

*SCHOOL OF COMMUNITY AND REGIONAL PLANNING – U.B.C.
Final Project
Agricultural roads in Vancouver*

*Laura Castrejón Violante
August 2010*

Para la que llego y para la que se fue
Para los que están allá y los que están acá
Para quien donde fuere esta siempre conmigo, Ramon

**AGRICULTURAL ROADS IN VANCOUVER:
A SPACE FOR RECONNECTING, A PLACE FOR URBAN AGRICULTURE**

Table of contents

1. Executive summary
2. Introduction
 - 2.1 Problem statement
 - 2.2 Objective
3. Project description
4. Methods of investigation
5. Context
 - 5.1 Vancouver background
 - 5.1.1 Social infrastructure
 - 5.1.2 Legal framework
 - 5.1.3 Cropland footprint
 - 5.2 Relevant literature - Precedents
6. Findings and implications
 - 6.1 Planning criteria
 - 6.2 Design
 - 6.2.1 Deciding the site
 - 6.2.2 Shadow study
 - 6.2.3 Infrastructure site analysis
 - 6.2.4 List of physical requirements and uses
 - 6.2.5 Design proposal
 - 6.3 Policy brief
 - 6.4 Further steps
7. Conclusions
8. List of tables and figures
9. Bibliography

1. Executive summary

Building on the efforts of reconnecting city dwellers with their food system, the agricultural road proposes to re-shape one of the City of Vancouver's low-transit street into a vibrant multipurpose space for growing food.

Agricultural road could be defined as a pedestrian-oriented area which shall offer room for the allocation of plots for urban agriculture while achieving a series of other sustainable urban development outcomes such as social inclusion, open public recreational space, greening the urban landscape, non motorized transportation infrastructure, community engagement, storm-water management, etc.

In the task of reinventing the relationship between citizens and food a change of paradigm will be required. The agricultural road offers not only an actual space in which Vancouverites can grow edible plants, but more important it offers a place to discuss, to educate, to cultivate ideas that would lead to moving beyond current urban feeding paradigms towards a reconnection between urban life and one of the most important elements required to support it: food.

2. Introduction

2.1 Problem statement

As a critical, yet undervalued component of the urban realm, the conventional food system¹ has contributed in making our cities vulnerable and unsustainable.² In spite of this, the relationship between food and the city has escaped the society's attention. Planners have not been an exception to this trend and have overlooked the aspect of food planning while focusing on other aspects of basic essentials for life such as air, water and shelter.³ This omission is no longer a reality; citizens, civil society, private organizations and authorities have realized the importance of this fundamental relation and have advocated for the reposition of a sustainable food system as an urban priority. The relevant topic of food has therefore reclaimed its space in the agenda of planners.⁴

The increasing awareness of the negative effects of conventional urban food system not only in our health but in the environment and even in our social structures, combined with peak oil and global climate change, offer an unprecedented opportunity to reinvent the approach to urban food systems. Is there a way in which we can turn the vicious relation between food and city to transform urban food systems into a pillar of a resilient sustainable urban structure? How can we move forward from awareness to action in order to seriously address the current challenges of food planning in the urban realm? How can we redefine the twenty-first century urban food system, in order to trust it instead of fear it? These are the questions that need to be confronted and solved; because complete, healthy, sustainable urban communities require complete, healthy, sustainable urban food systems.

¹ Food system refers to all the processes related with feeding population: production, processing, distribution, marketing, consumption and waste. Urban food system involves the processes related with feeding an urban population: production.

² Example of these includes: cities dependency on food coming far outside their boundaries; high emissions due to heavy dependence on fossil fuels (every calorie of food takes ten to produce); cities (which cover just 2% of the world's surface) consuming 75% of the world's resources; health issues related with high processed food. Steel, C.,2008

³ Morgan, K.,2009

⁴ American Planning Association – Planning Magazine, August/September 2009

In order to answer these questions, this project proposes to focus primarily on one of the components that integrate the urban food system: production. The agricultural road is an urban agriculture proposal; a production-focused strategy that among others aims to address urban food system vulnerabilities.

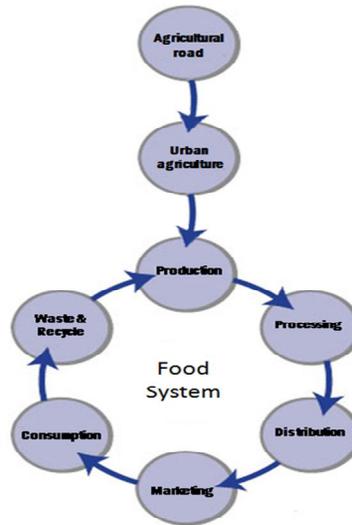


Figure 1: Diagram of Food System

2.2 Objective

In order to engage the problem statement, this project proposes to transform a street in the City of Vancouver into an agricultural road. The proposal is to re-shape a space that is currently car-oriented into a pedestrian-oriented zone which shall offer room for the allocation of plots for urban agriculture while achieving a series of other sustainable urban development outcomes such as social inclusion, open public recreational space, greening the urban landscape, non motorized transportation infrastructure, community engagement, storm-water management etc.

Urban agriculture (growing plants and raising animals inside the city or in its proximity for related feeding purposes), among other aspects of the food system, arises as a significant topic. It offers planners the opportunity to address the urban feeding challenges in a comprehensive way by moving beyond the specifics of food planning towards other community sustainable desirables: social interaction, environment

equilibrium, education, resilient economy, health, community capacity building, waste management, quality of life, etc. Furthermore, urban agriculture is one component of the urban food system in which our study case, the City of Vancouver, could exercise its faculties and jurisdictional powers as a local government. Hence, as one of the key elements potentially shaping and redefining the Vancouver urban food system, urban agriculture will be used in this project as an inclusive theme that shall bring together an enriched approach to planning.

Vancouver makes an interesting study case. Recently, the city launched the Vancouver 2020 Action Plan⁵ in the aim of being recognized as the greenest city in the world. This plan includes the goal of becoming a world leader in sustainable urban food systems⁶ as well as a commitment to place a natural space within a five-minute walk from every Vancouverite home⁷. Moreover, the Vancouver citizens have demonstrated their concern for, and interest in urban agriculture by, for example, filling waiting lists for community gardens and organizing into an important number of civil networks that advocate for this topic, such as the Neighbourhood Food Networks and the Food Policy Council. This enthusiasm is shared by the Vancouver local government which has looked into innovative policy⁸ approaches for urban agriculture such as a city farm initiative, apiculture, chicken husbandry, City Hall agricultural plots, etc.

Finally to this section, the complexity of the planning inquiries suggested in the problem statement, claims to approach them with the basic recognition that none of those changes and improvements could take place unless the three following premises are fulfilled:

1. Planning new strategies with an innovative, bold and courageous approach (i.e. transform a street into a place to grow food)

⁵ Information retrieved online January 18, 2010 at:
<http://vancouver.ca/greenestcity/PDF/Vancouver2020-ABrightGreenFuture.pdf>

⁶ Goal 10, Vancouver 2020 Action Plan

⁷ Goal 6, Vancouver 2020 Action Plan

⁸ Among these policies: Vancouver Food Charter, 2007; Backyard hens regulations, 2010; Beekeeping guidelines, 2005; Farmers Market Policy, 2010.

2. Planning with all the stakeholders that shape the intricate urban network (i.e. partnerships, participatory planning, governance, etc.)

3. Planning holistically for all aspects of the urban systems (i.e. addressing urban agriculture while taking in consideration other urban planning goals such as social/cultural, environmental and economical sustainability as well as health and recreation)

3. Project description

This project introduces the idea of the agricultural road, a vibrant community reoriented space that shall offer infrastructure for community members to grow plants for eating and related purposes while addressing multiple urban sustainable outcomes in a comprehensive way.

The first part of the project will examine the context in which the agricultural road is framed. In this section such topics as the Vancouver background and relevant literature shall be discussed. A second part of this proposal will develop a detailed definition of the agricultural road followed by a set of principles or planning criteria that will inform the other two major outcomes of this project. The third section will address a design proposal. For this matter, a set of analysis will be presented such as site decision, shadow and infrastructure analysis. A list of physical requirements and uses shall be examined before the actual delivery of the design proposal. In its fourth section, this proposal shall create a policy brief as a way to raise awareness and mobilize the political support. Finally, further steps to follow in the creation of an agricultural road will be presented.

4. Methods of investigation

1. Academic and gray literature examination
2. Direct observation
3. Site analysis and review of appropriate maps
4. Informal interviews and personal communication

5. Context

In this section, a practical approach is offered in order to give a grounded context to the project. First, the Vancouver background, which includes its social infrastructure, legal framework and cropland footprint, will be reviewed. Second, relevant literature regarding agricultural roads' precedents will be discussed.

5.1 Vancouver background

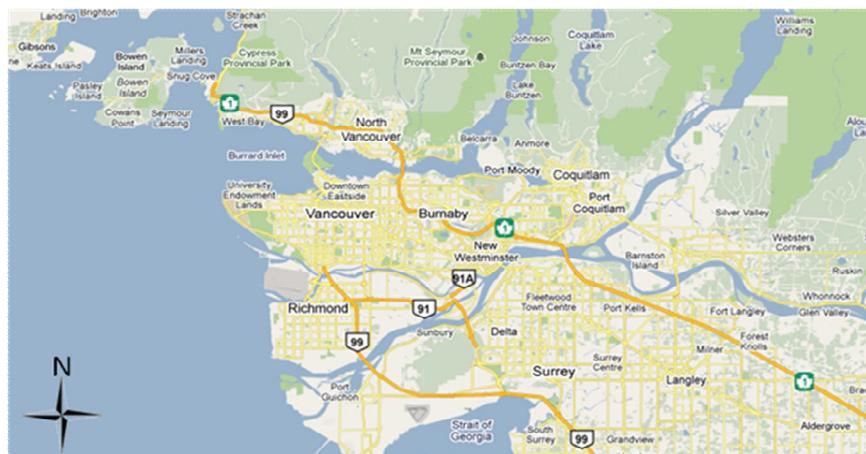


Figure 2: Map for the City of Vancouver, B.C.⁹

Located in the southwestern corner of the Province of British Columbia, Vancouver is Canada's eight largest municipality.¹⁰

⁹ Google maps. Retrieved online August 11, 2010 at: <http://maps.google.ca/>

¹⁰ City of Vancouver-Social Indicators and Trends Report, 2009

The following table includes relevant demographic and geographic characteristics for the City of Vancouver.

Concept	Quantity
Population	578,041
Land area km ²	114.71
Population density km ²	5,039
Private dwellings	273,804
Census families	145,605
Immigrants (% of total population)	260,760 (45.1)
Median income, after tax, persons 15 and over	\$21,896

Figure 3: Selected Demographic and Geographic, City of Vancouver, 2006 Census¹¹

5.1.1 Social infrastructure

Vancouver possesses a strong social infrastructure where the urban food system is concerned. Particularly, there are two organizations worth mentioning in the aim of contextualizing the agricultural road proposal: the Vancouver Food Policy Council and the Neighbourhood Food Networks.¹²

The Vancouver Food Policy Council (VFPC) functions as an advisory group to Vancouver City Council. Members in VFPC come from a variety of sectors from Vancouver's food system (farmers, food distributors, nutritionists, processors, waste managers, activists, and academics). The main function of VFPC is to bring together citizen interests and government in order to work together on Vancouver's food policy initiatives that benefit all.

VFPC works with a comprehensive approach to reach its goals; it supports the development of a just and sustainable food system for the city of Vancouver that fosters: sustainable and equitable food production, distribution and consumption,

¹¹ City of Vancouver-Social Indicators and Trends Report, 2009

¹² Personal communication with UBC Professor Wendy Mendes, August 2010

nutrition, community development and environmental health.¹³ It has successfully helped shaping policy and made recommendations on innovative city projects concerning the Vancouver's food system.¹⁴

Another cluster of organizations that are contributing to enhance Vancouver's food system are the Neighbourhood Food Networks (NFN). NFN are neighbourhood-based groups bound by their interest around the food system. With a special focus on food security¹⁵, sustainability and community capacity building, the NFN offer an opportunity to share knowledge and develop ideas and actions around food through networking and collaboration.

NFN organizations include: Grandview Woodland Food Connection; Trout Lake Cedar Cottage Food Security Network; Renfrew Collingwood Food Security Institute; Downtown East Side Neighbourhood House; and Westside Food Security Collaborative.

VFPC and NFN have strong and demonstrated commitment to the City of Vancouver food system improvement. In these regards, and because the agricultural road project seeks to develop its goals through the fulfillment of its three premises: Planning new, Planning with all and Planning holistically, it has in these two organizations, potential allies that must be taken in consideration.

5.1.2 Legal framework

With more than 10,200 street blocks totaling about 1,420 km and 2,400 km of built sidewalks¹⁶, Vancouver street network offers an interesting opportunity for agricultural roads. The City has an advantage over other municipalities in terms of

¹³ Vancouver Food Policy Council. Information retrieved online August 10, 2010 at: <http://www.vancouverfoodpolicycouncil.ca/>

¹⁴ Such as Vancouver Food Charter, 2010 Community Gardening Initiative, Urban Apiculture Guidelines and the Long-term planning for Farmer's Markets. Information retrieved online August 11, 2010 at: <http://www.vancouverfoodpolicycouncil.ca/>

¹⁵ Refers to the availability and access to food. Accordingly to U.N. Food and Agriculture Organization, food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Information retrieved online August 14, 2010 at: http://www.foodsec.org/docs/concepts_guide.pdf

¹⁶ Personal communication with Street Designer-City of Vancouver, Doug Manarin, August 2010

legal faculties and jurisdiction that allow the local authorities to determine the relative to streets; hence, to transform a street into an agricultural road.

This legal favored status is a particularity for the Vancouver municipality. The Section 92-8 Constitution Act of 1982, states that all responsibilities over local government rest with the provinces. More over, the ruling of Mr. Justice Stephen Borins (Ontario Superior Court -1997) indicated that municipal institutions: lack constitutional status; exist only if provincial legislation so provides; have no independent autonomy; and may exercise only those powers that are conferred upon them by statute.¹⁷ The statute that conferred the right to exercise power upon the street network in our study case is the Vancouver Charter 1953.¹⁸

Despite the general constitutional and statutory municipal inferiority, Vancouver's local government has the capacity to exert decision-making power upon its urban roads since the Vancouver Charter allows for it. Part VIII, sections 289, 289 A, 290 and 291 of this legal document recognizes that streets within Vancouver boundaries are vested in the City. Specifically, section 291 establishes City Council as the administrative body in charge of the street regulations and provisions¹⁹. This favorable legal status allows the City of Vancouver and their planners to transform a car oriented street into an agricultural road.

5.1.3 Cropland footprint

As stated before, the agricultural road has an important environmental component. Therefore, in order to robust the framework of this project, the cropland footprint²⁰ for the City of Vancouver will be discussed. This is especially relevant taking in

¹⁷ UBC-SCARP Urban Food System Policy and Planning Course, June 2009

¹⁸ Personal communication with Social Planner-City of Vancouver, Mario Lee, February 2010

¹⁹ Vancouver Charter retrieved online April 30, 2010 at:

http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/vanch_00

²⁰ Cropland footprint is the measure of human cropland demand on Earth's ecosystems; it compares human cropland demand with the planet ecological capacity to regenerate. Cropland footprint accounts for the area used to produce food and fiber for human consumption, feed for livestock, oil crops, and rubber. Cropland footprint calculations do not take into account the extent to which farming techniques or unsustainable agricultural practices cause long-term degradation of soil. Global Footprint Network-Ecological Footprint Atlas 2009. Information retrieved online February 22, 2010 at: http://www.footprintnetwork.org/images/uploads/Ecological_Footprint_Atlas_2009.pdf

consideration that Canadians have the second largest cropland footprint per person in the world, three times the global average.²¹

Vancouver's cropland footprint is one of the largest in the world: 1.53 gha/person.²² In contrast, the World average cropland footprint is 0.49 gha/person.²³ It is appropriate to clarify that the notion of cropland footprint does not account for other components of the food system such as grazing land, transportation and production ecological impact; thus, the Vancouver food system environmental impact is greater than the one showed for the cropland footprint. Nonetheless, since the agricultural road will primarily address at its first phase the growing of edible plants, the cropland footprint result is most relevant.

Among Canadian municipalities, Vancouver's cropland footprint ranks in the 7th place out of twenty.²⁴ This shows that if Vancouver wants to become a world leader in sustainable urban food system by 2020, it has to start first by giving an example at national level.

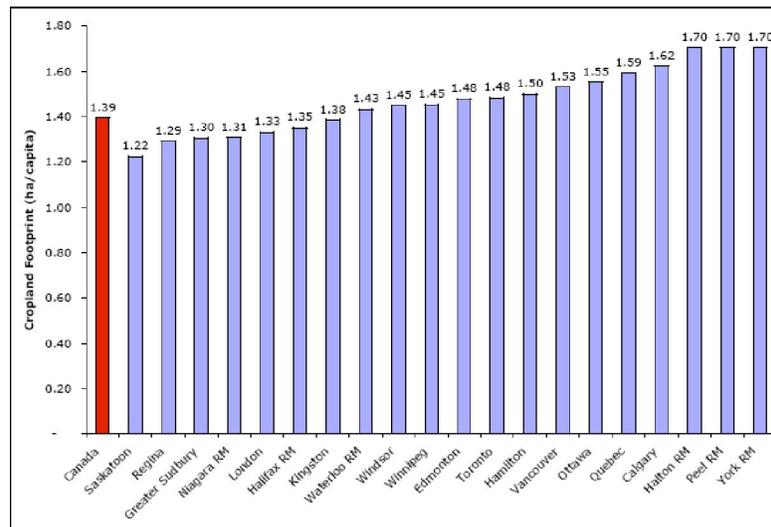


Figure 4: Canadian municipalities cropland footprint (gha/person)²⁵

²¹ Anielsky, 2005

²² Anielsky, 2005

²³ The Global Footprint Network-Ecological Footprint and Biocapacity, 2006

²⁴ Anielsky, 2005

²⁵ Anielsky, 2005

In contrast with Canadian and Vancouver's cropland footprint, the world cropland biocapacity is 0.53 gha/person.²⁶ In this sense, it is at least desirable (or more likely an urgent necessity if seeking to be recognized as the greenest city in the world by 2020) that the Vancouver food system does not go beyond world cropland biocapacity. In order to start targeting this objective, it is important to know the figures in a sustainable scheme for Vancouver's cropland.

There are two major variables in the equation: on one hand, the world cropland biocapacity (half a global hectare per person); and on the other, the Vancouver's population.

$$\begin{array}{rcl} & 578,041 \text{ Vancouver habitants}^{27} & \\ \text{X} & 0.53 \text{ gha/p world cropland biocapacity} & \\ & = & 307,400 \text{ gha} \end{array}$$

A global hectare counts for global average productivity and real cropland is around two times as productive as the global average²⁸. Hence, 307,400 global hectares are in fact 153,700 hectares. Roughly, one hundred and fifty thousand hectares is the number for a sustainable Vancouver cropland demand scenario. This arises as a key number for Vancouver to consider in the aim of leading sustainable urban food system practices in the world. Given these facts, it is most appropriate to ask where to allocate those cropland hectares in a sustainable way, as well as how to achieve the reduction of Vancouver's cropland footprint to a third of its current figures. Is the agricultural road a project that would help answering these inquires?

The potential role agricultural roads could play has different and interesting dimensions. In trying to determine an answer to the question on where to allocate sustainable cropland for Vancouver, it can be argued that in order to accomplish key

²⁶ Biocapacity is the ability of ecosystems to produce useful biological materials and to absorb waste materials generated by humans, using current management schemes and extraction technologies. The Global Footprint Network-Ecological Footprint and Biocapacity, 2006

²⁷ Stats Canada, 2006 census

²⁸ Personal communication with UBC Professor William Rees, April 2010

aspects of urban food systems associated with its local scale advantages (such as resiliency, food security and sovereignty, lower food miles, etc) it is suggested that part of this cropland be allocated within the city boundaries. In this regard, agricultural roads offer “new” urban space for the location of cropland in the form of urban plots. Spaces that were at other times used for motor vehicle movement and parking would now be utilized to grow food.

As laudable as this agricultural road objective is, it has substantial limitations that are relevant to discuss. If taking in consideration the number for sustainable Vancouver cropland demand (150,000 hectares) and contrast it with the area for Vancouver street network (roughly 1,136 hectares²⁹) and even more, with the total area for the City of Vancouver (around 11,400 hectares) it is clear that agricultural roads suppose only a very small space for the allocation of the sustainable Vancouver cropland demand. In addition, although Vancouverites are increasing their awareness and willingness to engage urban agriculture, the practice of cultivating plots in the City is oriented primarily to hobby-food production and not intensive production of food in the form of urban farming. Hence, at this point the contribution of agricultural roads as a way to establish sustainable cropland demand in Vancouver is likely to be marginal.

This said, it is relevant to state that the local scale is only one element of a sustainable urban food system equation. In order to avoid the “local trap” (the trend of over-determining the importance of the local scale in sustainable food system strategies, or assuming that it is inherently preferable)³⁰ and move forward to a more complete and comprehensive approach, it is substantial to take into consideration a “cosmopolitan” conception of sustainability in urban food planning.³¹ This conception refers to the idea of addressing other aspects of the food system such as the

²⁹ Assuming an average street paved width of 8 meters

³⁰ Born, B. and Purcell, M., 2006

³¹ Morgan, K., 2009

global³², national, provincial or regional scale, as well as social and economic dimensions of sustainability.

This is why a sustainable urban food system would acknowledge the necessity of equilibrating a locally-produced seasonal food (including not only the production of food within the boundaries of the city but also in the region such as the one produced in the Agricultural Land Reserve³³) with for example, a fairly traded global food. In this order of ideas, it is evident that the agricultural road has a limited potential to resolve the question of where to allocate the cropland hectares in a sustainable scenario for Vancouver.

In spite of what had just been argued, the agricultural road has other dimensions that should be discussed. Addressing the question of how to achieve the reduction of Vancouver's cropland footprint, the agricultural road offers an interesting approach. The task of diminishing the City cropland footprint into a third of its current numbers is not an easy one. It will require a drastic shifting in the way Vancouverites relate with their food system, including issues of diet habits, production, processing, waste, etc. A change of paradigm shall be needed and that is exactly what the agricultural road will offer.

And what would trigger more a change of paradigm than the replacement of cars with areas for cultivating food; the transformation of urban space that remains primarily empty and covered with asphalt into a place with urban plots offering a space of pleasure and beauty? It is not the actual space of cropland demand that will be addressed by the agricultural road, it is the virtual space in Vancouverites minds that will recognize the complexity, challenges and opportunities related with their urban food. It is very important to push forward the use of urban space as urban agricultural cropland not because of its impact in figures and hectares, but mainly because of the

³² Morgan, K., 2009, argued that there is currently a moral obligation towards the poor and hungry of the world, which is why globally sourced fairly traded produce should be treated as legitimate component of a sustainable food system.

³³ The Agricultural Land Reserve is a provincial zone in which agriculture is recognized as the priority use. Farming is encouraged and non-agricultural uses are controlled. British Columbia Agricultural Land Commission, 2010. Information retrieved online August 8, 2010 at: <http://www.alc.gov.bc.ca/>

reconnection between city dwellers and their food systems. This transition becomes substantial in order to question the status of city dwellers as complacent, vulnerable consumers while giving the opportunity to be empowered and arise as determined, resilient producers.

Now, returning to the sustainable Vancouver cropland demand scenario equation, it is important to underline that none of its variables are static, nor they have to be considered isolated from each other. It is in this interrelation where agricultural roads hold another opportunity. Vancouver's population is increasing³⁴; and the cropland biocapacity is also a flexible number since it accounts for a factor susceptible of change: current management schemes and extraction technologies. At present times, nineteen million hectares of rain forest are lost each year to allocate cropland while the same amount of cropland is lost each year because of poor management schemes and abusive extraction technologies (mainly due to salinization and erosion).³⁵ Current conventional cropland schemes and technologies are unsustainable, though, they are susceptible of improvement.

The interrelation of both changing variables (population and cropland biocapacity) has the potential to improve (so also to deplete) the urban cropland footprint and thus the urban food system. In a non-interventionist scenario, increasing population will negatively impact cropland footprint, increasing the figures because of the simple ratio: more people more food demand, but equally because more people with no further education and awareness in urban food systems will not advocate for the change and improvement of current management schemes and extraction technologies. Thus, the relation between variables will be inversely proportional with population increasing while cropland biocapacity remains stable or maybe even decays if current unsustainable trends persist.

On the contrary, in a scenario that involves awareness and education in sustainable urban food systems, a rising population will augment the opportunities to find new,

³⁴ According to Statistics Canada. Information retrieved online, May 2, 2010 at: <http://www.statcan.gc.ca/start-debut-eng.html>

³⁵ Steel, C., 2008

Laura Castrejón Violante
August 2010

more effective, less disruptive management schemes and extraction technologies. In other words, more food conscious city dwellers will create and advocate for more ways to improve the Earth's ability to produce useful biological materials and to absorb waste materials generated by humans. Ultimately, increasing numbers of food conscious minds will increase the chances to find better ways to work towards the goal of enhancing the planet biocapacity instead of against it. Hence, the main opportunity of the agricultural road is to open a new space (previously dedicated to motor vehicles) for Vancouverites to think about the connections and consequences of the urban food.

5.2 Relevant literature - Precedents

While searching for best practices that would inform the agricultural road proposal, it was clear that due to the innovative approach offered by this idea there were not many strong examples to offer robust set of best practices. Instead, it was possible to find, primarily in the literature, diverse and interesting precedents that shall enrich the project of transforming a street into a multipurpose space for growing food.

An interesting precedent is the woonerf (Figure 5 shows an example design of a woonerf). This Dutch concept refers to the combination of both design features and a legal traffic framework that creates a shared street where pedestrians have priority over motor vehicles. The design principles of the woonerf are: 1. Sharing street space between vehicles and pedestrian through the elimination of distinctions between sidewalks and street pavement; 2. Conveying the impression that the whole street space is for pedestrian use by designing obstacles to vehicle travel (abrupt changes in path direction, surface changes, planting, and street furniture) while creating a human scale atmosphere.³⁶

The legal framework of the woonerf allows pedestrians to use the full width of the road; playing on the roadway is also permitted. It also prohibits drivers to drive faster than a walking pace and commands them to make allowance for the possible presence of pedestrians, children at play, unmarked objects, irregularities in the road

³⁶ Appleyard, D. 1981

surface and the alignment of the roadway. Drivers may not impede pedestrians within a woonerf, nor may pedestrians unnecessarily prevent the progress of drivers. Each woonerf is clearly signed at the entrances with a special sign indicating the operation of these legal traffic restrictions.

The concept embodied in the woonerf is that pedestrians and children have greater rights to street space than traffic, but the space must be shared. Each traveler on the woonerf streets is forced to take care of the others.³⁷

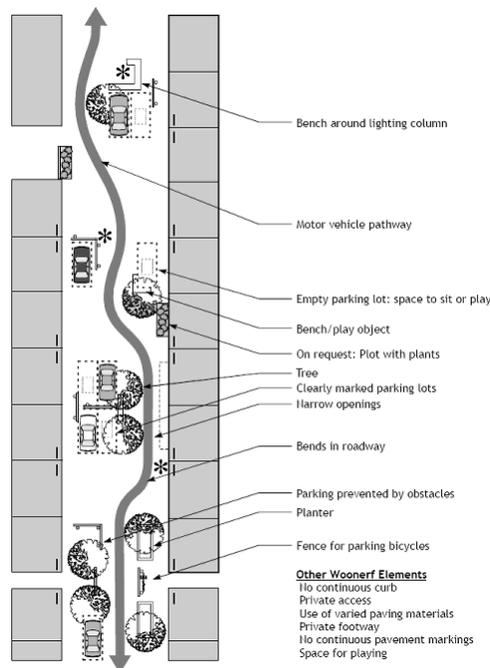


Figure 5: Woonerf design³⁸

Another appealing precedent is the street network strategies proposed by Girling and Kellett, 2005 in their book *Skinny Streets and Green Neighbourhoods*. In their analysis, the authors looked over thirteen study cases in order to establish a set of principles (or strategies) of the physical forms and patterns of city streets that work in partnership with nature.

³⁷ Appleyard, D. 1981

³⁸ Retrieved online April 23, 2010 at:
<http://www.tfrc.gov/safety/pedbike/pubs/05085/images/fig2019.gif>

In relation with the agricultural road proposal, the authors argued that the following strategies need to be followed in the aim of successfully incorporating streets into a more vibrant, multi-purpose, sustainable city network.

- Provide the highest levels of accessibility and connectivity for pedestrians and bicycles.
- Create beautiful, high-quality pedestrian and bicycle environments.
- Design streets that manage their own stormwater.
- Reduce total impervious surfaces of street systems by reducing the overall lengths and widths of vehicular streets.
- Treat street networks as significant contributors to civic amenity; make all streets and paths beautiful.

Particularly relevant is the detailed discussion on study cases that incorporate some of these principles. Among them: Radburn in Radburn, New Jersey; Village Homes in Davis, California; Stapleton in Denver, Colorado; The Beach in Toronto, Ontario; Heritage Park in Minneapolis, Minnesota and Royal Avenue in Eugene, Oregon.

The concepts of Continuous Productive Urban Landscapes (CPULs) and LeisurESCAPE, both presented by André Viljoen, 2005, arise also as an interesting precedent for the agricultural road. The CPULs offer a design and planning proposal for urban agriculture. They are urban spaces combining agricultural and other landscape elements within a strategy of continuous, open urban space linkages. The LeisurESCAPE responds to city dwellers' desire to move in leisure through open space. It aims to accomplish this mainly by interconnecting existing urban roads and creating a new area to escape into nature within the boundaries of the city.

Of special relevance is the proposition of creating a LeisurESCAPE in Southwark, London that incorporates CPULs as the urban agriculture comprehensive strategy. Among the specifics of this project is the proposal of transforming Munton Road into a place for growing food and incorporating a foot-path and a cycle lane (Figure 6). The redesign Munton Road offers the community a space for multiple activities in addition to urban agriculture such as walking, talking, cycling, sitting, hopping, etc.

This space also allows a multitude of uses, both professional (through the commercialization of the urban agriculture produce) and leisure for all age groups, social levels, genders. Its design is especially focused to welcome population groups which are often excluded from conventional leisure activities such as pensioners, lone parents, disabled or unemployed.



Figure 6: LeisurESCAPE design for Munton Road, Southwark, London³⁹

Finally for this section, Mole Hill, Vancouver stands as a valuable precedent and even more, due to its location and its resemblance to this project, as a successful best practice. Located in Vancouver's West End, Mole Hill is a heritage housing cooperative that has incorporated community gardens into its backlane. Accordingly to Sean McEwen⁴⁰ (one of the leading architects in charge of the redevelopment of Mole Hill) there are three aspects that have significantly contributed to the success of the multipurpose backlane.

First, a strong community capable of organizing and pursuing the sustainability goals they envisioned. Mole Hill's community capacity-building not only advocated and actively worked towards the creation of the lane but also for the maintenance, governance and flourishing of it. Second, a partnership with the City. Among other benefits, this allowed reducing the motor vehicle path in the lane, as well as diminishing the required parking spaces. These provisions opened the space needed

³⁹ Viljoen, 2005.

⁴⁰ Personal communication June, 2009

to allocate the community garden. Third, the design features aim to create a public green space capable of combining different uses while sharing it in a welcoming, natural ambiance.

Mole Hill backlane main design features are⁴¹:

- Sharing the backlane space (mainly between motor and non motor vehicles, pedestrians and urban agriculture)
- Incorporate natural and edible landscape
- Discourage traffic through changes in path direction and paving surfaces
- Encourage the pedestrian usage of the space with appropriate and human scale street furniture (benches, pedestrian-scale lighting)
- A square for gathering and playing
- Integration of public art
- Suitable space for urban plots and composting
- Pathway over existing underground services lines to allow for access to underground utilities
- Access for city, services, emergency and resident vehicles
- Providing space for limited parking
- Stormwater management

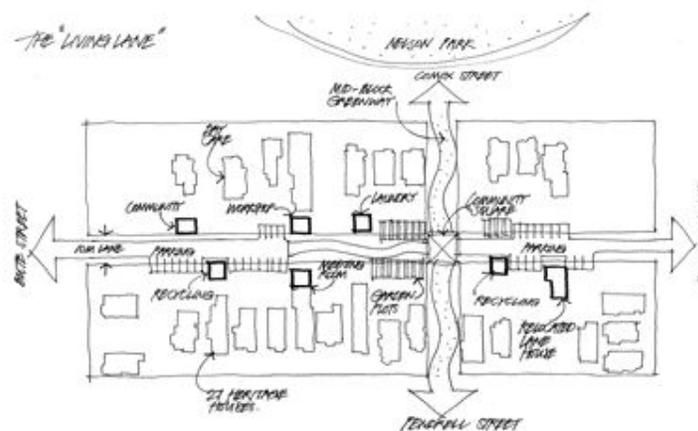


Figure 7: Sketch for Mole Hill's backlane⁴²

⁴¹ Site visit June, 2009

6. Findings

6.1 Planning Criteria

In order to determine what would constitute the planning criteria required for the agricultural road to reach its objectives, it is important to establish a detailed definition of it.

Agricultural roads are:

- the theme of this project, and do not yet exist in cities.
- adding on the Vancouver efforts to become the greenest city in the world by 2020.
- a planned and designed reshaped space that shall combine innovation (planning new), participation (planning with all) and integration (planning holistically) of all aspects of the urban systems comprehensively.
- a transformed space – from a car oriented street, into a pedestrian oriented road - that offers the required infrastructure for community members to grow plants for eating and related purposes, while addressing multiple urban sustainable outcomes as well as health and recreation.
- a shared place that allows for multiple uses – acknowledging the necessities of the urban life requirements.
- evolving spaces that will flourish with its community by allowing the pursuit of any bold, laudable goal, that promotes urban agriculture, sustainability and health, while upgrading neighbourhood livability and quality of life.
- a place to discuss, to educate, to cultivate ideas that would lead to moving beyond current urban feeding paradigms towards a reconnection between urban life and one of the most important elements required to support it: food.

Given this framework, the following table illustrates the objectives for what would constitute a successful agricultural road, and the criteria required to pursue and

⁴² Image retrieved online on May 24, 2010 at:
<http://www.canadianarchitect.com/issues/story.aspx?aid=1000199577&type=Print%20Archives>

achieve its ends. Hence, the outcome of it becomes the planning criteria, the central part of this project that shall inform the design and policy brief of this project. Moreover, these planning criteria are envisioned to become principles, concise desirables to be reminded at further steps of the agricultural road planning process.

Objectives	Criteria
Planning new	Innovation, courageous and bold planning
Planning holistically	Comprehensively addressing urban agriculture while taking in consideration social/cultural, environmental and economical sustainability as well as health and recreation
Plan with all	Participation, partnership, governance
Urban agriculture	Infrastructure to grow plants for eating and related purposes in order to strength urban resiliency, food security and food sovereignty Space for implementing current successful community garden scheme as well as less known more intensive cultivating approaches
Environmental sustainability	Create urban green space; Infrastructure for non motorized vehicles; Enhance urban biodiversity; Management of waste by community composting; Reduce distance from field to plate; Stormwater management; Improve air quality
Socio-cultural sustainability	Social interaction and inclusion; Community engagement, capacity building and development; Opportunity for art involvement; Beautify the urban realm; Sense of place; Real and perceive safety
Economic sustainability	Gaining skills and qualifications for employment in the sector; Collecting training workshops and courses fees; Potential commercialization of the produce; Resilient local economy;

	Neighbourhood amenity
Health and recreation	Improve nutrition and diet; Public recreation; Physical activity; Mental health
Multipurpose space	Sharing the site with its different uses while recognizing the necessities of the urban life and previous usages such as home entrances, views, privacy and parking Allow for strategic current uses to remain such as a pathway for emergency, city services and resident vehicles
Evolving place	Envision to grow and develop with its community through participation, partnership, phasing, programming and governance Flexible, allowing to pursue for further efforts that promotes urban agriculture while enhancing well being and urban livability
Paradigm breaker	Reshaping and reconnecting the relationship between city dwellers and its food system, so that it strength - instead of deplete - one another. Educating on food in order to understand it, know it, so that it can be trusted instead of feared. Questioning the current status of city dwellers as complacent, vulnerable consumers while giving the opportunity to be empowered and arise as determined, resilient producers.

Figure 8: Planning criteria of the agricultural road

6.2 Design

Once the cardinal part of this project (planning criteria) has been determined, it is appropriate to “put in practice” the agricultural road by developing a design proposal. The objective of the design is not only to illustrate a potential agricultural road in the City of Vancouver, but more important to implement all the ideas that this project has discussed and proposed around it.

6.2.1 Deciding the site

In order to decide which street might be transformed into an agricultural road, it is necessary to develop a set of required elements to be followed.

1. Local street with scarce traffic, not a primary arterial street⁴³.- In order to reshape the space into a pedestrian oriented road
2. Orientation North South.- In order to receive enough sunlight for cultivation purposes
3. Enough street wide (considering the sidewalks).- In order to allocate different uses
4. Few trees.- In order to maximize the sunlight and minimize the shadows
5. Scarce housing entrances.- In order to have more space for the allocation of different uses as well as for privacy and views purposes
6. Small scale buildings.- In order to maximize the sunlight and minimize the shadows
7. Insert in a high capacity, cohesive community interested in urban agriculture.- In order to increase success chances at its first phase⁴⁴

With these basic requirements in mind, a series of site visits were performed between May 10, 2010 and May 21, 2010 in the neighbourhood of Kitsilano,⁴⁵ in order to select a street that possessed the necessary physical attributes to be transformed into an agricultural road. As a result of these visits, Trutch Street, between the 5th and 6th Avenue, was selected as a potential agricultural road and the appropriate site to develop the design proposal. The following lines and images demonstrate the reasons behind this decision.

1. Local street with scarce traffic, not a primary arterial street

An observation exercise (see Annex 1) was done from the 26 of May, 2010 to the 2 of July, 2010 to determine whether Trutch Street fulfils this requirement. The site was visited in average once a week in different times of the day during 30 minutes. From

⁴³ Accordingly to the Streets Division-City of Vancouver, Vancouver's primary arterial streets are those streets that carry a large volume of traffic across the city, or from neighbourhood to neighbourhood. Local streets carry less traffic volume and are typically used by traffic accessing a specific area. Information retrieved online April 4, 2010 at: <http://vancouver.ca/engsvcs/streets/design/index.htm>

⁴⁴ Read further in this section and the Policy brief for details on phasing

⁴⁵ Read further in this section for details on why this neighbourhood was selected.

the results obtained in this observation exercise it is suggested that Trutch Street is a local street with scarce traffic.

2. Orientation North South

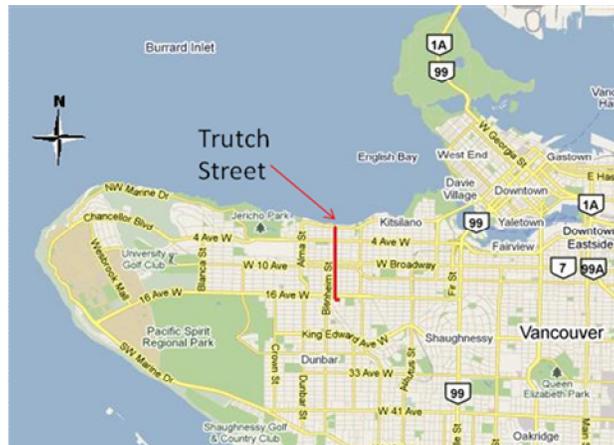


Figure 9: Trutch Street, Vancouver, B.C.⁴⁶

3. Enough street width

In comparison with other streets, Trutch Streets has the sufficient width to allocate an agricultural road.



Trutch Street width: 19 m

7th Avenue width: 15.4 m

Figure 10: Trutch Street width in comparison with 7th Avenue⁴⁷

⁴⁶ Google maps. Retrieved online July 15, 2010 at: <http://maps.google.ca/>

⁴⁷ Based map retrieved online July 8, 2010 at: <http://maps.google.ca/>

4. Few trees

In comparison with other streets, Trutch Street does not have too many, nor too big trees. It only has two major trees that are fairly close, and located in the north part of the street and few small trees that could be transplanted.

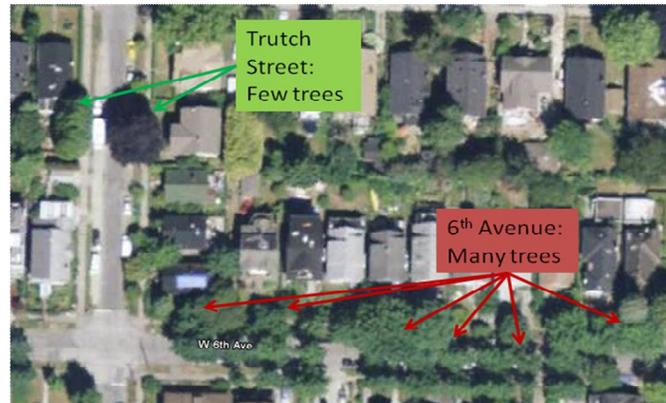


Figure 11: Trutch Street in comparison with the 6th Avenue⁴⁸

5. Scarce housing entrance

In comparison with other streets, Trutch Street has only five housing entrances.



Trutch Street: 5 housing entrances

Stephens Street: 16 housing entrances

Figure 12: Trutch Street in comparison with Stephens Street⁴⁹

⁴⁸ Based map retrieved online July 6, 2010 at: <http://maps.google.ca/>

⁴⁹ Based map retrieved online July 18, 2010 at: <http://maps.google.ca/>

6. Small scale buildings

In comparison with other streets, Trutch Street has only one or two stories single detached housing.



Trutch Street: one or two stories housing 4th Avenue West: Taller buildings

Figure 13: Trutch Street in comparison with 4th Avenue

7. Insert in a high capacity, cohesive community interested in urban agriculture

From the two high capacity and cohesive neighbourhoods suggested by the City of Vancouver office of social planning⁵⁰ as potential interested communities for the implementation of the agricultural road, Kitsilano was chosen because of its tradition on sharing the travel lane. Accordingly to Girling, C., and Kellett, R., 2005, “Queuing streets” – a shared street that reduces travel speed by narrowing the profile of the pavement, increasing with this the pedestrian and bicycle safety – are the norm in the densely populated Kitsilano neighbourhood.

It is relevant to state that if the agricultural road is envisioned to be implemented in two phases, first in a higher capacity, cohesive community. Then build on successes by testing agricultural roads in lower capacity, less cohesive neighbourhoods. Nevertheless, another approach to this could be implementing the agricultural road simultaneously in a high capacity and low capacity neighbourhoods; this could give an opportunity for cross-neighbourhood mentorship.

6.2.2 Shadow study

Once the site has been decided, a shadow study was performed in order to illustrate the shadow impact on the potential agricultural road. This study aims to inform the

⁵⁰ Informal meeting, February 2010

design proposal by determining the best place to allocate the cultivating area. The following images show the results of the shadow study done for Trutch Street in the spring equinox and in the summer solstice.

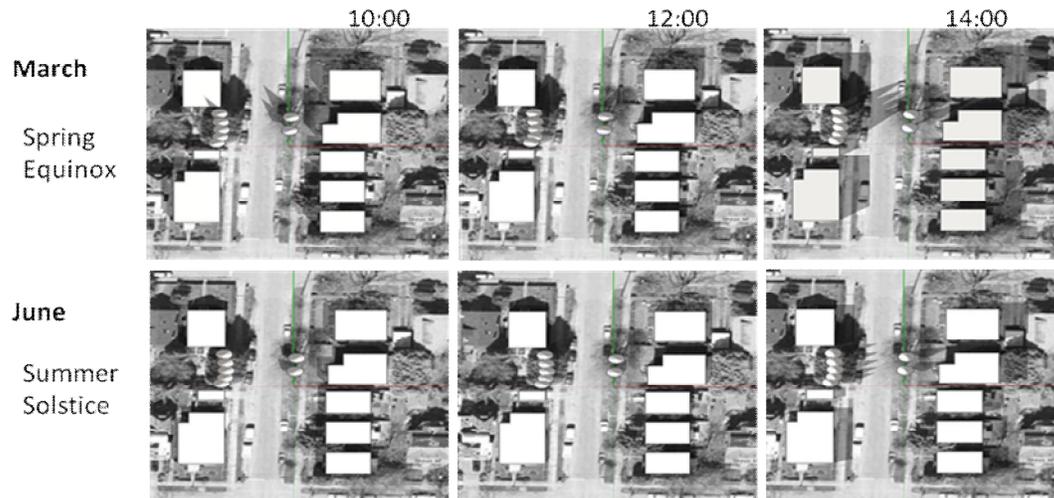


Figure 14: Shadow study for Trutch Street⁵¹

6.2.3 Infrastructure site analysis

The next step in the design process is to produce an infrastructure analysis for Trutch Street. This analysis refers to concepts such as water, sewage, street lighting and power infrastructure, as well as property lines. Using the information contained in VanMap⁵², an infrastructure site study was conducted; its results inform the design proposal by establishing obstacles and opportunities for the distribution of the agricultural road physical requirements.

⁵¹ Based map retrieved online July 9, 2010 at: <http://maps.google.ca/>

⁵² Information retrieved online from June 11, 2010 to June 29, 2010 at: <http://vancouver.ca/vanmap/>

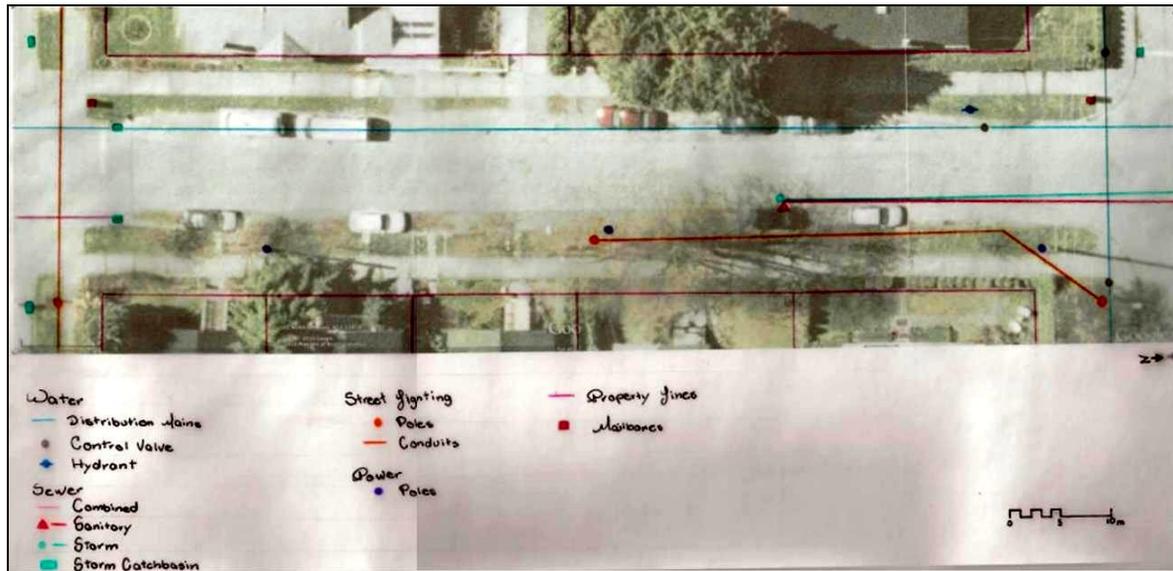


Figure 15: Infrastructure site analysis for Trutch Street

6.2.4 List of physical requirements and uses

Finally, previous to the elaboration of the design proposal, a list of physical requirements and uses has to be generated. The main task of this list is to match the objectives seek by the design (uses) with tangible elements needed to address its objectives (physical requirements). The following table shows the list of uses and physical requirements (based on the agricultural road criteria) that shall inform the design proposal.

Number	Physical requirements	Uses (from the planning criteria)
Several	Urban plots and space for working on them Community garden type, 3 by 8 feet, 2 feet height ⁵³ Intensive cultivation type, 5 by 20 feet ⁵⁴ , 2 feet height	Urban agriculture Greening urban realm Enhance urban biodiversity Reduce distance from field to plate Improve air quality Social interaction and inclusion Sense of place Training and skills Potential commercialization of the produce Improve nutrition and diet

⁵³ As required by the section 3.1.3 and 3.1.4 of the urban agriculture guidelines for the City of Vancouver; information retrieved online May 31, 2010 at: <http://vancouver.ca/ctyclerk/cclerk/20090120/documents/p2.pdf>

⁵⁴ As suggested in the sample garden plans of Jeavons, J., 2006

		Physical activity and mental health Recreation Recognizing previous usages Evolving Paradigm breaking
1 for every plot sections	Watering access	Urban agriculture Stormwater management
1	Space for storage with green roof and stormwater capturing	Urban agriculture Greening the urban realm Enhance urban biodiversity Stormwater management Improve air quality Recognizing previous usages
1	Greenhouse 9 by 12 feet with green roof and stormwater capturing and potting bench area	Urban agriculture Greening the urban realm Enhance urban biodiversity Stormwater management Improve air quality Recognizing previous usages
1	Composting bin	Management of waste and community composting Recognizing previous usages
1	Pedestrian path	Sharing a multipurpose space Improve quality of air Mental health Public recreation Physical activity
1	Motored vehicle lane for city service, emergency and residential vehicles	Sharing a multipurpose space Allowing strategic current uses to remain
1	Water absorption pavement	Water storm management
1	Non motored vehicle lane	Sharing a multipurpose space Infrastructure for non motored vehicle Improve quality of air
4	Car parking spaces 3 car parking for neighbours and 1 for a coop car One of them with a disable vehicle width	Sharing a multipurpose space Recognizing previous usages Social inclusion
5	Paths for housing entrance	Sharing a multipurpose space Recognizing previous usages
10	Bicycle parking spaces	Infrastructure for non motored vehicle Paradigm breaker

Several	Traffic calming structures (i.e. varied paving materials, signs, art objects, etc.)	Sharing a multipurpose space Infrastructure for non motored vehicle Art involvement Real and perceived safety
6	Sun energized street lights with art banners	Social interaction and inclusion Real and perceived safety Beautify the urban realm Art involvement
13	Benches	Social interaction and inclusion Sense of place Beautify the urban realm Public recreation Mental health Paradigm breaker
1	Space for children to play	Social interaction and inclusion Sharing a multipurpose space Sense of place Physical activity Mental health Paradigm breaker
1	Space for education workshops around urban agricultural and related topics	Social interaction and inclusion Community capacity building Sharing a multipurpose space Evolving place Training and skills Art involvement Improve nutrition and diet Sense of place Mental health Public recreation Paradigm breaker
1	Space for community meetings and other public gathering	Social interaction and inclusion Community capacity building Sharing a multipurpose space Evolving place Training and skills Improve nutrition and diet Sense of place Mental health Public recreation Paradigm breaker
2	Signage (graphic designs, symbols, emblems, or words, used esp. for identification or as a means of giving directions or warning)	Sharing a multipurpose space Real and perceived safety Paradigm breaker

Figure 16: List of physical requirements and uses for the agricultural road design

6.2.5 Design proposal

Before presenting the agricultural road design proposal, it is appropriate to briefly mention the rationale behind it. Everything that has been so far discussed in this project, from the problem statement to the planning criteria including precedents and best practices, all generally shaped the design proposal. The specifics for the design such as the site itself, the shadow and infrastructure analysis, as well as the list of uses and physical requirements, determined the detailed level. Following the design proposal for the agricultural road.

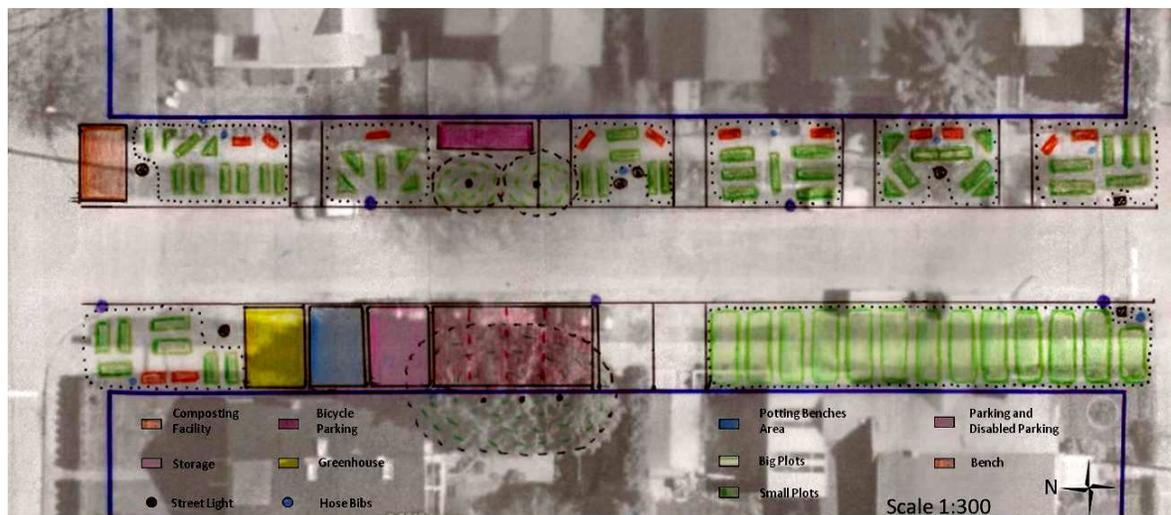


Figure 17: Agricultural road design proposal⁵⁵

⁵⁵ Based map retrieved online July 7, 2010 at: <http://maps.google.ca/>

6.4 Policy Brief

With the planning criteria set and a design proposed, the agricultural road is ready for raising awareness and mobilizing political support. This section presents a policy brief that shall contribute for the agricultural road transition to reality. The agricultural road policy brief provides suggestions on how to develop and implement this planning strategy. It includes: a basic context and definition of the agricultural road; relevant legislation and policy; example of good municipal practice; potential barriers and opportunities and overall relevance. Of special interest is the Policy recommendations section, which advice on actions to follow in order to support the creation of the agricultural roads in the City of Vancouver.



Agricultural Roads in Vancouver

Transforming streets into spaces for urban agriculture

... In addition to urban agriculture, the agricultural road has great potential to address other relevant objectives such as: social interaction, environment equilibrium, education, resilient economy, health, waste management, quality of life, etc.

Government Mandates

Gregor Robertson
– “Start now to make Vancouver the world’s greenest city...”²

Greenest City Action Team, Quick Start Implementations
– “Allocate additional land for community gardens and orchards”³

Greenest City Action Team Report goal
– “Support and enhance clean, green neighbourhoods, the natural environment and green spaces.”⁴

As a critical, yet undervalued component of the urban realm, the conventional food system has contributed in making our cities vulnerable and unsustainable. The increasing awareness of the negative effects of conventional urban food system not only in our health but in the environment and even in our social structures, combined with peak oil and global climate change, offer an unprecedented opportunity to reinvent the approach to urban food systems.

Building on the efforts of reconnecting city dwellers with their food system, the agricultural road proposes to re-shape one of the City of Vancouver’s low-transit street into a vibrant multipurpose space for growing food

We could define “agricultural road” as a pedestrian-oriented area which shall offer room for the allocation of plots for urban agriculture while achieving a series of other sustainable urban development outcomes such as social inclusion, open public recreational space, greening the urban landscape, non motorized transportation infrastructure, community engagement, storm-water management, etc.



The moment could not be better

Recently, the city launched the Vancouver 2020 Action Plan which includes the goal of becoming a world leader in sustainable urban food systems as well as a commitment to place a natural space within a five-minute walk from every Vancouverite home.

Moreover, the Vancouver citizens have demonstrated their concern for, and interest in urban agriculture by, for example, filling waiting lists for community gardens and organizing into an important number of civil networks that advocate for this topic, such as the Neighbourhood Food Networks and the Food Policy Council.

This enthusiasm is shared by the Vancouver local government which has looked into innovative policy approaches for urban agriculture such as a city farm initiative, apiculture, chicken husbandry, City Hall agricultural plots, etc.

It is possible! Let's take advantage of Vancouver's unique legal status

Despite the general constitutional and statutory municipal inferiority, Vancouver local government has the capacity to exert decision making power upon its urban roads since the Vancouver Charter allows for it.

Part VIII, sections 289, 289 A, 290 and 291 of this legal document recognizes that streets within Vancouver boundaries are vested in the City. Specifically section 291 establishes City Council as the administrative body in charge of the street regulations and provisions.

This legal status allows the City of Vancouver and their planners to transform a car oriented street into an agricultural road.



Mole Hill's back lane serves as an excellent example of innovative urban agriculture, transforming a typically vehicle dominated space into a community amenity which includes edible landscaping, community garden plots, benches and art.



The laneway was recreated into a beautiful place for food to be grown and neighbours to interact, demonstrating the benefits of urban agriculture.

Relevant Policies and Programs

The City of Vancouver does not have a policy specifically addressing agricultural roads. However, there are policies that consider urban agriculture in general, which could support moving in the direction of agricultural roads. These include:

- Operational Guidelines for Community Gardens
- City's commitment to social sustainability, social development and quality of life
- Greenest City Initiative
- Vancouver Food Charter
- Action Plan for Creating a Just and Sustainable Food System
- Backyard hens regulations and Hobby beekeeping guidelines
- Urban Agriculture Guidelines for the Private Realm
- Farmers Market Policy
- Green Streets and Country Lanes Programs
- Park Board Community Garden Policy
- Street Tree Bylaw



Agricultural roads in Vancouver

Transforming streets into spaces for urban agriculture

Working together in partnership with the community, NGOs and the City staff (planning, engineering, park board) would act as a major opportunity allowing this proposal to target its objectives in an effective way.

Barriers	Opportunities
Community buy – in	Community development, engagement and capacity building Agricultural road as an amenity adding value to the neighbourhood
Start-up Costs	Roll agricultural roads infrastructure into the City's street maintenance program Partnership with NGOs and community for raising money and volunteer assistance
Impact on motor vehicle access	Integrate limited parking into the agricultural road Provide a single car lane for service/emergency vehicles Secure access to home garages Encourage non motor vehicle usage and pedestrians
Maintenance and management	Through community governance, which also provide opportunities for community capacity building and social interaction

The virtuous circle created by the future successful outcomes of the agricultural road will help expanding this proposal even further, while creating a better space for living in community.

Phasing of the agricultural road implementation

- At a first phase, already cohesive communities would be encouraged to participate in an agricultural road implementation. This would enable the community members to relate the extra cost of the agricultural road with direct benefits to the neighbourhood such as the increment in property values, general health improvement and reduction in food expenses. Tax benefits could be implemented to decrease the costs.
- During the second phase of the program, communities lacking cohesiveness and capacity building skills would be encouraged to participate in the agricultural road implementation by providing them with concrete successful examples around the City of Vancouver. Also direct support (technical and financial) from government, cross-neighbourhood mentorship and NGOs expertise would be provided as an incentive to get involved in the agricultural roads.



Policy Recommendations

The following actions are recommended in order to support the creation of agricultural roads in the City of Vancouver.

- Evaluate the successes and challenges experienced at Mole Hill and other precedents such as Woonerf, Skinnystreets and LeisurESCAPES
- Identify a cohesive community that might be potentially interested in the implementation of an agricultural road
- Determine a street that would be suitable to be transformed into an agricultural road. Criteria should include: low traffic, scarce trees, north-south oriented, few home entrance/garage, low rise edifications to prevent large shadows, wide of the street
- Establish the target objectives for what would constitute a successful agricultural road
- Develop a set of planning criteria that inform every step of the agricultural road planning process
- Consider further steps such as participatory planning, partnerships, opportunities and barriers in the legal and policy framework, comprehensive programming, soil analysis, stormwater management analysis, cost benefit analysis.



This rethought space is envisioned to evolve and flourish with its community and allow to pursue for any innovative laudable goal that promote urban agriculture, sustainability and health while upgrading neighbourhood livability and quality of life.



In the task of reinventing the relationship between citizens and food a change of paradigm will be required. The agricultural road offers not only an actual space in which Vancouverites can grow edible plants, but more important it offers a place to discuss, to educate, to cultivate ideas that would lead to moving beyond current urban feeding paradigms towards a reconnection between urban life and one of the most important elements required to support it: food.

The City of Vancouver has an opportunity to demonstrate leadership in sustainability by supporting the development of innovative approaches for urban agriculture, such as the agricultural road. This initiative will contribute to making our residential neighbourhoods more sustainable and in turn, support the City of Vancouver goal to be the greenest city in the world.

6.4 Further steps

This project presented the idea and gave the basis for the agricultural road. It is outside of its scope to address the specifics of a complete planning strategy. Nonetheless, it is important to determine some of the future steps that it is necessary to undertake in the path of planning for an agricultural road.

- Participatory planning with the interested community
- Consultation process at different levels depending on impact
- Identification of potential partnerships - schools, NGO's, community centres, Vancouver Food Policy Council, etc.
- Governance strategy integrating stewardship, community development and capacity building
- Establish open communication with and between strategic departments in the City - social planning, engineering, urban agriculture steering committee, parks board, etc.
- Opportunities and barriers in the legal and policy framework, such as health polices, transit regulations, tax benefits, density bonus benefits, etc.
- Comprehensive programming of the agricultural road space
- Analysis of how does the agricultural road relates with its surroundings – schools, other places to grow food, farmers market, community centre, etc.
- Soil analysis for toxins (heavy metals, salinity and hydrocarbons) prior to being used in garden plots
- Stormwater management analysis
- Cost benefit analysis
- Diverse planning materials for potential stakeholders
- Seasonal management strategy addressing winter aesthetics

7. Conclusion

Trying to answer the question on how to reconnect food with urban life, this project presents for consideration the agricultural road proposal. This proposal adds to the Vancouver ongoing efforts to reinvent their approach to food and ultimately to become a world-leading example on sustainable urban living.

Three major ideas conducted the agricultural road project. 1. Plan with a novel, courageous approach, such as the transformation of a scarce traffic street into a place for growing food. 2. Plan with all the stakeholders that conforms the complex urban network, hence take into consideration participation, partnership and governance as key elements. 3. Plan holistically so that a space for urban agriculture has the potential to address a diversity of urban development outcomes such as sustainability, health and quality of life.

Embedded in these three ideals, this project established a detailed definition of an agricultural road that served as a planning framework. Given this reference, the project developed the objectives for what would constitute a successful agricultural road, and the criteria required to pursue and achieve its ends. The merging of both, objectives and criteria arose as the agricultural road planning criteria which not only informed the design and policy brief of this project, but also were envisioned to serve as principles, concise desirables to be reminded at further steps –also elaborated- of the agricultural road planning process.

As suggested in this project the already laudable goal of growing food within the boundaries of the city in an underused space dedicated for the scarce transit of motor vehicles, is enriched by the main task of the agricultural road, and that is to bring together food and city dwellers, to reconnect them. To reshape this relationship so that it strength - instead of deplete - one another. To enhance knowledge about food so that citizens understand it enough to trust it instead of fear it. To question the current status of city dwellers as complacent, vulnerable consumers while giving the

opportunity to be empowered and arise as determined, resilient persons. Ultimately to enhance the urban quality of life for us and generations to come.

8. List of Tables and Figures

Figure 1: Diagram of Food System

Figure 2: Map for the City of Vancouver, B.C.

Figure 3: Selected Demographic and Geographic, City of Vancouver, 2006 Census

Figure 4: Canadian Municipalities Cropland footprint (gha/person)

Figure 5: Woonerf design

Figure 6: LeisurESCAPE design for Munton Road Southwark, London

Figure 7: Sketch for Mole Hill's back lane

Figure 8: Objectives of the agricultural road and its planning criteria

Figure 9: Trutch Street, Vancouver, B.C.

Figure 10: Trutch Street width in comparison with 7th Avenue

Figure 11: Trutch Street in comparison with the 6th Avenue

Figure 12: Trutch Street in comparison with Stephens Street

Figure 13: Trutch Street in comparison with 4th Avenue

Figure 14: Shadow study for Trutch Street

Figure 15: Infrastructure site analysis for Trutch Street

Figure 16: List of physical requirements and uses for the agricultural road design

Figure 17: Agricultural road design proposal

9. Bibliography

Alexander, C. 1977. *Pattern Language*. Oxford University Press. New York

American Planning Association *Planning Magazine*. August/September 2009. Special Issue: *The Food Factor*. American Planning Association. Chicago.

Anieslki Management, Inc. 2005. *Ecological Footprints of Canadian Municipalities and Regions*.

- Appleyard, D. 1981. *Livable Streets*. University of California Press. California.
- BC Ministry of Agriculture and Lands. 2005. *British Columbia Agriculture Plan: Growing a Healthy Future for B.C. Families*. BC Provincial Government, Canada
- Born, B. and Purcell, M. 2006. Avoiding the local trap. Scale and food systems in planning research. *Journal of Planning Education and Research*, vol. 26, pp. 195-207
- City of Vancouver. 2009. *Social Indicators and Trends Report*. Vancouver
- City of Vancouver. 2009. *Vancouver 2020, a bright green future – An action plan for becoming the world's greenest city by 2020*. Vancouver.
- Cohen Marc J and James L. Garret. 2009. *The food price crisis and urban food (in)security*. Human Settlements Group, IIED and Population and Development Brand, UNFPA
- Frank, L., Engelke, P. and Schmid, T. 2003. *Health and community design, the impact of the built environment on physical activity*. Island Press. Washington.
- Girling, C. and Kellett, R. 2005. *Skinny Streets and Green Neighbourhoods, Design for environment and community*. Island Press. Washington.
- Global Footprint Network. 2006. *Ecological Footprint and Biocapacity*. Retrieved online April 7, 2010 on www.footprintnetwork.org
- Harcourt, M., and Cameron, K. 2007. *City Making in Paradise, nine decisions that saved Vancouver*. Douglas and McIntyre. Vancouver.
- Howard, E. 1965. *Garden Cities of To-Morrow*. M.I.T. Press. Massachusetts.
- Jeavons, J. 2006. *How to grow more vegetables*. Ten Speed Press. Berkeley.
- Morgan, K. 2009. *Feeding the City: The Challenge of Urban Food Planning*. *International Planning Studies*, Vol. 14, No. 4, 429-436. Routledge.
- Serecon Management Consulting, Inc and Zbeetnoff Agro-Environmental Consulting, Inc. 2009. *Food Secure Vancouver, Baseline Report*. Retrieved online April 20, 2010 on: http://vancouver.ca/COMMSVCS/socialplanning/initiatives/foodpolicy/tools/pdf/FoodSecure_Baseline.pdf
- Steel, C. 2008. *Hungry City, How food shapes our lives*. Chatto and Windus. London.
- Viljoen, A. Bohn, K. and Howe, J. 2005. *Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities*. Architectural Press. Oxford.
- Wekerle G.R. 2004. Food Justice Movements: Policy, Planning, and Networks. *Journal of Planning Education and Research*, vol. 23, pp. 378-386

Annex 1

Observation Exercise – Traffic in Trutch Street

The objective of this exercise is to visit the site (Trutch Street between the 5th and 6th Avenue) during different times of day in order to feed into the understanding of how the space works, who uses the space and which elements of the site will inform the design outcomes of the agricultural road.

Wednesday 26 May 2010, from 8:00am to 8:30am

Concept	Result
Cars	23
Cars parked	6
Bikes	7
Pedestrian	17
Others	1 skates, 1 commercial van

Sunday 30 May 2010, from 12:00pm to 12:30pm

Concept	Result
Cars	12
Cars parked	7
Bikes	7
Pedestrian	9
Others	1 skateboard

Friday 4 June 2010, from 10:30am to 11:00am

Concept	Result
Cars	21
Cars parked	5
Bikes	4
Pedestrian	11
Others	2 commercial big vans

Tuesday 8 June 2010, from 3:00pm to 3:30pm

Concept	Result
Cars	23
Cars parked	9
Bikes	3
Pedestrian	4
Others	None

SCHOOL OF COMMUNITY AND REGIONAL PLANNING – U.B.C.
Final Project
Agricultural roads in Vancouver

Laura Castrejón Violante
August 2010

Thursday 10 June 2010, from 9:30am to 10:00am

Concept	Result
Cars	18
Cars parked	2
Bikes	7
Pedestrian	10
Others	1 wheel chair

Monday 14 June 2010, from 6:30pm to 7:00pm

Concept	Result
Cars	17
Cars parked	5
Bikes	3
Pedestrian	2
Others	None

Wednesday 29 June, from 1:30pm to 2:00pm

Concept	Result
Cars	11
Cars parked	8
Bikes	5
Pedestrian	7
Others	1 skates

Friday 2 July, from 4:30pm to 5:00pm (long weekend post Canada Day)

Concept	Result
Cars	10
Cars parked	4
Bikes	2
Pedestrian	11
Others	None