



PRODUCTIVE NEIGHBORHOODS

A case study based exploration of Seattle Urban Agriculture Projects

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In collaboration with

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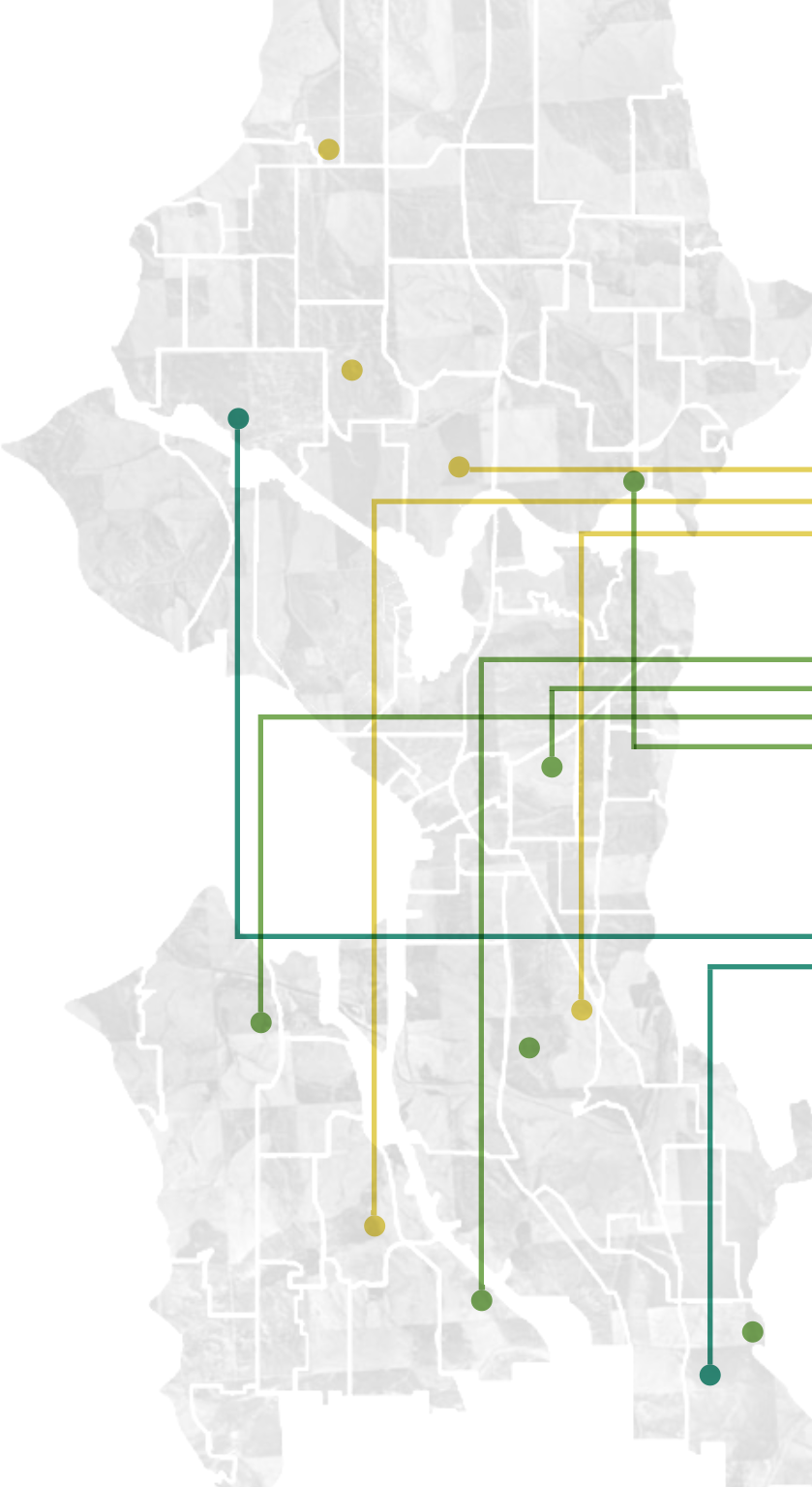
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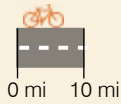


INTRODUCTION

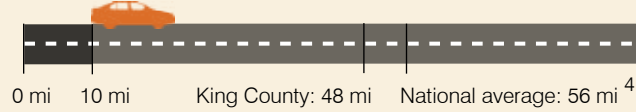
Seattle is home to 103 urban food production sites.¹ While the more common P-Patches and community gardens offer a multitude of community benefits, Seattle has few productive urban farms that have an impact on the local food supply. Within this report we focus on existing urban farming case studies to better understand how these farms function. As designers, we seek to support these functions in our projects because we know the environmental and social values that they can bring to build healthy cities and communities. Through the exploration of these case studies we observed a number of factors that prevent urban farmers from being able to turn a profit despite the large return on community benefit. In order for the urban farming movement to continue to progress it must become more accessible and economically viable for urban farmers.

1. "Urban Food Map" *Urban Farm Hub*. <http://www.urbanfarmhub.org/map/> (accessed July 8, 2011)

URBAN (ÜBER LOCAL)²

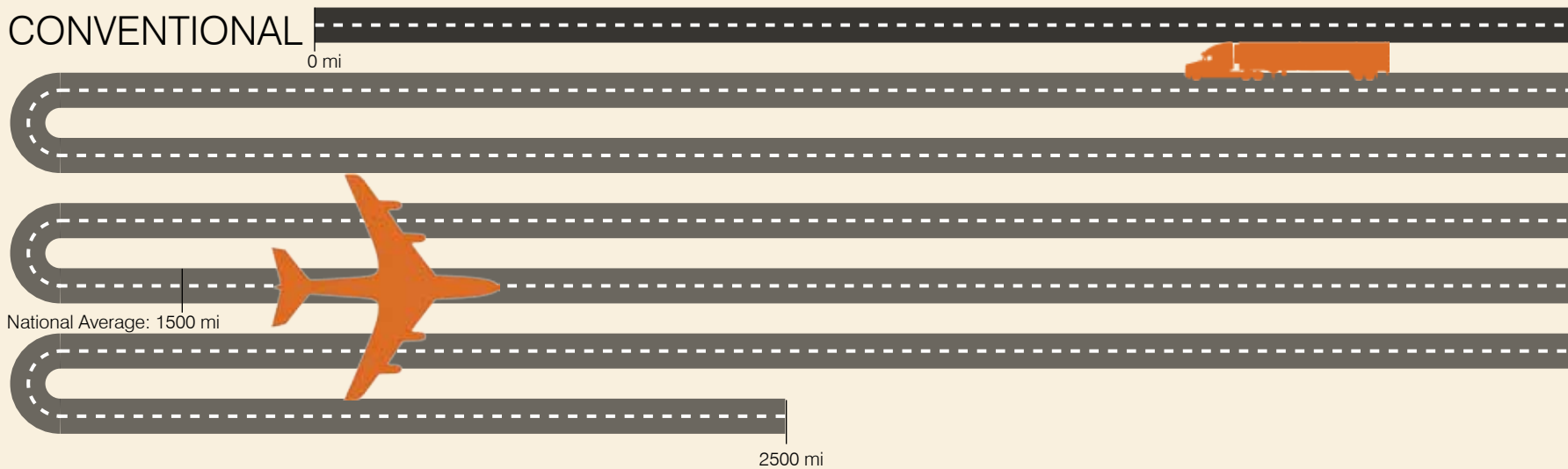


LOCAL³



In King County, residents buy Local Food; **62%** of residents buy at least once a month. Of that, **27%** buy at least once a week. When asked why buy local food grown in King County, **75%** of residents responded that freshness is a deciding factor, **71%** answered food safety, **64%** acknowledged that being environmentally friendly is an important factor.⁵

CONVENTIONAL



In the United States, produce found in the grocery store travels nearly **1,500** miles to reach its destined plate on average.⁶

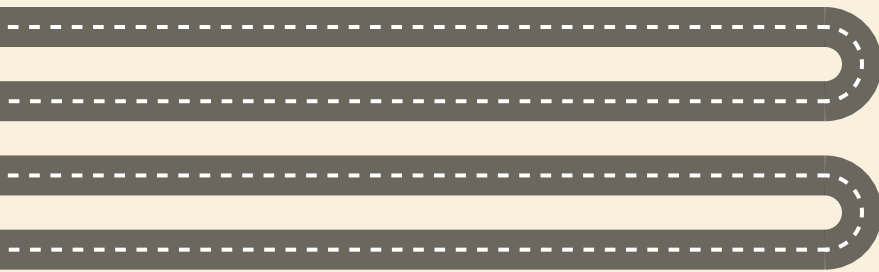
EXECUTIVE SUMMARY

When looking at food production, it is impossible to ignore the large impacts that transportation of food has on food cost and environmental degradation. Large-scale farming, whether conventional or organic, transports crops a large distance to reach the consumer. In addition, a large component of the food price is determined by shipping, packaging and storage. In the growth of a local food system, the cut of transportation can restructure the agricultural profits to allow farmers to earn a better living wage and ultimately make urban farming a more viable option.

An über local food system, where food is grown and sold within a city's limits, has many potential economic, social and environmental benefits in addition to providing fresh quality food products. As a result, there is a strong desire to have more urban farms in Seattle despite the few number of sites where it occurs today.

The study of urban agriculture as an internship topic began with a growing number of projects that were incorporating farming into their programming. As designers we are eager to design spaces for urban agriculture but found that we lacked the understanding of how to integrate farming into projects in a way that would translate into a viable business model.

By examining the examples of urban agriculture that exist within Seattle, we have come to understand the challenges that farmers must overcome. This catalog of projects seeks to share the knowledge of each site and instigate a discussion about how to expand urban farming into the identity and scale of each of Seattle's neighborhoods.



2. The distance range is based from case studies presented in this report.

3. The distance range is defined by location of PCC farms: "Farms" PCC Farmland Trust. <http://www.pccfarmlandtrust.org/our-farms/> (accessed Aug. 23, 2011)

4. "Backyard Farm Service" 2011 ASLA Professional Awards. <http://www.asla.org/2011awards/421.html> (accessed Aug. 23, 2011).

5. "King County Agriculture Program." *Department of Natural Resources and Parks*. February 2011

6. Jamie Thomas and Colin Drukker, "Returning to Their Roots: A look at how scalable agriculture can create more sustainable suburban communities," *Urban Land* 2009.



WWI

WWII

Victory Gardens

WIN Gardens

Energy Crisis

HISTORICAL CONTEXT

Although backyard vegetable gardens have been popular for years, they were especially common during World War II. All over the United States, people turned unused yard space and vacant lots into Victory Gardens to raise fresh produce.

*Photo courtesy of Museum of History & Industry
Ballard High School Victory Gardens, Seattle,
February 16, 1943
Post-Intelligencer Collection*

7. "Ending Hunger" USDA http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=fnp_page01-4F.xml (accessed Aug. 23, 2011).

8. Karen Herzog. "A growing crop of gardeners." *The Journal Sentinel*. May 24, 2008. <http://www.jsonline.com/features/travel/29533394.html>.

9. "Japanese Farming" HistoryLink.org. http://www.historylink.org/index.cfm?DisplayPage=output.cfm&File_Id=298 (accessed Sept. 17, 2011)

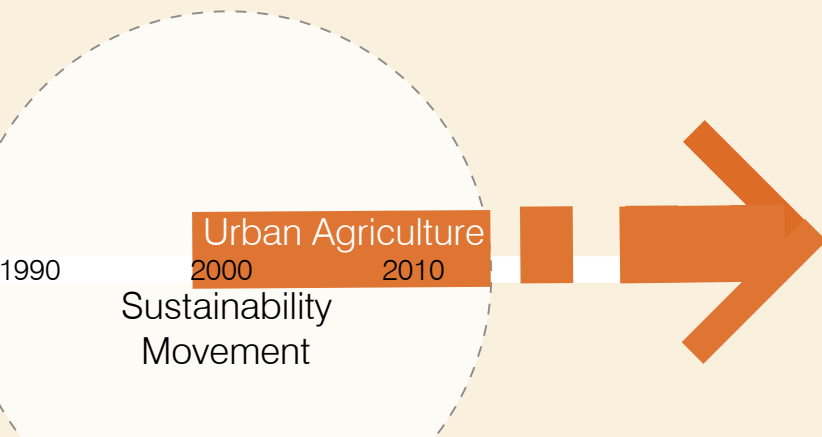
10. Herzog.

Urban agriculture movements have occurred several times in recent American history invariably linked to fuel and energy shortages. During World War II, when resources were devoted to the war effort, Victory Gardens formed the largest urban agriculture movement in United States history. In 1943, 20 million Victory Gardens produced 40% of America's fresh vegetables.⁷

During the energy crisis in the 1970s, President Gerald Ford urged people to plant Whip Inflation Now, or WIN, gardens. During the WIN movement, 49% of households grew vegetable gardens.⁸ In addition to the national movements, Seattle also had a rich history of truck farming: small family farms averaging five to 15 acres that delivered food to consumers. In fact during the 1920s, Japanese truck farmers supplied 75% of King County's vegetables and 50% of the milk supply.⁹

A resurgence of the Victory Garden model is currently happening as part of the sustainability movement; 22% of American households had vegetable gardens in 2006.¹⁰ Within Seattle, the Mayor and the City Council have supported several policies to improve the food system and promote a sustainable future, including the 2008 Local Food Action Initiative, declaring 2010 as the Year of Urban Agriculture, and passing a resolution for the Seattle Farm Bill Principles for the upcoming 2012 Farm Bill.

Learning from the past, urban agriculture movements can grow a substantial amount of healthy, nutritious food in urban areas. In the past, however, these movements lost momentum after the cause of the movement disappeared. The current shift toward sustainability distinguishes this movement from others due to the increased understanding of the ramifications of inefficient use of fossil fuels and depleting resources. However, in order for urban agriculture to take hold as a lasting model for food production, it must transition into the commercial food supply system and become a competitive option.



LAND USE ZONES

AGRICULTURAL USES:

A.1. Animal Husbandry

A.2. Aquaculture

A.3. Community Garden

A.4. Horticulture

A.5. Urban Farm

NEIGHBORHOOD COMMERCIAL (NC)

NC1

NC2

NC3

A

A

A

10

25

P

P

P

P

10

2

P

P

P

P

COMMERCIAL (C)

C1

C2

A

P

P

P

P

P

P

P

P

P

KEY

A = Permitted as an accessory use only

P = Permitted

X = Prohibited

10 = Permitted, business establishments limited to 10,000 sq. ft.

25 = Permitted, business establishments limited to 25,000 sq. ft.

* = Except within designated manufacturing and industrial centers, where they are permitted only on rooftops and/or as vertical farming.

CODES & POLICIES

Seattle's Department of Planning and Development (DPD) Building Code has been progressive toward Urban Agriculture in recent years. Established in 2010, Ordinance 123378 permits urban farms under 4,000 sq ft outright.¹¹ The size of planting area was chosen to restrict potential noise, odor and visual impacts while allowing adequate room for growing and selling produce. It is possible that larger urban farms could allow better screening of these impacts to surrounding neighbors, however larger planting areas have an increased use of water and soil resources which can lead to underground disturbance, runoff and erosion. As a result, urban farms over 4,000 sq ft are required to obtain an Administrative Conditional Use (ACU) Permit.

While Seattle's codes have made significant changes to support urban farming, economic incentives for urban farming have been limited. Changes to the 2012 Farm Bill have the potential to impact urban farming resources to make them more economically viable.

Recently the City of Seattle passed a resolution for the Seattle Farm Bill Principles. The principles, which aid in supporting urban and local agriculture and the local food system, include:

1. Health-centered Food System
2. Sustainable Agricultural Practices
3. Community and Regional Prosperity and Resilience
4. Equitable Access to Healthy Food
5. Social Justice and Equity
6. Systems Approach to Policymaking¹²

The key to taking advantage of these recent strides and encouraging urban agriculture in Seattle will be to make the codes and policies accessible for developers and landowners to understand.

¹¹ Andrea Petzel and Michael Jenkins, "Ordinance 123378" *Seattle Department of Planning and Development*. August 16, 2010

¹² "Seattle Farm Bill Principles." *Seattle Farm Bill Principles*. <http://seattlefarmbillprinciples.org/seattle-principles/> (accessed Aug. 23, 2011).

INDUSTRIAL (I)			
IB	IC	IG1	IG2
X	X	X	X
P	P	P	P
P*	P*	P*	P*
X	X	X	X
P*	P*	P*	P*

RESIDENTIAL

selling to
neighborhood



RESIDENTIAL
FARM STANDS

COMMUNITY

community supported
agriculture (CSA)



COMMUNITY
RUN FARMS

COMMERCIAL

landowner
arrangements



COMMERCIAL
PARTNERSHIP



FARMING TYPOLOGIES

UR·BAN FARM: [ur-buhn fahrm] noun

“Urban Farm is a use in which plants, and products derived from them, are grown and sold on the same lot or off site. No other items can be sold onsite. Examples may include flower and vegetable raising orchards and vineyards. An urban farm does not have to be on the same lot as the principal use; the planting area may be within 800 feet of the principal use. In all zones, odor and fumes, are limited to “what a reasonable individual could tolerate” at a distance of more than 200 feet from the urban farm.”¹³

Urban Farms are often described and defined by their function to grow and sell crops. This definition, however, does not disclose the range of relationships between food distribution, land ownership, or managing workforce. In order to address this range, we have observed three distinct typologies of urban farms: residential, community and commercial. The typologies are organized around the relationships of the farmer to the consumer. We also observed trends in the ways that these relationships were evolving to make urban farming more economically viable. We have organized the case studies in the report around these typologies to better compare and contrast each farming model.

13 Andrea Petzel. “Urban Agriculture Land Use Code Amendments: Director’s Report and Recommendations.” *Seattle Department of Planning and Development*. June 16, 2010



RESIDENTIAL



COMMUNITY



COMMERCIAL

CATEGORICAL DEFINITIONS

In addition to establishing farm typologies, we have further identified characteristics of each farm that influence the relationships of the farmer to the consumer. We found each farm typology has similar characteristics with regard to food destination, land ownership, and the type of workforce involved.

FOOD DESTINATION



Restaurant/Commercial

Local Food Bank

Residential Use

Community Use

LAND OWNERSHIP

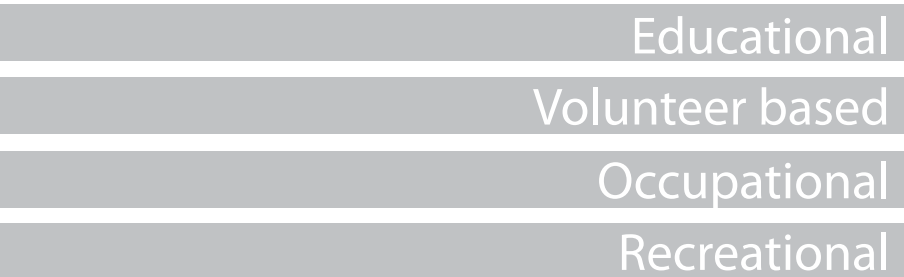


Leased Public Land

Leased Private Land

Private Land

WORKFORCE



Educational

Volunteer based

Occupational

Recreational

3 Bees City Farm

Redfern Yardfarm

Bastille Rooftop Garden

City Grown

Future site of UW & SYGW

ÜBER LOCAL FOOD DISTRIBUTION

Alleycat Acres

City Art Farm

Transitional Resources

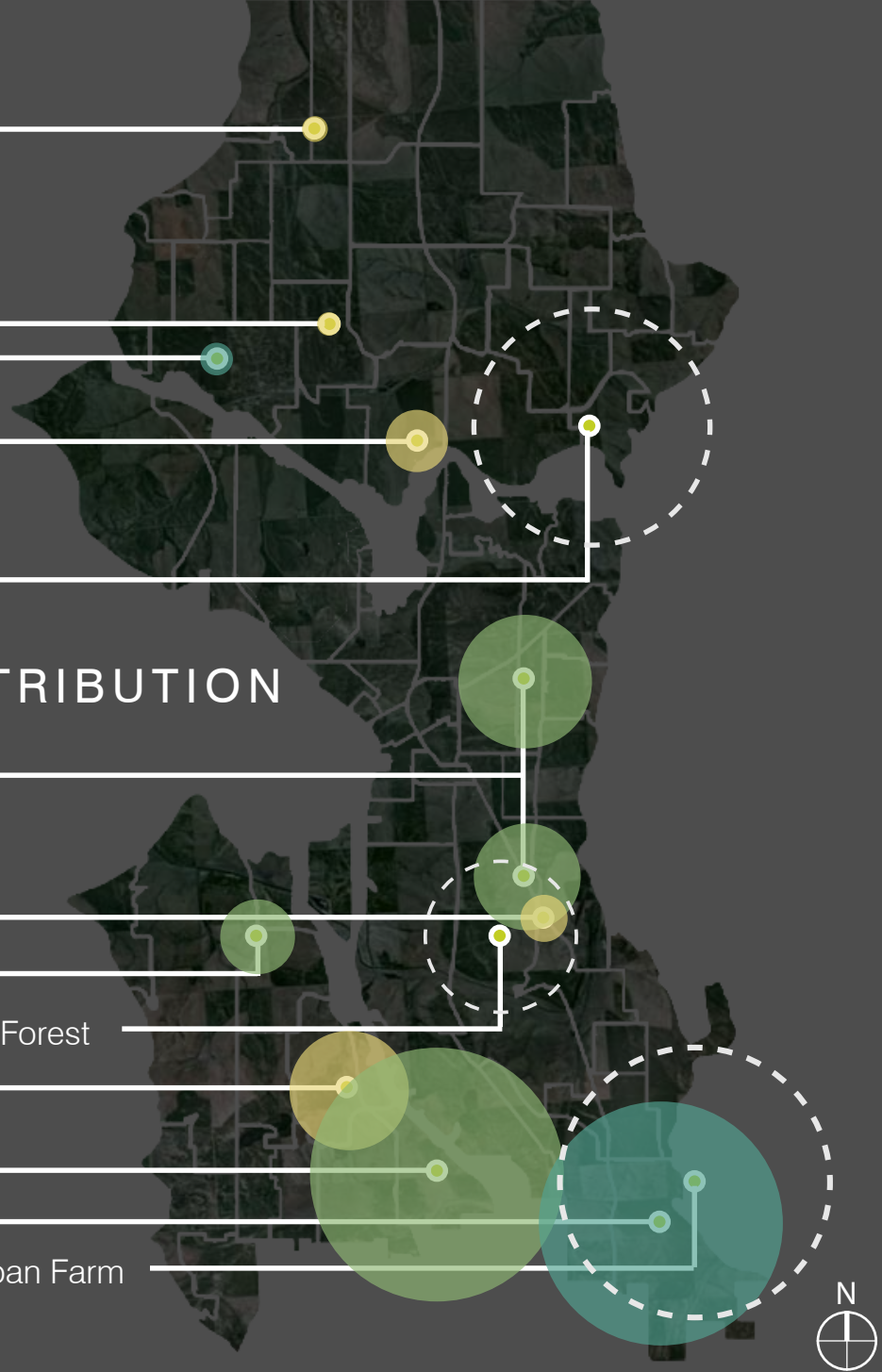
Future site of Beacon Hill Food Forest

Magic Bean Farm

Marra Farm

Amaranth Urban Farm

Future site of Rainier Beach Urban Farm



FOOD DESTINATION

ÜB·ER LO·CAL [oo-ber loh-kuhl] adjective

Characterized by an extremely small distance from production to consumption, usually between 0-10 miles.

In the growth of an uber local food network, the reduction of conventional transportation costs can be transferred directly to the urban farmer to earn a living wage. In translating the location and scale of the case studies we examined onto a map of Seattle, we begin to see a relationship between farm typologies and the neighborhoods they occur in.

This map also begins to illustrate the areas where there are gaps in uber local food sources, as well as where farm typologies are working to counterbalance a shortage of fresh food entirely. For example, Southeast Seattle does not have easy access to grocery stores, and as a result community farms are concentrated in these areas in response to the need.

While uber local farming makes strides in shortening the distance for a crop to reach a consumer, it is important to recognize that in terms of carbon footprint the largest carbon 'hit' is at the end of the distribution route. In other words, more energy is used getting a crop from the grocery store to the table than it takes to get a crop from the field to a store. For this reason, we have developed the following icons to identify the intended destination for the food grown in each case study:





Marra Farm



Rainier Beach Urban Farm



Alleycat Acres



Amaranth Urban Farm



Redfern Yardfarm



Bastille Rooftop Garden



City Art Farm

LAND OWNERSHIP



PUB·LIC LAND

[puhb-lik land] noun

Public authority ownership over land that is accessible to or shared by all members of the community.

Since 1973 Seattle has continually invested in community gardens for public use. Currently there are 75 P-Patches distributed throughout the city, equaling approximately 23 acres.



LEASED PUB·LIC LAND

[leesd puhb-lik land] noun

Publicly owned land which is contracted to a community or organization for a specified period.

Opportunities are being discussed by the City of Seattle to use park land for farming. Potential sites include areas adjacent to community centers, construction sites on hold, and brownfield sites which have EPA funding available.



LEASED PRI·VATE LAND

[leesd prahy-vit land] noun

Privately owned land which is contracted to a business, organization, or individual for a specified period.

Privately owned land is often leased an average of three years. A longer lease would be more beneficial since the productivity of plants increases over time as soil is continually improved.



PRI·VATE LAND

[prahy-vit land] noun

Land which is owned by a person or group and kept for their exclusive use.

Landowners can experiment with urban agriculture for private as well as commercial use.

The relationship between the farmer and landowner has arguably the greatest effect on the type of farming possible. Publicly owned land cannot legally support business ventures, as a result, urban farms located on public land focus on community involvement as their main priority.

Privately owned land opens more opportunities for experimentation and adaptation for farmers. Through partnerships with landowners or lease agreements, farmers are able to farm land which has typically been unused or used for ornamental purposes. However, these farms must grow enough crop to offset their cost, as well as support income and land expense. Since they must be productive, they have the largest ability to impact the food supply system.

ED·U·CA·TION·AL

[ej-oo-key-shuh-nl] adjective

Providing knowledge of farming to community or the individual.

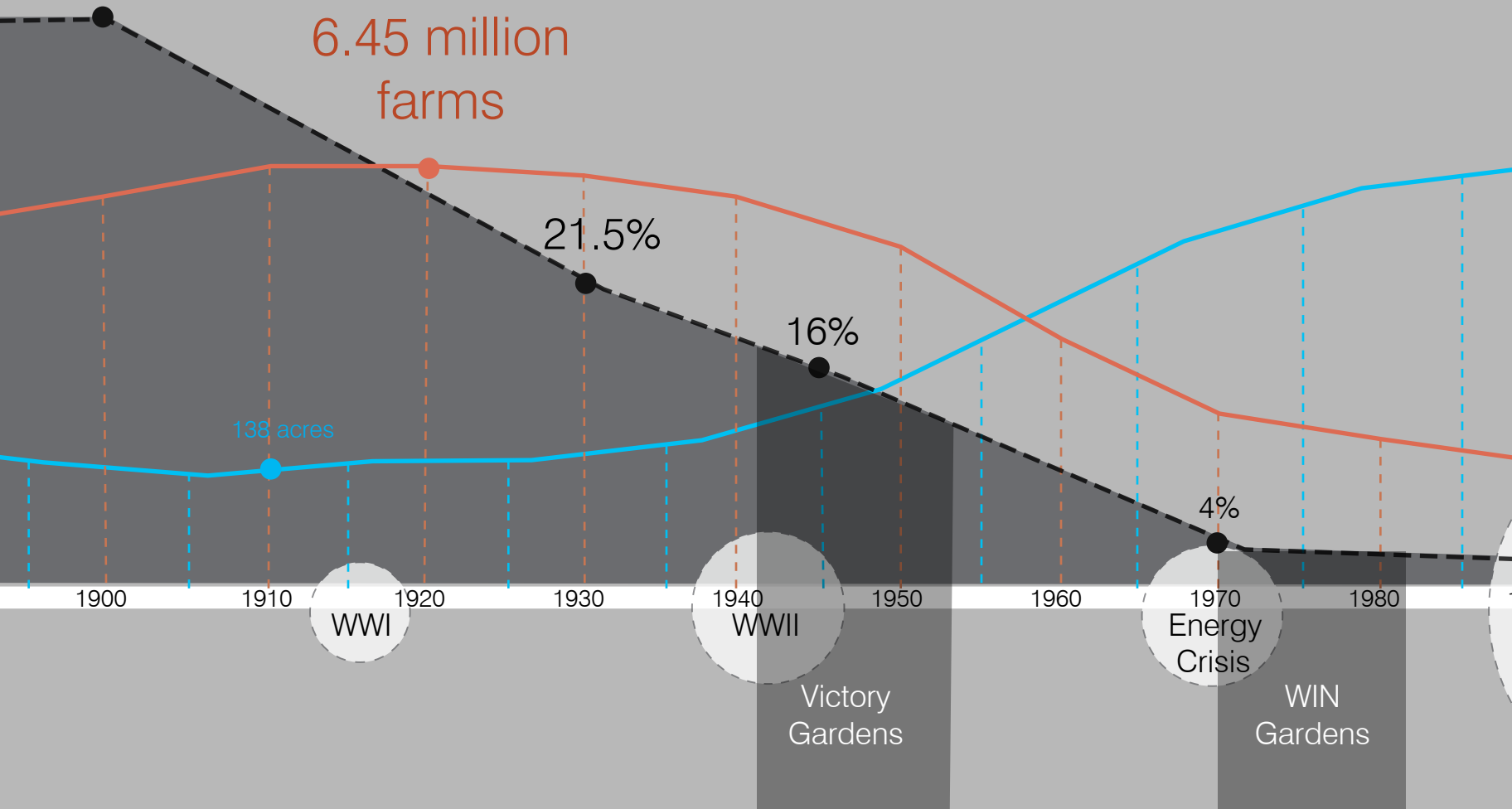
VOL·UN·TEER BASED

[vol-uhn-teer beysd] adjective

Offers service or undertaking without payment.

41%

of workforce
employed in
agriculture



WORKFORCE

OC·CU·PA·TION·AL
[ok-yuh-pey-shuh-nl] adjective

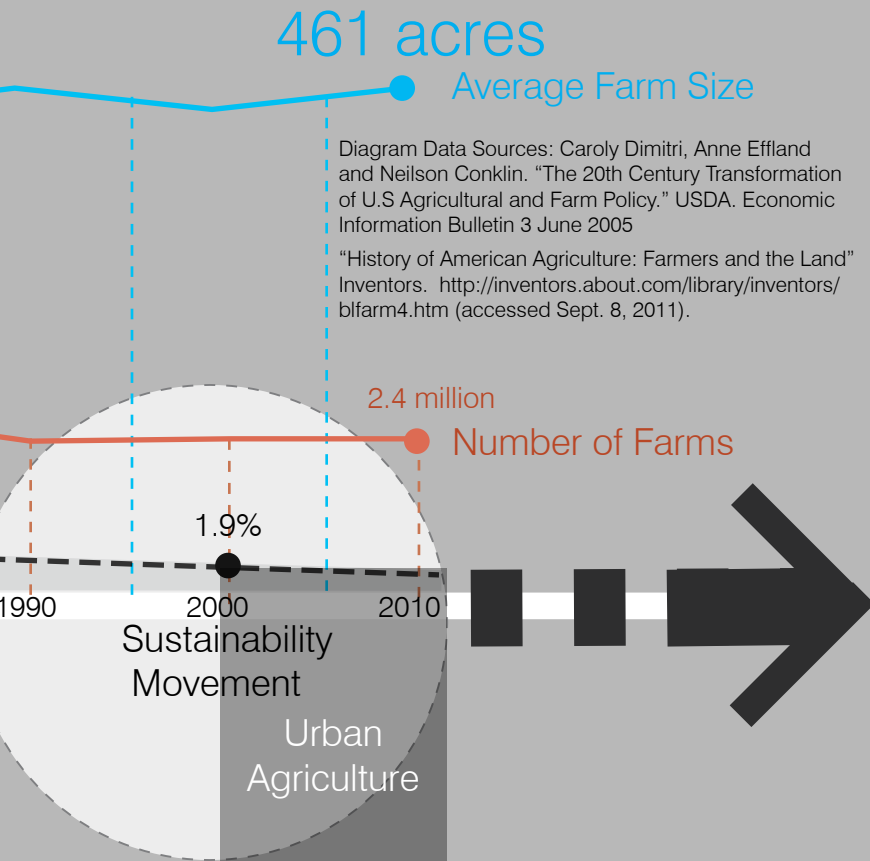
Pertaining to employment.

REC·RE·A·TION·AL
[rek-ree-ey-shuh-nl] adjective

Provides pastime, diversion, exercise, or other resource affording relaxation.

The structure of farming has changed significantly over the past century, especially with regard to workforce. Farms were once one of the largest employment sectors in the country, but now make up less than 2% of the workforce. The driving forces behind these changes are largely due to technological advancements as well as economic development in sectors outside of farming that are more attractive to the general workforce.

With an uber local food system, farming as an occupation can once again be a viable option. In addition, the workforce needed to support urban agriculture is much more diverse than that of a traditional farmer. In addition to having a good foundation in agricultural knowledge, the urban farmer must be able to leverage a non-traditional workforce to tend and harvest crops, comprised largely of volunteers or others with minimal farming experience.







RESIDENTIAL

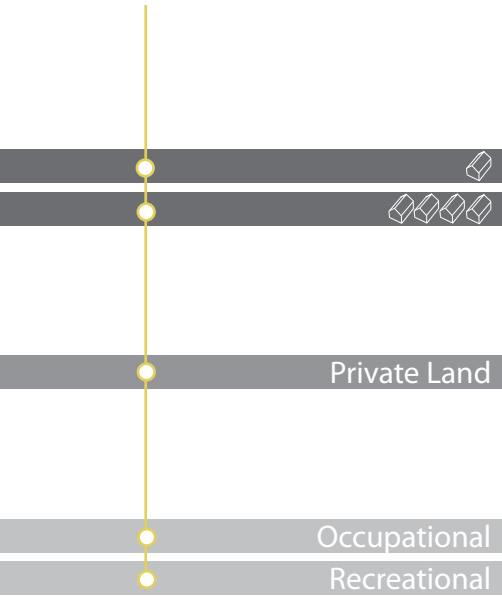
Since the Victory Gardens, the Seattle community has been proactive in creating gardens for food as well as recreation. Recently the demand for education and design of gardens has increased. Support services such as Seattle Tilth and Seattle Urban Farm Co. help interested individuals get started. The major obstacles for creating a residential backyard farm is upfront costs and the planning required. After design and construction of a garden, maintenance and operation continues to be a large commitment. Residential farm owners 3 Bees City Farm spend 15 minutes to one hour daily maintaining their garden.

A driving focus of residential urban gardening is often to have a fresh source of food, and for households with children, to create an engaging learning environment for them. With 2,000 sq ft of growing area, Redfern Yardfarm produces 70% of their fresh food intake during the summer for a family of four, which includes two children.

In 2010, the Seattle City Council passed progressive code changes which allow urban farmers to sell food that is grown in residential lots as urban farm stands or as a part of a Community Supported Agriculture (CSA) program.¹⁴ CSA's allow consumers to buy local, seasonal food directly from a farmer. A farmer offers a certain number of prepaid shares, or subscription boxes, each growing season. Consumers can sign up at the beginning of each growing season and receive weekly boxes of produce.

14 Andrea Petzel and Michael Jenkins, "Ordinance 123378"

CITY GROWN WALLINGFORD



Beginning with their own backyard, Noelani Alexander and Scott Behmer created City Grown in 2010. Within a year, four additional residents donated land and water in exchange for a share of the crop. Embarking on farming multiple sites proved to be a large investment of time. Alexander estimates it takes approximately four hours per week to farm 1,000 sq ft of land. Transportation between sites is another constraint. Although it would be more optimal to farm on pieces of land close together, there is not enough continuous space available for them at this time.

<http://citygrownseattle.wordpress.com/>



PROGRESSIVE CODE REFORM

As a part of Seattle's 2010 Year of Urban Agriculture, the Seattle City Council passed an ordinance which allows urban farmers to sell food that is grown in residential lots. The ordinance specifies that residential urban farms must abide by several guidelines including having retail sales only from 7 a.m. to 7 p.m., signage under 64 square inches, and using mechanical equipment intended for household use. These guidelines ensure that urban farms are compatible with residential uses.

In 2010, Seattle City Council passed an urban farming law which made it possible for growers to sell their grown produce

Carrots, leeks, lettuce, spinach, squash and cucumbers are mainly grown



Rabbits are raised for personal food on the home property

Although the farmers would like to also sell the livestock, city law currently prevents selling the slaughtered meat.



Carrots, leeks, lettuce, spinach, squash and cucumbers are mainly grown

2 part-time workers

\$1,500

5200 sq ft

farm stand

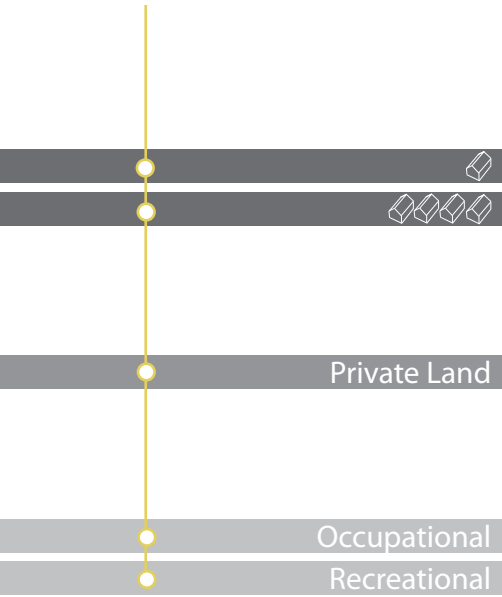
open every Monday from 4 pm to 7 pm during the growing season.

an average of 20 hours per week

annual operation cost

spread out over five residential sites

MAGIC BEAN RIVERVIEW



By growing heirloom varieties and gourmet products not available in grocery stores, Josh Parkinson defined a niche market for his farm and became competitive against grocery stores. In 2010, Parkinson created Magic Bean with several residential private property agreements; property owners donated land and water resources in exchange for a share of the grown produce. Despite the donated resources, initial site investment was a major obstacle. Due to poor soil and landscaping, initial time preparing each site for farming was extensive. Parkinson estimates that he spent 1/3 of the first year preparing the site, amending the soil, and hauling away large rocks.

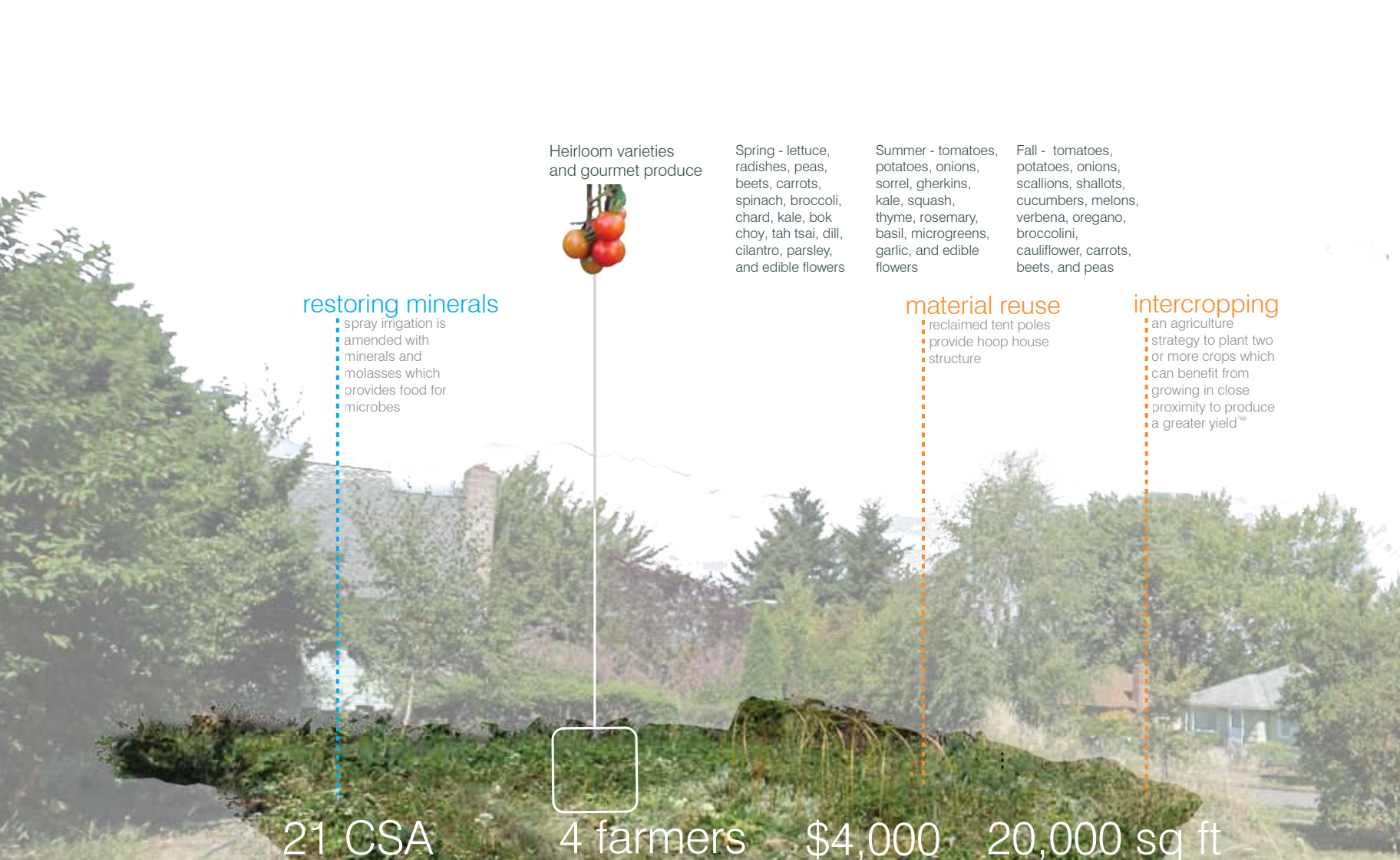
<http://www.magicbean.org/>



Photos courtesy of Magic Bean

BUILDING HEALTHY SOIL

Biological and mineralizing methods of farming help build life within the soil and bring the soil to optimum mineral balance, which builds the mineral level in the food. Soil is tilled and amended with microorganisms to build soil structure and protect against pests. Parkinson describes this system of farming as more intensive in the initial stages but less work in the future, since soil with healthy microbes helps protect plants.



Heirloom varieties and gourmet produce



Spring - lettuce, radishes, peas, beets, carrots, spinach, broccoli, chard, kale, bok choy, tah tsai, dill, cilantro, parsley, and edible flowers

Summer - tomatoes, potatoes, onions, sorrel, gherkins, kale, squash, thyme, rosemary, basil, microgreens, garlic, and edible flowers

Fall - tomatoes, potatoes, onions, scallions, shallots, cucumbers, melons, verbena, oregano, broccolini, cauliflower, carrots, beets, and peas

restoring minerals

- spray irrigation is amended with minerals and molasses which provides food for microbes

material reuse

- reclaimed tent poles provide hoop house structure

intercropping

- an agriculture strategy to plant two or more crops which can benefit from growing in close proximity to produce a greater yield™

21 CSA

4 farmers

\$4,000

20,000 sq ft

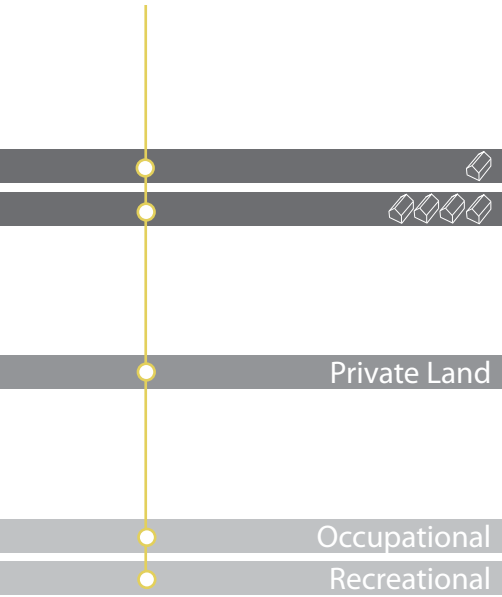
boxes are produced each week for 20 weeks

each contribute roughly 10 hours per week

annual cost

spread over seven residential properties

CITY ART FARM COLUMBIA CITY



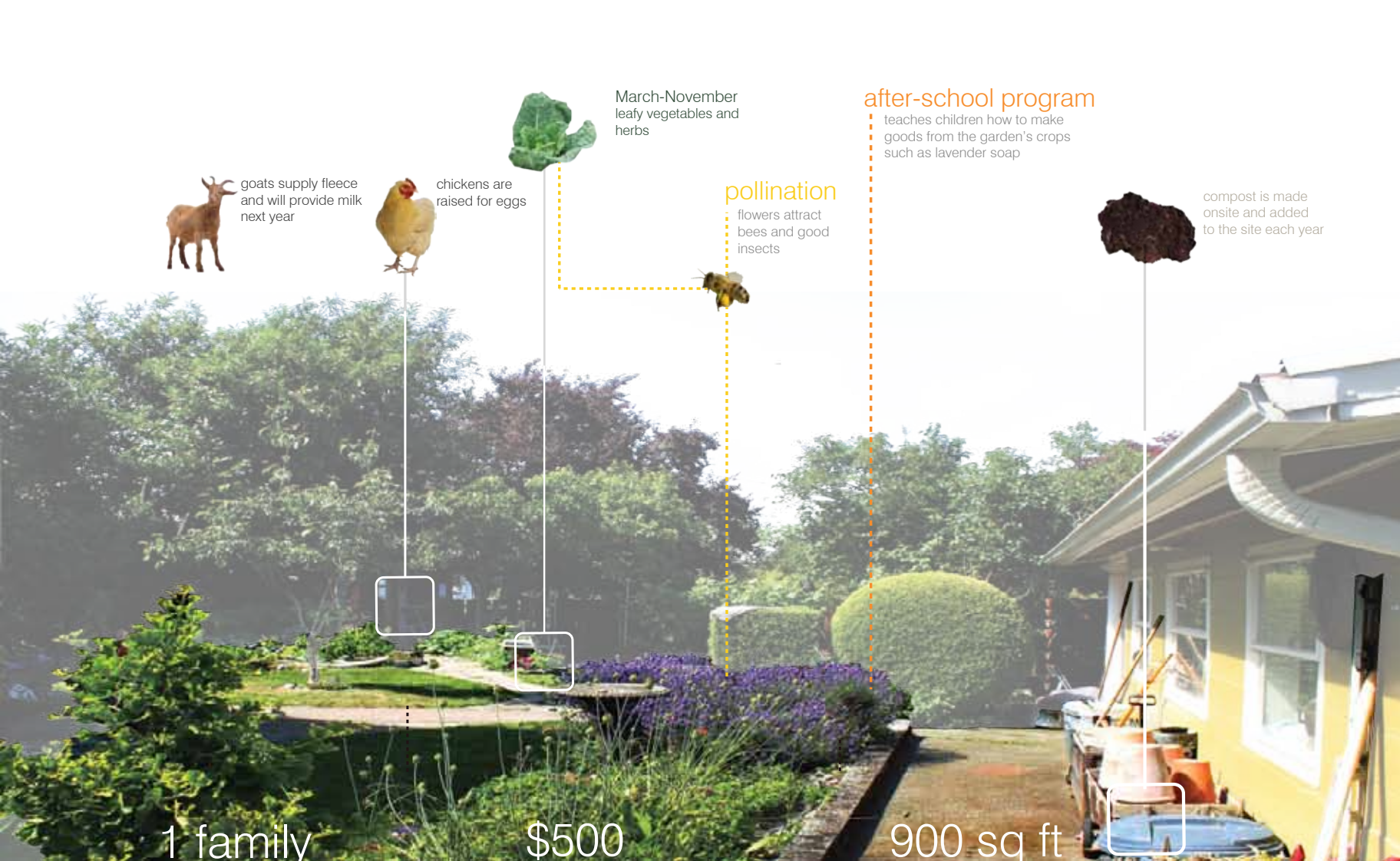
As a working artist for more than 25 years, Joan Engelmeyer incorporates her passion for art and gardening into an educational environment. Founding City Art Farm's after-school and summer programs in 1996, Engelmeyer teaches art and how to use products from the farm to create art, to students year round. The site of the teaching facility is located on Engelmeyer's own residential property, and although maintenance and operation is still a major time commitment, her family benefits from having a fresh food source.

<http://www.cityartfarm.com/>



CHILDREN'S EDUCATION

The City Art Farm after-school program integrates the use of a residential farm and a children's art studio. The classroom studio supports groups of 10-13 students who learn by interacting in this rich browsing environment as well as making art and products from the environment.



goats supply fleece and will provide milk next year



chickens are raised for eggs



March-November leafy vegetables and herbs



pollination

flowers attract bees and good insects



compost is made onsite and added to the site each year

1 family

\$500

900 sq ft

maintains yard farm for food and for after-school program

operation cost annually funded by the school

of growing area on the property

Although an estimated production is not calculated, 75% of crops are for personal use and 25% are for the after-school program.



SEATTLE TILTH OFFICES,
GOOD SHEPHERD CENTER
COMMUNITY LEARNING
GARDENS

SEATTLE YOUTH
GARDEN WORKS

Seattle



BRADNER
GARDENS
PARK

White
Center



RAINIER BEACH
LEARNING GARDEN



Issaquah



PICKERING BARN

Kent



FARM INCUBATOR PROGRAM
AT RED BARN RANCH

6,712 kids participated in garden programs

4,439 adults participated in classes

30 sites where classes are taught by Seattle Tilth

851 volunteers

251 family memberships

1,406 individual memberships

12,000 attendees at events

10,669 Master Composter community contacts

74,946 organic edible plants sold

11,355 Garden Hotline contacts

“I feel passionate and inspired every time I set foot in the Seattle Tilth gardens and by the kindred spirits I’ve found there.”

-Melissa Brown, Garden Steward Intern and ongoing volunteer

“Garden food is delicious, kind of like ice cream, but better for you.”

-4th grade student at Rainier Beach Learning Garden

SUPPORT SERVICES

Urban Agriculture is growing in popularity. As a result, there is a growing need for organizations and companies to offer education and maintenance services.

SEATTLE TILTH is a nationally recognized educational organization that cultivates a healthy environment and community by inspiring and educating people to grow food organically, conserve natural resources, and support local food systems. Programs include Seattle Youth Garden Works and Seattle Tilth Farm Works green jobs training for low-income and underserved communities, community learning gardens, the Garden Hotline, Master Composter/Soil Builder program, community events, and educational programs for adults, children and families.

<http://seattletilth.org/>

SEATTLE URBAN FARM CO focuses on design and construction of urban farms and gardens. They work to create gardens with homeowners, restaurants and businesses. Due to popularity, the company has expanded to include maintenance services. They have installed over 200 gardens for customers and regularly maintain about 30% of these.

<http://www.seattleurbanfarmco.com/>

SOLID GROUND & LETTUCE LINK works with and in communities to grow and share food that is fresh, nourishing and culturally appropriate. Since 1988 the program has connected gardeners and gleaners with food banks and has distributed seeds, plant starts and gardening information to low-income gardeners.

<http://www.solid-ground.org/>

URBAN GARDEN SHARE matches residential property owners with experienced gardeners, cultivating food production and community involvement.

<http://www.urbangardenshare.org/>

Graphic courtesy of Seattle Tilth





COMMUNITY

Seattle has a rich history of community gardening, beginning with the transformation of the historic farmland of the Picardo Farm into the first P-Patch in 1973. Community P-Patch gardens are an important source of food for participants; 36% of gardeners get 50% or more of their produce needs from their P-Patch during the months of April to October, and 11% grow 25% of their produce needs during the months of November to March.¹⁵

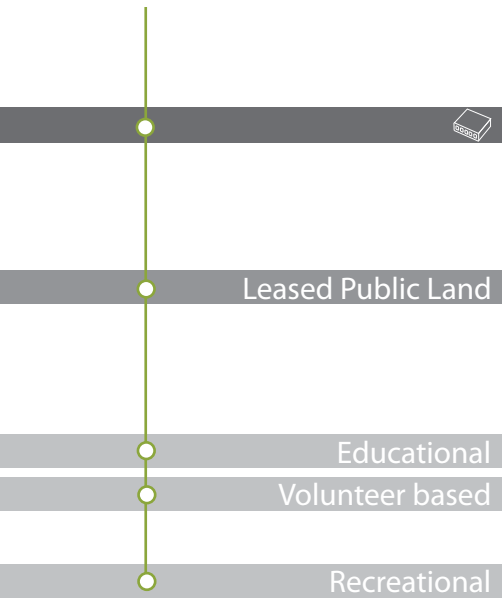
Over the past 38 years, P-Patch Trust has grown to provide community programs which address healthy food access, food equity, and food security objectives. In collaboration with Solid Ground, P-Patch Trust sponsors food bank gardening projects. Through the Lettuce Link program, P-Patch volunteers have provided approximately 21,000 pounds of produce annually to area food banks.¹⁶ The Market Gardens program creates more equitable access to community gardening and job training and education.

In recent years the demand for space in P-Patch community gardens has grown significantly and waiting lists are currently between one to four years. To address the increasing interest, the P-Patch program is experimenting with different models of community gardening, including collective gardens. In response to this high demand, other community programs and institutions are developing partnerships to connect communities to farmable land.

¹⁵ "A Stroll in the Garden: An Evaluation of the P-Patch Program" *Seattle Department of Neighborhoods*. August 2009

¹⁶ *Ibid.*

MARRA FARM SOUTH PARK



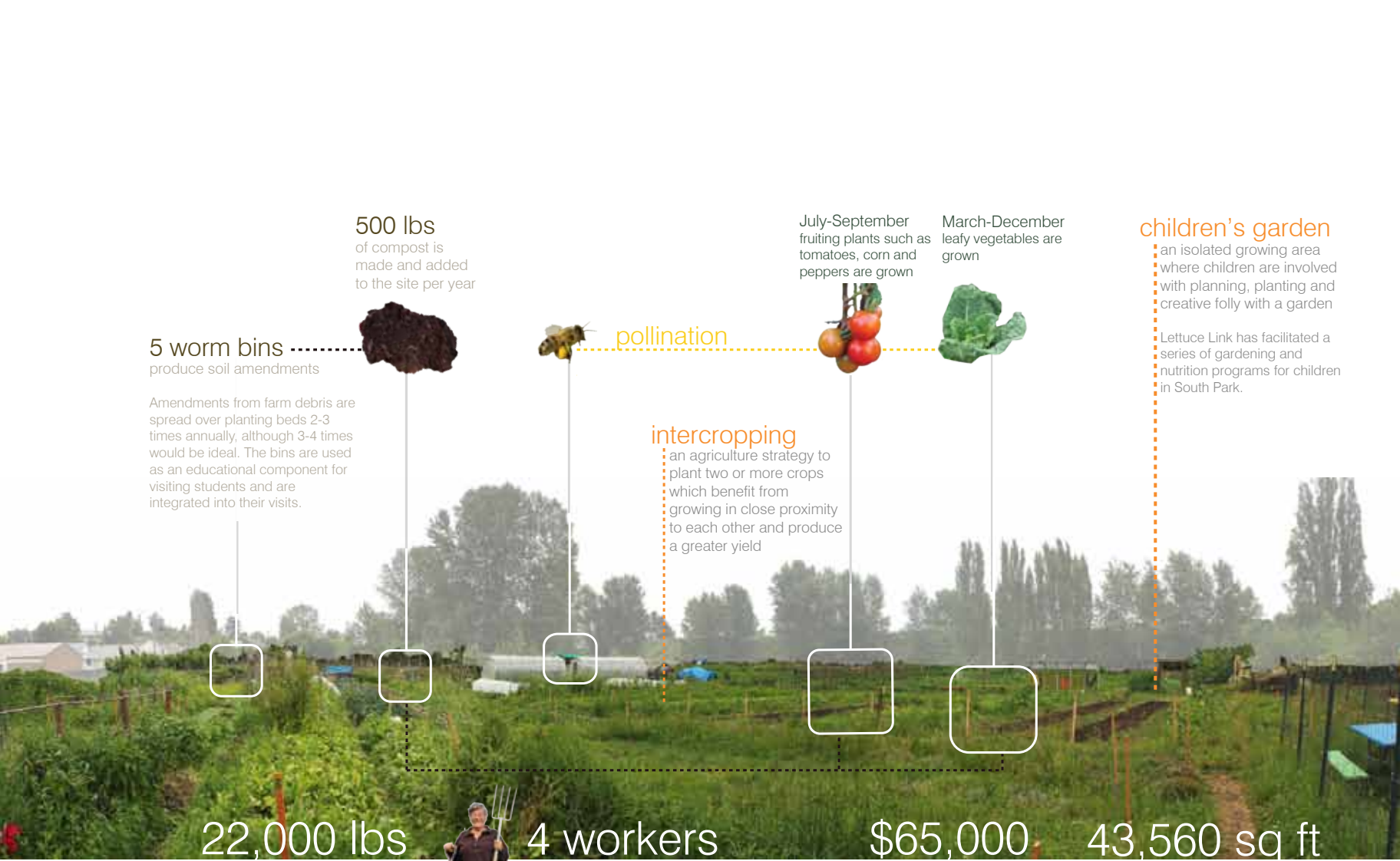
The Marra Farm Coalition was formed in 1988 to restore agricultural activities on this historic farm site. Over the past 23 years the farm has adopted different practices to suit community demands, such as responding to food bank client preferences with different crop types. In the Northwest climate, leafy greens grow well compared to fruiting vegetables. However, the clients from the nearby Providence Regina House Food Bank prefer summer season vegetables. As a result, Sue McGann, farm coordinator for Lettuce Link's Giving Garden, adjusted Lettuce Link's growing practices to produce more fruiting crops for the Providence Regina House Food Bank and donated mixed greens instead to the Beacon Avenue Food Bank, where demand for those crops is much higher.

<http://www.solid-ground.org/programs/nutrition/marra>



HISTORIC FARMLAND

Marra Farm was created from one of two remaining pieces of original agricultural land in Seattle. The Marra family worked this land from the early 1900s until the 1970s when the land was sold to King County Parks. In 1998, after years of planning for the use of the farm, the local community partnered with a group of organizations to rehabilitate the agricultural space. Solid Ground's Lettuce Link program manages one acre on this Seattle City Park as a teaching garden and for donation to local food banks.



500 lbs of compost is made and added to the site per year



5 worm bins produce soil amendments

Amendments from farm debris are spread over planting beds 2-3 times annually, although 3-4 times would be ideal. The bins are used as an educational component for visiting students and are integrated into their visits.

pollination



July-September fruiting plants such as tomatoes, corn and peppers are grown



March-December leafy vegetables are grown



intercropping

an agriculture strategy to plant two or more crops which benefit from growing in close proximity to each other and produce a greater yield

children's garden

an isolated growing area where children are involved with planning, planting and creative folly with a garden

Lettuce Link has facilitated a series of gardening and nutrition programs for children in South Park.

22,000 lbs

was donated to 500 food bank families in 2010

4 workers

which include 1 part-time farm manager, 1 AmeriCorps member, and 2 interns

The farm also has a large volunteer base. Last year, 1,800 volunteers contributed over 7,200 hours.

\$65,000

annual operating cost funded by private donations

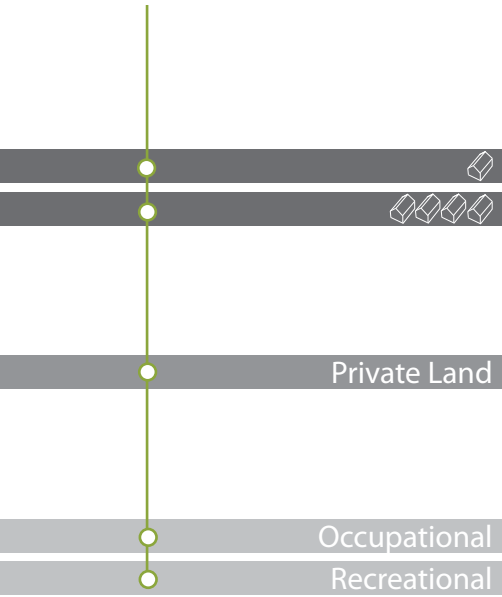
43,560 sq ft

or 1 acre



ALLEYCAT ACRES

BEACON HILL



Sean Conroe founded Alleycat Acres to connect communities to food production and biking; “Alleycat” refers to a bike race and “Acres” to food production. Along with support from the immediate neighborhood, Conroe and his members work farms on two parcels of land located in Beacon Hill and the Central District. For the organization, the biggest difficulty lies in negotiating the length of leases on private land. With a three-year lease agreement the first year is spent on construction, the second year harvest occurs, and by the third year it is possible for a productive harvest. Although a three-year lease is more typical, five years would be better for the farm investment. In the future, Alleycat Acres would like to work on public land.

<http://www.alleycatacres.com/>



COMMUNITY PROGRAMS

Alleycat Acres partners with a multitude of organizations, such as Seattle Parks and Recreation, which provides a summer program that connects dozens of youth with community based projects. As part of a partnership, Orca Elementary School students grow starts for the farm. Additionally, Conroe would like to continue to expand participation with community programs through beginning a 2-3 month educational program where youth would receive a bike upon completion of the program.



March-October leafy vegetables are grown

compost is made and added to the site

July-September fruiting plants such as tomatoes and corn are grown



sustainable irrigation

drip irrigation saves water by supplying water directly to the root zone of the soil

In addition to drip irrigation, rainwater is collected at the Central District farm. The farm's shed roof can store 300 gallons of rainwater.

pollination

Urban Bee Co. provides equipment and maintenance services, and in return for supplying land, Alleycat Acres receives 20% of collected honey



822 lbs

3-25 workers

\$15,000

2,500 sq ft

was grown in 2010

volunteer once or twice a week

annual operation cost

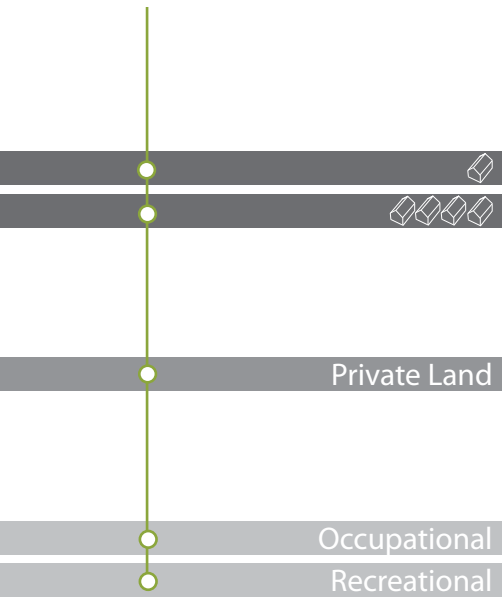
planted space on two properties

Approximately 70% was given away to the community by a bike powered community cart and 30% was donated to food bank families.

Volunteers donated 1700 hours in 2010.

Collected through fundraising, the entire operation cost was raised earlier this year by a 60-mile bike ride.

TRANSITIONAL RESOURCES WEST SEATTLE



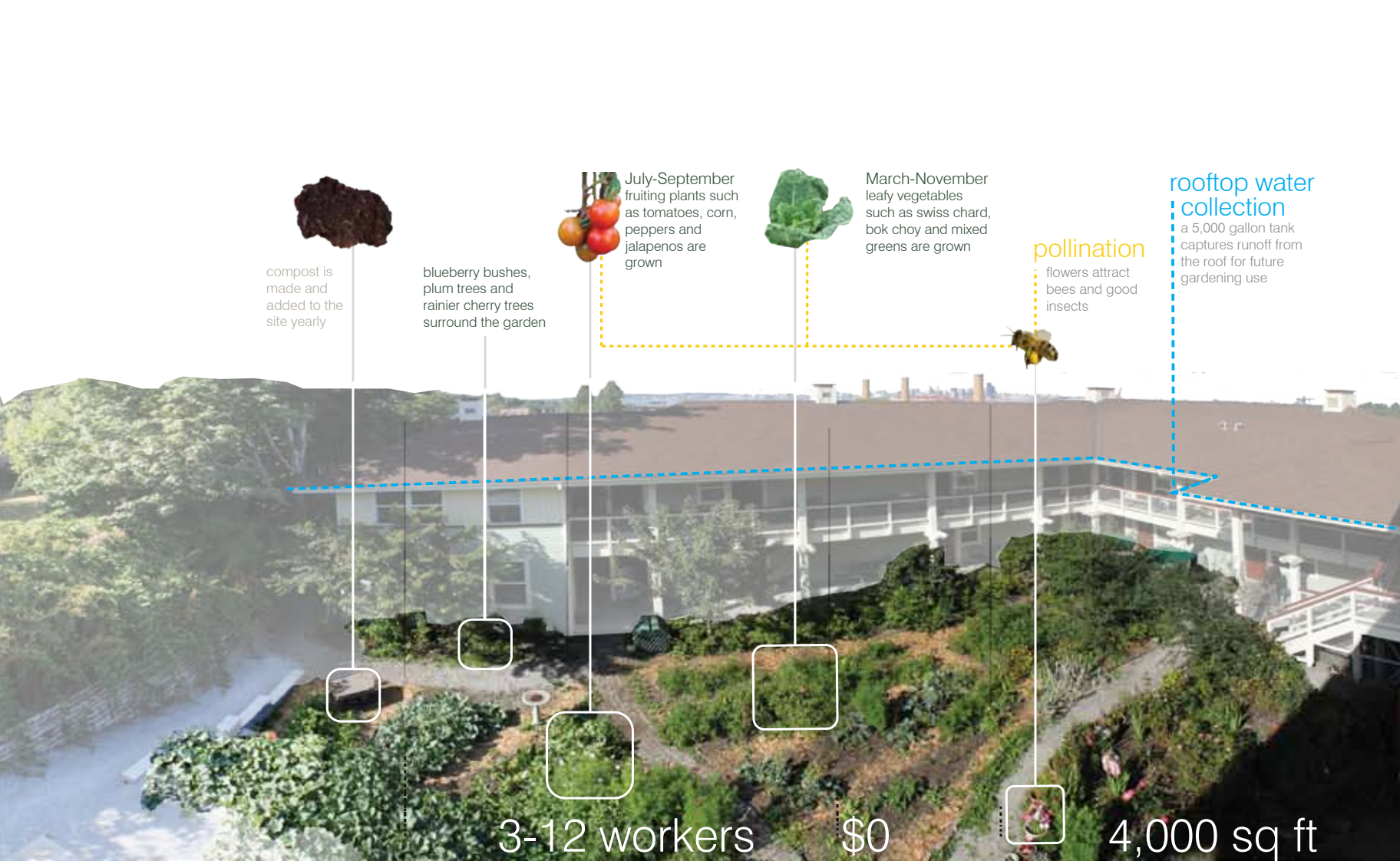
In 1995 the American Horticulture Association began the Growing Solutions Greens to Market program on the Transitional Resources property. There are currently four spaces for food production: a community terrace garden, a greenhouse, the Avalon Mutual Housing Garden, and an edible vine walkway. Farming with sustainable practices, clients and volunteers grow organic plants with water captured from the roof. Over the past decade, the program has shrunken considerably, and as a result, the program has shifted from producing crops for local restaurants to donating to food banks. Transitional Resources is currently in need of a farm coordinator and is seeking to expand the program by reestablishing new partnerships with area restaurants and food banks.

<http://www.transitionalresources.org/programs.php#growing>



HORTICULTURE THERAPY

Working in the garden allows clients to step toward recovery by allowing a connection to nature. The facility offers mental health services to adults with major mental illnesses while the organic garden is used for horticultural therapy and a vocational program which produces salad greens, herbs and vegetables for area restaurants and local food banks.



compost is made and added to the site yearly



July-September fruiting plants such as tomatoes, corn, peppers and jalapenos are grown



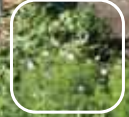
March-November leafy vegetables such as swiss chard, bok choy and mixed greens are grown



pollination
flowers attract bees and good insects

rooftop water collection

a 5,000 gallon tank captures runoff from the roof for future gardening use



3-12 workers

\$0

4,000 sq ft

Food is donated to West Seattle Food Bank

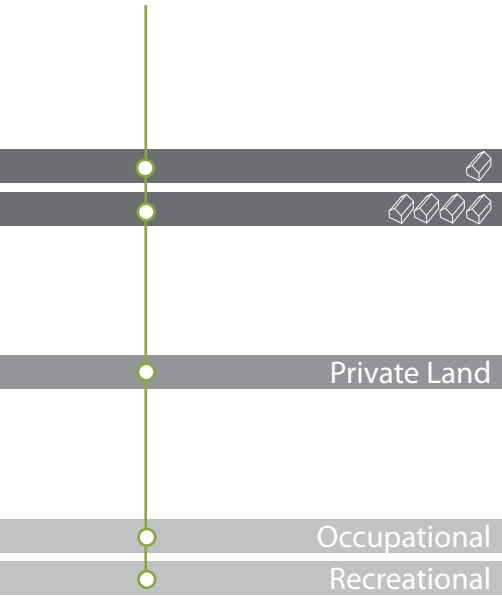
volunteer 8 hours a week

The operation is based solely on donations and volunteer effort

on three different growing locations onsite

UW & SYGW PARTNERSHIP

UNIVERSITY DISTRICT



University of Washington (UW) Farm and Seattle Youth Garden Works (SYGW) are expanding their farming efforts as a partnership with the first crop anticipated in 2012. The UW Farm has farmed on campus since 2004, but will lose their land in the future as the campus constructs a chemistry building in its place. On the other end of campus, SYGW has farmed on nearby land since 1996. Currently the demand for SYGW food crops is more than they can offer. The partnership between the two organization allows the different groups to focus on different priorities and practices while sharing the maintenance cost.

<http://students.washington.edu/uwfarm/>

<http://seattleilth.org/about/sygw>



DEVELOPING PARTNERSHIPS

The UW Farm is focused on experimental ways to grow food, whereas SYGW is focused on the social benefits of job training. Both farms operate under different models. For example, usually farmer's market stands are not lucrative for farmers, however, SYGW uses the model because it gives their employees a chance to learn marketing skills. The partnership allows the organizations to share the cost and the benefits while focusing on different goals.

Fresh greens, herbs, spring greens, beets and cabbage crops will be grown for their price competitiveness



A portion of crops from the new site will be sold to dining hall campus services.

pollination

6 beehives will be transferred to the site along with a chicken coop housing 4 chickens, and 4 worm bins



Cedar Grove Compost supplies most of the compost. The UW compost pile includes paper from Biology department and horse and goat manure from a local Seattle farm.



3,750 lbs

of anticipated crops

Currently SYGW grows 1,250 lbs on their 1/4 acre site.

6 workers

UW has 2 student farm coordinators and 2 summer interns. SYGW has 2 full-time staff, and 10-12 youth workers who work between 9-20 hours weekly.

\$15,000

funds 2 student farm coordinators and 2 summer interns annually

An initial cost of \$65,000 is anticipated for the construction and operation of the first year

32,670 sq ft

or 3/4 acre



URBAN FARMING IN PUBLIC PARKS

As interest in Urban Agriculture grows, the demand for space in P-Patch community gardens has grown significantly. To address the increasing interest, the City of Seattle is experimenting with different models of community gardening, including collective gardens. Seattle Parks has formed the Parks Urban Agriculture Committee to advance the idea of locally grown food through the Parks and Recreation Community Center Garden model.

RAINIER BEACH URBAN FARM was historically used by Seattle Parks and Recreation as a horticulture production site for the past 72 years. The site is currently undergoing early design process to transform the 10-acre site into a community urban farm. Since the soil has been used for horticulture production purposes, it is excellent and needs little amendment for growing.

http://www.seattle.gov/parks/projects/atlantic_city/nursery.htm

JEFFERSON PARK FOOD FOREST

is a seven-acre site located on the southwest slope of Beacon Hill's Jefferson Park which will be adapted into an edible landscape. The ecosystem will be designed to produce more and more harvest with less and less maintenance over time.

<http://jeffersonparkfoodforest.weebly.com/>

COM·MU·NI·TY CEN·TER GAR·DEN

[kuh-myoo-ni-tee sen-ter gahr-dn] noun

- 1. A piece of land used to produce food and flowers for community use;*
- 2. A diverse collective designed and operated by the community;*
- 3. An environmental and civics education model offered to youth groups and citizens;*
- 4. A place that promotes good health;*
- 5. A community engagement vehicle; and*
- 6. A place that embodies inclusion, social equity and justice.*



JOB TRAINING AND EDUCATION

GREEN PLATE SPECIAL is a cooking and food-growing nonprofit program supporting the nutritional and physical health of low-income youth in grades 5-8 (middle school) in Seattle. As an after-school, field trip and holiday-camp program, it teaches young people how to grow, tend, harvest, and cook healthy whole foods in a home-garden and home-kitchen setting. The pilot program is located in the Madrona-Central District neighborhood. Through an agreement with the landowner, the Madrona Company, Green Plate Special leases the land for the minimal cost of property taxes and overhead.

<http://greenplatespecial.org/>

REGIONAL CASE STUDY

SOLEFOOD provides training and employment opportunities to Vancouver residents. Education programs are led by farmers themselves and support farming efforts with supplemental income. Grown on a half acre, 10,000 lbs of locally grown food is sold to restaurants and supplied to community organizations yearly.

<http://1sole.wordpress.com/>

NATIONAL CASE STUDY

INDIAN VALLEY ORGANIC FARM & GARDEN

is a biointensive farm and outdoor teaching lab with an educational focus on sustainability. After the local community expressed a need the College of Marin, Conservation Corps North Bay, and University of California Cooperative Extension Marin partnered to create an education center.

Since its inception in 2009, the farm has actively been used on a regular basis by classes in the College of Marin Environmental Landscaping Department and the student farm club. Located on the College of Marin campus, the college provides water and land. As part of the farm partnership, Conservation Corps North Bay, a natural resource conservation and youth development non-profit, provides farm management with two full-time farm management positions; facilitates a summer middle school program where students spend time learning and working on the farm multiple days per week; and oversees a crew of up to 10 college students who work part-time on the farm year-round via the College's work-study program. The teaching lab also collaborates with University of California Cooperative Extension Marin, which houses a Master Gardeners Program.

Through the combined efforts of the three community partners, the 2+ acres of cultivated land are highly productive, producing an average of 400 lbs of produce and flowers weekly. Of these 400 lbs, 27.5% is sold in local farmers markets, 27.5% on the onsite farm stand, and the remaining 45% to restaurants. The productive farm has a yearly sales goal of \$45,000 which directly supports farm operations. Surplus crop is donated to the local community. The farm has donated 12,000 lbs of produce this year.

<http://indianvalleyfarmandgarden.blogspot.com/>

Heated beds

recaptured HVAC heat warms plant beds during winter months

Raised beds

accessible for ADA volunteers

18 cubic yards of compost is brought onto the site every 3 years

8 inches of soil depth in each bed

July-September fruit trees and fruiting plants such as tomatoes and peppers are grown

February-December leafy vegetables are grown



980 lbs

1 part-time volunteer

7,000 sq ft

is donated to Crabtree, where 100 women and their families are served meals five days a week

manages the rooftop farm

In exchange for hands-on education, 5-10 volunteers help harvest the crop every Tuesday and Thursday. Volunteers contribute 1200-1500 hours annually.

of converted ornamental gardens

ROOFTOP COMMUNITY FARMING

As Urban Agriculture grows, the demand for space also grows. Rooftops are spaces which can provide space for farming activities. Urban Farming on rooftops can also provide the additional environmental benefits of green roofs, such as mitigation of heat island effect and reducing water runoff, with the additional benefit of edible crops.

REGIONAL CASE STUDY

YWCA VANCOUVER is a community garden which provides healthy, nutritious food to women at YWCA Crabtree Corner. Through the efforts of YWCA Metro Vancouver staffers, the project started with the transformation of an ornamental rooftop space in 2006. Over time the productiveness of the rooftop has significantly increased. This year the goal is to donate one ton of crop.

The rooftop garden produces types of high-quality, organic fruits and vegetable crops which are preferred by the women and children of Crabtree Corner. The ongoing dialogue between the farmers and Crabtree Corner women has led to food growing experimentation, and difficult-to-grow crops have led to innovation. A research and design collaboration with University of British Columbia students guided several projects including minimizing soil depth for fruiting trees and the design of a trellis.

The garden relies solely on volunteers. However, Ted Cathcart, the building property manager and initial developer of the project, is looking into farm models which can expand all over the city. In order to support this type of development, partnerships could be formed to support a farm coordinator with a living wage. What would cost one organization \$45,000 could be quartered by partnering with three other organizations.

The garden promotes awareness about healthy food access as well as sustainable transportation. Twice a week the YWCA transports food to Crabtree Corner by bicycle and cart.

<http://www.ywcavan.org/>



COMMERCIAL

In order to produce a significant change to the conventional food system, urban farms must happen on a larger scale. Currently the smallest category of the types of urban agriculture, the commercial movement needs to be supported through commercial entrepreneurial methods.

Often constrained by space, these commercial ventures must address the terms of an agricultural lease with property owners. In order for urban agriculture to be sustainable and self-sufficient it must be productive and generate income through the sale of food.

Commercial farming can support crop experimentation and increase diversity of locally available crops.

In the future, Seattle's productive food landscapes could expand commercial investment to creatively make use of conventionally unleaseable spaces such as rooftops and alleys.



BASTILLE ROOFTOP GARDEN BALLARD



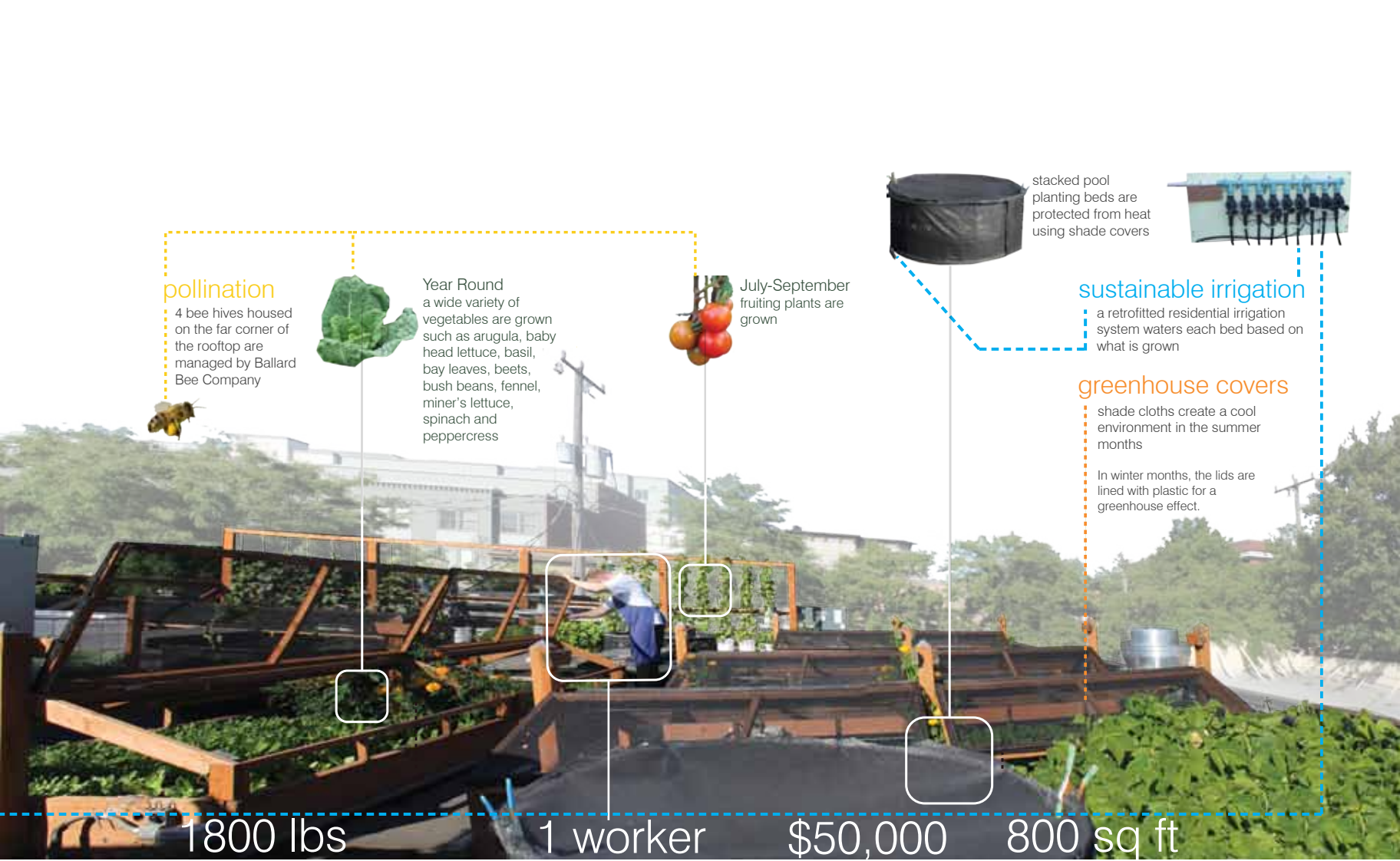
As part of Bastille's commitment to organic, sustainable agriculture, restaurant owners commissioned Seattle Urban Farm Company to design a year-round rooftop garden. The building needed extensive structural retrofitting to support a working garden, which accounted for the majority of the project cost. Controlling heat gain and loss was another main design constraint. Initially, heat cables were buried in each planting bed during the winter. However, it was found that extra cost for electricity was not worth the crop benefits and unnecessary for year-round production. During the summer, heat gain from the black roof membrane was another issue, but was solved using shade structures over the beds. Despite these challenges, the rooftop farm has been successfully operating since 2009.

<http://bastilleseattle.com/>



FOOD EXPERIMENTATION

The partnership between Seattle Urban Farm Company and Bastille chefs allows for a creative collaboration to take place. Chefs have been involved with the selection of crops from the conception of the project. The collaboration has grown to include growing rare varieties for experimentation in culinary dishes.



pollination

4 bee hives housed on the far corner of the rooftop are managed by Ballard Bee Company



Year Round a wide variety of vegetables are grown such as arugula, baby head lettuce, basil, bay leaves, beets, bush beans, fennel, miner's lettuce, spinach and pepperpress



July-September fruiting plants are grown



stacked pool planting beds are protected from heat using shade covers



sustainable irrigation

a retrofitted residential irrigation system waters each bed based on what is grown

greenhouse covers

shade cloths create a cool environment in the summer months

In winter months, the lids are lined with plastic for a greenhouse effect.

1800 lbs

will be harvested by chefs and used in the kitchen this year

This amount includes 100% of the restaurant's basil and parsley needs and 70% of its needs for fresh salad greens during the main growing season.

1 worker

from Seattle Urban Farm Company manages the site twice a week for a few hours

Chefs harvest daily.

\$50,000

initial investment

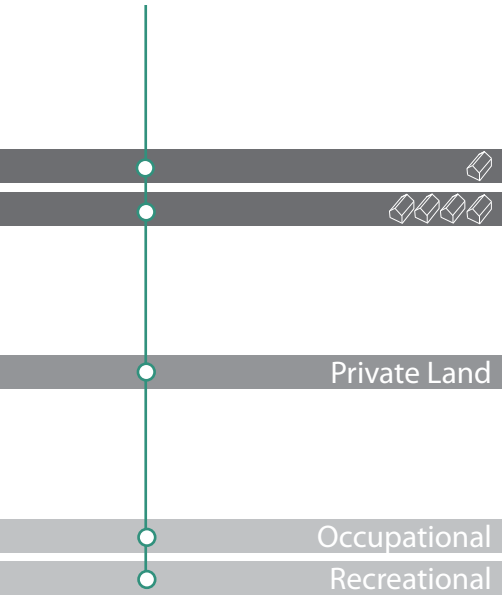
The main cost was structural upgrades to support the weight of the soil on the roof.

800 sq ft

of planted area

AMARANTH URBAN FARM

RAINIER BEACH



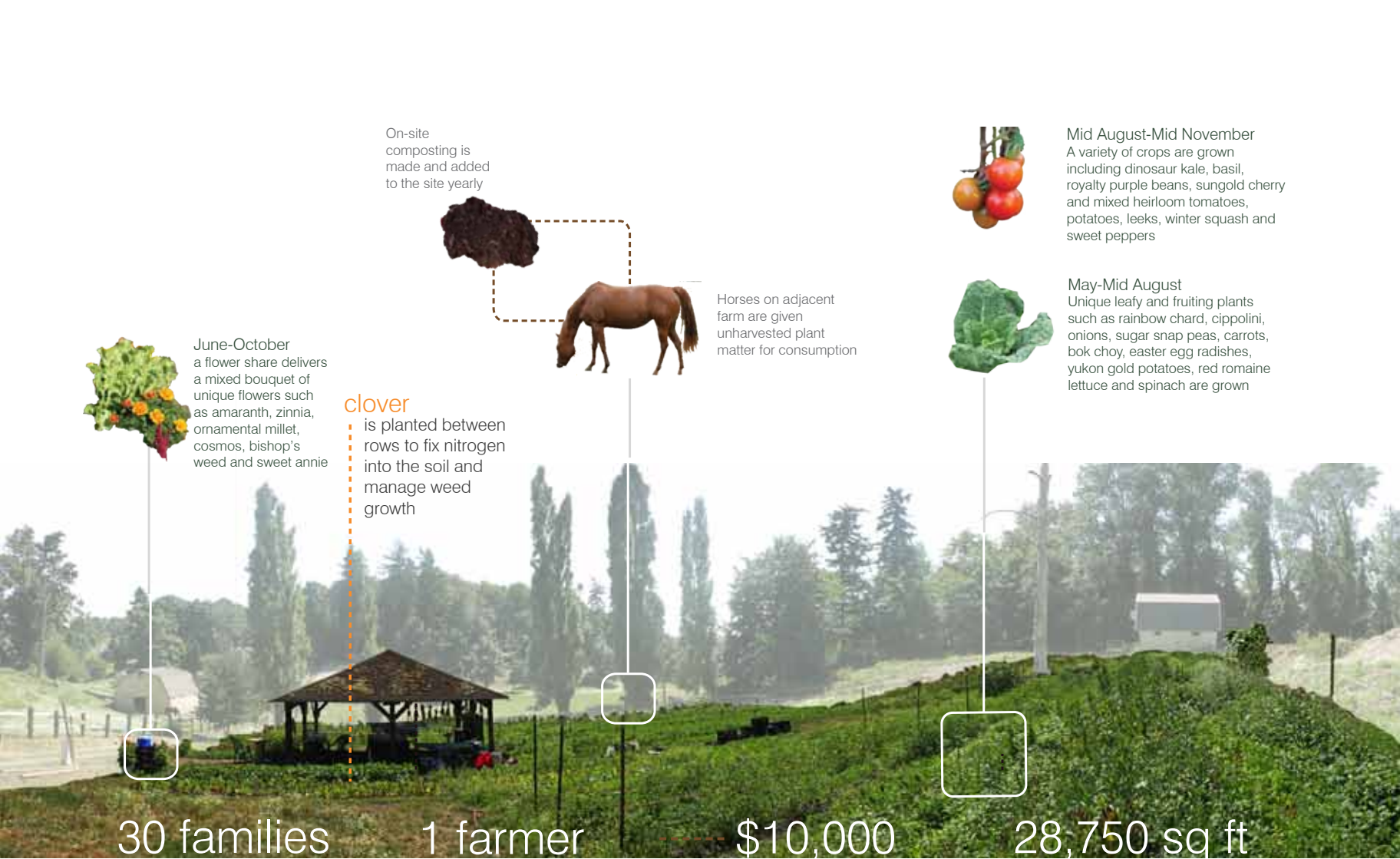
Since 2002, Nicole Capizzi has been farming, teaching, and writing about sustainable agriculture. Even as an experienced farmer, finding urban land for commercial farming was difficult. Although there is land available for community use, there seems to be a social stigma associated with earning a living off of urban farming. After months of searching, Capizzi's efforts paid off and she began operating Amaranth Urban Farm in 2010 through an arrangement with private landowners. The farm's location in Rainier Beach has less risk for flooding than much of our area's agricultural land in Snoqualmie Valley. Additionally, crops in non-agricultural areas sometimes have fewer issues with problems that spread easily from farm to farm, such as pest and disease outbreaks and pesticide drift.

<http://www.amaranthurbanfarm.com/>

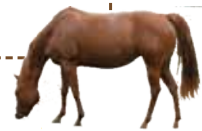


AGRICULTURAL LEASE

Leasable land for commercial urban agriculture is difficult to find and hard to define. The main barrier is a price difference in land for a sizable continuous space. An urban agriculture business cannot pay conventional land rent price. However, conventionally unleaseable space such as rooftops or alleys could be utilized.



On-site composting is made and added to the site yearly



Horses on adjacent farm are given unharvested plant matter for consumption



Mid August-Mid November
A variety of crops are grown including dinosaur kale, basil, royalty purple beans, sungold cherry and mixed heirloom tomatoes, potatoes, leeks, winter squash and sweet peppers



May-Mid August
Unique leafy and fruiting plants such as rainbow chard, cippolini, onions, sugar snap peas, carrots, bok choy, easter egg radishes, yukon gold potatoes, red romaine lettuce and spinach are grown



June-October
a flower share delivers a mixed bouquet of unique flowers such as amaranth, zinnia, ornamental millet, cosmos, bishop's weed and sweet annie

clover
is planted between rows to fix nitrogen into the soil and manage weed growth

30 families

purchase CSA boxes weekly from May to November

1 farmer

continually farms the site
In exchange for a portion of the crops, 3 workers help harvest for CSA boxes every Tuesday and Thursday.

\$10,000

initial investment in soil, planting material, and equipment

28,750 sq ft

or 2/3 acre





Photo courtesy of Lufa Farms

CONVENTIONALLY UNLEASABLE SPACES

REGIONAL CASE STUDY

BRIGHTFARMS finances, develops and manages hydroponic farms on top of existing supermarkets. The company estimates that a one-acre or 43,560 sq ft rooftop farm would grow 500,000 lbs of produce annually with only 1/9th of the water used with conventional agriculture. The initial construction cost is estimated to be \$1.5–\$2 million and would generate \$1–\$1.5 million in annual revenue. Currently ten supermarket chains have signed contracts, and the first three commercial greenhouses will open in early 2012.

<http://brightfarms.com/>

NATIONAL CASE STUDY

BROOKLYN GRANGE grows vegetables nine months out of the year on a one-acre rooftop, leased for ten years. The commercial organic farm sells produce at several weekly farm stands, as well as to several local restaurants.

<http://www.brooklyngrangefarm.com/>

INTERNATIONAL CASE STUDY

LUFA is a rooftop greenhouse specially designed to provide local access to 25 varieties of fresh vegetables year round to Montreal. In addition to providing fresh food access to Montreal, which has a short growing season of 24-28 weeks, the rooftop provides another benefit: lowered energy consumption. It is calculated that the greenhouse facility will save its host building 25% in heating cost annually.

<https://lufa.com/en>



URBAN BEEKEEPING

In the past few years there has been a 35.8% and 31.8% decline in managed honeybee colonies throughout the US in the winters of 2007/2008 and 2006/2007, respectively.¹⁷ To date, the precise reasons for colony losses are not yet known. Referred to as Colony Collapse Disorder (CCD), the cause of this decline is not fully understood.

BALLARD BEE COMPANY is an urban pollination company created by the efforts of beekeeper Corky Luster. Ballard Bee Company offers consultations and other options for individuals wanting to get involved in beekeeping, including sponsoring/hosting bee hives, or renting bee hives. Recently, Corky has installed bee hives on Seattle's Fairmont Olympic Hotel. The honey produced by these city bees is considered more complex in flavor due to the varied plants the bees have access to and is sold to restaurants and suppliers.
<http://www.ballardbeecompany.com/>

URBAN BEE COMPANY manages community-based hives and creates permaculture pollinator gardens. Education is a large component of the company, and founder Bob Redmond teaches about agriculture and pollinators in classes and talks to the community. The company produces chemical-free, Certified Naturally Grown honey and offers bicycle delivery.

www.urbanbee.com

REGIONAL CASE STUDY

FAIRMONT WATERFRONT

VANCOUVER HOTEL features a 2,100 sq ft herb garden as well as a honeybee apiary which produces 600 pounds of honey from nearly 500,000 resident honeybees. The bees actively pollinate most of Vancouver, traveling over 26 square miles and bringing back pollen from over 60 different species of plants.

<http://www.fairmont.com/waterfront/GuestServices/Restaurants/HerbGardenhoneybees.htm>

17. Renée Johnson "Honey Bee Colony Collapse Disorder," *CRS Report for Congress*. Congressional Research Service Urban Land. 2010.



PUBLIC RIGHT OF WAY

NATIONAL CASE STUDIES

UNCOMMON GROUND is a group of Chicago restaurants. In 2007 the company built the country's first Certified Organic Rooftop Farm with the remodel of one of their properties. Designed by architect Peter Moser of Swiss Design Group, the original brick load-bearing walls were reinforced with steel beams to support a rooftop deck. The 2,500 sq ft roof, constructed with composite recycled material, supports 654 sq ft of soil and 27 EarthBoxes. Growing a variety of organic plants and herbs, the rooftop space also houses two beehives at the southeast corner to provide pollination. Recently the company has retrofitted another restaurant by adding a sidewalk garden in the public right of way. Composed of 47 EarthBoxes, the publicly displayed micro urban farm features a hidden irrigation system and provides the restaurant fresh leafy vegetables and herbs.

<http://www.uncommonground.com/>



Short-term opportunity for temporary urban agriculture project



Long-term opportunity to increase value of an unoccupied rooftop added by tenant/owner

VACANT SITE

DESIGN

CONSTRUCTION

USE

NEED FOR REHABILITATION

OPPORTUNITIES
WITHIN A
PROPERTY'S
LIFE CYCLE



Short-term opportunity to increase value of an unoccupied space



Low impact urban agriculture such as urban beekeeping added by tenant



Long-term opportunity to increase value of an unoccupied rooftop added by another party



Adding urban agriculture to the public right of way

OPPORTUNITIES

In order to effect a significant change to the conventional food system, an über local food network must be supported. Facilitating urban agriculture functions in various moments within the cycle of a property creates many opportunities to strengthen the local network.

In reflecting on the urban farmers that we have met in Seattle, we see a group of individuals with an entrepreneurial spirit and the ability to reinvent the traditional farming model. With this comes a great amount of patience, inventiveness, and perseverance to reap the rewards that urban farming brings. Whether for personal health benefits, fostering of community, or business pursuits, urban farming is a worthwhile and rewarding practice.

In Seattle, residential and community farming are widely practiced. Both types of farms have been replicated many times over with great success. With commercial farming, however, farmers are forced to chart a new path to making this model pencil out. As designers we see opportunities appear within privately owned sites in all stages of a property's life cycle. From vacant land waiting to be developed, or within conventionally unleaseable space within developed sites, there is an opportunity for urban agriculture to add environmental, economic and social value to use traditionally undervalued space.

In order to impact and shift toward a balanced and sustainable food system, urban farms must function on a larger scale within our neighborhoods. Whether for a short-term lease on an open lot in a developer's portfolio or for a long-term lease of a rooftop space to a new type of tenant, local farming needs to find a few individuals that are willing to take the leap to show Seattle how this can work on a larger scale to form an über local food system.

The production and completion of this report could not have been accomplished without support of the urban agriculture community. We would like to thank the urban farmers, consultants, and organizations who took time out of their schedules to speak with us.