



**THE SURREY BOARD OF TRADE
AND KWANTLEN POLYTECHNIC UNIVERSITY
PRESENT A POSITION PAPER ON:**

**LOCAL-SCALE AGRI-FOOD SYSTEMS FOR SUSTAINABLE
CITIES THROUGH MUNICIPALLY ENABLED AND
SUPPORTED AGRICULTURE¹**

Authored by:
Kent Mullinix and Arthur Fallick²

Corresponding author: kent.mullinix@kwantlen.ca

¹ Based on a White Paper submitted for the Surrey Regional Economic Summit, 8/30/2008

² Institute for Sustainable Horticulture, Kwantlen Polytechnic University. 12666-72nd Ave, Surrey, British Columbia. V3W 2M8.

British Columbians are increasingly interested in what we eat, and our demand and support for locally produced food continues to grow... We must... seek and embrace new opportunities, and try new things, develop new products and markets, and participate in opportunities presented by the emerging low-carbon economy. We must all realize how important innovation can be. How it can change a farm, a community and a province.

Ben Stewart
Minister of Agriculture
Government of British Columbia
Oct. 29, 2010

Summary

Local governments in British Columbia can and should function as a strong and effective catalyst for the actualization of local /regional agri-food systems that genuinely afford food security (supply) and sovereignty (control) for people and communities. Since they most immediately feel the inclination and desire of people and community organization, municipal governments hold the key to creating local agri-food systems because they are closest to those for whom such a food system is intended. In the discussion that follows we contend that a sustainable 21st century agri-food system should be substantially different from what was in place in the latter stages of the twentieth century. Innovative restructuring that facilitates and reflects a cultural shift in our relationship to nature, place, agriculture, and to food is a sustainability imperative. Such a transformation will guide us toward nurturing new and sustainable relationships with the land, to our food, and to those with whom we build and share community – to rediscover what it is to be essentially human.

Researchers at Kwantlen Polytechnic University’s Institute for Sustainable Horticulture are developing a multi-dimensional framework to illustrate how local governments can enhance and support local-scale, human-intensive, environmentally sound agri-food systems that can have direct and positive impacts on local and regional economies, protect and preserve farmland against urban sprawl and promote increased food production, distribution and consumption self-reliance.

Politicians, planners, community groups and individual stakeholders need appropriate knowledge, tools and targeted strategies that can be readily implemented. Our research on ***Municipally Enabled and Supported Agriculture*** (MESA) is producing a compendium of concepts, tools and targeted strategies to illustrate how local-scale, human-intensive agri-food systems can be designed and brought forth to increase diversity and build resilience in our communities.

Introduction

Our challenge as planners, developers and policy-makers of the built environment in an era of climate change is to figure out how to strengthen agriculture systems and biodiversity of our farmlands, and connect them to livable cities and their consumers.

(K. Benefield, 2009)

Is it conceivable that sustainability, in all of its dimensions, can come to define and focus human enterprise in the 21st century?

For the first time in history the majority of the human population is urbanized. For Canada, as with other developed countries, fully seventy-five percent of our population live and work in urban environments, a phenomenon largely associated with 20th century industrialization and economic globalization.

Increasingly however, there is a growing recognition of the economic, social and ecological limitations and challenges this path has manifest. We are coming to more fully recognize that as “ecological creatures” we are subject to ecological principle and dependent upon ecosystem health and function, as are all other organisms that we share earth with. We are part of, and subject to, the web of life.

Yet most remain fairly unwitting of the ecological processes that affect every aspect of daily life or how the way we live impacts them. We are increasingly sequestered in our cities and insulated from ecological engagement and awareness.³ More importantly perhaps, we are generally unaware of the ecological burden we impose upon the earth’s resources and systems despite the fact that we have come to appreciate that human activity profoundly influences the local, regional and global ecological functions which human welfare depends upon. This increasingly emergent and delimiting revelation is manifest in our recognition of the core of the concept of sustainability- providing for the needs of today without compromising future generations’ ability to do the same. In this light, advancing secure, productive and resilient cities becomes central and critical to the actualization of sustainable, livable human settlements that more fully invite the full expression of humanity, including the production and

³ The ideas in this paper build on several related articles published by ISH, including: Condon, P.M., Mullinix, K. & Fallick, A., 2009. Agriculture on the Edge: Strategies to abate urbanencroachment onto agricultural lands by promoting viable human-scale agriculture as an integralelement of urbanization. *International Journal of Agricultural Sustainability*.

purveyance of food. However, it is also in this light that the non-sustainability of our cities, as we currently conceive of and design them, is manifestly evident.

One fundamental aspect of urban sustainability that is increasingly subject to examination is the agri-food system that supports our swelling urban populations. The impact of urbanization on the resilience and diversity of our agri-food systems, as well as its connection to suburban, rural, and natural environments, needs to have more central consideration in planning and policy-making. Food has become little more than an urban sector throughput- it comes in (in untold quantities and forms) and its waste products (which are many) go out. We have little or nothing to do with its production, processing or marketing. We have no substantive relationship with this omnipresent and universal aspect of our existence. Yet we know that the negative ecological and social implications of this situation are many and profound.

Institute for Sustainable Horticulture (ISH) research is attempting to delineate and demonstrate elements of a comprehensive social, environmental and economic integration of agri-food systems within the design, planning, governance and function of cities. It is a local-scale, human-intensive, ecologically sound, direct-market, agri-food system that contributes substantially to feeding the city while also contributing to its economic and social vitality. This implies a valued and symbiotic relationship whereby the agri-food system supports sustainable urbanity and urbanity supports sustainable agriculture in an inextricably linked and seamless positive feedback loop.

How we configure our food systems to contribute to more livable and sustainable urban systems raises several important research questions:

- How might urban and peri-urban agriculture be tied directly into the ecological and social function and economic vitality of cities?
- How can the urban and peri-urban agri-food system realize multiple function and sustainability objectives, contributing to lessening the urban ecological footprint?
- How can an urban-linked agri-food system contribute to the social fabric of our cities providing opportunity for productive, healthy human engagement and enterprise?

To date, there are few definitive answers and far fewer models that demonstrate the potentiality of substantive, sustainable Canadian urban and peri-urban agriculture and food systems. However, recent decisive leadership within the City of Surrey holds significant promise.

Our agri-food system challenge

The world's population is growing exponentially. It is currently approximately 6.4 billion and is conservatively expected to be 9.5 billion by 2050 - only 40 years or one generation away. The vast majority of that population growth will occur in the world's cities. In Canada only three percent of the population resides on farms and only 1.4% of the population is engaged in farming⁴. In other words 97% of Canadians have limited or no meaningful connection to their agri-food system. At the same time, Canada's farmers are aging. The mean age is nearly 60 years (as it is across North America). Critical knowledge is being lost and young persons are not encouraged to pursue this vital and honorable profession. To a certain extent, local-scale, human-intensive, ecologically sound agriculture holds the promise of attracting a new generation to a vibrant agriculture; people who are dedicated to contributing to sustainable society and who will regard a new kind of agriculture as a preferred profession and career path to do so.

The increasingly globalized and consolidated agri-business sector expects a 20% return on investment with the value of agriculture increasingly captured by those in the agri-food system other than farmers (e.g. large scale suppliers, processors, distributors, marketers, wholesalers and retailers). The vast majority of these dollars leave the agricultural sector and communities, go straight to corporate headquarters, and contribute little or nothing to regional economies and social vitality. A recent snapshot of the current state of agriculture in Metro Vancouver reveals: 2,618 farm operators, generating 28% of B.C.'s gross farm receipts, producing 130 different commodities on 1.5% of the provincial agricultural land base (61,364 hectares), which is equivalent to that required to house 2.2 million people (3.5mill by 2040). The current agri-food system is characterized by low profit margins (high land values, high labour costs, seasonal production, low profit margins, low farm receipts, and low

⁴Globe and Mail series on Global Food: Canada is falling behind and farmers blame lack of vision, rather than lack of subsidies, for the decline. November 24, 2010 [The growing problem: Canada slips from agricultural superpower status](#)

food self-reliance. All of this occurs within a complex public policy environment with multi-layered government regulation⁵.

The consolidated agri-food system increasingly relegates consumers, in terms of what and how they eat and in terms of what agriculture methodologies can be used, to the designs and interests of fewer and fewer multi-national companies. As a result food system security is emerging as a genuine concern, while increased local-regional food production fosters the potential for a higher level of self-determination and resilience in our agri-food systems.

Expectations for inexpensive food are becoming our norm. In North America approximately 10% of disposable income is spent on food compared to + 20 % in Europe. Increasingly however this has exacted other less obvious costs such as environmental degradation, loss of bio-diversity, loss of farms, farmland and farmers, and exploitation of labor and resources, as well as compromised health and nutrition, food safety and security. The destructive ecological, social and economic consequences and limitations of the modern global agri-food system are becoming increasingly evident and problematic. Research indicates that a critical and growing number of consumers are now prepared to economically support an agri-food system that is environmentally sound, promotes a sustainable and secure food supply and contributes to building economically vital and socially coherent communities.

Most of the world's arable land is in production and Green Revolution industrialization and technological gains have been maximized. No technologies with similar potential to increase yield are forthcoming, not even transgenic cultivars. However appropriate technologies and alternative methods to achieve productive, local-scale, human-intensive food production do exist and contribute to enhancing diversity in our agri-food systems.

Rising global affluence is distorting the relationship between food supply and demand and between the use of lands capable of food crop production and feeding burgeoning populations. Croplands are increasingly devoted to production of high value export and biofuel crops instead of regional food production thus exacerbating food insecurity in urban areas, North and South. The answer, at least in

⁵ Local Government Policy Options to Protect Agricultural Land and Improve the Viability of Farming in Metro Vancouver. Deborah Curran and Tracy Stobie. Prepared for Metro Vancouver. 2010.
http://www.metrovancouver.org/planning/development/agriculture/AgricultureDocs/Local_Government_Policy_Options_to_Protect_Agricultural_Land.pdf

part, lays in developing intensive, productive, localized, human-scale, agri-food systems that reliably provide residents with safe, wholesome foods. This type of agriculture, though in its infancy, is increasingly happening in and around urban areas on lands of varying qualities, sizes and tenure arrangements.

Urban growth is going to occur and we must accommodate growing urban populations. The question is how should it occur? Per the dictate of “economic efficiency”, agriculture has to compete with other urban land uses (parking lots, shopping centers, housing etc.). Since 1971, in Canada, 12,000 square kilometers of cropland, half of it dependable agriculture land (class 1, 2 or 3), has been lost to urban sprawl. Globally, cropland has been reduced by 86 million hectares since the mid-1980’s (2 times Canada’s total cropland). With the population of the greater Vancouver metropolitan area expected to double by 2050, is it prudent to continue to rely heavily on a globalized agri-food model to support and nurture local communities?

Perhaps the most significant factor and one substantially exacerbating the urgency of examining agri-food system sustainability and its relationship to the urbanized majority, is the prospect of peak oil and industrial agriculture’s dependence on and excessive use of fossil fuels. The most optimistic estimates (U.S. Geologic Survey) call for world peak oil production in 2037 while other experts calculate that it will occur around 2010. With no low cost energy alternative to oil available in the foreseeable future, many like us are predicting a fairly near-term collapse of the global agri-food distribution system and are calling for reinvention of regionalized agri-food systems inclusive of production, processing, distribution, marketing, and sales. Our reasoning is that a well developed, regionalized, urban/ peri-urban agri-food system can mitigate, to a significant extent, the need for and use of excessive energy in the production, processing, distribution and sales of foods and other agricultural products.

In response to the aforementioned factors and conditions, Pearson and Nasby of the University of Guelph (2007) speak of a paradigm shift as the way forward for our agri-food system saying, “The challenge for the future... is to find ways to address these issues... scale back our use of non-renewable resources, through connectivity and a new regenerative agriculture.”

Municipally Enabled and Supported Agriculture: a new food system path for the urban sector in North America

Research indicates that the nature of a community's agriculture sector profoundly influences its social and economic character. Communities dominated by smaller, family owned farms and agriculturally related business, compared to ones dominated by consolidated, transnational agribusiness, have been found to have higher overall standards of living, lower crime and poverty rates, more retail trade and independent businesses and more parks, schools, churches, newspapers and citizen involvement in democratic processes.⁶ Adults live the values they are exposed to when growing up. If the achievement of economic, social and environmental sustainability is of paramount importance, as many suggest, then we must accept the challenge of teaching this to our children, through word and deed. The concepts and real world application of local scale agri-food systems can be demonstrated to our young, becoming an integral and enriching aspect of their daily lives.

There are few examples of extensive, urban centered agri-food systems in North America, and none which fully embrace and integrate food production with the goal of directly facilitating urban food security and sustainability through calculated planning, development and support of the agri-food system as an integral element of the urban environment.

It is our contention that there is significant economic opportunity in building a large and robust localized/ regionalized agri-food economic sector. Bringing a significant portion of our agric-food system back to main street will directly benefit our communities as profits accrued circulate, multiplying economic impact within the local economy three to five times. Many rewarding jobs will be created. Farming and related occupations will be restored to their proper place in society and be appropriately rewarded. Richard Heinberg of New College, in California, estimates that North America will need in excess of 50 million farmers, or approximately 15% of our population, in the post-oil economy.⁷ The potential of the agricultural sector to contribute to economic vitality and the sustainability of our municipalities cannot be overstated.

⁶ Goldschmidt, W. 1978. *As you sow: Three studies in the social consequences of agribusiness*. Montclair, N.J.: Allanheld, Osmun & Co.

⁷ Peak Everything: Waking Up to the Century of Declines. Richard Heinberg. New Society Publishers, Gabriola Island, British Columbia, Canada. 2007

Food and agriculture are universal common denominators- we all must eat. Our inherent relationship to agriculture and food as well as our common agriculture ancestries provides a direct context and conduit to inform and educate people about ecosystems, ecology and sustainability. New agri-food systems can reshape thinking about our relationships to the natural world and to each other. They also hold the promise of evoking a 21st century neo-agrarian sensibility in our urban dwelling citizenry- appropriate for our time and place but very much reflective of time tested agrarian society, values and perception - including a way of life that is respectful and appreciative of creation, is life place centered, committed to stewardship of natural resources, and builds and nurtures relationships and community at all levels. Community is the foundation of sustainable urbanity. Neo-agrarianism is a social system manifestation of the concept of sustainability.

Urban Agriculture in North America generally represents a pragmatic and popular approach to addressing food security issues as well as being somewhat of a social-political movement. It has primarily focused on utilizing small city spaces for food gardening. The planning professions have responded by including community gardens in policy and design but have otherwise ignored issues of agri-food system sustainability and the relationship of agriculture to the rest of urbanity. This lapse is recognized in the recently published American Planning Association Policy Guide on Community and Regional Food Planning (2007) which states “Food is a sustaining and enduring necessity. Yet among the basic essentials for life- air, water, shelter, and food- only food has been absent over the years as a focus of serious professional planning interest. This is a puzzling omission...” Similarly, the preponderance of the agriculture sector has largely dismissed its potential, to its own detriment.

Local/ regional agri-food systems, on a significant food production scale, offer a planning, policy, and design focus and context in which we can combine new community ideals, urban design strategies and the sophisticated practice of urban and peri-urban agriculture. This context suggests a systems approach to the integration of urban culture with agriculture as the means to promote diversity, enhance local resilience and increase the adaptive capacity of the agri-food system. Our goal should be to create an urban environment that values, encourages, activates and sustains agri-food system enterprise through integration of people, the places where they live and work, and their food. We need to invite agriculture back into our settlements taking into consideration the plethora of agri- food system

activities and contributions that might be desirable and viable for the breadth of spaces and environments.

The BC Ministry of Agriculture and Lands much vaunted report: *British Columbia Agriculture Plan: Growing a Healthy Future for B.C. Families* recognizes that the creation of community based/ local food-systems, addressing food security through diverse local production, and environmental stewardship/ climate change mitigation and bridging the urban/agriculture divide, should all be significant foci of municipally enabled or municipally supported agri- food systems. The challenge in British Columbia however, is to overcome the serious disconnect between strategic planning rhetoric and on the ground practical solutions. The current situation in Southwest British Columbia highlights this challenge:

- We produce and export crops such as cranberries and blueberries for international markets, while importing much of the food we eat. Others products are supply managed, preventing entry and operation by modest-scale operators.
- The price of agricultural land in various parts of southwest British Columbia is ballooning e.g. \$435,000 per acre (Richmond Garden City lands) and \$600,000 per acre (Capital Region District).
- Fewer farms and fewer young people are dedicating themselves to the culture of agriculture in British Columbia. Critical knowledge and mentoring opportunities are being lost.
- Conventional agricultural is prohibitively capital intensive for young people that aspire to engage in agriculture for a living.
- There are very few mechanisms in place to encourage and facilitate the current generation to pursue this vital profession.
- Economies of scale have resulted in farmlands being increasingly devoted to large scale production of specialized export crops that rely on increasingly expensive and decreasingly viable long distance transportation modes. This results not only in substantial use of fossil fuels; it also undermines food security in the Lower Mainland.
- While the Agricultural Land Reserve has contributed to food security by preserving agricultural land, the Reserve is essentially a limitation on land use, and hence has not been able to, and cannot, resolve these fundamental agriculture economic viability problems⁸.

⁸The Audit of the Agricultural Land Commission (www.bcauditor.com) argues that the ALC is challenged to effectively preserve agricultural land and encourage farming, particularly with respect to the accuracy of boundaries as it relates to the capability and suitability of ALR lands for agricultural use. The report also questions the ALC's ability to preserve agricultural land and encourage farming effectively through the current application process, and challenges the effectiveness of ALC involvement in proactive long term land use planning with local governments to encourage farming on a broad basis.

What does this all mean for the sustainability of agriculture in British Columbia and the Minister of Agriculture's call for a more diversified local food system that enhances local and regional economies, attracts new farmers and helps farmers prosper, enhances local food security, and supports efforts to design and build sustainable communities?

Given the above arguments, it seems reasonable and prudent to surmise that food security, the availability of sufficient, nutritious, wholesome foods, will become a preeminent concern of growing populations and urban centers such as those in southwestern British Columbia. At some level the business of providing means to produce, process, distribute and purvey food and agriculture products will become a municipal-level concern much like roads, policing and important community services such as libraries and recreation facilities. Agriculture in urban settings will become much more than a quaint amenity, and far transcend "community allotment garden plots" in importance to the city and its residents. Similarly, the revitalization of the small farm and family-based agriculture (linked to urban and peri-urban agriculture) will no longer be a romantic notion but represent a vital and recognized element of urban existence and sustainability. Citizens will prioritize tax dollars to create, protect and expand their municipally-based agri-food system infrastructure, for the health and wellbeing of themselves and their community. They will recognize that a secure and sustainable agri- food system within and for their municipality will better ensure its economic and social stability and support the promise of sustainability.

Consider the municipality that does not plan for its citizens in the face of rising food prices – when 20% of their income will be required for food – double what is required now. Envision a large population with limited access to affordable wholesome food. Will these citizens be able to pay taxes or support other aspects of urbanity? Will they be able to participate in and contribute to civil society?

Consider also a city which has engaged in planning for a viable urban agri-food system for its citizen's food security, one that is developing a municipally focused and supported agri-food system, calculatedly and well before the availability and cost of wholesome, safe foods achieves crisis proportion, that municipality will have the respect and gratitude of its citizenry and it will be able to continue on its path to sustainability. The wisdom of planning for local food security should be clear.

What will it take? Certainly more than a passive attempt to conserve farmland, though maintaining the arable land base is a prerequisite. It is paramount that appropriate lands in the right places are preserved, serviced and dedicated to food production of the types necessary for the wellbeing of its citizens. It will require active government involvement to ensure that citizens are technically prepared for and have opportunity to engage in all aspects of the urban agri-food system in practical and effective ways without degrading the resource base (soil, water, air) or otherwise compromising aspects of livable cities. Such an agri-food system will not happen spontaneously and should not happen piecemeal. It must be planned and concertedly developed. Municipalities can be the central players.

Municipally Enabled and Supported Agriculture

There are many who desire to engage in urban and peri-urban agriculture but have no access to land or sense of how to go about finding it. Likewise many parcels, large and small, sit underutilized. A municipal partnership with community groups could function to match smaller acreages within and in proximity to the city, with aspiring urban agriculturists.

One mechanism to make land available to aspiring food producers that we have conceptualized and are promoting for exploration is ***Municipally Sponsored Agriculture (MSA)***. Municipalities could make available, at cost effective rates, municipally owned lands (of various sizes, shapes and locales) for agriculture enterprise. It might even be that municipalities procure lands to facilitate the development of an agri-food sector serving its citizenry and in doing so foster increased food safety and security. The city could be the entity that connects would-be agriculturists with lands.

Municipalities could also promote ***Community Trust Farming (CTF)***, on their lands. The goal of Community Trust Farming is to support a variety of crops, value-added products and educational opportunities to produce local food for local needs and to provide a broad range of farmers and citizens with resources and direction to create sustainable agriculture that is integrated with the community. CTF requires securing an adequate supply of land for farming, specifications for production and distribution, environmental stewardship requirements, start-up financing, educational/ technical support opportunities, and long-term lease arrangements for food production.

A critical aspect of CTF is a **Farm Management Plan** based on principles of sustainability, multi-functionality and diversity and appropriate governance mechanisms. We propose a governance model that would see municipal landowners legally protecting the farmland and open space under covenant or similar legal mechanism to ensure the land be used for local-scale, human-intensive, ecologically sound,

direct market agriculture in perpetuity. Covenants must be the strongest possible. The municipality would then confer oversight of the land to a Community Development Corporation (CDC) that, as designee of the landowner, holds the covenant, oversees adoption of and adherence to a Farm Management Plan and facilitates farm lease agreements, all of which serve as guidelines for individual Farm Operators. The CDC essentially manages the agri-food system resources (land, infrastructure and capital) at its disposal to establish an appropriate mix of community focused agri-food system enterprises. These might include incubator and enterprise farms, community farms and gardens, distributors, farmers markets, community supported agricultural enterprises, and storage, processing and distribution facilities.⁹

In essence the farmland is owned by the municipality with management oversight ceded to the community. Revenue is derived from membership, farm leases, direct sales of agricultural produce and related entrepreneurial ventures. The Community Development Corporation holds leases (multi-generational perhaps) with individual and/or community farm enterprises. Long term leases provide farmers with secure tenure and are assumed to contribute to good land management (e.g. investing in improvements, developing long-term business plans, planting perennial crops, and utilizing ecologically sustainable practices).

Other potential municipally supported agri-food system development efforts include the provision of **“Incubator” Farm Plots**. Small tracts, again municipally owned, could be favorably leased to trainee producers so that they can gain critical crop-specific knowledge and experience before committing significant capital and other resources in the development of speculative agriculture enterprises. Technical support and possibly shared equipment will be available to incubator farmers. Similarly, an “incubator kitchen” for exploration into, or start-up production of value-added agriculture products could be a part of the overall municipal- university- private partnership. Those wanting to experiment about or develop a processed value-added agricultural product could rent commercial processing/kitchen facilities for product development and business start-up and have access to university expertise/ support.

To build local-regional agri-food systems in, around and for municipalities we must prepare a new generation of urban and peri-urban agriculturists. Municipalities might consider supporting a **Farm**

⁹ Kent Mullinix and Arthur Fallick. 2010. “Sustainable Agriculture on the Southlands: Connecting People and Community with Agriculture”. Institute for Sustainable Horticulture, Kwantlen Polytechnic University.

School to prepare people, from all walks of life and various backgrounds, to engage in human scale, urban focused agriculture enterprises including production, processing, adding value, distribution, marketing and sales. Farm School educational programming focuses on skill and knowledge development. Features of traditional education (entrance requirements, exams, etc.) are eschewed. Practical teaching and actual farming, processing, marketing and sales learning experience are a defining feature of a targeted educational program. A second defining feature of Farm School programming is its focus on sustainability; teaching about farming and an agri- food system that is economically viable, environmentally sound and socially responsive and an integral element of sustainable cities. Farm School completers could then be afforded preferential access to “incubator” farm land (up to one acre for three years at very reasonable rates). To similar end, it would be extremely valuable to establish a **Municipal Micro-loan Program** to support Farm School completers and other start-up urban and peri-urban agri-food system entrepreneurs. Such a loan program could be effectively bolstered by university facilitated farm and agri-business planning and management extension programming.¹⁰

Economic and environmental benefits will accrue to the municipality that embraces this approach. Jobs will be created within the community not only in primary food production, but also in such areas as value-added processing and products, restaurants featuring local food, and culinary arts training using local food. Long distance commuting of residents and transportation of food will be minimized and environmental accountability will be a neighborhood concern. The social fabric of the community will be strengthened and fortified just as communities in the past were enriched by their common enterprise of production and provision of food.

Through bylaws, local governments already exact a Development Cost Charge from development projects as a means to finance associated public infrastructure and services requirements associated with municipal growth. When the supporting elements of the agri-food system become an integral function of municipal government it seems reasonable that Development Cost Charge structures could be modified and used to support the creation and stewardship of municipal agri-food systems.

Municipally enabled and supported agriculture strategies such as those outlined above represent realistic complements to British Columbia’s unique and extraordinarily successful Agricultural Land Reserve legislation. In order to fully realize our capacity for regional agri-food systems and food security,

¹⁰ Richmond Farm School is modeling this approach with financial support from VanCity Savings Credit Union.

more land is needed but this is not likely to be forthcoming from the Agricultural Land Reserve. Municipally Supported Agriculture has great potential to contribute substantively to our food sustainability goals and can become, in partnership with the Agricultural Land Reserve, part of a comprehensive sustainable agri-food system supporting human settlement for future generations. In this context municipalities will play an increasingly key role in stewardship of the public good and through the municipal approvals processes can ensure that development of all kinds, in accordance with local policy, address the objectives of an agri-food system that supports urbanism and urbanism that supports the agri-food system.

Exercising Municipal Leadership

With a current population of 430,000 Surrey has a rich blend of diverse cultures and landscapes including a significant agriculture sector, but it is also known for substantial urban/ suburban sprawl. As the 12th largest city in Canada and the second largest in the province, Surrey has a land area of 317 km². It is also the second fastest growing municipality in Metro Vancouver, expected to double its population within several decades.

In September 2008, the Mayor and Council of the City of Surrey unanimously approved a *Sustainability Charter* as the City's overarching policy document to guide its approach to social, cultural, environmental, and economic sustainability. The food system figures prominently in the Sustainability Charter¹¹, reflecting the priorities recommended in the 2008 strategic plan for agriculture issued by the BC Ministry of Agriculture and Lands. In addition to reflecting provincial priorities and responding to local concerns over food security and resilience, Surrey has also contributed substantively to Metro Vancouver's Regional Growth Management Strategy and the Regional Food Strategy to ensure that the City's efforts to enhance the local food agri-food system is set within an appropriate regional context, and is supported with corresponding action within the surrounding municipalities.

It is reported that agriculture is generally expanding in Surrey¹²: the net increase in agricultural

¹¹The Sustainable Charter includes a number of actions related to agriculture, including: preserving Surrey's agricultural land base in the ALR; increasing the total amount of land in food production, both within and outside the ALR; and supporting local food security.

¹²According to the B.C. Ministry of Agriculture and Lands, one third of the land in Surrey is designated agricultural (8692 ha) and constitutes 23% of Metro Vancouver's farmland. In 2004, the City of Surrey, the Surrey Agricultural Advisory Committee, and the BC Ministry of Agriculture and Lands conducted an agricultural land use inventory. Among those properties in the Agricultural Land Reserve (ALR) that have agriculture as a primary land use, there

production is greater than the net loss, both in terms of area of land and in terms of the number of parcels in use but the City of Surrey recognizes the volatility of commodity agriculture (e.g. beef cattle, blueberry, forage), the substantial, relentless economic and development pressures placed upon agriculture lands and that, as a result, all remain under threat of loss to agriculture¹³. Surrey leadership feels it incumbent upon them to foster a sustainable agri-food sector that contributes substantially and directly to the economic, social, and environmental vitality of the municipality and in so doing, lead Southwest British Columbia by example.

Surrey has committed to tackling the critical sustainability issues in the Region aggressively and with innovation. The City has made it a priority to conduct research into ways the municipality can advance local/regional food production and small lot agriculture as a means to curtail the loss of agricultural lands, enhance the regional economy, diversify opportunities for agriculturalists, reduce reliance on imported food, and achieve mandated greenhouse gas reduction targets.

Surrey's agriculture sector and lands falls within the purview of the Planning and Development Department, whose role it is to advise and support City Council in the orderly development of the City by preparing land use plans, by-laws and policies and by managing zoning application approval processes consistent with the approved plans, by-laws and policies. Economic Development staff regards the agri-food system, and in particular small lot agriculture, as an emerging economic sector potentially having an increasingly significant role to play in a vital, robust local economy. Following extensive consultation with senior elected officials and staff, the City of Surrey has partnered with Kwantlen Polytechnic University's Institute for Sustainable Horticulture (ISH) to help Surrey leadership address what information, actions and policies can be employed by Surrey to:

- mitigate agricultural land loss,
- encourage agricultural land utilization,

are a wide range of farm operations, forage and pasture (32%), berry farms (20%), field vegetable farms (16%), and beef cattle (6%). Other agricultural lands are used for non-food crop production purposes (e.g. horse stables, golf courses, life style). Approximately 20% (1,717 ha) was not available for farming (e.g. golf courses, parks, commercial service uses, conservation areas), and approximately 10% (947 ha.) was not being actively farmed in 2004. In the summer of 2010 a second study of agricultural land use was conducted by MAL and the City of Surrey. Data from this study has not yet been analyzed and mapped.

¹³ Between 2001 and 2004, 178 parcels in the ALR (13% of all parcels) underwent change related to agriculture. Some parcels had an increase in agricultural use (e.g. expanded livestock structure, new fields in crop production) while others underwent a net decrease (e.g. abandoned crop, removed livestock). Other parcels had a change in the type of agricultural land use (e.g. forage converted to blueberry production).

- enhance sustainable local, small lot food production as an economic development and employment driver,
- reduce British Columbia’s reliance on imported foods,
- contribute to Surrey’s achievement of GHG emissions reductions of 80% by 2050, and create a greener, more liveable city.¹⁴

Why a Municipal-University-Private Sector Partnership?

Municipal governments must lead the way and engage a breadth of public and private sector stakeholders to build interdisciplinary planning, design, development, and implementation capacities. Such a public/municipal/private partnership, focused on the creation of sustainable, urban agri-food systems, if not unprecedented, is rare. However, it would be a powerful, galvanizing force for building an urban focused agri-food system that directly and substantively contributes to the vitality and livability of our urban communities. In order to be successful, however, municipalities will require critical partnerships, such as the one being proposed here, to bring broad ranging expertise and garner support from a diversity of stakeholders. Models will need to be developed, tested, implemented and shared.

A tremendous opportunity exists to pursue unprecedented research, planning, design, development and outreach programming focused on two of southwest British Columbia’s most pressing (and linked) challenges- urban and agriculture sustainability. We envision municipalities playing the pivotal role and partnering with public and private sector entities to advance such an urban focused agri-food system initiative and in doing so municipalities can lead the actualization of vital, sustainable 21st century urban society in a truly significant way.

The research being pursued at ISH considers the full spectrum of ecosystems and spaces linked to food and agriculture - urban, suburban, rural, and natural areas - their inter-connectedness, and the opportunities to support a sustainable, ecologically sound agri-food system that they and their relationships to one another represent. In this perspective, it is not only about the growing of food, but

¹⁴The research conducted by ISH and collaborative partners at the UBC Design Centre for Sustainability will produce a combination of tools and model applications that Surrey, and ultimately other municipalities can use to enhance local scale, human intensive agri-food production. The work will produce findings and recommendations that can be incorporated into existing planning frameworks, or where appropriate, presented to Council for adoption. These recommendations and models are intended to be used to inform the expansion, enhancement or modification of current and future plans (e.g. Official Community Plan or Area Plans) and key strategic documents (e.g. Sustainability Charter, Economic Development Plans, etc.)

also the full range of agri-food systems elements including processing, transport, distribution, consumption and waste handling and utilization. It is a comprehensive, ecologically based, systems approach to agri-food system planning and implementation designed to meaningfully advance human enterprise sustainability.

Higher education must play a critical role in agriculture's post-industrial transformation to an ecologically based, sustainable and community focused system. They will be most effective doing so in full partnership with government at all levels but most notably and importantly with municipalities. For better or worse, university research, education and outreach can be largely credited with the transformation of agriculture to its modern consolidated, industrialized, fossil fuel intensive and unsustainable form. They have a role to play in its re-genesis.

Conclusion and Recommendations.

The full integration of agriculture and the food system within the planning, design, development and function of our communities is an alternative food system path for the urban sector in North America. It is an agri-food system intended to connect urbanites, in real and meaningful ways, to their environment and a human enterprise undeniably crucial to their well-being. It is also a way of reducing vulnerability and dependence on an ecologically unsound and increasingly vulnerable global agri-food system. Regional agri-food systems represent a significant means to contribute to the advancement of sustainable urban communities (socially, economically and environmentally). MESA represents a conceptual framework and specific tools to advance local / regional agri-food systems.

The potential benefits of municipalities advancing and supporting local-scale, human-intensive agriculture in British Columbia include:

1. Contribution to sustainable urbanism through, stable, safe food supplies including ready access to high quality, fresh fruits and vegetables.
2. Reduction of the ecological footprint of the agri-food system of a municipality through the minimization of processing, packaging, transportation, waste, and energy use.
3. Closed nutrient and resource cycles - urban organic wastes can be composted and used in agriculture resulting in reduced pressure on landfills. Energy (e.g. methane from landfills) and water wastes (e.g. gray) can be reclaimed and used for agriculture.
4. Enhancement of biodiversity through creation of habitat and refugia for various organisms.

5. Promotion, use and retention of regionally adapted cultivars to protect genetic diversity.
6. Reconnection of citizenry to a vital human endeavor and agriculturists to urbanites.
7. Spawning a new, substantial economic sector with a range of elements which can contribute to stronger regionalized economies.
8. Provision of a vehicle to promote greater community awareness of and knowledge about the larger issue of sustainability; food is the great common denominator.
9. Advancement of our understanding of sustainable mixed use communities. The agri-food system may be the very thing that new, sustainable communities can be built around.

We therefore recommend that the Surrey capitalize on its rich and diverse agricultural heritage, the agricultural knowledge inherent in its diverse citizenry and its access to lands to:

1. Embrace the concepts of Municipally Enabled and Supported Agriculture as an important aspect of urban sustainability.
2. Collaborate with ISH to explore the potential and plan for Surrey's urban focused agri-food sector.
3. Develop model policies and targeted strategies through which individuals, organizations and enterprises can foster an extensive and comprehensive urban and peri-urban agriculture sector.
4. Join other lower mainland municipalities working with the Institute for Sustainable Horticulture and its collaborative partners to advance urban/ peri-urban agri-food systems comprised of multiple municipally enabled and supported agri-food systems, each reflecting the character, needs and capacity of the particular municipality but contributing to a collectively sustainable regional agri-food system.

We welcome your feedback.

kent.mullinix@kwantlen.ca,

arthur.fallick@kwantlen.ca