

Examples from other cities

This document was prepared as part of an internship in the Summer of 2010. Urban agriculture policies are receiving increased attention nationwide with many cities and counties embarking on planning efforts around this topic. As such, this document looks at a broad range of urban agriculture initiatives but is not meant to be an exhaustive list.

Highlights:

Cleveland, Ohio has created an urban garden district in its zoning code that establishes allowable agriculture practices and designates areas where they are permitted by right.

Madison, Wisconsin has updated its comprehensive plan to incorporate urban agriculture and establishes permitted and conditional uses within urban agricultural districts as well as dimensional standards for lots put into urban agricultural use.

Vancouver, British Columbia has established design guidelines for urban agriculture installations which attempt to determine where and under what conditions urban gardens are appropriate.

Portland, Oregon has completed a land inventory study to determine what city owned properties might be available for urban agricultural use.

Seattle, Washington manages an extensive community gardening program through its Department of Neighborhoods that contains over 1900 plots within 68 gardens throughout the city.

Growing Power is an urban farm in Milwaukee, Wisconsin that utilizes intensive and sustainable agricultural growing practices within city limits. Growing Power build community through outreach and provides educational services for City residents.

Oakland California has completed a food systems assessment of their community to gauge existing capacity of production, processing, distribution, consumption, and disposal facilities. This assessment enables Oakland to view urban agriculture as part of a holistic system.

Earthworks in Boston, Massachusetts manages an urban orchards program that plants and manages fruit bearing trees and shrubs throughout the city.

Urban Agriculture Policy Review

While backyard gardening is common, many other elements of urban agriculture are taking municipalities by surprise. The increasing public interest in urban agriculture, presence of community gardens, urban farms, and unconventional urban agricultural activities such as beekeeping and small-scale livestock have prompted some municipalities to undertake a comprehensive review of existing policies that relate to urban agriculture. This can be a first step toward updating comprehensive plans and zoning codes to incorporate urban agriculture or simply as an analysis to discover existing city policy. In many cases, urban agriculture has not been a policy issue of great concern but some comprehensive plan elements allude to related policies that could support urban agriculture.

Oakland, California

Oakland, California analyzed their city plans during their food system assessment and found that some relevant comprehensive plan elements did not address urban agriculture directly while others did. The Land Use and Transportation element does not address community gardens directly but attempts to clarify how the role of urban agriculture in this element could be achieved. A land use goal to expand the network of open space opportunities, for example, could feasibly be augmented to incorporate additional community gardens in the city for open space purposes.

Community gardens were recognized in the Open Space, Conservation, and Recreation element which calls for the city to ‘maintain and support a viable community gardening program to foster an appreciation of local ecology, instill a sense of stewardship and community, and provide a multi-ethnic, multi-generational activity open to all.’

Portland, Oregon

Portland State University completed an analysis of City policies and zoning regulations related to urban agriculture during preliminary studies of the Diggable City public lands inventory. This analysis found relevant state, metropolitan, and city policies and codes affecting urban agriculture.

A statewide statute allows for agricultural and forest uses of lands within urban growth boundaries as a temporary use of lands not needed for development during the planning period. Lands within urban growth boundaries, however, are guided for eventual development and such agricultural uses will eventually have to be removed to make way for other uses.

Metro—Portland’s metropolitan government—recognizes that municipal housing targets may compel cities to forgo open space protection and allows reductions in net buildable space for open space provisions. While these areas may not necessarily provide space for urban agriculture, such practices could be allowed.

In order to meet responsibilities to Metro, cities—including Portland—must calculate buildable land supply with the intention of meeting housing density targets. Vacant residential lots used as community gardens, therefore, lack permanence and are threatened with conversion to residential uses. Potential urban agriculture sites, however, may be suitable on FEMA floodplain sites where there are federal regulations on the erection of structures.

The policy and zoning analysis for the City of Portland concludes with several recommendations:

- Urban agriculture provisions should be incorporated into the zoning code with careful attention paid to transportation, smells, noise, pollution, livability and parking
- Update zoning code to be consistent with modern forms of agriculture in non-residential districts
- Allow retail as an accessory use in open space zones to permit on-site sales of agricultural products without the need for a conditional use permit
- Update tree planting standards to allow for fruit trees in public rights-of-way

Seattle, Washington

The City of Seattle commissioned the Urban Agriculture in Seattle: Policy and Barriers report to assess policy that promotes or restricts urban agriculture within the city. The report analyzes the Seattle community gardening program resolution, zoning policies, and provides recommendations to promote urban agriculture.

Seattle manages an extensive collection of community gardens within the City through the Department of Neighborhood's P-Patch program. A city resolution to support the P-Patch program passed in 1992 that declared the city's support for maintenance and long term expansion of the program. This resolution went further to determine that:

- The city would promote inter-agency cooperation in support of the program
- Recommend that P-Patch gardens be part of the comprehensive plan
- Use P-Patch program in evaluation of priority use of city surplus property
- Encourage that expansion of the program should give emphasis to low-income families and individuals, youth, elderly, physically challenged and other populations

As a result of this resolution, the P-Patch program has become institutionalized within city policy and is an integral part of the city's land use and open space programs. The Department of Planning and Development broadly interprets parks and open spaces to include community gardening within residential districts.

In addition to the P-Patch program, the report provided many recommendations for promoting urban agriculture within Seattle. Researchers found that current policy definitions of agricultural activity were at a scale beyond the level of community gardening and that clarification of definitions in the city code might be necessary. Not only would this clarification distinguish between small-scale gardening and small farms but it could also provide gradations of desired or appropriate activities to facilitate permitting of gardens and small farms.

Additional recommendations support creating use zone protection by making community gardens an approved use of land in residential, multi-family, industrial, and other districts; providing incentives to encourage green roofs and food production in private and public developments; utilize a transfer of development right (TDR) program that establishes community gardens as a sending areas for permanent protection; and to create a department of urban agriculture to expand the scope of urban agriculture beyond community gardens.

Policy Documents

San Francisco, California and Madison, Wisconsin are two communities that have adopted, or are in the process of adopting, official policies related to urban agriculture.

Madison, Wisconsin

In Madison the 2009 Draft Comprehensive Plan includes urban agriculture as a new special district in order to encourage and legitimize small-scale farming within the urban portions of the city. These areas are distinct from other agricultural areas that exist within the rural outskirts of the city and therefore require their own set of policies.

Permitted uses within the urban agriculture district include:

- Agriculture – cultivation
- Community gardens
- Market gardens
- Selective cutting
- Parks and playgrounds
- Transit stop or station
- Composting/ vermiculture facilities
- Garages, workshops, and barns
- Solar or wind energy devices

Some conditional uses include:

- Agriculture – animal husbandry
- Clear cutting
- Electric substations
- Gas regulator stations
- Mixing and gate stations
- Sewerage lift stations
- Stormwater management facilities
- Telecommunication towers
- Parking lot
- Farmers' market

In order to address potential inconsistencies with surrounding land uses, Madison will require a management plan for certain activities. Management plans both facilitate neighborhood protection and allow for a variety urban agricultural uses within a framework of legitimacy. The following activities require plans: animal husbandry, off-street parking of more than 10 vehicles, on-site food processing, manure spreading, chemical pesticide and fertilizer application, and use of heavy equipment.

Dimensional Standards for Urban Agriculture (Madison, WI)

permitted and conditional uses	
lot area (sq. ft.)	15,000 sq. ft.*
lot width	50 feet
front yard setback (structures)	15 or the setback of the adjacent district, whichever is greater
side yard setback (structures)	6 or the setback of the adjacent district, whichever is greater
rear yard setback (structures)	20 or the setback of the adjacent district, whichever is greater
maximum height	25 feet
maximum lot coverage (buildings and paved areas)	15% (excluding greenhouses and hoopouses)

*lot areas of less than 15,000 square feet may be allowed as a conditional use

San Francisco, California

In reaction to the overwhelming popularity of and desire for community gardens within San Francisco and due to a lack of policy and standards for management, the city has created a policy document to govern the use of the city's community gardens. The intent of the policy is to

provide equal opportunity for public access and allow for flexible management within each garden. This document is comprehensive in its attention to details guiding everything from governance structure and fundraising to the provision of bulletin and message boards.

In general, these provisions help to ensure that garden plots will be located in areas conducive to growing crops and will be equipped with necessary infrastructure to do so. Garden plots are to be located in areas that receive adequate sunlight and shall be large enough to accommodate enough crops (40 to 60 sq. ft.). The city provides water at no cost to gardeners and sets standards for tool sheds that are intended to reduce incidences of vandalism.

The city seeks to ensure that community gardens remain open and accessible to all residents. All citizens are invited to participate in the garden program as space allows. In addition, the city seeks to ensure that casual park visitors can access community gardens. While some gardens may contain locked gates, a program shall be prepared to provide at least 2 to 6 hours of public access per quarter.

Zoning

There are very few cities with zoning codes that deal specifically with urban agriculture. Most codes do, however, have provisions that indirectly affect urban agricultural activities. Setbacks, for example, may prohibit garden boxes or raised beds in certain areas in residential districts while definitions of agricultural in industrial areas might not accommodate modern urban agricultural activities. In some cases, zoning provisions can be contradictory and create unintended inconsistencies that render agriculture illegal in areas where it would normally be permitted.

Cleveland, Ohio

Cleveland, Ohio has recently determined that urban agriculture is a viable economic development strategy that can play a role in revitalizing its urban areas. In response, the city has updated its zoning code to protect and accommodate urban agriculture. Other cities are following Cleveland's lead and embarking on rezoning studies to determine how their cities' codes can be updated to fulfill their individual needs.

Cleveland has established an Urban Garden District within its zoning code in order to ensure that urban gardens are appropriately located on sites and represent the highest and best use for the community. The code defines community gardens, market gardens, greenhouses, hoophouses, and coldframes. Permitted main uses within the urban garden district include only community gardens and market gardens. Permitted secondary uses include greenhouses, hoophouses, coldframes, open space, fences, signs, benches, bike racks, raised beds, compost bins, seasonal farm stands, garden art, rain barrels, chicken coops, beehives, and children's play areas. Buildings are limited to tool sheds, shade pavilions, barns, restroom facilities with composting toilets, and planting preparation houses. A list of supplemental regulations controls the specific elements of permitted accessory uses including location, height, and coverage.

Elsewhere in Cleveland's zoning code are restrictions on farm animals within the city. These codes allow for and regulate chickens, ducks, rabbits, and bees within residential areas. Goats, pigs, and sheep require at least 24,000 square feet of land within residential districts and 14,400 square feet within non-residential districts. Horses, cows, alpacas, and llamas are generally not allowed.

Boston, Massachusetts

Land designated as open space in Boston’s zoning code has nine different sub-districts including the Community Garden Open Space Sub-district. These areas consist of land that is limited to the cultivation of herbs, fruits, flowers, or vegetables. This includes the cultivation of any agricultural, floricultural, or horticultural commodity. Open space community garden sub-districts may explicitly include vacant public land.

Seattle, Washington

While Cleveland and Boston explicitly define elements of urban agriculture that they incorporate into their municipal ordinances, Seattle does not directly provide for urban agriculture. Although the Department of Neighborhoods P-Patch Program manages several community gardens throughout the city, these are indirectly permitted as allowable uses within the ‘parks and open space’ zoning designation.

Some forms of agriculture are allowed in commercial and industrial districts within Seattle including animal husbandry, aquaculture, and horticulture. In the following charts ‘A’ indicates an accessory use and ‘P’ indicates a permitted use. X indicates that the use is not permitted.

Commercial					
Agricultural Uses	NC1	NC2	NC3	C1	C2
animal husbandry	A	A	A	A	P
aquaculture	10	25	P	P	P
horticulture	10	25	P	P	P

Number designations refer to maximum allowable lot size (thousands of square feet)

Industrial			
Agricultural Uses	IB	IC	IG1 and IG2
animal husbandry	X	X	X
aquaculture	P	P	P
horticulture	X	X	X

Portland

Portland very briefly refers to community gardens as a characteristic use within its open space designation. In addition, the Portland zoning code permits agriculture as an allowed use within open space, commercial, and employment zones.

The Diggable City report to the city of Portland has made some zoning change recommendations to enhance urban agriculture within the city. The report points out that ‘exterior work activity’ is prohibited in commercial zones and must be approved through an adjustment review in employment zones. These requirements effectively prohibit agriculture in two of the zones in which it is allowed.

Municipal Actions in Support of Urban Agriculture

Oakland, California

The City of Oakland has recently completed a food systems assessment with the stated purposes of providing the community with key baseline information on food system components and assessing the potential for increasing the consumption of local and regional foods. Oakland has a goal to source 30% of the city's food needs from the surrounding region.

The food system assessment report highlights key findings and barriers of each component and provides several recommendations for increasing local food production within the city. Some findings and barriers included:

Food Production

- Oakland is surrounded by a highly fertile region that produces a significant amount of the nation's food
- Much of that food travels out of the state for value-added processing, then back to Oakland
- Local municipalities can provide lucrative markets for farmers facing high competition in global food market
- Urban gardens are popular in Oakland
- Urban agriculture on underutilized plots can capture value for Oakland's economy

Processing and Distribution

- Municipal policy can support an alternative to the global food system and bring local food dollars back to local economy
- Available industrial land is critical in maintaining the local food system
- Need to develop broad new markets and incentivize local food production

Consumption

- Food retail is where most consumers are connected to food system

Barriers

- Developing full scale grocery models for underserved communities
- Improving food offerings in smaller food retail stores which make up 85% of food retail

Food waste recovery

- Locally produced and processed foods require less packaging
- Local and regional agricultural practices increase the market for compost

A deep analysis of Oakland's food system led to several recommendations that could further the implementation of a sustainable food system. Recommendations that specifically relate to urban agriculture include: the development of an urban agricultural zoning designation, a comprehensive review of policy and zoning obstacles to urban food production, and encourage edible landscaping, community gardens, and rooftop gardens for new large-scale urban developments.

While a food system assessment may both expand and go beyond the scope of urban agriculture, such an assessment is a valuable tool to identify many interrelated components of local agriculture. Oakland, for example, identified and highlighted the need to preserve industrial land for local food processing in order to close the gap in the local food system that excluded value-added agriculture opportunities for local production.

New York City: Food Retail Expansion to Support Health (FRESH) program

The NYC FRESH program was launched in response to a study that revealed many large food deserts within the City. The lack of affordable fresh foods in these areas correlates with higher rates of diet-related diseases including heart disease, diabetes, and obesity. As many as 3 million New Yorkers live in areas that have a high need for grocery stores and supermarkets in order to provide competitively priced accessible healthy and fresh foods.

In an effort to infuse food retailers into urban neighborhoods, the Food Retail Expansion to Support Health (FRESH) Food Stores program offers zoning and financial incentives for the establishment and retention of neighborhood grocery stores in underserved communities. These incentives are intended to promote business viability for grocers in an urban context where land economics demand high rents thus reducing the incentives to sell low margin products like fresh foods. In addition these incentives help level the playing field for grocery retail establishments that tend to have much lower profit margins than other food-oriented retail businesses (e.g. drug stores, convenience stores, etc).

The FRESH program offers both zoning and financial incentives to grocery store operators:

Zoning incentives:

- Additional floor area in mixed R and C buildings
- Reduction in parking requirements
- Larger as-of-right stores in light manufacturing districts

Financial incentives:

- Real estate tax reductions
- Sales tax exemption
- Mortgage recording tax deferral

These incentives are available to grocery store operators who are renovating existing space or developers seeking to construct or renovate retail space that will be leased by a grocery store.

To be eligible stores must meet the following requirements:

1. Provide a min of 6,000 square feet of retail for food and non-food grocery products
2. Provide at least 50 percent of food products intended for home preparation, consumption, and utilization
3. Provide at least 30 percent of retail space for perishable goods including dairy, produce, meat, poultry, fish and frozen
4. Provide at least 500 square feet of retail for fresh produce

While the FRESH program does not overtly promote the sale of local foods, it does acknowledge the importance of food as a component of the local food system. As many new grocers with the capacity to carry fresh food products proliferate in urban neighborhoods, the opportunity arises for local food producers and manufacturers to develop new markets for their products.

Urban Agriculture as an Element in Sustainability Plans

Urban agriculture has become a strategy many cities consider when creating plans to combat climate change. Impervious surfaces that contribute to runoff, pollution, and heat island effects can be converted to green spaces and gardens. This strategy has increased in popularity in cities that are committed both to reducing their environmental footprint and increasing livability through the improvement of public spaces. Philadelphia, Pennsylvania, Baltimore, Maryland, and Cincinnati, Ohio are three such cities that have crafted sustainability plans that intend to use urban agriculture to reduce their environmental impacts.

Greenworks Philadelphia

Philadelphia created the Greenworks Philadelphia vision project with the intention of becoming the 'Greenest City in America.' The vision presents a series of sustainability goals under the categories of energy, environment, equity, economy, and engagement. Philadelphia places urban agriculture into the equity category as a method to deliver more equitable access to healthy foods within the city. While many neighborhoods currently lack access to fresh, healthy, and affordable food, Greenworks Philadelphia created a target to bring local food within 10 minutes of 75 percent of residents through an initiative to create 59 food producing gardens, 12 farms, and 15 farmers' markets within the city.

Greenworks also proposes to create demand for locally grown food by supporting CSAs and local food purchasing programs for area hospitals and universities. Neighborhood convenient stores may be required to carry a certain amount of fresh and local produce and large grocery stores required to purchase a certain dollar amount per square footage of local food.

To foster commercial farming the city will examine the possibility of creating a new zoning designation to allow commercial farming within the city and develop the needed infrastructure (water sources, processing facilities, etc) to make such farms possible. The creation of a Philadelphia urban agricultural sector could also foster entrepreneurship and workforce development opportunities expanding the potential for green jobs within the city.

Cincinnati Climate Protection Action Plan

In June, 2008 Cincinnati completed its Climate Protection Action Plan to address steps that the city would take in order to reduce greenhouse gas emissions and combat climate change. Five task teams convened around the issues of transportation, energy, waste, land use, and advocacy to provide recommendations. One of the Land Use Task Team's recommendations was to promote sustainable community agriculture through the expansion of the community gardening program on underutilized and vacant commercial and industrial properties. By converting paved areas to green space the city can cut down on emissions and reduce the number of trucks that import produce into the city. The scale of such urban agricultural projects might provide enough space for for-profit urban agricultural ventures to be viable. The task team proposes the establishment of an urban gardening pilot program and has identified 15 parcels of land to rent out for gardening.

The Baltimore Sustainability Plan

Baltimore's sustainability plan is intended to complement the comprehensive plan through the introduction of 29 policy goals under seven general themes: cleanliness, pollution prevention, resource conservation, greening, transportation, education & awareness, and green economy. Under the greening theme 'establish Baltimore as a leader in sustainable local food systems' emerged as one of four main goals.

The city will utilize a variety of strategies to achieve this goal including various methods to increase cultivated land, develop an urban agriculture plan, and increase the demand for locally-produced food in schools, institutions, supermarkets, and by individuals. Increased land use planning and zoning changes will be necessary to identify locations for urban agricultural infrastructure and institutions. The city will also attempt to increase city farms and community gardens on vacant and abandoned lots.

In addition this plan includes a strategy to compile local and regional data on various components of the food system. By connecting regional and urban farms with local institutions, processing facilities, and distributors Baltimore has the potential to create a successful urban agricultural system that not only accommodates urban growers but also supports the ability of nearby farmers to tap into urban markets for locally grown products.

Urban Agricultural Design Guidelines

Vancouver, British Columbia

As urban agricultural installations are becoming more common in new developments the City of Vancouver has created design guidelines for use by city staff in assessing new proposals. While the city broadly defines urban agriculture as growing plants for food within or surrounding cities and towns, these guidelines specifically address shared garden plots and edible landscaping.

The design guidelines are intended to determine where and under what conditions gardens are appropriate both to maximize the productive potential of gardens and to minimize potential hazards indicative of some gardening practices. Siting is suggested in areas where there is maximum sunlight and sufficient wind screening. Access should be provided, including elevator access to rooftop gardens in order to ensure handicap accessibility. The guidelines attempt to protect gardeners through a variety of methods proposing that soils are tested for toxins, prohibiting treated wood in the construction of garden beds, and suggesting heights for garden planters.

These guidelines go on to proscribe that garden plots should be provided for 30 percent of residential units that do not have access to more than 100 square feet of green space. Such plots should be a minimum of 24 square feet. Appropriate sites for garden plots include common outdoor amenity space, patios, balconies, and roof decks.

A large list of edible landscape plants is provided including recommendations for planting. These edible plants should be located in high pedestrian traffic areas in order to ensure that food is harvested and to avoid attracting rodents and pests.

Designing Urban Agricultural Opportunities for Southeast False Creek (Vancouver, B.C.) Southeast False Creek is one of two Official Development Plans for small areas in Vancouver that extensively encourages urban agriculture. This plan is a comprehensive design manual that spells out precisely how urban agriculture will be implemented within the Southeast False Creek area. It incorporates urban agricultural principles, design considerations, technical considerations, and management strategies.

Recognizing the increasing development pressure on the area and the potential of urban agriculture as a component in sustainable development, the Southeast False Creek neighborhood created the urban agriculture design manual as a tool to promote opportunities for gardening and edible landscaping. Versatility and flexibility is a main component of urban

agriculture in this manual. These guidelines focus on how to utilize limited spaces to convert existing and unconventional areas into urban agriculture. Railings, rooftops, backyards, vertical spaces school yards, and parks are highlighted for their potential to increase cultivation without increasing the need for valuable land.

The manual includes necessary technical considerations and support systems for a variety of different garden types. Specs for rooftop gardens are provided as well as necessary components for espalier trees, cold frames, greenhouses, and planters.

Various management strategies are proposed. While the public realm is usually managed by the Parks Board staff and Civil Engineering, this report suggests management by a cooperation between a community group and a non-profit organization. Under such an agreement the public would have a conduit for engagement and have input into the use of public spaces. Another option would be to roll the management into existing City and Parks programming.

Land Inventories

Cities that have made a commitment to urban agriculture often find that they may lack or be unaware of readily available land. While some cities have an abundance of vacant and underutilized lots, others may have achieved near full build-out or must reach density targets. In the latter cases high land values can make some components of urban agriculture an unsuitable long term land use on available properties. In these cases alternative locations must be found that are both suitable for urban agriculture and do not undermine a city's tax base. Land inventory analyses are useful tools to locate city-owned and private property that might otherwise go unnoticed.

Portland, Oregon – The Diggable City

In 2004 Portland's city council passed a resolution directing various city bureaus to conduct inventories of their properties in order to determine what city lands might be appropriate for urban agricultural uses. The impetus for this movement stemmed from a neighborhood effort to convert land at a pump station into a community garden. This process came to the attention of a commissioner who believed that there were other opportunities to use vacant city-owned land.

The City of Portland commissioned the Diggable City Report which presented the land inventory methodology and results and highlighted the potential of urban agriculture in the city. The inventory consists of city-owned properties that are managed by the Bureau of Environmental Services, Parks and Recreation, Transportation, and Water. A technical advisory committee was formed to develop criteria by which to evaluate and classify the parcels. Sites were classified based on their suitability for community gardens, small-scale agriculture, large-scale agriculture, and agriculture on impervious surfaces. Sites that had characteristics commonly considered adverse to agriculture were not removed from consideration to allow for alternative agricultural techniques including, for example, container gardening on pervious surfaces, mushroom gathering in tree-covered areas, or berry cultivation.

Sites were evaluated based on land tenure, water access, level grade, transit access and proximity to other agriculture. Based on these evaluations some sites were visited for further evaluation. Five were selected as 'site snapshots' and profiled with pictures and explanations of existing conditions and potential uses. These site snapshots highlight the underutilized urban

agricultural potential of the City of Portland and provide a reminder that underutilized city land can be put to productive use.

In response to the Diggable City Report the Portland City Council encouraged the Office of Sustainable Development to continue filtering the inventory for urban agricultural potential, create pilot projects, develop a land management plan, and explore policy changes to remove barriers.

A study presented in the Journal of the American Planning Association¹ has indicated that Portland's land inventory process has been effective as a means of integrating urban agriculture into the realm of urban planning and advance social and ecological sustainability. Portland reached out to many community partners in the Diggable City process and was able to achieve inclusive and participatory citizen engagement.

Urban Agricultural Activities

Community Gardens

Community gardens generally exist on small areas of land or vacant lots and are divided into several different garden plots that are farmed individually by members of the community. Entities that operate and manage community garden programs range from municipal departments or non-profit organizations to unofficial groups of individual residents. The lands on which community gardens are located may be publicly or privately owned while other community gardens are located on institutional property and are incorporated into programming goals.

Seattle P-Patch Program

Community gardening is popular and proliferates in many different urban areas in the country. The City of Seattle however stands out as a leader in promoting and managing community gardens. The City of Seattle's Department of Neighborhoods (DON) operates the P-Patch community garden program in cooperation with the non-profit P-Patch Trust. This program has been in operation for over thirty years and supplies 68 gardens within the city containing over 1900 individual garden plots on more than 23 acres of land. These gardens are valued as a source of community building and recreation and for their ability to reduce stress, reduce crime, educate children and grow vegetables.

DON encourages residents to seek out and create their own gardens and will assist groups with acquiring or leasing land to create new P-Patch gardens. The department provides guidelines for the consideration of new sites including a 2000 square foot minimum, flat enough land to create level beds through terracing, and full sun.

After a group identifies a suitable garden site, P-Patch program staff assist with acquiring access for both public and private lands by dealing with the relevant city agency or through lease negotiation. In addition, program staff will help to identify funding opportunities through private foundation grants or public money available for open space.

Through volunteer requirements of P-Patch gardeners, the P-Patch Trust is able to maintain garden facilities as well as provide assistance for the creation of new gardens. The trust also

¹ Mendes W., Balmer, B., Kaethler, T., and Rhodes, A. (2008). Using land inventories to plan for urban agriculture: Experiences from Portland and Vancouver. *Journal of the American Planning Association*. 74(4).

provides program support, advocacy, and disburses several thousand dollars of donations and annual funds that provide tools to gardeners and garden rent support to low income gardeners.

Rochester Roots: School-Community Garden Project

The non-profit organization Rochester Roots in Rochester, New York is transforming underutilized school yards into vibrant urban gardens through its School-Community Garden Project. By creating community gardens on school property the organization is able to incorporate a strong educational component into its programming enabling children (and teachers) to learn about culture, nutrition, gardening, ecology, and community. The gardens also provide hands-on learning experiences that are incorporated into the school curriculum.

Students learn entrepreneurial skills when they sell their produce at market, local food cooperatives, and restaurants. In addition, a garden-based product development component creates skin care products out of herbs grown in the gardens.

Urban Farms and Market Gardens

The United States Department of Agriculture defines a farm as any place from which \$1,000 or more of agricultural products (crops and livestock) were sold or would have been sold during the year under consideration. This definition would likely be applicable to a variety of urban agricultural endeavors. Market gardens may sometimes resemble community gardens if they are managed and maintained by a group of individuals to produce agricultural products. Market gardeners might sell excess produce at on-site farm stands or nearby markets. Urban farms might include relatively large-scale entrepreneurial agricultural operations that use hoop houses or green houses and intensive growing practices to produce large quantities of products on small parcels of land. While farming is generally considered a rural activity there several examples of innovative agricultural businesses existing within urban areas.

Milwaukee: Growing Power

Former professional basketball player Will Allen has become a prominent urban agricultural pioneer by developing a model sustainable agricultural operation within an urban context. Located within the city limits of Milwaukee, Allen's farm Growing Power is an intensive agricultural operation utilizing 14 greenhouses on two acres of land that produces herbs, vegetables, fish, and livestock (including goats, bees, ducks, turkeys, and worms).

The operation utilizes a closed-loop system that limits waste and reuses energy from the variety of agricultural elements. The greenhouses are heated, in part, by compost created in an annual reclaimed food waste stream of six million pounds per year. This compost is further digested in large worm bins and turned into worm castings that are used to build up soil for crops. High quality fertilizer is created from nutrient rich water from an aquaponics system used to grow tilapia and perch.

Growing Power sells products at its on-site Growing Power store, farmers' markets, and to restaurants. In addition to sales, the organization has a strong educational and community building commitment. Middle school and high school students take field trips to the farm to learn about sustainable food systems, healthy nutrition, and the food they eat. Year long gardening and farming activities are available to school children.

Chicago: City Farm

On a one and one-quarter acre of vacant city land in Chicago's Cabrini Green neighborhood a small urban farm flourishes with tomatoes, beets, carrots, herbs, and other vegetables. City

Farm has been a revitalizing factor in the neighborhood creating needed green space in an area that is otherwise overrun with concrete. The garden is run by the non-profit Resource Center which operates the farm in part as a permanent demonstration and training facility to teach others about food and urban agriculture. Produce grown on the farm is widely acclaimed for its exceptional quality and is sold to several local restaurants and at an on-site farm stand. Local restaurant Frontera which process salsa for sale on the retail market sources tomatoes through City Farm.

The farm's location in the middle of a large urban area does pose some unique challenges. The city allows the farm to operate free of rent but acknowledges that as the neighborhood continues to grow, the land on which City Farm sits will eventually be sold for development. This will not be the first time the garden will have to take up roots. Earlier in its history it was located on the adjacent lot and was forced to move to make way for development. Workers carted the thousands of cubic feet of dirt onto the new (and larger) site and the farm continued to grow tomatoes like never before. In 2007 the farm yielded \$60,000 in produce sales.

Culver City, California

Gardening for profit within urban areas can occur on a wide variety of scales. Some cities may find large urban farms an appropriate use of land while others may only be able to accommodate small-scale operations. Regardless of scale, the emergence of urban farming has caught some municipalities off guard. While most zoning codes have not been updated to accommodate urban agriculture some cities might inadvertently prohibit otherwise harmless activities through outdated codes.

Culver City, California Restaurateur Vincent Treveno is growing 535 tomato plants and 40 fruit trees on his neighbors property with the intention of using them as ingredients and selling them to customers in his café. Restaurants growing herbs and vegetables on-site represents a growing trend and an innovative potential to implement urban agriculture. However, although growing produce is permitted in small pocket farms in the city, selling home-grown produce is not. The new city manager admits that the city is caught in a situation with outmoded agricultural zoning codes that no longer relate to existing urban realities. The small pocket farm adjacent to the café replaces an area that used to be a quarter acre concrete slab overrun with trash and broken bottles.

Seattle: P- Patch Market Garden

In addition to the numerous community gardens managed by Seattle's Department of Neighborhoods, the P-Patch Program also has two market gardens. These gardens operate as CSA programs for city residents in addition to selling produce at on-site farm stands. These gardens serve 79 households with produce for 22 weeks of the year and are farmed by neighborhood residents. Proceeds go to the farmers of the plots.

Turning Yards into Urban Farms

The increasing popularity of the local foods movement has been a boon for innovative entrepreneurs. For those who would like to convert their yards into vegetable gardens but do not have the time, gardening service businesses have emerged to do the work. Both the landowner and the gardener benefit. Landowners receive produce grown on their own land while gardeners who intensively farm individual properties are able to grow excess food for sale.

Community Roots Urban Garden

In Boulder, Colorado Kip Nash has converted front- and back yards of willing landowners into miniature farms that are tended, harvested, and distributed by volunteers and apprentices. In

addition to the creation of intensive gardens, Community Roots also tends to neighbor's fruit trees and shrubs collecting fruits for distribution and donation. He is able to grow enough food in the yards of 13 homes and a church to feed 25 families in addition to the landowners in a CSA style program. Additional food is sold at Boulder farmers' markets.

MyFarm

MyFarm in San Francisco, California will design, create, manage, and harvest your backyard garden. They will install as little as two 8' x 8' garden beds in your yard or 'completely transform your backyard into a food forest.' Each land contributor receives one 'personal farmer' who maintains their garden throughout the year. About a half dozen urban personal farmers tend to yards within San Francisco and harvest and distribute food CSA style. MyFarm bills itself as a decentralized urban farm that is creating a secure and sustainable food system by growing organic vegetables in backyards throughout the city.

Edible Landscapes

Earthworks Urban Orchards: Boston

Earthworks is an organization that works with local groups to plant, maintain, and harvest fruit- and nut-bearing trees, shrubs, and vines on urban land. The organization concentrates on providing services for neighborhoods with limited resources and in areas where needed landscape improvements can happen quickly. Earthworks will work with communities to plan and plant sites, monitor orchards for at least three years, provide training to residents who will care for trees, and coordinate community maintenance of orchards.

New orchards must have a credible plan for funding and planting as well as a plan to utilize the fruit. Precedence will be given to sites whose fruit will be available to the public or persons of lower income. Orchards are planted on publicly accessible land that is owned by non-profit or government agencies (community gardens, schools, public housing developments, urban wilds, etc) where there is not a reasonable possibility that they will be removed within 15 years.

So far Earthworks has planted more than 800 trees and shrubs in urban orchards in the Greater Boston area cities and neighborhoods of Dorchester, Jamaica Plain, Roxbury, Mattapan, Cambridge, and Somerville

Issaquah, Washington

In order to maintain its cultural identity and pay homage to its agricultural heritage, the City of Issaquah, Washington developed a landscaping plan for Gilman Boulevard. The end result is a mile long edible landscape tour along the Boulevard that features 25 different varieties of fruit and nut bearing trees that produce food for up to six months in the year. Residents are invited to sample from the trees as they take the tour.

While Gilman Boulevard provides an attractive urban environment and an opportunity to pick and gather a wide range of fruits and nuts the project requires intensive maintenance. Many plants are not native to western Washington and pose pest and fungus problems.

Seattle (planting strips)

The city of Seattle enables residents to plant vegetable gardens and other vegetation in the planting-strip between the sidewalk and roadways. Previously residents needed to obtain a permit to plant such gardens but this requirement has been rescinded. Permits are required,

however, for building raised beds in parking-strips but these permits are now free and easier to obtain than they have been in the past.

The Seattle Department of Transportation (SDOT) encourages low shrubs (24 to 32 inches), or plantings to provide a degree of separation between the sidewalk and the street. Vegetables and fruit bearing plants are encouraged as long as they meet height guidelines and setbacks. Certain trees, are prohibited including cherry, apples, and pears, as they may pose a safety risk to pedestrians when fruit falls on walkways. The City also imposes height and setback limitations on plantings and raised beds in order to ensure access and sight-lines from intersections and driveways.

Urban Agricultural Learning Centers

Many consider education to be an important element of urban agriculture. Urban agricultural learning centers provide opportunities for children and adults alike to learn about the origins of their food, how it is produced, and the interrelationship between sustainable food production and the environment.

Zenger Farm

Zenger Farm in Portland, Oregon is a 16 acre urban farm that operates as a learning center for sustainable food systems, environmental stewardship, and local economic development. The farm offers demonstrational learning opportunities through school field trips, summer camps, and adult workshops to teach about organic farming, stormwater management, wetland ecology, food security, green building, and local economic development. In addition to educational outreach, the farm is actually a working CSA farm with production on six acres. The remaining ten acres contain wetlands which further provide educational opportunities to teach about how sustainable farming practices can positively impact natural systems.

The Farm at 21 Acres

In Woodinville, Washington just north of Seattle, the organization Growing Washington operates a farm and cultivates five acres with 50 different varieties of local food crops. The crops are sold to local restaurants, schools, and at a farmers' market.

Education is one of the key programs at 21 Acres. The farm hosts student groups from local schools and is always open to the public for people to come view and participate in farming. In addition, the farm partners with Washington State University as a venue for university employees to provide on-site advice and expertise to gardeners and farmers. The King County Extension hosts student classes on-site and administers field tests for crops.

Urban Agriculture as Economic Development

Woodbury County, Iowa

Organic Incentive Plan and Local Food Purchasing Policy

While Woodbury County, Iowa might not be considered a large urban county it does contain Sioux City which has a population of approximately 82,000 people. It is through the interrelationship between the County's urban area and its surrounding agricultural hinterlands that holds the key to the programs' success. Woodbury County is a prime example of how expanding the concept of urban agriculture to the non-production components of the community food system can present the broad spectrum of possible local impacts.

In 2006 Woodbury County rural economic development director Rob Marqusee initiated a pair of programs aimed at revitalizing the rural economy through the promotion of local and organic foods. First, Woodbury County offered tax incentives to farmers to convert all or portions of their farms to organic production. Next the County created a market for those who converted to organic by instituting a local purchase policy that mandated the purchase of locally grown organic food for all county facilities that serve food as a normal course of business. County departments must give priority to local organic products, then local products before sourcing from traditional sources. The County expects to shift nearly \$300,000 per year to local farmers.

These policies have been slow to take root but are beginning to show an impact. County departments have been attempting to buy local produce but have initially had problems sourcing product. Currently about 5% of the county's food (mostly melons and cider) comes from local sources. Soon, however, all eggs purchased by the County will be locally sourced. More promising have been the increase in new farmers moving to the county to take advantage of the incentives and the opening of a new large organic soy processing facility in an adjacent county. Marqusee is currently attempting to expand the County programs to provide low interest loans to farms that are less than 40 acres.

In a region characterized by traditional industrial agriculture on very large farms Woodbury County has begun to slowly reverse the tide. While it will not happen overnight, a system of local agriculture is emerging and Marqusee is providing the necessary impetuses to make that a reality.

Floyd Boulevard Local Food Market

Marqusee is not acting alone. The Floyd Boulevard Local Food Market (FBLFM) is a local institution in Sioux City that provides many of the needed facilities to process, market, and sell local products. The FBLFM is housed in an old firehouse in downtown Sioux City and operates four different food ventures related to providing healthy food for local citizens.

The Firehouse Market is a cooperatively run grocery store that sources much of its food through United Natural Foods but also prioritizes and sells as much local product as it can. This market provides the majority of revenues for the FBLFM along with grants, donations, and membership dues and enables the organization to operate other local food programs. FBLFM manages a food brokerage to buy wholesale produce from local growers in order to supply County institutions and larger markets like Whole Foods in Omaha, Nebraska, restaurants, and other food co-ops. A farmers' market in the parking lot of the Firehouse Market gives farmers another venue to sell their products. Finally FBLFM houses a commercially certified processing kitchen to add value to local products by canning tomato and fruit-based products for year-round sale under the local 'Sioux City Sue' brand.

The FBLFM provides many of the links that are often missing in a strong community food system. Small farmers may be unable to participate in an institutional purchasing policy if they are not able to produce mass quantities of produce to meet needs. The food brokerage fills this niche. Risk and uncertainty that might prevent a farmer from growing high value tomatoes rather than row crops can be alleviated by a production facility that sources locally grown produce.

While many may consider urban agriculture to be the realm of backyard and community gardens, Woodbury County and the FBLFM exemplify how commercial, industrial, and even institutional uses can also be important—if not necessary—components. A diverse urban agricultural sector can enable peri-urban farmers opportunities to market, process, package, and sell their products within the city while also fostering green-job creation and sustainable development within the city.

Local Food Purchasing Policies

Other jurisdictions have utilized similar policies to Woodbury County in order to stimulate local farm economies and increase demand for locally grown food. Illinois governor Pat Quinn recently signed local food purchasing legislation that will establish local procurement goals for state agencies to purchase 20% of their food locally by 2020. Other state-funded institutions, including schools, have a goal of achieving 10% of their purchases locally by 2020. These agencies are allowed by the state to pay up to a 10 percent premium above the lowest bid in order to purchase locally grown goods. Other governmental units including Multnomah County, Oregon and Albany County, New York have approved measures to purchase locally grown produce. Multnomah County is implementing a pilot project to purchase and track local produce for County correctional facilities while Albany County approved a measure to buy locally-grown food for the county jail and nursing home.

Farm to School Programs

The organization Farm to School is a collaboration between the Center for Food Justice and the Community Food Security Coalition. Farm to School advocates for the inclusion of local food in schools throughout the nation through policy development, promotion, network development, and training and technical assistance. Farm to school programs provide direct marketing opportunities to farmers by creating new stable demand for local products. Educational activities in schools related to local foods teach students about the path from farm to fork and instill healthy eating habits. To date, Farm to School estimates that there are 2051 farm to school programs active in 42 states.

Chicago: Eat Locally: Live Healthy

The City of Chicago sponsored a working group to identify food issues that, if restructured locally, could improve quality, lower costs, and increase availability of food within the city. The results presented in the Eat Locally: Live Healthy manual are a strategy for Chicago to increase economic opportunities and promote healthier living by relocalizing the food system.

The working group found many root problems in Chicago's food system including food deserts and small diversified farms threatened by suburban sprawl. The group also identified a great potential for Chicago to revitalize its local food system by serving as an agricultural production hub. Food processing is the largest segment of Chicago's manufacturing base. Flexibility to

emerging market trends can pose a vast possibility for local agricultural access especially in natural and organic meat and soy products.

Eat Locally: Live Healthy posits a vision whereby Chicago will create a climate where production, distribution, and marketing of locally grown foods and value added products are available, accessible, and affordable year-round to all city residents and are produced in an environmentally sensitive manner.

While some strategies to achieve this vision are focused on increasing urban food production and supporting regionally grown produce, others recognize the importance of Chicago's manufacturing base and need for additional inter-city retail facilities. These priorities will, not only support the vision, but can also serve to increase economic vitality in the city as they create new jobs and strengthen the local manufacturing sector. The City of Chicago and the State of Illinois have the ability to grow existing and attract new food manufacturing businesses by marketing the strong interest in local and organic foods as well as providing grants and subsidies for local food businesses.

Neighborhoods that are underrepresented by grocery stores might also receive help from the City. Grant funds are available through the state for new and expanding local food businesses and potential sites may be bolstered by TIF financing. In the past, the City has provided financial assistance through TIF and public land for the development of a 63,000 square-foot grocery store in the Englewood neighborhood. Chicago has also hosted a grocery store expo to attract grocery retailers to the city and help identify available sites and city incentives for new store development.

Finally, the City has the ability to create a public awareness campaign to increase the demand for locally grown healthy foods. By changing individual eating habits and coercing large numbers of people to eat healthier and locally grown products the viability of regional and local agriculture, manufacturing, and retail will also increase.

Seattle: Why Local Linkages Matter

The organization Sustainable Seattle produced a research project called Why Local Linkages Matter that analyzed economic linkages of food related businesses in the Puget Sound Region. This report makes the case that local and regional agricultural businesses create a significant benefit to their communities due to higher local multiplier effects than do industrial agricultural businesses. While traditional economic analyses focus on the impacts of exporting products and attracting money into the region, local multiplier studies recognize the value of increasing the amount of dollars circulating within the community. In addition, an economic shift that focuses on the local rather than industrial food economy leads to increased relationship building, community, and care of community resources.

For example, a restaurant that sources a large portion of its purchases from local small farmers rather than a large national distributor produces a greater benefit to the local economy. Those local purchases circulate more widely within the community as the local farmer is more likely to spend a greater proportion of those dollars locally. In addition, a greater network of local buyers and suppliers is created between the restaurant, its farmer/suppliers, and all of the local adjunct businesses that support those farmers.

The research indicated that food distribution and manufacturing sectors were the major points of leakage within the local food economy—meaning that businesses utilizing these services used out-of-region companies. Findings also indicated that dollars spent at local restaurants and on

local groceries had twice the impact on local food related economies than those sectors that were predominately sourced from out of the region. Finally, a shift of 20% of local food dollars (from 2%) into locally directed spending would result in nearly half a billion dollar annual income increase in King County and about a billion dollar increase for the Central Puget Sound region.

Although there is great potential for expanding local and regional economies by transitioning to local production there are many challenges facing the industry. While there is an increasing demand for local foods capacity limitations make filling this demand difficult. Central to this issue is a lack of central aggregation and distribution facilities for local products. Grocers, restaurants, and institutions looking to source a high volume of local foods have limited options as small-scale growers are unable to produce enough product. Some versatile restaurants and food service establishments have a greater capacity to deal with the variety of small sustainable producers but many do not.

Puget Sound Region: Growing Washington

The organization Growing Washington provides a wide array of services and programs for Puget Sound region farmers and consumers from managing CSAs to providing food to schools through farm to school programs. The organization acts as a springboard for a coalition of local farmers who are able to take advantage of the interrelated components of the many programs. Growing Washington's Local Food Exchange store in Bellingham, Washington for example, sells local farm products provided by 15 growers in Whatcom and Skagit Counties. The cold storage facilities of the Local Food Exchange also provide necessary short-term storage for member farmers' CSA boxes that await pickup or delivery.

By using their distribution channels, Growing Washington is able to act as an aggregation facility and broker to area farmers supplying services that an individual farmer may not be able to provide. An online Farm Fresh Store, for example, enables a restaurant or institutional buyer the ability to purchase several different produce items from a variety of different growers all in one place. Small- or medium-sized growers that may specialize in a few crops may otherwise be shut out of such markets due to their inability to provide a wide variety of crops. Additionally, a large institutional order might exceed the capacity of some small farmers but through the Farm Fresh Store, those small producers are able to provide a portion of a larger order. Growing Washington also offers a unique CSA that gives families the opportunity to go online and pick the mix of produce they will receive for the week. This produce is compiled by the coalition of farmers and divided into individual boxes for pick-up.

In a food system where large industrial farms dominate through markets of scale, smaller and diversified farms may have difficulty finding the necessary infrastructure to make their agricultural endeavors profitable. While co-op grain mills may proliferate in the Midwest, farmers may lack the needed infrastructure to diversify their production. Growing Washington fills these gaps by providing services that are needed for small diversified farms to thrive.