Growing Food in Kane County: A Guide to Evaluating Public Land for Local Food Production

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Introduction

Across the nation and the Chicago region, there is growing demand for fresh, locally grown food. Today, researchers, land use practitioners, and community development professionals are working to demonstrate the connections between local food production, quality of life, and environmental health. Additionally, growing and selling food within local markets is increasingly being recognized as a legitimate economic development tool. National, regional, and local trends indicating a shift in farming practices and consumer demand present an opportunity to capitalize on the growing promise of local food economies.

However, there are many barriers to developing and strengthening local food systems, from policies that inhibit small-scale food processing, to distribution and access networks that do not connect consumers to the products grown nearby. There is a significant challenge to enabling a level of food production that meets local demand, which requires more training, infrastructure, and access to affordable and right-sized land for farmers to grow more food for human consumption. Public entities like Kane County, Illinois are considering solutions to the issue of land access for food production, which this report will explore further after examining the major agricultural trends that are shifting support toward local food systems.

Addressing these issues of increased demand and lack of accessible land for growing food, Kane County has begun to examine the possibility of converting land that is publicly owned — whether it is currently in agriculture, vacant, or underutilized — to be used for the production of food for local consumption. Through the Local Technical Assistance (LTA) program, the Chicago Metropolitan Agency for Planning (CMAP) and Kane County collaborated to create a decision-making framework for evaluating County-owned public land with the purpose of highlighting opportunities for local food production. The primary local partners for this project were the Kane County Development and Community Services Department and Forest Preserve District of Kane County (FPDKC).

Report Purpose and Audience

This report presents a framework for evaluating public lands for potential conversion to local food production. The report provides a brief discussion of about agricultural trends and benefits of growing products for human consumption. This is followed by criteria for evaluating and prioritizing land for growing food, and includes two demonstration case studies from within Kane County.

While this report focuses on Kane County, it can be adapted to suit other counties or public entities interested in exploring use of land for food production. Should a public entity decide to explore this opportunity, this report and related documents can be used as a decision-making tool. The considerations will vary across governmental level and locality, because criteria for a county may be different than for a municipality or a park district. However, the basic evaluation approach and criteria can be adapted for most public land holdings. While the analysis would
likely be led by planning, public works, community development, agricultural, or land preservation staff, the support and approval of elected officials would be necessary to pursue any potential land conversion identified through such an evaluation.

**Trends in Local Food Systems**

The agricultural and food systems in the U.S. have experienced major transformations over the past century, with continued changes on the horizon. Trends like economic globalization, technological advancements towards mechanized farming practices, and a push for efficiency and convenience have shaped America’s food system. As a consequence, throughout the 20th Century there have been fewer farms generating more products, while the distance from the farmer to the consumer has grown sharply. Much of what is grown on America’s most fertile soil is not produced for human consumption. For instance, in Illinois—which ranks as one of the top states in terms of acres of Prime Farmland—crops such as corn and soybeans are grown for a variety of uses on the vast majority of the state’s farms, while vegetables grown for human consumption comprised less than one percent of the state’s cropland in 2007.

Over the last half-century, as low-density, auto-oriented development patterns yielding high economic land development value have converted farmland near cities to urban uses, the total amount of agricultural land (as well and the number of farms) has been decreasing. Nearly 900,000 acres of farmland were removed from farm use between 1997 and 2007, some of which has been converted to other uses or simply removed from farm use. Yet even as the total amount of farmland has been decreasing, there has been an increase in the number of farms. This inverse trend has resulted in a greater number of smaller farms across the nation, the state, and the Chicago region (see Table 1). While commodity crops usually require large acreages to be profitable, food operations can run successfully on much smaller plots of land.

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th></th>
<th>Illinois</th>
<th></th>
<th>Chicago region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farms (number)</td>
<td>2,128,982</td>
<td>2,204,792</td>
<td>73,027</td>
<td>76,860</td>
<td>3,358</td>
</tr>
<tr>
<td>Average farm size</td>
<td>441</td>
<td>418</td>
<td>374</td>
<td>348</td>
<td>279</td>
</tr>
<tr>
<td>(acres)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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In 2007, less than 2 percent of the farms in Illinois were used for harvesting vegetables for human consumption, and yet there is an increased demand for locally grown food, as reflected through an increase in food outlets such as farmers’ markets that distribute and sell local fruits, vegetables, and animal products. In fact, Illinois is ranked third in the nation for the number of farmers’ markets operating across the state. Figure 2 (on page 6) displays the increase in the number of farmers’ markets over the last decade. The community, health, and economic benefits of locally sourced food have become more widely understood by policymakers and the general public, which further drives demand for a greater level of local food production. The rise in demand and the shift to smaller farm sizes creates an opportunity for diversifying the types of farming operations and enhancing local food systems across the U.S., Illinois, and the Chicago region.

Perhaps as a consequence of these national agricultural trends, federal policy has begun to open the door to supporting local food production. A comprehensive five-year farm bill—called the Agricultural Act of 2014 — was signed into law in February 2014. This legislation contains initiatives and evaluation measures concerning local and regional food production, from conducting research about local food systems and their impact on economic development, to examining the needs and barriers to developing these systems further. The federal government is also encouraging local food systems by recognizing the need for training and education in this type of food production. For instance the Beginning Farmers and Ranchers Development Program was developed to sustain the farmer and rancher.

Local Food Systems

Identifying land suitable for growing food for human consumption is part of a larger effort to cultivate the local food system. Broadly, a food system comprises the network of activities that collectively provide products for human consumption, including: growing; harvesting; equipment and supply provision (like tools and seeds); processing; packaging; marketing; transportation and distribution; sales and consumption (to individuals, markets, and institutions); and waste management. Figure 1 depicts a local food system, which is characterized by geographic proximity and more direct ties between producers and consumers in the system. Generally, food systems today represent a global network of international suppliers, distributors, and consumers. By contrast, local food tends to be produced by small, independent farmers and distributed and sold through a local economy to local consumers (a commonly held estimate is that “local” food travels no more than 100 or 250 miles).

Local food systems have been linked to advancement in local economic development as well as environmental benefits to soil and water quality. Additionally, there is a growing interest in and demand for locally sourced produce, grains, meat, and dairy products as the environmental and other benefits of eating fresh food become more widely understood by the public. The market demand for food that is grown and processed locally circulates money within the state and region rather than sending it elsewhere. The multiplier effect of money spent on locally grown food in Illinois estimates that those food dollars circulate 1.4 to 2.6 times within the local economy, indicating that every dollar that goes toward local food purchases can double or triple the economic benefits to the local economy.


population, which is aging and expected to decrease over the next decade. This grant can award programs that train new farmers and ranchers in specialty areas like fruits and vegetables (see the following Kane County’s Local Food System section for an example).

Across the Chicago region, shifting agricultural trends and an increasing interest in local food systems have led to numerous studies and reports designed to identify opportunities for supporting the local food economy. Many of these studies (both at the state and county levels) employ stakeholder surveys and policy analysis to assess the current conditions of the local food system and then suggest strategies for overcoming the major obstacles identified. Among the issues that were consistently identified as barriers to developing a more robust local food system was the lack of affordable (either to rent or own) and right-sized land on which to begin a local food operation. While the demand for local products exists, the supply cannot keep pace if there is not appropriate land available for food farming. As Kane County has determined through its analysis of the local food system, one possible solution to the challenge of land availability is to assess public land holdings as possible sites for local food production.

Kane County’s Local Food System
Kane County’s primary land use throughout the last 150 years has been agricultural, with increasing westward development pressure over the last few decades. As a result of this pressure, the County has proactively guided new development toward planned growth areas to preserve its agricultural heritage and natural resources. In 2001, Kane County established a farmland protection program to maintain its agricultural production base, which to date still mainly preserves family farms producing conventional row crops. Additionally, the County furthered its commitment to this preservation through a new land use category called “Protected Agriculture/Limited Development” that was introduced in their 2040 Plan. This new category was created as a type of conservation design, wherein clustered residential lots are allowed on a portion of the site, with the remaining land permanently protected for agriculture and open space. Kane County’s agricultural heritage is a key underpinning to its interest in developing a local food system.
In line with trends across the nation, state, and region, there is a shift in farm sizes and a growing and unmet demand for locally produced food in Kane County. Table 2 shows the inverse trends of an increasing number of farms while the average farm size decreased from 2002-07. This increase in smaller sized farms may indicate a shift toward producing fruits and vegetables for human consumption in Kane County.

Table 2: Farms in Kane County, 2002-07

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2007</th>
<th>Percent change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farms</td>
<td>619</td>
<td>759</td>
<td>+ 23%</td>
</tr>
<tr>
<td>Land in farming (acres)</td>
<td>198,227</td>
<td>192,372</td>
<td>- 3%</td>
</tr>
<tr>
<td>Average size of farm (acres)</td>
<td>320</td>
<td>253</td>
<td>- 21%</td>
</tr>
</tbody>
</table>


There are 36 farms that sell directly to consumers and 14 community farmers markets throughout Kane County, demonstrating strong consumer interest in and demand for locally grown products. There are also four farms in the county certified as USDA organic food production. The overall production of fruits and vegetables has been on the rise, as land used for growing and harvesting vegetables in Kane County nearly doubled from 2002-07, increasing from 635 acres to 1,172 acres. Likewise over that time period, the market value of sales of such products (specifically vegetables, melons, potatoes, and sweet potatoes) increased from $1,657,000 to $3,194,000.

For Kane County, the importance of bolstering its local food system is driven in large part by long-range community health goals. As is the case across the nation, health challenges like diabetes and obesity are pervasive in Kane County, with almost two-thirds of all adults in the county considered overweight or obese. Additionally, only 14 percent of adults in the county consume the recommended five servings of fruits and vegetables a day. The County has been striving to address these health issues, particularly the disparities that are correlated to income (in which lower-income residents have more limited access to fresh foods). In 2012, the County received a grant through the Health Impact Project (a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts) to conduct a health impact assessment (HIA), which was completed by the County’s Health and Development Departments in 2013. Through the HIA process, the County examined the potential health outcomes of supporting more fresh food grown locally.

The HIA not only demonstrated how local food production is linked to improved health and well-being for the county, but also presented analysis of the economic benefits of increased production of fruits, vegetables, meats, and dairy for human consumption. Research showed
that by adding approximately 1,000 acres of fruit and vegetable farming to the current specialty crop production in Kane County, nearly $7 million in county gross domestic product and 103 annualized jobs could be added to the county’s economy each year and would support the overall regional market.\textsuperscript{17}

Given the striking health and economic benefits associated with an increase in local food production, the HIA results were used to help create a new County ordinance called “Growing for Kane.” This food and farm ordinance – unanimously approved by the Kane County Board in August 2013 — enables the design of new policies to increase the production, distribution, and consumption of locally grown food. As a program (bearing the same name) is developed throughout 2014, Growing for Kane will seek grant funding to protect land being used to produce fruits, vegetables, meats and dairy for human consumption.

Through the process of conducting the HIA, a number of different surveys tailored to specific stakeholder groups (e.g. local farmers, municipal planners, etc.) were employed to gather input about a variety of issues related to Kane County’s food system. When asked about barriers to developing the local food system, one of the main results of these surveys was the scarcity of affordable (either to rent or purchase), appropriate (in terms of being equipped with necessary infrastructure), and right-sized land for these types of food operations.\textsuperscript{18} Additionally, the stakeholder surveys revealed overwhelming support for the County to allow leasing of public and government-owned land for commercial growing of local foods.\textsuperscript{19} The results of these surveys, in addition to research and literature review, influenced the HIA recommendations and the ordinance to establish that the farmland protection program would be revised to include farms of all sizes and in rural as well as urban areas, thereby paving the way for local food operations to be included in the farmland preservation program.\textsuperscript{20}

Including sites of all sizes helps address the need for more accessible and right-sized land for new farmers who want to grow food but cannot find or afford to operate on existing available farmland. Concurrent to this HIA report process, the University of Illinois Extension has been running a training program called “Preparing a New Generation of Illinois Fruit and Vegetable Farmers.” Funded by the U.S. Department of Agriculture’s (USDA) Beginning Farmers and Ranchers Development Program, this three-year grant program is in its second year of training aspiring and new growers (as well as conventional farmers interested in diversifying) to prepare them for operating successful, small-scale fruit and vegetable farms. Kane County hopes that some of the graduates of this program, especially those training at the St. Charles facility (located in Kane County), will seek out sites in Kane County to launch their food operations.\textsuperscript{21} These and other new farmers will be aided by the Growing for Kane program and its inclusive land policies that encourage small-scale farming and urban agriculture.

Kane County’s interest in identifying public lands suitable for growing food dovetails with these initiatives. Political support to explore local food production has taken root, as demonstrated by the Kane County Board’s unanimous passage of the Growing for Kane ordinance, as well as the Forest Preserve District staff interest in investigating local food
production as a transitional use in its long-term land management plans. This public land assessment project builds upon those initiatives by establishing criteria to select suitable land for growing food. The evaluation framework described in the following sections of this report is just one element of the larger effort that Kane County is developing to become more supportive of its local food system.
Criteria Development Process

The process of creating an evaluation tool to assess public land for its suitability for growing food was centered on developing a list of criteria to be considered. These criteria cut across a number of issues related to land use, from physical and environmental characteristics to the availability of infrastructure. A wide range of criteria was considered and then narrowed down to those deemed appropriate for Kane County’s purposes, which can be adapted to other public entities interested in assessing land potential for food production. For instance, other counties interested in conducting this analysis may have to examine soil contamination levels or land slope more intensively than the examination needed for Kane County—where prime, flat farmland is plentiful. It should also be noted that either prior to or after applying these criteria to public lands, the sites should be screened to determine if they have political support for conversion to local food production.

In late 2012, a core project team of staff from Kane County, FPDKC, Openlands, and CMAP set out to establish criteria that could be applied across a range of publicly-owned land categories: Forest Preserve District land, County administrative land, tax sale property land, and municipal land. Initially, the team conducted regional and national research to identify potential criteria. For example, one assessment tool that bore relevance to the needs of the project was the Illinois Land Evaluation and Site Assessment (LESA) tool, which was based on the USDA’s Natural Resources Conservation Service land evaluation system and developed by the Illinois Department of Agriculture in 2001. LESA was designed to help determine agricultural impact of proposed governmental actions such as zoning and development permits by examining soil productivity and other factors affecting a site’s viability for agricultural use. While fundamentally these factors are germane to the intentions of this project, and were considered for inclusion, they are more focused on addressing development pressures and are not tailored to public lands.

After the research phase yielded a broad list of potential criteria, the project team narrowed the list to include only those which were most relevant and universally applicable across different public entities. From the outset, the condition that only public lands were being examined helped to establish a clear line between which criteria were applicable and which were not. The team eliminated those criteria which may have been pertinent for other, similar studies, but that either did not apply specifically to an assessment of public lands or were not general enough to be used across a variety of public entities. For instance, the initial criteria list included factors such as tax status and zoning, both of which are important to consider if evaluating privately owned land, but are unnecessary when considering publicly owned land. Also, the project team assumed that public entities would exclude any areas that might be planned for residential or commercial development, so that criterion was also eliminated from consideration.

From this process, the project team came up with two tiers of criteria – those that can be mapped and quantified through commonly available data and those that are more qualitative and localized, requiring more subjective analysis. As the team was developing the universe of
criteria, FPDKC staff was able to identify an informal short list of forest preserve sites which satisfied many of the criteria being considered, providing the project team with sites on which to test their evaluation framework. Using GIS, the team then created county base maps, with “drill down” maps for the specific sites that were identified by FPDKC as priorities for consideration. Throughout the process, other experts were consulted along the way, including Kane County staff and officials as well as University of Illinois – Extension staff affiliated with the beginning farmer’s program.
Explanation of Evaluation Criteria
The criteria development process resulted in a set of general conditions and criteria to consider when evaluating publicly owned land for local food production (see Appendix A: Evaluation Criteria.) The 16 criteria included in the appendix table are intended to be general enough to be adapted to most geographies and government types according to their assessment needs. At the most basic level, this evaluation framework can be used as a simple checklist, since it broadly outlines physical characteristics necessary for growing food.

The criteria are organized into two tiers. **Tier 1 Criteria** include quantifiable criteria for which data should be readily available (such as having adequate access to water and sunlight), and should be considered first. **Tier 2 Criteria** are more subjective and must be assessed by local knowledge and resources (such as field reconnaissance), can enhance or detract from a site’s viability for local food production, but alone cannot determine the potential suitability of a site. Each criteria has a detailed description, an explanation of how to apply the criteria, and suggestions for obtaining relevant data. Some criteria can be mapped using GIS, while others are reliant upon site visits and knowledge of the local area. Each public site being considered can be assessed to yield a more refined list of sites for potential conversion to local food production.

While the approach presented here does not include ranking or prioritizing sites, users could certainly add weights or scoring to the criteria according to their own values and priorities. Some logical scoring suggestions may include:

- Disqualifying sites that are not publicly owned or have limited solar exposure.
- Favoring sites that are comprised of high-quality soil (e.g., Prime or Important Farmland) or those with water access and existing on-site infrastructure.
- Favoring sites with proximity to other food operations.

After applying the criteria and identifying sites most ready and appropriate for growing food, a public entity can begin to consider other criteria such as the cost of providing access to necessary resources and infrastructure or the potential leasing terms that could be feasible for farming.

**Tier 1 Criteria**
**Tier 1 Criteria** include quantifiable factors for which most of the necessary data should be readily available. These criteria should be considered first.

**Ownership**
This evaluation framework is intended to evaluate publicly owned land, i.e., administrative land, exempt (tax sale property) land, as well as land held by forest preserve districts and other
public entities (like park districts). Parcel and tax status data that identifies ownership is typically available through the County assessor’s office. In addition to identifying publicly held property, such data can also identify other ownership categories as potential locations for local food production, such as not-for-profit, educational, or religious organizations.

**Cover Type**

Cover Type describes the amount of impervious or pervious surfaces on a site, which indicates the extent to which a site is ready to be farmed, as well as the potential cost of readiness. For instance, a formerly developed site covered in cement and other building materials requires a different level of preparation than a site currently in conventional agriculture, and is likely to be a lower priority for conversion to food production. For the purposes of this criterion, the majority of the site should be covered by soil, grass, or other non-woody vegetation to be suitable for easy adaptation to food production, especially since impervious surface coverage of as little as 10 percent of a site can negatively affect soil and water quality. In some cases cover type data will be available in GIS format, though visual examination using aerial photographs (Google Earth and Bing Maps are two good sources) can be a faster and simpler means of assessment. However, if a large number of sites are being considered, GIS data may be a more efficient approach to filtering by cover type, if appropriate data is available.

**Land Size**

Sites of all sizes should be considered for food production, according to the new Growing for Kane ordinance and program. Different types of local food production (including fruits, vegetables, meat, and dairy) require different amounts of land, but commercial food operations typically can start on small sites of at least one acre in size. In municipalities where suitable land is less available, a site could be as small as a quarter acre in size for community gardens or “urban agriculture.” Knowing the size of sites can help match farmers to the right size parcel for the desired operation. Parcel size is typically available from county assessor data.

**Access to Water**

On-site or nearby access to a water supply—such as an existing well, surface water source, or municipal water supply—is a necessity for food production. Water supply wells are fairly well-distributed across unincorporated Kane County and its forest preserves, though proximity is critical when considering local food operations due to the high volume needed and the high cost of moving water if it is not near to a farm site. Distance to water supply should be considered when comparing sites. Water access data may be available via county data sets or the state geologic survey well water records; otherwise, public works or planning departments with local knowledge may need to be consulted. Aerial photographs can help locate potential surface water sources.
Solar Exposure
A minimum of eight hours of solar exposure per day is a generally accepted amount of sunlight needed for food production. Alternatively, this could be measured by percentage of shade on a site if adjacent trees, structures, or other obstructions are present, as well as potential exposure levels if obstructions were cleared. Aerial photos and site visits may need to be conducted to assess the amount of solar exposure of a site.

Soil Quality
The soil quality criteria include several components: productivity, contamination level, and slope. Soil quality (or soil health) is defined as the capacity of a specific type of soil to support a certain function, whether to sustain plant life, maintain water quality, or support animal habitation. In terms of food production, good soil quality will yield high crop productivity with minimal changes (such as remediation or grading.)

Productivity of Soil
Prime and Important Farmland are the two categories considered the best soils for growing food. Prime Farmland is defined as having the best combination of physical and chemical characteristics for producing food and other crops, and Important Farmland (or Farmland of Statewide Importance) is land that is nearly Prime farmland or may have a production yield as high as Prime if conditions are favorable. These types of soils have high productivity rates, with the ideal levels of organic matter, stable aggregates, pH balance, and other chemicals. Kane County is almost entirely covered by these two highly productive soil types, and therefore other soil and land conditions should be measured to evaluate sites. Soil productivity data is available from the Illinois Soil Survey produced by the Natural Resources Conservation Service, and is often available in GIS format.

Contamination
Another aspect of soil quality is whether or not contaminants on or near a site could impede its suitability for growing food for human consumption. For the purposes of this evaluation framework, two GIS datasets were combined to identify potential location of contaminated parcels throughout Kane County. These datasets included Leaking Underground Storage Tank Incident Tracking (as reported to the Illinois Emergency Management Agency and the Illinois Environmental Protection Agency), and the U.S. Environmental Protection Agency’s Toxic Release Inventory, which tracks the management of toxic chemicals via facility reporting. A site with substantial levels of contaminants is not immediately disqualified from consideration, since the land owner could pursue corrective actions like soil remediation, capping, or installing raised beds, but contaminated sites should be de-prioritized if other, cleaner sites exist.

Slope
A site’s slope can affect water runoff and soil erosion, which can not only hinder the productivity of the food operation, but can cause flooding and water pollution problems due to
runoff. Different types of food operations can be more forgiving of steeper slopes (e.g., animal pastures) than others (e.g., row crops). Regardless of whether it is used for food or other crop production, farmland should have a slope less than approximately five percent to avoid problems with water runoff, and most soils in Illinois occur at zero to two percent slopes. Topographic data, such as two-foot contours and bedrock contours, may be available through the county, as it is in Kane County. Otherwise, a site visit may be required to identify areas with significant topography.

**Natural Resource Impacts**

These criteria, which apply specifically to FPDKC and other natural areas, consider the extent to which converting a site to food production would work at odds with restoration plans and/or adversely affect onsite or nearby natural areas.

**Proximity to Sensitive Natural Areas**

Proximity to sensitive natural areas helps determine if a site is suitable for conversion to a food operation, since the advancement of local food production is not a desirable tradeoff for negatively impacting natural areas. Natural features to consider include streams, wetlands, fens, floodplains, and other native or restored ecosystems. Applying this criterion requires additional consideration of the method and type of farming operation, since some agricultural operations are more compatible with natural areas than others. Operations that include soil building and stabilizing measures, minimize the use of chemical fertilizers and pesticides, and support a diversity of crops tend to be more complementary of natural resource management goals than other agricultural methods. In fact, an appropriately managed food production operation can contribute to natural resource goals by restoring soil fertility and microorganisms, supporting insect populations necessary for fertilization of crops, and serving as a buffer zone between natural areas and other more intense uses.

Data for this criterion are available through the Green Infrastructure Vision (GIV), which was designed to identify important natural resources, classify important natural resources, recommend protection approaches, and explore ecological and human connectivity needs that inform conservation and development decisions. Kane County’s 2040 Green Infrastructure Plan also presents similar natural resource information. Both of these datasets provide buffers (ranging from 200 feet in Kane County to 90 meters for the regional GIV) around sensitive natural areas, and a more localized assessment may be necessary to determine the extent to which food production would impact nearby resources.

**Restoration Plans**

Within the context of natural area management goals of the landowner, short- and long-term restoration and management plans should be consulted when determining a site’s suitability for converting to food production. If a site falls within an area planned for habitat restoration within the next five or ten years, then it is likely not a good location for starting up a food
production operation, which typically require multi-year investment to become profitable. But if a site is in an area of longer term or no restoration planning, food production may be an appropriate interim use of a parcel and may even help prepare the site for restoration. Many forest preserve and park districts around the region and the nation keep hundreds of acres in agriculture, both for revenue generated by leasing and as an interim land management strategy, as cover crops used in farming can inhibit invasive species. Local knowledge and strategic planning documents should be consulted as data sources for this criterion.

**Tier 2 Criteria**
Tier 2 Criteria are secondary to Tier 1 Criteria and, because they often lack common or universal data sources, may require more research and local knowledge to assess. Therefore, they are meant to be applied to potential sites after Tier 1 criteria have been used to identify suitable sites for further consideration.

**Cost of Water**
Beyond the proximity to and availability of water described in Tier 1, the cost of providing water access where none exists should be considered, as it can be expensive or infeasible. Assessments should examine not only the cost of installing or extending water access (frequently measured as a per foot cost), but also the amount and per unit cost of water if it is being provided from a municipal or private water utility. Governmental entities should have information about required permits (if any), the cost of extending and using their water supplies, and estimates for dropping a new well.

**Agricultural Infrastructure**
There are a number of facilities, structures, and assets which, though not necessary to grow food, can nonetheless benefit a local food operation. Most of this information can be assessed using aerial photographs and site visits.

**Existing Structures and Resources**
Some sites may be previously or currently in farming, and may also have existing on-site structures that could be useful to a food operation. Season-extending structures (like a hoop house) help lengthen the growing season in colder climates. Outbuilding structures (like a barn or shed) provide space for storage, refrigeration, or processing. In addition, the presence of electricity on-site is needed for many food operations and serves as an advantage for a potential food producer or processor.

**Available Parking**
Parking is important for local food producers who employ farm workers, or want to operate roadside farm stands or Community Supported Agriculture programs, where customers may
pick up food on site. Parking areas also provide an area to construct a tent or farm stand for local food sales.

**Potential for Accessory Structures**
If they do not currently exist on-site, the farm operator may want to build structures such as a greenhouse or storage shed for season-extending activities. This criterion examines the feasibility of building new structures by taking cover type and slope (Tier 1 criteria) into consideration. It also assesses allowable uses under zoning ordinances for accessory structures or other needs. Zoning codes should be consulted for this criterion.

**Marketing Potential**
A site’s capacity for marketing influences the potential viability of a food operation’s business. Visibility and roadside signage are key factors in marketing a farm to local, potential customers. Assessments of marketing potential should investigate local sign and parking regulations to support roadside sales.

**Community Potential**
A local food operation can be strengthened via proximity to other food system components, from other food producers to markets and other consumer outlets. For instance, proximity to other food operations can result in shared infrastructure, equipment, and expertise, which can increase a farm’s efficiency. Likewise, proximity to consumers can provide ready and accessible sales outlets. This is important to communities with historically limited access to fresh food, since research shows that people are more inclined to purchase produce if it is available close to where they live. Proximity to local consumers – especially those with currently limited fresh produce access – improves a food operation’s connection to its surrounding community and benefits the local economy.
Site Evaluation Examples
The FPDKC is interested in considering land it currently holds in agriculture for growing food. Research has shown that per acre net revenue for fresh produce is greater than that of commodity crops, which may result in greater revenue for the District in the long term. Setting aside Forest Preserve District space for growing local food would also help provide fresh foods for local populations and connect the public with the District’s Preserves in a new way. Even if the FPDKC only intends to treat local food production as an interim use, local food operations can be more compatible and environmentally-friendly agricultural use than conventional farming methods.

In order to demonstrate the use of this evaluation guide, two FPDKC sites that support conventional agriculture on a portion of each of the preserves were assessed. The areas within these sites that are actively farmed and zoned as agriculture are the only portions of the District holdings in that location under consideration. Since these sites are currently in agriculture, a number of criteria — such as solar exposure and slope — are already satisfied.

LeRoy Oaks Forest Preserve Farmland
LeRoy Oaks Forest Preserve is located near St. Charles and the center of Kane County. Randall Road is directly east of the preserve, and the Fox River is approximately 1.5 miles to the east (see Figure 3: LeRoy Oaks Location). Forty-two of the approximately 380 acres in LeRoy Oaks are currently farmed in the northwest portion of the preserve. This farmed site has southern access to a minor arterial roadway called Dean Street, which has an annual average daily traffic (AADT) count of 5,500 vehicles (compared to the approximate 30,000 AADT on Randall Road). There are residential land uses directly to the west of the site, with other farmland nearby (see Figure 4: LeRoy Oaks and Surrounding Land Use).

In applying the evaluation criteria, Ownership, Cover Type, Land Size, Solar Exposure, and Restoration Plans are satisfied via ownership by the Forest Preserve District and its active farming status. Figure 5a: LeRoy Oaks Soil Quality and Figure 5b: LeRoy Oaks Contaminated Sites illustrates that LeRoy Oaks is almost entirely comprised of Prime Farmland, with a low slope across the site. The nearest contaminated site is a quarter mile away, with a few others at a further distance. All of these factors indicate that the physical characteristics of the land are in good condition.

Figure 6: LeRoy Oaks Natural Features shows the proximity of several wells both within and near the site, which indicates relatively easy access to water for growing. The logistics and cost for bringing that water to the farm site can be further determined with a site visit. Figure 6 also displays the Green Infrastructure Vision area (including parks, forest preserves, and water resources) that encompasses the site. In terms of the criteria evaluating proximity to sensitive natural areas, this site warrants further investigation due to the presence and potential impact on nearby Ferson Creek and its surrounding wetlands and floodplains.
The Tier 2 criteria would be best explored through a site visit, for although aerial photos can reveal building footprints, parking areas, and proximity to roadways (serving as a proxy for the “Marketing Potential” criterion), these factors can be more accurately confirmed with field reconnaissance. Furthermore, since the site is near the University of Illinois – Extension’s St. Charles campus where the beginning farmer program is conducted, the LeRoy Oaks site appears to have strong potential as a location for a new farmer.

**Aurora West Forest Preserve Farmland**

The Aurora West Forest Preserve District is over 800 acres in southern Kane County at the western edge of Aurora, Illinois – one of the most populous municipalities in the state – and near Sugar Grove (see Figure 7: Aurora West Location). Aurora West was historically in conventional agriculture before the FPDKC began to purchase its land in the late 1970s for restoration and recreational purposes. Today, 180 acres remain in farming at the north end of the preserve.

Interstate 88 Ronald Reagan Memorial Tollway runs north of the farmed portion of Aurora West, and Route 56 flanks the northern and western boundaries. There is access to Route 56, with an AADT of 19,300 vehicles, at the northwest corner of the site, which is a positive feature in terms of product distribution and marketing potential. There are other nearby farms to the north of I-88, and the other dominant surrounding land use is residential (see Figure 8: Aurora West and Surrounding Land Use).

Much like the LeRoy Oaks site, a number of criteria are satisfied because the forest preserve site is currently in agriculture, and others would be best determined with a site visit. Figure 9a: Aurora West Soil Quality and Figure 9b: Aurora West Contaminated Sites shows that the nearest contaminated sites are miles away from the potential farm site, but also that while the soil quality is primarily still good, much of it is only considered Prime Farmland if drained (which can require additional effort and investment). Elevation is varied across this site, particularly along the small drainage channel, which could potentially present some obstacles for certain types of food production.

In terms of water access, Figure 10: Aurora West Natural Features shows that while there are many water supply wells nearby, the closest ones within the forest preserve property are about a half-mile to the south, which could present a logistical challenge for accessing water. The same considerations about the GIV and proximity to sensitive natural areas applies here as it did for the LeRoy Oaks site, but with the additional concern that there seem to be more intensive residential land uses adjacent to Aurora West.
Conclusion

Local food systems, touted for the health, community, and economic benefits they can provide, are gaining popularity and strength across the country. There has been broad preliminary study across the Chicago region to identify and address barriers to local food production, such as the lack of available, affordable land for small food operations. By examining the potential to use publicly owned land for food production, Kane County and other entities are making strides toward overcoming that barrier.

This report presents a number of criteria to consider in evaluating and prioritizing publicly-owned sites suitable for local food production. Ultimately the purpose of this report is to reinforce that planners and policymakers should consider encouraging this kind of transition in land use in their communities, and to provide an outline from which to build their own localized evaluation method. These criteria can be adapted to other localities to reflect local land use conditions and development patterns, as well as community and economic priorities.
Endnotes

7 Lake County Sustainable Local Food Systems Report, CMAP and Conserve Lake County, June 2013.
8 The Suburban Cook County Food System: An Assessment and Recommendations, Cook County Department of Public Health, February 2012.
10 Kane County 2040 Green Infrastructure Plan, November 2013.
12 Kane County Farm Bureau’s “Bounty of Kane” Directory. <http://www.kanecfb.com/bounty.html>
18 Though across different surveys, approximately 200 respondents answered the same set of questions about: barriers to the local food system; policies / ideas to support the local food system. See Appendices D-F in Growing for Kane — HIA Report.
19 Growing for Kane — HIA Report, Appendices D-F.
21 According to Kane County Planning Department staff expertise.
26 Ibid.
32 http://www.cmap.illinois.gov/livability/open-space/green-infrastructure-vision
Lake County Sustainable Local Food Systems Report, CMAP and Conserve Lake County, June 2013. Page 16.

List of Acronyms

AADT    Average Annual Daily Traffic
CMAP    Chicago Metropolitan Agency for Planning
FHWA    Federal Highway Administration
FPDKC   Forest Preserve District of Kane County
FTA     Federal Transit Administration
GIV     Green Infrastructure Vision
HIA     Health impact assessment
HUD     U.S. Department of Housing and Urban Development
IDOT    Illinois Department of Transportation
LESA    Land Evaluation and Site Assessment
LTA     Local Technical Assistance
Figure 4: LeRoy Oaks and Surrounding Land Use

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Figure 5a: LeRoy Oaks Soil Quality

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Figure 5b: LeRoy Oaks Contaminated Sites

Legend:
- LeRoy Oaks Location
- Current Farmland in LeRoy Oaks
- Prime farmland
- Prime farmland if drained
- Farmland of statewide importance
- Elevation
- Contaminated Sites
- Water Bodies

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Figure 6: LeRoy Oaks Natural Features

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Figure 7: Aurora West Location

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Figure 8: Aurora West and Surrounding Land Use

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Figure 9a: Aurora West Soil Quality

Source: Chicago Metropolitan Agency for Planning and Kane County, 2013.
Appendix A: Evaluation Criteria

<table>
<thead>
<tr>
<th>CRITERIA / CATEGORY</th>
<th>METRIC</th>
<th>DESCRIPTION</th>
<th>ASSESSMENT TOOL(S)</th>
<th>DATA SOURCE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership</td>
<td>Public / Private</td>
<td>This framework was devised to evaluate publicly owned land only. Therefore, any land that is privately held is disqualified from consideration. Public land includes administrative land, exempt (tax sale property) land, as well as land held by forest preserve districts and other public entities that are willing to be considered.</td>
<td>Geographic Information Systems (GIS)</td>
<td>Tax status in attribute table of parcel data, typically available through county assessor’s office</td>
</tr>
<tr>
<td></td>
<td>Impervious / Turf Grass / Tilled Ground</td>
<td>Cover type identifies whether or not the site currently encompasses primarily impervious or pervious surfaces. A formerly developed site requires a different level of preparation than a site currently in conventional agriculture. Since impervious surface coverage of as low as 10 percent of a site can negatively affect soil and water quality, a majority of the site should be covered currently by soil or grass to be suitable for adaptation to food production. This criterion focuses on the extent to which a site is ready to be planted on, as well as the potential cost of readiness.</td>
<td>Aerial photos; Site visit; GIS</td>
<td>Google Earth; Local knowledge; Cover type data if available through GIS</td>
</tr>
<tr>
<td>Land Size</td>
<td>Acres</td>
<td>Commercial food operations typically can start on sites of at least one acre in size. In municipalities where suitable land is less available, a site could be as small as a quarter acre in size for “urban agriculture.” Different types of local food operations require varying amounts of land, but many in Illinois range from 2 to 20 acres.</td>
<td>GIS</td>
<td>Acreage in attribute table of parcel data</td>
</tr>
<tr>
<td>Access to Water</td>
<td>Present or not</td>
<td>On-site or nearby access to a water supply - such as an existing well, surface water source, or municipal water supply – is a necessity for food production. Proximity is critical when considering local food operations, because the high volume needed and the high cost of moving water if it is not near to a farm site. Number of feet to a water supply should be the measure of consideration if comparing sites.</td>
<td>GIS; Aerial photos; Site visit and/or municipal references</td>
<td>Illinois State Geological Survey (ISGS) well water records (or similar data source outside of Illinois); Google Earth; Local knowledge</td>
</tr>
<tr>
<td>Solar Exposure</td>
<td>Solar hours</td>
<td>A minimum of eight hours of solar exposure per day is a generally accepted level of sunlight needed for food production. Alternatively, this could be measured by percentage of shade on a site if some adjacent trees or structures are present. This criterion should consider the level of existing obstruction (if any), as well as the potential exposure levels if obstructions were cleared.</td>
<td>Aerial photos; Site visit</td>
<td>Google Earth; Local knowledge</td>
</tr>
<tr>
<td>Productivity of soil</td>
<td>Prime Soil / Prime Soil if Drained / Farmland of Statewide Importance / Not Prime</td>
<td>Prime Farmland is defined as having the best combination of physical and chemical characteristics for producing food and other crops, and Important Farmland (or Farmland of Statewide Importance) is land that is nearly Prime land or may have a production yield as high as Prime if conditions are favorable. These types of soils have high productivity rates, with the ideal levels of organic matter, stable aggregates, pH balance, and other chemicals.</td>
<td>GIS</td>
<td>Illinois Soil Surveys from Natural Resources Conservation Service (NRCS) data</td>
</tr>
<tr>
<td>Contamination</td>
<td>Contaminated or not</td>
<td>Contaminants on-site or nearby could impede a site’s suitability for growing food for human consumption. For the purposes of this evaluation, two datasets were combined to identify contamination points, including a Leaking Underground Storage Tank (LUST) database and the U.S. EPA’s Toxic Release Inventory (TRI), which tracks the management of toxic chemicals via facility reporting. A site with substantial levels of contaminants is not immediately disqualified from consideration, since the land owner could pursue corrective actions like soil remediation, capping, or installing raised beds, but contaminated sites should be de-prioritized if other, cleaner sites exist.</td>
<td>GIS</td>
<td>Databases of various contaminants include: IL EPA LUST Incident Tracking database; U.S. EPA’s TRI</td>
</tr>
<tr>
<td>Slope</td>
<td>Slope within range for given type of food operation</td>
<td>A site’s slope can affect water runoff and soil erosion, which can not only hinder the productivity of the food operation, but can cause flooding and water pollution problems due to runoff. The slope needed to avoid runoff and pooling does vary, though most soil in Illinois occurs on zero to two percent slopes. Different types of food operations can be more forgiving of steeper slopes (e.g., animal pastures) than others (e.g., row crops).</td>
<td>GIS</td>
<td>Two-foot contours and bedrock contours from County data</td>
</tr>
<tr>
<td>Proximity to sensitive natural areas</td>
<td>Poses harm to significant natural features or not</td>
<td>Proximity to sensitive natural areas helps determine if a site is suitable for conversion to a food operation, since the advancement of local food production is not a desirable tradeoff for negatively impacting natural areas. Natural features to consider include streams, wetlands, fens, floodplains, and other native or restored ecosystems. An appropriately managed food production operation (for instance including soil building and stabilizing measures, minimal use of chemical fertilizers and pesticides, and support for a diversity of crops) can contribute to natural resource goals by restoring soil fertility and microorganisms, supporting insect populations necessary for fertilization of crops, and serving as a buffer zone between natural areas and other more intense uses.</td>
<td>GIS; Site visit</td>
<td>Green infrastructure composite data, such as the Green Infrastructure Vision (GIV) for the Chicago region</td>
</tr>
<tr>
<td>Natural Resource Impacts</td>
<td>Restoration plans</td>
<td>Priority for short-term restoration or not</td>
<td>Any relevant short- and long-term restoration plans should be consulted when determining a site’s suitability for converting to food production. A site within an area planned for five- or ten-year habitat restoration is not as strong a candidate as a site within a longer term restoration plan. Local food production is increasingly recognized as an interim and/or complementary land use to natural resource management.</td>
<td>Local knowledge and planning documents</td>
</tr>
</tbody>
</table>
### Tier 2 Criteria

<table>
<thead>
<tr>
<th>CRITERIA / CATEGORY</th>
<th>METRIC</th>
<th>DESCRIPTION</th>
<th>ASSESSMENT TOOL(S)</th>
<th>DATA SOURCE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Accessing Water</td>
<td>Per Foot Cost of Water / Cost of Dropping a Well</td>
<td>Beyond the proximity to and availability of water, the cost of providing water access where none exists should be considered, as it can be expensive or infeasible. Assessments should examine not only the cost of installing or extending water access (frequently measured as a per foot cost), but also the amount and per unit cost of water if it is being provided from a municipal or private water utility.</td>
<td>Site visit; government entity's reference</td>
<td>Each governmental entity should have information about cost of permits, extending water supply, or dropping a new well</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Existing useful structures / resources</td>
<td>Some sites may be previously or currently in farming, and have existing structures on-site that are in good condition and could be useful to a new food operation. Season-extending structures (like a hoop house) help lengthen the growing season in colder climates. Outbuilding structures (like a barn or shed) provide space for storage, refrigeration, or processing. In addition, the presence of electricity on-site is needed for many food operations and serves as an advantage for a potential food producer or processor.</td>
<td>Aerial photos; Site Visit</td>
<td>Google Earth; Local knowledge</td>
</tr>
<tr>
<td></td>
<td>Available Parking</td>
<td>Parking is important for local food producers who want to operate roadside farm stands or community supported agriculture (CSA) programs, where customers may pick up food on site. Parking areas also provide an area to construct a tent or farm stand for local food sales.</td>
<td>Aerial photos; Site Visit</td>
<td>Google Earth; Local knowledge</td>
</tr>
<tr>
<td></td>
<td>Potential for accessory structures</td>
<td>If they do not currently exist on-site, the farm operator may want to build structures such as a greenhouse or storage shed for season-extending activities. This criterion examines the feasibility of building new structures by taking cover type and slope (Tier 1 criteria) into consideration. It also assesses allowable uses under zoning ordinances for accessory structures or other needs.</td>
<td>Zoning codes and Local ordinances; Site Visit</td>
<td>Zoning code and Unified Development Ordinance; Local knowledge</td>
</tr>
<tr>
<td></td>
<td>Marketing Potential</td>
<td>A site's capacity for marketing influences the potential viability of a food operation's business. Visibility and roadside signage are key factors in marketing a farm to local, potential customers. Assessments of marketing potential should investigate local sign and parking regulations to support roadside sales.</td>
<td>Local ordinances; Site Visit</td>
<td>Signage and ordinances or regulations; Local knowledge</td>
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<tr>
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<td>Community Potential</td>
<td>A local food operation can be strengthened via proximity to other food system components, from other food producers to consumer outlets. For instance, proximity to other food operations can result in shared infrastructure, equipment, and expertise, which can increase a farm's efficiency. Likewise, proximity to consumers can provide ready and accessible sales outlets. This is important to communities with historically limited access to fresh food, since research shows that people are more inclined to purchase produce if it is available close to where they live.</td>
<td>Local knowledge</td>
<td>List of existing farms and farmers markets from farm bureau</td>
</tr>
</tbody>
</table>