency, and characteristics of the host communities (Dear, 1992). As cannabis production is mainly a human service, providing for both recreational and medicinal use, attitudes of community opposition have largely followed Dear's understanding.

Cannabis production is directly related to its use, both recreational and medicinal, and therefore policy makers and the public see cannabis users as the clientele for cannabis production facilities. As cannabis has been so recently legalized, key informants suggested that there are still many stigmas against cannabis use and users. Attitudes of opposition to not just cannabis facilities but also dispensaries and recreational retail stores have been formed based on the clientele being the cannabis user, (Johnson, 2018, Nemeth & Ross, 2014; ACGO, 2019).

Attitudes of opposition to public service facilities, such as renewable energy installations, can also be generated from opposition to national level policy (Wolsink, 1996). Similarly, as noted by the key informants, in many rural communities there is significant opposition to cannabis legalization and federal legislation which has led to opposition to local production facilities. As such, one key informant suggested local regulations will not be able to eliminate opposition in their community.

Attitudes of opposition are also based on the facility, including the size and the number (density) of facilities within the community, the reputation of the agency or owner, and the characteristics of the host community (Dear, 1992). As noted by the key informants, cannabis

production facilities have several negative impacts on the community including odour, light emissions, noise, traffic, and an industrial or institutional appearance which affect individual quality of life and a rural community's values and character. It was also suggested by the key informants that many of these facilities had criminal elements, indicating a poor reputation of the agency or owner of the facilities.

5.4.3 Real and Perceived Impacts

What became evident through the municipal bylaw review and key informant interviews was that odour emitted from cannabis production was the main impact on rural communities. Odour issues were also seen throughout the literature and media reports in Ontario (Henschel, 2018; Vaughan 2018). The odour emitted from the cannabis plant is primarily released during the flowering stage and has a distinct skunk-like smell (Ligaya, 2019; Turpin, 2020). Many of the zoning bylaws reviewed described the need for odour or air quality control for facilities. In some municipalities odour control was optional, but facilities without odour controls would be subject to larger setbacks. In other municipalities odour control was not optional but required for every facility.

Cannabis legalization in Canada has largely been through a series of court cases which have eroded the complete prohibition of cannabis, first for medicinal purposes and then for recreational use (Stoa, 2017). This has led to the variety of cannabis growing and production options in Canada (Hillborne, 2018). Through the interviews with municipal staff, it became apparent that odour was the main land use-related issue, but varied depending on the type of cannabis production facility. Medicinal growing facilities such as designated and individual growing operations did not require odour control at the federal or provincial level. Licensed

producers were required to have odour control at a level where no emissions were to leave the building. One municipality with only licensed producers identified that these facilities still emitted odours, and the issue was the enforcement of those regulations.

Concerns around odour emissions have also led to concerns around health impacts, both mental and physical (Agar, 2020; Public Health Ontario, 2018; Grochowski, 2020; McEwan, 2019). Although there appeared to be no research to support these claims, one interviewee suggested that more research should be conducted as they believed that living in close proximity was causing health impacts on individuals.

Other impacts, such as light, noise, traffic, property values, crime, and the security and appearance of the facility came up in key informant interviews as being negative impacts on the community. These issues have also been raised in some of the literature and media reports (Stoa, 2016; 2017; Mills, 2012; and Nevius, 2015). While these impacts do exist, key informants suggested that these impacts can be found with other agricultural crops, and that odour and security requirements were the main impacts that were different from typical agricultural practices. Light, noise, traffic, and impacts to property values are typical NIMBY responses to LULU's (Schiverly, 2007). Additionally, key informants indicated that they believed the true extent and significance of these impacts may be more perceived and exaggerated than real. This is consistent with research that suggests that although not always the case, the perception of impacts is often greater than a facility's real impacts (Kasperson, Golding & Tuler, 1992).

What is also important to note is that environmental issues, such as water usage and energy use, were not major issues identified by key informant interviews. Environmental issues were really the only issues resulting from cannabis production discussed in any detail in the

literature, mainly studying California and Colorado (Stoa, 2016; Bustic, et al., 2017), but were not readily apparent in Southern Ontario.

5.4.4 Public and Planner Participation

A contributing factor and attitude for the NIMBY response to a LULU is the feeling of being uninformed or informed late (Hodge and Gordon, 2008). These contribute to the feeling of powerlessness and the impression that decisions are being made hastily (Hodge and Gordon, 2008). Legalization of medicinal and recreational cannabis were both done under rapid timelines with limited consultation with the public and local government (See Table 4). Key informants stated that they were not initially consulted or adequality informed of cannabis legislation from the Federal and Provincial Governments. As Nemeth and Ross suggest in the case of medicinal cannabis dispensaries, local planners can often be unprepared and unaware of the land use implications of cannabis legalization (2014). Additionally, the Federal and Provincial Governments put greater emphasis on distribution, sales, and use, allowing production to take a "back seat" (Stoa, 2017).

Key informants also stated that when the local municipality initiated consultation with federal agencies such as Health Canada or provincial ministries such as OMAFRA, they were not responded to in a timely manner, and the response did not provide any assistance to the municipality. The federal Health Canada legislation was overwhelming for smaller rural communities to understand and create additional local regulations for. The variations in cannabis facility types, as shown in Table 5, and the federal requirements for those facilities as shown in Table 6, were not typically known at a local municipal level, which is important for consultation

and public participation. Local municipalities therefore were not able to create zoning bylaw regulations with adequate and meaningful consultation with federal and provincial authorities.

In an age where there is great emphasis on public participation as one of the most critical planning tools for addressing land use conflicts (Mann & Jeanneauz, 2009), key informants were surprised by the lack of consultation and participation both the municipalities and the public had. Key informants believed that consultation on both the initial federal cannabis legislation and notification for specific local cannabis facilities could help mitigate some of the opposition generated from cannabis facilities.

Municipalities appeared to be on the lowest rung of the Arnstein ladder of participation, which is participation as manipulation (Arnstein, 1968), while what appears to be needed is a minimum rung of consultation. Consultation would allow for informed local cannabis regulation creation and advanced knowledge of new cannabis production licenses and registrations within one's community. It is apparent that currently there is no requirement for any local consultation from the Federal and Provincial Governments.

5.4.5 Acceptance Over Time

Cannabis legalization has occurred only over the past two decades. What started with several legal challenges to allow for medicinal cannabis use has led to the legalization of recreational cannabis in 2018. Before this legalization, cannabis use and possession carried fines and penalties, including incarceration. This has made generations of Canadians wary of cannabis use and, as stated by the key informants, has created a stigma that contributes to opposition to siting growing facilities.

In a similar example, as referenced in the literature review, renewable wind energy projects have also faced high opposition levels. Public acceptance of wind turbines in a local community generally follows an inverted parabola or curve (Gipe, 1995; Devon-Wright, 2005). Public acceptance of wind turbines is high initially but falls once the local community becomes a planned host community. This is in relation to a desire to have the facilities located elsewhere (NIMBY and LULU). At that point, acceptance drastically drops. At this point opposition groups and individuals strongly oppose the particular project and projects in other communities. Acceptance continues to decline up to the wind project's construction, at which point acceptance begins to increase as time progresses. This can also be seen in the example of large-scale intensive livestock facilities in Ontario (Caldwell, 1998).

Cannabis growing facilities, similar to larger-scale wind energy projects, are relatively new land uses for many rural residents. Like wind energy acceptance, cannabis may follow the same curve of acceptance, and after some time following the siting process it may start to be more generally accepted. Over time stigmas and perceptions around cannabis use and production may soften, as can be seen with medicinal cannabis dispensaries, and acceptance could increase as well, decreasing land use conflicts.

Several key informants indicated that they believed that the perceptions and stigmas associated with cannabis, and some of the opposition to cannabis facilities, were due to how recently it has become legalized. Over time acceptance will grow and opposition will decline. What may be considered a LULU now may not be in a few years due to changes in public opinion or external events (Greenberg et al., 2012).

> It is going to be most pronounced now due to the transition to legalization, but overtime cannabis cultivation may become more normalized. It will become a normal part of our community. (Interviewee 8)

As Interviewee 8 states, there is an expectation that cannabis production will become normalized. This normalization process does not negate the need for rural planners to site cannabis facilities in a way that maximizes the benefits to rural community while mitigating conflict with surrounding land uses.

5.5 Policy Makers Need an Evidence-Based Approach to Regulation

The first key finding of this research was that that there is no consistency in municipal cannabis bylaws across the province, with variations in terminology, setback requirements, zoning allowances, and licensing. Some key informants indicated that they only consulted other municipalities and did not consult provincial ministries such as OMAFRA, or federal agencies such as Health Canada, when crafting their bylaws, but even these consultations were not helpful. A major factor in this fragmented regulatory landscape in Southern Ontario, as indicated by the key informants, was a lack of best practices or science-based methodologies when creating their bylaws.

The variation in municipal bylaws has created barriers for cannabis producers and the expansion of the cannabis industry. Variations have also impacted compatibility, public perception, and local municipalities' ability to regulate. As Stoa states in his research on cannabis regulations, having a uniform regulation would benefit cannabis producers, the public, and local government (2017).

Key informants interviewed all suggested that there be a science or evidence-based guideline created to assist municipalities in siting cannabis facilities. Key informants provided two examples currently in place in Ontario: the MDS Formulae and the Ministry of the Environment D-6 Series Guideline. The MDS Formulae were created by OMAFRA to specifically deal with odour issues generated from livestock facilities.

Municipalities in Ontario in the 1970s were creating local bylaws to regulate large livestock facilities and address the land use compatibility issues associated with them due to their odour, and the variations across Ontario were creating barriers to livestock farmers (OMAFRA, 2020[2]). The province put in place, over several years, a series of best practices and guidelines which eventually resulted in the MDS Formulae, which regulates new and expanding livestock facilities as well as encroaching sensitive land uses such as new dwellings (OMAFRA, 2020[2]).

Similarly, and also mentioned by all the key informant interviewees, the Ministry of Environment released a similar guideline document to regulate compatibility between industrial and sensitive uses known as the D-6 Series Guideline. The guideline's objective is to prevent and minimize the encroachment of the two competing land uses on each other, reducing adverse impacts on sensitive land uses created by industrial land uses (Ontario Ministry of Environment, Conservation, and Parks, 2020).

These two guideline documents were both created by the province to achieve greater compatibility between competing and conflicting land uses. Key interviewees believe that the province or Federal Government should work on a similar science-based guideline to regulate cannabis production. This would create a uniform set of guidelines that could be applied across the province, creating certainty for the cannabis industry and greater compatibility between

cannabis production facilities and sensitive land uses. Having an evidence-based guideline would also address perceptions from the public generated from a lack of trust in government when siting facilities (Hunter and Lyden, 1995; Schiverly, 2007). An evidence-based guideline assisting local municipalities would, as Stoa argues, benefit the cannabis producer as well as the public and local governments.

6.0 Conclusion

Eight recommendations have emerged from this study, including recommendations for high level governments, planners and policy makers, and for future researchers to further develop the knowledge base.

Federal and Provincial Governments

- As local municipalities and policy makers struggled with the rapidly changing federal and provincial legislation, the Federal and Provincial governments should provide greater and more meaningful public participation, consultation and information sharing with regards to new cannabis legislation. In addition, local municipalities and policy makers would benefit from more notification and consultation during Health Canada's facility siting approval process, where currently some facilities do not have any municipal notification requirements.
- As there is a lack of uniformity within local planning documents concerning cannabis production siting, and policy makers and planners do not have an evidence base for developing cannabis production siting regulations, the Federal and Provincial governments should create a research and science-based guideline to maximize the potential economic benefits of cannabis production and minimize land use conflict.

Recommendations for Planners in Rural Communities

- Although there is often disagreement of whether or not cannabis is an agricultural crop or an industrial process, planners should consider cannabis production generally as an agricultural crop, but in need of additional regulatory and siting controls to mitigate and minimize land use conflict. In addition, planners need to weigh allowing cannabis

production within employment areas against the needs of those areas for future employment uses.

- As there currently is no standardized approach to cannabis production siting, planners should consider a collaborative approach with neighbouring municipalities to assist in the development of municipal cannabis bylaws and regulations.
- Although the common response to cannabis production can resemble NIMBYism, planners and policy makers should not dismiss issues that may have real impacts on the community. Planners need to be cognizant of existing stigmas towards cannabis use which has impacted the publics opinions of cannabis production. In addition, Planners need to understand that odour appears to be the predominant concern from cannabis production; however, it is difficult to regulate beyond requiring setbacks.

Future researchers

- There is a lack of scholarly literature available on cannabis production and land-use conflicts. Future researchers should expand upon this research paper to explore other areas where cannabis production is now legal so that as a result the resulting knowledge can be applied other jurisdictions considering legalization of cannabis production.
- Cannabis production regulations are being created without any evidence-based approach. Future researchers should investigate the potential of an MDS or MOE D-6 Series guideline tailored to cannabis production to help mitigate land use conflict, provide certainty and uniformity to cannabis producers and provide rural municipalities with a source of credible information when creating their own municipal regulations.

- This study was focused on rural planners and policy makers. Future researchers and students researching this field should investigate and consider a similar study researching members of the public and changes of acceptance over time.

Overall, this research study found that municipalities in Southern Ontario have responded differently to legalized cannabis production, which has resulted in a fragmented regulatory landscape in both the number of municipalities which have and have not selected to regulate cannabis production, and within the local regulations themselves. This research study also found that municipalities and municipal planners see cannabis production as an opportunity for economic growth and job creation within their communities, but that many challenges need to be addressed regarding land use compatibility and reducing land use conflicts as cannabis production is largely seen as a LULU and has generated NIMBY responses.

One of the key challenges faced was how to deal with odour emissions from cannabis facilities. Even facilities requiring no odour emissions, such as licensed producers, emit strong smelling odour, resulting in land use incompatibility. Key informants indicated that there were other issues raised by the community such as light, traffic, impact to property values, and increased criminal activity, which many, as Schiverly notes, are common NIMBY and LULU arguments (2007). As Schiverly also notes, NIMBYism is often a result of inadequate or inexistent information sharing, which is a factor in cannabis legalization and certain types of cannabis production facilities that don’t require municipal or community notification. These factors have created a situation where municipal planners and decision makers are uninformed or informed late about cannabis legislation or specific facilities' siting. As Nemeth and Ross state in the case of medicinal cannabis dispensaries, local planners can often be unprepared and unaware of the land use implications of cannabis legalization (2014).

Having a clear, transparent, science-based siting guideline and process was recommended by all key informants to provide the municipalities with the tools and knowledge to properly site these facilities so as to mitigate land use conflicts and adequately and uniformly inform the public across the province. It was also identified by key informants, and the review of cannabis legislation, that there needs to be more consultation from the federal and provincial governments with local municipalities concerning cannabis production legislation and cannabis facility siting.

Finally, as was evident with large-scale wind energy farms, acceptance may increase over time following the siting and construction process of cannabis facilities and the increased acceptance of cannabis use in general, as seen in the Gipe curve of acceptance (Gipe, 1995, Krohn & Damborg, 2007).

Siting LULU's, such as cannabis production facilities, often generate NIMBY responses and opposition from individuals and the host communities for a variety of reasons, of which Planners are often centrally involved. How Planners deal with NIMBY responses during the siting process can often influence the outcome of the LULU. The Planners understanding of the public's NIMBY response to cannabis production is critical for enabling meaningful public participation, processing the siting application and evaluating the true impacts of the LULU. As Schiverly states; "bringing together our knowledge of perceptions and methods to address NIMBY responses has great potential to enlighten our understanding of why NIMBY response emerge and how we might respond to them more effectively (2007)." When it comes to cannabis production siting, Planners should not disregard the NIMBY response from their communities, but learn from them to provide a more effective response.

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Appendix

Appendix A – Information Letter and Consent Form

Information Letter and Consent Form

Title of the Study: Cannabis and Rural Land-Use Conflicts

Faculty Supervisor: Dr. Jennifer Dean, School of Planning, University of Waterloo. Phone: 1-519-888-4567 ext: 39107, Email: Jennifer.Dean@uwaterloo.ca

Student Investigator: Gerrit Boerema, School of Planning, University of Waterloo.
Email: gjboerema@uwaterloo.ca

What is this study about?

This research study aims to explore if the growing of legal cannabis creates issues with existing rural residents. The study also aims to understand any issues that may arise and the best ways that governments can create regulations to minimize these issues. The study has three main stages. The first stage is to review cannabis complaint records to understand if there are issues relating to legal cannabis growing. The second stage is to see how municipalities are responding. The third stage is to understand from a key stakeholder perspective (municipal planner) through interviews what are the issues and/or potential benefits of cannabis growing within rural Ontario. This research may assist rural municipalities make informed decisions when regulating cannabis growing.

I. Your Responsibilities as a participant

What does Participation Involve?
Participation in this study will consist of one, one-on-one interview, either by telephone or in person. The interview consists of approximately 21 questions which will take approximately 1 to 1.5 hours to complete. The interview consists of questions regarding the municipality that you work at and your role, the existing situation relating to cannabis cultivation, and your thoughts as a planner on how cannabis cultivation should be regulated. The session will be audio recorded to ensure an accurate transcript of the interview. With your permission, anonymous quotations may be used in publications and/or presentations. The researcher will give the interviewee an opportunity to review any quotations used and chapters of the dissertation prior to the submission of the thesis report.

Who may participate in the study?
In order to participate in the study, the participant must be at least 18 years old and be employed as a municipal planner for a municipality in Southern Ontario.

II. Your Rights as a participant
Is Participation in the study voluntary?

Your participation in this study is voluntary. You may decide to leave the study at any time by communicating this to the Student Investigator or Faculty Supervisor. Any information you provide up to that point will not be used. You may decline to answer any question(s) you prefer not to answer. You may withdraw from the study at any time and request your data be removed from the study up to the time which my thesis has been submitted (expected February 2020). Once the thesis is submitted there may not be an opportunity to withdraw data from the study.

Will I receive anything for participating in the study?
By participating in the study you will have access to, and can be notified (if you desire) of the final study report. There will be no monetary reward for participating in the study.

What are the possible benefits of the study?
This research will fill a gap in the understanding of if and how cannabis production is leading to rural land use conflict in Ontario. There is no current literature available on cannabis and land use issues as the legalization of cannabis and its legal production are generally new concepts in Canada and around the world. This research can be used by other researchers to investigate in more detail the causes of cannabis related land use conflicts, and could be used by legislators to make informed decisions based on scholarly research.

What are the risks associated with the study?
There are potential risks associated with participation in this study; however, interviewee and municipal identities will remain confidential. Although the researcher is making every effort possible to keep the case study municipalities unidentifiable, there is a small possibility that a motivated individual may be able to ascertain your municipality's identity. To mitigate this, we will provide you with an opportunity to review quotes and chapters of the dissertation prior to submission. If a question on the interview makes you uncomfortable, you can choose not to answer. See above for more details on voluntary participation.

Will my identify be known to others?
Your identity will only be known to the Student Investigator and the Faculty Supervisor.

Will my information be kept confidential?
Your identity will be confidential. Identifying information will be removed from the transcripts and the audio recordings following the defense of my thesis. The electronic and hard paper copies of the data will be retained for a minimum of 2 years following the completion of the study. Following the retention period they will be destroyed. Electronic data will be encrypted and stored on a password protected hard drive and hard copies secured with the researcher. No personal or municipal identifying information will be used in my thesis or in any presentations or publications on my research. The researcher will make every effort possible to keep the case study municipalities unidentifiable, however as mentioned previously, there is a small possibility that a motivated individual may be able to ascertain you or your municipality's identity.

III. Questions Comments or Concerns

Who is sponsoring/funding this study?
This study has no funding and is being undertaken to complete a master's thesis.

Has the study received ethics clearance?
This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE# 41404). If you have questions for the Committee contact the Office of Research Ethics as 1-519-888-4567 ext 36005 or ore-ceo@uwaterloo.ca.

Who should I contact if I have questions regarding my participation in the study?
If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact the Student Investigator, Gerrit Boerema at gboerema@uwaterloo.ca.

Faculty Supervisor

Dr. Jennifer Dean, School of Planning,
University of Waterloo.
Phone: 1-519-888-4567 ext: 39107
Email: Jennifer.Dean@uwaterloo.ca

Student Investigator

Gerrit Boerema, School of Planning,
University of Waterloo.
Email: gjboerema@uwaterloo.ca

Consent Form

By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

Title of the study: Cannabis and Rural Land-Use Conflicts

I have read the information presented in the information letter about a study conducted by Mr. Gerrit Boerema, under the supervision of Dr. Jennifer Dean, School of Planning, University of Waterloo. I have had the opportunity to ask questions related to the study and have received satisfactory answers to my questions and additional details.
I was informed that participation in the study is voluntary and that I can withdraw this consent by informing the researcher.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE# 41404). If you have questions for the Committee contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca.

For all other questions contact Gerrit Boerema at gjboerema@uwaterloo.ca.

- ☐ I am aware that the interview will be audio recorded to ensure an accurate transcription and analysis.
- ☐ I give permission for the use of anonymous quotations in any thesis or publication that comes from this research, upon my review and approval.

I agree of my own free will to participate in the study.

Participants Name: _____

Participants Signature: _____ Date:_____

Researcher's/Witness' Signature: _____ Date:_____

Appendix B – Request for Interview Letter

Date

Dear *Municipal Planner*:

I am a Masters student in the School of Planning at the University of Waterloo conducting research under the supervision of Professor Jennifer Dean on land-use issues relating to cannabis cultivation and production. Cannabis, also known as Marijuana, has been legal in Canada for a number of years for medicinal purposes and more recently recreationally. As a result of this legalization there has been a significant increase in the growing and production of cannabis. As a Township within Ontario, you may have one or more of these growing facilities, your opinions may be important to this study. I would appreciate the opportunity to understand your experience on this topic. I plan to conduct this research through one-on-one interviews either by phone or in person. Your involvement in this interview is entirely voluntary and there are no known or anticipated risks to participation in this study. If you agree to participate, contact the researcher below. The interview should take approximately 1 to 1.5 hours to complete and contains questions dealing with the existing cannabis situation in your municipality, zoning bylaws, official plans and the opportunities and constraints regarding cannabis growing and production. The questions do not contain anything that will be able to identify you or your municipality specifically. You may decline answering any questions you feel you do not wish to answer.

With your permission, anonymous quotations may be used in publications and/or presentations. The researcher will provide you will an opportunity to review any quotations prior to the finalization of the thesis report.

Your identity will be considered confidential and the data collected will only be used for research pertaining to my thesis. You will not be identified by name or address in any thesis, report or publication resulting from this study. Every effort will be taken to keep the municipality unidentifiable. The data collected will be kept for a period of at least 2 years in my supervisor's office at the University of Waterloo.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

For all other questions, or if you would like additional information to assist you in reaching a decision about participation, please feel free to contact Professor **Jennifer Dean** at 519-888-4567, Ext. 39107.

Thank you in advance for your interest in this project.

Yours sincerely,

Gerrit Boerema
University of Waterloo
School of Planning
gboerema@uwaterloo.ca

Appendix C – Telephone Script for Request for Interview

Telephone Script

Call Municipal office reception for initial contact.

May I please speak to MUNICIPAL PLANNER NAME?

Good Morning/afternoon. My name is Gerrit Boerema and I am a master's student from University of Waterloo conducting research under the supervision of Professor Jennifer Dean on land-use issues relating to cannabis cultivation and production. A portion of this research involves interviewing municipal planners from a sample of municipalities in southern Ontario.

The interview should take approximately 1 to 1.5 hours to complete. The interview contains questions with regards to cannabis production in your municipality, regulations regarding cannabis and your thoughts on how cannabis production should be dealt with.

Would you be willing to take some time in the near future to conduct the interview, either in person or over the telephone, or know of someone in your department willing to complete the interview?

Response:

1. *Yes, let's set up a time*
2. *No thanks.*

(If Yes) Prior to setting up a time, I am going to read you some important information about the interview.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee. Should you have any comments or concerns resulting from your participation in this study, I can provided the contact information for the University of Waterloo Office of Research Ethics.

All personal information, including your name and address will be kept strictly confidential and will not be shared with any person or group that is not associated with this study. Every effort will be made by the researcher to keep the municipality unidentifiable as well. Your participation is voluntary and you may refuse to answer any questions you do not wish to answer.

The data collected from this study will be summarized and no individual person or municipality will be knowingly identifiable from the summarized results. Responses to questions may be quoted, but without identifying the individual source. You will have the opportunity to review any quotations prior to the submission of the final thesis report.

Proceed on setting up time for call back or in-person interview.

(If No) Thank you for your time.

Call Municipal Planner or main office again to conduct the interview:

Good Morning/Afternoon Municipal Planner Name

It is Gerrit Boerema, the Masters student from the University of Waterloo conducting research on cannabis land-use issues calling back to complete the interview. Is now still a good time for the interview?

Response:

1. Yes
2. No, better time.

Yes:

Prior to starting the interview, I am going to remind you some important information about the interview.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee. Should you have any comments or concerns resulting from your participation in this study, I can provided the contact information for the University of Waterloo Office of Research Ethics.

All personal information, including your name, address and interview answers will be kept strictly confidential and will not be shared with any person or group that is not associated with this study. Every effort will be made by the researcher to keep the municipality unidentifiable as well. Your participation is voluntary and you may refuse to answer any questions you do not wish to answer.

The data collected from this study will be summarized and no individual person will be knowingly identifiable from the summarized results, although municipality names may be used. Responses to questions may be quoted, but without identifying the individual source. You will have the opportunity to review any quotations prior to the submission of the final thesis report.

Are you ready to continue?

1. *Yes go to begin the interview.*
2. *No go to a better time*

Better time:

When would be a better time to call back to conduct the interview? Set callback.

Appendix D – Interview Script

Land Use Issues and Cannabis Cultivation in Ontario – Semi-Structured Interview

Part 1: Background

1. **What is your role at the MUNICIPALITY NAME?**

2. **How long have you been in this role? At MUNICIAPLITY?**

3. **Describe to me in one or two sentences what characterizes MUNICIPAL NAME?**

4. **Would you consider MUNICPALITY NAME a rural community? Why or why not?**

Part 2: Existing Situation:

5. **How many cannabis facilities are in your municipality? An approximate number is fine.**
6. **How many of these facilities are Licensed Producers, Designated Grower Registrations and Individual grower licenses?** *(A licensed producer is a producer of cannabis that is an authorized and licensed under the Cannabis Act to do so. A Designated grower is an individual which is designated to grow a certain number of plants on a property on behalf of another individual with a medical prescription for cannabis. An individual grower designation is where an individual with a medical prescription obtains a registration from health Canada to grow their own cannabis on a subject property.)*

7. **How many inquiries do you receive from the public about Cannabis cultivation monthly or weekly?**

8. **Your municipality has established a bylaw (or is undergoing a bylaw process) regarding cannabis cultivation?**

    a. Why?

    b. **What is the specific by-law?**

c. **How was it developed? (what evidence/best practices were used?**

9. **How has your Council responded to cannabis cultivation and growing?**
    a. **What are the major concerns/issues being raised?**

10. **How has the community responded to cannabis cultivation and growing?**
    a. **What are the major concerns/issues being raised?**

11. **Have you or anyone that you know in your municipality ever contacted Health Canada, the Ontario Ministry of Agriculture Food and Rural affairs or any other Federal or Provincial Ministry about Cannabis regulations regarding land use?**

Part 3: Planning Opinion

12. **Is the current federal and provincial regulatory framework around cannabis cultivation and production an issue in your municipality? I am referring to the Cannabis Act and the Health Canada Access to Cannabis for Medical Purposes. If so, why do you think Cannabis cultivation and production is an issue?**

13. **Does your municipality see cannabis as an agricultural crop?**

14. **What are the public's issues or responses to cannabis growing facilities?**

15. **What do you believe are the issues around cannabis cultivation in your municipality?**
16. **Do you believe that any of these issues are perceived vs. real?**

Part 4: Regulations and Bylaws

17. **Are there any regulations or legislations that you think should be in place at a provincial or national level guiding or legislating cannabis cultivation and growing?**

18. **Does your municipality have additional regulations for cannabis?**

19. **Do you believe that there are economic benefits associated with having cannabis facilities in your municipality?**
    a. **Any other benefits?**

20. **Do you believe that there are any challenges associated with having cannabis facilities in your municipality?**

Conclusion

21. **Is there anything else you would like to tell me about in addition to what we have discussed?**

Appendix E – Appreciation Letter

University of Waterloo

Date

Dear Participant

I would like to thank you for your participation in this study entitled Land-use Conflicts and Cannabis production in Ontario. As a reminder, the purpose of this study is to identify land-use conflicts associated with cannabis growing and production as many of these facilities have located or expanded near residential and other agricultural uses.

The data collected through the interviews will assist in better understanding if there are land-use conflicts generated from cannabis production and what those conflicts may be. This research could be used by municipalities and legislators in developing planning regulations to minimize land use conflicts in rural Ontario.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#41404). If you have questions for the Committee contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca.

For all other questions contact, or if you would like additional information on this research, please feel free to contact Professor Jennifer Dean at 519-888-4567 ext. 39107 or Gerrit Boerema, University of Waterloo researcher at gboerema@uwaterloo.ca.

Please remember that any data pertaining to you as an individual participant will be kept confidential. If you are interested in receiving more information regarding the results of this study, or would like a summary of the results, please provide your email address, and when the study is completed, anticipated by February 2020, I will send you the information. In the meantime, if you have any questions about the study, please do not hesitate to contact me by email as noted below.

Gerrit Boerema
University of Waterloo
School of Planning
gboerema@uwaterloo.ca

Appendix F – Municipal Bylaw Chart

Municipality	Municipal Status	Census Subdivision	Pop-2016	(km²)	Pop - density	Cannabis Provisions in Zoning Bylaw	Undertaking a process to review cannabis	Cannabis Permitted as of right?	Zone limitations	Setback requirements Without Air Quality	Setback with air quality
Alnwick/Haldimand	Lower-tier	Township	6,869	398.45	17.2/km^2	Yes	Yes	Yes	Industrial Only	30 metres from a property line	70 metres from a property with a Residential Zone, Open Space or Community facility, 70 metres from a residential use on an abutting property.
Amherstburg	Lower-tier	Town	21,936	185.61	118.2/km^2	Yes		Yes	Agricultural, Light and Heavy Industrial	150 metre setback from a residential use, 225 metres from an institutional zone boundary or open space zone boundary, Outdoor Growing permitted only in agricultural zone with a 0 metre setback to property line, 225 metre setback to Institutional and Open Space zone boundaries.	150 metre setback from a residential use, 225 metres from an institutional zone boundary or open space zone boundary, Outdoor Growing permitted only in agricultural zone with a 0 metre setback to property line, 225 metre setback to Institutional and Open Space zone boundaries.
Armour	Single-tier	Township	1,414	164.64	8.6/km^2	Yes		No - Requires site specific zoning amendment	Not permitted in any zones without a site specific zoning amendment	None listed	None listed
Ashfield-Colborne-Wawanosh	Lower-tier	Township	5,422	586.97	9.2/km^2	Yes		Yes	Agricultural Commercial/Industrial Zone (AG 3)	standard setback for applicable zone	standard setback for applicable zone
Bayham	Lower-tier	Municipality	7,396	244.97	30.2/km^2	Yes	Yes	No - Requires site specific zoning amendment	Not permitted in any zones without a site specific zoning amendment	75 metres to a settlement area boundary, hamlet or village, or sensitive use	75 metres to a settlement area boundary, hamlet or village, or sensitive use
Beckwith	Lower-tier	Township	7,644	240.47	31.8/km^2	yes	Yes	Yes	Rural industrial, agriculture, rural zone	150 metres to existing residential units or Institutional zone on which a school or church currently exists. 70 metres from all property lines.	150 metres to existing residential units or Institutional zone on which a school or church currently exists. 70 metres from all property lines.
Belleville	Single-tier	City	50,716	247.25	205.1/km^2	yes		No - Requires site specific	Site Specific zone amendment required	none listed	none listed

								zoning amendment			
The Blue Mountains	Lower-tier	Town	7,025	287.24	24.5/km^2	Yes	Yes	no	Site Specific zone amendment required	none listed	none listed
Bonnechere Valley	Lower-tier	Township	3,674	593.75	6.2/km^2	Yes		No - Requires site specific zoning amendment	Not listed in any zones	70 metre setback to property lines	70 metre setback to property lines
Bradford West Gwillimbury	Lower-tier	Town	35,325	201.04	175.7/km^2	Yes	Yes	Yes	industrial and agricultural zones by right	standard setback for applicable zone	
Brant	Single-tier	City	36,707	843.25	43.5/km^2	yes		Yes	Industrial and Ag	150 metres to residential, institutional or open space zones or use	150 metres to residential, institutional or open space zones or use
Brockton	Lower-tier	Municipality	9,461	565.18	16.7/km^2	Yes	unknown	Yes	Business Park Special Zone	None listed	None listed
Cavan-Monaghan	Lower-tier	Township	8,829	306.33	28.8/km^2	Yes		yes	Industrial 'M1'	70 metres to the property lines of the following uses: community centres, day cars, dwellings, parks, schools.	70 metres to the property lines of the following uses: community centres, day cars, dwellings, parks, schools.
Central Elgin	Lower-tier	Municipality	12,607	280.33	45.0/km^2	Yes		Yes	Only in agricultural and industrial zones	Where grown in a field or greenhouse 150 metres to lands zoned residential or institutional or any lot containing a school day care church, 150 in industrial from only lot containing a school, daycare, church, clinic or facility providing addiction treatment and recovery.	Where grown in a field or greenhouse 150 metres to lands zoned residential or institutional or any lot containing a school day care church, 150 in industrial from only lot containing a school, daycare, church, clinic or facility providing addiction treatment and recovery.
Central Huron	Lower-tier	Municipality	7,576	449.58	16.9/km^2	Yes		yes	Industrial zones (M1 & M2) and Agricultural Zones (AG1, 2, 3)	70 metres within industrial zones to residential zones, community facilities, open space zones or parkland. 150m if no air treatment is in place. 150 metres in agricultural zones to residential community facility, open space or parkland zones. 300 metres if no air treatment is in place.	70 metres within industrial zones to residential zones, community facilities, open space zones or parkland. 150m if no air treatment is in place. 150 metres in agricultural zones to residential community facility, open space or parkland zones. 300 metres if no air treatment is in place.
Centre Hastings	Lower-tier	Municipality	4,774	222.86	21.4/km^2	Yes		Yes	General and Rural Industrial Zones where air treatment is used,	70 metrs to residential, institutional or open space zones	70 metres to residential, institutional or open space zones

									150 metres to dwellings, schools, place of worship, daycare nursery where air treatment is used, 300 metres where no air treatment is used.		
Champlain	Lower-tier	Township	8,706	207.27	42.0/km^2	yes		yes	Industrial Restricted	20 metres for micro cultivation facility and 70 metres for a standard facility to any residential, institutional or open space zone	20 metres for micro cultivation facility and 70 metres for a standard facility to any residential, institutional or open space zone
Chatham-Kent	Single-tier	Municipality	101,647	2,457.90	41.4/km^2	Yes		yes	Agricultural, General Industrial, Rural Industrial	75 metres to any residential, institutional or open space zone boundary, 100 metres to an existing residential dwelling or residential, institutional or open space zone boundary.	75 metres to any residential, institutional or open space zone boundary, 100 metres to an existing residential dwelling or residential, institutional or open space zone boundary.
Chatsworth	Lower-tier	Township	6,630	596.19	11.1/km^2	yes		no	no zones listed as permitted	none listed	none listed
Clarence-Rockland	Lower-tier	City	24,512	297.71	82.3/km^2	yes		yes	general industrial zone	Setback of 150 m from a lot line abutting a lot zoned or used for residential purposes, daycare, community centre, school, religious institution, park.	Setback of 150 m from a lot line abutting a lot zoned or used for residential purposes, daycare, community centre, school, religious institution, park.
Drummond/North Elmsley	Lower-tier	Township	7,773	366.13	21.2/km^2	yes		yes	agricultural A, Rural Zone, General Industrial Zone, Rural Industrial Zone	150 metres to existing residential dwellings, residential institutional, open space or tourist commercial zone (does not apply if under 200 square metres or outdoor growing)	150 metres to existing residential dwellings, residential institutional, open space or tourist commercial zone (does not apply if under 200 square metres or outdoor growing)
East Gwillimbury	Lower-tier	Town	23,991	245.04	97.9/km^2	yes	unknown	yes	employment area	70 metres from property line to community centres, child care centres, dwelling units in any zone, parks, schools	70 metres from property line to community centres, child care centres, dwelling units in any zone, parks, schools
Essex	Lower-tier	Town	20,427	277.97	73.5/km^2	yes		yes	Agricultural and Manufacturing Districts	300 metres from a dwelling and green district, 500 metres from a residential district	300 metres from a dwelling and green district, 500 metres from a residential district
Fort Erie	Lower-tier	Town	30,710	166.27	184.7/km^2	Yes	yes	Yes	Industrial Zone	Standard zone except 70 metres to residential zones for new structures	

Greater Napanee	Lower-tier	Town	15,892	461.17	34.5/km^2	yes		Yes	Light Industrial, General Industrial	None listed	None listed
Grimsby	Lower-tier	Town	27,314	68.93	396.3/km^2	Yes	yes	Yes	Agricultural, Specialty Crop, Rural zone, Employment	Standard zone setbacks	
Haldimand	Single-tier	City	45,608	1,251.54	36.4/km^2	yes		yes	Permitted in Agricultural and Industrial Zones	150 metres to a settlement area boundary, sensitive land uses or residential, commercial, institutional or open space zone with air treatment and under 6,967 square metres. 200 metres for over 6967 and less than 9290 with air treatment, 250 for over 9290 square metres with air treatment, 300 with no air treatment control.	150 metres to a settlement area boundary, sensitive land uses or residential, commercial, institutional or open space zone with air treatment and under 6,967 square metres. 200 metres for over 6967 and less than 9290 with air treatment, 250 for over 9290 square metres with air treatment, 300 with no air treatment control.
Halton Hills	Lower-tier	Town	61,161	276.27	221.4/km^2	yes		Yes - Industrial only	Appears to be limited to industrial zones	150 metres to a sensitive land use	150 metres to a sensitive land use
Havelock-Belmont-Methuen	Lower-tier	Township	4,530	542.73	8.3/km^2	yes		yes	Only on restrictive industrial 'M1'	70 metres to a lot in the residential, commercial, open space, development or institutional zone.	70 metres to a lot in the residential, commercial, open space, development or institutional zone.
Highlands East	Lower-tier	Municipality	3,343	704.63	4.7/km^2	yes		Yes	Rural Zone	1000 metres to existing residential dwellings, 50 metres to any lot line	1000 metres to existing residential dwellings, 50 metres to any lot line
Howick	Lower-tier	Township	3,873	287.06	13.5/km^2	yes		Yes	General Agriculture, Restricted Agriculture, Agricultural Commercial	None Listed	None Listed
Huntsville	Lower-tier	Town	19,816	710.01	27.9/km^2	yes		no	not permitted in any zones	none listed	none listed
Huron East	Lower-tier	Municipality	9,138	669.22	13.7/km^2	Yes		Yes	General Agriculture, Restricted Agriculture, Agricultural Commercial/Industrial, Industrial	150 metres from residential, community facility, park or other recreational use or zonign, dwelling, public school, private school, place of worship or daycare where air treatment control is used, 300 metres where no air treatment control is used.	150 metres from residential, community facility, park or other recreational use or zonign, dwelling, public school, private school, place of worship or daycare where air treatment control is used, 300 metres where no air treatment control is used.
Huron-Kinloss	Lower-tier	Township	7,069	440.76	16.0/km^2	yes		no	Site Specific zone amendment required	none listed	none listed

Innisfil	Lower-tier	Town	36,566	262.71	139.2/km^2	yes		yes	Industrial general Zone and Industrial Extractive zone	70 metres from sensitive land use	70 metres from sensitive land use
King	Lower-tier	Township	24,512	333.25	73.6/km^2	Yes		yes	Rural General, Industrial M2, Employment General Zones	150 metres from a sensitive land use or any residential zone, institutional zone or open space zone	150 metres from a sensitive land use or any residential zone, institutional zone or open space zone
Kingsville	Lower-tier	Town	21,552	246.83	87.3/km^2	yes		yes	Agricultural 'A1' and light industrial	100 metres between a facility and any lands zoned or used for residential, recreational or institutional uses. 250 metres from Lake Erie.	100 metres between a facility and any lands zoned or used for residential, recreational or institutional uses. 250 metres from Lake Erie.
Lakeshore	Lower-tier	Town	36,611	530.33	69.0/km^2	yes		no	Site Specific zone amendment required	none listed	none listed
Leamington	Lower-tier	Municipality	27,595	262.01	105.3/km^2	yes		yes	Agricultural zones where greenhouses are permitted (Part 1) Industrial Zones (Part II)	Operate under two different types of cannabis facilities. Part 1 facilities are licensed facilities, Part II are other facilities - Which have a 200 metre setback from sensitive land uses.	Operate under two different types of cannabis facilities. Part 1 facilities are licensed facilities, Part II are other facilities - Which have a 200 metre setback from sensitive land uses.
McMurrich/Monteith	Single-tier	Township	824	277.92	3.0/km^2	yes		no	Not permitted in any zones	None listed	None listed
McNab/Braeside	Lower-tier	Township	7,178	255.76	28.1/km^2	yes		Yes	General Industrial, Light Industrial & Rural	300 metres from a dwelling, school, daycare, church or playground	300 metres from a dwelling, school, daycare, church or playground
Meaford	Lower-tier	Municipality	10,991	588.57	18.7/km^2	yes		Yes	Employment M1 M2 M3, Agricultural, Rural, Recreational, Other Zones	70 metres to residential, institutional or existing dwelling with air treatment, 300 m without.	70 metres to residential, institutional or existing dwelling with air treatment, 300 m without.
Melancthon	Lower-tier	Township	3,008	310.79	9.7/km^2	yes		Yes	Agricultural A1	300 m from any dwelling on a separate parcel, 300 metres of a vacant lot, 2000 metres from another cannabis facility, 2000 metres from a settlement area boundary	300 m from any dwelling on a separate parcel, 300 metres of a vacant lot, 2000 metres from another cannabis facility, 2000 metres from a settlement area boundary
Milton	Lower-tier	Town	110,128	363.22	303.2/km^2	yes	yes	yes	General Industrial	70m from a lot in a residential commercial, institutional or open space zone, 70 metres from a lot with a school, hospital, place of worship, daycare	70m from a lot in a residential commercial, institutional or open space zone, 70 metres from a lot with a school, hospital, place of worship, daycare
Mississippi Mills	Lower-tier	Town	13,163	519.58	25.3/km^2	yes		No	not permitted in any zones	None listed	None listed

Mulmur	Lower-tier	Township	3,478	286.77	12.1/km^2	yes		yes	Countryside Area (A) (if over 8 ha)	standard setback for applicable zone	standard setback for applicable zone
Muskoka Lakes	Lower-tier	Township	6,588	794.26	8.3/km^2	yes		no	Site Specific zone amendment required	none listed	none listed
New Tecumseth	Lower-tier	Town	34,242	274.21	124.9/km^2	yes		yes	Employment Area 1 or 2	Standard zone setbacks	
Norfolk	Single-tier	City	64,044	1,607.55	39.8/km^2	Yes		Yes	General, Rural or Light Industrial, Agricultural	in the Industrial Zones 70 metres to residential zone and institutional Zone or Open Space.	in the Industrial Zones 70 metres to residential zone and institutional Zone or Open Space.
North Frontenac	Lower-tier	Township	1,898	1,164.77	1.6/km^2	yes		Yes	Industrial Zone	70 metres to residential zone or commercial zone, 150 metres to any dwelling, public school, private school, place of worship or daycare, 300 metres if there is no odour control	70 metres to residential zone or commercial zone, 150 metres to any dwelling, public school, private school, place of worship or daycare, 300 metres if there is no odour control
North Perth	Lower-tier	Municipality	13,130	493.14	26.6/km^2	Yes	potentially	Yes	Agricultural Commercial Zones	Zone Setbacks	Zone Setbacks
Otonabee-South Monaghan	Lower-tier	Township	6,670	347.13	19.2/km^2	Yes		yes	Rural Zone, Agricultural Zone (only Micro), General Industrial zone	70 metres for facilities in Industrial zones to residential zone, community facility zone or open space zone, 150 metres to sensitive land use, 150 metres equipped with air treatment situated in agricultural zones to residential, community facility or open space zone, 300 metres with no air treatment control	70 metres for facilities in Industrial zones to residential zone, community facility zone or open space zone, 150 metres to sensitive land use, 150 metres equipped with air treatment situated in agricultural zones to residential, community facility or open space zone, 300 metres with no air treatment control
Puslinch	Lower-tier	Township	7,336	214.62	34.2/km^2	yes		Yes	Industrial Zone	Standard Zone Setbacks	Standard Zone Setbacks
Russell	Lower-tier	Township	16,520	199.11	83.0/km^2	yes		Yes	Industrial Park Zone 1 & 2 and Agricultural Industrial Zone	150 metres from residential, institutional or rural residential zone, 50 metres from a lot used principally for residential purposes	150 metres from residential, institutional or rural residential zone, 50 metres from a lot used principally for residential purposes
Ryerson	Single-tier	Township	648	187.92	3.4/km^2	yes		no	not permitted in any zone	none listed	none listed
South Huron	Lower-tier	Municipality	10,096	425.41	23.7/km^2	yes		Yes	General Agriculture, Agricultural Commercial-Industrial, Light Industrial, General Industrial	Standard Zone setbacks	Standard Zone setbacks

South Stormont	Lower-tier	Township	13,110	447.58	29.3/km^2	yes		Yes	Light, general, heavy, Rural Industrial Zones	With air treatment 70 metres from any residential or institutional zones, 150 metres from sensitive land use, excluding accessory dwelling. Without air treatment 300 metres from any residential or institutional zones, and any sensitive land use excluding an accessory dwelling.	With air treatment 70 metres from any residential or institutional zones, 150 metres from sensitive land use, excluding accessory dwelling. Without air treatment 300 metres from any residential or institutional zones, and any sensitive land use excluding an accessory dwelling.
Southwold	Lower-tier	Township	4,421	301.74	14.7/km^2	yes		Yes	Commercial/Industrial (CM1) Zone	75 metres to any residential, institutional or open space building or structure	75 metres to any residential, institutional or open space building or structure
St. Clair	Lower-tier	Township	14,086	619.17	22.7/km^2	Yes		Yes	Industrial Type 1 & 2	300 metres setback to residential institutional suburban residential zone or 300 metres of a dwelling	300 metres setback to residential institutional suburban residential zone or 300 metres of a dwelling
Thames Centre	Lower-tier	Municipality	13,191	433.99	30.4/km^2	yes		no	Nothing listed in zoning bylaw but site specific amendment required for any new facility	none listed but they rely on D-6 series guidelines	none listed but they rely on D-6 series guidelines
Trent Lakes	Lower-tier	Municipality	5,397	861.32	6.3/km^2	yes	yes	no	Site Specific zone amendment required	none listed	none listed
Tweed	Lower-tier	Municipality	6,044	953.47	6.3/km^2	Yes		Yes	Rural Industrial	70 metres from residential, commercial and community facility zones from the cannabis used lot, and 70 metres from a lot with a school, place of worship and day nursery.	70 metres from residential, commercial and community facility zones from the cannabis used lot, and 70 metres from a lot with a school, place of worship and day nursery.
Uxbridge	Lower-tier	Township	21,176	420.95	50.3/km^2	Yes		Yes	Rural Zones	none listed	none listed
Wainfleet	Lower-tier	Township	6,372	217.31	29.3/km^2	yes	Yes	No	Not permitted in any zones without a site specific zoning amendment	150 metre setback to a lot line of any residential or institutional use or zone	150 metre setback to a lot line of any residential or institutional use or zone
Warwick	Lower-tier	Township	3,692	290.2	12.7/km^2	yes		Yes	Mixed Commercial Industrial	Standard Zone Setbacks	Standard Zone Setbacks
Wellington North	Lower-tier	Township	11,914	526.21	22.6/km^2	yes		No	Cannabis not listed in zoning bylaw but a site specific exception was required to have it	none listed	none listed

									within an employment zone		
West Elgin	Lower-tier	Municipality	4,995	322.48	15.5/km^2	yes		Yes	general industrial, farm industrial zone	75 metres to residential, institutional or open space building or structure	75 metres to residential, institutional or open space building or structure
West Lincoln	Lower-tier	Township	14,500	387.81	37.4/km^2	Yes	Yes	no	Site specific zone amendment required	150 metres to lot lines within Agricultural Zones, 45 metres in industrial zones.	150 metres to lot lines within Agricultural Zones, 45 metres in industrial zones.

Appendix G – Interview Coding Matrix

Municipality 1										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Sub-Category	• Perception of Issues/Conflicts • New and rapid policy changes • Lack of knowledge/understanding • Need for guidance • Making decisions slowly • No clear process for approval • Cannabis is a crop but differs from other crops • Variation from the Province • uniformed bylaw creation • Sense of Helplessness from Health Canada • Information and consultation issues with Health Canada • Information Gaps • Waiting on precedent setting case(s) to inform decisions • Need for greater authority to control production similar to Opt In/Out of retail • Need for further studies to make informed decisions • Currently making uniformed decisions	• Background Studies Required • Lack of knowledge/understanding • Need for guidance • Municipality conducting research • Outdoor Growing different from Indoor • Municipality Conducting research • No Precedent in Ontario for regulations • Active and ongoing pressure for cannabis production • uniformed bylaw creation • consultation with other municipalities/upper tier • Create regulations in response to legalization • Information and consultation issues with Health Canada • Information Gaps • Unable to obtain information from health Canada • Waiting on precedent setting case(s) to inform decisions	• New and rapid policy changes • Lack of knowledge/understanding • Need for guidance • No clear process for approval • Different Regulatory Approaches between governments • There is a need for guidance • No Precedent in Ontario for regulations • Zoning Bylaw up to interpretation • uniformed bylaw creation • Lack of collaboration • Information Gaps • Unable to obtain information from health Canada • Waiting on precedent setting case(s) to inform decisions • Additional resources are needed by the municipality • Lack of guidance/regulations • There needs to be something in place prior to studies • Need for further studies to make informed decisions	• Perception of Issues/Conflicts • Cannabis is a crop but differs from other crops • Impacts - Visual • Impacts to rural character/ landscape • Issues/land use conflicts • There is public distrust in Local/provincial/federal government cannabis regulations • Distrust in Cannabis generally • Issues - Lighting • Issues - Fencing • Issues - Criminal Behavior • Issues - Odour • Issues - noise • Issues - irrigation • Issues - Traffic and roads • Agricultural Crop but different than other crops • Cannabis requires different regulations/measures • Some crops have additional setbacks/ regulations	• Benefits - Increase assessment • Benefits - Make cannabis more accessible • Benefits - Employment • The benefits should be studied	• Perception of Issues/Conflicts • Cannabis is a crop but differs from other crops • Impacts to rural character/ landscape • Issues/land use conflicts • There is a perception of issues/conflict • There is public distrust in Local/provincial/federal government cannabis regulations • Distrust in Cannabis generally • Waiting on precedent setting case(s) to inform decisions • Cannabis requires different regulations/ measures • Currently making uniformed decisions • There are both perceived and real issues • Unknown what the actual impacts are	• Benefits - Economic adaptation/reuse of vacant facilities • Industrial/institutional comparison (Prison, Industrial use) • Cannabis as compared to Industrial uses (manufacturing) • Industrial locations identified for Cannabis	• Outdoor Growing different from Indoor • Zoning Bylaw is limited to buildings/structures but not crops • Municipality views on cannabis differ from province • No Outdoor growing regulations • Province views cannabis as a regular crop • Agricultural Crop but different than other crops • Cannabis requires different regulations/measures • Some crops have additional setbacks/regulations • Cannabis as compared to Agricultural uses (Canola & livestock) • Cannabis Similar to Hemp	• Operation type unknown	• Cannabis requires different regulations/measures • Waiting on precedent setting case(s) to inform decisions • The province should create uniformed guidelines/ regulations

		• Additional resources are needed by the municipality • Lack of guidance/regulations • There needs to be something in place prior to studies • Need for further studies to make informed decisions • Currently making uniformed decisions • The province should create uniformed guidelines/ regulations • Federal government financially responsible • The benefits should be studied	• Currently making uniformed decisions • The province should create uniformed guidelines/ regulations • Unknown what the actual impacts are	• Unknown what the actual impacts are • There is a cost for policing and access to youth		• Perceptions based on the fact it is cannabis				
Quotes										
	• "They are both; they are perceived and real. We don't know what is real or perceived because it is just so new." • "I have no idea who enforces site plans approved by Health Canada, I could not get an answer."	• "Yes, the province should have guidelines in place, funded by the federal government. Studies should dictate if there should be regulations or guidelines, depending on the impact."	• "It is such a novel concept; all so new and we are still learning. We don't know what the best practices are to lessen the land-use conflicts" • "OMAFRA was helpful but had no precedent that had been set in the LPAT."	• " There will be issues around light, odour, and noise that are real, but their impact is perceived." • "These issues are no more real than if you lived next to an industry or farm producing any other product."	• "If you have vacant buildings that can be reused for cannabis that will increase assessment."	• "People will admit that is it a perceived issue - they don't know if odour, light is going to be a problem. They done know any of these answers." • "The issues are real, but the impacts are perceived."		• "Even when we talked to OMAFRA, it is very confusing, they see it as a crop, but this crop has different issues than other field crops; Fencing, lights and security requirements, where by comparison it is not like growing canola and other crops."		
Municipality 2										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**

Sub-Category	• New and rapid policy changes • Continuous pressure from cannabis producers • Slow bylaw enforcement process • Lengthy process to shut illicit operations down • Public lack of education and knowledge • Cannabis is a crop but differs from other crops • Approval for cannabis facilities uncertain with public process and opposition	• Connection between cannabis production and opting out of retail • Current regulations under review • consultation with other municipalities/upper tier • Current pressures around micro-cultivation • Health Canada old licenses • Public lack of education and knowledge • Cannabis should not be permitted on fertile agricultural lands • Public education on perceptions • Important topic to deal with	• Create regulations in response to legalization • Current regulations under review • Regulations a result of existing/past land use issues • Bylaw in development over conflict issues • Limited discussions with Health Canada • No consultation with OMAFRA • Focus usually on urban areas, need to focus on rural	• Issues dealt with on a complaint basis • Issues - Odour • Inquiries have slowed down but still exist • No overall concerns • Opposition focused on specific facilities • Strong public opposition • Residents concerned with facilities nearby • Issues - Safety • Issues - Security • Issues - Criminal Element • Issues - Odour • Issues - Property values • Issues- limited ability in shutting down illicit operations • Issues - health Canada historic licenses • Impacts are real and valid • Issues - impacts to amenity areas • Issues - cannabis production on productive agricultural lands (Holland Marsh)	• Benefits - Economic • Benefits - Employment • Benefits - utilization of vacant buildings • Benefits - Industrial and commercial growth	• Strong distrust in cannabis • Previous issues with illicit cannabis production causes lasting perceptions • Small production facilities • Need to get public beyond existing perceptions and stigmas • Criminal element issues may be perceived • Public education to get beyond perceptions	• Industrial Comparison - large scale production facilities • Only permitted in Industrial designations • Industrial use if there is processing component • Growing facilities seen as industrial use • Facilities subject to site plan control	• Agricultural if no processing • No difference if grown in a field or in a building • No processing permitted in rural areas	• Existing Illegal Operations • Illicit growing includes no license or exceeding growing limitations • Bylaw enforcement process slow	• Locational Requirements • No regulations for growing for personal medical needs • Certain criteria can mitigate land use compatibility issues • Large Scale commercial production • Eliminate small production • Mitigation measures implemented to reduce/eliminate conflict • Facilities can exist with no conflict if done right • Eliminate Health Canada old licenses • Facilities subject to site plan control • Setbacks to sensitive land uses
Quotes										
	• "I think that Health Canada in some aspects have dropped the ball." • It is tough to answer that because we do	• "Specialty crop areas should not allow cannabis."	• "We looked to other municipalities to ensure that we have the correct government regulation numbers	• "It's tough to answer that [Q6] because we do not know how many are ultimately in the Township."		• "It is just a matter of getting people's heads wrapped around the stigma of cannabis."	• "If it is straight growing it is okay in the Agricultural area, but as soon as there is processing it	• "If it is a straight crop and there is no processing than it is permitted in		• "They understood that if it is done correctly in the right spots that it can be done."

	not know how many are ultimately in the Township		in there. That is where the correct definition came from, we looked to other municipalities." • "Really the bylaw update was just adding the definitions and specifying in the permitted uses limited it to industrial areas."	• "The smell was very very potent" • "I think they [Issues] are real. I believe the concerns are valid."			needs to be in the industrial areas."	agricultural areas."		• "If they are done right, the way they are supposed to be done, I don't think we would have too many objections." • "It goes back to educating the public. If they understand what a real clean facility looks like, and not a run down one that is operating illegally."
Municipality 3										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Subcategory	• Lack of knowledge/Unknown cannabis facilities • Increasing pressure for production from growers since legalization • new and rapid policy changes • Council initiated cannabis regulations as priority • Complex legislation, Health Canada regulations • Unknown if Crime is true impact	• Current regulations under review • Gaps in bylaws failing to address cannabis • Process underway to create new bylaws • Municipal knowledge gap • Public consultation process • Consulted Health Canada • Gap with no guiding policy/framework • Need to protect employment lands for industry • New industry and new and rapid policy changes	• Changes from Medicinal to Recreational • Regulations for medicinal originally created in response to legalization • Gaps in current bylaws • Need for public consultation, legislation review, best practices • Regulations exclude personal growing • High setbacks limit agricultural site selection • Low public turnout in public process • Health Canada Unresponsive • Challenges are dealing with the public	• Issue - Odour • Issue Crime • Issue - Impact on youth • The Issues are real • Potential economic harm by using employment lands	• Economic potential difficult to know • High jobs but may be part time and seasonal • Economic benefits the same as other agricultural crops	• Impacts on youth (relating to cannabis legalization in general) • Differing opinions about production in the public • Differencing Opinions about production from Planners, Public and Council • Crime may be perceived but unknown • Smells associated with cannabis equate to regular rural living • Challenges are dealing with the public	• Cannabis production not permitted in industrial area • Need for D-6 series type guideline	• Once facility in Specialty Crop Area and another in an agricultural area • Cannabis production permitted in greenhouses, but not viewed as agricultural crop in bylaw • Cannabis not a priority agricultural crop since it doesn't produce food • Planner says no different than other odorous crops • Comparison to livestock and mushroom farming	• May be other operations that they don't know of	• Setbacks to sensitive land uses • Need to review best practices • Site Plan requirement • Licensing Requirements • Changes beyond zoning • Holistic approach to regulation • Regulations Exclude personal growing • Odour Control • Ongoing enforcement/check-ups • D-6 or MDS Guideline needed

								• Normal farm practice • Need for MDS type guideline		
Quotes										
		• It is a very new industry and we are all still trying to grapple with how they should be regulated.	• From a staff level we saw several gaps within our zoning bylaw • Through that review we reached out to Health Canada to ask particularly about odour and if we had any control over odour. So that was a long process and I don't think we received a response from them for about 6 months.			• They are worried about the influence that it may have on children and things like that , but crime particularly • Some people have been adamant that they don't like it and don't want it in the town	• I think my one ask would be to implement a D-6 guidelines for marihuana in terms of odour impacts so that we have some guidelines for setbacks. So that we have some type of defined formula to go to when we are talking about these facilities and the impacts they have	• Yes you have the odour impacts but that is no different than a mushroom farm or a chicken barn or a hog farm that you still have those odour impacts. It is a crop, and often with crops you have odour impacts. To me it is no different than those other agricultural facilities		
Municipality 4										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Subcategory	• Ongoing pressure for cannabis production • Interim Control Bylaw imposed • New and rapid policy changes • Major gap in enforcement • Challenge - use of infrastructure does not equate to tax revenue • Challenge - damage to rural infrastructure • Municipal resources spent to develop regulations and monitoring	• Land use compatibility issues • Municipality needed more time for research • Federal and Provincial promised changes but nothing happened • Province or Feds need to create guideline	• Invested a lot of time and resources in developing bylaw and policies • Reached out to Province and Federal Government - Limited assistance • Needed more assistance • No consistency between municipalities	• Impacts- Odour • Impacts - Light • Impacts - Property Values • Impacts - Change of character • Impacts - security • Impacts - Traffic • Impacts - Visual character • Impacts - noise • Impacts - Perceived Health • Impacts appear to be limited to residential and not agriculture to agriculture	• Economic benefits • Employment benefits • Support of local businesses • Eliminate black market	• Strong public interest and opposition • Perceived Health Impacts from air emissions • Some public issues are real and valid • Uncertain if property values are impacted • Some impacts definitely more perceived than others • Background political views	• Groups see cannabis as industrial, not agriculture	• Shift from traditional agriculture • Planning Staff see cannabis as agriculture • Comparisons to agricultural land uses	• All licensed producers	• Established cannabis control committee • Citizen led zoning amendment process • Municipal comparison - Land-use background review • Informed bylaw creation on provincial guidelines • Comparison to D-6 and MDS guidelines

						(conservatism) may impact perceptions • Some opposition grounded in legalization so not all issues can be mitigated • Some future residents concern about possibility of cannabis production adjacent • Health impacts comparted to turbines				• Site Plan and Site Specific ZBL required • Zoning and approval science based/odour modeling
Quotes										
	• "I think the biggest problems have been enforcement. The cannabis regulations require that no odours escape the buildings, but odours are escaping the buildings and that is where we have issues . Health Canada has come on numerous times to investigate and either have not cited problems or it has not found solutions that people were looking for."			• "The community has responded very loudly We have had several public meetings with over 300 residents attending. Not a day goes by where residents are sending in their concerns and to provincial governments and Justin Trudeau about their concerns with cannabis in our town" • "Part of it is that there is a significant cost accrued but the municipality and because these facilities are taxed as agricultural facilities, so sometime the use		• "The municipality is a very conservative municipality. Some of the residents don't believe that cannabis should be legalized so at the end of the day if you can mitigate all of the land use impacts, you will have people that still don't like it at all."		• "There are also a lot of people upset about the character of the place where they live changing , and they don't feel like the chain and barb security fences are good and don't feel like it fits the area where they used to see a cherry orchard." • "There is a failure of people to recognize that agricultural uses should be located in the agricultural area, but these estate residential lots should not have encroached in that area, but of course they were there first		

				of town infrastructure doesn't jive with the amount of taxes being paid"				and they feel that they have more of a right to be there"		
Municipality 5										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Subcategory	• Continuous pressure for cannabis production • Need to create fair set of guidelines for all cannabis	• Lack of Federal and Provincial Regulations • Province needs to create guidelines • Health Impacts - mental and physical	• Bylaw established to address public issues with existing facilities • Federal regulations inadequate for compatibility • Stakeholders supportive of land use controls to achieve compatibility • Current federal regulations insufficient for compatibility	• Impacts - focused on designated health Canada operations • Impacts - focused on less regulated facilities • Impacts - Odour • Impacts - Light • Impacts - Emissions • Impacts - crime • Impacts - gun violence • Impacts - Gang Activity • Impacts - theft • Impacts - illicit activity • Impacts - largest impact is odour • The ability to disrupt peoples quality of life • Impacts - Health Effects	• Economic, but not balanced with need for regulation/compatibility • Benefit - economic benefit for agricultural sector, but balance needed for regulation and control • Benefit - Economy • Benefit - employment • Benefit - increase municipal tax assessment • Benefits dependent on facility type	• Strong initial opposition to facilities • Opposition to facilities from nearby neighbours • People don't trust the federal government or regulations in place • Crime impact real but not to do with Planning • Public impacts appear perceived, but need to experience them first hand	• Industrial D-6 guidelines used to create compatibility	• Political level sees it as agricultural, but professional planning understanding different • Odour impact is what separates it from other agricultural crops • Comparison to mushroom farming	• Mix of Operation types • Large scale • Less regulated facility types still large scale • Large medical scale operations limited to 4 people, however large scale • Medical operations related to crime • Impacts only non designated facilities • No complaints about LPs	• Bylaw separates LPs from designated growers • Site Plan required • Setbacks/compatibility depended on air quality • Stakeholder engagement to create new ZBL • Provincial and Federal consultation • Wide-ranging stakeholder engagement • Legal consultation • Developed bylaw using existing D-6 and MDS guidelines • Can use existing guidelines MDS to create new guideline • Combination of different planning tools to achieve compatibility
Quotes										
		• The regulations put in place from Health Canada are not		• I am putting more weight on the issue of odour. That is what makes it	• They recognize the economic potential of it, but they also recognize the					• Whether it is a matter of amending the MDS guidelines or

		enough in preventing land-use conflicts		different from other greenhouse crops. You can grow flowers and have the light emissions. There are not many other plant based agricultural crops that have odour. • Whether or not it has been proven, my observations in speaking with people that live around these facilities, it is causing mental health stress	requirements for regulation and control as it relates to land use planning . • The licensed facilities definitely add to our economy; they create jobs and increase tax base.					creating a supplement guideline for it that is plant based. I see it more as a provincial matter because what is happening is every municipality is regulating it, all very different with different controls and setbacks . • There are certain things that you can do with Zoning Bylaw and not site plan, and there are certain things that you can do with the site plan that you can't do with the zoning bylaw.

Municipality 6										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Sub-category	• Unknown how many cannabis facilities • Unknown what types of existing facilities • Interim Control Bylaw • Nothing known about existing cannabis facilities • Continuous pressure for cannabis production • Uncertain of what new cannabis facilities would be like • Many unknowns when it came to	• Council initiated full study and OP and ZBA amendments • New and rapid policy changes • Lack of information and understanding of legislation • Outdoor growing difficult to regulate • Public interest focused on retail • Need to be legislation regarding medical and designated growing	• No previous cannabis bylaws • Existing cannabis facility triggered bylaw creation • Council is approval authority of site plan • Rely of Federal regulations for odour control • Municipal collaboration/ research • Policy and legislative review • Existing facilities grandfathered	• Existing compatibility issues • Impacts - Odour • Impacts - air emissions • Impacts - Security • Impacts - safety • Public opposition seen on a site by site basis	• Benefits - economic boost to industrial area • Recreational growing may offer largest benefits	• Perceptions/stigmas around drug use and additions • Land use planning cannot deal with drug use and additions • Stigmas around cannabis still prevalent • Perception that if production is prohibited, use will not occur • Impacts of Crime, addition and safety may be perceived	• Industrial areas more suited for industrial nature	• Outdoor growing is agricultural crop, but impose setback • Cannabis Act seen as an agricultural crop • Differentiation between indoor and outdoor growing • Cannabis goes beyond the growing of a crop • Odour is a real issue but can be	• three known designated growing facilities • No licensed producers • Designated facilities at their highest capacity	• In Agricultural areas not permitted as of right, site by site zoning • Official Plan amendment developed criteria for site specific zoning amendments • Site plan required • Cannabis production can be located within agricultural area

	agricultural regulations • Public interest on production faded after retail decided • Main issue is with designated growing • Designated growing does not require confirmation of municipal zoning approval • Cannabis Act failed to address personal and designated medical growing • Cannabis Act did not focus on Growing or Production • Challenges may be facilities on small rural cluster lots	• Designated growing operations can be significantly large in size • Lack of legislation is concerning • Federal government should create more regulations concerning individual and designated growing	• Health Canada slow to respond • Health Canada no helpful in providing information • Province not actively involved in bylaw creation					compared to other crops		with Site Specific Zoning • Permitted as of right in industrial zonings • Setback requirements to sensitive land uses • 150 metre setback requirement but can be reduced for micro growing facilities • Dwellings in rural areas deemed sensitive • Stakeholder consultation combined with retail • Public consultation • OP and ZBA regulate everything over four plants
Quotes										
	• The short answer is that we have 3 that we know of . I say that because there could be designated producer operations that we do not know about. • Ultimately the direction we went is that our zoning and Official Plan policies basically cover all cannabis growth outside of the four personal plants that anyone is allowed to grow. Beyond that	• The Bylaw briefly mentions air quality treatment. We rely on the federal regulations for air filtration requirements.	• I as the lead researcher on this put out some questions to Health Canada and they were not useful at all. They responded 9 months later. By the time we received a formal response the project was done.			• At the times there was concern a little bit to do with odour, safety and a lot had to do with the stigmas around drug use and additions and things like that . It is hard in an Official Plan Amendment to deal with that because that is a public health issue that was in the scope of what we were doing		• We also decided that with outdoor grow that was a crop and the only zoning tool we could add to that was outdoor growing only required a 50 metre setback from property line. It was put as of right in the agricultural area because it is a crop. We did not spend a whole lot of time on		

	we didn't really have much of a choice because there wasn't anything in the cannabis act that regulated designated grower registrations . • You can put four [licenses] together based on prescriptions you can have more than 1000 plants. And that is not insignificant . I think the lack of legislation around that is alarming							outdoor growing since I don't see it as a viable option. We did the best we could.		
Municipality 7										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Sub-category	• Lack of knowledge of facility types • Continuous pressure for cannabis production • Designated growers can be at a large scale beyond reason • Taxation considerations verses infrastructure use	• New land use creates new impacts	• New bylaw created due to compatibility issues • Mitigation of impacts • Council generally supportive but realize need for land use controls • Need for greater enforcement and controls on designated growers	• Impacts - Odour • Impacts - Light • Impacts - Activity • Impacts - Safety • Impacts mostly with designated growers • Impacts - size, scale and growth • Light impacts important to rural community • Impacts - electrical requirements • Impacts - traffic and roads • Impacts - Visual character	• Benefits - employment • Benefits - tax assessment • Benefits - Economy	• Certain impacts real like odour and light	• Use of agricultural land for industrial activity	• Cannabis is agricultural in nature but need for additional regulations	• Several cannabis facilities but types unknown	• Municipal Consultation • Provincial Consultation • Legal Review • Public consultation process • Site Plan requirement • Site Plan tool for compatibility
Quotes										
		• As a new land use, there were some compatibility challenges which resulted in direction		• Safety, odour and light emissions were the greatest concerns to the public						

		from Council to develop zoning pro vision to more appropriate regulate the use and mitigate potential for conflicts related to issues such as odour, lighting and activity levels.		• I believe that the provisions and growth opportunities for designated growers needs to be more strictly enforced . There appears to be too great of an opportunity for a designated grower to produce thousands of plants, beyond what could be viewed as reasonable.						
Municipality 8										
Category	**Uncertainty/Gaps/ Challenges**	**Greater Research**	**Guidelines/ Regulations Creation**	**Impacts**	**Benefits**	**Perceptions/ Stigmas**	**Industrial Comparisons**	**Agricultural Comparisons**	**Operation Type**	**Best Practices**
Sub-category	• Information Gaps • Facility Size Variation • Some facilities are under the radar • Uncertainty around cannabis facilities • Lack of knowledge around designated facilities • Lack of required municipal involvement with designated facilities • No requirement for public consultation - designated facilities • Lack of provincial and federal oversight - designated facilities	•	• Active and ongoing pressure for cannabis production • Regulations in place for cannabis production • Municipal inconsistency around hemp regulations • Previous bylaw permitted cannabis as of right in industrial area • Enforcement matter initiated bylaw review • Limited collaboration with OMAFRA and Health Canada • More consultation with municipalities around retail • Licensed Producers have more	• Impacts - Odour • Compatibility issues • Compatibility with sensitive land uses • Impacts - noise • Impacts - light • Impacts - Amenity enjoyment • Right to enjoy personal property • Impacts - security • Impacts - Waste disposal • Impacts - youth possession • Impacts are real, but some may be perceived • Comparison to Wind Turbines • Impacts to the broader community	• Benefits - Economic • Benefits - Employment • New and emerging economic sector • Agricultural diversification • Benefits - economic • Benefits - Employment • Benefits - tax assessment increase • Rural communities need large employers • Variety of jobs and employment • Construction and development financial benefits • Social benefits • Community can be seen as progressive	• Perception of illegal activity • Perception of impacts of good community • Perceptions and stigmas creating opposition • Still have social stigmas, acceptance over long term • Illicit history - social stigmas • Normalization over time • Perception of impacts from a nuisance • Perceptions and negative connotations of odour	• Cannabis seen as industrial and agricultural • Industrial component to cannabis production • Impacts similar to industrial impacts • Industrial comparisons but not necessarily industrial • Industry standards and MOE guidelines	• Cannabis seen as industrial and agricultural • Can be compared to agricultural crops • Light processing seen as Ag Value Added • Seen as agricultural crop • Do not want to place undo restrictions on agricultural practices • Normal farm practice protection • Comparisons to other odorous agricultural crops	• Facility Size Variation • Some facilities are under the radar	• Municipal collaboration for bylaw • Mitigation of impacts • Zoning can permit something but still land use compatibility issues • New zoning regulations in place to create more compatibility • Need to mitigate odour • Need to have growing best management practices • Need for compatibility

			regulations and municipal involvement • Province needs to create a standard guideline or regulation to control setbacks					• Uncertainty around calling it agricultural • Comparison to livestock • Livestock odour normalized over time		• Need to have industry standards combined with zoning regulations • Balance rights of production vs enjoyment of property • Acceptance over time • MDS type guidelines for cannabis • Site Plan Required unless in agricultural area
Quotes										
	• There was no consulting – in my opinion as a planer I found that surprising . • I was surprised at the time that such a large scale growing could occur in the Town and there was very little federal and provincial approval involvement.		• There are best practices for those uses and the Ministry of Environment has guidelines on how much air pollution is acceptable . I think it is important that those regulations dovetail with the local zoning control to help avoid things like smells	• At first people were concern that there was an illegal activity going on and people wanted to make sure what was happening was legal . Once that was address the main issue was their concerns about their enjoyment of their property and their perception of being within a good community. • We have to be sensitive to how the smell has affected people's ability to enjoy their properties and how it affects the perception of their communities	• I have a lot of optimism about the economics of it and the jobs. Agriculture is a major basis of our economy in Huron County. Anytime there is diversification in the Agricultural sector that represents positives	• For many many decades this was an illegal product so people associated the smell or use with something bad or illegal, but now society will change and evolve to accept this as a legal product as a part of our community and the smells and growing will become a part of the our everyday lives. We are experiencing the worst of the land use conflict now as we are adjusting to the reality of legalization, but it will become more normalized.		• Agricultural because it is actually a plant being grown. Any crop like corn or canola would be permitted to grow because it is agricultural. Processing of agriculture is also permitted in agricultural zone. If there is a field or greenhouse of cannabis that can be done in Agriculture. If there is processing or drying associated with cannabis then it can be permitted there as well. • We can still acknowledge it as an agricultural		

								crop and maintain the rights to regulate it as a land use.		

Glossary

Cannabis means a tall Asian herb plant from the family cannabaceae, and is cultivated mainly for its psychoactive properties. It is the same plant as marijuana (common spelling before recreational cannabis legalization) or marihuana (Health Canada terminology and spelling before the Cannabis Act).

Cannabis production means the cultivation or growing of Cannabis and the processing of cannabis, which could consist of drying, oil extraction, or forms of preparing cannabis.

Cultivation means the act of preparing the soil for use and the raising of crops. As it relates to cannabis, cultivation includes all types of cannabis growing in different substrates.

Distribution refers to, for the purposes of this study, how the end product of the cannabis process is sold and distributed to individuals.

Marihuana is the medical spelling referencing cannabis and prior to the Cannabis Act, S.C. 2018, c. 16, was predominantly used by Health Canada.

Marijuana is the common spelling and terminology referencing cannabis and is more often used to describe the actual product from the cannabis plant, being the buds and leaves that have psychoactive properties.