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URBAN AGRICULTURE



*A Tool for Creating Economic Development and
Healthy Communities in Prince George's County, MD*

SEPTEMBER
2012



PRINCE GEORGE'S COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
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COVER IMAGE: Detail from a mural by Matt Gifford at ECO City Farms in Edmonston, Maryland (the entire mural is shown above and below).
Photo of mural by Rob Meintjes.

Abstract

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ABSTRACT: This report introduces the concept of urban agriculture, presents its characteristics, and discusses its relationship to food system planning, sustainability, and public health. A sample of innovative community-based urban agriculture projects around the nation and in Prince George's County serves to show the hands-on implementation of the concept. Planning and public policy for urban agriculture are discussed along with possible actions that planners and policy makers may take to support it. This is supplemented by the nation's best local government practices for incorporating urban agriculture into urban and suburban areas. Guided by the experience of other jurisdictions, specific policy recommendations suited to Prince George's County are developed and presented along with strategies in the concluding chapter of the report.



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The Maryland-National Capital Park and Planning Commission is a bicounty agency, created by the General Assembly of Maryland in 1927. The Commission's geographic authority extends to the great majority of Montgomery and Prince George's Counties: the Maryland-Washington Regional District (M-NCPPC planning jurisdiction) comprises 1,001 square miles, while the Metropolitan District (parks) comprises 919 square miles, in the two counties.

The Commission has three major functions:

- ❖ The preparation, adoption, and, from time to time, amendment or extension of the General Plan for the physical development of the Maryland-Washington Regional District.
- ❖ The acquisition, development, operation, and maintenance of a public park system.
- ❖ In Prince George's County only, the operation of the entire county public recreation program.

The Commission operates in each county through a Planning Board appointed by and responsible to the county government. All local plans, recommendations on zoning amendments, administration of subdivision regulations, and general administration of parks are responsibilities of the Planning Boards.

The Prince George's County Department of Planning (M-NCPPC):

- ❖ Our mission is to help preserve, protect, and manage the county's resources by providing the highest quality planning services and growth management guidance and by facilitating effective intergovernmental and citizen involvement through education and technical assistance.
- ❖ Our vision is to be a model planning department of responsive and respected staff who provide superior planning and technical services and work cooperatively with decision-makers, citizens, and other agencies to continuously improve development quality and the environment and act as a catalyst for positive change.

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Eating is an agricultural act.
—Wendell Berry



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Introduction

There is a quiet revolution stirring in our food system. It is not happening so much on the distant farms that still provide us with the majority of our food; it is happening in cities, neighborhoods, and towns. It has evolved out of the basic need that every person has to know their food, and to have some sense of control over its safety and its security. It is a revolution that is providing poor people with an important safety net where they can grow some nourishment and income for themselves and their families. And it is providing an oasis for the human spirit where urban people can gather, preserve something of their culture through native seeds and foods, and teach their children about food and the earth. The revolution is taking place in small gardens, under railroad tracks and power lines, on rooftops, at farmers' markets, and in the most unlikely of places. It is a movement that has the potential to address a multitude of issues: economic, environmental, personal health, and cultural.

—Michael Ableman

Conventional wisdom has it that the demise of agriculture in metropolitan areas is inevitable due to urban growth. This conclusion is not always true. Although agriculture is not a traditional urban industry—and may be considered an awkward land use in urban areas—circumstances have changed drastically in recent years. This report provides some facts about urban agriculture, presents best practices around the nation, makes policy recommendations, and proposes related strategies for supporting urban agriculture in Prince George's County.

Agriculture in and around urban environments can enhance quality of life. Reserving land for agriculture brings open space, landscape diversity, and aesthetics into the urban environment; provides residents with high quality, locally produced food; and fosters awareness of the origins of food and its importance to health. Besides serving as a local source of quality produce for restaurants, retail, and consumers, urban agriculture can employ people in production, distribution, and marketing, making it an important cog in the economic engine of a metropolitan area.

Despite these many benefits, however, farming in an urban environment faces many challenges. These include land use policies and zoning regulations, availability of land, marketing, and support from the local community as well as agricultural-preservation and economic development programs.

This report introduces the concept of urban agriculture, presents its characteristics, and discusses its relationship to food system planning, sustainability, and public health. A sample of innovative community-based urban agriculture projects around the nation and in Prince George's County serves to show the hands-on implementation of the concept. Planning and public policy for urban agriculture are discussed along with possible actions that planners and policy makers may take to support it. This is supplemented by the nation's best local government practices for incorporating urban agriculture into urban and suburban areas. Guided by the experience of other jurisdictions, specific policy recommendations suited to Prince George's County are developed and presented along with strategies in the concluding chapter of the report.



Photo by Gail Gitterlytz.



Photo by Gül Gülleryiz

Executive summary

Urban agriculture is the activity of growing plants and raising animals in and around urban areas. Typically, urban agriculture uses intensive production methods that recycle nutrients, improve soil, and encourage plant and animal growth without using hazardous chemicals. Its products are processed, distributed, and consumed within the same urban area in which they are produced.

Agriculture, primarily a rural activity, has always existed in urban areas. Organized urban agriculture in the United States started in the 1890s. During times of economic crisis or war it was sponsored by the government. In the 1970s it was prompted by civil rights and environmental ethics. Today's urban agriculture movement is driven by health consciousness, sustainability, and food security.

Types of urban agriculture vary greatly in size, shape, purpose, and operator. They include home gardens, community gardens, youth and school gardens, demonstration gardens, edible landscaping, and entrepreneurial farms. Urban agriculture occurs in a variety of places, some unconventional. Food is grown in vacant lots, on patios, rooftops, walls, fences, rights-of-way, and even trucks. Besides producing food using a range of cultivation methods, urban agriculture includes input generation, processing, distribution, and educational activities. Urban agriculture complements rural agriculture—its small scale and limited market area enable it to provide fresh, perishable food directly to local consumers. Urban agriculture improves quality of life in urban and suburban areas. It enhances food security and health, contributes to urban environmental management, and provides educational and recreational services. It helps redevelop underused and abandoned properties and turns undevelopable land into economically viable sites that create jobs and generate income.

As an integral part of the community food system, urban agriculture plays an important role in food system planning. It allows people to reconnect with their food. It reduces the miles travelled by food and the carbon emissions associated with its transportation. It grants access to nutritious foods and helps eliminate food deserts. Supporting urban agriculture requires the collaboration of local citizens and other stakeholders to improve how—and where—a community grows, processes, purchases, and consumes its food. Urban agriculture plays an important role in sustainable urban development. It can be a valuable tool for economic development, environmental protection, and community development. It helps create healthy communities by providing nutritious, fresh food and physical exercise opportunities. A diet rich in fruits and vegetables can reduce the risk of chronic diseases such as obesity and diabetes.

The current urban agriculture movement has created many innovative community-based projects in the American urban and suburban landscape. Urban farms are flourishing on rooftops in New York City, converted brownfields in Philadelphia, parkland in Baltimore, vacant lots in Oakland, in abandoned greenhouses in Lynchburg, and flood damaged neighborhoods in New Orleans. They grow vegetables, fruit, fish, eggs, honey, and more. Most of them function as educational and training facilities as well. Their common goal is to grow nutritious food—without using chemical fertilizers or pesticides—and offer it to all members of the community. This report presents a sample of these projects.



Prince George’s County has joined the movement. Its emerging urban farms grow organic produce with intensive farming methods. Residents are learning how to grow their own food. Gardening activities are booming. Community gardens are in demand. Youth and school gardens are springing up. Demonstration gardens educate and motivate the public. This report features examples of the county’s urban farms and gardening activities.



Two photos by Gül Güleriyiz.

New planning and public policy tools are needed to facilitate urban agriculture’s assimilation into urban and suburban environments. Local governments may take these steps to facilitate the process: assess existing conditions; incorporate urban agriculture into land use and other plans; identify and preserve suitable land; promote conducive urban design; educate and engage communities; assure soil safety; redevelop brownfields; and promote direct marketing, edible landscaping, and infrastructure planning.

Unintentional policy barriers should be reduced and new policies adopted to help foster urban agriculture. Zoning is the biggest barrier in most jurisdictions. This can be corrected by amending zoning ordinances to include: a definition of urban agriculture; creation of an urban agriculture district or overlay zone; addition of urban agriculture as a use category; and permission for special urban agriculture activities. Local governments can also create programs and develop incentives to foster urban agriculture, including community garden and composting programs, local food policies, education for residents, land provision, developer incentives, infrastructure and utility incentives, direct sales opportunities, funding and financial assistance, and red tape reduction. Best local government practices on planning and public policy for urban agriculture are included in this report.

Every Prince George’s County resident deserves access to healthy, affordable, and ethnically appropriate food. Urban agriculture can be used as an important tool towards this end. The following are policy recommendations to turn urban agriculture into a thriving industry and to make fresh, nutritious food available to all Prince Georgians. Multiple strategies for each policy are proposed in the report:

1. Recognize urban agriculture as a viable industry and use it as a tool to develop a robust economy.
2. Integrate urban agriculture into land use planning.
3. Provide access to suitable land for urban agriculture activities.
4. Establish community gardens in all neighborhoods.
5. Encourage new development and redevelopment projects in the Developed and Developing Tiers to include urban agriculture.
6. Provide education on urban agriculture and healthy eating.
7. Promote and support direct marketing opportunities for urban and suburban farmers.
8. Permit backyard chickens in all residential areas.
9. Permit beekeeping in urban and suburban areas.
10. Promote and support composting.
11. Encourage edible landscaping.
12. Amend the Zoning Ordinance to accommodate urban agriculture uses and activities and remove, reduce, and/or loosen zoning barriers to urban agriculture.



Photo courtesy of M-NCPPC Park Ranger Unit.



Photo by Gül Gülleryüz.



Photo by Gül Gülleryüz.



Photo by Gül Gülleryüz.



What is urban agriculture?

Urban agriculture likely dates to the birth of the cities, and its revival might just be the key to sustainable cities of the future.—Tom Philpott

Urban agriculture is a complex phenomenon with multiple dimensions: describing it is not easy. This chapter defines urban agriculture and presents its characteristics to help convey a better understanding of what it is all about.

Definition of urban agriculture

Urban agriculture is the activity of growing plants and raising animals in and around urban areas. Typically, urban agriculture uses intensive production methods that recycle nutrients, improve soil, and encourage plant and animal growth without the use of hazardous chemicals. Its products are processed, distributed, and consumed within the same urban area, often within the same neighborhood, in which they are produced.¹ (See Appendix A for commonly cited definitions of urban agriculture.)

A brief history of urban agriculture in the U.S.A.

“Urban agriculture” may be a new term, but its practice has been around for centuries. Early city settlers grew food at home. As cities grew and their industries and occupations diversified they became less self-sufficient: the urban-rural divide widened. Although agriculture has primarily been a rural industry, its urban counterpart has always existed on a smaller scale and in various forms.

Urban Agriculture is the fastest expanding element of agriculture and as yet is too little recognized.—Jac Smit, Founder of Urban Agriculture Network

The first organized urban agriculture occurred in the United States during the Panic of 1893, a serious economic depression that caused high unemployment and distress on farms. As a relief measure in Detroit, Mayor Hazen Stuart Pingree pioneered vacant lot cultivation. “Pringee’s potato patches” covered 430 acres cultivated by 945 families.² At the turn of the twentieth century, school gardens and, as part of the City Beautiful Movement, horticultural and window-box gardens became popular in response to sanitation issues and overcrowding of cities. During World War I the federal government urged people to grow food as a patriotic duty. Over five million “war gardens” or “liberty gardens” produced 528 million pounds of food.³ After the war, these gardens disappeared from the urban landscape until the Great Depression, when federal and state garden programs were created to help the unemployed. The relief and subsistence gardens of the 1930s helped feed

¹ The definition derives from the Resource Centres on Urban Agriculture and Food Security (RUAF) and United States Environmental Protection Agency (EPA).

² Frederick W. Speirs, Samuel McCune Lindsay, and Franklin B. Kirkbride, *Vacant-Lot Cultivation*, reprinted from the *Charities Review*, 1898.

³ Connie Krochmal, The Role of War Gardens, at Suite 101.com, January 3, 2005. (http://www.suite101.com/article.cfm/fruit_garden/112567/2)

23 million households during these hard times.⁴ During World War II the government once again started a gardening campaign. Americans responded with over 20 million “victory gardens” that produced more than half of the country’s fresh vegetables. Most of the gardens vanished after the war due to lack of government support and postwar suburbanization.

After a long gap of thirty years, urban agriculture was revived in distressed neighborhoods by community activists. The community garden movement of the 1970s was given momentum by civil rights, energy, and environmental ethics. Gardening was used as a political tool to achieve social justice and food security. The United States Department of Agriculture (USDA) sponsored the Urban Gardening Program, and the American Community Gardening Association was established during this period.

The current urban agriculture movement started in the late 1990s and grew in the twenty-first century, driven by heightened health consciousness. Alarming obesity rates and other food related illnesses made people more aware of the food they ate and ways to improve its safety. Hence demand for organic produce and locally grown food increased, and more people started growing their own. The Slow Food movement, sustainability, environmental stewardship, food security and accessibility, community empowerment, and cultural diversity all aided the rebirth of urban agriculture. The current urban agriculture movement is much broader than its predecessors, involving everything from container gardening to commercial farming and drawing people from all walks of life. (See Appendix B for a more detailed history of urban agriculture in the U.S.A.)

Types of urban agriculture

The many types of urban agriculture vary in size, shape, purpose, and operator. This report classifies types of urban agriculture as follows:

Home garden: Situated at a private home where food is produced for personal consumption. This may include front, side, or back yard gardens; container gardening on a patio or balcony; or even a window box.

Community garden plot: An individual plot rented from a public entity, private entity, or community organization to grow food or non-food crops for personal consumption.

Community garden: Food is grown collectively and produce is consumed by the community members.

Market garden: A home or community garden where food is grown for sale.

LEFT TO RIGHT: Home garden, community garden plot, and community garden.



Photos by Gill Gullytiz.

⁴ Laura J. Lawson, *City Bountiful: A Century of Community Gardening in America*, 2005.

LEFT TO RIGHT:
Entrepreneurial urban
farm, youth garden,
and school garden.

Guerilla garden: Operated by an individual or community members on public or private land without the permission of the landowner. Some guerilla gardens are created by enthusiasts simply to grow plants. Others result from activism aimed at making fresh produce available to those who don't otherwise have access to healthy food. Another motivation is to beautify abandoned or neglected properties, which are eyesores and potential sites for crime.



Photo on the immediate left courtesy of M-NCPPC Park Ranger Unit. The rest on the page by Gül Gülleryüz.



Youth garden: Used for educating youth about growing food and consuming the products.

School garden: Located on school property to teach hands-on food production to students either as part of the curriculum or as an extra-curricular activity.

Demonstration garden: Situated on the property of a research institution, a government building, or public park. A variety of crops is produced either for agricultural research purposes, to show the public how and what to grow, or simply to support and promote urban agriculture.

Institutional garden: Situated on the property of an institution such as a hospital, prison, faith-based organization, college, community center, or workplace. Food is grown by people affiliated to the institutions for hobby, therapeutic, or educational purposes.

Edible landscaping: Use of food producing plants for ornamental purposes on public or private property. Plants are used as landscaping elements. Its fruit, nuts, berries, or leaves may be eaten.

Entrepreneurial urban farm: A for profit or nonprofit operating farm that is a business enterprise where agricultural activity takes place.

Places for urban agriculture

Urban agriculture does not require a specific place. Due to its diversity in type and size, urban agriculture can be found in a variety of places, some of them unconventional. While some urban farms look similar to rural farms, other urban agriculture activities may not be obvious at first glance. The opportunities for urban agriculture are endless, both indoors and outdoors:

- ❖ Vacant lots.
- ❖ Back, front, and side yards of houses.
- ❖ Patios, porches, courtyards, and window sills.





Photos by Gill Gülleryüz.

- ❖ Parks.
- ❖ Schoolyards.
- ❖ College campuses.
- ❖ Rooftops.
- ❖ Warehouses or industrial buildings.
- ❖ Walls and fences.
- ❖ Garages.
- ❖ Train, bus, or subway stations.
- ❖ Airports.
- ❖ Prison courtyards.
- ❖ Hospital yards.
- ❖ Common open space in residential subdivisions.
- ❖ Space in office and industrial parks.

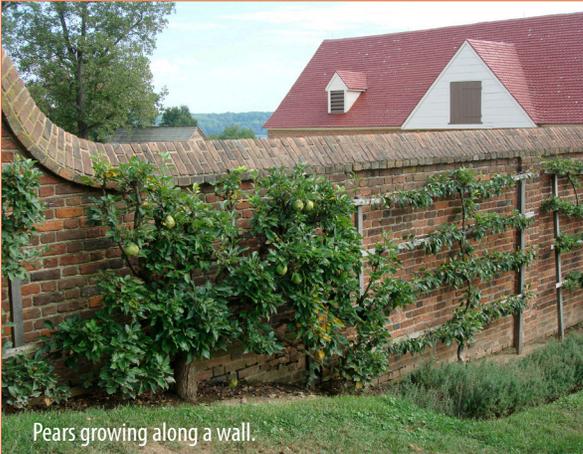


Photo by Virmie Bevilino.

Photos by Gill Gülleryüz.



Photos by Gill Gülleryüz.

- ❖ Shopping centers and malls.
- ❖ Yards of offices and other workplaces.
- ❖ Trucks.
- ❖ Atriums of office buildings.
- ❖ Rights-of way of public roads, railways, and streams.
- ❖ Vertical farms: Multistory buildings built for cultivation of plants and raising of animals.
- ❖ Fire escapes.
- ❖ Parking lots.
- ❖ Basements.
- ❖ Kitchen counters.

In short, urban agriculture can take place anywhere within and around urban areas.

Urban agriculture will make roofs, fences, walls, parking lots, roadsides and vacant lots, and abandoned sites productive.
—Jac Smit

Image courtesy of Dickson Dupommier, *The Vertical Farm.*



Photo courtesy of Denver Urban Truck Farm. Photo by: Ryan Sotirakis.

Urban agriculture activities

Urban agriculture activities are as diverse as their placement: besides food production, these activities include input generation, processing, distribution, and education.

There is great potential for high tunnels to expand the availability of healthy, locally-grown crops—a win for producers and consumers.
—U.S. Department of Agriculture Deputy Secretary Kathleen Merrigan



Production activities

Cultivation with soil

- ❖ Cultivation on open land.
- ❖ Greenhouse production.
- ❖ Hoop house or high-tunnel production: cultivation in a greenhouse type structure made of metal piping covered with plastic sheeting. High tunnels are easy to build, maintain, and move and are used year-round, providing steady incomes to farmers.
- ❖ Orchards.
- ❖ Vineyards.



Photos on this page by Gül Gülleryüz.

- ❖ Permaculture: an ecological design system for sustainability and self-maintained agricultural systems modeled on natural ecosystems.
- ❖ Horticulture.
- ❖ Forest gardens: carefully designed sustainable low-maintenance food production systems based on woodland ecology. A forest garden is created by using a companion planting method and, in addition to fruit and nut trees, may contain vines, herbs, and perennial vegetables.



Hydroponics

Cultivation without soil

- ❖ Hydroponics: growing plants in water without soil.
- ❖ Aquaponics: the combination of aquaculture with hydroponics in a recirculating system. The farmer feeds only the fish. Plants are fed by the fish waste, which is converted by bacteria into nitrates, a building block that plants need to grow. This serves a dual purpose—it allows safe recapture of what would be considered “waste” in a fish farm and creates a second food product. It also allows recycling of water that would have been contaminated and disposed of in both aquaculture and hydroponics, by naturally pulling effluent out of the water. Aquaponics is cleaner and greener than both aquaculture and hydroponics.⁵
- ❖ Aeroponics: growing plants in an air or mist environment without soil.
- ❖ Bioponics: A hybrid method of two distinctive growing techniques—hydroponics and organic farming—to grow crops using nutrients that are acceptable in a certified organic crop program within a hydroponics system.



Aquaponics

Photo on the right by Yvonne Bevilino. The rest on this page by Gül Güleriyiz.

Animal husbandry

- ❖ Beekeeping/apiaries.
- ❖ Chickens and other poultry.
- ❖ Other small animals.
- ❖ Aquaculture: raising aquatic animals such as fish or shellfish in tanks.



⁵ ECO City Farms web site: www.ecoffshoots.org



Composting.



Vermicomposting.



Wiggler worms.

Input generating activities

Soil amendment

It is not easy to find natural soil that is nutritious enough for food production. Hence creating a growing medium that has all the necessary nutrients is crucial for sustainable urban farming. This is done through:

The soil is the great connector of lives, the source and destination of all. Without proper care for it we can have no community, because without proper care for it we can have no life.
—Wendell Berry

- ❖ Composting: transformation of raw organic materials into humus-rich substances suitable for growing plants.
- ❖ Vermicomposting: the process of composting, by utilizing various species of worms, usually red wigglers, to create worm castings, the end-product of their breakdown of organic matter.
- ❖ Biochar: a fine-grained, highly porous charcoal that helps soil retain nutrients and water. Biochar is formed via emission controlled, thermal conversion of biomass. Pyrolysis and gasification are the main techniques to convert biomass to charcoal using heat in a low oxygen environment.



Biochar.



Compost tea.

- ❖ Compost tea: a liquid extract of compost—created by a process that increases the number of beneficial organisms—used for plant/soil care.



Compost tea creation.

Photo on the right by Viviana Lindo. The rest on this page by Gül Gülleryüz.



Alternative energy creation

Using alternative energy is essential to fully sustainable agriculture. This is especially important for year-round production. If high tunnels are heated they can even be used when temperatures drop below freezing. The following technologies can be used to create energy:

- ❖ Solar energy.
- ❖ Biofuel.
- ❖ Geothermal energy.
- ❖ Wind turbines.

Solar energy and a wind turbine.



Geothermal energy.



Photos on this page by Gill Gülleryüz.



Photo by Gül Güleriyüz.

Processing activities

- ❖ Canning.
- ❖ Jam/preserve making.
- ❖ Production of dairy products, such as cheese, butter, etc.
- ❖ Brewing.
- ❖ Wine making.
- ❖ Baking.
- ❖ Cooking.
- ❖ Drying.
- ❖ Distilling.
- ❖ Fermenting.



Photo by Gül Güleriyüz.



Winemaking.

Photo by Gül Güleriyüz.



Farm store.

Photo by Gül Güleriyüz.



Photo by Gül Güleriyüz.

Distribution activities

- ❖ Farmstands.
- ❖ Farm stores.
- ❖ Community supported agriculture (CSA): A community of individuals who pledge to support a farm, with growers and consumers sharing the risks and benefits of food production. CSA members pay in advance for a share of the anticipated harvest and receive weekly shares throughout the growing season.
- ❖ Farmers markets.
- ❖ Farm-to-table.
- ❖ Farm-to-school.
- ❖ Farm-to-institution.
- ❖ Wholesale distributors.
- ❖ Co-ops.
- ❖ Groceries.
- ❖ Food banks.
- ❖ Gleaning: Salvaging leftover crops to give to the needy.
- ❖ Online sales.
- ❖ Auctions.



Photo by Margaret Morgan-Hubbard.



Photos.com

Other activities

A variety of activities related to urban agriculture may take place on an urban farm or elsewhere:

- ❖ **Education**—urban agriculture and gardening lectures and workshops, nutrition and cooking classes, or demonstration projects.
- ❖ **Training**—summer internships, gardening for self-sufficiency, and youth development.
- ❖ **Career Development**—new farmer training programs.
- ❖ **Community events**—including weddings on urban farms.
- ❖ **Recreation.**
- ❖ **Tourism**—farm and garden tours.

Cultivators of the earth are the most virtuous and independent citizens.—Thomas Jefferson

The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings.—Masanobu Fukuoka



Photo by Gill Gallerytz.

Urban agriculture versus rural agriculture

Urban agriculture differs from rural agriculture in many ways. The urban variety usually occurs on a smaller scale, uses more intensive production methods, serves local consumers, and, of course, is located in and around urban areas. The lead feature of urban agriculture, which distinguishes it from rural agriculture, is not its urban location but its integration into the economic and ecological systems of its

Agriculture has been amongst the most favorite amusements of my life.
—George Washington

urban areas.⁶ Urban agriculture interacts with the urban ecosystem in multiple ways, including the use of urban residents as farm laborers; use of organic waste from households, restaurants, institutions, and markets; direct links with consumers; positive and negative impacts on urban ecology; being part of the urban food system; competing for land with other urban uses; and being influenced by urban policies and plans.⁷ Urban agriculture has existed in urban areas throughout history. Changes in urban living and technological advancements did not remove it from the scene. It interacts with urbanites as well as the development, politics, economy, and ecology of its urban areas; simply put, it interacts directly with urban life as a whole and is an integral part of the urban system.

Some may see urban agriculture as competition for rural agriculture. They may be concerned about the threat it may pose to rural agriculture and the rural economy. On the contrary, urban agriculture complements rural agriculture in a food system. Its small scale and limited market area dictate that it remains essentially a provider of fresh, perishable food directly to local consumers. Rural agriculture, on the other



⁶ Luc J.A. Mouget, "Urban Agriculture: Concept and Definition," *Urban Agriculture Magazine*, July 2000, vol.1, no.1.

⁷ RUAF Resource Centers on Urban Agriculture and Food Security, "What is urban agriculture?" retrieved from: www.ruaf.org



Photo by Gill Gülleryiz

hand, is usually larger in scale and produces large quantities for sale, not only in its immediate vicinity, but also for shipment to faraway locations. RUAF Foundation claims that urban agriculture not only complements rural agriculture but also increases the efficiency of the national food system by providing products that rural agriculture cannot easily supply, substituting for food imports, and releasing rural lands for production of export commodities.⁸

In addition, certain types of commodity crops cannot be produced by urban agriculture. These crops require large fields and heavy equipment that is inappropriate for urban settings. Generally these crops require processing and cannot be sold directly to consumers. Hence, rural agriculture has its own niches, and consumers' needs cannot be entirely satisfied without rural agriculture's production.

⁸ Ibid.

Why is urban agriculture important?

Urban agriculture is more than “agriculture” as we know it. It is increasingly being considered as a strategy to enhance urban food security and health, support community building, contribute to urban environmental management, and provide educational and recreational services. It is also a tool for economic development. Urban agriculture can play a big role in improving quality of life in urban and suburban areas.

Environment

*There is no better tool known or available to fight climate change than urban agriculture.—
Jac Smit*

Environmental impact of food production: Elimination of long-distance transportation of food and solid waste reduces negative air quality impacts, as does the availability of local produce and waste recycling.

Waste management: Food waste is recycled and reused as compost and animal feed. Waste water is recycled and used for irrigation.

Environmental stewardship: Engagement in food production generates awareness of the environment, and people take responsibility for protecting it.

Energy consumption: Energy needs and costs associated with refrigeration and long-distance transportation of food are reduced. Alternative (solar, wind, or geothermal) energy is used on urban farms.

Environmental improvement: Air is cleaner and the heat island effect reduced due to green areas created by urban agriculture.

Stormwater management: Stormwater runoff is used for watering plants.



Photos by Gül Güleriyiz.

Economic development

Catalyst for economic development: A new cog is added to the economic engine within the world’s oldest industry, which not only enhances the agricultural sector, but also expands its horizon by introducing it to the urban areas.

Job creation: Intensive growing techniques require manual labor; high-tech production methods require agricultural and related specialists, engineers, and computer experts; and direct marketing requires marketing specialists as well as sales and distribution personnel. In the case of nonprofits, other office personnel are also needed.

Employment opportunities for disadvantaged people: Food-based employment opportunities are provided to the economically disadvantaged and/or unskilled people in their communities.

Income generation: Growing and selling produce generates cash, whether it is done in the back yard or on a farm. Livelihoods are provided for those who start urban farms as small businesses and for those who work on the farms.

Savings for households: Growing one's own food saves household expenditure on food and leaves more disposable income for other needs, which in turn, generates demand for goods and services and boosts the economy.

Small business development: An urban farm is a business enterprise, so every urban farm adds another small business to the economy.

Entrepreneurship development: A farmer who starts an urban farm, which is a small business, is essentially an entrepreneur who, by definition, "shifts economic resources out of an area of lower and into an area of higher productivity and greater yield."⁹

Higher productivity: Intensive production methods yield more per acre.

Increased property values: Conversion of abandoned properties into gardens and farms improves the overall image of neighborhoods: thus property values increase.



Photo by Gül Gülleryüz.



Photo by Viviana Lindo.



Photo by Gül Gülleryüz.

Community development

A community building tool: Community members are brought together around a common interest, thus promoting positive interaction.

Youth development: Youth gain knowledge about growing food, job readiness, entrepreneurial skills, and life skills.

Crime prevention: Crime rates may be reduced by creating access to affordable food, engaging troublesome youth in farming, creating jobs for the unemployed, and reducing the number of vacant lots that are crime hotspots.

Neighborhood revitalization: Neighborhoods are revitalized by converting abandoned, vacant lots into beautiful, productive green spaces, improving the image of troubled neighborhoods.

Sense of empowerment: Residents who grow food for themselves and others develop more pride, self-sufficiency, and feelings of empowerment.

Cultural preservation: Opportunities are given to people, especially immigrants, to grow the ethnic food they grew up with, thus passing on their authentic recipes to new generations.

⁹ Saying by Jean-Baptiste Say, a French economist who first coined the word "entrepreneur" in about 1800. *The Economist*, April 27, 2009.

Health

Preventing food related health risks: People who are actively or even passively (as spectators) involved in fresh food production tend to cut down their consumption of fast food or other unhealthy food that causes diabetes and obesity.

Reduction in health care costs: When affordable fresh produce is abundant, people eat it. Eating fresh produce reduces the risk of many diseases and the associated costs of treatment.



Photo by Gill Gulleryuz.

Raising healthy kids: Kids exposed to growing food tend to eat what they grow. They generally eat more vegetables and fruits than those who do not know where food comes from. Healthy diet leads to a healthy life.

Improved community health: Both the physical and mental health of people involved in fresh food production is improved. The more people grow and eat fresh produce, the better the overall health of the community.

Therapeutic: Gardening is a proven therapy. Working in the garden is a good physical activity, and connecting with earth quietens the mind.

Education

[A]griculture [is] the employment of our first parents in Eden, the happiest we can follow, and the most important to our country.... It is at the same time the most tranquil, healthy, and independent [occupation].— Thomas Jefferson

Public education: Growing food in neighborhoods engages residents in food systems, teaches them sustainable agriculture, and creates awareness of health and the environment.

Career development: New farmer training programs not only teach job and life skills, but also help immigrants, youth, women, and those seeking career changes.

Youth programs: Apprenticeships on farms as well as involvement in youth and community gardens teach young people where food comes from and engage them in positive activity.

School programs: Incorporating gardening or agriculture into the K-12 curriculum or, at the very least, as an extracurricular activity, teaches children how to grow their food and encourages them to eat more fruits and vegetables.

Transition programs: Gardening is a popular and effective tool in transition programs for people who are incarcerated or undergoing substance abuse rehabilitation.



Photo courtesy of M-NCPPC Park Ranger Unit.



The garden suggests there might be a place where we can meet nature halfway.
—Michael Pollan

Recreation

Open space: This is provided to community members, along with a source of fresh air.

Exercise: Gardening and farming provide excellent outdoor exercise.



Food

Food security: The risk of going hungry is reduced through opportunities to grow food where one lives.

Access to healthy food: People who live in food deserts, where no fresh produce is available, are given access to fresh nutritious food.

Food sovereignty: Control of one's own food system empowers people with the right to grow, sell, and eat healthy food.

Organic production: Opportunities are provided to grow and eat food that is free from chemicals, without paying high market prices.

Land use planning

Landscape diversity: A new variety of landscape—with edible plants and more—is introduced into the urban environment, breaking the monotonous look of some neighborhoods.

Aesthetics: Abandoned, trash ridden properties with overgrown weeds—the eyesore of the neighborhood—are replaced with nicely maintained green spaces.

Urban redevelopment: Contaminated or underused industrial and commercial sites (brownfields); outdated, economically failing, or underused real estate (greyfields); and abandoned lots in urban areas are converted into economically viable green spaces that feed the residents.

Creation of green areas: Open space is provided, helping the urban areas to breathe.

Land use economics: Undevelopable sites, such as steep slopes, are made economically viable.



Urban agriculture and food system planning

If people can grow safe, healthy, affordable food, and if they have access to land and clean water, then this is transformative on every level in a community. I believe we cannot have healthy communities without a healthy food system.—Will Allen

The “food system” is defined as “the chain of activities connecting food production, processing, distribution and access, consumption, and waste management, as well as all the associated supporting and regulatory institutions and activities.”¹⁰ As opposed to the conventional food system, where many of the activities or parts occur on a global scale, a community food system is local and place-based. This system is favored by food activists since it promotes local and regional connections from the producer to the consumer. A community food system also promotes the idea of social justice, prioritizing the concerns of struggling farmers, migrant workers, and underserved populations, rather than large corporations. Furthermore, it promotes use of sustainable methods for growing, packaging, and transporting food. A community food system also provides community food security, defined as a condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice.¹¹

¹⁰ American Planning Association’s Food System Planning Committee, Food System Planning White Paper, 2010.

¹¹ Mike Hamm and Anne Bellows, “What is community food security?” Community Food Security Coalition web site: www.foodsecurity.org



Photos on this page by Gül Güleriyüz.

FIGURE 1: FOOD SYSTEM CHART



In examining the food system, it is important to look at the planning domain that regulates all the parts within that system, otherwise known as food system planning. This practice is “a comprehensive future-oriented approach to maintaining and improving the global-to-local network that nourishes us. It includes traditional planning areas like infrastructure, the physical environment, economic development, and environmental impact, as well as emerging areas like community food security and public health.”¹² Much like traditional planning practice, food system planning uses various tools, like land use planning, which affect “the way food is produced, distributed, and consumed.”¹³

Food system planning has been absent from the planning domain for many years. It was not considered as an element of the built environment or as part of public services and facilities planning. A false sense of food security led planners to ignore the ongoing loss of farmland and the existence of food deserts in various communities.¹⁴ Fortunately, this attitude has shifted in recent years. The need for food system planning is now recognized in comprehensive plans and policies. Many cities are incorporating this practice as a way to tackle problems ranging from obesity to climate change. Furthermore, growing populations, loss of farmland, and increasing oil prices all contributed to the need to plan for food production and consumption.

Local food systems work for America: when we create opportunities for farmers and ranchers, our entire nation reaps benefit.— President Barack Obama This is where urban agriculture comes into play, being integral to the community food system. Urban agriculture allows people to reconnect with their food at all stages in the food system, from production through waste management. Having smaller scale local agriculture also reduces the miles traveled by food and the chemicals and waste associated with it. It grants access to healthy, fresh foods, and helps eliminate food deserts.

Supporting urban agriculture within the community food system requires the collaboration of planners, local citizens, and other stakeholders to improve how and where a community grows, processes, purchases, and consumes its food. According to the American Planning Association’s Planning and Community Health Research Center, this collaborative planning process involves developing and implementing local and regional land-use, economic development, public health, transportation, and environmental programs and policies to:¹⁵

- ❖ Preserve existing and support new opportunities for local and regional urban and rural agriculture.
- ❖ Promote sustainable agriculture and food production practices.
- ❖ Support local and regional food value chains and related infrastructure involved in processing, packaging, and distribution.
- ❖ Facilitate community food security, or equitable physical and economic access to safe, nutritious, culturally appropriate, and sustainably grown food at all times, especially among vulnerable populations.

¹² Food Systems, retrieved from: www.foodsystemsplanning.com

¹³ Food Security Learning Center, Land Use Planning, retrieved from: www.whyhunger.org

¹⁴ American Planning Association, *Policy Guide on Community and Regional Food Planning*, May 2007.

¹⁵ www.planning.org/nationalcenters/health/food.htm

- ❖ Support and promote good nutrition and health.
- ❖ Facilitate the reduction of solid food-related waste and develop or manage a reuse, recovery, recycling, and disposal system for food waste and related packaging.

Planning for food and urban agriculture requires special attention by planners. Questions related to location, access, and economic and social benefits need to be considered when planning where food is produced and distributed in order to maximize the benefits and achieve a healthy and sustainable food system.



Photos by Gül Güleriyiz.

Urban agriculture and sustainability

No other economic development activity has as much appeal to those concerned with sustainability as urban agriculture: city dwellers connecting with the earth, growing their own healthful food, and often making money doing so; abandoned lots being cleared of debris and transformed into beautiful green public spaces, filled with life, color, and value, in the bleak urban jungle; people of all ages with little or no employment possibilities learning job and life skills working with nature; cities reducing the fuel-burning and air-polluting impact of transporting solid waste and food long distances because organic waste is recycled into compost and food is grown in the neighborhood where it is consumed; and food production moving away from the herbicides, pesticides, and other toxins upon which American agribusiness has become so dependent.—Chris Lazarus



Photo by Gül Galleryüz.

Sustainability has been defined as meeting the needs of the present without compromising the ability of future generations to meet theirs.¹⁶ Sustainability can be viewed as a three-legged stool with economy, environment, and community as its pillars. This section uses these three pillars of sustainability to highlight the role urban agriculture can play in sustainable urban development. It shows how urban agriculture can be an excellent tool for economic development, environmental protection, and community development and how it can enhance quality of life.

Economic development

In general, agriculture is considered an industry with low profit margins. Many pose this question: If established medium-sized- and large farms struggle financially, how will newly created small urban farms survive? There are several answers, corresponding to several ways for urban farms to become lucrative and contribute to the local economy.

Job creation, income generation, and financial stability

In a depressed economy with high unemployment, urban agriculture can create jobs, generate income, and promote financial stability. According to the American Planning Association, food-related enterprises are among the most common small businesses and present a way for many households to supplement incomes and achieve economic stability.¹⁷

Urban agriculture can create meaningful jobs, even careers. A study published by Ken Dunn, founder of The Resource Center and City Farm program in Chicago, considered urban agriculture a significant potential

¹⁶ United Nations General Assembly, *Report of the World Commission on Environment and Development: Our Common Future*, 1987.

¹⁷ American Planning Association, *Policy Guide on Community and Regional Food Planning*, May 2007.



Photo by Gill Gullyvitz.

contributor for job creation and economic development. Dunn estimated that one acre of urban land used for farming may support seven jobs.¹⁸ The high density of urban areas promotes labor-intensive production methods for growing food. The ability to support more farmers per acre permits the kind of management-intensive system that maximizes productivity.¹⁹ This means that urban agriculture creates multiple employment opportunities: farm laborers to do the field work, managers, technicians, and engineers to operate high-tech systems, marketing specialists, accountants, and more.

Intensive growing methods, efficient use of space, and fast growing crops all contribute to increased productivity in urban agriculture. Use of high tunnels and greenhouses helps to extend the growing season. High productivity means more income generation and more financial stability.

Our welfare and prosperity depend upon the cultivation of our lands and turning the produce of them to the best advantage.—
George Washington

When the distribution chain is shortened by growing food locally, producers get more money in their hands, while consumers pay the same for fresher, healthier food. As Mary Seton Corboy of Greensgrow in Philadelphia says, “If we sell our lettuce to a produce distribution center, they pay \$5 for a 3 lb. case. If we sell to a middleman, he gives us \$8.50 a case. If we sell it ourselves to the restaurants here in town, we get \$13–15 a case. Part of the trick is to keep expenses to a minimum—easy to do if you sell to local customers.”²⁰



Photo by Gill Gullyvitz.

Another article on the economic benefits of urban agriculture cites an example from Ohio to show that farmers can gross up to \$90,000 per acre from urban market gardens by selecting the right crops and growing techniques.²¹ According to Jac Smit, a pioneer of urban agriculture, high profit margins are possible if a venture uses niche marketing and focuses on high-value crops, such as herbs and scarce specialty produce, because they sell for high prices.²² A feasibility study for the Somerton Tanks Demonstration Farm (STF) in Philadelphia showed that \$68,000 was grossed from sales in 2006 by utilizing the SPIN (Small Plot INTensive) growing approach on a half-acre farm. STF was operated by a full-time wife-husband farmer team aided by part-time labor who planted 60 different vegetables three to four times annually. Products were sold

¹⁸ Ken Dunn, How to Make a City Farm, In the Field, retrieved from <http://www.inthefield.info>

¹⁹ Karl North, Visioning County Food Production Part Four: Urban Agriculture, TLocal, May 31, 2010, retrieved from <http://tlocal.org>

²⁰ Chris Lazarus, “Urban Agriculture: Join The Revolution,” New Village Journal, Issue 2: Community Scale Economics, July 2000.

²¹ “Urban agriculture: good food, good money, good idea!” in OECD Insights, September 13, 2010.

²² Chris Lazarus, Ibid.

It takes a lot of skill to be able to grow food sustainably. It's an art form. We need to raise agriculture up to another different level like they do in Europe where farmers are on the same level as engineers and doctors...because the food that we eat is the most important thing in our lives.—
Will Allen

to four market segments: four farmers markets, CSA shares, restaurant/wholesale outlets, and an on-site farmstand.²³ The ability of urban agriculture to provide financial stability can be seen in home and community gardening. When people grow their own, the money spent on food is dramatically reduced. Limited-income households benefit, not only by eating nutritious food, but also by being able to spend their savings on other needs. In 2009, 29 community gardens in Trenton, New Jersey, produced an estimated 22,688 pounds of produce valued at \$47,645 on a total of 2.64 acres of land.²⁴ Figures for Philadelphia's 226 community gardens are more impressive: in 2008, an estimated \$4.9 million in summer vegetables was produced on 38 acres.²⁵

These examples indicate that urban agriculture offers valuable opportunities for entrepreneurship and utilization of uncultivated land to generate income and gain financial stability. It is possible to make good money from urban agriculture and contribute to the local economy. This can be achieved by using intensive growing methods, choosing high-value crops, and selling them directly to consumers, preferably high-end restaurants willing to pay more than households. In back yard and community gardens, growing enough produce to meet the basic needs of a household has direct and indirect economic benefits.

Increased property values

A study by the New York University (NYU) School of Law and NYU's Furman Center for Real Estate and Urban Policy found that community gardens have significant positive effects on surrounding property values.²⁶ This is especially true in poor neighborhoods



Photo by Gül Gülleryüz.

²³ Institute for Innovations in Local Farming, *Farming in Philadelphia: Feasibility Analysis and Next Steps*, 2007.

²⁴ D. Vitiello, M. Nairn, J.A. Grisso, and N. Swistak, *Community Gardening in Trenton, NJ Harvest Report*, August 2010.

²⁵ D. Vitiello and M. Nairn, *Community Gardening in Philadelphia 2008 Harvest Report*, October 2009.

²⁶ Ioan Voicu and Vicki Been, The Effect of Community Gardens on Neighboring Property Values, *Real Estate Economics*, Vol. 36, Issue 2, pp. 241-283, Summer 2008.

FIGURE 2: AGRICULTURAL MULTIPLIER EFFECT

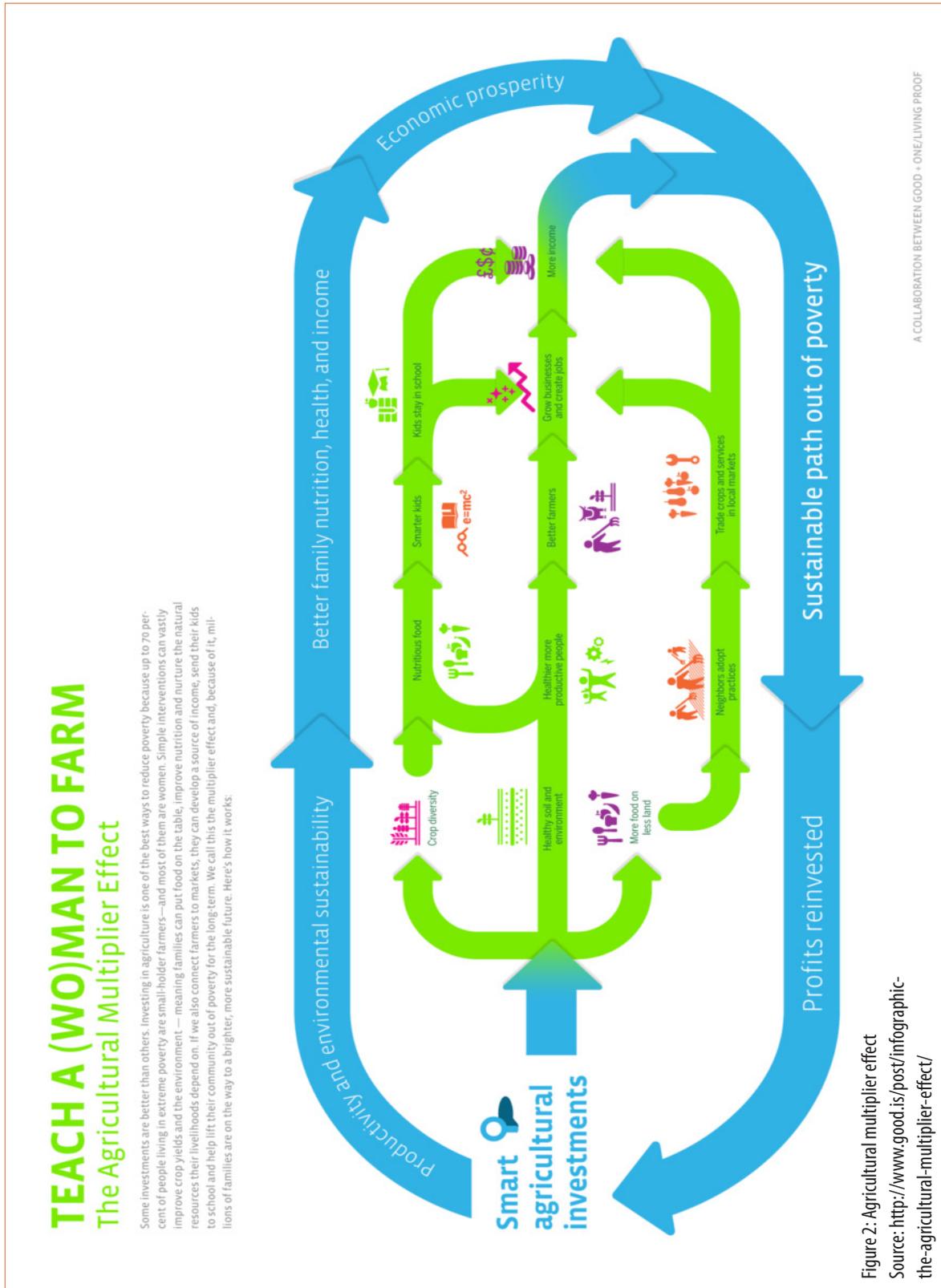


Figure 2: Agricultural multiplier effect
Source: <http://www.good.is/post/infographic-the-agricultural-multiplier-effect/>

where a garden raises neighboring property values by as much as 9.4 percentage points within five years of its opening.²⁷ In a neighborhood where abandoned vacant land and/or dilapidated buildings are plentiful, turning them into urban farms or community gardens helps remove blight and beautify the neighborhood. Abandoned properties usually attract loiterers and criminals; thus turning these properties into urban farms also helps reduce crime. The end result of an urban agriculture activity is usually revitalization of a neighborhood, which has a positive effect on property values.

The multiplier effect

Urban agriculture is a local activity which allows for the value of agricultural produce sold to stay within the community and contribute to the growth of the local economy. A study conducted by New Economics Foundation found that each dollar spent locally generates twice as much income for the local economy.²⁸ This growth yields more dollars in “disposable income” to be spent locally on goods and services, benefiting other members and businesses in the local community and resulting in more financial prosperity. This is known as the “multiplier effect.”

Figure 2 illustrates the agricultural multiplier effect by showing the various economic benefits of investing and supporting agriculture as a strategy for poverty alleviation. The same benefits apply in supporting urban agriculture and local farmers within the community.

Environmental protection

Urban agriculture creates green zones where residents can enjoy a high quality of life in a healthy environment.

Improved air quality

As discussed in earlier sections, local food production and distribution minimizes food miles, hence reducing the carbon emitted in transportation. A study by the Leopold Center for Sustainable Agriculture estimated that the weighted average source distance (WASD) for locally grown produce to reach institutional markets was 56 miles, while the conventional WASD for the produce to reach those same institutional points of sale was 1,494 miles, nearly 27 times further.²⁹ Since carbon emissions contribute to air pollution, air quality improves as emissions decline. Vegetation also helps cleanse the air from dust and pollutants, helps lower toxic carbon dioxide levels from cars through photosynthesis, and helps introduce more pleasant odors to urban areas.

Urban Agriculture is not the total solution—but is an indispensable major element in a plan and program to achieve an urban society that is carbon neutral and does not further destroy our planet.—Jac Smit

Closed nutrient loops

Urban agriculture closes open nutrient loops by reusing waste water and solid waste as key inputs to food production. In addition to farm waste, food waste from restaurants, institutions, and residents can be turned into nutritious compost. Utilizing compost and

²⁷ Ibid.

²⁸ Brian Halweil, *Eat Here: Reclaiming Homegrown Pleasures in a Global Supermarket*, New York: W.W. Norton & Company, 2004.

²⁹ Rich Pirog and Andrew Benjamin, *Checking the food odometer: Comparing food miles for local versus conventional produce sales to Iowa institutions*, Leopold Center for Sustainable Agriculture, 2003.



livestock manure as natural fertilizers to strengthen soil and grow crops helps both to manage nutrients on the farm, and to reduce reliance on chemicals, which potentially contaminate our streams, rivers, and bays. Urban farmers also help reduce solid waste by minimizing the packaging of food.

Recycling urban wastewater and using it to grow food crops can help save water and reduce water pollution. Reuse of greywater prevents untreated wastewater discharge to coastal and groundwater systems with ecosystem benefits. Farmers avoid irrigation costs,

Good farmers, who take seriously their duties as stewards of creation and of their land's inheritors, contribute to the welfare of society in more ways than society usually acknowledges, or even knows. These farmers produce valuable goods, of course; but they also conserve soil, they conserve water, they conserve wildlife, they conserve open space, they conserve scenery.—
Wendell Berry

while the presence of nutrients in the wastewater reduces their fertilizer expenses.³⁰ Using greywater as a nutrient source produces increased plant heights and yields similar to that obtained when using chemical fertilizers.³¹

Reduced energy consumption

Sustainable urban agriculture depends on the use of renewable resources. Urban farms can go off-the-grid by producing their own energy using alternative sources like wind, geothermal, solar, or biofuel energy. Since the food is delivered to local consumers on the same day it is harvested or slaughtered, there is no refrigeration cost. Intensive, small-scale farming does not need heavy equipment that requires fuel or electricity to operate.

Biodiversity conservation

Urban agriculture helps maintain biodiversity within communities. Growing food close to consumers reduces traffic, storage, and packaging as sources of the pollution that erodes biodiversity.³² Urban agriculture supports the creation of green spaces with diverse plants and species within the sterile urban environment. These green spaces support the habitat of other organisms, like insects, birds and bees, otherwise barely existent in urban settings. Supporting such organisms helps pollinate plants and slows down the loss of biodiversity. One example is the green roof created for Chicago's City Hall building in 2001. Between 2001–2003, this green space saw a 12 percent rise in the number of birds using the roof and an increased variety of species.³³



Photos on this page by Gill Gulleryiz.

³⁰ Food and Agriculture Organization of the United Nations, *The Wealth of Waste: The Economics of Wastewater Use in Agriculture*, FAO Water Reports 35, Rome, 2010.

³¹ Lumka Salukazana, S. Jackson, N. Rodda, M. Smith, T. Gounden, N. Macleod and C. Buckley, "Greywater Use for Agricultural Irrigation in Urban and Peri-urban Areas."

³² Jac Smit, Urban Agriculture and Biodiversity, RUAF articles retrieved from: www.ruaf.org

³³ Chicago Wilderness Magazine, 2004.

Stormwater management

Urban agriculture plays another role in environmental sustainability by mitigating stormwater runoff. Since cultivated land is much more porous than any other land, it allows water to infiltrate the ground, recharge the ground water, and reduce stormwater runoff. Research done on community gardens in Philadelphia found that more impervious uses of land have rates of water runoff that are 1.2 to 4.9 times higher than that of community garden-occupied land.³⁴

Community development

Studies acknowledge the social benefits of urban agriculture. It is a great tool for building a sense of community. Community gardens are particularly important in developing community pride through a common interest. Neighbors who rarely see each other come together in a community garden and develop friendships. Community farms attract residents as volunteers and create festive and fun environments. These positive interactions around growing food strengthen community ties and a sense of pride.



Photo by Viviana Lindo.



Photo by Gül Gülleryüz.

Cultural diversity

Urban agriculture can help promote cultural diversity, providing a valuable means of expressing local or ethnic identity through growing culturally significant produce.³⁵ This helps to preserve the cultural background of immigrant populations and to pass their traditions on to new generations. Growing ethnic food in community gardens and sharing it with neighbors enhances the cultural diversity in the neighborhood and broadens knowledge about other cultures.

If we're talking about social justice it has to encompass the food that we eat, the people that grow the food, how they're treated, their health benefits, their wages.—Karen Washington, Community Gardener, Bronx, NY

Social justice and empowerment

Urban agriculture plays a role in ensuring social justice by providing food security and sovereignty. Through increased access to healthy and fresh foods, urban agriculture contributes to proper nutrition amongst disadvantaged communities and helps improve their productivity by providing them with opportunities to earn additional income.³⁶ Urban agriculture also helps combat discrimination by including women, ethnic minorities, elderly, and other disadvantaged people.³⁷ Growing food also helps build capacity for change, hence developing pride and empowerment in disadvantaged communities.

³⁴ Kevin Levy, *Sustainability in Philadelphia: Community Gardens and Their Role in Stormwater Management*, 2008.

³⁵ Ibid.

³⁶ Jac Smit, Annu Ratta and Joe Nasr, *Urban Agriculture: Food, Jobs and Sustainable Cities*, UNDP, Habitat II Series, 1996.

³⁷ Katharine A. Travaline, *Urban Agriculture: Enhancing Food Democracy in Philadelphia*, Drexel University, 2008.

It's [urban agriculture] a great opportunity not only for healthy diets, but to strengthen communities. In some cases, urban agriculture has helped fight crime, reconnect people through common activity, and bring families together.—USDA Deputy Secretary Kathleen Merrigan

Safety and crime prevention

Urban agriculture contributes to maintaining safe communities. By serving as “eyes on the street,”³⁸ it promotes a sense of safety among residents. A book on designing urban agriculture for sustainable cities highlights the tackling of crime as one achievement of the community garden movement in the U.S.A..³⁹ Transforming vacant lots and abandoned properties into urban farms and community gardens helps reduce crime, because cultivated land is regularly occupied and monitored, hence eliminating illegal activity. By removing blighted properties, urban agriculture also reduces the expenses associated with policing and maintaining these areas.

Youth Development

Urban agriculture, whether in school, community gardens, or entrepreneurial urban farms, is used as a successful youth development tool. Learning how to grow food teaches youth responsibility and ownership. Being involved in urban agriculture keeps them out of trouble and gives them an opportunity to do something meaningful, good, and productive. They learn where their food comes from and get excited about eating what they grow. They even teach their families how to eat nutritious food. In a video interview, a teenage girl who works on an urban farm revealed a sad truth about the eating habits of some families: she had never eaten salad in her life. She, now calls herself a “saladholic” and is proud about teaching her family to eat it. This shows that involving youth in urban agriculture amounts to more than youth development.

Education

Urban agriculture provides communities with educational opportunities. Children and adults can interact directly with the food they consume and see where it comes from. They learn how to grow their own food. They can also observe plants and species otherwise only discussed in textbooks. They can reap the benefits of being outdoors and getting exercise from gardening.



Photo by Gül Gülerüz.

³⁸ Coined by Jane Jacobs in her landmark book *Death and Life of Great American Cities*, “eyes on the street” refers to natural surveillance through designing the placement of physical features, activities, and people in such a way as to maximize visibility and hence limit the opportunity for crime.

³⁹ André Viljoen, Katrin Bohn, and Joe Howe, *Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities*, Oxford: Architectural Press, 2005.

Urban agriculture and public health

Urban agriculture has public health benefits. This chapter looks at how urban agriculture contributes to creating healthy communities.

Nutrition



Photo by Gill Gillyeritz.

Good health starts with good nutrition. Urban agriculture promotes nutritious diets by granting people access to fresh food. The link between freshness and health is important: studies have shown that a 5–10 day transportation and storage lag between production and consumption leads to the loss of 30–50 percent in some nutritional constituents.⁴⁰ Furthermore, experience with growing food helps develop healthy dietary habits. People who grow their own food tend to eat more vegetables than those who buy them.

Disease prevention



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Healthy eating reduces the risk of many chronic diseases. It is especially important to eat plenty of fruits and vegetables. There is compelling evidence that a diet rich in fruits and vegetables can lower the risk of heart disease and stroke, control blood pressure, prevent some types of cancer, and lower risk of vision loss and digestive problems.⁴¹ The American Cancer Society recommends eating at least 2½ cups of fruits and vegetables every day.⁴²

Obesity, diabetes, and other diet-related diseases are on the rise nationwide. The main cause of this is unhealthy diets. Most of these people, unfortunately, do not have a choice, because they do not have access to nutritious and affordable fresh food, especially fruits and vegetables. Urban agriculture, particularly in the form of home or community gardens, makes it possible for people of every income level to eat healthy food. It is an important tool in fighting obesity and other diet-related diseases.

⁴⁰ Anne C. Bellows, Katherine Brown, and Jac Smit of the Community Food Security Coalition's North American Urban Agriculture Committee, *Health Benefits of Urban Agriculture*, 2005.

⁴¹ Harvard School of Public Health, *The Nutrition Source: Vegetables and Fruits*, retrieved from: www.hsph.harvard.edu

⁴² American Cancer Society, *Stay Healthy: Eat Healthy*, retrieved from: www.cancer.org

Food Security

Urban Agriculture is now a technologically viable and a socially/politically supportable approach to help feed the planet.— Jac Smit

As discussed earlier, urban gardening has been a significant source of food security, especially during economic crises. Currently, sharing food with friends and family in need is reported as one of the main reasons for growing produce.⁴³ Various cities are incorporating community gardens as a way to secure food for impoverished and marginalized groups. One example is The Garden Project, part of Lansing, Michigan's Food Bank. The project has 18 community gardens and provides the necessary equipment and technical assistance for gardeners to grow their own food. The surplus produce, amounting to 200,000 pounds of fruits and vegetables each season, is distributed to low-income housing, soup kitchens, and community service organizations.⁴⁴

Exercise

The process of planting, caring for the garden, producing, and picking food is a form of exercise that can be performed across all ages, genders, and ethnicities. Gardening helps avoid sedentary lifestyles, increases muscular flexibility, and builds strength and endurance. In fact, researchers at Kansas State University identified gardening as a "moderate intensity" exercise.⁴⁵ If done for 30 minutes a day, such activity satisfies the recommendations of the Centers for Disease Control and Prevention and helps people reach a healthy state of being, especially seniors. Other research indicates that gardening reduces the risk of obesity, coronary heart disease, diabetes, and occupational injuries.⁴⁶ Furthermore, gardening in outdoor spaces ensures exposure to the sun and fresh air, both necessary for a healthy lifestyle.

Mental health

Gardening also promotes a healthy mental state. Being outdoors and taking care of plants is both relaxing and rewarding to the caregiver. It reduces stress, helps people reconnect with nature and the outdoors, brings an invaluable sense of achievement, and builds self-esteem. No wonder that horticulture is considered a useful and natural therapeutic tool for people with certain mental disorders and other psychological problems.⁴⁷

⁴³ Anne C. Bellows, et. al, *ibid.*

⁴⁴ Community Food Security Coalition's North American Urban Agriculture Committee, *Urban Agriculture and Community Food Security in the United States: Farming from the City Center to the Urban Fringe*, October 2003. Retrieved from <http://www.foodsecurity.org/PrimerCFSCUAC.pdf>

⁴⁵ Kansas State University, Gardening Gives Older Adults Benefits Like Hand Strength And Self Esteem, *ScienceDaily*, February 17, 2009.

⁴⁶ Anne C. Bellows, et. al, *ibid.*

⁴⁷ Jane Elliot, BBC News health reporter, "Blooming good' mental health therapy," from BBC News, July 18, 2006. <http://news.bbc.co.uk>



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Innovative community-based urban agriculture projects around the nation

Since the beginning of the urban agriculture movement at the end of the twentieth century, a variety of related activities have been shaping the American urban and suburban landscape. More people are growing their own food in back yard gardens, on vacant lots, and wherever else they have the opportunity. The number of community, school, and youth gardens is rapidly increasing. Urban farms are mushrooming in small towns and big cities in various forms and sizes. Many innovative urban agriculture projects are taking shape as grassroots or nonprofit initiatives, public-private partnerships, or private enterprises. This chapter displays a sample of these projects from various parts of the country. Appendix C displays additional urban agriculture projects.

Growing Power, Inc.⁴⁸ Milwaukee, Wisconsin

Growing Power, Inc. (GP) is a pioneer organization that runs one of the most successful urban agriculture operations in the country. It was founded in 1993 as a nonprofit organization by former NBA basketball player Will Allen, a native of

Maryland. Considered a guru of urban agriculture, Allen has won numerous awards, including the John D. and Catherine T. McArthur Foundation's "genius grant" and was named one of the world's 100 most influential people by Time Magazine.

GP not only pioneered innovative low-cost and high-tech intensive urban farming methods, but also a holistic urban agriculture model that helps build sustainable community food systems. GP teaches growing

methods through workshops and hands-on demonstrations on its farms and at its satellite training sites in several states. It educates local, national, and international farmers and



Photos on this page by Vinnie Bevivino.



⁴⁸ Information retrieved from Growing Power web site: www.growingpower.org

future urban farmers. Through its “Rainbow Farmers Cooperative” (RFC) and “Farm-to-City Market Basket Program” fresh and affordable food is distributed weekly to neighborhoods throughout Milwaukee, Madison, and Chicago. In addition, GP sells to several restaurants and small grocery stores in these three cities. GP has multiple farm sites in Wisconsin and Illinois. Wisconsin operations are listed below. Please see Appendix C for GP’s Chicago operations.



Photo courtesy of Growing Power, Inc.

An aerial view of Growing Power’s two-acre Milwaukee farm.

THE COMMUNITY FOOD CENTER IN MILWAUKEE

Growing Power’s first farm and national headquarters is located in the heart of Milwaukee. This two-acre farm has been operating since 1999 and is the prototype for GP’s Community Food Centers around the nation. Besides being a major farming operation, this site also holds the organization’s offices and training facilities. The urban farm includes:

Six traditional greenhouses growing over 15,000 pots of herbs, salad mix, beet greens, arugula, mustard, seedlings, sunflower, and radish sprouts. These greenhouses also host production of six hydroponic systems growing tilapia, perch, a variety of herb and salad greens, and over 50 bins of red wiggler worms.

Two aquaponics hoop houses with two independent fish runs and growing beds for additional salad mix and seedlings.

Seven hoop houses growing a mixture of salad greens and mushrooms.

A worm depository hoop house.

An apiary with 14 beehives.

Three poultry hoop houses with laying hens and ducks.

Outdoor pens for livestock including goats and turkeys.

A composting operation located on a large plot of land. The first stage of this sophisticated operation includes 30 pallet compost systems.

An anaerobic digester to produce energy from the farm's food waste.

A rain water catchment system.

A retail store to sell produce, meat, worm castings, and compost to the community.

MERTON RURAL FARM SITE

This rural farm outside Milwaukee is the site for the Immigrant Farming Project and Food and Fitness Initiative with the Greater Milwaukee Boys and Girls Club. In addition to vegetables, hay, and legumes, various livestock are raised on this farm.

MAPLE TREE SCHOOL AND COMMUNITY GARDEN

Established in 2007, this school and community partnership initiative teaches young people organic agriculture as well as leadership and entrepreneurial skills. Growing Power also provides training for community members who rent plots in the community garden.

THE VERTICAL FARM

The city council amended the zoning ordinance to allow Growing Power to build a five story vertical farm five blocks from the largest housing project in the city of Milwaukee. The south-facing side of the vertical farm will have greenhouse areas on every floor for year-round production. The building will include classrooms, meeting rooms, a demonstration kitchen, food processing and storage areas, and a retail store.



Photos on this page by Vinnie Bevirino.



Photos on this page by Güll Gülleryüz.

Real Food Farm⁴⁹ Baltimore, Maryland

Real Food Farm is a product of collaboration among several nonprofit organizations who participated in the Urban Agriculture Task Force and identified a need for a demonstration urban farm in Baltimore City. This idea was supported by several nonprofits, including the Chesapeake Sustainable Business Alliance as well as the Mayor’s Office. It was eventually implemented by Civic Works, Inc., Baltimore’s urban service corps.

Real Food Farm is an innovative urban agricultural enterprise engaged in growing fresh produce on six acres on the Lake Clifton High School Campus in Clifton Park. It has been in operation since October 2009. Real Food Farm works to improve access to healthy food, to provide experience-based education, and to develop an economically viable and environmentally responsible local agriculture sector. Through its Mobile Market and the community supported agriculture (CSA) program, the farm makes affordable produce available in the neighborhoods surrounding Clifton Park. In order to operate and demonstrate a financially sustainable urban farm, produce is sold to Baltimore restaurants, caterers, educators, hospitals, and other institutions.



Real Food Farm offers area students many ways to interact with the farm. In addition to educational field-trips and service learning events, it offers paid high school internships and curriculum-based programming for local schools.



⁴⁹ Information retrieved from Real Food Farm web site: www.realfoodfarm.org and an interview with Zach Chissell from Civic Works, Inc.



Brooklyn Grange⁵⁰ Queens, New York

Brooklyn Grange is a private commercial organic farm located on a rooftop of an old six-story industrial building in New York City. It was established in the summer of 2010, after retrofitting of the 40,000 square foot roof and covering it with 7.5 inches of deep intensive green roof garden soil, an engineered growing media. The roof holds 140 rows of crops, including tomatoes, peppers, eggplants, leafy greens, turnips, and cantaloupes. It also holds five hens and a beehive. The farm uses interns and volunteers for hand labor. Farm produce is sold at farmers markets and to local restaurants, with nothing traveling more than three miles. As an additional money making business, the farm provides workshops and rents the farm for private receptions.

⁵⁰ Information obtained from an interview with Ben Flanner, president of Brooklyn Grange, and from its web site: www.brooklyngrangefarm.com

Common Good City Farm⁵¹ Washington, D.C.



Photos by Gül Güleriyiz.

Common Good City Farm (CGCF) is a 501(c)(3) not for profit organization that operates an urban farm and education center in the heart of Washington, D.C. The farm sits on a former elementary school's baseball field a block from the Howard University Hospital. The neighborhood is a food desert, with no grocery stores. A third of the residents live in poverty, one in five is overweight, and one in ten has diabetes.⁵²

CGCF operates the farm as a demonstration site to individuals, organizations, and government agencies in the Washington metropolitan area. Its primary goal is to grow food for low-income residents and provide educational opportunities to increase food security, improve health, and contribute to environmental sustainability.

CGCF's Green Tomorrows program offers fresh produce to qualifying low-income residents either in exchange for help with farm work or via its CSA program's weekly shares for \$10. CGCF runs farm education programs that engage groups, school children, and neighborhood youth in on-farm activities, helping them learn how to grow food and eat healthily. Since 2007, CGCF has taught over 1,000 residents in workshops, engaged over 1,500 school children, and hosted over 2,000 volunteers. In 2011 CGCF grew over 5,000 pounds of vegetables, 85 percent of which was donated or distributed to low-income families.

To help sustain the organization's programs, CGCF sells herbs and specialty produce to local businesses. CGCF partners with Arcadia Food in their Mobile Market Project to deliver produce to neighborhoods in a retrofitted, biodiesel-powered school bus.

Greensgrow Farms⁵³ Philadelphia, Pennsylvania

Greensgrow Farms is a nationally recognized leader in urban agriculture and a prime example of brownfields reuse. It is an initiative of Greensgrow Philadelphia Project, a 501(c)(3) nonprofit organization dedicated to promoting social entrepreneurship through the reuse of land once deemed useless. It was founded in 1997 on a one-acre city block that was once the site of a galvanized steel plant. By pouring three-foot deep concrete, the contaminated land was converted into a thriving farm that now produces vegetables and flowers hydroponically or in raised beds.

⁵¹ Information obtained from an interview with Anita Adalja, farm manager, and from the Common Good City Farm web site: commongoodcityfarm.org

⁵² "DC's Common Good City Farm: 'Museum farm' or real deal? Breaking Through Concrete," a *Grist* special series, June 2010.

⁵³ Information obtained from a farm tour and the Greensgrow Farms web site: www.greengrow.org

Greensgrow is a model for profitable sustainable urban agriculture. It runs a vibrant farm market, nursery, and a summer and winter CSA program serving more than 300 households, some of them low-income. While in 1997 the farm started with annual sales of \$5,000, in 2009 nursery and farm sales grossed \$1 million.⁵⁴ The secret behind Greensgrow's success is creativity, diversification, and adaptability in the face of changing needs in the community. The founders of the farm took the risk and implemented many ideas that they called "crazy and green." In addition to growing organic produce using alternative growing methods, flowers, and nursery plants on an abandoned one-acre industrial site, Greensgrow raises fish, bees for honey, and hens for eggs. Its goal is to create viable green reuse of urban space, and it is quite successful in turning other people's trash into treasure. It turns grease from restaurants into biodiesel fuel and creates compost and worm castings fertilizer from garbage. It has office space in an old storage container, a commercial refrigeration unit from an old trailer, and a used air-conditioner. It also uses green roofs and awnings to reduce stormwater runoff.

Greensgrow is also a good example of how partnerships work. Although it is an urban farm, its members understand the importance of rural farming. It co-founded the Farm Market Alliance to strengthen nearby rural farmers. Greensgrow collects fresh produce, meat, and dairy products from 75 partner farms with its biodiesel powered truck and sells the produce at their farm market. Greensgrow's latest partnership, with a local church, is aimed at turning an underutilized kitchen into a certified commercial kitchen to be used as an incubator to create entrepreneurs and jobs. Its Local Initiative for Food Education (LIFE) program shares fresh food and offers cooking and nutrition classes for \$15 a week, payable with a SNAP/ACCESS card.

While these activities help others, they are also elements of Greensgrow's business model. It diversifies in fresh food production as well as income producing activities. It supplies produce to local restaurants and stores and hosts farm lectures and sit-down farm dinners for up to 70 people. Greensgrow also provides workshops on organic gardening, composting, and more. It works with public agencies and private corporations and provides

consulting services in many areas, including designing hydroponic systems. Greensgrow's most recent initiative is a consultation service offered to cities and municipalities to assist them in establishing successful and properly-funded urban agriculture programs.

From redevelopment, community development, health, education, revitalization, and beautification, to economic development and environmental sustainability, Greensgrow's contribution to the city is invaluable.



Photo by Gül Gülleryüz.

⁵⁴ Philly's Greensgrow farm: "An Unconventional Hybrid that Works. Breaking Through Concrete," a *Grist* special series, July 2010.

Lynchburg Grows⁵⁵

Lynchburg, Virginia

Lynchburg Grows started in 2003 with the intention of building a new garden for a mentally retarded man who was devastated by the loss of his garden. It quickly expanded and became a nonprofit urban farming initiative with a mission to provide an urban setting for growing food, providing education, and developing job skills, especially for people with special needs and low incomes. Lynchburg Grows bought 6.8 acres of land in Lynchburg with two acres spread among nine greenhouses, the former site of a flourishing rose business. It renovated the historic greenhouses and turned the land into a successful urban farm. As an urban oasis Lynchburg Grows responds to the community's needs through the launching of food systems programming for elementary schools, providing vocational training, and organizing workshops. It has programs at seven community centers, five elementary schools, and a summer camp. Its efforts are supported by community volunteers, surrounding colleges, and churches. In order to create awareness and express the value of sustainable urban agriculture, Lynchburg Grows has formed partnerships with local organizations and donates fresh farm produce to a local food pantry. It also sells to restaurants and at local farmers markets.

The Hollygrove Market and Farm⁵⁶

New Orleans, Louisiana

The Hollygrove Market and Farm (HM&F) is a one-acre urban farm, community garden space, and produce market located in the heart of New Orleans, Louisiana. It was established in 2008 as a collaborative effort with the New Orleans Food and

Farm Network (NOFFN) and the Carrollton-Hollygrove Community Development Corporation. The goal was to increase access to fresh produce for Hollygrove and surrounding neighborhoods in this extreme food desert. HM&F not only grows and sells locally-grown and organic produce, but also trains residents in sustainable urban farming. The farm serves as a demonstration site and adopts practices such as composting, cistern irrigation, recycling, and environmentally sustainable growing methods.



Hollygrove Farm.

Photo by Gill Guilleviz.

⁵⁵ Information retrieved from Lynchburg Grows web site: www.lynchburggrows.org

⁵⁶ Information obtained from a farm tour and from the Hollygrove Market and Farm web site: www.hollygrovemarket.com



Photos on this page by Gül Gülleryüz.

The latest addition to the farm is the vertical aeroponic towers. HM&F operates a CSA-style cooperative and a retail market. CSA shares are provided by a collective of back yard growers, community gardens, urban micro-farms, and rural farms throughout the region. The farm also supports youth through the Grow Data Youth Farm Organization in learning the importance of growing healthy food.

City Slicker Farms⁵⁷ Oakland, California

City Slicker Farms (CSF) was founded in 2001 in West Oakland, California, as a response to the absence of a place to buy fresh healthy food. Community members started growing healthy food on a donated vacant lot in the neighborhood. CFS started as a volunteer group for personal consumption. Excess food was given to other members of the community. When neighbors wanted to honor the growers' labor, a weekly farm stand began. The concept of growing food in vacant lots was immediately adopted by the community, which is characterized by extreme poverty and absence of grocery stores. Presently CSF consists of seven community market farms, over 100 back yard gardens, a weekly farm stand, and a greenhouse.

CSF provides urban farming education programs in the form of apprenticeship, volunteering, and internships. As part of the community market farm program, food scraps are collected from local businesses and combined with donated sawdust and manure to create compost for improving the soil for farming year round. The greenhouse at Ralph Bunche Continuation School, a partnership with the Oakland Unified School District, supplies the farms, back yard gardeners, and the public with plants and seedlings.

CSF collaborates with other organizations to promote best practices for urban agriculture. It advocates for food justice and a sustainable food system. This collaborative effort is achieved through job training and entrepreneurship. While the objective of CFS is to provide affordable healthy food to the community of West Oakland, it also provides technical assistance in the form of consultancy services to other communities.

⁵⁷ Information retrieved from City Slicker farms web site: www.cityslickerfarms.org

Juniper Gardens Training Farm⁵⁸

Kansas City, Kansas

Juniper Gardens Training Farm is an 8-acre farm located at a public housing site near downtown Kansas City, Kansas. It is the home of the Cultivate Kansas City's Farm Business Development Program. Education and empowerment are paramount to the operations of the farm. Providing access to healthy food and creating opportunities for economic development are other goals. The training program prepares residents to grow successfully and become small business owners. The training includes access to a quarter acre plot on the training farm, workshops and demonstrations, field walks with training staff, and assistance with selling farm produce at local farmers markets. Training Farm reaches out to the public housing residents, community and neighborhood organizations, and service agencies to create awareness of the benefits of urban agriculture. It also hosts a community garden for neighborhood residents.

The training farm is home for the New Roots for Refugees, a collaborative program with Cultivate KC, Catholic Charities of Northeast Kansas, and the Kansas City, KS, Housing Authority. The program helps refugee women to start their own farm businesses. The New Roots for Refugees program participants start farming with significant training and as they develop business skills move on and become independent farmers. They sell their produce at farmers markets and through their CSA subscription program.



Photo by Gül Güleriyüz.

⁵⁸ Cultivate Kansas City web site: www.cultivatekc.org/farms/juniper-gardens.html

Urban agriculture in Prince George's County

Prince George's County has an opportunity to become a regional leader in urban agriculture.

Urban agriculture is not new to Prince George's County. People have been growing food in their back yards and community gardens in non-rural parts of the county for many years. What is new and exciting is the changing nature of urban agriculture in the county. Growing food is no longer simply the pursuit of a hobby or economic necessity. County residents are becoming more conscious about their health and its connection to what they eat. They want to know where their food is coming from and prefer to eat locally grown fresh food. This interest is boosted by the growing global "food" and "urban agriculture" movements and by First Lady Michelle Obama serving as a role model with her White House kitchen garden and Let's Move initiative.

Community and school gardens are booming everywhere in the county, and newly emerging urban farms grow organic produce using intensive farming methods. People from all walks of life are learning how to grow produce, and a new generation of "urban farmers" is emerging. Schoolchildren are rolling up their sleeves and getting connected to earth. This chapter includes an overview of some successful urban agriculture activities in the county.

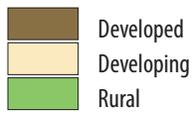
Urban farms

Prince George's County is considered primarily suburban, but the western part of the county that adjoins Washington, D.C., is mostly urban, and the southeastern part of the county is rural. Despite this diversity, agricultural activity is found throughout the county. While the farming operations in the rural areas are mostly traditional, intensive farming on small pieces of land is also emerging in these areas and has been expanding into suburban and urban areas. Prince George's County has three development tiers: Developed, Developing, and Rural. To situate urban farms in the planning context, they are listed according to their location in the county's development tiers. (See Map 1.)

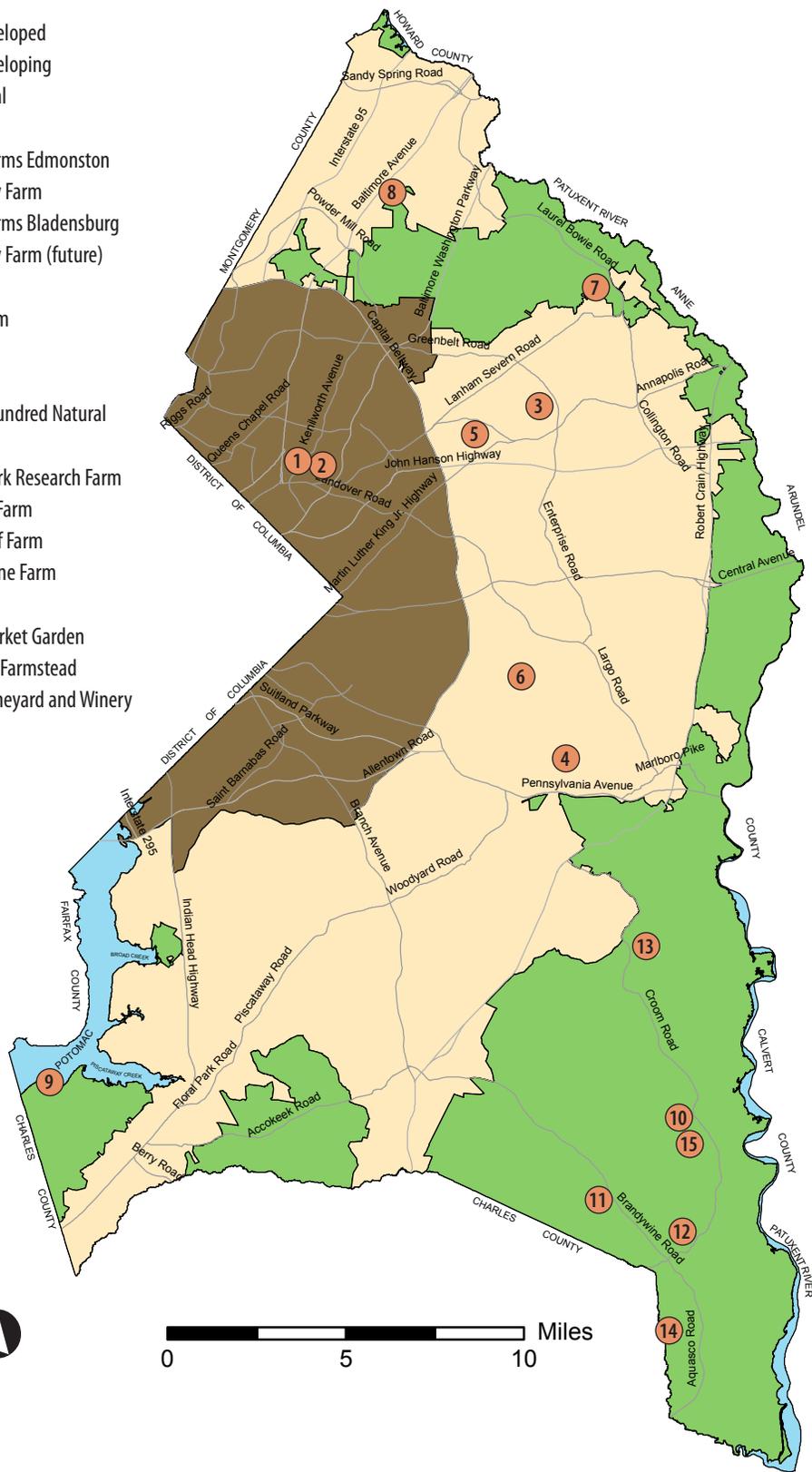


Photo by Gill Gülleryiz.

MAP 1: FEATURED URBAN FARMS



1. ECO City Farms Edmonston Community Farm
2. ECO City Farms Bladensburg Community Farm (future)
3. C&E Farms
4. Clagett Farm
5. Eco Farms
6. Radix Farm
7. Richard's Hundred Natural Farm
8. UDC Muirkirk Research Farm
9. Ecosystem Farm
10. Golden Leaf Farm
11. Good Fortune Farm
12. H&H Farm
13. Jug Bay Market Garden
14. P.A. Bowen Farmstead
15. Romano Vineyard and Winery



Although it is called the Developed Tier, agricultural activity exists throughout the entire area inside the Beltway and in a small area outside it. Prince George's County's first "urban farm" (ECO City Farms) was recently built inside the Beltway, not far from Washington, D.C. A second urban farm is on the way. This development shows that agriculture is no longer a land use for rural areas only. Farms can grow, along with buildings, even in the most developed areas. The county is fortunate to have agricultural enterprises in the old established neighborhoods, where affordable, healthy food is scarce. Urban farms provide local residents with healthy food and jobs.

ECO CITY FARMS⁵⁹

PORT TOWNS

ECO City Farms (a.k.a. Engaged Community Offshoots, Inc.) (ECO), an educational nonprofit organization designed to serve as a prototype for sustainable local farming, has perfected the practice of urban agriculture in the Developed Tier of Prince George's County.

Its goal is to proliferate urban farming in food-insecure areas to meet the demand for healthy food, while improving the local economy by creating meaningful jobs in food production and distribution. Its motto is: *We grow great food, farms, and farmers.*



Photo by Gül Gülleryüz.

ECO, founded in 2009, received funding from Kaiser Permanente to start a farm in the Port Towns, which is a designated Wellness Opportunity Zone.⁶⁰ Since there was no private land where agriculture was permitted in the Port Towns, ECO approached the M-NCPPC Department of Parks and Recreation for parkland to use as their farm. Unused parkland in Edmonston was selected as a farm site.

⁵⁹ Information obtained from interview with Margaret Morgan-Hubbard, CEO of ECO, farm visits, and the ECO City Farms web site, www.ecocityfarms.org

⁶⁰ A Wellness Opportunity Zone is a designated district where permitted land uses are developed in a way to benefit the overall health and wellness of the community.



Photo by Adam Schwartz.

EDMONSTON COMMUNITY FARM

After getting permission from the Town of Edmonston and signing an agreement with M-NCPPC in March 2010, ECO started building a farm on just under one acre of unused parkland behind the underutilized tennis courts of the Crittenden Street Neighborhood Park. In this working class, culturally diverse community, which is a food desert, ECO created an oasis within a few months.

In order to be sustainable, ECO installed 15 photovoltaic collectors to generate electrical power as well as solar heated hot water and shallow geothermal “earth tubes” for heating and cooling hoophouses for year-round food production.

During the first six months, ECO grew and harvested 660 pounds of produce ranging from greens to root vegetables in four hoophouses. The produce was sold to restaurants, food co-ops, and to the public at farmers markets. Three well-known Washington, D.C., restaurants recognized ECO as supplier on their menus. In addition to crop production, 5,200 pounds of vermicompost was produced at the Edmonston farm. On other parkland in College Park, ECO’s composting operation converted 285 tons of organic waste into soil amendments.⁶¹

⁶¹ ECO City Farms 2010 Annual Report.

In June 2010, ECO organized the first urban farming summit in the Chesapeake region. *Sowing Seeds Here and Now!*—with 40 presenters and 400 attendees from around the nation—was one of the largest conferences held at the Beltsville Agricultural Resource Center (BARC). The keynote speaker was Will Allen, CEO of Growing Power in Milwaukee.



Photo by Aaron Springer.

In 2012, the Edmonston farm doubled in size by expanding onto the former tennis courts. The vermicomposting operation has moved into a new hoophouse built on this site. A large tent will be used for educational and other activities. The rest of the site will be used for cultivation.

ECO's Edmonston farm brought not only a healthy food production center to the Port Towns, but also a venue to demonstrate and teach community members how to grow food. Hundreds of community members from all ages and all walks of life volunteer on the farm. According to former mayor of Edmonston Adam Ortiz the farm is "an asset on so many levels. It constructively utilizes an underused piece of land; it engages youth and the community....It's simply an inspiration."⁶²

Activities at the ECO flagship farm in Edmonston currently include:

Intensive year-round organic food production

ECO is growing all-natural, healthy food without harming the environment. It uses only natural soil amendments, low-tech, people-powered technologies, and renewable energy. Chemical fertilizers, pesticides, petrol-based or non-organic treatments, or heavy machinery are never used on the farm.

Annually, 4,200 pounds of Certified Naturally Grown vegetables and fruits are produced. To maximize productivity, ECO utilizes every available space, uses hoophouses to allow for year-round production, and grows food that has a quick germination and/or long harvest period. ECO is one of the few year-round farms in the region. In addition to a large variety of vegetables, ECO grows strawberries, herbs, and oyster and Shitake mushrooms. Recently, a variety of fruit trees and a small grape vine were planted.



Photo by Gill Gulleryiz.

⁶² Daniel Leaderman, "Urban farm wants to bring sustainable agriculture to Edmonston." *Gazette.Net*, August 10, 2010.



Two top photos by Gill Gulleryuz.



Bottom four photos by Viviana Lindo.

Composting and vermiculture

ECO creates nutritious, fertile soil amendments through composting and vermiculture. Compost is created from organic waste, and red wiggler worms added to complete soil processing through vermicomposting, which involves the worms consuming organic matter and producing worm castings. The finished castings are added to soil. The castings are also used to create compost tea, an organic liquid fertilizer and pest/disease management tool. Diverting organic matter from the waste stream and turning it into fertile soil for food production is the basis of sustainable urban farming. ECO diverts 13 tons of food waste yearly.

Beekeeping and honey

Five beehives produce more than 60 pounds of raw honey. Honeybees are also critical for pollinating plants on the farm.

Chickens and ducks

ECO has egg-laying hens and ducks in a coop tucked underneath the solar and wind array. The birds travel to an outdoor fenced-in area for roaming. In addition to producing 400 dozen eggs annually, the chickens help promote biodiversity and the full cycle of organic matter in sustainable food systems. They help clear the harvested vegetable beds, and the hay and litter from their coop is composted to return nutrients to the soil for growing more food.

The FoodShed

Using a former refrigeration shipping container, ECO built the FoodShed on the former tennis courts, which the farm recently occupied. The FoodShed will be used for value-added processing and refrigeration of food produced on the farm as well as for cooking classes.

Community supported agriculture (CSA)

ECO has summer and winter CSAs. The summer CSA runs from late June to late October. Members pay for 16 weeks of this 19-week period to give farmers the flexibility to cancel up to three pickups in case of issues with weather, pests, and holidays. The weekly share of produce is valued at \$20. The standard price for the summer share is \$331.50 (\$320 plus \$11.50 to offset reduced-fare shares). The reduced fare is \$240 for those who qualify for government assistance. ECO is the only farm in the county with a winter CSA. The winter CSA runs for five months (December–April) and recipient members are guaranteed a minimum 19 weeks of produce. Any excess produce is sold to restaurants, bakeries, caterers and/or food co-ops. The summer CSA has 15 members and the winter CSA has 12 members.

Direct marketing

In the summer months farm produce is sold at the Riverdale Park Farmers Market, reaching 750 customers weekly. Direct sales are also made to several local restaurants, caterers, and food co-ops.

New Urban/Immigrant Farmer Training Program

The purpose of this ten-month long program is to train immigrants and others how to farm in urban areas, so that they can provide locally grown food to underserved communities and earn a living wage. The program provides intensive hands-on and classroom training in all aspects of urban farming, including developing a personal business or career plan. At the end of the program, trainees receive a stipend to start their own farms.

Certificate in Commercial Urban Agriculture

The first of its kind in the region, this program is offered in partnership with Prince George's Community College. The intensive three-day course provides hands-on training in starting and running an urban farm. All classes are taught on-site at the farm. The modules include hoophouse construction, composting, crop planning and rotations, marketing, and introduction to urban livestock.

Internships, apprenticeships, and volunteers

ECO provides a quality practical hands-on education through its internship and apprenticeship programs. There are summer and year-round internship opportunities



Two photos by Gül Gülleryüz.



Volunteers.

Urban farms in the Developed Tier

for youth and adults. The summer youth apprenticeship program attendees are mostly derived from the Port Towns Youth Council. Hundreds of community members have donated thousands of volunteer hours on Saturdays.

BLADENSBURG COMMUNITY FARM (PROPOSED)

ECO has proposed a second farm on 3.5 acres of open space at Autumn Woods Apartments, a 480-unit low-income housing complex in northeast Bladensburg, a food desert. If approved, it will be a cutting edge residential farm consistent with sustainable solutions recommended for high-income housing developments. The farm, which includes a composting operation, will produce nutritious, sustainably grown food, divert organic food waste from the landfill, and provide opportunities for training in every aspect of healthy food production for the 1,000-plus residents of the complex.

The farm will also be a site for education and replication. It is expected that in five years the farm will resemble ECO's model Edmonston Farm. Produce will include vegetables, eggs, honey, and fruit year-round in three to five high tunnels. Like the Edmonston farm, the Bladensburg Farm will incorporate significant green elements into its design. It will be powered by solar and renewable energy, and turn organic food waste from the community into healthy soil through the use of aerobic composting and vermiculture.



Autumn Woods,
Bladensburg.

C&E FARMS⁶³
GLENN DALE

An oasis in Glenn Dale, C&E Farms is a 15-acre farm that was rescued from development by a couple who moved to Prince George’s County from North Carolina. They farm part-time and specialize in pick-your-own ethnic produce. They also grow a variety of vegetables, fruits, herbs, and flowers. They use natural growing practices; farm produce is grown without the use of synthetic chemicals. Their Harvest Fest during the month of October is open to the public every Saturday and accessible by appointment Monday through Friday. It includes a pumpkin patch, hay rides, small animal petting, face painting, and a take-home-and-grow activity. Farm tours and some activities are also available at other times.

CLAGETT FARM⁶⁴
UPPER MARLBORO

Located in Upper Marlboro, Clagett Farm is a 285-acre historic tobacco farm owned and operated by the Chesapeake Bay Foundation for educational purposes. Its educational field programs foster in-depth discussions about agriculture’s impact on the watershed.

Clagett Farm operates a native tree nursery, produces organic vegetables on 20 acres, and raises grass-fed beef cattle. The farm’s varied produce provides food to people of all income levels. It strives to use farming methods that are both economically and environmentally sustainable. During the growing season almost half of the farm’s produce is distributed free or at reduced prices to underserved communities through the Capital Area Food Bank.



Photo by Gül Göleryüz.

Clagett Farm has been running a successful CSA program “From the Ground Up” for 20 years. CSA members come to the farm each week to get a portion of the farm’s harvest. They also have the privilege of picking additional items on a “you-pick” list. Those participating in the workshare program work on the farm and take home a share of produce in return. From the Ground Up also uses volunteers for vegetable production and educates them about the connections between agriculture and social justice.

⁶³ Interview with farm owner Emma Dudley, PickYourOwn.org web site, www.pickyourown.org, and Cheverly Community Market web site: www.cheverlycommunitymarket.com

⁶⁴ Clagett Farm web site: www.clagettfarm.org

Eco Farms⁶⁵

LANHAM

Established in 1995, Eco Farms is a 2.5-acre certified organic farm located in Lanham. Using biointensive farming methods, Eco Farms provides organically grown vegetables, herbs, and flowers to about 60 high-end restaurants in the Washington metropolitan area. In addition, its produce is sold at local farmers markets and health food establishments. Eco Farms' greenhouse-production capability makes it possible to produce vegetables and herbs year-round.

RADIX FARM⁶⁶

UPPER MARLBORO

This two-acre farm just outside the Capital Beltway is a good example of the young generation's growing interest in urban agriculture. It is owned and operated by a young woman who is passionate about growing healthy food for all, building a healthy ecosystem, and preserving farmland for sustainable agriculture. After working at the Clagett Farm for several years, she decided to start her own farm and established the Radix Farm in 2009 on one acre of land she rented from a larger farm. She attended the Maryland Agricultural Resource Council's New Farmer Training Program. She is the first trainee of this program from Prince George's County.

In its first year farm produce was sold to local restaurants. In 2010, Radix Farm started its CSA program with 26 members and expanded it to 40 members in 2011. Each member receives weekly deliveries for 22 weeks, June to November. Shares are delivered to Mt. Pleasant and Capitol Hill neighborhoods, Washington, D.C. Farm produce is also sold at local farmers markets.

Radix Farm uses sustainable farming practices. Although it is not certified organic, it follows organic practices. The farm rents two acres from a farm that used to cultivate tobacco but now grows conventional corn and soybeans. Radix Farm sees the restoration of depleted soils as a challenge, and so far it has been successful. The farm creates a habitat for beneficial insects by planting native flowering plants, and it uses organic controls as an integrated pest management strategy. To maintain soil health, it uses cover crops and crop rotation.

⁶⁵ Eco Farms web site: www.ecofarms.com

⁶⁶ Radix Farm web site: radixfarm.wordpress.com and interview with Kristin Carbone, the founder and grower for Radix Farm.



Photo by Gill Gallerytiz.

Urban farms in the Developing Tier

A large variety of vegetables, herbs, and flowers are grown at Radix Farm. Since it tries to increase local food security and make healthy food accessible to all members of the community, throughout the season, Radix Farm donates produce to agencies that serve and distribute food to people in need. It also makes arrangements for seasonal work trade. Radix Farm uses volunteers and trains interns in organic and small-scale farming.

Radix farm plans to purchase at least three acres in Prince George's County, but not too far from the city. The farm would eventually like to expand to five to ten acres and add an orchard or other farm enterprises.

RICHARD'S HUNDRED NATURAL FARM⁶⁷ OLD BOWIE

This family farm was established about seven years ago in the backyard of a historic property on three and a half acres in Old Bowie. Farm produce includes vegetables, flowers, and a great variety of herbs, all grown naturally. The farm also raises chickens for eggs. It sells its products, including handmade herb and floral wreaths, at local farmers markets.

⁶⁷ "Bowie Area Farm Grows Produce, Makes Herbal Wreaths," *Riverdale Park-University Park Patch*, October 29, 2010.

Several farms in the county's Rural Tier operate on relatively small pieces of land; use intensive growing techniques; grow produce for immediate consumption; and sell directly to consumers. Hence, they function like urban farms. Given their peripheral location in the metropolitan area, they may be referred to as peri-urban farms.

UNIVERSITY OF DISTRICT OF COLUMBIA AGRICULTURAL EXPERIMENT STATION MUIRKIRK RESEARCH FARM⁶⁸

BELTSVILLE

The University of the District of Columbia (UDC) is an urban land-grant university. A key component of the land-grant system is the Agricultural Experiment Station (AES). AES has a 143-acre research farm in Beltsville. Under the direction of the new Dean of the College of Agriculture, Urban Sustainability, and Environmental Sciences (CAUSES) of UDC, AES Muirkirk Research Farm is going through a major change. AES is challenged with addressing specific problems and issues unique to an urban environment. Therefore, it focuses on sustainable urban agriculture research and experiment with intensive growing techniques and specialty crops. Since March 2012, nine acres have been transformed into an urban farm. Specialty ethnic crops, berry bushes, fruit trees, and a small composting operation are already in place. In April 2012, Bread for the City—a nonprofit organization that provides vulnerable residents of Washington, D.C., with comprehensive services, including food—in



Photo by Gül Güleriyüz

Muirkirk Research Farm

⁶⁸ Interview with CAUSES Dean Sabine O'Hara, Associate Dean William Hare, and Farm Manager Lonnie Finley. University of District of Columbia web site: www.udc.edu

partnership with AES, planted 1,000 fruit trees and bushes to create an organic “City Orchard” on 2.75 acres of the nine-acre farm.⁶⁹

The vision for the farm is a total 35 acres of cultivated land and an additional 10 acres for composting. Since lead in the soil is a major problem in Washington, D.C., compost is crucial to create a healthy growing medium. Compost will be created using food scraps from schools in Washington, D.C., and wood chips from the DC Public Works Department. This will be used primarily in community gardens. Research will be done on a variety of composting techniques, including the use of cooked food. Cultivated areas will include demonstration projects on permaculture and vertical growing techniques as well as a garden for each continent featuring special native crops. Since sustainability is one of the goals, the farm will go off-the-grid and use alternative energy for its aquaponics and other operations.

Long-term plans include a research center with wet labs enabling more scientific research on urban agriculture. A new land use plan has been developed—but not yet released—for the Muirkirk Research Farm to help implement the visions of CAUSES.

ECOSYSTEM FARM⁷⁰

ACCOKEEK

Ecosystem Farm is a demonstration farm of the Accokeek Foundation’s Center for Agricultural and Environmental Stewardship (CAES). It was established in 1992 as an educational model for sustainable agriculture and the future of farming. It is located on an eight-acre field inside the Piscataway National Park along the Potomac River. Even though the field is not ideal for growing produce, innovative farming techniques are being applied to produce fruits, vegetables, and herbs. The farm’s produce is sold primarily through a 60-member CSA, or SHARE program, which stands for Sustainable Harvest, Adaptive Research, and Education, the farm’s core principles. The SHARE season begins in April and lasts for 28 weeks.

Through its workshops, field days, presentations, community forums, and guided tours covering a variety of topics, CAES teaches principles and practices of sustainability in agriculture and everyday life. Its Beginning Farmer Apprenticeship program focuses on full season training for those with more than a year of farming experience. Its Immigrant Farmer Incubator program provides practical training to immigrants in sustainable agriculture and in understanding and accessing this region’s agricultural markets and governmental programs. Graduates of this program are expected to begin their farming operation. A participant in the program has already begun his own private agricultural production, which includes honey and watermelons in Prince George’s County.

⁶⁹ Bread for the City web site: www.breadforthecity.org

⁷⁰ Information obtained from a farm visit, and <http://accokeekfoundation.org/visit/education/stewardship/> and <http://www.localharvest.org>



Photos on this spread by Gül Gülleryüz.

GOLDEN LEAF FARM⁷¹

BRANDYWINE

This is a family-owned and operated apiary where honey has been harvested for family and friends since 1997. In 2006 it started selling its pure, all-natural, unpasteurized honey commercially. Between 100–250 pounds of honey are produced a year from nine hives. Golden Leaf Farm also has 30 egg-laying hens that roam happily on grass. Each hen lays an egg a day.

GOOD FORTUNE FARM⁷²

BADEN

Established in 2002, Good Fortune Farm is a diversified, certified organic family farm, located on five acres in Baden. It grows a rich variety of vegetables, berries, melons, and herbs, including unusual ethnic produce. It also raises pastured, but not organic, chicken and turkey for meat. A deer fence was recently erected around the farm with a grant from the Southern Maryland Agricultural Development Commission (SMADC). Good Fortune Farms operates a 60-share CSA with 20 deliveries over 28 weeks (May–November). Produce is sold to ten high-end restaurants in Washington, D.C.



⁷¹ <http://ruralbizmaryland.blogspot.com> and interview with Jo-Ann Romano, the owner of the Golden Leaf Farm.

⁷² Local Harvest CSA web site: www.localharvest.org/good-fortune-farm-M7175 and an interview with Michael Klein, farm owner.



Peri-urban farms in the Rural Tier

H&H FARM⁷³
BRANDYWINE

Owned and operated by a retired couple, H&H Farm is a relatively new farm. The owners, who had no background in farming, moved to Prince George’s County in 2003 and bought an old tobacco farm. They started beekeeping, and expanded their farming operation when they retired in 2006. Now they farm on 15 acres of their 50-acre property, using organic growing practices. They have 20 beehives that produce 200 pounds of honey a year. In addition, they grow vegetables as well as blackberries and grapes from which they make jam and jelly for sale. They sell their farm produce at local farmers markets. H&H Farm is a perfect example of a retirement activity that provides additional income. It also shows the continued interest in farming in Prince George’s County, even from newcomers.

JUG BAY MARKET GARDEN⁷⁴
CROOM

This small family farm, located in Croom, certifies its produce as naturally grown. It was established in 2002 in the back yard of the family’s five-acre property. Over the



⁷³ Interview with Linda Quattro, the owner of the H&H Farm.

⁷⁴ Jug Bay Market Garden web site: www.jugbaymarketgarden.com

years, when more land was needed for production, the wife-husband farmer team rented additional land from other farms in the vicinity. Now, the couple produce a variety of vegetables, berries, herbs, and cut-flowers on a 12-acre home farm and two 2-acre rented properties. They operate a 70-member, 16-week CSA (May through October) with weekly pick-ups and a 14-week flower share. They use part-time farm workers and operate an intern program.

P.A. BOWEN FARMSTEAD⁷⁵

AQUASCO



B.A. Bowen Farmstead.

Photo by Gill Gullytiz.

P.A. Bowen Farmstead is a historic, mid-nineteenth century farmstead that was purchased by the current owners in 2009 and transformed into a pasture-based dairy farm. Production of raw-milk artisan cheeses began in the spring of 2010. The farm also produces pastured eggs, poultry, beef, pork, and veal. Production of micro-greens and other produce is planned for 2012. All farm produce is sold in the newly opened farm store and at local farmers markets. Direct sales to restaurants are planned for the future. Agritourism activities, including weekly farm tours and educational workshops, are also offered at the Bowen Farmstead.

⁷⁵ Interview with Sally Fallon, the owner of the P.A. Bowen Farmstead.

ROMANO VINEYARD AND WINERY⁷⁶

BRANDYWINE

The first winery in Prince George's County, the Romano Vineyard and Winery is an excellent example of crop diversification to improve farm profitability, which is essential to the viability of the county's agricultural economy. After seeing a grant advertised for growing grapes for wine, the Romano family decided to transform their field, where tobacco was once grown, then corn and soybeans, into a vineyard. In 2007, they planted 1,300 wine-grape vines and 32 table-grape vines on two acres of their eight-acre property. In the meantime they developed their skills as winemakers. The Romanos harvested their first grapes for commercial wine production in 2010 and bottled their first batch of commercial wine in June 2011. They grow six different kinds of grapes, from which they make six types of quality wine. Romano wines have already won medals in the Atlantic Seaboard Wine Competition and in the Maryland Governor's Cup.

⁷⁶ interview with Jo-Ann Romano, owner of the Romano Vineyard and Winery, and the Romano web site: <http://romanowinery.com>



Romano Vineyard.

Vineyard photo by Gül Gülleryüz. Photo of grapes by Jo-Ann Romano.

Gardening activities

Many types of gardening are practiced in Prince George's County, ranging from small projects such as growing herbs in window boxes to large community gardens. Three types of gardens are examined below: community gardens, youth and school gardens, and demonstration gardens.

Community gardens

There are several community gardens in the county and their numbers are growing. A typical community garden is located on public land and consists of numerous individual plots where residents can plant their own gardens in exchange for small fees and agreeing to adhere to the community garden rules. In several communities new gardens are being established by residents, community organizations, or municipalities. Examples of the community gardens in the county are:

CHEVERLY VEGETABLE GARDENS⁷⁷

CHEVERLY

The Cheverly Vegetable Gardens started as a project of the grassroots organization Progressive Cheverly's Environmental Committee four years ago. Located in a town park, the garden contains forty-two 4-foot by 20-foot plots; two reserved for growing food to give to local food pantries through the Capital Area Food Bank, two for herbs for communal use, and the rest for rentals. In addition to the \$25 annual rental fee (\$35 for nonresidents), plot owners are required to volunteer 10.5 hours per growing season. The garden is fenced in, and a cistern, a compost bin, tools, and top soil are provided.



Photo by Gül Güleriyiz.

COTTAGE CITY COMMUNITY GARDEN⁷⁸

COTTAGE CITY

This garden is a local government initiative and the first community garden in Port Towns. The garden was established in 2010 after the Town of Cottage City received a \$400,000 grant from the Community Health Partnership, a group of local nonprofit organizations. The grant allowed the town to clear a piece of land at the end of Cottage Terrace and construct 23 raised beds. The plots are available for free to residents who sign up to grow produce. Priority is given to garden volunteers.

⁷⁷ Interview with Dave Kneipp, Cheverly Vegetable Gardens organizer.

⁷⁸ Interview with former Cottage City Commissioner Aileen McChesney.

GREENBELT COMMUNITY GARDEN CLUB (GCGC)

GREENBELT

Established in 1937, Greenbelt Community Garden Club is perhaps the oldest gardening club in the county. GCGC has two community gardens in the City of Greenbelt. Hamilton area garden has 46 garden plots and Gardenway area garden has 16 plots. Each plot measures 50 feet by 50 feet. Some are shared by more than one person or household.



HYATT PARK COMMUNITY GARDEN⁷⁹

HYATTSVILLE

This garden was established by the Hyatt Park Community Garden Association, which was approved by the Hyattsville City Council in December, 2010, and began its first growing season in the spring of 2011. The objective of the association is to provide and maintain organic vegetable garden plots to support nutritional, recreational, educational, cultural, and community development values. The garden is located on one-quarter acre within the two-acre M-NCPPC Hyatt Park. It consists of forty 15-foot by 15-foot garden plots, each rented for \$30 annually.

SHERIDAN STREET COMMUNITY GARDEN⁸⁰

RIVERDALE

Sheridan Street Community Garden is located at the Center for Educational Partnership. It is operated by the University of Maryland Extension to provide recreational outdoor activity for people of all ages, incomes,

and cultures to work the land together and share their gardening knowledge and ideas. The garden has 47 rental plots for individuals and families to grow food and flowers. In addition, several plots are reserved for youth gardens, where community

groups such as the Maryland Multicultural Youth Center and William Wirt Middle School teach youth how to grow fresh fruits and vegetables. The International Rescue Committee also has two plots for the New Roots program that helps refugees reconnect with the land, celebrate their heritage, and nourish themselves. Training on how to garden is offered several times a year, and gardeners are provided with water, compost, and tools. Monthly workdays offer the opportunity for gardeners to come together and maintain common areas. Community members are invited to workdays and other garden events.



Photos on this page by Gül Gülleryüz.

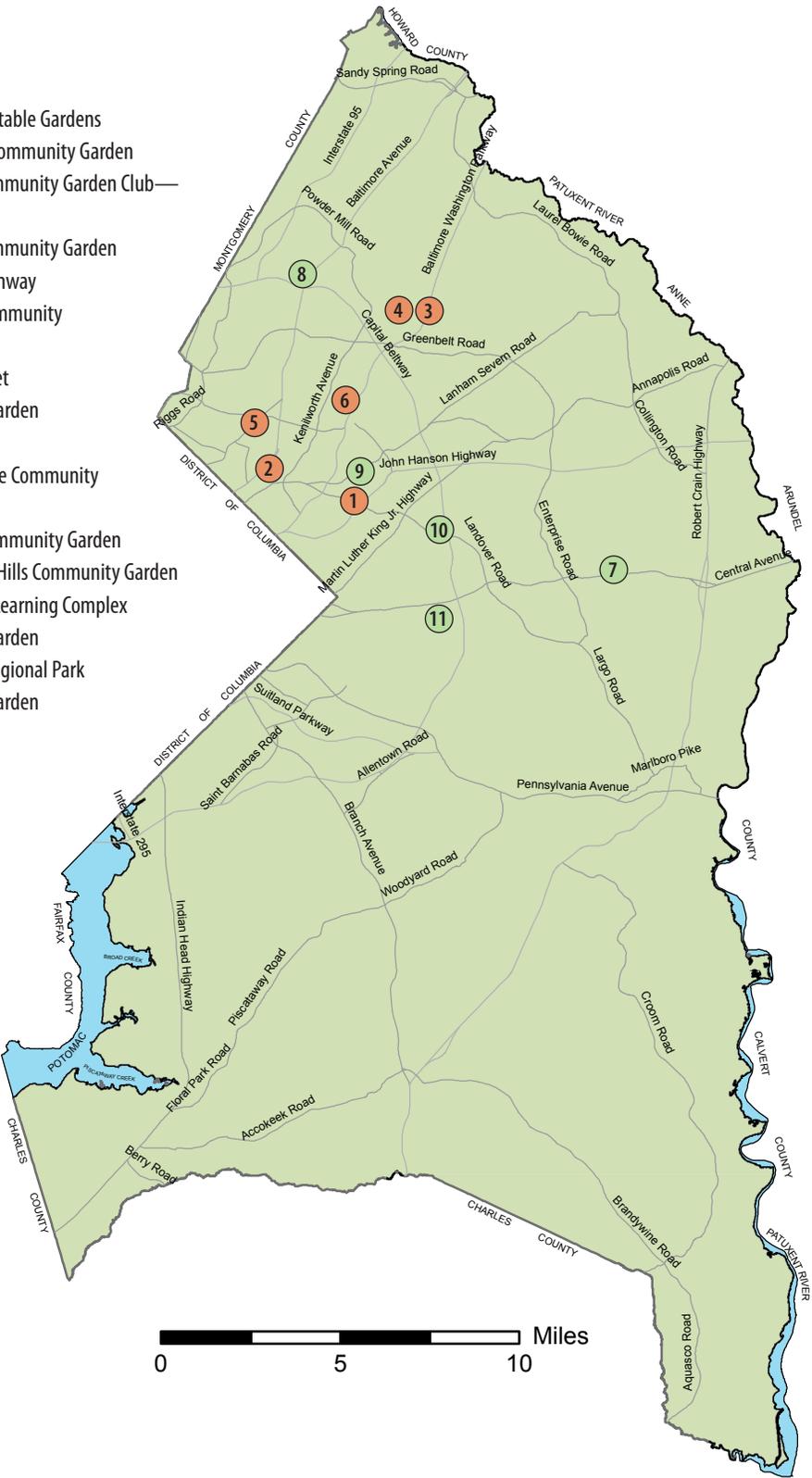
⁷⁹ City of Hyattsville web site: www.hyattsville.org

⁸⁰ Interview with Christie Balch, University of Maryland Extension Coordinator, and UME web site: princegeorges.umd.edu

MAP 2: COMMUNITY GARDENS

- 1. Cheverly Vegetable Gardens
- 2. Cottage City Community Garden
- 3. Greenbelt Community Garden Club—Hamilton
- 4. Greenbelt Community Garden Club—Gardenway
- 5. Hyatt Park Community Garden
- 6. Sheridan Street Community Garden
- 7. Cameron Grove Community Garden
- 8. Cherry Hill Community Garden
- 9. Old Landover Hills Community Garden
- 10. The Sports & Learning Complex Community Garden
- 11. Walker Mill Regional Park Community Garden

Green numbers indicate gardens of the M-NCPPC Community Garden Plot Initiative.



The Prince George's County Department of Parks and Recreation (DPR) Park Ranger Unit has created an opportunity for residents to have their own garden spaces on parkland at multiple county locations.⁸¹ Garden plots in the Cameron Grove and Cherry Hill Neighborhood Parks have been rented to gardeners from nearby communities for several years.

CAMERON GROVE COMMUNITY GARDEN

CAMERON GROVE

This is a small garden with two 25-foot by 30-foot plots. Each plot is rented for \$35 annually. About ten seniors share gardening of the plots.

CHERRY HILL COMMUNITY GARDEN

COLLEGE PARK

Located in College Park, this garden has thirty-seven 25-foot by 30-foot garden plots that are rented to individuals and families. The area is fenced and secured with a shared combination lock system for all permit holders. This garden does not have water for irrigation. The plots are rented for \$35 annually.

As interest in gardening grew, and more people looked for places to produce their own food, DPR decided to expand the Community Garden Plot initiative. As part of this plan, in summer 2012 three new community gardens were established. All gardens have deer fencing and are secured with a shared combination lock system.

Garden plots are rented to individuals and families. Gardeners are issued permits and are required to abide by DPR's Community Garden Plot Guidelines. They are allowed to grow vegetables and flowers for their own consumption only. All plants must be grown organically and chemical pesticides are strictly prohibited.



Photo by Gül Güleriyüz.

OLD LANDOVER HILLS COMMUNITY GARDEN

LANDOVER HILLS

In this relatively small community garden nine 20-foot by 20-foot plots and ten 10-foot by 20-foot plots are available for renting. The site receives water through a cistern system that limits the time water is available. Large plots cost \$55 a year and small plots \$35.

⁸¹ Information obtained from the Park Ranger Unit.

M-NCPPC Community Garden Plot Initiative

THE SPORTS AND LEARNING COMPLEX COMMUNITY GARDEN

LANDOVER

The county's largest community garden is on the grounds of the Sports and Learning Complex next to FedEx Field. Its forty 20-foot by 20-foot plots are rented to gardeners for \$55 a year. Water is available on a limited basis from two water lines. During Redskins games and special events the garden is closed.

WALKER MILL REGIONAL PARK COMMUNITY GARDEN

DISTRICT HEIGHTS

This community garden inside Walker Mill Park has been transformed from youth gardens to community garden plots. Thirty 20-foot by 20-foot plots are still used for youth gardens by the Walker Mill Baptist Church. Water is available on a limited basis through the two water lines. The annual rent for each plot is \$55.

School and youth gardens

Several schools, either independently or with the help of the University of Maryland Extension, Prince George's County (UME), are establishing vegetable gardens to teach children how to grow healthy food. Schools with vegetable gardens for hands-on education include Baden, Berwyn Heights, Bladensburg, Bradbury Heights, Cesar Chavez, District Heights, Gladys Noon Spellman, Heather Hills, Lewisdale, Riverdale, and Scotchtown Hills Elementary Schools; Buck Lodge and Drew Freeman Middle Schools; Bladensburg, Charles H. Flowers, Gwynn Park, High Point, and Laurel High Schools; Frances R. Fuchs Early Childhood Center; Robert Goddard Montessori School; and Fairhaven School (see Map 3). In addition, youth gardens are run by other organizations such as churches and local nonprofits.



Berwyn Heights Elementary School.



Bladensburg Elementary School.



Gwynn Park High School
—all photos on this page.



Photos on this spread by Gül Güleriyüz

School and youth gardens

GWYNN PARK HIGH SCHOOL⁸² **BRANDYWINE**

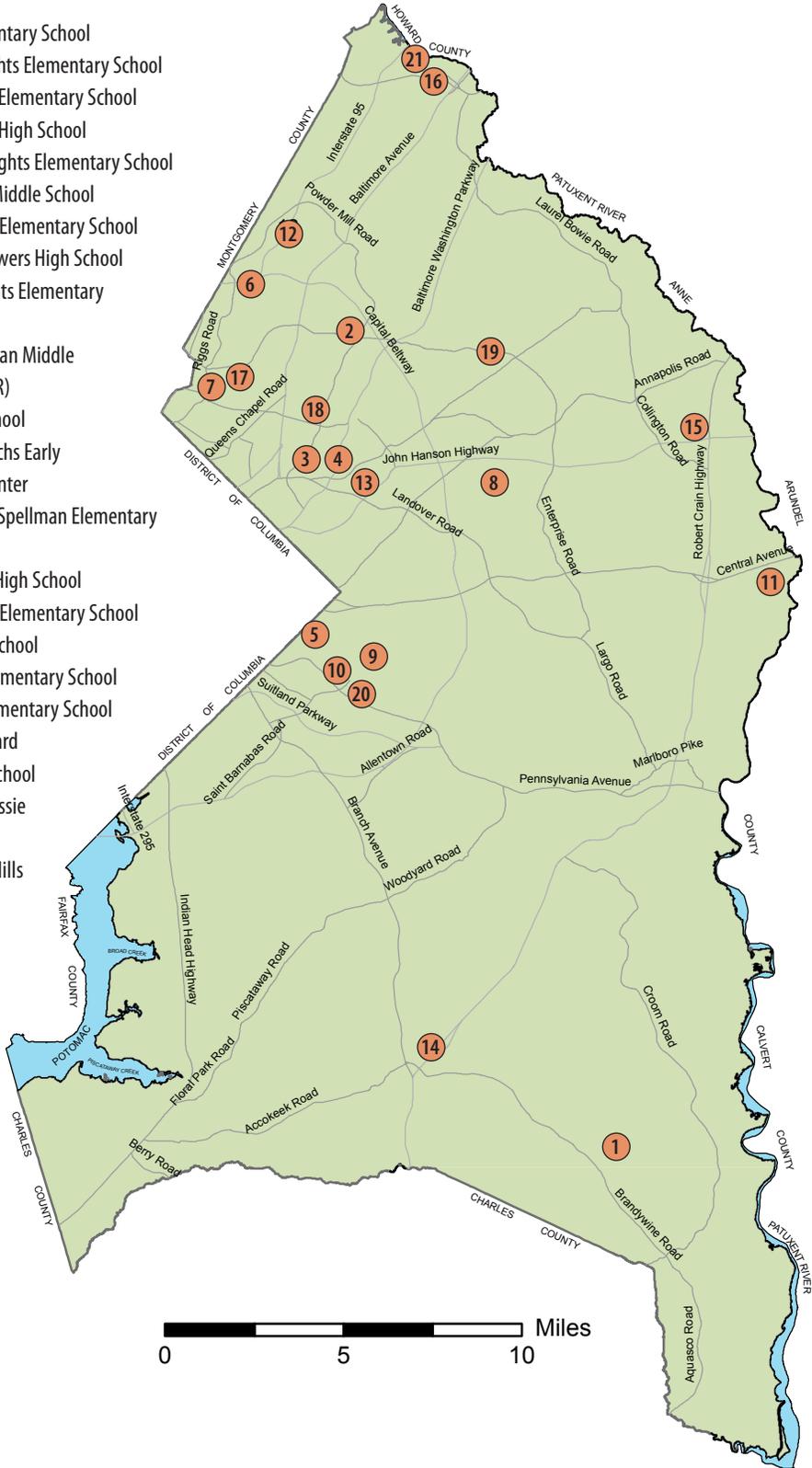
Gwynn Park High School (GPHS) has reintroduced agriculture by renovating the 36-year-old greenhouse located on its property and creating a learning garden behind the greenhouse. The goal is to stimulate interest in the many facets of agriculture, horticulture, and ecology. GPHS Ecology Club members created landscape designs and helped with selecting raised beds, soil, and other equipment.

With help from the Prince George's County Master Gardeners they started the plants from seed in a grow tray and transplanted them to raised beds. They also started new plants from seed outside in the new garden. They planted various vegetables that are used in salsa, as well as cabbage, carrots and collard greens. Partnering with Camp Schmidt, they put up rain barrels along the greenhouse. They also set up five compost bins, each in decreasing stages of degradation.

⁸² ACE web site: <http://www.acenet.edu/AM/Template.cfm?Section=Home>

MAP 3: SCHOOL GARDENS

1. Baden Elementary School
2. Berwyn Heights Elementary School
3. Bladensburg Elementary School
4. Bladensburg High School
5. Bradbury Heights Elementary School
6. Buck Lodge Middle School
7. Cesar Chavez Elementary School
8. Charles H Flowers High School
9. District Heights Elementary School
10. Drew Freedman Middle School (STEER)
11. Fairhaven School
12. Frances R. Fuchs Early Childhood Center
13. Gladys Noon Spellman Elementary School
14. Gwynn Park High School
15. Heather Hills Elementary School
16. Laurel High School
17. Lewisdale Elementary School
18. Riverdale Elementary School
19. Robert Goddard Montessori School
20. Samuel P. Massie Academy
21. Scotchtown Hills Elementary School



In 2009 the Park Ranger Unit of the Prince George’s County Department of Parks and Recreation (DPR) launched the Youth Garden Initiative. This program teaches young people how to grow their own food and the importance of eating fruits and vegetables. It instills the enjoyment of working outdoors and an appreciation of nature. Youth also learn about teamwork, health and nutrition, the food system, the environment, and community building through gardening. The first three youth gardens were established in early 2009 in partnership with Samuel P. Massie Academy, Suitland Community Center, and Walker Mill Baptist Church. In spring 2011, three more youth gardens were started, and in 2012 three gardens were added.⁸³ Together, the eight gardens engage more than 500 children in the joy of gardening every year.

Although the program participants vary from site to site, each garden has a group of children caring for the garden through planting, weeding, watering, and harvesting produce. In addition to garden care, the children learn how to prepare and eat the fresh food that they harvest, and participate in various indoor garden related programs such as learning about beneficial insects, the plant cycle, the environment, and nutrition. Each garden features a variety of herbs, flowers, vegetables, and fruit and provides an ideal outdoor learning environment.

SAMUEL P. MASSIE ACADEMY YOUTH GARDEN

SUITLAND

There are four raised garden beds in the courtyard of this elementary school, three for growing food and one filled with herbs and flowers that attract pollinating insects and birds. The garden is used by each year’s 5th grade science classes.

SUITLAND COMMUNITY CENTER YOUTH GARDEN

SUITLAND

The garden has eight raised vegetable garden beds in front of the community center. Children from the Kids’ Care after school program plant, maintain, and harvest vegetables and herbs during the school year, and a summer camp takes over the garden in the summer for additional programming. In addition, nutrition education is provided by UME’s Expanded Food and Nutrition Education Program (EFNEP). Some of the garden produce is also used in the center’s Dine and Learn Program, a series of healthy eating demonstrations in partnership with the Cardiovascular Outreach Program of the NIH Heart Center at Suburban Hospital.

⁸³ Information obtained from the Park Ranger Unit.



Samuel P. Massie Academy



Suitland CCYG

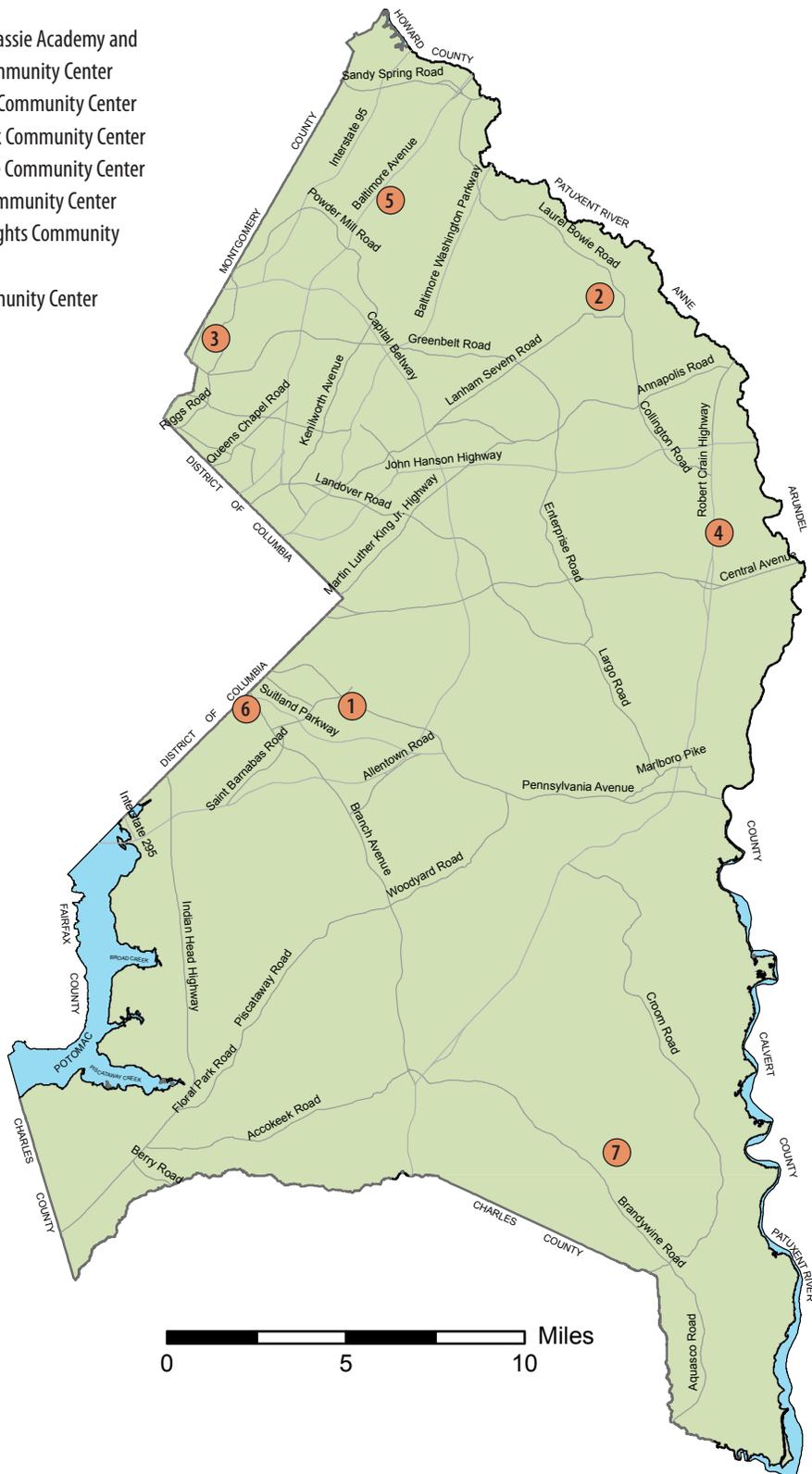


Suitland CCYG

Photos by Gill Guleriyiz

MAP 4: YOUTH GARDENS

1. Samuel P. Massie Academy and Suitland Community Center
2. Huntington Community Center
3. Langley Park Community Center
4. South Bowie Community Center
5. Vansville Community Center
6. Hillcrest Heights Community Center
7. Baden Community Center



HUNTINGTON COMMUNITY CENTER YOUTH GARDEN

BOWIE

This garden supplements two classic raised beds with three stacked truck tires that have been filled with soil and planted with flowers and vegetables. The garden is maintained by a group of home schooled students and children from the summer camp.



LANGLEY PARK COMMUNITY CENTER YOUTH GARDEN

LANGLEY PARK

Located in the back of the community center in a fenced area, this garden has five raised beds. The garden has been used for special events such as a family health fair aimed at encouraging healthy living in the surrounding community.



Photos on this page by Gail Guterytz.

SOUTH BOWIE COMMUNITY CENTER YOUTH GARDEN

BOWIE

Five raised beds are surrounded with deer fencing at the South Bowie Community Center. A dozen children and two dedicated staff members comprise the South Bowie Youth Garden Club and maintain the garden year-round.

VANSVILLE COMMUNITY CENTER YOUTH GARDEN

BELTSVILLE

This garden was established in 2012 to serve the newly opened Vansville Community Center. The garden has six 3-foot by 12-foot raised beds.

HILLCREST HEIGHTS COMMUNITY CENTER YOUTH GARDEN

TEMPLE HILLS

This newly established youth garden has five 3-foot by 12-foot raised beds surrounded by a deer fence. Nutrition education is also provided by a partnership with the Cardiovascular Outreach Program of the NIH Heart Center at Suburban Hospital.

BADEN COMMUNITY CENTER YOUTH GARDEN

BRANDYWINE

This southernmost youth garden in the Rural Tier was established in conjunction with Baden Elementary School in spring 2012. It contains four 3-foot by 12-foot raised beds. Some garden materials were donated by local businesses, with the rest provided by DPR.

Demonstration gardens

Prince George's County is fortunate to house top ranked agricultural institutions such as the Beltsville Agricultural Research Center and the University of Maryland, which was established as the Maryland Agricultural College in 1859, became a land grant college in 1864, and continued to offer agriculture as a prime study area after it became a renowned research university. These fine institutions, along with history museums and environmental organizations, created demonstration gardens to educate and motivate children and the public about gardening. Below are examples of demonstration gardens and gardening programs in the county:

BARC STUDENT DISCOVERY GARDEN⁸⁴

BELTSVILLE

The Student Discovery Garden at the Beltsville Agricultural Research Center (BARC) consists of seven sections, each exhibiting a different aspect of BARC research, from the breeding of native crops, to urban garden containers. Each section features a poster with relevant educational information. The Student Discovery Garden is pesticide- and herbicide-free. Planting beds are filled with sterilized soil as a protective measure for the middle-school students who are expected to be the predominant age group served by this teaching tool. Volunteers and students at all levels have been actively involved in maintaining the garden and in hands-on educational experiences.

GARDENS AT RIVERSDALE HOUSE MUSEUM⁸⁵

RIVERSDALE PARK

The historic kitchen gardens and orchard at the Riversdale Mansion feature flowers and herbs, fruits and vegetables. These crops are representative of the early nineteenth century food that supported a large family. The demonstration garden offers tours and programs for children and adults, including an annual harvest dinner and monthly cooking demonstrations using produce grown in the garden



Photo by Gill Gulteryiz.

GREENBELT MUSEUM

DEMONSTRATION VICTORY GARDEN

GREENBELT

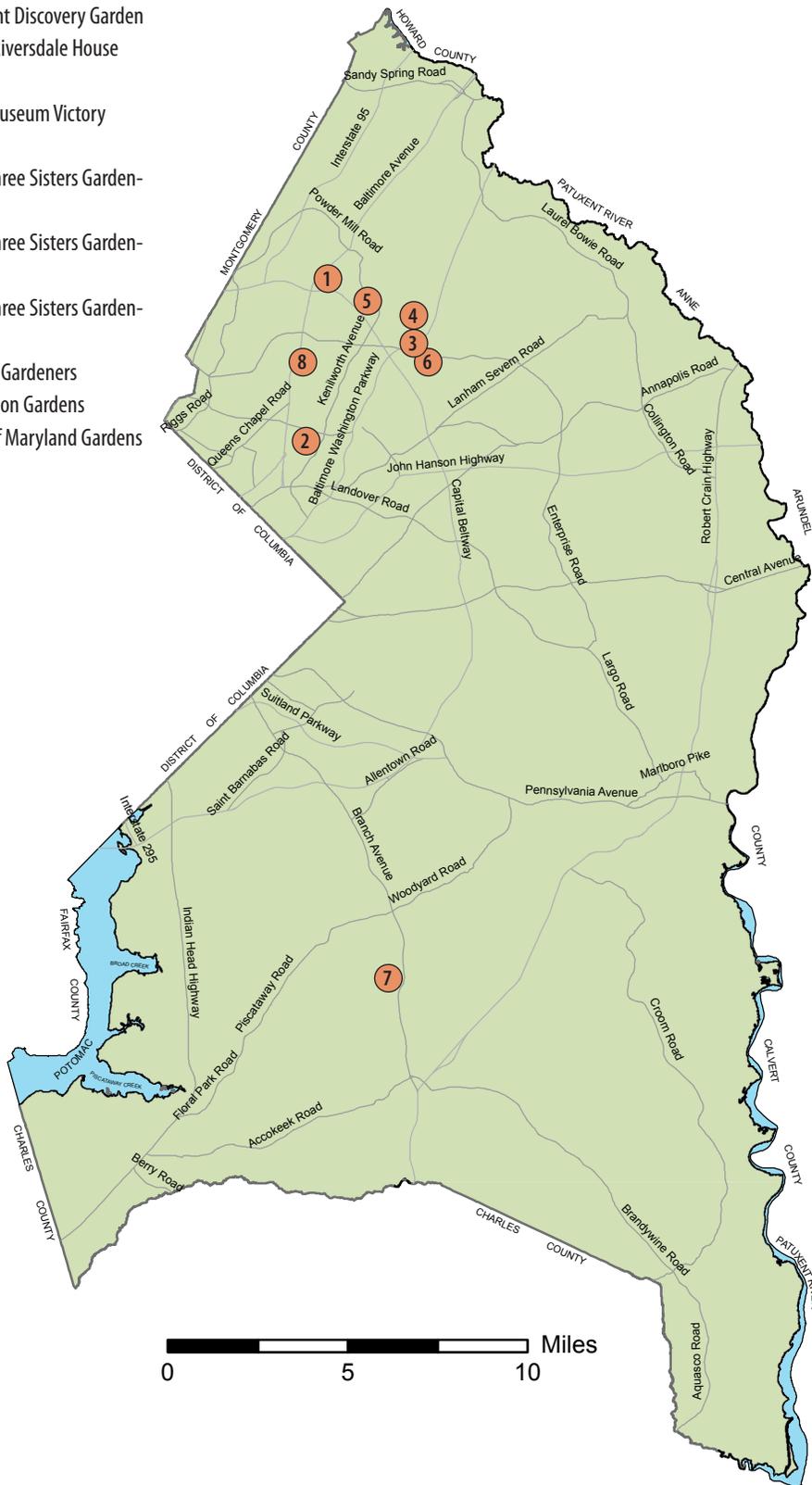
This small demonstration garden is located on the grounds of the Greenbelt Museum's historic 1937 house. The garden replicates the World War II Victory Gardens for educational purposes.

⁸⁴ USDA Agricultural Research Service web site: www.ars.usda.gov

⁸⁵ Prince George's County Master Gardeners web site: mastergardener.umd.edu

MAP 5: DEMONSTRATION GARDENS

1. BARC Student Discovery Garden
2. Gardens at Riversdale House Museum
3. Greenbelt Museum Victory Garden
4. Greenbelt Three Sisters Garden-Center
5. Greenbelt Three Sisters Garden-West
6. Greenbelt Three Sisters Garden-East
7. UME Master Gardeners Demonstration Gardens
8. University of Maryland Gardens



GREENBELT THREE SISTERS DEMONSTRATION GARDENS⁸⁶

GREENBELT

Greenbelt Three Sisters Demonstration Gardens were established in 2010 by the Chesapeake Education, Arts and Research Society (CHEARS). A Greenbelt-based non-profit organization dedicated to the health of all who share the Chesapeake watershed environment, CHEARS was awarded a \$1,500 grant from the Greenbelt Community Foundation for the garden project. CHEARS obtained permission from the City of Greenbelt to place the gardens on public land in three areas of the city: Greenbelt Center Garden—behind the Greenbelt Community Center, Greenbelt East Garden—Schrom Hills Park, and Greenbelt West Garden—Springhill Lake Recreation Center.

The goals are to provide additional gardening opportunities for urban dwellers to participate in food production, to promote Bay friendly edible and native plant landscaping, to promote co-learning in different areas of Greenbelt, and to provide opportunities for educational, scientific, and artistic creative expression. The gardens are all-inclusive (multiage and ethnicity and handicapped access) and food is grown organically using Bay friendly practices. In addition to growing vegetables, herbs, and fruit, the gardens are used as an outdoor nature classroom for educational workshops.

UNIVERSITY OF MARYLAND GARDENS

COLLEGE PARK

Within the last year University of Maryland students started three new gardens on campus to grow healthy food. Two of the gardens were created on rooftops; one each atop the North and South Campus dining halls. Planter boxes converted from shipping palettes; old 50-gallon Pepsi barrels turned into rain barrels; picnic tables, water system, and lighting were installed to turn empty rooftops into open public community gardens for all students. The University Sustainability Fund grant helped establish the rooftop gardens.⁸⁷

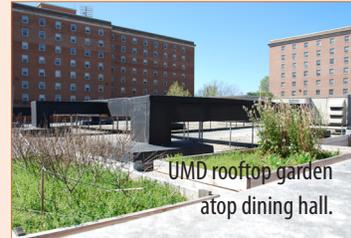
A larger grant from the sustainability fund helped students build another garden on underused land next to the School of Public Health. An organized group of students, in collaboration with several departments and off-campus partners, established the Public Health Garden. This is a student-teaching and community garden demonstrating sustainable agriculture and environmental best practices in support of public,



UMD School of Public Health garden.



UMD rooftop garden atop dining hall.



UMD rooftop garden atop dining hall.

Photo by

⁸⁶ CHEARS web site: <http://chears.org> and Margaret Cahalan from CHEARS.

⁸⁷ "A Growing Legacy," *Diamondback*, May 11, 2011.

environmental, and community health. The garden serves as an outdoor classroom for experiential education.⁸⁸ With the involvement of community members and area school children in volunteer opportunities and learning activities, the garden fosters a greater connection between the School of Public Health and Prince George's County.⁸⁹

UNIVERSITY OF MARYLAND EXTENSION, PRINCE GEORGE'S COUNTY MASTER GARDENERS' DEMONSTRATION GARDENS⁹⁰

CLINTON

The University of Maryland Extension, Prince George's County, at its office in Clinton, has several demonstration gardens open to the public. Using the countywide beautification program Clean Up Green Up funding, Master Gardeners started redesigning the gardens in 2011, making them a teaching tool for residents and schools. A design charrette was held to get input from members. The goal was to create a sustainable network of gardens that serve as teaching tools for the public. The entry and overgrown butterfly gardens were redesigned. Each demonstration garden has a theme: entry gardens, butterfly garden, herb garden, gourd garden, vegetable garden with eight raised beds, and wildflower garden.

Along with themes, demonstration gardens also have examples of garden projects, such as a garden table (a raised planter that allows gardening without bending over), rain barrels to promote conservation by collecting rainwater and reusing it in the garden, wildlife brush pile composed of removed yews, a cold frame made from a repurposed window, and compost bins. The gardens are used for demonstrations, workshops, special events, and school trips to promote environmental stewardship, community involvement, and sustainable gardening practices.

The Master Gardener program is administered by the University of Maryland Cooperative Extension, Prince George's County. The program's mission is to educate residents about safe, effective, and sustainable horticultural and gardening practices that build healthy gardens, landscapes, and communities in Prince George's County. Master gardeners are volunteers, trained by the university, who provide horticultural education services to individuals, groups, and communities, including government agencies, neighborhood associations, nonprofit organizations, historic sites, schools and youth groups, senior citizens, and garden clubs.



Photo by Gül Gülleryüz.

⁸⁸ The Public Health Garden blog: <http://publichealthgarden.blogspot.com>

⁸⁹ "Come Join Us—New Public Health Garden Initiative Utilizes Unique Space," *School of Public Health News*, February 2, 2011.

⁹⁰ Prince George's County Master Gardeners web site; interview with Master Gardener Kelley Oklesson, who helped design the gardens.

Grow It Eat It Program⁹¹

Grow It Eat It is a joint venture between the Master Gardener program and the Home and Garden Information Center, both administered by the University of Maryland Extension. In 2009, inspired by the economic recession and an increase in the number of Marylanders interested in learning how to grow their own food, they combined their resources to create Grow It Eat It. The program addresses the growing need of residents to learn how to start and maintain successful food gardens. The program goals are to:

- ❖ Increase the number of food gardeners and food gardens by teaching food gardening to a wide variety of groups.
- ❖ Reach all residents and garden sizes.
- ❖ Break down barriers to growing food at home, in schools, and in communities.
- ❖ Teach intensive, low-cost, organic techniques that maximize food production, protect and improve natural resources, and improve human health.
- ❖ Create a network of food gardeners to allow for sharing ideals, experiences, and recipes.

The Prince George's County Grow It Eat It program held 24 training classes in 2011 attended by more than 540 people.⁹² Lately, the University of Maryland President Wallace D. Loh acknowledged the Grow It Eat It program as one of the three services the university is offering to residents. In the TERP Magazine, he wrote: "Serving the State of Maryland will always be at the heart of this university. To that end, we are...using the innovative Grow It Eat It program to teach Marylanders how to grow their own sustainable gardens."⁹³



Photo by Gail Gullerytz.

⁹¹ Grow It Eat It Facebook page: www.facebook.com/GIEIMaryland

⁹² Information obtained from one of the Prince George's County Grow It Eat It program coordinators.

⁹³ Wallace D. Loh, The Reach of a Modern Land-Grant University, *TERP*, Fall 2011.

Planning and public policy for urban agriculture

Because of the diversity of its forms and benefits, urban agriculture can be seen as a powerful tool in a planner's repertoire.—Nina Mukherji and Alfonso Morales.

Amending the zoning code to encourage urban agriculture not only helps to increase consumer access to healthy food, it also incentivizes growers to expand their operations and pursue even more innovative agricultural projects in their communities.—Harvard Law School Food Law and Policy Clinic

To facilitate urban agriculture's integration into the urban and suburban environments, new planning and public policy tools are needed. This chapter contains ideas on how planning can help facilitate and promote urban agriculture and what public policies are needed to make urban agriculture work. Examples of best local government practices around the nation are included to show different jurisdictions' approach to urban agriculture and the variety of actions they take. A chart listing best local government practices is included in Appendix D.

In order to set policy and determine appropriate land use tools for agriculture in and around urban areas, it is useful to understand how urban farming differs from more conventional rural farming practices. The following is a recap of the characteristics of entrepreneurial urban farming:⁹⁴

Scale: Sites can be as small as a few hundred square feet and rarely exceed a few acres.

Location: Sites are often leftover spaces within developed areas; they may be remnants of historic farms, sites that are difficult to develop, parks, or portions of sites developed in a compatible use, such as a school, a utility right-of-way, or water storage facility.

Intensity of use: Land is used intensively to maximize productivity in a small area.

Techniques: Food is usually grown naturally using sustainable agriculture methods based on recycling and without use of chemicals; the small scale favors hand tools and smaller mechanized equipment.

Crop diversity: Rather than growing single crops oriented to mass production, urban farmers grow a variety of crops that change from season to season.

Products: Fruit, vegetables, herbs, flowers, nursery stock, beehives, and chickens are most common; some sites may stock fish and other small animals.

Consumer base: Local subscribers range from CSAs, schools, institutions, or restaurants to those who shop at farmers markets or farm stands.

Community orientation: Sites are often considered community assets, providing open areas, educational opportunities, or food security.

Associated activities: These include educational activities, job training programs, demonstration projects, or related commercial activities such as farm stands, plant sales, or collection by CSA members.

Land ownership: Nonprofit or government ownership is common; remnant historic farms or CSAs may be in private ownership.

⁹⁴ Modified from Portland Multnomah Food Policy Council, Urban Agricultural Land Inventory Subcommittee report "Land Use Policy and Zoning Analysis," November 2005.

Planning for urban agriculture

I think our governments will remain virtuous for many centuries; as long as they are chiefly agricultural.—
Thomas Jefferson

Planning is a powerful mechanism in improving the quality of life, especially in urban areas. Urban agriculture may be used as a planning tool to resolve many issues and create better communities in which to live, work, and play. Urban agriculture has the potential to fit into nearly every major ongoing program in urban areas, from environmental improvement, waste management, crime prevention, revitalization, and redevelopment to health care, child nutrition programs, and education.⁹⁵

While urban agriculture can be used as a planning tool, it also requires planning for itself. This section summarizes how local governments and planning agencies may effectively plan for urban agriculture and facilitate its assimilation into urban and suburban environments.

Assessment of existing conditions

The first step in the planning process is to assess the existing situation and identify issues. This is also the case in planning for urban agriculture. An assessment of urban agriculture can be done either independently or via an assessment of the local food system that urban agriculture forms part of. An independent assessment is a detailed evaluation of the existing conditions specific to urban agriculture. A local food system assessment is a holistic approach to understanding the dynamics of the food system as well as the role of urban agriculture in this system. Either way, data and information gathering through research, documenting existing conditions, evaluating the findings, and identifying the issues are the first steps in planning for urban agriculture. Assessment studies are used as significant input for creating and updating plans and making necessary policy recommendations.

The City of Seattle, Washington, prepared a report, *Urban Agriculture in Seattle: Policy and Barriers* (2009), that examines the city's existing policies and regulations related to urban agriculture. Specifically, it analyzes community gardening program resolution and zoning policies.

Portland, Oregon's *Food Systems: Portland Plan Background Report* (2009) provides detailed background information on community gardens, urban farming operations, and other urban agriculture, including garden education and school gardens.

Incorporating urban agriculture into plans

In conventional land use planning, agriculture is considered a rural land use category, and its subcategories include certain types of land cover such as cropland, pasture, and vineyards. Urban agriculture is not included in this categorization. Urban agriculture should be recognized as a separate land use category and be addressed as an element of land use planning.

⁹⁵ Kimberley Hodgson, Marcia Caton Campbell, and Martin Bailkey, *Urban Agriculture: Growing Healthy, Sustainable Places*. American Planning Association Planning Advisory Service, Report Number 563, January 2011.

Urban agriculture may be incorporated in a variety of plans at various geographic levels. Many municipalities, counties, and regional governmental entities include urban agriculture in their comprehensive plans, area master plans, sector plans, and/or neighborhood revitalization plans. Minneapolis recently developed the nation's first standalone urban agriculture plan.⁹⁶ In addition to land use plans, urban agriculture may be addressed in sustainability plans, agricultural preservation plans, food system plans, economic development plans, and various functional master plans such as parks and recreation, transportation, and public facilities.

Regardless of the type, plans may set goals to promote urban agriculture and develop objectives to facilitate agricultural activities and provide necessary land, infrastructure, and access for such uses. Recommended implementation strategies may include both practical matters and policy changes. One of the most common policy recommendations for urban agriculture is zoning ordinance amendment to address or remove zoning barriers and to accommodate urban agriculture as a legal land use.

Many examples of jurisdictions that incorporate urban agriculture into comprehensive or general plans include New Orleans, Louisiana; Boise, Idaho; Harrison County, Mississippi; Providence, Rhode Island; and Marin County, California. Minneapolis, Minnesota's Urban Agriculture Policy Plan recommends incorporating urban agriculture into long range planning and reviewing the city's land inventory for urban agriculture opportunities. The Baltimore Sustainability Plan recommends increasing the percentage of land under cultivation and developing an urban agriculture plan.

Identification of available land

One common problem in urban areas is to find affordable and suitable land for urban agriculture. Suitability is determined by various factors such as adjoining uses, zoning, access to water, sunlight, slope, soil quality and condition, accessibility, and proximity to consumers or certain uses relevant to agriculture. While community gardens may be established on donated or public land, for entrepreneurial farmers, price of the land is as important as its suitability. Beginner farmers in particular look for affordable land to minimize the up-front costs. Studies may be conducted to identify existing or former agricultural land, abandoned vacant land or dilapidated structures, as well as government owned properties that are suitable for a variety of urban agriculture activities. By creating a land inventory, local governments may play an important role in linking farmers to available land.

The Diggable City is an inventory of public lands that are appropriate for urban agriculture in Portland, Oregon.

Preserving land for urban agriculture

Preserving land is one of the most important planning actions for urban agriculture. Agricultural land in and around urban areas is under serious development pressure. Because agriculture is not usually considered as the highest and best use of land,

⁹⁶ City of Minneapolis, *Urban Agriculture Policy Plan: A Land Use and Development Plan for a Healthy Sustainable Local Food System*, 2011.

many urban farmers and gardeners are concerned about securing land over time. It is common to have urban agriculture as a temporary use for a short term until development occurs. Because it takes time, money, and energy to improve the soil quality to grow healthy plants, farmers usually seek long-term use of the land.⁹⁷ A number of tools can be used to protect this valuable land from development. These can preserve both active farms and gardens, as well as former undeveloped farmland and other potential land. In addition to creating special zoning districts, purchase of development rights (PDR) or transfer of development rights (TDR) programs are some tools that may be effective. Conservation easement programs, land banks, and partnerships with land trusts are excellent tools to secure land for urban agriculture.

A conservation easement was established over property owned by the Madison Area Community Land Trust, where Troy Gardens operates, to protect land for use as a community garden.

Chicago's NeighborSpace is an excellent land-trust model for municipally supported urban agriculture. NeighborSpace land trust acquires titles to abandoned vacant lots and other open space that residents have already converted into gardens and parks for food production and protects them from development.

Urban design

Preserving land for urban agriculture can also be accomplished through creative urban design either during new development or in already developed areas. Developers can be encouraged to design new development by taking different forms of urban agriculture into consideration or even design innovative farm-based communities. At the very least, during site plan development, setting aside land for a community garden may be required as part of the amenities similar to a tot lot. Public spaces may also be designed to accommodate areas for growing food either for own consumption or commerce.

Troy Gardens in Madison, Wisconsin is a 31-acre planned development that incorporates sustainable food production. The development was designed to accommodate 30 mixed-income housing units, a five-acre fenced in community farm, 330 community garden plots on four acres, and woodlands and prairie with nature trails.

Community education and engagement

Raising public awareness about eating nutritious food and engaging residents in food production would help the public to understand the role of urban agriculture in accessing affordable healthy food. Home gardens, community gardens, and community farms are the primary sources of nutritious fresh food in and around urban areas. Building community gardens in all neighborhoods and encouraging residents to get involved in food production are elements of planning for healthy communities. In collaboration with community groups and local nonprofit organizations, educational programs may be developed to teach residents how to grow their own food.

⁹⁷ Public Health Law and Policy, *Seeding the City: Land Use Policies to Promote Urban Agriculture*, October 2011.

Assuring soil safety

Before deciding to produce food on an urban site, it is important to make sure that soil is not contaminated. Information needs to be gathered in order to make decisions concerning an urban agriculture project. Identifying previous uses and testing soil for contaminant concentrations are the steps to determine soil safety. In areas where soil is contaminated, remediation may be necessary. Local governments may help with these procedures to assure soil safety. The U.S. Environmental Protection Agency (EPA) has programs and funding available for soil remediation.

Brownfields redevelopment

According to the EPA, implementing urban agricultural practices on brownfield sites addresses and mitigates public health concerns; benefits the property and neighborhood by removing environmental hazards; improves poor quality, compacted, potentially contaminated soils; and creates more biologically diverse habitats and healthy soil that can filter storm water.⁹⁸ Local governments may identify brownfields that can be turned into community gardens or urban farms and partner with EPA to clean up these brownfields and create safe places to grow food. (See Appendix E for EPA's Steps from Brownfield to Community Gardens and brownfields–food connection chart.)

Urban Oaks Organic Farm in New Britain, Connecticut is an excellent example of agriculture-related reuse of brownfields. The abandoned horticultural distribution operation that was grown into a junkyard was cleaned and underwent environmental remediation. After the renovation of existing greenhouses, an organic farm operation started on this site.

Fremont Community Garden in Sacramento, California was established on a former brownfield after 1,700 cubic yards of contaminated soil was removed and replaced with clean soil suitable for gardening. The garden's 52 plots are rented to residents for all-organic gardening activities.

Direct marketing outlets

Sales outlets are crucial for the survival of entrepreneurial urban farms. Connecting local farmers to consumers is an important part of planning for urban agriculture. This can be done through establishing and facilitating farmers markets and lifting barriers for other direct marketing opportunities such as on-site farm sales, roadside farm stands, and mobile fresh produce vendors.

Edible landscaping

Encouraging edible landscaping as an alternative to conventional landscaping is another way to promote and facilitate urban agriculture. Edible landscaping is the use of fruit-producing plants in the constructed landscape. Its popularity has been increasing, because it provides not only beautiful urban landscapes but also convenient healthy food. Usually a combination of fruit and nut trees, berry bushes, herbs, vegetables, and edible flowers are arranged in an aesthetically pleasing way in residential and commercial landscapes. Edible plants are also used in public places

⁹⁸ EPA, *Brownfields: Urban Agriculture & Improving Local, Sustainable Food Systems*, retrieved from epa.gov/brownfields/urbanag

such as parks, streetscapes, road rights-of way and medians, and government buildings. Fruit and nut trees may be used as street trees, and berries and herbs may be more appropriate for medians. The produce in these public places can be consumed by the public, which is another avenue to provide access to healthy and affordable food.

Gilman Boulevard in the heart of City of Issaquah in King County, Washington, features edible landscaping along both sides of the boulevard. There are 25 varieties of edible trees and shrubs bearing a variety of fruits in different seasons. The Parks and Recreation Department maintains the landscaping and encourages the public to take fruits and nuts.

City of Des Moines, Iowa, is also creating edible landscapes throughout the city, including an orchard of 33 fruit trees in Drake Park, providing fruits to neighborhood residents.

Infrastructure planning

In addition to land, there are other necessities for urban agriculture to function. Water is essential to growing plants. Not every available piece of land has readily accessible water. Hence access to water and other utilities should be part of planning for urban agriculture.

Accessibility to gardens and farms is another critical element that can be planned to facilitate urban agriculture. Sidewalks, pedestrian and bicycle paths, and streets and roads can be arranged or built to provide public access to urban agricultural facilities. Provision of enough parking at community gardens, farms, and farmers markets would help promote urban agriculture. Some community gardens can be designed to accommodate the needs of disabled residents, so that they can enjoy growing their own food. Easy transportation access to entrepreneurial urban farms for transporting equipment, farm materials, compost, as well as produce and other farm products helps not only the farm businesses but also local traffic in the vicinity. Arrangements can be made to accommodate farm traffic in urban areas.



Photo by Gül Güleriyüz.

Public policy for urban agriculture

Urban agriculture is affected by public policy. While local policies may be adopted to actively promote urban agriculture, some existing local policies can present barriers. To foster urban agriculture, it is necessary to reduce or remove existing, unintentional policy barriers and to adopt new policies that help facilitate urban agriculture.

Public policy can be a critical instrument to facilitate and regulate urban agriculture. It is important to establish policies to prevent the adverse effects of urban agriculture, such as nuisance issues, and to help smooth integration of urban agriculture into the urban setting. Established rules help to prevent speculation and conflict. They protect both the farmer's right to farm and the resident's right to enjoy home life. When residents know what to expect, urban agriculture can become a welcome use in urban and suburban areas.

Public policies for urban agriculture are examined in this report under three groups: zoning, other policies and regulations, and government programs and incentives.

Zoning for urban agriculture

Zoning is a restrictive, regulatory mechanism. In most jurisdictions, zoning is the biggest barrier to urban agriculture. Since urban agriculture is a relatively new concept, most zoning ordinances do not have any provisions related to urban agricultural activities. Usually, agriculture is not a permitted use in urban and suburban areas. Even small scale noncommercial agriculture such as community gardens may unintentionally end up being considered as an unpermitted use.

Zoning, however, can be a useful tool to legitimize urban agriculture and make it an acceptable land use in and around urban areas. By evaluating and amending zoning ordinances, the unintended barriers can be reduced and new uses can be added to foster urban agriculture. In an article in the American Planning Association's *Zoning Practice*, it is suggested that in zoning, urban agriculture can be treated either as a zoning district or as a use category. In zoning regulations, a wide range of agricultural activities, including the raising of crops and animals, are usually permitted in designated agricultural districts in rural areas or on the urban fringe. This approach is now being extended to urban areas, and some jurisdictions are designating urban agriculture districts. Another approach is to treat urban agriculture as a use or set of uses that are permitted, conditional, or forbidden, depending on the zoning district. Both approaches have merits, and they are not mutually exclusive.⁹⁹

Since types of urban agriculture range from home gardens to entrepreneurial urban farms with a variety of operators (nonprofit or for profit entity, a government agency, or simply residents), it is important to develop regulations appropriate to each type.¹⁰⁰ While it may make more sense to identify urban agriculture districts for farms, permissive use approach may better apply to gardens. Either way, inclusion of urban agriculture activities in zoning

⁹⁹ Nina Mukherji and Alfonso Morales, "Zoning for Urban Agriculture," *Zoning Practice*, American Planning Association, Issue Number 3, March 2010.

¹⁰⁰ Public Health Law and Policy, *ibid.*

ordinances makes them legal and minimizes conflicts. However, while trying to regulate urban agriculture it is imperative to guard against causing it hardships or creating new impediments.

To create effective zoning regulations, research should be done to determine the appropriate ways to address urban agriculture depending on local needs. Community input is essential to both accommodate needs and avoid future conflicts. Conducting a land inventory or other analysis of sites suitable for urban agriculture may be helpful to determine where different forms of urban agriculture could occur.¹⁰¹ It is also important to have a thorough understanding of the various activities of urban agriculture in order to ensure that they are carried out safely and do not infringe upon neighboring property owners. Primary and accessory uses may be determined and operating standards (such as operating hours, on-site processing and sales, and use of machinery) may be established so that urban agriculture operates in a way that preserves and enhances the urban environment and is compatible with good neighborliness.¹⁰²

The following is a sample of possible amendments to a local zoning ordinance that would help incorporate and support urban agriculture. Since they are not mutually exclusive, more than one amendment can take place in the same zoning ordinance.

Definition of urban agriculture

Defining urban agriculture carefully—and including the types and activities associated with it—in the zoning ordinance is important. A good definition would clarify what it means and how it can be related to other uses.

Kansas City, Missouri zoning code has an “Urban Agriculture” use under the “Agricultural Use Group.” Urban agriculture is defined as a home garden, community garden, or community supported agriculture (CSA) farm. Each of these three uses is defined in detail. For example, CSA is defined as “an area of land managed and maintained by an individual or group of individuals to grow and harvest food and/or horticultural products for shareholder consumption or for sale or donation.”

Urban agriculture district

Perhaps the most effective way to recognize urban agriculture is the creation of a special zone for it. There are different ways to create such a zoning district. An **exclusive urban agriculture district** may apply to specific land areas that would be designated for urban agriculture use only. Such a zoning designation would protect the land from development and permit a wide range of agricultural activities, similar to the rural agricultural zones.¹⁰³ A **floating urban agriculture district** may provide the same permissions as the exclusive zone without tying it to a specific piece of land at the time of the creation of the zone. These uses “float” until they become fixed at a certain location.¹⁰⁴ In this case, applying urban agriculture zone designation to a particular piece of land requires the property owner’s petition for rezoning.

¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ The Harvard Law School Food and Policy Law Clinic and the Community Food Security Coalition.

¹⁰⁴ Peter W. Salsich & Timothy J. Tryniecki, *Land Use Regulation: A Legal Analysis & Practical Application of Land Use Law*, Second Edition, 2004.

Urban Garden District in Cleveland was created to appropriately locate and protect urban gardens to meet the needs of the community.

Chattanooga's Urban Agriculture Zone provides an opportunity for Planned Unit Development with agricultural land and uses within the city limits.

The City of Madison included an Urban Agricultural District in its proposed zoning map to allow cultivation and animal husbandry within developed areas. The zoning code rewrite process is being concluded and the adoption of the proposed zoning map is expected to occur during the fall of 2012.

Urban agriculture overlay district

An overlay zoning district can only be used in conjunction with other zoning districts. It is superimposed on existing zoning districts to either restrict or relax the requirements of the underlying districts. An urban agriculture overlay zone may be applied to certain areas by drawing a geographic boundary for its application. An urban agricultural zoning overlay district may permit a variety of agricultural uses and activities on multiple existing zones in designated areas.

Cleveland's proposed Urban Agriculture Overlay District, which is pending before the City Council as of July 2012, allows the city to designate areas for relatively large-scale, intensive farming, including the raising of animals and the operation of farmers markets.

Urban agriculture use category

An urban agriculture use category may be added to the zoning ordinance use table. This may be a single use category or a set of categories for each urban agricultural type (e.g., urban farm, community garden, farmers market, etc.) or activity (e.g., animal husbandry, food processing, sales, composting, etc.). For each zoning district, each urban agriculture category is identified as a permitted, conditional, or prohibited use. Additionally, each use may be identified as primary, accessory, or incidental, and more detailed requirements (e.g., setbacks, structures, etc.) may be included.

Kansas City, Missouri, zoning ordinance permits agriculture in all residential, office, business and commercial zones as well as downtown and in manufacturing districts. On-site sales by home gardeners, community gardeners, and farmers are permitted, but CSA operation in a neighborhood requires special exception. The ordinance has separate definitions for home gardens, community gardens, and CSA farms.

Cleveland permits agriculture as a principal use on all vacant residentially zoned lots.

Pittsburgh's zoning ordinance permits urban agriculture as an accessory use in two categories; "with poultry birds and honey bees" and "with no animals."

Specific urban agricultural activities

While some zoning code amendments include more comprehensive provisions for urban agriculture, some communities amend their ordinances to accommodate only specific urban agricultural activities. Amendments to permit **community gardens**, on-site or off-site **sales** of produce, **processing** for value-added products, **farmers markets**, and **farm**

animals are the most common around the nation. **Rooftop gardening** is another activity that many jurisdictions have started to allow in their zoning ordinances.

The City of San Diego adopted separate zoning amendments to allow community gardens in all residential and commercial zones, to reduce the approval process for farmers markets on private property, and to create two new uses (daily farmers market stands and retail farms) in addition to weekly farmers markets.

Seattle's urban agriculture ordinance allows residents to sell food that is grown on the lots where they live.

New York City's Zone Green text amendment permits vegetative roofs and rooftop greenhouses in the city.

Urban livestock

Raising livestock is a natural next step for well-established urban agriculture operations, as diversifying their products can bolster food sales and take-home pay. Locally-raised livestock also tends to be more sustainably produced.¹⁰⁵ While it is important to allow urban farms to raise certain farm animals, lately the urban livestock issue has gone beyond urban farms. Keeping farm animals in back yards has become popular among urbanites. This interest is linked to the local foods movement.¹⁰⁶ Many communities want restrictions on urban livestock eased to allow the keeping of limited numbers of small animals in back yards. In response, several urban and suburban jurisdictions have recently revised their ordinances and others are considering to allow farm animals in residential areas. Most jurisdictions carefully develop such ordinances in ways that would minimize social conflict and public health impacts. In general urban livestock ordinances set limits on animal types; designate the zones in which they are permitted; specify site level restrictions such as lot sizes, setbacks, and number of animals; and regulate livestock-keeping practices.¹⁰⁷



One of the most common amendments to urban livestock restrictions is the liberalization of chicken-keeping requirements.¹⁰⁸ Zoning code amendments to allow **back yard chickens** have been adopted in numerous jurisdictions, including large cities. Demand for similar amendments is on the rise everywhere. **Beekeeping** or apiary related amendments are also popular and spreading. Some urban and suburban communities enact legislation to allow other farm animals, including goats, rabbits, pigs, and a variety of fowl.

Cleveland allows residents to keep up to six chickens or rabbits and two beehives in a backyard or on small vacant lots citywide, but requires greater setbacks and larger land areas for keeping of larger animals (pigs, goats, and sheep), setbacks for coops and cages, and health department licensing.

In Seattle, up to eight domestic fowl (no roosters) may be kept on any lot, provided that the henhouse is located at least ten feet away from any residential structure on an adjacent lot, and residents may keep miniature goats as pets with a license similar to dogs and cat owners.

Baltimore City allows up to four chickens (no roosters) with the condition that they are confined at all times to a movable pen located at least 25 feet from any residence. The city limits beekeeping to no more than one hive, containing no more than one swarm, for each 2,500 square feet of lot area.

¹⁰⁵ Harvard Law School Food Law and Policy Clinic and Community Food Security Coalition, *ibid.*

¹⁰⁶ William Butler, "Welcoming animals back to the city: Navigating the tensions of urban livestock through municipal ordinances." *Journal of Agriculture, Food Systems, and Community Development*, February 2012.

¹⁰⁷ *Ibid.*

¹⁰⁸ Harvard Law School Food Law and Policy Clinic and Community Food Security Coalition, *ibid.*

Form-based codes

Another alternative is to establish a form-based code regulating urban agriculture. Form-based codes are regulations that use physical form as the organizing principle of the code as opposed to the conventional zoning's separation of uses.¹⁰⁹

City of Hutto's SmartCode permits various forms of food production in all six zones created by this form-based code.

Farm management plan

Some jurisdictions require a farm management plan, particularly from larger farms or those involving certain activities, to improve farm productivity and reduce impacts on natural resources and surrounding land uses.

In Seattle, urban farms in residential zones must submit a farm management plan that includes a site plan, the type and intended use of equipment and chemicals, drainage situation, a proposed sediment and soil erosion plan, and any required mitigation measures.

Other policies and regulations

Several policies and regulations may be established to ensure smooth integration of urban agriculture into the urban and suburban settings, prevent conflicts, and protect the environment and the safety of residents. These may include:

- ❖ **Nuisance control** provisions to prevent negative impacts of urban agriculture.
- ❖ **Right-to-farm** regulations to protect farmers' right to farm.
- ❖ Soil testing requirements to ensure **soil safety** and remediation measures to remove or reduce contaminants.
- ❖ **Health codes** to regulate how food is handled safely or how animals can be kept.
- ❖ **Animal welfare and control** provisions to establish guidelines for keeping farm animals in back yards and on urban farms.
- ❖ **Composting laws** to regulate the type, size, and location of composting facilities, back yard composting guidelines, and curbside yard and food waste collection.
- ❖ **Subdivision regulations** for setback requirements and site plans.
- ❖ **Building code** requirements for farm structures and accessory uses.
- ❖ **Permits or licenses** for certain agricultural uses and activities.

There may be many other local, state, and federal laws affecting urban agriculture, including food safety laws, the Americans with Disabilities Act (ADA), pesticide and other environmental laws, brownfields and environmental cleanup laws, laws establishing and regulating business entities, employment and volunteer laws, medical marijuana laws, business enterprise laws, business permits, fire safety regulations, and tax laws.¹¹⁰

¹⁰⁹ Form-Based Codes Institute web site: www.formbasedcodes.org

¹¹⁰ Public Health Law and Policy, *ibid.*

Government programs and incentives

Local governments can establish a variety of programs and develop incentives to foster urban agriculture. The following is an assortment of programs and incentives local governments may adopt:

Community Garden Program

Establishing a community garden program is one of the most common, and perhaps the easiest, way for local governments to support urban agriculture. This is also a good tool to encourage residents to eat healthy food. Community garden programs are usually very popular and in high demand.

Green Thumb program in New York City, operated by the Department of Parks and Recreation, is the largest and one of the first community gardening programs in the nation. It has over 600 gardens in five boroughs.

Composting Program

Another simple way to support urban agriculture is to establish a composting program. Local government supported **backyard composting programs** are win-win for everybody. Residents pay less garbage collection fees, and since they create their own soil amendments, they do not spend money on fertilizers and pesticides for yards and gardens. For local governments, reduction in waste collection and disposal costs is worth way more than the small investment needed to educate the public, promote the program, and provide low-cost compost bins to residents. Improved soil, reduced air and water pollution, and smaller landfills are the benefits to the environment. Residential curbside **food scrap collection** for private or government operated composting programs is another way to reduce garbage and turn food waste into nutritious soil amendment. Similar collection services may be provided to restaurants and other commercial facilities with food waste, or these establishments may be required to drop off their food waste at central collection locations.

Alameda County, California, has subsidized residential composting bins since 1991 and has collected food and yard waste since 2002. Overall, annual waste sent to the landfill declined 24 percent between 2000 and 2008, according to the county.

Local food policies

At the policy level, local governments have the ability to be effective in developing local food policies. Drafting **food charters**, establishing **food policy councils**, conducting **food assessments**, developing **food plans** and **food initiatives**, and **creating partnerships** with nonprofit and other community organizations in food related work all directly or indirectly support urban agriculture.

In 2008, The City of Philadelphia, Pennsylvania, created a Food Charter to present its vision for a food system which benefits the community, economy, and the environment as well as its commitment to the development of a coordinated municipal food and urban agriculture policy. The Food Charter called for establishment of a Food Policy Council populated by key city and regional stakeholders who can inform and advise the city's efforts while helping to provide coordination, momentum, and support for the significant activities already underway throughout the city and region.

Education

Educating residents, and in particular the youth, on healthy eating is an important investment in the creation of healthy communities. **Workshops and classes** on a variety of urban agriculture related topics, including urban farming, gardening, eating local food, food processing and preservation, protecting the environment, and healthy eating may be offered to the public in convenient locations. Local governments may also develop partnerships with schools, colleges, and universities to create **urban agriculture curriculums**. Incorporating agriculture into K-12 education—and teaching the youth the origins of food and how to grow their own—may have remarkably positive impacts on eating habits and reduction of obesity rates. Establishing school gardens and demonstration gardens would make urban agriculture visible to the residents. Local governments may also provide **technical assistance** to urban farmers, including preparation of farm management plans.

Badger Rock Middle School is a project-based public charter school in Madison, Wisconsin, focused on urban agriculture and sustainability. W.B. Saul High School of Agricultural Sciences in Philadelphia, Pennsylvania, is also a public school that prepares students both academically and vocationally for college and career by offering programs in the field of agriculture and its importance to society.

Providing access to land

Land is a scarce and expensive resource in urban areas. It is especially a major problem for those who consider starting an entrepreneurial urban farm. Finding, securing, and keeping land for urban agricultural activities requires help and cooperation from local government. Since local governments have access to readily available property data, they are the most appropriate entities to **identify land** suitable for urban agriculture. By establishing a **farmlink program**, they may link farmers to owners of the available land. Another way to resolve the land problem for local governments is to allow **interim use of surplus and vacant public land** for urban agriculture. Governments may use the same strategy by allowing **use of rights-of-way** for curbside gardens. Allowing urban agricultural activity reduces the government's maintenance burden and makes property look aesthetically pleasing. A more permanent, long-term strategy would be the development of a **public land disposition policy**, where surplus land is sold to urban farmers. In communities with a large number of vacant lots, local governments consider creating **vacant lot conversion programs** to build urban gardens and farms on these properties. Such programs not only support urban agriculture but also help alleviate the negative consequences of these vacancies, such as illegal activities or overgrown and trashed lots. **Brownfields to greenfields conversion programs** help in a similar way. Some local governments establish **land banks** to acquire abandoned land through the foreclosure process and determine the best use of land to revitalize neighborhoods. They either lease or sell properties for urban agriculture use. By leasing such land for below market rate, local governments may support urban agriculture, while making money themselves from resources that would otherwise generate no revenue.

Genesee County Land Bank in Michigan leased 16 vacant lots on approximately two acres to two new farmers to create an urban farm at the beginning of 2011. Under the deal, the land was leased for \$1 a year with an option to buy for a yet-to-be-determined price within five years. The Land Bank's justification of the deal was that the farm would offer the neighborhood locally grown food and education. It was seen as a positive move for property usage. The arrangement guarantees that the property is maintained for the bank. It also provides land security for the farmers.

The City of Seattle, Washington, allows residents to plant vegetable gardens in the planning strip between the sidewalk and roadways without a permit and to build raised beds in parking strips with permit. Vegetables and fruit-bearing plants are encouraged as long as they meet height guidelines and setbacks.

Developer incentives

Local governments may provide incentives to developers for including urban agriculture into new development site plans. The incentives may include bonus density, allowing flexible design, and easing subdivision standards. In case the site is not suitable for incorporating urban agriculture, incentives may apply to preserving or creating off-site space for urban agriculture.

Seattle's Green Factor program guides developers in improving and increasing planted areas in new developments. The program's scoring system has a bonus credit for food cultivation.

Infrastructure and utility related incentives

One important original expense of building an urban farm is providing infrastructure and utilities. Local governments can play an important role in providing assistance in these areas. Access to water is particularly important to enable irrigation of crops. Local governments and utility companies may help with extending water lines or come up with practical solutions, such as allowing farmers and gardeners to use fire hydrants or ponds for irrigation, or assistance with greywater processing. Utility companies may offer reduced rates for utilities, and governments may give alternative energy tax credits to those farms where alternative energy methods are utilized.

The Cleveland Division of Water in Ohio provides the participants of the city-supported urban agriculture sites access to water hydrants for irrigation through unmetered permits offered at a flat rate for the growing season. Projects independent of city programs are also eligible if they are determined to be environmentally safe and compliant with city zoning codes.

Providing direct sales opportunities

Urban agriculture is an economic activity. Therefore, sales are an important component of urban agriculture. Either nonprofit or for profit, urban farms can only survive by selling the food they produce. Local governments play a major role in providing direct sales opportunities to urban farmers. In addition to allowing **on-farm sales** through zoning, providing **marketing assistance** via brochures and web sites as well as establishing **farmers markets** is the least local governments can do to promote urban agriculture. Taking it one step further would be the development of **local food procurement policies**, such as farm-to-school or farm-to-institution, for buying directly from local farmers.

Chester County, Pennsylvania's Local Farm Product Guide, connects consumers with over 100 local farms by providing information and maps to the locations where consumers can buy farm fresh products directly from the producers.

Funding assistance and financial incentives

In partnership with local economic development agencies, **loan and grant programs** may be established to fund urban agriculture projects. Additionally, Community Development Block Grant (CDBG) funds or other relevant federal funds may be used for urban agriculture projects. Technical assistance may also be provided to urban farmers with grant research and other funding opportunities. Establishing **urban agriculture enterprise zones** and **urban agriculture tax credits** are some ways to provide financial incentives for urban farming. **Waiving or reducing fees for permits** and other procedures that could cause hardship to urban farmers represents another way to provide financial assistance.

City of Cleveland, Ohio's Department of Economic Development offers grants of up to \$3,000 for equipment related to growing and selling produce through its Gardening for Greenbacks program.

The State of Maryland passed legislation to allow local governments to provide five-year property tax credits for urban agricultural property. This is one way to help urban farmers who cultivate small properties between one eighth of an acre and two acres. (See Appendix F for a copy of the legislation.)

The City of Newark, New Jersey identified urban agriculture as one of the four Community Development Block Grant (CDBG) funding priority areas, thus allowing significant funding opportunities for urban agriculture projects.

Red tape reduction

It is not easy for urban farmers to deal with cumbersome bureaucratic procedures. Local governments may **remove or reduce certain government hurdles**. Urban agriculture could be exempted from some regulatory procedures or rigid conformity to formal rules. The processing of permits, licenses, and other procedures could be expedited. Creating a **clearinghouse web site** to provide information on available land, labor, tools, and technical help would be very useful. Establishing good **communication channels** between urban farmers and government agencies and policy makers is important if effective government support is to be provided to urban agriculture.



Photo by Gül Gülleryüz.



Photo by Gül Gülleryüz.



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Policy recommendations and strategies for Prince George's County



Photo by Gül Gülleryüz.

Production of food for local consumption is one of the hottest topics of the twenty-first century. People are becoming more and more aware of the fact that their health is directly related to the food they eat. Each Prince George's County resident deserves access to healthy, affordable, and ethnically appropriate food. Unfortunately, only a handful of Prince Georgians have such access. "A healthy food is a plant or animal product that provides essential nutrients and energy to sustain growth, health, and life while satiating hunger. Healthy foods are usually fresh or minimally processed foods, naturally dense in nutrients, that when eaten in moderation and in combination with other foods, sustain growth, repair and maintain vital processes, promote longevity, reduce disease, and strengthen and maintain the body and its functions. Healthy foods do not contain ingredients that contribute to disease or impede recovery when consumed at normal levels."¹¹¹

The biggest challenge is showing people how a different, expanded system, embracing urban agriculture, could dramatically improve our health, our environment, and our communities.—
Chris Lazarus

One of the best ways to access food that is fresh, healthy, and affordable is to buy locally grown food directly from local farmers. The produce that ripens in the field, rather than in a box while travelling across the country, or even internationally, is obviously fresher and tastier. Because it doesn't travel long distances, it has multiple advantages over shipped produce: it reaches the consumer sooner and fresher, it has no or minimal carbon footprint, it has no or minimal transportation cost, it costs less to the consumer, but brings more profit to the farmer. From an economic perspective, it keeps the dollars in the county. In short, producing food locally is a win-win situation and one of the most important steps towards sustainability.

In order to create a sustainable community, every resource, every person, every talent in that community should be tapped. Prince George's County can produce the most knowledgeable farmers, the best agricultural products, and make the agricultural sector one of the most profitable. By promoting local farming, the county can achieve multiple goals: healthy residents, happy students, substantially decreased crime rates, a better educated labor force, more jobs, more money staying in the local economy, and better quality of life.

Urban agriculture has the potential to be a significant economic development tool for Prince George's County. Agriculture can be a niche for the county to excel in the highly competitive Washington metropolitan

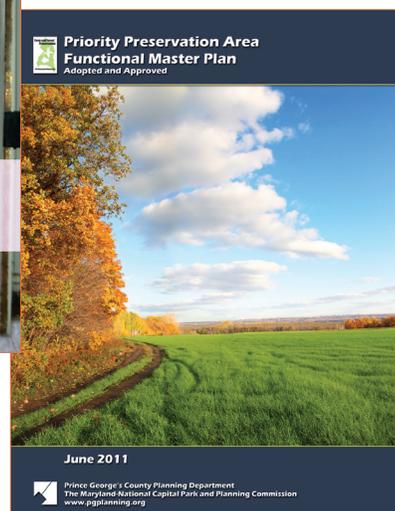
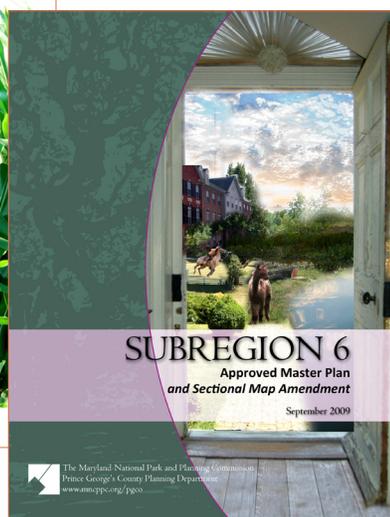
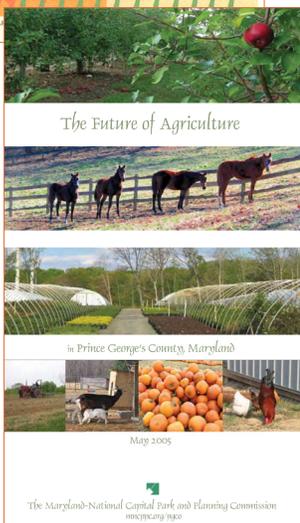
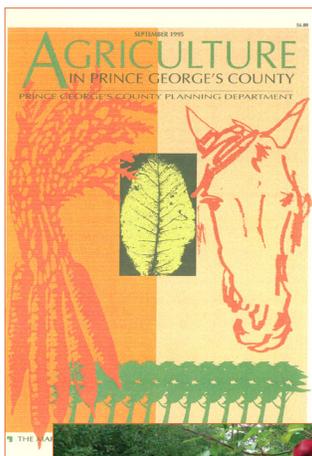
¹¹¹ Access to Healthy Food Coalition web site: www.accesstohealthyfoods.org

**Shake the hand
that feeds you.—
Michael Pollan**

area. Millions of people in this area need to be fed. Given the growing trend for “eating healthy” and “eating locally grown food,” tapping into this market is a golden opportunity for the county. By promoting urban agriculture Prince George’s County can also get national attention for being in the forefront of the local farming movement in urban/suburban areas.

This chapter includes policy recommendations to make urban agriculture a thriving industry and to provide opportunities to make fresh nutritious food available to Prince Georgians. Multiple strategies are proposed for each policy recommendation.

Most of these recommendations apply to all kinds of agriculture in the county. Given the county’s diverse network of farms, it is important to emphasize that agriculture as a whole should be considered a viable sector and all farmers should be supported. Urban, suburban, and rural farms can and should function in ways that are supportive and complementary of one another, not in competition with one another. While this report focuses on urban agriculture much work remains to be done to improve the regulatory and business environment for all farmers. The following plans and previous studies on agriculture include recommendations to improve farming and protect farmland in the county: *Agriculture in Prince George’s County*, *The Future of Agriculture in Prince George’s County*, *Prince George’s County Strategic Program for Agricultural Development*, *Subregion 6 Approved Master Plan and Sectional Map Amendment*, and the *Priority Preservation Area Functional Master Plan*.



Recognize urban agriculture as a viable industry and use it as a tool to develop a robust economy

Urban agriculture is a new, but rapidly growing industry. It is an important element of the new local food movement and the Let's Move! campaign to end childhood obesity. Urban agriculture is still at its early development stage in our region. This presents an opportunity for Prince George's County to become a regional leader in urban agriculture and develop a robust economy by utilizing this untapped economic development tool.

How?

Branding and marketing

- ❖ Create a niche for urban agriculture in the county, turning it into a major supplier of fresh food to the Washington metropolitan area.
- ❖ Become a regional leader in urban agriculture and showcase a variety of novice food-growing techniques, such as edible landscaping, edible living walls, rooftop gardens and farms, vertical farms, and restaurants with rooftop or indoor growing places.
- ❖ Create a new staff position at the Prince George's County Economic Development Corporation dedicated to agriculture and urban agriculture.
- ❖ Institutionalize the agricultural marketing specialist position.

Partnerships

- ❖ Develop partnerships with the county's exceptional agricultural resources, such as USDA's Beltsville Agricultural Research Center (BARC), the University of Maryland, and University of Maryland Extension. Coordinate with them to promote agriculture as a whole and urban agriculture in particular.
- ❖ Develop partnerships with regional and national foundations and other funders to invest in urban agriculture in the county.

Financial assistance

- ❖ Initiate a grant program to support urban farming and farmers markets.
- ❖ Initiate a low interest loan program for urban farms.
- ❖ Provide loans, loan guarantees, interest subsidies, and grants to finance capital improvement projects at urban farms, including land acquisition, infrastructure, construction and renovation, and machinery and equipment.
- ❖ Implement the state urban agricultural property tax credit act (HB 1062, June 2010). (See Appendix F for a copy of the act.)
- ❖ Help farmers with grant research and match farmers with grants.

Technical assistance

- ❖ Establish an "urban-agriculture incubator" to help new urban farmers grow.
- ❖ Provide technical assistance to urban farmers in developing business plans, organic growing, and marketing.

Food Policy Council

Many state and local jurisdictions are forming food policy councils in response to increasing interest in the production of food and growing concern about food deserts and obesity rates. A food policy council (FPC) provides a forum for diverse stakeholders to identify and discuss issues related to the local food system. An FPC typically comprises concerned citizens; representatives of the elements that make up the local food system, including farmers, chefs, and food distributors; government officials; nonprofit organizations; anti-hunger and food justice advocates; educators; and health professionals. The task of an FPC is to develop innovative solutions and make recommendations to policymakers to improve local food systems, spurring local economic development and making food systems more environmentally sustainable and socially just.

*How and what we eat
determines to a great extent
the use we make of the world—
and what is to become of it.—
Michael Pollan*



Photos by Gül Gülleryüz.

Planning

POLICY 2

Integrate urban agriculture into land use planning

Assimilating agriculture into the urban and suburban landscape requires innovative planning. The rural-urban divide that was created in the twentieth century has started to dissolve in the twenty-first century with the burgeoning of agricultural activities in urban areas. Planning needs to adjust to the changing urban and suburban environments.

STRATEGIES

How?

- ❖ Recognize urban agriculture as a land use that is separate from conventional agriculture.
- ❖ Develop an urban agriculture plan.
- ❖ Consider incorporating urban agriculture into plans, including the General Plan, area and functional master plans, and sector plans.
- ❖ Plan to provide much needed tools and infrastructure, particularly land, transportation, and water access, to help urban agriculture flourish.
- ❖ Engage residents and businesses in local food production planning.
- ❖ Conduct an assessment study to determine the condition and needs of urban agriculture in the county.
- ❖ Identify available land that is suitable for urban agriculture.
- ❖ Develop innovative strategies and techniques to preserve land for urban agriculture.
- ❖ Establish a “food policy council” to help plan for urban agriculture and develop policy recommendations to support urban agriculture.
- ❖ Develop a food system plan that shows the place of urban agriculture in the bigger picture and analyzes it as part of local food production.

Photo courtesy of Community Groundworks, Inc.



POLICY 3

Provide access to suitable land for urban agriculture activities

Land is the most important element for agriculture. Since land is expensive and under development pressure in urban and suburban areas, urban farmers have difficulty with land tenure and security. When permanence cannot be guaranteed, it is difficult to invest. It takes a while to prepare soil for intensive organic production. Urban farmers need government help to find and secure land for farming.

How?

Public land

- ❖ Prepare a publicly-owned land inventory and identify land appropriate for a variety of urban agriculture uses.
- ❖ Establish a long-term (99-year) public land lease program to provide land to urban farms, food processing and distribution facilities, composting facilities, and farmers markets.
- ❖ Let community organizations and garden clubs use public land for community gardens free of charge.
- ❖ Allow use of public rights-of-way for food production with certain restrictions.

Private land

- ❖ Initiate a farmlink program for urban agriculture to connect farmers to property owners who want to sell or lease their land.
- ❖ Establish a yard-sharing program for homeowners to allow gardeners/farmers to use their yards to grow food and in return get shares of harvests.
- ❖ Create a vacant-lot cultivation program for abandoned properties to both revitalize neighborhoods and provide access to healthy and affordable food, particularly in economically disadvantaged communities.
- ❖ Establish a land bank to acquire tax-delinquent vacant properties for urban agriculture as an interim use.

Land preservation

- ❖ Develop an urban farmland preservation program for the Developed and Developing Tiers to preserve existing farmland and other suitable undeveloped land for urban farming.
- ❖ Create a special urban agriculture easement program to preserve vacant or unused land for urban agriculture.
- ❖ Establish a land trust as a nonprofit arm of county government to preserve land for urban agriculture.

STRATEGIES

Community gardens

POLICY 4

Establish community gardens in all neighborhoods

Community gardens promote food sovereignty, food security, community development, and healthy living. According to the Department of Parks and Recreation, access to a community garden is the number one request of county residents. Having a community garden in each neighborhood would increase access to healthy, affordable, and culturally appropriate food, which in turn would help decrease obesity and other eating related illnesses. (See Appendix G for guidelines for starting a community garden.)

STRATEGIES

How?

- ❖ Develop a county community garden program and/or expand the M-NCPPC community garden program. Provide funding for new garden infrastructure and ongoing maintenance.
- ❖ Promote the benefits of gardening and use multimedia to encourage residents to garden.
- ❖ Develop an inventory of county and M-NCPPC owned land suitable for community gardens.
- ❖ Collaborate with federal, state, and municipal governments as well as the private and nonprofit sector to build community gardens on properties owned by these entities.
- ❖ Develop partnerships with faith-based institutions, community organizations, and municipal governments to determine the need for community gardens and establish them.
- ❖ Collaborate with Master Gardeners to organize gardening workshops for county residents.
- ❖ Build demonstration gardens at government facilities to lead the way, and organize garden tours to educate the public.



Photo by Gül Gülerüz.

What is a “farm subdivision”?

A farm subdivision is a theme development that incorporates urban agriculture into new communities. It is a new mixed-use development designed around a small urban farm. In addition to a variety of housing units and a farmers market, it may have limited retail and office uses to serve the local community. The idea is to create a sustainable community based on “healthy eating and active living” principles. As the focal point of the development, the farm subdivision would bring the community together by providing on-site job opportunities, direct access to fresh nutritious food, and a place for recreation and exercise.



An example of a farm subdivision:
Troy Gardens in Madison, Wisconsin.

Photo courtesy of Community Groundworks, Inc.

POLICY 5

Encourage new development and redevelopment projects in the Developed and Developing Tiers to include urban agriculture

Depending on the community and land availability, a variety of urban agricultural activities can be integrated into new residential or nonresidential development projects. Creative redevelopment projects can turn white elephants into oases. If they were located conveniently close to home, more county residents would participate in these activities and thus gain direct access to fresh, healthy food. Urban farms will create economic opportunities and reduce the adverse environmental impacts of development.

STRATEGIES

How?

- ❖ Provide incentives for developing a “farm subdivision.”
- ❖ Mandate land to be set aside for community gardens or urban farms in all new development in residential (except O-S, R-A, R-E, and R-R), mixed-use and comprehensive design zones.
- ❖ Urge developers to build community gardens in new residential development projects, particularly high-density developments.
- ❖ Require establishment of community gardens in all future and, depending on land availability, existing apartment complexes.
- ❖ Encourage innovative designs to accommodate urban agriculture, including vertical farms.
- ❖ Encourage the building of green roofs and retrofitting of existing rooftops for food production.
- ❖ Consider converting old warehouses into indoor farms—particularly for aquaponics—and farmers markets.

Education

*The charitable schools, instead of storing their pupils with a lore which the present state of society does not call for, converted into schools of agriculture, might restore them to that branch qualified to enrich and honor themselves, and to increase the productions of the nation instead of consuming them.—
Thomas Jefferson*

POLICY 6

Provide education on urban agriculture and healthy eating

Educating the public on healthy eating is paramount in reducing obesity and other eating-related diseases. Government agencies, nonprofits, and faith-based organizations are key to providing this education and emphasizing how urban agriculture can ensure affordable, fresh, and nutritious food.

How?

Schools

- ❖ Incorporate agriculture education into the K-12 curriculum.
- ❖ Designate Gwynn Park High School as an agriculture magnet school.
- ❖ Explore establishment of a regional agriculture high school in collaboration with the Southern Maryland Agricultural Development Corporation (SMADC) and Anne Arundel, Charles, Calvert, and St. Mary's Counties.
- ❖ Create a school garden program and build a vegetable garden at every school.
- ❖ Encourage schools to establish agriculture or gardening clubs as an extracurricular activity.

Career and workforce development

- ❖ Promote urban agriculture as a viable career for youth as well as adults.
- ❖ Develop and support new farmer training programs.
- ❖ Develop special educational programs for immigrants with farming backgrounds to help them learn new techniques, language, and business skills needed to succeed in farming.
- ❖ Develop job training programs to develop a skilled workforce for urban agriculture, including farm managers.

Youth

- ❖ Provide funding to expand M-NCPPC youth gardens into several community centers and neighborhood parks around the county.
- ❖ Encourage faith-based communities to build youth gardens and teach gardening skills to youth.
- ❖ Establish urban agriculture summer camps for young people.
- ❖ In partnership with local urban farms, Prince George's Community College, Department of Parks and Recreation, Master Gardeners, and Prince George's County libraries, develop various activities and workshops about healthy food and gardening designed for different age groups.
- ❖ Encourage urban farms to offer apprenticeship programs for youth.

STRATEGIES

Community

- ❖ Develop promotional multimedia materials to educate residents about the health benefits of eating fresh, nutritious food. Encourage them to eat locally grown produce.
- ❖ In partnership with faith-based organizations, provide free workshops on healthy eating, growing, and preparing nutritious food.
- ❖ In partnership with the Master Gardeners and building upon their Grow It Eat It program, develop a hands-on gardening education program. Execute it in at least three locations (north, central and south) in the county.
- ❖ Develop demonstration gardens and offer garden and farm tours to schoolchildren and the public.

Institutions

- ❖ Initiate an urban farming education program at the county prison for skill and career development as well as therapeutic purposes. As part of this program, create a garden for hands-on education and practice. Produce from the garden may be consumed at the prison and donated to food pantries.
- ❖ Teach gardening to recovering substance-abuse and mental-health patients.

Farming is a profession of hope.—Brian Brett



Photo by Viviana Lindo.

Mobile markets

Mobile markets are farmers markets on wheels. Instead of setting a table at a market, farmers load their produce on their trucks, drive around the neighborhoods, and sell directly to consumers. This is the best way to bring fresh, locally produced food to underserved communities. When fresh food comes to their doors, people tend to buy it. Making a special trip to a farmers market requires planning and time, and not every neighborhood has a market.



Photo courtesy of Real Food Farm, a program of Civic Works, Inc.
Photo by Maya Kosok.

There are various types of mobile markets. Some are run by farmers, others are operated by vendors who buy produce from local farmers. These vendors could be local nonprofits, community organizations, or private entrepreneurs. Different “wheels” may be used too. While pick-up trucks or vans may be the most practical for farmers, larger vehicles such as old school buses serve as alternative. In urban areas unmotorized vehicles such as hand carts or bicycle carts are also an option. In Baltimore historic horse-drawn carts called “arabbers” sell produce year-round throughout the city. In New York City “green carts” sell fresh produce at designated locations. New York’s Green Carts initiative provides micro loans and technical assistance to operators. It also helps with marketing and outreach to residents.

Real Food Farm’s mobile market “Big Blue” does community markets, mini stops, and home deliveries in North East Baltimore. Arcadia’s mobile market, a former school bus, delivers local, sustainably produced food to underserved communities in the Washington, D.C., area. In summer 2012, Arcadia made \$3,370 in EBT/SNAP sales (371 transactions, 241 of those “new customers”), \$2,282 in WIC/senior sales (281 transactions, 201 of those “new customers”) and \$2,816 in DC Bonus Bucks and \$985 in VA Bonus Bucks. As a percentage of total sales, EBT/SNAP, WIC, Senior FMNP, and Bonus Bucks represent nearly 40 percent of payments.¹¹²

¹¹² Benjamin Bartley, Mobile Market Director, Arcadia Center for Sustainable Food and Agriculture.

Promote and support direct marketing opportunities for urban and suburban farmers

Direct marketing is the best way to make urban farms economically viable. This is where local urban and suburban farmers need government support. Easing regulatory and legislative barriers and creating direct marketing opportunities to local farmers would help boost economic development.

How?

Marketing

- ❖ Connect local urban and suburban farmers with consumers via creative marketing strategies and promotional materials.
- ❖ Establish aggregation hubs with commercial kitchens to help farmers create value-added products and easier access to wholesale and direct markets.

Farmers markets

- ❖ Establish an indoor, daily farmers market that operates year round—similar to Eastern Market in Washington, D.C., and Baltimore’s Lexington Market—close to a Metro station.
- ❖ Help establish and administer affordable farmers markets, particularly in food deserts.
- ❖ Allow farmers markets on private property.
- ❖ Provide free space for farmers markets on public and private property.
- ❖ Create a “mobile market” (farmers market on wheels) initiative to bring locally grown produce to neighborhoods.

See Appendix H for the county’s farmers markets and Appendix I for guidelines on starting a new farmers market in Maryland.

On-site sales

- ❖ Allow sales of produce and value-added products on urban and suburban farms and at some community gardens.
- ❖ Allow produce grown in home gardens to be sold at farmers markets and community gardens.
- ❖ Allow roadside farm stands.

Local food procurement

- ❖ Institute farm-to-school and farm-to-institution programs to connect schools, colleges, hospitals, prisons, and other institutions to local farmers.
- ❖ Encourage farm-to-table opportunities, and help connect local farmers with local restaurants.
- ❖ Revise procurement policies to require that county agencies purchase from local producers.



Photos on this page by Viviana Lindo.

Backyard chickens

Backyard chickens have become very popular in recent years among urban and suburban residents. Those who seek more sustainable lifestyles and a safe source of protein are becoming more interested in raising egg-laying hens. Other factors such as food insecurity, rising food and energy prices, growing environmental awareness, and the desire for a closer connection to food have also contributed to interest in chicken keeping.

Those who favor backyard chickens stress the environmental, health, and economic benefits of keeping them. They see chickens as multipurpose pets. In addition to producing great tasting, nutritious eggs, chickens also produce fertilizer. Chicken manure is an excellent source of free organic fertilizer when composted. By eating bugs and weeds, chickens reduce the use of pesticides and herbicides. They also eat food scraps, thus reducing the amount of garbage.

Keeping chickens helps the community be more self-sufficient during times of economic crisis—or in emergency situations when there is no electricity or refrigeration—by providing a steady stream of fresh eggs. Backyard chickens may also serve as a source of tourism revenue. Many communities organize urban chicken coop tours for a fee. Children are curious about chickens, and attractive back yard henhouses appeal to adults. Chickens provide an educational opportunity for children to understand where their food is coming from.

Those who oppose the idea of having chickens in urban and suburban areas are usually concerned about their nuisance value and the risk to public health that they may pose. These people think that chickens are loud and smelly and attract predators. This perception is promoted by large-scale, factory-style commercial poultry facilities: thousands of chickens are packed indoors with no room to move, and they generate tons of manure that cause odor, runoff, and pollution of the environment. Backyard chickens are considered as pets and are kept humanely in small flocks. Giving chickens proper care reduces the prospect of them being a nuisance or a health problem. As long as chickens are kept in secure coops or under surveillance while they are ranging free, they do not attract predators.

Increasing demand for backyard chickens—as well as the growing illegal urban chicken population—is leading more jurisdictions to consider legalizing them. Many have amended their zoning ordinances and loosened their animal control restrictions to allow chickens in urban and suburban residential areas. Such ordinances usually provide sufficient protection for neighbors from the nuisance of noise or odor by requiring proper maintenance and enclosed shelter. Most ordinances limit the number of chickens and do not allow roosters. Many jurisdictions require reasonable setbacks from neighboring property lines or residences. Research shows that neighbors complain less about chickens than dogs or cats.

POLICY 8

Permit backyard chickens in all residential areas

Urban backyard chickens are quite popular and demand for them is increasing among county residents. There are already many “illegal chickens” on small residential lots in the Developed and Developing Tiers. Residents who raise them may or may not be aware that their chickens are “illegal” per zoning regulations. Since chickens are not allowed in more urbanized parts of the county, there are no guidelines regarding their proper care. Legalizing chickens will assure better sanitary conditions and nuisance control. Proponents of backyard chickens have initiated an advocacy group, Prince George’s Hens, and are requesting the legalization of backyard hens.

STRATEGIES

How?

- ❖ Based on national best practices, develop guidelines for the keeping of backyard chickens in the county. These may include some restrictions such as:
 - Egg-laying hens only (no roosters).
 - Maximum number of chickens per back yard or land area.
 - Keeping chickens in secure enclosed coops.
 - Free roaming in designated areas only under supervision.
 - Minimum distance between the neighboring dwelling units and coops.
 - Humane treatment of chickens.
 - Sanitary requirements for keeping coops clean.
- ❖ Amend Subtitle 27 of the County Code (Zoning Ordinance) to permit keeping backyard chickens on residential lots smaller than half an acre.
- ❖ Amend Subtitle 3 of the County Code (Animal Control) to add animal control regulations regarding keeping backyard chickens.



Hollygrove’s
“Cassidy Coop.”

Photo by Gül Güleriyüz.



Beekeeping

Urban beekeeping has become very popular lately around the nation. People are attracted to beekeeping for the following reasons: concerns about declining bee populations due to Colony Collapse Disorder (CCD), the local food movement, and curiosity about the origins of one's food because of food safety concerns. Beekeeping is a vital practice that contributes to the health of the urban environment and has potential for economic development and education efforts.

Bees are an extremely vital part of human existence and wellbeing. As pollinators, bees play an important role in agriculture. Pollination from honeybees is responsible for producing a third of the human food supply. Honeybees provide the additional benefit of producing honey. Honeybees also produce royal jelly, bee pollen, propolis, and beeswax, some of which are used for apitherapy—medicinal use of honeybee products.

Beekeeping in urban and suburban areas has many benefits. Plants grown in these settings require pollinators to flourish. Some people use local honey as a remedy for local pollen allergies. Apparently consumption of the honey builds tolerance by exposing the body to small amounts of the local pollen. Some claim that bees raised in urban areas are healthier than those in rural areas and that their honey tastes better because there is less pesticide use and a wide variety of flowers.

Since harvesting honey is the primary goal of hobby beekeepers, they only keep honeybees in small-scale urban apiaries. Contrary to a common perception, honeybees do not sting unless they are handled roughly or their hives are threatened. Good beekeeping practices allow them to be good pets conducive to peacefulness and tranquility.

Urban beekeeping has become so trendy that bee hives can be seen in unusual places, such as the roofs of the luxury Waldorf Astoria Hotel in New York or the Chicago City Hall. Bee hives are also part of the landscape at the White House and the Maryland Governor's mansion.



White House.



Governor's Mansion.



Photos on this page by Gül Göleryüz.

POLICY 9

Permit beekeeping in urban and suburban areas

Bees are important pollinators and their existence is critical for the success of urban agriculture. Due to their contribution to plant growth, beekeeping is popular among gardeners and farmers. Many county residents are keen to keep beehives in their yards in order to gain access to natural honey and to benefit from the many services and products of honeybees.

STRATEGIES

How?

- ❖ Develop guidelines for urban and suburban apiaries. These may include some restrictions, such as:
 - Honeybees only.
 - Maximum number of beehives per back yard or land area.
 - Minimum distance between the neighboring dwelling units and beehives.
- ❖ Amend Subtitle 27 of the County Code (Zoning Ordinance) to permit beekeeping in all zones.
- ❖ Amend Subtitle 3 of the County Code (Animal Control) to add regulations regarding honeybees.



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Photos on this page by Gül Gülleryüz

Composting

Composting is the basic necessity of sustainable urban farming. It helps recycle organic waste into nutritious soil amendment or even a medium to grow plants that is far more effective than chemical treatments.¹¹³ Compost works as a natural pesticide that protects plants from harmful bugs. This is particularly important in urban areas, where it is hard to find productive soils free from contamination.

The U.S. Environmental Protection Agency (EPA) lists compost's benefits as¹¹⁴:

- ❖ Reducing or eliminating the need for chemical fertilizers.
- ❖ Promoting higher yields of agricultural crops.
- ❖ Facilitating reforestation, wetlands restoration, and habitat revitalization efforts by amending contaminated, compacted, and marginal soils.
- ❖ Cost-effectively remediating soils contaminated by hazardous waste.
- ❖ Removing solids, oil, grease, and heavy metals from stormwater runoff.
- ❖ Capturing and destroying 99.6 percent of industrial volatile organic chemicals (VOCs) in contaminated air.
- ❖ Halving the costs of soil, water, and air pollution remediation.



The path to the garden (or farm) of your dreams leads right through the middle of a compost pile.
—Edward C. Smith, author of *Vegetable Gardener's Bible*

Compost also creates a useful product from organic waste that would otherwise have been landfilled. Yard trimmings and food residuals together constitute 27 percent of the U.S. municipal solid waste (MSW) stream, as documented by EPA.¹¹⁵ Only ten percent of the U.S. MSW and twelve percent of Maryland's MSW was composted in 2010¹¹⁶—a missed opportunity. Increased environmental awareness, however, has doubled composting in the last two decades.¹¹⁷ The composting industry is increasingly entrepreneurial and private-sector driven, led by firms that add value to compost through processing and marketing.¹¹⁸ It is a growing and lucrative industry that requires minimum investment.

An industrial composting facility requires vacant land and organic materials to create mature compost, which is a stable material with a content called humus that is dark brown or black and has a soil-like, earthy smell. Creation of mature compost is different from the natural composting

¹¹³ Growing Power web site: www.growingpower.org

¹¹⁴ EPA web site, Wastes—Resource Conservation - Reduce, Reuse, Recycle – Composting, at www.epa.gov/epawaste

¹¹⁵ Ibid.

¹¹⁶ BioCycle and the Earth Engineering Center of Columbia University, *The State of Garbage in America*, 2010.

¹¹⁷ Ibid.

¹¹⁸ EPA, *ibid.*

POLICY 10

Promote and support composting

Composting is an important component of sustainable urban agriculture. In addition to being a natural fertilizer and pesticide, its additional environmental and economic benefits make compost an indispensable element for growing food in urban and suburban settings. It is also an excellent mechanism for reducing waste. Encouraging residents to compost and providing opportunities for composting facilities help support urban agriculture as well as economic development.

STRATEGIES

How?

- ❖ Initiate a residential composting program—provide education and composting bins for backyard composting.
- ❖ Allow small-scale composting in community gardens and urban farms in all zones.
- ❖ Identify appropriate locations for industrial-scale composting facilities.
- ❖ Encourage establishment of new private or nonprofit composting facilities through incentives.
- ❖ Start a food scrap curbside collection for residential areas.
- ❖ Mandate food related facilities (restaurants, supermarkets, food wholesalers, etc.) to recycle their food waste (either by taking it to a composting facility or paying for pick-up service provided by the composting facility).

that happens in nature without human intervention. This composting operation produces high temperatures, which destroy pathogens and weed seeds in a way that natural decomposition does not do.¹¹⁹ Odor is perhaps the most common problem associated with composting, and the failure to adequately address it may lead to complaints from neighbors and closure of composting facilities. A well-constructed compost system—although not odor-free—should not produce offensive odors. For the most part odors can be controlled. Preventing excessive odors requires consistent management of the composting process.¹²⁰ Like any other agricultural procedure, when done responsibly, practicing good hygiene and common sense, composting is neither a health risk nor a nuisance in urban areas. This is true for both small-scale home composting and large-scale industrial composting.

Vermicomposting

Vermicomposting is a process that uses worms. Generally, red wiggler worms are used to break down organic matter in bins. Worms eat the organic material and produce worm castings. These castings have the nitrogen/phosphorous/potassium ratio of a strong fertilizer and the perfect pH for planting vegetables.¹²¹ Vermicomposting can be done on any scale, ranging from the use of a small container in a home kitchen to a large industrial operation. Since it is done in closed bins, it is almost odorless. Most small-scale urban agriculture operations utilize this technique since it produces the best soil amendment and can be done intensively in a small area.

¹¹⁹ Ibid.

¹²⁰ Cornell Waste Management Institute, *Cornell Composting* at <http://compost.css.cornell.edu>

¹²¹ Growing Power, *ibid.*

Edible landscaping

POLICY 11

Encourage edible landscaping

Edible landscaping is one of the easiest ways to make fresh food readily available in urban and suburban environments. Edible landscapes can be as pretty as inedible ornamental landscapes with the added benefit of producing fruit, nuts, and vegetables. The county can lead the way by planting edible plants in county-owned properties and encourage those who live and work in the county to do the same.

STRATEGIES

How?

- ❖ Plant fruit and nut trees on sidewalks and rights-of-way.
- ❖ Create edible landscapes in parks and other public places, including county government buildings.
- ❖ Create urban orchards in public parks where people can harvest fruit.
- ❖ Encourage residents and businesses to replace their lawns with edible ornamental plants.
- ❖ Update the Landscape Manual to include a section on edible landscaping.

*Eat Half Your Lawn!
[It] does not mean
introducing a rural
farm landscape into
the city. It means
having a more
diversified landscape
which is productive.—
Jac Smit*



Photo by Gül Gülleryüz.

Amend the Zoning Ordinance to accommodate urban agriculture uses and activities and remove, reduce, and/or loosen zoning barriers to urban agriculture

Zoning is one of the biggest impediments to urban agriculture in Prince George's County. Separation of uses, exclusion of certain activities, and other restrictions prevent people from growing healthy food and making it accessible to residents. The first step to eradicating food deserts and obesity is to produce and sell fresh, nutritious food in the urbanized parts of the county where these problems are seen the most.

How?

- ❖ Add a definition of “urban agriculture” to the Zoning Ordinance.
- ❖ Create a floating “Urban Agriculture” (UA) zone for entrepreneurial urban farms.
- ❖ Add an “urban agriculture” use and subcategories—based on urban agriculture types and activities—to the Use Table.
- ❖ Allow the urban agriculture use in all zones and in all tiers, provided that different rules may apply to different types and in different zones.
 - Permit backyard chickens (only egg-laying hens) and other poultry in all zones with certain restrictions.
 - Permit apiaries (honeybees only) in all zones with certain restrictions.
 - Permit small farm animals, particularly goats, in most residential and mixed-use zones and all commercial and industrial zones with certain restrictions.
 - Permit seafood production (aquaculture and aquaponics) in most residential and mixed-use zones and all commercial and industrial zones.
 - Permit composting activity in all zones with certain restrictions.
 - Allow on-site food processing on urban farms and, to a certain extent, in community gardens.
 - Allow on-site sales at urban farms, community gardens, and market gardens.
 - Allow farmers markets on private property.
 - Allow use of commercial and industrial buildings, particularly warehouses, for urban agricultural activity.
 - Allow rooftop gardens and farms.
 - Allow vertical farms.
 - Allow structures required for innovative growing techniques, such as hoop houses, aquaponics, and aeroponics.



Photo courtesy of Community Groundworks, Inc.

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Appendix A

Definition of urban agriculture

Although there are many definitions of urban agriculture by various organizations and authorities, a commonly accepted definition is yet to be developed. The following is a compilation of commonly cited definitions of urban agriculture:

Urban Agriculture (UA) is an activity that produces, processes, and markets food and other products, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water in urban and peri-urban areas, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock. **United Nations Development Programme (UNDP)**

Urban and peri-urban agriculture are agriculture practices within and around cities which compete for resources (land, water, energy, labour) that could also serve other purposes to satisfy the requirements of the urban population. **Food and Agriculture Organization of the United Nations (FAO), Committee on Agriculture**

Urban agriculture is a complex system encompassing a spectrum of interests, from a traditional core of activities associated with the production, processing, marketing, distribution, and consumption, to a multiplicity of other benefits and services that are less widely acknowledged and documented. **Council for Agricultural Science and Technology (CAST)**

Urban agriculture can be defined shortly as the growing of plants and the raising of animals within and around cities. **Resource Centres on Urban Agriculture and Food Security (RUAF)**

Urban agriculture can be defined as a small business that is located within or very close to a town, a city, or a metropolitan area which grows or raises food and non-food products. These products are then processed and distributed very close to where they were produced, usually within the same urban area and often within the same neighborhood or city block. Generally, urban agricultural methods focus on recycling nutrients, improving soil, and encouraging plant and animal growth without the use of hazardous chemicals. **U.S. Environmental Protection Agency**

Urban Agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, an urban centre, a city or metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, reusing mainly human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area. **Luc J. A. Mougeot, International Development Research Center (IDRC)**

Urban agriculture is the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities. **Community Food Security Coalition's (CFSC) Urban Agriculture Committee**

Appendix B

History of urban agriculture in the U.S.A.

The history of urban agriculture should inspire its future. Urban agriculture likely dates to the birth of the cities, and its revival might just be the key to sustainable cities of the future.—Tom Philpott

Organized efforts to grow food in American cities started in the 1890s. The following summarizes various movements related to food production in urban areas from the late 19th century into the 21st century.

Vacant lot cultivation (1893–1897)

As a result of the Panic of 1893, which lasted for four years, unemployment and poverty escalated. As an emergency relief measure, in 1894 Mayor Pingree pioneered the vacant-lot cultivation in Detroit. Getting permission from the owners, the city secured vacant city lots and enabled unemployed to cultivate food for consumption and sale. During the first year, 430 acres were cultivated by 945 families, and produce valued at \$14,000 was harvested.¹ Since potatoes formed the main crop, these lots were nicknamed “Pingree’s potato patches.” The success Detroit’s first season inspired experiments elsewhere. About twenty cities and towns tried the plan in 1895, and about a dozen reported very satisfactory results.² Vacant-lot cultivation as an agency of relief for the unemployed rests upon the sound basis of self-help. It provided an opportunity in times of stress to earn by honest toil the sustenance that cannot be obtained through regular channels of employment. The program had an excellent moral effect: not only did it preserve self-respect, but it also restored the self-respect of those who had lost it.³

School gardens (1890s–1920s)

While vacant-lot cultivation was promoted by social reformers to provide land and technical assistance to the unemployed, around the same time educators promoted school gardens to teach students various subjects interactively, including civic duty, health, sanitation, and work habits. School gardens grew into a national movement. In 1914 the U.S. Bureau of Education established the Division of Home and School Gardening to promote gardens nationally. During World War I, the effort was renamed the U.S. School Garden Army. The national movement came to an end after the war, although some individual school gardens continued.⁴

¹ Frederick W. Speirs, Samuel McCune Lindsay, and Franklin B. Kirkbride, *Vacant-Lot Cultivation*, reprinted from the *Charities Review*, 1898.

² *Ibid.*

³ *Ibid.*

⁴ Laura J. Lawson, *City Bountiful: A Century of Community Gardening in America*, 2005.

City Beautiful movement (1890s–1920s)

The City Beautiful movement started in response to rising crime, sanitation issues, and overcrowding of cities. As part of this movement, underutilized lots in the cities converted to garden plots. Women's groups and civic organizations supported these garden plots as well as horticultural gardens and window-box gardens in tenement districts. At the beginning of the 20th century, urban gardens provided a small but widely appreciated approach to addressing urban congestion, immigration, economic stability, and environmental degradation.⁵

War gardens of World War I (1890s–1920s)

During World War I, gardening became a patriotic duty. In 1917, a short time before the United States entered the war, war gardens, or liberty gardens movement started. The U.S. stepped in to help the European allies who could not produce enough food due to the war. The goal was to augment the domestic food supply so that more could be sent to overseas. Millions of Americans responded to the government campaign that urged people to garden. Throughout the country, available public and private spaces turned into war gardens. Front lawns, golf courses, public parks, and vacant lots were converted to gardens. When they lacked garden plots, city gardeners used window boxes and other containers. Canning and dehydration were promoted to ensure the fresh produce didn't go to waste. It is estimated that in 1918, over five million war gardens produced 528 million pounds of garden produce.⁶ When the war ended, the gardening effort dropped off, and most war gardens disappeared.

Relief and subsistence gardens of the Great Depression (1931–1937)

The next event that brought the hard times to the U.S. was the Great Depression of the 1930s. When poverty and unemployment soared, relief gardens came to the rescue to provide food and boost morale. Initially, individual gardens were started by local charities and municipalities. State and federal programs soon developed that provided staff, seeds, and guidance. In 1934, over 23 million households participated in subsistence garden programs, growing produce for home consumption that was valued at \$36 million.⁷ In addition to the subsistence gardens located at homes and community gardens, the Federal Emergency Relief Administration (FERA) initiated a work-relief garden program, where gardeners received a wage for cultivating and distributing

⁵ Ibid.

⁶ Connie Krochmal, The Role of War Gardens, at Suite 101.com, January 3, 2005. (http://www.suite101.com/article.cfm/fruit_garden/112567/2)

⁷ Laura J. Lawson, *ibid.*

produce to those in need.⁸ This program ended in 1935 and others ended in 1937 when federal government shifted to other employment programs and established a food stamp program for farm surplus.⁹

Victory gardens of World War II (1941–1945)

During World War II, gardens once again became a part of the urban landscape. Due to labor shortage and transportation difficulties, it was hard to harvest and move produce. The U.S. Government urged Americans to plant “victory gardens” as a patriotic act. Americans responded and planted gardens in backyards, vacant lots, and even on city rooftops. Over 20 million victory gardens were established and produced 44 percent of the fresh vegetables in the United States.¹⁰ Overwhelming participation in the victory garden campaign not only grew food for personal consumption but also boosted morale and provided recreation. In addition to its community benefits while loved ones were away serving in the armed forces, victory gardens greatly improved morale and provided an outlet for the patriotism, fear, and anxiety that many Americans felt about the war.¹¹ The success of the victory gardens showed that the program made a difference. But as soon as the war was over, the government stopped promoting the gardens. After the war ended, American urban life changed dramatically. Postwar suburbanization led to decline of cities. Only a few surviving school and community gardens in urban areas provided the continuity and inspiration that led to renewed interest in gardening in the 1970s.¹²

Community garden movement (1970s–1980s)

A new interest in growing food in the cities grew in the 1970s, and community gardens started to reappear. This time the resurgence was related to urban activism, civil rights, energy, and the environmental ethic. Rising food prices as a result of the energy crisis also contributed. The revival of urban agriculture started in blighted neighborhoods and economically distressed areas, mostly as a result of community organizing by activists. Groups, such as New York’s Green Guerillas and Boston Urban Gardeners, emerged in various cities and encouraged residents of these neglected areas to clean up abandoned vacant lots and other available land and plant seeds. In 1972, the Master Gardener Program was established in Washington State to meet the high demand for urban gardening questions. This was so successful that Master Gardener Programs are now in all 50 states and 2 Canadian provinces. In 1976, the USDA sponsored the Urban Gardening Program that established urban offices to promote vegetable gardening and community gardens in 16,

⁸ History of Urban Agriculture, retrieved from Sprouts in the Sidewalk.
(<http://sidewalksprouts.wordpress.com/history/>)

⁹ Laura J. Lawson, *ibid.*

¹⁰ Thomas J. Bassett, “Reaping on the Margins: A Century of Community Gardening in America,” *Landscape*, 1981, v. 25, n.2.

¹¹ History of Urban Agriculture, *ibid.*

¹² Laura J. Lawson, *ibid.*

later 23 cities. In 1978, activists from around the country formed the American Community Gardening Association (ACGA) as a non-profit membership organization.¹³

Gardening was used as a political tool to provide social justice and food security. It was also seen by some as a venue for community organizing intended to counter inflation, environmental troubles, and urban decline.¹⁴

Urban agriculture movement (1990s–present)

The recent urban agriculture movement, which started in the late 1990s and swelled in the 21st century, is not simply a continuation of the community gardening movement of the earlier decades. Although the community gardens of the 1970s and 1980s may be considered as the seeds of this movement, many other factors contributed to the rise of urban agriculture. Health consciousness is the most important driving force in the emergence of this movement. After more than half a century of eating conventionally grown food, people started seeing the personal and environmental harm caused by conventional farming, which uses chemical fertilizers, pesticides, and growth hormones to raise animals. Alarming obesity rates and other food related illnesses made people more aware of what they eat. People became more mindful about the origins of their food and sought more control over its safety and security. As a result demand for organic produce and locally grown food soared and more people have started growing their own food. The Slow Food movement, sustainability, environmental stewardship, food security, and access to healthy, affordable, and culturally appropriate food, along with the increasing significance of community empowerment, cultural diversity, and connection to earth all contributed to the rebirth of urban agriculture.

The characteristics of the recent urban agriculture movement also differ from all of its predecessors described above. The most important difference is the broadness of this movement. It involves everything from container gardening to commercial farming. It also involves all walks of life; from school children to seniors, from hungry poor to rich executives, and from conservatives to hipsters. The fact that today's urban agriculture is emerging as an economic activity and an industry also makes it more distinctive.

¹³ Laura Lawson, A Brief History of Urban Garden Programs in the United States, October 2009.

¹⁴ Laura J. Lawson, City Bountiful.

Appendix C

Additional innovative urban agriculture projects around the nation

Growing Power¹ **Chicago, Illinois**

Growing Power also operates five urban farms in Chicago. The following are the brief descriptions of GP's Chicago farms:

THE CHICAGO LIGHTS URBAN FARM

This farm is an example of nonprofit and faith-based organization partnership. It was established in 2003 on a former unkempt basketball court, purchased by the Chicago's Fourth Presbyterian Church. The urban farm, located in the quickly changing neighborhood, empowers neighborhood youth and residents to have increased economic opportunities through access to organic produce, nutritional education, and workforce training.

GRANT PARK "ART ON THE FARM" URBAN AGRICULTURE POTAGER

This edible potager garden (an ornamental vegetable or kitchen garden) is a prime example of public, private, and nonprofit partnership. In 2005, in partnership with the Chicago Park District and Moore Landscapes, Inc., GP created a 20,000 square foot urban farm in Chicago's famous Grant Park on the lakefront. Over 150 varieties of heirloom vegetables, herbs, and edible flowers are grown at the urban farm in the heart of downtown Chicago. A major goal of the potager garden is job preparedness for the youth. In addition to regular farm activities, farm interns experience marketing produce and value-added products at a small community farmers market, as well as building customer service and entrepreneurial skills. This partnership demonstrates that the social benefits of urban agriculture reach beyond food security to also encompass education of youth in economic development and re-establishing biodiversity in a city space. Also of great importance is the project's impact on city policy regarding urban farming. This project seeks to quantify the commercial viability of urban agriculture both in economics and production.

THE JACKSON PARK URBAN FARM AND COMMUNITY ALLOTMENT GARDEN

In collaboration with the Chicago Park District, GP has since 2007 managed the Jackson Park Urban Farm and Community Allotment Garden in Chicago. This half-acre site is used as a community garden for local gardeners and as a model urban farm for GP to supply fresh produce to Chicago's South Side.

¹ Growing Power web site: www.growingpower.org/chicago

ALTGELD GARDENS URBAN FARM

This 2.5-acre urban farm on Chicago's South Side is a perfect example of economic and community development as well as food security. It grows and distributes healthy produce and creates job opportunities in one of Chicago's most isolated and impoverished communities. In 2010, GP, in partnership with the Chicago Housing Authority, employed 150 adults and 40 at-risk youth from the local community. The farm has one acre in production, large-scale composting and vermicomposting, and a hoop house for year-round production.

IRON STREET URBAN FARM

Opened in June 2011, this farm is an innovative example of the benefits of integrating agriculture into an urban environment. The farm's 7-acre site bordered by the Chicago River was previously an abandoned industrial site. After renovation it turned into the city's first "green" campus. It also serves as the new headquarters of Growing Power Chicago. The farm provides healthy/sustainable food, composting, employment and educational opportunities, and green community development. The farm includes hoop houses to grow fresh produce year-round; small ruminant husbandry, including chickens, ducks, and rabbits; an apiary; orchard and vine fruit production; vermicomposting; green roof production and research; and training facilities.

GP has set up a for-profit entity—GreenERA—that will expand the Iron Street Urban Farm's ability to invest in renewable energy initiatives. This will enable GP to offer permanent full-time jobs at living wages to some of the farm workers.²

Community GroundWorks³ Madison, Wisconsin



Photo courtesy of Community Groundworks, Inc.

Community GroundWorks is a nonprofit organization in Madison, Wisconsin, that manages community-based food production and natural areas restoration on Troy Gardens, a 26-acre urban property. Troy Gardens include community gardens, an organic farm, and restored prairie and woodlands.

TROY COMMUNITY GARDENS

GroundWorks rent 20-foot by 20-foot garden plots to local residents from \$10–\$65 per plot per season, based on income level and household size. Water, garden tools, compost, and mulch are provided to gardeners.

² "Growing More Than Just Produce," World Business Chicago, August 22, 2011. retrieved from: www.worldbusinesschicago.com

³ Community Groundworks web site: www.communitygroundworks.org

TROY COMMUNITY FARM

The city's first urban farm has been growing certified organic food on five acres since 2001. In addition to intensive production of vegetables, herbs, and flowers, the farm includes an apiary of five to ten beehives, a year-round sprout business, a wholesale herb business, and bedding plants business for home and community gardens in their solar greenhouse. While the core of the farm is a community supported agriculture (CSA), produce is also sold at the Troy Farm Stand located on the farm.

MADISON FARMWORKS

This innovative business arm of Community GroundWorks designs, installs, and maintains organic food gardens at area homes and businesses. Madison FarmWorks also offers urban gardening training. The business helped build a demonstration vegetable garden at the State Capitol to show the possibilities of organic urban agriculture to residents. Produce from this garden is donated to a food pantry.

YOUTH GROW LOCAL

The Youth Grow Local program of Community GroundWorks includes a kids gardening program, a youth education program in partnership with a local high-school on a small-scale organic urban farm, and a "garden fit" physical fitness program .

Eagle Street Rooftop Farm⁴ Brooklyn, New York

Eagle Street Rooftop Farm is a 6,000-square-foot green roof organic vegetable farm located atop a warehouse rooftop in Brooklyn. The farm was established in 2009 by young entrepreneur farmers in partnership with Broadway Stages, a production company that owns the building, and Goode Green, a green-roof installation company that designed and installed the growing medium. The farm grows a variety of vegetables, herbs, and flowers and keeps three beehives for honey production and chickens for eggs. Composting is another activity on the farm with contribution of food scraps from area restaurants.

This New York City farm operates a community supported agriculture (CSA) program, and an on-site farm market. It also caters to area restaurants. In partnership with a nonprofit organization Growing Chefs, the farm hosts a range of educational and volunteer programs designed to bring city-dwellers closer to their food source. In addition, the farm has apprenticeship and internship programs to train young farmers.

⁴ Eagle Street Rooftop Farm web site: www.rooftopfarms.org

Added Value⁵ Brooklyn, New York

Added Value is a non-profit organization based in the Red Hook neighborhood of South Brooklyn that promotes youth development through the operation of a socially responsible urban farming enterprise. Since 2001, Added Value has provided year-long training to more than 115 neighborhood teens. Youth are engaged in growing food from seed to sale, learn agriculture-related business skills, and build their leadership skills by engaging in community education and mobilization. Working an average of seventeen hours each week on the farm, at the market, and on the computers, they receive a monthly stipend, expanding their families' household incomes by as much as thirty percent.

Added Value also works with New York City schools to provide hands-on farm-based learning to over 1,200 students each year. A 26-week Farm-to-Classroom program offers local elementary school students weekly lessons in plant biology, plant cycles,



Photo by Gill Gulleryuz.

and how to grow food, coupled with cooking lessons. The Seed-to-Salad program brings students for weekly lessons on plants, food, and farm life cycles. During this ten-week program, students sow seeds and harvest lettuce and finish the program by eating a salad. Additionally, Added Value offers farm field trips for school groups. Elementary school students learn about life cycles, sequencing, community interdependence, living creatures, and where their food comes from. Middle and high school students explore the farm and participate in farm work, while learning about the social, economic, and environmental issues related to urban agriculture.

Added Value's Red Hook Community Farm was created in partnership with the New York City Department of Parks and Recreation and Cornell University Cooperative Extension. A dilapidated playground on an entire city block was transformed into a center for urban agriculture. This 2.75-acre urban farm has become a vibrant community resource that provides sustenance to residents, creates meaningful work for neighborhood teens, generates thousands of dollars of economic activity, and improves community food security. It is an intergenerational space that serves as an experiential educational environment for youth, adults, and senior citizens. Since opening in fall 2003, 12 tons of produce was grown for donation, sale, and consumption, creating \$120,000 in local economic activity, and generating \$70,000 in revenue for youth stipends. It also created opportunities for 3,850 people to volunteer, donating an average of 10 hours of service towards community improvement.

Added Value operates a CSA program and a farmers market. The CSA has 70 members, some of whom pay with sweat equity. The Red Hook Farmers Market is

⁵ Interview with Ian Marvey, CEO of Added Value, and Added Value web site: www.added-value.org

designed to help invigorate social interaction in the neighborhood while increasing low-income residents' access to healthy foods and providing neighborhood teens with real-life job training. The market features regional fruit and vegetable vendors and pasture-raised poultry and eggs. Profits from Added Value's sale of produce are cycled back into the program to support stipends for youth participants. Added Value also sells produce directly to locally owned restaurants.

At the Red Hook Community Farm, Added Value operates a large composting program, processing over 160 tons of the community's organic waste yearly. The organic material for the program derives from the farm itself, partnering restaurants, the Park Slope Food Co-op, the Parks Department, farmers market, and individual households.

Added Value recently partnered with the New York City Housing Authority (NYCHA) and Green City Force to create a new farm at a NYCHA apartment complex in Red Hook. The farm will be an urban agriculture training facility targeting youth ages 18-24 who live in the complex.

The Greening of Detroit⁶

Detroit, Michigan

The Greening of Detroit is a nonprofit organization established in 1989 to guide and inspire the reforestation of Detroit. Since 2003 it has played a key role in Detroit's blossoming green movement while transforming the food system. Urban gardens and farms play an important role in Detroit. They provide fresh, nutritious produce for families and improve communities by connecting neighbors, providing an attractive alternative to trash-strewn vacant lots, increasing property values, and reducing crime.

The organization's urban garden programs provide educational opportunities to over 15,000 urban gardeners and support over a thousand gardens. Outreach to community groups, organizations, and residents includes information and technical assistance for urban agriculture and open space projects in the city. It also provides opportunities to get involved. Community organizing, garden planning, design and implementation support are also provided.

According to the 2009 Detroit Residential Parcel Survey there are over 100,000 vacant lots in Detroit. When neglected, these lots tend to be areas for criminal activity and illegal dumping. To improve the access to healthy fresh produce, the Openspace Program has turned these lots into community gardens, market gardens, and fruit orchards by engaging Detroit residents in planning, implementation, and maintenance.

The Greening of Detroit is also partnered with the Garden Resource Program (GRP) collaborative, which allows for the sharing of resources and support to existing and developing urban gardens and farms. The GRP creates neighborhood-based cluster groups to connect growers to one another and provide access to resources and

⁶ The Greening of Detroit web site: greeningofdetroit.com and detroitagriculture.net

opportunities (tilling, compost, flowers, woodchips, weed fabric, volunteers, and access to a tool sharing program). In 2011, residents were responsible for creating and maintaining 1,351 vegetable gardens in the city. As participants in the GRP, these gardeners picked up 49,858 seed packs and 230,296 transplants and grew over 73 varieties of fruit and vegetables in their 382 community, 48 market, 64 school and 857 family gardens.

The Greening of Detroit's operates three urban farms and a cooperative market:

ROMANOWSKI FARM PARK

Concerned residents, alongside Greening of Detroit, created this farm park on an underutilized decaying park site. Teaching gardens, an orchard with more than 100 fruit trees, and a large community garden were built around a new playground, athletic fields, and a pavilion. The half-acre production garden is tended by adult apprentices who learn farm planning and management.

PLUM STREET MARKET GARDEN AT MGM GRAND

This is a production-focused market garden in the heart of downtown. It acts as a training site to support the Adult Apprenticeship Program as well as a host site for the Youth Apprenticeship Program. It boasts a 60-foot by 96-foot greenhouse and emphasizes greenhouse transplant production as well as four season in-ground crop production. On-site produce is used both to boost sales to meet the demand of the Grown in Detroit cooperative at farmers markets and retail outlets, as well as to teach skills around advanced growing practices.

DETROIT MARKET GARDEN

The garden is located in the historic Eastern Market district and is a small-scale production-focused farm. The 2.5-acre farm utilizes solar passive techniques to grow food year-round and works to push the limits of winter, spring, and fall crops. The site works closely to complement the organization's Market Garden Training Program, a series of winter courses that work with Grown in Detroit gardeners and farmers to enhance their business and growing skills. Youth and adult apprenticeships and other on-site educational opportunities provide growers of all skill levels with hands-on experience in all aspects of the seasonal work of a market garden, including planning, cultivating, processing, and marketing.

GROWN IN DETROIT COOPERATIVE

The Grown in Detroit cooperative provides support to urban growers to sell their produce at farmers markets, restaurants, and other retail outlets across the city.

Feed Denver: Urban Farms and Markets⁷

Denver, Colorado

Feed Denver started in 2008 as a nonprofit education and development organization at a point when it was realized that only 0.2 percent of the food consumed in the Denver metropolitan area came from the state. The objective of the organization is to empower local-level economic independence through sustainable small-scale farms and markets in urban settings. Feed Denver helps create food security for the most vulnerable through its sustainable urban food production programs. Individual economic empowerment is achieved through the provision of micro loans to farmers who eventually become entrepreneurs and owners of the farms.

Feed Denver, in its capacity as a Growing Power Regional Outreach Training Center, works with communities, businesses, and individuals to create pilot farms. By exploring a variety of techniques and strategies for farming in the area, Feed Denver has created prototype model farms.

THE URBAN FARM AT STAPLETON

The first pilot farm included a soil producing compost program and a greenhouse aquaculture operation

PARKING LOT FARM AT SOUTH SWANSEA

Swansea is one of Denver's most challenged neighborhoods and a food desert. Through this initiative an empty parking lot has been turned into a community oasis farm, providing not only jobs and training for the neighborhood, but also a fresh vegetable market and a cafe.

SUNNYSIDE FARM AT 44TH AND VALLEJO

An abandoned gas station at this corner is now a vibrant urban farm generating fresh healthy local food for the community. This newest farm is built with the help of Feed Denver's New American program participants. In addition to a fresh vegetable market, summer workshops are offered at the farm.

⁷ Feed Denver web site: www.feedenver.com

Appendix D

Learning from others: Best local government practices

Jurisdiction	Title	Description	Source/URL
Studies			
Portland, Oregon	<ul style="list-style-type: none"> ❖ The Diggable City: Making Urban Agriculture a Planning Priority (2005) ❖ The Diggable City: Urban Agriculture Inventory Findings and Recommendations, Phase II (2006) ❖ The Diggable City: Implementation Strategies and Recommendations, Phase III (2007) 	A three phase inventory of public lands appropriate for urban agriculture, a management plan, and implementation strategies.	<ul style="list-style-type: none"> ❖ www.diggablecity.org/dcp_finalreport_PSU.pdf ❖ www.portlandoregon.gov/bps/article/122595 ❖ www.portlandoregon.gov/bps/article/171174
Portland, Oregon	Portland Plan Background Report: Food Systems (2009)	The chapter on urban agriculture gives detailed background information on community gardens, urban farming operations, and other urban agriculture, including garden education and school gardens. It also includes policy examples from other jurisdictions.	www.portlandonline.com/portlandplan/index.cfm?a=273154&c=51427
Seattle, Washington	Urban Agriculture in Seattle: Policy and Barriers (2009)	The report analyzes the city's community gardening program resolution and zoning policies. It provides recommendations on the promotion of urban agriculture, including creation of a department of urban agriculture.	www.chicagofoodpolicy.org/Urban%20Agriculture%20in%20Seattle%20Policy%20and%20Barriers.pdf
Plans			
Minneapolis, Minnesota	Urban Agriculture Policy Plan: A Land Use and Development Plan for a Healthy Sustainable Local Food System (2011)	Recommends a zoning amendment to permit urban agriculture; incorporating urban agriculture into long range planning; reviewing the city's land inventory for urban agriculture opportunities; and assessing land demand for urban agriculture.	www.minneapolismn.gov/www/groups/public/@cped/documents/webcontent/convert_276069.pdf
Madison, Wisconsin	Growing a Stronger Community with Community Gardens (1999)	This community garden plan recommends extension of the leases for community gardens on city-owned land to a minimum of five-years; development of community gardens as permanent public assets through financial support from the city government and through planning and zoning; establishment of a community gardens council; and partnership between city, gardening organizations, and gardeners.	

Reports

Urban Agriculture Plans

Sustainability Plans

Jurisdiction	Title	Description	Source/URL
Philadelphia, Pennsylvania	Greenworks Philadelphia (2009)	Recommends increasing access to fresh foods by creating 59 food producing gardens, 12 farms, and 15 farmers markets; creating an inventory of community gardens, urban farms, and farm stands; providing technical assistance to farmers/gardeners; leveraging vacant city-owned land for gardening purposes; fostering commercial farming; encouraging composting to reduce food waste; and creating an agricultural workforce strategy to grow green jobs and support green kitchen development.	www.phila.gov/green/greenworks/pdf/Greenworks_OnlinePDF_FINAL.pdf
Cincinnati, Ohio	Cincinnati Climate Protection Action Plan: The Green Cincinnati Plan (2008)	Recommends expanding the community gardening program to include for-profit based agricultural businesses within the city that would encourage residents and businesses to buy locally from city or neighborhood markets. The plan predicts this would ultimately reduce CO ₂ by having less produce imported into the city, and create good jobs. Focusing on reduction of waste and sustainable agriculture, it recommends expanding backyard composting.	http://www.cincinnati-oh.gov/cmgr/downloads/cmgr_pdf18280.pdf
Baltimore, Maryland	Baltimore Sustainability Plan (2009)	Recommends increasing the percentage of land under cultivation, developing an urban agriculture plan, and composting both residential and commercial waste.	http://www.baltimoresustainability.org/uploads/files/Sustainability_Plan.pdf
City of Portland and Multnomah County, Oregon	Climate Action Plan 2009	Recommends provision of incentives and removal of regulatory obstacles to significantly increase local food production; development of policy and programs to increase the amount of home-grown food; supporting farmers markets and CSAs and use of public and private land and rooftops for growing food; and promoting fruit and nut trees as options for the "grey-to-green" tree-planting initiative. The plan also recommends mandatory food waste collection and prioritization of commercial composting as ways to manage waste.	http://www.portlandoregon.gov/bps/article/268612

Sustainability Plans

Jurisdiction	Title	Description	Source/URL
Kansas City, Missouri	Climate Protection Plan (2008)	Recommends promotion of residential neighborhood food production and metropolitan food production. It also recommends creation of urban agriculture zoning to foster fruit and vegetable production as well as small-scale animal husbandry on vacant land and lots within neighborhoods.	http://www.marc.org/environment/airq/pdf/CP-Plan-7-16-08.pdf
Santa Fe, New Mexico	Sustainable Santa Fe Plan (2008)	Recommends a city harvest program, which provides opportunities for growing, processing, storing, and selling food.	http://www.santafern.gov/DocumentView.aspx?DID=702
Berkeley, California	Climate Action Plan (2009)	The vision for 2050 includes local production of the majority of food consumed. Recommends that buildings be encouraged to incorporate rooftop gardens for food production, residents be encouraged to grow food in home and community gardens, and that local efforts be supported to provide training to residents in farming and gardening techniques.	http://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/Berkeley%20Climate%20Action%20Plan.pdf
Washington, D.C.	A Vision for a Sustainable DC (2012)	Proposed that sustainable DC legislation include a sustainable urban agriculture act that promotes urban agriculture through beekeeping. Increasing urban agriculture jobs and ensuring longevity of urban agriculture are among the sustainability goals.	http://sustainable.dc.gov/sites/default/files/dc/sites/sustainable/publication/attachments/sustainable%20DC%20Vision%20Plan%202.2.pdf

Comprehensive or General Plans

Jurisdiction	Title	Description	Source/URL
Madison, Wisconsin	City of Madison Comprehensive Plan (2006)	Recommends mapping farming operations, educating farmers and consumers, and expanding community gardens to ensure one garden per 2,000 households.	http://www.cityofmadison.com/planning/ComprehensivePlan/adoptedplan.cfm
New Orleans, Louisiana	New Orleans 2030: Plan for the twenty-first century (2010)	A subsection on Urban Agriculture Gardening and Open Space recommends removing zoning and regulatory barriers to both urban agriculture and farmers markets, performing an inventory of possible gardening sites, establishing a schoolyard greening program, and providing incentives to encourage reuse of vacant properties for urban agriculture.	http://www.nolamasterplan.org/documentsandresources.asp#C12
Boise, Idaho	Blueprint Boise (2011)	Recommends preserving opportunities for urban agriculture.	http://www.cityofboise.org/BluePrintBoise/pdf/Blueprint%20Boise/0_Blueprint_All.pdf
Seattle, Washington	City of Seattle Comprehensive Plan (2005)	Recommends provision of community gardens as a goal and a strategy to reach other overarching goals: One community garden per 2,500 households in each designated village area.	http://www.seattle.gov/dpd/Planning/Seattle_s_Comprehensive_Plan/Overview/default.asp
Harrison County, Mississippi	2030 Harrison County Comprehensive Plan (2008)	Suggests increasing access to healthy food by developing a land bank of tax-reverted vacant properties for agricultural uses, promoting farmers markets and community gardens, and improving local food accessibility.	http://www.planharrisoncounty.org/frontmatter.pdf
Marin County, California	Marin Countywide Plan (2007)	Recommends amending the development code to require space for on-site community gardens in all new residential development of 10 units or greater.	http://www.co.marin.ca.us/depts/cd/main/fm/cwpdocs/CWP_CD2.pdf
Boston Metropolitan Area, MA	MetroFuture Plan (2008)	Recommends access to safe and well-maintained community gardens in all neighborhoods, focus on sustainable farming, creating edible schoolyards, expanding farm-to-school programs, and establishing a Massachusetts Food Policy Council.	http://www.metrofuture.org/files_metrofuture/userfiles/file/MetroFuture%20Regional%20Plan%205_28_08.pdf

Comprehensive or General Plans

Jurisdiction	Title	Description	Source/URL
Chicago, Illinois	GoTo 2040 (2010)	In dealing with sustainable food production, it recommends the promotion of urban agriculture in developed areas by converting under-used urban land to food production, by creating community gardens, for example.	http://www.cmap.illinois.gov/2040/download-the-full-plan
Philadelphia, Pennsylvania	Philadelphia 2035: Citywide Vision (2011)	Strategies for neighborhoods include: increasing local food production through zoning designations that permit urban agriculture in strategic locations and allow for roof-top gardening; developing standards and guidelines for community gardens and urban agriculture on public lands to ensure transparency, continuity of use, and community benefit.	http://phila2035.org/pdfs/final2035vision.pdf
Providence, Rhode Island	Providence Tomorrow (2007)	Urban agriculture is mentioned in sustainability and environment, business and jobs, and land use chapters. Recommendations include identifying and preserving areas suitable for urban agriculture and amending regulations as necessary to facilitate urban agriculture and to promote a system of farmers markets throughout the city.	http://www.providenceri.gov/efile/87

Food System Plans

Jurisdiction	Title	Description	Source/URL
New York, New York	Food Works: A Vision to Improve New York City's Food System (2010)	The production section of the plan includes a goal to increase urban food production. Better use of existing space for urban food production and restoring food and horticultural knowledge are recommended strategies to achieve this goal.	http://council.nyc.gov/html/food/files/foodworks_fullreport_11_22_10.pdf
Oakland, California	Transforming the Oakland's Food System: A Plan for Action (2010)	Recommendations include protecting and expanding urban agriculture, encouraging accessible and affordable farmers markets, and expanding composting and food scrap recycling.	http://www.oaklandfood.org/media/AA/AD/oaklandfood-org/downloads/105491/OFPC_2010_plan_for_action_FINAL.pdf
Dane County, Wisconsin	Recipe for Success (2005)	Recommends small acreage farming zones, supporting entrepreneurial agriculture, and supporting local farmland preservation initiatives.	http://danedocs.countyofdane.com/webdocs/pdf/foodcouncil/Recipe_for_Success.pdf
Chicago, Illinois	Eat Local Live Healthy (2007)	Recommendations include increasing the number of city residents who know how to grow food in an urban setting; increasing the number of city residents who know how to compost and helping children grow their gardening skills; increasing the delivery of local and/or healthy food to Chicago's oldest residents; placing healthy, locally grown food in schools; improving the City of Chicago's Farmers Market System; and increasing public awareness.	http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Eat_Local_Live_Healthy_Brochure/Eat_Local_Live_Healthy.pdf
Greater Philadelphia Region, PA-DE-NJ	Eating Here: Greater Philadelphia Food System Plan (2011)	Recommendations include an urban agriculture block grant; partnerships with property owners and businesses to develop new community gardens and commercial urban agriculture projects on underutilized lands; and increasing composting activities at all scales, from commercial businesses like restaurants to curbside pick-up for residents.	http://www.dvrpc.org/reports/10063A.pdf

Special Urban Agriculture Districts/Zones

Jurisdiction	Title	Description	Source/URL
Zoning			
Cleveland, Ohio	Urban Garden District: Chapter 336 (2007)	This may be the nation's first zoning district designed specifically to reserve land for community gardens. "Urban garden district" was established as part of the Zoning Code to ensure that urban garden areas are appropriately located and protected to meet needs for the community. Permitted main uses: Community gardens, market gardens; permitted secondary uses include greenhouses, farm stands, beehives, and chicken coops.	http://planning.city.cleveland.oh.us/zoning/pdf/AgricultureOpenSpaceSummary.pdf
Boston, MA	Community Garden Open Space Subdistricts: Section 33-8 (1988)	Community garden open space (OS-G) subdistricts shall consist of land appropriate for and limited to the cultivation of herbs, fruits, flowers, or vegetables, including the cultivation and tillage of soil and the production, cultivation, growing, and harvesting of any agricultural, floricultural, or horticultural commodity; such land may include vacant public land.	http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article33.pdf
Chattanooga, Tennessee	Urban Agriculture Zone: Ordinance 11107 (2000)	Creates an urban agricultural zone to provide the opportunity for agricultural land and related uses within the city limits. This zone is also designed to provide an opportunity for planned unit development. Permitted uses include growing of crops, dairying, grazing, the raising and maintaining of poultry and livestock, horticulture, viticulture, floriculture, forest, and woods.	http://www.chattanooga-chamber.com/economicdevelopment/supplier_zoning.pdf
Madison, Wisconsin	Urban Agricultural (UA) District: Proposed Citywide Zoning Districts Map (estimated approval date fall 2012)	A zoning code rewrite process aims to provide the city with an urban agricultural district (separate from the agriculture district) to ensure that urban garden and farm areas are appropriately located and protected to meet needs for local food production. Cultivation and animal husbandry will be allowed in the UA Zone. The minimum lot area requirement is proposed as 15,000-square feet. Smaller lots may be allowed as a conditional use.	http://www.cityofmadison.com/neighborhoods/zoningrewrite/documents.cfm

Urban Agriculture Ordinances/ Zoning Code Amendments/ Urban Agriculture Overlay Districts

Jurisdiction	Title	Description	Source/URL
Boston, MA	Urban Agriculture Overlay Districts (UAOD): Section 60-28 (2011)	UAODs are established to overlay underlying zoning within the Greater Mattapan Neighborhood District. UAODs may consist of land appropriate for and limited to cultivation of plants and composting of materials produced on site.	www.bostonredevelopmentauthority.org
Cleveland, Ohio	Draft Chapter 336A: Urban Agriculture Overlay (UAO) District (pending before the City Council)	Allows the city to designate particular areas for larger-scale farming activities, permits greater intensity of animal raising and larger animals (horses, cows, alpaca, etc.), and limits this larger-scale farming to areas specifically designated through ordinances adopted by the city council through a rezoning process.	http://planning.city.cleveland.oh.us/zoning/pdf/urbanAgOverlayDraft.pdf
San Francisco, California	Urban Agriculture Ordinance: Ordinance No. 66-11 (2011)	The Urban Agriculture Ordinance amends the San Francisco Planning Code to recognize various scales and intensities of local food production, from small scale gardens to larger-scale urban agriculture. The legislation allows for the sale, pick-up, and donation of fresh food and horticultural products grown on-site in all districts, and for the sale of value-added products such as jams or pickles where the primary ingredients are grown and produced on-site in all districts except districts zoned for exclusively residential uses. Food and horticultural products grown for personal consumption remain unregulated.	http://ebookbrowse.com/overview-of-sf-urban-ag-zoning-changes-final-pdf-d263098100
Seattle, Washington	Urban agriculture ordinance: Ordinance 123378 (2010)	The ordinance updates the city's land use code governing urban agriculture uses, such as allowing urban farms and community gardens in all zones, with some limitations in industrial zones. Also, residents will now be able to sell food grown on their property.	http://www.seattle.gov/dpd/planning/UrbanAgriculture/Overview/

Urban Agriculture Ordinances/ Zoning Code Amendments

Jurisdiction	Title	Description	Source/URL
Chicago, Illinois	Urban agriculture ordinance: Section 17-2-0207 (2011)	This amendment allows for community gardens of up to 25,000 square feet, relaxes fencing and parking requirements on larger commercial urban farms, and allows hydroponic and aquaponic systems and the raising of honeybees under certain conditions.	http://www.cityofchicago.org/city/en/depts/dcd/supp_info/urban_agriculturefaq.html
Pittsburgh, Pennsylvania	Urban Agriculture Ordinance: Ordinance 2010-0985 (2011)	The ordinance adds a new subsection to permit urban agriculture as an accessory use in two categories; with poultry birds and honey bees and with no animals.	http://pittsburgh.legistar.com/LegislationDetail.aspx?ID=775953&GUID=4E3A6EF6-99FB-4818-BFEF-8C9A17611A3D
Kansas City, Missouri	Urban Agriculture Ordinance: Ordinance No. 100299 (2010)	Agriculture is permitted in all residential, office, business, and commercial zones as well as downtown and manufacturing districts. The amended ordinance allows for on-site sales by home gardeners, community gardeners, and farmers and for nonresident volunteers and interns to donate time helping with gardening activities. It also allows growers to run a CSA in a city neighborhood with special exception. Additionally, the ordinance establishes separate definitions for home gardens, community gardens, and CSA farms. By establishing rules for each, the ordinance went a long way toward eliminating some of the barriers faced by local food growers.	http://kcmo.org/idc/groups/cityplanningdevelopmentdiv/documents/cityplanninganddevelopment/100299.pdf
Austin, Texas	Urban Farms: Sec. 25-2-863	Urban farms on parcels one to five acres that solely produce organic agricultural products to be sold for profit are permitted in a variety of districts. The code also has regulations for city-supported community gardens.	http://www.amlegal.com/nxt/gateway.dll/Texas/austin/title25landdevelopment/chapter25-zoning?f=templates\$fn=default.htm\$3.0\$vid=amlegal:austin_tx\$anc=JD_25-2-356

Urban Agriculture Ordinances/ Zoning Code Amendments

Jurisdiction	Title	Description	Source/URL
Nashville, Tennessee	Commercial and Noncommercial Community Gardening: Substitute Ordinance No. BL2009-479 (2009)	Allows commercial and non-commercial community gardens as a permitted or special exception use in various zoning districts.	http://www.nashville.gov/mc/ordinances/term_2007_2011/bl2009_479.htm
Hutto, Texas	Smart Code (2009)	<p>A form-based code that permits various forms of food production within all zones:</p> <ul style="list-style-type: none"> ❖ Urban core: Green roofs. ❖ Urban center: Green roofs, urban farms, community gardens, vertical axis gardening. ❖ General urban: Green roofs, vegetable gardens, urban farms, community gardens. ❖ Suburban zone: Green roofs, vegetable gardens, agricultural plots, urban farms, community gardens. ❖ Rural zone: Green roofs, vegetable gardens, community gardens, agricultural plots, farms. ❖ Natural zone: Green roofs, vegetable plots (by warrant), farms (by warrant). 	http://tx-hutto.civicplus.com/DocumentCenter/Home/View/2001
New York, New York	Zone Green Text Amendment: N 120132 ZRY (2012)	Allows vegetative roofs and rooftop greenhouses.	http://www.nyc.gov/html/dcp/pdf/cpc/120132.pdf
Milwaukee, Wisconsin	Subchapter 5 Residential Districts Chapter 295-503 Uses	Permits the raising of crops and livestock in residential districts.	http://www.mkecdcd.org/czo/codetext.asp?District=RT4

Programs/Initiatives

Jurisdiction	Title	Description
Minneapolis, Minnesota	Real estate disposition policy (2004)	Allows nonprofit corporations or public agencies to purchase excess city-owned vacant nonbuildable lots in the city's land inventory to use as community gardens on condition that conservation easements must be placed on the community garden lots in favor of the city.
Seattle, Washington	P-Patch Community Gardening Program (1973)	The Seattle Department of Neighborhoods operates the 39-year-old program in conjunction with the nonprofit P-Patch Trust. The program includes 76 P-Patches on 23 acres; 50 of which are neighborhood-based community gardens, 20 food security gardens focusing on low-income and immigrant communities, and 3 market gardens offering low-income people supplemental income. Thirty plots are focused on youth gardening and 2,350 plots gardened by over 4,700 gardeners. Ten of the gardens are on private property. P-Patch Trust owns four and has shared ownership of two with the city. The rest of the gardens are on public property. Plot sizes vary from 400 square feet to less than 100 square feet and cost \$25 plus \$12 for each 100 sf. Members who garden on collective P-Patches pay a flat fee of \$10. All members contribute eight volunteer hours. Gardeners donate over 20,000 pounds of produce to food banks annually. The program is so popular that as of the end of 2011 there were 1,154 people on the waiting list. To meet the demand, new community gardens will be built with \$2 million Parks and Green Space Levy funds.
New York, New York	Grow to Learn NYC	A Citywide School Gardens Initiative was established in 2010 as a public-private partnership between the Mayor's Fund, the nonprofit environmental organization GrowNYC, and several government agency partners. The program's mission is to inspire, facilitate and promote the creation of a sustainable school garden in each and every public school across New York City.
Chicago, Illinois	NeighborSpace (1996)	An intergovernmental partnership between the City of Chicago, Chicago Park District, and Forest Preserve District of Cook County to acquire and own land on behalf of local partners who have created urban "Edens" within their neighborhoods. This land trust preserves and protects these gardens and ensures the survival of residents' hard work without having to shoulder the responsibilities of acquisition, ownership or liability for the sites.
Seattle, Washington	Local Food Action Initiative (Resolution 31019) (2008)	Goals include increasing access to healthy local foods through growing healthy food in the city and integrating food system policies and planning into city land use, transportation and urban activities. Actions include promoting direct connections between farmers and consumers; developing procurement policies for local food; revising policies to strengthen farmers markets and market gardens; revising policies or procedures that would strengthen city support for the local food economy; identifying additional locations and infrastructure for community gardens, food bank gardens, and community kitchens; exploring ways to partner community gardens with local schools; conducting an inventory of public lands in Seattle appropriate for urban agriculture uses; reviewing the land use code to identify codes that support or conflict with the goal of potential future development of urban agriculture and market gardening; and supporting increased diversion of surplus edible food from the commercial waste stream in addition to recycling food waste for compost.

Local Government Actions in Support of Urban Agriculture

Programs/ Initiatives

Jurisdiction	Title	Description
Seattle, Washington	Edible landscapes: Planting strips in the right-of-way	The city allows residents to plant vegetable gardens in the planning-strip between the sidewalk and roadways without a permit and to build raised beds in parking strips with permits. Vegetables and fruit-bearing plants are encouraged as long as they meet height guidelines and setbacks.
New York, New York	GreenThumb	The largest community gardening program in the nation supports over 600 community gardens and nearly 20,000 gardeners in the largest and most densely populated city in the U.S. It was initiated in response to the city's financial crisis in the 1970s. The majority of gardens were converted from derelict vacant lots by volunteers. The gardens are located in all five boroughs and managed by neighborhood residents. The program is more than just a community garden program: It offers educational workshops and social events, and helps build community.
Minneapolis, Minnesota	Zoning flexibility for promoting food production in planned unit developments (PUD)	Developers can gain five points for including gardens or on-site food production capability and use them towards use of land and placement of buildings flexibility.
Milford, Delaware	Density bonus	A five-percent density bonus is awarded to planned residential development projects that reserve additional common land for community gardens.
Cleveland, Ohio	Reduced water fees	Gardeners and farmers may purchase seasonal unmetered access to fire hydrants for reduced costs based on the garden acreage.

Incentives

Appendix E

Steps from brownfield to community garden



Site Preparation

- Contact your State Environmental Agency, agricultural extension office or EPA Regional Brownfield coordinator, Tribal, or State brownfield team to learn if they have assessed or cleaned prospective sites or have targeted brownfields assessment (TBA) funds to support your efforts.
- Apply for Brownfield grant funds if you need help to assess and clean a site.
- Talk with your city or town about gardens as an interim or permanent use for vacant land.
- Assess sites before you buy, lease or borrow to ensure the site is safe for food.
- Learn how to use greener materials when establishing your garden from the Sustainable Sites Initiative at: www.sustainablesites.org/.
- Bring clean fill or mulch from certified sources for raised beds and cover.
- Work with nature to save time and money. Learn more at: www.epa.gov/greenscapes.

Community Garden Development

- Contact your local Agricultural Extension Service about soil testing and crop recommendations for your area.
- Read the UC Davis 'Community Garden Start-Up Guide' to learn more: celosangeles.ucdavis.edu/garden/articles/startup_guide.html.
- Build for all ages and abilities. Where possible, create raised bed gardens near the entrance for those in wheelchairs and beds for children to plant safely.
- Grow your garden community and link with groups improving the environment, food systems, public health, education, development and the neighborhood. Learn more about the benefits of gardens at: www.gardenworksmn.org/Resources/multiple_benefits.pdf.
- Go organic in your garden. Limit chemical fertilizers, pesticides, and herbicides.

Check the Soil Before You Buy A Site or Plant

Environmental Contaminants

Before you buy, are given or borrow a property for a garden or farm site, consider doing a Phase I Environmental Site Assessment. It includes a number of steps, including a review of historical uses of the site, interviews with neighbors, and a visual inspection. (For more information on brownfields or "All Appropriate Inquiry," please see www.epa.gov/brownfields or www.ASTM.org for more information on the ASTM E1527-05 standard.) A Phase I Environmental Site Assessment will help you determine if a site is contaminated. Phase II continues the environmental site assessment and includes additional site review, sampling and analysis.

Soil Quality and Growing Conditions

It is important to test the soil and ensure the proper pH, soil nutrients and organic content in the soil if you want to grow healthy plants and save water. For information on local soil testing services, see the links to the USDA Cooperative Extension System in the resources section.

Brownfields Revitalization – Urban Agriculture and Food Connection



Reinventing Community Connections with Agriculture and Food



Appendix F

HOUSE BILL 1062

Q1

0lr2700
CF 0lr3435

By: **Delegates Healey, Ross, Frick, Gaines, Hixson, Howard, Ivey, Stukes, and Walker**

Introduced and read first time: February 17, 2010

Assigned to: Ways and Means

Committee Report: Favorable with amendments

House action: Adopted

Read second time: March 21, 2010

CHAPTER _____

1 AN ACT concerning

2 **Property Tax Credit – Urban Agricultural ~~Activities~~ Property**

3 FOR the purpose of authorizing the Mayor and City Council of Baltimore City or the
4 governing body of a county or of a municipal corporation to grant, by law, a tax
5 credit against the county or municipal corporation property tax imposed on
6 certain urban agricultural property; providing for the duration of the credit;
7 authorizing the county or municipal corporation to provide, by law, for the
8 amount of the credit ~~and certain other provisions~~, eligibility criteria for the
9 credit, certain regulations and procedures, and any other provision necessary
10 to carry out the credit; providing for the repayment of certain tax credits under
11 certain circumstances; defining certain terms; providing for the application of
12 this Act; and generally relating to a local property tax credit for urban
13 agricultural property.

14 BY adding to

15 Article – Tax – Property

16 Section 9–252

17 Annotated Code of Maryland

18 (2007 Replacement Volume and 2009 Supplement)

19 SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF
20 MARYLAND, That the Laws of Maryland read as follows:

21 **Article – Tax – Property**

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.

[Brackets] indicate matter deleted from existing law.

Underlining indicates amendments to bill.

~~Strike out~~ indicates matter stricken from the bill by amendment or deleted from the law by amendment.



1 **9-252.**

2 (A) (1) IN THIS SECTION THE FOLLOWING WORDS HAVE THE
3 MEANINGS INDICATED.

4 (2) "URBAN AGRICULTURAL PROPERTY" MEANS REAL PROPERTY
5 THAT IS:

6 (I) AT LEAST ONE-EIGHTH OF AN ACRE AND NOT MORE
7 THAN 2 ACRES;

8 (II) LOCATED IN A PRIORITY FUNDING AREA, AS DEFINED IN
9 § 5-7B-02 OF THE STATE FINANCE AND PROCUREMENT ARTICLE; AND

10 (III) USED EXCLUSIVELY FOR URBAN AGRICULTURAL
11 PURPOSES.

12 (3) "URBAN AGRICULTURAL PURPOSES" MEANS:

13 (I) CROP PRODUCTION ACTIVITIES, INCLUDING THE USE OF
14 MULCH OR COVER CROPS TO ENSURE MAXIMUM PRODUCTIVITY AND MINIMIZE
15 RUNOFF AND WEED PRODUCTION;

16 (II) ENVIRONMENTAL MITIGATION ACTIVITIES, INCLUDING
17 STORMWATER ABATEMENT AND GROUNDWATER PROTECTION;

18 (III) COMMUNITY DEVELOPMENT ACTIVITIES, INCLUDING
19 RECREATIONAL ACTIVITIES, FOOD DONATIONS, AND FOOD PREPARATION AND
20 CANNING CLASSES;

21 (IV) ECONOMIC DEVELOPMENT ACTIVITIES, INCLUDING
22 EMPLOYMENT AND TRAINING OPPORTUNITIES, AND DIRECT SALES TO
23 RESTAURANTS AND INSTITUTIONS; AND

24 (V) TEMPORARY PRODUCE STANDS USED FOR THE SALE OF
25 PRODUCE RAISED ON THE PREMISES.

26 (B) THE MAYOR AND CITY COUNCIL OF BALTIMORE CITY OR THE
27 GOVERNING BODY OF A COUNTY OR OF A MUNICIPAL CORPORATION MAY
28 GRANT, BY LAW, A TAX CREDIT AGAINST THE COUNTY OR MUNICIPAL
29 CORPORATION PROPERTY TAX IMPOSED ON URBAN AGRICULTURAL PROPERTY.

1 (C) (1) EXCEPT AS PROVIDED IN PARAGRAPH (2) OF THIS
2 SUBSECTION, A TAX CREDIT UNDER THIS SECTION SHALL BE GRANTED FOR 5
3 YEARS.

4 (2) (I) IF THE MAYOR AND CITY COUNCIL OF BALTIMORE
5 CITY OR THE GOVERNING BODY OF A COUNTY OR OF A MUNICIPAL
6 CORPORATION GRANTS A TAX CREDIT UNDER THIS SECTION, THE JURISDICTION
7 GRANTING A TAX CREDIT SHALL EVALUATE THE EFFECTIVENESS OF THE
8 CREDIT AFTER 3 YEARS.

9 (II) IF THE JURISDICTION GRANTING THE TAX CREDIT
10 DETERMINES THAT THE TAX CREDIT IS INEFFECTIVE IN PROMOTING URBAN
11 ~~AGRICULTURE~~ AGRICULTURAL PURPOSES, THE JURISDICTION GRANTING A TAX
12 CREDIT MAY TERMINATE THE TAX CREDIT.

13 (III) THE JURISDICTION GRANTING A TAX CREDIT UNDER
14 THIS SECTION MAY EXTEND THE TAX CREDIT FOR AN ADDITIONAL 5 YEARS.

15 (D) THE MAYOR AND CITY COUNCIL OF BALTIMORE CITY OR THE
16 GOVERNING BODY OF A COUNTY OR OF A MUNICIPAL CORPORATION MAY
17 PROVIDE, BY LAW, FOR:

18 (1) THE AMOUNT OF THE TAX CREDIT UNDER THIS SECTION;

19 (2) ADDITIONAL ELIGIBILITY CRITERIA FOR THE TAX CREDIT
20 UNDER THIS SECTION;

21 (3) REGULATIONS AND PROCEDURES FOR THE APPLICATION AND
22 UNIFORM PROCESSING OF REQUESTS FOR THE TAX CREDIT; AND

23 (4) ANY OTHER PROVISION NECESSARY TO CARRY OUT THE
24 CREDIT UNDER THIS SECTION.

25 ~~(D)~~ (E) AT ANY TIME DURING THE PERIOD FOR WHICH A PROPERTY
26 TAX CREDIT UNDER THIS SECTION IS GRANTED FOR URBAN AGRICULTURAL
27 PROPERTY, IF THE PROPERTY CEASES TO BE USED FOR URBAN AGRICULTURAL
28 PURPOSES, THE OWNER OF THE PROPERTY SHALL BE LIABLE FOR ALL
29 PROPERTY TAXES THAT WOULD HAVE BEEN IMPOSED IF A PROPERTY TAX
30 CREDIT FOR URBAN AGRICULTURAL PROPERTY HAD NOT BEEN GRANTED.

31 SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect
32 June 1, 2010, and shall be applicable to all taxable years beginning after June 30,
33 2010.

Appendix G

Guidelines for starting a community garden

Starting a Community Garden

The American Community Gardening Association Fact Sheet

This fact sheet is designed to give many different groups the basic information they need to get their gardening project off the ground. These lists are in no way meant to be complete. Each main idea will probably trigger more questions, so an assortment of ways to carry out that idea are presented; pick and choose those that seem to apply to your own situation.

Form a planning committee

- ❖ Determine if there really is a need and desire for a garden.
- ❖ What kind of garden--vegetable, flower, trees, a combination?
- ❖ Who will the garden serve--youth, seniors, special populations, people who just want an alternative to trash?
- ❖ If the project is meant to benefit a particular group or neighborhood, it is essential that the group be involved in all phases.
- ❖ Organize a meeting of interested people.
- ❖ Choose a well-organized garden coordinator.
- ❖ Form committees to accomplish tasks: Funding & Resource Development; Youth Activities; Construction; Communication.
- ❖ Approach a sponsor. A sponsor is an individual or organization that supports a community garden. Site sponsorship can be a tremendous asset. Contributions of land, tools, seeds, fencing, soil improvements or money are all vital to a successful community garden. Some community gardens can provide most of their provisions through fees charged to the membership; but for many, a garden sponsor is essential. Churches, schools, citizens groups, private businesses, local parks and recreation departments are all potential supporters. Community Development Block Grants are sometimes available through your municipality.
- ❖ Make a list of what needs to be done.
- ❖ Find a garden site.
- ❖ Obtain lease or agreement from owner.
- ❖ Decide on a mailing address and central telephone number(s). Try to have at least 3 people who are very familiar with all pertinent information. Form a telephone tree.
- ❖ If your community garden has a budget, keep administration in the hands of several people.
- ❖ Choose a name for the garden.

Choose a site

- ❖ Identify the owner of the land.
- ❖ Make sure the site gets at least 6 full hours of sunlight daily (for vegetables).

- ❖ Do a soil test in the fall for nutrients & heavy metals.
- ❖ Consider availability of water.
- ❖ Try and get a lease or agreement which allows the space to be used at least for 3 years.
- ❖ Consider past uses of the land. Is there any contamination?
- ❖ Is insurance something you need to consider?

Prepare and develop the site

- ❖ Clean the site.
- ❖ Develop your design.
- ❖ Gather your resources--try to gather free materials.
- ❖ Organize volunteer work crews.
- ❖ Plan your work day.
- ❖ Decide on plot sizes, mark plots clearly with gardener's names.
- ❖ Include plans for a storage area for tools and other equipment, as well as a compost area.
- ❖ Have a rainproof bulletin board for announcing garden events and messages.
- ❖ Arrange for land preparation--plowing, etc--or let gardeners do their own prep.
- ❖ Will the garden be organic?
- ❖ Lay out garden to place flower or shrub beds around the visible perimeter. This helps to promote good will with non-gardening neighbors, passersby, and municipal authorities.

Organize the garden

- ❖ Are there conditions for membership (residence, dues, agreement with rules)?
- ❖ How will plots be assigned (by family size, by residency, by need, by group-- i.e., youth, elderly, etc.)?
- ❖ How large should plots be (or should there be several sizes based on family size or other factors)?
- ❖ How should plots be laid out?
- ❖ If the group charges dues, how will the money be used? What services, if any, will be provided to gardeners in return?
- ❖ Will the group do certain things cooperatively (such as turning in soil in the spring, planting cover crops, or composting)?
- ❖ When someone leaves a plot, how will the next tenant be chosen?
- ❖ How will the group deal with possible vandalism?
- ❖ Will there be a children's plot?
- ❖ Will the gardeners meet regularly? If so, how often and for what purposes?
- ❖ Will gardeners share tools, hoses, and other such items?
- ❖ How will minimum maintenance (especially weeding) be handled both inside plots and in common areas (such as along fences, in flower beds, and in sitting areas)?
- ❖ Will there be a set of written rules which gardeners are expected to uphold? If so, how will they be enforced?
- ❖ Should your group incorporate and consider eventually owning your garden site?

Insurance

It is becoming increasingly difficult to obtain leases from landowners without liability insurance. Garden insurance is a new thing for many insurance carriers and their underwriters are reluctant to cover community gardens. It helps if you know what you want before you start talking to agents. Two tips: you should probably be working with an agent from a firm which deals with many different

carriers (so you can get the best policy for your needs) and you will probably have better success with someone local who has already done this type of policy or one that works with social service agencies in the area.

Setting up a new gardening organization

Many garden groups are organized very informally and operate successfully. Leaders “rise to the occasion” to propose ideas and carry out tasks. However, as the workload expands, many groups choose a more formal structure for their organization.

A structured program is a means to an end. It is a conscious, planned effort to create a system so that each person can participate fully and the group can perform effectively. It’s vital that the leadership be responsive to the members. Structure will help an organization to last; it will promote trust; it will help your group grow and create new opportunities for leaders to develop.

If your group is new, have several planning meetings to discuss your program and organization. Try out suggestions raised at these meetings and after a few months of operation, you’ll be in a better position to develop bylaws or organizational guidelines. A community garden project should be kept simple as possible, whether large or small.

Bylaws are rules that govern the internal affairs of an organization: they are officially recorded by the State or Province in which your organization resides. They are required when you form a nonprofit corporation, but are useful even if your group is a club or a group of neighbors. Many battles are won simply because one side has more pieces of paper to wave than the other. It’s helpful to look over bylaws from other similar organizations if you are incorporating. Guidelines and Rules (see TROUBLESHOOTING for examples) are less formal than Bylaws, and are often adequate enough for a garden group that has no intention of incorporating.

Organizational Considerations:

- ❖ What is your purpose? What are your short and long-term objectives?
- ❖ How are decisions to be made? Who chooses leaders and how?
- ❖ How will work be shared? Who does what?
- ❖ How will you raise money? Membership dues, fund raising, grants, sponsors?
- ❖ Are you open to change? Flexibility is important when goals and members change. Do you want to be incorporated or act as a club?

What goes into formal Bylaws:

- ❖ Full official name of organization and legal address.
- ❖ Organizing members, names and addresses.
- ❖ The (brief description of the) purpose, goals and philosophy of the organization.
- ❖ Membership categories and eligibility requirements.

- ❖ Membership dues, how much and when paid.
- ❖ Specify when and how often regular or special meetings of the membership are to be held, as well as regular and annual meetings of the board of directors.
- ❖ State what officers are necessary, how they are chosen, length of term, their duties and how vacancies are filled.
- ❖ Organizational dissolution processes

- ❖ State special committees, their purpose and how they operate.
- ❖ Establish a system so that bylaws can be rescinded or amended, maybe by a simple majority. State any official policies or practices: e.g.. garden group will avoid the use of hazardous substances; group will agree to keep all adjacent sidewalks in good repair and free of ice and snow in season; group will make all repairs necessary to keep equipment, fences and furniture in good order and repair.
- ❖ Include a Hold Harmless clause (sample):

“We the undersigned members of the (name) garden group hereby agree to hold harmless (name owner) from and against any damage, loss, liability, claim, demand, suit, cost and expense directly or indirectly resulting from, arising out of or in connection with the use of the (name) garden by the garden group, its successors, assigns, employees, agents and invites.”

For more information about whether to incorporate as a non-profit organization (a state function) or to get tax deductible charitable (501(c)3) status (a federal IRS function), go to:
www.tgci.com/magazine/96summer/tobe1.asp
www.nolo.com/article.cfm

How to manage your community garden

In order to offer a high quality community garden program, good management techniques are essential. Included in this fact sheet are the main ideas to consider in management, along with many different ways to carry them out.

Having written rules is very important with older groups as well as new gardens, since they spell out exactly what is expected of a gardener. They also make it much easier to deal with challenges as they arise.

Sample Guidelines and Rules

Some may be more relevant to vegetable gardens than to community flower gardens or parks. Pick and choose what best fits your situation.

- ❖ I will pay a fee of \$___ to help cover garden expenses.
- ❖ I will have something planted in the garden by (date) and keep it planted all summer long.
- ❖ If I must abandon my plot for any reason, I will notify the garden leadership.
- ❖ I will keep weeds at a minimum and maintain the areas immediately surrounding my plot if any.
- ❖ If my plot becomes unkempt, I understand I will be given 1 week’s notice to clean it up. At that time, it will be re-assigned or tilled in.
- ❖ I will keep trash and litter out of the plot, as well as from adjacent pathways and fences.
- ❖ I will participate in the fall cleanup of the garden.
- ❖ I will plant tall crops where they will not shade neighboring plots.
- ❖ I will pick only my own crops unless given permission by another plot user.
- ❖ I will not use fertilizers, insecticides or weed repellents that will in any way affect other plots.
- ❖ I agree to volunteer hours toward community gardening efforts.(include a list of volunteer tasks which your garden needs).
- ❖ I will not bring pets to the garden.

- ❖ I understand that neither the garden group nor owners of the land are responsible for my actions. I THEREFORE AGREE TO HOLD HARMLESS THE GARDEN GROUP AND OWNERS OF THE LAND FOR ANY LIABILITY, DAMAGE, LOSS OR CLAIM THAT OCCURS IN CONNECTION WITH USE OF THE GARDEN BY ME OR ANY OF MY GUESTS.

Application Forms

Application forms can include any of the following information:

Name(s)

Address Zip

Telephone number:

Days

Evenings

Site Preference:

1.

2.

3.

4.

Size of plot. (list choices available)

Season:

Year round (must be maintained all year)

Short season (include dates)

Check the appropriate items:

❖ I am a senior citizen

❖ I am physically disabled

❖ This is my first year at this garden

❖ I would like a garden next to a friend, Name

❖ I have gardened here before and would like plot # ___ if available

❖ I have gardened before at (where?); for how long?

Troubleshooting

Vandalism is a common fear among community gardeners. However, the fear tends to be much greater than the actual incidence. Try these proven methods to deter vandalism:

- ❖ Make a sign for the garden. Let people know to whom the garden belongs and that it is a neighborhood project.
- ❖ Fences can be of almost any material. They serve as much to mark possession of a property as to prevent entry, since nothing short of razor-wire and land mines will keep a determined vandal from getting in. Short picket fences or turkey wire will keep out dogs and honest people.
- ❖ Create a shady meeting area in the garden and spend time there.
- ❖ Invite everyone in the neighborhood to participate from the very beginning. Persons excluded from the garden are potential vandals.
- ❖ Involve the neighborhood children in learning gardens. They can be the garden's best protectors. (see below.)
- ❖ Plant raspberries, roses or other thorny plants along the fence as a barrier to fence climbers.
- ❖ Make friends with neighbors whose windows overlook the garden. Trade them flowers and vegetables for a protective eye.
- ❖ Harvest all ripe fruit and vegetables on a daily basis. Red tomatoes falling from the vines invite trouble.

- ❖ Plant potatoes, other root crops or a less popular vegetable such as kohlrabi along the side walk or fence.
- ❖ Plant the purple varieties of cauliflower and beans or the white eggplant to confuse a vandal.
- ❖ Plant a “vandal’s garden” at the entrance. Mark it with a sign: “If you must take food, please take it from here.”

Children’s Plots

- ❖ Children included in the garden process become champions of the cause rather than vandals of the garden. Therefore your garden may want to allocate some plots specifically for children. The “children’s garden” can help market your idea to local scout troops, day cares, foster grandparent programs, church groups, etc.
- ❖ Consider offering free small plots in the children’s garden to children whose parents already have a plot in the garden.

People Problems and Solutions

Angry neighbors and bad gardeners pose problems for a community garden. Usually the two are related. Neighbors complain to municipal governments about messy, unkempt gardens or rowdy behavior; most gardens can ill afford poor relations with neighbors, local politicians or potential sponsors. Therefore, choose bylaws carefully so you have procedures to follow when members fail to keep their plots clean and up to code. A well-organized garden with strong leadership and committed members can overcome almost any obstacle.

Resources

Horticultural information:

Cooperative Extension Service in your county

Garden Clubs

Horticultural Societies

Garden Centers

Seeds:

America the Beautiful Fund

725 15th St. NW, Suite 605, Dept. AG

Washington D.C. 20005

202-838-1649

Garden Centers and Hardware Stores

Bedding plants:

Local nurseries

Vocational-Tech Horticulture Department

High school Horticulture classes

Parks Department



Steps to Create a Community Garden or Expand Urban Agriculture

1. Survey the property and identify potential risks and contaminants for testing.

The types of contaminants you are likely to find depend on the history and use of the property. As a general rule at brownfields, environmental professionals look at the property history and previous uses to identify what environmental contaminants may be present for testing. They also look at nearby properties to see if their use may have created hazards that could affect neighboring areas.

You can do a similar search in your community. A librarian at your local public library may be able to help you locate historical property records, Sanborn or fire insurance maps and city directories that identify previous property uses or you may be able to find information on the internet. Sometimes looking at a property can provide visual cues to potential contamination. Soil staining, an oily sheen on puddles, visible tanks or piping, or piles of debris may suggest petroleum tanks or illegal dumping. If you suspect environmental contaminants, you may wish to select a different site for a potential garden.

Talk with your local officials and they may be able to help you select a safer site for gardening.

1B. Need help? Apply for Brownfields Assessment or Cleanup Grant.

After your investigations and discussions with your local town or city officials, if your community determines you want to garden at the proposed site, you may wish to work with local officials to apply for an EPA brownfield grant. That will provide money to your city or town to assess the property you selected as well as other potential properties to and/or to clean up the existing site you have chosen.

Only governmental entities are eligible for assessment grants. See the EPA Brownfields grants page for a definition of who is eligible to receive brownfields grants. A non-profit organization may apply for a grant to clean up a site they own, provided they are not liable for the contamination at the site and took certain steps, such as conducting a Phase I environmental site assessment prior to acquiring the property.

2. Test your soil. Consider likely environmental contaminants, pH, organic content, and soil nutrients needed for healthy plant growth.

Individuals establishing a community garden typically send samples to a soil extension service lab. The lab will generally test for pH, organic content and nitrogen (N), phosphorus (P), and potassium (K) and some also commonly test for lead. Some labs may do additional tests, such as a metal panel, but you will need to request them specifically and pay for specific additional tests. Check with your extension service to see what soil tests they provide or recommend. Individual state land grant universities and extension offices may have specific suggestions for sampling requirements, testing request forms and packaging recommendations for mailing soil samples so check with them first.

3. Clean contaminants and add soil amendments to create a safe growing environment.

If you have contaminants at a level that need cleanup, encourage your city or town or nonprofit organization to apply for a brownfield cleanup grant if they do not have cleanup funds. The state or

tribal response program can help and oversee the cleanup if the property is enrolled in their voluntary cleanup program or response program. You will need to explain your interest in turning the site into a garden and they will provide guidance on what levels of cleanup need to be met to ensure safe gardening. They may also recommend above-ground rather than in-ground gardening to reduce exposure to unsafe soils.

In those instances, your state or tribal response program or local city agency may recommend using a water permeable fabric cover or geotextile to reduce exposures to soils of concern. They may suggest you purchase and add topsoil or clean fill from 'certified soil sources' to ensure the soil is safe for handling by children or gardeners of all ages and for food production. One important point to remember – in the building and construction trades, the term 'clean fill' is used to mean materials was screened so no chunks of concrete or asphalt are in the material, it does not mean the soil is safe and healthy for gardening. If you need soil material to add in gardening areas, you are looking for certified soils and your environmental program will be able to direct you to providers of safe certified soils.

Alternatively, you may have such limited contamination that no cleanup is necessary. In those instances, adding safe compost, certified soils or soil amendments which you may have already planned to do before planting, can improve the soil quality and can help to further bind the contaminants.

4. Consider garden design including hours of sunlight and shade, access to water, location, types of crops, security and lighting, and accessibility.

If your site was capped, soils were removed or contamination remains at greater depths, you may only be able to grow plants with shallow root systems or may be required to bring in additional clean soil that you will need to test to make sure it's safe for growing.

In addition to the property specific environmental considerations, there are a number of other factors that need to be considered in garden design. These considerations include: access to sunlight and water; location and proximity to homes and other structures, lighting and security for gardeners, produce and tools, as well as accessibility. The Sustainable Sites Initiative focuses on creating sustainable landscapes using environmentally sustainable materials and can provide information on material selection.

5. Construct the garden to accommodate children, the elderly, and people of all abilities.

Raised beds, wider paths, and benches can all be used to create a more usable space.

Creating a garden to serve the entire community requires a number of additional considerations. Remember to design your garden entrance with paths and ramps that can accommodate children, senior citizens, and those with disabilities by:

- ❖ Creating pathways at least 3 feet wide between beds will allow space for wheelchairs while a 5 foot width permits a wheelchair turning radius while a 7 foot width allows two wheelchairs to pass.
- ❖ Learn more about access requirements on the Access Board's website (www.access-board.gov)
- ❖ Adjusting the height and depth of raised beds to facilitate access for gardeners with

restricted movement or issues of balance.

- ❖ Path materials should be firm and smooth with a texture that minimizes slipping. Minimize changes in the slope and grade of paths, where possible.
- ❖ Providing benches or picnic tables provide areas for gardeners to safely sit – preferably in the shade!
- ❖ Gardening is a favorite hobby of people of all ages, including many retirees. By 2030, 1 out of 5 Americans will be age 65 or over. Consider ways you can make your garden accommodate their needs. By contrast, children under six may like a sandbox to play in, a shady spot or their own growing area in a safe location where parents and grandparents can supervise. Let the children help design their garden spot.
- ❖ Horticultural therapy uses gardens and growing plants to heal and encourage activity for those of all abilities.

6. Plant a safe and enjoyable garden and enjoy your growing community.

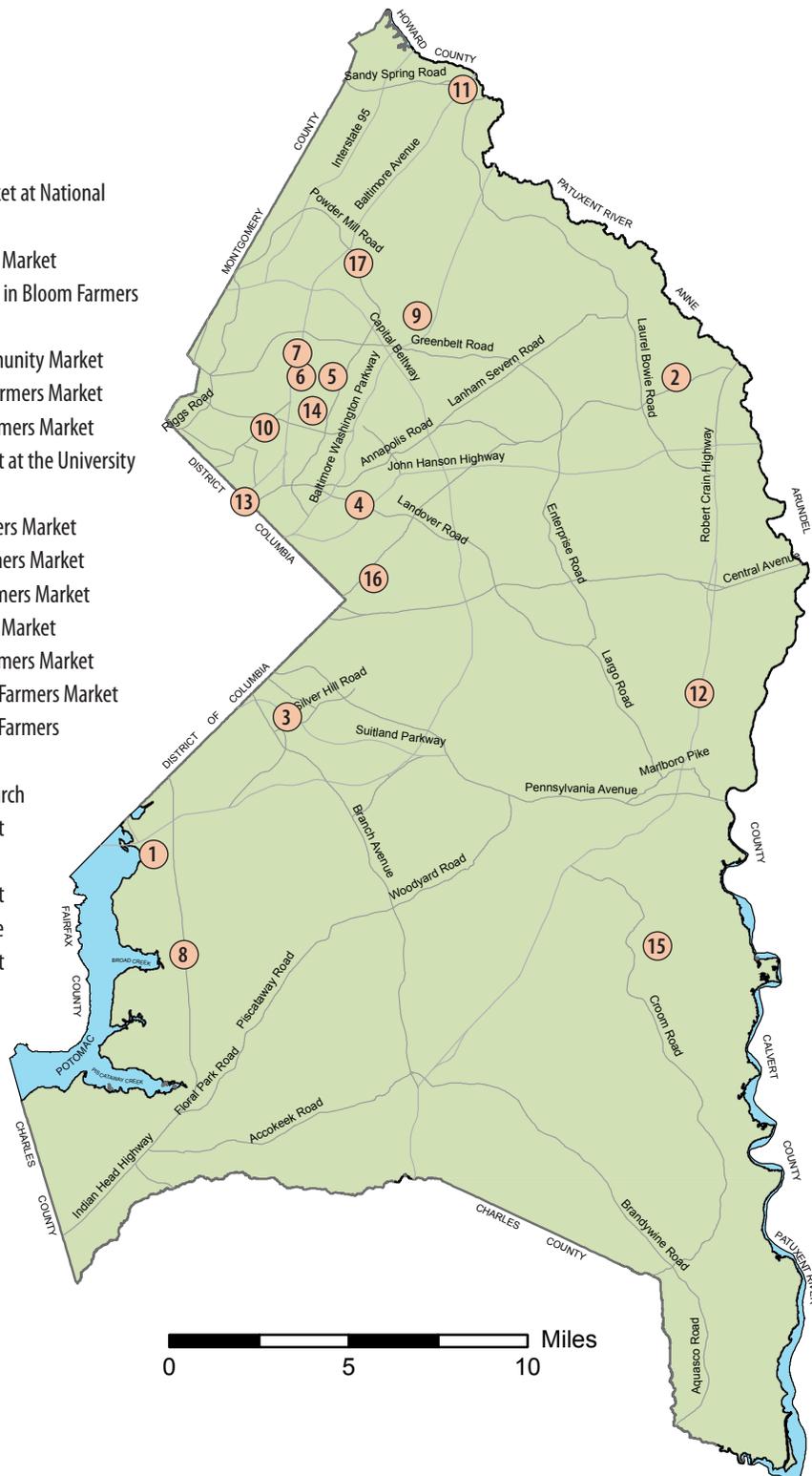
Appendix H

2012 Prince George's County Farmers Markets

<p>American Market at National Harbor American Way (Waterfront & Fleet Sts.), Oxon Hill 301-910-8076 (Phyllicia Hatton) www.americanmarketnh.com 10 am-4 pm, Saturdays, May 26-October 27</p>	<p>Bowie Farmers Market Bowie H.S. Parking Lot, 15200 Annapolis Rd. 301-809-3078 (Matt Corley) 8 am-noon, Sundays, May 20-October 28 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Branch Avenue in Bloom Farmers Market Iverson Mall Parking Lot, 3737 Branch Avenue 301-403-8300 (Dion Gray) 9am-2pm, Saturdays, April 14-November 17 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>
<p>Cheverly Community Market 6401 Forest Road www.cheverlycommunitymarket.com 202-297-1016 (Liz O'Leary) 8 am-noon, Every other Saturday, May 19-October 20 Holiday Markets: 9am-1 pm, Nov. 17th & Dec. 8th <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>College Park Farmers Market 5211 Paint Branch Parkway (Wells-Linson swimming pool parking lot) 301-399-5485 (Phil Miller) 7 am-noon, Saturdays, May 5-November 17 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Downtown Farmers Market 4500 Knox Road, College Park 301-399-0168 (Brad Miller) 9 am-2 pm, Sundays, April 1- November 15 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>
<p>The Farmers Market at Univ. of Maryland Front entrance to Cole Field House 301-226-4457 (Robert Schubert) Noon-4pm, Wednesdays, May 2-November 14 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Freedom Farmers Market 10905 Livingston Road, Fort Washington 301-203-0619 (Amina Jones-Law) 2pm-7pm, Wednesdays, May 9-October 31 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Greenbelt Farmers Market Greenbelt Aquatic & Fitness Ctr., 101 Center Way www.greenbeltfarmersmarket.org 10 am-2 pm, Sundays, May 13-November 18 Holiday Market: December 16 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>
<p>Hyattsville Farmers Market 3505 Hamilton Street 301-627-0977 (Peggy Campanella) 2 pm-6 pm, Tuesdays, June 12-October 23 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Laurel Farmers Market 378 Main Street 301-483-0838 (Gail Reinhardt) 9 am-4 pm, Thursdays, June 7-October 25 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Montpelier Farmers Market 1720 North Crain Highway, Upper Marlboro 410-320-0464 (Shelby Watson) 9am-1pm, 1st & 3rd Saturdays: June2- August 18 9am-1pm, Every Saturday: September 1- October 27 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>
<p>Mount Rainier Farmers Market One Municipal Place (next to City Hall) info@mountrainierfarmersmarket.com 10 am-2 pm, Saturdays, May 5- October 27 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>Riverdale Park Farmers Market Queensbury Road (MARC station parking lot) 301-332-6258 (Jim Coleman) 3 pm-7 pm, Thursdays, April 14-November 17 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>	<p>St. Thomas Church Farmers Market 14300 St. Thomas Church Road, Upper Marlboro 301-627-8469 (Jeff Colburn) www.stthomasroom.edow.org/bounty.shtml 8 am-12 pm, Saturdays, June 2-September 29 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>
<p>Seat Pleasant Farmers Market 6009 Addison Road (at Eads Street) 301-324-2470 (Koko Barnes) 4pm-7pm, Thursdays, August 2-October 25</p>	<p>SOURCE: University of Maryland Extension Prince George's County</p>	<p>USDA (Beltsville) Farmers Market 5601 Sunnyside Ave. (Parking Lot B) 301-504-1776 (Carletha McGriff) 10 am-2 pm, Thursdays, April 26-October 25 <i>FMNP Checks (WIC & Senior) & FVC Accepted</i></p>

MAP 6: FARMERS MARKETS

1. American Market at National Harbor
2. Bowie Farmers Market
3. Branch Avenue in Bloom Farmers Market
4. Cheverly Community Market
5. College Park Farmers Market
6. Downtown Farmers Market
7. Farmers Market at the University of Maryland
8. Freedom Farmers Market
9. Greenbelt Farmers Market
10. Hyattsville Farmers Market
11. Laurel Farmers Market
12. Montpelier Farmers Market
13. Mount Rainier Farmers Market
14. Riverdale Park Farmers Market
15. St. Thomas Church Farmers Market
16. Seat Pleasant Farmers Market
17. USDA-Beltsville Farmers Market



Appendix I



Maryland Department of Agriculture

Agriculture | Maryland's Leading Industry

Office of Marketing, Animal Industries & Consumer Services

Martin O'Malley, Governor

Anthony G. Brown, Lt. Governor

Earl F. Hance, Secretary

Mary Ellen Setting, Deputy Secretary

The Wayne A. Cawley, Jr. Building

50 Harry S. Truman Parkway

Annapolis, Maryland 21401

Internet: www.mda.state.md.us

410.841.5700 Baltimore/Washington

301.261.8106 Washington, D.C.

410.841.5914 Fax

800.492.5590 Toll Free

STARTING A NEW FARMERS' MARKET IN MARYLAND

Most important considerations:

- What is the purpose of the farmers' market? Does it fill a need in the community?
- Is there an established market nearby the new market location? Check www.marylandsbest.net to see what markets are already in the area.
- Is there enough demand in the neighborhood to sustain a(nother) farmers' market?
- Will someone be dedicated to continuing, managing, and growing the market after it has been started?

Further considerations:

Marketing and Operational Plan

- a. What type of legal entity will the market be? A nonprofit, part of a sponsoring agency, none of the above?
 - i. Will the market need a bank account?
- b. Who will sponsor the market?
 - i. Is there a local nonprofit that might be interested?
 - ii. Are there community organizations whose mission would dovetail with hosting a farmers' market?
- c. Who will organize the market?
 - i. The market should have one main point of contact to coordinate with state, county, and local agencies.
- d. Who will recruit the farmers?
 - i. For farmer listings, check the Maryland's Best program site: www.marylandsbest.net which lists farmers and markets so that whoever is recruiting vendors can see what vendors are already selling in the area of the new market and might want to add markets to their schedule.
- e. What is the proposed day of operation? Hours? Season?
 - i. Is this most convenient for those who will be shopping at market?
 - ii. Is there a local senior center or WIC clinic that might be issuing Farmers' Market Nutrition Program checks to be used at market at certain times?
- f. Who will make the rules? Will the market be producer only*?
 - i. How will the rules be enforced?
 - ii. Will there be a vendor agreement?
- g. Will there be a Market Master dealing with issues that arise on market day?
 - i. Who will be responsible for placing traffic cones around the perimeter of the market? Handling trash? Putting up, taking down, and storing signs, banners or tents and tables?



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- ii. Will the Market Master be paid? A volunteer? A vendor? Consider the issues associated with the arrangement chosen.
 - h. Who will market the Market?
 - i. How will the market attract customers?
 - i. Who will handle publicity?
 - j. Who will bear the cost of advertising?
 - k. Who will handle the finances for the market? (Insurance costs, bank account, shared costs of advertising, financial management, etc.)
- II. Demographics
 - a. Where will the customers come from?
 - b. Are there office buildings or other employment clusters close to the site? How many, number of workers, distance?
 - c. How many daily customers per vendor are you anticipating?
 - i. Will these customers provide enough sales for vendors to want to participate week after week?
 - d. Are there any significant cultural or ethnic factors that should be considered?
 - e. What type of vendor mix do you plan to have?
 - i. Does this match what your customers want to buy at market?
 - f. Will any of your customers be eligible for federal nutrition program benefits? Will they want to be able to use these benefits at market?*
- III. Proposed Location
 - a. Is the market site visible from well traveled roads and streets?
 - b. Is the site served by public transportation?
 - i. Does public transportation run when the market is open?
 - c. Who owns the property on which the market would be located?
 - i. Is a lease or rental agreement needed?
 - ii. Will there be rent to pay for the site?
 - d. Will the location be available for the foreseeable future?
 - e. Is a Farmers' Market an acceptable use for the property under county zoning laws?
 - f. Are any permits or licenses required?
 - i. For the market and/or the vendors?
 - ii. See www.blis.state.md.us and the forthcoming MDA document on regulations, as well as contact county governments and health departments.)
 - g. If the market is located in a commercial area (Main Street, Shopping Center), will it be welcomed by existing businesses or seen as competition?
 - i. Is parking available?
 - h. Are there other Farmers' Markets nearby?
 - i. Within a 5-mile radius?



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- ii. Check www.marylandsbest.net to see what markets already exist.
- i. Are there other outlets for produce and the other products you plan to offer in the area?
 - i. Roadside/farm stands?
 - ii. Grocery stores?
- j. Are there local senior centers or WIC (Women, Infants & Children) clinics that might be issuing Farmers' Market Nutrition Program checks nearby?
 - i. Find a list of Maryland senior centers here: <http://www.mdoa.state.md.us/seniorcenterslist.htm>
 - ii. Find a list of WIC county points of contact here: http://fha.maryland.gov/wic/wic_apply.cfm
- k. Can a sign(s) be legally set up at the market location? Just for market day or for the entire season?
- l. Will the market have dedicated free parking for customers?
 - i. If so, how many spaces?
 - ii. Is this enough for your estimated number of customers during the market hours?
- m. Will vendors and/or customers have access to restrooms close by?
- n. Can vehicular traffic in the actual market area be securely controlled during market hours?
- o. Does the site offer weather protection (under cover, shade trees, buildings to cut wind)?

* *Producer Only*: Vendors only sell agricultural or food items that they themselves have grown or produced. Purchased products such as wholesale or re-sale may not be sold.

** See the MDA resource "Federal Nutrition Programs at Maryland Farmers' Markets"

Other sources of information:

County and regional Agricultural Marketing Professionals

County Extension educators

County departments of economic development, health, and planning and zoning

On-line references for more information about starting a farmers' market:

www.blis.state.md.us (information on permits and licenses)

<http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3022129>

<http://www.wallacecenter.org/our-work/current-initiatives/national-farmers-market-network>

<http://www.farmersmarketcoalition.org/resources/>

<http://edis.ifas.ufl.edu/FY639>

www.newfarm.org/features/2006/0206/frmmrkt/king.shtml

www.wvu.edu/~agexten/farmman2/managers.htm



Maryland Department of Agriculture

Agriculture | Maryland's Leading Industry

Office of Marketing, Animal Industries & Consumer Services

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Example: Frederick County (other locations may differ)

If the location is on private property, it needs site plan approval from the county's Department of Planning and Development Review. If the location is already an existing business and is looking to allow for a farmer's market on the property, then it would be a staff level review, since there is already an approved site plan on the books with the county. However, you would still need to get approval from the county to add this additional business entity on the property (since the initial site plan was not approved to allow for a farmers' market)

If this is on Residential or Agricultural Zoned land, that is more complicated and would probably need a clarification from the County Zoning Administrator.

If this is on Public Property (owned by a town, a county, a state or federal government), the site plan would not be needed and as far as I know there would not be any licenses needed to start the market.

As far as Health Department, there is no health department license to my knowledge in Frederick County. If the market wants to be certified by MDA to allow for FMNP WIC and Senior checks, the market has to be established for more than one year, the majority (50% or more) of the vendors must be food sellers and the market has to be inspected by MDA.

I would make sure you had guarantees from farmers in the area that they will sell at your market if you start up a market. That is the most difficult thing to do. There are very few farmers in the area that sell to the public, and the ones that do are committed to several markets now.

Colby Ferguson

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Glossary

Aeroponics: Growing plants in an air or mist environment without soil.

Anaerobic digester: Biogas recovery system in which micro-organisms break down biodegradable material in the absence of oxygen.

Apiary: A place where beehives and honey bees are kept for their honey.

Aquaponics: A method of growing plants and fish together in a re-circulating system.

Biodiversity: The variability among living organisms from all sources (land, sea, fresh water) and the ecological complexes of which they form a part. Thus biological diversity includes diversity within and between species, and diversity of ecosystems. This includes natural and cultivated species, varieties, and ecosystems.

Biofuel: A fuel such as ethanol produced from renewable biological resources such as plant biomass and treated municipal and industrial waste.

Bioponics: A hybrid method of two distinctive growing techniques—hydroponics and organic farming—to grow crops using nutrients that are acceptable in a certified organic crop program within a hydroponics system.

Brownfield: Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. The 2002 Brownfields Law further defines the term to include a site that is: "contaminated by a controlled substance; contaminated by petroleum or a petroleum product excluded from the definition of 'hazardous substance'; or mine-scarred land."

Community food security: A condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice.

Community Supported Agriculture (CSA): A community of individuals who pledge to support a farm, with growers and consumers sharing the risk and benefits of food production. CSA members pay in advance for a share of the anticipated harvest and receive weekly shares throughout the growing season.

Compost: A dark, crumbly, and earthy smelling form of decomposing organic matter.

Compost tea: A liquid extract of compost created by a process to increase its beneficial organisms as an organic approach to plant/soil care.

Composting: The biodecomposition of organic material, such as animal waste, plant residue or sludge, in the presence of air, by controlled methods including mechanical mixing and aerating.

Ecosystems: A functional system which includes the organisms of a natural community together with their environment.

Food desert: An area with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower income neighborhoods and communities.

Food miles: The distance food is transported from the time of its production until it reaches the consumer.

Food safety: The fitness of a food for human consumption.

Food security: Access by all people, at all times to sufficient food for an active and healthy life.

Food sovereignty: Having the right to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and the right to define one's own food and agriculture systems.

Food system: The chain of activities connecting food production, processing, distribution and access, consumption, and waste management, as well as all the associated supporting and regulatory institutions and activities.

Food system planning: A comprehensive future-oriented approach to maintaining and improving the global to local network that nourishes people.

Forest garden: Carefully designed, sustainable, low-maintenance food production systems based on woodland ecology. A forest garden is created by using a companion planting method.

Geothermal energy: Thermal energy generated and stored in the Earth. Resources of geothermal energy range from the shallow ground to hot water and hot rock found a few miles beneath the Earth's surface.

Gleaning: Collecting leftover crops for the needy from farmers' fields after they have been commercially harvested or from fields where it is not economically profitable to harvest.

Greywater: Relatively clean wastewater generated from kitchen, lavatory, shower, and laundry that can be used for irrigation. Greywater does not include wastewater from toilets, which is referred to as blackwater.

Hoop house: A greenhouse type structure made of ribs of plastic or metal piping covered with plastic sheeting.

Hydroponics: The growing of plants in a soilless environment where nutrients are provided by the application of nutrient solutions.

Land bank: A governmental entity that takes title to tax-delinquent property, secures the property, and transfers it back to private ownership with a clear title, so that the property can be put to productive (and tax-paying) use.

Peri-urban farms: Farms located in the periphery of an urban area that grow vegetables and other horticulture using intensive methods, raise chickens and other livestock, and produce milk and eggs.

Permaculture: An ecological design system for sustainability and self-maintained agricultural systems modeled on natural ecosystems.

Rain barrel: A barrel used as a cistern to hold rainwater.

SPIN Farming or Small Plot Intensive Farming: A non-technical, easy-to-learn, and inexpensive-to-implement vegetable farming system that makes it possible to earn significant income from land bases under an acre in size. It emphasizes the business aspects and provides a financial and management framework for having the business drive the agriculture, rather than the other way around.

Vermicomposting: The process of composting by utilizing various species of worms, usually red wigglers, to create worm castings, the end-product of the breakdown of organic matter.

Vertical farm: A multistory building designed to accommodate the cultivation of plants and raising of animals.

Worm castings: The organic material that has been digested by worms.

Acknowledgments

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*Agriculture has been amongst
the most favorite amusements
of my life.—George Washington*