Healthy Food Systems

Joe Holmes & James van Hemert

The Rocky Mountain Land Use Institute

Sustainable Community Development Code
Research Monologue Series:
Healthy Human Environments

RMLUI
Rocky Mountain
Land Use Institute

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About the Research Monologue Series
The Sustainable Community Development Code, an initiative of the Rocky Mountain Land Use Institute, represents the next generation of local government development codes. Environmental, social, and economic sustainability are the central guiding principles of the code. Supporting research for the code is represented by a series of research monologues commissioned, presented and discussed at a symposium held at the University of Denver in September of 2007. RMLUI and the University of Denver's Sturm College of Law extend its gratitude to the authors of the papers who have provided their talents and work pro bono in the service of the mission of RMLUI and the stewardship of the creation.

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The food system contributes close to $1 trillion to the national economy and employs more than one in six Americans. While the food system remains an integral part of the national economy, 2006 marked the first year where the United States imported more food products than it exported. Additionally, food is coming from increasingly distant sources – the average distance being approximately 1,500 miles. Growing, processing, and delivering the food consumed by a family of four each year requires more than 930 gallons of gasoline, roughly the same amount used to fuel the family's cars. In fact, in 2000, approximately 10 percent of all energy used in the U.S. was consumed by the food industry. In this article we examine successful regulations and incentives that promote a more sustainable food system. This article is part of a larger Sustainable Community Development Code Reform project that the Rocky Mountain Land Use Institute is conducting.

Sustainability – the process of being able to maintain a system ad infinitum or at least well into the future – is an idea gaining ground in the public consciousness. Whether through "greener" buildings and automobiles or conservation efforts to reduce our ecological footprint, people are beginning to comprehend the urgency of building a more sustainable world. Despite these strides, the sustainability discussion is still not sufficiently inclusive, neglecting the important role of local government tools, regulations, and police powers. Our objective is to expand upon familiar topics to the sustainability discussion – transportation, urban growth management, and environmental concerns – while also bringing new issues into the sustainability conversation such as community identity and participation, security, natural hazard planning, and the topic presented here – the food system.

It is our belief that in order for a society or city to be truly "sustainable" we must look at housing options, modes of transportation, energy consumption rates and dedication to alternative and renewable energy sources. In addition, we must consider the specific natural hazards a given community may face based on its geography, climate, or building patterns, the health of the natural environment, the built-environment and its effect on our health and well-being, the community's food system, the perceived safety and comfort levels of people in the community, and a system of local governance that is both inclusive and receptive to the needs of all citizens. To date, all zoning approaches and standards fail to address the full range of sustainability issues we face today. Single use Euclidian zoning – zoning by exclusion and separation – has largely contributed to the sprawling environments that exist in nearly every big city region. Performance mitigation standards presume that most uses are acceptable, even in areas where no development should occur. Strong environmental and natural resource standards are almost completely absent from the heavily design focused Smart Code zoning model encouraged by the New Urbanist movement. Ultimately, while these varied approaches are valuable tools to planning, each is incomplete. Our intent is for this research to be a first step in a more holistic and inclusive sustainability discussion.

The Food System

Broadly defined, the "food system" is the sequence of activities linking food production, processing, distribution and access, consumption, and waste management, as well as all the associated supporting and regulatory institutions and activities.[1] Today's industrial food system contributes nearly $1 trillion to the national economy (more than 13 percent of the GDP) and employs roughly 17 percent of the labor force.[2] Despite the obvious impact the food system has on all facets of modern life (e.g. energy consumption, the environment, public health, economic development, and social equity), local government officials have been reluctant to intervene in this commonly thought of private market domain.

While agriculture remains America's primary land use, with almost 1 billion acres of land devoted to agricultural uses, farmland in metropolitan areas is disappearing rapidly. In addition, there is a clear trend towards greater concentration of ownership and increased vertical integration of the various processes within the food system. This integration has led to a significant decline in the number of mid-size "working farms" (farms between 50 and 1,000 acres) and a corresponding increase in the number of larger farms (farms over 2,000 acres).[3] These shifts in the food system have led to an increase in removed decision making which threatens the economic security of rural communities.

Globalization has also transformed our food system. Food comes from increasingly distant sources, the average food item traveling at least 1,500 miles.[4] While the United States considers itself the breadbasket of the world, the value of food imported into the U.S. exceeded the value of food exported from the U.S. for the first time in 2006. [5] In an era of free trade, local governments are left largely powerless in their attempt to protect local farmers, producers, and manufacturers of food items. Globalization has also lead to increased consumer ignorance regarding the sources of the foods they consume.

Our changing food system has also had significant negative impacts on public health. Federal farm policy and subsidies have encouraged the overproduction of commodities such as corn and soybeans, which has resulted in significant repercussions for farmers, rural and urban communities, and public health. Artificially low prices have led to heavy use by the food industry of products such as hydrogenated vegetable oil and high fructose corn syrup, which directly lead to obesity and related illnesses.[6] The 2007 farm bill currently being considered by Congress hopes to, for the first time, give fruit and vegetable farmers $1.8 billion in subsidies over the next five years.[7] While this is a good first step, this subsidy represents less than one percent of the $286 billion bill.[8] At the other end of the spectrum, in 2005 11 percent of all U.S. households were "food insecure" due to a lack of sufficient food.[9] Both obesity and food insecurity have disproportionate impacts on blacks and Hispanics. Largely minority and poor neighborhoods contain fewer supermarkets on average, contain a higher density of convenience stores offering fewer healthy food options, and contain an above average number of fast-food outlets.[10]

The food system dilemma also extends into the environmental domain. On average, eight calories of energy are needed to produce one food calorie. In addition, growing, processing, and delivering the food consumed by a family of four each year requires more than 930 gallons of gasoline, roughly the same amount used to fuel the family's cars.[11] Moreover, in 2000, approximately 10 percent of all energy used in the U.S. was consumed by the food industry.[12] These rates of consumption have serious effects on global warming. Globally, approximately one-third of the total human-induced warming effect due to greenhouse gases (GHG) comes from agriculture and land use change. In the U.S., agricultural emissions account for approximately 8 percent of total U.S. GHG emissions when weighted by their relative contribution to global warming.[13] In addition, studies have found that roughly 30 percent of all solid wastes are related to food consumption, half of that being associated with food packaging.[14]

Traditionally, planners have attempted to draw clear lines between the urban and the rural, essentially creating areas of food production and food consumption. However, this dichotomy often proves to be an oversimplification and may be harmful to the socially desirable goal of sustainability. Likewise, given the complex nature of land use patterns, it is helpful to recognize an urban/rural continuum rather than the traditional dichotomy. For discussion purposes, however, we will focus on the predominantly urban and rural character at either end of the spectrum. Key areas of concern that can be addressed with zoning include the production of food in rural and urban areas, the protection of agricultural land, and enhancing markets for local foods.

Predominantly Urban

Few zoning ordinances adequately address urban agriculture. However, there are a few notable exceptions. The City of Davis, California, for example, explicitly permits agricultural uses, including the raising of animals and fowl for noncommercial purposes, in its residential and industrial zones.. Most cities prohibit the raising of fowl, such as chickens, even though there is no public health issue associated with low quantities of fowl. In addition to producing healthy, organic eggs, chickens eat biodegradable garbage. The municipality of Deist in Flanders, Belgium, gave 2,000 households a gift of three chickens each as an economic solution to the costly problem of recycling biodegradable trash. A chicken can consume approximately nine pounds of kitchen garbage a month. The encouragement of urban animal husbandry can help erase the artificial barriers between the urban (non-agricultural) and the rural (agricultural).[15] Additionally, increased composting can also help to diminish waste.

In most large cities, there is an unrealized potential for urban gardening. Fruit trees, roof gardens, and crops that thrive in linear and vertical spaces are appropriate for the high density urban core, which the New Urbanist transect refers to as the T-6 zone. Less vertically oriented gardens can be grown in recreation areas, rights of way, and multi-function greenways within the urban center T-5 zone community gardens. Community gardens, private gardens, and edible landscaping are appropriate in the general urban T-4 zone.[16] A survey indicated that Chicago has 70,000 vacant lots, Detroit 60,000, and Philadelphia 31,000. Nationwide, there are hundreds of thousands of vacant lots. The Urban Agriculture report summarizes why urban agriculture is so

attractive: it has a "regenerative effect…when vacant lots are transformed from eyesores – weedy, trash-ridden, dangerous gathering places – into bountiful, beautiful, and safe gardens that feed people's bodies and souls."[17]

Access to local food markets is critical if farming is to survive as a viable economic activity and if locally produced foods are to be widely available. Increasingly, smaller growers are shut out of the big food retailers' markets. Farmers' markets are a popular and very effective way to promote and market local food production. Some of the most successful and sustainable markets are year round public markets such as those in Santa Fe, New Mexico, Seattle, Washington (Pike Place Market), and Vancouver British Columbia (Granville Island Farmers Market). The latter two in particular have become so successful that they are now major tourist destinations. Zoning can provide a framework for farmers' markets to compatibly exist with neighborhoods. Some cities have set goals for local food production; Toronto, for example, hopes to supply 25 percent of its fruit and vegetable production from within the city limits by 2025.[18] Additional means to enhance the local food market may also include "food to school" programs and the promotion of local foods by chefs.

In an effort to combat the social inequities of our current food system, communities are exploring a variety of land use strategies. These strategies attempt to limit the number and density of fast-food restaurants, improve the nutritional value of foods sold in smaller shops and convenience stores, and support the establishment of full-service supermarkets in underserved areas. In San Francisco, for example, when rezoning threatened neighborhood food access, a special use district was formed to encourage the siting of a supermarket.[19] Similarly, in Rochester, New York, planners worked with neighborhood groups to bring a Tops Supermarket to the Upper Falls area, a low-income neighborhood that had previously gone without a grocery store. As a result of these efforts, Tops agreed to open three additional stores in the city, thereby increasing access to a variety of affordable and healthy food choices.[20] In Arcata, California, the city council capped the number of fast-food restaurants at any one time to nine (the current amount). This ordinance essentially barred a fast-food restaurant from locating within the city unless it replaced an existing restaurant at the same location.[21] Similarly, New York City is also considering zoning changes to limit the number of fast-food establishments in an effort to fight chronic obesity, especially in poor neighborhoods.[22]

Predominantly Rural

Most planners are familiar with Transfer of Development Rights and Agricultural Protection zones. The former trades development rights from sending to receiving zones requiring a sophisticated and costly administrative system that few communities have adopted. The latter requires strong regional or state land use control, generally lacking in most rapidly growing areas. Additional tools that may gain more widespread currency include conservation easements and outright purchase of productive agricultural area by land trusts or local communities. However, zoning codes often treat agriculture as a holding or transitional zone until urban development encroaches.

The City of Davis, California emphasizes the importance of agricultural land protection and requires a citizen vote prior to taking any lands out of agricultural production for development, without invoking referenda.[23] Similarly, in Marin County, California, the County created the Marin Agricultural Land Trust (MALT) to protect its agricultural heritage for the benefit of future generations. MALT was the first land trust in the country to be used toward the preservation of agricultural land. Today, there are three main goals that make up the Agriculture and Food Element of the Marin Countywide Plan: (1) preserve agricultural lands and resources, (2) improve support of agricultural viability, and (3) increase community food security.[24]

In 2003, the nation's 238,000 feeding operations produced 500 million tons of manure; the Environmental Protection Agency estimates that over half of this manure was produced by a relatively small percentage of facilities known as Concentrated Animal Feeding Operations (CAFOs). CAFOs are agricultural facilities that house and feed a large number of animals in a confined area for 45 days or more during any 12 month period of time. Health threats from CAFOs include: chronic and acute respiratory illness, injuries, infections, nuisances such as flies and odor, the spread of stronger strands of E. coli, and environmental problems such as ground water contamination. One promising method to reduce odors and generate renewable energy from livestock manure in CAFOs is anaerobic digestion.[25] The effective management of livestock is essential to public health and the environment in rural agricultural areas.

Overly simplistic zoning standards serve as a barrier to a wide range of agriculturally affiliated uses such as wineries. Zoning commonly bars wineries and similar value added uses from agricultural districts because they are categorized as "manufacturing," which is allowed only in industrial districts. Furthermore, the size of a winery largely influences its potential impact in the neighboring area. "One-size-fits-all" approaches to planning do not fully capture the nature of varied land uses and the differences in potential impacts of similar land uses.

Zoning codes can be overly simplistic when they broadly prohibit the industrial component of agriculture in an agriculture zone. Agriculture by its very nature has an industrial component. This, of course, raises an important question about the extent to which agriculture has become industrialized and "commoditized." We must ask, do we see agricultural zones as quiet and bucolic "open space" preserves for urbanites and exurbanites to enjoy, or are they truly places of food production with all the attendant noise and smells?

<u>Potential sustainability measures:</u>

- Average distance a food item travels (the lower, the better)
- Percentage of community demand met from agriculture within the community
- Average distance to healthy food
- Energy consumption to food production ratio

<u>Land Use Code Strategies</u>

Removing Obstacles

- Eliminate unnecessary barriers to urban animal husbandry

- Deemphasize the old world notion of urban areas as areas of food consumption and rural areas as areas of food production
- Eliminate excessively restrictive regulations for farmers' markets and urban gardens (including for open spaces and park land)
- Remove permissive rural residential lot regulations

Incentives

- Tax increment financing for grocery stores in underserved areas
- Zoning incentives (less restrictive setback requirements or parking requirements) for grocery and retail stores that wish to move into underserved areas
- Exclusive contracts with local food producers for all government functions
- Local government organization of land trusts to protect agricultural lands

Regulations

- Progressive and more permissive animal unit regulations
- Broaden permitted uses by right in agricultural zones
- Restrict rural exurban lot development
- Progressive and more permissive farmers' market regulations
- Expand urban gardening uses in all zone districts
- Limit the number of fast food restaurants

Notes

1. American Planning Association, "Food System Planning – Why is it a Planning Issue?" http://www.planning.org/divisions/initiatives/foodsystem.htm (last visited July 17, 2007).
2. American Farmland Trust – Farmland Information Center, "Fact Sheet – Why Save Farmland?" http://www.farmlandinfo.org/documents/28562/Why_Save_Farmland_1-03.pdf (last visited June 27, 2007).
3. American Planning Association "Policy Guide on Community and Regional Food Planning," http://www.planning.org/policyguides/food.htm (last visited July 13, 2007).
4. *Ibid.*
5. United States Department of Agriculture Foreign Agricultural Service, "2006 U.S. Trade Internet System," http://www.fas.usda.gov/ustrade/ (last visited June 25, 2007_
6. American Planning Association "Policy Guide on Community and Regional Food Planning," http://www.planning.org/policyguides/food.htm (last visited July 13, 2007).
7. Dan Morgan, "Farm Bill Leaves Some Subsidies: Proposal Includes New Grants for Fruit and Vegetable Industry," *The Washington Post* (July 19, 2007), p. A02.
8. Anne Mulkern, "Farm bill is fertile ground for disputes," *The Denver Post* (July 27, 2007).
9. USDA Economic Research Service, "Household Food Security in the United States, 2005," http://www.ers.usda.gov/Briefing/FoodSecurity/ (July 11, 2007).
10. American Planning Association "Policy Guide on Community and Regional Food Planning," http://www.planning.org/policyguides/food.htm (last visited July 13, 2007)
11. Thomas Starrs, "The SUV in the Pantry," *Sustainable Business* (October 25, 2005).
12. Martin C. Heller and Gregory A. Keoleian, "Life Cycle-Based Sustainability Indicators for Assessment of the U.S. Food System," *Center for Sustainable Systems – University of Michigan*, http://www.public.iastate.edu/~brummer/papers/FoodSystemSustainability.pdf (last visited June 28 2007).
13. Pew Center on Global Climate Change, "Agriculture's Role in Greenhouse Gas Mitigation," http://www.pewclimate.org/docUploads/Agriculture%27s%20Role%20in%20GHG%20Mitigation.pdf (last visited July 6, 2007).
14. American Planning Association "Policy Guide on Community and Regional Food Planning," http://www.planning.org/policyguides/food.htm (last visited July 13, 2007)
15. Linda Baker, "City Chicks," *Natural Home and Garden* (May/June 2006), p. 62-65.
16. The Grand Valley Metro Council and Greater Grand Rapids Food System Council, http://www.foodshed.net/urbanagzoning.pdf (last visited June 8, 2007).
17. Lester Brown, "Farming in the City," http://www.earth-policy.org/Books/Seg/PB2ch11_ss4.htm (last visited July 5, 2007).
18. City of Toronto, "Feed the City from the Back 40: A Commercial Food Production Plan for the City of Toronto," http://www.toronto.ca/health/tfpc_feeding.pdf (last visited July 17, 2007).
19. Lisa Feldstein, "Linking Land Use Planning and the Food Environment," http://icma.org/sgn/newsdetail.cfm?nfid=2666&id=#autoID%23%20<http://icma.org/sgn/newsdetail.cfm?nfid=2666&id=autoID%23 (last visited July 9, 2007).
20. American Planning Association "Policy Guide on Community and Regional Food Planning," http://www.planning.org/policyguides/food.htm (last visited July 13, 2007).
21. Food Security Learning Center, "Case Studies," http://www.worldhungeryear.org/fslc/faqs2/ria_809.asp?section=18&click=3 (last visited June 29, 2007).
22. Lisa Feldstein, "Linking Land Use Planning and the Food Environment," http://icma.org/sgn/newsdetail.cfm?nfid=2666&id=#autoID%23%20<http://icma.org/sgn/newsdetail.cfm?nfid=2666&id=autoID%23 (last visited July 9, 2007).
23. City of Davis California, "Chapter 40 Zoning," http://www.cityofdavis.org/cmo/citycode/detail.cfm?p=40&q=2327&s=agricultural%20land&h=46BF645D37C20ED54A09120B0346110B (last visited July 19, 2007).
24. Food Security Learning Center, "Case Studies," http://www.worldhungeryear.org/fslc/faqs2/ria_809.asp?section=18&click=3 (last visited June 29, 2007).

25. Centers for Disease Control and Prevention, “Concentrated Animal Feeding Operations (CAFOs), About CAFOs,” http://www.cdc.gov/cafos/about.htm (last visited July 10, 2007).