Langley Urban Agriculture Demonstration Project

Report Summary

April, 2018

Report Prepared By:

KPU | Institute for Sustainable Food Systems

Project Partners::

Langley City
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Acknowledgments

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The Langley Urban Agriculture Demonstration Project (LUADP) is a planning and design collaboration between the City of Langley, Metro Vancouver and the Institute for Sustainable Food Systems (ISFS) at Kwantlen Polytechnic University. The project aims to bring urban agriculture, and related elements to a 23 acre (9 ha) BC Hydro transmission right-of-way (ROW) in the City of Langley. The detailed planning phase has been funded by Metro Vancouver, through the Sustainability Innovation Fund.

This report has been prepared by the ISFS. Thank you to the following individuals for their contributions to the project.

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Cover Photo: Arinahabich, Adobe Stock Images

Project Partners:

KPU | Institute for Sustainable Food Systems

The Institute for Sustainable Food Systems (ISFS) is an applied research and extension unit at Kwantlen Polytechnic University that investigates and supports regional food systems as key elements of sustainable communities. ISFS focuses predominantly on British Columbia but also works with research partners in other parts of Canada. ISFS provided technical expertise and led development of this plan.

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Metro Vancouver is a federation of 21 municipalities, one Electoral Area and one Treaty First Nation that collaboratively plans for and delivers regional-scale services. Its core services are drinking water, wastewater treatment and solid waste management. Metro Vancouver also regulates air quality, plans for urban growth, manages a regional parks system and provides affordable housing. The regional district is governed by a Board of Directors of elected officials from each local authority. Metro Vancouver provided funding for the detailed planning phase, through the Sustainability Innovation Fund.

Langley City
THE PLACE TO BE

The City of Langley is located within Metro Vancouver, and is designated as a Regional City Centres. It is situated on the southwest mainland coast of British Columbia, Canada. The City of Langley is neighboured in the north, east and south, by the Township of Langley and the City of Surrey in the west.
The City of Langley is the municipal partner on this project, as well as the owner of the land where the LUADP is being proposed. The city recognizes the potential for urban agriculture to contribute to goals in the City's sustainability framework, and be a show piece for the community.

Executive Summary

The Langley Urban Agriculture Demonstration Project (LUADP) is the detailed planning process and design for a municipally supported urban agriculture on a site within a BC Hydro transmission right-of-way (hydro ROW) in the City of Langley. The planning process was completed between January 2017 and February 2018. This report documents the planning process, outlines the integration of ecological, educational and agricultural amenities, and makes recommendations for implementation and long-term management.

The proposed site plan features small scale food production, and significant areas dedicated to ecological restoration, including native plantings, habitat areas, and a pollinator corridor. Education is supported by an outdoor classroom, micro-production plots, and a demonstration orchard. The site plan aims to create a community space that maintains passive recreation functions, connects to the City's existing network of parks and open space, and successfully integrates urban agriculture.

Both local and regional level partners recognized the potential for food production on currently unprogrammed public land. Hydro ROWs represent a type of available land where the potential for food production should be further explored through the LUADP. The plan represents a tangible plan for implementing urban agriculture in hydro transmission right-of-ways, and other publicly owned utility corridors. Growing interest and support from municipal partners will play a vital role in supporting these initiatives moving forward.

Additionally, the learnings from this process can be applied to development of similar projects in other municipalities across Metro Vancouver.

Image Source: Adobe Stock Images, arinahabich

Project Background

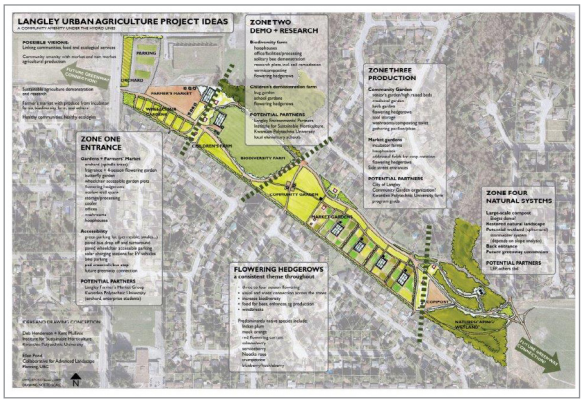
The City of Langley, and academic partners recognized the potential of the project to achieve goals in the City's Sustainability Framework to create more opportunities for urban farming in the City.

Early Concept Development-2010

In 2010, the City of Langley (the City) initiated an exploratory project with academic partners. This project was supported by municipal leaders because of the potential to contribute to goals in the City's Sustainability Framework. These contributions could include:

- Energy, Climate Change and Air Quality
- Health, Safety and Well-Being
- Local Economy
- Natural Areas, Parks and Recreation
- Solid Waste
- Water

With sustainability in mind the project moved forward with the Institute for Sustainable Horticulture, sustainable food systems working group (now the Institute for Sustainable Food Systems) at Kwantlen Polytechnic University and the Collaborative Applied Landscape Planning (CALP) team at the University of British Columbia as partners.



Langley Municipally Supported Urban Agriculture Early Concept Plan-2010.

LUADP Detailed Planning-2017

]The **Langley Urban Agriculture Demonstration Project** (LUADP) Detailed Planning Phase was initiated in 2016 with planning work beginning in January 2017. This phase was funded through Metro Vancouver's Sustainability Innovation Fund. With support from both local and regional governments the LUADP aims to:

- Create a functional community space within and existing hydro ROW
- Be a pilot project for similar hydro ROW development project in the region
- Increase opportunities for urban food production
- Create educational opportunities for the community around agriculture
- Improve and enhance the utilization of publicly owned land

Principles

The project principles were developed collaboratively by project partners in consultation with key stakeholders. Guiding principles for this project include:

- Prioritize food production and education
- Ensure community fit and compatibility
- Educate the public about the integration of agriculture, energy, environment and community
- Develop a replicable process for planning and designing urban agriculture projects in hydro right-of-ways in the region.

Understanding Urban Agriculture

Urban agriculture (UA) is becoming a key strategy for addressing environmental and social sustainability in communities around the world. Producing food in urban communities is not a modern idea, however few cities have the necessary physical and social infrastructure to support agriculture, and other food system activities.

Urban agriculture requires access to biophysical resources (i.e. land, soil, water, nutrients) as well as socio-political resources (i.e. labour, financing, and community buy-in) some of which may not be readily available within urban boundaries. New creative solutions are therefore required that can create UA projects that are meaningful, and sustainable.

Access to land is necessary for all UA projects, and can be a one of the most significant challenges for the development of community based and entrepreneurial farming initiatives in cities. In most jurisdictions, including Metro Vancouver, urban land is increasingly expensive meaning access to land for urban food production can be beyond the reach of those who are interested in initiating new projects. In addition to the challenge of affordability, the amount of land available for food production is also decreasing in urban areas due to rapid urbanization, and the contamination of urban soils.

Those advocating for urban agriculture recognize that it is not realistic to rely on urban agriculture to support the full range of food system activities (i.e. production, processing, distribution, and waste management) in every community. It is also not a realistic expectation to assume that urban farms can fully support the food needs of urban populations. However, under the right environmental and social conditions UA projects provide a variety of benefits to urban communities and regions.

Urban agriculture can create employment opportunities, stimulate the local economy, create a sense of community, increase urban biodiversity, contribute to community food security and promote healthy lifestyles.

What is Urban Agriculture?

Urban agriculture is the activity of producing, processing and distributing food and other agricultural products on land in urban areas. These systems are often closely connected to social, economic and ecological systems in cities.

Image Source: Black Creek Community Farm

Black Creek Community Farm, Toronto ON

Black Creek Community Farm is a community project that supports low income and immigrant populations in Toronto. Leveraging existing resources and knowledge the project was jointly founded by Everdale Environmental Learning Center, FoodShare and African Food Basket. They were able to access land through a lease agreement with the Toronto Region Conservation Authority (TRCA) for the 8 acre urban farm.

Municipally Supported Urban Agriculture

Those initiating and supporting urban agriculture projects can include individuals, environmental organizations, neighbourhood groups, faith based organizations, non-profits and private sector corporations. It is also becoming increasingly important for local governments to become involved in project development and management because they can draw on existing resources and institutional capacity. This has been shown to contribute to project resilience and sustainability.

Local governments can support UA projects by providing access to land, leveraging funding, creating enabling policy and zoning regulations, providing access to services (i.e. water and sewage), and identifying strategic locations for urban agriculture within communities. Involvement of local governments in UA projects can also help align project outcomes with the long and short term goals for municipalities around sustainability, economic development, and social development.

Image Source: North vancouver Neighbourhood House

Loutet Farm, North Vancouver BC

Loutet Farm is a ½ acre market garden and ⅓ acre school garden located on publicly owned land, in a residential community in North Vancouver. The project is now managed by the North Vancouver Neighbourhood House and the Edible Garden Project.

Image Source: The Hamilton Foundation

McQueston Urban Farm, Hamilton ON

The McQuestion Urban Farm was built to address food insecurity in a low income community. The project was municipally supported in collaboration with McQuesten Neighbourhood group, the City of Hamilton, Social Policy and Research Council, academic institutions and private sector design companies. The farm now provides volunteer opportunities, and fosters strong bonds amongst residents.

The Langley Urban Agriculture Demonstration Project

The Langley Urban Agriculture Demonstration Project (LUADP) is a unique project which aims to advance of urban agriculture, through development of a concept plan for a site in the City of Langley. It is recognized that this project may be potential to advance goals in the City of Langley's Sustainability Framework, in addition to other positive outcomes. The LUADP may also help to advance urban agriculture and local food programming in the City by creating awareness and building local capacity.

As a municipal partner, the City of Langley has been supportive of the project. Working with BC Hydro to create a model of urban agriculture that can work within the unique context of hydro ROWs also presents opportunities to explore new models for urban food production, and could also make more land available for urban agriculture across Metro Vancouver.

Site Assessment

Soil Analysis

A soil sampling protocol was developed by a soil scientist from Kwantlen Polytechnic University. In total, 31 sample sites were chosen within the ROW area. All sampling was conducted by Kwantlen Polytechnic University Sustainable Agriculture students under the supervision of staff at the Institute for Sustainable Food Systems and KPU Faculty.

Soil Test Results

Soil tests will determine if there are any possible chemical or heavy metal contaminants on the site. They also provide information about the physical and chemical properties of the soil that impact food production. The results can then be compared to acceptable levels for agricultural production based on Canadian Environmental Quality Guidelines available from the Canadian Council of Ministers of the Environment (CCME).

Pollutants

No detrimental pollutants were found in the soil samples from the site. This is promising because chemical contaminants can be more challenging to remove from the soi.

Heavy Metal Contaminants

The heavy metal levels are relatively consistent across the site and with the exception of Cobalt detected in Batch 4, do not exceed the allowable limits for agriculture. However, this slight elevation detected does not pose a significant concern.

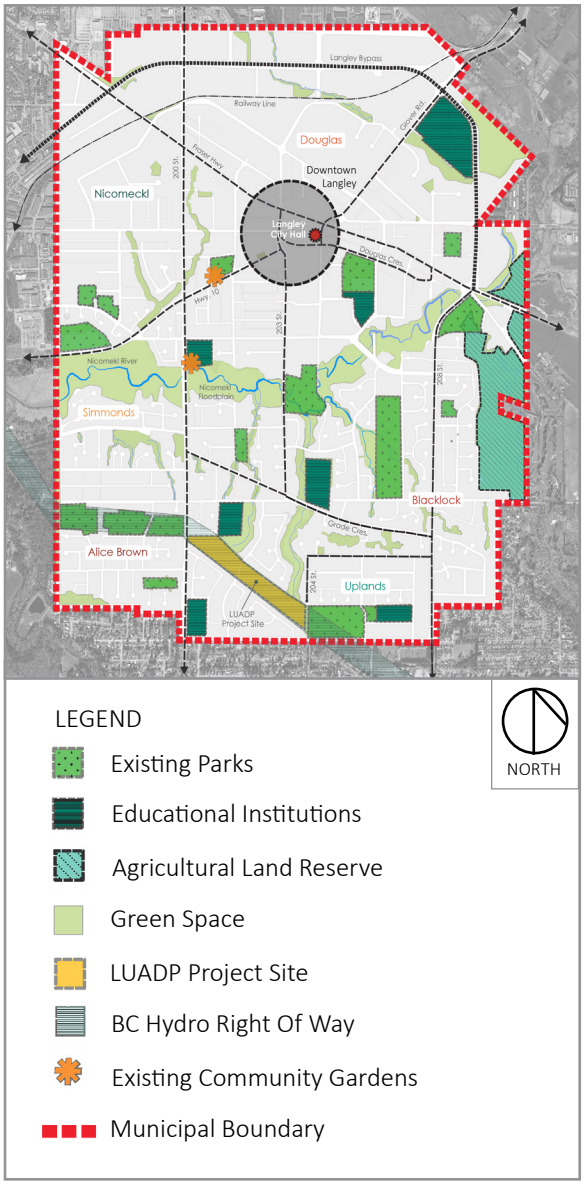
Soil Properties

Soil properties such as organic matter and pH are variable across the site. It is also likely that there is significant compaction of soil from construction and maintenance activities.These projects a variety of practices, such as adding compost, mulch and incorporating cover crops.

Context Analysis

The City of Langley is a rapidly growing, urban municipality located in the Metro Vancouver Region. As a member government of the Metro Vancouver Regional District, most of the City of Langley is designated as a Regional City Centre in Metro Vancouver 2040: Shaping Our Future (Metro 2040). The City is growing at around 16% per year, and forecasted to double its population by 2026.

Context map of the City of Langley.



Given the proximity of the project site to the Township of Langley and the City of Surrey, it is anticipated there could be opportunities for potential municipal and community partnerships between these communities. Proximity to schools also presents opportunities to support education, and engagement with schools.

Policy Context

Although located in an agricultural region the City of Langley has limited land area within the Agricultural Land Reserve (ALR) (approx. 16 ha). The chosen site is not located on lands within the ALR.

Both local and regional policies are aligned with the goals of the project, and support the development of urban agriculture projects as well as broader community sustainability goals.

City of Langley Policy

10 Year Parks, Recreation and Culture Plan

- improve accessibility, sustainability and usability for parks and recreational programming
- more urban agriculture projects, trees and native plants
- supporting community groups and environmental education

Social Plan

- identifying sites for community gardens
- better utilize existing parks
- providing healthy meals in schools
- integration of diverse communities through volunteerism

Sustainability Framework

- create complete, compact communities that incorporate parks and green spaces, good transit and a walkability
- maintaining quality of life, and improvements to parks, roads and infrastructure

Regional Policy

- aligned with Metro Vancouver's regional growth strategy (Metro 2040) complete communities development goals
- advance strategies and initiatives identified in Metro Vancouver's Regional Food System Strategy and Action Plan

Parks and Open Space

The City of Langley is a small municipality, that boast over 300 acres of parks and open space (a total of 12% of the municipalities land area). The network of parks and open space in the City of Langley represents creates community wide connectivity through recreational trails and natural corridors. The LUADP is situated to become part of this green corridor network.

Site Analysis

The hydro ROW contains two 500 kV and one 230 kV bulk transmission lines that bring power from the Columbia and Peace generating stations to the Lower Mainland and Vancouver Island.

Current uses include walking, dog walking, cycling, nature viewing, and some sledding in the winter. Residents indicated that they used the site regularly, even daily for these activities. They also value the site as a natural area providing peace and quiet, sense of privacy in backyards, habitat for wildlife, and a feeling of being close to nature. Some residents also forage for blackberries.

View of BC Hydro transmission towers within right-of-way. Image Source: Emily Hansen

Urban Agriculture in Hydro Right-of-Ways

Utility right-of-way (ROW) areas (including Hydro transmission ROW and road easements) represent an opportunity for food production that is yet to be fully explored in urban areas.In rural areas agriculture is routinely practiced within hydro ROWs. In an urban context farming in hydro ROWs is less common. Urban hydro ROWs present opportunities for the development of amenities, including: community farms, community orchards, school farms, demonstration gardens, or incubator farms. Community gardens, and pollinator pastures have already shown to be successful in hydro ROWs in many communities.

BC Hydro Compatible Use Guidelines

BC Hydro has developed resources to hep guide development in hydro ROWs across the province. The document "*BC Hydro Rights of Way Guidelines"* can be accessed online for those developing ROW projects. All compatible uses in hydro ROWs are subject to final approval from BC Hydro Properties Division.

Electrical and Magnetic Fields and Human Health

Electric and magnetic fields (EMF) are invisible fields of energy that are present anywhere electricity flows. They are emitted from a variety of sources, including hydro transmission lines, cell phones, telecommunications infrastructure, building wiring, and household appliances.

The strength of these fields magnetic fields can fluctuate throughout the day as energy demand shifts. The online publication *"Understanding Electromagnetic Fields"* provides information to the public about health and safety concerns related to hydro transmission infrastructure. The following table shows EMF emitted from common household sources. The next table gives average field strength emitted from hydro transmission lines.

Household Sources of EMF	At the Source (5-10cm)	~1m from Source
Hair Dryer	300mG	0.1-6mG
Dish Washer	20mG	1mG
Washing Machine	20mG	0.1-2mG
Power Saw	200mG	4mG
Vacuum	300mG	1-10mG

EMF Levels of Common Household Appliances.
Source: United States Environmental Protection Agency.

Transmission Line Voltage	Under Transmission Lines	Edge of Right-of Way (~20m)	Outside Right-of-Way (30m)
230kv	38mG	28mG	8mG
500kv	81mG	51mG	33mG

Transmission Tower Voltage and Associated EMF Levels.
Source: BC Hydro

EMF Exposure in Public Amenity Design

The World Health Organization (WHO) concludes that there is no cause – effect relationship between exposure to magnetic fields and impacts to human health. However, research is ongoing.

Guidelines for mitigating exposure to EMF in public spaces are set and monitored nationally, however Health Canada does not consider any precautionary measures to be necessary with regard to daily EMF exposure in the general environment. Adhering to all safety guidelines developed by hydro companies, and supporting ongoing public education regarding the safety of working in and around hydro transmission infrastructure will be important in the development of urban agriculture project in hydro ROW sites.

Model for Urban Agriculture in Hydro ROWs

Hydro ROWs occupy significant tracts of land in communities. In proposing the LUADP it was recognized that accessing this land for urban agriculture could help make significant contributions to advancing urban agriculture in the City of Langley, and across the Metro Vancouver region.

Planning & Design Process

Consultation & Public Outreach

Urban agriculture can have positive impact in communities. However, when the concept is unfamiliar, projects may be perceived to negatively impact those who are living in close proximity to a proposed site, or because they appear to be costly or unsightly.

Inter-agency Meeting

Prior to public outreach an inter-agency meeting was convened. Participants included other local governments, school board representatives, health authority staff, and staff from the Agricultural Land Commission. Key takeaways included the potential for the LUADP to inform similar projects in the region and that community buy in would likely be important for success.

Participants also shared experiences identifying additional challenges that could impact the success of the LUADP, and other similar projects in Metro Vancouver. These challenges are:

- Zoning, bylaws and local land use policies
- Agricultural land reserve policy
- Public safety
- Site aesthetics and cleanliness
- Access to funding for planning, implementation and management
- Access to water, and other servicing
- Project evaluation

Community Open Houses

Community Open Houses were held to communicate the progress of the planning process with the public. These events focused on sharing information and collecting feedback from frequent users and those living in the neighbourhood.

The first Community Open House was held in Langley on May 10th, 2017 from 6-8pm at Alice Brown Elementary School. The majority of participants who attended were residents living nearby the proposed project site, who received notification by mail from the City. The initial public meeting had three primary objectives, which were to:

1. Introduce the project to the public
2. Explain urban agriculture and the wide variety of amenities and project types, and
3. Get feedback from the public about what type of urban agriculture would fit on this site.

A summary of this feedback was prepared following the event.

Community Open House #1: Feedback Summary

A second community open house was added to the detailed planning phase after significant opposition to the project was expressed by those who attended the first open house. The event was held on September 19th, 2017, at Alice Brown Elementary School. The purpose was to present the public with three possible high level design options for implementing urban agriculture.

A summary of this feedback was prepared following the event.

Community Open House #2: Feedback Summary

Participants review project information and design options at Community Open House #2.
Image Source: Roy Beddow, City of Langley

Site Plan

Following public outreach the project team was able to determine the amenities that would best fit the site and community context. Based on community feedback priorities were identified that would guide final concept design for the LUADP.

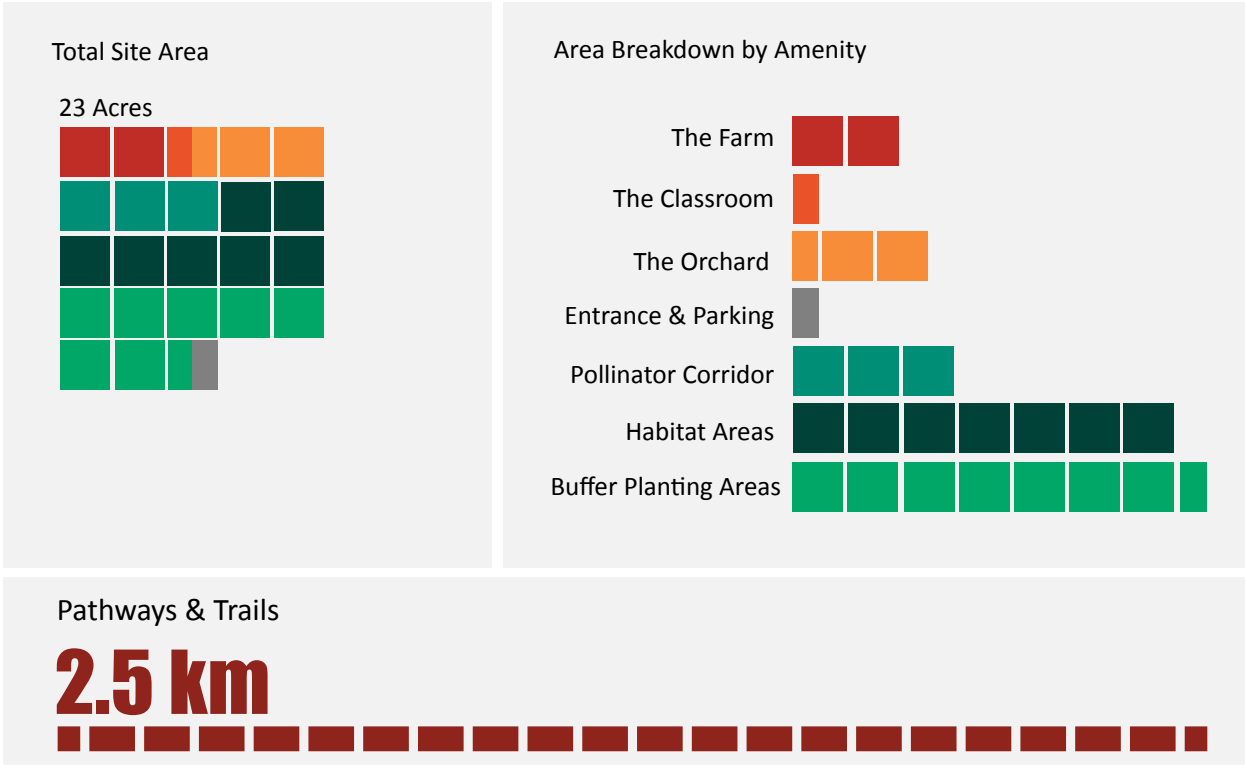
- **Recreation & Access**
- Small Scale Organic Food Production
- Education & Demonstration
- Wildlife Habitat
- Community Connections
- Developing a Model

LUADP Vision

The vision for the LUADP is to create a functional community amenity with a shared focus on **food production, education** and **environmental restoration**. The plan is motivated by a commitment to small scale, organic, community based food production and demonstration. The LUADP aims to integrate farming, community life and the environment, through an innovative approach to urban agriculture in an existing residential neighbourhood.

The goals of the LUADP represent specific outcomes of the project, and where possible contribute to community development and sustainability in the City of Langley, including:

- Increase the production of local, healthy food
- Demonstrate small scale, organic food production
- Educate people of all ages
- Improve food literacy
- Increase biodiversity and have positive impact on the environment
- Utilize publicly owned land for community development and social innovation
- Support community connection through engagement with food production and environmental restoration



Langley Urban Agriculture Demonstration Project amenity area breakdown

Site Servicing & Infrastructure

Within hydro ROWs there are specific challenges to navigate in order to support urban agriculture due to possible conflicts with hydro utility equipment.

Parking: A gravel parking area will be located just off the 200 St. entrance and will be designed to accommodate no more than 15 vehicles. A locked gate will restrict vehicles from entering the site during “off hours”. Access to these areas will remain restricted to site maintenance and BC Hydro vehicles. Bike parking should also be provided near the site entry and parking area as well as in locations close to amenity areas.

Electricity Hook Up and Lighting: Creating a viable community amenity with a significant food production component may also requires connection to the electrical grid. A detailed electrical plan and cost of servicing should be prepared through a collaboration between BC Hydro and the City of Langley.

Toilets: Toilets must be provided on the site for those who are working in production areas or visiting the site for education or recreational activities. A pit toilet design, commonly used in parks, is the most appropriate for this site to avoid the additional costs of establishing a sewer connection. A handwashing station should also be provided at in the pit toilet area.

Pathways: The LUADP site in embedded in a residential neighbourhood and facilitates passive recreation as a primary use. Users are able to access the site through the surrounding neighbourhood and from nature trails along Muckle and Pleasantdale Creeks. Maintaining existing access, connectivity and circulation on the site are both high priority.

Water Access: Access to a clean and abundant source of water is necessary for urban agriculture projects. For the LUADP a connection to municipal water will be made at the 202 St. ROW. It is recommended that the City of Langley install a 50 mm central water hook up at this point for the LUADP at an estimated cost of $10,000.00.

Overhead irrigation is restricted in hydro ROWs. The LUADP should install drip irrigation. These systems are commonly used for small scale, farming operations because of their relatively low cost, and efficiency. Components of these systems are primarily made of plastic, and are therefore compatible for use in a hydro ROWs. Once production areas are established an evaluation of water use should be conducted to better understand how much water is required for food production and other uses.

Signage: Incorporating unique and effective signage will provide information for visitors about the agricultural and ecological systems at work on the site. Signage is also a key component in establishing a unique identity for the project as a hub for urban agriculture, and education in the community and the region. There are three types of signage that should be incorporated to enhance the experience of the LUADP and ensure the safety and security of visitors. Signage types for the LUADP include wayfinding, amenity identification and educational signage.

Educational Signage at Public Produce Garden in Kamloops, BC provides information about when and how to harvest various crops.
Image Source: Kamloops Public Produce


City of Langley Stockpile Area (Existing)
City of Langley Water Reservoir (Existing)
Muckle Creek & Nature Trails
Pleasantdale Creek & Nature Trails
City of Langley Pump Station (Existing)
200 St.
200 A St.
201 St.
202 St.
203 St.
204 St.
46 Ave.
46 A Ave.
Langley Urban Agriculture Demonstration Project
Prepared by: the Institute for Sustainable Food Systems- KPU
NORTH
LEGEND
Scale 1:2500
1 Parking Area
2 Entrance Production Orchard
3 Demonstration Orchard
4 Raised Beds
5 Demonstration Plots
6 Outdoor Classroom
7 Annual Production Plots
8 Cut Flower Gardens
9 Public Produce Gardens
10 Composting Area
11 Farm Hub & Storage
12 Pit Toilet
13 Muckle Creek Riparian Habitat
14 Production Orchard
15 Pollinator Corridor
16 Buffer Planting Area
17 Wetland Habitat Area
18 Pleasantdale Creek Habitat Area
Bicycle Parking
Municipal Water Connection

Non-Production Amenities

Non-Production amenities include all those amenity areas that support but do not directly contribute to habitat enhancement, native plantings and are advancing the vision and goals of the project.

Non-Production Amenities:

- Buffer Planting Areas
- Habitat Areas
- Pollinator Corridor

Opportunities:

- Increased biodiversity
- Enhanced wildlife habitat
- Provisioning ecosystem services
- Maintaining privacy for surrounding properties
- Maintaining natural character of the site
- Providing pollinator habitat and facilitating pollinator education
- Removing and reducing the spread of invasive species

Buffer Planting Areas

Buffer planting areas perform important functions for the site and for the surrounding community. They maintain the "naturalized" character of the site, and create physical buffers between active and passive areas of the site and between public space and private space.

Habitat Areas

Riparian areas and a wetland area will be incorporated into the design of the LUADP. Habitat areas will feature native plants and be developed to mimic native habitat that may have been lost in development of the hydro ROW, and control the spread of invasive species. They will also contribute a variety of ecosystem services that contribute to agricultural productivity, and to human health

Wetland areas are also can also provide increase infiltration of rainwater, reducing runoff in addition to providing refuge for birds and insects.

Urban agriculture sites, especially those developed in dense urban areas, have demonstrated the potential for achieving a number of positive ecological outcomes. With a focus on small scale food production, and both annual and perennial crops these sites can support a wide variety of local wildlife.

Pollinator Corridor

The pollinator corridor is specifically designed to attract and support a diversity of wild pollinators including; bees, butterflies, birds, and insects. These garden areas would be planted with native and non-native species.

Existing projects and resources could provide support in the development of a corridor, or "pollinator pasture" within a hydro ROWs. Pollinator hedgerows will also be integrated into crop production areas to encourage pollination of crops.

Pollinator Pasture, Richmond BC

This pollinator habitat was created on a 2.6 acre park beneath hydro transmission lines in the City of Richmond. Researchers and students from Emily Carr University of Art + Design collaborated on the project as did local seed house West Coast Seeds. Local schools also contributed by growing 600 sunflower seed that were planted in the pasture in 2015.

Production Amenities

Production amenities include all those amenity areas that contribute directly to food production and education on the LUADP site.

Production Amenities:

- The Farm
- The Classroom
- The Orchard

The Farm

The Farm is a proposed production amenity with systems and infrastructure that supports other food production and educational amenities on the site.

Production elements include, annual cropping areas, public produce gardens, and cut flower gardens. The Farm will also features infrastructure including irrigation, equipment storage, composting, and a produce washing area.

Opportunities:

- Demonstrating small scale, organic vegetable production for urban areas
- Demonstrating the potential for food production on similar sites
- Improving access to healthy, fresh, local food
- Improving food literacy by connecting urban residents to agriculture and food systems
- Facilitating community education
- Volunteer opportunities for youth and community members
- Employment in the local food and community development sectors
- Social capital building
- Enhancing soil fertility and ecological health

View of Annual cropping areas and pathways

The Farm Hub: The Farm Hub will focus around a small, non-permanent building used to store tools, equipment, and produce. Based on restrictions for non-permanent structures within hydro ROWs the building should not exceed 3.6m in height and have a floor area no larger than 36m^2. Water access will be required at this location for sanitation and produce washing.

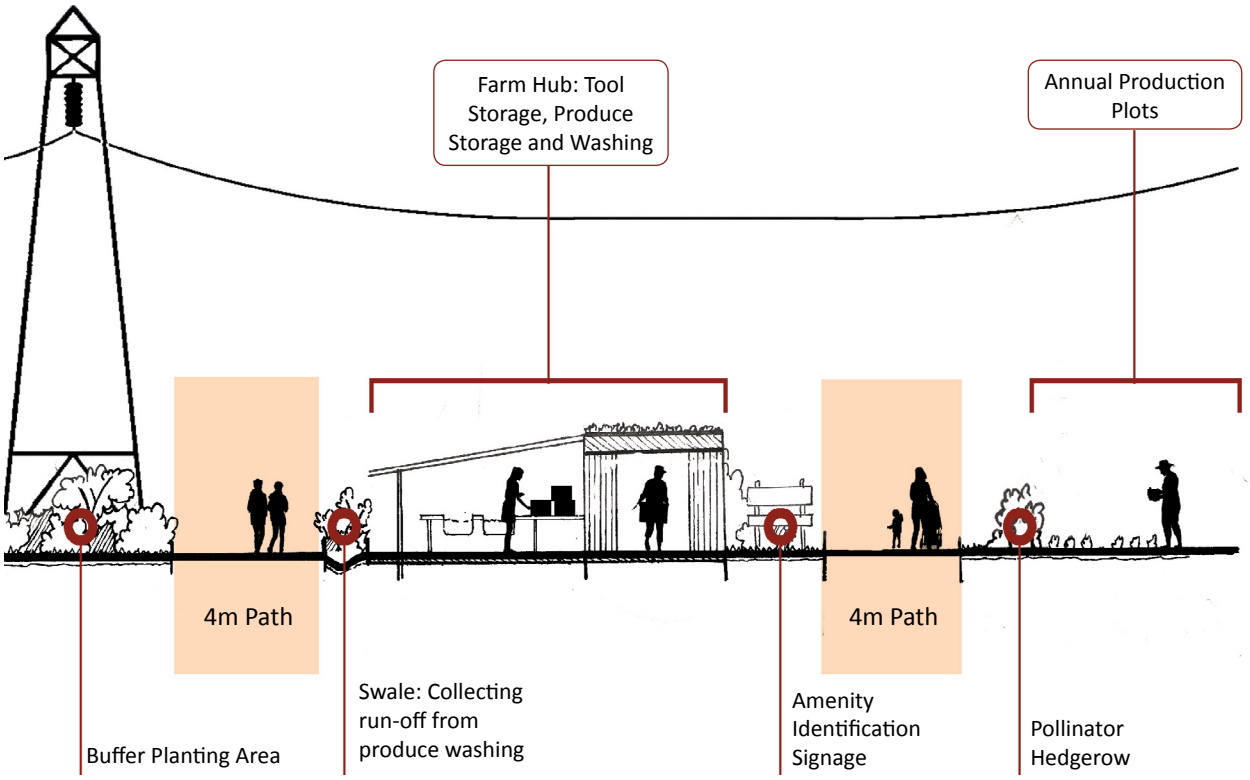
Annual Cropping Areas: Annual cropping areas are dedicated to growing annual vegetables, using organic production methods. These areas will be designed with the infrastructure necessary to grow a variety of annual crops. The type of crops cultivated will be determined by the farm manager based on site conditions and community need. Additional annual cropping areas include public produce gardens, and cut flower gardens.

Tools and Equipment: Production areas on the LUADP can be primarily managed using hand tools with limited mechanization. A walk behind tractor with various implements (rototiller, bed shaper, mower etc.) will be appropriate for the scale of production but should only be operated by individuals who are properly trained.

Composting: A three compartment composting system is recommended based on the scale and restrictions on the LUADP. Unpleasant odours are often of concern, however if managed properly, a compost pile, especially one that does not contain any fatty material (i.e. oils) or animal products (i.e. animal manure, meat products, or dairy) should not smell.

Three Bin Composting System can be designed using inexpensive and easily accessible materials.

Elevation of Farm Hub.



The Classroom

The Classroom will be an area dedicated to educational programming. There are different elements that will have the flexibility to serve a variety of user groups.

Opportunities:

- Hands on learning for students of all ages
- Support existing outdoor education and sustainability programs in local schools
- Improve food literacy amongst students, and in the community
- Collaboration between schools and students of different ages
- Summer programming including camps and youth internships
- Increase access to healthy, local food to be consumed in schools
- Facilitating community education

Flexible Seating: A limited amount of flexible seating should be provided to accommodate groups of up to 15-20 students. **Raised Beds:** Raised beds can be made using a variety of materials, many of which are inexpensive and easily accessible. Commonly used materials include: metal, concrete blocks, bricks, and naturally rot resistant woods like cedar or redwood. In the context of the LUADP, non-pressure treated cedar is an ideal choice for the construction of raised beds.

Micro Production Plots: Micro production plots will provide space for students to engage in crop production at a scale that is more conducive to experimentation and learning. These garden areas would be planned and cultivated by students. A separate tool shed should be located close to these beds to keep tools and equipment.

View of Micro production plots and tool storage in classroom area.

The Orchard

The Orchard is all areas for the production of locally suited perennial crop varieties. This includes tree fruits, nuts and small fruits (i.e. berries). In order to adhere to BC Hydro compatibility restrictions perennial crops, like all other vegetation, should be maintained at a maximum height of 3m. Tree crops should be purchased on dwarf root stock to make pruning and management easier.

Opportunities:

- Demonstrating perennial crop production for urban areas
- Facilitating community education in perennial crop production, and orcharding
- Increased biodiversity
- Enhanced wildlife habitat
- Gleaning of fruit, nuts and berries
- Increasing the availability of locally suited

Copley Community Orchard, Vancouver BC

Copley Community Orchard is an urban orchard located in Vancouver, British Columbia. It is a place to celebrate the benefits of growing fruit trees, berry bushes and other perennial plants, educating people on their cultivation, and creating a beautiful and productive space accessible to all. In June, city council approved a $15,000 grant to the Environmental Youth Alliance for the project.

View of Production Orchard, pollinator corridor, and existing pathway.

Management Plan

A management plan for urban agriculture should acknowledge input from multiple stakeholders, and draw on existing community capacity and directly addressing local needs.

Management Questions to Consider:

- Who will be the primary stakeholders involved in management of the project?
- How will these stakeholders work together to manage the project over the long term?
- What resources (biological, physical, social, etc.) are required to support the project?
- How will site elements interact with existing community programming and activities?

Stakeholders

For the LUADP, main project stakeholders include: Non-Profit Society (operations and amenity management), the City of Langley (land owner), and BC Hydro (utility manager). The governance model proposed focuses on building a supportive relationship between these groups, and creating additional capacity within the community.

Non-Profit Society

A new Non-Profit Society (the Society) should be created to manage and coordinate day to day operations on the site including all food production components. Managing a site with productive agriculture elements requires skilled individuals with knowledge about small scale food production, and the capacity to engage with the community around agricultural and environmental issues.

The Society must also have strong ties to the community, and will be governed by a volunteer steering committee. This committee will have representation from the agricultural sector, from government, and from the community.

Beacon Food Forest, Seattle WA

The Beacon Food Forest is located in the Beacon Hill Neighbourhood of Seattle. The goal of the Beacon Food Forest is to bring the diverse community together through a permaculture approach to urban farming. The project sits on land that is publicly owned, and a volunteer group that has now become a registered non-profit society. Some administration support is also provided by City of Seattle staff through the P-Patch Community Garden Program.

Non-Profit Society Steering Committee

The Steering Committee should meet regularly to discuss the project, make decisions about operations and programming and address any challenges or grievances from the community. The Committee will also develop an action driven charter which outlines the Steering Committee's mission, responsibilities, scope of influence, and deliverables.

Steering Committee Membership include:

- 1 Local government representative
- 1 Farm Manager
- 2 Community representatives
- 1 BC Hydro representative
- Community partner representatives

City of Langley

The City of Langley will continue to work closely with other management stakeholders offering servicing, and programming support. In addition to a dedicated City liaison on the Steering

Committee, various municipal departments could also be engaged management and operations of the LUADP, depending on the nature of the support work needed.

BC Hydro

BC Hydro participates in the development of compatible uses for hydro ROWs in order to maintain access to utility work, and protect public safety. The role of the BC Hydro will be an advisory one, consulting on all operational decisions and long term management.

Community Partnerships

Ongoing social programs, public education efforts and sustainability initiatives all present opportunities for integration with the LUADP.

Langley Environmental Partners Society (LEPS): With a mandate to support environmental sustainability through public education and partnerships, LEPS could be a valuable partner for the LUADP. LEPS is already active in the community, and has experience engaging citizens, especially youth, in environmental restoration, and urban agriculture projects.

Local Schools and School District (SD35): Located within walking distance of local schools, the LUADP could provide learning opportunities for youth. Connect to sustainability and health related initiatives in Langley Schools i.e. Healthy Schools Program, Green Team

Engaging the Public: Active public engagement is critical to ensure that the project continues to fit the community context and meet local needs. The public can participate in a variety of ways, as members of the steering committee, purchasing farm products, or assisting staff with agricultural activities.

Operations

Planning for daily operations must involve the consideration of the scale of production, distribution of farm products, and management of personnel.

Other potential project partners:

Environmental:

- Evergreen BC
- Environmental Youth Alliance
- Langley Field Naturalists
- Pollinator Partnership Canada
- Pollination Ecology Lab at SFU
- Nickomekl Enhancement Society
- Local First Nations

Education:

- Farm to School BC
- Fresh Roots Urban Farm

Health and Nutrition:

- Fraser Health
- Langley Community Harvest Program (managed by LEPS)
- Langley Food Bank
- First Nations Health Authority

Food and Agriculture:

- Farm Folk City Folk
- KPU Sustainable Agriculture
- KPU Farm School Programs
- Langley Community Farmers Market
- Langley Sustainable Agriculture Foundation

Scale of Production

The LUADP has been designed to balance food production and education with diverse habitat areas, and opportunities for passive recreation. With this approach, the scale of food production on the site is limited and these amenities have been concentrated around infrastructure, including equipment storage and water access.

In total there is about one acre of annual crop cultivation space on the LUADP site. In addition, these are also 2.5 acres of the site have been designated for perennial crops including fruits, nuts and berries.

Production Practices

Urban agriculture projects may limit the scale of production in order to achieve other outcomes, such as elevating the quality of public space, social cohesion, environmental restoration, or public education.

Distribution

Different options described in this section can be explored by the LUADP and decisions about what is produced and how products are distributed should be evaluated on an ongoing basis. It is recommended that the LUADP experiment with a combination of distribution methods of farm products throughout the growing season. Distribution options for the LUADP, include:

- Community Cultivation
- Food Banks and Gleaning Programs
- Institutional Procurement
- "Farm Gate" Sales
- Farmer's Markets

Image Source: Kamloops Public Produce

Kamloops Public Produce, Kamloops BC

Public Produce is growing in popularity as a community development model where edible plants; like fruit, nut and vegetable crops are grown in public spaces and are freely accessible to the public. Kamloops Public Produce was planted on an abandoned downtown lot with a small public health grant. The project has engaged a variety of users. Municipal staff, public institutions, school and private citizens became engaged the project.

Human Resources

As a community amenity, the LUADP will be a place for the public to experience and participate in small scale, organic farming. This will requires considerable human resources including paid staff with small scale, organic farming experience. Support from volunteers will also be required.

Paid Staff: The non-profit society will be responsible for hiring staff that will manage site operations and help to facilitate educational programing. Paid positions should include:

- Farm Manager 1 FTE (Feb-Nov)
- Farm Hands 1 FTE (Apr-Nov) could be divided into 2 PT positions
- Student Interns 0.5 FTE (June-Aug)
- Volunteer and Programming coordinator .25 FTE (year round)

Volunteers: There will be a variety of volunteer opportunities available through the LUADP that will make significant contributions to the success of the project and integration into the community.

Management

Long term management is often a significant concern when food production is proposed for public spaces.

Site Use Agreement

The site use agreement for the LUADP will be created through multi-stakeholder collaboration, and will be subject to regular review by these stakeholders. The agreement should clearly address the following topic areas:

- Land Tenure
- Electric and magnetic Fields Monitoring
- Ongoing Soil Health Monitoring
- Site Aesthetics
- Public Access and Security
- Production Activities and Techniques

Budget and Project Financing

Capital expenses represent all of the upfront costs related to developing the physical infrastructure on the site including; site servicing, built infrastructure, perennial plant material and signage. Operational expenses represent the ongoing costs associated with maintaining and operating the site as a UA project. This includes staffing, tool and equipment maintenance, production infrastructure and programming costs. The LUADP should be operated as a not-for-profit project with funds generated from the sales of farm products invested back into farm operations and community programming.

CAPITAL EXPENSES	
Site Servicing	$ 716,000.00
The Farm	$ 61, 000.00
The Classroom	$ 32,700.00
The Orchard	$ 34,750.00
Pollinator Garden	$ 26,700.00
Buffer Planting & Habitat Restoration	$ 110,075.00
Total Capital Expenses	$ 981,225.00

Capital expenses summary for the LUADP.

OPERATIONAL EXPENSES	
General Maintenance	$ 17,000.00
Staffing	$ 60,000.00
Farm Operations	$ 9,000.00
Classroom Operations	$ 7,500.00
Orchard Operations (approximate)	$ 2,000.00
Total Operational Expenses	$95,500.00

Operational expenses for the LUADP.

POTENTIAL REVENUE SOURCES	
Grants	$50,000.00
Donations (Funds and Materials)	$ 20,000.00
Farm Product Sales	$ 30,000.00
Total Annual Revenue	$ 100,000.00

Possible Revenue Sources for the LUADP.

Image Source: Adobe Stock Images, tanacha

Conclusion

The Langley Urban Agriculture Demonstration project pilot explores the feasibility of urban agriculture on a publicly owned BC Hydro ROW in the City of Langley. The land was first identified as a potential site that could support food production and related activities by the City, and partners at Kwantlen Polytechnic University in 2010.

The plan takes a balanced approach weaving together environmental enhancements, education and food production. The project addresses the concerns of residents by scaling back production elements, enhancing the natural character of the site and outlining a plan for long-term management that involves community collaboration.

Urban agriculture projects aim to connect urban residents to their food source. Successful projects from around the world demonstarte that rban agriculture can make positive contributions to local level sustainability, food self reliance, and livability in urban communities.

Some of these contributions which directly apply to the LUADP are:

- Improving Food Literacy
- Health
- Social Connections
- Encouraging Self-Sufficiency
- Activating Public Space
- Environmental Sustainability

Next Steps

With a completed plan, implementation of the LUADP is subject to approval by Langley City Council. It is also necessary to establish community partners who can help support programming and operations and to secure funding for implementation, program development and operations.

Establishing Community Partnerships

Partnerships are critical in the development of UA projects. Partners can assist in accessing funding, provide programming support, or offer advice as the project develops. With a concept developed for the LUADP a key next step in the process will be connecting with potential community partners who may be willing to fund, and support operations over the long-term. Key project themes are: food and agriculture, health and nutrition, environment and education. Partners with mandates that support any of these themes could be valuable collaborators for the LUADP moving forward.

Funding Recommendations

Consistent funding is required to support UA projects. For projects that do not generate revenue, or can't be supported by the revenue generated there are a variety of alternative funding sources that can be explored.

- Private Foundation Grants
- Municipally Supported Grants
- Private Sector Sponsorship
- Institutional Partnerships

Lessons Learned

Lessons learned from the Langley Urban Agriculture Demonstration Project (LUADP) pilot have the potential to inform the development of similar initiatives across the Metro Vancouver region, by providing a model for urban agriculture in utility right-of-ways (ROW), and demonstrating successful connections between municipal and community partners. When initiating the project, it was recognized that there are other publicly owned, utility ROW corridor sites within the region that may be suitable for urban agriculture. This section summarizes some of the **scoping questions**, **considerations** and **key learnings** about balancing ROW compatibility restrictions with requirements for urban agriculture to support the potential for similar initiatives in the region.

Project Initiation

Covered in this section:

- Identifying and accessing land within hydro ROWs for urban agriculture.
- Establishing and managing partnership with utility companies
- Project funding
- Establishing and managing relationships with community partners
- Establishing a project timeline

Accessing Land

Is urban agriculture a compatible use on site(s) being considered?

In BC, agriculture is considered a compatible use in hydro ROWs, however farm infrastructure and practices may be restricted by the utility company based on public safety requirements.

See Resources at the end of this section BC Hydro Compatible Use Guidelines.

The suitability of a given site may also be impacted by local policies related to urban agriculture, utility ROW development (i.e. land use policy, bylaws). Be sure to identify any local policies, bylaws and regulations that may impact an urban agriculture project.

Is urban agriculture aligned with the goals/ mandate of the landowner, local government and community?

Clearly understand ownership of the land in question: Is it publicly owned? Privately owned? Owned by the utility company?

Consider the landowner's goals and priorities, and the potential for urban agriculture to align with and support these goals.

What relevant policies or strategies support the development of urban agriculture in the community (eg. Official Community Plan, healthy city initiatives, etc)?

This may help in the process of identifying potential partners or accessing project funding

This could also help guide the site design and amenity development. For example: If a municipality is working towards improving health and nutrition for children a UA project that connects on farm learning with school food programs could be a good fit.

Key Learnings

1. Food production is possible in ROWs, but restrictions for infrastructure development on public land, and in utility ROWS, could limit the scale of food production on a given site.
2. Municipal governments are key partners for urban agriculture projects.
3. Suitability of a site is informed by site characteristics AND the surrounding context.

Local Land Inventory for Urban Agriculture Sites

The appropriateness of the site should also consider the level of need and community support in the local area, and specific site conditions which may support or deter urban agriculture. Conducting an inventory of land available for urban agriculture, or assessing the suitability of multiple sites (ROW and non-ROW sites) could be helpful when selecting the most appropriate location for urban agriculture in a community.

Partnerships with Utility Companies

When to approach a hydro/utility company?

Consultation with the utility company that manages utility works and infrastructure on this site is a critical factor in project success. In the case of the LUADP the project team engaged with BC Hydro throughout the planning process. The utility company should be contracted BEFORE any planning work begins to ensure that urban agriculture (of some kind) is possible on the site) and, the project team understands the plan approval process.

Engagement with utility companies could vary depending on the site and the type of project being proposed.

Working with BC Hydro on the LUADP

BC Hydro was contacted at the beginning of the detail planning phase for the LUADP. For all development projects in or adjacent to hydro ROW areas BC Hydro must approve site plans and work with partners to establish site use agreements. In the case of the LUADP, BC Hydro was primarily concerned with scale and location of amenities, buildings and structures, access to utility infrastructure, compromising utility infrastructure. The **BC Hydro Properties Division** is the point of contact for compatible use development, and can be reached at:

Phone: 1-800-667-1517 or 604-623-3637

Email: properties.helpdesk@bchydro.com

How much time will a representative from the utility company commit to the project?

Based on the experience from the LUADP a representative from the BC Hydro properties division should be asked to commit the following, over the anticipated project lifecycle.

- 4 hours for project scoping
- 6-8 hours for check-ins and meetings
- 3-4 hours for plan review

Funding

How much does a project like this cost?

The initial 2010 project feasibility study between the City and KPU was first proposed by the City of Langley in partnership with Kwantlen Polytechnic University, at a cost of $5000.

Funding for the site plan and business plan as described in this report came from the Metro Vancouver Sustainability Innovation Fund, and cost $50,000.

Funding for implementation, and project management will vary based on the size of the site, and the type of amenities proposed.

Who should fund a project?

Funding for urban agriculture projects can be divided into three different categories:

- Planning – Site assessment, design, community engagement
- Implementation – site preparation, amenity development
- Operations – staffing and maintenance

Funding for these various stages can come from a variety of sources including:

- Municipalities
- Regional Governments
- Foundations/Community grants
- Public/private partnerships
- Educational institutions
- NGOs

Project Team & Stakeholders

Who should be on the Core Project Team?

- **Technical experts:** practitioners with expertise in urban agriculture and design
- **BC Hydro or utility owners:** an individual(s) who can participate, and can advise the project throughout the planning phase.
- **Municipal planning staff:** individuals who have an understanding of the community.

- **Staff from other municipal departments:** Consider participation from other municipal departments, including; parks, recreation and cultural services, and engineering
- **Funders:** funding agency for the project and/or community groups providing support for the project.
- **Health authorities:** staff can provide information and research on potential health benefits, as well as guidance in addressing perceived health concerns from the community; their participation may also lead to greater visibility, and public and political support.

Who else can be engaged?

Affected and Interested Stakeholders: These stakeholders are not likely to be directly involved in development of the project, but may provide helpful feedback based on experiences from other jurisdictions.

- Neighbouring municipalities
- Adjacent Schools and/or local school board
- Community agencies with facilities near project site
- Civil society groups active in urban agriculture, environmental causes or education
- Urban agriculture, farming, or community gardening groups
- Agricultural agencies (Ministry of Agriculture, Agricultural Land Commission)

Community Partners: Establishing community partnerships can support project development and programming, support access to funding, and help garner broader community support. Initiating contact with potential community partners early can help inform project development, and support the planning phase.

What to look for in potential community partners?

- Are there urban agriculture or local food related project s in the community already? Who supports them?
- Are there organizations that represent the interest of potential user groups? For example: youth organizations, seniors groups
- Are there any special interest groups that could support urban agriculture activities? For example: garden clubs, beekeeping clubs
- Are there existing groups who have good reputation in the community for the programming they provide?

LUADP Core team planning meeting summary.

Meeting Date	Description	# of hours
February 16, 2017	Core Team Meeting #1 • Review of BC Hydro ROW restrictions • UA amenities discussion	3
March 29, 2017	Core Team Meeting #2 • Review of BC Hydro ROW restrictions • UA amenities discussion	3
April 20, 2017	Interagency Meeting • With local governments and agencies with interests in urban agriculture	3
June 29, 2017	Core Team Meeting #3 • Review public input • Evaluate Amenities	2
August 29, 2017	Core Team Meeting #4 • Review conceptual plans	2
October 25, 2017	Core Team Meeting #5 • Review public input • Identify components for final plan	2
Total # of hours		**15**

Time Requirements

Exact time requirements for the development of urban agriculture projects will vary based on site size and project complexity. The time line below reflects the experience with the LUADP, and can act as a reference for estimating a project time line.

Sample project timeline.

- **Planning** *(10-14 months)*
  - Establishing partnership, or agreement in principle with site land owner
  - Site assessment *(1-2 months)*
    - *Soil Analysis*
    - *Context Analysis*
    - *Site Analysis*
  - Public outreach and consultation *(4-6 months)*
    - *Community Partner Outreach/Consultation*
    - *Inter-agency Consultation*
    - *Public Outreach*
  - Design *(3 months)*
  - Plan preparation and reporting *(2-3 months)*
- **Plan Approval** *(3-6 months)*
  - *BC Hydro approval of amenities specific plans*
  - *Council/municipal plan adoption*
- **Site Development** *(6-12 months)*
  - Fundraising *(1-2 months)*
  - Infrastructure Development *(2-4 months)*
  - Amenity Development *(3-6 months)*
- **Program Development** *(2-6 months)*

Site Assessment & Planning

Covered in this section:

- Soil testing protocol and funding
- Understanding site context and characteristics.
- Considerations for site management and operations.
- Creating a site management budget and plan.

Soil Analysis

Soil testing and analysis should be conducted in all ROW sites as there is risk of contamination. Cost of soil testing depends on the size of the site. As an estimate, soil testing in BC could cost $2000 to $6000 (approx. 500/sample). This expense should be covered by the project planning budget (funder of project planning should support soil testing as an integral part of this project.

See Resources at end of this section Soil Analysis Guides and Testing Labs in Metro Vancouver

Site Analysis

Community Considerations:

- Is there any relevant policy supporting urban agriculture? Any potential barriers?
- Any other urban agriculture in the community?
- What are the characteristics of the neighbourhood where the project would be located?
- What resources exist in the community that could support urban agriculture?

Site Considerations:

- Is there existing vegetation on the site?
- Are there any site characteristics that might impact urban agriculture amenities?
- Is the site publicly accessible? Where are the access points?
- Are there any features to protect? (i.e. existing amenities, trails, natural features)

BC Hydro ROW Considerations:

- Where are transmission towers located on the site? Is there any other utility infrastructure?
- What are ROW owner access requirements?
- Has project team obtained a copy of the title for the ROW property?
- Is there an existing hydro ROW site management agreement? (can be obtained through the BC Land Title Office).

Site Management

Key issues to address in a site management plan.

- Infrastructure needs for urban agriculture – water/electricity/waste
- Roles and responsibilities for participating, managing the operations, and maintaining infrastructure and urban agriculture amenities
- Site Use Agreement – agreement between ROW owner and urban agriculture stakeholders
- Production practices – scale, technical considerations How will food be shared / sold?
- Financing plan for ongoing management

Other technical issues to consider that are not addressed in LUADP report but that should be addressed the next phase of work (ie. Implementation Plan)

- Bio-safety – to ensure compatibility between urban and commercial agriculture (eg. management of pests, disease potential, etc)
- Security – assessing potential of vandalism/ theft of equipment & food, and mitigation plan
- Enforcement – who / how would agreements be enforced
- Closure strategy – how the municipality can 'close up' the project if interest / community capacity declines

ROW Ownership

In this project, BC Hydro was the utility ROW owner. However, if you are considering a similar initiative in your community, the ROW owner may be a different utility (eg. Fortis, Telus, etc.).

Community Engagement

Covered in this section:

- Anticipating and addressing common misconceptions and barriers to community buy in.
- How and when to engage the community.
- What kind of information should you collect from the community.
- Early engagement, and how it is valuable.
- Other important considerations for public engagement.

Responses to Common Misconceptions about Urban Agriculture

Urban agriculture always means community gardens: Community gardens are a common examples of urban agriculture. However, there are many other urban agriculture features and amenities that can be adapted to meet the needs of a community. Understanding what a community's needs might be, and how different urban agriculture amenities could meet those needs is an important part of the engagement process.

Urban agriculture is messy: This assumption is often associated with community gardens or allotment gardens. Those unfamiliar with urban agriculture may envision shabby structures, or overgrown areas that don't appear well taken care of. This is not a universal characteristic, or true, of all urban agriculture, however concerns about aesthetics should be carefully considered when developing urban agriculture plans.

Urban agriculture presents public health risks: In some cases, there may be an increased risk of pollutants in the soil that could impact the health of those working on the site, or consuming food grown there. This type of risk is well understood by practitioners and can be mitigated by testing the soil to determine if there are pollutants on the site that could be harmful to human health, and designing urban agriculture amenities to safely respond to the risks. Soil test results can be compared to national standards for agricultural soils – this information, and other details about potential contaminants can be found through the Canadian Council of Ministers of the Environment (CCME).

Urban Agriculture is not the highest and best use of land: There is a common perception that urban farms use scarce land resources in cities that could be otherwise used for commercial, residential, or recreational purposes. Sites that are not appropriate locations for commercial or residential development, such as utility ROWs, floodplains, or parks may be ideal sites for creating a community amenity such as urban agriculture.

Potential Barriers to Community Buy in

Urban Agriculture will Exacerbate Existing Issues: Residents may be motivated by other underlying issues in the community. In some cases urban agriculture may be seen as undesirable because it may be perceived to exacerbate existing issues in the community, such as pest infestations, traffic, non-resident parking, vandalism and crime.

Urban agriculture projects will be a burden on taxpayers: Urban agriculture projects have the potential to achieve a variety of outcomes. Many are operated by non-profit organizations that seek external funding resources (grants, fundraisers, etc) to support non-production programming such as education, and community development, in addition to revenue generated from the sale of products grown on the site. Very few urban agriculture projects are 100% publicly subsidized.

Public perception of safety/quality of food produced in ROWs: There is often public concern around urban agriculture projects due to a perception that urban soils might be contaminated, and therefore unhealthy for food production. There can be additional concern when proposed projects are located within a hydro ROW. Health authorities can provide research, and evidence-based information on public health and safety of food production in urban areas, including in ROWs. BC Hydro also has resources that can provide information to the public.

Key Issues to Address During Public Outreach

- Is the site currently used? If so how?
- Is there a general understanding about urban agriculture in the community?
- Are there any misconceptions to address?
- Are there any local issues that may be exacerbated by introducing urban agriculture?
- Are there local needs that could be met by introducing urban agriculture?

Value of Early Engagement

The planning process for the LUADP did not involve preliminary outreach with the community, and instead built on the earlier work from 2010 that aimed to understand the feasibility of urban agriculture in a hydro ROW.

Without preliminary consultation with the community, it proved challenging to gain community support, and the plan was ultimately put on hold by City of Langley Council due to community opposition.

Early Engagement and Public Outreach

Preliminary outreach, before beginning the planning phase may help assess community need, and gauge the level of community support. This can help to:

- Identify/confirm potential site(s) for urban agriculture in a community
- Determine the level of community support for urban agriculture in the community

Key Learnings:

1. Aim to engage potential users from across the community, including immediate neighbours.
2. Integrate public education into the planned engagement process
3. Invite potential urban agriculture partners in the community to be part of consultation, along with residents, in order to inform amenity selection and demonstrate broad community support for a project

Project Risks

Conflicts between ROW uses and Urban Agriculture.

- Development restrictions in hydro ROWs limiting and restricting the kind of urban agriculture amenities that may be desired by stakeholders or members of the community.

Timing or funding challenges.

- Significant time required to establish / maintain multi-agency partnerships.
- Securing funds for planning implementation, and operations could be a challenge.
- Finding appropriate community partners and supporters could be a challenge.

Community buy in and engagement.

- The potential for no, or delayed community buy in.
- Urban agriculture may appear to conflict with existing or surrounding uses.

Expertise and knowledge sharing

- Agricultural expertise is needed for development and operation of an urban agriculture site.

Resources

BC Hydro ROW Resources:

- BC Hydro Rights of Way Guidelines
- Planting Near Power Lines
- What the Health Experts are Saying
- Understanding Electric and Magnetic Fields

Soil Analysis Guides:

- **Toronto Public Health.** *From the Ground Up: Guide for soil testing in urban gardens.*
- **The Johns Hopkins Center for a Livable Future.** *Soil Safety Resource Guide for Urban Food Growers.*

Soil Testing Labs in Metro Vancouver

- **CARO Analytical Services, Richmond** https://www.caro.ca/
- **Exova, Surrey** https://www.exova.com/
- **Maxxam, Burnaby** http://maxxam.ca/
- **AGAT Laboratories, Burnaby** http://www.agatlabs.com/

References

Archibold, J., & Goldacker, S. (2011). Assessing Urban Impacted Soil for Gardening: Decision Support Tool Technical Report and Rationale-Summary. https://www.toronto.ca/legdocs/mmis/2011/hl/bgrd/backgroundfile-37686.pdf

Baker, L., Campsie, P., Rabinowicz, K., Rosengarten, L., Stephens, P., & Ward, V. (2010). Menu 2020:Ten Good Food Ideas for Ontario. Toronto, ON.

BC Hydro. (2013a). Planting Near Power lines: A guide to vegetation recommended for planting and growing near power lines. Retrieved from https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/safety/planting-near-powerlines.pdf

BC Hydro. (2013b). Understanding Electric and Magnetic Fields. Vancouver, BC. Retrieved from https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/community/understanding-electric-magnetic-fields 2013.pdf

BC Hydro. (2017). BC Hydro Rights of Way Guidelines: Compatible uses and development near power lines. Vancouver, BC. Retrieved from https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/safety/row-guidelines-2017.pdf

BC Hydro. (2017a). Powerlines and Your Health. Retrieved March 9, 2017, from https://www.bchydro.com/safety-outages/power-lines-and-your-health.html

BC Hydro. (2017b). What the Experts are Saying. Retrieved April 24, 2017, from https://www.bchydro.com/safety-outages/power-lines-and-your-health/emf-and-your-health.html

BC Hydro (May 27, 2016) “Richmond Delivers Wildflowers for Bees at a City Park”. https://www.bchydro.com/news/conservation/2016/bridgeport-pollination-corridor.html. Accessed on March 7, 2017

Beacon Food Forest. “How We Started”. http://beaconfoodforest.org/how-we-started/ Accessed on: March 4, 2017

Black Creek Community Farm, “About Us” http://www.blackcreekfarm.ca/about-us/ Accessed on: February 14, 2017.

Brown, K. H., & Carter, A. (2002). Urban Agriculture and Community Food Security in the United States : Farming from the City Center to the Urban Fringe. Urban Agriculture Committee of the Community Food Security Coalition.

Canadian Council for Ministers of the Environment. (2017). Soil Quality Guidelines for Protection of Human Health. Retrieved February 3, 2017, from http://ceqg-rcqe.ccme.ca/

Carten, S. (2015). Farm to School: Canada Digs in! Retrieved from http://www.farmtocafeteriacanada.ca/wp-content/uploads/2015/11/F2S-Storybook_en_online.pdf

Chapman, G. (2010). Putting Food in Our Cities & Community in Our Food. Halifax N.S.

City of Langley. (2014). City of Langley Community Profile. City of Langley. Retrieved March 13,2017, from http://www.city.langley.bc.ca/sites/default/files/uploads/Discover/Community_Profile.pdf

City of Vancouver Persons with Disabilities Advisory Committee and Senior Advisory Committee. (2011). Background and Details Accessible Community Garden Guidelines. Vancouver.

Condon, P. M., Mullinix, K., Fallick, A., & Harcourt, M. (2010). Agriculture on the edge : strategies to abate urban encroachment onto agricultural lands by promoting viable human-scale agriculture as an integral element of urbanization. International Journal of Agricultural Sustainability.

Copley Community Orchard. “Information” http://www.copleycommunityorchard.com/information/. Accessed on: March 7, 2017

Danyluk, M. (2009). Cultivating Potential: Planning for Urban Agriculture in Toronto’s Hydro Corridors.

de laSalle, J., & Holland, M. (2010). Agricultural Urbanism. Vancouver: Green Frigate Books.

Delind, L. B. (2002). Place, Wor, and Civic Cultivation: Common fields for cultivation. Agriculture and Human Values, 217–224.

Edible Garden Project. (2013). Loutet Farm’s Story. Retrieved August 8, 2017, from http://ediblegardenproject.com/loutet-farm/story/

Fodour, Z., & Tay, S. (2015). Urban Farming Practices in Metro Vancouver. Vancouver

Freehill, L. (2015). Urban Farming on the Fringe: The State of Urban Agriculture in Four Cities of the Milwaukee Metropolitan Region. University of Wisconsin - Madison.

Fresh Roots Urban Farm Society. (2013). Growing Neighbours: A Case Study of Schoolyard Market Gardens. Vancouver. Retrieved from http://www.refbc.com/sites/default/files/FRUFS CaseStudy.pdf

Gocova, A. (2016). Urban Agriculture Garden Guide. City of Vancouver. Retrieved from http://vancouver.ca/files/cov/urban-agriculture-garden-guide.pdf

Hamilton Community Foundation, "Urban Farm Planting Seeds of Change in McQueston" http://hamiltoncommunityfoundation.ca/impact/stories/urban-farm-planting-seeds-of-change-in-mcquesten/ Accessed on: March 5, 2017

Greater Vancouver Regional District. (2002). Construction Plan for a Home-built Rodent Resistant Three Bin Compost System. Retrieved November 17, 2017, from http://www.metrovancouver.org/services/solid-waste/SolidWastePublications/CompostBinConstructionPlan-ThreeBin.pdf

HB Lanarc - Golder. (2013). The Urban Farming Guidebook: Planning for the Business of Growing Food in BC's Towns & Cities. Real Estate Foundation of BC.

Health Canada. (2016). Electric and magnetic fields from power lines and electrical appliances. Retrieved March 9, 2017, from https://www.canada.ca/en/health-canada/services/home-garden-safety/electric-magnetic-fields-power-lines-electrical-appliances.html

Heinegg, A., Maragos, P., Edmund, M., Rabinowicz, J., Straccini, G., & Waish, H. (2002). Soil Contamination and Urban Agriculture: A practical guide to soil contamination issues for individuals and groups. McGill School of Environment, McGill University.

Holland Barrs Planning Group. (2002). Southeast False Creek Urban Agriculture Strategy.Retrieved March 13, 2017 from,

Institute for Sustainable Horticulture - KPU. (2010). Langley Urban Agriculture Demonstration Project - Project Proposal. Retrieved from http://www.kpu.ca/sites/default/files/downloads/Langley_Urb_Ag_Demo_Project_-_Project_Proposal23802.pdf

Kamloops Public Produce. "Kamloops Public Produce Program. http://kamloopsfoodpolicycouncil.com/programs/kamloops-public-produce-program/. Accessed on November 2, 2017

Kaufman, J., & Bailkey, M. (2000). Farming Inside Cities : Entrepreneurial Urban Agriculture in the United States. Lincoln Institute Land Policy Working Paper.

Kessler, R. (2013). Urban Gardening: Managing the Risk of Contaminated Soil. Environmental Health Perspectives, 326–334.

Knapp, L., Veen, E., Renting, H., Wiskerke, J. S. C., & Groot, J. C. J. (2016). Vulnerability Analysis of Urban Agriculture Projects : A Case Study of Community and Entrepreneurial Gardens in the Netherlands and Switzerland. Urban Agriculture and Regional Food Systems.

Koski, H. (2013). Guide to Urban Farming in New York State. Retrieved from https://ecommons.cornell.edu/bitstream/handle/1813/40230/SFP-Guide to URBAN FARMING in NYS.pdf?sequence=2&isAllowed=y

Leichhardt Council. (2016). Draft Community Orchard Management Plan.

Lovell, S. T. (2010). Multifunctional urban agriculture for sustainable land use planning in the United States. Sustainability, 2(8), 2499–2522.

Loutet Farm , "Loutet Farm Story" http://ediblegardenproject.com/loutet-farm/ Accessed on: February 14, 2017

Macfarlane, R., Campbell, M., & Timmings, C. (2008). STAFF REPORT Reducing Electromagnetic Field Exposure from Hydro Corridors. Staff Report. Toronto Ontario.

McPherson, B. D. (2011). Urban agriculture: Design principles for enhancing sustainability. ProQuest Dissertations and Theses. University of Guelph.

Moreau, T. (2012). Delta Community-Based Farm District Planning Southlands as a Regionally Significant Model for Metro Vancouver, (October).

Morton, D., Cameron, T., & Hayes, J. (2003). The Learning Grounds: Guide for Schools.

Mullinix, K. (2012). Fruit Tree Production: A brief guide to growing your own fruit in the city.

Nagulan, J. (2016). Community Grown: Vibrant Community Owned Public Spaces.

Nasr, J., Macrae, R., Kuhns, J., Danyluk, M., Kaill-vinish, P., Michalak, M., & Snider, A. (2010). Scaling up Urban Agriculture in Toronto Metcalf Food Solutions, (June), 23. Retrieved from http://metcalffoundation.com/wp-content/uploads/2011/05/scaling-urban-agriculture.pdf

Nordahl, D. (2014). Public Produce: Cultivating Our Parks, Plazas and Streets for Healthier Cities. Washington, DC: Island Press.

Porter, E. R. (2010). Agricultural Urbanism & Human Being: Intent, program & Scale. In Agricultural Urbanism: Handbook for Building Sustainable Food & Agriculture Systems in the 21st Century (pp. 115–121). Vancouver, BC: Green Frigate Books.

Poulsen, M. N., & Spiker, M. L. (2014). Integrating Urban Farms into the Social Landscape of Cities.

Schutzbank, M. H. (2012). Growing Vegetables in Metro Vancouver: An urban farming census. University of British Columbia.

Scientific Committee of Emerging and Newly Identified Health Risks. (2015). Potential Health Effects of Exposure to Electromagnetic Fields (EMF). Luxembourg

Sedgeman, E. (2013). Growing Food in Public Spaces: A start up guide. Retrieved from http://kamloopsfoodpolicycouncil.com/wp-content/uploads/2013/07/HOW-TO-GUIDE.WEB_.mar_.13.pdf

Shumate, N. C. (2012). Success on the Ground : Case Studies of Urban Agriculture in a North American Context by. University of Waterloo.

Skelcher, G. (2011). Fairfield Millennium Green and Community Orchard.

Stolhandske, S. (2011). Urban Farming in Vancouver. Simon Fraser University.

Szymberski, C. (2015). Urban Farming Design Guidelines: A guide for class B urban farms on City-owned land. Vancouver, BC.

Toronto Public Health. (2013). From the Ground Up: Guide for soil testing in urban gardens. Toronto, ON. Retrieved from http://www.ruaf.org/sites/default/files/Guide for soil testing in urban gardens.pdf

U-Grow Organic Community Gardens. (2002). Community Garden Agreement. Retrieved from http://docs.wixstatic.com/ugd/a13de7_a261c482ac0a41a98aea86b0954e7db0.pdf

Upland Consulting. (2011). Incubator Farm Program: Metro Vancouver Colony Farm Regional Park. Metro Vancouver.

Vaughan, M., Hopwood, J., Lee-mäder, E., Shepherd, M., Kreman, C., Stine, A., & Black, H. (2015). Farming for Bees: Guidelines for Providing Native Bee Habitat on Farms.

Viljoen, A., & Bohn, K. (Eds.). (2014). Second Nature Urban Agriculture. Routledge.

Voicu, I., & Been, V. (2008). The Effect of Community Gardens on Neighboring Property Values. Real Estate Economics, 241–283.

Winig, B., & Wooten, H. (2013). Dig, Eat, and Be Healthy: A guide to growing food on public property. Retrieved from http://www.changelabsolutions.org/publications/dig-eat-be-healthy

Wittman, H. (2009). Community Farms in BC, Building Local Food Systems for Sustainable Communities: Community Farms Survey Report.

Wooten, H., & Ackerman, A. (2012). Seeding the City: Land Use Policies to Promote Urban Agriculture.