



DESIGNING
FOOD
FACILITIES

PLANNING

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CHAPTER ONE

INTRODUCTION



This series, *Designing Food Facilities*, shares the basics of USDA's free architectural services ([Wholesale Market and Facility Design](#)) and the design process for new or renovated farmers markets, food hubs, community kitchens, or mixed-use facilities.

This document explores the planning phase of the design process. It is intended to help organizations considering building a food-related facility develop a basic understanding of the process and essential considerations for designing a new or modified farmers market, food hub, community kitchen, or mixed-use facility.

Primary considerations in early planning include the substantial investment and the subsequent community and economic impact typical of new structures. Local community officials, qualified architects, designers, project leaders, residents, and other stakeholders will play a major role in the process. Together, they will carefully determine the financial feasibility, location, and design of a new facility.

Among the first steps in considering investment in a permanent farmers market structure or other food-related facility is assessing the needs of the consumers, vendors, and community. An existing market provides the advantage of understanding the enthusiasm for a new market, and the ability to discuss plans with consumers, vendors, market managers, landowners, and other stakeholders.


Decision-makers must weigh market requirements of farmers, consumers, the community, and other stakeholders against budgets, timeframes, spatial needs, and other planning details, all of which eventually impact design and construction. A higher investment will likely require a higher level of research, insight, and expertise. It is important to stay open to constructive stakeholder feedback, which will help to determine project scope and direction. Be thorough and inclusive of all stakeholders.

Well-planned decisions optimize the use of time, funding, labor, and personnel, ultimately increasing the likelihood for success. In contrast, decisions with little foresight and inadequate stakeholder input may lead to costly missteps and an ineffective marketplace. The financial consequences and physical presence, positive or negative, will be felt within a community for years to come.



CHAPTER TWO

MANAGING THE PROJECT



Success depends on a clear project vision and goal. Farmers markets and other food-related facilities are often community projects that rely on public funding. They include multiple stakeholders, often with different expectations (e.g. building structure, layout, etc.). A successful project requires clearly defined goals and shared commitment by stakeholders and project managers for an effective and efficient process.

Planning, controlling project resources, and dedication to seeing the project through to completion may be the most important elements in the design and construction process. The project manager is responsible for these tasks and should have a background and proven skill in design and construction. A qualified and committed leader will identify and effectively evaluate critical elements, such as community needs, location, cost of construction, the number and type of vendors, funding sources, additional facility uses, and other contingencies. To set realistic expectations, the project manager must understand the relationship between time, scope, and cost constraints and their effect on project quality. The project manager needs to be able to interact with local government and possess knowledge of state and federal funding programs. A skilled project manager will see the big picture and be able to divide the project into structured segments with distinct tasks and measurable results.

A flow chart, along with other management tools, should be used to outline the project structure, maintain a work schedule and timeline, and provide the project with a common direction. The flow chart is an important visual tool which tracks project milestones, corresponding costs at various stages, and aids in recognizing potential areas of risk inherent in every project. Identifying and evaluating risks and conflicts early will provide help to minimize or alleviate project delays and budget overruns.

PRE-CONSTRUCTION REGULATIONS AND CONSIDERATIONS

Early steps to planning a new permanent structure for a community include evaluating the potential location, design, and layout. The technical aspects of construction are governed by codes, regulations, ordinances, and laws of the local municipality. Site selection will generally be limited by factors such as topography, land availability, affordability, zoning, and accessibility. By understanding the pre-construction requirements outlined in this section, the project management can team make effective decisions throughout the planning and building processes.

PROPERTY SURVEY

A property survey is a useful document which indicates property boundaries and helps to evaluate the planning and design of the proposed structure. If a previous property survey was not conducted or is not readily available for a specific location, one may be required. It

is the responsibility of the property owner or project manager to have one commissioned. When taking stock of a potential property, a survey should:

- Consider any existing structures at the site, along with the current and potential uses of adjacent property;
- Identify any easements for the property; and
- Identify existing utilities (water, sewer, electric, gas, and cable).

Additional details will likely be required from historical records and the results of certifying surveys, construction layout surveys, registered land surveys, and judicial surveys. Detailed and precise measurements, along with simple observation, will help determine whether the site location is appropriate and whether a permanent structure is allowed.¹

ENVIRONMENTAL STUDY

During site selection, **site contamination**, land layout, and other environmental constraints should be evaluated through a **liability assessment** that will highlight the limitations that a building site may present. Depending on the specific site location, previous site development, and current structure(s) on the site, a **brownfield assessment** may be required to establish any site contaminants that would require remediation prior to construction. Even if a project site was not previously developed, the project team must determine if the project will impact environmentally sensitive areas, such as wetlands or wildlife habitats. Environmental issues should be addressed at the onset of a project. The landowner and/or building owner is responsible for completing any required remediation, which can be costly. In certain circumstances, it may be cost prohibitive to build on environmentally sensitive sites.

HEALTH AND SANITATION CODES

To meet sanitation standards for human waste disposal, the structure must be able to utilize an existing public sewer system or allow installation of a septic system. For many rural communities, the infrastructure of an existing public sewer system may not be available or feasible, leaving a septic system or drain field as the only viable options. A septic system, however, may be prohibitively expensive. It is therefore important to evaluate sanitation codes and allowable budgets early in the process to determine the best waste disposal option.²

FOOD CODE

The Food Code, published by the Food and Drug Administration (FDA), is a model code offered to states, territories, and all levels of government to effectively control microbiological, chemical, and physical hazards,

Site Contamination

A site that may have been used for industrial or commercial purposes historically, such as a gas station or dry-cleaning facility, that have left pollutants and contaminants in the ground that may restrict future use of the land.

Liability Assessment

An evaluation of the ability to construct on any given site may be restricted based on the zoning code or other restrictions.

Brownfield Assessment

Also known as Targeted Brownfield Assessment, is conducted to evaluate possible contamination of a site according to standards set forth by the Environmental Protection Agency (EPA). See <https://www.epa.gov/brownfields/targeted-brownfields-assessments-tba>.

¹ American Bar Association, "Commercial Real Estate: Survey Requirements Vol. 2, No. 7"

² Ed Vitale, "Understanding Building Regulations: A Self-Help Guide for the Owner Builder," <http://www.motherearthnews.com/green-homes/understanding-building-regulations-zmaz76soztak> (October, 1976)

that may cause foodborne illness, in food-related facilities.³ Farmers market or other food-related structures should be designed to avoid cross-contamination of raw and processed food products (e.g. combining produce and meat processing in one facility).

BUILDING CODES

Building codes are implemented to standardize construction to protect public health and safety. Building codes address structural and mechanical integrity, electrical, plumbing, energy efficiency, parking, drainage, and more. Standards in the United States are based on the International Building Code (IBC), a model building code that almost all states follow. IBC model codes have no legal authority unless a municipality or other local authority chooses to adopt any portion of the model. Once adopted by a jurisdiction, the model code becomes law. Individual municipalities may adopt various sections of the IBC, adding, deleting, or revising any portion of the code. It is crucial to research and comply with any laws and regulations that may apply to a project's jurisdiction.⁴


ZONING ORDINANCES

Zoning ordinances allow local governments to designate and permit the use of land, based on mapped zones. They generally divide a town, city, village, or county into residential, commercial, agricultural, and industrial districts.⁵ Zoning may also prescribe building dimensions and require certain building features (e.g. adequate drainage systems), and site features (e.g. number and location of parking and loading areas and sign usage). Many jurisdictions allow for an appeal process to request an exception to the existing zoning classification. If zoning becomes an impediment, the appeal process may grant a variance or adjustment.

3 Food and Drug Administration, Food Code, <https://www.fda.gov/food/retail-food-protection/fda-food-code>

4 International Code Council, "Overview of the IBC (International Building Code)," <https://www.iccsafe.org/codes-tech-support/codes/2015-i-codes/ibc/> (2015)

5 Ingolf Vogler, "What is Zoning" https://people.uwec.edu/ivogeler/w270/what_is_zoning.htm, University of Wisconsin-Eau Claire.



Good buildings make and are made by their settings, and they are appropriately different in different locations. Climate, culture, topography and materials have helped create regional architectural languages that seem curiously right for their locations and for all times.⁶

— Jaquelin T. Robertson
American Architect
Urban Designer

⁶ “2010 AD 100: Jaquelin T. Robertson,” Architectural Digest, <http://www.architecturaldigest.com/story/jaquelin-robertson-profile> (December 31, 2009).



CHAPTER THREE

OPTIMIZING ACCESSIBILITY

Farmers Markets

Farmers markets feature two or more farm vendors selling agricultural products directly to customers at a common, recurrent physical location. Farmers markets may be in an open space (or covered by a pavilion-type structure, for example) or fully enclosed within a fixed building structure.

Mixed-Use Facility

A facility that might include space and portions of the structure for a mixture of uses, such as a farmers market; a community kitchen; entertainment; residences (i.e. apartments); group meetings for education or community events; manufacturing, such value-added processing, packaging; or any other use that might be relevant.

Food Hub

Businesses or organizations that actively manage the aggregation, distribution, and marketing of source-identified food products to multiple buyers from multiple producers (primarily local and regional) to strengthen the ability of these producers to satisfy local and regional wholesale, retail, and institutional demand.

Community Kitchen

A shared-use commercial kitchen that allows farmers, producers of specialty food items, caterers, street-cart vendors, and other emerging businesses to prepare and process food for commercial sale in a licensed and certified kitchen.

Location is key to success. Primary factors in choosing location are the cost of operation, convenience to operators and customers, and the potential for revenue. The available budget will likely determine location options. The facility should have easy and affordable access to energy and be readily accepted by the community. Transportation to and from the facility should be easy for farmers, vendors, customers, employees, and delivery drivers (particularly relevant to food hubs and community kitchens). Information derived from feasibility studies and market analysis such as transportation and demographics will help in making crucial decisions. Here are a few specific considerations based on the type of facility:

Farmers Markets:

- Optimize customer access. The volume of customers will generally determine market success. Volume must be balanced with producer accessibility and the cost of operation.
- Ensure safety. The location should provide a sense of security for customers, farmers, and others.
- Research competition. A local grocery store or nearby farmers market, for example, might compete for potential customers. Product differentiation, a variety of services, and an easily accessible market structure may help a market minimize the impact of competition.
- Build community. A farmers market facility will become a permanent part of the community. A positive image and relaxed atmosphere will welcome patrons and contribute to the overall success of the business.

Mixed-Use Facilities:

- Check zoning requirements. Choosing a location that allows for additional businesses and services (i.e. other retail; leasable space, such as residences and community space, park space, etc.) will broaden the appeal of the facility, increasing its competitive position.

Food Hubs and Community Kitchens:

- Food hubs and community kitchens focus on aggregation, distribution, and value-added processing, rather than directly interacting with customers, therefore, choosing a location based on direct consumer access is less important than producer access.
- Explore rules and regulations. Prior to investing in the structure, tax and local regulations must be explored to ensure economic functionality and security in a chosen location.

DETERMINING PROPERTY AVAILABILITY

Ensuring that land is available, affordable, accessible, open to acquisition, and uncompromised by zoning regulations is vital during the early planning stages of a project. Project land may be donated through a municipality, county, or state government; leased; or purchased directly from a landowner. Stakeholders, local officials, project or market manager(s), and others important to the process, play a significant role in weighing the pros and cons of acquisition, finance, and use.

Not all property characteristics may be easily controlled or modified. Decisions relevant to access and use should consider: 1) slopes, floodplains, and surface drainage; 2) sounds/odors, unsightly views, unusual noises; 3) heavy traffic or other issues that may create safety concerns; and 4) existing trees and other vegetation which may impede or complement the new structure.⁷

DESIGN ELEMENTS OF EFFECTIVE LOCATIONS


Farmers markets and related food facilities, such as food hubs, commercial kitchens, and mixed-use facilities, differ in purpose, yet have similar site characteristics that determine success. When planning the layout and location, the project team should consider the following elements:

Parking: Parking is an important spatial component for all stakeholders. The number of parking spaces must be adequate given the size of the facility, the number of vendors and customers, and purpose (retail/manufacturing/processing/alternate uses). Parking dimensions will be determined by architectural standards, local codes, and requirements. Parking layout must comply with the Americans with Disabilities Act (ADA Accessibility Guidelines), which requires a percentage of total spaces to be appropriately modified and made available for people with disabilities.⁸

Walkways: Pedestrians at farmers markets should have safe, well-maintained, and lit walkways, with easy access to products. A food hub and community kitchen will require adequate walkways, dock space, and other common areas so that employees and others can maneuver safely within and around the facility. ADA Guidelines will apply as appropriate.

⁷ "Starting and Managing: Tips for Choosing Your Business Location," U.S. Small Business Administration, <https://www.sba.gov/starting-business/choose-your-business-location-equipment/tips-choosing-your-business-location>.

⁸ "Accessible Parking, ADA National Network: Information, Guidance and Training on the Americans with Disabilities Act," American with Disabilities Act (ADA), <https://adata.org/factsheet/parking>.



Public Transportation: An ideal location for a farmers market or food related facility will be accessible to the local population through public transit, personal vehicle, and by foot. Locating a market near a public transportation hub (e.g. local bus, subway, or other light rail) impacts market success. A well-maintained public transportation network and frequent route schedule will improve access for customers, particularly in areas with low-income residents and seniors. Maintaining access to a broad customer base will determine market success and sustainability.

Co-locating/Proximity: Just as a market can be made accessible through public transportation by bringing consumers to the market, the public is made accessible to the market through co-location by bringing the market to a place where consumers regularly visit. Farmers markets and Community Supported Agriculture (CSA) ventures may also be co-located at office buildings or college and university campuses, where there is a critical mass of customers. The operation of both conventional and mobile farmers markets in low-income neighborhoods makes it easier for local residents to access a variety of fresh produce.

For example, markets are sometimes located near hospitals and neighborhood centers where health screenings and other health-related services may also be available. Some health care providers approve and sponsor these programs. Many hospitals and health care professionals have implemented programs which aim to improve nutrition through access to fresh farm products. The farmers market uses nutrition as preventative medicine in the fight against diabetes, heart disease, obesity, and other diet-related illnesses. Markets may also be a venue for dispersing health and nutritional information to patients, parents and children, and others in the community.⁹

Landscaping: Trees, shrubbery, and other plants offer aesthetic and practical benefits when incorporated into the design. They are pleasing to the eye, create a pleasant atmosphere, and provide natural shade to shoppers and vendors. Resting on a bench beneath a shady tree delivers a respite and may encourage a longer stay at the market. Vendors will have the same benefits, getting relief and comfort from what may be a hot location.

Service Access: Emphasis on vehicular service access in the overall design will ease the maneuverability for small to mid-sized farm trucks and customer vehicles at a farmers market.

Food hubs and community kitchens normally require a considerable amount of docking space to handle incoming raw products and outgoing processed products. It is particularly necessary for larger, high-volume facilities. Depending on the type and volume of the facility, trucks may

⁹ "Kaiser Permanente Farmers Markets Grow to More Than 50," Kaiser Permanente, <https://share.kaiserpermanente.org/article/kaiser-permanente-farmers-markets-grow-to-more-than-50/> (August 9, 2012).

vary in size from Class 1, weighing 6,000 lbs. or less (i.e. pick-up trucks and cargo vans), to Class 6, weighing up to 26,000 lbs. (i.e. rack trucks), to tractor trailers, weighing up to 80,000 lbs.¹⁰ Each vehicle class has its own spatial standards that account for turning radius, space width/length, driving surface weight compacity, etc. The design should account for all vehicle classes the facility will accept to allow each vehicle to move in, out, and around a farmers market, food hub, community kitchen, and other food processing and service facilities.

Wayfinding/Signage: Wayfinding provides visual cues such as maps, signage, landmarks, directions, and road symbols to help people get oriented and find directions. Wayfinding is a crucial element on a small scale within a building, as well as within a neighborhood context.

Market signs include: 1) Directional signs or road signs that show the way to a market (e.g. “Exit to XYZ Farmers Market”); 2) Identification signs or market labeling, identifying the specific market locations (e.g. “XYZ Farmers Market,” at the specific market location); 3) Informational signs, indicating specific market hours, types of products, etc. (e.g. “XYZ Farmers Market, hours: 8:00 am to 1:00 pm, every Saturday”); and 4) Warning signs indicating safety procedures, such as fire escape routes, no smoking areas, and other regulations.¹¹

A local farmers market may collaborate with the local government by using road signs and other public signage to promote the availability of fresh food and farm products. The Maryland Department of Agriculture and the State Highway Administration, for example, have approved farmers market highway sign design through its “Farmers Market Signing Program.” The State has also developed “guidelines for the application, fabrication, installation, and maintenance of Farmers Market Highway signs.”¹²


Traffic Flow: High traffic movement and convenience will naturally increase visibility and accessibility for residents, tourists, and other consumers. Market managers should evaluate the ease of accessing the facility throughout the market day (i.e. during peak rush hour). Evaluations may show whether congestion is deterring customers from visiting the market.

Mixed-use buildings require additional planning for facility design, layout, and traffic flow. Other building uses may include residences, manufacturing, restaurants, and other retail. Ease of access in and around the facility is vital to residents and businesspeople alike. A successful facility will be one that does not compromise the convenience of one crucial element to the detriment of any other.

10 “Types of Vehicles by Weight Class,” Federal Highway Administration (FHWA), <https://www.afdc.energy.gov/data/10381>.

11 “Introduction to Wayfinding and Signage Design,” designworkplan, <http://designworkplan.com/wayfinding/introduction.htm>.

12 “Farmers’ Market Signing Program,” Maryland State Highway Administration, http://mda.maryland.gov/maryland_products/Documents/Maryland%20Farmers%20Market%20Highway%20Sign%20Program.pdf (April 2010).



Electricity: Electrical needs for farmers markets, food hubs, or community kitchens include lighting and refrigerated storage, heating and cooling, and more. New facilities often strive to become energy efficient early in the design and planning stage. Renewable resources (e.g. solar, wind, etc.) may minimize heating, cooling, and other operational costs. Incorporating renewables may serve as a learning tool for optimizing energy usage within the community.

Alternative Use: Optimizing and increasing the overall use of a structure will help to justify construction costs and increase its revenue and overall success, financially and socially. Adding common or private space into the plan will promote the use of the facility for meetings, social gatherings, private parties (weddings, retirements, etc.), and other community events during non-business hours. Common mixed uses may include residential space, entertainment venues, restaurants, additional retail, and manufacturing/processing. All will contribute to the revenue necessary to operate and increase the likelihood of a sustainable and successful structure.



CHAPTER FOUR

DETERMINATION OF LOCATION CHECKLIST

This checklist can help community planners evaluate possible locations for farmers markets, food hubs, or shared commercial kitchens. To learn more about design planning, visit <https://www.ams.usda.gov/services/local-regional/facility-design>.

When determining the location for a new food facility, consider the following factors:

- Property size/grade/developable area (site survey)
- Required physical improvements before construction (site survey, contact local jurisdiction)
- Encroachments from neighboring properties (site survey, visual inspection)
- Availability of public utilities (contact local jurisdiction)
- Power lines or transmission lines crossing property (site survey, contact utility, visual inspection)
- Existing easements or covenants (site survey, deed information)
- Liability insurance for the market and property owner
- Hazardous materials requiring clean-up (remediation)
- Dedicated right-of-way (site survey, deed information)
- Zoning ordinances/land use of the property and surrounding properties (site survey, deed information, contact local jurisdiction)
- Any conditions placed on the property by the owner (also see deed information)
- Requirement for septic system (contact local jurisdiction)
- Special environmental/wildlife regulations or considerations (environmental assessment)
- Highest and best use of the property
- Master growth plan for the area (contact local jurisdiction)
- Proximity to potential customers/vendors
- Surface parking for vendors and customers
- Traffic flow and control
- Security provisions (security staff, road closures, barricades, signage, etc.)
- Solid waste removal (septic, well, or public sewer/water)
- Hours of operation

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- Shared use of facilities, if applicable
 - Signage and marketing (road signs, pedestrian signage, directional markings, etc.)
 - Temporary pedestrian flow barriers
 - Local demand for leased space (i.e. mixed-use facility)
 - Local attitudes for a permanent structure (public survey)
 - Registered historical buildings involved (contact local jurisdiction, building registry)