Meat on Wheels: The Potential for a Mobile Slaughterhouse Unit in Haliburton County

Shelby Gibson, Gabriel Epprecht

Abstract
Using a policy lens, this study aims to identify potential opportunities and barriers to the use of a mobile slaughterhouse unit in Haliburton County, Ontario. Mobile slaughterhouse units are an infrastructure that has been used to develop sustainable food systems in various rural and remote locations, offering the possibility for local farmers to slaughter on site, rather than travelling long distances to regional abattoirs. The accessibility barrier of abattoirs suitable for small-scale production has halted the development of sustainable food systems by causing undue difficulty for small-scale producers. We found that a mobile slaughterhouse unit is a feasible opportunity for Haliburton County that has the potential to reinvigorate withering foodways in this rural community.

Keywords
Sustainable Food — Food Systems — Environmental Policy — Agriculture

Otonabee College

Introduction

Small-scale producers of livestock and livestock products in Ontario are currently under stress as a result of a policy framework that favours larger producers and economies of scale. This framework has created a centralizing trend in agriculture across the province which has been in action for upwards of half a century (Gibson, 2015). In particular, the centralization of abattoirs has made it increasingly difficult for small-scale producers to get their products to market. Smaller operations close their doors as they are purchased by larger operations, and slaughter becomes concentrated on a smaller and smaller portion of the agricultural landscape (Pinkney et al, 2013). This trend has a devastating effect on the sustainability of rural communities, as both slaughterhouse workers and small-scale farmers lose access to employment and processing opportunities. The system of supply management supported by both Federal and Provincial policy actively favors large scale producers (Gibson, 2015), and makes it difficult for small scale farmers to stay afloat by increasing the financial costs of getting animals and/or animal products to market. This centralizing trend in the food system also has implications for animal welfare. As the geographic distance between farms and slaughterhouses increases, so does the travel time for livestock. This can cause undue stress on the animal (Carlsson et al, 2007). Furthermore, the distance required to transport animals to and from these large-scale slaughterhouses increases the greenhouse gas (GHG) emissions of animal-agriculture (Garnett, 2011).

To mitigate these detrimental effects on rural communities, small-scale producers, animals, and the environment, there must be a revitalization of the small-scale slaughterhouse infrastructure on the landscape. This revitalization would allow rural communities to reignite their economies, increase their sustainability, break down significant barriers for small-scale producers, and decrease the detrimental effects of animal agriculture on both livestock and the environment (Carlsson et al, 2007 and Garnett, 2011). This paper proposes that Mobile Slaughterhouse Units (MSUs), currently an alternate approach to abattoir infrastructure active in the United States, could provide a potential solution to the issue of centralization faced by small-scale producers in Ontario. However, as MSUs are a novelty in Ontario, navigating the policies surrounding their establishment could prove difficult. It is the goal of this project to outline the key areas of policy at the Federal, Provincial, and Municipal levels that would have to be traversed in Haliburton County in order to operate an MSU. To accomplish this analysis, our paper will be divided into three sections. The first section will describe the decline of abattoir infrastructure in Ontario and the potential value of MSUs within the meat production system. The second section will describe the relevant Federal, Provincial, and Municipal policies which would influence the establishment and operation of an MSU. The final section will present existing MSU projects that have successfully surmounted various policy barriers.

1. Agricultural Centralization

As previously mentioned, over the past 50 years there has been a trend towards the centralization of livestock slaughter in Ontario. This has been the result of changing economic and policy realities that have promoted growth, efficiency, and scale in the meat processing sector. In the case of small-scale abattoirs, these factors have led to a dramatic decline in the number of licensed plants in Ontario, dropping from 183 in 2005 to 142 by 2012 (OMAFRA, 2016). The remain-

ing abattoirs have either adapted by increasing their capacity, or maintaining stable rates of slaughter. None have reduced capacity and survived (Charlebois & Summan, 2014). These closures have increased the average geographic distance between licensed slaughterhouses, increasing the financial and temporal costs of slaughter for small-scale producers. This in turn has a negative effect on the economic viability of small-scale operations, the health of livestock, the quality of the product, and of course the environmental sustainability of livestock agriculture in Ontario.

While there is a noticeable lack of literature surrounding the state of the meat-processing industry in Ontario, two studies outline the key barriers faced by small-scale abattoirs in Ontario. The first study was conducted for the Community of Perth County through the University of Guelph, and the second was published in the *International Journal of Rural Management*. These studies found that the top two barriers to operation, as identified by operators, were the cost of compliance with food safety protocols and issues with inspection procedures (Pinkney et al*,* 2013). These barriers are a direct result of Federal and Provincial policies that are increasing the overhead cost of abattoirs through increasingly stringent food safety practices, increasing the amount of paperwork shop owners must spend time filing, and creating an inspection system that favours large highly systemized plants, which is ultimately leaving many small-scale owners feeling disempowered (Charlebois & Summan, 2014). Other barriers faced by abattoirs include access to skilled and reliable labor, inter-abattoir competition, low profit margins, high overhead, and livestock sourcing (Charlebois & Summan, 2014).

These pressures have an effect on small scale producers that lack sufficient capital to respond to increased waiting lists for services, greater travel distances, and general lack of access to slaughtering services. Producers then need to increase their size or find alternative means of getting their products to market. Strict Provincial laws surrounding the slaughter, sale, and distribution of meat, create an unfavourable environment for small-producers unable to access a licensed plant. In particular, section 31/05 of the *Ontario Food Safety and Quality Act* makes it illegal to slaughter, process, and distribute meat without the approval of a federally or provincially licensed inspector. Producers can be fined a maximum of $50 000 per day and up to two years in prison for non-compliance (OMAFRA, 2016). This means that they must either find a way to gain access to a licensed abattoir or go out of business.

These pressures are very real for producers in Haliburton, as the two nearest slaughterhouses are *Len and Patti's Butcher Block* in Lindsay and *Otonabee Meat Packers* just south of the city of Peterborough. Both these locations are approximately 100 km away from the center of Haliburton County, and according to our community partners are difficult to gain access to as a result of high demand for their services (Martin & Taylor, 2016). In this current system producers in Haliburton must transport live animals upwards of an hour to these locations for slaughter. An MSU could transform this production system by bringing a licensed slaughtering facility to the producers' barn doors.

MSUs originated in the San Juan Islands off the coast of Washington State. The first project was funded by the Island Grown Farmers' Cooperative, with the goal of reducing the time and financial costs of getting its members' meat products to the nearest mainland abattoir more the 500 km away (Mobileslaughter.com). The unit consists of a transport truck and highly modified trailer unit that has been the inspiration for at least twenty similar models across the United States. These trailers are divided into three sections: an area for processing carcasses, a freezer for cooling meat, and a space for electrical and utilities infrastructure. The average cost of a unit is between $200,000 and $300,000 USD. Major issues identified by MSU operators include difficulty navigating multiple levels of policy, creating and maintaining relationships with farmers and consumer markets, accommodating inspectors, achieving abattoir licenses, determining the location and protocols of animal slaughter, finding funds for initial startup costs, and waste disposal (NMP, 2013 & Barter, 2013). Physical geography has also been a barrier for some projects, with distance, terrain, and winter road conditions proving difficult. The following section will outline the Federal, Provincial, and Municipal policies operators of an MSU would have to navigate in order to be successful in Haliburton. The last section will then outline a potential approach to establishing a MSU in this region, drawing from the experiences of already established MSUs in both the United States and Canada.

1.1 Federal, Provincial, and Municipal Policy Frameworks

1.2 Federal Slaughterhouse Certification

The Canadian Food Inspection Agency (CFIA) is the regulatory body that manages and controls food safety and inspections in the Canadian meat processing industry (CFIA, 2013). The CFIA uses command-and-control regulations to ensure the meat processing industry is in compliance with relevant laws (CFIA, 2013). The main statute relevant to meat processing in slaughterhouses is the *Meat Inspection Act* (1985), which is enforced by the CFIA using Meat Inspection Regulations (1990).

The *Meat Inspection Act* requires that all beef, pork, or poultry sold across provincial borders or outside of Canada be processed in a federally inspected facility (Meat Inspection Act, 1985 & CFIA, 2013). A federal inspection of a meat processing facility involves providing written records of food safety to CFIA upon request, implementing corrective action plans as assigned by CFIA, reporting food safety issues to CFIA, and correcting any issues within a timely manner. Federal inspection also includes on-site inspections and sampling of slaughterhouses through random and specific sampling efforts. Samples taken within the slaughterhouse and of the product itself are sent to labs for analysis. If a facility is found to be in non-compliance with the *Meat Inspection Act*, corrective actions are required. The CFIA can seize a product,

require compliance within a determined time period, issue a Corrective Action Request, begin a food safety investigation, suspend the operating license, and/or recommend prosecution when non-compliance is discovered. It is imperative that a federally inspected mobile-slaughterhouse unit fulfills the requirements of the *Meat Inspection Act,* by following the Meat Inspection Regulations as laid out by CFIA.

Specifically, Part II (Registration, Licensing, Maintenance, Operations, and Thermal Processing) of the Meat Inspection Regulations lays out the requirements of federally inspected meat processing plants in Canada (Meat Inspection Regulations, 1990). Section 28 (1.a) requires that a slaughterhouse be situated on land that is free of debris, has good drainage, and is free of potential sources of pollution. The facility must be free of rodent and insect pests, and in good overall condition. In the context of a mobile slaughterhouse unit, the requirements of Section 28 (1.a) are feasible. In fact, the mobility of an MSU would allow the facility to consistently fulfill these requirements. If land became contaminated, or flooded, for example, the MSU would be able to move to an uncontaminated or well-drained piece of land. S. 28. 3. requires that the facility be equipped with a private, furnished workspace for use by CFIA inspectors, with access to dressing rooms and shower facilities. This section also requires that lockers and cabinets be available for use by inspectors. With the limited space available in an MSU, meeting these requirements might pose a challenge. It could be argued, however, that a lock-box could suffice as a locker and cabinet for federal inspectors. This has been deemed appropriate for USDA inspectors for MSUs operating in the United States (NMP, 2013). In this case, an MSU could accommodate. S. 28. 4 requires that a space be available for holding sick animals separate from other animals (1990). The requirements of S. 28 (4) would be more challenging to have included in a mobile slaughter unit because the units don't include an interior animal holding space. Animals are held outside of the unit until the time of processing. The requirement of 'a space available' must be clarified if a space inside the facility is required, or if a space within the MSUs ambit would suffice.

Working groups in the United States have created mobile slaughter units that meet the United States Department of Agriculture requirements (Ranch Food Direct, 2014). While this is occurring in the United States, it is still relevant to the case of Canadians looking to market their meat between provinces and internationally. Worth considering here is the notion of mobile slaughter units as a tool to revive Canada's rural food system. As noted by the Ontario Ministry of Food, Agriculture and Rural Affairs (OMAFRA, 2016), the federal inspection program is designed for abattoirs whose goal is to satisfy interprovincial or international requirements. MSU operators may not intend to have their meat sold across the Ontario border, and therefore do not need to achieve federal certification.

1.3 Provincial Slaughterhouse Certification

Meat sold or distributed in Ontario must be processed in a licensed slaughterhouse facility, inspected either at the provincial or federal level (OMAFRA, 2016). Of all the meat processed in Ontario, 10% goes through provincially licensed facilities and is sold locally or to specialty markets. The majority of Ontario's abattoirs choose to pursue federal inspection in order to have access to the wider national and international markets. However, Ontario's provincial inspection program is designed to fulfill the same food safety objectives, such as sanitation, production practices, and record keeping as the federal inspection program. Under the provincial *Food Safety and Quality Act, 2001*, OMAFRA must license abattoirs not licensed under the federal program. The *Food Safety and Quality Act* enables OMAFRA to regulate and enforce quality and safety standards, inspections, and orders through O. Reg. 31/5 (McLellan, 2016).

1.3.1 Ontario Regulation 31/5: Meat Regulation

The provincial facility regulations, O. Reg. 31/5, are similar to those in the federal licensing program (OMAFRA, 2016). The facility must have separated areas to avoid cross-contamination between processing and storage. Surfaces and utensils used must be easily cleaned and sanitized. The plant must also be free of pests and have access to potable, hot water that is free of contamination. Only inspected meats may be present on the premises. These four requirements could be achieved by an MSU. Units include a separate area for processed meat storage in their design (Mobileslaughterunit.com). Unit interiors are made of plastic or stainless steel to avoid bacteria build-up and for ease of cleaning and sanitizing. Pest management is a general maintenance requirement that an MSU could achieve. Access to potable, hot water that is free of contamination could be solved either by the addition of a hot water tank to the MSU itself, or as part of the units docking uarea. Allowing only inspected meats on the premises would require compliance between producers and processors, and is not a factor that is influenced by the use of an MSU.

The facility must have receiving and holding spaces for animals. This would mean either the creation of a temporary and mobile fencing system associated with the MSU, the use of existing holding systems on farm properties, or the creation of a specialized docking zone the MSU. Adequate storage for waste would require foresight and planning by the MSU operator to ensure the number of animals processed does not exceed the capacity for waste storage in the Unit. In order to obtain a license to operate, the mobile slaughter unit must be associated with a permanent address (e.g. house, barn) at each location. Through a phone conversation with an OMAFRA Information Resource Agent we discovered that the MSU operator would be required to obtain a separate license for each location that it would operate on (McLellan, 2016). That would mean an MSU operator would have to prove access to a permanent premise, adequate water supply, storage capacity, and proper equipment within the facility at each location.

Inspections are conducted by full-time OMAFRA employ-

ees and include a variety of assessments of a plant's compliance with the *Food Safety and Quality Act, 2001* (OMAFRA, 2016). Inspectors monitor activities such as the hygiene practices of employees, operational hazards, and other potential health hazards that occur within the facility. Inspectors may also review written records of food safety compliance. Inspectors may also take random and directed samples of the water source, meat products, and/or carcasses. Deficiencies or non-compliance are addressed by corrective actions are determined by OMAFRA. These requirements could be achieved by an MSU through diligent and detailed work and observation. Perhaps what would be more difficult is that a provincial inspector must be on-site during the time of all slaughter activities, to inspect each animal before slaughter and each carcass after slaughter.

The requirement of an inspector being on the premises at all times during slaughter could prove to be a challenge for the feasibility of the MSU. The rural location of the MSU facilities, and their sporadic use (use only a couple days a month or when animals need to be slaughtered, such as a community slaughtering day), would make it difficult for an inspector to be on site at all times. This would mean an OMAFRA employee must travel to rural locations to inspect slaughter at the facilities, which are not running full-time.

1.3.2 Ontario Regulation 105/09: Disposal of Deadstock

O. Reg 105/09, Disposal of Deadstock, enacted under the *Food Safety and Quality Act, 2001*, would apply to the operation of an MSU. This regulation states that any meat that is unable to be used after salvaging must be collected by a licensed collector, transported to an appropriate disposal facility, or to a veterinarian who agrees to the responsibility of disposing of deadstock. As there are no such waste facilities or licensed collectors in Haliburton County, the feasible option would be to transport the waste to an appropriate facility. Otherwise, community members and future MSU operator would have to consult with a local veterinarian on the issue. The nearest deadstock disposal facility is Perconi, located in Lindsay, ON, 100km south of Haliburton County (OMAFRA, 2016). The facility is operated by Don Montangue, a licensed collector, who offers services for all species of deadstock (OMAFRA, 2016). In a phone conversation with Haliburton Veterinary Services it was indicated that no vets in Haliburton take deadstock (2016). All four of the vets in Haliburton work out of the same practice. It was indicated that farmers in Haliburton use Perconi's services to deal with their deadstock.

In this regulation the "operator" is the person who handles the animal directly before it is slaughtered (*Food Safety and Quality Act*, 2001). In the case of an MSU, this would be the MSU operator. After slaughter, the operator would become the "custodian" under O. Reg 105/09, and is responsible for the disposal of the deadstock. In the role of the custodian one must ensure that the deadstock is in cold storage or a freezer within 48 hours after death. In cold storage the deadstock can be stored for 14 days, and for 240 days in frozen storage. A typical mobile slaughterhouse which costs between $200,000 and $300,000 US can contain up to 8000 lbs of deadstock in its built-in refrigeration container. Additional refrigeration containers can be purchased for $30,000 US, which would increase the capacity of deadstock storage in the MSU. This would mean a typical MSU has 14 days to transport its deadstock to an authorized disposal facility. The only person allowed to transport deadstock is a licensed collector, therefore an MSU operator would have to also act as a licensed collector while as they would be responsible for transporting deadstock to a waste facility.

Deadstock may not be transported with food intended for human consumption. An MSU would not be able to travel with the deadstock and the meat. As MSUs would typically slaughter meat for direct return to producers, this regulation may not be a problem. In addition, Perconi's deadstock facility offers on-farm pick-up services to Haliburton County. If meat were returned directly to farmers it would not be on board and the deadstock could be transported to Perconi's. If a case were to occur where meat must be transported, Perconi's could pick up the deadstock.

Despite the potential barriers present in provincial legislation, there are a number of positive trends at the provincial level that may make the policy surrounding MSUs more favorable to their operation. First among these is the recent passing of the *Local Food Act, 2013*. This act formalizes the "Local Food Strategy" transforming the policy goals of improving local food literacy, encouraging increased use of local food by public sector organizations, and increasing access to local food throughout Ontario into legal obligation. The Act defines local food as "a) food produced or harvested in Ontario, including forest and freshwater food, and b) subject to any limitations in the regulations, food and beverages made in Ontario if they include ingredients produced or harvested in Ontario" (*Local Food Act*, 2013). Both of these conditions would apply to meat processed in a MSU. Furthermore, the act has mandated that the Provincial Government release an annual Local Food Report, highlighting key issues facing the development of local food systems in Ontario, and describe actions the Government has taken to address them. The first report released in 2015 stated that "alternate means of distributing food can fill a missing link in local and regional food systems by giving small and medium-sized farmers better access to customers" (OMAFRA, 2016). This statement was supported by the "Local Food Fund", which invested up to $10 million per year over a three-year period to small and medium scale producers in Ontario. While applications for this fund are no longer being accepted, there is a likelihood that another round of funding may be inspired by pressure from the *Local Food Ac*t. This Act, the findings of the first Local Food Report, and the goals of the now closed Local Food Fund are promising changes to the Provincial Policy environment that may mean MSUs may become increasingly viable.

The second promising legal change comes from an amendment to the *Meat Regulation Act, 2002* of the Province of

Alberta. The act was amended in 2009 to include "mobile butchers" as a legal and certifiable means of slaughtering animals in the province (Alberta, 2009). This amendment was followed by the creation of an experimental MSU in the Municipality of Big Lake in 2011. This unit processed 250 animals before closing, and was funded by the Alberta Innovates Technology Futures Program (AITF) which covered the initial $300,000 investment (MacArthur, 2011). This is promising for MSU's in Ontario for two reasons: first, it means MSU's can be seamlessly blended into Provincial policy, and second, the since AITF exists as a sister organization to Ontario Centers of Excellence, there is at least one potential option for an MSU to receive funding in this Province. These recent changes in policy and funding, mean that with a little creativity an MSU could easily exist within Ontario's provincial policy framework.

1.4 Municipal Slaughterhouse Certification: Haliburton County

Haliburton County is located in central Ontario at the southwestern side of Algonquin Provincial Park (Haliburton, 2016). There are four municipalities in Haliburton County: The Township of Algonquin Highlands, The Municipality of Dysart et al, The Municipality of Highlands East, and The Township of Minden Hills. Of these municipalities, Minden Hills and Dysart et al are the ones with the strongest agricultural ties (Martin & Taylor, 2016). We will focus on these municipalities when analyzing the specific municipal by-laws that influence the feasibility of mobile slaughter units. Minden Hills and Dysart et al, along with the other two municipalities, each have an elected Council. The Reeve and a Deputy of each of the four municipalities sits on the Haliburton County Council. The County Council recently updated the County's Official Plan in 2015 (White, 2015). The part of the Official Plan relevant to MSUs is the new land designation for "Rural Areas".

The draft documents available online indicate that *rural areas* will be defined as "all areas outside of urban settlement" which might include ecologically significant wetlands, natural heritage features, and agricultural lands (White, 2015). On the land under the "Rural Areas" designation, forestry and extractive uses, the environment, and agriculture are given priority over recreational land uses. One of the primary objectives of the "Rural Areas" designation is to promote and sustain the economic base in the County of Haliburton. This includes delivery and development of agricultural goods, such as value-added agriculture products. A second objective stated in the draft Official Plan is to "encourage the revival of the local agricultural industry" (White, 2015). Further, the "Rural Areas" designation will direct development in a way that makes the most use of currently existing infrastructure on rural land.

The draft document acknowledges that because Haliburton does not contain "prime agricultural land", there is a duty to protect and preserve the current agricultural land in operation (Haliburton, 2016). With regard to developing new livestock facilities, the draft simply states that the County would follow the Minimum Distance Separation (MDS) Formulae as required by OMAFRA. The MDS is a tool used in land-use planning to determine the minimum distance that must exist between a livestock barn or manure storage and an adjacent land use (OMAFRA, 2016). It is unclear whether a mobile slaughter unit is subject to the Minimum Distance Separation Formulae (Martin, 2016).

At this point we could predict that an MSU would comfortably adhere to the requirements of the "Rural Areas" land use designation, while also supporting the designation's main objectives. An MSU would allow small-scale meat producers in Haliburton County access to a processing facility. As previously identified, lack of access to processing facilities is one of the main barriers faced by small-scale farmers in Ontario (Gibson, 2015). This barrier caused significant economic loss and often business failure for many small-scale producers (Gibson, 2015). An MSU would break down the barrier of lack of access to abattoirs, and assist in sustaining Haliburton County's economic base, one of the key objectives of the County's 2016 Official Plan. More specifically the operation of an MSU would provide significant support to reviving Haliburton County's local agricultural industry, another of the main objectives of the 2016 Official Plan. All in all, it is under the jurisdiction of the County of Haliburton to determine if an MSU would conform to the County's 2016 Official Plan. What we have provided here is a good start.

1.5 Municipality of Dysart et al & Township of Minden Hills

The by-law on mobile slaughterhouse units is silent at the sub-municipal level in The Municipality of Dysart et al and in The Township of Minden Hills (Martin, 2016). Based on the absence of abattoirs in Dysart and Minden Hills, it is unclear which by-laws would be applicable to the operation of a mobile slaughterhouse unit in the Municipality. Conversations with The Municipality of Dysart et al Director of Planning and Development, Patricia Martin, gave us a good idea of which by-laws would apply to an MSU within Dysart et al. We extrapolated these results to also consider which by-laws would be relevant to an MSU within Minden Hills. Dysart et al is responsible for building permits and property standards, environmental services and waste management, and planning and development (Dysart et al, 2016 & Martin, 2016). The Director indicated that the approval for an MSU would come primarily from the provincial government, through OMAFRA, as mentioned in the previous section (Provincial Slaughterhouse Certification). In Minden Hills the relevant by-laws include property standards and transient trader licensing.

1.5.1 Building Permits and Property Standards

The Building Permits and Property Standards by law, By-Law No. 2014-29 states the building and property standards that must be met in Dysart et al in order to sustain a building permit (Dysart et al, 2016). This is difficult to apply to the case of an MSU, which may not be stationary, and which may

not be associated with a specific property. At this point it is questionable if the MSU a building, as defined by By-Law No. 2014-29. If the unit is transient the municipality may not consider it a "building", and may not require the unit to acquire a building permit, nor adhere to By-Law No. 2014-29 property standards. This question must be answered at the sub-municipal level prior to the establishment of an MSU. By-Law No. 2014-29 also states that no machinery, vehicles, or trailers may be stored on vacant lands (Dysart et al, 2014). If an MSU were parked on a vacant lot for the duration of processing, is that considered to be "storage" of a "trailer" on a "vacant lot"? This poses another question that must be answered at the sub-municipal level. If an MSU were to be proposed in Dysart et al, the County Council would have to determine where the unit would fall within the definitions, such as "buildings" and "trailer", that define the parameters of By-Law No. 2014-29.

The Township of Minden Hills has similar legislation in the form of By-Law No. 11-61. This by-law was enacted in the Township to prescribe standards for maintenance and occupancy on properties within the Township, similar to the objectives outlined in By-Law No. 2014-29 in Dysart et al (Township of Minden Hills, 2016). The by-law states that properties must be in good general care (i. e. clean yards, lack of debris), and that all repairs/work done on buildings must adhere to the Ontario Building Code. By-law No. 11-61 defines "property" to include all mobile structures, mobile homes, and mobile buildings. This by-law indicates that the property on which a mobile slaughterhouse unit operates would be subject to By-Law No. 11-16 under the jurisdiction of the Township of Minden Hills. This by-law does not, however, define building standards that must be met in the same depth that By-Law No. 2014-29 does in Dysart et al.

By-law No. 11-16 indicates that where vehicular traffic and parking occur that the ground must be made up of asphalt, concrete, or stable stone or gravel. Again, the terms of this by-law would need to be further defined to determine if an MSU is considered "vehicular traffic" or as "parking". Depending on whether or not the MSU is considered "vehicular traffic" or as "parking", the operation of an MSU may necessitate a solid foundation of asphalt, concrete, or stable stone or gravel. Presumably, an operational MSU would be parked, and thus require the foundation described. The owner of the property and the MSU operator would have to ensure compliance with By-Law No. 11-61 by installing this kind of required foundation.

1.5.2 Environmental and Waste Services

The rough draft of the Haliburton County Official Plan indicates that each development in a rural area must have the capacity to incorporate a sanitary sewage disposal system (Haliburton, 2016). The steps necessary to prove that there is potential for a sanitary sewage disposal system include an assessment done using the Ministry of Environment's guidelines and the Ontario Building Code.

By-Law No. 2014-29 in Dysart et al indicates that each building must have the capacity to store all of its garbage in suitable receptacles so that garbage does not accumulate on the property (Dysart et al, 2016). Garbage may not accumulate in these receptacles for more than 14 days. An MSU would need to have the capacity to store all waste produced during slaughter and to move it out of the unit within 14 days. These requirements echo the federal and provincial requirements for slaughterhouse interior, and thus do not create additional stress on the operation of an MSU. If Dysart et al decided to view MSU's as separate from "buildings", By-Law No. 2014-29 would not apply at all. By-Law No. 11-61 in Minden Hills requires that each building must have the capacity to store its garbage out of view of the public. For an MSU this would mean ensuring that the Unit itself has a compartment dedicated to the storage of animal waste that cannot be seen from the outside.

Dysart et al's waste removal policy is By-Law No. 2014-27 (Dysart et al, 2014). This by-law regulates and prohibits the drop-off and pick-up of waste material in Dysart et al. The Municipality has classified "condemned or dead animals or their carcasses" as "Schedule C" waste, and is prohibited at all Municipal Landfills or Recycling Centers. An MSU in Dysart et al would have to have the capacity to store and transport this type of waste from within the Municipality of Dysart et al to an appropriate disposal facility. Minden Hills does not have a waste removal policy, however, under O. Reg 105/09, Disposal of Deadstock, this kind of waste must be received by a licensed collector. As previously mentioned, Don Montague of Perconi's in Lindsay, is a licensed collector who offers deadstock disposal services.

1.5.3 Planning and Development

The Director of Planning and Development for the Municipality of Dysart et al indicated in conversation that proper zoning would be a primary consideration for any proposed MSUs in Dysart et al (Martin, 2016). The Director indicated that because there are no abattoirs within the Municipality, there are currently no by-laws specifically associated with abattoirs. Martin indicated that the location would primarily determine whether the Municipality would approve the MSU for operation. Within Dysart et al, commercial and industrial zones, such as Abbey Gardens, were suggested as being the zones with the highest potential for achieving an MSU approval (Martin, 2016). The recommendation overall was to perform case studies of Municipalities that have successful MSU operations. Doing this kind of legwork gives Directors and County Council a starting point for investigating appropriate by-law legislation for MSU operations. The interest exists at the Planning and Development level, but the by-law does not. There were no by-laws within the Township of Minden Hills that related to planning and development in the context of MSUs. Because Municipal legislation is not available for abattoirs in the area, perhaps the Haliburton County 2016 Official Plan Rural Areas designation could be considered as the default legislation under which MSUs are governed. This legislation is the most relevant and coincides seamlessly with

the main objectives of an MSU operation, such as supporting the local economy and revitalizing the rural landscape.

1.5.4 Transient Traders

The last of the Dysart et al by-laws that would apply to the operation of a mobile slaughter unit is By-Law 2004-44, which was established "to license and regulate transient traders" within the Municipality (Dysart et al, 2014). By-law 2004-44 operates under the *Municipal Act, 2001*, which allows County Council to make by-laws to license transient traders in accordance with the values of nuisance control and consumer protection. By-Law 2004-44 defines a "transient trader" as someone who travels from place to place to offer the sale of goods or services on a one-time or intermittent basis. Without this license, a transient trader may not conduct business sales for goods and services within Dysart et al.

Section 9 of this by-law is particularly applicable to mobile slaughterhouse units. Section 9 states that no person shall sell goods off of the property of the licensee without the authorized permission of the licensee, and the zoning of the land on which the sale occurs is the same zone or which the permit was issued. For an MSU this would mean that meat processing (service) or meat (good) would have to be sold on the same property on which the MSU operates. At first glance it would appear to be inconvenient that one could not sell meat unless it was on the property that is licensed. The transient trader, however, offers the slaughter of the animal and then the meat goes back to the farmer. The service is the slaughter; the meat is not a good that the MSU is purchasing and then proceeding to sell elsewhere. While an MSU could operate as a transient trader (See: **Section 3. Policy Overview and Suggested Approach**).

By-Law No. 94-32 is the Township of Minden Hills' transient trader's by-law, designed to regulate and license transient traders within the Township (Township of Minden Hills, 2016). Within Minden Hills "transient trader" applies to anyone who has not resided within the Township for at least three months preceding the start of business operation. Sections 3 and 4 of the by-law indicate that the cost of a transient trader's license is $300.00, except for the case of a farmer who is a resident of Ontario and plans to sell his or her own "produce", where the license costs $5.00. For the case of an MSU, the license would cost $300.00 if the operation buys meat from farmers and sells it back to them after it has been processed. This is the type of transaction that occurs in industrial meat-processing (Gibson, 2015). An MSU, however, may only require the $5.00 license if the farmer is the one operating the MSU, and intends to sell their "produce". This case would be especially complicated because it would require consideration of what is the service (slaughter?) and what is the good (meat?), and how they are being bought and sold. The key factor that would determine whether a transient traders license is necessary for an MSU would be the business model of the operation.

Section 10 of By-Law No. 94-32 indicates that a transient trader must obtain a license for business that is associated with a specific property, and must have the approval of the property owner. In order to obtain a transient trader's license, an MSU would have to be associated with a specific property. The Unit could not move to each producer's farm to slaughter animals on-site unless each farm had been approved for a transient trader's license. It would appear that selecting one property, as the hub of the operation, would be the most efficient option for an MSU within Minden Hills. This would avoid the cost of licensing each farmer at each different farm location as a transient trader.

Overall, at the Municipal and Municipality/Township level there are no by-laws that specifically pertain to MSUs. This is the case in fact throughout the Federal and Provincial legislation as well. What must be considered is the space available to move forward with this type of operation. A wider agricultural plan for Haliburton County must be developed that develops the kind of infrastructure, policy, and engagement that are necessary to achieve success with a novel project.

2. Section 3. Policy Overview and Suggested Approach

From our research it is clear that the establishment of an MSU in the Haliburton region would require community members to negotiate multiple levels and areas of policy. At the Federal level, an MSU would have to comply with the *Meat Inspection Act* (1985) and the CIFA Meat Inspection Regulations (1990). These laws focus specifically on the facilities, processing, and inspection of Federal Certified abattoirs, however Federal Certification is required only for facilities planning to distribute their product outside of their provincial borders. An MSU may not need access to such large markets, especially if its focus was to foster a thriving local/regional food system. As a result, it may be more appropriate for a project of this scale to seek Provincial Certification under Ontario's *Food Safety and Quality Act* (2001). The recently passed *Local Food Act* (2013) in Ontario, and the inclusion of "Mobile Butchers" in the Alberta's *Meat Inspection Act S.1.1 (g, i, & j)*(2000) are promising changes for the viability of an MSU in Haliburton. Despite this relative clarity at the Federal and Provincial levels, there is a high level of ambiguity in the Municipal By-Laws within Haliburton County. In particular, the Municipalities of Minden Hills, and Dysart et al, have no By-Laws specifically related to MSUs. Without proper planning an MSU could find itself operating in the inconvenient, and often unsupported, grey areas between By-Laws. In response to this, we have created a potential approach to MSUs for the County of Haliburton that not only negotiates these policy issues, but also provides ideas about how to place this sort of operation in the larger social, political, and economic context of the region.

The first part of this approach is to understand the economic realities of an MSU. This is quite simply that they are not a money making venture, as there is a large initial investment, high maintenance costs, the need to hire a pay for skilled labour, regular inspection fees, and potentially

distribution of product and waste disposal. However, as is shown in Tables 1 and 2 (APPENDIX), which represents the annual expenditures and revenues of a MSU operated by the Taos Economic Development Corporation (TEDC) in New Mexico, built into an appropriate system MSUs can at least cover their own costs and produce a small amount of revenue (NMP, *Mobile Slaughter Units: Reports From the Field*, 2013 & Melanson, 2005). With this in mind, it may not be the most viable option to run an MSU as a private enterprise, as they must exist within and be supported by a larger integrated system that includes: a consistent supply of livestock, a storage facility, waste disposal sites and/or mechanisms, a cut-a-wrap location, and a retail/distribution network. Throughout our research we found that successful MSU's have managed to connect all these aspects of the supply chain and therefore reduce costs for both farmers and operators. Good examples of this include: Ranch Direct Foods based out of Colorado Springs (see NMP, *Ranch Foods Direct Case Study*, 2013), the previously mentioned "Mobile Matanza" run by the TEDC in New Mexico (see Moran, 2008 for basic summary), and Wild Idea Buffalo/Sustainable Harvest which operates in North and South Dakota (see, NMP, *Mobile Slaughter Units: Reports from the Field*, 2013 for more details)[1]. An MSU in North-Western Quebec failed because it was unable to secure both a consistent supply from local farmers and a reliable market (Barter, 2013). This means that the first step to creating an economically sustainable MSU in Haliburton County is to establish, or to at least identify and connect with all aspects of the supply chain before considering investment. This necessitates a process of community consultation, that may not only generate support for such an initiative, but also connect with potential sources of funding, including: existing farm cooperatives, private investors, and/or government agencies/programs. Our research has shown that MSU's must be embedded in a larger system of supportive producers, value-added processing facilities, and distribution, for them to succeed.

The next step would be to create an operational model that meets all the previously discussed policy requirements. An MSU in Haliburton may be able to avoid interaction with Federal policies, but major barriers from the Provincial level include: access to hot and non-contaminated water, location on a clean and well-drained property, property licensing, housing for live animals, and disposal of deadstock. At the Municipal level, By-laws surrounding building codes, transient traders licenses, and waste disposal are of particular importance. In order to reconcile all of these issues and avoid occupying any legal grey areas, we suggest that it would be best for an MSU in Haliburton to make use of a system of docking zones instead of focusing on farmyard pickups.

This model has been made use of by Ranch Foods Direct, and the failed Abitibi-Temiscamingue MSU in North-Western Quebec. Instead of the ideal door-to-door pick-up, this model establishes one or more permanent "docking" stations in the region it intends to service. These docking stations could be officially zoned as commercial, licensed under the transient trader by-laws, and have permanent infrastructures to comply with water, sewage, inspector facilities, and live-animal holding built-in. While this may sound like a significant investment, these docking stations consist of little more than a level concrete pad with a central drain pipe, a water hookup, portable livestock fencing, and potentially a small office area, much less than the cost associated with establishing a fully-equipped, permanent facility. Without docking zones farmers using the MSU would most likely have to front the cost of building and licensing slaughtering pads on their own properties. The docking zone model would mean livestock would have to be transported, but the distance and number of animals being moved would be decreased in contrast to industrial meat processing. There would be a decrease in animal stress and transport related emissions when compared to the industrial system (Garnett, 2011). Docking stations would also decrease the travel time of the MSU, allowing workers to process more animals per day in a safer and more consistent venue. For more information on this system there is a webinar @`https://vimeo.com/75316086` which has been an invaluable source of information for this project (NMP, *Mobile Slaughter Units: Reports from the Field*, 2013*)*.

To conclude, despite the multiple levels and areas of policy affecting the establishment and operation of an MSU in Haliburton County, there are no outright barriers to their success. With proper negotiation, planning, community organization and system integration, an MSU could provide a much-needed boost to local producers and economies in the area. These units could reduce costs for farmers, decrease animal stress due to transport, improve the quality of meat, reduce the environmental footprint of animal slaughter, and challenge the centralizing trend acting on abattoirs across the province of Ontario. MSU's have been successful in the United States, and momentum is building in Canada, making them an exciting tool for the creation of more sustainable regional food systems.

3. Acknowledgments

Completed for ERST 4250H (Prof. Ian Attridge), in collaboration with Fay Martin, Angel Taylor, Katharine Hagerman The Trent Centre for Community Research and U-Links Haliburton

APPENDIX:

[1] All three of these operations report slaughtering fees below $200 per animal and no additional cutting fee, making them a considerably cheaper option for local producers than large scale abattoirs (NMP, *Mobile Slaughter Units: Reports from the Field*, 2013)

Table 1. *Costs (USD) associated with running an MSU in a 52-week timeframe unless stated otherwise. Example from TEDC's Mobile Matanza, in Taos, New Mexico. For more detail see (NMP, Mobile Slaughter Units: Reports from the Field, 2013)* $https://vimeo.com/75316086$ *starting at 38:40.*

MSU Expenditures	Associated Cost (USD)
Field Butcher (1)	$36,000
Butcher Assistant (1)	$24,960
Meat Cutter (1)	$30,000
Meat Cutter Assistant	$24,960
Testing	$750/ year
Fuel	$5,400/ 36 weeks
Repairs	$2,400 or 200$/month x 12 months
Annual Inspection	$300/ year
Total (1 year)	$83,370

Table 2. *Sources of revenue (per week for 36* weeks) associated with an MSU. Example from TEDC's Mobile Matanza, in Taos, New Mexico. For more detail see (NMP, Mobile Slaughter Units: Reports from the Field, 2013)* $https://vimeo.com/75316086$ *starting at 38:40. *MSU only operates for 9 months (September-May)*

Sources of Revenue	Revenue (USD)
20 units of Buffalo (or 5 units of Beef)	$1,700
At 300 lb. a unit (hanging weight) At 75/lb. a unit (cut & wrap)	$4,500
Total	$223, 200

4. References

Alberta. Revised Statutes of Alberta 2000 (2010). Government of Alberta. Retrieved from http://www.qp.alberta.ca/documents/Acts/M09.pdf on March 14, 2016

Barter, H. (2013). Mobile Abattoirs: Lessons from Quebec. Retrieved March 4, 2016, from http://sustainontario.com/2013/04/21/15661/news/mobile-abattoirs-lessons-from-quebec

By-Law 2004-44. Municipality of Dystart et al.

By-Law No. 2014-29. Municipality of Dystart et al.

By-Law No. 2014-27. Municipality of Dystart et al.

By-Law No. 11-61. Township of Minden Hills.

By-Law No. 94-32. Township of Minden Hills.

Canadian Food Inspection Agency (CFIA). 2013. Beef Processing and Inspection. Government of Canada. Retrieved from:http://www.inspection.gc.ca/food/information-for-consumers/food-safety-system/beef-processing-and-inspection/eng/1374555766340/1374821164166.

Canadian Food Inspection Agency (CFIA). 2013. Canada's Meat Inspection System. Government of Canada. Retrieved from http://www.inspection.gc.ca/food/information-for-consumers/fact-sheets/specific-products-and-risks/meat-and-poultry-products/meat-inspection-system/eng/1374559586662/1374559587537.

Carlsson, F., Frykblom, P., and C. J. Lagerkvist. (2007). Consumer willingness to pay for farm animal welfare: mobile abattoirs versus transportation to slaughter. European Review of Agricultural Economics, 34: 321-344.

Charlebois, S., & Summan, A. (2014). Abattoirs, Meat Processing and Managerial Challenges: A Survey for Lagging Rural Regions and Food Entrepreneurs in Ontario, Canada. *International Journal of Rural Management, 10*(1), 1-20. doi:10.1177/0973005214526504

Food Safety and Quality Act, 2001, S. O. 2001, c. 20.

Garnett, T. 2011. Where are the best opportunities for reducing greenhouse gas emissions in the food system (including the food chain)? Food Policy 36: 23-32. Retrieved from http://www.fcrn.org.uk/sites/default/files/Food\%20_Policy.pdf.

Gibson, S. 2015. Analysis of the Impacts of Supply Management on Small-scale Chicken and Egg Production. Journal of Undergraduate Studies at Trent, IV:1.

Haliburton. 2015. County of Haliburton, Ontario, Canada. Retrieved from: https://haliburtoncounty.ca/.

Haliburton Veterinary Services. 2016. Phone conversation. March 16, 2016.

Local Food Act, 2013, S. O. 2013, c. 7.

MacArthur, M. 2011. Northern Alberta producers get access to mobile abattoir. *The Western Producer.* Retrieved from: http://www.producer.com/2011/08/northern-alberta-producers-get-access-to-mobile-abattoir/

Martin, P. 2016. Director of Planning and Development. Municipality of Dysart et al. Phone & E-mail conversation. March 9, 2016.

McLellan, C. 2016. Information Resource Agent. Ontario Ministry of Food, Agriculture, and Rural Affairs. Phone & E-mail conversation. March 9, 2016.

Meat Inspection Act, 1985 (R. S. C., 1985 c.25. (1st Supp.)).

Meat Inspection Regulations, 1990 (SOR/90-288).

Melanson, J. 2005. *Restrictions, needs, markets and opportunities associated with a mobile slaughter facility in Nova Scotia*. 4th year project at Nova Scotia Agricultural College. Retrieved from http://www.agriculturebiologique.ca/Docs/MobileAbattoirStudyNS05Melanson.pdf on March 1, 2016

Mobileslaughterunit.com. N/a. Mobile Slaughter Unit. Retrieved from http://www.mobileslaughter.com/.

Moran, J. 2008. *NMSU Northern New Mexico Outreach promotes mobile matanza unit*. Retrieved March 16, 2016, from http://newscenter.nmsu.edu/Articles/views/3778

Municipality of Dysart et al. 2016. Retrieved from: http://www.dysartetal.ca/.

Niche Meat Processor. 2013. *Ranch Foods Direct: A Case Study*. Retrieved from http://articles.extension.org/sites/default/files/Ranch http://articles.extension.org/sites/default/file http://articles.extension.org/sites/default/files/Ranchs/Ranch Foods Direct Case Study.pdf

Niche Meat Processor. 2013. *Mobile Slaughter Units: Reports from the field and further directions.* United States. Retrieved March 7, 2016, from http://vimeo.com/75316086

O. Reg. 105/09: Disposal of Deadstock. 2011.

Ontario Ministry of Food, Agriculture, and Rural Affairs (OMAFRA). 2016. MDS Implementation Guidelines: Minimum Distance Separation Formulae. Retrieved from: http://www.omafra.gov.on.ca/english/landuse/guide_p4.htm#i18.

Ontario Ministry of Food, Agriculture, and Rural Affairs (OMAFRA). 2016. Ontario's Meat Inspection System. Retrieved from: http://www.omafra.gov.on.ca/english/food/inspection/meatinsp/m-i-p-r/ontariomeatinspect.htm

Ontario Ministry of Food, Agriculture, and Rural Affairs (OMAFRA). 2016. Your Responsibility Under the Meat Regulations. Retrieved from http://www.omafra.gov.on.ca/english/food/inspection/meatinsp/resp-under-meat.htm

Ontario Ministry of Food, Agriculture, and Rural Affairs (OMAFRA). 2016. Ontario's Local Food Report: 2014-2015 Edition. Retrieved March 1, 2016, from http://ww.omafra.gov.on.ca/english/about/local_food_rpt.htm

Pinkney, D. Robson, D., Latifova, E., & Abutalib, F. (2013). *Opportunities and Challenges in Local Livestock Processing and Slaughtering within Perth County.*

Ranch Foods Direct. 2014. Mobile Meat Processing: Bridging the Gap Between Farm Gate to Dinner Plate. Retrieved from http://www.mobilemeatprocessing.com/.

Taylor, A.& Martin, F. 2016. Haliburton Farmers Market Association. E-mail conversation.

Township of Minden Hills. 2016. Buildings/Bylaw/Planning. Township of Minden Hills. Retrieved from: http://mindenhills.ca/building-bylaw-planning/.

White, C. 2015. County of Haliburton Official Plan Update 2015. Retrieved from https://haliburtoncounty.ca/services/planning-and-gis/official-plan/.