

ENGAGING FARMERS THROUGH FACEBOOK:
THE USE AND POTENTIAL OF WEB 2.0 TOOLS IN
AGRICULTURAL PLANNING PRACTICE

by

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Abstract

The Web 2.0 represents a new way to communicate, collect data and access all types of data and information online. It places full value in the 'wisdom of the crowd', recognizing the real-time contributions and knowledge individual users of the Web can contribute. To contrast this, formal planning is incremental and methodological.

The actualized and potential application of emerging Web 2.0 tools and technologies in the food and agricultural planning context in southern Ontario forms the basis for this major research paper. Through qualitative analysis of several online initiatives, I seek to determine how and where user-generated data and information (collected and distributed by agricultural producers and consumers and not just by planners, other government officials) can fit into the formal planning process through new ways of collaboration and online engagement.

Ultimately, much of the leadership around Web 2.0 comes from informal networks or non-governmental organizations organizing around food and agricultural production. Planners working in formal institutional settings must continue to understand the niche that these tools can play in their own engagement efforts and determine how best to use the vast wealth of average citizens' food and agricultural knowledge increasingly available online.

Key Words: agricultural planning, engagement, food & agriculture, online data, participation, Web 2.0

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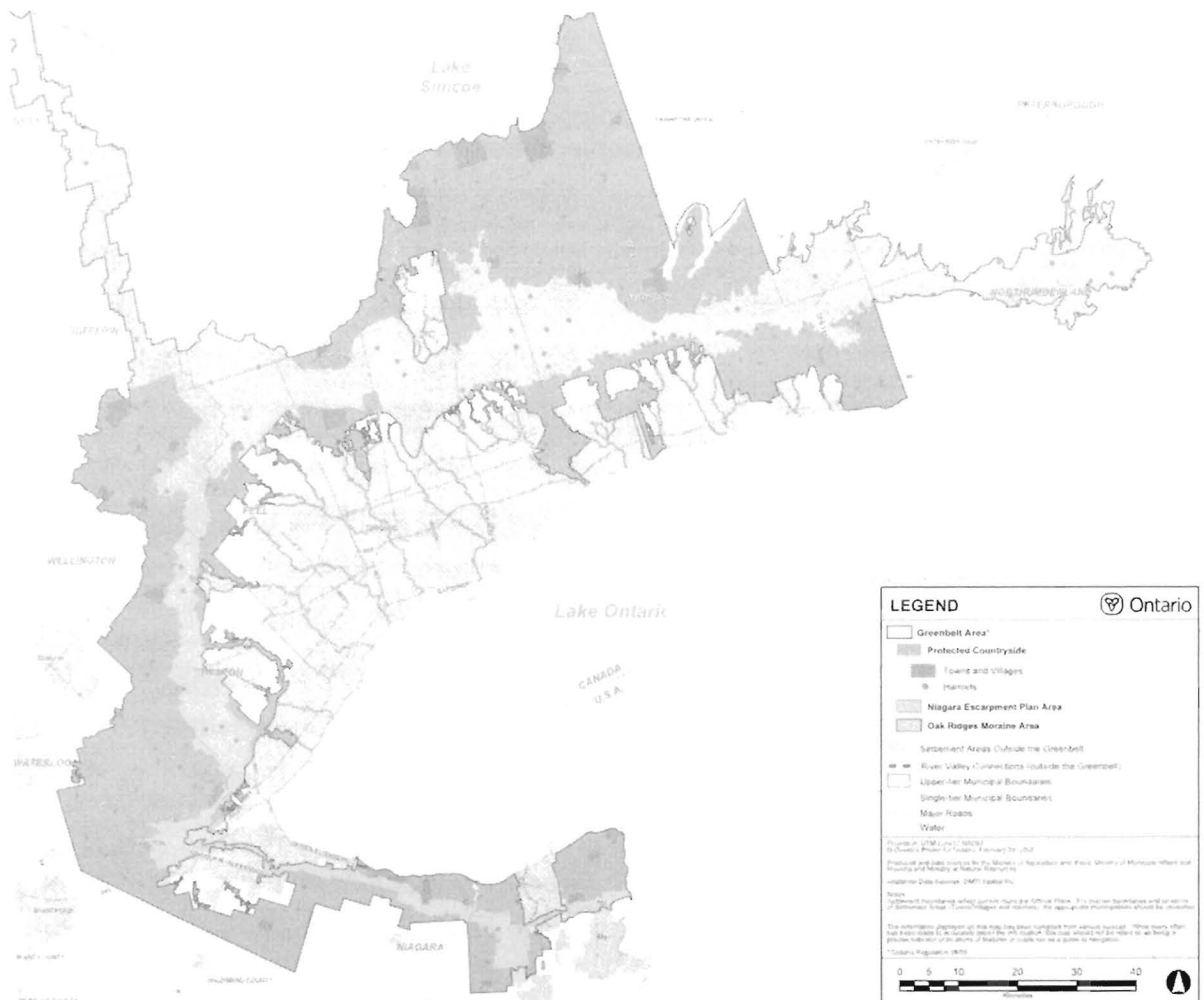
Introduction

For many people, there are two things that are part of daily life. The first one is obvious: food. The second one has emerged in the past five years or so: the Web. The former provides daily nutritional sustenance and energy, while the latter, increasingly, provides for individual social and business life. With the number of people online emailing, posting, and commenting multiple times a day, or constantly with the burgeoning wireless device and smart phone markets, the Web and food are becoming increasingly intertwined. Food blogs, online grocery lists, and restaurant reviews are everywhere. What are less common, however, are the discussions of how this food reached the savvy Web-user. A great deal of planning – land use, agricultural and otherwise – went into each bite, but do these citizens have any say in how it reached their plates? Better yet, do farmers? They are, after all, producers as well as consumers. Can they be reached? Can these new online websites (Facebook, Twitter, blogs) be turned from potentially very socially and entertainment oriented and become spaces of formally engaged, communication, participation and deliberation?

The rate of change in agricultural land use and economics is particularly fast-paced in the near-urban agricultural zone of southern Ontario's Greenbelt, a 1.8 million acre protected piece of countryside home to some 7,075 farms (Figure 1.1). These farms produce everything imaginable, from cattle (1,285 farms) and poultry (232 farms) to fruit (981 farms) and vegetables (361 farms), to oilseed and grains (817) and greenhouses and nurseries (868 farms) (Di Poce, Goarley & Mausberg 2009). It is a region that is facing pressures and challenges at every level. These range from non-agricultural development encroaching on farmland to environmental protection to the very notion of what constitutes 'appropriate' and 'desired' agriculture and agricultural products, the ideas of which may not always be aligned between farmers and their municipal- and regional governments, as well as provincial authorities. This has come to the forefront in recent years as many forces – land intensification, environmental concerns, energy prices, and consumer demand for more local, organic, artisanal and sustainable products (Donald 2009) – have cumulatively altered the economic

landscape in which agricultural food producers operate. This is especially true of those producers in heavily populated, near-urban regions such as southern Ontario, which, in turn, have forced a certain level of innovation to occur at the ground level.

Figure 1.1: Ontario's Greenbelt Plan Area (Ontario MMAH 2005)



However, as municipalities take a longer-term view of rural and agricultural affairs in Ontario, incremental changes are much commonly made within formal planning processes. Within the dynamic, shifting landscape of agriculture in the province, though, incremental planning change does little to capture the finer grained details of on-the-ground agriculture that inform daily practice, if not planning actions. For one, distributing to farmers the numerous different types of information they require -- weather, crop

yields and health, financial, and marketing information, among others – is often prohibitive in both costs, time and efficiency (Dasgupta 2007). Secondly, on-the-ground change and innovation to practice as a result of external forces by farmers and agricultural producers themselves is usually a faster process than legislated planning procedures and processes. At the ground level individual entrepreneurship resulting from consumer demand, demographic shifts and environmental or economic choices can result in swift alterations to more 'traditional' notions of agricultural practice. As Dale (2001) understands planning, albeit from a outsider's non-planning perspective, the bureaucratic inertia brought about by long-standing values and ideologies does little to challenge dominant planning paradigms and processes (Dale 2001).

A lack of overall prescribed uses and agility within formal land use and agricultural planning and bureaucratic processes articulated in various policy documents and regional and municipal plans to make swift changes has been put in place for legitimate reasons: to provide a sense of stability to this particular industry and way of life, as well as to help stabilize the land uses of particular jurisdictions. There are also health and safety concerns, issues surrounding the economic viability of agriculture, and farm and natural heritage land protection. However, given rapid changes in land use regimes, political will, and broader economic stability of the industry, a more permissive and flexible level of planning for agriculture is necessary (Britten et al. 2009). While this represents a fundamental shift in planning and regulatory paradigms, "a loosening of the resistance to entertain what is currently defined as alternative thinking" (Dale 2001, p. 116) is necessarily needed within municipal and regional planning processes. Preventing this is the fact that many of the concerns just mentioned fall in the realm of different governmental departments and agencies, which, as Dale identifies, operate as 'silos' and 'solitudes,' common in government civil services. But they are not easily brought together under a single roof and their synergies and interdependencies understood as being interconnected as part of similar overarching individual departmental goals guiding each branch of the government as it pertains to the sustainability of agriculture.

To contrast the incremental, methodological nature of land use planning, online Web 2.0 technologies are emerging quickly, offering new capabilities and functionalities

all of the time. This rate of technological change online is often overwhelming, as the tools and applications become smaller, cheaper and more essential to people's daily lives. Over the past five years, the cumulative shifts from a read-only, closed, centralized and static Internet – the 'Web 1.0' – to a writable, open, transparent, distributed and customizable one – popularly known as the 'Web 2.0' – have altered the way in which information is collected, stored and distributed. Necessarily, this has changed the way in which people interact with it and communicate with others. Online technologies increasingly have expanded the potential capacity (Haklay, Singleton & Parker 2008; Wilson 2008) to reach people from disparate communities and ways of life quickly, providing them with the opportunities to contribute their own online content. This democratization of information and its generation is a hallmark of this new Internet, one that is fast becoming a critical arena for modern-day communication, data collection and information gathering in many different fields and areas of activity. Indeed, these processes are becoming validated by the potential or hopeful realization of social, economic or political gains by those who employ them (Perkins 2007).

Communicating and recording the farmland innovation and agricultural change has become a significant challenge facing food producers and planners in these areas. It is recognized (Ballantyne 2009) that agricultural knowledge and information needs to be reliable, accessible and, through the spectrum of actors in which it travels, well communicated. With numerous issues currently affecting food and agricultural practice and production, namely shifting economic markets, food recalls, livestock pandemics (and associated international trading bans), the 'corporatization' of agriculture, climate change and rising fuel prices, farmers need the most up-to-date and reliable data possible to stay viable and in business.

Given the relatively swift emergence of Web 2.0 tools at the same time as these large concerns facing farmers, fully actualized chains of knowledge and data transfers have yet to materialize to any great extent. This paper, however, does not focus on any perceived problems of the past, but instead intends to begin the discussion about the potential Web 2.0 tools can play within planning departments and amongst farmers themselves in order to better position agriculture as a 21st century industry by giving farmers an effective role to play. As Ballantyne (2009) notes, "the knowledge structure

of the agricultural sector is changing – many people interact to generate new ideas or develop responses to changing conditions; and technical change and innovation have become much more interactive processes” (p. 261). More and more, farmers and other rural economy participants are turning on their Internet connections in order to record and share data, from weather and pest reports to land use planning data (such as farm size and types of uses occurring on them) to agricultural product marketing. As these discussions increasingly occur online, the Web becomes a wealth of knowledge from which to gauge farmer’s moods, successes and challenges, and issues arising that may need a planning response.

Rural areas, though often lagging behind in terms of the availability of the high-speed networks and access to ICT infrastructures – 65% of rural Canadians regularly accessed the Internet in 2007, compared to 76% of urban dwellers (Statistics Canada 2008) -- nonetheless have been the subject of research on peer-to-peer knowledge transfer and dissemination of experiences and data via online technologies, particularly in developing world areas (Ballantyne 2009; GTZ 2008). Specific instances of the application of Web 2.0 technologies will be examined, both from within and from outside the Ontario agricultural context, that serve to illustrate the potential for Web 2.0 applications to be incorporated into formal agricultural planning processes. Three main ideas relating to agricultural planning in southern Ontario and the Greenbelt present opportunities for reevaluating the way formal planning can move from a receptive and responsive approach to one that is more permissive of individual entrepreneurial changes, the way data is collected and how communication on these issues can occur. Broadly these areas are:

- a slow formal reaction to on-ground agricultural change;
- a lack of identification of the potential within existing planning and policy for such change;
- and the role that other forces outside of planning, especially consumer demand, play in shaping the agricultural sector.

The Web 2.0 and its focus on the aforementioned data and communication democratization, transparency, openness and ease of access to information and other users offers potential opportunities in these areas for formal planners to incorporate the

'wisdom of the crowd' into their professional judgments and practice. Their application, both in practice and their potential, will form the underlying basis for this research paper, asking how co- and user-generated data and information (collected and distributed by agricultural producers and consumers and not just by planners, agricultural or other government officials) can fit into the formal planning process through a dispersed identification, collaboration and online engagement. Succinctly, it will ask if there is potential, and what its niche for Web 2.0 applications in agricultural planning and practice may be.

The first area which Web 2.0 tools may be utilized, as mentioned, involves using these tools to better capture the finer grain of on-the-ground data more quickly than traditional data sources. Collaborative policy planning projects, such as that of Melbourne, Australia's *Future Melbourne Strategic Plan* (<http://www.futuremelbourne.com.au/>), rely heavily on Web 2.0 technologies and can serve as an efficient way to incorporate diverse land use opinions from a wide geographical area into a single document in relatively short periods of time, thereby having policy reflect on-ground change and innovation more accurately. More locally, a project such as Okanagan Food (<http://www.okanaganfood.ca/>), a partnership between the Centre for Social, Spatial and Economic Justice at the University of British Columbia Okanagan and the Food Action Society of the North Okanagan, while not grounded in policy development, serves as a way in which food producers and other advocates of a local food system can self-identify their products, methods and stories, highlighting recent changes online. This enables them to connect producers with citizens and the broader the local economy and can conceivably serve as a bridge between on-ground innovation and practice and subsequent planning decisions given a new wealth of data available.

Similarly, the potential that exists within plans and policies related to food and agriculture is often unexplored or unrealized, which represents the second category through which this research will discuss the potential of Web 2.0 tools. Individuals have an opportunity here to identify, through online tools such as collaborative mapping or processes such as virtual community asset identification, ways in which new opportunities may be explored. A popular way in which this is achieved is through

networking and discussion-based websites, such as Farmconnect (<http://farmconnect.net/>) and *Farmers Weekly Interactive* (<http://www.fwi.co.uk/>), where farmers are able to contribute information and their own experiences in the form of blog posts and comments, discussion threads and through individual farmers profiles. Another similar such website is called Landshare (<http://landshare.channel4.com/>) operated by British public-service broadcaster Channel 4, where both landowners and land-seekers identify either plots of land available for cultivation or request of property owners in any given region that they may cultivate land.

Finally, there is recognition that forces outside planning, especially consumer demand, play a large role in shaping agricultural land uses and production. The Friends of the Greenbelt Foundation is currently undertaking a user-survey of farmers – through its Greenbelt Fresh website (<http://farmers.greenbeltfresh.ca/>) – within the Greenbelt boundaries that will help understand those interactions. The acquisition of this ground-level information will contribute to both the broad- and small-scale planning for agriculture, but its potential however, stems from the fact that the data does not originate from traditional sources, and instead relies on the scaling-up and local knowledge of the producers themselves. Web-based collaborative datasets have the opportunity to be agile, potentially reaching “a limitless number of people and to elicit views rapidly and efficiently” (Dunn 2007, p. 625). This data can also help inform consumers about products’ availability in certain locations and within certain parameters, and certain online tools (such as Facebook or Twitter feeds set up by food producers to directly market their products to potential consumers) can enable greater interaction between farmers and city-dwellers, bridging the urban-rural divide.

After discussing the ways in which formal planning can utilize the Web 2.0 tools that the agricultural community is using, or could use, this paper will conclude with recommendations and an identification of the opportunities as well as the challenges that incorporating the Web 2.0 into formal planning will bring. Ultimately, this paper will conclude with a discussion of the broader implications a rapidly changing technological context can have on both agricultural practice but also formalized planning at the municipal level. Several recommendations will seek to inform a future research agenda on these topics, recognizing that the entirety of the scope of these intersections of

disparate subject matters is well beyond the focus of this paper. As the philosophy behind the Web 2.0 indicates that everyone has a contribution to make, and that the collective knowledge and wisdom of the crowd is superior in many ways to that of the single expert, this paper will also elaborate on the ideas of co-generating data through online sources and will look at the role planners, the ones hired for their planning and land use expertise, can and should play when their sound professional judgment uses evidence that comes from the crowd, a challenging idea but one that is increasingly becoming commonplace in planning departments in both urban and rural areas.

2.

Setting the Stage: Literature Review

2.1 The Web 2.0 and the 'Long Tail' of Data

Several online trends simultaneously emerged several years ago in the wake of the collapse of the so-called dot com bubble of the late 1990s, early 2000s that, collectively, offered a new way to design for and use the web (Elliott 2007). The importance of these convergent concepts are so great that, collectively, they were dubbed and popularized by author and publisher Tim O'Reilly in 2005 as the 'Web 2.0', which has become the basis for most web-based online interaction and development to since then.

This emergent Web 2.0 differentiates between the older 'Web 1.0' in several ways: the old Web was based on a read-only platform, while the new one allows for a more interactive writable arena. For example, previous incarnations of encyclopedias online allowed one to search and read, but not contribute. Wikipedia (<http://www.wikipedia.org>), the world's largest collection of encyclopedic entries, is *entirely* composed of user-written material, and previous articles may be edited by anyone. Thus, the inner workings of the old Web were closed, opaque or unknowable by the average person, while the Web 2.0 opens this information and data up, making its production and its processes transparent. This, in turn, has meant that the centralized control of the Web 1.0 has been relinquished to the many, forcing a distributed and shared control. Ultimately, the static nature of the old Web has disappeared, and current Internet users expect a great deal of 'hackability' and customization in the ways in which they interact online (O'Reilly 2005; Surman 2009).

As well, a loose collection of principles can generally be seen as guiding the framework on which the Web 2.0 stands (Dawson 2007; O'Reilly 2005), several of which are well-connected to the subject matter of this paper. One such principle is that of 'participation', seen as a hallmark of the Web 2.0. Taking many different shapes, user contribution online through blogging, social networks or content uploading websites such as Flickr (<http://www.flickr.com>) or Youtube (<http://www.youtube.com>) is fast

becoming a ubiquitous part of the online experience. Much of the growth of these types of websites is organic and spread through word-of-mouth, or the online equivalent of linking from other websites. As these websites grow, more data and information is collected which contribute to a greater shared and accessible knowledge, creating a stronger product. One caveat here, however, remains determining what, amongst the vast quantities of information available online, is useful and has potential to become actual 'knowledge' that can be activated and used in formal planning processes. Peer review, which will be expanded upon further below, is ostensibly the adjudication necessary in Web 2.0 environments to bring the truly useful information forward.

Another hallmark of the Web 2.0 is its openness, which allows for the decentralization of data and information from central servers and onto individual computers. This means that individuals have unfettered access to this content and inspires a culture of 'remixability' whereby information, data and processes from distinct sources are merged together to create new websites, applications or types of information. With an application programming interface (API), many web tools are able to 'mesh' with other disparate ones, which allows for the creation or visualization of new content. For example, Housing Maps (<http://www.housingmaps.com/>) combines data from the classified website Craigslist (<http://www.craigslist.org>) about rental and housing availability in 35 North American cities with the Google Map API to map out the location of units for sale or rent.

Finally, all of the above are made possible by a greater user control of the Internet and its enormous amounts of information. Individuals are able to control the content they both see and use as well as the content they contribute to broader networked communities. This content, in turn, can be tagged, annotated and organized collaboratively for use in content collections, data manipulation, on- and offline decision-making or, simply, for pleasure. Delicious (<http://delicious.com/>) is a social bookmarking tool that allows users to tag websites of interest with describing words, which then may be shared, viewed or organized, by that user or others.

Traditionally, people are brought to the problems they are attempting to solve problems or accomplish tasks by grouping specific skill sets together in an organized institution, such as a working committee in someone's place of employment or a

neighbourhood resident's group advocating for better public services in their area. Necessarily, in these situations, formal organizations are relatively small and leave out many others with similar skill sets (or interests, characteristics, locations, etc.) for logistical and economic reasons. Advanced planning is a requirement of these organizations that is necessary to coordinate the longer-term goals and the knowledge and resources required to accomplish those goals (Shirky 2005).

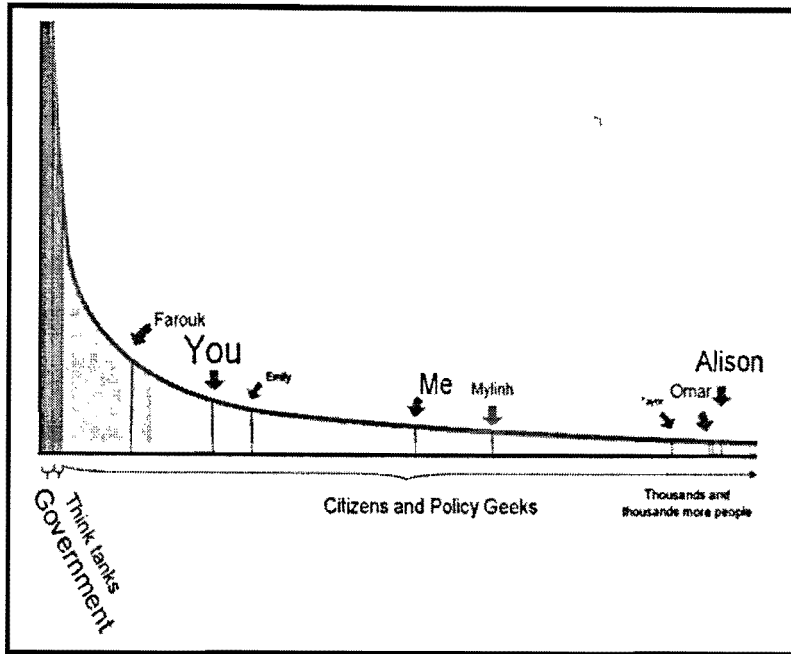
In effect, the Web 2.0 serves as the collaborative and 'crowdsourced' response to traditional institutional methods of organization. Flickr, for example, allows anyone, not just formalized organization members, to add content or collaborate to a specific group or collection, with specific photographed subjects placed together in an easily searchable online and accessible database. In this case, merely the space provided (i.e. the website) for the group effort is coordinated, and the results, while initially an unknown entity, are trusted to the members who are collaborating on these subjects, whether knowingly or not. This understanding of the motivations for participating on this particular Web 2.0 application is likely far-reaching for most users of Flickr: instead of participating in some broader social experiment or towards a utopian goal of inclusive participation, most Flickr members likely just want an easily accessible place to store their photos and from which to share them with family and friends. As such, it is important not to place too much significance on existing Web 2.0 and social media tools: generally, they are places of pleasure and social interaction, not spaces in which broader community or political action occurs. Despite the large numbers of participants on many of these websites, only a few will be willing to be actively engaged in planning issue deliberation, for example, similar to citizens offline.

With regard to the collection, storage and use of data collected in a Web 2.0 environment, Johnson (2005) likens it to the use of energy in a rain forest. Unlike in a desert, where much of the energy provided by the sun is lost due to a lack of water, rain forests are full of "organisms exploiting every tiny niche of the nutrient cycle" (n.p.). In optimized Web 2.0 environments, data can be made available for use by anyone, anywhere, in any form, and in such a way that it flows seamlessly from one user to another, given the appropriate technology, tools and data.

People who were once just members of the audience consuming on the Internet can now also be producers of media in whatever form, contributing whatever data they want—the same equipment allows one to be a consuming and producing member of this new media landscape (Shirky 2009). These users may also take data from more official sources and 'mash them up' with other disparate sources of data or geographic overlays, "collect[ing] and packag[ing] information to enable other uses" (Haklay, Singleton & Parker 2008, p. 2022). This landscape is built on the collective intelligence of these (mostly) amateurs operating on the 'long tail' of Internet distribution where, instead of focusing on the 'big hits', the distributed nature of the Web 2.0 allows for more niche areas of data, products and expertise to be known, making the information landscape more diverse and pluralistic. This creates easily scalable networks that respond well to sudden growth and increased demand (Chadwick and Howard 2009) by consumers.

Online book retailer Amazon (<http://www.amazon.com>) is often touted as the hallmark for the success of the long tail on the Web. While Amazon has 'top hit' books that make up the most individual sales, the retailer's business model is not dependent on them, and instead is successful because the sale of the 'non-hit' books make up the vast majority of total sales. A physical store with limited space has to stock titles that will sell many copies quickly, and thus cannot offer the same breadth of selection Amazon can. Figure 2.1.1 (as originally presented by Eaves (2009, n.p.)) illustrates the long tail as it applies to something completely different: the shaping of public policy. Governments hold the most individual power to shape policy, which are followed thereafter by the resources of think tanks. While general understanding has it that these two types of institutions shape public policy, there may be thousands of people who also want to be a part of those discussions and processes. Eaves (2009) observes that, while most people may not care to become involved in debates around public policy, many citizens nonetheless do, but have "just been hidden in a long tail that saw the market place and capacity for developing and delivering public policy restricted to a few large institutions" (n.p.).

Figure 2.1.1: The Long Tail of Public Policy (Eaves 2009)



With much contemporary planning placing a significant focus, at least in theory, on community participation and encouraging active communication as part of the planning process, it is prudent to evaluate the ideas of online participation and communication as part of these paradigms. After all, it is the act of communication and the widespread belief that by opening up the planning process to anyone with an Internet connection that supporters of the Web 2.0 in planning advocate for.

The Canadian Institute of Planners (CIP) highlights the importance of these two key values -- participation and communication -- in its *Statement of Values*, citing the need for planners to both foster meaningful public participation and articulate and communicate their values to the people they are planning for and with as a responsibility for the public interest. The communication aspect, recognizing planners' skills as mediators, emphasizes listening to stories and understanding complex ideas underscore the emerging role that planners play (Innes 1998), both in person and online, where this certain skill set of communication is invaluable for understanding how and why people are participating online. At the same time, the importance of

participation is well-founded, especially in the rural context, where Robert Chambers' developed participatory rural appraisal (1994), where farmers and rural dwellers take an active role in formulating the questions, gathering the data and evidence, and collaboratively determining solutions to the issues facing them on daily bases. The Web 2.0, as presented here, offers a potential 21st century way of achieving similar goals. In effect, the Web 2.0 allows planners who are mandated to engage the communities in which they are practicing (such as through the *Ontario Planning Act (OPA)*) to further reach out in novel ways and solicit greater numbers of participation beyond the minimum requirements of the *OPA*. The place for further participation exists, and the door is increasingly being opened for new and innovative ways for the planning profession to solicit and gather public input.

The communicative and collaborative planning practice is not without its flaws, however. It has tended to "over-emphasize the technologies" used to present the ideas as opposed to those ideas themselves (Healey 2005, p. 306), and while this critique was leveled prior to the advent of widespread online planning practice, the same warnings can most definitely be heeded with regard to the utilization of Web 2.0 tools in formal planning processes. Healey (2005) argues that "a great deal of attention has been given to recording and interpreting instances of collaborative practice, and to identifying how such practices change both individual conceptions and introduce specific institutional innovations" (p. 306); in this case, the Web 2.0 as the site for collaboration practice, but more often as a space for collaborative *potential*. She then hits on the main issue with regard to the role of planning, stating that "perhaps too little attention has been given to how far the emergence of such practices in some parts of a governance landscape carries the force to transform the practices and cultures of the wider systems in which they are situated" (p. 306).

It is nonetheless important to recognize that the medium of the message is an important consideration to make. Despite its flaws, the Web 2.0 offers another opportunity, not a perfect solution, for participation in planning processes and distributing planning information to citizens. How the Web 2.0 will eventually fit into the planner's toolkit, and where it can be made most effective, will be a challenge for the planning profession moving forward. Governance and government processes are

increasingly moving online, and as people, at least in developed countries, use the Web as a daily part of their lives, we may see widespread changes to what constitutes effective planning participation and communication.

Governments have long used online electronic services to reach their citizens, called e-government. They were characterized by a top-down nature, where government officials provided information to citizens with minimal interaction by the government (Dahlgren 2005). This, however, leaves out any web-based contributions the 'long tail' or the general public may have. The movement to formally include Web 2.0 functions into government services has been dubbed "Gov 2.0", which ultimately "is about applying ... Web 2.0 principles to the planning, management and delivery of government services," (Sharpe 2009) and in doing so facilitating stakeholder engagement, community consultation and citizen innovation and participation. Technology use by governmental organizations allows for "an enhanced technical capacity for the extension of current governance logics" (Clarke 2009, p. 43) by permitting them to manage, display and use a great deal of data; increased connectivity and networking ability among dispersed stakeholders; and a greater engagement of citizens with their government's many different functions. These many roles and functions of the emerging online technologies seek to fulfill the increasingly relevant need for "the basics of effective and transparent public participation" (Knapp, Bogdahn & Coors 2007, p. 50) and consultation goals while making the user experience online a rich, open and accessible one. In Western democracies of the 21st century, there are pluralities in the public sphere, and the Internet, which is at the forefront of this evolution of communication and deliberation, "...allow[s] engaged citizens to play a role in the development of new democratic politics" (Dahlgren 2005, p. 160).

2.2 Online Distributed Participation and Contributions

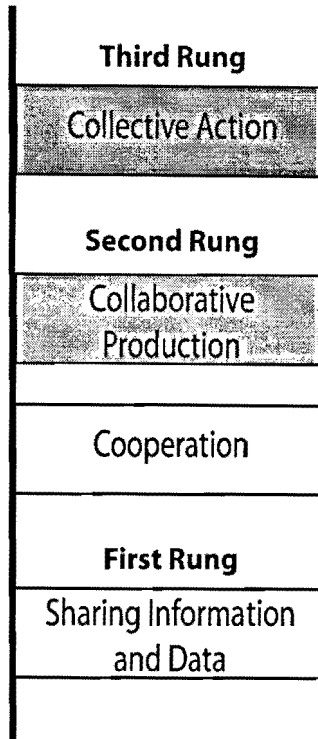
Technology writer Andrew Keen (2007) is particularly critical of the Web 2.0 and its proliferation as a mode of communication, information aggregation and content creation:

What the Web 2.0 revolution is really delivering is superficial observations of the world around us rather than deep analysis, shrill opinion rather than considered judgment. The information business is being transformed by the Internet into the sheer noise of a hundred million bloggers all simultaneously talking about themselves (p. 16).

While there is no denying that the Web is full of virtually useless information and mindless diversions, there are nonetheless people contributing worthwhile content to other Web users. Building on the idea of the long tail, Shirky (2008) observes that many Web 2.0 websites “operate in a largely take-it-or-leave-it fashion” (p. 49) whereby most information posted is of no use to the vast majority of the potential users of the site. However, what is contributed that is useful to a very small few may be of crucial importance to them: the Internet gives them a fast and relatively easy way to search this information out. What comes out of the process of Web 2.0 is very much a function of how invested users are in the process. Ultimately, though, there is a desire by many to be a part of positive action through the Web and it comes down to the broader public, with their individual actions, that decides what is most important through the further dissemination of any particular information or knowledge (Shirky 2008).

Shirky (2008) describes a ladder of shared group enterprise (Figure 2.2.1). The first rung of the ladder involves the initial concept of data and information sharing. This aggregates participants surrounding a common theme, whether it is geography, media type or interest. This rung alone provides little support for decision-making, but must be present for further development to proceed. This begins happening on the second rung, cooperation, where individual behaviour is changed slightly to synchronize with others, there is a creation of group identities and users begin to know who they are cooperating with through increased levels of communication. With this level of cooperation in place, the third run may be reached, where collaborative action leads to collective action as users commit themselves to accomplishing a task together. This shared responsibility represents the beginning of introducing user-generated content (content collected, organized and shared by users of a website or application) and data into the formal planning (or other governmental) process.

Figure 2.2.1: Ladder of Social Media Participation (Shirky 2008)



A relatively large group of contributors is necessary for any sort of Web 2.0 application in order to generate enough representative material, encourage dialogue (akin to the saying 'a crowd attracts a crowd') as well as 'self-police'; that is, ensure that inappropriate or incorrect data is corrected or removed quickly. They contribute without promise of financial reward, or assurance that information will ever be used by anyone else (Goodchild 2007a), but instead "for no reason other than their own individualistic interests" (Elliott 2007, p. 203)¹. It should be noted that this "vanity", as Shirky (2008, p. 132) refers to is not necessarily a bad thing; on the contrary, according to Mark Elliott. His idea of stigmergic collaboration, where the individualistic contributions of the many

¹ It is interesting to note the parallel between the individualistic nature driving participation on the Web 2.0 and the dominant theory of planning underpinning much of planning practice since the Second World War, rational planning. With rational planning behaviour, notes Brooks (2002), as individual satisfaction and utility are sought to be maximized, the perception of value of the individual is placed at the fore. A heightened perception of the individual value is developed to be practiced upon, which the Web 2.0 mirrors: the vanity of posting online seeks, on some level, to maximize the utility of the individual's own contribution to the greater community.

lead to an “interconnected network of communities building a diverse and dynamic commons for the enrichment of the wider public” (2007, p. 203), are echoed by others as being a main idea in content creation, filtering and dissemination on the Web through a new participatory model. These collaborative and cooperative elements, together, have the ability to lead to a well-organized and accurate interlinked web of legitimate information and a formation of a collective knowledge around any given subject (David 2007; Haklay, Singleton & Parker 2008; Shirky 2008; Sunstein 2006).

2.3 Implications for Data Voracity and Communication

In the early days of the Internet's widespread popularity, the concern was raised that the Internet would lead to a decline and disengagement in both private (interpersonal relationships with friends and family) and public (volunteering, gathering and concern for civic issues) communities (Quan-Haase, Wellman, Witte & Hampton 2002). However, this has not proven to be the case. In 2009, 45% of American adults reported to having taken part in two or more civic engagement activities in the past year, with 18% of them based online, while the 36% of Americans who are part of a civic or political group have some sort of offline communication with fellow group members 95% of the time (Smith, Schlozman, Verba & Brady 2009). The concepts of online participation and, indeed, of online communities have changed, being viewed now as a tool as part of the broader engagement process rather than an isolating entity. People have found new ways of communicating and organizing through an online extension of Jean Lave and Etienne Wenger's idea of 'communities of practice', the "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (in Elliott 2007, p. 142). The Web 2.0 with its inherent communicative abilities and easy access allows these communities to organize, collaborate, and produce new content as the divisions separating private and public spheres are narrowed, allowing online social networks to "generate new forms of 'personal community and 'personal networking'" (Hardey 2007, p. 880). Employing these emerging Web 2.0 technologies "offers a range of opportunities for inclusive, participatory approaches to knowledge-sharing, where knowledge is sourced from a diverse set of actors. It can act as a catalyst for people interact and for knowledge

sharing and communication to flourish" (Ballantyne 2009, p. 268). It is, however, dependent on a critical mass of users and their volunteered user-generated information in order to function as a credible and wide-enough ranging data source; it needs an audience (Shirky 2008) as well as demonstrated voracity.

Having a critical mass of people engaged to a certain degree online, and thereby generating enough dialogue, data and information to be useful for any specific purpose will help with what many acknowledge as being the considerable potential of crowdsourcing for the social sciences and in government (Dasgupta 2007; Goodchild 2007b; Hudson-Smith et al., 2009). Given the established institutional cultures and dynamics, and the bureaucratic inertia of governments, the silos and stovetops of government structures make collaborating across the solitudes difficult (Dale 2001). Done to preserve the functions of specific governmental departments, agencies, and boards, the silos serve to isolate personnel, resources and, most importantly, knowledge from other members of the public service, as well as most far enough away from citizens on-the-ground, whose knowledge, while less formalized, may be very appropriate and useful for deliberation on policy directives and planning outcomes. Ideally, crowdsourcing offers a way for the "culture of silos of information seen within many [usually separate] areas of social research" to be broken down (Hudson-Smith et al., 2009, p. 535), which then hopefully moves offline and is able to be translated into real-world of policy change, grassroots activism and leadership as people's collaborative efforts are reinforced (Parker 2007).

A common question when people first encounter the notions of the Web 2.0 is, 'why everybody?', 'how can we trust the knowledge of the masses when there is no way to truly ascertain their credentials?' Once a process of a top-down surveying door-to-door or canvassing within community groups or of businesses in order to build an inventory of the assets existing within a community (Jasek-Rysdahl 2001), the focus in many areas has shifted to a more democratic and user-led online approaches to collaboration. The answer is profound in its straightforwardness and its simplicity: "everybody" has more access at more times than do the professionals, making the masses better and faster barometers for local-level change and asset identification than waiting for a top-down 'authoritative' data collection (Shirky 2008). Given that planning

is inherently about the 'local', meaning its decisions are implemented in a particular place, affecting real people, a locally sourced dataset seems quite appropriate in many instances. To facilitate and encourage this, communication from planners and government officials to citizens, and the subsequent reversal post-data collection must be a core pillar of this crowdsourced process. Dasgupta (2007) summarizes what he calls the "real strength" of the Web 2.0 with regard to agricultural data: its collaborative nature where "information is no longer only one-way... farmers have the possibility to contribute to the pool of information, submitting data specific to their areas that would otherwise be very difficult to collect." For example, Canadian census tracts – often the predominant geographic unit of data collection – do not necessarily match up with specific areas of agricultural interest, such as arable, productive land or pieces of legislation such as the Ontario Greenbelt. Online collaboration and sharing of data, in a participatory map or any other online form, offers more malleable and flexible methods for data collection that can also enable farmers to deal directly with eaters, facilitate co-ops, and so on. Reliable, accessible and well-communicated agricultural information allows individuals and institutions engaged in agricultural work to develop new ways of interaction and engagement with each other and outside forces in order to develop "new and innovative ways... to mobilize and communicate the evidence and insights that decision makers require to take difficult decisions" (Ballantyne 2009, p. 260).

Ultimately, the exercise revolves around communication with farmers, what information and data they have first-hand access to, what information and data they are willing to share (and to whom) and what information will be useful to them to have a greater understanding of. Is there a demand for a greater online presence of near-urban farmers' data in Ontario?

2.4 The Planner as Expert vs. the Crowd's Local Knowledge

Many governmental organizations are understanding that to relinquish exclusive use of their data, to use intermediaries (i.e. the 'crowd' or the public) to gather data, and to create ways for services and information to be customizable by citizens is not a relinquishing of control but serve to strengthen the overall datasets and help make planning and policy development more attuned to what is actually occurring at the

ground level in communities. 'Crowdsourcing' becomes, more accurately, "citizensourcing", as governance issues and problem solving are given to an engaged public to provide their input (Lukensmeyer & Torres 2008, p. 219). As an example, citizens become primary points of data collection for municipalities, highlighting points of interest and contention within the landscape and providing this information to governmental departments as opposed to reacting to changes the municipality makes, if they are made at all. It has been argued (Carrera & Ferreira Jr., 2009) that, by simply having jurisdiction over physical resources does imply that a municipality or governmental department should be responsible for updating datasets when changes occur. Instead, these tasks can, and increasingly are, being delegated to outside agents for collection and analysis to inform governmental decisions. Coupled with well-designed, open and accountable online databases, increased civic engagement is encouraged (Howes 2002). However, the Web-enabled decentralization of municipal government data collection represents an important future shifts in the way local government operate, helping to lower costs and, if implemented successfully, making governments' approaches to data more flexible, engaging, robust and reliable as the shift is made from proprietary software-system solutions to municipal-led information-content services (Carrera & Ferreira Jr. 2007). As municipalities and governments become more reliant on the "long tail" of information, their roles will shift from data collectors to "become moderators and validators of crowdsourced and outsourced data" (Carrera & Ferreira Jr., 2007, p. 63).

To counter the above ideas, some go so far as to say that by giving away some of the power traditionally wielded by governments, "we are undermining the authority of the experts who contribute to a traditional resources... [which] threatens the very core of our professional institutions" (Keen 2007, p. 44), but this is countered by others who argue that municipalities still must maintain a strong interest and authority over the information gathered and the consequences of it through the implementation of policy. There is, however, are differences between giving power away by fully decentralizing it and encouraging coproduction of data and information through deregulation. While the latter, in this context of municipal planning, encourages a full hands-off approach by the municipality of the information collected which involves a great deal of trust, the latter

acknowledges the role citizens themselves might play but, by working within defined limits set by the authority, power itself is not given up. Governments have expanded the net of citizen input solicitation; however, they are still the ones casting the net.

Paul Davidoff and Norman Krumholz, arguing for advocacy and equity planning respectively, understood the planner's role was "tied... to particular outcomes and relied on planning expertise as the path for reaching them" for the greater good (Fainstein 2005, p. 124). The 'planner as expert' has had negative connotations in the past as the result of failures in urban renewal projects, but the professionalism, situation within government bureaucracies and skills around mediation and organization planners bring are a new form of expertise that will be vital to any public planning project. Indeed, there must be an understanding that group participation and collaboration online cannot be fully relied on as the only method for community-level planning. A collaborative participation of the two main sources of knowledge at the community level of planning – planners' expertise and the knowledge that the public has the potential to contribute – and only through real collaborative participation processes are planners able to "believe their work is professionally responsible" and citizens able to feel they have made a difference in a way that "both... feel that participation is fair, representative, well informed and transparent (Innes & Booher 2005, p. 432). As such, online engagement needs "to be understood as part of a continuum of citizen engagement" (Walsh 2009, p. 147) and citizensourced data adding another important, but not exclusive, dimension of expertise (Nuojua & Kuutti 2008). Both, together, offer planners another tool in their toolkits from which to draw from. Carrera and Ferreira Jr. (2007) note that current trends "indicate a move toward the development of local geographic information strategies... to capture the finer grain of... data that community statistical systems require" (p. 51) in order to develop local databases that serve as an early point of reference when larger-scale databases are created or when planning or governance decisions are made.

Intuitively, it makes sense for communities and citizens themselves to be directly involved in identifying what assets their local areas have, where challenges exist, and what the most appropriate courses of action moving forward should be. Higher-level planners and politicians, while ultimately holding official power to implement changes to policy or process, may not have the hyper-localized knowledge of individual issues.

Community engagement and participation through such activities as public meetings, surveys and workshops are traditionally justified for several purposes (Innes & Booher 2005): for planners to gauge the public's preferences of a project or plan; to improve decisions made by incorporating local knowledge; to show fairness and justice; for plans to gain legitimacy to justify what they are presenting; and, finally, because it is legislated as part of formal planning processes. Unfortunately, it is the final purpose, as argued by Innes and Booher (2005) that is, at times, the only one that is fully satisfied. While characteristic of broader challenge that is public participation and engagement generally, proponents of Web 2.0 tools, which allow collaborative aspects of citizen engagement to occur anywhere, and at any time, offers a potential way enhance area-specific approaches to decision-making to occur by strengthening the other purposes of public involvement Innes and Booher describe. The niche of the Web 2.0 is likely limited to this enhancement of what is already occurring offline.

In effect, planning is in a process of democratization (Crampton 2008; Goodchild 2007b), paralleling the similar process happening with the media and information as previously discussed. It should be noted, however, that 'democracy' is much more about the non-institutional aspects of citizenship as it focuses on mobilization and civic participation (Cammaerts 2008), giving community members the ability to mobilize around local priorities, built capacity and strengthen local leadership. This helps create positive feedback cycles that allow community asset identification and surrounding participation to have a more lasting impact in finding influence on government decision-making (Parker 2007; Pollock and Whitelaw 2005). This informal or non-governmental politicking and democratic action must be taken into account when discussing formal online government processes, such as planning (Cammaerts 2008).

Planning for agriculture in the Province of Ontario, generally, relies on what is seen as a "narrow expert information process" (Rikkonen, Kaivo-oja & Aakkula 2006, p. 67) to provide the necessary knowledge to implement policy and planning decisions. These experts, consisting of planners, members of provincial food and agricultural ministries, and carefully chosen outside experts (usually academics, private firms or non-governmental organizations), during their work together, arrive at outcomes that "sets the limits to knowledge" within their plans, leaving little room for "an open iterative

refinement of strategies" by the public (Rikkonen, Kaivo-oja & Aakkula 2006, p. 68). As municipalities continue to experience changing economic, environmental and political climates, many jurisdictions are moving toward a "broad expert information process" (p. 68) to expand the limits to who can actively participate in the planning process, involving participative stakeholders, especially farmers themselves. The Web 2.0, with its ability to transcend geographic distances, its instant access and its capacities for a broad collection of information and data that is open, accessible, and customizable can help facilitate this.

This type of 'crowdsourced' data collection is increasingly being used by official governmental agencies as increasing amounts of communication occurs online between parties, offering users a chance to become involved with civic engagement material at their own convenience. Despite the many who purport only the benefits of an increasingly networked and Web-connected civil society, there are challenges facing online engagement methods, namely a lack of resources to manage these tools, a lack of participants who search out and actively participate online, issues of trust and data and information voracity, and an unclear idea of where the online engagement fits within broader (and oftentimes legislated) participation and engagement exercises. While public input, information and user-generated data are, in and of themselves, important aspects to consider during the planning process, the specific niche of the Web 2.0 to capture this information remains undefined, varying wildly between municipalities, projects and online tools being utilized. Planners and citizens are generally on similar pages, saying similar things; it is just that "the engagement between different knowledges – particularly lay and expert knowledges – involves translation" in order to be fully actualized and built upon (Rydin 2009, p. 55).

3.

Methods

The context – economically, environmentally and socially – for food and agriculture in Ontario has been shifted considerably in the past two decades, and much of the practice of mainstream agriculture and the policies, that govern its operations, planning and otherwise, have been slow to adapt (Donald & Blay-Palmer 2006). Municipalities have taken an active role in agricultural planning in recent decades, regulating agricultural land sizes to on-farm diversification through zoning bylaws and land use planning policies based on the type of agriculture occurring at those times (Caldwell 2006). Today, while the growth in the traditional food sector in Ontario slowly levels out (2-3% growth per year), what Donald calls the “creative” food economy is growing at a rate of 15-25% per year (Donald 2009, p. 1). The farmers growing locally-focused, organic, specialty and ethnic foods that make up the creative food economy are responding to changing market demands, which, along other forces both inside the province and globally, are altering the way in which agricultural land is being utilized (Donald 2009). As such, keeping land use planning policies and regulations up-to-date to recognize, let alone accommodate or encourage these types of land uses, remains a critical challenge for municipalities. For future agricultural viability of both individual farms and provincial food security, emphasis should be placed on increased on-farm innovation (Britten et al. 2009, p. 12).

Planners have a number of roles to play within these food systems in order to enable such innovation to occur. They can include collecting and analyzing data on the state of local and regional food systems; being an active participant in local food projects, and, crucially actively reforming local land use planning and regulations in order to better enable and promote locally-focused agriculture and food (Campbell 2004). While existing policies for agricultural land protection and land use regulation at the municipal, regional and provincial levels in Ontario are well-intentioned and, in many cases, do not warrant concern; they are based on an industrialized understanding of agriculture. This understanding resulted in a much greater scale, forcing a high level of

mechanization and crop maximization occur, requiring a greater reliance on capital and technology and less on human labour (Smithers & Johnson 2004). Over the long term, due broadly to global economic and environmental shifts, this type of agriculture will prove increasingly unsustainable and uncertain (Donald 2009; Hendrickson & Hefferman 2002). Produce is shipped on average 2,400 kilometres, contributing to significant greenhouse gas emissions that further climate change while health scares, such as BSE in Canadian cattle, shut the \$4.1 billion dollar business down almost instantly (Donald 2009, p. 3).

Local farmers and planners have the most intimate knowledge of their own climatic and soil conditions, land use regimes and forms, food cultures and economic situations and as such, regional food systems are best planned from the municipal level upwards, incorporating provincial and federal regulations and policies into a local context. But, as Jo Little notes (in Trauger 2008), rural agricultural areas are often seen as relative homogenous areas, where planning, policies, food producer needs and consumer demand is more-or-less the same. They are, of course, not, but this perception nonetheless can lead to a sense of isolation, both socially and within political and planning processes.

Opening up these perceived difficulties within formal planning and governance processes and communicating the specialized agricultural knowledge and information to other food producers to planning departments and municipal or provincial agricultural officials, to business partners such as food processors, retailers or restaurants, and to consumers directly is an increasingly important aspect of food production, particularly within the fast rate of change occurring within a region like the Greenbelt and the non-Greenbelt near-urban agricultural lands of the Greater Golden Horseshoe. Local foods are purchased by 50% of Canadians, with another 30% expressing a preference to do so when possible (Metcalf 2008, p. 13). The creative food economy, of which locally grown food is a key component, is increasing in popularity and becoming a large business: organic food alone is worth \$1 billion a year in Canada, with a growth of 20% annually as demand outpaces supply (Agriculture and Agri-Food Canada 2008). With a growing movement towards local and sustainable eating and a rethinking of how farms and rural areas currently are being used and how they may be re-imagined in the face

of large-scale suburbanization, large-scale corporatized agriculture and shifting economics and demographics, farmers in the region is being pulled in many different directions. Planners, related businesses, and consumers, understandably, often cannot keep up with the rate of change, despite it being in everyone's best interest. With this in mind, the Web 2.0 represents a fundamental shift in the way in which these food producers can communicate, market and promote their 'differences', while consumers and potential business partners are able to search for them.

The analysis part of this paper on these interactions between farmers, planners and consumers, offering a systematic and qualitative analysis of themes developed in the literature review) emerging at the initially-uncommon but increasingly relevant intersection of the Web 2.0, formal planning data and processes and agricultural practice. The work will further be focused on three key themes surrounding agricultural land use change and evolution that have emerged from previous work done in Ryerson University's Master of Planning program. As mentioned, they are:

- a. a slow formal reaction to on-ground agricultural change;
- b. a lack of identification of the potential within existing planning and policy for such change;
- c. the role that other forces outside of planning, especially consumer demand, play in shaping the agricultural sector.

Based on an analysis of the type of user, how often it appears to be used and the opportunities for improving their effectiveness, lessons of the agricultural presence on Web 2.0 websites and those individuals, organizations or municipalities using Web 2.0 tools (or not) to gather agricultural data will to be discussed through a secondary qualitative data analysis of several examples in order to address these three themes. These examples will come from both the southern Ontario agricultural context as well as from elsewhere and lessons learned will be able to address these three key areas of interest to 21st century farmers. These examples will be connected to the themes emerging from the literature review, namely the ideas of citizen-led data collection and organization, the opportunities the Web 2.0 can offer municipal planners, the changing roles of formalized planning, issues of data voracity and the expertise of the crowd, and how farmers may (or may not) communicate, participate and be engaged through these online tools.

4.

Analysis: Communicating Agricultural Issues Through the Web 2.0

In response to the environmental, economic and social challenges of mainstream agriculture, many are turning to a more 'sustainable' agriculture, where diverse groups, from farmers to consumers, are connected through a new understanding of food and food processes (Trauger 2008). An emphasis on sustainable, organic and local foods can trigger a "revitalization of the infrastructure needed to grow, process, distribute and consume those foods", as well as a shift in planning policy that allows for a more flexible understanding of 21st century agriculture may help "create new opportunities for interaction between rural residents and rural farmers" (Hultine, et al., 2007, p. 62), which the Web 2.0 can help facilitate.

These local food producers, however, are butting up against planning departments, where land use regulations such as minimum lot sizes, zoning bylaws, and official plan designations may prevent farmers from diversifying their crops or developing new business ventures (such as food processing or ancillary agricultural product creation). In fact, many farmers are foregoing any formal approval in the growing, creation, processing or selling of them (Nichol 2003). Farmers are frustrated with current planning systems. Nichol (2003) noted that they had called these processes "cumbersome", "inconsistent", "whimsical", and "short-sighted" in what they allow or do not allow to occur on agricultural land (p. 420). To alter this, farmers and planning authorities must find ways to better communicate with each other, the process must be made more flexible and, importantly, "support the development and sustainability of the farming business by matching words with practical and sensible relaxation of out-of-date planning thinking" (Nichol 2003, p. 420).

The American Planning Association (APA), recognizing the important role planners and the formal planning framework have with regard to community and regional food planning, and that there is room for this work to be expanded, adopted a Policy Guide to address these issues in mid-2007. The Guide also offers potential strategies that the planning community could use when implementing local and regional

food strategies, including the following policy point, which involves:

...developing food system inventories, economic and market analyses, and evaluation techniques to better understand the economic impact and future potential of local and regional agriculture, food processing, food wholesaling, food retailing and food waste management activities (APA 2007, no. 2D).

As the Policy Guide elaborates, the many different data collection methods, including censuses of agriculture, surveys and local agricultural assessments, make accurate measurement of food and agriculture difficult and that planners have a large role to play in "bring[ing] different data together and provid[ing] comprehensive analyses" (APA 2007, no. 2D).

After data analysis is complete, planners also have another role to play: helping to connect those affected by agricultural data together with the planning instruments, processes and proper officials who are able to affect formal land use planning change based on communicative data streams. This is not always easy. The Ontario Farmland Trust (OFT), in their report *Planning Regional Food Systems: A Guide for Municipal Planning and Development in the Greater Golden Horseshoe* (2010) that farmers often lack a voice during municipal planning consultations, despite their position as land stewards and as having the most intimate connection with their local areas possible. The OFT observes that, in near-urban agricultural areas like southern Ontario and the Greenbelt, regions and even municipalities are often home to urban and rural residents, and when planning decisions are being presented, that the urban voice may drown out that of the farmers. As well, farmers and increasing numbers of rural non-farming residents often have conflicting views on how their landscapes should be shaped (Lohr & Harvey 1992; OFT 2010; Smith 1998), with the former viewing these areas as working landscapes while many of the latter preferring to not be encumbered by the sights, smells and activities of some agricultural production. While the OFT lays out several issues surrounding farmer engagement in the planning process, the solutions presented do not mention emerging online tools as part of the solution. While forming and empowering Agricultural Action Committees and accommodating farmers with off-season meetings and with the presence of planners with working knowledge of

agricultural issues are important components for a better engaged community, the *Guide* is relatively traditional in its approach to utilizing farmers for their unique resource knowledge and understanding of these concerns.

On these issues, the Web 2.0 appears to have the potential to offer a great deal to local planning departments. With it, planners can "work more effectively, to summon relevant information with greater efficiency and speed, to draw on a knowledge body" (Wilson 2008 p. 28). The Web can help bring people (provided they are able to connect to it and leverage its technologies) through search engines or online social networking websites, as well as offering further options for communication between existing offline communities. Ideally, as people are brought together with similar ideas, interests or geographies, virtual communities or groups may be formed where ideas and communication is exchanged. This can happen quickly and easily outside of formal planning processes (such as through Facebook Groups), which can lead to collective action. As a communication tool, then, the Web 2.0 is relevant for formal planning by allowing for many disparate groups to be part of the planning process, provided these individuals and groups are able to connect to and effectively leverage these Web technologies.

Three main issues inform the role that formal planning currently plays in regard to addressing the rate of agricultural change and innovation in southern Ontario. They are the understanding that formal planning is often not agile or flexible enough to proactively address the changes that are occurring on the ground; that there are opportunities within existing policies and land use plans to encourage and work on the ground innovation into practice; and that planning itself only offers one way of addressing agricultural change, and that other factors, including economic measures, non-planning governances such as food marketing boards, and consumer demand play large roles in pushing for agricultural innovation. They will be discussed next in depth, offering examples of existing Web 2.0 interventions on agricultural practice – both in Ontario and beyond – and highlighting other tools employed by municipalities and other organizations that may be used to similar means in the context of food production in the near-urban space of southern Ontario.

4.1 Issue One: Formal Planning is Slow to React to Agricultural Innovation

This first issue delves right into the heart of the notion that government processes are slow, while the Web is a place of rapid and constant upgrading and change. Numerous provincial, regional and municipal plans, land use policies and bylaws in place to plan for agricultural issues that are informed by this data often struggle to keep up with the rate of innovation and change in the agricultural arena, or hamper it from occurring at all. This is partially the result of current datasets do not telling the whole story of the intricacies of what is literally occurring 'on the ground' in the agricultural sector of the Greenbelt, as formal collections of such data, usually performed by governments or industry or marketing organizations, are slow and infrequent. In addition, due to the large size of the Greenbelt at 1.8 million acres, it being a relatively new piece of legislation, and the fact its boundaries cut across many different municipal and regional jurisdictions as well as provincial departments (Dale's "silos"), formal data collection is a laborious process involving considerable coordination. Over time, the institutional structures that inform agricultural land protection and land uses change to reflect contemporary power structures and politics, social expectations, economic, health and environmental concerns, and other planning issues (Feitelson 1999). However, while these issues may change quite rapidly, the policies that govern the land use implications often take much longer to respond to new realities, such as municipal or regional official plans that are intended to guide planning decisions for twenty years (Britten et al. 2010).

Governments and other public agencies are at varying stages of the process of adopting online engagement methods and tools – dubbed "Government (or Gov) 2.0" – in an effort to institutionalize the positive aspects of Web 2.0 (Sharpe 2009). Many municipalities have adopted a wide variety of Web 2.0 tools in their day-to-day operations – Facebook groups for online consultations (Figure 4.1.1), podcasts of council and committee meetings (Figure 4.1.2), discussion forums (Figure 4.1.3), Twitter accounts disseminating pertinent information surrounding civic services (Figure 4.1.4), and blogs written by elected representatives and government officials (Figure 4.1.5), as

Figures 4.1.1 - 4.1.5:
(from top to bottom, left to right)

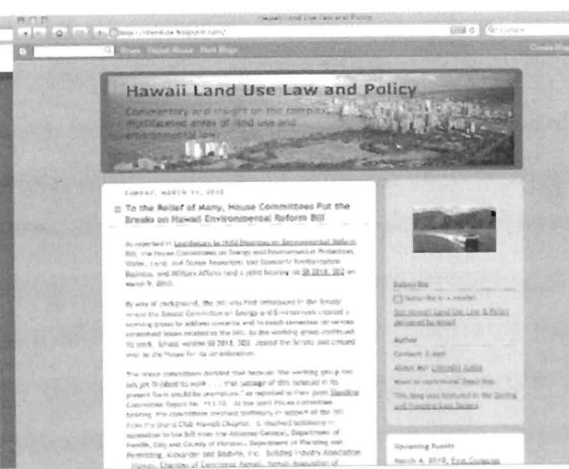
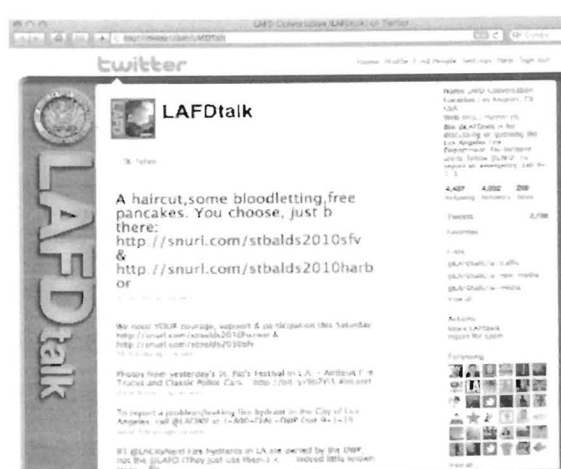
Fig. 4.1.1: City of Toronto Jarvis Streetscape Facebook Group

Fig. 4.1.2: Town of Blacksburg, Virginia: Online Video and Podcasts webpage

Fig. 4.1.3: Parks Victoria, Australia: wePlan Alpine public participation homepage

Fig. 4.1.4: City of Los Angeles Fire Department Conversation Twitter feed (a separate Twitter feed focuses on emergency reports, <http://twitter.com/LAFD>)

Fig. 4.1.5: Hawaii Land Use Law and Policy blog, operated by Jesse Souki, Deputy Corporation Council (Transit) at the City & County of Honolulu, HI



examples – are fast becoming commonplace governments. However, moving to a fully integrated “2.0” mentality within government will require a shift from the current focus of “e-Government”, which is simply is an attempt to digitize the functions, delivery and management of government, to that of “e-Governance”, which seeks to incorporate a broad range of stakeholders into a more flexible and user-driven framework for policy decisions and improving organization rigidity (Budd & Harris, 2009). Municipalities using electronic methods to facilitate official plan updates or develop new secondary plans is not new. However, it is usually within the realm of one-way interaction, where information is presented to citizens, on which they are allowed to comment on in a static, private way.

In mid-2007 the City of Melbourne, Australia embarked on a revisioning of their old official plan, calling the process *Future Melbourne 2020* (City of Melbourne, 2009a). Aiming to take a collaborative approach to *Future Melbourne*’s development, the project team, after developing a draft official plan document, sought to:

- Engage citizens in creating a vision for the future, setting priorities and contributing to decision-making.
- Value and utilise local networks.
- Focus on people and place that requires a more flexible and joined-up approach to policy and service delivery.
- Connect the top-down and bottom-up policy processes that influence resource allocation. (City of Melbourne, 2008).

Through a wiki, an editable website which is entirely driven by user-generated content and anyone is free to contribute to, *Future Melbourne* focused on bottom-up processes of engagement and content generation, hallmarks of the Web 2.0. With *Future Melbourne*, citizens engaged with planning staff and other citizens, documenting their feelings of the draft official plan anywhere they saw fit. The wiki garnered a great deal of attention, with 7,000 unique visitors and 131 contributors adding hundreds of edits to the draft plan. At the same time, city staff members were working on the project internally, adding hundreds of additional edits before presenting the final draft plan to City Council, which ultimately adopted it. However, Melbourne was an early adopter of this type of planning process, with few successful examples of similar projects to guide

them. In southern Ontario, any of the regions or municipalities, as well as the Province could use Future Melbourne as an example of a best practice (the plan won numerous planning awards in Australia and elsewhere), adapting its nuances to fit local needs, context and content, a recommendation echoed in the *Post Implementation Review* published a year later (City of Melbourne 2009b). However, it was not without its challenges; namely, a general lack of participation out of such a large population and the desirability of participants' observations and contributions. Most important, though was the fact that the plan, despite the cutting edge nature of this approach to public participation, the draft plan itself was initially developed using information, ideas and concerns gathered over the course of 14 months during more traditional, in-person engagement initiatives as well as information disseminated by the City through more traditional means.

This type of planning process employed by a municipality, can, in the stroke of a few keystrokes, capture the changes occurring on the ground as well as the moods of the people being affected by land use planning decisions, or other external factors that influence their livelihoods. This type of thinking (if not this particular example of the wiki becoming policy) offers an alternative to datasets that are not easily maneuverable or updatable by being a more dynamic approach. For example, agricultural crop and harvest data could be edited and modified within hours, or even minutes, thereby informing consumers as well as other purchasers immediately. Several changes of the same data over time may also signify a need for agricultural planners and officials to revisit what concerns are consistently being and possibly inform the potentials for their change. Implementing such tools requires several things: a project champion or champions who will advocate for a new way of approaching planning data and public feedback acquisition, a knowledgeable and forward-thinking technological capacity; the political will to implement such a process, and citizens and other stakeholders who will participate honestly and often.

4.2 Issue Two: Opportunities for Change Within Existing Land Use Planning and Policy in Recognition of Agricultural Innovation

The second issue facing agricultural innovation in Ontario develops on the idea that farmers (and other stakeholders) have a great deal of crowdsourced knowledge with which to contribute ideas and discussion to make changes. After all, there is room to maneuver and plan for change and innovation within provincial, regional and municipal plans, land use policies and bylaws, only it is often not fully explored or actualized upon. There is innovative potential for new or improved practice in agriculture, but farmers' capacity to do so may be inaccessible and lacking identification. Farmers themselves have proven themselves to be resourceful business people, adapting quickly to changing economic conditions. For example, as the ethnic makeup of the region surrounding the City of Toronto continues to change and diversify (46 percent of residents in 2006 were born outside of Canada, and a projected 63 percent will be visible minorities by 2031) (Statistics Canada 2010), demand for different types of food have changed. Recognizing this, the Friends of the Greenbelt Foundation and the Toronto Environmental Alliance created a series of ethnic food guides (South Asian, Chinese, Middle Eastern and African/Caribbean). These guides highlight both grocery stores in Toronto that sell ethnic food as well as on-farm markets. With so many people from these (and other) ethnic groups residing in this area, farmers are adapting their crops and products to meet vastly increased demand. In a working paper titled *Re-Defining Agriculture: Sustaining Agriculture in Canada through Innovation and Diversification*, the Saskatchewan Agrivision Corporation describes this:

Many subscribe to the notion that farmers may be less adaptive than they could or should be, or that institutions, regulations and traditions bind and limit farmers' creativity. Farmers would argue, and the facts bear it out, that this is not true. Productivity improvements on the farm have averaged 2.3% per year, which is better than most other sectors of the economy, and the diversity of products has increased substantially. Farmers have demonstrated the ability to adapt and change product lines quickly (Saskatchewan Agrivision Corporation Inc., 2007).

Given this, it stands to reason that by employing or participating in municipal planner

hosted Web 2.0 tools, farmers will be better able to communicate how they are working within and around existing policy to further their own needs and goals. The identification of agricultural and food ideas, practice and potential by the crowd is important, and can allow planners to better understand the local areas in which they are planning better.

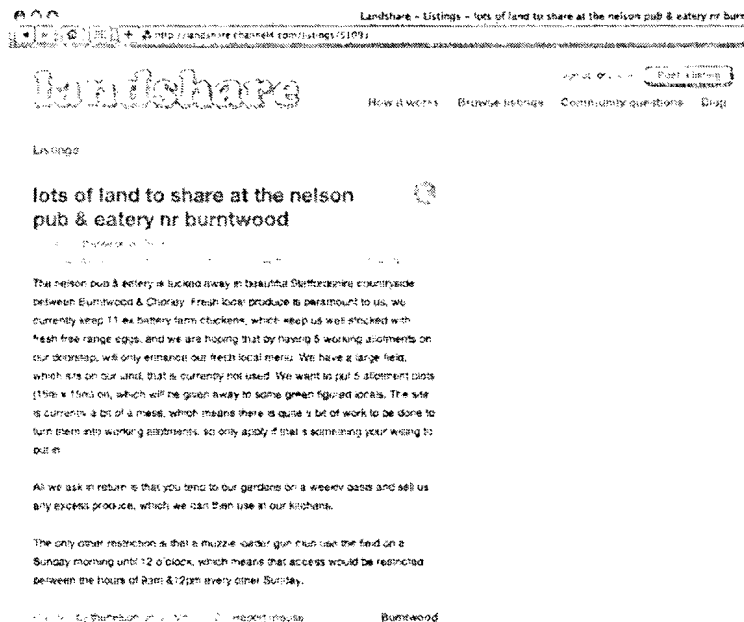
Farmers themselves have begun to take up the organization of fellow producers in exercises of engagement. Farmconnect (<http://farmconnect.net/>) is run by two family farmers in Michigan who felt there needed to be a place online where other farmers could connect, discuss and form their own farm- and food communities, directly and instantly. Similar message boards are popping up everywhere. The United Kingdom's *Farmers Weekly Interactive* (<http://www.fwi.co.uk/>) is one such website, where different types of agricultural news is collected and disseminated, numerous agricultural type-specific blogs are hosted, photos uploaded and tagged, and message boards populated by hundreds of farmers. For example, in 2007, during the Avian Flu outbreak in the U.K., traffic to the website spiked as food producers sought advice from other farmers about how to deal with the issue (Allen, 2007, n.p.). Other areas of discussion include ethical purchasing of food and supplies, equipment reviews, farm power supplies and a forum especially for young farmers.

A very effective way for citizens to crowdsource and identify, via the Web, opportunities for agricultural innovation is through a website called Landshare (<http://landshare.channel4.com/>), operated by public broadcaster Channel 4 in the United Kingdom. Using a familiar Google Maps interface, landowners and land-seekers sign into the website, identify themselves and where they are located, and offer up either land for cultivation or the desire to cultivate land, and connect interactively to meet mutual goals. Each request or offer is placed on the zoomable Google Map of the United Kingdom, after which it is freely available for the public to search. Figure 4.2.1 shows a typical post found on the website.

This type of identification of community assets and opportunity represents a very organic and grassroots way of using the Web 2.0, albeit on a corporate-controlled website. In total, as of March 19, 2010, 1,524 landowners from England, Scotland, Wales and Northern Ireland have identified land available for cultivation, while 4,478 are seeking land on which to grow vegetables or raise small-scale livestock or poultry. In

addition, close to 470 people have signed up to be an agricultural helper. A similar approach could be taken in other instances where the identification of land with potential for new or innovative uses is needed, such as the United Kingdom's Department for Environment, Food and Rural Affairs commitment to establish a land bank of potential properties available for agriculture and allotment gardens, as identified as part of its *Food 2030* Strategy. Government agricultural planners would be able to save considerable amounts of time, money and resources by engaging the communities themselves in identifying these areas of land open for opportunity.

Figure 4.2.1: Typical Landshare.channel4.com posting



These types of online tools offer the ability for full two way interactions to occur, allowing one's expertise in one specific area be another person's first introduction to it, and vice versa. Given that agricultural policies and the land use plans that shape agricultural communities are often quite complicated, such as surrounding on-farm processing or secondary uses, these types of interactions can be an important source of knowledge and information-sharing. Top-down hierarchical approaches are necessary at times, but at the very local level, they "may not acknowledge informal practices or have sufficient legitimacy to supplant them" (David 2007, p. 177), opening up space for

citizen-led informal planning. Unbounded by hierarchies (Cartwright 2008), folksonomic approaches like these underscore the importance of local collaborative databases of knowledge as part of informal planning practices that occur within or despite the confines of more formal planning databases and knowledge. The Web demonstrates the ability “to assist the subpolitics of outsider groups with improved networking, and it also suggests a new avenue for reengagement with the formal institutions of government” (Howes 2002, p. 330). While looking at some of these websites one may often feel bombarded with information and wonder how any of it may be of use but, Shirky responds to those who deride user-generated content by asking “why would anyone put such drivel out in public?” with a quick “It’s simple. They’re not talking to you.” (Shirky 2008, p. 85). Therein lies the power of the Web 2.0: there is something to be found there for anyone; it just may mean one has to wade through a good deal of other information and data first to find it.

4.3 Land Use Planning is One Aspect: Agricultural Innovation

The third issue addresses the multidisciplinary nature of both agriculture and the Web, and the contributions from any and all sources on the Web that can better inform agriculture. After all, for any planning innovation to occur, formal land use planning must only be recognized as playing a part of it, and that other forces cumulatively shape the practice, products and ideas of agriculture in Ontario. These include broader forces such as environmental change and people’s perceptions of the ecological costs of how they eat. It also includes economic issues, both at the individual level, the regional and even at global scales. More specifically, the issues shaping food and agricultural practice encompass food and commodity marketing boards, federal and provincial food and health regulations, and, possibly most importantly, consumer demand for certain products and certain methods of production (i.e. the burgeoning local and organic food movements in contrast to traditional large-scale farming), especially in the Greenbelt due to its extremely large nearby urban population.

Increasingly, consumers wish to know that the food they eat is of a high quality, ‘authentic’, ‘traditional’ and ‘traceable’ to a place of origin (Amilien 2005; Ilbery & Kneafsey 2000). As Rusten, Ellingsen and Kristiansen (2008) note, this shift in market

dynamics “represent[s] an interesting possibility for product development within the food industries in rural regions” (p. 22). It is acknowledged (Carter-Whitney 2008; Lister 2007) that in order to support a strong local food system in Ontario, consumers must have easy access to local food producers and their products. Consumers want locally grown food, but often it is difficult to find food that is labeled as such (Carter-Whitney 2008).

Despite the difficulties consumers may have sourcing their foods through local chains, the ideas of local food chains and putting them into practice (through labeling, economic incentives or government regulations) can nonetheless help realign the gaps that currently exist in mainstream food systems while, at the same time, achieve a more intimate connection between producers, consumers and the places from which food originates. For producers and marketers, the global markets are no longer the important ones to capture – local products to nearby regional centres have become the type of food on which marketing efforts are being focused (UNDP 1996).

The Friends of the Greenbelt Foundation (FotGF) is currently undertaking the creation of its own database, the “Buy Greenbelt Fresh” Online Marketplace, partnering with the Greater Toronto Area Agricultural Action Committee (GTA AAC) to make connections with local chapters of the Ontario Federation of Agriculture (OFA) and the Ontario Culinary Tourism Alliance (OCTA). The primary focus of this is information is to create a market-oriented database that will be used to facilitate procurement of local food by broader public sector institutions, such as municipalities, universities, school boards, and hospitals, as well as connecting interested wholesalers/distributors, retailers, restaurateurs and individual consumers with the growers who can supply what they want. Research has shown that many economic challenges facing farmers have forced many to diversify and to be their own promotional teams (Goodchild 2007b; Nichol 2003).

Serving as an impetus to conduct their own survey of Greenbelt growers and food producers is the lack of up-to-date and/or comprehensive data available for agricultural production in the Greenbelt. Statistics Canada’s Agricultural Census only occurs every five years, and the Greenbelt Foundation’s statistical analysis (one was published in February of 2008, while the latest was released in November of 2009 with

figures from June of that year), as is to be expected with regard to published printed versions, relies on already out-of-date data when it has been released. These collections of data, while useful, do not provide any information beyond broad categories of grown or produced food types, sizes, and in what regional municipality in which they are located, focusing on the large picture without delving deep into the finer-grain of the issues that ultimately affect the producers the most. There is not a great deal of first-hand analysis of how user-generated quantitative data has been received by a governmental body and implemented into formal decisions, planning or otherwise. For example, Smith and Rogers (2008) focus on official statistics being disseminated outward, and offer no example whereby the information is coming *in to* the statistical agency could be used for analysis and assessment. As such, “Buy Greenbelt Fresh” has the potential to become a very interesting case study from which to learn how planning can possibly use data collected for one purpose and by non-experts and make decisions based on them.

Looking at the ongoing “Buy Greenbelt Fresh” market survey, one observes a fairly traditional process of information gathering. A paper copy of the survey was distributed by mailout to thousands of farmers throughout the Greenbelt, which permitted staff at the FotGF to set up online profiles of those who responded. Alternatively, farmers do have the option to set up their own online profiles, allowing them to communicate and market their own products. Given that the survey was initiated by the non-governmental body of the Greenbelt – the Friends of the Greenbelt Foundation – the methods employed come as little surprise, and too much time should not be spent critiquing them. On the surface, they accomplish what they set out to do, but in light of the potential of the Web 2.0 tools, this method of data collection, especially from those who submitted paper copies in the first place indicating there may be reluctance to go online, is the data collection version of a mandated public planning meeting: there are no surprises, it is well scripted, and it is top-down in its regulation and employment. The data itself is not necessarily static, as the farmer profile pages allow individuals to update their information as necessary.

Another way in which Ontario farmers are active online, contributing content, is through the Holland Marsh Growers’ Association’s Twitter account, found at

<http://twitter.com/hollandmarsh>. Since February 2009, the Association representing farmers in this fertile 'muck' farming region south of Lake Simcoe straddling the County of Simcoe and York Region, has contributed more than 150 "tweets", short-form (under 140 characters) that discuss goings-on in the Holland Marsh area, link to relevant news articles, and highlight various individual, municipal or Association issues and concerns. For example, a tweet on June 15th, 2009 said, "Here's a list of farmers and farms in the Marsh. Drop by sometime! We're what you call "close by" and provided a link to the Holland Marsh Growers' Association members list. Another on December 29th put out the call for "...farmers to help with 6 acres at the Holland Marsh" and yet another on February 1st, 2010 links to a local farmer's blog post discussing their concerns about the proposed natural gas power plant to be located near the Holland Marsh in King Township, York Region.

While the Holland Marsh Twitter feed does not delve into deeper matters of agricultural land use or regulations, nor does it very actively solicit feedback on these matters, the Twitter feed's more than 750 followers (as of early March, 2010) all receive these tweets and have been made more aware of some of the agricultural issues, products and events in Holland Marsh. Being on Twitter means that these 750 members also have the opportunity to contribute to the Growers' Association information on their own or in response to previously posted messages. Despite this not being directly involved in any municipal planning department, it nonetheless allows like-minded individuals – in this case the farmers of the Holland Marsh and those who consume their vegetables – a publicly-available forum in which to receive content, broadcast their ideas and, potentially, organize around issues of mutual interest and concern. For its ease of communication around these functions, many local politicians have found Twitter a useful tool to inform their electorate of council decisions, political stances on issues, and solicit feedback.

This is the case in many other places as well. Havlicek, Lohr and Benda (2009) discuss the problems many rural Czechs have experienced in promoting their facilities to the broader public pre-Internet, and offer Web 2.0 as a potential solution. The long tail effect would be in place, allowing individual farmers to have their own voice and develop their own niche amidst many larger and 'louder' destinations. Virtual

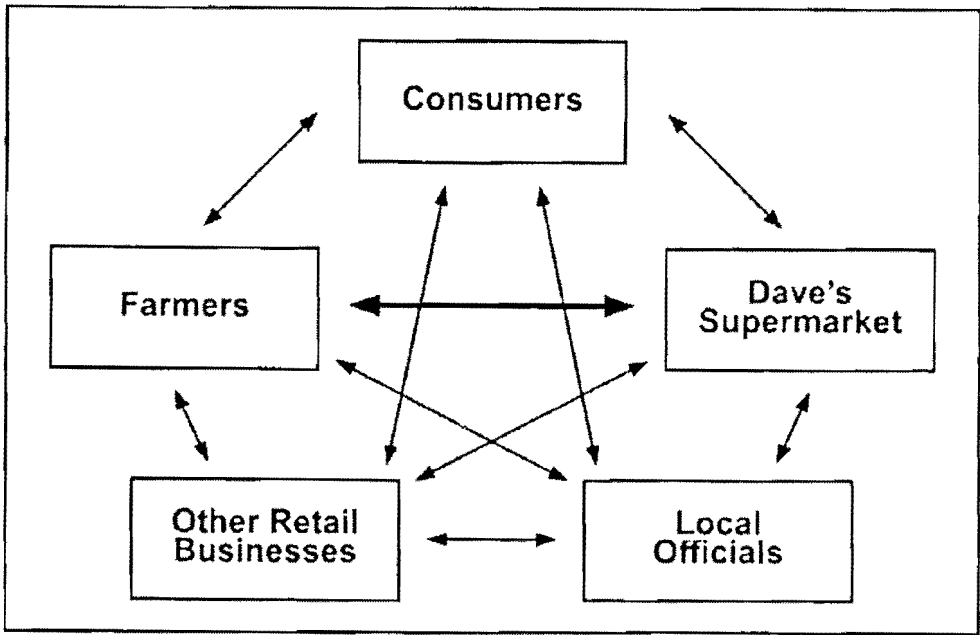
communities and clusters can be efficient ways by which food producer websites may share resources and attract more significant attention and signify greater market power. The Web can be a place through which to advertise and promote a product to mass audiences or specific markets, but also to distribute that product directly or indirectly to customers (Rusten, Ellingsen & Kristiansen 2008). Evidence of such direct consumer marketing is merely a few clicks away: the Monforte Dairy (<http://www.monfortedairy.com>) is a small, community-supported agricultural production in Stratford that uses a range of social media tools to keep its shareholders up to date on products, operations and finances. Similarly, Vicki's Veggies (<http://www.vickisveggies.com/>), a family farm based in Prince Edward County, and Fiesta Farms (<http://fiestafarms.ca/>), a locally focused grocery store in Toronto, keep consumers in touch online with their latest offerings and products.

Based on research into local food systems in Illinois, the following figure (4.3.1) shows the relationships between stakeholders developed during a specific local food project. In this example, the relationships were observed and documented based on face-to-face interaction, but it is not difficult to imagine that a similar set of stakeholder communication and collaboration could be facilitated online through Web 2.0 tools like the FotGB market survey and the Holland Marsh Twitter stream. The opportunities are many: food retailers could tell farmers directly what they need; local officials are kept informed of various issues arising 'in the field' that may need attention; and consumers are able to communicate directly with food retailers and the farmers themselves, gaining an insight into what foods are available locally at any one time.

Non-traditional datasets, like the FotGBF's market survey or the Holland Marsh Twitter stream can add a great deal by way of informing other potential users of the issues and challenges facing the m, as well as expanding their brands by highlighting opportunities for economic growth and expanding consumer markets. Rusten, Ellingsen and Kristiansen (2008) describe three ways in which information technologies and the Web can add value to farmers', and other firms', activities. First, these technologies enhance the abilities of farmers and food producers to exchange information beyond the boundaries of the firm, allowing it to strengthen ties with its existing local, regional, national and international relationships while forging new and cooperative ones.

Secondly, having a presence online allows farmers to form a more interactive relationship with their customers, even shaping the development of customized products and services. It also helps “afford [the] scope to create new linkages and virtual communities between producers and consumers” (p. 20). Finally, being active online also can be part of a farmer’s branding and marketing strategy, highlighting its activities, products, and sales locations, with “the geographical label [being] an important element in the way a firm markets itself” (Rusten, Ellingsen & Kristiansen 2008, p. 22) in this age where people are more concerned than ever about where their food comes from.

Figure 4.3.1: A Typical Local Food Chain highlighting the Interactions between all Stakeholders (Hultine, Cooperband, Curry & Gasteyer 2007, p. 64)



5.

Discussion and Planning Recommendations

Given the popularity of Web 2.0 tools and websites in people's personal and social lives, and the ease in which these online spaces are accessed and the technological components necessary to be acquired, it is easy to understand why governmental departments and other organizations are looking to these arenas for an alternative (or in some cases, primary) method of soliciting public participation and feedback: they allow these agencies and organizations to be where the people (and potential users) already are. For example, as of early March, 2010, Facebook alone has more than 400 million active users, of which almost 14 million live in Canada (Facebakers 2010), making up roughly 40% of the total population of the country. Given the ease with which people communicate and contribute content with Facebook, Twitter, blogging platforms, message boards and other online tools, it seems like an obvious principle to use as part of any public participation strategy. As such, it is not surprising to contemplate that

the dominant perspectives on e-democracy and the information society are in the category of techno-optimism and focus on the inherently positive role of the internet in making government services more efficient and user-friendly, and facilitating interactive communication between politicians or government on the one hand, and citizens/businesses on the other" (Cammaerts 2008, p. 59).

This optimism, however, presents several major concerns. One surrounds the formal implementation of Web 2.0 in government is that of authority and authenticity. Web 2.0 tools enable people to create the content of websites, which has meant that, increasingly, "professional tools [such as those found in geographic information systems (GIS)] are entering the realm of the masses via Web 2.0 technologies (i.e. through Google Maps) and from this the professions themselves are changing" (Hudson-Smith & Crooks 2008, n.p.). Governments and planning departments will need to embed some authority within their virtual planning services, particularly for those that use websites

primarily used as places of social interaction or entertainment, such as Twitter or Facebook, where there is generally an overall informality and sense of 'fun' that is associated and expected with those sites.

With an embedding of Web 2.0 concepts into both civil society as well as formal planning processes comes the "noble amateur... [which] lies at the heart of Web 2.0's cultural revolution and threatens to turn our intellectual traditions and institutions upside down" (Keen 2007, p. 36). While the use of Web 2.0 tools in planning likely has not reached its zenith as increasing numbers of applications are used for more and more varied purposes, some are nonetheless rightfully critical of the implications of this move towards a more digitized participation and engagement (Mossberger 2009; Pollock & Whitelaw, 2005; Sieber 2006). They note that it is that it is fraught with constraints, such as inconsistent data, lack of participation or uneven participation and a lack of standardized methods or objectives.

As the examples in Section 4 have shown, the processes of formal planning and of daily citizen activity revolving around food, jobs, and economics are very much intertwined and not easily separated from one another. The Web 2.0 ideas that municipal planning departments have already implement or could be implemented in the future to better plan for a changing agricultural landscape, as discussed in section 4, focus on tapping into the social capital generated by those farmers and consumers on the ground, and generating discussion and other qualitative data online to better inform the public participation processes undertaken by planning departments. With much of the discussion online around agriculture occurring within citizen- or interest groups, farmers and other stakeholders develop a level of empowerment, especially as they share knowledge with each other. However, Elwood and Leitner (1998) note that simply allowing individuals or a community use of a technologic process does not necessarily empower them; nor does any information so acquired (Elwood & Leitner 1998). Further measures must be taken in order to realize the vast amounts of social capital accessible through online tools. This is where formal planning must come into place, offering substantive backing and grounding to make long- and short-term decisions that may affect the viability, value and productivity of agricultural land.

The following categories of recommendations will serve as guides with which the various players in local food and agriculture movements – in particular farmers, planners, and academics and policy makers – can begin making informed decisions about online engagement using Web 2.0 tools. Planning departments especially should begin to think about as they seek to develop where, how and when Web 2.0 tools can be best utilized for their respective planning goals, especially as they relate to agricultural practice. They are by no means exhaustive, but instead offer a level of understanding of the complexities incorporating a new method that has fundamentally different values – those of citizen-led discussion and citizensourcing of information and data – than what is currently accepted as practice in most planning departments.

5.1 Recommendations for Farmers

Despite the focus of much of this paper on government and upper levels of governance employing Web 2.0 tools, online participation often wields the most influence through and is most effective at the micro- or bottom-up levels where citizens participate directly in matters to affect civil society and in formal politics online. For many municipalities and public sector planning agencies, diving into the world of Web 2.0 beyond mere tokenism or a 'Web 1.5' approach, where new tools and applications may be used – mainly as a new way to disseminate information – requires a leap of faith (Gardner 2008). This is understandable, given that to fully embrace the Web 2.0 means, by definition, to step away from the notion of the 'planner as expert' and begin incorporating not only the viewpoints, but also the collected, organized and analyzed data and observations of the public into planning and policy decisions in meaningful ways.

While planners (and especially planning academics) must continue to play a role in identifying and disseminating stories of grassroots community food and agricultural projects and the collaborations that occur between them (Campbell 2004), the more dialogue surrounding those practices that occur *despite* a lack of bureaucratic channels, the greater the chances formalized planning takes notice and begins enabling these processes further. With greater transparency of Web 2.0 'citizensourced' information, lines of communication may be opened, which will allow for a greater understanding of

the planning process (Lukensmeyer & Torres 2008) by the very people who are affected by agricultural land use planning and policy decisions and who potentially have the information, data, and capacity to address the food, planning and sustainability issues that this paper addresses.

Most notably for farmers, the Web 2.0 offers a suite of tools for rural areas to encourage communication networks “to develop new, high-value markets for local food products at a potentially much lower cost than that of traditional marketing methods” while also helping “empower local people in rural areas to create new exciting marketing concepts to bring additional income to these areas” (Kleppe & Hosea 2008, p. 79). The current potential of the Internet, as discussed by Rusten, Ellingsen and Kristiansen (2008) and currently being developed by the Friends of the Greenbelt through its farmers’ survey, should remain focused in many respects on small-scale food producers, helping them focus on local and regional markets while training them on the emerging online technologies. This is especially true for those farmers who are dependent on niche product buyers, as the market for organic, certified local or sustainable, and artisanal foods is not only dispersed, but, by their very nature, also less-than-mainstream and lacking traditional-product processes in place to collect, distribute, market and support farmers’ livelihoods.

Given that the real potential of the Web 2.0 for farmers currently involves the marketing side of the equation, implementing Web 2.0 across the broad spectrum of true ‘engagement’ may, at this point, be premature. The examples shown in this paper of agricultural producers using Web 2.0 applications and other tools – namely the Friends of the Greenbelt farmers’ survey, the Holland Marsh Twitter feed, the Landshare project and Farmers Weekly Interactive – help to strengthen the communicative ties between relevant stakeholders more than anything else. By allowing farmers greater control of what information they share with the broader communities in which they function in (be they local, within Greenbelt or local Greater Toronto Area, or entirely through online communities), there are real possibilities for realizing social, economic, or political gains.

The potential for these gains may already be within reach. As more and more people make conscious efforts to support local economies and farmers by eating locally

grown food (Donald & Blay-Palmer 2006; Metcalf Foundation 2008), there are increased opportunities for community and social interaction to occur – at farmers markets, farmers gates, pick-your-own operations and online (Feagan, Morris & Krug 2004; Gurin 2006). This puts a positive emphasis on the connections between consumers and producers, valuing the contributions of both to a changing food landscape. As such, stakeholders in local food systems must vocalize the need for decentralized, democratic and self-sufficient food chains in order to meet broader regional sustainability directives (Bellows & Hamm 2001; Donald 2009; Feagan 2007; Lockie 2009). This should happen at the local level, as “larger and more traditional organizations might soon be at a disadvantage as they try to organize and manage these dynamic and semi-chaotic information flows” that the Web 2.0 inherently creates (Ballantyne 2009, p. 268). By building off the work done by leaders, such as the aforementioned organizations as well as individual farmers and food producers, the agricultural community has the ability to be active online in such a way as to benefit both themselves and the consumers who rely on timely and accurate information regarding product sales and distribution. In addition, planning departments, as this paper has argued, can also benefit from this type of information and use it to help understand and recommend land use and policy decisions more attune the actual practice of agriculture as it unfolds on the ground.

5.2 Recommendations for Planners

The range of methods employed in the section 4 highlight the fact that, while Web 2.0 tools offer many similar benefits surrounding communication, collaboration, identification and analysis by both planners and government officials as well as farmers and consumers, how they are employed differs wildly depending on the circumstances and how the information collected is intended to be used. As the Web 2.0 movement amplifies “the Web’s inherent capacity for openness, participation, self-organization, decentralization, group-forming and network-enabled collaboration” (Sharpe 2009, n.p.), planners and other government officials must determine what its role in the formal planning process can and, more importantly, should be by developing on these niche offerings that the multitudes of products can provide. At the same time, as noted in section 5.1, those whose engagement is being sought and encouraged in this process –

farmers – should be encouraged to become involved and be acknowledged as being sources of information and data and motivated to further develop their contributions, explicitly or implicitly.

While the bottom-up processes of online participation may in some instances be most effective to affect levels of engagement amongst stakeholders, many participative processes are nonetheless initiated at the macro level of government, such as within planning departments, where formalities dictate communications go directly and in a top-down way to citizens and to civil society (Cammaerts 2008). For many projects, planners hold public meetings in the affected community to give residents an opportunity to make representations to the project. These meetings, however, can, at times, seem as if they are merely done to satisfy the requirements of the *Ontario Planning Act*, which requires “at least one public meeting” (s. 15.d) for any project plan to be approved. These projects and process were quite obviously not borne out of grassroots activism, but emerge from specific, often private interests who, many times, have the virtually full approval of planning departments before attending the public meetings.

However, as people’s lives are increasingly intertwined with the instant communicative and information-seeking ability of the Web, there is a great deal of potential to reach out to truly engage the audience sought. It may be simply a matter of targeting the right people in the right online spaces (or offline spaces initially). When, in what form and with what people the type of innovation surrounding engagement, communication and data collection will ultimately come to rest on what farmers themselves decide to do (Water-Bayer in Ballantyne 2009). Galvanizing support for local food projects and encouraging greater farmer to retailer, consumer, government official communication and engagement requires, first and foremost, catalyst farmers (Hultine, Cooperband, Curry & Gasteyer 2007) who are willing to embrace new ways of operating by taking risks and being persistent in order to reach the markets they wish enter. The engagement of Greenbelt farmers and food producers online will only go so far as those who have the skills, time, resources and, especially, motivation to participate wish to participate.

Having said that, online technologies cannot be a full replacement for traditional

methods of information gathering and dissemination (Ballantyne 2009). Oftentimes, an online community fails to ever materialize, leaving planning departments and their municipal governments with the potential of wasted time, money and energy if they have to resort to more traditional forms of community input solicitation and engagement. As such, planners must use online participation methods selectively, emphasizing the ease of access and lack of time restrictions in online participation, but ensuring that these are bolstered by face-to-face interactions that can assure food and farm data contributors that their information and responses are being taken seriously and not simply disappearing into cyberspace.

A quote from Ann Dale (originally about sustainable development) does well to sum up the direction that planning and the niche role of the Web 2.0 can be and is currently moving. She writes that “a more appropriate role for governments in the twenty-first century may well be to support processes that increase social capital as this will ultimately lead to a strengthening of both ecological and economic capital” (Dale, 2001, p. 158). While data and information may be made available to the entire Internet-enabled world via Web 2.0 tools, the local place is inherent in all discussions: participatory measures undertaken by planners online must emphasize the ‘place’ in which the planning decisions and information reside in. By focusing this Web 2.0 information the fruits and labours of individual farmers, their products, their problems, and their passions are opened up to everyone with an interest in getting involved.

While the Web does a remarkable job of bringing people together over certain definable interests, there may only be a certain level to which most online users will become active, and even if they are mobilized around a certain issue or geographic location does not necessarily make it relevant to the core of land use planning. Budd and Harris note that promoters of the aforementioned e-Governance, with which the Web 2.0 is a natural fit, “have tended to be over-determined by technological solutions” and “without comprehensive and detailed scrutiny and implementation of appropriate processes, achieving e-Governance as the governing norm remains a distant prospect” (Budd & Harris, 2009, p. 3). There are differing opinions on what constitutes effective participation online, and what negative issues may arise from it.

For example, information pronounced by the public on the Web must be verified before it can be used; it must be quality data that has merit and be authenticated so that citizens, the end users, and governments themselves are protected. As quoted above, Carrera and Ferreira (2009) describe government's new role as that of validator, not primary observer and collector. While this may be one way in which citizen participation and engagement is proceeding, content and data provided online initially is nonetheless "is asserted by its creator without citation, reference, or other authority" (Goodchild 2007b, p. 220). Anecdotal evidence alone is not enough to make sound planning decisions and, ultimately, public sector organizations must maintain their reputation and credibility when using Web 2.0 tools (Gardner 2008; Hudson-Smith et al., 2009) in much the same way citizen participation offline requires planners to use their professional judgment to focus what the key points, ideas and lessons learned from the public are through the rest of the 'noise' generated through more traditional and face-to-face interactions.

It may be difficult to recruit new users to the political and planning processes through online engagement and participation strategies, but the same is often said of engaging people offline in similar projects and processes. Despite the promise that many of the people whose engagement is sought are active on the Web, it is noted that those involved in politics and government online tend to be those already involved in politics and government offline. This magnifies the existing 'divides' of politics faced by different socio-economic classes, races and ages (Mossberger 2009). Online users' ages and educational levels generally account for the most variation amongst users of online government services, but race, income and ethnicity also contribute their own effects independently (Mossberger 2009). This will have implications for the voracity and true representative nature of the data collected online.

As the 100:10:1 rule of Internet participation states (where the use of a generalized Web 2.0 application sees 100 people read its content, 10 people sign up, and 1 person contribute content), it cannot be expected that more than a minority of users contribute to any official data gathering or organization project (Hudson-Smith et al. 2009; Šnuderl 2008). In essence, this is one of the major challenges of online engagement surrounding planning issues. While there may be a 'snowball effect' of

participation, where initially people are reluctant to be the first to comment or contribute but feel more comfortable when they see others doing so, it can take time for a sense of community to build. Planners can facilitate this by being active participants online themselves, prompting conversation when it lags and actively displaying their work and how the farmers' data is being used, rather than just providing a 'shell' for information and data collection and disappearing from view. Public education and outreach, focused around both face-to-face and online methods of communicating can help planners gain farmers' input, and being active where farmers already are active and have organized independently and in grassroots ways can activate those who are already engaged in similar exercises to be brought into the formal planning process.

5.3 Recommendations for Future Research

Given the limited scope of this paper alongside the rapidly-emerging nature of the practice of online engagement using Web 2.0 technologies, many opportunities for further research exist that must be acknowledged. This is particularly important when considering that there seems to be a gap between the potential of the Web 2.0 (and its use in practice in other fields and especially its considerable use in social situations) and how it is generally perceived in planning and agricultural practice. A large part of planning is about engaging people and soliciting their feedback. It was mentioned in Section 5.2 that the *Ontario Planning Act* prescribes certain minimum public participation processes for projects, and it, in theory, makes considerable sense to use the Web 2.0 to do some of that public outreach, especially given the access most people have to Internet-enabled computers or hand-held devices. A similar situation exists with the Environmental Registry under the provincial *Environmental Bill of Rights* (EBR), which contains all public notices put out by Ontario government ministries that deal with environmental matters. Both the municipal notices put out under the *Planning Act* and those issued by the province under the EBR allow for comments to be solicited electronically (with the EBR being a one-stop shop to doing so, whereas municipal plans require visits to municipalities' websites, but these processes are decidedly *not* Web 2.0. However, the formal places exist to use these new technologies, they have not been fully activated. This paper did not fully elaborate *why* that is the case, instead it

served to highlight that the possibility is there to do so. Ongoing indepth research should be able to shed a clear light on the question of 'why' this has not fully been taken up by formal planning in many instances.

Rapid advances on a yearly basis in mobile, hand-held technology mean that increasingly, the ideas about the Web 2.0 and its inherent advances in communication, interaction and engagement presented here mean that within reach of farmers (Dasgupta 2007). Being rural is defined by many things, and despite these changes in technology, it still means a physically dispersed population, fewer services and a weaker infrastructure in terms of services, normally thought of as being roads, public transportation, utilities and telecommunications including mobile phone coverage and high-speed broadband Internet access. A recent news report in the *Globe and Mail* notes that the Canadian Radio-television Telecommunications Commission (CRTC) is questioning whether to ensure that affordable broadband is within reach of all Canadians, because "[c]ommunities that cannot plug into the high-speed digital economy cannot attract new businesses that rely on basic services such as electronic invoicing, Internet conferencing and large digital file transfers" ("How are you affected..." 2010). The promise of these technologies to allow people to be connected to the rest of the world in order to effectively work and communicate remotely are not as realized as they are in many larger urban centres (Rusten & Skerratt 2008). An area beyond the scope of this paper was to analyze exactly where and how farmers were accessing the Internet, and determine how the speeds at which these connections happen change the way they interact and participate online.

Another important area for future research in the Ontario context surrounds the idea of agricultural extension services – the practice of farm visits by usually government agents to educate farmers about new crops, methods, guidance and information surrounding their livelihoods. At one point these were common pieces of soft agricultural 'infrastructure', but in the 1990s, these programs were phased out by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) (Metcalf 2008). Ostensibly, this left farmers without face-to-face contact with a neutral party, and many resorted to hiring consultants or getting advice from chemical or seed companies (Metcalf 2008). The OMAFRA website is also a wealth of information, but lacks the

capability to receive farmers' inputs on how well different crops, products or processes have worked, meaning the peer review is not there. This appears to be a situation where the Web 2.0 could be reasonable alternative to potentially biased outside consultants as well as a process where farmers could literally learn from each other, facilitated through a trusted government organization.

Finally, the Web 2.0 has a considerable role to play in terms of being an agent for the mobilization of social activism surrounding food and agricultural issues. In particular, such tools as Twitter and Facebook have shown to be able to exert pressure on governments, meaning that government agencies may soon face additional pressure by the public (or farmers as well) to purchase food locally, while other situations may have particular localities' home-grown food promoted, such as Foodland Ontario's Twitter feed (<http://twitter.com/foodlandont>). How successful both of these types of social incitement and enticement (and participation in Web 2.0 processes versus more traditional face-to-face interactions generally) have been will involve considerable research well beyond the scope of this paper.

6.

Conclusions

There is a myth (well-articulated by Estes and Mooneyhan (1994)) that human's knowledge of the earth is up to date and it is well mapped. They argue that, because mapping is an expensive and time-consuming process, the vast majority of it is government-sponsored and is only updated as governments' economic and political needs dictate. This represents a very top-down approach to information collection, analysis and dissemination. However, in recent years of fiscal responsibility, spatial data collection has fallen out of favour of government mapping agencies when it has come time to pay for these services, "just as demand for them was expanding" (Goodchild 2007a, p. 8). Citizen-sourced mapping data, especially through such programs as Google Maps and Google Earth, began to emerge as a viable alternative to government information, especially as it was used by other citizens themselves. But how far will this data collection go? How far *can* and *should* it go?

Planning, like all professions where constant streams of knowledge and information are flowing in all directions, must begin and continue to understand the niche of the Web 2.0 within its own formal processes, a no easy task as the mapping example above serves to illustrate. Robert Goodspeed, a planning academic whose research seeks to understand how technology can improve planning engagement and democracy, discussed that

[t]o a large degree, the planning profession has soldiered along these past few years largely unaffected [by the Web 2.0]. While perhaps this is understandable for a profession dominated by academics and government officials, technology can be leveraged as powerful planning tools. Whether it is soliciting feedback on projects and plans, communicating timely and accurate information, or identifying urban problems, Web 2.0 technologies could play a central role in the planner's toolbox (2007, n.p.).

The current situation and context within planning remains in an initial 'early adopters' phase where, while most jurisdictions have adopted specific limited Web 2.0 tools and applications (such as project discussion boards or social bookmarking for webpage

sharing), the majority of the focus has been on information dissemination. Some jurisdictions have adopted more interactive and multimedia process of interacting with the public and soliciting feedback throughout the planning process, but in these places the implementation of a 21st century model of information dissemination, public participation and engagement has been championed particularly by either keen planners and other public servants or by their politicians.

However, Wilson (2008) notes that this is likely to continue to change, as the expectation by the public for a similar quality online environment that is as easily accessible as the websites visited daily in which to participate in the planning process. Planning, thus, faces the following choice: "become more and more effective, by adopting tools that support better participation practices, or risk losing significance, by failing to embrace what members of the public are flocking to" (Wilson 2008, p. 29).

This paper asked the questions, 'How effectively is the Web 2.0 being utilized in the agricultural and food-producing sector of the Greater Golden Horseshoe, and what is its niche?', and, 'Is there potential for the application of Web 2.0 tools in formal planning and data collection process?' Municipalities and formal planning would do well to look to the informal networks and organizations forming around agriculture, either through surveys like the FotGBF's Buy Greenbelt Fresh or through more informal channels such as Twitter feeds and Facebook groups. Web 2.0 tools are especially suited for these types of organizations with limited resources, as available tools are usually very affordable, and, most importantly, those organizations often are able to sustain a committed group of individuals needed to generate consistent, useful and sufficient content on which to base broader decision-making (Ballantyne 2007). The role of the Web in citizens' democratic voices and roles is explained by Dahlgren (2005):

*[It] is at the forefront of the evolving public sphere, and if the dispersion of public spheres generally is contributing to the already destabilized political communication system, specific counter public spheres on the Internet are also allowing engaged citizens to play a role in the development of new democratic politics. Discussion here may take the form of deliberation, with various degrees of success, but **what is more important in this context is that talk among citizens is the catalyst for the civic cultures that are fuelling this engagement** (p. 160) (emphasis added).*

Given that "the value of informal communication... should not be overlooked" (Hultine et al. 2007, p. 73), planners are fast becoming mediators of stakeholders, serving to bridge these types of tensions arising in food systems. Agricultural areas like that of the Greenbelt in southern Ontario may benefit from this Web 2.0-based participatory model of collaborative data production and communication amongst stakeholders. The formal planning processes, then, will gain the flexibility and knowledge it needs in order to better respond to the changing agricultural landscape in two main ways.

The first way will be through the processes of openness, data democratization, soliciting public participation and employing Web 2.0 tools within the formal planning sphere. This may take its shape as part of the procedures mandated by such legislation as the *Ontario Planning Act* or by requirements of the municipality in question surrounding official- or secondary plan or policy development and refinement. However, it should only be part of the entire public participation and engagement process, as a diversified outreach to communities is most effective at capturing the most varied and representative data from citizens themselves. By defining the parameters of the types and voracity of the participation and content solicited online, municipal planning departments have, through Web 2.0 tools, an effective and relatively resource-lean way of reaching out to their constituents and developing a real-time and up-to-date understanding of how planning affects farmers and what changes to traditional understandings may be necessary.

The second way in which formal planning will be affected by Web 2.0 tools is through a more engaged and aware public, enabled in part by a rapidly changing demand for food, and by the Web 2.0 tools that facilitate the interaction of farmers with other food producers, with planning, agricultural and other municipal officials and especially with their consumers. These farmers, through their public interactions online, may not realize it, but through this stigmergy, they are contributing to the broader collective knowledge of the issues, challenges and opportunities faced by 21st century farmers and the municipalities and planning regimes in which they grow and produce food.

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