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Food Distribution and Consumption in Knoxville: Exploring Food-Related Local Planning Issues

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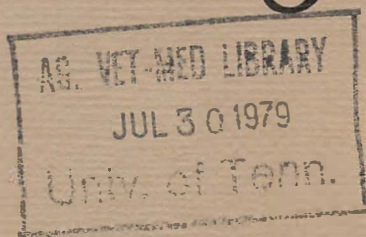
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FOOD DISTRIBUTION & CONSUMPTION IN KNOXVILLE

exploring food-related
local planning issues



GRADUATE SCHOOL OF PLANNING
UNIVERSITY OF TENNESSEE

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SYNTHESIS Summer 1977

Graduate School of Planning
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PREFACE

The report which follows was prepared by graduate students in city planning during a ten week course called SYNTHESIS. SYNTHESIS is intended to be a relatively intense, problem-oriented, practice-oriented team experience in which students apply to a "real-world" problem those planning insights and skills which they have acquired in their prior graduate level academic work--normally at least one academic year's worth.

Why food? As the professor, I selected the topic because of a continuing research interest in this general topic. I became interested during earlier studies of "urban support systems" -certain facilities and services which provide essential support for the functioning of urban areas: water, energy, food, waste management, and concomitant transportation activities. Of these, all except food and energy traditionally have been considered to be within the mainstream of city planning agency concerns. With recent dramatic changes in the energy situation, local planning agencies have begun substantial involvement in energy-related issues.

Because of changes occurring in global and national resource and population balances, I anticipate increasing societal attention to problems associated with food supply and distribution, and to nutrition. Attention of local planning agencies has seldom been directed to food issues. Food availability, food quality, efficiency of food distribution, etc., have not been considered particularly relevant to local governments and to their planning agencies. This is surprising to me, in view of the vital importance of food to the community. My research concerns whether monitoring the food situation in the urban area should be given more attention in the typical local planning program.

The arrangements which supply food to the urban population are very

complex, expressing important economic functions, social and cultural roles, and addressing important nutritional needs. Little attention has been focused on how these arrangements work within the urban community and how they relate to other aspects of community life and public policy. SYNTHESIS provided an opportunity to examine (albeit quickly and somewhat superficially) how one urban area functions in this respect. Knoxville could serve to illustrate some of the implications of the food system for local governmental policies.

Thus the charge to the class was:

1. Identify food-related problems and issues which may have significance for public agencies and officials in the Knoxville area.
2. Research some of those problems and issues and propose remedial measures or other public programs which could be effected at the local scale or initiated through local governmental action.
3. Consider the desirability and feasibility of establishing some kind of public oversight of the food supply and distribution function.

During the first two weeks of the project the students surveyed relevant literature and oriented themselves to the food industry, special interests involved, the national issues, etc. An important step during that period was conceptualization of a model ("the urban food system") which served to organize later interpretation. Task force assignments during the next five weeks developed information about the food system in Knoxville. Sources and

availability of data varied with the subject matter. I urged comprehensive-ness of coverage, even at the expense of lack of depth in many areas, since the purpose was to develop an overall view of the entire process by which the food needs of the community are served. Based on that information, the final three weeks or so have been devoted to identifying and describing problems, issues and their local planning implications.

The students undertook this study with very limited financial resources. The activity was not funded beyond contributions by class members to cover materials and typing costs. Additional funds from the Graduate School of Planning contributed to reproduction costs.

Poverty obviously set some limits on the scope of the project. With more funding, for instance, the students could have considered hiring survey assistance for broader coverage in some areas.

Another limitation was time. Obviously a ten week period is a very short period in which to undertake an investigation of this scope.

In spite of the limitations, the group accomplished a great deal. It was a nine credit course--virtually a full time commitment for many of the students--and the group used its time and limited resources well. The enthusiasm and drive of the students offset to some extent the lack of fiscal resource, and provided a quality of involvement which could not have been purchased.

The execution of this project has been very much a student responsibility. A three-person coordinating group, supplemented by other individuals from time to time, carried the main weight of project management--identifying tasks and assigning personnel, arranging for report production, etc. I participated in personnel decisions, provided general oversight, and presumably, helpful resources and guidance with respect to content and direction

Although I was nominally the project director, I tried, in keeping with the educational objectives of SYNTHESIS, to leave most of the decisions about the content of the study to the group. This report will necessarily reflect some of my biases, but on the whole I think it fair to say that it is a student production, with the pluses that come from fresh, enthusiastic, creative minds, and perhaps a few minuses that come from lack of experience in practicing their new craft.

It is my view that the class as a whole has risen to this responsibility magnificently, with professional dedication, and that its report has unique value as a prototype demonstrating an innovative perspective on urban planning.

Knoxville
August 15, 1977

Robert L. Wilson, AIP
Graduate School of Planning

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SUMMARY OF THE REPORT

DESCRIPTIVE BACKGROUND

City planners have traditionally made an effort to understand the interrelationships between urban activities and various urban support systems, such as transportation, water and sewer, waste management, communications and energy. Food is also an important urban support system with a complex system of supply, distribution, and consumption. An understanding of the nature of the food supply and distribution system seems important, but in the past has not been an area of concern for the planning profession. It was the intent of this project to develop a basis from which to seek an understanding of the Knoxville food support system and its implications for local planning policy in Knoxville.

The thrust of the study was three-fold. First, food-related problems and issues were identified. Then, further work was undertaken in order to propose remedial measures or public programs that might be initiated by local units of government. Finally, the group considered the possibility of establishing some kind of public oversight of the local food supply and distribution function. The approach has been general and comprehensive. One assumption here is that before public action can be initiated, those with responsibility for maintaining the public interest must understand the system. Thus, an analysis which would describe the system comprehensively, while allowing an opportunity to detect interrelationships among system components, was utilized.

Patterns of consumption, food services and programs, and marketing channels by food types were also explored. The development of information involved consultation with literature, academicians, public officials, and industry representatives.

The System and Its Environment

The supply, distribution and consumption of food in an urban area involves a complex set of interrelationships of various actors and physical facilities. These actors and facilities constitute the urban food system. The purpose of the system is to support urban life by satisfying the urban residents' need for food.

The Knoxville urban food system is large, diverse, and difficult to recognize as a system. There seems to be little cooperation or interaction at local levels of management. However, to gain a "systems perspective" several components can be identified which together form a general, although somewhat nebulous, whole.

The following components interact to form the urban food system:

- Production Components - include urban gardens, dairies, some fruits and vegetables, and limited beef and pork production.
- Manufacturing and Processing Components - include bakeries, meat slaughterers and processors, bottlers and specialized food processors.
- Wholesale Distribution Components - handle a full range of foods, including such items as meat, fish, poultry, general line groceries, fresh produce, candies and confectionaries.

- Retail Distribution Components - ranging in size and marketing capabilities, include groceries, supermarkets, delicatessans, convenience stores, and farmers' markets.
- "Preparation for Consumption" Components - consist of caterers, taverns, restaurants, institutions, 'fast food' establishments and households.
- Consumption Components - include individuals, persons eating in families, persons eating in institutions, etc.

In the investigations several sub-systems of supply and distribution were identified. The descriptions of these sub-systems, by food type, followed an informal procedure of interviews with industry representatives and library research. Those sub-systems described were:

- 1) Meat and Poultry
- 2) Fresh Fruits and Vegetables
- 3) General Line Groceries
- 4) Freshly Baked Goods
- 5) Milk and Dairy Products
- 6) Soft Drinks and Beer

These sub-systems (described in more detail in the main report) are comprised of various combinations of the previously mentioned components. In addition, consumption patterns for Knoxville-Knox County residents were estimated, largely by extrapolation of patterns from national and regional surveys. Also included in this investigation were food services, public food programs, and food stores.

The interaction of the suggested components and the sub-systems identified takes place within an environment of social, economic, political, and ecological forces. These forces are initiated by individuals

and groups in both the public and private sectors. Several public agencies regulate or oversee specific activities within the system. Private individuals within and outside the industry make significant decisions daily that affect some activities in the system. However, there is no public agency or private organization that has a responsibility for oversight or coordination with a systems perspective in mind.

System Objectives

The maintenance of an adequate supply of food and an efficient and convenient method for distribution are two primary objectives of the individual and corporate members of food-related industries. However, other objectives evolving from society's expectations need to be considered. Any planning process requires the development of objectives prior to any evaluation and subsequent recommendations. The following statement of objectives developed in connection with this study may serve as a preliminary guide for Knoxville's food system performance and evaluation.

Food System objectives:

1. Supply food that will meet the basic nutritional needs of urban area residents.
2. Encourage the residents to accept and consume the nutritional food provided.
3. Ensure that the food is equally available to all residents.
4. Maximize the opportunities for aesthetic and cultural choice.

5. Optimize economic returns to system participants, while contributing to the economic vitality of the community.
6. Minimize natural environmental degradation and the use of scarce resources.

Magnitude of Urban Food System Activity

Food related activities are a very important part of the Knoxville Metropolitan economy, in terms of the number of establishments, employment, and sales in the industrial, wholesale, and retail sectors. As shown in the table below, food related activities constitute a significant percentage of these sectors.

Food-Related Activity	Food-Related As A Percent of Total
Industrial Establishments	11.4%
Industrial Employment	9.5%
Industrial Value-Added	9.2%
Wholesale Establishments	13.8%
Wholesale Employment	16.0%
Wholesale Sales	20.9%
Retail Establishments	31.4%
Retail Employment	35.4%
Retail Sales	27.7%

Consumption patterns also indicate the significance of the urban food system. If they are typical of people in other cities in the nation, (and they seem to be) Knoxville-Knox County residents spend nearly \$5.5 million on food each week. Expenditures for food as a

percentage of the total family income vary. Where family income is near the poverty level, expenditures account for nearly fifty percent of the total family income. As income increases, this percentage decreases. It should be noted that total expenditures usually rise as income rises, but the percentage of income that is required for food decreases. These trends relate not only the magnitude of consumption, but also suggest the personal economic significance for local urban residents.

Although attention to food-related activities has not been comprehensive, some local public agencies address relatively limited specific dimensions of the food system. Some food-related public policies are found in the following areas:

- health and sanitation concerns
- civil defense preparations
- implementation of state and federal food assistance programs
- capital improvement programming (Public Market, etc.)
- tax policies
- urban services and utilities (food-related waste management, transportation, water and sewer, etc.)
- regulatory measures (licensing, traffic regulations, etc.)

PROBLEMS AND RECOMMENDATIONS

The investigation of food-related activities in an urban setting has led to the definition of system components, their purposes, and significance. That leads to a general understanding of the urban food system operation and its implications for city planning. Several problems and related issues are identified below, along with opportunities for

improvement.

Need for General Oversight

One problem with the present system is the lack of any overall coordinating agency which can perform a broad oversight function. The lack of such an agency makes the implementation of many of our other proposals more difficult. Therefore, a broad proposal for a monitoring function has been developed.

Recommendation: The establishment of a Knoxville-Knox County Food Council.

The role of the publically authorized Food Council would be to stimulate local efforts to monitor the performance of the food system, advocate, initiate and support improvement efforts. The Food Council might be comprised of:

1. Local elected officials
2. Government administrators with food-related responsibilities
3. Representatives of food-related organizations
4. Representatives of the food industry
5. Consumers

Loss of Agricultural Land and Near-Knoxville Food Production

The role of local agricultural production and the disposition of productive land has not received much attention by local officials in terms of implications for the Knoxville urban food system. The encroachment of urban activities upon agricultural lands may eventually have severe repercussions. A related dimension is whether urban gardening has potential as a means of some local production.

Recommendation: The encouragement of plans or policies to consider the preservation of agriculturally-productive lands in the Knoxville area.

This recommendation might lead to the identification of important agricultural lands, exploration of agricultural zoning application, assessment of impacts on the local tax base, and assistance to local farmers who might engage in local food production.

Recommendation: Support should be given to activities aimed at increasing the extent of urban gardening in Knoxville.

An assessment of the present magnitude of urban gardening and possibilities of expansion is in order. It may be desirable for public lands to be set aside for this purpose.

Wholesale Produce Facilities and Food Distribution Centers

The present facilities at the Forest Avenue fresh produce market need to be improved to assure an effective and efficient operation. The concept of a regional food distribution center is not new to the Knoxville urban food system. The idea has been introduced several times without success, but remains as an opportunity for significant improvement in the local system.

Recommendation: Efforts should be undertaken to improve the Forest Avenue produce market area until such time as replacement of the facility is possible.

The problem of health and sanitation conditions, inadequate storage facilities, a poor circulation system and providing urban services call

attention to the need for improvement of existing facilities for short-term operations.

Recommendation: Long-term studies should be undertaken to investigate the needs for a new produce facility, food distribution center, food production center, and farmers' market.

Long-range efforts to improve wholesale marketing capabilities will need to consider the possibility of new facilities capable of supporting larger distribution activities which have regional economic development implications.

Urban Food Transport

The transportation of food from the point of production through the urban food system and ultimately to the consumer is a critical support activity. Each component in the system is linked by some mode of food transport movement. The design, planning, and operations of transportation facilities need to be approached with special concern for food distribution efficiencies. Short- and long-range problems exist which should be confronted to ensure the food system a means of achieving its stated objectives.

Recommendations: Initiate corrections and modifications in the local circulation system to improve the movement of urban food and minimize congestion caused by such movement.

Enforcement of regulations to correct minor traffic problems and provision of adequate off-street loading and unloading facilities might improve problems of congestion and hazardous vehicular movement.

Recommendation: *Encourage the consideration of activities to coordinate the eventually consolidate food deliveries.*

The concept of consolidated deliveries, involving several independent firms engaged in food transport, should be investigated by those firms. Of particular concern will be the activities of wholesalers, purveyors, and jobbers.

Recommendation: *Establish a Knoxville area rail service improvement committee.*

An exploration of opportunities to improve deficiencies in rail service to food distribution facilities in the Knoxville area should be considered. A coordinated effort would incorporate the L&N Railroad, Southern Railroad, the Federal Railroad Administration, and local officials.

Food for Expo '82

The opportunity for expansion of urban food system activities during the Knoxville International Energy Exposition suggests several potential areas for concern. The role of the private and public sectors in food service management for such an endeavor have not been clearly defined. Issues arising from the impact on the food system and the local area should be addressed.

Recommendation: *Local food suppliers and retailers should begin planning for their roles in the feeding of the guests of the Energy Exposition.*

The participation of local food suppliers to meet the increase in demand should be optimized. Private firms should advocate and support

a program for preparing the local industry to meet the challenge. The potential disruption of regular food supply and distribution activities and the possible demands on off-site retailers should be assessed.

Recommendation Studies should be undertaken to anticipate the food-related solid-waste disposal requirements of Expo '82.

The sudden increase in food-related activities, in conjunction with the Energy Exposition, will produce large amounts of especially troublesome solid wastes. The efficient and sanitary disposal of this waste will be necessary to protect aesthetic and public health expectations of the community.

Food Assistance for the Disadvantaged

The maintenance of a nutritious diet is essential to physical and mental health. The increasing costs of food make it difficult for some socio-economic groups to achieve the desirable levels of nutrition. Other groups in the community have difficulty in access to good nutrition, for various reasons. Although several public programs are aimed at these "high risk" groups, no comprehensive monitoring scheme, evaluation, or coordination takes place.

Recommendation: Studies need to be undertaken to determine the extent to which the citizens of the Knoxville area are well nourished.

The identification of the disadvantaged groups that are not receiving adequate attention is necessary before public or private assistance can be successful.

Recommendation: Efforts should be undertaken to assure that public food programs are interrelated with other social service programs operating within Knox County.

The administration and coordination of public food programs and other social services should involve all agencies associated with maintaining the public welfare and should emphasize using food programs as part of a comprehensive service to client populations.

Recommendation: Attention needs to be paid to monitoring food retailing operations in Knoxville, particularly as they effect the capacity of the disadvantaged groups to obtain food at a reasonable cost.

The accessibility of good food at a reasonable cost to all citizens should be a primary concern of community leaders. The ability to purchase food products at a reasonable price is crucial to the maintenance of personal health and economic stability. The economic channels should be assisted to provide that access.

System Vulnerability

The extreme dependence upon support systems (energy, transportation) for operation gives rise to possible system failures if the support is disrupted. The extent of the vulnerability of the system and the effects of abbreviated service are not understood.

Recommendation: An examination of the effects of disaster, labor unrest, energy shortages, and other possible disruptions in normal food supplies needs to be undertaken soon.

Land Use Planning and Siting Considerations

Food related facilities are an important component of the land use patterns in Knoxville. Location is a crucial issue in the industry. Proximity to adequate transportation facilities, sewer and water connections, related business firms and other land uses and the consumer are important considerations.

Recommendation: The site-specific requirements of food facilities should be given special attention in area land use planning and review procedures.

Implementation

The opportunities for improvement and the recommendations set forth in the report will require the advocacy, support and initiative of several agencies, public officials and private individuals. Implementation of these recommendations will lie in the hands of those responsible for maintaining the public welfare. The proposed Food Council, the Metropolitan Planning Commission, County Extension Agent, Mayor's Office, Traffic Engineering Department, Knoxville International Energy Exposition, Inc., the Chamber of Commerce, social service agencies, and the private sector will all need to perform some role in the implementation strategy. The chart on the following page suggests some ways in which selected agencies should act in an effort to sustain or improve the urban food system.

SUMMARY OF RECOMMENDATIONS AND IMPLEMENTING AGENCIES AND ORGANIZATIONS

Implementing Agencies and Organizations

Recommendation	Proposed Food Council	Area Planning Agencies	Local Gov't Executives	Local Gov't Line Agencies	Social Service Agencies	Local Agri. Agencies	Chamber of Commerce	Food Related Private Firms	Knoxville Int'l Energy Expo Staff
Planning for Agricultural Land	●	●				●			
Encouraging Urban Gardens						●			
Improving Forest Avenue Produce Market	●		●	●					
Consideration of Long-range Food Center plans	●					●			
Initiate Food-related Improvements in the Circulation System		●		●					
Consider Coordination and Consolidation of Urban Food Deliveries	●						●	●	
Investigate Rail Service Improvements			●				●	●	
Begin Private Planning to Meet Expo '82 Food Needs	●						●	●	
Plan to Meet Expo '82 Solid Waste Requirements		●							●
Consider Initiation of Area Nutrition Studies	●				●				
Begin Coordination of Area Public Food Programs	●		●		●				
Study Retail Food Outlet Locations		●							
Examine Effects of Emergencies on Food System	●	●	●						
Study Food Facility Site Problems		●							
Study Role of Food System in Area Economy	●	●					●		

CHAPTER I

INTRODUCTION

Why Study Urban Food Systems?

Basic to any suitable living environment is the supply, distribution and consumption of food. The subject assumes increasingly complex dimensions when the living environment is far removed from the production of food, as in most of today's cities. The major source of food is not from the surrounding area but from places far across the country. These places, like the valleys of California, and parts of the Midwest and Great Plains have evolved into massive food-producing areas. There, efficiencies developed through economies of scale have contributed to the demise of the former more regional food producers, particularly the small family farmer. It is sobering to consider that New York City receives only 8 percent of its food supply from its so-called hinterland.¹ Nevertheless, Americans are relatively well fed, regardless of where they live. A well documented, relatively well regulated, and reasonably effective network of transport facilities moves food from those distant production areas to the cities. An elaborate management system of governmental research and development, commodity price controls and other governmental arrangements seeks to assure stability at the supply end of the network.

At the other end, urban distribution is less well understood. There is no comparable public documentation and monitoring of those activities. The urban distribution and consumption pattern in Knoxville is the subject of this report. The subject is defined as the "urban food system"; the inter-related set of actors, facilities, and interactions involved in the flow of food from the time it enters the city until it is consumed or leaves the urban area. At this "consumption" end of the network there is no management system comparable to that at the supply end.

Apparently, urban food supply and distribution is a support system which has performed relatively well; so much so that concern over the varied and complex operations bringing food to one's table is rare and generally evokes an apathetic response by a growing urban America. A contemporary poet expressed it this way:

People, asked from where it came,
Would very seldom know.
They would simply eat and ask
"Was it not always so?"²

True, there is no ghost of Thomas Malthus here. The success or failure of a single harvest is not the basis for survival of large segments of the population. Why, then, need there be explicit government concern over urban food systems? There is, of course, a very real concern when people go hungry or suffer from malnutrition. The idea that someone in the United States could literally starve to death is indeed repugnant to our notions about our way of life. The facts, however, point toward the disturbing realization that without the present substantial efforts in federal government subsidization and controls on food production, some people could starve and a great number could fall prey to insidious effects of poor nutrition.

The primary rationale for this study or for any publicly oriented study of food systems is therefore the obvious connection between food and the maintenance of good health.

The not so obvious connection is between food and the city's overall general welfare. Implicit in a government's concern with the general welfare is the long range planning function. For instance, in food distribution there is a void where commercial food retailers have left inner cities when profits became marginal and costs of operation high. This occurrence has unfortunately aggravated an already poor way of life for those who have no choice but to remain in decaying inner city areas. Such short term motivations of many

profit-making firms may be forcing the public to incur long-range and hidden costs. The costs to such groups denied access to competitively priced, nearby food stores will ultimately show up in malnutrition, social welfare budgets, transit subsidies, and so on.

The hidden social costs related to poor nutrition cover a wide range of urban problems. They range from poorly educated, idle youth to nonproductive and discontent elderly individuals. The cost is eventually realized and paid for via taxes and other city revenue directed toward increased social welfare activities.

Other hidden costs can be expressed from an environmental or economic viewpoint. The loss of prime agricultural land to residential, industrial, coal mining or any other land use implies some very real long-range costs which are not easily recognized. Food may still reliably arrive in the city; but, as time progresses, it comes from places farther away and somewhat less productive. Production of food ultimately shifts from prime to not so prime farmland. The increase in transport distance as well as the increase in fertilizer and land area required to produce an equivalent crop is reflected in the growing cost of food to the consumer. Another rationale for this study is suggested by these considerations. There needs to be a constant review of these interrelationships.

Hidden costs with which urban society unknowingly burdens itself could be minimized through an effective planning process in these areas. Incorporating the knowledge of urban food systems into the scope of the local planning profession adds to the notion of comprehensiveness, which planners have long advocated. A systems approach to urban problems needs to include a consideration of all support systems basic to a city's operations. There has been remarkably little information published concerning "food systems" which is specifically tailored to a planner's needs. If, in fact, planners do seek a

more active involvement through researching food systems, there will undoubtedly be a measure of resistance from the private sector. At the local scale, food system activities have operated relatively unencumbered by government policy and controls for some time. Perhaps a point needs to be identified where certain public objectives must be met by private interests within the food system. Feeding the disadvantaged, for example, has been a major federal government endeavor since the 1930's. This simply filled the gap left by the private sector.

There are various standards of performance which should be expected from our urban food system besides the obvious one of the availability of an adequate and nutritious food supply. The system should offer nutritious food which is equally available to all citizens. Efforts should be made to encourage the consumption of such food. Aesthetic and cultural choice in food types should also be a prime consideration. Economic returns to the city's economy and to the firms themselves should be of sufficient magnitude to benefit both. Finally, efforts need to be made to minimize the degradation of the environment and the utilization of scarce resources.

It would be highly undesirable to assume that government can properly achieve public objectives in food without substantial private sector activity. Here, a role by government, acting as a public catalyst to provide private economic opportunities, may be appropriate. Up to this time most of the governmental attention to food has been at the supply end, well beyond the direct control of local urban governments, but the problems in the food system which confront urban areas either directly or indirectly appear to be real, not imagined or forced. Therefore, there is a strong argument for development of local governmental capability in this area. The argument can be condensed as follows: there is an obvious and necessary need for concern of the urban food system as it relates to the good health of the population; weak links in

food supply and distribution have some indirect but significant relation to other urban problems which are not easily recognized; and as part of a growing systems orientation in dealing with urban phenomena, a working knowledge of food systems is essential.

An Introduction to Food in Knoxville

The preceding paragraphs have linked the need to be concerned with the urban food system to the general planning concerns for the public welfare. Effort has been made to demonstrate that the "hidden costs" incurred by inattention to the urban food system are significant. It is also possible to consider the rationale for public concern with the urban food system from two additional perspectives. First, the food system is a major component in the urban economic base. In the case of Knoxville, recent data makes this quite clear, as will be discussed shortly. Second, the City of Knoxville and Knox County, as with many cities and counties, already have developed a history of policy involvement in various facets of the local food system. Following the discussion of food and Knoxville's economic patterns, a brief outline of this history will be presented.

Food and the Knoxville Economy

The data in Tables 1 and 2 indicate that just as food is an important part of the national economy, it is a major part of the Knoxville economy. The data is based on the Knoxville Standard Statistical Metropolitan Area (S.M.S.A.) is probably conservative in that it reflects only the Census Bureau's "manufacturing," "wholesaling," and "retailing" statistical categories. Within each category, only those Standard Industrial Classifications specifically dealing with "food" have been included. Thus, farming, service activities and food-related transportation activities have not been included with the "food-related" categories in the tables. Even with these exclusions, some

TABLE I

FOOD AS PART OF KNOXVILLE S.M.S.A. ECONOMY, 1972

	Food Related Businesses	Total Businesses	Food-Related as Percent of Total
Industrial Establishments	53	463	11.4%
Industrial Employment	3,900	40,900	9.5%
Industrial Value Added	\$66.5 million	\$724.4 million	9.2%
Wholesale Establishments	107	775	13.8%
Wholesale Employment	1,526	9,484	16.0%
Wholesale Sales	\$243.4 million	\$1158.4 million	20.9%
Retail Establishments	1,102	3,500	31.4%
Retail Employment	8,149	22,961	35.4%
Retail Sales	\$263.2 million	\$947.9 million	27.7%
All Establishments	1,262	4,738	26.6%
All Employment	13,575	73,345	18.5%
All Sales/Value Added	\$573.1 million	\$2830.7 million	20.2%

Source: U.S. Department of Commerce, Bureau of the Census, Census of Manufacturing 1972, Vol. III; Census of Wholesale Trade 1972, Vol. II; and Census of Retail Trade 1972, Vol. II, Washington, D.C.

TABLE 2

FOOD-RELATED ECONOMIC DATA: KNOXVILLE S.M.S.A. AND THE UNITED STATES, 1972

	Establishment		Employees		Payroll (mill. \$)		Value-Added (Industry) Sales (Wholesale-Retail) (mill. \$)	
	U.S.	Knoxville	U.S.	Knoxville	U.S.	Knoxville	U.S.	Knoxville
All Industry	320,701	463	19,026,800	40,900	174,186.7	324.4	353,973.4	724.4
Food & Kindred (% of all Industry)	28,183 8.7%	53 11.4%	1,569,300 8.2%	3,900 9.5%	12,920.2 7.4%	29.7 9.1%	35,614.8 10.0%	66.5 9.2%
All Wholesale Trade Groceries & Related Raw Farm Products (% of all wholesale)	369,791 38,531 14,820 14.4%	775 99 8 13.8%	4,026,118 579,531 117,784 17.2%	9,484 1,456 70 16.0%	36,892.9 4,833.7 709.0 14.9%	77.3 10.8 .3 14.3%	695,223.6 106,457.2 52,400.7 22.8%	1,158.3 207.4 36.0 20.9%
All Retail Trade Retail Food Stores Eating & Drinking Places (% of all retail)	1,192,811 267,352 359,524 52.5%	3,500 574 528 31.4%	11,210,998 1,722,486 2,634,457 78.8%	22,961 3,395 4,754 35.4%	55,372.1 8,820.2 8,734.5 31.6%	106.5 15.2 14.7 28.1%	459,040.4 100,718.8 36,867.7 29.9%	947.9 200.0 62.3 27.7%

Source: U.S. Department of Commerce, Bureau of the Census, Census of Manufacturing 1972, Vol. 111; Census of Wholesale Trade 1972, Vol. 11; and Census of Retail Trade 1972, Vol. 11, Washington, D.C.

18.5% of all manufacturing, wholesaling, and retailing employment in Knoxville is food-related. The fact that 26.6% of establishments and 20.2% of value-added/sales is food-related further reinforces the significance of food-related activities in the Knoxville economy.

Table 2 presents data showing that the importance of food-related activities to the Knoxville economy is representative of food-related activities in the American economy in general. In terms of number of establishments and employees, food manufacturing is slightly more important to Knoxville's manufacturing sector than to the national manufacturing sector. Specific data to be presented later, especially on meat processing in Knoxville, will detail the causes of this pattern. Data on wholesale and retail activities suggest that food-related establishments in Knoxville tend to be fewer, but employ about the same number of people and conduct the same amount of business as the national data would suggest.

An important point to be drawn from the data in both tables is the greater significance of food-related activities at the retail level. In Knoxville, some 35% of all retail employees work in food stores or eating and drinking places. Of all retail sales, 28% are food-related, as are 31% of all retail establishments. Any consideration of trends in local retail patterns must concern itself with trends in local food-retailing. Likewise, discussions of changes in the local food system must consider the consequences for the local economy, particularly in the retail sector.

An added dimension to the patterns suggested by Tables 1 and 2 is that which reflects local government taxation and service policies. Although specific cost-revenue data on food-related activities is not available, certain observations and questions seem obvious. Given that some 10% of area industrial activities are food-related, it is important to consider the location of these facilities. Locations outside of Knoxville or Knox County, for instance, would have important consequences for these governments' tax bases. The same would

also be true for food wholesalers, particularly if large wholesalers were distributing to Knoxville retail establishments from locations outside either the city or Knox County. While the regional economy would benefit in terms of employment and services provided to food retailers, tax contributions to the jurisdiction of significant activities (deliveries and sales) might be minimal. The problem would be less significant in the case of food retailers, who must locate near their markets, which leads to a lesser likelihood of locations outside the city or county.

Data to be presented in the next chapter provide an additional commentary on the economic significance of food to the Knoxville area. From the data given on food consumption, it can be inferred that the residents of Knoxville and Knox County spend some 5.5 million dollars each week on food. For many families this represents an expenditure of some 20-25% of their family income.³ Both at the macro and micro levels, the money spent on food assumes major proportions in area and family spending. From this consumption perspective, many questions can be raised about the degree to which local factors contribute to the cost of food and whether that local share of the cost benefits the local economy. Likewise, the consumption perspective suggests that any proposed alteration in the local food system must consider possible impacts on the amount paid for food. The impact on both family budgets and the local economy cannot be overemphasized. These perspectives will be kept in mind, not only in the following chapter, but also in later comments on specific issues and recommendations.

Knoxville and Knox County Policy Involvement in Food

The general response of most persons to any question about public policy on the urban food system is that it remains primarily an activity carried out within the private sector. A general impression is that there has been little

public involvement in the food system, particularly at the local level, where one does not consider national farm subsidies or import-export policies. In reviewing past and present local public policies impacting on the local food system, this impression tends to wither a bit. Although local officials have never engaged in comprehensive consideration of the local food situation, they have addressed various specific dimensions of the food system. These can be summarized in the following categories: health and sanitation concerns; civil defense preparations; implementation of state and federal food programs; and, general local service, regulatory, tax and capital improvement policies as they impact on food-related activities. Each of these categories will be explored in turn.

Health and Sanitation Policies

A traditional involvement of public officials in the food system at the local level has been the inspection of foods and food facilities for purposes of protecting the public health. Although some confusion has existed in Knoxville and Knox County regarding the proper location of this responsibility, in general it has been and is performed by both the Knox County Health Department and various state and federal agencies.⁴ In the case of fresh meat, inspections are carried out by the U.S.D.A. The same is true with dairy products. As is discussed in the portion of Chapter 3 dealing with fresh produce, some question remains concerning the role of the federal government in inspecting fresh fruits and vegetables in Knoxville. Local inspection has focused on eating establishments and food stores. These "food outlets" as determined by the Knox County Health Department are subject to a series of regulations which cover both the food itself and the facilities in which it is sold or handled.⁵ As with all local ordinances, the real questions of impact of these regulations deal not with the regulations themselves, which seem quite complete, but rather

with the type of enforcement carried out. The general policy in the county seems to have been one of moderate to light enforcement. General observations of the Knoxville area, for instance, suggest that the section of the regulations dealing with garbage and refuse disposal are not fully enforced. Dumpsters spilling onto sidewalks and located near entrances to kitchens are not difficult to find.

In addition to local regulations, the state also inspects restaurants and issues certificates of quality, using a grading system. This state inspection function has been passed recently from the State Department of Conservation to the State Department of Tourism. Again, the quality of enforcement has varied greatly throughout the area. Contributing to this has been the unwillingness within the legislative arena to pass restaurant inspection to the state's public health officials.

Reinforcing the conclusion that enforcement of health-related regulations at the local level has been perhaps less vigorous than it might be in other areas of the country is the observation of several purveyors of food to chain or franchise fast food restaurants that the chain's own internal inspection procedures are more demanding than those carried out by local authorities. Beyond the question of the quality of health-related regulation of food, however, it is still important to note that local policies relating to health and sanitation do exist and they do represent a significant current public involvement as well as greater potential involvement in the local food system.

Civil Defense Preparations

Civil Defense preparations in Knox County have grown out of the concern over the last 30 years with the threat of nuclear attack. The county is stocked with food supplies sufficient to last for 14 days, according to local officials.⁶ These supplies have not been supplemented and consist only of

water, crackers and candy bars. From a stockpiling perspective, this limited reserve is viewed as adequate by local officials. From a more limited disaster perspective, contingency plans to utilize Red Cross, local restaurant and other food resources exist in general form. No specific planning has been identified which details the ways in which parts of the population of the county would be fed in the event of natural disaster or a calamity such as occurred with the forced evacuation of the city of Rockwood in July, 1977. It remains to be seen whether a recent emphasis on civil defense preparedness by the current Mayor of Knoxville will result in food-supply and distribution planning beyond the situation at present.

Implementation of State and Federal Food Programs

Although the details and issues related to federal food programs will be developed both in the next chapter (dealing with them from the perspective of food consumption) and in Chapter 4 (in the section dealing with the issue of food assistance for the disadvantaged), it is important to note here that local officials, along with state officials, are important participants in the administration of various federal food programs. Probably the largest of these is the School Lunch Program funded by the U.S.D.A. For years, both the county and city schools have participated in this program of supplemented and free lunches. In addition, both systems regularly receive federally purchased foods through the commodity program.

The same facilities which cook the foods for the city schools are now being contracted to prepare food for several other federal food programs.⁷ This local cooperation has benefited the "Meals on Wheels" program for senior citizens, sponsored by the Federal Office on Aging. U.S.D.A.'s Summer Lunch Program is also being served with these facilities. Knoxville may very well

become a national leader in the development of such local participation in federal food programs. Working with U.S.D.A., the city schools are currently involved in a study of this "central commissary" concept, which, if continued, would lead not only to continued participation in federal feeding programs, but also to food preparation for a number of non-profit facilities in the area which serve meals. These would include such local public facilities as the jail and public buildings.

The Knox County Public Health Department is the administrator of U.S.D.A.'s Women, Infants and Children (WIC) program. Aimed at the nutritional betterment of these groups, this program involves both extensive counseling and the administration of a food-voucher system for acquiring nutritional foods at local retail outlets.

Although operated primarily through state officials, the massive U.S.D.A. Food Stamp program is an important food program in the local area, as well. The program does not require direct administration by a local agency, as does WIC, but its impact on local food consumption patterns and on future food policies in the local area is great. Further discussion of this major program will occur both in Chapters 2 and 4.

It is perhaps important here to anticipate a point to point to be more clearly made in the next chapter. About a fifth of the residents of Knox County are in some way dependent on federal food programs available locally. The initiative for both the creation and local implementation of these programs has come from the federal government. The local histories of these programs suggest little innovation or creativity. With the beginning of the "central commissary" study and the administration of the WIC program, however, it might be suggested that a new period of local initiative in these federal programs is ahead. Fuller development of this observation will be presented in the portion of Chapter 4 dealing with the feeding of the disadvantaged in Knoxville.

General Local Policies with Impact on Food System

There are, of course, a vast array of local regulations, taxes, service policies and capital improvements which impact on the food system. Land-use policies are crucial to decisions on store and restaurant locations, market locations, land costs and so on. In neither the city nor the county zoning ordinances are food facilities singled out for special treatment. Although the Planned Commercial-type zones allow unique site-development, there seems little evidence that any particular type of food facility has taken advantage of such flexibility. The particular requirements of fast food outlets might lend themselves to such a pattern of site-development. Neither have the food outlets complained of restrictive land-use regulations nor have the city or county availed themselves of this regulatory power to guide the locating and site-preparation of such facilities. The absence of supermarkets in the inner-city and the congestion caused by fast food establishments along Kingston Pike attest to this point.

With the exception of the special taxation of alcoholic beverages, local tax policies (intertwined as they are with state taxes) do not single out food establishments for special treatment. One emerging exception to this might be the special treatment given lands near the city engaged in agriculture, and therefore, potentially in food production. Recent state legislation has opened the door for special tax treatment of agricultural lands in areas of potential urban development. A fuller discussion of this will occur in Chapter 4. It might also be pointed out that the recently established local tax on hotels and motels might have indirect effects on those facilities which serve meals. The tax, however, is uniform and based on room rental only.

City and county services policies, of course, influence food establishments just as they do other establishments. The fact that certain food facilities have special service demands is obvious. Restaurants have need for special

attention in the area of solid waste removal. Supermarkets require great amounts of energy for space heating/cooling and food preservation. There is no evidence that either the city or the county have used the development of public utilities and services as a tool to influence the activities of the local food system. Private food enterprises, of course, consider service availability in making decisions on sites, expansion, and so on, but not as a part of any general plan for development of the food system.

If one reviews major local decisions on capital improvements which are directly related to the local food system, only two significant actions emerge. The first is the decision by the Knoxville City Council to not continue development of a regional food distribution center and the other is the recent decision to hold an Energy Exposition in Knoxville in 1982. This latter decision, as it relates to Knoxville's food system, will be fully discussed in Chapter 4. The former decision, however, requires some discussion at this point.

In 1974, officials of the Knoxville Community Development Corporation and others responded to a long-standing request by regional agricultural interests to create a new, efficient market facility for regionally produced food.⁸ The current produce market area on Forest Avenue was generally viewed as inadequate, both in terms of access and on-site facilities, such as sorting sheds, cold storage, parking, and waste facilities. Corporation officials merged the need for a new produce facility with the availability of a large tract of prime land (the Sterchi Farm) and a vision that such a market could be a part of a financially lucrative (from a public investment perspective) regional food distribution center which would house food wholesalers, cold storage facilities, transportation facilities and offices for food brokers. The scheme gradually took the form of a series of grant applications, headed by one to the Economic Development Administration, which would bring federal dollars to get the development underway. The City Council, at the last moment, backed away from the project,

and, in a close vote, refused to initiate the grant application to E.D.A. The defeat of the project is generally attributed to the resistance of the major produce wholesalers on Forest Avenue. Since the proposal did not include renewal money to purchase the Forest Avenue properties of the produce merchants, there were financial uncertainties associated with a move to the new facilities at the Sterchi Farm. (An earlier proposal to relocate the Forest Avenue operations in the mid-1960's had nearly succeeded. This earlier plan did involve acquisition of the Forest Avenue area as a part of a larger urban renewal project.)

It seems probable that the Sterchi Farm proposal, had it succeeded, would have gone a long way in both upgrading Knoxville's produce market and making Knoxville a regional food distribution center. Lack of support for the project by the City Council probably cost the city an opportunity to become directly involved in guiding the development of the local (and regional) food system. As the city and county invest in their roads, utilities, housing stock and social welfare concerns, they will indirectly, and possibly unintentionally influence the local food system and its direct contribution to the public welfare. In some cases public actions may be unwittingly disruptive to the effectiveness of the food system. In the descriptions, observations, and recommendations which appear in the following pages, the point will be repeatedly made that such indirect public attention is not enough. Although the forms of public involvement recommended will vary greatly, the rationale will remain basically the same: the ties between the public welfare and the public's food supply are many and are vital to the maintenance of life itself. As the opening pages of this chapter suggested, the fact that Knoxville and Knox County have only marginally involved themselves in direct participation in the local food system should not necessarily be seen as a proper prologue for the future.

NOTES

CHAPTER I

¹Mr. Dale L. Anderson, Agricultural Research Service, U.S. Department of Agriculture, remarks to Synthesis class July, 1977.

²Susan Love Brown, et al., The Incredible Bread Machine (San Diego: Campus Studies Division, World Research, Inc., 1976), p. 172.

³U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1976 (Washington, D.C.: Government Printing Office, 1976) p. 370.

⁴Dr. Dan W. Hubbard, Associate Professor, Food Science, Nutrition and Food Systems Administration, Department of Home Economics, remarks to Synthesis class, July 27, 1977.

⁵Knox County Health Department, Regulations Governing Food Outlet Establishments (Knox County, Tennessee: Knox County Health Department, 1975).

⁶Bill Geros, Knoxville-Knox County Civil Defense Agency, telephone interview, August 5, 1977.

⁷John Carter, Director, Food Services, Knoxville City Schools, telephone interview, July 18, 1977.

⁸John Ulmer, Director, Knoxville's Community Development Corporation, remarks to Synthesis class August 4, 1977.

CHAPTER II
FOOD CONSUMPTION, FOOD SERVICES, FOOD PROGRAMS
AND FOOD RETAILING IN KNOX COUNTY

Two ultimate goals of the food system are the delivery of adequate food supplies which meet basic nutritional needs while at the same time offering levels of choice and service consistent with cultural requirements. Base food consumption patterns provide at least a beginning evaluation of the degree to which the food system is meeting these needs. In the case of our study of Knoxville, it is important to look first at the sheer magnitude or volume of food consumed each week. The Knoxville food system can be considered initially from the perspective of delivering a given amount of food into the hands and mouths of consumers during a given period of time. As will be seen, this perspective provides a base line of performance of the food system as it operates at the present time.

A more refined view of consumption examines differences in food consumption among various groups in the city's population. Such a perspective leads to questions of equity of system performance when significant differences in consumption of food are found among population groups. This is particularly true when these differences are correlated with income, race, age and so on and when the differences involve nutritional quality, price and choice of the food consumed (or not consumed.) In this chapter, these perspectives will be used to outline food consumption in Knoxville and Knox County.

The second portion of the chapter will move from food consumption per se in Knoxville to a consideration of the place of consumption and the related need to prepare food before it is consumed, particularly when food is eaten away from home. Of importance here is an examination of Knoxville's food services industry, including restaurants, fast food outlets, institutional feeding, and the

broad array of public food programs directly related to food consumption. Questions of the quality, price and choice of food consumed must consider the place and manner of consumption. The rapid growth in eating outside the home raises concerns not only for the private sector which is involved in the investment considerations of such a trend, but also for the public welfare as it relates to food consumption.

The third part of the chapter expands the discussion of food consumption to a consideration of all retail sales of food. The scope and scale of food store operations in the Knoxville economy is significant. Further, the particular issues associated with supermarkets and convenience stores require some attention. As more and more food stores are associated with national or regional firms, the question of local control over food supply, choice and quality is voiced. As with the previous sections, the ultimate public concern with food retailing in Knoxville must rest on the balance between commercial decision-making and the public welfare.

The final section of the chapter raises problems and issues as seen from the perspectives presented in the first three sections. The issues raised in this section emerge from a matching of the public welfare considerations regarding food with observations of food consumption patterns in Knoxville. Only salient points are made. More subtle and indirect consumer-oriented issues are raised in later chapters where components of the urban food system prior to consumption are explored.

Food Consumption in Knoxville: General Patterns

The broadest view of food consumption in Knoxville includes an examination of the volume of food consumed in the community during an average week. Using the USDA's latest "Food Consumption Survey," data have been gathered and updated to provide an estimate of food consumption in Knox County on a

weekly basis.¹ Table 3 presents these estimates, broken down by food-types. Since the study is focused on the Knoxville metropolitan area, Knox County is used as the unit for analysis. In addition to weekly county consumption, the table also presents household consumption data.² Although only available as averages, household data lend some sense of reality to the consumption figures. Household information also permits some consideration of differences in consumption according to differences in household characteristics.

Included in Table 3 are data on county-wide and household expenditures for food. These data reflect total expenditure, by household, regardless of the place of consumption. As with the data on volume, expenditure data are based on survey results, not on retail sales or other such information.³ Beyond the significant fact that the average Knox County household spends around \$50 per week on food, it should be noted that weekly food expenditures have about doubled since the initial consumption data was gathered in 1965.⁴ Over 90% of this increase can be attributed to price increases for food, not to increases in per capita consumption nor growth in average household size.⁵

From a purely physical perspective, the citizens of Knoxville require much in the way of transportation and storage in order to meet their eating needs. Over a million quarts of dairy products and over a million pounds of beef and pork are just starters in the area's weekly food requirements. As will be seen in later chapters, consumer demand for such volumes as 1.6 million pounds of perishable fruits and vegetables per week raise important issues in areas such as urban goods movement and wholesale market facilities.

Economically, it goes without saying that the impact of 5.5 million dollars spent on food each week is significant. As has already been presented, the impact of the food system on the Knoxville area's economy is great;

TABLE 3

ESTIMATED WEEKLY FOOD CONSUMPTION AND EXPENDITURE, KNOX COUNTY, 1977

Food Type	Weekly Household Consumption	Weekly Household Expenditure	Weekly County Consumption	Weekly County Expenditure	% of Total Expenditure
All Dairy Products	11.53 qts.	\$ 5.23	1,248,710 qts.	\$ 566,414	10.2
Meat (beef and pork)	10.86 lbs.	8.34	1,176,148 lbs.	903,230	16.3
Poultry and Fish	5.08 lbs.	4.31	550,169 lbs.	466,777	8.4
Eggs	1.62 doz.	1.26	175,447 doz.	136,459	2.5
Fats and Oils	3.10 lbs.	1.80	335,733 lbs.	194,941	3.5
Bakery Products	6.94 lbs.	3.65	751,608 lbs.	395,298	7.1
Flour and Cereal	4.67 lbs.	1.77	505,765 lbs.	191,692	3.5
Potatoes (all types)	4.90 lbs.	1.50	530,674 lbs.	162,451	2.9
Fresh Vegetables	7.69 lbs.	3.15	832,834 lbs.	341,148	6.1
Fresh Fruit	7.77 lbs.	2.17	841,498 lbs.	235,013	4.2
Processed Fruit & Veg.	5.62 lbs.	4.44	608,651 lbs.	480,856	8.7
Juice (all types)	6.40 lbs.	1.39	693,126 lbs.	150,538	2.7
Nuts, Condiments etc.	.58 lbs.	1.48	62,814 lbs.	160,285	2.9
Soup and Other Mixtures	1.76 lbs.	1.37	190,609 lbs.	148,372	2.7

TABLE 3 (continued)

Food Type	Weekly Household Consumption	Weekly Household Expenditure	Weekly County Consumption	Weekly County Expenditure	% of Total Expenditure
Sugar and Sweets	4.10 lbs.	\$ 2.05	444,034 lbs.	\$ 222,017	4.0
Soft Drinks	8.73 lbs.	2.80	945,467 lbs.	303,247	5.4
Coffee, Tea, Cocoa	.77 lbs.	2.74	83,391 lbs.	296,744	5.3
Alcoholic Beverages	2.32 lbs.	1.69	251,258 lbs.	183,028	5.3
Total Expenditure		\$51.14		\$5,538,513	101.7

SOURCES: U.S.D.A. ARS, "Food Consumption Survey, 1965" and current "Food Price Index" and "National Food Situation," June, 1977.

the data on Knoxville consumer spending only reinforces the point. A review of the column in Table 3 indicating percentage of total expenditure points out the importance, both to the consumer and to the retail food sector, of purchases of dairy products, meat, and fruits and vegetables.

Knoxville's consumption of food and the price it pays for it differs far less today than in past years from other urban areas in the nation. Where direct comparison of the data is possible (the household consumption and expenditure data), Knoxville fits squarely in the "average" category.⁶ In an ongoing U.S.D.A. study of food consumption patterns, the decline in regional and local variations in food consumption is noted with emphasis.⁷ There seems to be no evidence that the per household volume nor cost of food consumed in Knoxville differs significantly from other moderately-sized American cities.

A second perspective on Knoxville's food consumption shifts from an analysis of total or per household consumption to a breakdown of households into various categories for discovery of possible differences in food consumption. Although the survey data used in generating the aggregate data presented in Table 3 does not lend itself to such a breakdown, it is possible to take certain Knox County population characteristics and apply national patterns of food consumption in order to reach some conclusions on differences in food consumption within the county.⁸ Two patterns particularly stand out. First, as income falls, the percentage of household income spent on food rises significantly. According to the Census Bureau, where family income is around 200% of the poverty level (\$9,000), 30% of all income is spent on food.⁹ This figure approaches 50% when income approaches the poverty level (\$4,500). In Knox County, other data suggest that in 1970 terms some 93,000 families spend from 25 to 40 of their income on food.¹⁰ The same

group would spend from 20 to 25% of their income on housing. So-called "middle-income" families (\$9,000 to \$23,000) spend between 20 and 25% of income on food and a similar amount on housing. In Knox County, some 38,000 families would fit this category. Upper income families, those with incomes above 23,000 dollars per year, spend around 20% of income on food and 25% on housing. In the county, some 3,500 families fit into this group. The conclusion is obvious: food consumption expenditure is a critical portion of the family budget, especially for families with low and moderate incomes, and there are a substantial number of these families in Knox County.

A second pattern seen in relating household characteristics to food consumption concerns nutrition received from food consumed. Although data have not been developed indicating nutritional intake for the county, nutritionists agree that poor nutrition is related to population characteristics such as race, income and age.¹¹ These "high risk" groups exist in significant numbers in Knox County. ("High risk" in terms of likelihood of nutritional deficiencies.) The various federal feeding programs (discussed later) in the local area give a picture of those qualifying as members of such groups. That nearly 30% of the families may be regarded as "low income" has already been mentioned, and suggests the magnitude of some other income-related food problems. The number of county residents (1970) over the age of 65 is 27,119.¹² As food prices rise, as transportation to food sales locations becomes more difficult and costly, and as the trend to eating out continues, these high-risk groups will present even greater problems for anyone concerned with the food system's capacity to deliver to the citizens of the county a minimal level of nutrition.

Food Services and Food Programs in Knoxville

Preparation and consumption of food at home is the most familiar form of eating. As Table 4 points out, some 70% of the money spent on food by

TABLE 4

ESTIMATED WEEKLY FOOD EXPENDITURES, BY PLACE OF CONSUMPTION

KNOX COUNTY, 1977

Food Type	Home Consumption		Restaurant Consumption		Institution Consumption		Total	
Meat	\$ 514,842	13%	\$ 307,098	25%	\$ 81,209	24%	\$ 903,230	16%
Poultry and Fish	350,084	9	84,019	7	32,674	10	466,777	8
Dairy	419,147	10	101,954	8	45,313	14	566,414	10
Fruit and Vegetables	898,466	23	116,271	10	42,280	13	1,057,017	19
Grain Mill Products	162,939	4	17,252	1	11,501	3	191,692	4
Bakery	288,569	7	90,918	8	15,811	5	395,298	7
Other	1,353,684	34	500,960	41	103,441	31	1,958,085	36
	<u>\$3,987,731</u>	<u>100%</u>	<u>\$1,218,472</u>	<u>100%</u>	<u>\$ 332,310</u>	<u>100%</u>	<u>\$5,538,513</u>	<u>100%</u>

SOURCE: Data based on national patterns of consumption outlined in Institutional Volume Feeding, March 15, 1977, p. 59.

consumers in Knox County is spent on food for consumption at home. Although this suggests that home consumption remains the primary form of eating, the 30% spent on food consumed outside the home is an important and growing part of the food consumption picture both nationally and in Knox County.¹³ As can be seen in the total food products figures in Table 4, by far the most important part of this move to eating out is restaurant eating. Institutional eating, however, is also growing in importance, especially in areas such as Knox County where large public facilities like the University of Tennessee exist. For purposes of definition, restaurant consumption refers to eating in both "restaurants" and "fast food" establishments.¹⁴ Institutional consumption refers to school food programs, university food facilities, health care facilities, employee feeding, recreation feeding, and transportation food facilities.¹⁵ In the following review of Knoxville's institutional and restaurant food consumption patterns, attention is paid to restaurants, fast food establishments, school food programs, health care facilities, and the University of Tennessee food service.

Related to food service facilities are various public food programs which influence patterns of food consumption. With the exception of the USDA Food Stamp Program; the Women, Infants and Children Program; and Meals on Wheels for senior citizens, public food programs also require consumption away from home. A brief review of these programs will follow the discussion of food service facilities in Knoxville.

Food Service Facilities in Knoxville

Restaurants and Fast Foods

A current estimate suggests that there are 293 restaurant and fast food establishments in Knox County.¹⁶ This total includes hotels and motels

which serve meals. Of the total, some 59 are "fast food" establishments. Nearly all of these establishments are national or regional chain operations, and can be seen as a part of the overall national pattern of growth in this type of eating. One authoritative source suggests a 50% growth in sales for these establishments over the next 3 years.¹⁷ There is no reason to expect their growth in the Knoxville area to be any less. The majority of these establishments are located on major traffic routes and depend upon high volume sales. As has been stressed in many reports and studies, these food operations raise questions of traffic congestion, aesthetic concerns, land uses, nutritional value and so on. From a consumer perspective, however, they provide a solution to the problems of working wives, rising costs in the supermarket, and an increasing taste for the type of food such establishments market. The next section will further explore these establishments, as well as restaurants, as a part of the general food retail pattern in the Knoxville area.

Although full-service restaurants have shared in the increased number of people eating out, their growth has been more modest. Estimates are that such facilities will increase sales by some 29% over the next three years.¹⁸ In Knoxville, this sector has been characterized by modest growth particularly along arterials, such as Kingston Pike, which lead to areas of residential growth. One characteristic of the full-service restaurant not brought out in Table 4 is the greater consumption of fruit and vegetables, when compared with the fast food establishments.

Health Care Facilities

Generally included in the health care facilities categories are nursing homes, hospitals, recovery centers and so on. In Knox County there are 12 nursing homes which prepare food for patients and employees. Approximately

1880 persons are served about 3200 meals each day by these facilities. All have food preparation on premises and each buys food from a wide range of local wholesalers. Most employ a dietician for meal planning.¹⁹

There are seven primary care hospitals in Knoxville.²⁰ Table 5 shows the patient and employee meals served in these institutions each day.

TABLE 5
HOSPITAL MEALS: KNOXVILLE-KNOX COUNTY, 1977

Hospital	Average Patient Meals per Day	Average Employee- Visitor Meals per Day
Baptist Hospital	1,000	1,000
East Tenn. Chest Disease Hsp.	500	--
East Tenn. Children's Hsp.	600	--
Ft. Sander's Hospital	1,300	320
Park West Hospital	450	--
St. Mary's Hospital	1,200	1,700
U.T. Hospital	1,770	--
TOTAL	6,820	3,020

SOURCE: Interviews with dieticians of each hospital, conducted week of July 18, 1977.

The data in the table reflect the generally lower summer census of hospital residency.

All hospitals have a full-time dietician who oversees meal planning and the food preparation process. Several of the hospitals also operate a coffee shop for service to hospital visitors.

Lakeshore Psychiatric Hospital setting is different from the primary care hospitals previously discussed in that the turnover in patients is slower. There are smaller seasonal fluctuations in the level of patients. According to one of the dieticians at Lakeshore (formerly Eastern State) there are approximately 1132 patients, which is about average for any one day.²¹

In addition, there are 1400 employees who are entitled to one meal per day. This could be the breakfast, lunch, or evening meal, according to the shift the employee works. Lakeshore does not contract to an outside firm for the preparation or purchasing of food. They have a kitchen staff of 128 employees and several dieticians.

School Food Facilities

Both Knox County Schools and Knoxville City Schools have extensive feeding facilities. Knox County Schools, during the school year, prepares 18,000 lunches and 1700 breakfasts daily. These are prepared in 35 kitchens which additionally serve 14 satellite eating areas. Knoxville City Schools feed some 30,000 students daily at 63 different school locations. In addition, the city schools are currently engaged in the development of the "central commissary" concept of feeding and are already providing meals which are served through many of the federal food programs described below under "Federal Food Programs."²² No data have been gathered on food facilities at the various private schools in the Knoxville area.

The University of Tennessee

The food service operation of the University of Tennessee provides some 25,000 meals per day with an annual sales of about \$6,000,000.²³ The University operates both restaurant-type cafeterias and cafeterias attached to residence halls. The University's agricultural campus provides dairy products and some meat, but the University generally buys in large quantities from local and national wholesalers. Of significance is the fact that the University's large warehouse facility, which permits bulk purchasing, is slated for demolition to make way for the preparation of the Expo 82 site. If the University cannot replace the facility (and the chances appear to be slim) then new demands on local storage capacities of local suppliers

will be made. Another problem confronting the food service is the growing competition from fast food establishments located near the campus. Plans are underway to emulate some of the fast-food marketing techniques in the various food facilities on campus.

Public Food Programs in Knoxville

Food Stamp Program

The most extensive food program in Knox County is the Federal Food Stamp Program, administered by the U.S.D.A. Although just amended by Congress, the Program has permitted the purchasing of "food stamps" redeemable for any food by those qualifying as low income persons. The amount paid for the stamps is determined by the person's income and family status. For the fiscal year ended on June 30, 1977, there were 8,818 families in Knox County receiving food stamps. This translates into some 25,170 individuals receiving the stamps amounting to some \$1,210,391 worth of coupons issued, for which the recipients paid \$304,240, leaving \$717,151 worth of bonus coupons issued. Nearly all of these food stamps were redeemed at local food stores.

The food stamp program will be discussed in some detail in Chapter 4. It is important to note here, however, that the program does relate to the food consumption patterns of some 25,000 local residents. The program does not determine the type of food to be purchased with the coupons. It has basically raised the food purchasing power of lower income groups by some \$717,000. (Concerns about the nutritional payoffs of such purchasing power have led to unsuccessful efforts by some interests to limit food stamp coupon redemption to nutritionally significant foods. Recent Congressional actions seem to be moving toward fewer limits on how stamps may be used.)

School Lunch Programs

As has been previously described, both Knox County Schools and Knoxville City Schools prepare large amounts of food. The various dimensions of the USDA's School Lunch Program are felt locally. The pattern for the City schools can be documented and is reflective of the patterns to be found in the County schools. Some 40% of the students attending school qualify for either the reduced price lunches (family income at or below 195% of poverty level) or the free lunch program (family income at or below the poverty level.)²⁴ For the City schools, this group numbered some 12,000 students per day. As also mentioned earlier, the City schools are currently engaged in major project to centralize and make efficient this feeding operation.

Other Federal Food Programs

Several other food programs exist in Knox County, each aimed at certain "high risk" nutritional groups. Some 3000 women, infants and children participate in the Women, Infants and Children's food program, administered by the Knox County Health Department.²⁵ These persons receive both nutritional counselling as well as vouchers for the purchase of nutritionally important foods at local retailers. Approximately 1000 meals per day are served to senior citizens through the "Meals on Wheels" program, serviced by the city school kitchens. Meals are delivered to some 14 locations, as well. During the summer months, the Knoxville-Knox County Community Action Committee administers a children's lunch program (with some breakfasts, as well) which feeds some 3500 children daily at 41 different centers. This program, too, is serviced by the city schools' kitchen facilities. In addition, the program offers nutrition education, both to children and to visiting parents.

In summary, there are a number of public food programs currently in operation in Knox County. In roughly adding together all of the programs,

it would appear that about 50,000 Knox County residents receive at least one meal or the food for one meal each day through some public food program. If one added in those eating at the University of Tennessee, the non-subsidized school lunches, meals in hospitals, and so on, a third of the residents would have daily dependence upon either an non-profit food facility and/or a public food program. This is a significant number, given our general impression that feeding Americans is primarily the responsibility of the private sector.

Grocery Stores

As is evident in Table 6, groceries have dominated the retail food store business, accounting for 83 percent of the total food store establishments and 96 percent of the retail food sales in Knox County.²⁶ Within the grocery category, however, further analysis would show that it is the "super-market" chain store which has been the primary actor. Although they account for only 58 of the 376 (22%) of the establishments in Knox County, national data suggest that their hold on the market is between 80 and 90 percent of the total retail food sales.²⁷

The traditional "mom and pop" store has been relegated a rather minor role in the changing grocery business. They are, no doubt, the victim of the severe competition in food marketing over the past few decades. They are the losers of the "square footage" war, that all-important success factor which was simply too expensive or not available in the central city areas where the stores originated.²⁸ Through even casual observation one can easily see smaller stores abandoned or in a bad state of repair throughout the older sections of Knoxville.

There is another phenomenon worthy of note which is beginning to have a very visible impact in numbers and sales in and around Knoxville. It is the "convenience store" which, although its food prices are much higher, has found a niche for local consumers. That niche is filling the need for

TABLE 6

RETAIL FOOD ESTABLISHMENTS BY TYPE: U.S. AND KNOX COUNTY

Retail Establishments	Number of Establishments		Number of Employees		Sales (\$1,000)	
	U.S.	Knox Co.	U.S.	Knox Co.	U.S.	Knox Co.
Food Stores: Total	267,352	376	1,722,486	2,365	100,718,864	138,286
Grocery	73%	83%	85%	89%	93%	96%
Meat-Fish Market (Including Freezer Provision)	6%	NA	(W)	(W)	3%	(W)
Fruit Stores and Vegetable Markets	3%	2%	(W)	(W)	NA	NA
Candy, nut, and Confectionary	5%	2%	(W)	(W)	0.7%	0.3%
Retail Bakeries	7%	4%	7%	3%	2%	0.8%
Other	6%	6%	3%	8%	2%	2%

NA - not available
W - withheld

SOURCE: Census of Retail Trade, 1972, Vol. 11, Washington, D.C.

consumers who prefer picking up a small shopping list and avoiding the problems associated with shopping in crowded supermarkets.²⁹ In Knoxville there are 56 convenience stores, or 22% of the total.³⁰ The success factor of square footage simply does not fit into their physical character. Convenience stores have survived and will probably continue to do so based on careful site selection, provision of access, and extended hours of operation.

The true pivotal point of the entire retail food system rotates about the supermarket. Knoxville has many stores: A&P, Kroger's, and Winn Dixie. Additionally, there are three more local or regional chains which are significant: Giant, White Stores and Cas Walker's Cash Stores. Any attempt to detail their modes of operation would be an immensely frustrating task. Their supply sources are rarely static; they have distribution points both within and far removed from Knoxville. Each major chain is staffed by 'buyers' whose principal function is to search the wholesale market for opportunities. This unfortunately means that local food production is bypassed by the chains. The buyers are looking for products in large amounts which are in a consistent and reliable supply. Consequently, major food market wholesaling occurs elsewhere. As a result, many of the chains maintain principal distribution points outside of Knoxville. A&P has distribution centers in Charlotte and Atlanta, Kroger's has them in Nashville and Salem, Va., and Winn Dixie has them in Charlotte and Greenville, S.C. White Stores, however, has its distribution center in Knoxville which serves its 39 supermarkets throughout East Tennessee. Within Knoxville White Stores controls the major share of the grocery market.³¹

Further evidence of chain supermarket influence of local food retailing is seen in their move towards "vertical" integration of some major food types. There has been concern expressed by local food producers, especially bakeries, that production of bread within the chain operation and marketing

under the chain label will present a formidable obstacle to locally produced food marketing. If a chain is large enough, such as A&P or Kroger's, this integration can effectively take place and is ultimately a more profitable method of overall retailing. More regional chains like White Stores have not followed the vertical integration route to any significant degree.

Problems and Issues

The preceding overview of food consumption, food services, food programs and grocery outlets in Knoxville suggests a number of present and potential problems and issues to anyone addressing the capacity of the local food system to meet the goals suggested at the opening of the chapter. Of special concern, however, seem to be the following four problem areas: price paid and nutritional quality received; extensive public agency involvement in food distribution and preparation at present; the trend toward eating out and the growth of institutional feeding; and the gross economic and physical impact of food sales and consumption in the Knoxville area. Each of these will be addressed briefly.

Data presented suggests that the average household in the country pays around \$50.00 per week for all of its food product needs. It was also suggested that inflation has and will continue to force this figure upward. It was also shown that lower income families pay a much higher percentage of their income for food than do higher income households. This suggests a pressing need to consider the problems associated with continued pressure on lower income budgets to meet their food requirements. Trends in price both in grocery stores and restaurants indicate no lessening of this pressure. A related problem is the capacity of these facilities to meet the nutritional needs of family or household members. Although income is a contributing factor, other characteristics of these "high risk" groups may

suggest serious nutritional deficiencies. It seems, therefore, that much attention must be paid to the economic and nutritional needs of households located in this "high risk" category, whether that risk be associated with the capacity to buy food or to select food of nutritional importance, or both. The absence of supermarkets in inner-city areas is a particularly important dimension of the problem of inequal access to competitively priced and nutritious food. Special attention is given this issue in the discussion of food assistance for the disadvantaged in Chapter 4. It is also worth noting that if any significant improvement can be made in the efficiency and/or productivity of the local food distribution network it will tend to reduce the cost of food to all consumers. One authority estimates that 3 to 5% of the total cost of food could be saved by improved urban distribution.³²

A second issue is related to the first: large numbers of Knoxville area residents are already involved in some way in food programs developed to meet some of the problems associated with income and nutritional deficiencies. Are these programs coordinated at the local level? Are they being fully utilized? In addition, many more area residents eat at facilities operated by the public. Are these institutions efficiently operated? Do they contribute to efficient food program operations as well? Do both the private and public sectors benefit from their operation? If, in fact, nearly one-third of Knox County residents either participate in a public food program or eat at least once a day in a non-profit institutional food facility, then these questions are of great importance.

A third issue stems from the significant trend toward food consumers eating more of their meals away from home. One consequence of this is the rapid growth of fast food establishments. These firms raise serious problems

associated with traditional urban concerns: traffic congestion; land use relationships; employment policies; sanitation; local economic impact; aesthetic concerns; energy consumption, and so on. At the nutritional level, fast food eating may pose serious implications for the quality of the local diet. A second consequence of the trend toward eating out is the need to make more efficient all forms of institutional feeding. As institutional feeders try to offer attractive prices to continue their growth, they are searching for ways to economize in their operations. This leads to central purchasing, one-stop deliveries, central storage, and other moves to cut down on the complex pattern of wholesale supply which they are now faced with. Public concern for warehouse facilities, goods movement practices, marketing patterns and so on seems to be warranted, given that many of these institutional feeders in the county are publically operated. In addition, the consequences of such consolidation for the many small purveyors and wholesalers must also be taken into account at the public level. Supermarkets have responded to this trend by instituting their own "take out" facilities in the form of deli sections and lunch counters. As discussed previously, the growth of "convenience" stores also reflects the consumer pressure for quick food service. Many of the planning problems associated with fast food outlets also relate to convenience stores.

A final issue emerging from the preceeding pages seems obvious and direct: the economic and physical impact of the sheer volume of food delivered to the consumption level raises questions of the area's economic health and its physical distribution capacities. Although both of these issues will be addressed in more detail in succeeding chapters, this focus on consumption emphasized the tremendous volume of food reaching the homes and food institutions of the Knoxville area weekly. Any significant addition of consumer demand, such as the 60,000 persons expected to visit Expo 82 each day,

would raise important questions, both of economic and physical distribution capabilities. The consumption of food in Knox County is both big business and a major problem in logistics. Add to this the issue of equity of food availability and the consumer's growing desire to eat in places other than in the home, and one quickly can see how these problems can be translated in specific concerns for the days ahead.

NOTES
CHAPTER II

¹U.S. Department of Agriculture, Agricultural Research Service, Household Food Consumption Survey, No. 1-4 (Washington, D.C.: Government Printing Office, 1968), Passim No. 1-4. (updating was accomplished by updating survey data on "Southern Urban" data with current price and consumption indices using the survey year as a base year).

²Data based on current estimates of county households (108,000) and average household size made by Knoxville-Knox County Metropolitan Planning Commission.

³U.S.D.A., Consumption Survey, Passim No. 1-4.

⁴The 1965 figure, taken directly from the Household Food Consumption Survey, was \$26.38.

⁵"Impact of Some Demographic Changes on U.S. Food Consumption, 1965-75 and 1975-90," National Food Situation, May, 1976.

⁶U.S.D.A., Consumption Survey, Passim No. 1-4.

⁷Ibid.

⁸Local population data provided by Knoxville-Knox County Metropolitan Planning Commission.

⁹U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1976 (Washington, D.C.: Government Printing Office, 1976), p. 370.

¹⁰Ibid.

¹¹Dr. Dan W. Hubbard, Assoc. Professor, Food Science, Nutrition and FSA, Dept. of Home Economics, remarks to Synthesis class, July 27, 1977.

¹²Local population data provided by the Knoxville-Knox County Metropolitan Planning Commission.

¹³Institutions/Volume Feeding, March 15, 1977, pp. 59-ff.

¹⁴American Society of Planning Officials, Planning Advisory Service, Zoning for Fast-food and Drive-in Restaurants, by Antoinette McAllister, Planning Advisory Service Report 320 (Chicago: A.S.P.O., 1976), p. 1. (gives concise definitions of "fast-food" and other eating establishments).

¹⁵Institutions/Volume Feeding, pp. 59-ff.

¹⁶Based on data obtained from 1977 Knoxville, TN area telephone book.

¹⁷A.S.P.O., Zoning for Fast-food, p. 1.

¹⁸Institutions/Volume Feeding, pp. 59-ff.

²⁰Based on telephone interviews with officials of area nursing homes during the week of July 18, 1977.

²¹Mr. Poston, Dietician, Lakeshore Psychiatric Hospital, telephone interview, July 19, 1977.

²²Based on telephone interviews with officials of area hospitals during the week of July 18, 1977.

²³Based on interviews with officials of Knox County and Knoxville City Schools during week of July 18, 1977.

²⁴Based on interview with Assistant Director, Food Services, University of Tennessee, July 19, 1977.

²⁵Dr. Dan Hubbard, remarks to class, July 27, 1977.

²⁶Ibid.

²⁷Progressive Grocers' Marketing Guidebook, 1977 (New York: Progressive Grocer Company, 1977), p. 238.

²⁸1970 Supermarket Sales Manual (New York: Chain Store Age Books, 1970), p. 56.

²⁹Ibid., p. 58.

³⁰Ibid., p. 63.

³¹Ibid, po. 238-241.

³²Mr. Dale Anderson, Agricultural Research Service, U.S. Department of Agriculture, remarks to Synthesis class session, July, 1977.

CHAPTER III
FOOD SUPPLY AND DISTRIBUTION IN
THE KNOXVILLE AREA

Introduction

The results of studying the various food subsystems, to gain a level of understanding of the food industry which might allow responsible recommendations to be made to the industry from a city planning perspective, can now be presented. The following systems descriptions are not put forth as definitive works on the systems. Their purpose is to impart to the reader the knowledge gained about the workings of the various subsystems so that he or she may better understand the planning recommendations which follow in the final two chapters.

A very complex system has evolved to ensure a continuous supply of a large variety of food items for the American consumer. Food retailing brings together the products of dozens of food subsystems which are supplied through numerous market channels by a multiplicity of industries. The supply and distribution of food to retail outlets in the Knoxville area is accomplished through a variety of means. Particular food types are supplied and distributed through fairly distinct systems, which, for the most part, function independently. A particular system may contain several subsystems, each of which supplies a share of the local retail market. Chain stores, for example, often supply products to their retail outlets from central distribution facilities located outside of the area, while independent grocers rely upon local wholesaling operations for their products. Other actors such as brokers, jobbers, repackers, etc., may also become involved at some stage of the distribution process.

In order to gain some understanding of how this complex system functions

to supply the food needs of the Knoxville area, a study was made of several of the more important food subsystems: the meat and poultry industry; freshly baked goods; fresh, frozen and canned fruits and vegetables; the dairy industry; and the beverage industry.

The following pages describe each of these systems in some detail. For each category the supply and distribution system is described, sources of supply and trade area are identified, and the components making up each system and their interrelationship given. Following the description of each of the systems, various planning related problems and issues uncovered in the investigation of the system are briefly discussed.

Sources of information included library materials and interviews with various Knoxville area people who had knowledge of the workings of the system.

The Knoxville Area Meat and Poultry Distribution System -- Part I: The Meat System

System Definition

The Knoxville area meat distribution system is a diverse industry of firms engaged in slaughtering, packing, wholesaling and physical distribution of fresh and processed meat products. The local system, as discussed below, is primarily engaged in marketing beef and pork products.

Sources of Supply

The majority of supply sources for the local meat system are external to the Knoxville metropolitan area. Major livestock production operations are located in the Great Plains and Midwestern states where feed supplies are plentiful. Because of the fluctuation in the livestock market, few local buyers depend on only one source, but instead deal with several producers. The system of marketing channels for livestock and meat products prior to entering the local system is complex. Farmers and ranchers, dealers, auctions,

terminal markets, order buyers and packer buyers are just a few of the actors and institutions that play a role in the livestock marketing for supply.

Only about five percent of all meat products entering the Knoxville system are locally produced. Although local beef production is insignificant, some local pork producers are suppliers to the local system. It might be noted that Tennessee is one of the largest feeder pig producers in the country, but the animals are shipped to other states for fattening where feed supplies are readily available.¹

Trade Area

The trade area for local meat slaughters, processors and wholesalers varies by firm. The regional packers in Knoxville have trade areas extending over several southeastern states. Wholesale trade areas for independent processors may range from the northeast United States to the Gulf States or may merely cover the metropolitan area.

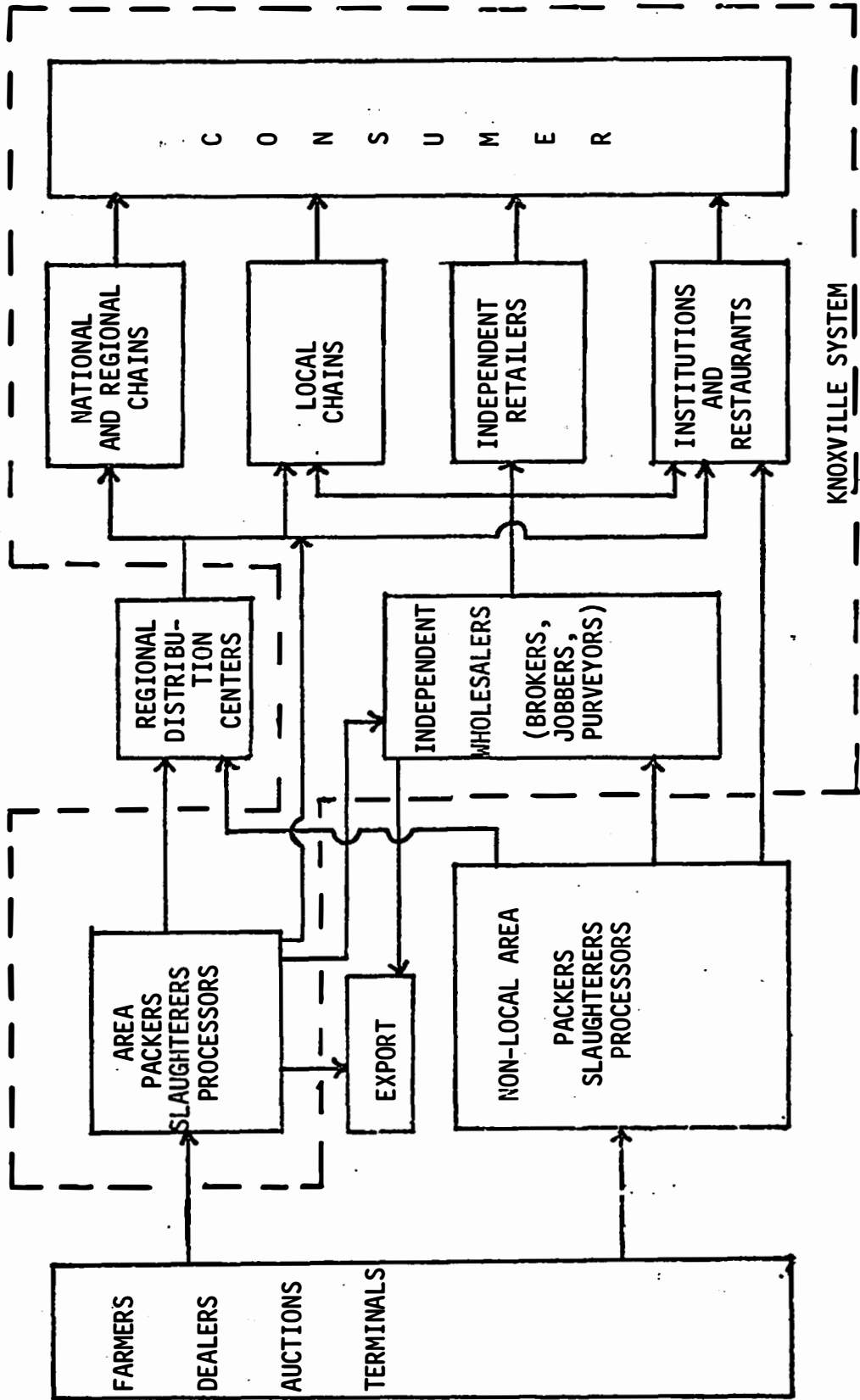
Elements of the System

Various individuals, firms and institutions, both public and private, have significant roles in the production, processing and marketing of meat products. Figure 1 reveals some of the more significant elements of the system. Not all of the elements and the subsequent activities occur within the local system; however, those depicted have a significant impact on the movement of products through the system.

External Actors - Farmers and ranchers are responsible for the production of the livestock. Production operations may vary from small independent operators to large corporate feedlots. Livestock moves through a system of marketing channels that may include dealers who buy and resell stock, auctions

FIGURE 1 -A

THE MEAT SYSTEM



where stock is bought and sold on an auction basis, or terminal markets where livestock is consigned to commission firms for sale. Packers and slaughters may buy from various firms in the marketing system.

Packers, Slaughterers, Processors - Meat packing is a combination wholesale slaughtering and processing operation. The packer receives live animals from various market sources for killing and processing. The extent of processing varies according to the intended purpose of resale. Meat may be processed to a form fit for retailing or merely broken into wholesale cuts to be sold to other processors.

Packers operating on a non-local basis within a region are considered regional packers. There are two regional packers in the Knoxville metropolitan area serving several southeastern states. In 1976, these two firms had combined sales approaching \$100 million and employed over 700 people.² Direct sales to retailers comprises the majority of business activities for these firms. Those packers selling almost exclusively within the area in which they are located are local packers. There are a number of local packers and processing firms in Knoxville. In 1976, there were 19 meat and poultry establishments operating under federal inspection in the City of Knoxville.³ In addition to these area packers, several national and regional packers located outside the area ship meat products to local independent wholesalers and retailers. There is some vertical integration of the local meat system. Many firms which pack and slaughter are also engaged in the wholesale distribution of fresh and processed meats.

Independent Wholesalers - Wholesale meat operations are the link between the point of slaughter and retailers, food services and export. Independent wholesalers handle fresh, cured and processed meat in the form of carcasses, primal, subprimal and portion control cuts. The wholesaler acts as an intermediary in the marketing system by performing specialized functions of

breaking, boning and freezing. The jobber, depicted in the schematic diagram, is one type of wholesaler who takes title to the meat in hopes of reselling to make a profit. The purveyor is a specialist within the wholesaling group who deals most extensively with food service industries. The broker, although not involved in actual processing, facilitates the transfer of meat products by bringing the buyer and seller together.

Wholesalers play a very important role in the local meat system. As mentioned previously, some firms are engaged in slaughtering and packing activities as well as wholesaling, making any definite demarcation among various elements difficult.

Regional Meat Distribution Centers - Although not a significant element in the local system, regional meat distribution centers located in the southeast supply various retail and food service outlets in the Knoxville metropolitan area. A number of the major chain stores receive meat products from such centers located in Nashville and Atlanta.

Retail Outlets - Meat sales account for a significant percentage of retail food store sales. Retailers vary in size from small individually owned and operated grocery stores to large retail food chains. The smaller establishments are supplied by local packers and wholesalers. The large retail establishments buy in large quantities from various sources. Some local chains procure meat products from local wholesalers and packers, while other chains are supplied by central distribution centers outside the area, as mentioned above. One major chain receives meat products from an Atlanta distribution center that is supplied in part by a Knoxville packer.

Food Service Industry - Meals eaten away from home account for approximately 35% of the local meat consumption. Hotels, restaurants and institutions, such as hospitals and schools, are supplied by local jobbers and purveyors.

Exports - Exports account for a small but increasing percentage of the local meat system sales. The major packers export meat products to several southeastern states. Some local wholesalers serve the food service industry throughout the eastern United States.

Inspectors - All meat that is distributed on an interstate basis must be federally inspected. Intrastate distributed products are subject to state inspection standards.

Goods Movement

Fresh and processed meats are perishable food items requiring rapid movement through the various marketing channels. Truck transportation is relied on, almost exclusively, by all actors in the local food system.

Livestock from external producers and markets enters the local food system by livestock transports. Meat from external packers arrives in the local food system by truck, as does processed and fresh meats from central distribution centers for delivery to retail outlets. Goods movement from local packers and wholesalers is carried out exclusively by truck transport.

Most firms in the local meat system provide their own truck fleets. When possible, backhaul movements are undertaken by the company owned carriers.

Movement of fresh processed meats is specialized since it requires refrigeration at carefully controlled temperatures. There seems to be no standardization of handling due to the wide variety of product forms moving through the system.

Part II: The Poultry System

Sources of Supply

A large proportion of the poultry that enters the Knoxville food system is supplied by Loret Farms of Chattanooga, Tennessee. This firm delivers more

than 70,000 chickens daily to the Knoxville market. Other sources of supply are located in Georgia and Alabama. Many of the wholesalers interviewed felt that the poultry supply system was excellent due to its instate location.

Trade Area

Knoxville Poultry Company, which handles more than 55,000 chickens daily, sends its product to wholesalers throughout East Tennessee and bordering states. At the wholesale to retail level, most local wholesalers serve an area of less than a 100 mile radius. The large retail chains are supplied by regional warehouses outside the Knoxville area.

Actors

There are a number of actors in the poultry supply and distribution system. The producers begin the operation by maintaining poultry farms that will serve the distribution system. After the poultry has left the farm it is handled by processors who kill and clean the poultry. The product may then be sold fresh or frozen to wholesalers or sent to other processors who cook and can it. Wholesalers distribute the processed poultry to retailers and the food service industry. From one of these last two actors the poultry is distributed to the consumer.

Other actors involved in the system are Federal inspectors and truckers. These two components must continually function smoothly if the poultry system is to be effective in serving all the other actors in the system.

Planning Related Issues

Goods Movement - The meat and poultry distribution system is highly dependent on truck transportation. This dependence may cause some concern if the truck drivers strike. Weight limitations are also a cause of concern for firms

in the system. The use of double-bottom trucks on Tennessee roadways is an issue in the industry. Central distribution centers have worked efficiently in some cities. Little attention has been given to this issue in Knoxville.

Waste Management - Slaughterers, packers and processors are producers of large quantities of solid waste. Effective and efficient disposal of this waste is essential. Air pollutants are a problem resulting from various processing operations.

Energy Procurement - As large consumers of energy, the meat and poultry industry firms are concerned about procurement of sufficient energy resources.

1982 Energy Exposition - The local meat and poultry distribution industry is looking at the Energy Exposition as a boon to the local market. Some concern has been expressed about the possibility of outside firms receiving the contracts for Expo '82 to the detriment of local meat and poultry suppliers.

Knoxville Area Milk and Milk Products Distribution System

System Description

As described, the system accounts for most of the Grade A milk and milk products in the Knoxville area. Grade A is the best milk in both quality and health assurance. Other milk normally called "manufacturing milk" is not produced in any consistent quantity in this area and is normally disposed of or used for dry milk and animal feed.⁴ Grade A milk is further categorized into Class I, II or III, with respect to its ultimate end use. Class I milk is for drinking, Class II and III are for hard products like butter, ice cream, yogurt and cheese.⁵ Classifying milk by end uses aids in the accounting process of assigning acceptable prices for receipt by dairy farmers who, unless they are producer/processors themselves, deal only in fluid milk.

Sources of Supply

Most of the milk produced for consumption in the Knoxville area comes from dairy farms within approximately 150 miles of Knoxville.⁶ It is also instructive to note that a large portion of the livestock feed produced to maintain area dairy herds comes from the surrounding area. If production fluctuates in high quality feed types such as soybeans and corn, milk production, too, will fluctuate. Farmers then must rely on silage for feed with the quality of the milk remaining the same but the total amount of milk produced somewhat less. During periods of low production milk must be imported. These occasions are rare, however. Chain store operations bring in a small but significant portion of milk and milk products which are produced and processed outside of the Knoxville area.

Products made using manufacturing milk, such as dry milk which is, in turn, an essential ingredient for baked goods produced in Knoxville, come from the Midwest and Great Lake States.

Trade Area

Milk and milk products such as ice cream and cottage cheese produced in Knoxville are generally sold in this area. Delineating any precise trade area is difficult and is dependent on the geographic disposition of other urban centers which have milk processing plants. The location of processing plants within the Knoxville area is also important. Mayfield's, for example, operates a processing plant in Athens, Tennessee. Consequently, the trade area for that plant is not centered around Knoxville. East Tennessee is an area which produces milk in excess of local needs. Some milk passes directly from area dairy farmers to processing plants in milk "deficit" areas of the southeast. At times, Knoxville area milk is distributed as far away as Puerto Rico.⁸

Elements of the System

Figure 2 depicts the milk production system from dairy farmer to consumer, for Knoxville.

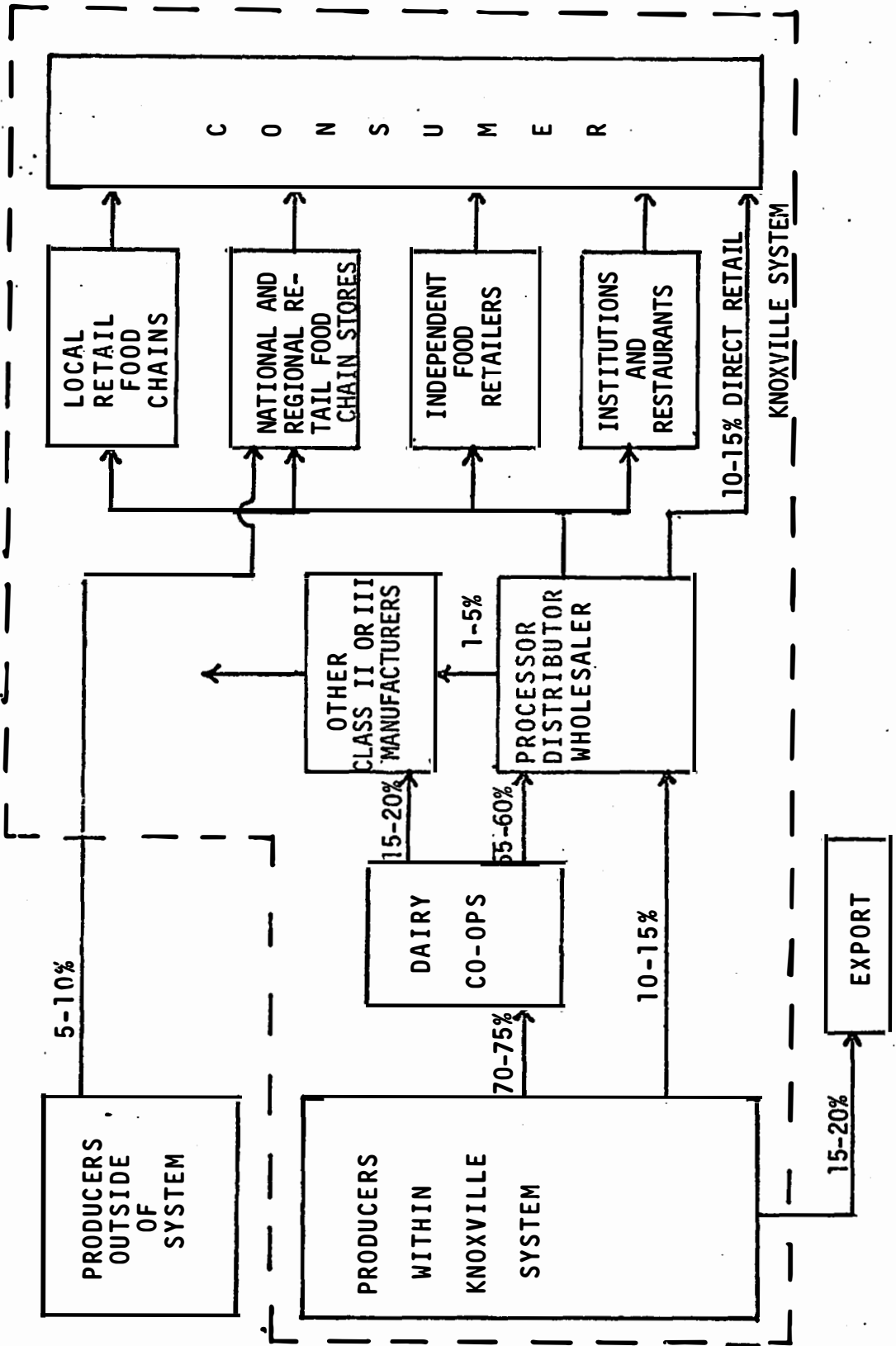
Dairy Farmers - The in-area producer is typically a small farm operator with a herd of 50-60 cows.⁹ The operators number approximately 300-400 in the area. The actual number fluctuates and is dependent in part to the part-time dairy farmer who maintains a small herd to supplement income from another job. No one dairy farm operation dominates the production end.

Dairymen Inc. - This is a nationwide association of dairy farmers. The Knoxville branch is a portion of a network that works to facilitate the sale of milk. They function to balance milk suppliers throughout the country among surplus and deficit producing areas. Their benefits to member dairy farmers extend to herd health assistance and financial help in purchasing equipment. Additionally, the individuals involved in Dairymen's transport operation from producer to processor are certified milk inspectors licensed by the state. They make the determination at the point of pick up whether the milk is acceptable for the Grade A market. Dairymen Inc. only deals in Grade A milk.¹⁰

Federal Order Market Administrator - The federal order market system is part of the Agricultural Marketing Service of USDA. This area's office, based in Knoxville, as its primary function, determines the minimum price for Grade A milk. The resultant price is based on supply and demand conditions and other areal economic considerations, such as distance to market. Farmers whose milk is marketed under the federal order are assured of getting the minimum uniform price set each month. The uniform price, called a "blend price" is an average for all the milk sold regardless of how it is used. Through this pricing system dairy farmers are encouraged to maintain large enough herds to meet needs during periods of low production.¹¹ The federal order market area,

FIGURE 2

KNOXVILLE MILK PRODUCTS SYSTEM
(GRADE A FLUID MILK)



in the past, consisted of Knoxville and surrounding counties. As of October, 1976 the Chattanooga and Appalachian order market areas were combined with Knoxville's to form the Tennessee Valley order market. It now reaches from northwestern Georgia to southern West Virginia in a strip 100-200 miles wide and parallel to the Blue Ridge Mountains. In all measures of accountability and price determination, this whole area is treated as a single entity.¹²

Processor/Distributor/Wholesaler - There are three firms which dominate milk marketing in this area, Mayfield's, Flav-O-Rich and Avondale. Another, which is a nationwide firm, Pet, Inc. is also prominent. These firms are the major link between producer and consumer. They generally control all operations before retailing in area stores or consumption in schools, restaurants, and institutions. For large scale retail sales and institutional service, a contract usually oversees all transactions. The smaller stores receive their supplies through the driver-salesman arrangement. Data concerning physical and dollar volume of sales could not be disclosed. Large retail chains such as Kroger's bring milk in from outside the Knoxville area.

Other Class II or III Manufactures - Hard good manufacturers consist of nationwide firms whose products are imported to Knoxville. There are some in-area hard good manufacturers, such as Kraft, Inc. in Morristown, Tennessee.

Goods Movement

Because fluid milk is so perishable, the timing and mode of transportation is critical. All transportation of fluid milk in the Knoxville area is by truck. Transportation from producer to processor, occurs every two days. Most of the tank trucks which are used are owned by Dairymen Inc. and leased to independent truckers. The trucks are highly specialized, constructed with stainless steel containers and subject to rigorous sanitation and health requirements.¹³ Between processor and retailer the milk is transported by refrigerated trucks with separate fleets owned by individual processing firms. These trucks are suited to

carrying boxes and containers.

Identification of Planning Related Issues

One of the more important planning related issues in the eyes of local milk producers and suppliers is the loss of agricultural land. Dairy farming is an important economic activity in the counties surrounding Knoxville. However, there has been a steady decline in the number of local dairy farms in recent years. There are several reasons for this decline.

Dairy farming has traditionally been a family business passed on from father to son. Dairy farming demands hard work and long hours and is often rejected by the younger generation in favor of more attractive jobs in nearby urban areas. Because of their nature, dairy farms are rarely sold as other businesses might be.

Expanding urbanization, in addition to supplying attractive job alternatives to young dairy farmers, also competes for farm lands needed for dairy operations. Land for residential subdivisions, for example, is normally worth several times more than its worth as farm land. There is also some feeling that farms in some areas are being bought by individuals speculating in land for its underlying coal deposits.

The loss of agricultural land is not of immediate critical concern here. The Knoxville area has enough milk production capacity to remain self-sufficient for some years to come. This is due to the fact that there has been an increase in production per cow of over 20 percent in the past 25 years. Nevertheless, there has been a slight decrease in absolute production due to the loss of dairy farms.

Knoxville Area Produce Distribution System

System Definition

The collective term for fresh fruit and vegetables is "produce". Produce enters the Knoxville area distribution system through several channels. From 30 to 40 percent of the produce is distributed by local wholesalers. Most of the remainder of the produce distributed throughout the Knoxville area is handled by national or regional chain stores, restaurants, or institutional supply systems. A very small amount is distributed through direct producer to consumer mechanisms such as the local farmers' market. That portion which is distributed by local produce wholesalers is the subject of the following analysis.

Sources of Supply

The firms which make up the Knoxville area wholesale produce market receive products from virtually all major producing areas of the country, depending upon the season of the year and the nature of the products. Most of the lettuce, tomatoes, carrots, and other "garden-type" vegetables, exotic fruits and vegetables, and citrus fruits, which are consumed in the Knoxville area, are produced in California, Arizona, New Mexico, Texas and Florida. Potatoes are produced primarily in Idaho, Washington, Oregon and Maine. Small amounts of vegetables and many fruits, such as apples and pears, are produced in Michigan, New York, Washington and other northern state during the summer months. Melons, a few vegetables, and peaches are shipped from producing areas located in Georgia, South Carolina, and Alabama during the growing season. A small amount of vegetables are provided by local producers in East Tennessee during the summer, but the amount is almost negligible.

Practically all of the produce handled by Knoxville area wholesalers is transported directly from the areas of production to the local market with any packing either at, or near, the point of production, or at the local wholesalers' facilities.

Trade Area

The Knoxville wholesale produce firms supply a large volume of produce to a trade area that includes, generally speaking, 34 Tennessee counties, 4 counties in Kentucky, 3 counties in Virginia, and small areas of North Carolina.¹⁴ A few customers are located outside of this general area. Smaller wholesalers, retail grocery stores, chain stores, restaurants and institutions are all served, to some degree, by firms located in Knoxville.

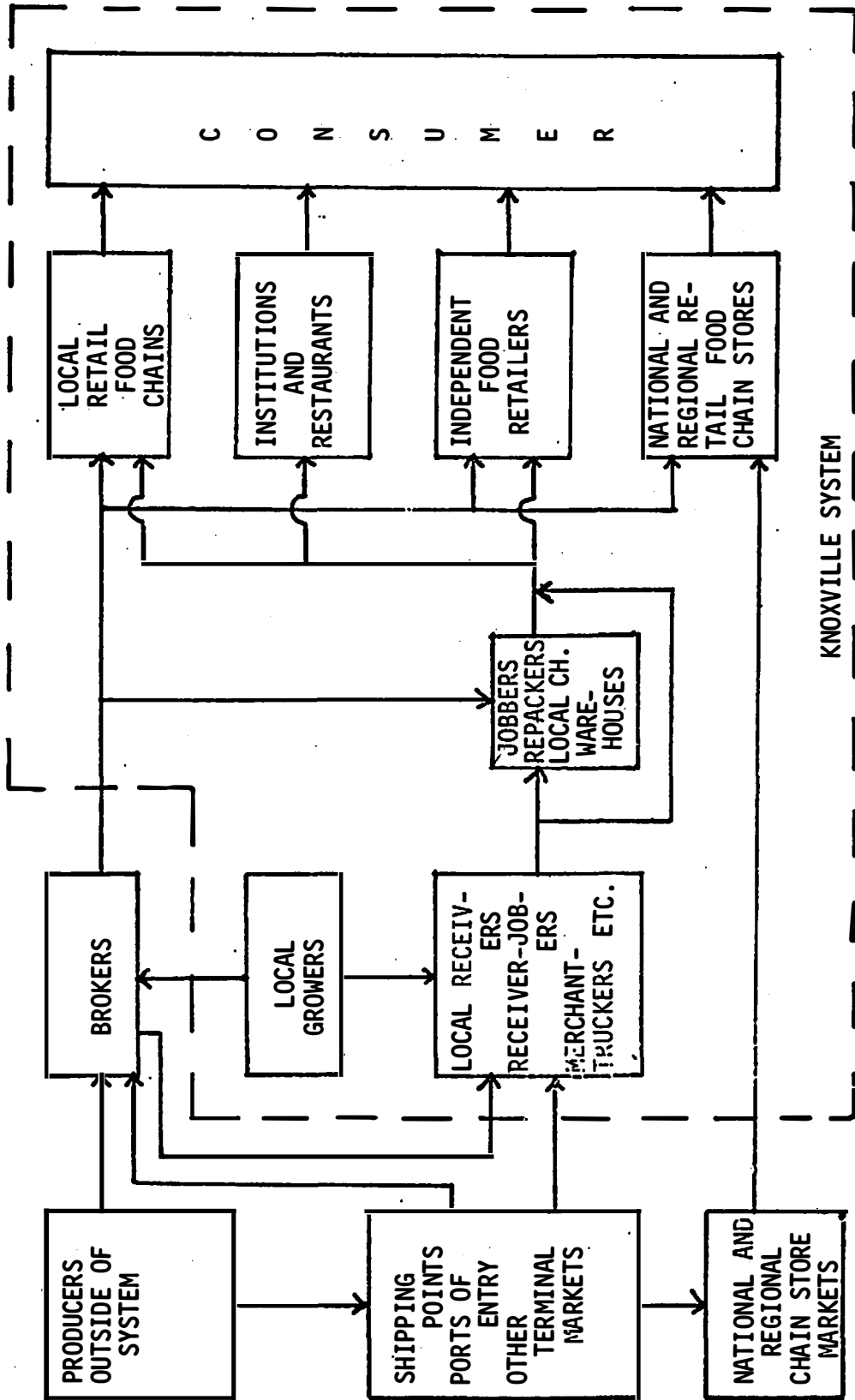
Elements of System

The produce system which supplies Knoxville is shown schematically in Figure 3. The Knoxville wholesale produce distribution system is made up of 24 firms, 20 of which are concentrated along the western end of Forest Avenue and are commonly referred to collectively as the "Forest Avenue Produce Market." Although there has been a decline in the number of firms over the years (from 33 in 1958 to 24 at present) the volume of produce handled has continued to increase.¹⁵

The volume of products handled by the wholesale produce firms in the Knoxville area increased from 134,940 tons in 1958 to 173,860 tons in 1967.¹⁶ Figures for present tonnage are not available but it can reasonably be assumed that a steady increase in volume has occurred over the last 10 years, and present amounts of produce handled probably are in the range of 200,000 to 250,000 tons annually.

The wholesale firms in Knoxville fall into one or more of seven basic operational types: jobbers who purchase more than half of their produce from wholesale handlers in the local market, handle the merchandise through their own stores and sell more than half of it to retail stores and institutional outlets; brokers and agencies that do not physically handle the produce although they may arrange for such physical handling by others; merchant truckers who buy

FIGURE 3
KNOXVILLE AREA PRODUCE DISTRIBUTION SYSTEM



at shipping points or in other markets and haul in their own trucks to the terminal market where they maintain a store or warehouse; receivers who purchase produce directly from shipping points for their own accounts, usually in full carlots or trucklots, perform the physical functions of loading or unloading in their own facilities, and sell at least half of their product to other wholesalers, chainstore warehouses, or processors; receiver-jobbers who obtain more than half of their produce directly from shipping points, handle it in their own warehouses or stores, and sell more than half to retail stores and institutional outlets; repacker-prepackagers who ripen, sort and package some of their produce and sell more than half in consumer packages; and selling brokers who negotiate sales on behalf of a number of shippers, but do not take title to or do not physically handle the produce.¹⁷ Most firms handle several different types of produce, but tend to specialize in a few particular food types which make up the great majority of their trade.

National and regional chain stores, restaurants, and institutions generally obtain their produce from centralized warehouses located in nearby cities such as Atlanta, Georgia, Cincinnati, Ohio, and Charlotte, North Carolina. The produce is shipped to these central distribution facilities directly from terminal markets located near producing areas of the country or from ports of entry. From the central warehouses, the produce is then shipped directly to retail outlets. Figure 3 diagrams the produce supply system generally used by chain stores. Practically all produce handled by chain stores is transported by company-owned trucks.

The majority of produce consumed in the Knoxville area is distributed by chain stores. However, an accurate estimate of the volumes handled by chain stores could not be calculated. The centralized characteristics of chain store distribution systems, the huge quantities of products handled in central warehouses, and a reluctance on the part of local retail chain store managers

to reveal sales data made an accurate assessment of chain store produce distribution systems impossible.

Goods Movement

Because of the perishable nature of fresh produce, 90 to 95 percent of it is transported from points of origin to the produce market in Knoxville by refrigerated truck. Only products such as potatoes, onions, and apples are transported by rail and the amounts of such produce, so shipped, have decreased from about 40 percent of the total, five to ten years ago, to less than 20 percent today. This declining use of rail transport is primarily the result of decreased reliability and increased shipping time of the railroads. The lack of adequate unloading facilities for rail transported products has also contributed to the decreasing use of this mode of transport. The Forest Avenue market firms which use rail transport must unload cars by hand and consequently find it extremely difficult to do so within the 24 hour unloading limit set by the railroads. As a result, time penalty fees must frequently be paid, and, therefore, cost savings realized through rail shipment of products are nullified.

Most of the larger wholesale produce firms own their own fleets of trucks which carry produce from terminals at or near the points of production to the local market. Most of these trucks travel empty from Knoxville to the shipping areas. Because produce is a highly perishable commodity and speed of delivery is crucial in order to maintain acceptable levels of freshness, backhauling, load consolidation, and other techniques which can potentially increase shipping time, are seldom practiced. Smaller firms which do not own trucks, often rely upon transport provided by shippers or independent trucking firms. However, there appears to be an increasing trend toward the utilization of truck brokerage firms that arrange transport for their customers.

The transport of produce from wholesalers to their customers varies with each firm, but generally speaking, most customers provide their own transport. Some larger firms, however, do deliver products to customers who buy considerable amounts such as chain store warehouses. Specialized firms, which serve a large amount of restaurant and institutional customers, also tend to deliver their products on demand.

All produce distributed through the Forest Avenue market is loaded and unloaded by hand after it arrives in Knoxville. Although it is frequently palletized and loaded mechanically at shipping terminals near production areas, the absence of adequate loading and unloading facilities in the local market requires that such loads be removed from pallets and manually carried by hand or on dollies.

Identification of Planning Related Issues

Traffic - The Forest Avenue market area is characterized by heavy traffic congestion during working hours (roughly 5:00 A.M. to 5:00 P.M.) Since most of the businesses are forced to load and unload produce at their front doors, the street is frequently blocked by trucks of all types. Local police often attempt to maintain some degree of order along Forest Avenue, but the limited loading facilities of the firms require that a high degree of congestion be tolerated. Truck traffic through neighboring residential areas is also heavy at times, but the lack of adequate access roads to the market requires that such residential streets be used to some degree. Most operators of firms located along Forest Avenue were concerned about the traffic problems in the area, but had lived with such congestion for years and were aware that little if anything could be done to remedy the situation without major reconstruction throughout the entire market area. Some did feel, however, that minor improvements such as street repair and lining, so as to direct the flow of traffic and control parking to some degree, would help eliminate some congestion

Urban Services - The Forest Avenue market is, for the most part, adequately served by water and sanitary sewer systems. However, storm drainage was frequently cited as a problem during heavy rains, especially by businesses located on the southern side of Forest Avenue. Streets, although of inadequate design, were fairly well maintained. Although the market area is frequently littered with considerable amounts of garbage, few of the operators of businesses complained about trash collection service. Specific complaints about urban services in the Forest Avenue market area were not numerous. However, it was generally stated by most that the city is ignored the area and made no real effort to improve services.

Location and Market Consolidation - Although from a community-wide perspective the location of the Forest Avenue market may seem somewhat less than desirable, the firms located therein had few complaints about the location itself. Most of their complaints related to the poor access and lack of loading and unloading facilities at the present location. All of the operators of firms located in the Forest Avenue area were aware of past efforts to develop a new consolidated food market for the Knoxville area; and most agreed that such a facility would substantially improve their business and expand their trade area. However, economic losses (real or imagined) in the form of inadequate compensation for existing facilities, which would be incurred if merchants moved from their present location to a new one, prevented some from openly supporting the "new market" concept. This was especially true of those who owned their own or other buildings in the present market. Most of the Forest Avenue merchants who had generally favorable attitudes toward the "new market" concept felt that future proposals for such a facility should address in greater detail the potential economic impacts upon residents of the existing market.

Energy Expo '82 - Although only a few operators of wholesale produce firms located on Forest Avenue had given any real thought to the impact that the proposed Energy Expo '82 would have on their sales, all felt that the increased demand created as a result of the exposition could be met by the presently existing market. Most felt that any significant increase in demand could be met by increasing work hours, and that no facilities expansion would be necessary. There was also a general consensus among the merchants that they would like to "capture" the Expo market, and did not intend to let another market outside of the area supply the increased demand. None had been contacted by persons involved in the planning of Expo '82.

Agricultural Land Retention - The agricultural land retention issue was of little or no concern to the Forest Avenue merchants. They received practically none of their produce from local area producers and had little feel for the issue on a national basis.

Food Inspection - Governmental controls and/or regulations related to the produce industry are almost nonexistent at the local level. Health and sanitation inspections are performed infrequently, and are not the cause of any widespread concern among Forest Avenue merchants. However, procedures involved with the certification of quality of produce by USDA inspectors when spoilage or quality deficiencies are suspected, are of concern to many Forest Avenue merchants. If a shipper sends produce to the local market which is not of adequate quality, the merchant in Knoxville must have it certified as such by a Federal inspector before he can refuse to accept or pay for it. Since no qualified inspector is located in Knoxville, one from Nashville or Atlanta must be sent, at the merchant's expense, and frequently does not arrive for hours or even days. Because of the expense and time factor involved, the merchant often must accept marginal merchandise. Several merchants felt that a

federal inspector should be located in Knoxville, and if one was, the shippers would tend to ship less produce of marginal quality to the local market.

Knoxville Area Freshly Baked Goods Distribution System

System Description

"Freshly baked goods" refers to bread and rolls in this report. These items have traditionally been produced in each market area for local consumption. Other baked goods such as cookies or frozen pastries normally have a much larger trade area.

Sources of Supply

None of the ingredients for baked goods is produced in the Knoxville area. The actual production of the baked good itself has as its principal source the Knoxville bakeries. A growing number of chain stores, however, have adopted a vertical integration policy where baked goods are baked outside of the Knoxville area and transported here through chain distribution channels. Also, a number of regional and national bakeries such as Pepperidge Farm ship in baked goods from outside Knoxville.

Trade Area

The trade area for baked goods is dependent on the location of other urban centers which have their own bakeries which dominate local markets. Some bakeries, if large enough and supported by an efficient transportation and distribution system can go beyond normally accepted trade area limits. Kerns, for example, markets bread baked in Knoxville in northern Georgia.¹⁸ Other bakeries, such as Swan which produces Sunbeam bread, are part of much larger firms and the bakery situated in Knoxville is designed principally to serve the Knoxville area.

Elements of the System

The freshly baked goods system supplying Knoxville is shown in Figure 4.

Ingredient Producers and Marketers - All producers are located out of the area--principally the Midwest and Great Lake States. This also includes milling operations. The marketing of ingredients generally is part of all large multi-state/regional bakery firms. Representatives of these firms are located for instance, at the Chicago commodity exchange. Smaller Knoxville bakeries must depend on food brokers to intervene in supplying ingredients.

Brokers, Jobbers, Purveyors - As indicated on the diagram, food brokers normally work with smaller retail bakeries or institutional bakeries. Their communications network and expertise is needed by smaller scale operations. Larger bakeries rarely deal with brokers. The principal brokers and accompanying data for Knoxville are listed on Table 7.

Producers/Distributors/Wholesalers - In Knoxville there are four producers of consequence. They are shown in Table 8. The competition among these bakeries is fairly intense. Newcomers into the Knoxville bakery business are rare and short lived.¹⁹ All the firms control all portions of the operation down to retailing. Some retailing occurs in factory "thrift stores". Wade's operates four retail stores of its own. Business transactions are overseen by contract and driver-salesmen arrangements.

Bakers' Associations - There are many bakery trade organizations. The ones most active in Knoxville are the American Baker's Association and the Tennessee Baker's Association. They function principally as a clearing house for technical information and as a baking industry representative to government.

FIGURE 4

FRESHLY BAKED GOODS

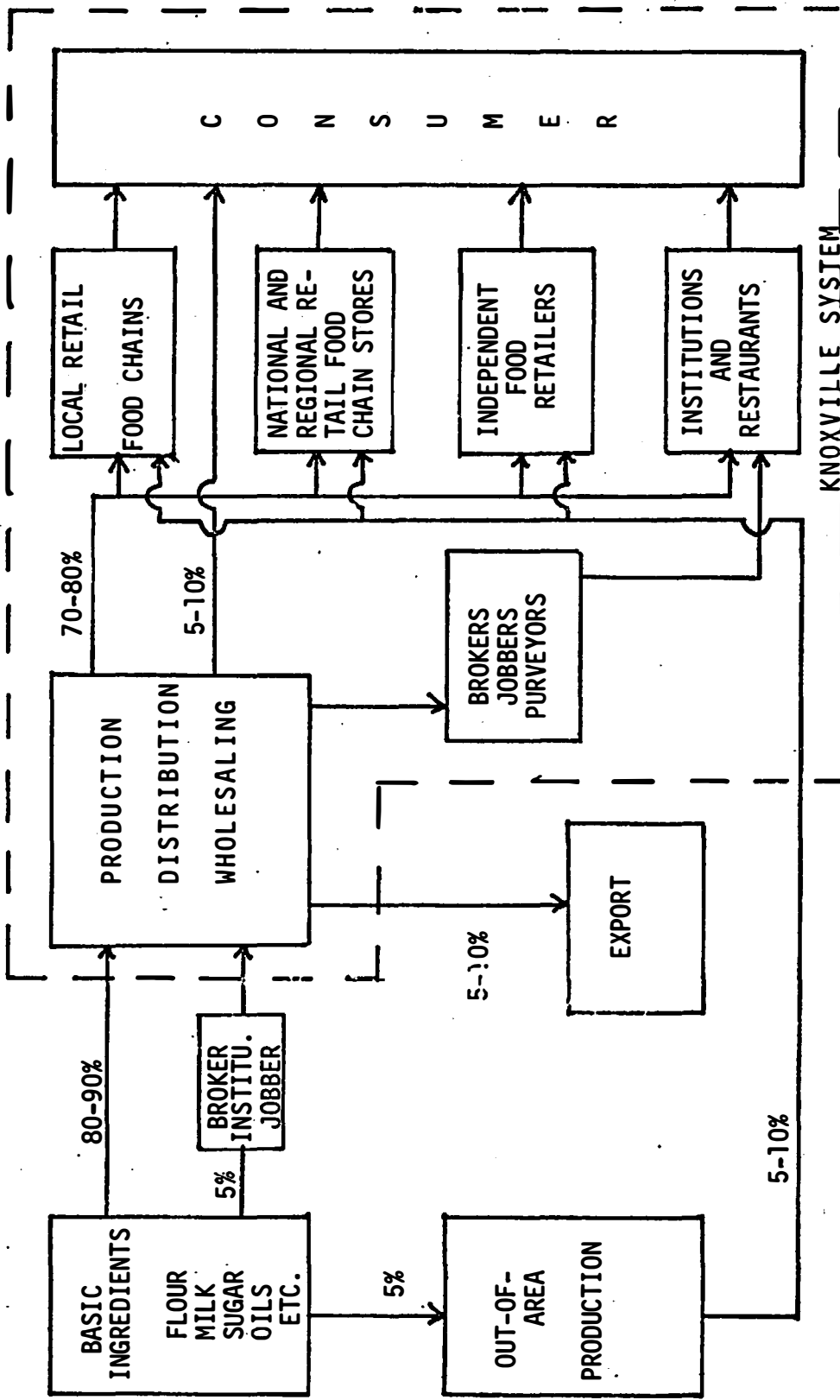


TABLE 7

PRINCIPAL FOOD BROKERS SUPPLYING
KNOXVILLE BAKERIES

FIRM	ANNUAL SALES	FUNCTION
Brinks, Inc.	\$1,000,000 - \$2,500,00	Operates dry warehouse, stores and distributes flour and sugar
Carringer - Ironsides Brokerage Co.	\$1,000,000- \$2,500,000	Handles oils, dairy products, sweetners
Hauk Brokerage Co.	\$1,000,000	Handles flour, sugar
L.A. Henmeter Co.	\$1,000,000	Handles flour, dairy products, sweetners
Wester & Queener Inc.	\$2,700,000 \$7,500,000	Handle oils, dairy products

SOURCE: "1976 Red Book, Directory of Baking Distributors and Major Bakeries,"
Bakery Production and Marketing, December, 1976, p. 139.

TABLE 8

MAJOR BAKERS IN KNOXVILLE

FIRM	ANNUAL SALES
Kerns	\$5,000,000-10,000,000
Swan Bros., Inc. (Sunbeam)	\$5,000,000
American Bakeries Co.	\$5,000,000
Wade's	\$5,000,000

SOURCE: "1976 Red Book, Directory of Baking Distributors and Major Bakeries,"
Bakery Production and Marketing, December, 1976, p. 191.

Goods Movement

Transportation of ingredients is principally by truck. A negligible amount arrives in Knoxville by train or river barge. After production, baked goods are transported by trucks, each producer having its own fleet. The trucks range in type from semi-trailers to panel trucks. The only degree of specialization is that many of the trucks have slotted walls for easier handling of the plastic and metal trays which separate the bread orders. Large shipments of bread occur at night or very early morning. Large bread trucks are usually out of the city by 6 a.m.

Planning Related Problems

There was a brief interruption in bread supply in Knoxville last winter. This was caused by the closing/curtailment of operations in plants where space heating and cooking are dependent on natural gas, which was in short supply. This raises questions concerning discrimination among industries, as to which are essential, should mandatory curtailment occur again. Should food production industries receive preferential treatment in this regard? Nearly all bakeries have planned a propane back up system, but problems of this nature are likely to arise again in the future.

The Knoxville Area General Line Grocery Distribution System

System Definition

"General line groceries" are commonly considered to include canned foods, coffee, tea, cocoa, spices, sugar, flour, dried fruits and nuts, oils and fats, beans, cereals, and grains. They are an important group of food items making up 16.6 percent of total supermarket volume in dollars.²⁰ A supermarket is defined as a full-line self-service food market occupying a minimum of 6,000 square feet of space and producing at least one million dollars in sales a year.

Table 9 lists the items commonly considered to be in the general line grocery group and the importance of each for supermarket sales. Canned fruits and vegetables are the second most important items on this list after baking needs. Canned fruits and vegetables are also an important food group. Because of this, and because these items would be representative of the handling of the general line groceries once they reached local wholesalers they were selected for special study.

Frozen foods have become an increasingly important part of the American food diet since World War II. They make up over 6 percent of supermarket sales.²¹ Table 10 lists the categories of frozen foods and the share of sales of each in the frozen food department of supermarkets. Frozen fruits and vegetables are an important component of frozen food sales, second only to the prepared frozen food category. For this reason, and because of their distributional similarity to canned fruits and vegetables, they were chosen to represent the frozen food category in this market study.

Sources of Supply

In the raw form, fruits and vegetables are both more perishable and of lower density than in the canned or frozen form and are more costly to transport. This means that processors usually locate near sources of raw product supplies. In one study of 55 freezing plants, on the average they procured over 80 percent of their raw farm products from within 50 miles of their plants.²² This close proximity of processor and raw product supply, along with national population distribution and volume of canned and frozen fruit and vegetable output within regions, determines the national distribution pattern for these products. For canned fruits and vegetables, the main supply regions for the Southeast are, in order of importance, the Pacific region, the Midwest, and the

TABLE 9
GENERAL LINE GROCERY ITEMS
IMPORTANCE TO TOTAL SUPERMARKET SALES

<u>Item</u>	<u>% of Total Volume of Sales in Dollars</u>
Baking Needs	3.25
Canned Fruits and VEgetables	3.02
Coffee and Tea	2.22
Breakfast Foods	1.55
Fruit Falvored Drinks	1.12
Canned Fish	0.94
Spreads and Syrups	0.93
Canned and Dry Soups	0.81
Dried Fruits and Vegetabies	0.56
Pickles and Olives	0.55
Spices and Extracts	0.48
Baby Foods	0.45
Nuts	0.36
Canned and Dry Milk	0.34
	<hr/>
TOTAL	16.60

SOURCE: Chain Store Age Super Markets, New York: Lebhar-Friedman, Inc., July, 1975, Vol. 51, No. 7, p. 60.

TABLE 10
 PERCENT OF SALES OF FROZEN FOODS BY CATEGORY

Prepared Frozen Foods (Dinners, Meat Pies)	33.91
Vegetables and Fruits	19.28
Bakery Products	15.76
Juices and Drinks	15.20
Potato and Onion Products	5.40
Seafood Unprepared	4.30
Meat Unprepared	1.61
Poultry Unprepared	1.60
Soups	0.18
Other	2.76
TOTAL	100.00

SOURCE: Chain Store Age Super Markets, New York: Lebhar-Friedman, Inc., July, 1975, Vol. 51, No. 7, p. 124.

Northeast which together supply 76 percent of the Southeast's demand. The Southeast fills 17 percent of its own needs, with the remaining 7 percent supplied to the area by the Southwest region.²³

The pattern of supply sources for the Southeast in frozen fruits and vegetables is somewhat different than canned fruits and vegetables. This pattern is no doubt greatly influenced by the importance of the Florida frozen juice industry. The Southeast supplies 36 percent of its own frozen fruits and vegetables, with the Pacific and Midwest together supplying 57 percent. The Northeast supplies 7 percent of the Southeast's needs, while the Southwest is not a supplier to the Southeast.²⁴

Trade Area

A few firms control a substantial share of the total output of processed fruits and vegetables. In canning, the 20 largest firms accounted for 50 percent of production in 1963, the 8 largest for 34 percent and the 4 largest for 24 percent.²⁵ In the freezing industry there is about the same degree of concentration. This trend to fewer and larger processing firms has no doubt continued in the past 14 years.

The products of these large firms are distributed nationally. Their sales are great enough to support regional warehouses in the major marketing areas of the country. Smaller firms can serve a region of the country with truck service from warehouses near their processing plant. Locally, there are several small canning firms located in the Newport, Tennessee area.

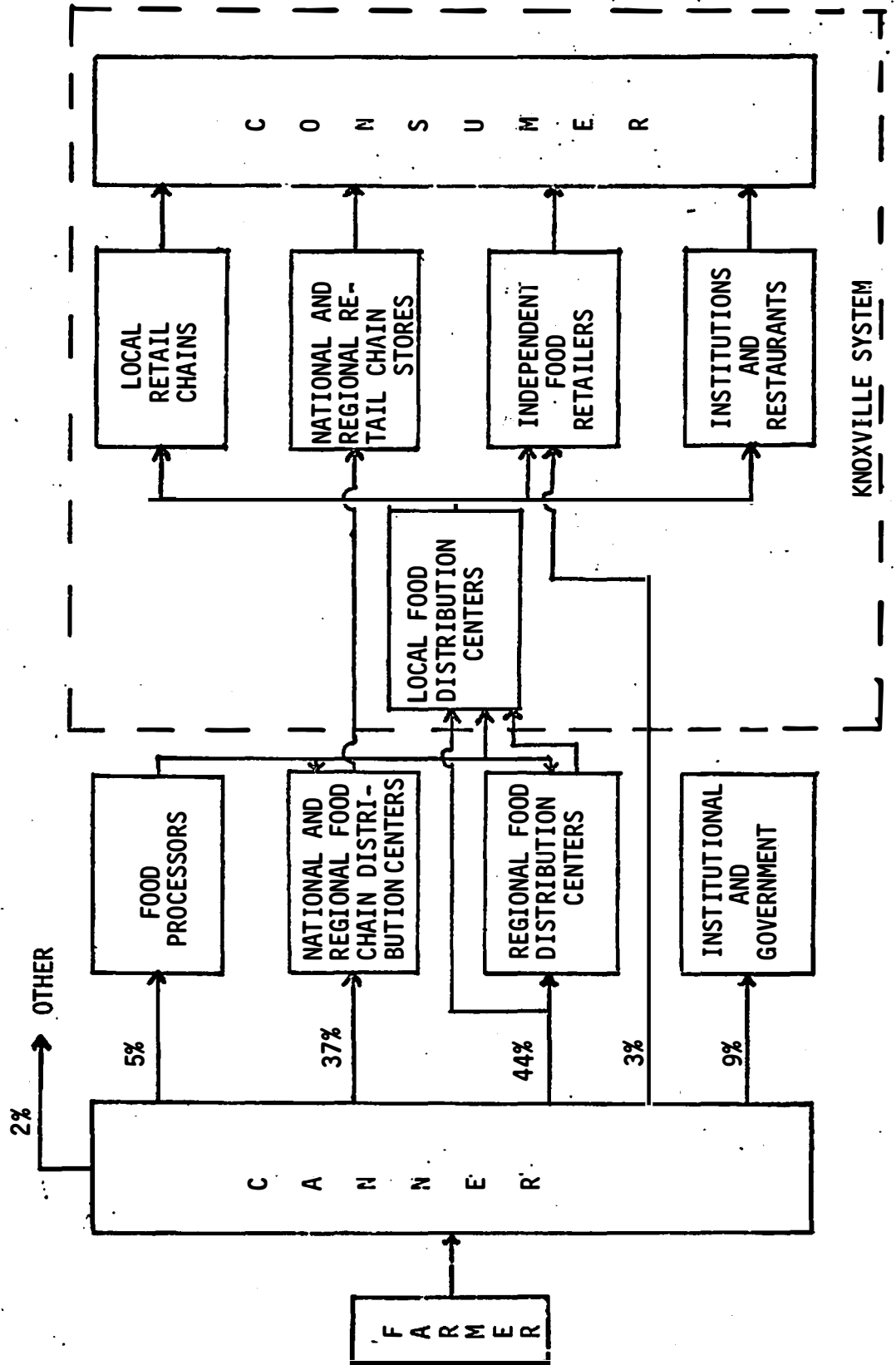
Elements of the System

Figure 5 shows the channels of distribution and handlers of canned fruits and vegetables between the farmer and the consumer.

Any manufacturer desires to assure himself an adequate supply of raw

FIGURE 5

CHANNELS OF DISTRIBUTION
FOR CANNED FRUITS AND VEGETABLES



materials. He may depend on other marketing agencies to do this for him or he may set up his own procurement machinery. In 1964, canners obtained 70 percent of their raw product supplies of fruits and vegetables through contractual arrangements with growers.²⁶

After the fruits and vegetables have been processed, they may move to various types of buyers. Brokers play an important role in marketing processed fruits and vegetables. They handled 69 percent of the plant pack of canners studied in one survey.²⁷ The broker is especially important in the marketing scheme of smaller processors. They usually only pack for four to six months a year. This makes it uneconomical to maintain a year-round sales staff.

Eighty-one percent of the output of canners moves to the warehouses of food chains and independent wholesalers. Institutions and local and federal governments accounted for 9 percent. Food processing firms, which combine the output with other products to make convenience foods, accounted for 5 percent of the output. Independent retailers purchased 3 percent and the remaining 2 percent went to other buyers.²⁸

A marketing flow diagram for frozen fruits and vegetables would look quite similar to the diagram for canned fruits and vegetables.

After freezing, 57 percent of output is moved to the warehouses of food chains and independent wholesalers. The initial distribution of frozen fruits and vegetables differs from canned fruits and vegetables in that a substantial share (38%) was sold to other processors who use these ingredients in their operations. This type of buyer includes bakeries, soup manufacturers, and firms specializing in frozen prepared meals. About 9 percent of frozen fruit and vegetable output went to institutions and governments.²⁹

Temporarily stored in warehouses, frozen and canned fruits and vegetables move out to the retailer and food service industry as needed. Knoxville is not

a large enough market to support regional warehouses of the large food chains. Their local retail stores are supplied from regional distribution centers outside the Knoxville area. Two of the most important regional distribution centers serving Knoxville are located in Nashville, Tennessee, and Atlanta, Georgia. The major food distribution centers located within the Knoxville system are listed in Table 11.

Goods Movement

At the warehousing step, canned and frozen fruits and vegetables become mixed into the food stream along with many other food and non-food items. Because of this fact, the remainder of this section will discuss the warehousing and movement of food items in general.

Interviews were held with all the major retail food distribution centers in Knox County and one of the two major food service industry distributors. All of these warehouse facilities were located on railroad sidings. The people interviewed generally estimated that 30 to 50 percent of their volume of incoming goods arrived by rail. The remainder of incoming supplies and all deliveries to retailers were made by truck.

The managers of these facilities were aware of the latest techniques in goods movement and were willing to employ them in an attempt to cut costs. One company loaded its orders for retail stores on wheeled carts. These carts could be quickly removed from the truck at the store. The truck driver would put empty carts back on the truck for return to the warehouse.

Another firm is the first in the area to use the "slip sheet" unloading technique for railroad cars. Instead of pallets, strong thin paper sheets are placed between the layers of goods on the railroad car. During unloading, the sheets and their accompanying layer of goods are slid off the stack and onto a modified fork lift truck. This technique saves space in the railroad car

TABLE 11
MAJOR FOOD DISTRIBUTION CENTERS
IN THE KNOXVILLE AREA

Retail

Giant Food Markets, Inc.
Kingsport, Tennessee

Giant Wholesale Grocery
Johnson City, Tennessee

The H. T. Hackney Co.
Knoxville, Tennessee

K. M. C. Co., Inc.
Knoxville, Tennessee

Oakwood Markets
Kingsport, Tennessee

Pay Cash Grocery Co., Inc.
Knoxville, Tennessee

Quality Foods, Inc.
Greenville, Tennessee

The White Stores, Inc.
Knoxville, Tennessee

Food Service

Institutional Jobbers Co.
Knoxville, Tennessee

HIR Food Distributors, Inc.
Knoxville, Tennessee

SOURCE: Progressive Grocer's Marketing Guidebook, Butterick
Division, American Can Company, 1977.

by substituting the paper sheets for thick and expensive pallets.

Planning Related Issues

In talking with representatives of these food distribution centers, the problem most frequently mentioned was the slowness and unreliability of delivery by rail car. All the firms found rail service a less expensive means of delivery than truck. However, because of the problems mentioned, most felt that rail service would be declining in favor of faster but more expensive truck deliveries in the future.

A spokesman for the distributors felt that a major disruption of food supplies was only a remote possibility for Knoxville. A strike by their own truck drivers or the truck drivers of their suppliers was seen as posing the greatest threat to the supply lines. However, unless this was a prolonged strike and industry wide, they did not see it putting Knoxville into a food shortage crisis. Strikes can be anticipated by management and stocks in the warehouse built up accordingly. Due to the dual mode of delivery to the warehouses, a disruption in one supply channel can be, to some extent, compensated for by the other mode. Most independent retailers do business with two or more suppliers so that they would still have supplies should the deliverymen of one supplier go on strike.

All the firms, and especially the food service industry suppliers, were hopeful that the International Energy Exposition would materialize in Knoxville. They saw no problem in meeting the demands that the accompanying influx of people would put on the food distribution system. They felt their close proximity to the exposition site and their resulting ability to react to demands of the market very quickly would give them a competitive edge over more distant sources of supply. They saw no danger of losing this market to another supply area, such as Atlanta or Nashville.

Knoxville Beverage Distribution System

System Definition

Although not considered traditional food types, beer and soft drinks have been included in the system investigation, because of their dietary and nutritional impact. In addition, the volume of these goods that moves through the system is of such a magnitude to justify consideration. The distribution of beer and soft drinks in the Knoxville metropolitan area is becoming increasingly significant as a closely associated unit of the urban food system. The local system includes wholesale distributors and bottlers serving as intermediaries between the external producer and the local retailers.

Sources of Supply

Local beer distributors receive products ready for sale from brewers across the country. No breweries are located in the Knoxville metropolitan area.

Soft drink bottlers receive the syrup base from parent manufacturers throughout the Southeast and Midwest. No such manufacturers operate in the local area. Bottling materials and canned products are received from various "sister" plants in the region. Non-local bottlers supply the local system from several points into the region.

Trade Areas

Trade areas vary from firm to firm, but generally cover several East Tennessee counties. Trade areas are determined by the size of the local firm and the location of sister firms in the region. Some distributors may have an area of 18-20 counties while others serve only the immediate area, with their trade being supplemented by distributors of like brands in nearby cities.

Elements of the System

Figure 6 depicts the significant elements in the beverage distribution systems. Although similar in form and distribution, the beer and soft drink systems can be differentiated enough to justify addressing separately in relation to the elements. The elements of the local beer distribution system are described below.

Beer Breweries - External to the local system but significant in the operations of the system, are the beer breweries. As previously mentioned, no brewers operate within the region. The processing and bottling of the beer products takes place outside the local area. The local distributors are supplied by the parent production plants located throughout the country.

Local Distributors - The local beer distributors play a major role in the beer distribution system. Receiving products from the outside, the distributors serve a wholesale function moving the goods through the local system to the retailer. Due to the large volume of products moved through the system (4½-5 million cases a year), the distributors require large receiving and storage facilities. Local facilities average approximately 20,000 to 25,000 square feet, with the largest distributor maintaining 42,000 square feet.³⁰

Driver-Salesmen - The driver salesmen are employed by the distributor to represent the firm and make deliveries to retail outlets.

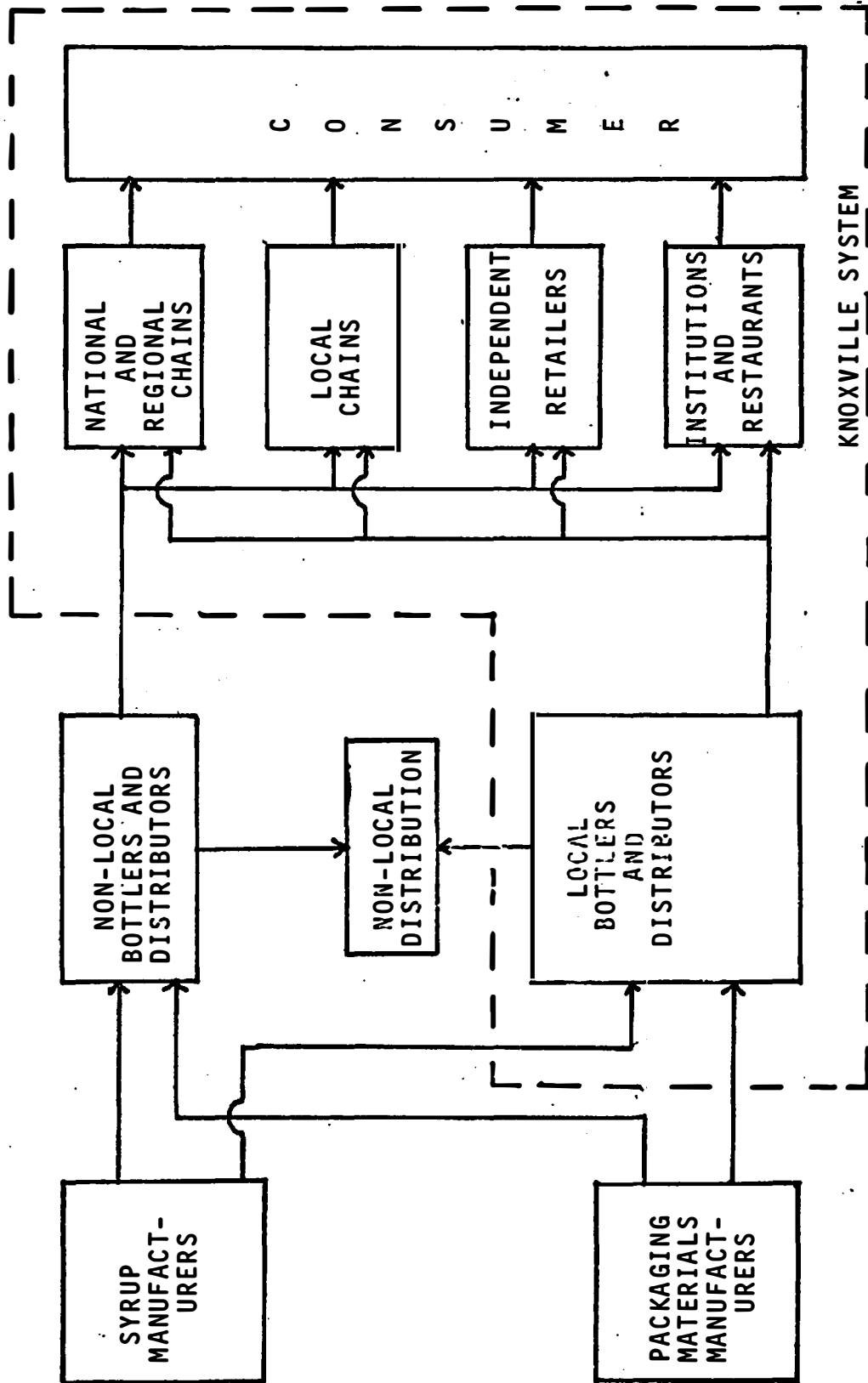
Off-premise Retailers - Off-premise retailers, who sell the product for consumption off the premises, account for the major portion of the beer sales. These include food stores and package stores.

On-premise Retailers - On-premise retailers are the restaurants and taverns that sell beer for consumption within their confines.

Non-local Retailers - Sales to retailers outside the local metropolitan

FIGURE 6

THE SOFT DRINK DISTRIBUTION SYSTEM



area account for approximately 60 percent of the local distributors' business.

National Brewers Association - The National Brewers Association develops and recommends policy for local distribution. One significant policy is the limitation of a six week inventory for distributors to have on hand.

Knoxville Malt and Beverage Association - The local distributors meet and discuss local industry issues and recommend action through the Knoxville Malt and Beverage Association.

Regulatory Agencies - Various state and local agencies regulate the sale of beer and the location of establishments that sell the beverage, through a system of licensing techniques. The Tennessee Alcoholic Beverage Commission and the Knoxville Beer Board are two such agencies that control the marketing of these beverages.

The soft drink distribution system elements are described below.

Syrup Manufacturers - Parent companies of the local soft drink bottlers and distributors manufacture a syrup base from which the finished product is derived. These manufacturers are all located outside the local area and transport the supply to local distributors.

Packaging Materials Manufacturers - Glass containers and other packaging materials are supplied by company firms located outside the immediate area.

Local Bottlers and Distributors - The six local soft drink bottlers and distributors are the key elements in the Knoxville distribution system. The bottlers process the soft drink syrup base and bottle the finished product. All canned products are received from external sources. The local bottlers and distributors are responsible for the wholesaling of the soft drink products to various retail outlets by way of driver-salesmen.

Driver-Salesmen - Driver-salesmen are employed by the bottlers and distributors to represent the local firm at the retail level and make deliveries

to the outlets.

Non-local Bottlers and Distributors - Some of the soft drink products are processed and distributed by firms outside the local area which serve major outlets. Store brand soft drinks are an example of such distribution from external sources.

Retail Outlets - Retail outlets include a variety of establishments, including small food stores, large chain stores and vending machines.

Food Service Outlets - Hotels, restaurants and institutions account for a large percentage of the local retail sales of soft drink products. Contracts for sale to such establishments are usually let to one distributor on a bidding basis.

Goods Movement

Goods movement patterns within the local systems of beer and soft drink distribution are similar, except that most beer distributors depend on rail-road delivery for the majority of their supplies, while soft drink bottlers rely on truck transportation for their materials from external sources.

Movement of goods from the distributors to points of sale within the local system is exclusively by truck. All products are palletized from the point of entry into the local system to the retail outlets. Most beverage distributors operate from 10 to 20 route trucks that are owned by the distributing company.

Planning Related Issues

Goods Movement - Numerous deliveries from several different beverage distributors to the retail outlets results in congestion and overall inefficiencies. However, the industry holds very strongly to the concept of driver-salesmen, making consolidated deliveries improbable in the near future. Adequate loading and unloading facilities are essential, but not

always present in stores and restaurants.

Overview and Conclusions

The high degree of operational diversity which characterizes the food distribution system makes the development of generalized conclusions difficult. However, a few characteristics do seem to be common to most components of the system. Virtually all food products which enter the local market come from outside the area. The exceptions to this generalization are milk and milk products, which are produced in eastern Tennessee, and freshly baked goods which are manufactured locally with ingredients brought in from other areas of the country. Some meat and produce is produced locally, but the amounts are not especially significant.

The trade areas for products distributed by the local systems are varied, but for the most part, cover eastern Tennessee, parts of southeastern Kentucky, southwestern Virginia, and western North Carolina. Some products are distributed over a much wider area, while others are sold only in the immediate Knoxville area. There appears to be enough "export" business to make it a factor in the local economy.

Each product distribution system analyzed has its own characteristic elements. Some systems, such as produce and beverages, are highly varied and consist of many independent businesses. The milk and milk products industry, on the other hand, is highly organized and quite rigidly controlled. Overall, the food distribution system in Knoxville consists of a large number of independent business firms which openly compete in the free market.

The majority of food products shipped into or out of the local area travel by truck. The speed, dependability, flexibility, and ease of ownership of this mode of transport have all contributed to its dominance in the transport of food. Many firms also place heavy emphasis on the use of driver-sales-

men to distribute their products of delivery trucks.

The relatively simplified overview presented in this chapter was a working tool created to make possible the planning analysis which interpreted the significance of the activities, described here, in achieving community objectives discussed in Chapter 2. More simply: having established this overview, the working group was able to try to answer questions about the success of the distribution system in feeding the community and to identify ways in which traditional planning concerns related to the food system's operations.

As a result of the investigation of several distinct food distribution systems and integration of the findings into a conceptual overview, a number of planning-related issues and problems came into focus. Some of the issues and problems were voiced by participants in the food distribution process. More often, however, they grew out of the special perspective that the city planner develops the interrelations of the various components of the urban system and of their functioning to produce a smoothly operating urban whole.

NOTES

CHAPTER III

¹Dr. Curtis Melton, Associate Professor, Food Technology and Science, University of Tennessee, personal interview, July 19, 1977.

²Dun and Bradstreet, Million Dollar Directory 1977 (New York: Dun and Bradstreet, 1976), pp. 673-1327.

³U. S. Department of Agriculture, Animal and Plant Health Inspection Service, Directory of Meat and Poultry Inspection Program Establishments and Officials (Washington, D.C.: Government Printing Office, 1976), p. 298.

⁴Hugh Huntley, Dairymen Inc., personal interview, July, 1977.

⁵Albert Swallows, Federal Order Market Administrator, Agricultural Marketing Service, personal interview, July 1977.

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⁷Ibid.

⁸Ibid.

⁹Ibid.

¹⁰Ibid.

¹¹U.S. Department of Agriculture, Agricultural Marketing Service, Facts About: Federal Marketing Orders for Milk - in brief, AMS Report 564 (Washington, D.C.: Government Printing Office, December, 1974), p. 1.

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¹³Huntley, interview, July, 1977.

¹⁴University of Tennessee, Agricultural Experiment Station, The Organization of Wholesale Fruit and Vegetable Markets in Selected Tennessee Cities, by William E. Goble and Willie K. Davis, Agricultural Experiment Station Bulletin 383 (Knoxville, Tennessee: January, 1965), pp. 29-30.

¹⁵University of Tennessee, Agricultural Experiment Station, The Knoxville Wholesale and Retail Produce Markets, by William E. Goble, Agricultural Experiment Station Bulletin 509 (Knoxville, Tennessee: May, 1973), p. 99.

¹⁶U.T. Agricultural Experiment Station Bulletin 509, p. 9.

¹⁷U.T. Agricultural Experiment Station Bulletin 383, pp. 64-66.

¹⁸Paul Davis, Kern's Bakery, personal interview, July, 1977.

¹⁹Ibid.

²⁰Chain Store Age Super Markets (New York: Lebhar-Friedman, Inc., July 1975), Vol. 51, No. 7, p. 60.

²¹Ibid., p. 124.

²²U.S. Department of Agriculture, Economic Research Service Freezer Survey (Washington, D.C.: Government Printing Office, 1965), p. 179.

²³U.S. Department of Agriculture, Economic Research Service Canner Survey (Washington, D.C.: Government Printing Office, 1965), p. 179.

²⁴U.S.D.A. Freezer Survey, p. 231.

²⁵U.S.D.A. Canner Survey, p. 179.

²⁶Ibid.

²⁷Ibid.

²⁸Ibid.

²⁹U.S.D.A. Freezer Survey, p. 231.

³⁰Joe Thompson, Tipton Distributing Co., personal interview, July 1977.

CHAPTER IV
THE KNOXVILLE FOOD SYSTEM:
SELECTED PROBLEMS, ISSUES AND RECOMMENDATIONS

Criteria and Method of Issue Identification

Discussions thus far have systematically described the Knoxville food supply and distribution system. A major objective of this report is to move from such description to an evaluation of the performance of the system in meeting Knoxville's food needs. These food needs were first introduced in Chapter 1 as an abstract statement of the goals of any urban food system. In review, it is suggested that the following objectives should be the basis for judging the performance of the Knoxville food supply and distribution system:

1. Supply food that will meet the basic nutritional needs of the urban area residents.
2. Encourage the residents to accept and consume nutritional foods.
3. Insure that food is equally available to all residents.
4. Maximize the opportunities for aesthetic and cultural food choices.
5. Optimize economic returns to system participants while contributing to the economic vitality of the community.
6. Minimize environmental degradation and the use of scarce resources.

A general application of these objectives to the observed patterns within the Knoxville food system suggests certain problem-areas which become

the basis for the issues to be discussed in the following pages. It needs to be pointed out that although many of the issue-discussions are quite specific, the ultimate rationale for engaging in such discussions at all is their relevance to an evaluation of the capacity of the Knoxville food system to meet these stated objectives.

The issues selected for detailed study are certainly not inclusive, either of issues developed from the descriptive survey or from the comments made by observers of the food situation. The selection is based upon both research limitations associated with the preparation of the report and the judgment that these issues are particularly important in Knoxville at the present time in its development. Ignorance of these issues, it is argued, will lead to the payment of many of the social and economic "costs" suggested in the opening chapter.

Selected Problems and Issues Leading to Special Concerns

The application of the evaluative considerations in the preceding paragraphs produces the following issue-areas or special concerns:

1. Loss of agricultural land and near-Knoxville food production.
2. Wholesale produce facilities in Knoxville.
3. Urban food transport.
4. Food and Expo '82.
5. Food assistance for the disadvantaged in Knoxville.

Each of these special concerns is briefly summarized below, with particular emphasis given the link between the issue and the general concern for the performance of the food system.

Loss of Agricultural Land and Near Knoxville Food Production

Recent patterns of urban growth have resulted in conflicting land

uses at the rural-urban fringe. The encroachment of urban activities upon productive farmlands may have significant implications for local food production in the future. Although only a small percentage of the food entering the Knoxville system is presently produced on a local basis, the supply of some food types, such as dairy products, is dependent upon the hinterland.

Possibilities for increased local production of beef, pork, fruit and vegetable products will be affected by the loss of local agricultural lands.

Wholesale Produce Facilities - Most wholesale produce firms operating within the Knoxville food system are located at the Forest Avenue Produce Market. The consolidated physical facilities on Forest Avenue are a major link between the producer and the retailer of fresh fruits and vegetables. Conditions on Forest Avenue seem sufficient for short-term success, but hinder long-range expansion opportunities. Long-term implications may demand improvement of the present facilities or construction of a new consolidated market facility. The physical conditions of the market appear to have a direct effect on the quantity and quality of nutritious food products entering the system. In turn, the facilities may determine the efficiency of goods movement, the economic returns to the participants and the environmental quality of the area.

Urban Food Transport - The movement of food products into and through the Knoxville food system is an essential support activity, without which the system would fail. Because of the generally perishable nature of food products, movement with the least resistance is essential to maximize economic returns and optimize the utilization of energy and labor resources.

Food and Expo '82 - The proposed Knoxville International Energy Exposition is expected to attract an estimated 60 thousand visitors a day. This sudden increase in demand on the local food supply and distribution system will have significant implications for public officials, private individuals and food industry firms. The ability of the local system to satisfy the demand, while maintaining its intended service levels, will be tested. The possibility of the Energy Exposition has generated considerable interest in economic opportunity and public awareness.

Food Assistance for the Disadvantaged - As revealed in Chapter II, food consumption accounts for a substantial portion of family expenditures. Subsequently, many socio-economic groups in the local community find it increasingly difficult to simultaneously maintain personal economic stability and a healthy, nutritious diet. Several public programs are aimed at meeting the needs of these "high risk" groups. The operation, coordination and success of these programs have a direct effect on the system's ability to meet its stated objectives. The equal distribution of basic nutritional needs, at an affordable cost, to the disadvantaged has significant implications for the private and public sectors.

Special Concern: Near Knoxville Food Production and Loss of Agricultural Land

Discussion

For the past 40 years the agricultural production in this nation has exceeded the demand for its products.¹ With much of the world stricken by hunger, agriculturally related concerns in the United States have been confined to problems associated with surplus rather than scarcity. Given that consideration, it seems ironic that there be attention devoted to

the loss of agricultural lands and the effect on food production. The concern, however, is directed toward the long run, 25 year horizon. It has sufficiently aroused a number of agricultural economists and academicians that scores of articles have been written identifying meaningful trends, interpreting data and admonishing readers of an uncertain future in food production.

A land economist might contend that the exchange of agricultural land and conversion to uses other than farmland lies in the accepted concept of property rights. Throughout U.S. history a land ethic has developed where one's real property is viewed as a commodity to be used to the advantage of the land owner. Land, therefore, can be freely traded, bought, sold, exploited or left idle. As the population grows and urbanization becomes more prevalent, however, an inevitable re-orientation of the land ethic must take place. Land will have to be viewed as a resource and an essential factor of production.² After looking at current statistics, some readers may be confused. Today there is more land being cultivated in the U.S. than ever before. The increase has been especially significant over the past 20 years and the trend is likely to continue into the future. The increase has not, unfortunately, been the result of recovery of waste land. It is, rather, the result of irrigation, drainage of wetlands and clearance of forested land.³ In that regard, the concern is legitimate and well founded, for all these methods of obtaining new farm land tax already valuable and declining resources.

Concern too, has been expressed over the population demand for food and the land's capacity to meet this demand. Since 1974 there has been an overall but slight decline in farm output with population slowly increasing.⁴ Some maintain that production will equal demand by the year

2000.⁵ If this should happen, it will mean the end of national surpluses and the beginning of dependence on imports (which may be hard to find on a globe already plagued with shortages). Some very real and constraining externalities must also be considered. Farmers have been able to boost total food output since 1950 by substituting fertilizer and machinery for land and labor. With energy in short supply, this method of increasing food production may not be available in the future.

This subject may seem to be a peculiar area for intensive study by a class in urban planning. A brief review of some statistics should provide ample explanation. From data compiled in 1969, Standard Metropolitan Statistical Areas (SMSA's) encompassed 17% of all farms, and accounted for 14% of cropland harvest and 21% of the value of all farm products sold. SMSA's however, account for only 13% of the land area in the 48 contiguous states. It is no accident that farmland and urban areas developed in the same place. The limits to agricultural land supply are the same as those to urbanization; the availability of an adequate water supply, suitable topography and physical distance to market. Too, SMSA's have more than their fair share of prime agricultural land.⁶ The resulting conflict of uses between retention of agricultural land and conversion to urban uses occurs as cities expand. The "highest and best use" or optimum return in money to land owners and operators inevitably points toward the same consequence, agricultural land is lost.

Reasons vary for how and why it happens. Perhaps the following scenarios will provide a suitable description of what occurs:

A vigorous, hard working young farmer warily eyes the little subdivisions creeping closer to his farm. He finally decides to "sit" on his land for a few years, making only the most necessary improvements, then sell

out to a developer and move to a new farm away from urban pressures

Rumors of urban development, vandalism, the objections of a new non-farm neighbor to odors, machinery noise and early morning crop dusting cause another farmer to call in the auctioneer, sell his land to speculators, and take an 8 to 5 job in town

Metropolitan agencies, ordered by the state to abate pollution of a lake on the fringe of the area, authorize construction of a sewer interceptor across miles of farmland. The pollution problem is eased, but more good cropland is now open for urban development⁷

An application of those scenarios to Knoxville is not inaccurate. Where, at one time, fruit orchards and dairy farms existed, the suburban homes and shopping centers of West Knoxville now dominate. Outlying farms which produced sweet corn, strawberries and potatoes have been turned into grazing land for beef cattle, left idle or sold. The owners may have abandoned the difficult life of a farmer to work in local textile mills or the aluminum plant in Alcoa. The beef cattle can be tended in the evenings and weekends or, better yet, planting 9/10ths of an acre of tobacco will bring an easy assured \$1,000-\$1,500 annually to supplement non-farm income.⁸ It is not only the pressures of urbanization which have caused a decline in near-Knoxville food production but also a plain and simple economic fact of life; someone else, somewhere else can produce food cheaper, faster and more reliably than here.⁹

A 1972 study by the East Tennessee Development District indicated that 33.5% of the land within the Knoxville SMSA is agricultural.¹⁰

Another study done 3 years later predicted a decline in the seventies of 9% in agricultural lands within the Southeast.¹¹ Still, there is a significant amount of land left.

The only crop production which occurs in any sizeable quantity is well outside the SMSA and located on the Cumberland Plateau, where about 17,000 acres of snap beans are grown. Another 3,000 acres of tomatoes are cultivated in the area, but virtually none are marketed in Knoxville. Small quantities of okra, squash, sweet corn, strawberries, apples, and soybeans are also grown.¹² It can be stated with assurance that less than 5% of the produce passing through the Knoxville market is grown locally.

Barry Commoner, scientist and author, stated in one of his books some general laws of ecology.¹³ Two which apply are:

1. Everything is connected to everything else.
2. There is no such thing as a free lunch.

With the first law in mind, the whole concern over agricultural land in urban areas suggests a connection with some other, very real, planning related problems. The preservation of open space, for example, is not a naive notion portraying a sentiment for having farms near the city. It follows a very sound environmental practice for dispersion of air pollutants and noise. Also, it puts forward a recurring theme in the planning practice that in order to deal effectively with urban problems the planner must deal comprehensively with all facets of urban life. Urban farmland, therefore, means much more to the city than food production.

The second law, "there is no such thing as a free lunch," is in effect a warning of things to come. Cheap vegetables from California may

not always be cheap to the urban consumer, given years of successive drought and the rising cost of fuel for transport. Falling back on local production is no easy task either. For Knoxville, it is simply not there, it will cost time, effort and money to bring it back, or it is irretrievably lost under a suburban housing tract or a new water impoundment.

Recommendations

Initiate a study to improve or build a new Knoxville wholesale market for fresh fruit and vegetables - There has been a firm claim made by some individuals that improving the existing market or re-siting and building a new Knoxville wholesale market would be sufficient stimulus to revitalize local agriculture. A pragmatic approach is perhaps more suitable. Critical to making such a move is the timing. It would not be wise to invest substantial capital in physical facilities without some assurance that local farmers could realistically compete with out of state producers. A careful market study by competent professionals at the University of Tennessee is essential before a decision is made.

Participate in the Soil Conservation Service's (SCS) "Land Inventory and Monitoring Program" - This program involves mapping, county by county, agricultural lands throughout the nation. The mapping is not completely subject to SCS's strict classification of "prime agricultural land" which involves some scientific standards regarding soil productivity. It is rather an identification and mapping of "important" agricultural lands which do not necessarily meet scientific standards, but are nevertheless important to a specific region.¹⁴ The "important" classification, therefore, implies a local definition of which agricultural lands should be identified and mapped. The participants in this program must be local farmers, planners, and elected officials. The mapping could very well serve as a basis for

future land development decisions.

Amend the state's Agricultural, Forest and Open Space Land Act of 1976 -

As the law exists, it is only effective contingent upon request of the land owner. In urban areas where there is the potential of large profits, a farmer will sell despite the fact that it may be used for undesirable urban uses. It is not believed that the promise of a few more years of tax relief, which the law provides, is sufficient. A more restrictive measure, akin to exclusive agricultural zoning, is needed to meet the stated objectives of the law.

Also, a change in the definition of agricultural land from 25 acres¹⁵ to something less is needed. Much of the farming which occurs in East Tennessee is on smaller tracts of land, simply as a consequence of local topography.

Public recognition of the increasing loss of agricultural land in the Knoxville area - MPC has already initiated an agricultural and open space preservation ordinance in response to the State Act. More public agencies and officials need to get involved in order to stimulate public interest. Perhaps a newspaper editorial series could be done.

Initiate a study to examine the probable impact if the federal government does away with tobacco price controls - This subject has recently been given national press coverage. There appeared to be wide-spread concern, especially among Southeastern politicians regarding the economic impact this action would have on area farmers. Should such an event take place, it would be an opportunity to revitalize local food production and hopefully provide the farmer with an equivalent return on his investment. Several crops have been suggested, such as strawberries, tomatoes, sweet corn and pole

beans.¹⁶ The study should be undertaken by the University of Tennessee School of Agriculture in conjunction with state and regional agricultural experts.

Special Concern: Wholesale Produce Facilities

The wholesale produce market facilities located on Forest Avenue are a key link between external producers and local retailers of fresh fruits and vegetables. The 20 firms which constitute the Forest Avenue market receive fresh produce from various producers across the country and distribute it throughout a market area that includes East Tennessee, Southeastern Kentucky, Western North Carolina, and parts of Virginia.

The fresh produce wholesalers are a significant component in the urban food supply and distribution system. Their activities have a direct effect on the success of the system in meeting its stated objectives. Fruits and vegetables are considered to be essential elements of a nutritious diet. Many area residents depend upon the local produce wholesalers for their supplies of fresh fruits and vegetables, necessary to meet basic nutritional requirements.

The ability of the produce market to operate efficiently may affect the price which the consumer must pay. Adequate storage facilities and efficient handling techniques would result in larger volumes of produce moving through the market. This would tend to keep prices low and would also improve the quality of the products. Improved quality and low price would, in turn, enable all consumers to enjoy a more balanced and aesthetically pleasing diet.

Economic returns to those involved in the wholesaling business, and therefore, to the overall economy of the Knoxville area, can also be increased by improving the efficiency of the system. A larger market area means more

sales and hence more profit for area wholesalers. Newer and more efficient facilities should decrease operating costs, especially labor costs. This could be an especially important consideration in light of impending rises in the cost of energy and manpower.

It seems reasonable to conclude that the physical facilities and handling techniques of an operation of the magnitude of the Forest Avenue market can influence the produce industry's ability to adequately meet the objectives of the urban food system. The present market facility on Forest Avenue has serious defects that affect not only short-term, but also long-term efficiencies and market expansion capabilities. Although the buildings are generally strong structurally, their location and limited size prohibit significant expansion in the future. As demands increase, the storage capabilities and goods movement facilities must expand to allow for increased supply and handling of products. The buildings also lack direct rail connections and many have poor loading and unloading facilities for truck transported products. It has been alleged that some shippers and truckers bypass the Knoxville market in order to avoid extensive delays associated with unloading. As a result, the tenants must handle many goods by hand. Vehicular movement along Forest Avenue is hindered greatly as a result of the large amount of on-street loading and unloading which is necessary at the present market. The entire market area is frequently littered with paper and putrescible organic waste. This creates potential health as well as aesthetic problems and seems to be indicative of the general attitude of the market operators toward their facilities and location.

The problems and conditions at the presently existing wholesale produce market will make it increasingly difficult to operate in a manner that will fulfill overall food system objectives. Improvement of present conditions through major restoration or relocation will be necessary in order to sustain

over the long run, a viable produce distribution industry in Knoxville.

Background

The Forest Avenue Market was established during 1941 when several of the wholesale fresh fruit and vegetable handlers, who had apparently become dissatisfied and had attempted to bring about improved conditions, moved from the old Western Avenue Market into new facilities along Forest Avenue.¹⁷ The new facilities were a great improvement over the old ones, but as the years passed by, they too began to show signs of inadequacy. By 1958, the need for new facilities for wholesaling fresh fruits and vegetables in the area again became apparent and the recommendation that a new central market, which would include both the wholesale firms and a farmers' market, was made as the result of studies by the Transportation and Facilities Research Division, Agricultural Marketing Service, U.S.D.A.,¹⁸ and the Agricultural Economics and Rural Sociology Departments of the University of Tennessee.¹⁹

The studies done in 1958 were updated in 1967 and 1968 and a new proposal for a consolidated market was outlined in The Knoxville Wholesale and Retail Produce Markets which was published in 1973.²⁰ In 1975 another new market proposal was developed through a cooperative effort of various local, state, regional and national agencies and Barge, Waggoner, Sumner and Cannon, consulting engineers and planners.²¹ This effort was largely dependent upon public financing and was eventually defeated by the Knoxville City Council. Since that time no new proposals for a new produce market have been formulated.

Recommendations for the Short-Term

Although the existing wholesale produce market on Forest Avenue is

not capable of being improved or expanded to sufficiently meet potential long-range demands, certain short-range and low cost improvements could be made which would vastly improve its operation. Both the public and private sectors could contribute to such efforts at improvement.

One of the major problems of the Forest Avenue market is that of traffic congestion. Minor street improvements in the area such as repaving, initiation of directional controls, minor widening, and painting of lines to designate specific loading, unloading and traffic areas would help ease some of the present congestion problems. Clearer specification of traffic lanes would also help prevent merchant-truckers from blocking street right of ways, and would encourage them to park only in specifically designated areas. Strict enforcement of traffic regulations in the area would be necessary for any of the above measures to be effective.

Urban services, specifically storm drainage control and garbage pick-up, could be improved and would greatly improve the appearance of the market area. Several of the merchants on the southern side of the market complained of occasional storm drainage problems. Such complaints should be looked into and immediate measures taken to alleviate drainage problems if possible. Garbage frequently litters the area around the market and, because of the rapid spoilage rate of fresh produce, that which is not properly contained often emits obnoxious odors. Health or sanitation regulations which control how solid waste is to be contained should be strictly enforced. The frequency of garbage pick-up should be increased, at the same time, so as to encourage firms to dispose of waste properly and quickly and to lessen the possibility of odor formation.

The owners of businesses located along Forest Avenue could, with minimal investment, contribute to the smoother operation of the market.

Those businesses on the north side of the market which have, or potentially could have truck-accessible rear entrances, should make greater use of them for both unloading and loading of products. This would lessen the congestion along Forest Avenue, which must be used by those businesses on the south side of the market for loading and unloading since most have no rear entrances which are accessible by large trucks.

The Forest Avenue merchants could also help to improve the appearance and sanitation of the market area by properly disposing of waste and by providing, if necessary, adequate containers for such disposal. By working cooperatively with one another, and with various governmental agencies, the generally unsanitary conditions, unsightly litter, and obnoxious odors now characteristic of the market, could be lessened considerably.

Recommendations for the Long-Term

Complete solution of the problems associated with the present produce wholesaling facilities in Knoxville can be obtained through the construction of a new facility at another location. In order to remain an economically healthy and significant factor in the local food distribution system, the local produce distribution industry must expand and modernize. The present market, however, is for all practical purposes, incapable of expanding or modernizing at its present location.

New markets have, as stated previously, been proposed on several occasions. Several different concepts have been proposed, the most recent consisting of plans for a consolidated distribution center for all food related products in the area. All of these proposals revolve around the central concept of a modern produce market capable of serving a larger area than at the present by taking advantage of Knoxville's central location in the Southern Appalachian region. Such a market might also help revive

the rapidly failing farm economy in the East Tennessee region by providing farmers with a collection and distribution capability which would enable them to produce large quantities of vegetables for export to distant markets, thereby taking advantage of seasonal price differentials elsewhere. This would insure that they would receive a fair price for their products and would encourage production on a larger scale than is presently possible.

The size, scope and ownership characteristics of new markets proposed in the past or which will be proposed in the future, vary greatly. There is considerable disagreement over the various schemes as well as the market concept itself. It is not the purpose of this paper to decide which is the best. It is strongly recommended, however, that the new market issue be kept alive and that debate and discussion related to it continue. If the Knoxville area produce wholesalers are to survive as a viable component of the local and regional food distribution system of the future, the construction on a new market which is capable of taking advantage of modern technology and transportation facilities is essential. How the financing, location, and other considerations related to a new market are worked out cannot be decided here, but past experiences indicate that the cooperation of all parties involved is necessary.

Special Concern: Urban Food Transport

Food transport is the process by which food moves from the farmer to all the intermediate handlers and, finally, to the consumer. The food transport process can conveniently be subdivided into interurban transport and intraurban transport. The latter category will be given greater emphasis in this section of the report.

The modes by which food is normally transported are the automobile, truck, railroad, ship, and airplane. Nationally, shipment by truck is the

most frequently used mode. In 1972, interurban transportation of all goods by truck accounted for \$42 billion of the total \$63 billion expenditure for interurban goods movement. A further \$13 billion was spent for interurban rail transportation. The remaining \$8 billion was divided between pipeline, air, and water transportation. For the same period, intraurban trucking of goods accounted for \$51 billion of the \$57 billion spent on intraurban goods transportation. The operating costs of automobiles for shopping trips accounted for the remaining \$6 billion.²²

While truck transport of interurban food items is dominant, rail also plays a significant role. In a study done for the United States Department of Transportation, 39 percent of food and beverages were carried between urban areas by rail, trucks transported 58 percent and the remaining 3 percent was carried by airplane and ship.²³ Within urban areas, however, food moves almost exclusively by truck if you exclude from consideration the final trip by automobile between the retail food store and the home of the consumer.

Once food items have reached the urban area, they tend to be distributed in small lots at frequent intervals to a large number of dispersed locations. This was brought out in the United States Department of Transportation study cited earlier. This study revealed that while movement of food and beverages accounted for only 11 percent of the total weight of all intraurban goods movement, food and beverages accounted for 31 percent of the total vehicle miles of travel of all urban goods.²⁴ These figures point up the importance of food transport as an urban traffic generator.

Another important characteristic of urban food transport is that it is carried out by a large number of small firms who are not primarily in the business of transportation. The dairy industry, for example, is likely to be managed by people with a background in milk production and

processing. These people may be less knowledgeable and interested in the transportation component of their business.

Virtually all urban food haulers are unregulated and are not required to report transportation-related operations or financial information to any authority. From a transportation perspective, the fragmentation of the industry, its operation by non-transportation oriented people, and the lack of regulation, increases the difficulty of discovering food transportation problems and implementing solutions to these problems.

Urban Impacts of Food Movement

It was pointed out previously that almost one-third of all urban goods movement was food related. It follows that urban food transport has a number of significant impacts on the overall urban system. Some of the most important impacts are on traffic circulation, energy consumption, air and noise pollution, land use and consumer food costs.

Traffic Circulation - Traffic circulation is an area of concern that falls into one of the traditional functional planning areas, transportation planning. The large number of trucks transporting food in the Knoxville area increase congestion on the already inadequate circulation system. Food trucks often compete with passenger vehicles for use of the highway system at peak passenger travel times. On heavily traveled arterial streets or in the central business district, food trucks illegally parked while making a pickup or delivery can be a significant impediment to free traffic flow.

Energy Consumption

The urban food transport system is a large consumer of energy. One

study revealed that food and beverage transport consumed 17.5 percent of the fuel used for urban goods movement. The food and beverage transport category was exceeded only by auto shopping trips (48.9 percent) which are themselves often food related.²⁵

Air and Noise Pollution - The air pollution implications of urban food movement are substantial. While light trucks emit only slightly more pollutants than automobiles, medium weight trucks emit approximately one and one-half times as much, and heavy trucks almost twice as much pollutants. These vehicles also produce more pollutants at idle and low speeds which are characteristic of urban food deliveries.

One study of urban goods movement revealed that the food and beverage component was a major contributor to the total pollutants produced by urban goods movement. Food transport was the source of 45 percent by weight of carbon monoxide, 55 percent of hydrocarbons, 61 percent of the oxides of nitrogen, 61 percent of the total suspended particulates, and 72 percent of the sulfur dioxide.²⁶

Noise pollution comes from truck engines which are generally noisier than automobile engines and from the refrigeration units on frozen food trucks. Noise lowers the overall quality of urban living and can be especially disturbing to certain urban land uses, such as schools and hospitals.

Land Use - Land is required to support the food transport system. Streets and highways are typically 10 to 20 percent of any urban area. It has been shown that food and beverage trucks are important users of this highway space. In addition, significant amounts of urban land is required for loading and unloading facilities for food transport trucks and for their storage and repair.

Consumer Food Costs - The recent rapid increases in food costs have become a national issue. The United States Department of Agriculture estimates that 7.3 percent of the food consumer's dollar goes to pay transportation costs.²⁷ This cost can only increase in the future in absolute and relative terms as the costs of fuel, labor, and trucks increases.

Recommendations for Improving the Food Transport System

The perfectly operating urban food transport system would maximize the efficiency of food distribution in meeting the community's consumption needs and enhance the community's economic well-being, while minimizing the detrimental effects on the overall urban system. Clearly, this is an ideal which may not be attained in reality. Following are a number of recommendations for changes in the Knoxville food transport system. If implemented in total or in part, they would attenuate the impacts of the food transport system on the Knoxville urban area in terms of congestion, pollution, excessive energy consumption, inefficient land use, and high food costs. Note that while the emphasis is on food transport, the recommendations, if implemented, will be beneficial to the movement of goods of all kinds.

Freight Consolidation - The concept of freight consolidation involves a pooling of food delivery operations. The major portion of merchandise sold by smaller food stores in the Knoxville area is delivered directly by numerous processors and wholesalers who operate their own delivery fleets. For example, a single store might be visited by a half a dozen soda and beer trucks each day. The large number of vendors making deliveries during the daytime business hours represents considerable duplication of travel to the same stores, causes unnecessary additional congestion

on streets, and incurs additional costs to the consumer due to low utilization of delivery equipment and vehicles.

Despite the obvious advantages of freight consolidation for urban food deliveries, to our knowledge, no such system is operating in the food delivery system in the United States today. There are a number of reasons why the old ways of doing business are retained.

One of the main factors standing in the way of consolidated deliveries of food is that the delivery man is not only a truck driver but also a salesman. In addition to delivering his particular line of food items, he also checks the store's inventory, removes items that are beyond the fresh date, cleans and restocks the shelves, and attempts to sell the store owner more of a certain product, or introduces him to new items in his company's line of products.

A change to a consolidated delivery scheme would increase the store owner's costs for handling, pricing, and ordering merchandise. The store owner would have to train and pay personnel to carry out many of the tasks now performed by the driver-salesman of his various suppliers.

Also, the company employing the driver-salesman would not be favorable to a change to consolidated deliveries. This position was voiced by a number of beer and soda suppliers who were interviewed for this study. The reason is that the driver-salesman is looked upon as a key element in the marketing scheme of these companies.

Recommendation - Groups such as the beverage distributor or small store owner would be reluctant to adopt a consolidated delivery scheme because it would work against their personal interests. The planner, however, is the person who should represent the interests of the community as a whole. Because of the benefits that would accrue to the Knoxville

community from consolidated delivery of food items, it is recommended that a task force which would include representatives from the Metropolitan Planning Commission, the City Traffic Engineering Department, the Mayor's Office, the University of Tennessee Transportation Center and private industry be formed to investigate its implementation in Knoxville. The formation of this task force might be dependent on the availability of federal funding for such a project.

Temporal Separation of Food Movement and People Movement - Temporal separation of goods movement and people movement consists of establishing institutional limitations on the time periods when physical movement and unloading of food trucks can take place. Instituting such a system would help alleviate the traffic congestion problem during peak daytime business hours.

Recommendation - The public should take action by enacting and enforcing traffic ordinances prohibiting trucks from specified city streets and/or prohibiting curbside parking during peak travel times. In Knoxville, this would be carried out by the City Traffic Engineering Department and the Police Department. According to one study, one-third of the cities the size of Knoxville have some regulation of delivery hours.²⁸

Recommendation - In the private sector, food stores and local wholesalers can work together to set pickup and delivery operations for off-peak periods. A group of representatives from the public and private sector similar in composition to the freight consolidation task force discussed previously should be formed to implement this strategy.

Private groups, such as food wholesalers, food retailers, and labor unions, would probably not take a positive attitude toward such control

measures because of possible increased costs to them and changes in long established work patterns. This should not deter implementation, however, because benefits will accrue to the public sector which far outweigh these private costs.

Required Off-Street Loading and Unloading Facilities - Provision of off-street unloading facilities at retail food stores and restaurants can alleviate traffic congestion and have as a secondary benefit the lowering of petroleum consumption, air and noise pollution, and food costs. In a study done of the Knoxville central business district, over 10 percent of the trucks were illegally parked.²⁹ The illegal parking of food delivery trucks is thus a relatively small proportion of all truck parking. However, any degree of illegal parking is important since one illegally parked truck can inactivate a whole traffic lane.

Recommendation - The appropriate changes and additions should be made to the city building code, zoning regulations, and traffic regulations, and these codes and regulations should be enforced.

Requirements for off-street unloading facilities at food-related establishments are most easily applied to new construction. Indeed, the builders of new food facilities see the provision of such facilities as desirable and necessary for the efficient operation of their businesses. It is much more difficult to provide these facilities at existing facilities, particularly in older, closely built up areas of the city.

Major and Minor Improvements to the Circulation System - The transit time for food delivery trucks between stops is related to the pattern of arterial highways in a city. In Knoxville, the highway system is in a radial pattern which converges on the downtown area. There is a lack of

circumferential highways which requires truck drivers to take round-about routes in traveling from one stop to the next and also contributes to congestion in the downtown area.

Recommendation - The State Department of Transportation and the City Traffic Engineering Department should keep urban goods movement in mind as improvements to Knoxville's major street system are designed and built.

There are numerous opportunities to make minor improvements to the circulation system which, in the aggregate, can improve the food transport process greatly. One of the problems here, as reported by Dr. Ernest Cadotte,³⁰ is that the people concerned with urban goods movement do not see their problems of goods movement as important. For example, a particular supplier may be traveling several miles out of his way each day because of some obstacle on a more direct route to his destination. This might be a narrow bridge or a low power line. He does not contact public agencies about the problem because he feels they will not make improvements on the strength of one complaint. What the supplier does not realize is that a number of other businesses may be encountering the same obstacle on their delivery route and, taken in the aggregate, it is a serious problem, causing many extra vehicle-miles of travel each day.

Recommendation - The City Traffic Engineering Department should make an effort to seek out and correct minor impediments to urban goods movement. It will be necessary to contact operators of truck fleets and make a survey of problems along their delivery routes, since, as pointed out above, they are not likely to supply this information on their own.

Land Use Planning and Food Distribution - Increasing dispersion of economic

activity throughout the Knoxville area magnifies the inefficiencies and environmental impacts of urban food distribution. Travel time is significantly increased when the various members of the food distribution chain are scattered throughout the community.

Another land use related problem is the preemption of sites that would be ideal for the various components of the food distribution industry by other users, such as residential developments or shopping centers who can outbid food firms for the most desirable locations. Consequently, food distribution firms must locate in less desirable areas where competition for land is less intense.

Recommendation - The Metropolitan Planning Commission can increase the efficiency of the food distribution process by encouraging the clustering of food related activities. This activity might take the form of preserving a desirable parcel near the interstate and a railroad siding for a food wholesaling district or encouraging a fast food park along Kingston Pike instead of the scattering of such operations along the Pike that we have now.

These clusters of food related activities can be strategically located so that the time between them and related activity centers is minimal. This will facilitate movement of supplies between them. Another advantage, from a food transport viewpoint, is that in places where these activities are clustered together, traffic signals, turning lanes, and even special interstate exit and entrance ramps might become feasible due to economies of scale.

Knoxville Rail Service - Most of the recommendations that have been made up to this point have been concerned with solving problems of intraurban

food transport. It was pointed out earlier that in the interurban movement of food goods to Knoxville, railroad transportation plays an important part. All the local food wholesalers are located on railroad sidings.

These wholesalers were interviewed by the study group. All of them said that it was cheaper to ship food goods to their warehouses by rail, but because rail was slower and less dependable than truck shipment, the latter was gaining an increasing share of the market.

Recommendation - The Chamber of Commerce should contact the Federal Railroad Administration and other federal agencies to try to work out methods for improving rail service to Knoxville. Admittedly, the deterioration of railroad service is a nation-wide problem and will not be easily or quickly solved. The preservation of rail delivery of food stuffs is important, not only from a cost standpoint, but also because it is an alternate means of getting food to the city in the event of some disruption of the truck delivery system, such as a major strike.

Special Concern: Food and Expo '82

Within the next few years, the greater Knoxville community will be preparing for a very special event, the Knoxville International Energy Exposition. This proposed development will produce some very interesting problems and opportunities for the Knoxville food system. At this time, it would be very difficult to predict with great accuracy what will really happen in this regard. However, several general observations can be made on Expo '82 and food. The purpose of this section is to discuss these issues and point to potential recommendations that should be considered in dealing with the Knoxville food system and the International Energy Exposition.

Expo '82 is a proposal for the creation of an International Energy Exposition to be held in Knoxville in 1982. Several states and national governments will participate in a demonstration of energy problems and potentials. It is hoped that such an event will create many positive impacts for the Knoxville area.

The Fair will run from May 1982 to October 1982 with an estimated 4,955,000 individuals attending.³¹ This averages to about 60,000 persons per day.³² It is estimated that around 3,635 jobs will be created with about 1,000 of these being food related.³³

What will be the "impact" of this situation, in terms of supply and demand on the Knoxville food system?

Food Demand Issues

Expo '82 will have a dramatic impact on the demand for food in the Knoxville area should it actually take place. Any spectator event, like the International Energy Exposition, has to attract a great deal of people to be an economic success. The more people that attend, the greater the success of the event. If Expo '82, therefore, is a success, it can be assumed that food preparation and consumption will increase in proportion to the number of persons in attendance. How large this increase will be is still uncertain. However, some estimate of the increased demand can be gained from looking at Table 12.

Basically, this information defines the magnitude of demand for food for Expo '82 in the following manner. As stated earlier, approximately 60,000 people per day will attend the exposition. Assuming fifty percent, or 30,000 are residents of Knox County, the remainder would come from outside Knox County, meaning about 30,000 additional persons per day will have

TABLE 12

ESTIMATED WEEKLY PER CAPITA CONSUMPTION
AND EXPENDITURE, EXPO VISITORS (1977 DOLLARS)

FOOD TYPE	PER WEEKLY CAPITA CONSUMPTION	PER WEEKLY CAPITA EXPENDITURE	WEEKLY EXPENDITURE 30,000 People	% OF TOTAL EXP.
All Dairy Products	3.98 qts.	\$ 1.81	\$ 54,300	10.2
Meat (beef and pork)	3.76 lbs.	2.89	86,700	16.3
Poultry and Fish	1.76 lbs.	1.49	44,700	8.4
Eggs	.56 doz.	.44	13,200	2.4
Bakery Products	2.40 lbs.	1.26	37,800	7.2
Flour and Cereal	1.62 lbs.	.61	18,300	3.4
Potatoes (all types)	1.70 lbs.	.52	15,600	2.9
Fresh Vegetables	2.66 lbs.	1.09	32,700	4.3
Fresh Fruit	2.69 lbs.	.75	22,500	4.3
Processed Fruit and Veg.	1.94 lbs.	1.54	46,200	8.8
Juice (all types)	2.21 lbs.	.48	14,400	2.7
Nuts, Condiments, etc.	.20 lbs.	.51	15,300	2.9
Soup and Other Mixtures	.61 lbs.	.47	14,100	2.8
Fats and Oils	1.07 lbs.	.62	18,600	3.5
Sugar and Sweets	1.42 lbs.	.71	21,300	4.0
Soft Drinks	3.02 lbs.	.97	29,100	5.4
Coffee, Tea, Cocoa	.27 lbs.	.95	28,500	5.3
Alcoholic Beverages	.80 lbs.	.58	17,400	3.3
Total Expenditure		\$17.69	\$530,700	

SOURCE: U.S.D.A. ARS, "Food Consumption Survey, 1965," and "Food Price Index" and "National Food Situation," June, 1977.

to be fed by the Knoxville food system. Table 12 illustrates the typical consumption and expenditure pattern in Knox County for any person. As shown, about \$17.69 per person per week is spent on food of all types. An added 30,000 persons per day in the Knoxville food system will mean a total weekly expenditure of \$530,700.

The data in Table 12 is by no means definitive. The figures serve only as an illustration of the demand for food during Expo '82.

Food Supply Issues

Now that a measure of the demand for food by Expo '82 visitors has been established, the supply side of the situation will be discussed. Very basically, food consumption will occur either on or off the Exposition site. On-site supply will be handled by individual national pavillons through specialized restaurants, and by concession or refreshment places located throughout the site. Off-site supply will be provided by existing restaurants, supermarkets, convenience stores, and so forth.

On-site food supply will be provided through a contractual agreement with one major concessionaire. Such an arrangement has several advantages for the managers of Expo: consistency for service, ease of negotiation, and simplicity of operation. The use of a large, experienced, national concession service will, in essence, guarantee a minimum number of potential problems in delivery of food on the site.

However, such an arrangement also presents some problems to the local economy and business scene. Some national concessionaire services tend to buy from one wholesaler from one part of the country. This may mean that local people will miss out on employment possibilities. Out-of-town organizations may have little regard in general for their impact on the local

area because of their interest in maximizing profits. Certainly, how the food service arrangements are worked out has some implications for the growth and development of the overall food system in Knoxville and is worthy of examination.

Off-site supply by private businesses also presents some interesting issues. New food service establishments are sure to be established off-site partly in response to the Expo market. Some of these establishments will fail after Expo is over. The possibility of poor quality development presents a challenge to the Knoxville community. Food service business expansion in the nearby areas should be monitored closely to avoid unsightly development, and the potential dislocation and physical deterioration that business closings sometimes bring.

Additional Problems and Issues

Food Distribution Issues - The fact that Expo '82 will increase the amount of food handled by the Knoxville food system means that strains will be put on the Food Delivery System. Heavy passenger traffic during daylight hours will necessitate implementation of programs to avoid congestion and assure delivery of food, as well as other urban goods.

Storage of food near the site may create additional congestion problems. This problem, too, should be investigated.

Displacement of Food Related Components - The proposed Expo '82 site plan calls for the relocation of several food system components. The names of these establishments and the number of employees they have are listed in Table 13. It is desirable that Expo '82 planners ensure the relocation of these businesses. Otherwise, undue hardships will be created for the

customers and employees of these establishments.

TABLE 13

KNOXVILLE FOOD SYSTEM COMPONENTS
DISPLACED BY EXPO '82

BUSINESS, INDUSTRY, OR ORGANIZATION TO BE DISPLACED	CURRENT NUMBER OF EMPLOYEES (January, 1977)
Atlantic Ice Company	23
B & G Deli-Bar	2
Beverage Barn	2
Convenient Food Mart	4
Fritz's Delicatessen	4
Los Charros Mexican Restaurant	15
TOTAL	50

SOURCE: Knoxville Area Urban League, An Assessment of Socioeconomic Problems Likely to Result From the Proposed Knoxville International Energy Exposition, Knoxville, Tennessee, January 31, 1977, pp. 22-23.

However, only one of these, the Atlantic Ice Company, can be said to have a community-wide role in the food system.

Solid Waste Disposal - Expo '82 will generate about 72,000 pounds per day of on-site solid waste with a peak of about 101,000 pounds occurring on heavy attendance days.³⁴ Much of this waste will be food related, which means it is especially important to dispose of it quickly.

Planning Related Recommendations

The discussion has pointed out several issues and problems in regard to food and Expo '82. On the basis of this examination, several planning-related recommendations can be made.

Assist in the location of new off-site food service establishments, to minimize the effects of rapid development - Information, for example, could be provided by a public agency that will help to identify Expo-related market potential for the Knoxville area.

Organize local food suppliers to compete for Expo '82 concessions - As soon as possible, local food suppliers should be organized to meet the challenges of large national organizations and ensure that local businesses capture the major share of the Expo '82 food business.

Encourage Expo restaurant concessions to use local labor supply - Such a proposal may require that local people acquire the necessary skills to meet the demand. For example, vocational education in the area of food preparation could be promoted to provide a skilled labor supply.

Study the impact of Expo waste generation on the Knoxville solid waste disposal system - Food related solid waste will increase greatly during Expo '82. As soon as possible, a study should be made of this demand as compared to the local capacity to handle it. Such action will avert any last minute decisions with long term social and environmental implications.

Special Concern: Food Assistance for the Disadvantaged

A major concern which has developed in the course of this study has been the urban food system's performance with respect to the economically and socially disadvantaged groups in Knoxville. "Disadvantaged" in this regard means those individuals who, because of low income, health and/or age status, are termed 'nutritional high risk' people. They typically range from the elderly person with a fixed low income and explicit needs for proper nutrition to the pregnant woman who is either unable to afford

suitable food types or has little knowledge of the critical feeding requirements for a mother and child before and after birth.

Disadvantaged groups may also be subjected to the less noticeable but significant aspects of food store siting and operation. Implied here is, of course, the lack of stores in areas where the subject groups live. Those stores which are located in what can be identified as inner city areas are hardly comparable to the new modern supermarkets of suburban areas. Inner city food supply and distribution, as directly related to retail food stores, has received widespread national attention. It is a problem which has been well documented, especially in some of the older and larger cities in the United States.

It was initially suprising to learn of the sheer magnitude of food and financial resources invested in Knoxville's public feeding programs. A reiteration of these programs is given below:

Women, Infants, and Children's Feeding Program (WIC) -

This program is designed to aid low income mothers who are pregnant or lactating and children under five years of age. It is federally administered by the Food and Nutrition Service of U.S.D.A. and locally administered by the Knox County Health Department.

Meals on Wheels and Congregate Feeding Program - These programs were initiated and funded through Title VII of the Older Americans Act, Title XX of the Social Security Consolidation Act, and the Community Services Administration. It is locally administered by the Community Action Committee.

School Lunch Program - There is a kind of child's nutrition package of programs which includes the School Breakfast, National School Lunch, School Milk and Summer Feeding Programs. They are all subsidized by U.S.D.A. and administered by the Knoxville-Knox County School System. It is estimated that 40 percent of the school children were qualifying for these programs.

Food Stamps - This is a fairly well known program of subsidization for food purchase by low income families. Food types to be bought are not specified.

FISH - This is a cooperative program administered by local churches which can provide food services to distressed families.

Others - There are many other public feeding programs available although not at the scale as those previously mentioned. They range from the "soup line" type missions on Gay Street to a program to give free seeds and gardening information to low income families (known as Green Thumb, administered by the Community Action Committee).

Taken together these programs can be considered an indicator of the amount of poverty and the number of individuals and families who do not have adequate means to nutritionally take care of themselves. For example, nearly 20 percent of the Knox County population is eligible for the Federal Food Stamp Program. Last year alone 10 percent of the population participated.³⁵ This along with the other significant feeding programs outlined above further points toward the massive effort underway to feed certain

nutritionally deprived groups. A fair approximation would be that each day at least one-fifth of the population in this area receives some benefit from public feeding programs.³⁶ Food assistance has evolved into a basic factor in the lives of thousands of Knoxville families. All this has occurred largely unnoticed by the general public.

The funding for these programs comes primarily from the federal government. Presumably the federal government is the only entity capable of effectively initiating and financing such undertakings. However, management of programs such as the WIC program and the City Schools' 'Central Commissary' program are opportunities for a greater local role.

Many of the programs now in effect could serve more people if funds were available. The WIC program, for example, is currently operating at capacity level in Knoxville. It serves about 3,000 households at an annual budget of about \$150,000. More funds are needed, however, to reach needy individuals.³⁷ Another program, Meals on Wheels and Congregate Feeding, which serves the elderly in Knoxville, is also considered to be in need of funds to reach more people.³⁸ Food assistance is, therefore, likely to exist and expand for some time. The reasons for this are probably beyond local control. They are a consequence of the society in which we live, where there are large disparities in personal income, racial discrimination, poorly educated groups, and high unemployment.

The efforts of any subsidized food program, particularly those which provide means of purchase rather than direct feeding, are undermined by the fact that the individuals being aided are most likely paying higher prices for food. This is an added frustration in attempting to remedy some of the problems of the poor and nutritionally deprived. Supply and distribution of food in retail stores throughout inner city areas are subject to

some very real inequities in food prices, choice, and quality. The inequities stem from some hard economic facts of life which have the cumulative effect of making it extremely difficult and, therefore, undesirable for any type of food retailing activity to operate and maintain stores there.

Notable is the lack of large supermarkets in these areas. The nature of inner city neighborhoods simply does not make it feasible for food retailing firms to build new, modern supermarkets where there are not many customers who have the means to travel, purchase and transport large quantities of food. This, of course, is not the only reason for the lack of supermarkets and the resultant inequities. Mr. Dale Anderson of the Agricultural Research Service of the U.S.D.A., has devoted much of his research efforts and made presentations via speeches and papers on the problems confronting urban food suppliers. His ideas are summarized below:

Reasons for price, location and choice inequities:

1. Retailers will cater to the tastes of the well-to-do buyers with high priced, high quality foods which are beyond the price range of low income groups.
2. Delivery costs for food into low income urban areas may be excessive because of narrow streets, lack of parking, inaccessibility of receiving facilities, small orders, high pilferage rates, poor handling, high damage claims, and severe traffic problems. These costs are reflected in food prices.
3. Small retail merchants in low income urban areas place orders with many wholesalers. They also may place frequent small orders because of a lack of storage space at their store. The type of wholesaler who is likely to seek this

type of market probably is one with high costs and poor delivery equipment. Perishable products may easily deteriorate during transport and delivery.

4. Small wholesalers will simply not deliver to small inner city stores, but will permit store owners to visit and buy from warehouse facilities. Again, this adds to delivery costs.
5. Due to the trend toward vertical integration of certain food types by chain stores, local wholesalers are likely to be losing a significant portion of their business. The losses are consequently transferred to high prices for the small independent store where vertical integration is not possible.³⁹

Mr. Anderson's views were considered to be a basis for a brief analysis of Knoxville. The findings of that analysis showed that five Knoxville census tracts (1,4,5,6 and 7, located near the central city) had within their boundaries only one supermarket, small grocery, convenience store, or none. The average annual income in these tracts (1970) was \$6,900 or less and a vast majority (greater than sixty percent) did not have access to a car. Too, in tracts 5 and 6 the population was mostly non-white with a significant percentage (10-20%) over the age of 65.⁴⁰ The population of all the aforementioned census tracts represented six percent of Knoxville's total population. While this analysis is hardly conclusive, it does raise questions. Is there the beginning of the large scale inner city food distribution problems experienced by larger cities? What is the overall impact of the lack of stores on the many individuals who have no car, little

income, or are less mobile because of age or disability? What can be done by the local government as a planning function to remedy and prevent these problems?

Recommendations

Initiate a study to ensure that all public feeding programs are being administered as efficiently as possible - This implies a kind of consolidation of efforts and administrative procedure to eliminate duplication of efforts and unnecessary red tape.

Initiate a study to identify the interrelationships between public feeding programs and other public objectives - This area probably should be the responsibility of MPC (Metropolitan Planning Commission) and/or the Planning Council of the United Way Agency, or the "Food Council" proposed elsewhere in this report. As an example, a public objective may be to re-socialize and provide recreation for the elderly. The Congregate Feeding Program would act as an effective starting point.

Monitor the food retailing operations in the inner city areas - This recommendation is seen as an essential function for the city government as it relates to decaying inner city areas. The reasons behind closing up a food store or reluctance of chain supermarkets to locate in these areas are excellent indicators of decline.

Include an analysis of retail food operation as part of the city's Community Development Neighborhood Rehabilitation Program - Public CD funds to physically improve access and delivery to neighborhood food stores may be a likely consequence of this recommendation. It would add to the presumed comprehensive nature of neighborhood rehabilitation.

Other Issues Not Studied

The preceding sections have dealt in some depth with five general issues areas seen as significant to the performance of the Knoxville area food system. The introduction to the chapter outlined the basis for the selection of these issues for indepth investigation. A word needs to be added at this point about several other issues not studied, but encountered in the process of describing the food system and in evaluating the system in the context of the preceding issue-discussion

The capacity of the food system to supply the city with food during disasters or interruptions in national supply is worthy of mention. Investigation of this issue would range from the standard civil defense concerns for major disasters, such as storms, massive accidents, or epidemics, to limited shortages such as those caused by national transportation strikes, processor shortages or local labor difficulties.

The recent experiences with energy shortages lends special significance to the issue of the Knoxville food system's capacity to perform during a period of emergency. The system's dependence on daily deliveries, for instance, makes the supply of diesel and gasoline critical. Many local food producers, such as the bakeries, are especially dependent on electricity and natural gas. Cold storage facilities, both refrigerated and frozen, are obviously dependent on reliable sources of energy. In addition to the traditional civil defense consideration, then, it is important to consider energy shortages in future studies of the need for emergency planning with reference to Knoxville's food supply and distribution system. Long run energy conservation measures will impact the food system very heavily, also.

Another issue not explored would consider the need to especially study the site requirements of food facilities, particularly fast food outlets,

supermarkets and convenience stores. The data presented has shown the rapid growth of all three of these type establishments. Each makes rather significant demands on city services, the transportation system, and the price which must be paid for food. Although some attention is given to supermarket location concerns, much more needs to be said to fully investigate such problems.

Only indirect reference has been made to the truly major role the urban food system plays in the local economy. As a part of the tax base and the economic base, the urban food system is closely tied to the economic health of the area. Analysis of this involvement would be vital to a total analysis of the food system, the consequences which changes in the system would have for the overall vitality of the area.

A final issue needing future attention is an examination of area manpower needs and capabilities as they relate to the food system. Vocational education, for instance, might be closely tied to food industry labor needs. The food industry is labor-intensive, while also requiring special skills. This suggests that analysis of the present and potential labor situation should closely examine the demands of the food system. Likewise, further study of the food system should concern itself with the findings of such labor-oriented studies.

NOTES

CHAPTER IV

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CHAPTER V
FOOD AND PLANNING IMPLICATIONS FOR
KNOXVILLE: RECOMMENDATIONS

The preceding chapters have attempted to provide a better understanding of Knoxville's food system and second to relate this knowledge to the concerns of local public policies and planning. From this mixture recommendations have already been presented aimed at the specific problems uncovered in issue research. These took the form of the series of recommendations concluding each issue discussion presented in the last chapter. A more systematic treatment of these recommendations is necessary in order to link them with present and potential implementing agencies, individuals and groups. A further benefit of preparing a comprehensive statement of recommendations is the opportunity provided for making additional recommendations which have become apparent through the integrating process. It should be pointed out, therefore, that some recommendations for improvement in Knoxville's food system in the pages which follow have not been explicitly identified in earlier discussions.

Although an important objective of this entire report has been the improvement of the planner's understanding of a critical city support system, the ultimate goal has been the suggestion of possible and proper ways in which local public officials and planners can assist in improving the performance of the city's food system to meet the objectives outlined both in the introduction to this report and in the opening pages of the preceding chapter. In responding to this charge, it has become obvious that a singular, overriding recommendation would emerge from the study. That recommendation centers on the need for the Knoxville area to develop the capacity to monitor the performance of its food system, with all its various

complexities, and to convert perceived problems into emphatic proposals for remedial action, both public and private. Such monitoring function would not only be negative--responding to problems--but also positive--anticipating future difficulties and recommending policies for their avoidance. Before listing and discussing the issue-specific recommendations, together with strategies for implementation, it is appropriate that this broader proposal for a monitoring function be presented in some detail.

Recommendation: The Establishment of a Knoxville-Knox County Food Council

The sometimes subtle yet critical interrelationships between the many components of Knoxville's food system has already led to the suggestion that there are many "hidden costs" in ignoring their impact on the society and environment of the area. Further, it has been suggested that the city and county have only been involved in this system in limited ways over the past years. Given the issues discussed in this report and the absence of an appropriate public entity to assume the responsibility for conducting a continuing review of the performance of Knoxville's food system, it is, therefore, strongly recommended that there be created a publicly-supported Knoxville-Knox County Food Council. The role of the Council would be to stimulate local efforts (public and private) to monitor the performance of Knoxville's food system. The Council would further advocate and support the necessary policy-decisions, both public and private, to correct problems and to avoid future difficulties in the area's capacity to meet its food objectives. The Council, in essence, would promote a functional planning concern for the food system. Such a role would be somewhat similar to that performed by the various components of the traditional Technical Coordinating Committee (now known as the "Executive Staff of the Metro-

politan Planning Organization") in the area-wide 3-C planning process for transportation. The difference, of course, would be that the Food Council would perform a pathfinding planning function in an area closely linked to the public welfare and yet not comprehensively coordinated on a continuing basis at the city and county level. There is no doubt that the private sector would and should play a far greater role in Council activities than is the case in transportation planning, dominated as transportation is by massive public investments.

The Council would ultimately be responsible to the consumers of food, the public. Structurally, this responsibility would take the form of direct representation of the large components of the entire urban food system as it exists in Knoxville. These would consist of elected local government officials, local government officials with professional responsibilities in food-related areas, private food-related organizations, the local food industry, and the consumers. More specifically, it is recommended that representation on the Council equally reflect these groupings, with one-fifth of the membership going to each. No specific recommendation is made as to the overall size of the group. A tentative organization of the group would need to negotiate and balance the demands of a workable size with the requirements of proper representation of the various groups.

Examples of membership representation in the five areas might be:

Local elected officials: City Council; County Court;
Mayor's Office; County Judge; County Commission

Local government officials with food-related responsibilities: County Health Department; City Building Inspector's Office; Metropolitan Planning Commission; City Schools; County Schools; University of Tennessee - Knoxville.

Food-related organizations: Greater Knoxville Food and Nutritional Council; Knox County Medical Association; Knoxville

Parent-Teacher Association; FISH.

Food industry representatives: Chamber of Commerce; Knoxville Restaurant Association; informal producer, wholesaler and retailer groups.

Consumers: neighborhood groups; food coops; consumer organizations; interested individuals.

Initially, selection of Council members would be organized jointly by the Mayor and County Judge from recommendations submitted by such organizations. As seen in the Council's role of "stimulating" local efforts to improve Knoxville's food system, little financial support for the Council per se is required. Members would serve without compensation and staff resources would be located within already existing agencies and firms identified by the Council as key implementing bodies for a particular study or policy-decision.

Prime movers in the establishment of the Food Council would necessarily be groups and agencies which have already been engaged in policy planning and advocacy affecting at least some significant part of the food system. The Greater Knoxville Nutritional Council has become quite active in focusing greater community attention on the specific deficiencies in nutrition throughout the Knoxville area. Council membership reflects both public and private professional nutritionists and dieticians. The Metropolitan Planning Commission, as a part of its planning function, touches upon many of the components of the food system, particularly as they relate to public investments and the use of area land and resources. The umbrella of comprehensive planning extends to include all urban support systems--and inclusion of the food system should be a part of MPC concerns. The Chamber of Commerce has a tradition of involvement in the affairs of its component industries, services as these relate to community matters. The food supply, distribution and service enterprises in the Knoxville area comprise a

significant portion of Chamber membership. Coordinated involvement of these firms in meeting community goals is quite consistent with Chamber objectives. Included is a concern for economic development goals, some of which might be expressed thru the food industry. Finally, resources at the University of Tennessee cannot be ignored. Within the Colleges of Home Economics and Business, the School of Agriculture, the Graduate School of Planning, and others there are individuals and resources committed to the types of planning and policy-making to be stimulated by the activities of the Food Council.

In order to bring these forces together, it is urged that both the Mayor and the Metropolitan Planning Commission give strong consideration to detailing full-time staff assistance for developing public activities and research in the food system area. Such persons would actively begin the steps necessary to create the Food Council. In so doing, they would become key actors in the process of raising the consciousness of both the private and the public sectors about the Knoxville food system and the issues associated with it.

The real significance of the role to be played by the proposed Food Council can be seen in the summary of recommendations and proposed actions in the pages which follow. In most of these statements, the key to implementation of the recommendation or consideration of the proposed action is continued oversight and encouragement of the agencies or organizations with the ultimate authority or responsibility to make or change food-related policies. The capacity for such overview and the prestige for such encouragement are seen as the heart of the proposed Food Council's strength. The proposed Council is therefore identified in a majority of the recommendations and action proposals as a significant part of the implementation strategy.

Recommendations: Consideration of Plans and Policies Relating to the Preservation of Agriculturally Productive Lands in the Knoxville Area

Much more information is needed about the food-production potential of land in Knox and surrounding counties. It is strongly recommended that long-term studies of this potential and its relationship to the demands of the Knoxville food market be considered. Specifically, it is urged that the Metropolitan Planning Commission, the East Tennessee Development District and local county Soil Conservationists work with the Soil Conservation Service to identify agriculturally important lands and have them documented in the nationwide mapping program currently being carried out by SCS. This effort should be coordinated with local County Extension Agents to allow preparation of updated statements on food production potential.

As information about the necessity for preserving local agricultural lands becomes available, efforts need to be undertaken to establish policies to permit such preservation. The Metropolitan Planning Commission should consider a clear-cut agricultural zoning policy which would not only allow local farmers to take advantage of Tennessee's legislation permitting a tax-benefit for near-urban lands which remain in agricultural production, but also would give the city and county a tool to insure that such lands, where seen as an important part of the urban food system, will remain in agricultural use. Related to this suggestion is the recommendation that data from the Knox County Assessor's Office be regularly reviewed in order to determine the impact of such policies on local tax revenues.

As the need and land resources for local food production become available, it is essential that encouragement be given to local farmers to engage in local production. A major Food Council role will be to channel such support through the agricultural education and information

system, particularly the Agricultural Extension Service and the Soil Conservation Service. Each of these agencies is in close contact with local farmers.

Recommendation: Support Should be given to Activities Aimed at Increasing the Extent of Urban Gardening in Knoxville

Urban gardens not only provide families with a lower food budget and greater choice in food quality and type, but also can become an important source of food supply to the city. As was pointed out in the discussion of food assistance programs for the disadvantaged, urban gardening also provides a method for providing low-cost food to those capable of gardening, but limited in other capacities to purchase food. It is recommended that the Food Council encourage a study of the present extent of urban gardening in Knoxville and then undertake a review of possible measures which would expand the scope of such gardening activities. Key agencies the council would work with would be the County Extension Agent and the local officials designated by the Tennessee State Department of Agriculture to implement Tennessee's 1977 law permitting urban gardening on public lands.

Recommendation: Efforts Shold be Undertaken to Improve the Forest Avenue Produce Market Area Until Such Time as Replacement of the Facility is Possible

In addition to the circulation system difficulties mentioned earlier, the Forest Avenue produce market area suffers from several problems which need immediate attention. Attention needs to be given to the quality of the facilities presently being used for food storage and sales. Health and sanitation standards need to be applied to the methods used in food handling. Urban service improvements need to be made in the areas of storm drainage and garbage pickup. All of these problems are short-term, meaning they require immediate action using existing authorities.

Again, the proposed Food Council should provide an oversight of the efforts to deal with the deficiencies, with actual remedies being provided by City of Knoxville (Building Inspection, garbage service, sewer adequacy), the Knox County Health Department and the various state food inspection agents. A specific recommendation is made that the proposed Food Council work closely with the City of Knoxville (probably someone within the Mayor's office) and the businessmen on Forest Avenue to secure a resident federal produce inspector.

Recommendation: Studies Should be Undertaken to Investigate the Long-term Needs for a New Produce Facility, Food Distribution Center, Food Processing Center and Farmer's Market

References have been made earlier in this report to the unsuccessful efforts to develop a central food distribution center in Knoxville which would include a new wholesale produce facility, farmer's market and regional food center. This effort was hampered by the lack of long-term, comprehensive planning and public support. Given the need to seriously consider replacing the Forest Avenue facility and the concerns about a farmer's market, food distribution center and so on, it is strongly urged that the proposed Food Council become a catalyst for the initiation of studies to comprehensively investigate the possibilities and feasibilities of developing one, several or all of the possible new food facilities. Where the studies examine the potential need for regional facilities, direct involvement by the East Tennessee Development District would be essential. The proposed Food Council would also need to coordinate involvement in such planning by the Agricultural Extension Service. Where the studies investigate possible food processing facility location in a central area, local industrial firms would need to be involved. In all cases, the proposed Food Council would need to continually stress the involvement in the planning

process of all potential participants in any new central food facility, whatever its final form and function.

Recommendation: Initiate Corrections and Modifications in the Local Circulation System to Improve the Movement of Urban Food and Minimize Congestion Caused by such Movement

In the short term, it is recommended that city regulations be enforced (first established, if necessary) to correct traffic impediments such as on-street loading, congested intersections, and improper loading areas. As was pointed out in both the discussion of the congestion near the Forest Avenue Produce Market and the more general discussion of urban food transport in Knoxville, such "minor" traffic problems can multiply to seriously inhibit goods movement as well as impact on other traffic. To properly determine these short-term needs, it is suggested that studies of urban goods movement, such as those undertaken by The University of Tennessee Transportation Center, be consulted. On a more long-term basis, it is proposed that adequate off-street loading dock facilities be required as a part of all new construction of food facilities. It is also suggested that long-range transportation planning consider street and highway location and design with goods movement considerations in mind. In a related way, it is suggested that area land-use planning consider the clustering of food related activities which generate deliveries and/or customer vehicles. The development of fast-food plazas and wholesale food distribution centers are two expression of this possibility.

The implementation of the short-term recommendations is the responsibility of the Knoxville Traffic Engineering Department, the Knox County Highway Commission, the Knoxville Police Department and the Knox County Sheriff's Department. The longer-range suggestions require consideration by the Metropolitan Planning Commission and the Tennessee State Department

of Transportation in addition to the agencies already mentioned.

Recommendation: Encourage the Consideration of Activities to Coordinate and Eventually Consolidate Urban Food Deliveries

At the outset, it is suggested that private firms involved in the delivery of food work with the City Traffic Engineer's Office to explore the feasibility of establishing a system for timing good deliveries to minimize congestion and maximize delivery efficiency. In the long term it is recommended that firms engaged in food deliveries, particularly wholesalers, purveyors and jobbers, consider moving towards a system of consolidated deliveries. To facilitate this recommendation, attention should be paid to possible support for such planning available from both the Agricultural Research Service (U.S.D.A.) and the Urban Mass Transit Administration (D.O.T.) who are actively experimenting with such possibilities. Inquires for such support could be facilitated by joint private-public efforts, coordinated by either the Metropolitan Planning Commission or the Knoxville Department of Public Transportation Services. Continued impetus for the establishment of consolidated food deliveries would be provided by the proposed Food Council.

Recommendation: Establish a Knoxville-area Rail Service Improvement Committee

The deficiencies in rail service to Knoxville, noted in the discussion of urban food transport in the Knoxville area, suggest the need for the Mayor, the County Judge, the Chamber of Commerce, and perhaps officials from the East Tennessee Development District, to meet with representatives of the L&N Railroad Administration, to explore improvement of rail service to the area, particularly as such improvement would benefit the movement of food into and out of the area.

Recommendations: Local Food Suppliers and Retailers Should Begin Planning for their Roles in the Feeding of the Guests to Energy Exposition '82

The proposed Food Council can perform a valuable role in communicating to Knoxville's food industry the rather significant requirements for feeding Expo '82. In working with the private sector, the Council should stress the need for local suppliers to be prepared to offer competitive bids for supplying the needs of the Expo food concessionaires. Likewise, the local food industry should be prepared to deal with the disruptions such demands will make on the normal local food supply and distribution system. Early coordination with the Metropolitan Planning Commission and the Knoxville International Energy Exposition staff should identify possible problems in delivering food supplies to the Expo site. An additional concern of the proposed council should be the increased demands on off-site eating establishments and grocery stores caused by Expo guests. Again, involvement of planning by the local concerns engaged in food sales is a critical goal.

Recommendation: Studies Should be Undertaken to Anticipate the Food-related Solid-waste Disposal Requirements of Expo '82

The on-site food facilities at Expo '82 will generate large quantities of solid wastes. Planning needs to begin immediately to deal with both transportation of waste from the Expo site as well as final disposition of the wastes. The Metropolitan Planning Commission should commence studies of both these potential problems.

Recommendation: Studies Need to be Undertaken to Determine the Extent to Which the Citizens of the Knoxville Area are Well-nourished

All food programs, particularly those intended to assist disadvantaged

groups, should be based upon sound indicators of the degree to which they are actually contributing to the better nourishment of program participants. The proposed Food Council should undertake the supervision of research efforts to build an accurate source of information about the extent of nutritional deficiencies in Knoxville and Knox County. An obvious resource to be engaged in such an effort would be the nutritional expertise available at The University of Tennessee. This could be supplemented by the assistance of social service agencies and particularly, the Knox County Department of Health. Such nutrition studies would assist greatly in the identification of "high risk" groups not currently being served by existing food programs.

Recommendations: Efforts Should be Undertaken to Guarantee that Public Food Programs are not only Properly Administered but are Interrelated with Other Social Service Programs Operating with Knox County

The proposed Food Council should play a particularly critical oversight role in coordinating food programs operating in the local area. The council would directly involve all agencies administering such programs in these coordinative efforts. Included in such coordination would be efforts to extend nutrition education into program administration if such activities aren't taking place. Organizations and agencies likely to be included in such studies of coordination include the Knox County Health Department, the Knoxville Community Action Committee, the Knoxville City Schools, the Greater Knoxville Nutritional Council and the various federal agencies funding these programs. A specific objective might be the establishment of a Knoxville-area food information center.

In addition to coordinating food programs among themselves and with community nutritional goals, the proposed Food Council should also initiate an examination of the ways in which the various food programs and plans

to assist disadvantaged groups. Such integration could involve the groups and agencies mentioned above as well as others such as the State Human Services Department, the Social Security Administration, and the various social service volunteer organizations.

Recommendation: Attention Needs to be Paid to Monitoring Food Retailing Operations in Knoxville, Particularly as they Effect the Capacity of Disadvantaged Groups to Obtain Food at a Reasonable Cost

The extent to which competitive supermarket activities are accessible to all citizens in the Knoxville area needs to be investigated. The proposed Food Council should encourage the Metropolitan Planning Commission and various consumer groups to document both the location and pricing systems of the areas supermarkets. Conclusions of such a study, for instance, could become a part of the planning for Knoxville's Community Development Neighborhood Rehabilitation Program. The use of CD funds to physically improve the availability of food to residents would be consistent with neighborhood development objectives. In addition, the proposed Food Council should encourage treatment of the problem of access to supermarkets and grocery stores in the planning for urban transit facilities. The Knoxville Transit Authority would be an important entity to bring into this possibility.

Recommendation: An Examination of the Effects of Disaster, Labor unrest, Energy Shortages and Other Possible Disruptions in Normal Food Supplies Needs to be Undertaken Soon

Although not fully examined in the preceding chapter, the threat of disruption in the food system was raised as a critical concern. It is strongly suggested that the proposed Food Council, together with city and county civil defense agencies, initiate surveys of the food system's

likely response to the various forms of disaster, labor difficulties and other possible emergencies which could occur in the area, as well as nationally. It is especially recommended that the food system receive special attention in the current efforts to detail the area's energy needs. The Council, through the State Energy Office and the new Federal Department of Energy, should seek resources for research on the critical needs of the food system in the development of new energy policies. The locally based facilities of the Tennessee Valley Authority and the Department of Energy's facilities at Oak Ridge should not be overlooked in this effort.

Recommendation: The Site-specific Requirements of Food Facilities Should be Given Special Attention in Area Land-use Planning and Review Procedures

The particularly important land-use requirements of fast food outlets, convenience stores and supermarkets has been only briefly mentioned. It is suggested that the Metropolitan Planning Commission give consideration to the special demands these facilities place upon the areas in which they are located. This consideration might lead to special zoning treatment, site-review procedures, better circulation designs and so on. It is also suggested that the willingness of many of the national staffs of the chain or franchise operations to work with local planners on such problems be taken advantage of in setting out new policies.

Recommendation: The Current and Potential Role of the Food System in the Knoxville Area Economy Needs Detailed Study

Not only has it been pointed out that the food system is a significant part of the area economy, but it has been obvious that little analysis of this significance has been completed. The proposed Food Council, together

with the Mayor and the Chamber of Commerce should undertake the commissioning of studies to fully explore the economic role of food in the area. From the city's perspective, this analysis would consider the movement of food facilities (particularly wholesale) out of the city and the consequences such moves have for the city. The city and industry together might investigate proper forms of capital investment by the city to not only stem such a flow, but more importantly, to better the performance of the entire food system, as measured by the standards of food availability, quality and price. In terms of the area, the proposed council might consider working with the East Tennessee Development District to attract research funding for exploring forms of public investment in the food system as an economic development mechanism.

In a related area, the manpower component of the area economy should be investigated. The proposed Food Council should consider working with the State Vocational Education Board to develop information about the labor needs of the food industry and the steps required to develop local manpower capacities to meet such needs. The success of such an effort would be an important step in the area's economic growth. At the same time it could improve the quality and performance of the area's food system.

The Choices Ahead

The suggestions and recommendations just presented make it quite clear that planning for Knoxville's food system will need the energies both of agencies and persons already involved in parts of the system, as well as those of new participants, such as the Food Council. The figure on page 14 should summarize the actions of the various actors necessary to properly plan for the future of Knoxville's food system, as that future is considered in terms of the food-issues discussed in this report.

The critical role of the proposed Food Council is obvious. The more traditional planning agencies also have important roles. The suggestion is clear that these agencies will need to develop the capacity to treat the food system as a functional planning concern.

The private sector has a very basic task in the planning for Knoxville's food. Both the Chamber of Commerce and the various firms in the food system are closely tied to the process of considering new arrangements within the food system to better meet the needs of the Knoxville area. An important dynamic in the suggestions presented is that between the public and private perspectives. The proposed Food Council itself is a balance between these sets of interests. Although this report has stressed new public involvement in the development of an overview of the local food system, the success of the type of planning recommended will depend upon joint application of energy by individuals in the food industry and the appropriate public officials.

The first steps have been made clear. There needs to be growth in the perception that the Knoxville food system is, in fact, a system, even though complex and difficult to grasp in its entirety. The costs of ignoring this reality have been repeatedly pointed out. The institutional setting for development of this overview needs to be created. We have suggested the Food Council as a way to meet such a need. The next step is the mobilization of the many food-related interests along the lines presented in the fifteen general recommendations offered in this summary. Most of these recommendations encourage more study of the Knoxville food system. The results of these studies will point the way to further actions needed to improve the performance of the system. The encouragement

and implementation of these more detailed guidelines again becomes an important role for the Food Council to perform.

This report began with an emphasis on linkage between the performance of Knoxville's food system and the general welfare of the residents of the area. It has been argued that the public welfare is closely tied to the population's access to a supply of food which is nutritious, reasonably priced, of reasonable variety, and provided by a system which contributes to the economic health of the area while offering participants a satisfactory return on their investments. As the report first detailed the system itself and then turned to issues stemming from the system's performance, an underlying assumption has been that ultimately all recommendations and suggestions must contribute to the system's capacity to better meet its objectives. The objectives are governed by the close relationship between food and the welfare of public who consume it. The suggestions and recommendations outlined in the preceding pages are, therefore, made with the goal of improvement of the general welfare of the residents of the Knoxville area in mind. This goal not only justifies greater public involvement in the food system of the area, but also provides greater incentive for increased private activities to plan in a coordinated way for the area's future food needs. It is to this partnership, geared to improving a vital urban life-support system, that this report is dedicated.

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APPENDIX

APPENDIX
PROCEDURAL NOTES

The purpose of this appendix is to convey the various organizations, procedures, and information gathering techniques utilized in carrying out the assigned task. The following comments outline the general strategy followed in preparing this report together with some evaluative comments.

Staff Organization

One of the purposes of the planning task was to provide the students with an opportunity to organize and function like an actual planning agency. On this basis, work was designed to be carried on during specifically scheduled hours of the day in an "office" atmosphere. Also, throughout the project it was assumed that the City of Knoxville was interested in assessing the status of its food system. In other words, the City served as the project "client". Within this context, the effort was organized in the following manner: Heading the entire study was the director, in this case, the class instructor. The remaining nine staff personnel or class members were assigned "long-term" and "short-term" duties. Long-term assignments included a coordinating committee composed of three persons: a group leader, a production coordinator, and an information coordinator. The main responsibility of the coordinating committee was to work with the director in production of the final document in a manner that reflected high professional standards. The group leader was concerned with product definition and content. The production coordinator worked on scheduling, timing, and deadlines. Finally, the information coordinator was in charge of documentation, information flow and filing classification.

In addition to the coordinating committee, other long term assignments included an external public relations assistant, a comptroller, a graphic standards group, and an information/documentation person. The external relations assistant worked with the director in contacting outside resource persons, public relations, and external communications. The comptroller was concerned with the budget, accounting, fund raising, and control of the project treasury. The graphics standards group, composed of four persons, dealt with the form of all written and graphic materials. The information/documentation person worked under the information coordinator in data and information flow.

Besides these long-term assignments, each staff member was assigned to various 'task forces'. A task force typically contained two to three persons and was designed to carry out the actual information gathering, analysis, and preparation of recommendations for the project.

Figure 7 depicts the organization utilized in this project. The breakdown between long-term and short-term duties was found to be a very effective and logical method in production of the final document. Very few problems were encountered with this organizational scheme.

Procedures

Once the team members were assigned long-term duties, the job of carrying out the specific planning 'charge', as outlined below, began:

1. Identify food related problems and issues which may have significance for public and private officials in the Knoxville area.
2. Research some of these issues and problems and propose remedial measures or other public programs which could be effected at the local scale or instituted through local government action.

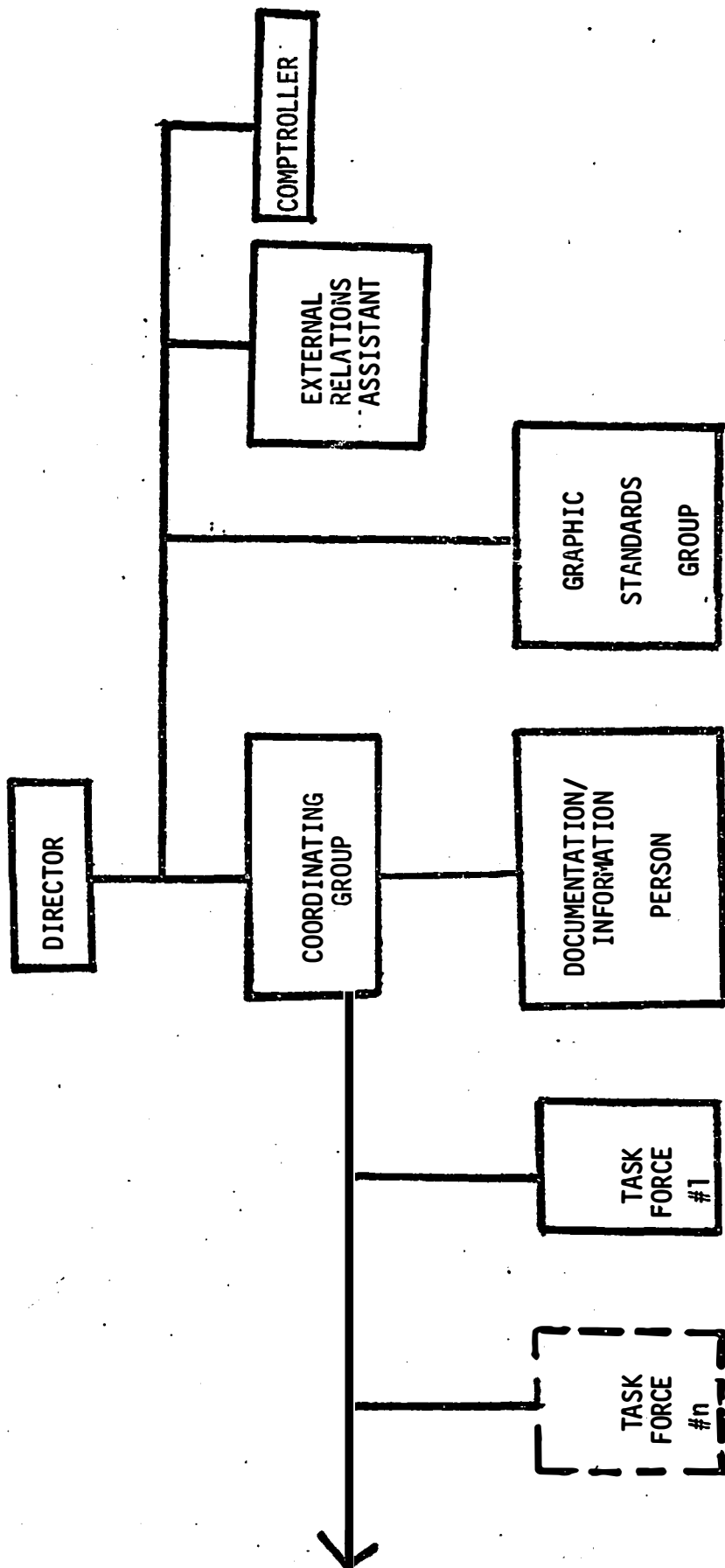
3. Consider the desirability and feasibility of establishing some kind of public oversight of the food supply and distribution function. Unless such an oversight model is clearly unneeded, propose such a planning model to accomplish such an oversight and planning mission.

In order to accomplish this assignment, the research group was broken down into several task forces. It was the job of each task force to carry out their individual research tasks in a manner that would contribute, as much as possible, to the final document. This meant, for example, that all research conducted by a task force was to be completed in near final form so as to expedite production of the final report.

Several task forces were formulated to carry out the initial 'charge' to the research group, as outlined above. The more important tasks of these groups included:

1. Issue Identification Task Force - had the responsibility of defining various problems or issues that would be examined by the entire group. This was an early effort to give an overall direction to pursuing the initial 'charge'.
2. Food Consumption and Preparation Task Force - studied the consumption and preparation components of the Knoxville food system.
3. Retail Store Task Force - worked on identifying the role of retail facilities in the food supply and distribution system in Knoxville.
4. Food Supply and Distribution Task Force - had the responsibility of several food types in the Knoxville food system.
5. Problems, Issues, and Recommendations Task Force - tried to draw all the information gathered through the course of the study and to suggest recommendations to solve the problems that had been identified.

FIGURE 7
STAFF ORGANIZATION



As can be seen, there were several very important task force assignments. On the average, every staff member served on at least three task forces, in addition to fulfilling his/her long-term duty.

Once each task force assignment was completed, the job was to formally prepare the report. All personnel then became involved in final editing, rewriting, typing, and production of the final publication.

The activity was geared toward group interaction and coordination. All procedures were designed with this in mind. Ultimately, all assignments were designed to fit into the final document. As work progressed, it was realized that the breakdown of duties between long and short-term tasks was a useful method of carrying out the 'charge'. Such procedures are highly recommended by the members of the project to anyone desiring to undertake a similar study.

Information Gathering

As the previous section on working procedures has shown, it was the job of each individual task force to carry out a research assignment. Task forces would report their progress or final results in twice weekly staff meetings before the entire group. These staff meetings also served as opportunities to assign new work and discuss the progress of the final report.

Task force reports contained both primary and secondary data. In general, it was found that the following sources were very useful in obtaining this information: personal interviews, government publications, and library research.

Personal Interviews

More often than not, each person who was contacted with regard to

this project, was very cooperative. It was thought that persons holding various perspectives on the food system should be interviewed. These included private businessmen, public officials, and bureaucrats, as well as academicians. It was felt that it would be best for the entire research group to have contact with individuals considered to be important resources and they were invited to address the entire group during a staff meeting. Specifically, Mr. Dale Anderson, and Mr. Warren Zitzman of the U.S.D.A., Dr. Ernest Cadotte of the U.T. School of Business, Dr. Dan Hubbard of the U.T. College of Home Economics, and Mr. John Ulmer of K.C.D.C. appeared before the group at various times to add their knowledge to the project. This process produced some very interesting interaction and, as a result, contributed to the final product in a very positive way.

Identification of persons interviewed has been made available already throughout the report. In general, the persons contacted were representatives of such private sector components as manufacturing and processing, wholesale distribution, retail distribution, transportation or goods movement, food preparation, and finally, consumption.

Several University of Tennessee departments and personnel were very useful. The School of Agriculture, College of Home Economics, College of Business Administration along with the Graduate School of Planning were very helpful in particular.

The United States Department of Agriculture, Metropolitan Planning Commission, Knoxville Community Development Corporation, and East Tennessee Area Development District representatives were also very cooperative and useful in identifying the structure of the food system of Knoxville. It was very interesting to contrast their public sector viewpoints with those

of private sector members.

In sum, it was found that the most expedient way to learn about the food supply and distribution system was to talk with people who had personal knowledge of the system. Because of the nature of the research task, and the limited prior knowledge of the staff, it was also the most useful information source.

Library Research

General library research was also undertaken to gather information. Books, academic journals, and commercial and trade magazines were all useful sources. Through study of these, it was possible to strengthen any ideas learned from local field research and also bring out new, important ideas for the overall report. Information found was also adapted, when appropriate to fit the Knoxville situation. This technique was very helpful in providing a framework for the entire project. These sources are discussed in the Annotated Bibliography. Mr. Aubrey Mitchell of the U.T. Agriculture Library, in particular, was a very important resource in the library research part of the project.

Problems, Pitfalls, and Research Recommendations

The organization, procedures, and information gathering techniques utilized by the staff were, by no means, perfect. Time, personnel and resource limitations necessitated adoption of methods that worked best for the group. As a result, several problems were encountered that influenced the final report.

Organizational Problems

The organization of the effort was found to be very effective. Very few problems were encountered. The only minor difficulty was a brief

Lack of group communication during the data collection phase of the research effort. Because of the division of labor among various task forces, very often one task force was unable to determine exactly what the other was doing. Therefore, a few problems surfaced as a result of the duplication of data and missing data that resulted from this situation.

A possible remedy for this would have been to have an increase in contact between task force personnel, and perhaps, a more precise definition of the objectives of the assignment.

Procedural Problems

In terms of procedures, a few minor problems were encountered. One involved the timing of final reports. It was vital that all task force reports be related to the final product. If a report was delayed, for whatever reason, then project progress was interrupted. A problem like this can be avoided through following a specific timetable. The team was able to produce such a work-planning document only after a clear definition of the method of project completion had been identified. Because of the original nature of the approach used, there was minor delay in operationalizing the project.

In addition to the procedural problem of identifying an approach to be taken in producing the final product, it was also found that staff meetings had to be well organized and timed. Meeting times were planned with care to assure that they were productive and not unnecessarily interfering with research time.

Information Gathering Problems

If any one section of the effort could have been improved upon it

was the collection of data. In particular, there should have been more representatives from the citizen and private sectors. Any future research in the area of food supply and distribution should take this recommendation into consideration and be sure that all perspectives are properly represented.

Certainly, like any research effort, there could have been more data. However, because of the nature of the project, the group had to make do with what was available and accessible.

In sum, the organization, procedures and information gathering techniques used in the creation of this document were very effective. The majority of problems that were encountered can be attributed to time, personnel, and resource limitations inherent in a project of this nature. This should not, however, discourage utilization of the methods employed in this project.