

**MEMORANDUM**

TO: Mayor's Urban Agriculture Working Group

FROM: Tad Read, Senior Planner  
Caitlin Cameron, Intern, MIT Department of Urban Studies and Planning  
Tori Okner, Intern, Tufts Fletcher School of Law & Diplomacy, Friedman School of Nutrition Science Policy

SUBJECT: Background Research and Preliminary Recommendations for **Module 1: Soil Safety, Pesticides and Composting**

DATE: January 29, 2012

This is the first in a series of memoranda related to the BRA's Citywide Urban Agriculture Rezoning Initiative. Each memorandum represents a "module" addressing a particular set of topics. The 6 modules include:

1. **Soil safety, pesticides and fertilizers, and composting**
2. Growing of produce, greenhouses, hoopouses and other structures
3. Roof top agriculture
4. Aquaponics and aquaculture
5. Keeping of animals and bees
6. Farmers markets, farm stands and sales

Each memorandum begins with a summary of any relevant City, State and/or Federal regulations around the module topics. Next, a brief summary is provided of the existing and emerging regulatory framework (especially zoning) in other U.S. cities related to module topics. Based on this background research, lessons learned in other cities are summarized. Finally, based on the foregoing, preliminary recommendations for zoning in the City of Boston are offered. These recommendations are intended as a *starting point* for discussion by the Task Force and ultimately by the community.

**Existing Regulations**

***Boston Zoning Code***

The Boston Zoning Code does not currently address soil safety, pesticides or composting in any way.

**Soil Safety: Other City, State and/or Federal Regulations**

*City Regulation:* The City does not regulate soil safety.

*Federal Regulation:* US Food and Drug Administration (FDA) and the US Department of Agriculture (USDA) regulate certain elements of food safety and material application in food production areas, such as biosolids or sewage sludge application on farmed land, but neither FDA nor USDA have standards that regulate the quality of soil as a growing medium. No hard

and fast rules for agricultural soils exist on the federal level. Most states set guidelines for soil cleanup with risk-based standards based on anticipated reuse of the property.<sup>1</sup>

The EPA has industry standards for identifying potential environmental concerns according to previous uses of the property – Phase I Environmental Site Assessments (ASTM 1520) and All Appropriate Inquiry (ASTM 312). Note that these are industry *standards* for testing and not *requirements* for testing soil safety.<sup>2</sup> Environmental Site Assessments are generally triggered by physical development of property whereby existing soil will be disturbed; or by a proposed use or activity for a site (such as a public park) that could cause persons to be exposed to the soil.

*Existing Guidelines:* While there are no federal, state or local *regulations* governing the safe soil methods for growing produce for personal use or sale, the topic of soil safety in urban agriculture has been getting increased attention as urban agriculture becomes more prevalent. Recently the EPA issued guidelines regarding safe soil practices which are described below.

Most soil on urban properties is thought to be contaminated with lead and possibly other contaminants. This is the legacy of the days of leaded gasoline and lead-based paint. Airborne lead from automobiles and lead from lead based paint can remain in the soil long periods of time and, when ingested in large enough amounts, can have extremely deleterious effects, particularly on young children.

Removal of all the potentially contaminated soil on a property can be prohibitively expensive. However, there is another method of ensuring soil safety which is equally safe and far more cost effective. This method involves the placement of a protective membrane, or geotextile, over the surface of the property. The geotextile allows water to pass down through it but does not allow the roots of the plants to reach any contaminated soil. Once the geotextile is securely in place, several inches (usually between 12 and 18 inches) of clean soil are placed over the geotextile. Plants are then grown in this clean soil. The soil is regularly tested to ensure that it remains safe.

The U.S. Environmental Protection Agency recently released a report called, “Brownfields and Urban Agriculture: Interim Guidelines for Safe Gardening Practices – Summer 2011” which endorses the soil safety practice described above. The report notes that remediating existing soil is unnecessary and be cost prohibitive:

Digging away the contaminated soil and disposing it in a landfill is the most effective technique for removing contaminants but can discard valuable topsoil. This is also the most expensive method...(it) can be cost-prohibitive to a non-profit gardener or community group. In-situ or on site remediation techniques or biological strategies may

---

<sup>1</sup> *Brownfields and Urban Agriculture: Interim Guidelines for Safe Gardening Practices – Summer 2011*, Environmental Protection Agency

<sup>2</sup> *Brownfields and Urban Agriculture: Interim Guidelines for Safe Gardening Practices – Summer 2011*, Environmental Protection Agency

take multiple growing seasons or multiple applications, costly monitoring, and maintenance.<sup>3</sup>

The EPA report endorses the use of raised bed methods outlined above as the “Best Practice” for growing fruits and vegetables for consumption in Brownfield sites: “Many non-remedial options exist for sites with low levels of contamination, or sites with contamination exposure risks which can be controlled by planting above ground, including installing raised beds . . . ”<sup>4</sup>

### **Pesticide and Fertilizer Use:**

*City Regulation:* The City of Boston does not regulate pesticide use. The only instance in which it may control use of pesticides is on its own property. Even then, City regulations cannot be less restrictive than State regulations. Landowners can dictate pesticide use as they see fit. This is true for all landowners so long as any permitted pesticide use is consistent with Massachusetts General Law (MGL). For example, a private landowner cannot authorize the use of a pesticide that is prohibited by the State.<sup>5</sup>

*State Regulation:* All pesticide use, whether small scale, such as an individual with a backyard garden, or a large corporate exterminator, is regulated at the state level by the Massachusetts Department of Agricultural Resources. There is “exclusivity at the state level,”<sup>6</sup> which means that the State has the first and final say in regulating pesticides. No local authority, town, or City, can write more rigorous or lax regulations. Cities and towns have tried to petition for “home rule” unsuccessfully in the past (See *Wendell v the Commonwealth*).

Accordingly, the City of Boston cannot regulate the use of pesticides other than to recognize and enforce State law. To reiterate, a City or town may establish stipulations regarding pesticide use for its own property as part of a property use agreement, but it may not regulate pesticide use generally; this is the purview of the State.

### **Composting:**

*City Regulation:* Backyard and agricultural composting are exempt from the Boston Public Health Commission Regulations for Waste Container Lot, Junk Yard, and Recycling Facilities.

A *Site Cleanliness License* is required of all Boston businesses and residences with a bulk refuse container. This license is administered by the Inspectional Services Department and enforced by the Environmental Sanitation Division of Boston Inspectional Services and Code Enforcement Police.<sup>7</sup>

---

<sup>3</sup> *Brownfields and Urban Agriculture: Interim Guidelines for Safe Gardening Practices – Summer 2011*, Environmental Protection Agency

<sup>4</sup> *Brownfields and Urban Agriculture: Interim Guidelines for Safe Gardening Practices – Summer 2011*, Environmental Protection Agency

<sup>5</sup> Steve Kenyon, Massachusetts Department of Agricultural Resources

<sup>6</sup> Direct quote from Steve Kenyon.

<sup>7</sup> <http://www.cityofboston.gov/isd/esan/sc.asp>

Application requirements include:

- 1) A site plan indicating the location of the dumpster and its proximity to abutting properties or public ways
- 2) The location of any required fencing or screening
- 3) A maintenance plan and schedule
- 4) A solid waste proposal plan including a copy of the solid waste disposal contract
- 5) If dumpster is on a public way, a license from Department of Public Works is required

For residential, backyard composting, the City of Boston provides composting bins at subsidized rates at the Boston Building Materials Co-op. The Inspectional Services Department (ISD) enforces nuisance complaints and will cite infractions for composting activity which causes nuisance issues such as rodents.<sup>8</sup>

*State Regulation:* Under MassDEP, Backyard and Agricultural Waste composting operations and activities are exempt from the site assignment process provided the operation incorporates good management practice, is carried out in a manner that prevents an unpermitted discharge of pollutants to air, water or other natural resources of the Commonwealth, and results in no public nuisance.

If Agricultural Units (e.g. farms, nurseries) intend to compost organic materials other than those generated on their own farms, they must register their composting operation with the Massachusetts Department of Food and Agriculture (MDAR) Agricultural Composting Program. MDAR's program encourages and supports composting on farms by providing technical assistance as well as an Agricultural Composting Registration process (which allows for the exemption from the MassDEP site assignment process). Under the MDAR Agricultural Composting Program, only agricultural wastes and other approved materials may be composted. The applicant agrees to comply with MDAR's Agricultural Compost Guidelines.

### **Research from Other Cities**

#### *Soil Safety:*

Some cities require raised-bed gardening on suspected Brownfield sites but rarely specify particular techniques, materials, and procedures. In some cases, local governments have expressed reluctance to even attempt such programs, due to food-safety and liability concerns.<sup>9</sup> Generally, cities will rely on state and federal regulations and refer applicants to testing protocols and services provided by local universities and extensions.

Baltimore's Draft Ordinance (as of September 2011) requires soil testing as an alternative to raised beds and the test results must be presented along with remediation strategies in order to obtain a use permit. Milwaukee requires raised bed construction with a minimum soil depth of 12 inches. Baltimore neither conducts nor permits soil testing on city-owned land.

---

<sup>8</sup> <http://www.cityofboston.gov/publicworks/RecyclingandSanitation/composting.asp>

<sup>9</sup> *Urban Agriculture: Growing Healthy, Sustainable Places*, American Planning Association, 79

Amherst, for Farmland Conservation Districts, requires an application and site plan. Upon notification by the permit granting board, the Farm Committee assembles an expert panel consisting of professional agronomists, soils scientists and other qualified professionals to evaluate and report on the suitability of soils including but not limited to the historical uses thereof, and the overall agricultural viability of the farm property, consistent with the purposes of the bylaw. It should be noted, however, that Amherst does not have requirements specifically for urban agriculture.

In Seattle, if a proposed farm is over 4,000 square feet, a Management Plan is required which is reviewed and approved by a city planner. The intention of the Management Plan is to consider the potential impacts and mitigation required for soil disturbing activity, use of agricultural chemicals, and noise and odor generating activities.

The Kansas City Brownfields Initiative commented on the City's urban agriculture ordinance regarding soil contamination: "The urban agriculture ordinance operates independently of the Brownfields program. The ordinance does not require assessment. It only relates to the permissible land uses. While current gardening on untested sites is a concern, virtually all gardens are on residential lots and years of results testing urban soils for our other Brownfield projects found little if any impacts that pose a serious risk."<sup>10</sup>

Minneapolis determines site suitability based on previous use. For example, known Brownfields are documented in a city database. Because urban agriculture projects are reviewed on a case by case basis as a Conditional Use (either through Administrative Review or the Board of Adjustments), City Planners are able to review the proposed site and determine the appropriateness of the site for farming for public consumption. The property owner is responsible for soil testing and it is not required as part of the ordinance.<sup>11</sup>

*Pesticides and Fertilizers:*

Pesticide and fertilizer use is rarely mentioned in zoning codes and ordinances. If pesticides are mentioned, it is typically to stipulate that their use is subject to state and federal regulation.

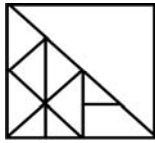
However, some cities regulate the possible runoff of pesticides onto adjacent properties. For example, in Kansas City, the site must be maintained so that chemicals do not drain onto adjacent property.

In both Seattle's Ordinance and Baltimore's Draft Ordinance (as of September 2011), urban agriculture uses must prepare a management plan that addresses how any activities will affect neighboring properties and natural systems. The management plan must list intended uses of agricultural chemicals. In the case of Seattle, this plan is reviewed by a city planner.

---

<sup>10</sup> Andrew Bracker, Brownfields Coordinator, Department of City Planning and Development, Kansas City, Missouri

<sup>11</sup> Doug Kress, Former Policy Aide, City of Minneapolis



*Composting:*

Compost is almost universally allowed as part of urban agriculture. In some cases, cities or states will stipulate the kinds of materials that may be composted on-site. The issues of sight, smell, runoff and pests are typically addressed through the requirement of a management plan or through language in the code that permits composting that does not create nuisances.

In Cleveland, both compost bins and composting toilets are allowed. Compost may not be offered for sale unless the underlying zoning is commercial.

In Baltimore, compost is listed as an activity that must have a management plan (as with pesticides).

In San Francisco, there is a compost setback of 3 feet from dwelling units or decks.

**Matrix Summarizing Requirements in Selected Cities**

See Attachment.

**Lessons Learned**

*Soil Safety:*

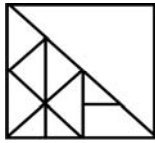
The issue of how to address very real soil safety concerns is an emerging area of inquiry. Most urban sites are widely believed contain unacceptable levels of contamination from heavy metals. Although cities are not able to take on the often prohibitive cost associated with soil testing and remediation, the health, safety and welfare of the community is of concern. Therefore, it is believed that the most practical and prudent recourse for zoning purposes is to prohibit the use of existing soil and to recommend physical separation from the existing soil with raised bed construction.

Existing Farming Practices: Soil is a major issue in Chicago, since most of the land in the city has been contaminated. Rather than building grow boxes to combat the problem, City Farm lays down a layer of clay soil (to adsorb contaminants and keep them from moving upward), then layers their good garden soil on top of that. The Food Project in Boston tests soil once a year to at the UMass Extension services. Lead levels continue to remain low. They use raised beds without frames with 2 feet of soil depth. In their new property, they have laid out geotextile to separate the new soil from the existing. Food Project sources their soil from several regional businesses.

*Pesticides, Fertilizers and Composting:*

Often with issues of pesticide, fertilizer, and compost use, state and federal organizations take the lead. It is therefore important to understand these regulations and craft definitions and ordinances that do not conflict with them. This is especially the case for pesticide use. The use of definitions in the zoning code could help clarify how compost will be permitted to be used in this urban setting.

Care must be taken to avoid language that is too specific so as to not be too prohibitive. In the case of soil safety, pesticides and compost, it is the public safety that is the primary concern.



Therefore, recommendations should be based on maintaining public welfare without dictating operating procedures to farmers.

### **Preliminary Recommendations for Boston**

Based on the foregoing, the following is a set of preliminary recommendations for the City of Boston *for consideration and discussion*. A key topic of discussion will be how new soil safety and pesticide requirements would be implemented and monitored.

#### Definitions:

*Pesticide:* Any chemical used as an herbicide, insecticide or fungicide (synthetic or organic)

#### Soil Safety:

*General:* For any agricultural use that involves cultivation of plants for consumption, transaction or sale, the applicant shall be required to:

- (a) *Soil:* Use clean, imported soil as a growing medium.
- (b) *Barrier:* Use a geotextile barrier between imported and native soil.
- (c) *Soil Depth:* Provide imported soil depth of between one and two feet depending on plants grown.
- (d) Specific protocol and licensing procedures for these soil safety requirements will be developed by the City concurrently with the draft Urban Agriculture rezoning recommendations.
- (e) As an alternative to imported soil and barrier, applicant may provide results of testing by a Licensed Site Professional (LSP) demonstrating that the existing soil is safe for growing. Specific protocol and licensing procedures for such testing will be developed concurrently with the draft Urban Agriculture rezoning recommendations.
- (f) These requirements apply to urban agriculture occupying 5,000 square feet or more of land area.

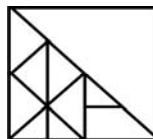
#### Pesticides and Fertilizers:

*General:* Pesticides may be applied only in accordance with state and federal regulations.

#### Composting:

*General:* All composting operations shall follow applicable local, state and federal laws, rules and regulations and shall operate under the following standards:

- (a) *Setbacks:* Compost areas may be located anywhere on a lot, provided that said composting is not located less than 5 feet from lot lines.
- (b) *Inputs:* Composting activities are restricted to using only organic matter generated on-site.
- (c) *Sales:* Composting may not be conducted for sale unless permitted by the underlying zoning.



Boston  
Redevelopment  
Authority



## **DRAFT MEMORANDUM**

TO: The Urban Agriculture Working Group

FROM: Tad Read, Senior Planner  
Caitlin Cameron, Intern, MIT Department of Urban Studies and Planning  
Tori Okner, Intern, Tufts Fletcher School of Law & Diplomacy, Friedman School of Nutrition Science Policy

SUBJECT: Background Research and Preliminary Recommendations for **Module 2: Growing of Produce; Greenhouses, Hoophouses & Other Structures**

DATE: March 1, 2012

This is the second in a series of memoranda related to the BRA's Citywide Urban Agriculture Rezoning Initiative. Each memorandum represents a "module" addressing a particular set of topics. The 6 modules include:

1. Soil safety, pesticides and fertilizers, and composting
2. **Growing of produce, greenhouses, hoophouses and other structures**
3. Roof top agriculture
4. Aquaponics and aquaculture
5. Keeping of animals and bees
6. Farmers markets, farm stands and sales

Each memorandum begins with a summary of any relevant City, State and/or Federal regulations around the module topics. Next, a brief summary is provided of the existing and emerging regulatory framework (especially zoning) in other U.S. cities related to module topics. Based on this background research, lessons learned in other cities are summarized. Finally, based on the foregoing, preliminary recommendations for zoning in the City of Boston are offered. These draft recommendations are intended as a *starting point* for discussion by the Task Force and ultimately by the community.

### **Existing Regulations**

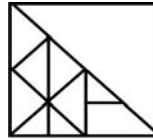
#### **Growing of Produce**

##### ***City Regulation: Boston Zoning Code***

The Boston Zoning Code currently addresses the growing of plants for consumption in only one section of the Zoning Code: *Article 33: Open Space Subdistricts, Section 33-8 Community Garden Open Space Subdistricts.*

*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.*





The Community Garden Open Space subdistrict does not address growing for sale, which is one of the primary distinctions between gardening and agriculture.

Gardening and cultivating plants for private use (for example, back yard gardening) is already supported by the Zoning Code. The only limitations placed on the growing of plants for private use has to do with the height of the plantings, which are restricted in the Definitions of front, side and rear yard setbacks. These sections of the code limit the height of plantings to five (5) feet in the front yards and six (6) feet in side and rear yards.

### **Greenhouses, Hoophouses, & Other Structures**

#### ***City Regulation: Boston Zoning Code***

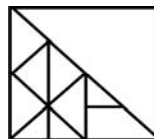
Greenhouses, hoophouses and similar structures are generally regarded as accessory structures by zoning codes. The Boston Zoning Code currently addresses dimensional limitations on accessory structures in two places, *Article 10: Accessory Uses*, and *Article 13, Table B*. It should be noted that the Boston Zoning Code does not currently contain specific definitions for greenhouses, hoophouses or other related farm structures.

*Article 10, Accessory Uses*, states:

*The accessory uses on a lot, exclusive of off-street parking, shall not occupy, in the aggregate, more than twenty-five percent of the floor area of the main buildings; nor shall the accessory uses on a lot, exclusive of off-street parking required by this code, occupy, in the aggregate, more than twenty-five percent of the rear yard required by this code or of the unbuilt lot area; nor in any residential district shall any accessory use occupy any part of the front or side yards required by this code, except that such a side yard may be used for off-street parking located more than five feet from the side lot line; and in no other district shall any accessory use other than off-street parking occupy any part of the front or side yards required by this code.*

*Article 10, Accessory Uses*, does not address many structures or conditions common to design and use of urban farms—for example, greenhouses, hoophouses, or coldframes. Accordingly, we recommend that specific dimensional requirements be created for the Urban Agriculture District for structures and a category called “Accessory Farm Structures” be created.

*Article 13, Dimensional Requirements (including Table B)*, enumerates a variety of minimum and maximum dimensional requirements for structures, including accessory structures. Examples of dimensions regulated include lot size, lot area per dwelling unit, and building height, and side and rear yard setbacks. Under Article 13, accessory structures generally cannot encroach into any side or rear yard setbacks. Similar to Article 10, this article and accompanying table do not address many of the types of structures that one would expect with Urban Agriculture.



Boston  
Redevelopment  
Authority



## Research from Other Cities

### **Growing of Produce:**

A few cities explicitly allow for the growing of produce in their zoning. Milwaukee defines “Raising of Crops or Livestock” as an activity<sup>1</sup> – see the attached Matrix of Urban Agriculture Definitions from Zoning Ordinance in Other U.S. Cities. The Portland Zoning Code sets forth characteristics and examples of “Agriculture” – Characteristics include activities that raise, produce or keep plants or animals. Examples include farming, truck gardening, forestry, tree farming, and wholesale plant nurseries.

Generally, individuals are allowed to grow produce on their private property for individual consumption. To address the growing of produce in a context other than personal use and consumption on private property, cities create definitions and zoning districts or overlay zoning. Many of the researched cities draw distinction between a community garden and an urban farm through the definition of growing practices. There are several common terms to define types of Urban Agriculture: Community Garden, Market Garden, Urban Farm. The attached document “Summary of Code Definitions” is from *Urban Agriculture: A Sixteen City Survey of Urban Agriculture Practices Across the Country* by Mindy Goldstein, Jennifer Bellis, Sarah Morse, Amelia Myers, and Elizabeth Ura. This document provides the most common definitions for varying garden and farm types in Urban Agriculture codes.

The definitions for growing produce has four key components: 1) who is growing the produce 2) what is being grown 3) how it is being grown 4) how it may be distributed. The biggest area of distinction between city definitions is how the produce may be distributed and used. There are also several categories of thresholds which cities consider when making their definitions. These include: intended use of product, size, primary or accessory use, underlying zoning

### *Profit:*

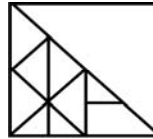
One distinction is whether the produce is for personal use or for profit. Community Gardens are usually defined as crops produced “for personal or group use, consumption or donation.”<sup>2</sup>

Baltimore (draft ordinance) defines “Urban Agriculture” as: The cultivation, processing, and marketing of food within the City, which may or may not include the use of intensive production methods, structures for extended growing seasons, and on-site sale of produce. . . Urban Agriculture is characterized by a primary emphasis on “income-generating agricultural activity” and the, “operation of the farm as a business enterprise.”

---

<sup>1</sup> Milwaukee Zoning 295-201-453

<sup>2</sup> Cleveland Zoning Code, Chapter 336 Urban Garden District, 336.02 Definitions



Similarly, Cleveland provides for the “Market Garden” meaning, “an area of land managed and maintained by an individual or group of individuals to, “grow and harvest food crops and/or non-food, ornamental crops,” such as flowers, to be, “sold for profit.”

Kansas City has a general definition for “Crop Agriculture” which is an area of land managed and maintained by an individual or group of individuals to grow and harvest food crops and horticultural products (including flowers, trees, and bees and apiary products) **for off-site sale** in locations where retail sales are an allowed use. **Crop agriculture may be a principal or accessory use.**

Chicago expressly prohibits the processing, storage and sale of plants or plant products on site at Community Gardens<sup>3</sup> but allows for these activities in “Commercial Gardens” or “Greenhouses.”<sup>4</sup>

#### *Size:*

Seattle uses size as a threshold to capture only UA that is not part of individual use. Farms which are less than 4,000 sf are permitted outright as an accessory use. A farm over the 4,000 sf threshold may be allowed by conditional use and must go through the permitting process.<sup>5</sup>

San Francisco has two categories of farms – Neighborhood Agriculture and Large-Scale Urban Agriculture. Large-Scale Urban Agriculture has a size threshold of 1 acre.<sup>6</sup>

#### *Underlying Zoning and Primary Use:*

Cities are especially sensitive to how Urban Agriculture will affect residential uses.

Some cities (Sacramento, Kansas City) choose to regulate growing practices for front yards in residential districts. In the case of Kansas City, row crops above 24” in height are specifically restricted for occupied residential properties.

Seattle’s Ordinance states that “an urban farm in a residential zone may require an administrative conditional use permit.”<sup>7</sup>

In San Francisco the use of mechanized farm equipment is prohibited in residential districts after the initial preparation of the site.<sup>8</sup>

#### **Greenhouses, Hoophouses, & Other Structures:**

<sup>3</sup> Chicago Zoning Ordinance 17-17-0103-F Parks and Recreation

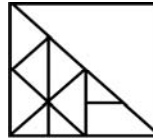
<sup>4</sup> Chicago Zoning Ordinance 17-17-0104-I Construction Sales and Services

<sup>5</sup> Seattle Ordinance 123378, Section 23.42.051

<sup>6</sup> San Francisco Ordinance 66-11: Planning Code Amendment – Urban Agriculture

<sup>7</sup> Seattle Ordinance 123378, Section 23.42.051

<sup>8</sup> San Francisco Ordinance 66-11: Planning Code Amendment – Urban Agriculture



Generally farm structures are classified as accessory uses and must either comply with underlying zoning requirements for accessory buildings (Baltimore, Kansas City, Minneapolis) alternatively, the zoning establishes specific requirements for urban farm-related buildings with setback, height and area restrictions (Chicago, Cleveland, Seattle). A few cities, such as Baltimore, do not have dimensional requirements for farm structures. Minneapolis specifically states that outdoor growing associated with market gardens and urban farms shall be exempt from enclosed building requirements.

*Lot Coverage:* Most cities restrict the total area of accessory buildings to 10 – 25% of the site. Cleveland excludes greenhouses and hoophouses from this combined areas percentage. On the other hand, Baltimore sets no limits on either the number or square footage of accessory structures. Chicago provides for either 10% of the site area or 100 square feet, whichever is greater. Minneapolis has a similar provision for 15% of lot area or 1,000 square feet, whichever is greater.

*Height:* Baltimore and Cleveland have height restrictions of 25 feet. No other city sites a height restriction.

*Setbacks:* Baltimore, Cleveland, Kansas City, and Minneapolis have setbacks ranging from 3 to 10 feet from the property line for accessory structures.

*Other structures:*

Cleveland explicitly enumerates the accessory uses and structures permitted in an Urban Garden District: greenhouses, hoophouses, cold-frames, and similar structures used to extend the growing season, benches, bike racks, raised/accessible planting beds, compost bins, picnic tables, seasonal farm stands, fences, garden art, rain barrel systems, chicken coops, beehives, and children's play areas, buildings, limited to tool sheds, shade pavilions, barns, rest-room facilities with composting toilets, and planting preparation houses.

Minneapolis also has dimensional restrictions for raised bed structures:

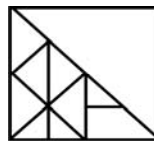
*Height:* no more than 3 feet

*Setbacks:* no closer than 5 feet from a front or side property line

Minneapolis allows temporary structures for extending the growing season for no longer than one hundred eighty (180) days.

### **Matrix Summarizing Requirements in Selected Cities**

The attached Matrix of Zoning Regulations Related to Growing of Produce and Accessory Structures in Other U.S. Cities provides detailed information about adopted and pending zoning regulations in other cities related to the topics of Module 2.



Boston  
Redevelopment  
Authority



## **Lessons Learned**

Seattle has not received any applications for Urban Farms meeting the 4,000 sf threshold since passing its ordinance in 2010.

In 2007, Sacramento revised the code so that landscaping could include edible annuals, perennials, and other design elements 'when integrated as part of the landscape' (Ordinance No. 2007-025, amending section 17.68.010 of the Sacramento City Code). Note that this ordinance does not specifically enable edible landscaping, but does so implicitly by removing the overly restrictive provisions.<sup>9</sup>

## **Preliminary Recommendations for Boston**

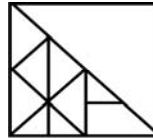
Based on the foregoing, the following is a set of *preliminary* recommendations for the City of Boston for consideration and discussion. These are provided to *begin* a discussion, which may well lead to different conclusions and recommendations later on.

### **Definitions:**

1. "Urban Agriculture", the use of a lot for the cultivation of food and/or horticultural crops, beekeeping, animal husbandry, and/or aquaculture for off-site sale or for on-site sale where retail sales are an allowed use.
2. "Neighborhood Garden" means a neighborhood-based development that provides space for members of the community to grow food and/or horticultural crops for beautification, education, recreation, community distribution, or personal use. Neighborhood Gardens may be divided into separate plots for cultivation by one or more individuals or may be farmed collectively by members of the group and may include common areas maintained and used by members. *Question for WG: Should the City also be considering a form of Neighborhood Garden where growing for sale is explicitly permitted?*
3. "Small Urban Farm" means an area of land comprised of no less than \_\_ acres and no greater than \_\_ acres that is managed and maintained by an individual or group of individuals for Urban Agriculture. *Question for WG: What are the appropriate thresholds for a Small Urban Farm?*
4. "Large Urban Farm" means an area of land comprised of no less than \_\_ acres and no greater than \_\_ acres that is managed and maintained by an individual or group of individuals for Urban Agriculture. *Question for WG: What are the appropriate thresholds for a Large Urban Farm?*
5. "Accessory Farm Structures" may include but are not limited to sheds (tool and packing), raised beds, compost bins, shade pavilions, and structures used to extend the growing season such as greenhouses, hoophouses, cold-frames, and similar structures (permanent or temporary).
6. "Greenhouse" means a building made of glass, plastic, or fiberglass in which plants are cultivated. May be permanent or temporary.
7. "Hoophouse" means a temporary structure made of PVC piping or other material covered with translucent plastic, constructed in a "half-round" or "hoop" shape

---

<sup>9</sup> *Zoning Practice*, American Planning Association, March 2010, issue 3, 6.



8. "Coldframe" means an unheated outdoor structure consisting of a wooden or concrete frame and a top of glass or clear plastic, used for protecting seedlings and plants from the cold.

**Use Regulations:**

Neighborhood Gardens/ Neighborhood Farms/ Urban Farms are Allowed/ Conditional in the following districts and subdistricts: [to be completed a later date]

**Dimensional Regulations:**

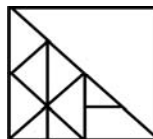
Accessory Farm Structures in the Urban Agriculture District shall be developed and maintained in accordance with the following regulations:

- (a) *Setback*: Buildings shall be set back from property lines a distance of five (5) feet
- (b) *Height*: No building or other structure shall be greater than twenty five (25) feet in height
- (c) *Building Coverage*: The combined area of all buildings, excluding hoopouses, shall not exceed twenty five percent (25%) of site area.

**Attachments:**

- A- Matrix of Zoning Regulations in Other Cities Related to Growing of Produce and Accessory Structures
- B- Matrix of Urban Agriculture Definitions from Zoning Ordinances in Other Use Cities
- C- Selected Definitions for Urban Agriculture Use and Activities.





Boston  
Redevelopment  
Authority



## **DRAFT MEMORANDUM**

TO: The Mayor's Urban Agriculture Working Group

FROM: Tad Read, Senior Planner III  
Marie Mercurio, Senior Planner

SUBJECT: Supplemental Discussion and Recommendations Concerning **Module 2: Growing of Produce; Greenhouses, Hoophouses & Other Structures**

DATE: April 11, 2012

This memorandum supplements the March 1, 2012 memorandum issued on **Module 2: Growing of Produce; Greenhouses, Hoophouses & Other Structures**.

At its March 8, 2012 meeting, the Mayor's Urban Agriculture Working Group held a discussion on farm definitions. A number of farm definitions were presented for discussion, including definitions for Urban Agriculture and for different sizes of urban farms.

### **Urban Agriculture Defined**

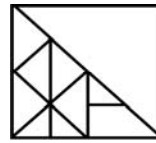
Since the March Working Group meeting, staff has modified the proposed definition for Urban Agriculture to make clear that: a) on site sales may be included in urban agriculture *where retail uses are allowed by underlying zoning*; and, b) urban agriculture is not intended to include cultivation for personal consumption or use (i.e., backyard gardening). The proposed revised definition is as follows:

**Urban Agriculture** - the use of a lot for the cultivation of food and/or horticultural crops, beekeeping, composting, animal husbandry, and/or aquaculture. Such use may include on-site sales where retail uses are allowed by underlying zoning and is not intended to include cultivation for personal consumption or use.

Even though this definition of Urban Agriculture includes such activities as beekeeping, composting, animal husbandry and/or aquaculture, depending upon the zoning subdistrict in which a farm is proposed, many of these uses are likely to require special permitting and/or licensing. Such special permitting requirements will be the subject of future discussions and recommendations with the Mayor's Working Group.

### **Farm Definitions and Thresholds**

At the March 8, 2012 Mayor's Working Group meeting, a point of discussion and debate was, "At what point does the growing of produce reach a point where it should be called a farm?" Should it be based on the size and scale of activity on the site, dollar amount of proceeds, or other factors? Different opinions were offered, but no consensus was reached by the Working Group.



Boston  
Redevelopment  
Authority



After the meeting, staff spoke with a number of farmers and farming experts to elicit opinions. Many seemed to feel that the threshold for defining a farm should be somewhere around one-third of an acre. Still others felt that viable commercial farming activity could occur on properties as small as 3,000 to 4,000 square feet. There further discussions still yielded no clear consensus on an appropriate threshold for defining a farm based on size.

On the matter of using the dollar amount of sale proceeds to define a threshold, senior City zoning staff believes that this method of regulation would be extremely difficult to monitor and enforce.

After considering this matter further, staff is now recommending the establishment of the following three categories of farms:

**Neighborhood Farm** - an area of land less than 5,000 sf that is managed and maintained by an individual or group of individuals for Urban Agriculture.

**Urban Farm, Small** - an area of land greater than or equal to 5,000 sf but no greater than 2 acres that is managed and maintained by an individual or group of individuals for Urban Agriculture.

**Urban Farm, Large** - an area of land greater than 2 acres that is managed and maintained by an individual or group of individuals for Urban Agriculture.

The threshold for a Neighborhood Farm is based on the average residential parcel size in the City of approximately 5,000 square feet (based on assessor data, the average size parcels associated with residential uses in Boston is 5,183 sf). Staff recommends that a farm of less than 5,000 sf be allowed *by right*<sup>1</sup> in all zones in the City in order to facilitate small scale urban agriculture and because, when confined to growing of produce, the level of activity is likely to have minimal impacts on neighbors.

The chart shown in Attachment A provides only a broad, conceptual framework for how these different sizes of farms might be permitted in different zoning subdistricts in the City of Boston. For purposes of discussion, zoning subdistrict classifications have been simplified and generalized in the chart, showing only four broad zoning categories: residential, neighborhood commercial (i.e., "Mom and Pop" stores), community commercial (i.e., large box retail, supermarkets), and industrial.

What the chart shows is that, in more restrictive zoning subdistricts such as residential subdistricts, permitting for farms would be more restrictive. For instance, while a Neighborhood Farm of less than 5,000 sf would be allowed by right in a residential subdistrict, a larger farm (i.e., Urban Farm, Small or Urban Farm, Large) would require a Conditional Use Permit (CUP), necessitating public notice and a public hearing before the Zoning Board of Appeal. Conversely, the chart shows that when one considers locating a farm in a zoning subdistrict which allows *a greater variety and/or intensity of land uses*, such as community commercial or industrial subdistricts, permitting would become more

---

<sup>1</sup> Even though the definition of Urban Agriculture includes such activities as beekeeping, composting, animal husbandry and/or aquaculture, depending upon the zoning subdistrict in which a farm is proposed, many of these uses are likely to require special permitting and/or licensing. Such special permitting requirements will be the subject of future discussions and recommendations with the Mayor's Working Group.





permissive. For instance, a farm of up to 2 acres would be allowed *by right* in community commercial and industrial subdistricts.

Actual Boston zoning subdistricts are more numerous than the few zones listed in the chart, with subtler distinctions between them. (For example, there are actually seven two-family zoning subdistricts under the Boston Zoning Code, which are distinguished from one another by their minimum lot sizes.) Therefore, the chart shown in Attachment A provides only a broad, conceptual framework for considering how farms of different sizes might be permitted in different zoning subdistricts in the City.

### Community Gardens

There was some discussion and debate at the last Mayor’s Working Group meeting about whether community gardens should even be addressed as part of the rezoning for urban agriculture, and if so, how.

One of the views expressed was that the existing zoning for community gardens—“Community Gardens Open Space Subdistrict”, as defined in Article 33, Section 8 of the Zoning Code—was already serving the City well. Why not continue to rely on this zoning subdistrict for the community gardens in the future?

The answer begins with the fact that the “Community Gardens Open Space Subdistrict” is just that—a zoning *subdistrict*, as opposed to a *land use*. In effect, what this means is that the Community Garden Open Space Subdistrict allows *only* community gardens. While this limitation on use may be appropriate and desirable for many community gardens, the goal of creating a new land use category for “Community Garden” would be to enable the establishment of community gardens in subdistricts where other land uses were also allowed. In this way, it would be possible to permit community gardens in a wide range of zoning subdistricts in the City, allowing greater flexibility in land uses.

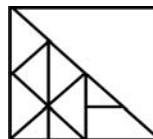
Community Garden Open Space Subdistrict as defined in Article 33 would remain in the Zoning Code unchanged and could still be applied to new community gardens in instances where the property owner was interested in preserving the property as a community garden *in perpetuity*. At the same time, by defining a new land use category “Community Garden”, the City henceforward would allow a community garden to co-exist with other uses in a variety of zoning subdistricts in the city

The recommended definition for Community Garden is as follows:

**Community Garden** - an area of land used by two or more individuals for 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 product. “Community Garden” is separate and distinct from “Community Garden Open Space Subdistricts” as defined in Section 33-8 of the Boston Zoning Code. The area of land may be divided into separate plots, each cultivated individually, or remain as a single plot to be cultivated collectively by a group of individuals.

Attachments:

A. Potential Framework for Permitting Urban Farms, By Farm Size and Generalized Zoning Category



**Boston  
Redevelopment  
Authority**



## Attachment A

<b>ATTACHMENT A POTENTIAL FRAMEWORK FOR PERMITTING URBAN FARMS, BY FARM SIZE AND GENERALIZED ZONING CATEGORY</b>			
	<b>FARM TYPE</b>		
<b>GENERALIZED ZONING CATEGORY</b>	<b>Neighborhood Farm - &lt; 5,000 sf</b>	<b>Urban Farm - Small 5,000 sf - 2 acres</b>	<b>Urban Farm - Large &gt; 2 acres</b>
<b>Residential</b> (i.e., single family homes, apartments)	By Right <sup>1</sup>	CUP <sup>2</sup>	Forbidden
<b>Neighborhood Commercial</b> (i.e., Mom and Pop shops)	By Right	By Right	CUP
<b>Community Commercial</b> (i.e., supermarkets, big box retail)	By Right	By Right	CUP
<b>Industrial</b> (i.e., manufacturing facility)	By Right	By Right	By Right

<sup>1</sup> "By right" means that a project can be approved by staff, without requiring a public hearing. However, even though this definition of Urban Agriculture includes such activities as beekeeping, composting, animal husbandry and/or aquaculture, depending upon the zoning subdistrict in which a farm is proposed, some of these uses are likely to require special permitting and/or licensing. Such special permitting requirements will be the subject of future discussion and recommendations with the Mayor's Working Group.

**NOTE:** While it is assumed that the most farm products would be for sale (or donation), *on site* sales would only be allowed in zoning districts that permit retail activity, such as commercial zoning districts.

<sup>2</sup> A "CUP" is a Conditional Use Permit. A CUP requires a public notice and a public hearing. To approve a CUP, the Board of Appeal must find that the proposed project does not adversely affect, or create a nuisance, for a neighborhood. Standard provisos could be created for urban farms such that project proponents were aware in advance of specific conditions that the Board would require to support a finding of no adverse neighborhood impact or nuisance.



## **DRAFT MEMORANDUM**

TO: The Urban Agriculture Working Group

FROM: Tad Read, Senior Planner III  
Marie, Mercurio, Senior Planner  
Caitlin Cameron, Intern, MIT Department of Urban Studies and Planning  
Tori Okner, Intern, Tufts Fletcher School of Law & Diplomacy, Friedman School of Nutrition Science Policy

SUBJECT: Background Research and Preliminary Concepts for **Module 3: Rooftop Agriculture**

DATE: April 11, 2012

This is the third in a series of memoranda related to the BRA's Citywide Urban Agriculture Rezoning Initiative. Each memorandum represents a "module" addressing a particular set of topics. The 6 modules include:

1. Soil safety, pesticides and fertilizers, and composting
2. Growing of produce, greenhouses, hoopouses and other structures
3. **Roof top agriculture**
4. Aquaponics and aquaculture
5. Keeping of animals and bees
6. Farmers markets, farm stands and sales

Each memorandum begins with a summary of any relevant City, State and/or Federal regulations around the module topics. Next, a brief summary is provided of the existing and emerging regulatory framework (especially zoning) in other U.S. cities related to module topics. Based on this background research, lessons learned in other cities are summarized. Finally, preliminary recommendations for zoning in the City of Boston are offered. In this particular instance, only very conceptual ideas for allowing rooftop agriculture in Boston are presented. Once discussed with the Mayor's Urban Agriculture Working Group, these ideas will be explored and developed further, and staff will return to the Working Group with more specific recommendations for rooftop agriculture.

### **Existing Regulations**

#### **Rooftop Agriculture – City of Boston**

The Existing Boston Zoning Code does not address rooftop agriculture in any way. However, in 2009, as interest in rooftop gardening and agriculture increased, the City's Inspectional Services Department published a special bulletin on the topic, ***Commissioner's Bulletin No. 2009-04***, establishing procedures for the construction and/or installation of rooftop agricultural systems. The bulletin, a copy of which is provided in Attachment A, states:



*Environmental testing has shown that rooftop gardens and landscaping help reduce the amount of pollutants and dust particles in the air and water. Additionally, vegetation on roof tops helps reduce the urban heat island effect by keeping buildings cooler. **The City of Boston, therefore, encourages the concept of rooftop agriculture through various means including hydroponic farming.***

The bulletin requires applicants to apply for appropriate permits at Inspectional Services Department (ISD) including submitting two sets of stamped plans. In addition to ISD, applications will be reviewed by any other City of Boston agency having jurisdiction.

### **Research from Other Cities**

#### **Rooftop Agriculture:**

Rooftop agriculture is still an emerging area of urban agriculture in terms of zoning. Not many cities that have yet adopted rooftop agriculture zoning. Cities which have include Chicago, Portland, and Seattle. The City of New York is in the process of adopting new zoning for rooftop agriculture. Zoning code provisions from these cities are summarized in Attachment A.

There are basically two types of rooftop agriculture: enclosed and open air. Enclosed rooftop agriculture occurs in rooftop greenhouses. Open air rooftop agriculture occurs in planters or planted beds in the open air.

#### **Open Air Rooftop Agriculture**

Height restrictions:

Chicago limits the definition of “rooftop agriculture” to include that which can be grown in beds, under a cold frame, and/or in such a way that it did not change the pyramid height of the building (meaning a rooftop greenhouse is considered to add an additional story to the building).<sup>1</sup>

In Pittsburgh, the height of plants allowable would fall under existing height restrictions for the zoning district.<sup>2</sup>

#### **Rooftop Greenhouses**

New York City is currently in the process of adopting what may be the most far-reaching rooftop greenhouse provisions in the country. New York City is formally considering to add greenhouses

---

<sup>1</sup> Chicago Zoning Ordinance and Land Use Ordinance, *Section 17-17-0104-H*; Terminology for “Urban Farm” (additional source TBD).

<sup>2</sup> Diana Nelson Jones, *City studies green roof regulations*.



to the list of rooftop structures that can be excluded from the height limitations and FAR restrictions on commercial buildings.<sup>3</sup>

In order to qualify for the FAR and height exemptions under the proposed new zoning in New York City, greenhouses would have to comply with the following restrictions:<sup>4</sup>

- To ensure that these structures are not inhabited by uses other than urban agriculture, the greenhouses are limited to the cultivation of plants only and are not permitted on residential buildings.
- Rooftop greenhouses must have at least 70% transparent material (not counting accessory office or storage space, which may inhabit 20% of floor area).
- Greenhouse may not exceed the height limit by more than 25 feet.
- If the greenhouse exceeds height limits it must be set back at least 6 feet.
- A design requirement includes incorporation of rainwater collection and reuse.

Seattle allows features such as planters and greenhouses to extend above the height restrictions in the code dependent on the zoning district. For greenhouses dedicated to food production, 15 feet above the height limit is allowed as long as the structures do not take up more than 50% building area and adheres to setback requirements.<sup>5</sup>

### **Green Roofs versus Rooftop Agriculture**

Many cities have adopted zoning code provisions related to green roofs. A green roof is a conventional roof that is covered with a layer of vegetation. Green roofs serve several purposes for a building, such as absorbing rainwater, providing insulation, creating a habitat for wildlife, and helping to lower urban air temperatures and combat the heat island effect. Green roofs may also have the effect of beautifying rooftops. While not all green roofs are intended to grow food, some may be used for this purpose. When they are, they become rooftop agriculture.

To combat heat island effect and food access issues, “Chicago residents have constructed 600 green roofs, which help bring fresh produce to food deserts and decrease heat in urban areas.”<sup>6</sup>

### **Incentives:**

In Portland, Oregon, eco-roofs are encouraged in the Central City because they reduce stormwater run-off, counter the increased heat of urban areas, and provide habitat for birds. Title 33 of the Zoning Code provides for a Floor Area Ratio bonus for development projects that install eco-roofs in the City’s central district based on the percentage of roof coverage.<sup>7</sup>

---

<sup>3</sup> New York City Council, LL 49, 8/17/11

<sup>4</sup> NYC City Planning Commission, N 120132 ZRY, 3/28/2012

<sup>5</sup> Seattle Ordinance 123378: 23.45.514 Structure height in Midrise and High-rise zones

<sup>6</sup> Goldstein, et al. *Urban Agriculture: A Sixteen City Survey of Urban Agriculture Practices Across the Country*, 18.

<sup>7</sup> *Case Studies of Green Roof Regulations in North America 2006*, 5, 6.



In Minneapolis, as part of the Planned Unit Development Application (PUD) developers are given bonus points for incorporating green roofs and other growing spaces in their designs which helps further their project in the application process.<sup>8</sup>

San Francisco expedites the permitting process for green building projects.

Chicago created a Building Green/Green Roof Matrix to be incorporated in the Zoning Ordinance to help facilitate green building policy by providing financial incentives to projects that incorporate a certain percentage of green roofs.

### **Access and Safety Issues**

Apart from zoning, as suggested by Boston's 2009 Commissioner's Bulletin, there are a number of access and safety issues related to rooftop agriculture that must be addressed. For example, there must be proper protection (i.e. appropriate railings) at the edges of the roof to protect against falls. There must also be safe and appropriate access to and egress from the roof; movable ladders will not do. Depending on the number of people who may be gaining access to the roof and whether it is open to the public, there may need to be two points of access and egress. Other issues that need to be considered include ADA access and the ability of the roof to accommodate the additional weight of plantings and related equipment and structures.

### **Lessons Learned**

Key issues related to rooftop agriculture that arise with respect to zoning include:

- potential height impacts
- Floor Area Ratio (FAR) impacts (impacts on allowable overall square footage of the building)
- visual impacts, including impacts on historic districts

Although not zoning issues per se, there are many **safety issues** that arise in the context of rooftop agriculture: safe access to, and egress from, the roof; safety railings; the capacity of the roof to hold the weight of plantings and structures; and, other issues.

**Incentives** can also be used to encourage rooftop agriculture. For instance, exempting rooftop agriculture from certain height and FAR impacts is one incentive to facilitate this form of agriculture.

### **Preliminary Concepts to Consider for Boston**

BRA staff has initiated discussions with other City departments (i.e., Inspectional Services Division, Fire Department, and other departments) about the feasibility of recommendations for Boston that would resemble the rooftop zoning proposal currently being considered in New

---

<sup>8</sup> Kimberly Hodgson, et. al., *Urban Agriculture: Growing Healthy, Sustainable Places*, 54.



York City. The broad framework would entail exempting rooftop greenhouses from height and FAR restrictions, provided that:

- Rooftop greenhouses contained a reasonable minimal percentage (i.e., 70%) of transparent material (not counting accessory office, storage space, and/or food processing space).
- Rooftop greenhouses did not exceed the height limit by more than 20 - 25 feet.

The City/BRA should also consider appropriate setbacks of the greenhouse from the edge of the roof, as well as a possible requirement to include incorporation of rainwater collection and reuse systems.

Staff believes that additional considerations in Boston would need to address:

- **Impacts in Historic Districts:** Due to the unique character of historic districts and the aesthetic issues associated with rooftop greenhouses, special consideration should be given to whether or not a rooftop greenhouse could even be allowed in historic districts, and if so, under what circumstances.
- **Visual Impacts, particularly in Neighborhood Design Overlay Districts:** Even outside of historic districts, visual impacts are often a concern in Boston neighborhoods even outside of historic districts. For example, in many neighborhood zoning subdistricts, Neighborhood Design Overlay Districts (NDOD's) have been established to protect the scale, quality of the pedestrian environment and general character of the residential neighborhoods. Staff will explore how rooftop greenhouses might be introduced in a way that consistent with, and sensitive to, existing neighborhood scale and character.
- **ADA Issues:** The American Disabilities Act (ADA) sets forth certain requirements for public access for persons with disabilities. Such requirements need to be explored and addressed.
- **Possible Limitations on the Size of Rooftop Greenhouses:** It may be appropriate to consider a limitation on the size and scale of rooftop greenhouses, depending on the particular zoning subdistrict. For example, it might be appropriate to consider a restriction on the size of rooftop greenhouses in residential districts. BRA staff will explore this question and return to the Working Group with further thoughts and recommendations.

After leading a preliminary discussion with Mayor's Urban Agriculture Working Group on this matter, staff will further explore the concepts raised above, discuss their feasibility with appropriate City Departments return to the Working Group with more specific recommendations.

Attachments:

A. December 31, 2009 Commissioner's Bulletin No. 2009-04, Inspectional Services Department: Procedures to be followed for the permitting of rooftop agricultural systems or roof garden.



# Attachment A



**Commissioner's Bulletin**  
**Inspectional Services Department**  
**Boston, MA**

**Number:** 2009-04

**Date:** December 31, 2009

**Subject:** PROCEDURE TO BE FOLLOWED FOR THE PERMITTING OF  
ROOFTOP AGRICULTURAL SYSTEMS OR ROOF GARDENS

**Purpose:** This Commissioner's Bulletin is issued to establish procedures for the construction and/or installation of rooftop agricultural systems.

**Determination:**

Environmental testing has shown that rooftop gardens and landscaping help reduce the amount of pollutants and dust particles in the air and water. Additionally, vegetation on roof tops helps reduce the urban heat island effect by keeping buildings cooler. The City of Boston, therefore, encourages the concept of rooftop agriculture through various means including hydroponic farming.

**Definitions:**

1. A "Rooftop Garden" is presumed to be accessible to the public.
  - 1.1 Additional requirements will be established, such as
    - 1.1.1 the installation of barriers (railings) (780 CMR),
    - 1.1.2 exits from the rooftop (780 CMR),
    - 1.1.3 total dead and live calculations, in accordance with the Massachusetts State Building Code (780 CMR),
    - 1.1.4 raising of exhausts and plumbing vents (248 CMR),
    - 1.1.5 handicapped access in accordance with the Architectural Access Regulations (521 CMR).
  - 1.2 Roof gardens accessory to residential occupancies other than one or two family dwellings are subject to the requirements of CBC 9-9.13 (certification of roof decks).
2. A "Green Roof" is presumed not to be accessible to the public and access will only be provided for maintenance.

Lara McHenry  
Cedric Albano



3. Permits and Zoning Requirements

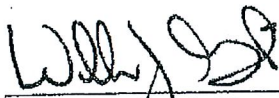
- 3.1 Applicants will need to apply for the appropriate permits at the Inspectional Services Department (ISD).
- 3.2 Plans stamped by a Massachusetts registered architect or structural engineer must be submitted for review by the Plans and Zoning division of ISD.
- 3.3 Two sets of plans must be submitted containing the following information:
  - 3.3.1 the existing roof conditions with the location of all structures, e.g. penthouses, mechanical equipment, chimneys, etc.,
  - 3.3.2 structural information including weight capacity of the roof (snow load, wet and dry plant load) and framing plans if required,
  - 3.3.3 a drawing of the proposed garden/green roof containing all plant and soil information, drainage and/or irrigation systems, and;
  - 3.3.4 any modifications to building systems that are required (raising of vent stacks, etc).

4. Review by Other Agencies

- 4.1 Applications submitted to ISD for any proposed rooftop project shall be accompanied by approvals from any other City of Boston agency having jurisdiction, including, but not limited to, the Environmental Department, the Landmarks Commission, Boston Water and Sewer and the Boston Fire Department.

---

Signed:



William J. Good, III  
Commissioner

12-31-2009

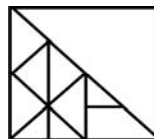
Date



Gary P. Moccia  
Inspector of Buildings

12/31/2009

Date



Boston  
Redevelopment  
Authority



## **DRAFT MEMORANDUM**

TO: The Urban Agriculture Working Group

FROM: Tad Read, Senior Planner  
Caitlin Cameron, Intern, MIT Department of Urban Studies and Planning

SUBJECT: Background Research and Preliminary Recommendations for **Module 4: Aquaculture, Hydroponics, and Aquaponics**

DATE: July 6, 2012

This is one of a series of memoranda related to the BRA's Citywide Urban Agriculture Rezoning Initiative. Each memorandum represents a "module" addressing a particular set of topics. The 6 modules include:

1. Soil safety, pesticides and fertilizers, and composting
2. Growing of produce, greenhouses, hoopouses and other structures
3. Roof top agriculture
4. **Aquaculture, Hydroponics and Aquaponics**
5. Keeping of animals and bees
6. Farmers markets, farm stands and sales

Each memorandum begins with a summary of any relevant City, State and/or Federal regulations around the module topics. Next, a brief summary is provided of the existing and emerging regulatory framework (especially zoning) in other U.S. cities related to module topics. Based on this background research, lessons learned in other cities are summarized. Finally, based on the foregoing, preliminary recommendations for zoning in the City of Boston are offered. These draft recommendations are intended as a *starting point* for discussion by the Working Group and ultimately by the community.

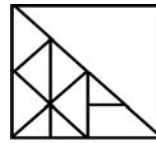
## **Background**

What follows is a brief description each of aquaculture, hydroponics and aquaponics.

**Aquaculture** is the farming of aquatic organisms such as fish, crustaceans, mollusks and aquatic plants. Aquaculture involves cultivating freshwater and saltwater populations under controlled conditions, and can be contrasted with commercial fishing, which is the harvesting of wild fish.

Aquaculture can serve various purposes including food production, replenishment of stocks, research, and production of ornamental fish. For purposes of urban agriculture, the focus of this memorandum is on aquaculture for food production.

Aquaculture is used to cultivate both freshwater and saltwater fish. For access to saltwater, it makes much more sense to site saltwater facilities at the edge of the ocean. In urban settings, aquaculture includes above-ground tanks and fish species raised indoors in a controlled environment. Most farmers use fish species lower on the food chain that are quick to mature and can grow on commercial fish food-



Boston  
Redevelopment  
Authority



-Tilapia and Perch are often used for this kind of farming. Once mature, whole fish are sold for food or retail purposes.

Aquaculture is practiced in open, semi-closed, and closed systems. In open systems, fish densities generally resemble those occurring in natural systems. Examples of open systems include farm ponds and bottom shellfish grounds. Generally, open systems receive little maintenance; bottom shellfish grounds are not managed, while farm ponds, which vary in size, are not fertilized or aerated. At the start of the culture cycle, fish seed are stocked; at the end of the growing period, the fish or shellfish are harvested and sold.<sup>1</sup>

Semi-closed system aquaculture aims at producing aquatic organisms at densities that exceed those in nature; consequently, production requires more hands-on management and energy. Examples include fish fed in a managed pond. Semi-closed systems employ sophisticated culture methods such as pumping water, continuous aeration, and adding commercial feeds. While semi-closed system culture can increase the biological return from a water resource, its use also increases production costs and waste generation and disposal.<sup>2</sup>

Closed system aquaculture (also known as recirculating systems) employs intensive management of a production system. Fish are raised in tanks where they live, eat, respire, and excrete. A primary filter removes particulate wastes; the water then passes through a biological filter where excretory wastes are detoxified. Since most water is recirculated, the systems require relatively small additions of new water (5-10 percent of the daily volume). Water quality must be closely monitored and carefully managed. Examples of closed systems include recirculating aquaculture systems, hydroponics, and aquaponics. Yields from closed system aquaculture can greatly exceed those of open and semi-closed systems; the cost and management of such systems, however, similarly increase. Over the last twenty years, closed systems have been evolving from research and demonstration setups to the establishment of several commercial operations in the Northeast.<sup>3</sup>

One of the largest land based, sustainable aquaculture facilities in Massachusetts is called Australis and is located in Turners Falls, along the Connecticut River. A five acre, 2.4 million gallon closed containment facility, Australis filters and recycles 99% of the water it uses to raise barramundi, a fish native to Australia. Fish raised in the plant move through a series of progressively larger tanks that give them more space to swim as they grow. A staff of fifty, many of whom are experts in the mechanical, biological and chemical processes of the plant, monitors the fish on a daily basis, checking the water chemistry to ensure environmental conditions are optimal. Filters dramatically reduce the need for freshwater. The facility donates nearly all of the produced waste to local farms. Australis produces up

---

<sup>1</sup> Aquaculture Systems for the Northeast. Flimlin, Buttner and Webster. Northeast Regional Aquaculture Center. NRAC Publication No. 104-2008.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

to two million pounds of fish per year and discharges less than fifteen lbs of solids per day - about the same as three average US households.<sup>4</sup>



*Australis Fish Farm features a closed containment (land based) farming system that filters and recycles 99% of its water and donates the waste as fertilizer to local farms.*

**Hydroponics** is the growing of plants without soil using mineral nutrient solutions. There are many variations to hydroponic methods, and certain plants grow better with this method than others. Most hydroponic practices take place in an indoor, controlled environment such as a greenhouse. Because they do not require soil, hydroponic systems allow the growing of plants using significantly less space, thus allowing for superior economic efficiencies to planting. Also, to the extent that temperatures can be controlled, hydroponics allows the cultivation of plants that might not grow naturally in a given climate.

<sup>4</sup> From Australis website, 6.28.12, <http://www.thebetterfish.com/sustainability/massachusetts-farm>.

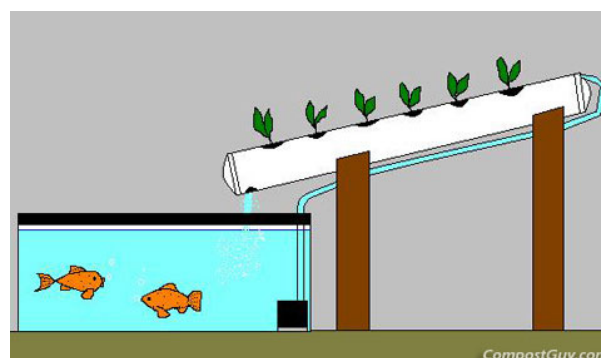


Hydroponic systems are considered advantageous because there is more human control over pH balance, nutrients, and pests – affecting the overall quality and growth cycle of the plants and allowing for plants to be grown year-round and in places they otherwise could not grow. Hydroponic methods can be used for food crops as well as horticultural crops.



*Examples of hydroponics facilities.*

**Aquaponics** is a sustainable food production system that combines a traditional aquaculture with hydroponics in a symbiotic environment. In aquaculture, effluents accumulate in the water, increasing toxicity for the fish. In aquaponics, this water is led to a hydroponic system where plants filter out the by-products from the aquaculture as vital nutrients, after which the cleansed water recirculates back to the aquatic animals. This system is advantageous because it is a closed system where the effluent from the fish is used to water the plants, which gives them nutrients, and the plants, in turn, filter the water, which is then returned to the fish tank. Not only do these combined systems use less water, but they also serve to clean the water and reduce discharge of contaminated water into the natural environment or the water waste system. Like aquaculture and hydroponics, these systems are often indoors to allow for more climate control and higher productivity.



*Example and illustration of aquaponics facilities. The illustration shows the plants being cultivated in water containing nutrients from fish waste.*

### **Different scales of Aquaculture, Hydroponics, and Aquaponics Facilities**

Aquaculture, hydroponics and aquaponics facilities can occur in a wide range of scales, from basement and backyard to industrial scale facilities containing millions of gallons of water. Since closed aquaculture and aquaponics require careful management and monitoring of aerating systems, chemicals, feed, and filtering system, they require not only significant expertise but also constant management.

### **Public Health and Environmental Impacts**

Aquaculture often generates waste that has to be managed. The waste can contain nutrients that can, among other things, induce algae to grow, which can set off a chain reaction that can be detrimental to other aquatic life. One way to manage the waste is through aquaponics systems that use the waste as nutrients for plants.

Environmental hazards for fish farming are not dissimilar to the kinds of hazards that come with traditional farming and are manifest in the use of pesticides, polychlorinated biphenyls (PCBs), and antibiotics.<sup>5</sup> Regulation of the use of pesticides falls under the purview of Federal and State government and is not within the purview of local government or zoning regulations.

Of additional concern with aquaculture and hydroponic systems is the discharge of water into the public wastewater system and ultimately, discharge into natural water bodies. If chemicals such as pesticides, antibiotics, or excess nutrients are used, these may be discharged with wastewater from these systems. Depending on the type of aquaculture, aquaponics or hydroponic systems and amount and type of discharge, permits may be required from the Federal Environmental Protection Agency (EPA) and/or Commonwealth of Massachusetts Department of Environmental Protection (DEP). The Federal and State regulatory frameworks for permitting of facilities that produce discharge are described below.

<sup>5</sup> Jahncke. *Aquaculture Product Safety*. 2.



Additional nuisances may include noise from aeration and filtration devices.

## **Existing Regulations**

### **Federal**

The EPA has a National Pollutant Discharge Elimination System (NPDES) program that controls direct discharges into navigable waters. NPDES permits, issued by the EPA or an authorized state, contain industry-specific, technology-based and/or water-quality based limits, and establish pollutant monitoring and reporting requirements. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. Concentrated aquatic feeding operations are direct dischargers and require an NPDES permit if they annually meet the following general conditions (1) produce more than 9,090 harvest weight kilograms of cold water fish or (2) produce more than 45,454 harvest weight kilograms of warm water fish.<sup>6</sup>

### **State**

In Massachusetts, marine aquaculture is regulated by 322 CMR 15.00, Management of Marine Aquaculture. These regulations establish a procedural and legal framework for the possession, propagation, culture, sale and disposition of living marine organisms. Of particular concern are the monitoring and control of discharge and water quality.

### **Local**

#### **Aquaculture**

The current Zoning Code allows aquaculture facilities in the Waterfront Manufacturing Subdistricts, Waterfront Service Subdistricts, Waterfront Commercial Subdistrict of the East Boston Neighborhood District, and the Logan International Airport Subdistrict of the East Boston Neighborhood District. In all other districts and subdistricts, aquaculture is not addressed; therefore, it is forbidden.

#### **Aquaponics**

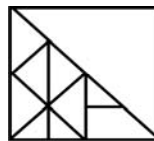
Aquaponics is not currently addressed in the Boston Zoning Code and is therefore a forbidden use.

#### **Hydroponics**

Hydroponics is not currently addressed in the Boston Zoning Code and is therefore a forbidden use.

---

<sup>6</sup> U.S. Environmental Protection Agency. <http://www.epa.gov/oecaagct/anaquilaw.html>



Boston  
Redevelopment  
Authority



## **Research from Other Cities**

**Attachment A** contains a Matrix of Zoning Regulations Related to Hydroponics, Aquaculture, and Aquaponics in Other U.S. Cities provides detailed information about adopted and pending zoning regulations in other cities related to the topics of Module 3.

In Baltimore's draft zoning code, any farm intending to use aquaculture is required to submit a management plan to the Planning Department. The intention behind these management plans is to mitigate potentially harmful impacts to neighboring uses.

Minneapolis allows aquaponics or aquaculture accessory to an urban farm or accessory to indoor market gardens located in a commercial or downtown zoning district. They do fall under a licensing process through the Department of Natural Resources and the Department of Agriculture. The only other zoning requirement regarding this use is that the tanks shall not be connected to the sewer system.

In Seattle, aquaculture is listed as a permitted use in commercial zones and neighborhood commercial zones 3. In neighborhood commercial zones 1 and 2 aquaculture is permitted if limited to 10,000sf and 25,000sf respectively. Aquaculture is permitted in all industrial zones.

## **Preliminary Recommendations for Boston**

Based on the foregoing, *preliminary* zoning recommendations have been drafted and are provided in **Attachment B**.

### **Use Regulations – Aquaculture**

The draft use regulations would *allow* aquaculture facilities in all manufacturing and industrial districts, with the purpose of helping to reinvigorate industrial and manufacturing districts with potential new development opportunities.

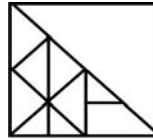
In commercial districts that do not have residential uses, small scale aquaculture facilities of up to 5,000 sf, that do not involve the onsite processing of food, would be *allowed*; and, aquaculture facilities of up to 25,000 that do not involve the onsite processing of food would be *conditional*. The onsite processing of food is the key activity that would otherwise indicate the use should be confined to an industrial or manufacturing district.

In residential subdistricts, aquaculture facilities (for commercial purposes) would be forbidden.

### **Use Regulations – Aquaponics**

The draft use regulations for aquaponics would be nearly identical for those for aquaculture facilities, except that aquaponics facilities that are accessory to an Urban Farm would be Conditional in residential subdistricts.





### Use Regulations – Hydroponics

The draft use regulations would *allow* hydroponics facilities of any size in all industrial and manufacturing districts and would also *allow* hydroponics facilities of up to 5,000 sf in all commercial districts. The draft regulations would make *conditional* hydroponics facilities of greater than 5,000 sf in commercial districts. Finally, in residential districts, the draft regulations would *allow* hydroponics facilities of up to 500 sf that are accessory to an Urban Farm and make *conditional* hydroponics facilities greater than 500 sf that are accessory to an Urban Farm.

### Design Review

Comprehensive Farm Review would be required for any hydroponics or aquaponics facility in a residential subdistrict and for any aquaculture, aquaponics or hydroponics facility of greater than 2,000 sf in any commercial, manufacturing or industrial subdistrict.

#### Attachments:

- A- Matrix of Zoning Regulations in Other Cities Related to Hydroponics, Aquaculture, and Aquaponics
- B- Draft Section 89-0 Aquaculture, Hydroponics and Aquaponics Regulations

## SECTION 89-0. **Aquaculture, Aquaponics and Hydroponics.**

### 1. Definitions.

Aquaculture. The cultivation of aquatic animals in a recirculating environment to produce whole fish that are distributed to retailers, restaurants and consumers.

Aquaponics. The cultivation of fish and plants together in a constructed, re-circulating system utilizing natural bacterial cycles to convert fish wastes to plant nutrients, for distribution to retailers, restaurants and consumers.

Hydroponics. The propagation of plants using a mechanical system designed to circulate a solution of minerals in water, for distribution to retailers, restaurants and consumers.

### 2. Use Regulations.

- (a) Aquaculture facilities shall be subject to the following use regulations:
  - (i) In all manufacturing and industrial subdistricts, aquaculture facilities including the onsite processing of food shall be Allowed.
  - (ii) In all commercial subdistricts that do not contain residential uses, aquaculture facilities up to 5,000 sf excluding on site processing of food shall be Conditional and aquaculture facilities of greater than 5,000 sf shall be Forbidden.
  - (iii) In all residential subdistricts, aquaculture facilities shall be Forbidden.
- (b) Aquaponics facilities shall be subject to the following use regulations:
  - (i) In all manufacturing and industrial subdistricts, aquaponics facilities including the onsite processing of food shall be Allowed.
  - (ii) In all commercial subdistricts that do not contain residential uses, aquaponics facilities up to 5,000 square excluding on site processing of food shall be Allowed and aquaponics facilities up to 25,000 sf excluding on site processing of food shall be Conditional.

(iii) In all residential subdistricts, aquaponics facilities that are accessory to an Urban Farm shall be Conditional.

(c) Hydroponics facilities shall be subject to the following:

(i) In all manufacturing and industrial subdistricts, hydroponics facilities including the onsite processing of food shall be Allowed.

(ii) In all commercial subdistricts that do not contain residential uses, hydroponics facilities up to 5,000 sf shall be Allowed and hydroponic facilities of greater than 5,000 sf shall be Conditional.

(iii) In all residential subdistricts, hydroponics of up to 500 sf that are accessory to an urban farm shall be Allowed and hydroponics facilities of greater than 500 sf that are accessory to an Urban Farm shall be Conditional.

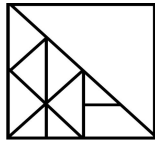
3. Design Review. The following design review requirements are set forth for all aquaculture, aquaponics and hydroponics facilities regardless of personal use or commercial use:

(a) All aquaculture, aquaponics and hydroponics facilities in any residential district shall be subject to Comprehensive Farm Review (See Section 89-6).

(b) All aquaculture, aquaponics and hydroponics facilities greater than 2,000 sf in any commercial district and industrial subdistricts shall be subject to Comprehensive Farm Review (See Section 89-6).

## ZONING AND RELATED REGULATIONS FOR AQUAPONICS AND AQUACULTURE IN OTHER U.S. CITIES

As of June 2012	DEFINITION		ALLOWED USES		DIMENSIONAL REGULATION	
CITY (population)	SPECIFIC REQUIREMENTS	INSTRUMENTS OF REGULATION	SPECIFIC REQUIREMENTS	INSTRUMENT OF REGULATION	SPECIFIC REQUIREMENTS	INSTRUMENT OF REGULATION
Baltimore (620,961)			<p><b>§14-327. Urban Agriculture</b>(1) Urban agriculture uses that involve any of the following activities must prepare a management plan, subject to approval by the Department of Planning, that addresses how the activities will be managed to avoid impacts on surrounding land uses and natural systems. (i) Animal husbandry, including chicken coops, apiaries and <b>aquaculture</b>. The keeping of livestock must adhere to all Baltimore City Health Department and Maryland Department of Agriculture regulations.</p>	Zoning Code: Title 14 "Use Standards" (Draft 2)	N/A	
Chicago (2,833,321)	<p><b>Hydroponic system.</b> Propagation of plants using a mechanical system designed to circulate a solution of minerals in water with limited use of growing media.</p>	Chicago Zoning Ordinance Title 17 of the Municipal Code - Section 9: 17-17-0270.5 Hydroponic system			N/A	
Minneapolis (385,378)	<p>Aquaculture. The cultivation of aquatic animals, in a recirculating environment to produce whole fish that are distributed to retailers, restaurants, and consumers.</p>	An Ordinance of the City of Minneapolis. Ammending Title 20, Chapter 520 of the Minneapolis Code of Ordinances relating to Zoning Code: Introductory Provisions. 520.160. Definitions	<p>Aquaponics or aquaculture. Aquaponics or aquaculture shall be allowed accessory to an urban farm or accessory to indoor market gardens located in a commercial or downtown zoning district, subject to the following: (1) The operator shall maintain any required licensure through the Department of Natural Resources and the Department of Agriculture. (2) The tanks shall not be connected to the sewer system.</p>	An Ordinance of the City of Minneapolis. Ammending Title 20, Chapter 537 of the Minneapolis Code of Ordinances relating to Zoning Code: Accessory Uses and Structures	N/A	
	<p>Aquaponics. The combination of aquaculture and hydroponics to grow crops and fish together in a recirculating system without any discharge or exchange of water.</p>	An Ordinance of the City of Minneapolis. Ammending Title 20, Chapter 520 of the Minneapolis Code of Ordinances relating to Zoning Code: Introductory Provisions. 520.160. Definitions			N/A	
	<p>Hydroponics. The growing of plants, in a water and fertilizer solution containing the necessary nutrients for plant growth.</p>	An Ordinance of the City of Minneapolis. Ammending Title 20, Chapter 520 of the Minneapolis Code of Ordinances relating to Zoning Code: Introductory Provisions. 520.160. Definitions			N/A	
Seattle (608,660)			<p>Aquaculture is permitted in commercial zones and neighborhood commercial zone 3. In neighborhood commercial zone 1, aquaculture is permitted but limited to 10,000sf. In neighborhood commercial zone 2, aquaculture is permitted but limited to 25,000sf.</p>	City of Seattle Council Ordinance 123378: Table A for 23.47A.004 Uses in Commercial Zones	N/A	
			<p>Aquaculture is permitted in all industrial zones.</p>	City of Seattle Council Ordinance 123378: Table A for 25.50.012 Uses in Industrial Zones	N/A	



## MEMORANDUM

TO: Mayor's Urban Agriculture Working Group

FROM: Tad Read, Senior Planner  
Brian Daly, Intern, MIT Department of Urban Studies and Planning  
Tori Okner, Intern, Tufts Fletcher School of Law & Diplomacy, Friedman School of Nutrition Science Policy

SUBJECT: Background Research and Preliminary Recommendations for **Module 5: Keeping of Animals and Bees**

DATE: July 6, 2012

This is one in a series of memoranda related to the BRA's Citywide Urban Agriculture Rezoning Initiative. Each memorandum represents a "module" addressing a particular set of topics. The 6 modules include:

1. Soil safety, pesticides and fertilizers, and composting
2. Growing of produce, greenhouses, hoopouses and other structures
3. Roof top agriculture
4. Aquaponics and aquaculture
- 5. Keeping of animals and bees**
6. Farmers markets, farm stands and sales

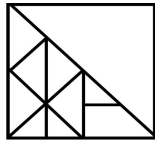
Each memorandum begins with a summary of any relevant City, State and/or Federal regulations around the module topics. Next, a brief summary is provided of the existing and emerging regulatory framework (especially zoning) in other U.S. cities related to module topics. Based on this background research, lessons learned in other cities are summarized. Finally, based on the foregoing, preliminary recommendations for zoning in the City of Boston are offered. These recommendations are intended as a *starting point* for discussion by the Task Force and ultimately by the community.

Because staff anticipates that hens and bees will be the most desired animals that Boston citizens wish to keep, the memo focuses on policies for keeping of animals and bees.

### **Existing Regulations**

#### ***Boston Zoning Code***

The Boston Zoning Code features different approaches to zoning for the keeping of animals, resulting in inconsistent treatment of the question. Several neighborhoods of the city retain the Base Code, an earlier zoning scheme from 1965 that covered the entire city and therefore treats neighborhoods more uniformly than do the Neighborhood Zoning districts. General use and dimensional provisions found in Zoning Code Articles 1-39 apply throughout Base Code areas. Neighborhoods covered by the Base Code include:



## Boston Redevelopment Authority

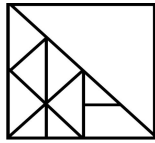
- Back Bay
- Beacon Hill
- Kenmore Square
- South Boston (generally, non-waterfront portions)
- Newmarket
- Longwood Medical Area (LMA)

Beginning in the late 1990s, Boston has replaced the Base Code in many areas of the city with neighborhood specific zoning codes that more closely reflect the particular circumstances and context of each neighborhood. Where the neighborhood zoning and the general provisions of the Base Code conflict, neighborhood zoning prevails. Consideration of the keeping of animals varies by neighborhood. The Neighborhood Districts include:

- Roxbury
- Allston-Brighton
- Dorchester Avenue
- East Boston
- North End
- Jamaica Plain
- West Roxbury
- Saint Vincent
- City Square
- Mission Hill
- Greater Mattapan
- Audubon Circle
- Charlestown
- Bay Village
- South End
- Dorchester
- Fenway
- Roslindale
- South Boston Neighborhood District (waterfront areas)
- Hyde Park
- Beth Israel Hospital Institutional District
- Massachusetts College of Pharmacy Institutional District
- New England Deaconess Hospital Institutional District
- Dana-Farber Cancer Center Institutional District

In addition, Boston has several Downtown Districts, the Harborpark District, and the Central Artery Special District. As with the Neighborhood Districts, when a conflict exists between general zoning and zoning for one of these districts, the district's zoning prevails. The Downtown Districts include:

- Bulfinch Triangle District
- Cambridge Street North District
- Chinatown District
- Government Center/Markets District
- Huntington Avenue/Prudential Center District
- Leather District
- Midtown Cultural District
- North Station Economic Development Area



- South Station Economic Development Area
- Harborpark District

### Base Code

In the neighborhoods covered by the Base Code, zoning allows the keeping of poultry, pigeons, rabbits, bees, horses, cows, goats, or similar animals other than pigs as a conditional use in most zoning subdistricts, including residential. The conditional use provisions allows up to 25 fowl or up to three colonies of bees on properties in residential subdistricts. The code requires animal enclosures be at least 50 feet from the nearest street and from any neighboring dwelling unless the applicant secures written approval from the dwelling's owner and occupant. Should a neighboring property owner erect a residential building within 50 feet of an animal enclosure on a neighboring lot, use of the enclosure must cease. Base Code areas are shown on the map provided in Attachment A.

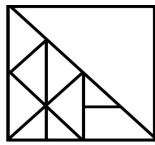
### Downtown & Neighborhood Districts

In all other Neighborhood Zoning Districts, where updated Neighborhood Zoning Articles have replaced the Base Code, the Accessory Keeping of Animals generally is a conditional use in commercial and industrial districts, but forbidden in residential districts. In updated Neighborhood and Downtown Districts, the Code defines the accessory keeping of animals as including horses, cows, goats, poultry, pigeons, rabbits, bees, or similar animals other than pigs. Nevertheless, the Neighborhood Districts contain several exceptions to the typical zoning for the keeping of animals, including:

- In Allston-Brighton, it is an **Allowed** use in the Neighborhood Shopping Subdistrict, Community Commercial District and Allston Landing North Economic Development District.
- In the North End, it is **Conditional** in the Multi-Family Residential District.
- In West Roxbury, it is **Allowed** in the Community Commercial District.
- In the South End, it is **Allowed** in the Community Commercial District.
- In Dorchester, it is **Allowed** in the Waterfront Services District.

### Keeping of Animals: Other City, State and/or Federal Regulations

*City Regulation:* Boston requires a permit from the Division of Health Inspections of the Inspectional Services Department for the keeping of fowl or other farm animals. The Permit to Keep Live Fowl allows up to 25 fowl, excluding roosters, according to a number of conditions including approved enclosures and clean and well-maintained coops. Under the annual permit, fowl must be kept a minimum of fifty feet from adjoining residential buildings in properly fenced enclosures. Any coops must be ventilated, with the interior whitewashed, and cleaned weekly (twice weekly in summer). Currently, ISD oversees only two active permits, for Long Island in Boston Harbor and Allendale Farm in Jamaica Plain.



### **Keeping of Bees: Other City, State and/or Federal Regulations**

*State Regulation:* The Massachusetts Department of Agricultural Resources does not require a beekeeping permit, but does require that beekeepers *register* all hives and submit to annual inspections.

### **Research from Other Cities**

#### *Animals:*

San Francisco allows a maximum of four of any combination of a set of small animals that includes both household pets and poultry or fowl in residential districts with no special permit requirement.<sup>1</sup> The city also allows the keeping of up to two female goats for the exclusive use of the owner's family, but requires a permit for any other hoofed mammals. In commercial and industrial districts, San Francisco allows more intensive animal husbandry with appropriate permits.

Rather than setting a hard limit for animal keeping, Cleveland defines the allowable number based on lot size. In residential neighborhoods, city zoning allows one chicken, duck, or rabbit per 800 square feet of lot area (one per 400 square feet in non-residential districts), allowing roosters, geese, or turkeys only on lots of greater than one acre. The city requires covered, predator-proof, ventilated coops or cages that allow free movement by animals, allowing up to 32 square feet for six animals in residential zones. Residents keeping animals must not place coops within five feet of a side yard line or eighteen inches of a rear yard line. Roosters require a 100-foot setback. Cleveland also requires ten square feet of outdoor space per animal, with fencing or another boundary. Additionally, Cleveland allows two goats, pigs, or sheep on residential-zoned lots of at least 24,000 square feet (14,400 square feet in non-residential districts), plus one for every additional 2,400 square feet (1,200). Stables or housing for goats, pigs, or sheep requires a 40-foot setback from property lines and a 100-foot setback from any adjoining dwelling. Cleveland features a large amount of vacant land and a population density of just over 5,000 people per square mile, considerably lower than Boston's 12,700 people per square mile and more comparable to the density of West Roxbury.

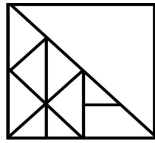
Chicago offers relatively permissive zoning for animals, banning pigeons in residential districts but allowing other animals in any number. Residents must obtain a permit to keep a horse, but can keep chickens and other small animals without any special process. While restricting the keeping of wild or dangerous animals, the policy allows keeping of most vertebrates with few limits. The city restricts animal keeping to rear yards and prohibits keeping animals for slaughter, kennels, stables, and bird keeping facilities in residential districts, while allowing keeping animals for personal use subject to general health, noise, and nuisance regulations.

In Lynn, MA, the city allows fowl, including chickens, hens, and pigeons, as well as other small animals such as rabbits and guinea pigs. Lynn forbids the keeping of roosters, swine, cattle,

---

<sup>1</sup> The full list includes dogs of age six months, hares, rabbits, guinea pigs, rats, mice, gerbils, chickens, turkeys, geese, ducks, doves, pigeons, game birds of any species, or cats.





horses, pigs, ponies, mules, reptiles, exotic animals, or monkeys. The code allows up to four chickens or up to ten pigeons, and requires animals to reside in movable outdoor pens at least 50 feet from any residential building and providing at least two square feet per fowl. Pens and feed bins must be closed and rodent-proof.

Minneapolis allows the keeping of fowl, including pigeons, chickens, turkeys, and ducks, on residential properties with no more than two dwelling units. The zoning code allows coops as accessory structures in the rear yard only and at least twenty feet from habitable buildings on adjacent properties. St. Paul allows the keeping of small animals with a permit and payment of an annual fee, including hens but not roosters, as well as turkeys, ducks, geese, and hooved or small mammals. The ordinance requires clean, sanitary housing for the animals.

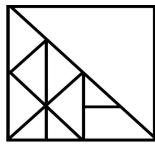
Louisville establishes space requirements for the keeping and restraint of animals, requiring a lot of at least one-half acre to keep more than five poultry. The code allows for only one crowing poultry per lot, and requires at least one acre for the keeping of equine animals and one-half acre for the keeping of other livestock weighing more than 40 pounds. Additionally, the code requires a fence or structure of sufficient height to prevent animals from leaving the property unless the poultry are associated with an agricultural use, which the code defines as a tract of five or more contiguous acres for the production of crops.

Miami allows up to fifteen hens and thirty chicks while forbidding roosters. The city requires that animals be penned and that no pen or coop be situated within 100 feet of any human dwelling. Residents seeking to keep animals must acquire a permit from the county health unit and keep food in sealed, rodent-proof containers. Miami also allows other types of poultry, fowl and grazing animals.

#### *Permits and Management:*

Cities typically require permits from either health or animal control departments. Cleveland requires anyone keeping animals as an accessory or agricultural use to obtain a two-year permit from the Department of Public Health. The city requires submission of site plans with enclosure design and location and animal waste management plans before granting the permit. Some permanent enclosures and structures require a building permit as well, but the code exempts most accessory structures such as coops.

In Lynn, to keep an animal a resident must obtain a permit from the Inspectional Services/Health Department and pay a \$100 annual fee. Minneapolis requires annual or five-year permits at different rates, granted by Minneapolis Animal Care and Control. St. Paul's Department of Safety and Inspections' Animal Control Center issues renewable one-year permits, inspects holding areas, and imposes and enforces permit conditions related to health, safety, and nuisance; the DSI charges a fee of \$25 for up to three chickens (\$15 for renewal) or \$72 for more than three (\$27 renewal).



*Neighbors:*

As part of Cleveland's permitting process, the Department of Public Health sends notification and comment forms to all direct abutters of a property seeking to keep animals, along with a copy to the relevant member of City Council. The DPH allows 21 days for public comment following notification and must consider neighbors' input in their deliberations.

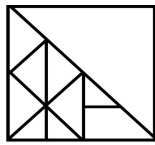
The Twin Cities call for robust neighborhood support through animal permitting process. Minneapolis requires applicants to obtain consent from at least 80% of occupants living within 100 feet of the property, while St. Paul requires approval from at least 75% of occupants within 150 feet. Minneapolis also requires that animal keepers screen any coops from adjacent residences.

*Beekeeping:*

Cleveland allows one beehive for each 1,000 square feet of lot area. Limiting hives to rear yards, the code also requires that hives face away from the nearest neighboring residence and be set back five feet from property lines and ten feet from dwellings or permitted dwelling placements on neighboring parcels. Unless all hives are more than 25 feet from lot lines or ten feet above ground, Cleveland mandates that residents keeping bees erect flyaway barriers, either solid fences or dense hedges, of at least six feet in height within five feet of the hive entrance. The code also requires that residents keeping bees maintain a supply of fresh water for the bees to access. St. Paul allows one beehive per 2,000 square feet of property area, provided that the hive be located in the center of the property furthest from adjoining lots. Like Cleveland, St. Paul requires a hedge or fence barrier. Aurora, Colorado allows a baseline of two colonies, or four for properties of more than one-quarter acre, six if more than one-half acre, and eight if an acre or more; if a beekeeper can locate hives more than 200 feet from adjacent properties, however, there is no limit on the number of hives. Aurora requires five-foot setbacks from property lines, a source of water, and a six-foot tall flyway barrier if within 25 feet of property lines.

In Seattle, residents of properties of less than 10,000 square feet may keep up to four beehives by right. The city allows only movable-frame beehives set back a minimum of 25 feet from any lot lines, unless the hive is raised more than eight feet above grade. The code also waives the setback requirement if a fence or hedge of at least six feet in height stands within 25 feet of the hive, extending at least 20 feet in each direction.

San Diego allows beekeeping, but keeping more than two hives triggers difficult setback requirements. Residents keeping one or two hives must locate them fifteen feet from property lines and twenty feet from public rights-of-way, while turning hives to face toward the most distant property line and providing a water source and barriers of six feet in height for ground level hives. Any beekeeper with three or more hives must observe a 600-foot setback from offsite residences and a 100-foot setback from rights-of-way. The code also requires annual registration with the San Diego County Agricultural Commissioner.



Among major cities, San Francisco treats bees most permissively, allowing beekeeping subject only to general nuisance law, with no specific regulations and no permitting requirement. Portland also does not limit the number of hives, but does require setbacks of at least fifteen feet from public walkways or roads, parks, public buildings, or residences, and mandates a barrier six feet in height around any hives within 150 feet of an offsite residence or public road or facility. Denver allows two hives per lot, provided beekeepers provide six-foot screens and place hives in the rear third of the lot and set back five feet from property lines.

In 2010, New York amended its public health code to allow the keeping of honey bees, which the city had previously forbidden as wild animals. New York requires no permit, only annual registration of contact information and hive location with the Department of Health and Mental Hygiene. The code requires movable-frame hives and access to adequate water supply. Rather than set specific requirements for setbacks or screening, New York mandates that beekeepers avoid nuisance conditions, including abandoned or overcrowded hives, aggressive behavior, or interference with pedestrians or neighbors.

*Permits and Management:*

St. Paul requires a permit from the Department of Safety and Inspections' Animal Control Center.

In Seattle, all colonies must be registered annually with the state Department of Agriculture.

*Neighbors:*

St. Paul presents the most precise definition of neighborhood approval, requiring signatures from 75% of renters, owners, or property managers of all residences within 150 feet of the beekeeper's property.

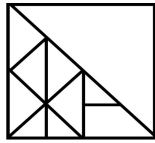
## **Lessons Learned**

*Chickens:*

While cities closely regulate the keeping of animals for agriculture or hobby, many are permissive of a small number of fowl and other small animals. Generally, cities of similar size and density to Boston forbid roosters, but some allow fewer than ten hens, pigeons, and other fowl and small animals. Cities typically require some type of fencing or structure, 20-25 foot setbacks from adjacent residential buildings, and some form of special permit demonstrating compliance with city or state health and animal control regulations.

*Bees:*

Cities that allow beekeeping typically allow a small number of hives that increases based on lot size. Additionally, cities require setbacks from adjoining properties and screens or barriers to direct bees upwards from their hives. Cities consistently require a barrier of six feet in height, composed of dense hedges or fencing, but vary in the required extent and distance from the hive. Some cities exempt beehives that are above ground level from screening requirements. While cities rarely use a full permitting process, most require beekeepers to register hives with state, county, or local authorities for annual inspection.



### **Preliminary Recommendations for Boston**

Attachments D and E contain the draft zoning language for the keeping of hens and beekeeping, respectively.

#### **Use Regulations**

The draft language in Attachments D and E **does not change use regulations** (which say whether a use is *allowed, conditional or forbidden*). This is because the Base Code Districts, the Neighborhood Districts and the Downtown Districts already have use regulations addressing the keeping of animals and bees. Accordingly, the existing use regulations for the keeping of animals and bees in the Base Code and Neighborhood and Downtown Districts must themselves each be amended.

In order to change the use regulations in the Base Code neighborhoods, a single amendment would be required to the Base Code. This amendment can be made at the same time that a new article for Urban Agriculture is created for the Zoning Code.

In order to amend the use regulations in Neighborhood and Downtown Districts, it would be necessary to amend the Zoning Code *neighborhood by neighborhood*. To accomplish this, the BRA will likely be proposing a petition process whereby any neighborhood wishing to amend the use regulations for the keeping of keeping of hens and beekeeping would gather signatures on a petition in order to initiate a rezoning process for the neighborhood.

#### **Dimensional Regulations and Special Permitting Requirements**

The existing zoning for the Neighborhood Districts and Downtown Districts are silent on dimensional regulations and special permitting requirements for the keeping of animals and for beekeeping. Therefore, the new proposed dimensional requirements and special permitting requirements proposed for in Attachments D and E (and as amended through the public participation process) would apply.

The existing Base Code already contains dimensional regulations and special permitting requirements for the keeping of animals and bees. However, staff is recommending that the Base Code would be amended so that the dimensional regulations and special permitting requirements proposed in Attachments D and E would apply in the Base Code areas.

#### ***Attachments:***

- A - Map of Base Code Districts and Other Neighborhood and Downtown Districts, July 2012
- B - Map of Existing Use Regulations for the Keeping of Animals, July 2012
- C - Matrix Summarizing Zoning Requirements for Keeping of Animals in Selected U.S. Cities
- D - Draft Dimensional Regulations and Special Permitting Requirements for the Keeping of Hens
- E - Draft Dimensional Regulations and Special Permitting Requirements for the Keeping of Bees

## MEMORANDUM

TO: Mayor's Urban Agriculture Working Group

FROM: Tad Read, Senior Planner  
Brian Daly, Intern, MIT Department of Urban Studies and Planning

SUBJECT: Background Research and Preliminary Recommendations for **Module 6: Farmers' Markets, Winter Markets, Farm Stands, and Sales**

DATE: August 30, 2012

This is one in a series of memoranda related to the BRA's Citywide Urban Agriculture Rezoning Initiative. Each memorandum represents a "module" addressing a particular set of topics. The 6 modules include:

1. Soil safety, pesticides and fertilizers, and composting
2. Growing of produce, greenhouses, hoopouses and other structures
3. Roof top agriculture
4. Aquaponics and aquaculture
5. Keeping of animals and bees
6. **Farmers' markets, winter markets, farm stands and sales**

Each memorandum begins with a summary of any relevant City, State and/or Federal regulations around the module topics. Next, a brief summary is provided of the existing and emerging regulatory framework (especially zoning) in other U.S. cities related to module topics. Based on this background research, lessons learned in other cities are summarized. Finally, based on the foregoing, preliminary recommendations for zoning in the City of Boston are offered. These recommendations are intended as a *starting point* for discussion by the Task Force and ultimately by the community.

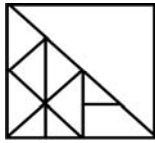
Based on a request by the Working Group and members of the public, the inclusion of winter markets was added to this module at a later date.

### Overview of Farmers' Markets

Over the past several decades, farmers' markets have enjoyed rapidly growing popularity across the country. The U.S. Department of Agriculture tracks the number of markets nationwide, which has grown from 1,755 in 1994 to almost 8,000 in 2012, as shown in Table 1.

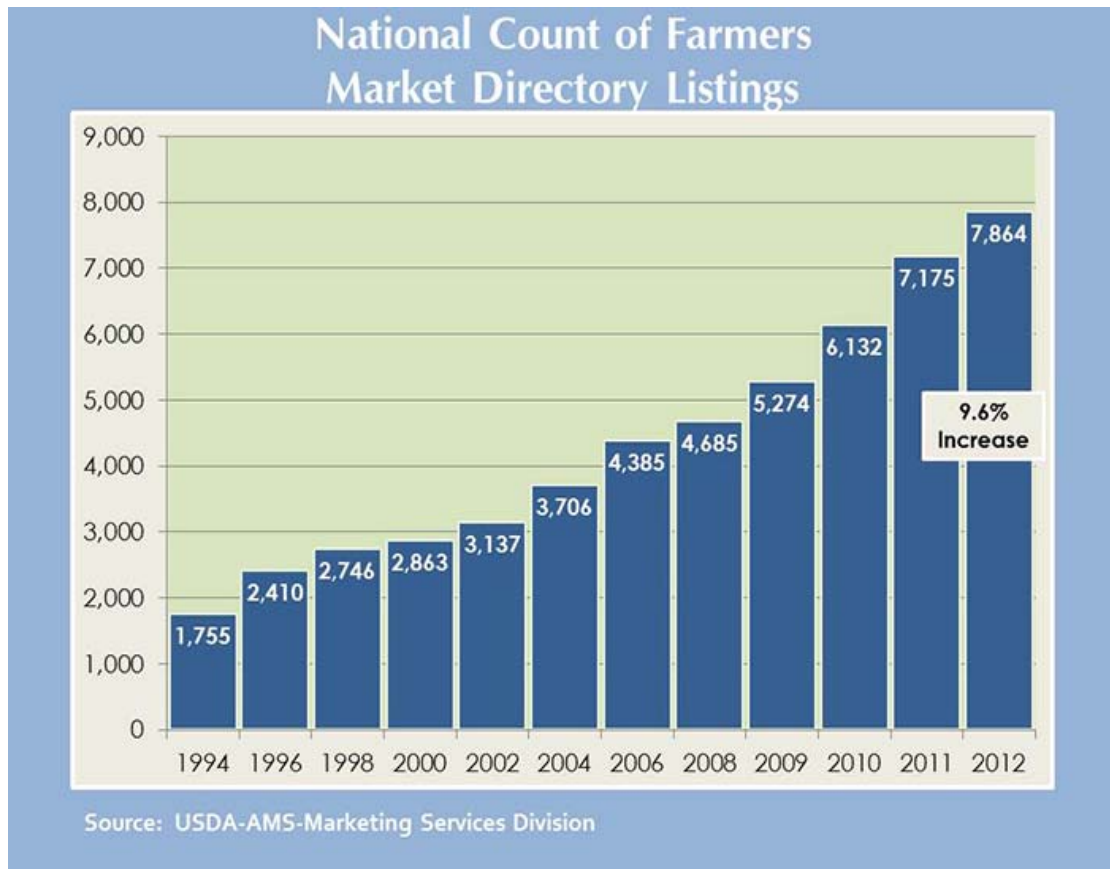
The 7,864 markets nationwide represent a 9.6% increase from 2011 and a 28.3% increase from 2010. Due to the strong demand for markets, including in urban areas, many cities have had to adopt new zoning to allow for the establishment of markets.

Boston is no exception to this national trend. Currently, the city hosts 26 permitted farmers' markets, up from thirteen in 2004. Figure 1, prepared by the City Department of Neighborhood Development, shows the location of these farmers' markets. The figure also shows 5-, 10-, 15-, 20- and 30- minute

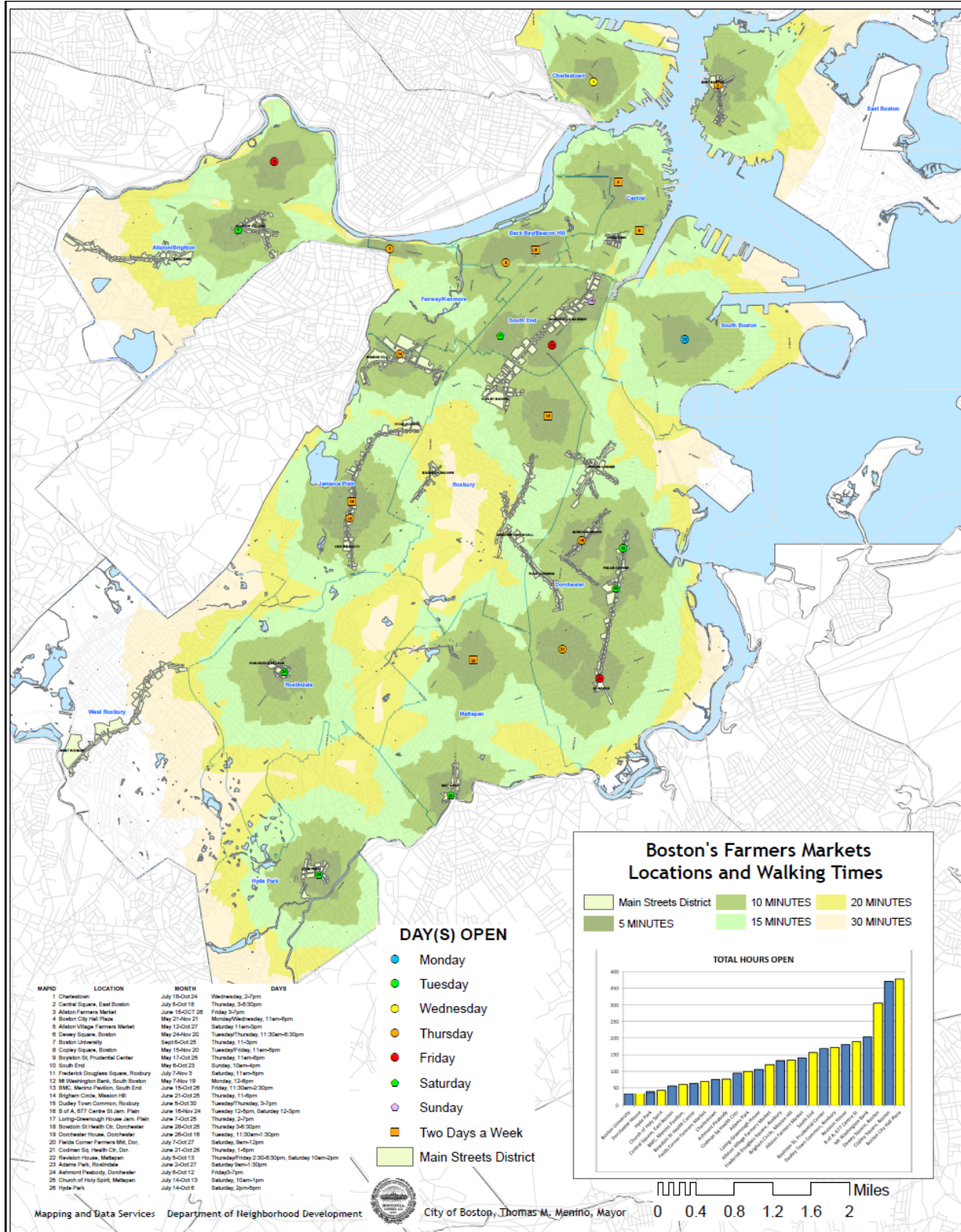
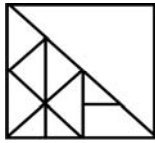


walking radii around these markets, thereby indicating areas that are underserved by farmers' markets. As the demand for fresh, healthy, local food continues to rise, it is anticipated that the demand for farmers' markets will grow significantly in Boston.

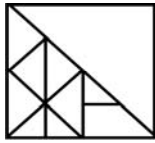
TABLE 1



<sup>1</sup> Source: USDA Agricultural Marketing Service, "Farmers Market Growth, 1994-2012," <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateS&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketGrowth&description=Farmers%20Market%20Growth&acct=fmrdirmt> (accessed August 7, 2012).







The Copley Square Farmers' Market operates from 11:00-6:00 between May 15 and November 20 and features over 25 vendors. *Source: WBUR.*



The Prudential Center Farmers' Market is open Thursdays from 11:00-6:00 from May to October.



The Bowdoin Street Health Center runs the Bowdoin Geneva Farmers' Market every Thursday afternoon from late June to October.



The Saturday morning Roslindale Farmers' Market in Adams Park features roughly 25 vendors, live music, and family activities. *Source: Roslindale Village Main Streets*



Boston Public Market's seasonal market on City Hall Plaza, open Monday and Wednesday from 11:00-6:00 between late May and November.



Farmers' Markets in Boston are nothing new: trucks along Charlestown's Adams Street sell produce in 1951. *Source: Boston Public Library*

## Existing Regulations

### ***Boston Zoning Code***

The Boston Zoning Code features different approaches to zoning for Farmers' Markets, resulting in inconsistent treatment of the question. Several neighborhoods of the city, mostly near the downtown core, retain the Base Code, an earlier zoning scheme from 1965. General use and dimensional provisions found in Zoning Code Articles 1-39 apply throughout Base Code areas. As shown in Figure 2, neighborhoods covered by the **Base Code** include:

- Back Bay
- Beacon Hill
- Kenmore Square
- South Boston (generally, non-waterfront portions)
- Newmarket
- Longwood Medical Area

In the neighborhoods covered by the Base Code, farmers' markets are *allowed* in certain industrial zones, *conditional* in certain business districts, and otherwise *forbidden*. In particular, zoning allows Use Item No. 50 which includes “...outdoor sale or display for sale of garden supplies, *agricultural produce, flowers and the like [emphasis added]*” in both General and Restricted Industrial Districts. The same use is conditional in General and Local Business Districts and Waterfront Districts. It is forbidden everywhere else in the Base Code.

Beginning in the late 1990s, Boston started to replace the Base Code in many areas of the city with neighborhood specific zoning codes that more closely reflect the particular circumstances and context of each neighborhood. The **Neighborhood Districts** include:

- |                     |  |
|---------------------|--|
| • Roxbury           | • Bay Village  |
| • Allston-Brighton  | • South End  |
| • Dorchester Avenue | • Dorchester   |
| • East Boston       | • Fenway   |
| • North End         | • Roslindale   |
| • Jamaica Plain     | • South Boston Neighborhood District (waterfront areas)    |
| • West Roxbury      | • Hyde Park  |
| • Saint Vincent     | • Beth Israel Hospital Institutional District              |
| • City Square       | • Massachusetts College of Pharmacy Institutional District |
| • Mission Hill      |  |
| • Greater Mattapan  |  |
| • Audubon Circle    |  |
| • Charlestown       |  |



- New England Deaconess Hospital Institutional District
- Dana-Farber Cancer Center Institutional District

Significantly, there is no reference to farmers' markets or the outdoor sale of agricultural produce in any of the neighborhood districts listed above. Consequently, farmers' markets are forbidden in all of the neighborhood districts. In addition, Boston has several **Downtown Districts, the Harborpark District, and the Central Artery Special District**. The Downtown Districts include:

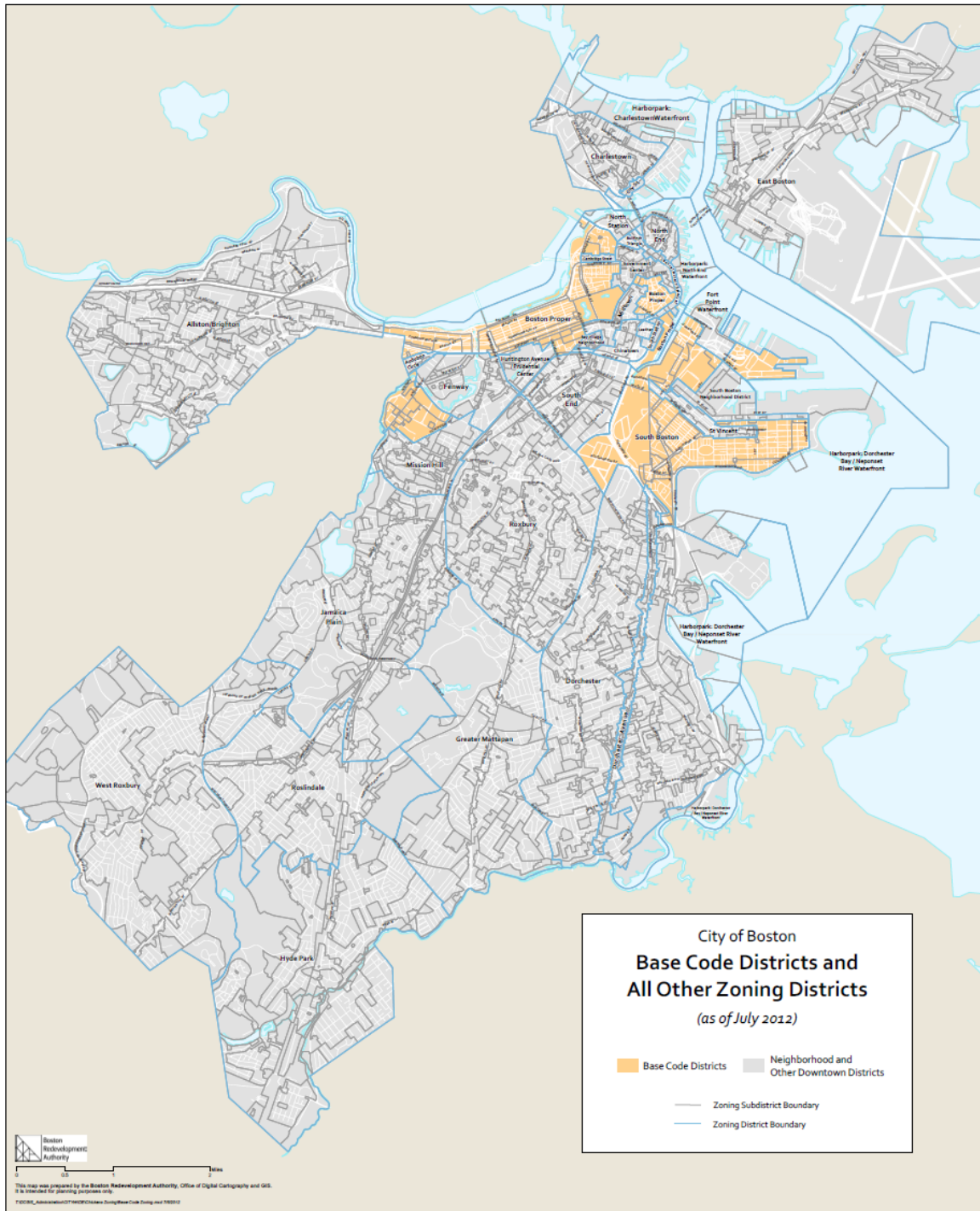
- Bulfinch Triangle District
- Cambridge Street North District
- Chinatown District
- Government Center/Markets District
- Huntington Avenue/Prudential Center District
- Leather District
- Midtown Cultural District
- North Station Economic Development Area
- South Station Economic Development Area
- Harborpark District

Just as in the neighborhood districts, there is no reference to farmers' markets or the outdoor sale of agricultural produce in any of the Downtown Districts, Harborpark District or Central Artery Special District. Farmers' markets are therefore forbidden in these districts as well.

### **How Farmers' Markets Are Currently Permitted in Boston**

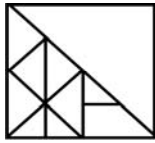
How is it possible that farmers' markets can exist in so many parts of the City where they are technically forbidden by the Zoning Code? The answer is that the permitting of each farmers' market requires among other things a hearing before the Zoning Board of Appeal to permit an otherwise forbidden use. The Zoning Board of Appeals expects to see a letter of support from the Office of Neighborhood Services testifying to neighborhood support for the market. Securing this letter adds additional time and effort to the permitting process.

The permitting process to operate a Farmers' Market in Boston contains several steps. The City's Inspectional Services Department (ISD) – Division of Health Inspections is the regulatory body for Farmers' Markets. Once a Market Manager is designated, he or she will begin with this City agency in order to operate the Market. According to the ISD website:



### Figure 2





**The following permits will be required:**

- Short Form Building permit, ISD (cost permit application = \$50)
- Retail Farmers' Market Health License, ISD (Cost of application = \$100 - *only needed if selling packaged/processed foods*)
- Public Works permit, if selling on a public way
- Parks Department, if selling in a park
- Entertainment License, if amplified music
- Boston Fire Department (permit for portable generator - if applicable)

**Applicants may also be required to provide:**

- Contract for waste removal
- Letter of support from the Mayor's Office of Neighborhood Services; listing days and hours of operation and all activities
- A \$1000 check or bond deposit may be required for cleanup based on the type of activities.

According to Boston's Office of Food Initiatives website,<sup>2</sup> Items that can be sold at Farmers' Markets include fresh, uncut produce, honey (apiary registered with MDAR), maple syrup, meat (frozen), poultry (frozen), milk (requires a Certificate of Registration), wine (requires liquor license), fish/crustaceans (below 41°), processed/packaged foods (requires Retail Health License), food samples. Food demonstrations are permitted but must comply with health and fire codes. Music is allowed with an entertainment license, and non-food items are permitted, however, they should be accessory to the food items (i.e., cutting boards). Boston had not previously allowed the sale of fish at farmers' markets but launched a pilot program for selling both finfish and shellfish in carefully monitored conditions at indoor winter markets. The sale of fish has now been expanded to outdoor markets.

Bounty Bucks is a partnership between the City of Boston and the Boston Collaborative for Food and Fitness that promotes the use of government food assistance at farmers' markets. In the past, farmers' markets, where transactions typically involve cash, had difficulty accepting food stamps because the federal Supplemental Nutrition Assistance Program (SNAP) uses debit cards. The Bounty Bucks program, run by the Boston Collaborative for Food and Fitness, provides some Farmers' Markets with Electronic Benefit Transfer (EBT) terminals, which allows markets to accept payment via the EBT debit cards on which households receive SNAP benefits. Bounty Bucks also matches Supplemental Nutrition Assistance Program (SNAP) purchases at markets up to \$10 in an effort to provide healthy and whole foods and produce to lower income individuals and families.

*State Regulation:* The State's Department of Agricultural Resources (MDAR) and Department of Public Health Food Protection Program (FPP) come into play with the permitting of Farmers' Markets. Massachusetts Regulation 105 CMR 590.000 requires the relevant Local Board of Health to license and inspect markets selling anything other than uncut fruits and vegetables, unprocessed honey, maple syrup, or fresh eggs. FPP recommends such licensing for individual vendors rather than the market as a whole. They also provide regulations regarding hand washing, and approved sources of processed foods.

---

<sup>2</sup> <http://www.cityofboston.gov/food/farmers/>

### **Research from Other Cities**

Farmers' markets surge in popularity extends beyond city lines. Like Boston, the neighboring cities of Brookline, Cambridge, and Somerville have seen an increase in demand for farmers' markets in recent years. Given the complexity of starting a market in Boston, looking at a nearby example of a simpler and more permissive process helps give ideas for appropriate zoning for Boston.

### **Somerville**

There is an explicit land use item in the Permitted Use Table of Somerville's Zoning Code called "Farmer's Market or Roadside Stand Selling Agricultural Products (indoor or outdoor)". This use item is generally allowed in multi-family residential, commercial and industrial districts and only by special permit (*a special permit requires review and a hearing by the Special Permit Granting Authority*) in open space or Planned Unit Development (PUD) Areas if the market will be < 5,000 sf.

The size category then increases to markets between 5,000 sf and 9,999 sf. Similar use regulations apply, except that Markets of this size are not allowable in any residential districts, and by special permit in purely commercial districts, open space or PUD areas. They are allowed in mixed use and industrial districts.

Finally, a Market > 10,000 sf requires a special permit in any zoning district.

The process for setting up a Farmers' Market in Somerville requires a dedicated Market Manager to submit a "Farmers Market Retail Food Permit Application" fourteen (14) days before the start date to the Department of Inspectional Services Department – Health Division at the City of Somerville's offices. Similar to the City of Boston, it is a detailed application that requires the listing of items to be sold, food handling procedures, contact information of the Market Manager, operations, food sampling procedures, food cooking demonstration procedures, etc.

<b>Existing Markets</b>	<b>Day and time</b>	<b>Length of season</b>
<a href="#"><u>Davis Square</u></a>	Wednesday, noon - 6 p.m. (Closes at 5 p.m. in November)	May 27 to Nov. 25
<a href="#"><u>Union Square</u></a>	Saturday, 9 a.m. - 1 p.m.	June to October

Aside from the existing Farmers' Markets in Somerville shown above, a proposed amendment for future on-site sales of agricultural products is found in the Urban Agriculture Zoning Amendment dated 4/12/12.

The Somerville Board of Alderman Land Use Committee is scheduled to review the amendment on August 8, 2012 and may take one or multiple meetings to make a recommendation to the full Board of Alderman. The full Board of Alderman will then vote as will the Board of Health. Somerville staff anticipates that the Amendment will be passed in late summer/early fall.

In the permitted use table within the Amendment, on-site sales of agricultural projects will be a footnote to agricultural based activities, and will generally be allowed in residential, commercial and industrial districts (with special permits required if selling eggs or honey) with the following provisions:

- a) Sales of produce shall be permitted between the hours of 8:00am and 6:00pm, May 1 – Oct. 31 of each year
- b) Sales shall be permitted not more than three (3) days per week;
- c) Sales shall be permitted no more than twenty-five (25) days per year
- d) No sales display or structure shall be located on public sidewalk, street or block vehicle and pedestrian flow;
- e) Sales display, structure, and signage must be stored out of site while not in use;
- f) Signage shall be limited to one (1) sign and not exceed 64 square inches; and,
- g) Proof of annual soil testing must be posted during all sales

### **Other Cities**

Attachment A summarizes regulatory provisions from more than a dozen other U.S. cities concerning farmers' markets and on site sales. The information contained in the table is summarized below.

### **Farmers' Markets**

#### ***Farmers' Markets on Public Land***

Some cities use zoning ordinances to steer farmers' markets to publicly owned land or to specific locations in the city. Chicago allows the Commissioner of Cultural Affairs and Special Events to approve markets on public ways and on city property, provided that the Alderman of the relevant ward approves as well. Sacramento, in seeking to establish a producers' market within the city, requires that the market be located on a site selected by the City Manager and approved by the City Council. San Francisco's Administrative Code allows farmers' markets at any location selected by the County Agriculture Commissioner and owned or leased by the City or County, including Recreation and Park land subject to the Recreation and Park Commission's approval. Philadelphia's provisions for farmers' markets restrict possible locations to 32 specifically identified blocks and corners in the city.

#### ***Restrictions Based on Location and Zoning District***

Many other cities more permissively allow farmers' markets on privately owned land, but forbid them within residential zones. San Diego permits markets as a by-right, limited use in commercial zones and some industrial zones, but forbids them in residential zones. In Charlotte, North Carolina, the code allows single stands from off-site producers in several business and commercial zones; more traditional farmers' markets are as-of-right in mixed use districts. Memphis allows farmers' markets by right in Commercial Mixed Use, Central Business District, and Employment districts and as a special use in Conservation Agriculture and Civic districts, but forbids markets in residential zones.<sup>3</sup>

---

<sup>3</sup> Markets are only by right in Memphis if run by non-profit or civic organizations as determined by the Director of Planning. For-profit operators must receive a special use permit.



While more permissive cities allow farmers' markets in residential areas, they typically restrict them to some degree. Portland, Oregon forbids farmers' markets in its lower-density residential zones but allows the use in denser residential areas and all other zones. Minneapolis requires that markets in residential zones be sited on institutional or public use sites, or on lots of at least 20,000 ft<sup>2</sup> in area. Madison, Wisconsin also restricts farmers' markets in residential neighborhoods, only allowing them as a conditional use in the parking lots of non-residential uses within residential zones. In several open space, commercial, and manufacturing districts, Madison allows markets in parking lots of non-residential uses by right.

### ***Permitting Agency***

Cities differ on what city agencies permit or administer farmers' markets. Where cities require markets to obtain a special use or conditional use permit, such as Minneapolis, Madison, Charlotte, and Memphis, they follow standard zoning procedure for the permit, empowering planning and zoning departments and zoning boards of appeal to regulate the use. In cities that offer public land for markets, such as Chicago and San Diego, the code may require approval from special events offices. Because of the presence of food sales, individual vendors may require licenses from health departments. Chicago collects a fee of \$25 per day from each producer at a market, while San Francisco collects daily fees ranging from \$40-\$60 depending on a stall's organic certification and whether it is summer or winter. Philadelphia assesses a \$300 annual fee on renewable one-year permits for markets.

### ***Products Allowed for Sale***

Because many cities have undertaken planning for farmers markets with the goal of promoting access to fresh, local food, they often restrict the products that vendors may sell. Chicago allows only whole and uncooked fruits and vegetables, fruit juices, edible grains, nuts, honey, and flowers grown by the seller or his or her family and employees. Sellers may only offer prepared foods with written permission from the Department of Cultural Affairs and Special Events. Sacramento permits only sellers' own produce, plus products produced on land owned or leased by the seller, and only products not sold in any wholesale market. In San Diego, sellers cannot offer any processed or value-added products at daily markets, although the city does not similarly restrict weekly markets. Madison restricts all products to "personally prepared food," which includes not only raw foods but also food or beverage produced by the vendor and derived from foods raised by the vendor, including jams and sausages. Other cities allow the sale of somewhat more non-produce items. Charlotte regulates based on sales, allowing up to 10% of total sales to come from fruit- or vegetable-derived products or baked goods. Minneapolis restricts items by the area dedicated to produce and non-produce; no more than 25% of sales area can be for non-agricultural products. Memphis liberally allows up to 50% of the sales area to be devoted to items other than fruits or vegetables. Portland observes three categories. At least 50% of vendors at a market must sell produce or value-added products derived from products they have grown or raised, up to 50% may be other food producers selling items such as fish, cheese, and freshly-made food, and up to 20% may be vendors unrelated to agriculture or food.

### ***Time Restrictions***

Some cities limit the timing and duration of farmers' markets through their zoning codes. Chicago, Philadelphia, Sacramento, San Francisco, and Madison do not address restrictions in days or hours. Portland allows any given market to be open up to 70 days per calendar year, Minneapolis sets a limit of 75, and Charlotte permits a market to be open for up to 180 days, between April 15 and October 15 only. Memphis limits operating hours to between 9 AM and 6 PM, while Charlotte allows activity between 30 minutes after sunrise and 30 minutes after sunset. San Diego establishes two categories of market: a daily market that can be open seven days per week and weekly markets, which it limits to one day per week per location.

While most cities' codes remain silent about design considerations for farmers' markets, some include requirements for stall design and signage. Philadelphia envisions stands of no more than 50 feet in length, with five feet between stands and one sign per stand. For standalone produce stands outside of markets, Charlotte establishes a 360 ft<sup>2</sup> maximum size and requires a finished wooden structure atop a roadworthy trailer. San Diego limits stands in daily markets to no more than five feet in depth and 16 feet in length. Both Minneapolis and Memphis require market managers to submit site plans for administrative review. Chicago, Sacramento, San Francisco, Madison, and Portland specify no design requirements. Other miscellaneous requirements include San Francisco's requirement that vendors accept EBT payments,

### **Onsite Sales**

Cities restrict onsite sales of farm products based on both use definitions and zoning districts. Many cities tie their regulations of onsite sales to specific use provisions for urban agriculture, often distinguishing between personal or community gardens and more commercially oriented farms. Minneapolis allows onsite sales for several agricultural uses (community gardens, market gardens, and urban farms) at temporary, accessory farm stands, except in the general industrial zoning district. San Francisco created a special type of Neighborhood Agriculture use for smaller-scale urban farming on less than one acre, whether a home, community, or market garden or an urban farm, and allows on-site sales citywide; the only restrictions are that onsite sales of value-added products cannot occur in residential areas and sales cannot take place within dwellings. In Seattle, the code allows Urban Farms as a primary use in many commercial and industrial zones and as an accessory use in any zone, and allows onsite sales of farm products wherever the use exists. Portland allows Market Gardens to sell directly to consumers with little restriction in nonresidential zones, and allows sales as accessory to agricultural uses in residential zones.

Charlotte, North Carolina effectively limits sales by requiring large lots for agricultural uses allows the Farm use, which "may include facilities for the sale of such products from the premises" by right in almost all districts, but defines Farms as containing at least three acres. San Diego limits Retail Farms to a maximum of four acres and permits them, with onsite sales, as a limited use in several larger-scale commercial zones and in a light industrial zone.

Some cities rely on the distinction between primary and accessory uses to limit sales in different zones. Denver allows retail or wholesale sales of products derived from Garden uses when the Garden is accessory to a nonresidential primary use in any zone. In residential zones, sales are prohibited where



Gardens are accessory to a residential primary use. Urban Gardens as a primary use with accessory sales are permitted, subject to limitations and Planning Department review, in all zoning districts. Cleveland allows sales in residential districts where agriculture is the primary use, as well as in the extent of the special Urban Garden Districts.

The zoning code for Kansas City, Missouri addresses the sale of products from home gardens, community gardens, community-supported agriculture (CSA), and commercial farms in several zones. The city allows onsite sales for home gardens and CSAs in all zones, but allows onsite sales from community gardens only on otherwise vacant land, and not on residentially zoned and occupied property outside of R-80 zones, the lowest density residential district type. In most zones, Kansas City requires a special use permit for onsite sales from commercial farms; in R-80, sales are allowed by right.

Philadelphia recently adopted a very permissive policy, allowing sales on the same lot as an Urban Agriculture use or in locations where retail sales are allowed. The new zoning code defines Urban Agriculture as including nurseries, greenhouses, Community Gardens (with incidental sales), and Market or Community-Supported Farms (with non-incidental sales). Philadelphia allows Urban Agriculture as a primary or accessory use and allows them with sales in almost all districts, including residential zones, but requires a special permit in the lowest-density residential districts.

Not all cities specify a permitting agency for onsite sales in their codes, but as with farmers' markets, cities that require special permits or conditional use approval follow their standard zoning procedures. In Kansas City, Seattle, and Philadelphia, the Planning Department and, potentially, Planning Commission and Zoning Board of Appeals control permits. In Cleveland, farm stands in residential districts require approval from the BZA and a building permit from the Department of Building and Housing, as well as any applicable permits from the Department of Public Health.

Many cities explicitly limit sales to products grown or made on site. Kansas City allows only the sale of whole, uncut produce from the site, while Cleveland and Portland allow crops plus value-added products created from food grown onsite. San Francisco allows the sale of crops, but limits the sale of value-added products to non-residential zones. Seattle, Philadelphia, and Charlotte imply sales restrictions through their definitions of urban agriculture, allowing food and non-food crops and "farm products." San Diego requires that 75% of all products sold be produced on site.

Cities commonly place restrictions on the hours and days of onsite farm sales. San Diego limits sales to between sunrise and sunset, while San Francisco names the hours of 6:00 AM and 8:00 PM and Minneapolis 7:00 AM and 7:00 PM. Other cities restrict the hours specifically in residential districts; in Portland, farms and gardens may sell only between 7:00 AM and 9:00 PM, while Seattle restricts sales in residential zones to between 7:00 AM and 7:00 PM and Cleveland between 8:00 AM and dusk. Additionally, Minneapolis limits sales to no more than fifteen days per year. Portland limits market gardens in residential zones to sales on 70 days per year, and community gardens to only three consecutive days twice per year. In Cleveland, community gardens may have only "occasional" sales.

## **Lessons Learned**

### ***Farmers' Markets***

With the massive growth in farmers' markets in recent years, many cities across the country have addressed the use in zoning codes, providing numerous models and examples on which Boston can draw. Some common themes emerge from various policies:

- Most cities define farmers' markets as outdoor, temporary markets where producers sell directly to the public. Some specify limits to allowable products in their definition of the use.
- Cities that allow markets generally do so in commercial and business zones, while restricting or forbidding them in residential and industrial districts. Where cities allow markets in residential areas, they often make markets a conditional use or provide specific restrictions such as limiting the hours or days on which they may operate. Some cities use their codes to steer markets to publicly owned land or to specific locations selected or approved by administrators.
- Many cities regulate the types of products available for sale at farmers' markets. Cities encourage and emphasize whole produce grown by the market's vendors, with some cities requiring most or all products to be such produce. Many cities do allow a limited amount of value-added products, such as jams or pickles, restricting to a percentage of sales area, vendors, or sales.
- Most cities do not use the zoning code to impose restrictions on the operating hours of a market, but several do restrict them to a certain number of days per week, season, or year. Most codes are also silent on design criteria specific to farmers' markets, although some require submission of a site plan for review or limit the size of individual stalls.

### **Onsite Sales**

As part of zoning for urban agriculture, many cities have addressed farms' and gardens' ability to sell directly consumers on site in zoning. Cities have adopted a range of approaches to the potential conflict between residential neighborhoods and retail sales by setting out explicit procedures and policies to manage onsite sales.

- Many cities use zoning definitions to differentiate between personal gardens, community gardens, market gardens, and urban farms, allowing them to direct appropriate sales regulations at agricultural uses of different intensities. The definition of a market garden, retail farm, or urban farm often specifically mentions the intent and need for non-incidental, commercial sales of crops and products.
- Cities that allow agriculture in residential zones generally allow some limited amount of onsite sales, often through a conditional use or special use permit.
- Cities generally limit the products for onsite sales to produce grown on site and value-added products derived from crops grown on site.
- Typically, cities restrict onsite sales, particularly in residential areas, to approximately sunrise to sunset.

- Specific parking requirements are rare.

## **Preliminary Recommendations for Boston**

### ***Farmers' Markets***

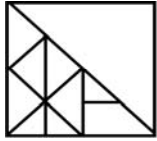
Given that current zoning for farmers' markets in Boston is restrictive and requires special permits, the City should aim to provide greater ease and consistency for those establishing markets. Streamlining the process would encourage markets that will benefit both urban farmers seeking to sell their products and consumers seeking fresh produce and local food. Such a policy could include:

- A new use category for Farmers' Markets as part of Article 89, defined as: a temporary outdoor market where farmers, producers and other vendors sell whole produce; value-added agricultural products such as jams, jellies, and pickles; prepared food; plants; flowers; meats; dairy products; shellfish and finfish; and other food-related products. Additionally, some vendors may sell non-food-related products and services, however, vendors shall sell predominantly food-related products. Entertainment and other community building activities may also be provided.
- Establishment of Farmers' Markets as an **allowed** use in commercial, industrial, and mixed-use districts; as an accessory use in a multi-family residential district where a primary use as a church, school or parking lot. Farmers' markets should otherwise be **conditional** uses in residential districts, specifically those zoned 1F, 2F, and 3F.
- Farmers' Market vendors should require the same permitting from ISD for the sale of certain foods as they currently do, but the market will require no letter from ONS. Farmers' markets on City-owned property, such as parks, may still require permits from the relevant department.
- Farmers' markets should consist primarily of food vendors, but shall allow some non food vendors, understanding that these can help to catalyze and sustain a farmers market.
- The code should not require the market to provide parking spaces.

### ***Farm stands and Onsite Sales***

The possibility of selling produce or distributed CSA shares on site may prove important to small urban farms, particularly given the likely small profit margins and high costs of transport. Onsite sales may also build the sense of community that urban agriculture promises to neighborhoods. Article 89 should:

- Establish onsite sales of farm products as an accessory use to all types of urban farms. Farm products should be defined to include whole, uncooked fruits and vegetables and non-food crops. Sales should be defined to include the pickup of periodic distributions of community supported agriculture (CSA) farm shares.
- Onsite sales should be an **allowed** use in any zoning district that allows retail sales.
- In residential zoning districts, farm stands selling only whole produce grown on site and CSA pickups should be **allowed** up to two days per week for a limited number of hours per day. Proposed farm stands should be evaluated as part of the



Boston  
Redevelopment  
Authority

Comprehensive Farm Review to address any farm stand design, signage, and neighborhood compatibility or parking issues.

- In residential districts, onsite sales should occur only between 9 AM and 7 PM.

**Attachments:**

**A - Matrix of Zoning Regulations for Farmers Markets and Onsite Sales in Other U.S. Cities**