Planning for a new foodservice system is critical to its success. The planning process will be lengthy and very complex in the number and types of plans that will be required. This chapter focuses on the planning process, and factors that would be considered in making plans for a new centralized foodservice system. Specifically, this chapter will include information about:

- Guiding principles in planning a centralized foodservice system
- Factors to consider in planning a centralized foodservice system
- School foodservice director’s role in planning the central kitchen
- Use of a planning committee
- Resources/sources of information for planning a centralized foodservice system
- Role of the menu in the planning process
- Planning equipment and facilities

**Guiding Principles in Planning a Centralized Foodservice System**

There are several principles that can guide the school foodservice director in planning for a new foodservice system, particularly decisions related to centralized foodservice systems.

**Principle 1. A vision for the foodservice system is required at the beginning of the process for planning the system.** This vision would include an overall picture of the foodservice system desired considering the mission and objectives established for the school nutrition program. This vision must encompass the entire system, including the central kitchen and the satellites (schools where the meals are served).
Principle 2. The system must be customer-focused. Foodservice directors will want to ask the following questions:

- What do our customers want?
- How can the system meet customer wants/needs?
- What systems will be put in place to obtain feedback from customers? How often will feedback be obtained? Whose responsibility will it be to follow through on obtaining and summarizing feedback? How will the feedback be used to improve the foodservice operation?
- What are the constraints of the system in meeting the customers’ wants?
- Will the new foodservice system be effective within those constraints?
- How will the new foodservice system be received by customers?

When considering the customers, keep in mind that there are several customers:

- Children
- Parents
- School Administrators
- Teachers
- USDA

Principle 3. Efficiencies are built on the system. A centralized foodservice system is:

- Volume driven
- Productive
- Repetitive--efficiencies are gained because of the sameness of tasks

These efficiencies can make centralized foodservice systems very cost-effective. Procedures will be needed to ensure that the efficiencies of the system are realized. For example, an accurate forecasting system will be essential to ensure that the needs of the schools are met without over-production.

Principle 4. Plan for the future. When planning for any foodservice system, it should be recognized that today’s system probably will not meet the needs of the program forever. Therefore, it should be recognized that:

- Change will occur
- Directors need to be futuristic, rather than in the “fire fighting” mode
- Flexibility needs to be planned
- Growth potential should be planned
Principle 5. **Centralized foodservice systems will impact the school district, not just the foodservice area.** The school foodservice director will need to be prepared for global consequences that are much bigger than foodservice. The school foodservice director will need to be prepared to be an advocate for the system, market the program, and answer questions from various groups about the centralized foodservice system. The school foodservice director will need to be well-informed and articulate to meet these demands.

Principle 6. **Quality and consistency do occur if appropriate standards, policies, and procedures are in place.** Quality and consistency are not compromised in centralized foodservice systems and often are improved. Standards for food products and performance are essential to the success of the system as are policies and procedures that specify how the system will operate.

Factors to Consider in Planning a Centralized Foodservice System

Twelve school foodservice directors were asked what factors need to be considered when planning a centralized foodservice system. The factors they identified related to five major areas: support for the proposed system, feasibility, district/environment, labor considerations, and operations.

**Support for the Proposed System**
- Funding
- Need for a district bond issue
- School board
- School administrators
- Community

**Feasibility**
- Customer expectations
- Feasibility study/business plan
- Consultant recommendations

**District/Environment**
- Location/land availability
- Size of district
- Growing or declining
- Geography of the district—distance, traffic, accessibility
- Future trends
• Central kitchen impact on the community—added truck traffic (sems, deliveries, etc.), parking, etc.
• Political—central services needed by district, zoning issues

Labor Considerations
• Labor supply
• Labor unions
• Impact on labor
• Job security concerns
• Training concerns
• Health and safety—back and shoulder injuries, decrease in accidents
• Physical wear and tear on employees
• Specialization

Operations
• Type of production
• Menu
• Pre-plate/bulk
• Cook-chill/hot
• Transportation
• Differences in production, warehouse, drivers, etc.
• Equipment requirements/specifications
• Existing equipment

Directors also noted that they considered themselves as a factor in planning the central kitchen—particularly the time and expertise required to plan and implement the system. Experienced directors noted that there is risk involved for the school foodservice director. This is quite a large investment. If everything works well it is good, but if there are problems then the director could find himself or herself out of a job.

School Foodservice Director’s Role in Planning the Central Kitchen

The district school foodservice director plays a major role in the planning process for a central kitchen. School foodservice directors who have been through the process of planning, building, and implementing a central kitchen say that they were the project manager and the primary person responsible for the process.

These individuals agree that the district school foodservice director must believe in the project and have a great deal of perseverance to go through the entire process. The director has to be constantly and consistently involved throughout the process. In fact, it
is the director who drives the entire process. The director is the individuals who promotes the centralized foodservice system and gets buy-in from the foodservice staff early in the process. Because of the integral involvement of the director throughout the entire process, one director stated that this was the biggest workload in 20 years of foodservice. Other directors concurred with that statement.

Roles of the district school foodservice director include:

- Visionary
- Educator
- Marketer/communicator
- Liaison to stakeholders (PTA, community, school board, faculty, staff)
- Decision-maker

**Use of a Planning Committee**

The school foodservice director will establish a planning committee, or a project team, to work on various aspects of the planning process. The planning committee would include several or all of the following:

- Engineer
- Consultant
- Architect
- General Contractor
- Key staff members
- Superintendent or school business manager
- Representative of the school district or city facilities department
- Bargaining unit representative
- Representative of the State Department of Health
- Representative of the State Department of Education, Child Nutrition Division
- Representative of the State Department of Agriculture

The members of the planning committee represent different perspectives that need to be considered in the overall planning process, thus, the representatives on the committee must be carefully selected to ensure that all aspects and points of view are represented. The committee members may be selected because they are opinion leaders and can be good advocates for the project. The planning committee is an important resource to the district school foodservice director and should be used to the fullest to ensure the success of the project.
Resources/Sources of Information for Planning a Centralized Foodservice System

Twelve school foodservice directors who had some type of centralized foodservice system identified resources they think would be useful to a school foodservice director planning a new centralized foodservice system:

- Other school districts that have central kitchens. This includes discussions with school foodservice directors in those districts as well as site visits to see the central kitchen in operation.
- Vendors (equipment manufacturers’ representatives)
- School district facilities staff
- Consultants
- Architects
- Own experience
- Books, manuals, magazines, Internet
- Health department

Nettles and Gregoire (2000) asked a national sample of school foodservice directors who had selected a new foodservice system what resources they found most helpful in the planning process. They reported that they used the following resources in descending order: discussions with users of the system being considered, visits to other facilities, seminars and conferences, equipment manufacturers, industry journals, foodservice consultants, manufacturer’s representatives, and professional journals.

It should be noted that most of the State Departments of Health have food sanitation rules based on FDA’s 1999 Food Code that include facility and equipment guidelines. These rules can be useful to the school foodservice director when planning a new facility. School foodservice directors contemplating a change in the foodservice system need to order the facility guidelines from their state. Also, they may want to purchase a copy of a new publication of the FDA, Plan Review Guide1 or download the file (http://vm.cfsan.fda.gov/~dms/prev-toc.html). This is a comprehensive guide to planning new or renovated foodservice facilities (Exhibit 3.1 outlines the contents of the manual). Also, the State Department of Health will have requirements that someone in their office review plans for any new or renovated facility and conduct a final inspection prior to the facility being opened for business. Thus, the health department is an important resource that cannot be overlooked.

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1 Food and Drug Administration, 5600 Fishers Lane, HFC-60, Rockville, MD 20857. (301) 594-0959
Planning Process
**Role of the Menu in the Planning Process**

The menu is central in the decision-making process of any foodservice operation. The menu drives many of the decisions made about the operation, including purchasing, cost, storage/facilities, production space, production equipment, staffing (numbers, hours, and skill level), and service style/equipment. Figure 3.1 illustrates the centrality of the menu to a foodservice system.

Because of the centrality of the menu to a foodservice operation, a menu must be submitted with any building plans for approval. That includes any seasonal menus as well as menus used for catered events. Also, if you plan to produce food for external contracts in the facility, menu implications for that function would be included.

**Figure 3.1** The menu drives the foodservice system and impacts operational decisions.

When reviewing building and renovation plans, the menu will indicate facility needs. For example, the number and complexity of menu items will impact the number and placement of hand sinks (Division of Human Resource Development, 2000). The number and quantity of menu items will impact equipment needs for producing, chilling, storing, and rethermalizing food. The timing of when these menu items are prepared will influence the amount of cold storage space required for the operation. These are just a few examples of how the menu impacts the facility plans.
One of the basic premises in centralized foodservice systems is that the menu is centralized. Foodservice directors who operate centralized foodservice systems warn that for every gain, there is a “give up.” In other words, there will be some menu items that just won’t be acceptable if produced in a central kitchen and served in satellites. Also, there will be staff and equipment limitations that must be considered. One of the keys to making central menu planning successful is the involvement of many people in planning menus.

It is important to include staff members who will be working at the central kitchen, as well as those who will be working at the satellites in menu planning. Students should be involved, and that involvement can take a variety of forms such as completing surveys of menu preferences, completing customer satisfaction surveys, participating in Nutrition Advisory Committees (NAC), and tasting and evaluating products in the cafeteria. Additional information about forming NAC groups may be obtained from the American School Food Service Association’s Web site (www.asfsa.org). Information about customer satisfaction surveys and forms for conducting overall customer satisfaction surveys may be obtained from The National Food Service Management Institute (NFSMI). The Web site is www.nfsmi.org.

**Successful Menu Items**

As mentioned earlier, all menu items will not be successful in a centralized foodservice system because some items do not maintain quality in the chilling or transportation processes. The menu items that are successful will depend on factors such as how the food items are transported (hot or cold; bulk or pre-plated) and the production capabilities at the satellite facility.

Some of the items that directors of school centralized foodservice systems have reported to be successful in their operations include:

- Chicken nuggets
- Chili
- Pizza (some make scratch, some get it delivered direct from a pizza store)
- Tacos
- Macaroni and cheese
- Pastas
- Italian dunkers (French bread with garlic, cheese, and spaghetti sauce)
- Hamburgers and California burgers (with lettuce, tomato)
- Franks and beans
- Beefy mac
- Roast
- Grilled cheese sandwiches
- Mexican items such as burritos and soft tacos
- Nachos
The preferences for these menu items and their use vary depending on the region of the country.

**Recipe Modifications Necessary for Central Production**

When very large quantities of a recipe are prepared, some changes in ingredients are needed to produce a quality product. Also, the chilling or freezing process creates changes in some ingredients. For example, starch used as a thickening ingredient breaks down in the chilling and freezing process, necessitating the need to use modified starches. Some of the ingredient and recipe changes that school foodservice directors in centralized foodservice systems have found necessary include:

- Use of a coarser ground beef
- Careful use of vinegar as an ingredient. You cannot just multiply it by the factor by that you want to increase the recipe because a very strong flavor might result
- Tomato paste cannot be used with some of the automated can openers
- Use of high gluten flour for yeast bread products
- Use of modified starches for thickening.
- Pre-plated systems require foods that:
  - Fit in containers
  - Have consistency appropriate for autofillers or individually quick frozen (IQF) products in the correct weight
  - Are prewrapped
- Use of hard wheat pasta for improved holding
- Pumpable items for cook/chill foodservice systems
- Use of a computer to increase yields of quantity recipes
- Modification of foods and menu items for transport and holding
- Consideration of rethermalization of food in restandardizing recipes for large quantities
- Consideration of equipment, schedules, and production methods in the recipe
- Changes in cooking time for larger size batches
- Procedures change for preparation of very large quantity recipes
- Baked goods with chips or nuts requiring specific equipment for handling particulates
Planning Equipment and Facilities

Planning of equipment and facilities is essential for a successful centralized foodservice system. During planning, the following factors about equipment and facilities need to be considered:

- Efficient work flow
- Food safety
- Ergonomic factors
- Americans with Disabilities Act

These factors will be discussed throughout this book.

Equipment

The equipment used for centralized foodservice systems needs to be carefully planned. Often a foodservice consultant with expertise in planning central kitchens will be hired to assist in making recommendations about the equipment needs for a new or renovated facility. Also, school foodservice directors will get information about equipment from directors of centralized foodservice systems, equipment manufacturers, and equipment shows.

There are two resources available that may be useful in considering equipment options and then in selecting and purchasing equipment. The first resource is the Plan Review Guide (2000), which is available at http://vm.cfsan.fda.gov/~dms/prev-toc.html. This manual provides extensive information about equipment and the capacity of that equipment. The second resource, A Guide for Purchasing Foodservice Equipment (1998) available at www.nal.usda.gov/fnic/schoolmeals/Training/equipment/equipment.html, provides an overview of equipment purchasing. The manual provides information about decision-making, equipment by functional areas, specification development, bid process, and the receiving process.

Facility Plan Reviews

When the final facility plans are complete, it will be necessary that they be reviewed and approved by city, county, and state agencies. Approvals may need to be obtained from the health department as well as from the departments of zoning, planning, building, conservation, plumbing, electric, police, and fire. There may be other approvals required, and you will need to determine the ones that are required in your locale.
The Oregon Health Division requirements for facility plan reviews will be presented as a case study. There will be similar requirements in other states, and this will provide information that can assist you in finding the requirements for your state. In addition, this example will provide guidance about the factors that will need to be addressed in the planning process.

The Oregon Health Division has a five-step plan review and licensing process:

1. Submit plan for review
2. Obtain plan review prior to beginning construction
3. Call for pre-opening inspection
4. Receive approval for opening from health department and all other agencies, and submit applications for licenses
5. Open facility for operation

Exhibit 3.2 lists the general requirements for foodservice facilities in Oregon. Exhibit 3.3 lists the foodservice review requirements for a new or renovated facility in Oregon.
Available at http://vm.cfsan.fda.gov/~dms/prev-toc.html

Introduction

- Questions to Consider
- Plan Review Process Flow Chart
- Definitions

Section I. Operator’s Application Documents

- Food Establishment Plan Review Application
- Proposed menus for all seasons and functions (on-site service, off-site service, catering, contracts)
- Site Plan
  - Location in building
  - Location of building on site
    - Access such as streets and alleys
    - Location of outside equipment—dumpsters or others such as septic systems or wells
- Plan drawn to scale, including:
  - Equipment placement
  - Plumbing
  - Electrical
  - Mechanical
- Equipment schedule

Section II. Regulatory Authority Compliance Review List

Compliance checklist, including acceptability of:
1. Food preparation
2. Utensil and equipment storage
3. Kitchen equipment
4. Finish schedule
5. Plumbing
6. Physical facilities
7. Refuse and pest control
8. Ventilation
9. Employee restrooms
10. Patron restrooms
Section III. Food Establishment Guide for Design, Installation, and Construction Recommendations

This section provides useful resource information for 18 areas including:

1. Menu
2. Facilities to maintain product temperature
3. Facilities to protect food
4. Handwashing
5. Water supply and sewage disposal
6. Food equipment and installation
7. Dry storage consideration
8. Warewashing facilities
9. Hot water supply requirements
10. Finish schedule for floors, walls, ceilings
11. Toilet facilities
12. Plumbing and cross connection control
13. Insect and rodent control
14. Lighting
15. Ventilation
16. Utility facility
17. Dressing and locker rooms
18. Garage and refuse storage

Section IV. Plan Review Outline of Applicable 1999 Food Code Sections

NOTE: This Plan Review Guide provides a wealth of guidance information for planning foodservice facilities. For example, there are formulas and charts to help determine the amount of refrigerated, frozen, and dry storage space required for the volume anticipated for the operation. There are forms for calculating hot water capacity required and sizing tables for both gas and electric hot water heaters. There are finish schedules and specifications for equipment. There are formulas for calculating air exhaust and foot candle requirements. This is an invaluable reference for any school foodservice director planning a new building or renovation project.
Exhibit 3.2 Checklist for the General Requirements for Planning a Foodservice Facility
Oregon Health Division

Hand Washing Sinks

- Present in each food preparation area
- Separate from other sinks
- Easily accessible
- Not used for food preparation or utensil washing

Food Preparation Sink

- Cleanable construction
- Separate from hand or ware washing
- Waste line plumbed indirectly

Dishwashing

- Three-compartment sink
  - Large enough to immerse largest utensil to be washed
  - Each compartment supplied with hot and cold running water
  - Sinks are plumbed with air gaps
- Dishwashing machine
  - Final sanitizing rinse between 15 and 25 pounds per square inch
  - Machine or water line mounted thermometers accurate to ± 3 degrees F to measure the water temperature as it enters the manifold
  - Drain lines plumbed with an indirect connection

Hot Temperature Dishwashing Machines

- Maintain manufacturer’s recommended wash and rinse temperatures
- Temperatures measured at the dishrack level

Cold Temperature/Chemical Dishwashing Machines

- Maintain minimum wash temperature of 120°F
- Maintain minimum rinse temperature of 75°F
- Appropriate chemical concentrations: 50 ppm for chlorine or 12.5 ppm for iodine
- Approved test kit to measure concentrations of chemical sanitizers that are used on a regular basis
- Dishwashing area equipped with drain boards and sorting areas, one for dirty dishes and one for clean dishes
- Sufficient space to handle peak loads without cross contamination
Mop Sinks

- Utility sink or curbed cleaning facility
- Hose bibs have vacuum breakers

Cold Holding

- Sufficient, conveniently located refrigeration
- Thermometers accurate to within ± 3 degrees F of any of the following types:
  - Numerically scaled spirit stem indicating thermometer located in warmest part of unit
  - Recording thermometers
  - Temperature gauge visible from exterior

Rapid Cooling

- If perishable foods are to be cooled, blast chillers or ice baths are recommended.

Hot Holding

- Hot holding units must maintain temperatures above 140°F.
- Thermometers must be available to check the internal temperature of the food.

Rapid Heating

- Equipment must be available to reheat foods to 165°F within one hour.

Equipment

- Easily cleanable
- In good repair
- Free of any rust or corrosion
- Stationary equipment installed to provide ease in cleaning beneath and behind

Indirect Waste

- Equipment utilized to hold food or ice is equipped with an indirect drain to floors or floor sinks.
- For airgaps, the distance between the bottom of the waste pipe to the top of the drain must be at least one inch or two waste pipe diameters.
Hoods

- Follow building and fire regulations.

Wall, Floor, and Ceiling Construction

- All areas must be finished, smooth, and easily cleanable.
- Smooth, nonabsorbent hard materials (Formica, stainless steel, FRP fiberglass reinforced polyethylene, etc.) are recommended for walls behind dishwashing, pot and pan washing, mop washing, and other areas where damage may occur.
- Junctions (wall to floor, wall to wall, wall to ceiling) are tightly joined and sealed.
- Coving recommended on all non-carpeted floors.
- Carpets may only be used in dining areas.
- Utility service lines are enclosed to facilitate cleaning.

Lighting

- Adequate shield lighting

Doors and Windows

- Restroom doors are self closing.
- Exterior doors are rodent proof.
- Openings are screened to prevent fly access.

Storage Devices

- All storage is six inches above the floor or on a wheeled platform or sealed base.

Locker, Dressing Rooms, Break Areas

- Adequate areas for employees to dress and store personal items
- Designated employee break area for eating, drinking, and smoking

Garbage Areas

- Hard, cleanable surfaces
- Covered outside containers
- Adequate container size to contain garbage

Toxic Items

- Storage area
- Proper labeling
- Proper use to prevent contamination of food and food preparation surfaces
Self-Serve

- Sneeze shield to protect foods or use of other approved means

**Source:** Health Division, Oregon Department of Human Resources
Exhibit 3.3 Oregon Health Division’s Plan Review Requirements

The following information must be submitted to the County Environmental Health Office for review prior to beginning a building or renovation project:

1. **Proposed Menu** including the specifics about the food items that will be prepared and served.

2. **Floor Plan to Scale**
   - Plans for all facilities: food preparation, restrooms, mop washing areas, storage areas, self-service areas, dining areas, etc.
   - Equipment list identifying where each piece is located on the floor plan
   - Plans must show adequate facilities for rapid cooling and cold holding
   - Plans must show adequate facilities for rapid heating

3. **Required Plumbing Fixtures**
   - Mop sink and mop washing facilities
   - Hand sink in each food preparation area
   - Culinary sink with air gap
   - Dishwashing facilities with an air gap
   - Restrooms
   - Floor sinks and drains for all equipment that produces disposable waste water

4. **Seating layout with maximum number of seats**
   This would be pertinent to any new satellites or receiving kitchen dining areas.

5. **Designated employee break area**

6. **List of surface finishes for all walls, floors, and ceilings**

7. **Ventilation**

8. **Hot water including tank size and BTU ratings**

9. **Garbage storage areas and surfaces**
References


