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GUIDELINES FOR THE PROPOSED LUNCH
PROGRAM IN THE BEDFORD
HIGH SCHOOL

Thesis for the Degree of M. S.
MICHIGAN STATE UNIVERSITY
Charlotte Felsted
1964

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GUIDELINES FOR THE PROPOSED SCHOOL LUNCH PROGRAM
IN THE BEDFORD HIGH SCHOOL

By
Charlotte Felsted

A PROBLEM

Submitted to
the Dean of the College of Home Economics
Michigan State University
in partial fulfillment of the requirements
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MASTER OF SCIENCE

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INTRODUCTION

Plans for a new high school unit in a school district usually include a cafeteria. If the school district has not had food service previously, the home economics teacher is often asked to evaluate plans for this service. Most home economics teachers have had either no training or only a minimal amount of experience in quantity food preparation and service.

In order for the new food service to be a functioning and integral part when the new facility begins operating, many aspects of the food service must be established before the unit opens. Although the administration of the school facility makes the final decision, the policies and procedures recommended for acceptance by the Board of Education should be developed by a person(s) with a workable knowledge in the operational requirements of quantity food preparation and service.

A new senior high school is to be built as a part of the Bedford Public Schools system, Monroe County, Michigan. The opening date has been set for September 1, 1965. The first school food service in the district will be a part of this structure.

This paper will discuss three areas of consideration for the Bedford High School cafeteria food service: 1) food service layout and equipment; 2) food service staff and labor personnel; and 3) food service policies for extracurricular functions. The material applies only to the proposed high school building and no recommendations are made for expansion or direction of expansion.

THE SCHOOL LUNCH PROGRAM--HISTORICAL BACKGROUND

The basic concept of elementary and secondary school food service goes back many years. The first programs were of a social welfare nature. Count Rumford established soup kitchens in Munich, Germany, in 1790. In France, the school canteen received the recognition of the Ministry of Education in 1867. The French Education Law of 1882 made primary education compulsory and school funds for lunches were made available. In England, the Provision of Meals Act in 1906 transferred school feeding from charities to educational authorities. By 1909, most European countries had made some provision for school feeding.

In the United States, the Children's Aid Society of New York City opened the first industrial school in 1853 and served a noon meal in order to induce the needy and vagrant children of the slum areas to attend school and receive industrial and mental training. Many early accounts of school lunch indicate that the janitor or a concessionaire prepared the food. Part of the furnace room was curtained off for the dining room. The janitor prepared the food on or in the furnace and usually served it. The concessionaire was in the business to make money and the needs of the children were secondary.

Mrs. Ellen H. Richards is credited with making the citizenry aware of the unhealthy and unsanitary practices then in existence in school lunch in Boston. In 1894 the Boston School Committee asked Mrs. Richards to prepare and pack lunches for the school children. The Women's Educational and Industrial Union carried on the work when Mrs. Richards retired in 1907.

New York City recorded November 23, 1908, as the date of the first school lunch in the public schools and later initiated the first medical examinations for school lunch employees and work on recipe standardization.

School lunch in Philadelphia started as a philanthropic effort in a poor district in 1894 and gradually expanded to encompass nine schools. Cronan explained that:

In 1909 a home economics graduate was hired as director of the lunchroom to serve lunches based on sound food principles. Light, heat, gas for cooking, and the original equipment were provided by the board of education. Otherwise, the lunchroom was to be self-sustaining, all assistants and helpers to be employed by the director, with prices for food fixed at such a scale that the receipts should cover overhead charges. This plan proved to be basic to school lunch development.¹

War has been an incentive to school lunch feeding. In conscription in England for the Boer War of 1902, two out of every five men were physically unfit for service. George stated:

. . . that physical examinations for military conscription during World War I showed the effect of poor nutrition. As a result, colleges and universities increased training and research in nutrition. Extension services of land grant colleges made a valuable contribution through classes and published research. Home economics teachers and parents' groups began to stress the value of adequate lunches for all children.²

The results of the first draft of World War II showed that one-third of the young men were rejected for reasons directly or indirectly involving faulty nutrition (21). After each of these events, there was increased emphasis on taking care of the developing physical body as well as the developing mind of the school child.

¹Marion L. Cronan, The School Lunch (Peoria, Illinois: Chas. A. Bennett Company, Inc., 1962), p. 17.

²N. L. George and Ruth D. Heckler, School Food Centers: A Guide to Operating the School Lunch Program (New York: The Ronald Press, 1960), p. 3-4.

In the depression of the 1930's, agricultural products could not be marketed through regular distributive channels. Many of these products were purchased to aid the farmers and then given to schools. Fresh fruit was often the surplus and since this could be eaten by hand, no equipment was involved. Cronan observed that:

Federal assistance to school lunch operations began in 1933, when the Reconstruction Finance Corporation provided loans to several communities in Missouri to pay labor costs of preparing and serving school lunches. By the end of 1934 this type of assistance was being provided in 39 states through the Civil Works Administration and the Federal Emergency Relief Administration. Later, the Works Project Administration furnished both labor and trained management personnel for lunchroom operations.³

The National School Lunch Program is now operated under authority established in the National School Lunch Act of June, 1946 (Public Law 396, 79th Congress, second session). This act authorized federal assistance to school lunch programs in the form of a state grant-in-aid program, providing for both cash and food assistance. Public schools and nonprofit private schools (such as parochial, sectarian, and denominational schools) of high school grade or under could apply for federal aid. To be eligible for participation, schools agreed to:

1. operate the lunch program on a nonprofit basis,
2. serve lunches that meet the nutritional standards established by the Secretary of Agriculture, and
3. provide lunches free or at a reduced cost to children who are determined by local school authorities to be unable to pay the full price of the lunch. Children receiving free or reduced-price lunches must not be so identified, nor otherwise discriminated against in any way.⁴

³Cronan, op. cit., p. 21.

⁴U. S. Department of Agriculture, Agricultural Marketing Service, National School Lunch Program, P. A. 19, June, 1959.

However, a school which operated its lunch program under a fee, concession, or contract arrangement with a food service management company or under a similar arrangement would not be eligible for participation in the National School Lunch Program, even though the school operated its lunch program on a nonprofit basis.

The nutritional standards set for eligibility for the program stated that the following foods must be included each day:

1. at least one-half pint of fluid whole milk as a beverage,
2. at least a 2-ounce serving of cooked or canned lean meat, poultry, or fish; or 2 ounces of cheese; or 1/2 cup of cooked dry peas, beans, or soybeans; or 4 tablespoons of peanut butter; or 1 egg; or a combination of one-half of the listed quantities of each of 2 of these items,
3. at least a 3/4-cup serving of raw or cooked vegetables or fruits (fresh, canned, dried or frozen) or both. It is desirable to include a vitamin C food every day; a vitamin A food twice a week.
4. at least 1 slice of bread or 1 serving of hot breads made of enriched or whole-grain cereal, and
5. at least 2 teaspoons of butter or fortified margarine.⁵

Federal funds for the School Lunch Program were apportioned among the states to be used in reimbursing schools for part of the cost of the food they purchased. The amount of money each state received depended on the number of school-age children in the state and the per capita income of the state. Federal funds expended in a state for the purpose of reimbursing schools had to be matched with funds from sources within the state. No reimbursement was given for meals served to teachers or other adults. Cronan explained that:

In Section 7, the "matching funds" to be provided within the state were spelled out. Briefly, the section stipulated that from 1947-50 each dollar of federal funds should be matched by a

⁵Ibid.

dollar from the state; from 1951-55 each dollar was to be matched by $1\frac{1}{2}$ state dollars; and from 1955 on, each dollar was to be matched by 3 state dollars.⁶

Most of the food used in the School Lunch Program is purchased locally by the participating schools. However, the United States Department of Agriculture buys and distributes to schools taking part in the program, foods that are of high nutritive value suitable for children's lunches.

Commodities were made available under the following legislation:

1. Section 416 of the Agricultural Act of 1949. This act authorized the Secretary of Agriculture to donate commodities purchased under the price support of the Commodity Credit Corporation for distribution, with priority given to the school lunch program.
2. Section 32 of the Public Law 320, 74th Congress, as amended, makes provision for financing, and says in part, 'There is hereby appropriated for each fiscal year beginning June, 1936, an amount equal to 30 per centum of the gross receipts from duties collected under customs laws. . . . Such sums shall be maintained in a separate fund and shall be used by the Secretary of Agriculture only to . . . encourage the domestic consumption of such agricultural commodities or products by diverting them . . . from the normal channels of trade and commerce.' The school lunch program is the principal recipient of these commodities.
3. Section 6 of the National School Lunch Act permits the Secretary of Agriculture to use a portion of the annual appropriation, up to 25 per cent, for the purchase of agricultural commodities 'in accordance with the needs as determined by the local school authorities.'⁷

Since 1954, the Department of Agriculture has operated a Special Milk Program to increase fluid milk consumption among children attending schools of high school grades and under. To increase milk consumption, a system of reimbursement or incentive payments was established. These payments must be used to reduce the price of milk sold to children.

⁶Cronan, op. cit., p. 23.

⁷Ibid., pp. 23-24.

The maximum rate of reimbursement for milk sold to children is generally 3 cents per half pint. However, schools that also participate in the National School Lunch Program may receive up to a maximum of 4 cents reimbursement per half pint; but they cannot claim reimbursement for the first half pint of milk served as part of the Type A lunch.⁸

With the aid of the federal government, the school lunch program has gradually changed emphasis from a social or welfare necessity to an integral part of the total curriculum. George stated that:

Few things that the child learns in school affect his adulthood to a greater extent, or carry over for a longer period of time, than does the development of good health habits. The child who learns to select and eat foods that his body needs will be a healthier, happier adult. In the light of this concept, the food service program is a vital part of the over-all program of education.⁹

Many studies have shown that the undernourished child may become a discipline problem and will not achieve to his full capacity for learning.

Today the school lunch program has many obligations: 1) to be an educational situation to help children learn and apply basic principles of good nutrition; 2) to supply the child with approximately one-fourth to one-third of his daily nutritional requirement; 3) to provide learning opportunities for citizenship and social graces in the dining room; 4) to correlate its program with many other areas of the school curriculum: art, business, biological and physical sciences, home economics, mathematics, economics and others; 5) to offer job-training for students that could lead to gainful employment after graduation; and 6) to feed needy children at reduced or no cost.

⁸U. S. Department of Agriculture, Agricultural Marketing Service, The Special Milk Program, P. A. 248, June, 1961.

⁹George and Heckler, op. cit., p. 8.

BEDFORD TOWNSHIP SCHOOLS--THE COMMUNITY AND SCHOOL SYSTEM

Bedford Township Schools are located in a rapidly growing suburban community that is part of metropolitan areas of Toledo, Ohio, and Monroe, Michigan. The school district has been consolidated 17 years; during this time the school enrollment has nearly quadrupled. The rapid growth of the township population and consequent expansion of the school system are typical of many metropolitan areas throughout the United States.

Bedford Township is located at the southern boundary of Monroe County adjacent to the Michigan-Ohio boundary. The township, which comprises nearly 40 square miles, is approximately one mile north of the city of Toledo and 8 miles south of the city of Monroe and is two and one-half miles west of Lake Erie and Maumee Bay. This location is strategic due to proximity to Toledo and the fact that the township is connected to that metropolitan area, as well as to Monroe and Detroit, by several major trafficways and railroads. This position also indicates that future urbanization can be expected (57).

The first community settlement, Lambertville, was started by John Lambert in 1833 when he was granted 160 acres by the United States government. The first township meeting was held in 1836. The first church, Lambertville Methodist Church, was established in 1835 and has occupied its present building since 1887.

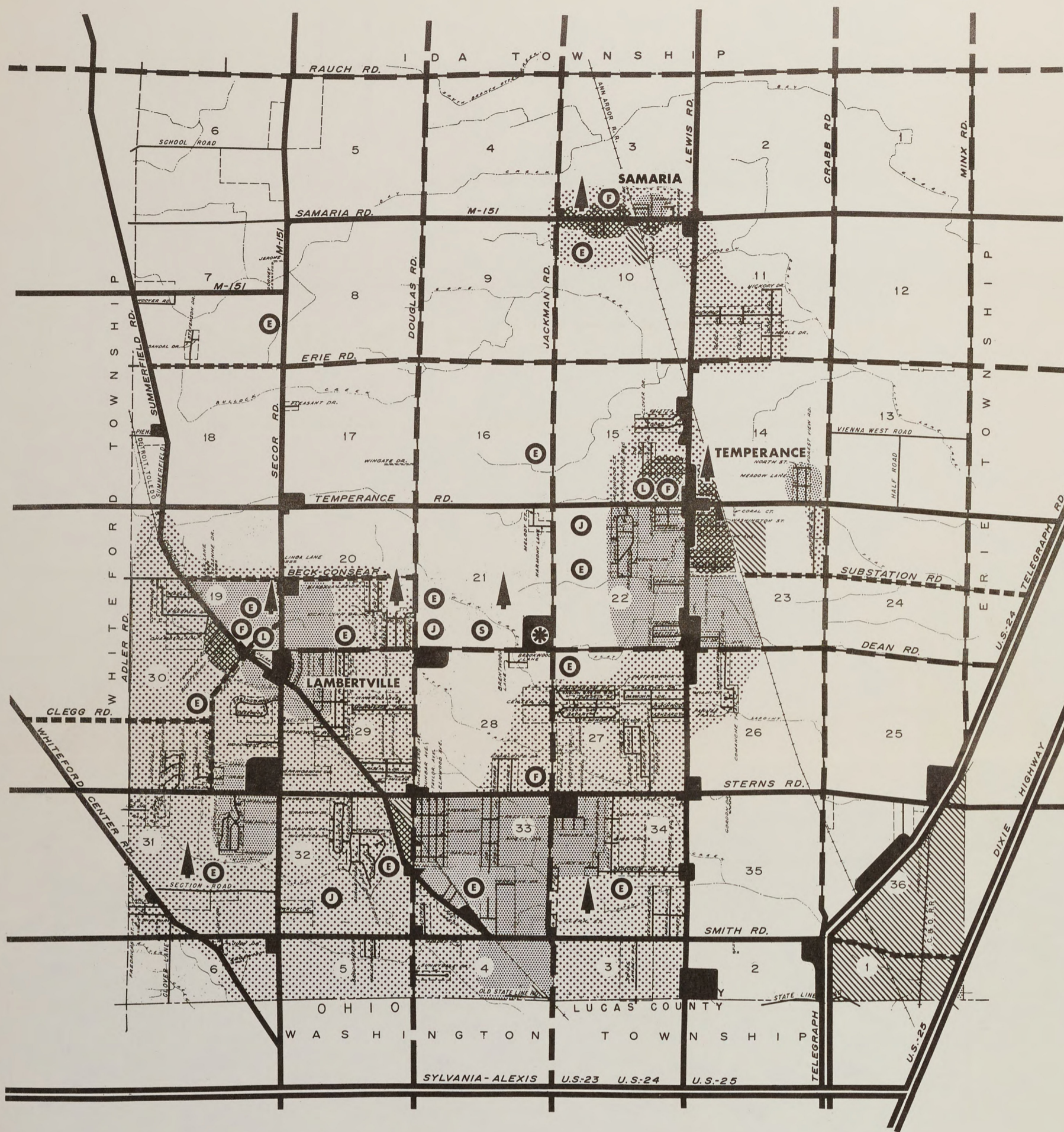
Another early settlement, Temperance, was platted in 1895 by Lewis Ansted. Mr. Ansted was a strong prohibitionist, and his wife was a

member of the Women's Christian Temperance Union. The deed for each lot specified that intoxicating liquor was not to be made or sold on the premises. The area still remains dry although attempts have been made to break the clause in the deed. The name of the town is appropriate. The smallest community settlement, Samaria, was platted in 1884 and has shown the least growth of the three settlements.







Today, Bedford Township retains the same basic features of township government as drawn up in 1836. The Township elects officers and holds an annual meeting at which township business is transacted by vote of the electorate attending the meeting.








Bedford Township has a long history of settlement, but the population increase has occurred in recent years. The 1920 census population was 2,689; the 1960 census population was 14,353, which is an increase of approximately 540 per cent over a 40-year period. Monroe County in the decades since the 1920's has had a greater rate of growth than Michigan. Bedford Township during the same period has had a greater rate of growth than the county (57). Employed homeowners represent over 90 per cent of the township population. Some persons are employed in farming, retail business, public and school work or a few small industries; most people, however, work in the Toledo metropolitan area. Because of this, the township is known as a "bedroom community," and many subdivisions have been platted around the Lambertville and Temperance communities. Exhibit 1 shows the residential areas in the township.

Total assessed valuations have increased 20 per cent in the past two years. The problem for the township is that while assessed valuations



COMPREHENSIVE PLAN

-  LOW DENSITY RESIDENTIAL
-  MEDIUM DENSITY RESIDENTIAL
-  LOW DENSITY RURAL RESIDENTIAL
-  COMMERCIAL
-  INDUSTRIAL
-  AGRICULTURAL

-  ELEMENTARY SCHOOL
-  JUNIOR HIGH SCHOOL
-  SENIOR HIGH SCHOOL
-  FIRE STATION
-  LIBRARY
-  TOWNSHIP HALL
-  PARK

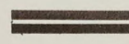
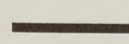
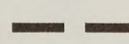

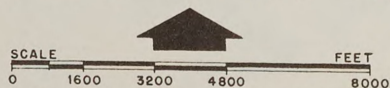
-  REGIONAL THOROUGHFARE
-  MAJOR THOROUGHFARE
-  SECONDARY THOROUGHFARE
-  COLLECTOR STREET

EXHIBIT 1
MARCH 1963

TOWNSHIP OF BEDFORD

MONROE COUNTY, MICHIGAN



PARKINS, ROGERS & ASSOCIATES, PLANNING CONSULTANTS, DETROIT, MICHIGAN

have increased in recent years, mainly due to new home construction, there has also been a parallel growth in population. More people require increasing services and facilities from township, county, and school agencies. An indication of the present problem is the plight of the Bedford School Board which, with an average assessed property value of \$6,000 per pupil, is the poorest school district in the county. A desirable ratio of assessed value per pupil is \$15,000 (57). The school district has sometimes been classified as a "hardship" district for this reason. Exhibit 2 illustrates the property evaluation per student based on the state equalized property values during the years 1957-1963.

EXHIBIT 2

Property Evaluation Per Student Based on the State Equalized
Property Values, Bedford Township, Michigan, 1957-1963

Year	State Equalized Property Values	Total Enrollment of Students	Property Value Per Pupil	Tax Operating Rate
1957-58	\$17,039,182	3010	\$5,660	8.85
1958-59	18,078,795	3265	5,537	9.25
1959-60	19,809,027	3588	5,519	12.00
1960-61	25,311,277	3984	6,351	12.00
1961-62	29,064,559	4414	6,584	12.00
1962-63	31,468,354	4762	6,608	11.75

Source: Charles A. Scheltema, A Five-Year Projection, 1962-1967. Unpublished report of the Superintendent, Bedford Public Schools, Temperance, Michigan (mimeographed).

The school system was consolidated in 1946. Prior to this time each one and two-room township schoolhouse served an area of one square mile radius, had all eight grades and was controlled by a three-man school board. Lambertville and Temperance had high schools which provided sufficient secondary school space until 1946. Until this date a child could quit school at the age of 14 or when he had graduated from the eighth grade.

Consolidation was necessary for many reasons but two were of primary importance. The school law was changed and students (rural as well as urban) were required to remain in school until 16 years of age. At this same time the destruction of the Temperance School by fire created a new pressure on classroom space. Consolidation seemed to be the best solution.

Since 1946 an extensive building program was undertaken by the Bedford School Board and has continued. Exhibit 3 shows the school plant as of September 1963, the type and size of enrollment and the site size. Many of the one and two-room buildings have been abandoned. Even with this amount of building, students have been on half-day sessions from a part of a year to two years either waiting for a building to be constructed or completed.

Exhibit 4 presents the enrollment figures for the last six years. Each year there has been a decrease in first grade enrollment from the kindergarten because there is one parochial grade school in the district. A second parochial school is being planned, but these schools will not affect total enrollment an appreciable amount. The majority of the parochial school children re-enter the Bedford system for high school.

EXHIBIT 3

Construction Data, Type and Total Enrollment, Number of Classrooms and Site Size of School Buildings in Bedford Township, September 1, 1963*

School	Construction Date	Type	Grades	1963 Enrollment*	Classrooms	Site Size (Acres)
Deland	Pre 1920	E1.	3-4	67	2	2.0
Rawson	Pre 1920	E1.	3-4	68	2	2.0
Samaria	1921	E1.	2-4	98	3	3.0
Lambertville	1930	E1.	1-6	210	6	4.0
High school site	1947; add'n. 1961	E1.	K-5	789	18	-
High school	1952; add'n. 1961	S.H.	9-12	1161	34 teacher stations	30.0
Junior high	1955; add'n. 1958	J.H.	2-8	830	27 teacher stations	20.0
Douglas Road	1959; add'n. 1961	E1.	K-6	1108	32	13.0
Jackman Road	1961; add'n. 1964**	E1.	K-6	431	10 20	20.0
Senior high school	Sept., 1965**		9-12	1800	70	40.0

Source: Maurice F. Parkins, Brandon M. Rogers and associates, "Comprehensive Plan, Bedford Township, Monroe County, Michigan." Unpublished report from Parkins, Rogers and Associates, Planning and Urban Renewal Consultants, 2889 West Grand Boulevard, Detroit 2, Michigan (multilith).

* Enrollment figures brought up to date. Source: Charles A. Scheltema, Superintendent, Bedford Public Schools, Temperance, Michigan.

** To be built with funds voted in a bond issue, May 13, 1963.

EXHIBIT 4

Enrollment in Each Grade and Total Enrollment of Students
in the Bedford Public Schools, 1957-1963

Grade	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63
Kg.	339	342	385	408	481	515
1	308	335	337	384	409	456
2	263	305	338	335	373	385
3	284	263	320	358	352	388
4	267	286	280	348	381	356
5	269	285	308	311	360	393
6	230	274	285	344	332	374
Sp. Ed.					30	40
Total	1960	2090	2253	2488	2718	2907
7	198	222	310	301	353	332
8	191	207	223	336	321	350
Sp. Ed.						12
Total	389	429	533	637	674	694
9	192	210	228	261	363	344
10	200	190	218	232	255	346
11	166	186	182	198	218	251
12	103	160	174	169	186	220
Total	661	746	802	860	1022	1161
Total for all grades	3010	3265	3589	3985	4414	4762

Source: Charles A. Scheltema, "A Five-Year Projection, 1962-1967." Unpublished report, the Superintendent, Bedford Public Schools, Temperance, Michigan (mimeographed).

For many years, national averages indicated that two out of every five entering ninth grade students would not graduate from high school. Bedford has drop-outs, but they do not materially affect total enrollment. For the graduating class of 1961, 192 freshmen entered and 169 seniors graduated. For the graduating class of 1962, 210 freshmen entered and 186 seniors graduated. For the graduating class of 1963, 228 freshmen entered and 220 seniors graduated. In looking at total enrollment for each class, the general trend is an increase in enrollment at the primary level of instruction. Estimated enrollment in the next five years will increase to 6935 in the school year 1967-68. With emphasis on adequate space for all-day sessions, no school lunch facilities have been available; all students must bring a sack lunch from home. The first facility for a school lunch program in Bedford Township Schools is planned for fall semester, 1965.

GUIDELINES FOR PROPOSED SCHOOL LUNCH PROGRAM

Before actual planning of any facility can be undertaken, guidelines must be established. These are a compilation of relevant factors that will influence final plans and decisions. With these guidelines, an orderly procedure can be initiated and followed.

Food Service Layout and Equipment

The design and layout of equipment for school lunch facilities should be a cooperative effort of the school administrator, the architect, and the food service director. The architect can do the technical work of drawing the plan, but usually he has no operating experience. Often an equipment consultant will help the architect plan the layout and specifications. This may not be satisfactory because the equipment consultant wants to sell equipment and the results may be biased in his favor. The food service director should have operating experience and can give suggestions to increase layout efficiency and, thereby, decrease operating and labor costs. The school administrator is the initiator of the planning and has the responsibility of coordinating all plans with the architect. Each one has specific duties, responsibilities and background which are needed to obtain maximum utilization of space and equipment.

Many factors must be analyzed to determine the space and equipment needs for a school lunch facility. In the serving and dining area, student enrollment, participation, serving facilities and length of the

lunch period need to be considered. The proposed Bedford High School, which will be opened in September, 1965, is designed for a maximum enrollment of 1800 students; probable opening enrollment will be 1500 students. The number of lunch periods will be determined by the students that can be seated in the dining room at one time; e.g., 300 seats in the dining room will mean five lunch periods, or 400 seats will necessitate four lunch periods at the time the building opens. Adjustment(s) of lunch periods will be made as enrollment increases.

Various communities report that student participation in their school lunch program runs from 25 to 90 per cent. The national average approximates 33 per cent (1, 66). Several factors may influence acceptance of this service at Bedford High School. Since there has been no school lunch program in the district previously, the student reaction may be high participation at first because of novelty or low participation until the service has established its purpose and function in the total school program. The facility must be in operation for a period of time before a realistic forecasting percentage can be determined.

The quality and presentation of the food will be very important. A high school student has definite food likes and dislikes which have been set by his home training and association with his peer group. It is easier to serve "new" foods to elementary students and expect them to accept these foods than it is to receive favorable acceptance of less well-known foods by the adolescent. The food must be as high in quality as possible and it must be presented attractively to encourage the high school student to try it and, hopefully, to accept it.

Prices for the Type A lunch and à la carte items must be established to cover all preparation and serving costs. The school lunch

operation should not make a substantial profit, neither should it lose money. If the prices are too high, many students can not afford the noon meal; if the prices are too low, the high school student may be suspicious of the food.

The length of the lunch period must give the student time to be served and time to eat his lunch. The number that can be served a Type A meal through a straight line cafeteria ranges from 7 to 14 per minute with an average of 10 per minute. If 400 students are seated in the dining room and one-third of them buy the Type A meal, a single serving line would require 13 minutes to serve these lunches. This means that the last students are standing in line too long. The addition of a second serving counter would cut serving time in half. If the participation is two-thirds, additional serving lines are needed. After the last student has his tray, he should have 15 to 20 minutes to eat his lunch. The number of serving lines and the degree of participation could permit a lunch period from a minimum of 20 minutes to a maximum of 35 minutes.

The type of menu influences the speed of the line. If a Type A lunch is served and no choice is given, the line moves very fast. If a limited choice is presented with the Type A, the line is slowed slightly. When à la carte items are offered, time must be allowed for the student to make his choice. If milk and other foods used to supplement a home-packed lunch are served in a separate line, this will speed the service in the lines for the complete lunch.

Since the students at Bedford are transported to school, they remain in the building for lunch. No other facilities are within walking distance of the school, and very few are within driving distance when the length of the lunch period is considered.

Each of these factors must be weighed and evaluated before a final decision can be made on the size of the dining area and the number of serving lines that will be needed.

Space allocations in the kitchen or preparation area are based on some of the same factors: degree of participation, number of serving periods, and length of the serving periods. Additional factors to consider are: availability of markets and frequency of deliveries, purchasing procedures, and the uses of the facility for other than school lunch preparation.

The total length of the serving time will be determined by the length of each lunch period and the number of lunch periods. Some prepared food items can be held for a period of time and not deteriorate appreciably in quality or nutritional value. Holding equipment (refrigerated, normal temperature or heated) can be provided for these foods. Other menu items should be prepared immediately before serving; this will involve equipment for small batch preparation and continuous service. The degree of participation in each lunch period will determine the size and amount of equipment needed. Equipment variables will test the ability of the food service director in production planning, but necessary equipment in both type and size should be available.

Purchasing procedures should be established. If all schools in the county are required to participate in the central purchasing plan operated by the county superintendent's office, then purchasing will be regulated. This procedure should be investigated to ascertain the completeness of ordering by the county office. If all subsistence items necessary to operate each unit are ordered, the plan will be satisfactory. If only the food that can be ordered in large quantity is purchased

through this office and other items must be obtained at retail price, the service may be more expensive than purchasing as an individual unit. The frequency of delivery will determine the amount of refrigerated and dry storage space needed.

Markets are available in Toledo, Monroe, and Detroit. However, Bedford Township school is not located on a main thoroughfare. This means that the supplier must detour from an established route and, consequently, transportation costs for him will be increased. This will limit the number and the size of deliveries that the purveyor is willing to make. If the food service demands more frequent deliveries, additional charges will be reflected in the raw food cost.

Commodities offered by the Direct Distribution Program are available to the school once each month. Storage space must be provided so that these products can be utilized to the fullest extent.

Exhibit 5 presents the space allocations for the various areas of school food service recommended by two sources: 1) N. L. George and Ruth D. Heckler and 2) U. S. Department of Agriculture, Agricultural Marketing Service. Dana (23), Bilger (4, 5), Kotschevar (43) and others give similar information.

Many activities such as school dances and meetings of community organizations will be scheduled for the dining area. If kitchenette facilities are not provided for these groups, then the necessary equipment must be in the food preparation area and the entire kitchen must be opened to participating committees.

After the space required for each area is determined, these areas must be related to each other to accomplish efficient operation. The equipment must then be placed within the allotted space. The dimensions

EXHIBIT 5

Recommended Space Allocations for Areas in a School
Lunch Facility

Area	Secondary ¹ Schools (Square feet)	350-500 meals ² (Square feet)	500-750 meals ² (Square feet)
Faculty dining area	15 per person		
Student dining area	12 per person	10-12 per person	
Dishwashing	200 for 400-1200 served; 250 for more than 1200 served	150-180 for single-tank machine	180-210 for two-tank machine
Employee's dressing room	30 for 2-4 employees; 8 for each additional employee	3½ per lunchroom employee; additional 20 sq. ft. if cot in women's locker room	
Food preparation	0-400--3 600-900--2 1500 or more--1½ minimum--500	2.0 to 2.5 per meal served daily	
Garbage and refuse	60	68-90	90-115
Janitor's supplies	20		30-40
Manager's office	80		48-60
Refrigeration	10 cu. ft. per 100 meals served; minimum-17; 60 cu. ft. or more--walk-in becomes economical	Reach-in--30-40 cu. ft. Walk-in--1 8' X 10'	Reach-in--40-60 cu. ft. Walk-in--1-2 8' X 10' or larger

EXHIBIT 5--Continued

Area	Secondary ¹ Schools (Square feet)	350-500 meals ² (Square feet)	500-750 meals ² (Square feet)
Serving counter	250 for each serving area; counter 25' long	1.0 sq. ft. floor area for each meal served	
Receiving		80-100	Outside 100-160
		48-60	Inside 60-80
Storage Non-food	50-60	40-60	60-80
Dry	1/6 of preparation area; 16 per 100 meals served; 25 per 100 meals for one month's storage	1/2 sq. ft. floor space per meal served based on two weeks' supply Shelving: 240-384 sq. ft.	384-675 sq. ft.

¹N. L. George and Ruth D. Heckler, School Food Centers: A Guide to Operating the School Lunch Program (New York: The Ronald Press, 1960), p. 44.

²U. S. Department of Agriculture, Agricultural Marketing Service, A Guide for Planning and Equipping School Lunchrooms, P. A. 292, June, 1956.

of prefabricated equipment can be obtained from equipment catalogs. These items can be located readily. Certain pieces will be fabricated to individual specification. These must be planned for the space allowed and to accomplish the work for which they are designed. Since a school is expected to serve a community for 30 to 50 years, the specifications for all equipment must be precise and detailed in regard to construction and materials used. Exhibit 6 presents the recommended equipment necessary for school lunch operation as prescribed by N. L. George and Ruth D. Heckler and the U. S. Department of Agriculture, Agricultural Marketing Service.

To check the space relationships and equipment placement, flow charts should be made. Exhibit 7 illustrates a basic food production and service flow chart which can be adapted to a particular situation. A flow chart will determine main traffic aisles and working aisles. Main traffic aisles must be at least 3 feet 6 inches in width; and if portable equipment is used, these aisles should be increased to 4 feet 6 inches. Working aisles should be a minimum of 30 inches if only one worker is using the aisle. If more than one worker uses the aisle, if portable equipment is used, or if there is heated equipment, then the aisle should be at least 40 inches. When the lines of the flow chart show excessive cross traffic or interference between traffic and working aisles, then adjustments must be made.

Vocational training of the high school student is often a part of the activity of school lunch. Since this places additional people in the preparation area, work space and equipment must be allowed for the satisfactory functioning of this program.

EXHIBIT 6

Recommended Equipment Specifications for Kitchen and
Serving Area in a School Lunch Facility

600-900 Meals ¹	350-500 Meals ²	500-750 Meals ²
Serving Counter		
250 sq. ft, for each serving area	2 15-20'	2-3 15-20'
Cashier		
-----	24" long	24" long
Cold Food Section		
30-50" long	6' per counter	6' per counter
Hot Food Section		
4 12" X 20" openings	4 12" X 20" openings	4 12" X 20" openings
Milk Cooler		
42" long X 24" wide X 20" deep will hold 300 half-pints	1 cu. ft. for 50-75 half-pint containers	1 cu. ft. for 50-75 half-pint containers
Tray Section		
-----	24" high X 18" long	24" high X 18" long
Tray Rail		
4 parallel rows of stainless steel pipe 1" in diameter, spaced to form rail 12" wide; 32-34" high		
Cutter or Chopper		
-----	1	1
Dish Trucks		
-----	2-3	2-3
Dishwasher		
More than 500 meals, single tank conveyor	1 2-tank rack conveyor	1 2-tank rack conveyor
Dish Racks		
-----	8-10	10-12
Clean Dish Table		
10-14'	6' minimum or 22" per dish rack	6' minimum or 22" per dish rack

EXHIBIT 6--Continued

600-900 Meals ¹	350-500 Meals ²	500-750 Meals ²
Soiled Dish Table		
6' exclusive of pre-rinse sink	As needed for scraping and prerinse	As needed for scraping and prerinse
Hood		
Over all heat or steam producing equipment: cooking and baking		
Mixers		
1 floor-type 30-qt. with grinder and shredder attachment; 1 table-type 12 to 20-qt. on stand 20" high	2 table with 2 extra 20-qt. bowls	2 table with 2 extra 20-qt. bowls; or 1 60-qt. with dolly with 30 and 40-qt. adapter bowls and beaters
Ovens		
Roasting: 1 2-deck 36" wide Baking: 1 2-deck 5' wide	3 deck (2 pans per deck) or 2 deck (4 pans per deck)	2 deck (4 pans per deck) or 2 deck (6 pans per deck) or 3 deck (4 pans per deck)
Peeler		
1 20 pound	1 15-20 pound	1 15-20 pound
Ranges		
2 heavy-duty or hotel type with oven	Heavy-duty, solid top; 5-6 sq. ft.; 2 sections	Heavy-duty, solid top; 5-6 sq. ft.; 2 sections
Refrigerators		
10 cu. ft. per 100 meals served	Reach-in: 30-40 cu. ft. Walk-in: 1 8' X 10' Freezer: 1 cu. ft. stores 30-35 lb.	Reach-in: 40-60 cu. ft. Walk-in: 1-2 8' X 10' or larger Freezer: 1 cu. ft. stores 30-35 lb.
Cooks' Sink		
1 compartment, 18" X 19"	1 15" X 15" X 8" to 12" deep	1 15" X 15" X 8" to 12" deep
Vegetable Preparation Sink		
1 or 2 compartment	1 20" X 12" X 14" deep; 2 compartments or more; 2 drain-boards 24" long	1 20" X 12" X 14" deep; 2 compartments or more; 2 drain-boards 24" long

EXHIBIT 6--Continued

600-900 Meals ¹	350-500 Meals ²	500-750 Meals ²
Pot Sink		
3 compartment, 24" X 24" X 14" deep with 4' drainboards on each end	2 or more compartments, 20" X 12" X 14" deep with 24" long drainboards on each end	2 or more compartments, 20" X 12" X 14" deep with 24" long drainboards on each end
Hand Lavatory		
1	1	1
Slicer		
1	1 large; 9" cutting capacity	1 large; 9" cutting capacity
Steam Cooker		
1 2-compartment	2 compartment, each 1 bushel capacity	3 compartments, each 1 bushel capacity
Steam Jacketed Kettle		
1 20-qt.	1 30-gal. or 2 20-gal.	1 20-gal. and 1 30-gal.
Utility Trucks		
4	2-3	2-3
Cooks' Table		
1 6-8'	1 6-8'; 34-36" high; 24-30" wide using one side or 42-48" wide using both sides	1 6-8'; 34-36" high; 24-30" wide using one side or 42-48" wide using both sides
Bakers' Table		
1 8' X 30", with bins and drawers, maple top	1 6-8' with bins and drawers	1 6-8' with bins and drawers
Vegetable Preparation Table		
1 6-8'	2 6-8'	2 6-8'
Scales		
1 platform, 500-1000 pounds; 1 table, 75 pounds	1 400 lb., $\frac{1}{4}$ to $\frac{1}{2}$ lb. gradations; 1 table, 25-30 lb.	1 400 lb., $\frac{1}{4}$ to $\frac{1}{2}$ lb. gradations; 1 table, 25-30 lb.

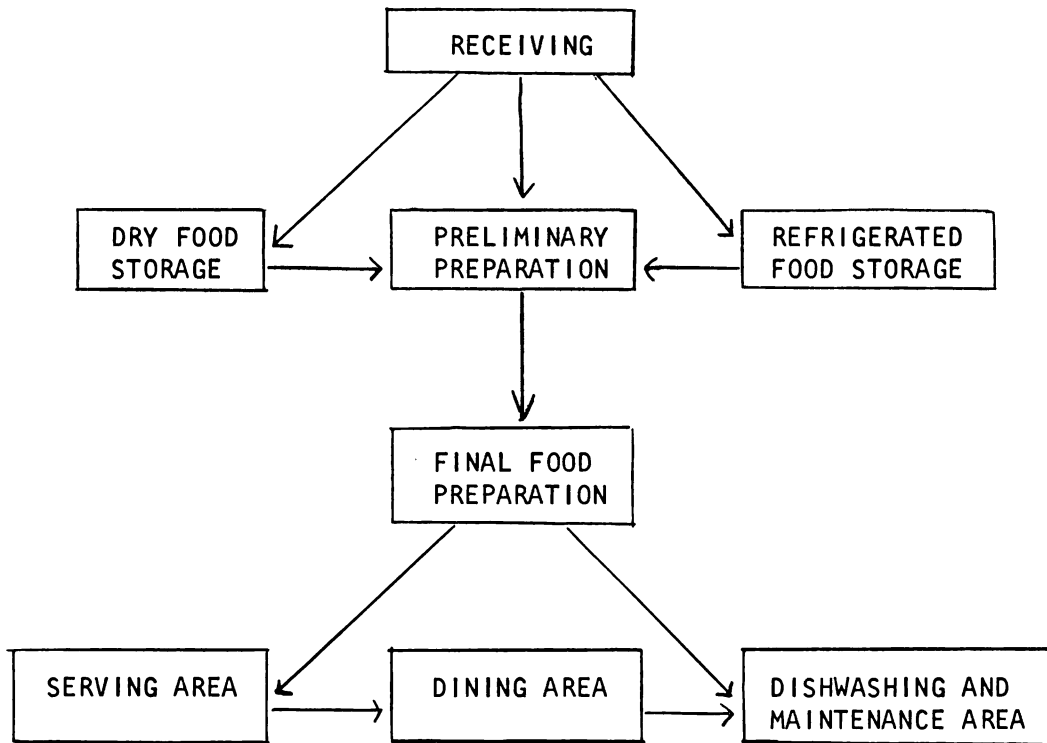
EXHIBIT 6--Continued

¹N. L. George and Ruth D. Heckler, School Food Centers: A Guide to Operating the School Lunch Program (New York: The Ronald Press, 1960), pp. 107-110.

²U. S. Department of Agriculture, Agricultural Marketing Service, A Guide for Planning and Equipping School Lunchrooms, P. A. 292, June, 1956.

EXHIBIT 7

Flow Chart Illustrating the Interrelationship of Areas
Within the School Lunch Facility



Source: U. S. Department of Agriculture, Agricultural Marketing Service, A Guide for Planning and Equipping School Lunchrooms, P. A. 292, June, 1956.

An important consideration in the allocation of space and placement of equipment is cleanliness and sanitation. Food and food service equipment are excellent media for growth of bacteria and other organisms. Equipment must be placed so that it can be cleaned on all sides and must be constructed to eliminate cracks and/or crevices that hold food particles. All mixers, choppers, and similar pieces must be fabricated for ease of cleaning and sterilization. Sanitation should also be a prime consideration in preparing specifications for walls, floors, ceilings, plumbing and ventilation.

This section has presented basic considerations for planning the layout and equipment for the Bedford Township school lunch facility: type of menu, patterns of work flow, purchasing procedures, projected student participation, number and length of serving periods, extra-curricular activities and sanitation.

Food Service Staff and Labor Personnel

Plans for food service in the Bedford Township Schools have been prepared for the new high school building. When this program is successfully established, the service should be extended to the junior high and elementary buildings. The person who will be responsible for directing the program must have suitable and specific educational background and training.

Because of the duties and responsibilities which the director must assume, she should have college training in the following areas: principles of nutrition; food selection and preparation; and food service management that includes quantity food production, equipment selection, layout, purchasing and cost control. A teaching certificate is

advantageous. The director should have faculty status and compensation should be comparable when obligations are evaluated.

The food service should be correlated with the entire educational curriculum. It must be interpreted for the faculty, students, parents and the public in general. The last two groups may be interchangeable, but the attitudes of the two groups may not be synonymous.

If the director has a teaching certificate, classes in quantity food work can become a part of the vocational training program of the school. These classes could supply trained personnel to the expanding restaurant industry as well as be a source of labor for the school food service. Sometimes it is possible to make arrangements with special education to have one or two trainees in a work-training program.

Most of the labor available for work in the school lunch program will be housewives and mothers. This may be a disadvantage because many of them will not have job experience outside of the home and few, if any, will have experience in quantity food preparation. The wages should be comparable to the accepted rate in the community, but they cannot be competitive with commercial food establishments. Because of the length of the working day and the working year, most of the jobs could not provide an adequate income to support a family but would be satisfactory as supplemental income.

However, most of these disadvantages can become advantages when applied to housewives and mothers. These women are responsible for the health and well-being of their own families, and this interest can be transferred to the student body. They must have a genuine liking for children. If they do not like children, they probably would not be

applying for this type of job. Many of them will have children or grandchildren in the school system, so they have a vital interest in the total curriculum.

The length of the working year is to the mother's advantage because it allows her to be home during the summer months when her children need her supervision. The length of the working day corresponds closely to the length of the school day. Again, this allows her to be at home with her family in the morning, late afternoon and evening.

A major responsibility of the school lunch director will be the selection of personnel. The workers must form a competent, cooperative, cohesive and congenial group. If the food service operation is small, each worker will have to assume broad responsibilities. As the size of the program increases, the duties of each person become more specific and are restricted to one area.

To determine the number of workers necessary, an analysis of the menu, the number of students participating, and the layout of the equipment must be considered. These help to set up job classifications and job descriptions and should not be so narrow that the worker cannot be assigned where she is needed. Neither should they be so broad that the worker does not know why she was hired or what her duties will be when she starts working.

Another method of determining the number of employees needed is the number of man-hours necessary to prepare a certain number of meals. If participation is under 500, then 6-10 meals may be prepared per man-hour. As participation increases, efficiency of labor utilization should increase and 10-18 meals may be prepared per man-hour. If à la carte items are included in the menu, this usually decreases the number of

meals per man-hour. More people are needed for serving and clean-up than for preparation, so many of the workers will be part-time (34). In selecting personnel, the fact that the employees will come in contact with large numbers of children must be remembered. The workers must have good physical, mental and emotional health. The first can be determined by requiring a physical examination by a competent doctor before a prospective employee is hired and periodically after she has been on the job. Mental and emotional health are less easily determined. The written application for employment and a personal interview will form the basis for these decisions.

The personal qualities desired in the worker are that she be adaptable to the situation, have a desire to learn, be mentally alert, and accept responsibility. She should be aware of the needs of children and have the social amenities and graces necessary in dealing with the student. She should be honest. One dishonest worker can mean defeat of the entire program.

Since wages cannot be the primary attraction in securing employees, fringe benefits assume importance. A definite policy on sick leave should be established. This will encourage the worker to stay at home when she is ill rather than come to work and expose the entire student body. One meal a day is usually considered a part of the worker's compensation. Participation in retirement plans, social security, and credit unions are added inducements.

Uniforms and aprons become a status symbol and a means of identification. They should be attractive, colorful, and fit properly. Whether these will be furnished and laundered by the food service facility will

be determined by an over-all analysis of labor cost. Hair nets must be worn at all times, but these are the responsibility of the worker as are clean, comfortable shoes.

A definite policy for promotion to another area of work should be established. Qualifications for each job were established with the job classifications. Rating cards should be used and the workers should be aware of the results; these can also be used for wage increments.

A written resignation should be secured in case of dismissal or termination of employment. Reasons for dismissal can be excessive absence or tardiness, physical inability to do the work, failure to follow instructions, discourteous conduct, or proven dishonesty. The resignation becomes a part of the worker's permanent record.

When a person is employed, the above policies and procedures should be explained to her verbally. They should also be written, possibly as part of a handbook, and given to her at the same time. These can allay any future misunderstandings. The worker must be integrated into the total work force as quickly as possible. This will mean definite and intensive on-the-job training by the director. If the employee will be an assistant to another worker, part of the training may be the responsibility of the senior worker.

Student employees are another important part of the labor force. Some students may work to pay for meals which they could not afford otherwise, while other students work to save money from allowances. A stigma may be attached to the work if only those who are not able to pay are employed. Usually the pay is the lunch for a specific working period and an hourly rate of pay for additional time. Only those students who can

miss a study period and still retain an acceptable academic average should be employed.

When employing students, the child labor laws must be respected, and in some states the student will need a working permit. Students can perform many tasks in the preparation and serving area; but they should never be assigned where a safety factor is involved, such as steam equipment. Any student working in school food service must meet the standards of health, neatness, punctuality and performance demanded of other workers. They must be trained for the job assigned to them and closely supervised when they are working.

Selection of proper personnel can mean success for the food service operation. Employees should be chosen on the basis of merit and fitness for a specific job. Those persons who can perform most efficiently and obtain the greatest satisfaction from the job should be hired.

Food Service Policies for Extracurricular Functions

The school lunch facility is often called upon to prepare food for special functions after school hours. This can be an opportunity for good public relations and, also, allow the workers to earn extra money. These special meals should not interfere with the main objective of the school lunch: serving an adequate, nutritious noon meal for the students.

The schools belong to the people, but indiscriminate use of the facilities cannot be permitted. The kitchen equipment is expensive, and most pieces of the equipment require special training for the persons who operate them. The original investment should be protected. At no time should this equipment be used in direct competition with commercial establishments.

A definite policy must be established to determine which organizations are eligible to use the facilities. All school related student groups should be allowed to schedule events. These dates can be established on the school calendar and should be given priority. Other organizations that request use of the facility must obtain the approval of the administration. With this approval, further plans can be made with the director of the cafeteria.

Many times these groups will want only coffee. If a kitchenette, separate from the kitchen, is provided, no school lunch employee would need to be involved. If the entire kitchen needs to be opened, then a school lunch employee must be on duty. It would not be her responsibility to prepare the refreshments. She would be responsible for the proper operation of the equipment, dispensing necessary supplies and utensils and keeping a record of these, and being sure that the kitchen is cleaned and ready to operate at the beginning of the next working day.

If an outside group is using the equipment, even with a school lunch employee present, a clear definition of insurance responsibility is needed. If the employee is injured, the necessary treatment should be covered by insurance. When a non-employee is injured, is there any responsibility to the injured person or to a piece of equipment that may be damaged? All areas of insurance coverage should be investigated before the extent of the use of the equipment can be determined.

When a school lunch employee is on duty, she should be paid at an overtime rate, usually time-and-a-half. The payment of the employee and any custodial services needed must be assumed by the organization requesting the services. If the group is school related, the utilities are

usually paid by the administration. A schedule of all charges should be established for non-school groups.

All school personnel are called on to give extra time at no charge. In school food service, this can become a burden. As part of their obligation as a public employee, the first two functions at which they serve could be free. Beyond this number, they must be paid the established rate.

A procedure for the scheduling of events should be fixed. Two weeks at the beginning of the school year could be allowed for scheduling student activities. After this period, other groups could request the use of the facilities. Since the first obligation of the school lunch employee is to the lunch program, the number of activities per week should be limited, possibly to one per week. When other cafeteria facilities become available in the school district, this policy could be modified.

After the events are scheduled, the organization should appoint a person or committee to meet with the cafeteria director to make plans. Sample banquet menus or lists of foods for refreshments should be available. These should be pre-costed to cover all food and labor charges. Three types of service (cafeteria, semi-cafeteria, and table service) could be available. Cafeteria style of service would have the lowest labor cost, and table service would be the most expensive.

When the menu and type of service are determined, total price can be established. The next step will be to set a date when guaranteed reservations must be made, usually a week in advance. Since all supplies must be charged to a separate account and not school lunch, this will give the cafeteria director sufficient time to order them. A procedure for determining plate count must be set up. The number of

reservations must be paid; but if extra persons are served, these must be included in the final charges.

The price for the dinner must be printed on the ticket. Any additional charges made by the organization for decorations, speaker's fees, or extra money for the treasury must be listed as a separate item.

Since there is no time during the regular working day for preparation of extra food, dinners cannot be served before 6:30 P.M. and usually not later than 6:45 P.M. In order to control the length of the working day, all work in the kitchen should be completed by 9:00 P.M. If a program is scheduled, 10 to 15 minutes should be allowed for clearing tables before the program begins. When an auditorium is available, the program may be scheduled in that location.

When all of these details have been discussed and a decision has been made about each one, an agreement should be signed by a representative of the organization and the cafeteria director. Each person will have a copy of the agreement.

The day following the special event, a bill will be presented or sent to the organization. No money will be paid directly to an employee by an organization. If an employee is a member of the organization and wishes to donate her time, this is her privilege but not an obligation.

Special functions allow the school lunch to extend its educational program. Parents should be encouraged to visit during the regular school hours, but this is impossible for many of them. After-school activities afford an opportunity for the adults in the community to participate in this part of the curriculum and to see how the facilities are utilized. This is one time when they can see their tax dollar at work and enjoy the results of the expenditure.

Interpretation

The material presented in this paper can serve as the initial step in preparing a guide for the evaluation of the proposed kitchen and service layouts and in developing recommended policies for 1) food service staff and labor personnel and 2) for extracurricular functions that involve the lunchroom facilities. Decisions will be made at each step of the planning process; final policies will be established by the Bedford Township Board of Education at the proper sequential time.

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