

# Landscapes of food production in agriburbia: Farmland protection and local food movements in British Columbia



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## ARTICLE INFO

### Article history:

Received 26 August 2014

Received in revised form

20 January 2015

Accepted 8 March 2015

Available online

### Keywords:

Farmland protection

Rural-urban interface

Agriburbia

Local food

Peri-urban agriculture

## ABSTRACT

Post World War II suburban growth in Canada and the US has created concern over the long-term availability of farmland to meet food production needs. Subsequent efforts to provide legal protection to agricultural land continue to shape the development of the fringes of nearby urban areas. This paper employs the concept of “agriburbia,” suburban landscapes in which agriculture maintains a significant presence, to investigate the relationship between peri-urban farmland preservation efforts and local food movements. Through a case study analysis of Vancouver, British Columbia’s suburb of Richmond, we assess the impact of a strict agricultural land use restriction on urban development. We highlight a dialectic between rural and urban that includes fruitful interactions between large-scale and commercial agriculture, small plot agriculture, and local food movements in both the agriburb and its neighboring city.

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## 1. Introduction

Food production at the urban edge has been an important element of provisioning since the beginning of concentrated human settlement, while the transition from city to countryside is a critical interface of human co-existence. Macdonald and Keil (2012), for example, discuss the long role of the suburb as a source of fresh produce and protein for the city. Such research echoes von Thünen’s (1966) nineteenth century work documenting the geographical distribution of food production near cities; high value and perishable crops such as dairy were closest to urban markets, and less valuable row crops moved to the hinterlands as populations rose. Beginning in the late nineteenth century, railways, and in particular refrigerated rail cars, allowed distant farms to take the place of developing peri-urban farmland, and in the mid-twentieth century the postwar housing boom and the rise of the automobile and high-speed road systems helped to spur unprecedented expansion of suburban areas in Canada and the United States. Though much has changed in an era of global food systems,

similar effects are recognizable in many North American landscapes today, with associated concern over the ability of peri-urban areas to remain as viable production zones for urban markets, even as many states and provinces have experimented with farmland protection regulations.

In the early 1970s, British Columbia faced robust population growth in both urban and suburban areas - in the twenty years from 1951 to 1971, Metro Vancouver’s population doubled to over one million residents, and as was typical of the era, much of that growth was outside of the central city. In metropolitan Vancouver, as in many other areas across postwar North America, the urban area sprawled into the surrounding countryside in what has been called a “relentless march” (Ladner, 2011). Sprawl also occurred in a “leapfrog” manner, leaving pockets of both active and undeveloped farmland between suburban areas (Conzen, 1960). Faced with a very limited supply of land suitable for farming in the province, the provincial government initiated legislation to create the Agricultural Land Reserve (ALR) through the establishment of development restrictions on land suitable for agriculture across the province, totaling roughly 5% of the province’s land area, or 4.7 million hectares. The ALR was established using a combination of soil maps and a desire to avoid creating small isolated pockets of farmland, creating a complex boundary. Despite intense and

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ongoing development pressure, the ALR has proven relatively successful in maintaining farmland around Vancouver, with nearly half of the non-mountainous land in this peri-urban region included in the reserve, for a total of nearly 61,000 ha (Fig. 1).

After the establishment of the ALR, the juxtaposition of farmland with housing and business development became more common in southwestern British Columbia, as sections of protected and unprotected lands intersected in close proximity. Today, metropolitan Vancouver is characterized simultaneously by vibrant and growing local food movements and by ongoing debates about land use values and the role of agricultural production in the local food culture and economy (Condon et al., 2010; Beckie et al., 2012; Wittman et al., 2012; Gibb and Wittman, 2013). The combination of protected farmland under pressure and a growing interest in food production, and local food in particular, has created a unique food production landscape in the region. This paper classifies this region as an example of “agriburbia,” a suburban form in which agriculture plays a significant role in landscape identity and form, as well as in the economy (Sandul, 2010). This definition explicitly brings agriculture into the already complex reality of the peri-urban; as Phelps and Wood (2010) note, peri-urban spaces are an evolution of the Garden City concept, a marriage of town and country “blurred into a collage of urban, rural, and suburban” (371). At the nexus of intense pressure for both development and resilient food production models, agriburban regions will play a pivotal role in the future of regional food systems. In this paper, we assess the impact of agricultural land use restrictions on urban and suburban development surrounding Vancouver, and the implications of innovations in local food system development. In particular, we highlight a dynamic dialectic between rural and urban forces that includes interactions between large-scale and commercial agriculture, small plot agriculture, and local food movements.

Within the Metro Vancouver region, the suburb of Richmond occupies the entirety of Lulu Island and several smaller islands to the south of the Vancouver city core (Fig. 2). After World War II,

suburban development in Richmond accelerated, particularly as transportation corridors to Vancouver improved. The municipal government identified the need for planning and regulation of this development, and in 1949 passed a zoning bylaw which supported the conversion of larger farms to housing subdivisions and small-holder tracts that had already begun on the western half of Lulu Island (City of Richmond, 1962). In 1973, agricultural land located primarily in the eastern and southern portions of Lulu Island was included in the ALR. By 2015, the western half of the island was primarily comprised of dense urban and suburban development, while the eastern half and most southern tip contain both small scale and industrial agriculture interspersed with residential and commercial development.

Using Richmond as its primary case study, this article investigates the intersection of intense urban development pressure and preserved farmland in the Metro Vancouver region following the implementation of the Agricultural Land Reserve. What form does the landscape of agriburbia take in this context, and what are the social and ecological outcomes of farmland preservation at the urban edge? How do transformations in Richmond, its population, and its farmland intersect with the larger metropolitan Vancouver culture of interest in food movements and local food sourcing to produce a dynamic agriburban landscape? As outlined in the methodology section, we employ a mixed methods approach to demonstrate how farmland preservation and local food movements intersect to stimulate ongoing investment in peri-urban agriculture that includes both traditional and innovative farming practices.

## 2. Conceptualizing agriburbia

The pattern of suburban expansion followed by an attempt at farmland protection has been observed in many urban regions of North America. Contemporary scholarly conceptions of the peri-urban and rural-urban interface emerged in the late 1960s, around the time that postwar concern about loss of farmland was

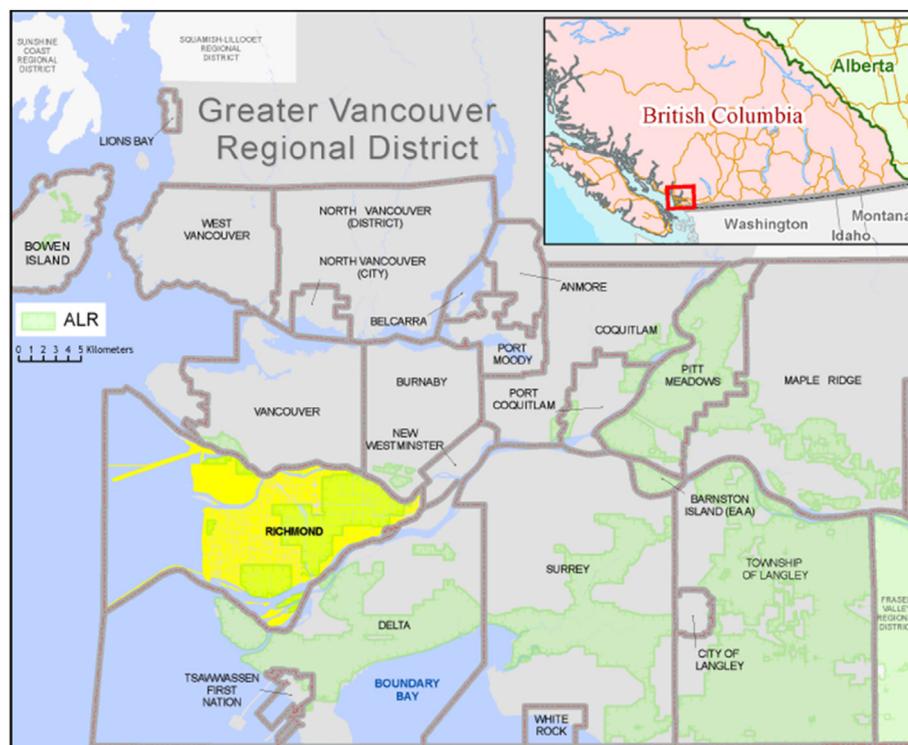


Fig. 1. Metro Vancouver with Agricultural Land Reserve areas shaded and Richmond highlighted. Source: BCMAL, 2013a.

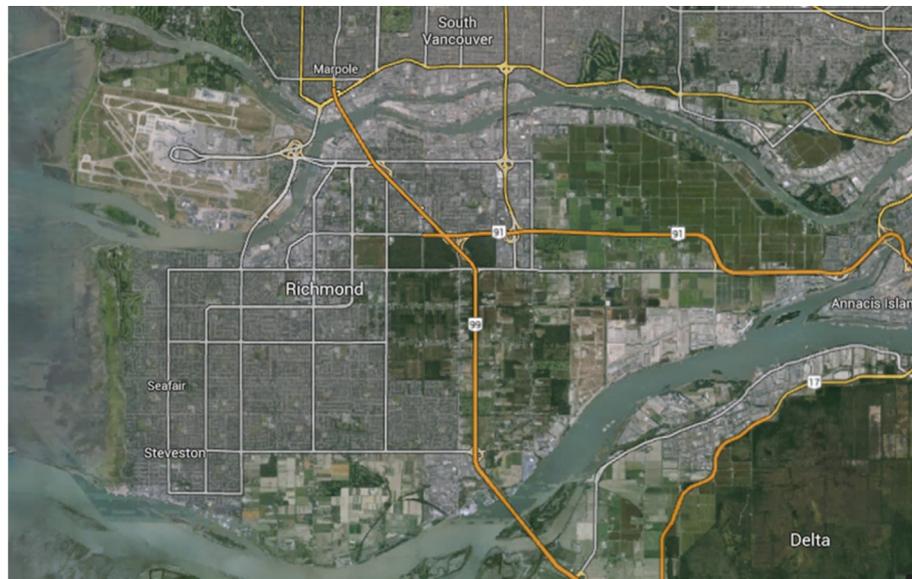


Fig. 2. Satellite image of Richmond, showing the densely developed area lying on the west side of Lulu Island, and the farm fields to the south and east. Source: Google, 2014.

mounting. Then, as now, definitions of these terms varied widely (Allen, 2003; Pryor, 1968; Ravetz et al., 2013). The spatial extent of what can be called peri-urban has varied, from being defined as stretching from the edge of continuous development to the outer edge of the commuter zone (McKenzie, 1996), to including all land accessible in a day trip (Lamb, 1983). The peri-urban has also been defined in terms of infrastructure reach and distances to services and markets (Simon, 2008).

Many of the early conceptualizations of the peri-urban were urban-oriented. Pryor (1968) redefined the already-used term “rural-urban fringe” as “the zone of transition in land use, social and demographic characteristics” that exists between “the continuously built-up urban and suburban areas of the central city” and “the rural hinterland” (206). Peri-urban areas were not only zones of transition between other two distinct landscape forms, but were also typically in transition themselves. This concept remained in much of the pre-1990 literature, which positioned rural-urban interface areas as on their way to becoming predominantly built-up urban or suburban forms (e.g. Lamb, 1983). Such work positions the rural-urban fringe as a zone of residential housing with businesses and services pushing into passively yielding farmland.

While this urban-directed positioning has not disappeared (Bryant and Charvet, 2003; Gallent, 2006), frameworks for conceptualizing the rural-urban fringe have expanded. Though considered as fluid and heterogeneous areas whose composition may be constantly changing, the peri-urban is also considered as a region which maintains characteristics uniquely suited to innovation (Allen, 2003; Foot, 2010; Garreau, 1991). Because of its unique attributes, “the peri-urban area can be seen as a spatial system in its own right” (Rauws and de Roo, 2011). As Ravetz et al. (2013) have argued, “The peri-urban may be the dominant urban form and spatial planning challenge of the twenty-first century” (13).

In addition to their potential as sites for experimentation in urban form, peri-urban areas are also sites for rural experimentation. For Sandul (2010), an agriburb referred to a settlement in which the intermingling of suburban housing and businesses with farming was planned and intentional, a plan that was used by developers as a marketing tool to prospective homeowners. Sandul specifically looked at Ontario, California, which was planned and built at the end of the nineteenth century as a settlement removed from the nearest urban areas, but with amenities such as rail

infrastructure, hotels, shops, and a library, situated in an ideal region for citrus cultivation (Sandul, 2010). Moving beyond Sandul's historical case study, the term “agriburb” can be applied more generally to areas which show a mixture of suburban development and economically significant agriculture. This (predominantly unplanned) mixing of suburbs and farms is typical of a significant amount of post-war housing development in Canada and the United States.

Though agriburban areas are also correctly described in their geographical location as peri-urban or at the rural-urban fringe, these terms do not capture the dynamic physical, economic, and cultural landscapes that are part of “agriburbia” nor their ecological, economic, and social ties to rural regions lying even farther from cities (Allen, 2003). Agriburbia by necessity maintains significant ties to rural areas, including to other producers of similar crops, farm supply stores, and some markets. Furthermore, while peri-urban areas may have areas of active farming, in agriburban areas, farms are a defining feature of the landscape, alongside the suburban residential and commercial development. Farming also remains a key source of income and business activity in agriburbia.

Despite agriculture being in a weak competitive position in terms of immediate return on investment per acre in the urban fringe compared to residential and business development (Thomas, 1990), the agricultural economy is strong in much of agriburbia. In the United States, there are a substantial set of counties at the rural-urban interface (RUI) which represent a significant portion of total U.S. agricultural production and sales. In 2002, for example, 55% of all farm sales were from farms in RUI counties, even though 60% of all farmland is outside the RUI. Also, 40% of RUI counties were in the top 25% of farm sales among all counties nationwide. In these counties, median crop sales per acre are nearly twice what they are in the non-RUI counties in the top 25%, in large part because of the intensively grown and high-value fruit, vegetable, nut, and nursery stock often raised in RUI areas (Jackson-Smith and Sharp, 2008). While a government standard for identifying RUI geographical units parallel to the county scale does not exist in Canada, statistics identifying the predominance of high-value horticulture and high agricultural sales numbers in areas near metropolitan centers indicates that a similar economic pattern likely exists there (Statistics Canada, 2011).

Post-World War II prosperity and both U.S. and Canadian

government support of single-family home construction and ownership brought a boom in homebuilding in the 1950s (Cohen, 2003). Developers sought and obtained peri-urban land, often crop land, as many of the topographic and soil characteristics, such as drainage, that make land well-suited for crops also make it well-suited for building (Berry and Plaut, 1978). During this period, few North American jurisdictions contained provisions to preserve agricultural land, and increasing land prices called into question the wisdom of farmers continuing to raise crops and livestock rather than selling their land. Farmers near rapidly expanding urban regions experienced the same issues now typical when suburbs move into agricultural areas—including conflicts over spraying, trespassing, water resources, increasing property tax rates and dust (Berry, 1978).

By the end of the first postwar decade, concerns about the loss of farmland began to build. In academic forums this spawned a growing literature on farmland loss, and in planning circles, regimes that either attempt to preserve agricultural capacity explicitly or to protect farmland through discouraging sprawl (e.g. Griffin and Chatham, 1958; Hart, 1968; Conklin and Bryant, 1974; Gardner, 1977). By the late 1950s, several scholars and planners began to propose permanent, national-level policy solutions to the loss of prime farmland, including a national agricultural land program parallel to the national forest system, government acquisition of development rights, and tax programs. Without using the term “agriburb,” they were cautiously optimistic about the potential for “the successful interrelationship of farm and city” through planning and policy (Griffin and Chatham, 1958: 208). Maryland joined California in beginning to enact legislation to protect agricultural land in the mid-1950s, with differential property taxation for farmland beginning in 1956 (Furusest and Pierce, 1982).

Policy-based farmland preservation programs began to spread more widely across the United States and Canada in the 1960s and 1970s. Estimates of U.S. crop and pastureland being converted to urban uses during this time ranged from 350,000 to over five million acres per year (Hart, 1976). Most efforts by U.S. states during this era involved adopting differential tax assessments for farmland, though some took other approaches; for example, Hawaii enacted strict agricultural zoning in 1961 (Callies, 1984). Though efforts at government-mandated agricultural zoning to prevent further encroachment had previously not gained traction, New York passed legislation in 1971 that permitted the formation of voluntary agricultural districts, which included favorable tax assessments for farmland and restricted the ability to enact ordinances and regulations infringing on farm activities (Conklin and Bryant, 1974). Oregon strengthened its formerly tax-based agricultural land preservation initiatives in 1973, by establishing provisions for urban growth boundaries. In 1973, British Columbia created the Agricultural Land Reserve through the establishment of exclusive zoning areas with agricultural use prioritized. Quebec and Newfoundland also subsequently passed versions of exclusive agricultural zoning (Furusest and Pierce, 1982). Even after decades of serious concern over farmland preservation in the United States and Canada, however, it still remains “a contentious policy idea which has had limited success, continues to provoke debate about its purpose and effectiveness, and which has never quite matured into an integrated element of rural land use planning” (Bunce, 1998: 233).

### 3. The rise of “local food”

While efforts to preserve farmland and controversy over its preservation have been ongoing, attitudes toward food and farmland have not remained constant; the turn of the twenty-first century brought a surge of interest in food and local food

systems, especially among urban dwellers seeking connection to their food sources. Understanding the rise of interest in local food is critical to understanding the relationship of agriburbia to the city. In part as a reaction to globalization, of which sprawl was emblematic in the United States and Canada, and the spread of McDonald’s and other fast food chains emblematic in Europe, local food initiatives such as the Slow Food organization began to take hold and grow in the late twentieth century. Concerns over climate change also motivated questions about the carbon footprint of transporting food long distances (Smith and MacKinnon, 2007). While the concept of “local” is variable in terms of physical distance, a widely cited definition of a local food movement is “a collaborative effort to build more locally based, self-reliant food economies—one in which sustainable food production, processing, distribution, and consumption [are] integrated to enhance the economic, environmental, and local health of a particular place” (Feenstra, 2002: 100).

Much of the initial scholarship on local food movements took a positive assessment of local food, positioning it as safer, purer, and more natural (Nygård and Storstad, 1998), as a path to community self-reliance and environmental sustainability (Curtis, 2003), as a way to reconnect with land and sense of place (Lyson, 2004), and as a social movement (Starr, 2010). As local food movements matured, some scholars began to question the assumed “goodness” by examining limitations of localism, such as its scale and potential to reinforce inequality (Allen et al., 2003; DuPuis and Goodman, 2005). DeLind notes that the surge of activity around local food has not realized much of its assumed potential for participatory democracy, collaboration, and engagement with the local environment because of its emphasis on individual consumption and overreliance on the leadership of popular food writers (DeLind, 2010).

Apart from these critical concerns, local food has continued to grow in popularity. Local food movements have been particularly strong in large cities, where urban agriculture is now viewed as an important source of local food and form of engagement. Scholars have identified benefits of urban agriculture for community building (Patel, 1994), health (Wakefield et al., 2007), increasing fresh fruit and vegetable consumption (Alaimo et al., 2008), meeting food needs (Block et al., 2011), and contributing to food security and resilience (Barthel and Isendahl, 2013). Urban agriculture also has its critics, however, who assert that the environmental benefits due to energy savings of high urban population density far outweigh the benefits of urban agriculture, so urban land should be dedicated to housing rather than growing food (Glaeser, 2011). There has been concern that the expansion of urban agriculture represents a regression of the city, and some believe that urban agriculture is only an “interim” or “stopgap” activity while the real estate market is weak (Colasanti et al., 2012). This is not a factor in the metropolitan Vancouver area, as real estate values are extraordinarily high and the market has long been strong.

Despite its potential limitations, urban agriculture now exerts influence on how urban residents understand food production both in and outside of the city limits. We argue that, as described below, the quickly rising interest in local and regional food security is impacting the peri-urban fringe. In many regions, interest in local food is driving farmland protection, maintaining, and in some cases even creating, agriburban regions. Though it is too early to generalize, at least in some regions this shift has the potential to reverse what Saloman called a trend toward the post-agrarian on the urban fringe (Saloman, 2003).

Without many of the limitations of urban agriculture, agriburbs are well-situated to respond to the demand for local food. In the past several years, the potential importance of agriculture in peri-

urban areas to regional food systems has begun to be evaluated (Brinkley, 2012; Butt, 2013a, 2013b; Ling and Newman, 2011; Paül and McKenzie, 2013). In their study of metropolitan Barcelona, Paül and McKenzie (2013) investigated the connection between the preservation of land for agriculture in peri-urban areas and the development of alternative food networks, which involve short supply chains and interaction between producers and consumers, with farmers' markets as a common example. They found that with strong farmland preservation regulations in place, and substantial support from government agencies, peri-urban agriculture could both help solidify alternative food networks and strengthen the economic position of farmers (Paül and McKenzie, 2013). That said, the existence of agriburbs and local food movements as part of a metropolitan area do not necessarily mean that the two are well-connected. As Beckie et al (2012) have shown in their work in western Canada, while most farmers' markets evoke a sense of connecting local consumers to local producers, in fact many such markets are host to producers that travel from areas well-outside the 100 mile radius that has become an informal standard for "local" (see also Smith and MacKinnon, 2007). Wittman et al. (2012) indicated that the relationships between producers and food system infrastructure in a metropolitan or regional area can be complex and tangled, with notions of authenticity and what constitutes producer-consumer connection influencing how and where farmers sell. Nevertheless, without careful attention to the preservation of peri-urban farmland, the possibilities for agriburbia to serve as a zone of innovation for local food systems and integrated urban-rural development become limited (Condon et al., 2010; Paül and McKenzie, 2013).

While agricultural census data indicates that farms in peri-urban areas in Canada generate substantial sales (Statistics Canada, 2011), it is important to note that these sales are not all from alternative food networks and direct sales initiatives. Many commercial-scale peri-urban farms, within "local food" distance boundaries, ship their produce far distances, often across state, provincial, or national lines, as part of their longstanding participation in conventional food supply chains. Scholarship on farmland preservation, as well as on local food movements and urban agriculture, has shown challenges for landscapes in agricultural transition. Yet there has been relatively little work done on how peri-urban agriculture, which is most at risk for having efforts to preserve its land challenged and overturned due to urban and suburban expansion, integrates with demand for local food. Through our analysis of farmland preservation efforts in British Columbia, we examine the interface between peri-urban farmland under intense development pressure and the influence of local food movements on the ongoing viability of an agriburban zone.

#### 4. The ALR in British Columbia

British Columbia created the Agricultural Land Reserve during a period of rapid growth in a relatively unregulated landscape. In the first decades of the twentieth century, urban expansion without zoning led to piecemeal expansion and nascent efforts to impose order through restrictive covenants. After World War I, the Town Planning Act of 1925 gave municipalities the right to zone land, though this ultimately was used to "impede development rather than to guide it" and contributed to the expansion of Vancouver into surrounding farmland (Garrish, 2002: 30).

Garrish attributes British Columbia's move toward centralized land use planning to heavy influence from the United States, positioning it as adopting a hybrid between the centralized and comprehensive state-controlled approach of Hawaii, enacted there in 1961, and farmland preservation- and agriculture-focused legislation enacted in California in 1966. The regional planning

board for metropolitan Vancouver and the neighboring Fraser Valley published the *Land for Farming* report in 1962, which looked at factors driving the Valley's changing agricultural landscape, primarily focusing on expansion of the Vancouver metropolitan area. *Land for Farming* indicated that total farm land, defined as "land in farm holdings, not necessarily used" (5), in the census division most closely approximating the Lower Mainland region had peaked in 1941 at 133,651 ha, declining to 123,142 by 1951 and 118,991 by 1956. This represents a rate of loss of about 809 ha per year from 1941 to 1951 and about 971 ha per year from 1951 to 1956 (BCLMRP, 1962). The following two Census of Agriculture years indicate that the total land in farms fell to 111,122 ha by 1961 and then to 103,695 ha by 1966. While the overall hectares in farms across the province of British Columbia was increasing in these postwar decades and through the 1980s, this was primarily on the lower quality soils of northern and eastern British Columbia, where lands were brought into use for grazing and other non-intensive agricultural practices (Fox, 1986).

In 1973, the provincial government passed the Land Commission Act, which included a mandate to zone agriculturally productive lands as protected farmland and created a Land Commission to oversee the designation of these lands and their future management. The zoning did not always follow property lines; some parcels were bisected by the ALR boundaries. Shifting political affiliations of the provincial government have resulted in amendments to the original Land Commission Act and some reframing of the powers of the Land Commission. Originally, the Land Commission had sole jurisdiction in handling petitions to exclude land from the reserve. The decision of the commission could only be appealed to the provincial Environment and Land Use Committee with the support of two commissioners. After the 1977 amendment, individuals could go through the Minister of Environment to request the option to appeal to the Cabinet. This perceived increase in the potential for exclusions resulted in the number of requests to the Land Commission immediately rising to over 3000 per year by 1979, a number which has not abated in the decades since (Garrish, 2002). Other changes in the ALR over time included the decision in 1988 to allow golf courses to be built on ALR land, which resulted in many applications for golf courses (18 in the municipality of Delta alone, for example); it was rescinded with a change in provincial leadership in 1991 (Garrish, 2002).

In general, the policy of the ALC is to establish permanent buffers between farming areas and residential areas through the use of trees, roads, ditches, and fencing to inhibit interaction between the two land uses (BCMAL, 2013b). Commercial agricultural production, and particularly the dust, smell, and noise concomitant with large-scale farming operations, is framed as an intrusion upon the enjoyment of residential landscapes (Sokolow et al., 2010). Stobbe et al. (2010) also argue that there are downsides for farmers operating along a boundary with residential areas, including congestion, theft, and vandalism on farmland. However, they also point to the potential for agritourism, potential for off-farm employment, and access to urban specialty markets as benefits to farmers operating on the peri-urban fringe.

Support for the ALR in British Columbia is very high; a 2008 survey indicated 95% support for farmland preservation through the ALR, including 52% who say they "strongly support" it. This represented a slight increase from 91% support in a similar poll conducted in 2004 (Ipsos Reid Public Affairs, 2008). A landuse planning exercise led by Condon et al. (2010) suggested that a mix of small-scale farming and residential land uses be allowed within the borders of the ALR; this proposal garnered significant resistance from both urban and residents, fearing the loss of even more of the province's limited agricultural land. Resistance to such proposals to change ALR development restrictions has been particularly high

among the residents of Richmond, a peri-urban municipality with significant acreage in the ALR combined with active residential development.

## 5. Cultivating agriurbia: the case of Richmond, BC

### 5.1. Methodology

Here, we focus on assessing the landscape forms that develop in an agriurban environment as a result of influence by both by contentious farmland preservation efforts and strong local food movements. We used a mixed-methods case study methodology to analyze the socio-ecological transformation of Richmond's landscape using policy and archival documents, direct observation through site visits, and photographic documentation (Feagin et al., 1991; Yin, 2003). We also utilized geographic information systems to compare existing historical maps, and map changes in Richmond's Agricultural Land Reserve. In order to determine the impact of the ALR designation in Richmond we mapped changes to the ALR since its inception by digitizing the original paper maps of the ALR, and then compared that GIS layer to the current ALR boundary layer. We ensured a proper fit by first fitting the digitized map to the current cadastral. We then calculated percentage change in ALR land area over time.

### 5.2. The Richmond landscape

Richmond comprises 25,725 ha of water and land area over 14 islands, of which Lulu Island is by far the largest. Richmond's agriurban landscape emerged from the division of Lulu Island into roughly two halves between 1949 and 1973 due to expanding development and emerging agricultural zoning (see Fig. 3). The proximity of Lulu Island to Vancouver's downtown core has led to dense urban development sharing a border with both small lot and large scale agriculture.

The earliest records of the colonization of the unceded Coast Salish Territories now comprising the city of Richmond date to the 1860s, when settlers of predominantly European descent established farming communities along the Fraser River. The area has exceptionally rich soil; however, it was prone to flooding, and much of the land had to be drained before it could be farmed. The enormity of such an undertaking prompted the residents of the area to petition for municipality status, which was granted in 1879 (Ross, 1979). As a municipality, Richmond had a local government and a tax base that allowed the construction of dykes and roads, and facilitated the conversion of land to agricultural uses. In addition to being the site of numerous farmsteads, Richmond became an important fishing community. Prior to colonization, the Coast Salish peoples had established permanent fishing villages, and used temporary fishing camps. While European settlers primarily engaged in farming, settlers from Japan and China largely became involved in the fishing industries centred in the Village of Steveston, with 45 canneries operating by the 1890s (Ray et al., 1997; Stacey and Stacey, 1994). Japanese and Chinese peasant settlers became the sources of cheap labor in the fishing and agricultural sectors, as they, along with white and Indigenous women, were paid low wages and excluded from many jobs that effectively limited most to seasonal work (Muszynski, 1988, 1996).

Boggy soils facilitated the development of berry production, and the region became renowned for high-yielding blueberry and cranberry crops, as well as feed crops for the local dairy industry (Ross, 1979). From 1902 until 1958, Richmond was linked to both Vancouver and Steveston by the interurban rail line, nicknamed the "Sockeye Limited" (Ross, 1979). The trains took passengers, often laborers living in Richmond but working in Vancouver. The line also

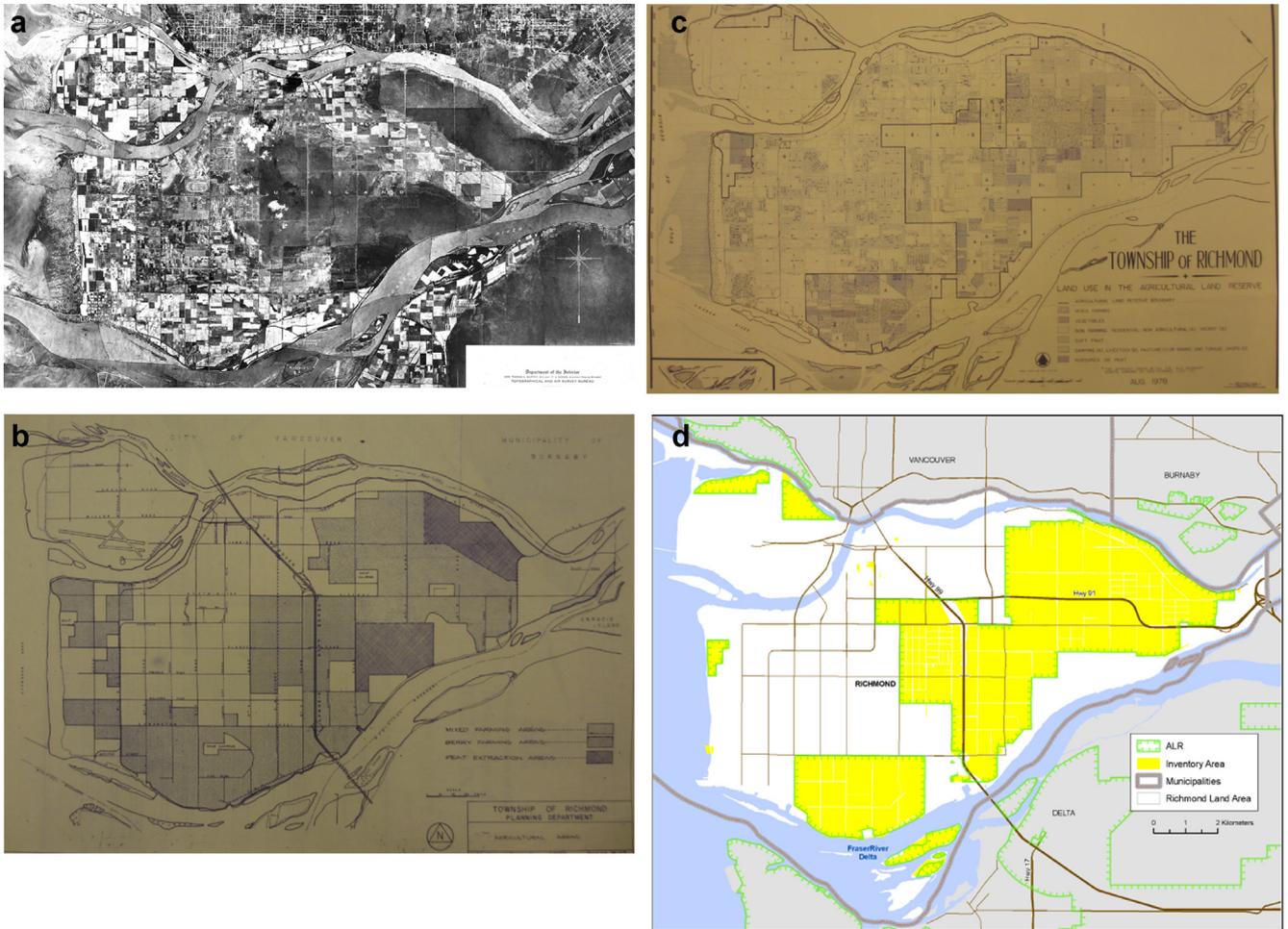
carried freight trains supplying Vancouver with produce from Richmond's farms. Milk was carried to Vancouver in ten-gallon cans that returned in the evening filled with spring water. Prior to the installation of water mains, most fresh water was imported to the municipality by train.

Until the 1950s, Richmond was predominantly rural; however, a wave of suburban residential development began after World War II. A 1949 bylaw rezoned much of Richmond for residential land uses, helping both to manage and facilitate urban sprawl. In 1955, there were 35 different subdivision projects under construction, ranging from 12 homes to 1400 (Cook, 2003). When the Oak Street Toll Bridge to Vancouver opened in 1957, improved access to Vancouver helped contribute to further suburbanization of Richmond (Foerstel and Arthur, 1964). Meanwhile, a major portion of Sea Island was zoned as an airport district, curbing residential growth in all areas adjacent to the Vancouver International Airport. Lulu Island became the primary site of suburban residential development, which vastly changed the once-rural landscape. Even prior to the impact of the bridge opening, *Land for Farming* indicated that between 1949 and 1958, 1538 ha of the Lower Mainland's best soils were lost to development between just Lulu Island (the bulk of the loss) and Delta (a minor amount of that loss). The 1962 *Land for Farming* report was optimistic that much of the high quality land of Richmond had the potential to resist development because the soils had the capability to provide "a reasonable income from agriculture" such that "preservation of the arable soils can be in the interests of the individual farmer," yet it acknowledged that "the time inevitably comes when the difference in land values is too great for mortal man to resist unaided" (BCLMRP, 1962: 8). In the initial creation of the reserve, 5800 ha were placed in the ALR in Richmond, in essence splitting the municipality down the middle. The majority of the land preserved for farming in Richmond was on the east side of the municipality and the major transportation corridor, Highway 99 (Fig. 3c and d). There have been several successful exclusions of parcels of Richmond ALR land; 649 ha have been removed, though 25 have been added. The net reduction 624 ha represents a 10.8% loss (Fig. 4). Nevertheless, ALR lands continue to define Richmond's landscape. Richmond has a total land area of 5176 ha in the ALR—43% of total land within the municipality.

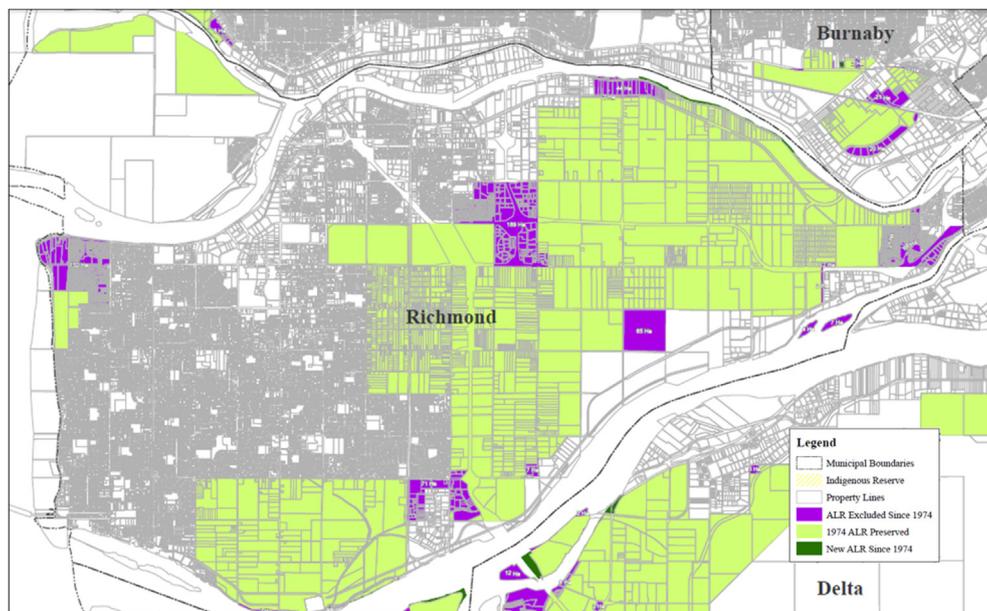
In 2010, the BC Ministry of Agriculture indicated that 53% of Richmond's ALR lands were actively being used for farming. Because of the extraordinary high values of land due to development pressure—in Richmond the value of land even in the ALR can exceed \$3 million per hectare—it is rare in southwestern British Columbia for land outside of the ALR to be farmed. Yet, 15 non-ALR hectares in Richmond are in active agricultural production (2 in berries, 10 in forage or pasture, and 1 in nursery and tree plantations) (BCMAL, 2013a). Today, Richmond includes a mix of urban development in its own downtown core, suburban tract housing and strip malls, and a diverse array of size and types of farms (Table 1).

Richmond accounts for roughly 33% of the cranberries produced in British Columbia and is home to a \$26 million cranberry receiving station in Richmond constructed in 2012. Berry production accounts for 54% of all cultivated land in the ALR in Richmond, and 28% of the city's ALR land overall. As of 2010, there were 1431 ha of berry land in Richmond (cranberries, blueberries, strawberries, and raspberries). Field vegetable production accounts for 21% of all cultivated land and 11% of the ALR. Forage production and pasture accounts for 19% of the cultivated land and 9% of the ALR (BCMAL, 2013a). Richmond also contains farms raising both dairy and beef cattle, poultry, sheep, horses, bees, and other animals (Statistics Canada, 2011).

The overall summaries of farm size and revenue indicate the diversity of farm crops in Richmond; the farms are also diverse in



**Fig. 3.** Richmond over time. a: Aerial mosaic of Richmond, based on aerial photographs taken in May 1930. Source: [Department of the Interior, 1935](#), City of Richmond Archives. b: Richmond Agricultural Areas, 1968. Source: [Township of Richmond, 1968](#), City of Richmond Archives. c: Richmond's Agricultural Land Reserve, 1978. Source: [Town Planning Dept, 1978](#), City of Richmond Archives. d: Richmond's Agricultural Land Reserve and the small amount of non-ALR land farmed, 2010 Source: [Ministry of Agriculture 2013a](#).



**Fig. 4.** Map of Richmond, showing ALR lands as of 2012, including areas which have been excluded from the reserve since its establishment in 1974. Cartography credit: Dr. Denver Nixon.

**Table 1**  
Cultivated land and crops in Richmond. Source: BCMAL, 2013a.

Type	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of ALR			
Berries	1,431	28%	2	1,433	54%
Vegetables	557	11%	<1	558	21%
Forage, pasture	481	9%	10	491	19%
Nursery, tree plantations	62	1%	1	64	2%
Other <sup>a</sup>	57	1%	<1	57	2%
Cereals	37	<1%	<1	37	1%
Tree fruits	6	<1%	<1	7	<1%
Turf	3	<1%	—	3	<1%
Vines	3	<1%	—	3	<1%
Floriculture	2	<1%	<1	3	<1%
Nut trees	<1	<1%	—	<1	<1%
Total	2,641	51%	15	2,656	100%

<sup>a</sup> Other. Includes bare cultivated land, fallow land (cultivated land that has not been seeded or planted for one or more growing season), land in crop transition, and land planted in cover grass or under mulch to manage soil moisture/erosion associated with a cultivated crop.

size. Of Richmond's 211 farms which reported data in the 2011 Census of Agriculture, 93 were over 10 acres, and 68 reported gross farm receipts for the year 2010 as totaling over \$100,000 (19 of those reported receipts over \$1 million, with 4 of those reporting receipts over \$2 million). On the other end of the spectrum, 71 (one-third) of Richmond's reporting farms listed their annual receipts as under \$10,000 (Statistics Canada, 2011). While several of Richmond's farms, including especially berry and potato operations, do sell to distributors and large processors, in 2010, there were 63 on-site direct marketing operations in the municipality (BCMAL, 2013a).

## 6. Agriburbia rises: farmland preservation meets urban food networks

Two significant areas—the Terra Nova Rural Park and the Garden City Lands—within Richmond are the sites of extensive engagement of urban food networks in farmland preservation, resulting in unique urban agriculture initiatives that integrate residential development, education, and food production (Fig. 5).

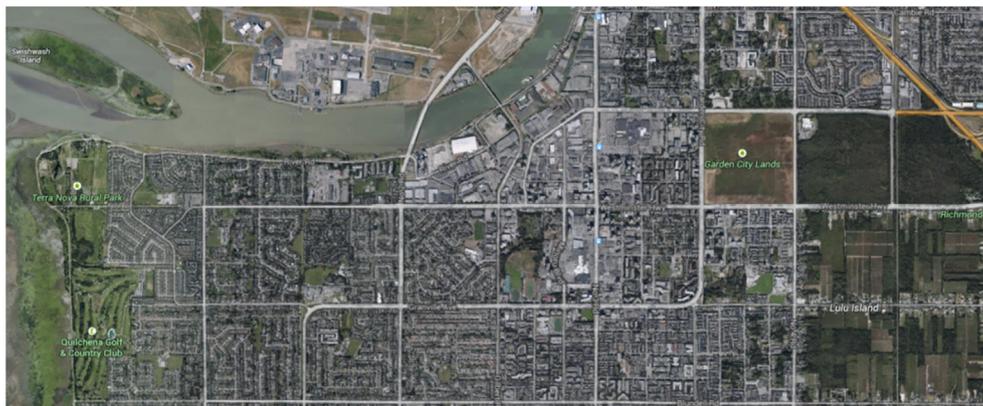
### 6.1. Terra Nova Rural Park

A wave of municipal planning efforts in the early 1980s resulted in Richmond's city government proposing to switch 300 ha of ALR land to non-agricultural designation. This proposal included

converting Terra Nova, a 188 ha region comprised of a privately owned 59 ha golf course along with land rented for vegetable production and fallow tracts held in speculation by developers, to a residential reserve. Upon reviewing Richmond's plan in early 1986, the Agricultural Land Commission did not support the removal of Terra Nova from the ALR, citing both its mandate imperative to protect productive farmland and the historical importance of agriculture in Richmond. In a public consultation in Fall 1986, 65% of the 118 people who spoke at hearings and 69% of the 132 people who submitted written comments were opposed to the removal. Additionally 7172 people signed petitions related to the ALR exclusion, with 97% of them in opposition. Letters sent to the ALC, Richmond Municipal Council, the Minister of Agriculture, and the Premier of BC were also overwhelmingly in opposition to the exclusion. A Save Richmond Farmland Society formed, and garnered support from national groups such as the Sierra Club and Environmental Law Association.

Despite this opposition, the Richmond Municipal Council passed an Official Community Plan in December 1986 that designated the Terra Nova Lands as an area for residential development. Though the ALC recommended to the Minister of Agriculture and the Provincial Cabinet that the Terra Nova agricultural lands not be excluded from the ALR, noting that it had received more public input on these lands than any other potential exclusion since its establishment in 1973, in August 1987, the Provincial Cabinet approved the removal of 129 ha of Terra Nova land from the ALR, leaving the golf course in the reserve. Those opposed to the Terra Nova ALR exclusion continued to fight through various stages of the rezoning and early development process, and their fight reached the Supreme Court of Canada. In August 1990, the Court made a ruling that affirmed the rezoning of the lands to residential (Callow, 1990: 34–42).

In 1996, after housing development was well underway, ongoing mobilization by a coalition of urban residents and local food advocates resulted in a referendum held in Richmond. The public voted to appropriate \$28.5 million to purchase 22 ha of the excluded Terra Nova area that remained residentially undeveloped (Vancouver Sun, 1996). With an “eastern boundary lined by the backyards of two-dozen monster homes,” this land was designated as the Terra Nova Rural Park (Niels, 2010). By 2015, this municipally managed park was a key nexus for community organizations associated with the local food movement, who manage community gardens, a waterwise demonstration garden, wildlife viewing areas, and a community gathering barn; the park also serves as home to food production-oriented civil society organizations including the Fruit Tree Sharing Project, which grows and markets vegetables on behalf of the Richmond Food Bank and the



**Fig. 5.** Northwest Corner of Lulu Island, with Terra Nova Rural park shows in on the left side and the Garden City Lands square shown on the right. Source: Google, 2014.

Terra Nova School Yard Project (City of Richmond, 2014a). Terra Nova Rural Park also has acreage dedicated to the Sharing Farm Society, which provides low-rent farm parcels for participants in the Richmond Farm School Incubator project (KPU, 2014). These projects at Terra Nova are all part of initiatives to strengthen local food production, food security, and involvement of new farmers at the rural/urban interface. The Terra Nova case demonstrates how suburban development, concerns for open space, farmland preservation efforts, and a local food movement intersect to create a unique landscape formation.

## 6.2. Garden City Lands

The Garden City lands are a 55 ha site surrounded by urban and suburban development, comprising much of the eastern border of Richmond's densely developed urban core (Fig. 6). From the time of Euro-Canadian settlement of the area, the lands were known for their prolific wild blueberries, which were harvested and sold. Through most of the twentieth century, the land was under military control. Berry and Christmas tree harvesting continued until the Canadian Coast Guard took control of the land in 1949 and removed the bushes and trees, installing communications and navigation towers, in place until 1994. Though the bases of these towers are still evident, the lands have been open green space since the mid-1990s and have been part of the Agricultural Land Reserve since 1974 (City of Richmond, 2014b). By the early 2000s, the lands were incorporated within a restitution settlement with the Musqueam First Nation in exchange for lands taken by Euro Canadian settlers without compensation. In 2005 Richmond entered into an agreement to purchase one-half of the Garden City Lands from the Musqueam for \$4.77 million, well below the estimated market value of the land at the time. As a condition of this sale, the City of Richmond would appeal, in conjunction with the Musqueam, who would retain control of the other one-half of the lands, to the Agricultural Land Commission for the removal of the entire parcel of land from the ALR (MOU, 2005). At that time, the development

planned for the Musqueam half of the lands was to be used for high-density residential development, and the City of Richmond half for promotion of public health and wellness, urban agriculture, and environmental sustainability. In March 2008, the City Council held a public hearing on the application for exclusion of the Garden City Lands from the ALR. What originally had been planned as a single-evening hearing turned into six nights of presentations from speakers on both sides of the issue with questions from the city councilors. In preparation for and during the hearing days, 756 documents were submitted in favor of the Council moving forward with the exclusion application and 389 against, including two documents which were petitions containing several hundred signatures each. Among those opposing the petition for ALR exclusion, the most commonly cited reasons included the need to preserve farmland and maintain open space. Among those in favor of the exclusion, common reasons for support included the need to achieve exclusion to meet the requirements of the MOU, having more options for the future of the land, its unsuitability for commercial agriculture, and the need for more housing units (City of Richmond, 2008). In February 2009, the ALC rejected the appeal for exclusion on the grounds that the land was capable of and suitable for agricultural use, and thus it would be "inconsistent with the objective" of the ALC to allow its exclusion (ALC, 2009). After subsequent negotiations with the Musqueam, in March 2010 the municipal council officially voted to appropriate \$59.2 million for the purchase of the entire tract, which had an estimated value as agricultural lands at \$13 million (Matas, 2010).

Debate about the future of the Garden City Lands has been ongoing. While there has generally been widespread support from urban residents for keeping the lands as open space and out of residential or commercial development, there has been considerable controversy over what form the open space should take. Some of the most vocal advocates for Richmond's purchase of the lands believe that the area should be used as fields for organized sports; however, structured athletic fields lie outside of the acceptable uses for ALR lands, and would require further exemption petitioning.



Fig. 6. Garden City Lands, surrounded by Richmond's urban core to the west and the south. To the east are Department of Defense lands, and to the north is a soon-to-be built shopping center including a Wal-Mart. Source: Google, 2014.

On the other side are local food and food security advocates, who believe that the lands should return to their historical use as a source of food for residents of the surrounding community. Numerous plans have been proposed and debated for the lands, many of which tried to incorporate both of these uses, in addition to open, unstructured park space and wildlife habitat. In May 2014, the Richmond Council's parks committee approved, for the first time, a preliminary plan, which included over one-third of the space dedicated to agricultural fields and a farm centre, with open fields, wooded areas, and ecologically sensitive wetland and bog areas occupying the rest (Fig. 7). Structured athletic fields are not part of this plan (Wright, 2014).

## 7. Discussion and conclusion

The evolution of Richmond's agriburban zone demonstrates the results of a shift from unchecked urban growth into farming regions to controlled growth mediated by regulation designed to protect agricultural capacity, a pattern present in many cities in North America. The post-World War II boom in suburban development in Canada and the United States resulted in both an expansion of urban forms into traditionally farm-centered rural lands, and a response through subsequent farmland preservation initiatives, such as British Columbia's Agricultural Land Reserve. This corrective was primarily intended to limit the amount of productive farmland that is consumed by development, but also has had substantial impacts on suburban form. Productive farmland, in the case of BC almost entirely protected by the ALR, remains

interspersed with suburban development, creating the type of cultural landscape that we have conceptualized here as "agriburbia."

The Richmond case shows some of the multiple forms that agriburban landscapes can take, as a result of the dynamic intersection of farmland preservation regulation and urban engagement with food and agriculture, in particular related to local food movements. Large-scale commercial agricultural production, particularly of berries, continues to thrive in proximity to residential subdivisions and not far from what has grown to be Richmond's own urban core. In the case of Terra Nova, land that had been removed from the ALR and slated for development was re-zoned for agriculture and open space due to public mobilization around the desire to maintain urban access to agricultural production zones. Local food activists are now capitalizing on this preserved land not only for food production, but also for food systems education and training. While the agriburban landscape of the Garden City Lands is still developing, it seems likely that it will serve similar purposes while also preserving ecologically sensitive open space. In each of these cases, the ALR farmland preservation structure and its support from local urban food movements has allowed the landscape both to be protected from urban development and to continue to evolve as space for food systems engagement, even under extreme pressure for suburban housing and related development. The strength of metropolitan Vancouver's local food movements has helped to push Terra Nova and the Garden City lands toward food production where such initiatives had not always been part of the plan for the lands.



Fig. 7. May 2014 preliminary plan for the Garden City Lands. Source: Wright, 2014.

The agriburbia of Richmond and other communities surrounding Vancouver would not exist without the ALR, which, though not impermeable, has generally stabilized land use in the area. Forward-thinking agricultural zoning in the 1970s, coupled with urban local food networks in the 2000s, has “integrated agriburbia” and preserved and even revitalized what could have just been relegated to sprawl. Similar narratives are playing out across North America, which present fertile grounds for comparisons of how farmland preservation and local food movements co-create landscapes of agriburbia. As such, fostering “agriburbia” may be key to the future of sustainable food systems for urban areas. Farmland preservation initiatives have helped to maintain farmable land in agriburbia, and this land is both accessible to urban residents dedicated to sourcing local food and within the scope of their political influence. This confluence of protected land, market, and politics creates a dynamic zone that is positioned to meet growing demand for local food while also maintaining a space where longstanding agricultural communities and economies can continue to flourish. Further study of the physical, economic, and social landscapes of agriburbia is needed to not only understand the relationship between farmland preservation initiatives and local food movements, but also to facilitate synergistic future planning for food systems needs.

### Acknowledgments

This research is supported by the Social Sciences and Humanities Research Council of Canada (grant number: 435-2013-0133).

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