

AN ANALYSIS OF THE MUNICIPAL ROLE IN  
MOBILE HOME LAND DEVELOPMENT

Thesis for the Degree of M. S.  
MICHIGAN STATE UNIVERSITY  
MICHAEL DALE FREED

1969

## ABSTRACT

### AN ANALYSIS OF THE MUNICIPAL ROLE IN MOBILE HOME LAND DEVELOPMENT

By

Michael Dale Freed

This study analyzes the impact of mobile homes on municipalities and provides recommendations for regulation and improvement of mobile home land developments (mobile home parks and subdivisions).

Relevant literature on municipal regulation of mobile homes was reviewed. In-depth interviews were conducted with personnel at all levels involved with planning and regulation of mobile home developments. From this research data, three levels of analysis were undertaken--national, state and local.

The national housing market has changed appreciably in the last decade. Mobile home shipments have grown steadily while single-family housing starts have declined. Mobile home shipments amounted to more than one out of every four single-family housing starts in 1967 and more than three-fourths of low cost housing under \$12,500. In the next two decades the national housing market will require even larger numbers of low cost housing units to

fill the demand created by the expected increase in starting households. The demographic projections for the United States show a 47% increase in starting households by 1985.

The State of Michigan can also expect a rapid increase in population, both from natural increase and from net migration due to expanding regional economies and the development of a Great Lakes Megalopolis along an axis from Chicago to Detroit and New York. A pattern of urban dispersal based on transportation can be already seen extensively in Michigan. This pattern is also characteristic of mobile home land developments. A summary of 1960 census data shows that mobile home parks are located primarily in areas with low population density and rapid population increase. Projections of Michigan Population to 1980 show an 80% increase in the 20-29 age groups which will form starting households. These projections indicate a need for low cost housing in Michigan associated with a pattern of urban dispersal based on transportation. This market is ideally suited for rapid expansion of mobile home developments.

The Lansing, Michigan Standard Metropolitan Statistical Area (SMSA), consisting of three counties, Clinton, Eaton and Ingham, was used as a case study area. Mobile home park locations and the number of mobile home spaces were plotted for the three county area. The spatial pattern of mobile home park location primarily involves outlying, low density, urban areas near major highways.

The number of mobile home spaces in the region increased 300% since 1955. The number of parks doubled and the average size of parks increased 17%. The population projections for the Lansing SMSA show that this low cost housing need will increase sharply in the next two decades. The 20-29 age group alone is expected to increase 120% by 1990.

To meet this increased demand for low cost housing in the future, it is recommended that municipal regulation and planning of mobile home developments be strengthened through the use of improved ordinances and planned unit development or conditional use regulations. Municipal ordinances and building codes provide the legal framework for assuring minimum standards of development and maintenance. Model ordinances are presented and discussed.

The planning function of municipal government goes beyond these minimum standards. Planned Unit Development or Conditional Use Permit sections must be written into the mobile home ordinance to allow the municipality, to oversee and encourage quality in future mobile home developments. Suggested design concepts and modular development schemes are presented. Future developments in the mobile home unit are in experimental and prototype stages. The concepts of manufactured, modular housing in single-family, townhouse or apartment formats are presented in preliminary sketches and photographs.

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By

Michael Dale Freed

A THESIS

Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
for the degree of

MASTER OF SCIENCE

Department of Resource Development

1969

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1969

## ACKNOWLEDGMENTS

It seems that they become less and less my experiences. They are more and more woven into the great pattern of the whole experience of man . . .

Loa Whitfield

Thanks must therefore go to each professor who stimulated or ignored me as we met and peered at each other across the social distance.

Special thanks however, are reserved for those who made this thesis possible. My thesis committee, Dr. Milton Steinmueller, Mr. Carlton Edwards, Mr. Robert Hotaling, Mr. Louis Twardzik, Mr. Sanford Farness, and Dr. William Kimball, have made time available for discussion when they did not have time.

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Mr. Charles Barr, chairman of the Urban Planning Department, and Mr. Sanford Farness of the Urban Planning Department deserve thanks for their expertise on international housing and urban development.

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Dr. Raleigh Barlowe, Chairman of the Department of Resource Development, and Dr. Milton Steinmueller, in particular have contributed to the development of a philosophy of natural and human resources by the scope and quality of their teaching.

Finally, and most important, I wish to express my gratitude to my parents and my wife, who have encouraged me and indeed, enabled me, to write this thesis.

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2. "A Brand New  
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## CHAPTER I

### INTRODUCTION AND BACKGROUND

#### Statement of the Problem

If all the people who live in mobile homes were brought to one place, they would constitute a city the size of Chicago. They would rank as the 11th largest state in population.<sup>1</sup> Over five million people use mobile homes as permanent residences today.<sup>2</sup>

These completely equipped, manufactured housing units are primarily a phenomenon of only one decade. In 1955, 111,900 new mobile homes were built and delivered. By 1965, production had almost doubled to 216,000 units annually.<sup>3</sup> In that year, 23% or one out of every five single-family housing starts was a mobile home. In 1967, 29% or more than one out of every four single-family housing starts was a

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<sup>1</sup>U.S. Bureau of the Census, Summary of Population: 1960 (Washington: U.S. Government Printing Office, 1960), p. S-36.

<sup>2</sup>"A Brand New Home for \$6,000," Changing Times (April, 1968), p. 39.

<sup>3</sup>Mobile Homes Manufacturers Association, 15th Annual Industry Review: 1966 (Chicago, Mobile Homes Manufacturers Association, 1966), p. 5.

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<sup>4</sup>Housing  
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<sup>5</sup>See Figure

mobile home.<sup>4</sup> Even more significant, mobile homes captured 76% of low cost housing starts (under 12,500) in 1965.<sup>5</sup>

Because of this increase in the production of mobile homes, and the resultant need for a place to put these new homes, many municipalities are faced with a "mobile home problem." More correctly, they are faced with a combination of problems associated with mobile homes within their jurisdictions. Some of these problems include:

1. How should mobile homes and mobile home courts be zoned?
2. How should mobile homes be taxed?
3. What health, safety and building requirements should be adopted for mobile homes and mobile home courts?
5. What aesthetic and recreation standards should be considered for mobile home courts and how can they be implemented?

These issues are often grouped under three categories:

1. The regulation and upgrading of existing mobile home courts.

---

<sup>4</sup>"Housing Starts vs Mobile Home Shipments," taken from U. S. Bureau of the Census, Construction Reports, Series C-20 and Mobile Home Sales, Stocks and Shipments (Marketing Information Associates, Chicago, Illinois, monthly reports).

<sup>5</sup>See Figure 6, p. 20.

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2. Community acceptance, planning and regulation of future mobile home courts.
3. The regulation of single mobile homes on a private lot.

Before any municipality can face the above issues, and provide an adequate program to deal with mobile homes, it must overcome the emotional issues involved. Facts about mobile homes and mobile home inhabitants must be clearly stated. The role of planning in overcoming mobile home problems in the municipality must be fully described. However, little information is presently available which describes the status of the mobile home industry, mobile home inhabitants, and the mobile home court. Furthermore, there are few publications which outline a program for regulation of mobile homes in the municipality. Therefore, it will be the purpose of this thesis to study the relationship of mobile homes to the municipality and recommend alternatives for regulation and development.

#### Hypothesis

The guiding hypothesis of this thesis is: The present and future need for low cost housing can be met by mobile homes in an attractive and well-planned environment if an adequate regulatory structure for mobile home land developments is provided by the municipality.

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Most publications which recommend policies or ordinances for municipal regulation of mobile home courts are largely concerned with mobile homes as a medium density, residential land use; however, municipalities which adopt only one approach to mobile home courts will create future difficulties for the municipality, the mobile home inhabitants and the mobile home industry. In addition, municipalities which adopt a set of "standards" which actually functions as a blueprint for mobile home courts rather than a framework of performance and policy, will severely limit the potential for quality and attractiveness in future mobile home courts.

#### Definitions

##### Mobile Home

Any trailer or semi-trailer which is designed, constructed and equipped for use as a human dwelling place, living abode or living quarters, except house trailers (or travel trailers).<sup>6</sup>

##### House Trailer or Travel Trailer

. . . any trailer or semi-trailer designed and used for human living quarters, and meeting all the following qualifications:

1. is not used as a residence of the owner or occupant
2. is used for temporary living quarters by the owner or occupant while engaged in recreation or vacation activities

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<sup>6</sup>Minnesota, Statutes, 1961, As Amended 0168.011 subd. 8 as cited by Leigh Grosenick, Municipal Regulation of Mobile Homes in Minnesota (unpublished Plan B Master's Paper, Department of Public Administration, University of Minnesota, 1965) Appendix III.

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3. is towed on the public streets or highways incidental to such recreation of vacation activities.<sup>7</sup>

#### Mobile Home Land Development (Mobile Home Court or Park)

A parcel of land under single ownership which has been planned and improved for the placement of mobile homes for non-transient use.

#### Municipality

A city, town or other incorporated government body, and the area of land over which it holds jurisdiction.

#### Limitations of the Study

1. This study will be limited to the jurisdiction and concern of municipalities. Rural proliferation of mobile homes will not be considered.
2. This study will be limited to a discussion of the impact of mobile homes since 1955.
3. This study will be limited to recommendations concerning mobile home courts and mobile home subdivisions. This does not include single lot, private mobile homes. This does not include travel trailers or similar recreation vehicles not used for permanent residences.
4. This study will not deal with recommendations for standards of mobile home unit construction or design.
5. This study will concentrate on the impact of mobile homes on municipalities in the State of Michigan. The recommendations are therefore limited to municipalities in Michigan.

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<sup>7</sup>Ibid.

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### Methodology and Procedure

1. A search of the literature concerned with mobile homes and municipal regulation was completed.
2. In-depth interviews were conducted with personnel at all levels connected with mobile home court planning and regulation.

This included the following:

- a. Officials at the local and state level with responsibility for the health, safety and planning of mobile home courts;
- b. Manufacturers of mobile homes and their national representatives at the Mobile Homes Manufacturer's Association offices (MHMA) in Chicago;
- c. Michigan Mobile Homes Association in Detroit and Minnesota Mobile Homes Association in St. Paul, Minnesota;
- d. Mobile homes court managers and owners in Minneapolis, St. Paul and Hastings, Minnesota, Elgin, Illinois, Whitmore Lake, Grand Ledge, Macomb County, Michigan and several owners within the Tri-County Region of Lansing, Michigan.
- e. Mobile home inhabitants in Whitmore Lake, Grand Ledge and East Lansing, Michigan. The author and his wife lived in a mobile home for three years in the above locations.

A list of these interviews is presented in the Appendix.

1. The information  
interviews  
they are provided  
material in
2. Model ordinance  
provisions and
3. Recommendations

The literature  
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- Eric Parks and
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- provides a clear
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- Municipal Regulation
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- information on the
- the zoning on mobile
- area by Alan Back
- Mobile Homes vs.
- Mobile Tax Levy and

3. The information obtained from the literature and the interviews was analyzed and placed in the categories as they are presented in the table of contents. Pertinent material is outlined and graphically presented.
4. Model ordinances are discussed; model plans and specifications are presented.
5. Recommendations for municipal action are presented.

#### Review of Literature

The literature on mobile homes is not extensive. Most of the articles written merely describe the recent developments in mobile home living. Only three or four books and as many theses deal with municipal regulation of mobile homes. The most widely cited reference is probably Mobile Home Parks and Comprehensive Community Planning by Ernest R. Bartley and Frederick H. Bair (1960). This monograph provides a clear and useful explanation of mobile home taxation, zoning and planning. A research paper entitled Municipal Regulation of Mobile Home Parts in Minnesota by Leigh Grosenick (1965, University of Minnesota) analyzes the municipal and state roles in taxation and zoning of mobile homes. Two theses from Michigan provide detailed information on taxation and zoning, The Effects of Restrictive Zoning on Mobile Home Living in the Detroit Metropolitan Area by Alan Backler (1955, University of Michigan) and Mobile Homes vs. Non-Mobile Homes, A Study of Mobile Homes, Their Tax Levy and Contribution to the Community with a

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Direct Relationship to Density by James L. White (1965, Wayne State University).

Other relevant literature is of a rather specialized nature, published mainly by government agencies such as, the Federal Housing Administration, state leagues of municipalities and state departments of health and taxation, United States Department of Health, Education and Welfare, university research and extension bureaus, the American Institute of Planners, the Mobile Homes Manufacturers Association, theses, and research publications in academic journals.

The salient features of these publications are reviewed within this thesis in the section where they are most relevant.

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## CHAPTER II

### ANALYSIS OF THE PRESENT IMPACT OF MOBILE HOMES ON MUNICIPALITIES

#### The National Housing Market

The housing market in recent years has been showing a lag in conventional one and two-family housing construction. In March of 1967, Fortune magazine stated:

. . . housing has been in a general downtrend relative to gross national product, since 1950. Housing missed the boom of the past several years. Looking back on those years, G. T. Bogard, head of General Electric's new division involved in developing "new cities," recently observed that housing is "the only major industry failing to participate in the greatest economic boom the world has ever known." Within a year or two, however, the situation may be just the reverse, with housing construction outpacing the economy as a whole.<sup>1</sup>

The graph in Figure 1 examines the total housing production as measured by the Census Bureau to February 1968.

This total production is further broken down to measure permanent housing starts of one, two or multifamily units as in Table 1, or to measure private, non-farm housing starts as in Table 2.

This decline in housing production, along with other factors, such as; increased costs of material and labor,

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<sup>1</sup>Morris Cohen, "The Coming Boom in Housing," Fortune (May, 1967), p. 137.

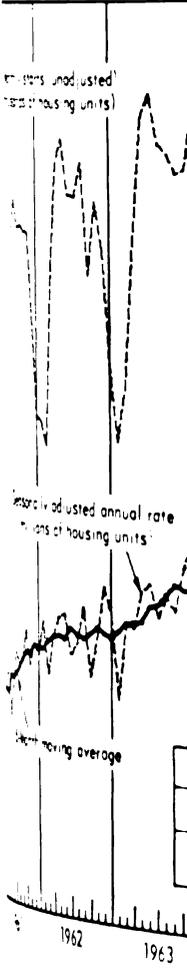


Figure 1.-

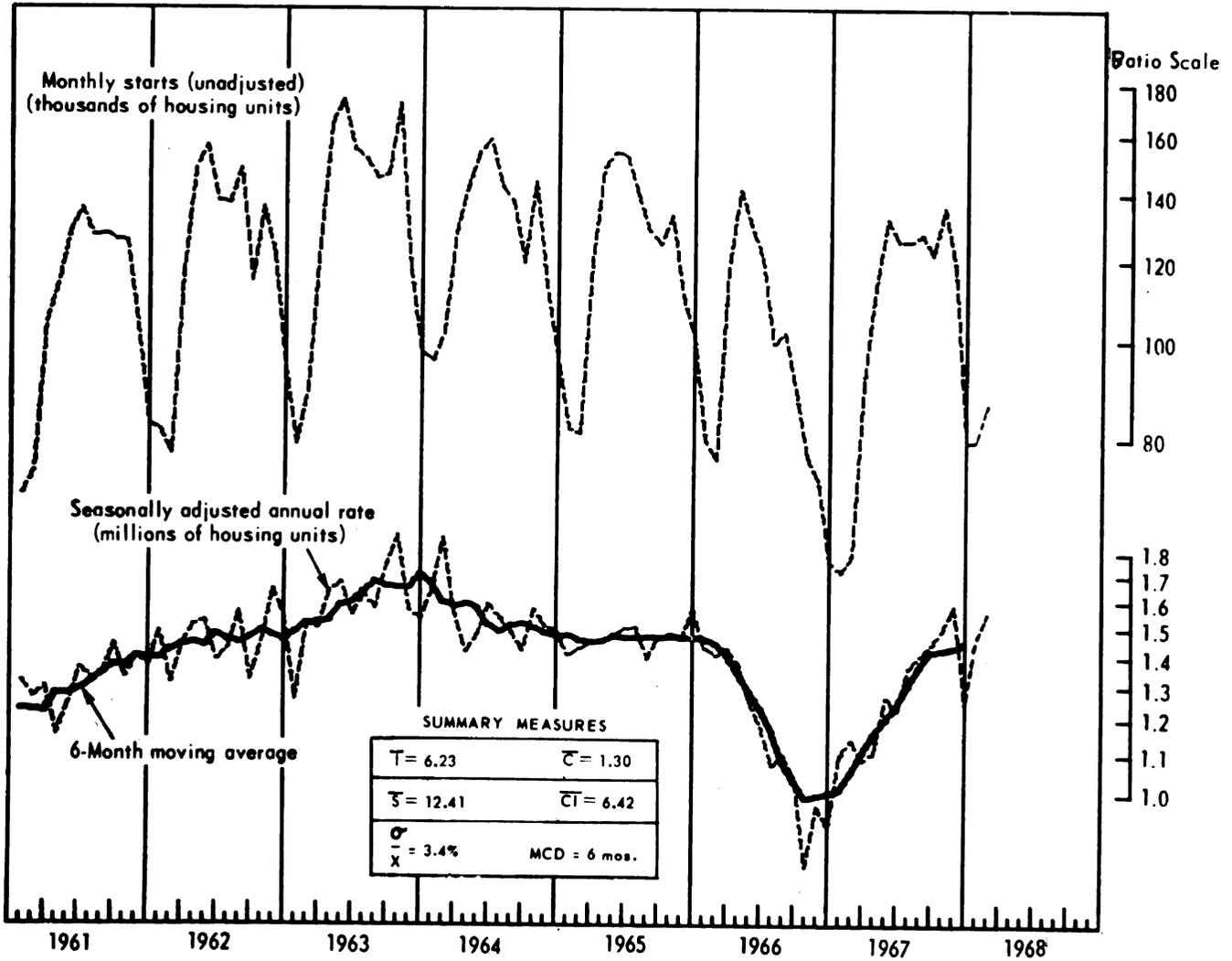


Figure 1.--New Private Housing Starts 1961-1968

Year	Total
1945	200
1946	810
1947	810
1948	810
1949	810
1950	1,000
1951	1,300
1952	1,300
1953	1,300
1954	1,300
1955	1,300
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Source: 1945-1950  
1959-1965

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TABLE 1.--Permanent Dwelling Units Started (By Type of Structure) 1945-1965.<sup>a</sup>

Year	Total*	Number of Units (in thousands)			As Percentage of Totals		
		One Family	Two Family	Multi- Family	One Family	Two Family	Multi- Family
1945	209	184	9	16	88.0	4.3	7.7
1946	670	590	24	56	88.0	3.6	8.4
1947	849	740	34	56	87.2	4.0	8.8
1948	932	767	47	118	82.3	5.0	12.7
1949	1,025	794	37	194	77.5	3.6	18.9
1950	1,386	1,154	45	197	82.7	3.2	14.1
1951	1,091	900	40	151	82.5	3.7	13.8
1952	1,125	942	46	139	83.6	4.1	12.3
1953	1,104	938	42	124	85.0	3.8	11.2
1954	1,220	1,078	34	108	88.4	2.8	8.8
1955	1.329	1.194	33	102	89.8	2.5	7.7
1956	1,118	990	31	97	88.5	2.8	8.6
1957	1.042	873	33	136	83.8	3.2	13.0
1958	1,209	975	39	195	80.7	3.2	16.1
1959	1,379	1,095	53	231	79.4	3.8	16.8
1959	1.554	1.251	39	244	80.5	3.8	15.7
1960	1.296	1,009	50	237	77.9	3.8	18.2
1961	1,365	989	50	326	72.4	3.7	23.9
1962	1.492	996	56	440	66.8	3.7	29.5
1963	1.641	1,022	61	558	62.3	3.7	34.0
1964(e)	1,580						
1965(e)	1,580						

Source: 1945-1959 Bureau of Labor Statistics (old series)  
1959-1965 Department of Commerce, Bureau of Census  
(new series)

\* 1945-1959 excluding farms  
1959-1965 including farms, breakdown of solely nonfarm units  
by type of structure is not available in Bureau  
of Census revised series.

<sup>a</sup>James White, Mobile Homes vs. Non-Mobile Homes  
(unpublished Master's Thesis, Department of Urban Planning,  
Wayne State University, 1965), p. 14.



TABLE 2.--New Privately-Owned Housing Units Started 1963-1967.

Period	Total	In structures with-					Inside SMSA's	Outside SMSA's	Regions			
		1 unit 2 units 3 and 4 5 units or more							Northeast	North Central	South	West
		1 unit	2 units	3 and 4 units	5 units or more	(NA)						
<b>INCLUDING FARM HOUSING</b>												
1963.....	1,610.3	1,020.7	53.2	(NA)	(NA)	1,129.4	480.9	261.2	327.6	591.0	430.5	
1964.....	1,529.3	961.5	53.5	54.5	450.0	1,073.2	456.0	253.6	339.2	581.6	354.9	
1965.....	1,472.9	963.8	50.8	35.8	422.4	1,011.9	460.8	270.2	361.5	574.8	266.4	
1966.....	1,165.0	778.5	34.7	26.6	325.1	787.7	377.3	206.6	288.3	472.6	197.6	
1967.....	1,291.6	843.9	41.4	30.2	376.1	902.9	388.7	214.9	337.1	519.5	220.1	
During first two months:												
1967: 1967.....	120.5	80.4	3.8	2.5	33.8	84.1	36.4	17.0	20.6	59.5	23.5	
1968p.....	167.1	101.2	5.9	4.1	55.9	125.1	42.0	15.0	29.8	78.3	44.0	
1967: February.....	61.4	40.3	2.0	1.6	17.6	42.8	18.6	8.9	9.9	29.8	12.9	
March.....	9.15	66.6	2.2	1.2	21.5	62.0	29.5	9.1	20.9	44.8	16.6	
April.....	113.7	79.8	3.7	1.6	23.6	76.2	37.6	22.4	30.9	45.8	17.0	
May.....	132.0	87.3	3.0	3.6	37.0	90.5	41.6	22.4	39.4	47.9	22.3	
June.....	125.4	87.6	3.0	3.3	31.6	84.3	40.6	19.6	36.4	48.8	20.6	
July.....	125.3	82.3	4.5	2.9	35.6	87.1	38.2	27.5	32.4	44.9	20.4	
August.....	127.4	83.7	4.1	3.7	36.8	89.1	39.3	17.4	26.8	49.5	23.7	
September.....	121.9	73.2	3.3	3.1	31.7	85.2	36.1	24.9	46.0	20.9	20.9	
October.....	135.4	82.7	3.0	3.4	44.8	83.7	36.7	24.9	32.6	51.2	21.7	
November.....	118.4	63.1	3.2	3.5	29.1	83.9	34.4	32.4	35.1	46.5	17.4	
December.....	80.1	47.0	3.2	1.7	22.2	41.8	19.3	13.9	14.3	33.4	16.1	
1968: Januaryp.....	80.4	45.1	2.8	1.3	30.4	62.5	17.9	8.2	14.7	34.4	22.9	
Februaryp.....	86.7	56.1	3.3	1.9	35.5	67.6	14.1	6.8	14.3	43.9	31.1	
<b>EXCLUDING FARM HOUSING</b>												
1963.....	1,580.9	993.2	53.7	38.3	329.1	1,177.5	459.2	241.0	300.4	570.6	430.5	
1964.....	1,502.3	841.5	51.2	34.0	300.0	1,152.7	409.2	192.2	281.3	561.3	354.7	
1965.....	1,450.6	841.7	51.2	34.0	299.0	1,151.0	408.0	192.2	281.3	561.3	354.7	
1966.....	1,341.5	793.3	52.1	34.1	281.1	1,060.4	384.2	173.7	271.0	515.8	317.3	
1967.....	1,488.4	843.7	41.4	30.2	376.1	1,112.3	388.7	214.9	337.1	519.5	220.1	
During first two months:												
1967: 1967.....	113.0	77.9	3.8	2.5	33.8	84.1	36.4	17.0	20.6	59.5	23.5	
1968p.....	174.5	97.4	5.9	4.1	55.9	125.1	42.0	15.0	29.8	78.3	44.0	
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March.....	9.15	66.6	2.2	1.2	21.5	62.0	29.5	9.1	20.9	44.8	16.6	
April.....	113.7	79.8	3.7	1.6	23.6	76.2	37.6	22.4	30.9	45.8	17.0	
May.....	132.0	87.3	3.0	3.6	37.0	90.5	41.6	22.4	39.4	47.9	22.3	
June.....	125.4	87.6	3.0	3.3	31.6	84.3	40.6	19.6	36.4	48.8	20.6	
July.....	125.3	82.3	4.5	2.9	35.6	87.1	38.2	27.5	32.4	44.9	20.4	
August.....	127.4	83.7	4.1	3.7	36.8	89.1	39.3	17.4	26.8	49.5	23.7	
September.....	121.9	73.2	3.3	3.1	31.7	85.2	36.1	24.9	46.0	20.9	20.9	
October.....	135.4	82.7	3.0	3.4	44.8	83.7	36.7	24.9	32.6	51.2	21.7	
November.....	118.4	63.1	3.2	3.5	29.1	83.9	34.4	32.4	35.1	46.5	17.4	
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<b>EXCLUDING FARM HOUSING</b>												
1963.....	1,580.9	993.2	53.7	38.3	329.1	1,177.5	459.2	241.0	300.4	570.6	430.5	
1964.....	1,502.3	841.5	51.2	34.0	300.0	1,152.7	409.2	192.2	281.3	561.3	354.7	
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March.....	9.15	66.6	2.2	1.2	21.5	62.0	29.5	9.1	20.9	44.8	16.6	
April.....	113.7	79.8	3.7	1.6	23.6	76.2	37.6	22.4	30.9	45.8	17.0	
May.....	132.0	87.3	3.0	3.6	37.0	90.5	41.6	22.4	39.4	47.9	22.3	
June.....	125.4	87.6	3.0	3.3	31.6	84.3	40.6	19.6	36.4	48.8	20.6	
July.....	125.3	82.3	4.5	2.9	35.6	87.1	38.2	27.5	32.4	44.9	20.4	
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1968: Januaryp.....	80.4	45.1	2.8	1.3	30.4	62.5	17.9	8.2	14.7	34.4	22.9	
Februaryp.....	86.7	56.1	3.3	1.9	35.5	67.6	14.1	6.8	14.3	43.9	31.1	

(NA) Not available.

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Table 3.--Average

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2. "Why U.S.  
 1961, p. 89.

increased quality and equipment in houses and subdivisions, and increased land costs, has caused a continuing increase in the average price of conventional housing since 1954.

TALBE 3.--Average Price of Conventional Housing 1954-1964.<sup>a</sup>

Year	Average Price
1954	\$ 10,625
1955	11,350
1956	12,225
1957	13,025
1958	12,950
1959	13,425
1960	13,800
1961	13,875
1962	14,325
1963	14,875
1964	15,572

% gain 1954-1965--46%

<sup>a</sup>Vincent Candiano, The Mobile Home Industry (New York: An Institutional Report for P. W. Brooks and Co., Nov. 1965) as cited by Margaret Drury, Some Social and Institutional Factors Relating to the Increased Utilization of Mobile Industrialized Housing During the Decade from 1955 to 1965 (unpublished Master's Thesis, Cornell University, Department of Housing and Design, 1967), p. 91.

The U.S. has long prided itself on being the best-housed nation in human history. Now, that standing is jeopardized by the soaring cost of homes and apartments. . . The President acted after his Council of Economic Advisers warned that building costs were getting out of step with the economy "by a substantial margin."<sup>2</sup>

<sup>2</sup>"Why U.S. Housing Costs too Much," Time (June 7, 1968), p. 89.

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Sorting out the cause of increased housing costs is a difficult issue which has been argued from both sides of the demand-pull, cost-push question. The increased costs may be caused by higher building costs (labor and materials) or by better houses with more features (appliances, curbs, paved streets, etc.); but it may also be caused by rising prices in response to a demand for housing which is not filled by the construction industry.

. . . the gap between potential demand and actual construction in 1966 reduced the vacancy rate to the lowest level in quite a few years, and this year a backlog of demand will be building up. By 1969, as a result, housing starts might climb all the way to the two-million level projected for the first half of the Seventies.

Whether housing construction actually gets that high in 1969, or averages that high in the first half of the next decade, will to a great extent depend on factors other than potential demand. It is by no means certain that the housing industry will be capable of building two million units a year, or that enough mortgage money will be available to finance two million a year. What is certain is that the potential market will be there.<sup>3</sup>

This demand-pull argument to account for the increase in price is not inclusive enough because the elasticity of housing demand appears to be very low and cost-push factors are discernible beyond those associated directly with construction.

So far, the Sixties have witnessed a widening discrepancy between rising incomes and laggard housing. The real value of the total housing stock has been increasing at a slower rate than

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<sup>3</sup>Cohen, op. cit., pp. 136-.37.

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<sup>4</sup> Ibid., pp.

real income . . . Purchases of new housing have declined relative to income in part because the one-family house has offered the purchaser less and less for his money. For some year now, various factors have operated to increase the costs of home ownership relative to the benefits.

One of these factors is the relentless climb of land prices in and near metropolitan areas. . . For the past four years, FHA figures show lot prices going up about 7.5% a year, but home builders have been reporting a very much steeper rate of rise.

The cumulative effects of rocketing land prices help explain both the long downtrend in housing as a share of G.N.P. and the relative decline of the one-family house . . . Since no important relief can be expected from rising land costs, burdensome real estate taxes or high-priced maintenance services, it is up to the home-building industry itself to try to provide more house for the money.<sup>4</sup>

The question then, of whether the demand for single-family homes is unsatisfied or whether it has shifted for other reasons outside of cost is an unresolved issue, but a shift has occurred with apartment, duplexes, public housing and mobile homes helping to fill the gap between the rate of population increase and the declining rate of single family construction. These newer types of housing are urban related; and as such, they are related to other large scale changes in the U. S. population.

1. the increasing growth of metropolitan areas in the United States (Figures 2 and 3, p. 16).
2. the increasing percentage of U. S. population who now live in metropolitan areas as compared to rural and non-metropolitan areas (Figure 4, p. 17).

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<sup>4</sup>Ibid., pp. 230-231.

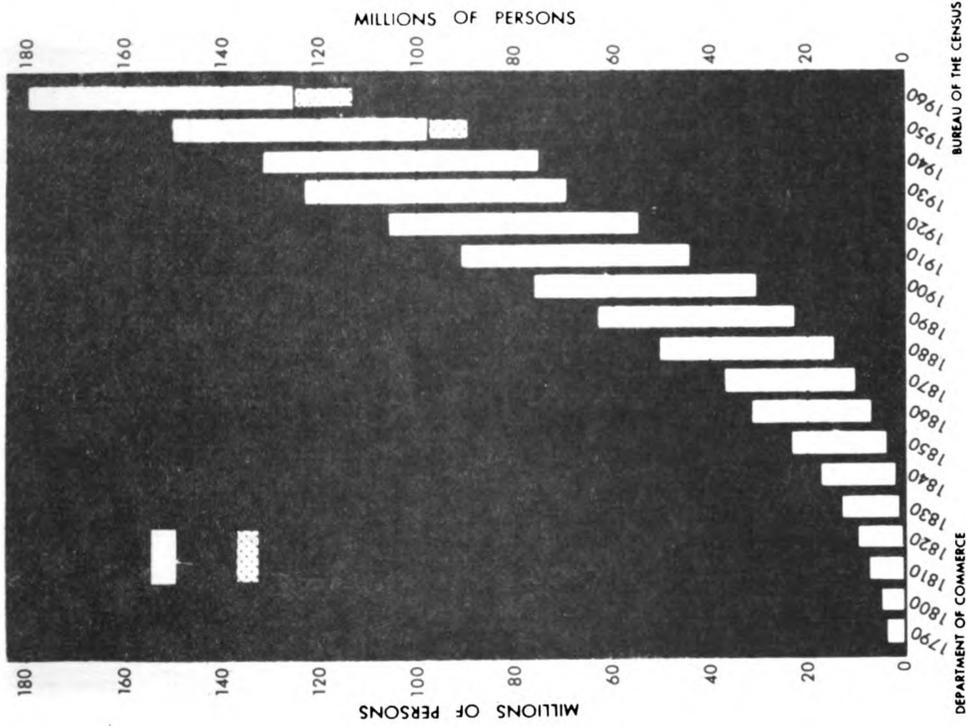


Figure 2.--Urban and Rural Population: 1790-1960

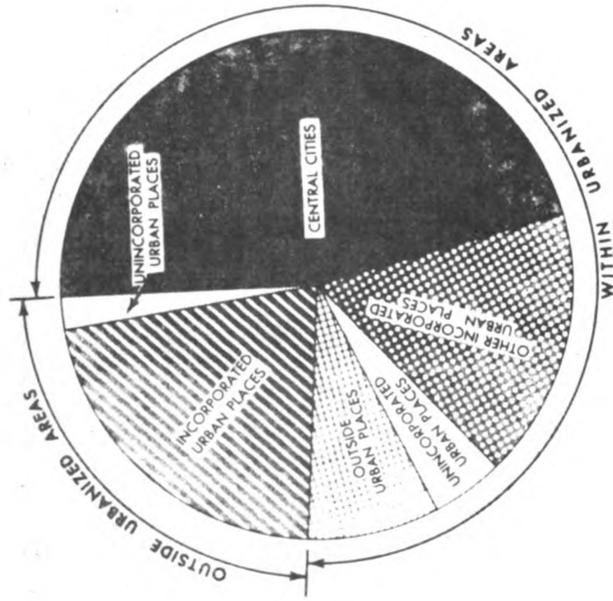


Figure 3.--Composition of the Urban Population: 1960

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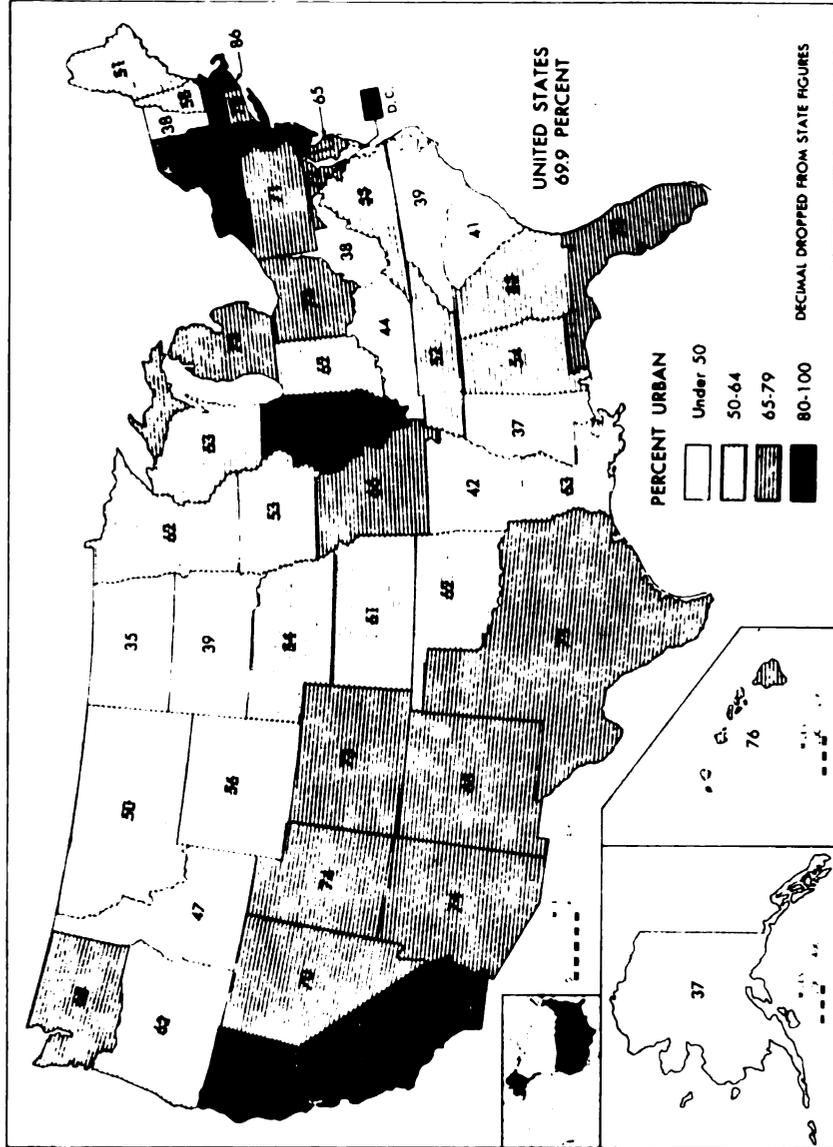


Figure 4.--Percent of Population Urban, by Stated: 1960

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TABLE 4.--Mobi

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The Mobile Home Industry

Census figures do not include mobile homes in housing starts, but if mobile home shipments are added, we can easily notice the recent impact of mobile home production on the housing supply. In 1965, mobile home shipments amounted to 14.2% of total construction and 23.0% of single-family construction.<sup>5</sup>

It is particularly important to notice that mobile homes have also captured 78% of the housing starts under \$12,500 (see Figure 6) and 37% of all speculatively built homes in 1965 (see Table 4).

TABLE 4.--Mobile Homes as a Per Cent of Sales of Speculatively-Built Homes 1963-1965.<sup>a</sup>

Period	Mobile Homes as a	
	% of Single-Family Starts	% of Sales of Speculatively Built Homes
1963	15.2%	26.9%
1964	20.3	33.8
First Seven Months 1964	19.6%	37.0%
1965	19.8	37.1

<sup>a</sup>"Mobile Home Sales Show Increasing Market Vigor," Savings and Loan News (November, 1965), p. 1.

<sup>5</sup>See Table 6, pp.22-23,"Mobile Homes and Conventional Dwelling Units Compared."



Figure 5.--A

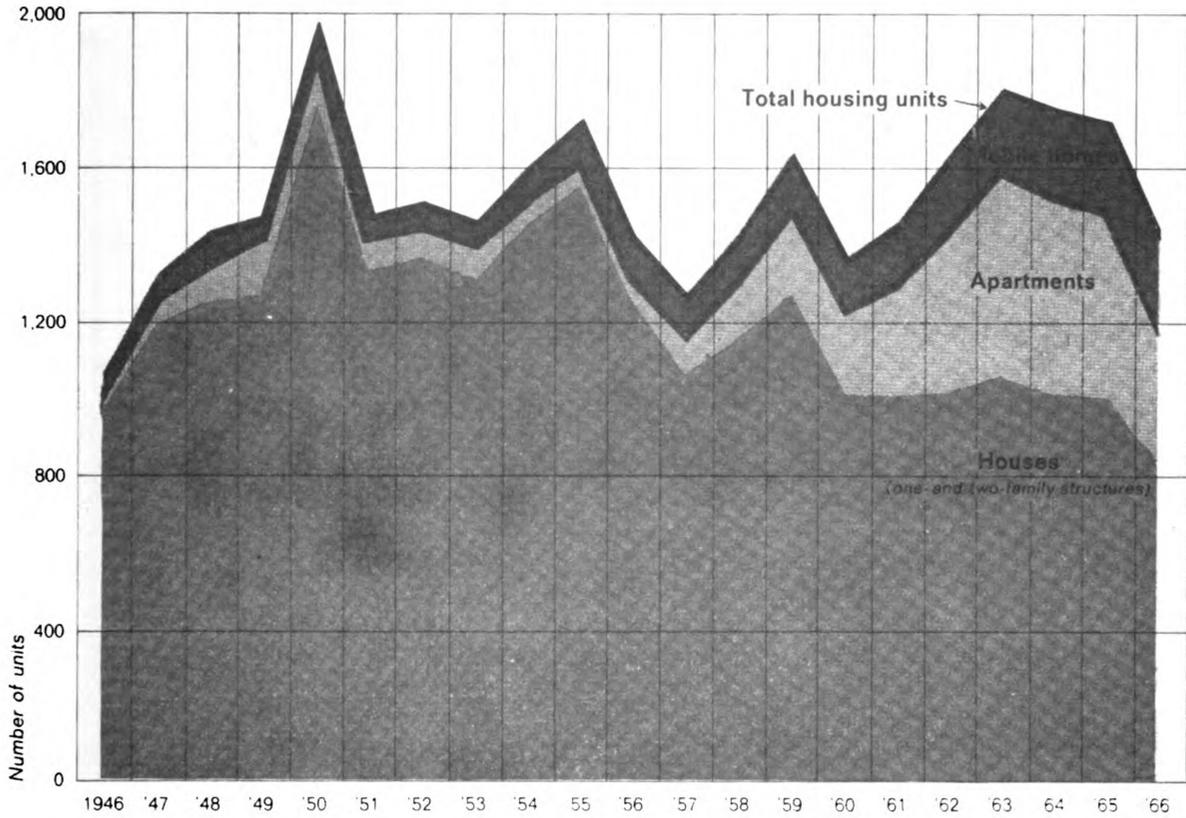


Figure 5.--Annual Housing Production, including Mobile Homes: 1946-1966.

Figure 1. *Anticardiolipin antibody titer (AU/ml) in patients with primary biliary cirrhosis (PBC) and controls.*



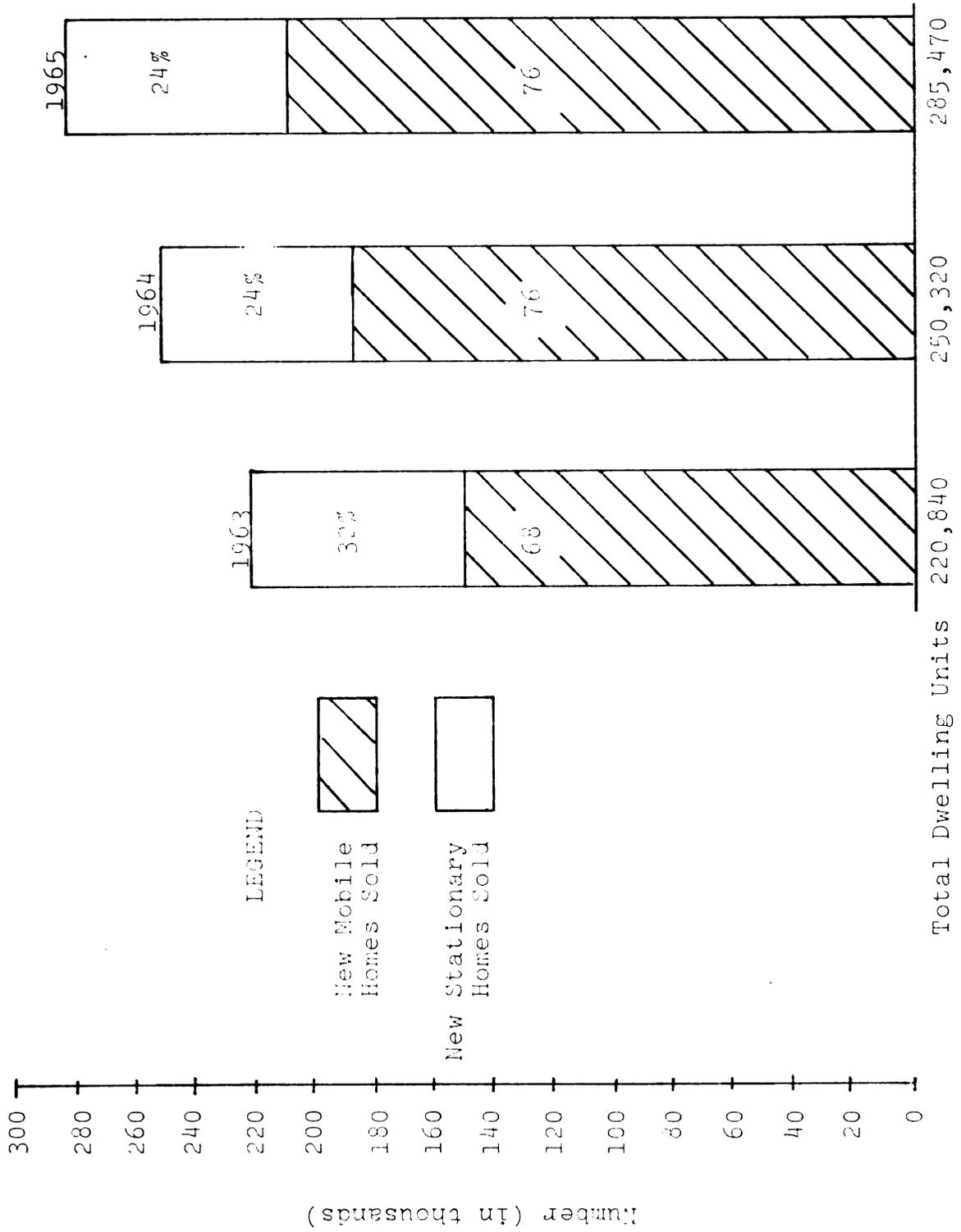
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Figure 6.--Mobile Home Industry's Share of the Low Cost Housing Market\*:  
 1963-1965 (Prepared by Elrick and Lavidge, Inc.).



\*New primary dwelling units sold for \$12,500 or less

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TABLE 5.--Basic

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Further analysis of the impact of mobile home shipments on single family housing is shown in the following tables and graphs which compare production totals and percentage gains. (See Table 6 and Figure 7.)

Some of the reasons for the increase in mobile homes v. single-family homes can be analyzed in terms of cost alone. Table 7 points out two cost relationships: (1) Mobile homes cost significantly less than single-family homes; (2) Mobile homes have increased in price much less during the decade.

Another significant difference in cost is noted when the cost per square foot is compared.

TABLE 5.--Basic Costs of a Mobile Home Versus a Single-Family Home.<sup>a</sup>

Basic Costs	Mobile Home	Single-Family Home
Purchase price	\$5,600	\$16,200
Living space (sq. ft.)	500	1,206
Cost per sq. ft.	\$11.20	\$ 13.50

<sup>a</sup>Frederick H. Bair, Jr., Mobile Homes and the General Housing Supply (Chicago: Mobile Homes Manufacturers Association, May, 1966), p. 2.

These cost differences alone will draw people to mobile homes, but financing, purchase contracts and moving costs are also significantly different.

TABLE 6.--Mobile Homes and Conventional Dwelling Units Compared.\*  
1960 - First Quarter 1966

YEAR	CONVENTIONAL				MOBILE HOMES					
	TOTAL	Total Nonfarm	Private Nonfarm		Total Mobile Homes	As % of Conventional				
			Total	2 or more family		One-Family	TOTAL	Total Nonfarm	Private Nonfarm	
1960	1,296.0	1,274.0	1,230.1	257.2	972.9	103.7	8.0	8.9	8.4	10.7
1961	1,365.0	1,336.8	1,284.8	338.6	946.2	90.2	6.6	6.7	7.0	9.5
1962	1,492.4	1,468.7	1,439.0	471.2	967.8	118.0	7.9	8.0	8.2	12.2
1963	1,641.0	1,613.4	1,581.7	588.5	993.2	150.8	9.2	9.3	9.5	15.2
1964	1,590.7	1,563.7	1,530.4	585.9	944.5	191.3	12.0	12.2	12.5	20.3
1965	1,542.7	1,520.4	1,482.7	542.6	940.1	216.5	14.0	14.2	14.6	23.0
3 mo."66	296.5	291.9	281.9	110.5	171.4	45.7	15.4	15.7	16.2	26.7
TOTAL	9,224.3	9,068.9	8,306.6	2,894.5	5,936.1	916.2	9.9	10.1	10.4	15.4

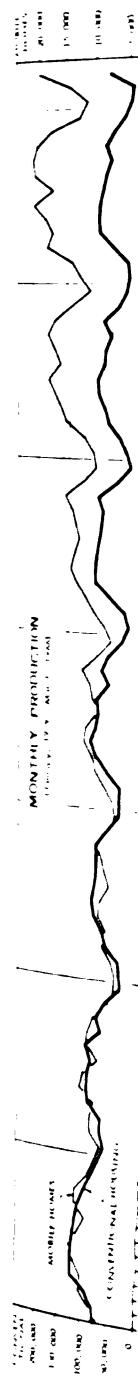
YEAR	TOTAL	Total	CONVENTIONAL AND MOBILE HOMES COMBINED		Mobile Homes as % of
			Private	Nonfarm	

CONVENTIONAL AND MOBILE HOMES COMBINED

YEAR	TOTAL	Private Nonfarm				Mobile Homes as % of				
		Total Nonfarm	Total	One-Family		TOTAL	Total Nonfarm	Private Nonfarm		
				Total	Conv.			M.H.	Total	1-Family
1960	1,399.7	1,377.7	1,333.8	1,076.6	972.9	103.7	7.4	7.5	7.8	9.6
1961	1,455.2	1,427.0	1,375.0	1,036.4	946.2	90.2	6.2	6.3	6.6	8.7
1962	1,610.4	1,586.7	1,557.0	1,085.8	967.8	118.0	7.3	7.4	7.6	10.9
1963	1,791.8	1,764.2	1,732.5	1,144.0	993.2	150.8	8.4	8.5	8.7	13.2
1964	1,782.0	1,755.0	1,721.7	1,135.8	944.5	191.3	10.7	10.9	11.1	16.8
1965	1,759.2	1,736.9	1,699.2	1,156.6	940.1	216.5	12.3	12.5	12.7	18.7
3 mo. '66	342.2	337.6	327.6	217.1	171.4	45.7	13.4	13.5	13.9	21.1
TOTAL	10,140.5	9,985.1	9,746.8	6,852.3	5,936.1	916.2	9.0	9.2	9.4	13.4

Numbers in thousands.

<sup>a</sup>Frederick H. Bair, Jr., Mobile Homes and the General Housing Supply (Chicago: Mobile Homes Manufacturers Association, May, 1966), p. 2.





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TABLE 7.--Average Purchase Price of a Mobile Home Versus the Average Price of a Conventional One-Family Home.<sup>a</sup>

Year	Average Purchase Price of a	
	Mobile Home (1)	Conventional One-Family Home (2)
1954	\$ 4,380	\$ 10,625
1955	4,130	11,350
1956	5,000	12,225
1957	5,000	13,025
1958	5,000	12,950
1959	5,000	13,425
1960	5,000	13,800
1961	5,600	13,875
1962	5,600	14,325
1963	5,600	14,875
1964	5,600	15,575
% Gain	31%	46%

(1) Mobile Home Manufacturers Association

(2) U.S. Department of Labor

<sup>a</sup>Vincent Candiano, The Mobile Home Industry (New York: An Institutional Report for P. W. Brooks and Co., November, 1965).

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A salesman can cite a purchase price of \$5,600 as compared to the builder's \$16,200 for a minimum four-room frame house.

A conservative buyer putting down 20% can move into a mobile home on a payment of \$1,120. A similar down-payment on a 1,206 sq. ft. single-family home runs up to \$3,243 and the furniture must be moved in if not purchased (Mobile homes come fully equipped with furniture, drapes, appliances, etc.)

The story is a little different on monthly costs. For the mobile home, monthly costs run about \$146 per month, while principal, interest, taxes and insurance on the frame home run up to \$113. The big item on a mobile home is the rental of space which can be \$40 or more in a good park. From the buyer's view, the big advantage is that the mobile home buyer gets a clear title after 60 months of payment.

Another cost factor favoring the mobile home is the simplicity of moving. . . Packing and loading a four-room house takes a full day at both ends of the line. There is also the usual hazard that a partial load requires the carrier to be diverted, causing a delay of several days. . . Short hauls (of a mobile home) are cheaper than moving. On long hauls, costs appear to balance out.<sup>6</sup>

Because of the attractive purchase contracts which are similar to automobile sales contracts and receive high interest rates for short terms, Savings and Loan companies are watching the investment potential and the impact of this market carefully.

The U.S. Leage made a major effort in 1963 to obtain the power to provide full financing service to the mobile home industry. Despite an excellent presentation, the power was not added to those enjoyed by federal saving and loans. However, many associations have made individual spot loans through

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<sup>6</sup>"Mobile Home Sales Show Increasing Market Vigor," Savings and Loan News (Nov., 1965), p. 2.

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the expedient of having the mobile home owner attach his unit to a foundation, however simple. The unit then becomes in the eyes of the legal experts a single-family dwelling in every sense of the word.

Several outstanding, fully equipped, attractively planned and coordinated mobile parks have been financed by savings associations. The roadblock in the expansion of the mobile home is the availability of the good home parks. The savings and loan business is helping to meet this need, but the associations need broader powers to be able to participate in the financing of this increasingly important segment of the industry's housing market.

The reason for hesitance by banks and savings and loan associations involves the high risk of such short-term installment loans and the poor handling of delinquencies. The automotive industry has created its own set of credit and repossession methods to handle this situation over the years but the mobile home industry is only beginning to tighten up its controls. Research by the Finance Division of Mobile Homes Manufacturers Association shows the following rate of delinquencies and accounts outstanding (Figure 8). Finance companies have been picking up a larger portion of the contracts recently, and delinquent accounts have dropped off with improved handling of contracts.

Although mobile home production and its percentage of housing starts are both increasing, the portion of mobile homes in the total existing housing supply is still

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<sup>7</sup>Ibid., p. 2.

BANKS [ ] FINANCE COMPANIES [ ] TOTAL [ ]

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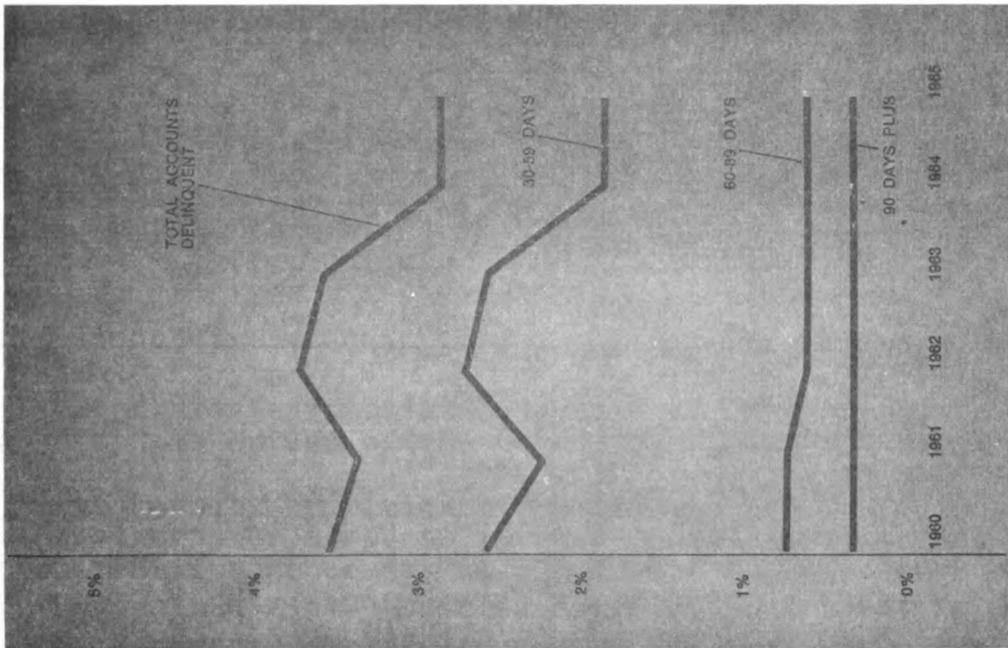
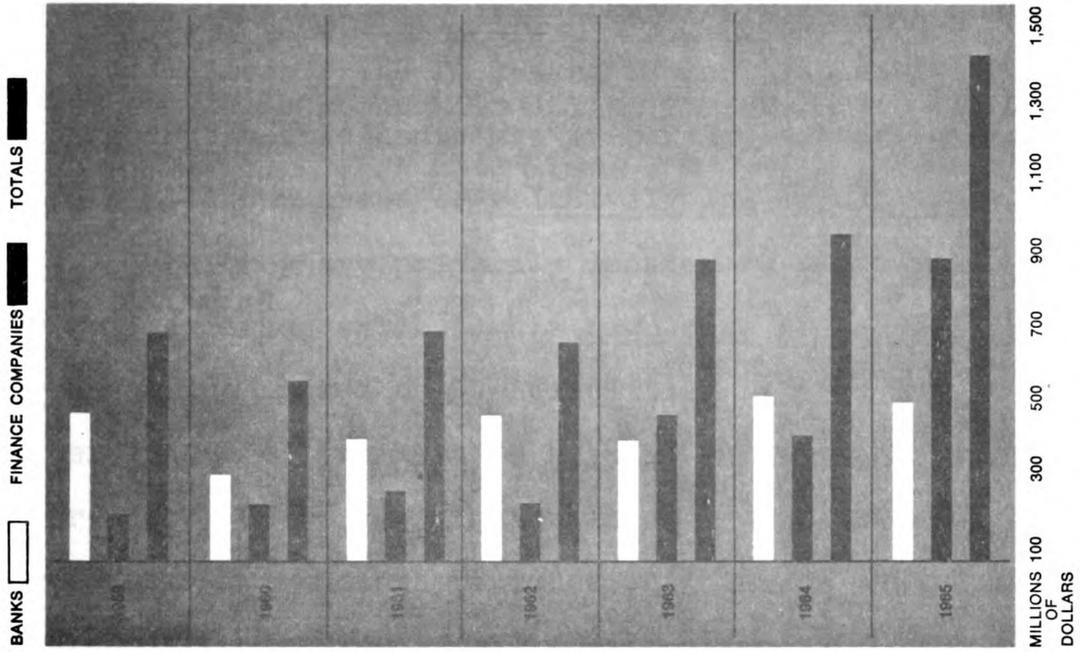


Figure 8.--Installment Loan Delinquencies: 1960-1965.

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relatively low as shown by the percentages in the following tables. The location of these mobile homes however, is especially significant in relation to population changes in the United States. The following tables (Tables 8-13) indicate that mobile homes are primarily located in states and metropolitan areas of relatively low population density; and they are primarily located in states and metropolitan areas which have a high rate of population increase. The impact on municipalities is also apparent. The percentage of trailers is highest in the urban balance of large city SMSAs and highest in the rural areas of small city SMSAs. This points to municipalities in the rural and urbanizing fringes of SMSAs as the important focus of mobile home development.<sup>8</sup>

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<sup>8</sup>Standard Metropolitan Statistical Area (SMSA) as defined by the Bureau of the Census includes:

First, a city or cities of specified population [50,000 inhabitants or more] to constitute the central city and to identify the county in which it is located as the central county; and second, economic and social relationships with contiguous counties which are metropolitan in character . . . [at least 75 per cent of the labor force of the county must be in the non agricultural labor force].

U.S. Bureau of the Census, U.S. Census of Housing: 1960 (Washington, U.S. Government Printing Office, 1960), p. LI.

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TABLE 8.--Number and Per Cent of Mobile Home Households Compared with Total Number of Households.<sup>a</sup>

	Number of Households in United States	Number of Households in Mobile Homes	Percent Living in Mobile Homes
<u>Starting Household</u> (Married, pre-school children only or married less than 8 years and no children)	7,800,000	230,000	
<u>Developed Household</u> (Married, school-age children present)	18,200,000	110,000	0.6
<u>Childless Household</u> (Married more than 7 years, head of household under 55 years of age and no children)	3,900,000	60,000	
<u>Contracted Household</u> (No children present, head of household 55 years of age or older)	16,000,000	140,000	0.8
<u>Special Households</u> (All other households)	6,500,000	50,000	0.8
<u>Mobile Occupation Households</u> (Head of household in occupation requiring moves every 2 years or more often)	1,000,000	210,000	

Source: Special Bulletin, Mobile Home Dealers National Association, Chicago, Illinois, March 27, 1962. Research conducted by Elrick and Lavidge Co.

<sup>a</sup>Margaret Drury, Some Social and Institutional Factors Relating to the Increased Utilization of Mobile Industrial Housing During the Decade from 1955 to 1965 (unpublished Master's Thesis, Cornell University, Dept. of Housing and Design, 1967), p. 5

TABLE 9.--V-4 Per Cent

Population Density  
per square mile

0.0-10.0  
10.1-25.0  
25.1-50.0

Source: U.S. Census  
Metropolitan H

<sup>1</sup>Number of

TABLE 10.--Per Cent

Population Density  
Per Square Mile

0.0- 15.0  
15.1-250.0  
250.1 plus

Sources: U.S. Census  
and Statistical  
Data

<sup>a</sup>Drury, op

TABLE 9.--V-4 Per Cent Trailers by Population Increase by States: 1950-1960.<sup>a</sup>

Population Density per square mile	Number <sup>1</sup>
0.0-10.0	18
10.1-25.0	20
25.1-50.0	12

Source: U.S. Census of Housing: 1960, op. cit., Metropolitan Housing. Table A-6.

<sup>1</sup>Number of cases in each category.

TABLE 10.--Per Cent Trailers by Population Density of States.<sup>a</sup>

Population Density Per Square Mile	Number <sup>1</sup>
0.0- 15.0	10
15.1-250.0	32
250.1 plus	8

Sources: U.S. Census of Housing: 1960, op. cit., States and Small Areas. Table 5. U.S. County and City Data Book, 1962, op. cit.

<sup>a</sup>Drury, op. cit., p. 26.

TABLE 11.--Per  
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250.1-500.  
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Source: U.S. C  
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500,000-1,000,000  
250,000-500,000  
100,000-250,000

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Sources: U.S. C  
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TABLE 11.--Per Cent of Standard Metropolitan Statistical Area Total Housing That is Trailers: By Population Density.<sup>a</sup>

Population Density per square mile	Number <sup>1</sup>
0.0-250.0	67
250.1-500.0	57
500.1-1,000.0	36
1,000 plus	29

Source: U.S. Census of Housing: 1960, op. cit.,  
Metropolitan Housing. Table A-6.

TABLE 12.--Distribution of Standard Metropolitan Statistical Area Trailer Housing by City Size.<sup>a</sup>

City Class	Number Cities in Each Class	% of Trailers in Central City of SMSA	% of Trailers in Urban Balance of SMSA	% of Trailers in Rural Area of SMSA
1,000,000 plus	24	14.3		28.9
500,000-1,000,000	27	22.2		30.8
250,000-500,000	48	23.3	36.4	
100,000-250,000	90	27.3	26.6	

Sources: U.S. Census of Housing: 1960, Vol. II, Metropolitan Housing, Parts 1-200: SMSAs. Final Report HC(2)-1. U.S. Government Printing Office, Washington, D.C., 1963. Table II. County and City Data Book, 1962 (A Statistical Abstract Supplement), Table 3, pp. 432,440,448.

<sup>a</sup>Drury, op. cit., p. 27.

TABLE 13.--Per Cent  
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Population Increase

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25.1-50.0  
50.0-75.0  
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Source: U.S. Census  
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9. Where Hous  
Week (September 3,

TABLE 13.--Per Cent of SMSA Total Housing That Is Trailers  
by Population Increase: 1950-1960.<sup>a</sup>

Population Increase	Number <sup>1</sup>
0.0-10.0	24
10.1-25.0	73
25.1-50.0	67
50.0-75.0	11
75.1 plus	14

Source: U.S. Census of Housing: 1960, op. cit.,  
Metropolitan Housing. Table A-6.

<sup>1</sup>Number of cases in each category.

<sup>a</sup>Drury, op. cit., p. 28.

#### Regional Markets for Mobile Homes

After discussing the national growth of the mobile home industry, attention must be focused down on mobile homes as a regional phenomenon:

These and other major companies sell nationally but since transportation costs run high--about 50¢ a mile--they try to locate factories where the action is. . . There are still more than 250 companies, but a gradual shake-out is under way. The industry now boasts more than a dozen companies with sales topping 10 million. Six companies turn out about a third of the total production.

Size, however, is no guarantee of advantage in prime markets. Most big companies get vigorous competition from small, local producers.<sup>9</sup>

<sup>9</sup>"Where Housing Market Has Lots of Life," Business Week (September 3, 1966), p. 150.

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Shipments

The 1964 figures show the following distribution of shipments to various regions in the United States. Shipments are relatively evenly distributed in the U.S. with the exception of the South Atlantic region with a share of 25% (Table 14, Figure 9).

This picture of shipments to states is almost completely reversed however when the shipments are compared to population. The states with the leading number of shipments per 1000 population in 1965 are shown in Table 15.

## 1964 Mobile

## SOUTH ATLANTIC

Deleware	1
Washington D.C.	2
Florida	7
Georgia	4
Marland	1
North Carolina	5
South Carolina	2
Virginia	3
West Virginia	1
TOTAL	25

## EAST NORTH CENTRAL

Illinois	1
Indiana	1
Michigan	1
Ohio	1
Wisconsin	1
TOTAL	5

## WEST NORTH CENTRAL

Iowa	1
Kansas	1
Minnesota	1
Missouri	1
Nebraska	1
North Dakota	1
South Dakota	1
TOTAL	7

## NEW ENGLAND

Connecticut	1
Maine	1
Massachusetts	1
New Hampshire	1
Rhode Island	1
Vermont	1
TOTAL	6

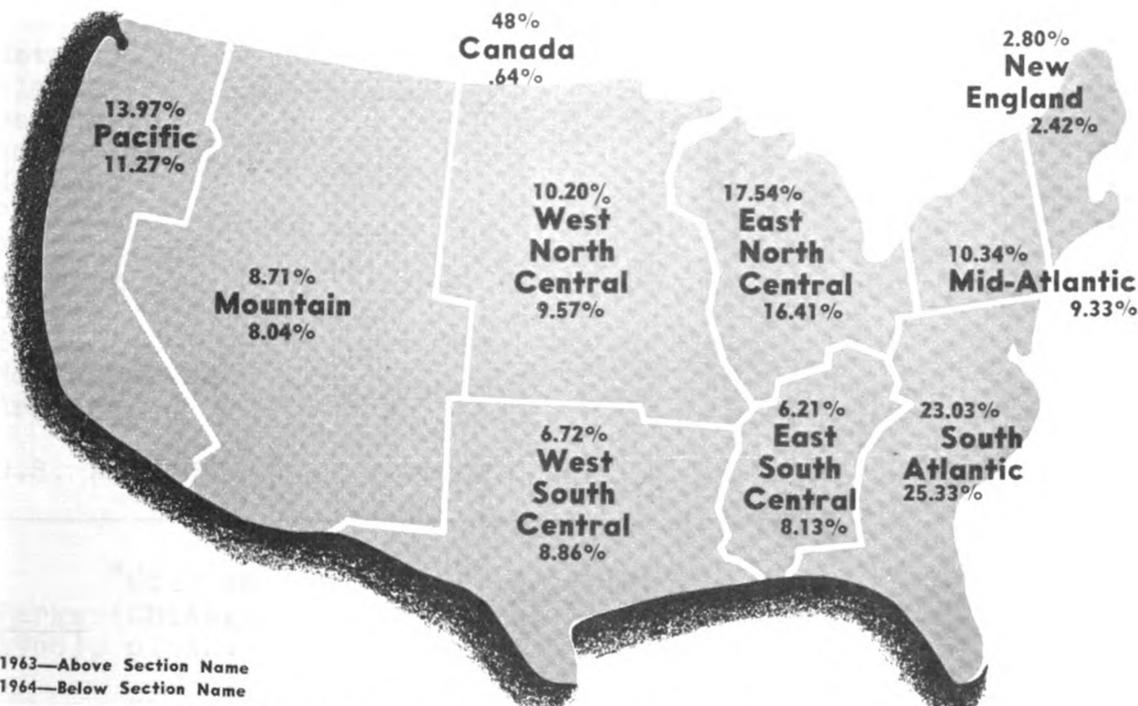
13.97%  
Pacific  
11.27%

1963—Above Section No.  
1964—Below Section No.

Figure 9.---

TABLE 14.

1964 Mobile Home Distribution Pattern To Retail Dealers								
1964			1963			1962		
<b>SOUTH ATLANTIC</b>						<b>MOUNTAIN</b>		
Delaware	.77%	.57%	.57%	Arizona	1.69%	1.95%	1.80%	
Washington D.C.	.01%	.02%	.03%	Colorado	1.75%	1.81%	1.83%	
Florida	7.02%	7.19%	6.87%	Idaho	.85%	.67%	.86%	
Georgia	4.33%	3.73%	2.46%	Montana	1.24%	1.22%	1.27%	
Maryland	1.08%	1.08%	1.14%	Nevada	.72%	1.03%	1.40%	
North Carolina	5.06%	4.48%	2.77%	New Mexico	.96%	1.01%	.97%	
South Carolina	2.71%	2.27%	1.78%	Utah	.40%	.64%	.85%	
Virginia	3.62%	3.03%	2.65%	Wyoming	.43%	.38%	.43%	
West Virginia	.73%	.66%	.68%	TOTAL	8.04%	8.71%	9.35%	
TOTAL	25.33%	23.03%	18.95%	<b>MID ATLANTIC</b>				
<b>EAST NORTH CENTRAL</b>								
Illinois	3.37%	3.40%	4.18%	New Jersey	.92%	1.20%	1.16%	
Indiana	3.38%	4.03%	4.58%	New York	4.26%	4.91%	5.65%	
Michigan	3.86%	3.78%	4.32%	Pennsylvania	4.15%	4.23%	4.56%	
Ohio	3.93%	4.16%	4.60%	TOTAL	9.33%	10.34%	11.37%	
Wisconsin	1.87%	2.17%	2.22%	<b>PACIFIC</b>				
TOTAL	16.41%	17.54%	19.90%	Alaska	.39%	.41%	.46%	
<b>WEST NORTH CENTRAL</b>								
Iowa	.77%	1.07%	1.22%	California	7.22%	9.46%	9.62%	
Kansas	1.47%	1.35%	1.66%	Hawaii	.00%	.01%	.00%	
Minnesota	1.66%	1.78%	1.65%	Oregon	2.09%	2.15%	1.75%	
Missouri	2.57%	2.55%	2.73%	Washington	1.57%	1.94%	2.04%	
Nebraska	.96%	1.10%	1.07%	TOTAL	11.27%	13.97%	13.87%	
North Dakota	.85%	.81%	.66%	<b>WEST SOUTH CENTRAL</b>				
South Dakota	1.29%	1.54%	1.74%	Arkansas	1.59%	1.01%	.83%	
TOTAL	9.57%	10.20%	10.73%	Louisiana	2.38%	1.47%	1.06%	
<b>NEW ENGLAND</b>								
Connecticut	.48%	.45%	.56%	Oklahoma	1.41%	1.20%	1.24%	
Maine	.53%	.46%	.55%	Texas	3.48%	3.04%	3.25%	
Massachusetts	.56%	.99%	1.14%	TOTAL	8.86%	6.72%	6.38%	
New Hampshire	.52%	.52%	.64%	<b>EAST SOUTH CENTRAL</b>				
Rhode Island	.09%	.12%	.11%	Alabama	2.39%	1.66%	1.33%	
Vermont	.24%	.26%	.41%	Kentucky	1.79%	1.56%	1.51%	
TOTAL	2.42%	2.80%	3.41%	Mississippi	1.44%	1.11%	1.07%	
						<b>CANADA</b>		
						.64%		
						.48%		
						.55%		
						100%		
						100%		
						100%		



1963—Above Section Name  
1964—Below Section Name

NATIONAL DISTRIBUTION OF MOBILE HOMES AND TRAVEL TRAILERS

Figure 9.--National Distribution 1963-1964, to Retailers by Region

APP 15.--Number  
Shipped p

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State

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California  
Florida  
North Carolina  
Michigan  
New York  
Ohio  
Georgia  
Virginia (and D.  
Pennsylvania  
Illinois  
Indiana  
Texas

11-State Total

Total U.S.

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Nevada  
Alaska  
Delaware  
South Dakota  
Montana  
Florida  
Arizona  
Wyoming  
Oregon  
Idaho  
North Dakota  
Arkansas

U.S. AVERAGE

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a. William J  
Barks (Chicago:  
1937, p. 12.

TABLE 15.--Number of Mobile Home Units Shipped By State and Shipped per 1000 Population by State 1963-1964.<sup>a</sup>

State	1963	1964
No. of Units		
California	14,931	16,065
Florida	11,548	14,168
North Carolina	6,390	8,619
Michigan	5,616	8,190
New York	6,949	8,089
Ohio	5,848	8,056
Georgia	6,002	7,700
Virginia (and D.C.)	5,424	7,564
Pennsylvania	5,839	7,053
Illinois	5,211	6,784
Indiana	5,126	6,726
Texas	5,145	6,680
12-State Total	84,029	105,694
Total U.S.	150,840	191,320
No. of Delivered Units Per 10,000 Pop. (1960)		
Nevada	56.5	56.9
Alaska	28.0	35.9
Delaware	19.6	34.3
South Dakota	28.0	31.9
Montana	22.8	31.0
Florida	23.3	28.6
Arizona	25.3	28.4
Wyoming	20.7	25.2
Oregon	19.1	24.1
Idaho	16.2	22.5
North Dakota	17.6	22.3
Arkansas	11.3	21.0
U.S. AVERAGE	8.4	10.7

<sup>a</sup>William J. Randall, Appriaisal Guide for Mobile Home Parks (Chicago: Mobile Homes Manufacturers Association, 1966), p. 12.

Randall p

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10. William  
Hose Parks (Chic  
1930), pp. 11-12

11. Mobile H  
Industry Report  
Association, 1930

12. "Where H  
p. 150.

Randall points out that,

This second method of ranking the states reflects more accurately the degree of popularity of mobile homes in various states. Nevada's high rank is accelerated by the expansion of government installations, high construction costs of other forms of housing in Alaska affect its ranking. Retirement living has, in part, placed Arizona and Florida high on the list.<sup>10</sup>

### Production

The production picture, as opposed to shipments, shows greater unevenness among regions, with the East North Central region (Illinois, Indiana, Michigan, Ohio, Wisconsin) dominating mobile home production in terms of volume, per cent of volume, dollar value and number of plants.

. . . despite the dispersion of factories, certain areas continue to be important production centers.<sup>11</sup>

. . . the Great Lakes area that spawned the industry still has the biggest share of output; Indiana alone turns out 20%.<sup>12</sup>

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<sup>10</sup>William J. Randall, Appraisal Guide for Mobile Home Parks (Chicago: Mobile Homes Manufacturers Association, 1966), pp. 11-12.

<sup>11</sup>Mobile Homes Manufacturers Association, 15th Annual Industry Report: 1966 (Chicago, Mobile Homes Manufacturers Association, 1966), p. 19.

<sup>12</sup>"Where Housing Market Has Lots of Life," op. cit., p. 150.

No. Units Produced	% of Prod.	Wholesale \$ Volume	% of Wholesale Volume	Total \$ Value	No. Plants
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42,444	20.76%	\$152,612,585	19.09%	\$ 203,483,447	83
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SOUTH ATLANTIC  
 (D.C., Del., Ga., Fla.,  
 Md., N.C., S.C., Va.,  
 & W. Va.)

EAST NORTH ATLANTIC

TABLE 16.--Regional Mobile Home Production 1964.<sup>a</sup>

	No. Units Produced	% US Prod.	Wh'sle \$ Volume	% US Wh'sle Volume	Retail \$ Value	No. Plants
SOUTH ATLANTIC (D.C., Del., Ga., Fla., Md., N.C., S.C., Va. & W. Va.)	42,444	20.76%	\$152,612,585	19.09%	\$ 203,483,447	83
EAST NORTH CENTRAL (Ill., Ind., Mich., Ohio, Wisc.)	73,529	35.95%	280,034,149	35.02%	373,378,865	107
WEST NORTH CENTRAL (Iowa, Kans., Mo., Minn., Nebr., N.D., S.D.)	18,393	8.99%	70,972,377	8.87%	94,629,836	35
WEST SOUTH CENTRAL (Ark., La., Okla., Texas)	15,274	7.47%	58,825,607	7.36%	78,434,139	39
EAST SOUTH CENTRAL (Ala., Ky., Miss., Tenn.)	9,465	4.63%	36,423,918	4.55%	48,565,224	17
MID-ATLANTIC (N.J., N.Y., Pa.)	16,977	8.30%	64,999,453	8.13%	86,665,937	40
NEW ENGLAND (Conn., Maine, Mass., N.H., Vt., R.I.)	4	.00%	1,280	.00%	1,707	1
PACIFIC (Alaska, Calif., Hawaii, Ore., Wash.)	21,739	10.63%	108,074,045	13.52%	144,098,827	67
MOUNTAIN (Ariz., Colo., Adaho, Mont., Nev., N.M., Utah, Wyo.)	6,692	3.27%	27,649,819	3.46%	36,866,425	25
TOTALS	204,515	100.00%	\$799,593,233	100.00%	\$1,066,124,407	414

<sup>a</sup> A Market Study, op. cit., p. 16.

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Table 17, p. 40.

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Table 18, p. 41)  
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The leading states in mobile home production for 1964 show Indiana and Michigan as number one and number two respectively. Michigan is interesting because it produces more units with only one-half as many plants as California which ranks third in total production, however California ranks number two in wholesale and retail value of sales because the units are higher priced. (See Table 17, p. 40.)

Michigan and Indiana together have been the two leading states in production for the early '60's. (See Table 18, p. 41) The change in production during the last five years, however, shows the relative decline in dominance of the East North Central region. (Table 19)

This changing picture of production and shipments for the first half of the 60's is shown in the chart in Figure 10. The percentage of production of the East North Central region is declining while its percentage of shipments remains stable. In the South Atlantic region however, the percentage of production and percentage of shipments has been growing steadily. (Figure 10, p. 43)

TABLE 17. --Leading States in 1964 Production.<sup>a</sup>  
 (Mobile Homes and Special Units Only)

State	No. Plants	Total Units	% U.S. Volume	Wholesale \$ Value	% U.S. Wholesale Value
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TABLE 17.--Leading States in 1964 Production.<sup>a</sup>  
(Mobile Homes and Special Units Only)

State	No. Plants	Total Units	% U.S. Volume	Wholesale \$ Value	% U.S. Wholesale \$ Value
INDIANA	60	44,574	21.79%	\$162,521,136	20.32%
MICHIGAN	28	22,823	11.16%	90,720,010	11.35%
CALIFORNIA	59	20,285	9.92%	100,942,258	12.62%
GEORGIA	26	19,668	9.62%	69,962,463	8.75%
PENNSYLVANIA	37	16,892	8.26	64,968,438	8.13%
TEXAS	25	9,772	4.77%	37,886,454	4.74%
KANSAS	12	8,887	4.34%	34,347,495	4.29%
NEBRASKA	9	5,159	2.53%	20,867,602	2.61%
IDAHO	10	4,603	2.25%	17,101,631	2.14%
all other states	148	51,852	25.36%	200,265,746	25.05%
Total	414	204,515	100.00%	\$799,593,233	100.00%

<sup>a</sup>A Market Study, op. cit., p. 11.

TABLE 18.--Lea

State	
Michigan	13
Indiana	13
California	10
Kansas	6
Georgia	
Pennsylvania	

<sup>a</sup> Mobile Home  
 Industry Report:  
 Owners Association

TABLE 18.--Leading States in Production 1961-1965.<sup>a</sup>

State	1961	1962	1963	1964	1965
Michigan	18,530	17,970	22,220	22,699	17,330
Indiana	13,900	24,410	32,290	41,489	43,490
California	10,800	13,770	16,810	19,264	18,930
Kansas	6,010	--	8,550	--	--
Georgia	--	9,230	15,750	19,312	25,300
Pennsylvania	--	--	--	16,392	19,760

<sup>a</sup>Mobile Homes Manufacturers Association 15th Annual Industry Report: 1966 (Chicago: Mobile Homes Manufacturers Association, 1966), p. 19.

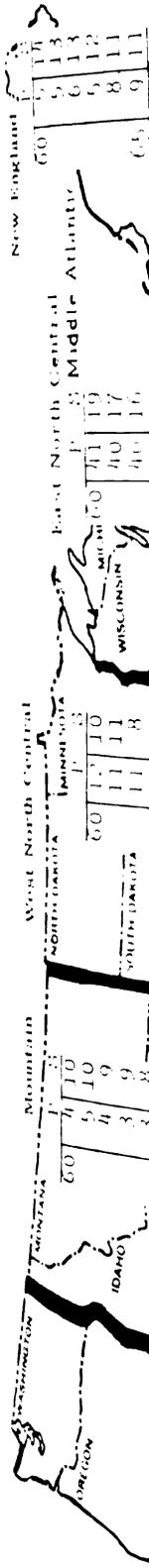
TABLE 19.--Regional Mobile Home Production 1961-1965.<sup>a</sup>

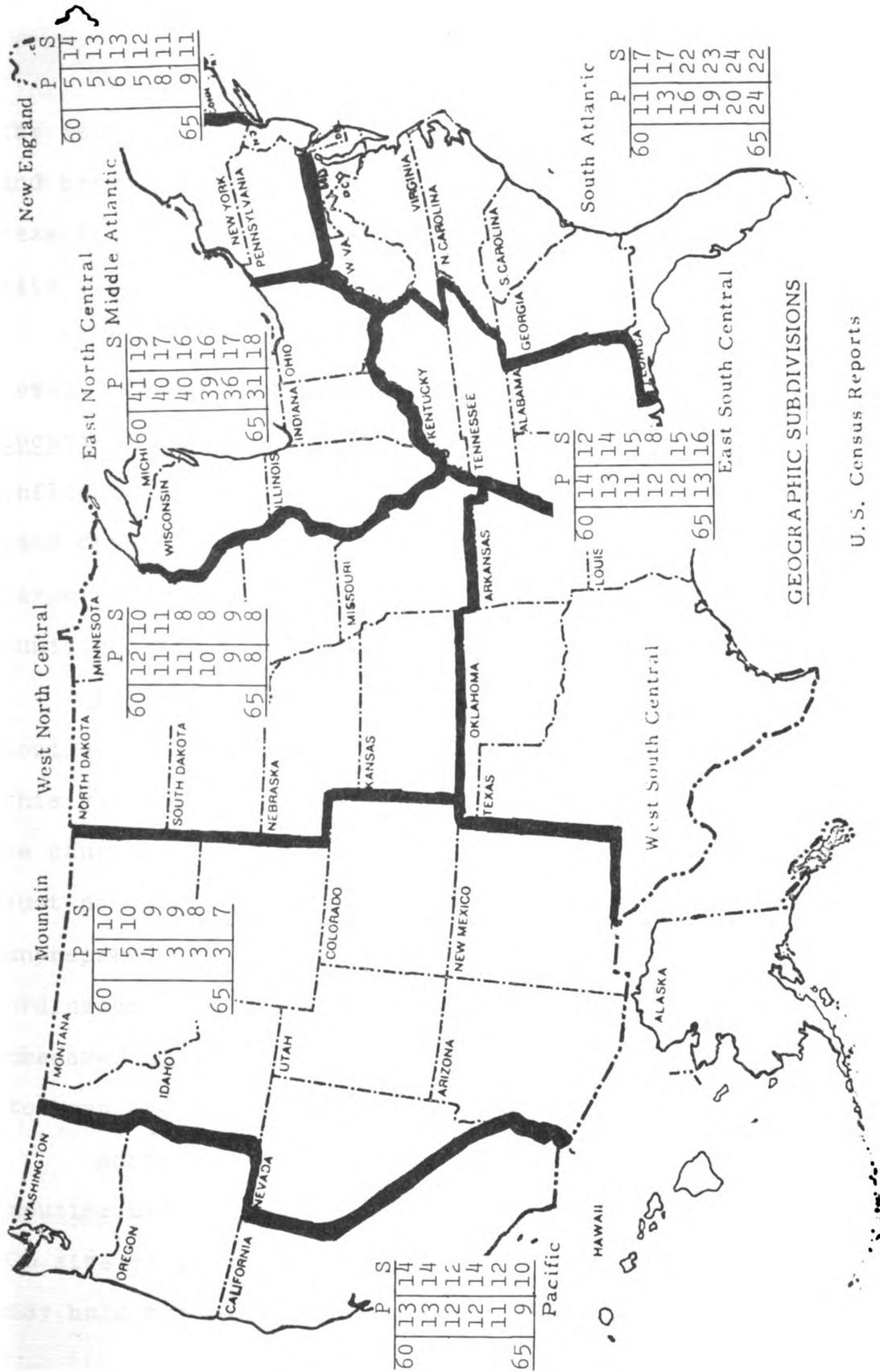
1961		1962		1963		1964		1965	
Units	%								

TABLE 19.--Regional Mobile Home Production 1961-1965. <sup>a</sup>

	1961		1962		1963		1964		1965	
	Units	%								
NORTHEAST (Conn., Me., Mass., N.Y., N.Y., N.Y., Pa., R.I., Vt.)	4,350	5	7,250	6	8,010	5	16,470	8	20,090	9
EAST NORTH CENTRAL (Ill., Ind., Mich., Ohio, Wis.)	36,630	40	47,530	40	59,850	39	70,130	36	68,170	31
WEST NORTH CENTRAL (Iowa, Kans., Minn., Mo., Nebr., N.D., S.D.)	10,280	11	13,250	11	15,410	10	18,100	9	18,920	8
SOUTH ATLANTIC (Del., D.C., Fla., Ga., Md., N.C., S.C., S.C., Va., W.Va.)	12,270	13	19,320	16	29,130	19	39,840	20	52,530	24
SOUTH CENTRAL (Ala., Ark., Ky., La., Miss., Okla., Tenn., Texas)	12,330	13	13,750	11	18,600	12	24,360	13	34,570	16
MOUNTAIN (Ariz., Colo., Idaho, Mont., Nev., N.M., Utah, Wyo.)	4,530	5	4,830	4	5,200	3	6,300	3	7,000	3
PACIFIC (Calif., Ore., Wash., Alaska, Hawaii)	11,810	13	14,540	12	17,740	12	20,720	11	20,760	9

<sup>a</sup>Mobile Homes Manufacturers Association 15th Annual Industry Report: 1966 (Chicago, Mobile Homes Manufacturers Association, 1966), p. 19.





U.S. Census Reports

Figure 10.--Production and Shipments of Mobile Homes, Regional Percentages: 1960-1965.

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## Regulation and Taxation of Mobile Homes

The housing and population situation is only one of the issues which public officials must face in analyzing and providing for mobile homes. Other issues such as taxation, zoning, mobile home inhabitants and mobile home site development must also be explored.

This section will discuss these issues on the national level. At this level, the issues center mainly on the location of mobile homes due to legislative and economic influences, and the economic feasibility of mobile home land development. Both of these considerations depend to a large extent on the regulatory and economic structure of municipal and state government.

Let us for a moment examine the assumption that mobile homes will be the subdivision of the future. From this viewpoint, it is easy to see that municipalities could be caught unprepared--even looking in the wrong direction--just as suburbs during the last two decades were caught unprepared for tract development and subdivisions. Zoning ordinances and subdivision regulations which were hastily prepared after the fact, left most municipalities struggling to keep ahead of unorganized growth.

Admittedly, the mobile home will not be the only housing unit in the future, perhaps not even a major unit. On site construction of apartments and conventional housing may hold the market for many years with the support of

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<sup>14</sup>"Marketing  
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<sup>15</sup>"One Hous:

zoning, building codes, union labor, imbedded social values and rising land costs. But, more probably, mobile homes will become a very significant portion of new housing development, even larger than its present portion.

Elmer Bratt, a housing authority who heads the department of economics at Lehigh University, comments: "I have noted an improvement in the quality of mobile homes. I would expect them to represent an increasing share of the total housing market."<sup>13</sup>

Mobile homes have already taken over 25% of private housing starts for 1967. February production in 1968 is 40% ahead of the 1967 figure. Marketing projections indicate a 15-20% increase in 1968, pushing shipments over 275,000 units annually.<sup>14</sup> "From 1961 through 1967, sales of mobile homes jumped 167 per cent--while housing starts for conventional single-family homes dropped 14 per cent."<sup>15</sup>

Yet municipalities are doing little or nothing in the way of planning. They do not realize that more than one out of every four single-family housing starts was a mobile home in 1967, nor do they consider the future implications of this assembly line production on the housing market.

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<sup>13</sup>"One Housing Boom That is Growing," U.S. News and World Report (March 11, 1968), p. 82.

<sup>14</sup>Marketing Information Associates, Market Report to Mobile Homes Manufacturers Association (March, 1968), p. 2.

<sup>15</sup>"One Housing Boom That is Growing," op. cit., p. 82.

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Michigan, 1966), p

In Minnesota, for example, there are about 47,000 mobile home residents in 337 mobile home parks. Yet, 50% out of 100 interviewed municipalities put mobile home parks into commercial or industrial zones. An additional 20% would not allow mobile homes or any expansion of existing mobile home parks. Only two municipalities out of 100, had zones specifically for mobile home parks. Table 20 shows the summary of results for this study.

The Michigan situation was studied by Backler in a master's thesis which plotted the location of all mobile home parks in the Detroit Metropolitan Area. The pattern of park location illustrated restrictive zoning practices.

Firstly, most of the mobile home courts were located on main traffic arteries rather than on side streets. This is a reflection of zoning ordinances which stipulate that the courts must have access to main roads. Secondly, they were situated, for the most part, outside of incorporated political units, coming under the jurisdiction of townships where zoning laws are less restrictive.<sup>16</sup>

Detailed analysis of Oakland County within the Detroit Metropolitan Area, further demonstrated the effects of restrictive zoning. One of the township zoning ordinances reads as follows:

Because of the effects of trailer courts on traffic and in as much as trailer courts constitute business use of land for the storage of transient trailer

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<sup>16</sup> Alan Backler, The Effects of Restrictive Zoning on Mobile Home Living in the Detroit Metropolitan Area (unpublished Master's thesis, Department of Geography, University of Michigan, 1966), p. 15.

TABLE 20.--Summary  
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Zone
Residential
Commercial
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Residential & Commercial
Commercial & Industrial
All Zones
Zones not specified
TOTAL*

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\*Totals include  
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<sup>a</sup>Grosenick,

TABLE 20.--Summary of Mobile Home Park Locations, By Zones,  
in Municipalities with Zoning Ordinances.<sup>a</sup>

Zone	Area		Total
	Metro	Non-Metro	
Residential	8 (20.5%)	12 (19.7%)	20 (20%)
Commercial	12 (30.8%)	20 (32.8%)	32 (50%)
Industrial	7 (7.6%)	8 (13.1%)	11 (50%)
Residential & Commercial	1 (2.6%)	3 (4.9%)	4 (4%)
Commercial & Industrial	1 (2.6%)	6 (9.8%)	7 (7%)
All Zones	1 (2.6%)	5 (8.2%)	6 (6%)
Zones not specified	13 (33.3%)	7 (11.5%)	20 (20%)
TOTAL*	39 (100%)	61 (100%)	100 (100%)

\*Totals ninety-four (94), the number of municipalities in which the location of mobile home parks is regulated by zoning provisions, because the aggregate data is derived from Tables 33 and 34, wherein special use and permitted use practices were treated as individual cases in those municipalities indicating different authorization for different zones.

<sup>a</sup>Grosenick, op. cit., p. 82.

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coaches, such courts are operated commercially and shall be excluded from any residential district and may be permitted in General Business Districts.<sup>17</sup>

The author goes on to point out that:

Another township in the same county restricts mobile home courts to what it refers to as "Commercial Number One Zone" which also encompasses such uses as parking lots, transformers, and water and sewage pumping stations.<sup>18</sup>

The author concludes, from the data and questionnaires that he gathered in his study of Oakland County, that restrictive zoning causes many of the problems in mobile home parks:

If zoning remains inflexible while demand increases a point will be reached where the need for spaces to locate mobile homes will exceed the supply. . .

It is the contention of this researcher that if a shortage of unit spaces existed, it would not result from a lack of interest on the part of potential park operators (there are presently proposals for 9 new mobile home courts in the study area alone), but from the hostility of communities toward the establishment of new courts and the expansion of those already in operation.

Again because of inflexible zoning, restricting and controlling the establishment of new courts, the mobile home dwellers in the study area fell victim to a seller's market.

The sites of the courts were examined and shown to be generally undesirable. This does not reflect the mobile home dwellers economic status but rather the environment in which the courts were located.<sup>19</sup>

<sup>17</sup>Township of Farmington, Oakland County, Mich., Zoning Ordinance, Sec. 1409, Subsec. 3, "Trailer courts," as cited in Backler, *ibid.*, p. 11.

<sup>18</sup>Backler, *op. cit.*, p. 11, citing from West Bloomfield Township, Oakland County, Michigan, Zoning Ordinance, Sec. 8 and Sec. 11.

<sup>19</sup>Ibid., pp. 47 and 53.

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Other states such as California and Florida, which have the greatest numbers of mobile homes, have recognized some of the advantages of mobile homes since there is a greater degree of experimentation and capital in the mobile home units and in the parks; yet municipalities in these states often regulate mobile homes harshly and illogically. There is little uniformity in local regulation and taxation anywhere in the United States. This is a major difficulty for an industry which would like to provide complete housing facilities for the consumer.

The Report of the Highway Interim Commission for the State of Minnesota (1967) points out the failure of municipalities to provide adequate regulations for mobile homes.

Municipalities have tended to rely too heavily on health department inspection and, in fact have compounded the problem by:

- 1) Restricting mobile home parks to undesirable sections of the community through their zoning regulations;
- 2) Prohibiting the expansion or building of such parks and thereby failing to stimulate owners to keep pace with improvements in park planning;
- 3) Ignoring the level of development and the market for mobile homes which has resulted in keeping out of the community developers who have large sums of money to invest;
- 4) Failing to regulate the physical appearance of parks which has relegated their regulation to the minimum state-required sanitary facilities and ignored the potential for developing beautiful parks; and
- 5) Failing to distinguish between residential mobile homes and camping trailers, thereby relegating parks to a campground atmosphere.<sup>20</sup>

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<sup>20</sup> Report of the Highway Interim Commission, State of Minnesota, Mobile Homes and the Mobile Home Industry (St. Paul, Consulting Services Corp., 1967), pp. iii, iv.

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Economics, legislation and local politics have held back the mobile home park while the manufacturers have advanced with mass production methods. Because of this contradiction of high sales and limited park facilities (both in terms of number of spaces as well as quality), the municipality and the mobile home owner are faced with a sellers market as described by Backler. But this does not mean that parks are high profit businesses. Few investors have been willing to risk low rate loans, high equity is usually required, property taxes are high and capitalization costs for improvement are also high. Plus, mobile home park owners are now being confronted with increasing state and local regulations while they are being zoned out of many desirable property locations because of local politics and a bad image. A large portion of mobile home parks are relegated to commercial and industrial zones where land values and taxation are higher.

Even where zoning is not a problem, mobile home parks as an urban phenomenon, must compete in the urban real estate market. Low profit margins due to high capitalization and land costs have kept them largely confined to low density areas. This carries two connotations; the outskirts of town or other low value land, and the low density cities of the South and West. A demand curve for mobile homes based on the population density shows the greatest concentration of mobile homes in low density areas.

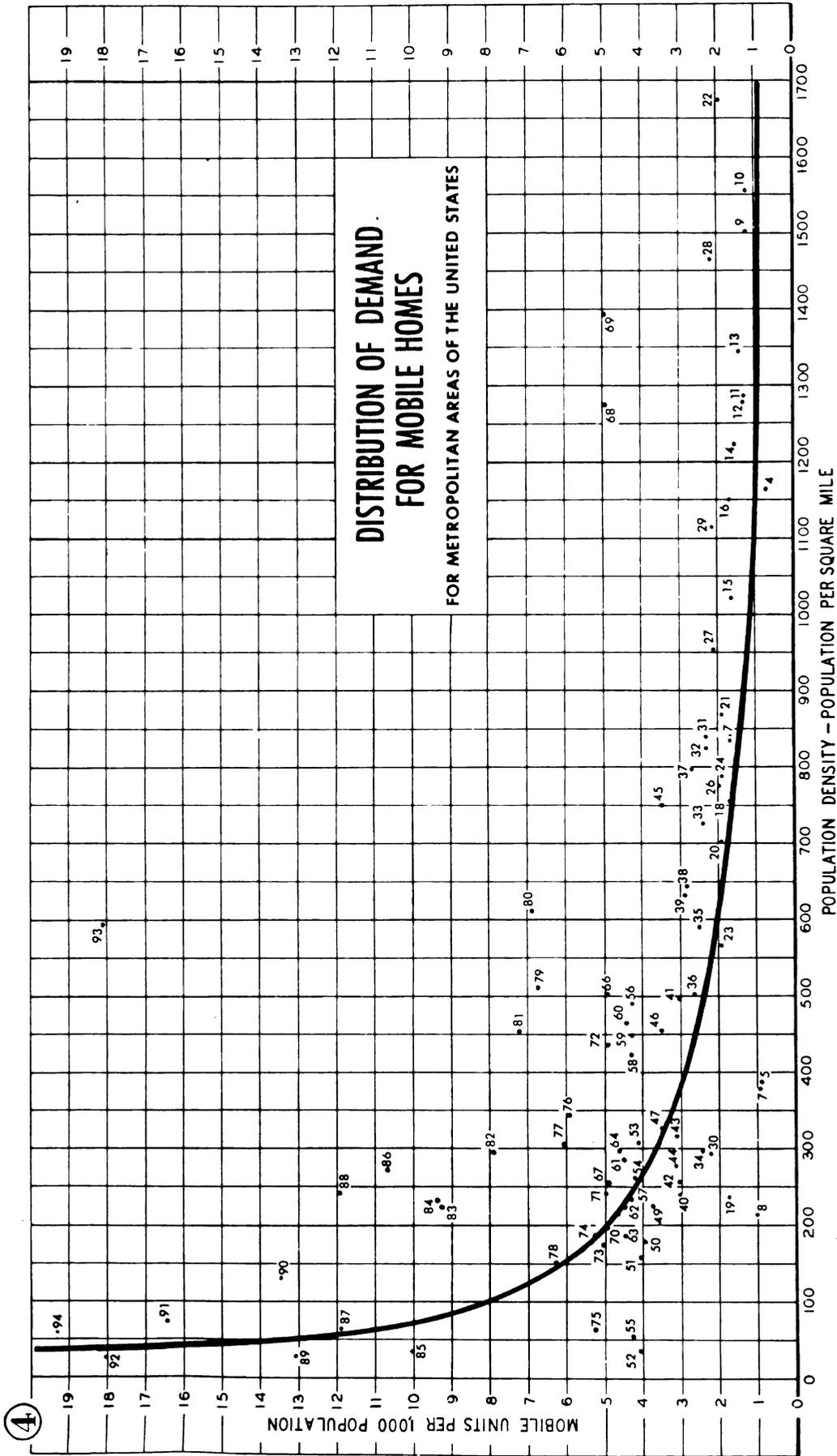


Figure 11.--Distribution of Demand for Mobile Homes for Metropolitan Areas of the United States.

New York, N.Y.  
Newark, N.J.  
Boston, Mass.  
Brenton, N.J.  
Wilkes-Barre--  
Hazleton, Pa.  
Peterson-Clifton--  
Passaic, N.J.  
Greensboro-High  
Point, N.C.  
Jackson, Miss.  
Milwaukee, Wis.  
New Haven, Conn.  
Providence-Pawtuc  
tucket, R.I.-Mass.  
Lowell, Mass.  
Washington, D.C.  
Md.-Va.  
Philadelphia, Pa.  
Hartford, Conn.  
Lawrence-Haverhill  
Mass.-N.H.  
Memphis, Tenn.  
Acroester, Wash.  
Green Bay, Wis.  
Minneapolis--  
St. Paul, Minn.  
Rochester, N.Y.  
Chicago, Ill.  
Birmingham, Ala.  
Pittsburgh, Pa.  
Cleveland, Ohio  
New Orleans, La.  
Baltimore, Md.  
Cincinnati, Ohio  
Springfield-Ohio  
Holyoke, Mass.  
Evansville, Ind.-  
San Francisco  
Oakland, Calif.  
Buffalo, N.Y.

TABLE 21.--Population Density, Population Change 1950-1960, and Trailers per 1000 Population for Metropolitan Areas of the United States.

	Trailers per 1000 Population	Population Density per Sq. Mile	Population Change 1950-60(%)	Code Number (See Chart 4)
New York, N.Y.	.18	4,997	11.9	1
Newark, N.J.	.23	2,420	15.0	2
Boston, Mass.	.52	2,672	7.4	3
Trenton, N.J.	.74	1,168	15.9	4
Wilkes-Barre-- Hazleton, Pa.	.86	389	-11.5	5
Paterson-Clifton- Passaic, N.J.	.90	2,780	24.1	6
Greensboro-High Point, N.C.	.91	379	26.4	7
Jackson, Miss.	1.00	213	31.6	8
Milwaukee, Wis.	1.22	1,502	45.4	9
New Haven, Conn.	1.22	1,558	12.2	10
Providence-Pawtucket, R.I.-Mass.	1.33	1,287	7.4	11
Lowell, Mass.	1.34	1,284	16.2	12
Washington, D.C.- Md.-Va.	1.43	1,348	36.7	13
Philadelphia, Pa.-N.J.	1.53	1,224	18.3	14
Hartford, Conn.	1.60	1,022	29.2	15
Lawrence-Haverhill, Mass.-N.H.	1.61	1,151	2.8	16
Memphis, Tenn.	1.68	835	30.0	17
Worcester, Mass.	1.69	755	6.7	18
Green Bay, Wis.	1.79	238	27.2	19
Minneapolis- St. Paul, Minn.	1.87	702	28.8	20
Rochester, N.Y.	1.89	871	20.3	21
Chicago, Ill.	1.91	1,675	20.1	22
Birmingham, Ala.	1.91	568	13.6	23
Pittsburgh, Pa.	1.93	788	8.6	24
Cleveland, Ohio	1.97	2,611	22.6	25
New Orleans, La.	1.98	777	26.7	26
Baltimore, Md.	2.10	956	22.9	27
Cincinnati, Ohio-Ky.	2.18	1,468	18.5	28
Springfield-Chicopee- Holyoke, Mass.	2.18	1,116	15.7	29
Evansville, Ind.-Ky	2.22	293	4.3	30
San Francisco- Oakland, Calif.	2.36	840	24.2	31
Buffalo, N.Y.	2.38	824	20.0	32

Austin, Tex.  
Dallas, Tex.  
Atlanta, Ga.  
Salt Lake City, U  
Louisville, Ky.-I  
St. Louis, Mo.-Il  
Kansas City, Mo.-I  
Wichita, Kan.  
Baton Rouge, La.  
Mobile, Ala.  
Little Rock-North  
Little Rock, Ark  
Nashville, Tenn.  
Nashville, Tenn.  
Allentown-Bethleh  
Houston, Pa.  
Houston-Texas  
Dallas, Tex.  
Indianapolis, Ind  
Peoria, Ill.  
Columbia, S.C.  
Spokane, Wash.  
Winn.-Superior,  
Winn.-Wis.  
Erie, Pa.  
Seattle, Wash.  
Fresno, Calif.  
Bangor-Warren,  
Syracuse, N.Y.  
Grand Rapids, Mich  
Des Moines, Iowa  
Wilmington, Del.-N  
Steubenville-Weirt  
Chic.-W. Va.  
Portland, Ore.-Was  
Springfield, Mo.  
Sioux Falls, S.D.  
Waterloo, Iowa  
Charlotte, N.C.  
Denver, Colo.  
Columbus, Ohio  
Los Angeles-Long  
Beach, Calif.

TABLE 21.--Continued.

	Trailers per 1000 Population	Population Density per Sq. Mile	Population Change 1950-60(%)	Code Number (See Chart 4)
Houston, Tex.	2.41	727	54.1	33
Dallas, Tex.	2.44	297	45.7	34
Atlanta, Ga.	2.47	590	39.9	35
Salt Lake City, Utah	2.62	501	39.3	36
Louisville, Ky.-Ind.	2.71	799	25.7	37
St. Louis, Mo.-Ill.	2.83	646	19.8	38
Kansas City, Mo.-Kan.	2.86	633	27.6	39
Oklahoma City, Okla.	3.07	240	39.4	40
Baton Rouge, La.	3.08	498	45.4	41
Mobile, Ala.	3.08	253	36.0	42
Little Rock-North Little Rock, Ark.	3.14	317	23.5	43
Chattanooga, Tenn.	3.19	277	14.9	44
Nashville, Tenn.	3.43	751	24.2	45
Allentown-Bethlehem- Easton, Pa.	3.46	455	12.4	46
Galveston-Texas City, Tex.	3.53	327	24.1	47
Indianapolis, Ind.	3.72	1,735	26.4	48
Peoria, Ill.	3.76	226	15.3	49
Columbia, S.C.	3.99	179	39.6	50
Spokane, Wash.	4.02		25.6	51
Duluth-Superior, Minn.-Wis.	4.09	36	9.4	52
Erie, Pa.	4.16	309	14.3	53
Seattle, Wash.	4.21	262	31.1	54
Fresno, Calif.	4.22	61	32.3	55
Youngstown-Warren, Ohio	4.27	490	22.2	56
Syracuse, N.Y.	4.29	233	21.2	57
Grand Rapids, Mich.	4.30	421	26.0	58
Des Moines, Iowa	4.32	448	17.8	59
Wilmington, Del.-N.J.	4.40	465	36.4	60
Steubenville-Weirton, Ohio-W. Va.	4.49	288	6.3	61
Portland, Ore.-Wash.	4.50	225	16.6	62
Springfield, Mo.	4.53	187	20.5	63
Omaha, Nebr.-Iowa	4.60	299	25.0	64
Waterloo, Iowa	4.60	216	21.9	65
Charlotte, N.C.	4.90	502	38.1	66
Denver, Colo.	4.90	254	51.8	67
Columbus, Ohio	4.95	1,272	35.7	68
Los Angeles-Long Beach, Calif.	4.97	1,393	54.4	69

Bozema, Wash.  
Ann Arbor, Mich  
Lansing-Elyria,  
Lansing, Mich.  
Milson, Wis.  
Milene, Tex.  
Muhita, Kan.  
Newport-Rock  
Moline, Iowa  
Augusta, Ga.  
Sacramento, Cal  
Gary-Hammond-El  
Chicago, Ind  
Miami, Fla.  
El Paso, Tex.  
Albuquerque, N  
Charleston, S.  
Eugene, Ore  
Fort Lauderdale  
Hollywood, Fla  
Colorado Springs  
Colo.  
San Diego, Calif  
San Bernardino  
Riverside-Or  
Calif.  
Mesa-Flagstaff  
Phoenix, Ariz.  
Tucson, Ariz.  
Tampa-St. Peter  
Fla.  
Santa Barbara,

TABLE 21.--Continued.

	Trailers per 1000 Population	Population Density per Sq. Mile	Population Change 1950-60(%)	Code Number (See Chart 4)
Tacoma, Wash.	4.98	192	16.6	70
Ann Arbor, Mich.	4.99	241	28.1	71
Lorain-Elyria, Ohio	4.99	439	46.8	72
Lansing, Mich.	5.16	176	22.4	73
Madison, Wis.	5.31	186	31.1	74
Abilene, Tex.	5.33	65	40.8	75
Wichita, Kan.	5.93	344	54.4	76
Davenport-Rock Island- Moline, Iowa-Ill.	6.04	309	15.3	77
Augusta, Ga.	6.35	152	33.7	78
Sacramento, Calif.	6.66	511	81.4	79
Gary-Hammond-East Chicago, Ind.	6.83	611	40.5	80
Miami, Fla.	7.26	455	88.9	81
El Paso, Tex.	7.96	298	61.1	82
Albuquerque, N.M.	9.23	225	80.0	83
Charleston, S.C.	9.41	229	31.3	84
Eugene, Ore	10.00	36	29.5	85
Fort Lauderdale- Hollywood, Fla.	10.72	274	297.9	86
Colorado Springs, Colo.	11.90	67	92.9	87
San Diego, Calif.	11.98	243	85.5	88
San Bernardino- Riverside-Ontario, Calif.	13.09	30	79.3	89
Champaign-Urbana, Ill.	13.42	132	24.8	90
Phoenix, Ariz.	16.45	72	100.0	91
Tucson, Ariz.	18.05	29	88.1	92
Tampa-St. Petersburg, Fla.	18.17	592	-88.8	93
Santa Barbara, Calif.	19.39	62	72.0	94

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Both legislation and economics have played an important role in creating mobile home parks as a phenomenon of low density areas. The economic break-even point for the average mobile home park is between 50 and 100 spaces. This requires at least 10 acres of land at a density of 9-12 units per acre to be economically feasible with today's standards and larger mobile home units.<sup>21</sup> The improvement costs alone average about \$2,000 per space as shown in Table 22.

The economic factors which are critical to mobile home park development have been outlined by Jones in his suggestions for a feasibility study. These suggestions have been presented in the following pages to show the complexity of cash flow, rate of occupancy, improvement costs, and the housing supply situation as they affect the economic feasibility of proposed park development.

SUGGESTIONS  
for  
Feasibility Study of Proposed Park Development<sup>22</sup>

- General            I. Will the area support a new park?
- A. Mobile home dealers' reaction
- B. Present park operators
- C. Projected appeal of mobile home living
- 

<sup>22</sup>Leslie Jones, Mobile Home Park Financing (Chicago: Mobile Homes Manufacturers Association, 1966), pp. 4-6.

TABLE 1. Estimated Average Annual Operating Costs of Selected Community Facilities, 1970-71

Facility	Operating Costs	Capital Costs	Total Costs
<b>COMMUNITY FACILITIES:</b>			
Buildings*	\$ 40,800	\$ 30,700	\$ 71,500
Swimming pool*	5,000	10,000	15,000
Shuffleboard courts*	1,000	2,000	3,000
<b>INDIVIDUAL LIFE FACILITIES:</b>			
Layout	1,000	5,000	6,000

TABLE 22.--Average Construction Costs of Improvements of Mobile Home Parks.<sup>a</sup>

	100 Spaces	200 Spaces	300 Spaces	400 Spaces
<b>COMMUNITY FACILITIES:</b>				
Buildings*	\$ 34,800	\$ 58,500	\$ 80,700	\$105,000
Swimming pool*	5,500	7,100	10,200	10,800
Shuffleboard courts*	1,000		2,000	3,100
<b>INDIVIDUAL SITE FACILITIES:</b>				
Layout	1,700	2,800	3,800	4,300
Excavating, grading, and clearing**	4,700	8,100	13,200	17,900
Concrete	14,400	23,700	43,900	61,000
Asphalt	21,000	41,000	66,500	86,500
Plumbing and sewers	42,000	73,100	124,500	163,300
Electrical distribution system, including telephone connections	31,300	62,000	93,000	123,000
Fencing*	5,600	8,600	11,600	14,600
Clothes poles	500	950	1,250	1,250
Mail boxes	450	650	1,400	2,000
Signs	800	950	1,500	1,800
Landscaping	4,900	9,200	14,400	14,700
Sprinkler systems	1,550	3,100	4,600	5,300
<b>GENERAL CONSTRUCTION COSTS:</b>				
Off-site construction***	10,000	15,000	20,000	25,000
Building permits	500	1,000	1,500	2,300
Plans and supervision	7,900	14,600	19,500	24,000
Water meter	900	1,600	2,200	3,200
Temporary utilities and facilities	1,900	3,700	5,700	4,700
Clean up	1,000	1,650	2,300	3,100
Insurance and bond	1,600	3,300	4,700	5,800
Provision for contingencies	2,300	3,400	4,700	6,000
Contractor's profit and overhead	12,100	24,100	32,100	40,000
TOTALS:	\$207,300	\$379,750	\$503,200	\$728,150
PER SPACE:	\$ 2,083	\$ 1,899	\$ 1,678	\$ 1,812

\* Items which can have wide variations in cost depending on type of park (luxury, retirement, or working man).

\*\* Cost is dependent upon present use of the land and the terrain.

\*\*\* Costs depend upon location of property in relation to streets and utilities and includes such items as curbs and gutters, required street paving, and extension of utilities.

<sup>a</sup>The Investment Potential of Mobile Home Parks, Trailer Coach Assoc., 1965.

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## II. What type of park should be built?

- A. Housing oriented
- B. Service oriented
- C. Resort
- D. Travel trailer
- E. Combination of a & b or b & c, etc.

## III. Where should the park be located?

- A. Within corporation limits
- B. Suburban

## Economics

## IV. What will the cost be:

- A. Land
- B. Improvements
  - 1. Roads--Streets--Curbs--Sidewalks
  - 2. Electrical and Telephone connection
  - 3. Plumbing and Sewage systems
  - 4. Fencing and/or Screening
  - 5. Landscaping
  - 6. Mobile Home Stands and Ramps
  - 7. Buildings--Laundry, Recreation, Office
  - 8. Storage
  - 9. Outdoor recreational facilities
  - 10. Garbage and Trash

## C. Value Upon Completion:

- 1. Land including improvements within the property lines
- 2. Structures--Main buildings
- 3. Replacement Value
- 4. Market Value
- 5. Value by Capitalization

## V. What will be the income based on % of occupancy?

- A. Space rental @ \$ \_\_\_\_\_ per space
- B. Coin operated laundry facilities, etc.

## VI. Will income derived provide for

## A. Expenses:

- 1. Salaries and Wages, including Manager
- 2. Payroll taxes
- 3. Advertising
- 4. Automotive expense
- 5. Donations
- 6. Association dues
- 7. Insurance
- 8. Legal and Accounting
- 9. Office expense
- 10. Repairs and Maintenance
- 11. Service purchases
- 12. Taxes:
  - Land--Buildings--Improvements
  - State franchise (corporation)
  - Other
- 13. Supplies
- 14. Travel
- 15. Utilities:
  - Gas
  - Water
  - Electric
- 16. Debt retirement--Interest and Principal
- 17. Other

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- VII. How much occupancy can be projected at end of  
 1 year                      2 years                      3 years?
- VIII. Is adequate capital available for construction; operating expense until sustaining income is produced?
- Present Supply and Demand**
- IX. Number of parks and spaces now in existence within a 1/2 mile radius of proposed site location.
- X. Type of existing park and conditions:
- A. Will they accommodate large mobile homes?
- B. Do they have good lawns and housekeeping?
- C. Is vacancy factor lower than 25% of available spaces?
- D. Rental rates in existence?
- E. Management?
- F. Does park have sales of mobile homes?
- G. What type, if any, community facilities are provided?
- H. Are streets paved and all utilities underground?
- XI. Location of parks:
- A. Suburban area
- B. Industrial area
- XII. Demand for new or improved parks by:
- A. Current park occupants
- B. Future park occupants
- C. By dealers in general area
- XIII. Is water maining available?
- A. Name district in which property is situated.
- B. Zoning classification of adjacent property particularly vacant land.
- C. Public improvements planned for the area.
- D. Any pending legislation for zoning reclassification?
- E. Any highway program contemplated within one mile of the property?
- Availability and Consent**
- XIV. Land available for proposal with room for expansion and at what cost per acre?
- XV. Will water and sewer be provided by municipality and/or developer?
- XVI. Is location to be in a population growth area?
- Area Economics**
- VII. Transportation availability
- XVIII. Type and price range of stationary housing within the area.
- XIX. Forecasts projected for area as to industry, residence development.
- XX. Present employment in area--how stable--income averages.
- XXI. Distance from employment, shopping, schools and churches, both in mileage and travel time.

I. INCOME (Exhibit

Rental Income \_\_\_\_\_

Number of Spaces \_\_\_\_\_

Monthly Income \_\_\_\_\_

Month Rental of \_\_\_\_\_

Income from Misc \_\_\_\_\_

Laundry \_\_\_\_\_

Electric \_\_\_\_\_

Fuel \_\_\_\_\_

Dispensaries \_\_\_\_\_

Other \_\_\_\_\_

TOTAL - MONTHLY \_\_\_\_\_

II. MONTHLY OPERATING EXPENSES (Exhibit 6)

Salaries and wages \_\_\_\_\_

Payroll taxes \_\_\_\_\_

Advertising \_\_\_\_\_

Automotive expenses \_\_\_\_\_

Donations \_\_\_\_\_

Dues, associations \_\_\_\_\_

Facility rearrangement \_\_\_\_\_

Insurance \_\_\_\_\_

Legal and Accounting \_\_\_\_\_

Office expense \_\_\_\_\_

Rental, land (Land) \_\_\_\_\_

Repairs and maintenance \_\_\_\_\_

Services purchased \_\_\_\_\_

Supplies \_\_\_\_\_

Taxes, land \_\_\_\_\_

Buildings and equipment \_\_\_\_\_

Business liability \_\_\_\_\_

State Franchise \_\_\_\_\_

Other (do not include \_\_\_\_\_

Travel expenses \_\_\_\_\_

Utilities, Electric \_\_\_\_\_

Gas, natural \_\_\_\_\_

Water \_\_\_\_\_

Telephone \_\_\_\_\_

Other expense \_\_\_\_\_

TOTAL OPERATING EXPENSES \_\_\_\_\_

LESS DEPRECIATION \_\_\_\_\_

NET INCOME \_\_\_\_\_

TABLE 23.--Projected Income and Expense Analysis.

	I	II	III
<b>I. INCOME (Exhibit 5)</b>			
Rental Income _____	\$ _____	\$ _____	\$ _____
Number of Spaces Occupied _____			
Monthly Income Based on Monthly Per Month Rental of \$ _____	\$ _____	\$ _____	\$ _____
Income from Misc. Services:			
Laundry _____	\$ _____	\$ _____	\$ _____
Electric _____			
Fuel _____			
Dispensaries _____			
Other _____			
<b>TOTAL - MONTHLY INCOME</b> _____	\$ _____	\$ _____	\$ _____
<b>II. MONTHLY OPERATING EXPENSE (Exhibit 6)</b>			
Salaries and wages, including manager _____	\$ _____	\$ _____	\$ _____
Payroll taxes _____			
Advertising _____			
Automotive expense _____			
Donations _____			
Dues, association _____			
Facility rearrangement expense _____			
Insurance _____			
Legal and Accounting _____			
Office expense _____			
Rental, land (Lease - Give Terms) _____			
Repairs and maintenance _____			
Services purchases _____			
Supplies _____			
Taxes, land _____			
Buildings and personal property _____			
Business licenses _____			
State Franchise (if a corporation) _____			
Other (do not include payroll tax) _____			
Travel expense _____			
Utilities, Electricity _____			
Gas, natural _____			
Water _____			
Telephone and telegraph _____			
Other expenses (specify) _____			
<b>TOTAL OPERATION EXPENSE</b> _____	\$ _____	\$ _____	\$ _____
<b>LESS DEPRECIATION ALLOWANCE</b> _____			
<b>NET INCOME AFTER DEPRECIATION</b> _____	\$ _____	\$ _____	\$ _____

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The Trailer Coach Association points out that mobile home developments are becoming larger and more land extensive due to the higher standards and larger units which have changed the economic situation.

It is a common misconception that the greater the per-space density within a park (number of spaces per acre) the greater the income. Exhaustive studies have shown that the modern, low-density parks, generally provide a higher gross and net income than do older, high-density parks. This is because the low-density parks command substantially high monthly rentals by reason of the fact that they offer larger spaces, more elaborate landscaping, wider streets and more extensive recreation.<sup>23</sup>

In appraising mobile home parks therefore, quality of development becomes an increasingly important factor. Randall discusses the income approach, the market approach (appraisal by comparison), and the cost or summation approach in his Appraisal Guide for Mobile Home Parks. Jones points out the economic effects of good site planning and development in Mobile Home Park Financing. His review of important factors in appraisal demonstrates the necessity of municipal standards and adequate zoning ordinances for preserving and shaping the quality of mobile home development to insure its subsequent economic viability.

Because of the swiftness of these changes in the housing industry, and most communities' inability to see the situation, states have been left with the necessity of setting minimum standards for mobile home park development to satisfy health and safety requirements.

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<sup>23</sup>Trailer Coach Association, The Investment Potential of Mobile Home Parks (Los Angeles: Trailer Coach Association, 1960), p. 6.

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The duties of the public health officials in relation to mobile home parks are usually stated in the municipal ordinances or state statutes. Inspection is performed at periodic intervals, usually unspecified, to insure that a park meets the minimum health and safety requirements set forth by the responsible office. . . . A League of Minnesota Municipalities survey conducted in 1964 indicates that municipalities leave most forms of regulation to the state and discourage the construction and improvement of mobile home parks within their limits.<sup>24</sup>

The irregularity in local assessment and taxation is an equally important issue to municipalities. Minnesota has developed a unique state-wide licensing and taxation system to combat the local irregularities. Other states use a wide variety of state and local assessment procedure using personal property and/or real property definitions of mobile homes.

All states and the District of Columbia require registration fees for the mobile home when on the highways. States, however, radically differ in the methods used in taxing the mobile home as a dwelling unit. Only New York, Michigan and New Hampshire tax the mobile home in the same manner as other units of shelter, i.e., real property.

Most states classify the trailer as personal property; some states tax the trailer as personal property but others collect the property tax on when the trailer is not registered. Maine, Massachusetts, Washington, Colorado, and Nevada collect an annual excise, ownership or privilege tax rather than a property tax. Even when some type of property tax is used, methods of assessment often differ significantly from those used when assessing the value of other housing units.<sup>25</sup>

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<sup>24</sup>Report of the Highway Interim Commission, op. cit., pp. 76 and 79.

<sup>25</sup>Robert E. Berney and Arlyn J. Larson, "Micro-Analysis of Mobile Home Characteristics with Implications for Tax Policy," Land Economics, November, 1966, as cited by Max S. Wehrly, "The Evolution of the House Trailer," Urban Land, March, 1967, p. 5.

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White (1965) describes the framework of mobile home taxation in each state. From his comparisons of state tax structures, White makes the following statements based on computer analysis of all states:

1. New York (3200), contributes the most per dwelling toward education.
2. California (0500) contributes the least per dwelling toward education.
3. Florida (0900) mobile homes contribute the highest rate in dollars per child toward education.
4. California mobile homes contribute the lowest rate in dollars per child toward education.
5. Michigan (2200) non-mobile homes contribute the highest rate in dollars per child toward education.
6. Arizona (0900) non-mobile homes contribute the lowest rate in dollars per child toward education.
7. Florida mobile homes have the lowest number of children per dwelling.
8. Wyoming mobile homes have the highest number of children per dwelling.
9. Alaska (0200) non-mobile homes have the lowest number of children per dwelling.
10. South Dakota (4100) non-mobile homes have the highest number of children per dwelling.<sup>26</sup>

The concepts which White uses are of interest in any analysis of comparative tax structure. He emphasizes (1) per child per dwelling unit and (2) density of dwelling units per acre. These considerations cover both the arguments of horizontal equity and benefits received from municipal and school services. When mobile homes are compared to single family homes, the density per acre must be

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<sup>26</sup>James L. White, A Study of Mobile Homes, Their Tax Levy and Contributions to the Community with a Direct Relationship to Density (unpublished Master's thesis, Department of Urban Planning, Wayne State University, 1965), p. 56.

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He summarizes Michigan taxation of mobile homes in the following manner:

Michigan

Basis:

All property, real and personal, shall be assessed at its full cash value. Cash value is determined to be the selling price at private sale, rather than auction or forced sale, at the place where the property is located at the assessment date.

Rates:

Real and personal property tax levies equal the aggregate of all lawful levies imposed by the state and county and any other subdivision authorized to levy taxes. However, since the enactment of the state sales tax, there has been no general state property tax levy.

Mobile Home Fees:

\$.35 per cwt. net

\$3.00 per month per occupied trailer coach.

Distribution

Monthly fees: \$0.50/county treasurer  
\$0.50/municipal general fund  
\$2.00/school district

City:	7.08 mills
County:	9.59 mills
School District:	18.58 mills
State Average:	25.50 mills

The above table (of all states) in no way implies that the indicated mill levies are characteristic for all communities in the state. Mill levies are such that they will vary from county to county and city to city. The average state levies and the distribution was determined by totaling the tax levied in each district and then dividing by the number of sub-districts.<sup>27</sup>

White also made a detailed study of Michigan by county. Data on all counties was not represented but of

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<sup>27</sup>Ibid. , pp. 37-38.

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those counties which responded, the following conclusions were forwarded after the data were compared by computer cross correlation.

1. Baraga contributes the most per dwelling toward education.
2. Huron contributes the least per dwelling toward education.
3. Iron Mt. mobile homes contribute the highest rate in dollars per child toward education.
4. Mason mobile homes contribute the lowest rate in dollars per child toward education.
5. Roxcommon non-mobile homes contribute the highest rate in dollars per child toward education.
6. Huron non-mobile homes contribute the lowest rate in dollars per child toward education.
7. Roscommon, non-mobile has the lowest number of children per dwelling.
8. Huron, non-mobile has the highest number of children per dwelling.<sup>28</sup>

These conclusions are also based on the per child per dwelling unit concept and on comparative density per acre. He concludes that since mobile homes have fewer children and higher densities on the average, they compare favorably with non-mobile homes in the contribution of taxes.

Thus, in conclusion, mobile homes more than assume their share of all taxes levied. In addition to the tax levied on the mobile units, the community derives an additional amount of tax from the land holder.<sup>29</sup>

Edwards (1966) outlines these additional taxes, and summarizes the complete tax picture. Michigan taxes mobile homes as real estate but there is also the special tax and the sales tax which apply.

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<sup>28</sup>Ibid., pp. 57-58.

<sup>29</sup>Ibid., p. 59.

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Sources of tax revenue from mobile homes and parks:

1. Mobile home taxes in Michigan imposed on the mobile home owner are \$3 per month. This tax is collected by the park management as a collector for local government. The tax money is divided as follows: \$2 to the local school district; \$0.50 to the local government; \$0.50 to the county.
2. The park owner pays tax on his improved property at the established local rate.
3. The mobile home owner paid four per cent state sales tax on the retail price of his home. Owners' records show that mobile homes change ownership on the average of every 27 months. Four percent tax is collected on each sale. One-half of this tax is distributed to school districts and local governments.<sup>30</sup>

In property taxation, the question is not whether a fair share is being paid for benefits received but whether there is horizontal equity in taxation. Single family residents who bring up the benefits received argument must be reminded that they are subsidized by industrial and commercial taxation, and, indeed, apartments and mobile homes pay more of their share than single-family houses if the tax is equally applied. Furthermore, if mobile home taxation is analyzed on a per person, per dwelling unit, per acre concept, as used by White there is not only horizontal equity but also equity in benefits received for taxes paid. White concludes in his thesis that mobile homes pay more than their share when compared to single family homes.

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<sup>30</sup>Carlton M. Edwards, "Taxation and Mobile Homes," Mobile Home/Travel Trailer Dealer Magazine (April 5, 1966), p. 15.

If a consumer were to select the society that would be the most beneficial to him tax wise; 1) all mobile, 2) all non-mobile, 3) non-mobile supporting mobile, 4) mobile supporting non-mobile, 5) co-mingled, he would select the non-mobile supporting mobile. If he wanted the maximum educational return for tax dollar levied, he would select all mobile.<sup>31</sup>

If other municipal services are analyzed along with education, which is usually the largest expenditure, it must be kept in mind that mobile home courts provide private utilities and street systems which are privately maintained by the court manager. Leigh Grosenick has stated in his masters thesis, which extensively discusses taxation of mobile homes in Minnesota, that mobile homes do not receive all the services that single family residences receive from the municipality.

An accurate generalization about the municipal services provided to a mobile home park is that most municipal services stop at the entrance to the park. Financially, the returns a municipality receives from a mobile home park far exceed any expense incurred in maintaining one.<sup>32</sup>

Berney and Larson in Land Economics discuss mobile home tax policy in a very similar light.

One universally accepted goal for any taxing authority is to insure that horizontal equity exists; that is, people in like circumstances should be taxed in a similar manner. Presently, however, the tax on mobile homes in most states is substantially different from the tax on other types of housing units even though available data show that characteristics of mobile home owners are not particularly unique . . .

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<sup>31</sup>White, op. cit., p. 94.

<sup>32</sup>Grosenick, op. cit., p. 47.

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Counter arguments can be made in defining "fair share" of taxes. Currently mobile homes house fewer school age children and the modern trailer park provides recreational and other community services normally provided by government. . . . The fact that the benefits approach is not the basic principle behind the property tax on shelter suggest that discussions of fair share are not relevant when one is concerned with equity. Again, the only solution is to tax mobile home in the same manner as permanent homes.<sup>33</sup>

Max Wehrly in an article in Urban Land summarizes the evolution and characteristics of the mobile home in the following manner. He summarizes the unit, the housing market, zoning and taxation in his four points.

1. The industry has developed and is further perfecting a factory-built technique for housing that has a major potential in the low cost market which appears to be superior to past efforts in this field.
2. With better exterior design and the introduction of the doublewide sectional unit, a housing type with a wider market appeal, both to the community and to the prospective home buyer as well as the renter, is emerging. Adaptation of the basic unit to two and three story multiple dwelling is currently being explored. Units that are adaptable to the patio and atrium house arrangement appear feasible.
3. Community resistance to zoning for the mobile home appears to be closely related to the mobile home's appearance and identification as a "trailer" and to the lack of amenities provided in many mobile home parks or subdivisions. This problem can be resolved and minimized by improving the exterior design of most of the units now on the market. A number of mobile home manufacturers are now doing just that.

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<sup>33</sup>Berney and Larson, op. cit., p. 5.

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4. The tax problem is not unsolveable but will necessarily have to be resolved in each state. Minnesota and Florida appear to have reached satisfactory solution in this respect. The sectional or doublewide unit on its pre-prepared foundation is, in effect, a conventional house in every respect except its fabrication and "erection," and should not create any question regarding methods of taxation.<sup>34</sup>

Another issue of importance to the municipality and the mobile home industry is building and construction codes. The mobile home industry has taken large steps to improve its own construction methods and insure proper performance standards for plumbing, electricity and heating systems.

The association selected plumbing, heating and electrical systems as the first stage of the standards program because those areas, it was felt, were the most vital for the safety and welfare of the mobile home buyer.<sup>35</sup>

These codes were researched for five years and finally adopted by the U.S.A. Standards Institute in 1963. The code was incorporated into the code of American Standards as A119.1 for mobile homes and A119.2 for travel trailers. This code, Mobile Home Standards for Plumbing, Heating and Electrical Installations gives detailed requirements for installation, specifies the quality and type of materials and requires certain procedures for

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<sup>34</sup>Max S. Wehrly, op. cit., pp. 11-12.

<sup>35</sup>"Mobile Home Standards, Sign of a Maturing Industry," Automation in Housing (Reprint, Chicago: Mobile Homes Manufacturers Association), p. 2.

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testing the installations. These standards are required for membership in the Mobile Homes Manufacturers Association-Trailer Coach Association.

The next step will be to write and implement an entire construction standard for the industry based on performance standards.<sup>36</sup>

For the most part the standard is based on nationally recognized standards for construction, including the FHA, Building Officials Conference of America, Inc., Southern Building Code Congress, the New York State model housing code and National Fire Protection Association standard for fire protection in mobile homes.

As the second step in the development of this workable standard, the MHMA-TCA has retained a research organization the Battelle Memorial Institute of Columbus, Ohio, to develop standardized performance criteria and tests that will determine whether or not a mobile home meets the minimum structural requirements . . .

A performance standard is preferred to a specification listing specific design techniques because the design-based specifications require constant revision to keep pace with the development of new products and construction systems.

Design-based specifications tend to discourage innovations as has been evidenced in the building industry in general. Building product manufacturers, builders and component fabricators have always been hampered in their attempts to provide better products and techniques by out-dated design specifications rarely ever revised.<sup>37</sup>

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<sup>36</sup>In January, 1968, the complete construction code was adopted by both Mobile Home Manufacturers Association and Trailer Coach Association.

<sup>37</sup>"Mobile Home Standards . . .," op. cit., p. 2.

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It must be pointed out to most readers that the waist-high oven and counter top stoves in modern houses were pioneered in the mobile home and not by home builders. A wide variety of new construction methods and materials are being used and tested in mobile homes. It is important that performance standards are available to protect the buyer and still provide for innovations in housing.

Permitting a wide latitude in selection and use of materials that will satisfy the performance criteria established, the construction standard covers the minimum requirements for materials, products, equipment and workmanship needed to assure that the mobile home will provide the structural strength and rigidity; protection against corrosion, decay, insects and other similar destructive forces; resistance to the element; durability and economy of maintenance.<sup>38</sup>

The major items that will be covered in the construction code and tested by the Battelle Institute include:

Protective requirements--verminproofing, cutting and notching, weatherproofing.

Wall, floor and roof structural requirements--minimum areas, light and ventilation, exits, alcove rooms, wall, floor and roof framework, design loads, minimum floor loads, roof loads, wind loads, live and dead loads, anchorage of roof and walls.

Wall construction requirements--frame wall construction, partitions and nonbearing walls, studs, framing over openings.

Floor construction requirements--floor deflection bearing and anchorage, spacing of beams.

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<sup>38</sup>Ibid., p. 2.

Roof construction  
weathering systems

General construction  
size of lumber  
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anchorage of  
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requirements-  
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<sup>39</sup> Ibid.

<sup>40</sup> Ibid., p

Roof construction requirements--roof deflection, weathering surface, roof structure.

General construction requirements--grade and size of lumber, connections, plates, plywood construction, integrated assemblies, component assemblies, spacing of vertical studs, interior surfaces, anchorage of beams, metal structure frame members, metal wall and roof covering, sliding doors, pipes and ducts.

Systems, appliances and equipment requirements.

Chassis, tongue and running gear structural requirements--chassis assembly, tongue, running gear assembly, anchorage.

Tests--materials and methods, prefabrication, identification of product.<sup>39</sup>

The editors of Automation in Housing magazine congratulated the mobile home industry for its efforts and went on to say that "This farsighted approach is certain to result in even more rapid technological advancement by the mobile home industry."<sup>40</sup>

We can see from the above discussion of legislation, taxation and construction of the mobile home that several scales of change are operating in municipalities and in the mobile home industry.

1. Mobile homes are becoming increasingly popular with people as a living unit due to its cost, design, comfort and mobility.

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<sup>39</sup>Ibid.

<sup>40</sup>Ibid., p. 1.

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2. The mobile home industry is growing to meet this demand with assembly line production, new engineering and design, and competitive dealerships linked to national and local manufacturing companies.
3. This has produced a tremendous impact on the national housing market.
4. This reflects some national trends in population and social fluidity--a younger generation with fewer children and home ties, flexible job markets, mobile populations and labor forces, increased need for low cost housing.
5. Mobile home parks have not been able to expand rapidly enough to meet the increased demand for (1) additional spaces and (2) a better environment with more facilities. This is due to a complex set of factors including:
  - a. economic--high land costs, high equity requirements and few available loans, high capital investment and little outside capital.
  - b. legislative--minimum and sometimes arbitrary state health and building requirements, restrictive local zoning ordinances and municipal regulation.
  - c. social--local community resistance in financing, taxation and expansion of mobile

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<sup>41</sup> Ernest R.  
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home facilities. Politics and a bad image have worked against mobile homes when all of these factors come into play.

#### Mobile Home Inhabitants

Just as the mobile home has changed radically in the last few years, so have its inhabitants. Mobile home owners are no longer predominantly in the lower income classes. The following pages will show that they are above the national median income, they are younger, they have a smaller family size and they have higher levels of education.

Comparisons of income prior to 1960 are provided by Bartley and Bair from early consumer surveys of mobile home inhabitants. They point out that "reliable comparative statistics are hard to obtain, but it can be stated as a general rule that the presence of mobile home dwellers raises, rather than lowers, the average income for an urban area."<sup>41</sup> (See Table 24)

Grosenick compares the more recent figures from 1964 U.S. data and a 1963 Consumer Survey of 1,629 mobile home owners (see Tables 25 and 26).

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<sup>41</sup>Ernest R. Bartley and Frederick H. Bair, Jr., Mobile Home Parks and Comprehensive Community Planning, Public Administration Clearing Service, University of Florida, Studies in Public Administration No. 19 (Gainesville: University of Florida, 1960), p. 7.

TABLE 24.--Compa

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Income

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Under \$2,000

\$2,000 - 3,999

\$4,000 - 4,999

\$5,000 - 6,999

\$7,000 and over

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<sup>a</sup>Bartley a

TABLE 24.--Comparative Income Distribution, U.S. 1954 and  
Mobile Home Owners, 1958.<sup>a</sup>

Income	U.S. (1954)	Mobile Home Owners (1958)
Under \$2,000	23.5%	3.2%
\$4,000 - 3,999	18.5	13.3
\$4,000 - 4,999	22.2	28.5
\$5,000 - 6,999	19.3	31.3
\$7,000 and over	16.4	23.7
Median Income	\$4,013	%5,250

<sup>a</sup>Bartley and Bair, op. cit., p. 8.

TABLE 25.--Income

Income Group
Under \$2,000
\$2,000 - \$2,999
\$3,000 - \$3,999
\$4,000 - \$4,999
\$5,000 - \$5,999
\$6,000 - \$6,999
\$7,000 - \$9,999
Over \$10,000

TABLE 26.--A

Income Group
Under \$2,000
\$ 2,000 - \$ 2,500
\$ 3,501 - \$ 4,000
\$ 5,001 - \$ 5,500
\$ 7,001 - \$ 7,500
\$ 9,001 - \$ 9,500
\$12,001 - \$12,500
Over \$20,000
Average

<sup>a</sup>Grosvenor

TABLE 25.--Income Distribution for American Families, 1964.<sup>a</sup>

Income Group	Percentage
Under \$2,000	13.1%
\$2,000 - \$2,999	8.3%
\$3,000 - \$3,999	9.5%
\$4,000 - \$4,999	11.0%
\$5,000 - \$5,999	12.3%
\$6,000 - \$6,999	10.7%
\$7,000 - \$9,999	20.1%
Over \$10,000	15.1%

TABLE 26.--Annual Income: Mobile Home Households,  
1962.<sup>a</sup>

Income Group	Percentage
Under \$2,000	2%
\$ 2,000 - \$ 3,500	9%
\$ 3,501 - \$ 5,000	19%
\$ 5,001 - \$ 7,000	30%
\$ 7,001 - \$ 9,000	20%
\$ 9,001 - \$10,000	9%
\$12,001 - \$20,000	4%
Over \$20,000	1%
Average Income	\$6,234

<sup>a</sup>Grosenick, op. cit., p. 33.

These figures represent the households in the low income category which earn between a figure of \$6,230 and a median income of \$10,000. The 1965 Consumer Survey shows a median income of \$5,000 compared to \$5,000.

Backler points out that mobile homes in the distribution to mobile homes in the Backler points out that inherent bias in the dwellers predominate in the consumer survey data and U.S. data.

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42 Mobile homes conducted by Carl Backler in conjunction with the New York (New York)

43 Carl Backler, "The Mobile Home Consumer," *Real Estate Topics Magazine*, p. 12.

44 U.S. Bureau of Economic Analysis, *The U.S., 1968*, Table 472.

These figures show that mobile home owners do not represent the high income groups nor do they have as many in the low income groups. 70% of the mobile home households earn between \$3,500 and \$9,000. The average income figure of \$6,234 which Grosenick uses is actually the median income of the mobile home households. This compares to a median income of \$5,700 for the U.S. in 1963.<sup>42</sup> A 1965 Consumer Survey of 1,266 mobile home owners showed a median income of \$7,200<sup>43</sup> for mobile home households compared to \$5,957 for the U.S. in 1965.<sup>44</sup>

Backler provides data from Michigan in his study of mobile homes in Oakland County, showing very similar income distribution to previous national mobile home figures.

Backler points out that national figures have an inherent bias toward the southern states where retirement dwellers predominate in mobile homes. He compares a 1965 consumer survey of mobile homes with his age distribution data and U.S. data. Although mobile home household heads

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<sup>42</sup>Mobile Home Journal Magazine Consumer Survey, conducted by Carlton M. Edwards, Michigan State University, in conjunction with Ross Federal Research Corporation, New York (New York: Davis Publications, Inc., 1963), p. 22.

<sup>43</sup>Carlton M. Edwards, "A Survey of the MOBILE Home Consumer," Trailer Topics Magazine (Chicago: Trailer Topics Magazine, 1965), p. 3.

<sup>44</sup>U.S. Bureau of the Census, Statistical Abstract of the U.S., 1968, 89th ed. (Washington, D.C., 1968), p. 324, Table 472.

TABLE 27.--Compa

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Income in dollar

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Under \$3,000

\$3,000 - \$4,999

\$5,000 - \$6,999

\$7,000 - \$9,000

\$10,000 - \$14,999

---

<sup>a</sup>Backler,

TABLE 28.--Compa  
Mobile Home Dwell

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20-29

30-44

45-59

60+

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<sup>b</sup>ibid., p.

TABLE 27.--Comparative Income Distribution, U.S. 1964 and Mobile Homes 1966.<sup>a</sup>

Income in dollars	U.S. 1964 (%)	Mobile Homes 1966 (%)
Under \$3,000	18	16
\$3,000 - \$4,999	17	16
\$5,000 - \$6,999	20	20
\$7,000 - \$9,000	23	25
\$10,000 - \$14,999	22	17

<sup>a</sup>Backler, op. cit., p. 34.

TABLE 28.--Comparative Age Distribution, Oakland County Mobile Home Dwellers, U.S. Mobile Home Dwellers, All U.S. Households.<sup>b</sup>

	Mobile Homes 1966 Oakland County (%)	U.S. 1964 (%)	Other Mobile Home Study 1965 (%)	
20-29	40.0	14.7	21-27	11.7
30-44	18.7	34.4	28.42	23.3
45-59	20.0	23.4	43.57	32.7
60+	20.0	22.1	58+	21.5

<sup>b</sup>Ibid., p. 27.

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Survey or Source

- Trailer Topics<sup>a</sup>
- U.S. Averages<sup>b</sup>
- Trailer Topics<sup>c</sup>
- Minnesota<sup>d</sup>
- 1959 Michigan State Survey<sup>e</sup>
- 1960 Michigan State Survey<sup>f</sup>
- Minnesota Mobile Home Assn. Survey<sup>g</sup>
- Landfall Terrace Mobile Home Park<sup>h</sup>

<sup>a</sup>Total averages for all surveys, including Minnesota data.

<sup>b</sup>These figures represent sources:  
<sup>a</sup>U.S. Survey  
<sup>b</sup>U.S. Averages  
<sup>c</sup>Mobile Home Survey  
<sup>d</sup>U.S. Census Bureau  
<sup>e</sup>U.S. Census Bureau  
<sup>f</sup>U.S. Census Bureau  
<sup>g</sup>from a survey of mobile home areas.  
<sup>h</sup>James O. ...  
1960 data

are younger on the average than U.S. household heads, the Oakland County data have an even greater proportion of younger age groups. Starting households are much more significant in Michigan mobile homes than are retiree groups.

These younger families are also smaller in size with fewer school age children than the U.S. family. Grosenick has provided a comparative chart from several surveys (Table 29) while Backler compares Oakland County to U.S. figures (Tables 30 through 33). It is significant to note that 83% of the mobile home households surveyed by Backler had no children in school. Mobile home households were also much smaller than Michigan households.

TABLE 14.--Size of Family, Number of Pre-School and School-Age Children in Mobile Home Parks.\*

Survey or Source	Number of Mobile Homes Surveyed	Children Per Home**	Pre-School**	School-Age**	Children Per Family**
Trailer Topics <sup>a</sup> (U. S. Averages)	71,735	.42	.21	.21	Not Indicated
Trailer Topics <sup>b</sup> (Minnesota)	1,412	.56	.29	.27	Not Indicated
1959 Michigan State Survey <sup>c</sup>	Not Indicated	.51	.25	.25	1.4
1962 Michigan State Survey <sup>d</sup>	3,000	.77	.38	.39	1.2
Minnesota Mobile Homes Assn. Survey <sup>e</sup>	1,665	.67	.44	.23	Not Indicated
Landfall Terrace Mobile Home Park <sup>f</sup>	230	.63	.36	.27	Not Indicated

\*Total averages for this table have not been calculated because of the possible overlap in surveys, incompleteness of some of the surveys and obvious similarity of the Minnesota data.

\*\*These figures represent average numbers.

Sources: <sup>a</sup>"A Survey of Mobile Homes," Trailer Topics Magazine (Chicago, Illinois: 1962).  
<sup>b</sup>Ibid.  
<sup>c</sup>Mobile Homes Research Foundation, Today's Mobile Home; data reprinted from A Survey of Mobile Home Consumers (1959), op. cit.  
<sup>d</sup>Ibid., p. 22.  
<sup>e</sup>Sheldon Beanblossom, Executive Secretary, Minnesota Mobile Homes Association, from a 1963 survey of mobile home parks in Minneapolis-St. Paul metropolitan area.  
<sup>f</sup>James Olson, owner and operator of Landfall Terrace, Landfall, Minnesota, 1963 data.

TABLE 30.--Family Size.<sup>a</sup>

	U.S. (%)	Mobile Homes (%)
2	32.2	45.1
3	20.7	21.6
4	19.9	14.5
5	13.2	4.5
6	7.0	1.2
7	7.0	0.9

Source: For U.S. Figures--"Statistical Abstract of the U.S. 1965" Bureau of Census, Washington, D.C. 1965.

TABLE 31.--Number of Mobile Home Children at School.<sup>a</sup>

Number	Number of Respondents	%
0	260	83.8
1	20	6.4
2	20	6.4
3	9	2.9
4	0	0.0
5	1	0.3

TABLE 32.--Size of Household for Mobile Home Dwellers.<sup>a</sup>

Number	Number of Respondents	%
1	37	11.9
2	140	45.1
3	56	21.6
4	45	14.5
5	14	4.5
6	4	1.0
7	3	0.9

<sup>a</sup>Backler, op. cit., pp. 31-32.

Persons in House

Persons in House

Source: "Statistical  
Bureau

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<sup>a</sup>Backler, C

<sup>45</sup>Frederick  
Housing Supply (C  
Association, May

<sup>46</sup>Carlton  
New York: Davis

TABLE 33.--Size of Household.<sup>a</sup>


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Persons in Household Michigan 1960	3.42
Persons in Household Nobile Homes 1966	2.61

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Source: "Statistical Abstract of the U.S. 1965,"  
Bureau of Census, Washington, D.C., 1965.

The mobility of mobile home inhabitants has been magnified far out of proportion. The unit itself is only secondarily a mobile home, it is primarily a manufactured home. The largest use of the wheeled undercarriage is to transport the unit from the factory to its site. Fred Bair Jr. points out that "some units are now indistinguishable from housing built by conventional methods. A few are delivered on wheels which are returned to the factory."<sup>45</sup> A 1965 consumer survey of 773 respondents showed that 54.2% have not moved their mobile home during the last five years.<sup>46</sup> The emphasis is shifting toward the housing unit rather than its mobility. C.M. Edwards comments

the high percentage of mobile home families who have not moved in 5 years indicates that mobile home families move less than the average of all

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<sup>a</sup>Backler, op. cit., pp. 31-32.

<sup>45</sup>Frederick H. Bair, Jr., Mobile Homes and the General Housing Supply (Chicago: Mobile Homes Manufacturers Association, May, 1966), p. 1.

<sup>46</sup>Carlton M. Edwards, Mobile Life Consumer Survey (New York: Davis Publications, Inc., 1965), p. 11.

families in the United States. One may conclude that the average mobile home owner chooses his dwelling for reasons other than mobility.<sup>47</sup>

The U.S. Census, Mobility of Population shows that the average American moves about once in five years.<sup>48</sup> The 1963 Consumer Survey of 1,629 mobile home owners averaged 1.67 moves per family in 5 years, and 55% of the moves were under 50 miles. 75% of these moves were job related.<sup>49</sup> Clearly, the mobility factor has been overemphasized and in many cases mobility has been confused with transiency. Mobile home inhabitants are no more or no less responsible citizens because they live in a manufactured home. Backler reports some significant findings in this regard.

To determine whether the mobile home dweller was any less a community asset than the conventional housing dweller in the sense described above, the null hypothesis--that voluntary group membership is not associated to dwelling type--was tested using the Chi-square technique. On the basis of a 5% significance level the hypothesis was rejected. In fact it was found that a significantly higher proportion of mobile home dwellers were voluntary group members. . .

It can be concluded, therefore, that mobile home dwellers are not people who isolate themselves from the community in which they live and divorce themselves from local institutions. They join churches, fraternal organizations and golden age clubs, just

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<sup>47</sup> Ibid., p. 12.

<sup>48</sup> U.S. Bureau of the Census, Mobility of Population of the United States, 1962 (Washington: U.S. Government Printing Office, 1962), p. 1.

<sup>49</sup> Mobile Home Journal, op. cit., pp. 18-19.

like conventional housing dwellers. That is to say, in this sense at least, municipalities are not justified in excluding or controlling the development of mobile home courts on the premise that the people living in them are not community assets.<sup>50</sup>

This conclusion is further underscored by the comparative education levels of mobile home dwellers compared to U.S. males. The 1965 Consumer Survey shows the national figures for mobile home dwellers while Backler provides data for Oakland County.

TABLE 34.--Education of Mobile Home Heads of Households and Wives.<sup>a</sup>

Last Grade Completed	Males	Females
Grammar school	16.2%	11.3%
High school	44.5%	58.0%
Correspondence school	2.5%	1.3%
Vocational school	1.9%	3.8%
Technical school	7.6%	2.3%
Some college	(15.3%	13.3%)
College graduate	27.3% ( 9.0%	8.2%) 23.3%
Advanced college degree	( 3.0%	1.8%)

<sup>50</sup>Backler, op. cit., pp. 49, 150.

<sup>a</sup>Carlton, M. Edwards, Mobile Life Consumer Survey: Mobile Homes (New York: Davis Publications, Inc., 1965), p. 11.

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<sup>a</sup>Backle

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TABLE 35.--Educational Attainment.<sup>a</sup>

	U.S. Males 1964 (%)	Mobile Home Family Heads 1966 (%)
Less than 8	15.7	5.4
Completed 8	15.2	11.2
Some high school	16.9	23.7
Completed high school	28.9	35.3
Some college	11.3	16.7
Completed college	11.8	0.57

Source: For U.S. Males Current Population Reports Series P-20 No. 138, May 11, 1965.

The report of the Highway Interim Commission for the State of Minnesota summarizes data on mobile home inhabitants as follows:

As the name implies, the mobile home is a home and a residence in every sense. It was found that the majority of tenants in most parks normally have sufficient income to acquire alternative and more expensive housing if they so desired. However, they reside in parks by choice, not of necessity, and, in fact are becoming significantly less mobile.

Mobile home residents, like residents of any city, come from all social strata and income groups. . . . As a result, popularly held beliefs which maintain that mobile home dwellers spend most of their lives on the road, that they are predominantly low income, poorly educated, and highly prolific people is not so.<sup>51</sup>

<sup>a</sup>Backler, op. cit., p. 30.

<sup>51</sup>Report of the Highway Interim Commission, op. cit., p. iii.

## CHAPTER III

### ANALYSIS OF THE FUTURE IMPACT OF MOBILE HOMES ON MUNICIPALITIES

#### The Future Housing Market

The importance of population increase and population density on the housing market is evident from the last section. The major trends in future housing therefore, depend primarily on population characteristics.

Any estimate of potential housing demand in the late Sixties and early Seventies begins with projections of household formations. What counts here, of course, is net formations. Over any span of time, new households are formed and existing households are dissolved, by deaths or other eventualities, and it is the net change that affects aggregate demand for housing units. FORTUNE's estimates of net household formations are based upon revised projections recently issued by the Bureau of Census. The bureau provides "high" and "low" alternatives, which are about 200,000 apart, and FORTUNE simply averaged these, since it seems reasonable to suppose that the actualities will fall between.

During the first half of the 1960's the number of households in the U.S. increased by an average of just under 900,000 a year. The yearly increase will average 1,050,000 during the second half of the Sixties and 1,250,000 during the first half of the Seventies. In other words, the year-to-year increase in the total number of households will run more than 350,000 higher during the early Seventies than during the early Sixties. This demographic picture is the principal basis for the expectation of a boom in demand for housing.<sup>1</sup>

These population considerations can be clarified by examining the population pyramids for the United States found in Figure 12.

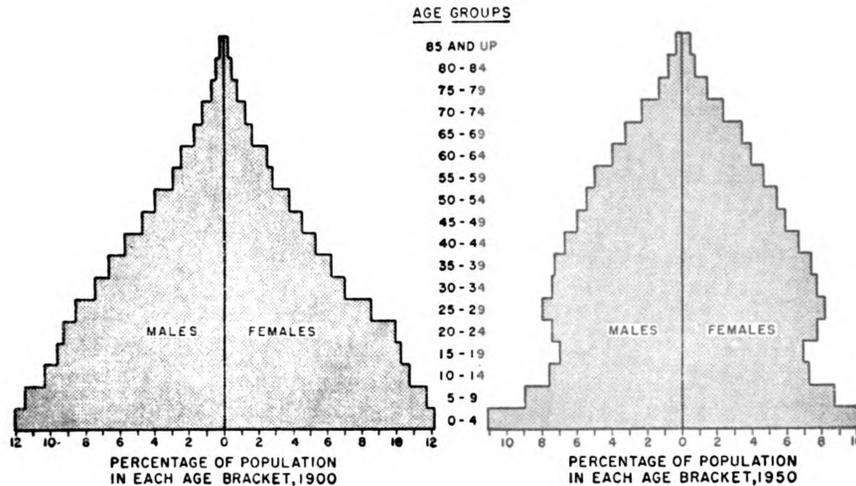


Figure 12.--Distribution of Population of the United States by Age Groups, by Sex, 1900 and 1950.

Using the cohort survival method to calculate future population mix, each five year age bracket (each pyramid level) is moved up to the next level minus the calculation for mortality in five years. The new pyramid which is

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<sup>1</sup>Cohen, op. cit., p. 136

<sup>a</sup>Raleigh Barlowe, Land Resource Economics (Englewood Cliffs, N.J.: Prentice-Hall Ince., 1958), p. 66.

created will then show the approximate population at each age level for the coming five years (see Figure 13).

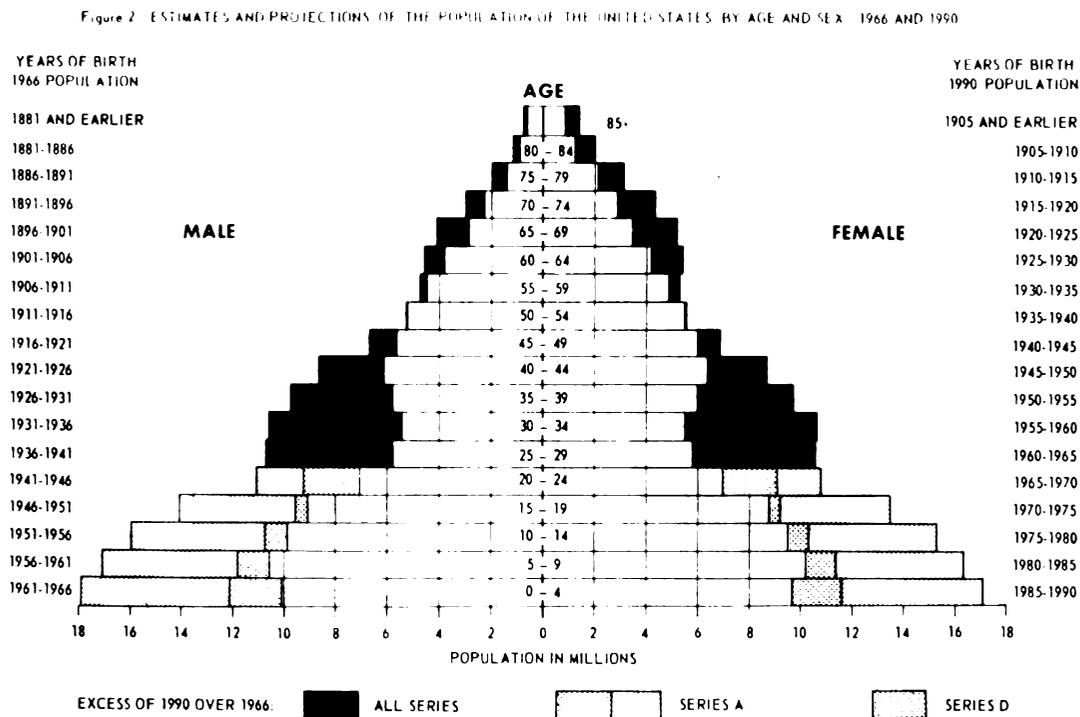


Figure 13.--Estimates and Projection of the Population of the United States by Age and Sex: 1966 and 1990.<sup>a</sup>

<sup>a</sup>U. S. Bureau of the Census, Population Estimates Series P-25 No. 381, December 18, 1967. "Projections of the Population of the United States, by Age, Sex, and Color to 1990 with Extensions of Population by Age to Sex to 2015," p. 5.

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It can be seen that the large bulge in the younger ages (the post war "baby boom"), will be moving into the homeownership and family age brackets during the next decades. Therefore, even though our birth rate has reached its lowest point since the depression, this will not affect the relative growth in the housing market for another 20-30 years.

The estimates of number of households supplied by the Bureau of Census in Summary of Demographic Projections, March, 1968 shows a 47% increase in households from 1965 to 1985, from a present total of 57,251 to 84,421 (see Figure 14).

With some of the natural inevitability of tides or seasons, a housing boom is coming. Children born during the famous postwar "baby boom" have begun entering their twenties, and in the years ahead they will, in swelling numbers, be forming their own households. . . . It has been too casually assumed, however, that a great increase in demand for housing units would automatically translate into a commensurately large increase in the dollar volume of new housing. Maybe it will. But how big a boom it will be in its economic effects will largely depend upon the mix--the kinds and sizes of the new units--and the mix, in turn, will depend upon some rather inscrutable factors, including the performance of the housing industry itself.

In any event, we are going to be seeing a lot of new housing units built in the U.S. over the next several years. On FORTUNE's estimates, the total housing starts should average two million a year in the first half of the Seventies, and the rate should get up close to that by the end of the Sixties. These are impressive numbers, not only compared to last year's 1,250,000 total, pinched by tight money, but also compared to the 1,450,000 average of the past ten years.<sup>2</sup>

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<sup>2</sup>Cohen, op. cit., p. 135.

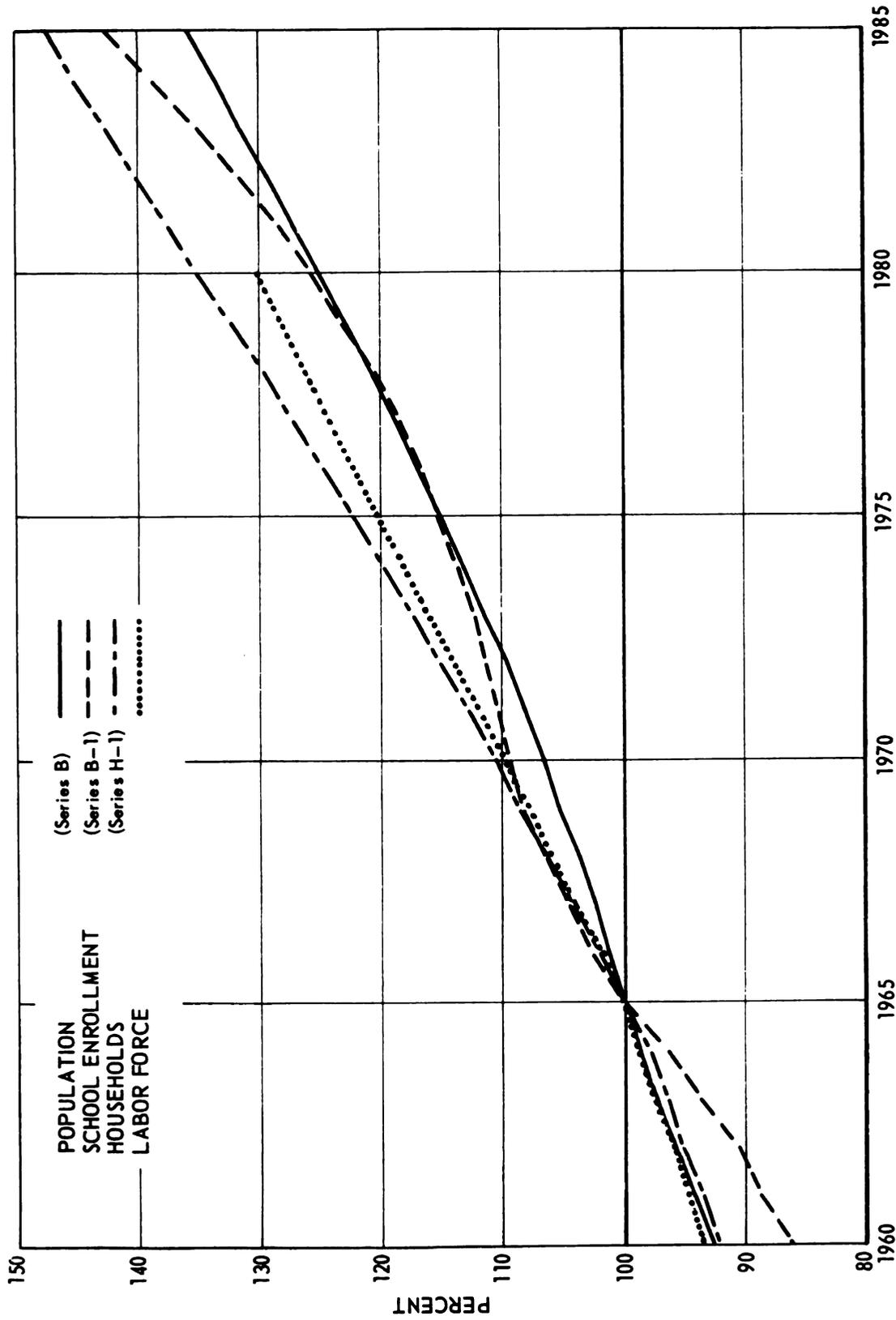


Figure 14.--Percent Growth of Population, School Enrollment, Households, and Labor Force: 1960 to 1985.

The question which is raised by these projections is who will provide these units. The problem is a physical one as well as economic. It will be difficult for the construction industry to even provide this number of units much less to provide them at low cost for newlyweds and starting households.

About half of all one-family houses completed in 1966 were built by firms with a total volume of less than seventy-five units a year . . . Levitt & Sons, the biggest of all in dollar volume, put up 3,500 houses in the U.S. last year, about 0.4% of the total. President William Levitt recently voiced doubts that the home-building industry as presently constituted will be capable of building as many as two million housing units a year. . . ."If there were 150 companies like ours--and there are none at the moment--I think we could build those houses. But as it is now, I can't see two million units a year any more than I can see myself jumping off the Brooklyn Bridge."<sup>3</sup>

The economic problem of course involves not just numbers but the proportion of low cost homes which will be necessary. The construction industry has simply not been able to provide single-family housing at low cost.

. . . Various considerations, moreover, suggest that much of the demand for new one-family houses will fall toward the lower end of the price range . . . And the prospect of virtually no change in the total number of middle-year households points to restrained demand for higher-price houses.<sup>4</sup>

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<sup>3</sup>Ibid., p. 232.

<sup>4</sup>Ibid., p. 230.

The conclusion still seems unavoidable that pre-fab construction techniques, as we know them today, can have only negligible impact on the critical and large-scale American problem of how to provide, in quantity, housing that meets defensible modern standards<sup>5</sup>-at costs within reach of low-income families.<sup>5</sup>

Housing progress lags far behind industrial progress in every part of the world. The technical genius that broke the secrets of speed, sound, space and light, still cannot build a house cheap enough for the rank and file. . . . The anomaly is that the less industrialized the country, the less apt it is to have a housing problem<sup>6</sup>

For decades, the Federal Government has largely ignored all these fundamental causes of rising housing costs. [High construction wages/low productivity per man-hour, local building codes, zoning and planning restrictions, land costs]. Instead it has concentrated on making overpricing more palatable through easier FHA and VA terms for home buyers and direct subsidies for the growing portion of the population unable to afford decent shelter without them. . . . Says former Illinois Senator Paul Douglas, chairman of President Johnson's National Commission on Urban Problems: ". . . Almost one-half of American society is priced out of new housing."<sup>7</sup>

Bair analyzes the low cost housing market carefully, using the 20-29 and 60-64 age brackets which are of prime importance to the mobile home market.

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<sup>5</sup>Editorial, The Journal of Housing, No. 8, 1966, p. 435.

<sup>6</sup>Charles Abrams, Man's Struggle for Shelter in an Urbanizing World (Cambridge: Massachusetts Institute of Technology Press, 1966), p. 51.

<sup>7</sup>"Why U.S. Housing Costs Too Much," op. cit., p. 89.

The 20-29 Age Group:

Between 1964 and 1980, about 16 million will be added to the present 24 million, a two-thirds increase in 16 years. Housing for new families will boom. Mobile homes will get a substantial share of the market.

The 65-74 Age Group:

Mere numbers do not tell the full story on the active retirement group. In an increasingly affluent society, their economic status is improving, although it still leaves much to be desired. In 1950, only about 16% were receiving OASDI benefits. Currently, the proportion is approaching 75%, and amount of benefits, in constant dollars, is almost 50% above the 1950 level.

Out ahead, retirees are likely to be better off financially, and retirement is likely to take place earlier. Retirement at 60 would add 8.5 million to the active retirement group (65-74) in 1970, 9.8 million in 1980, increasing the prime retirement market for mobile homes by about 60% in both years.

20-29 Plus 65-74 Plus Fringes:

Adding together probable 1964-1980 increases in the two groups gives a gain of about 19 million by 1980, well over 50% above current figures. Add also 11 million as a result of early retirement and increased suitability of mobile homes for larger families, and almost double the current market potential will be available 16 years ahead.<sup>8</sup>  
(See Figure 15)

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<sup>8</sup>Bair, op. cit., p. 6.

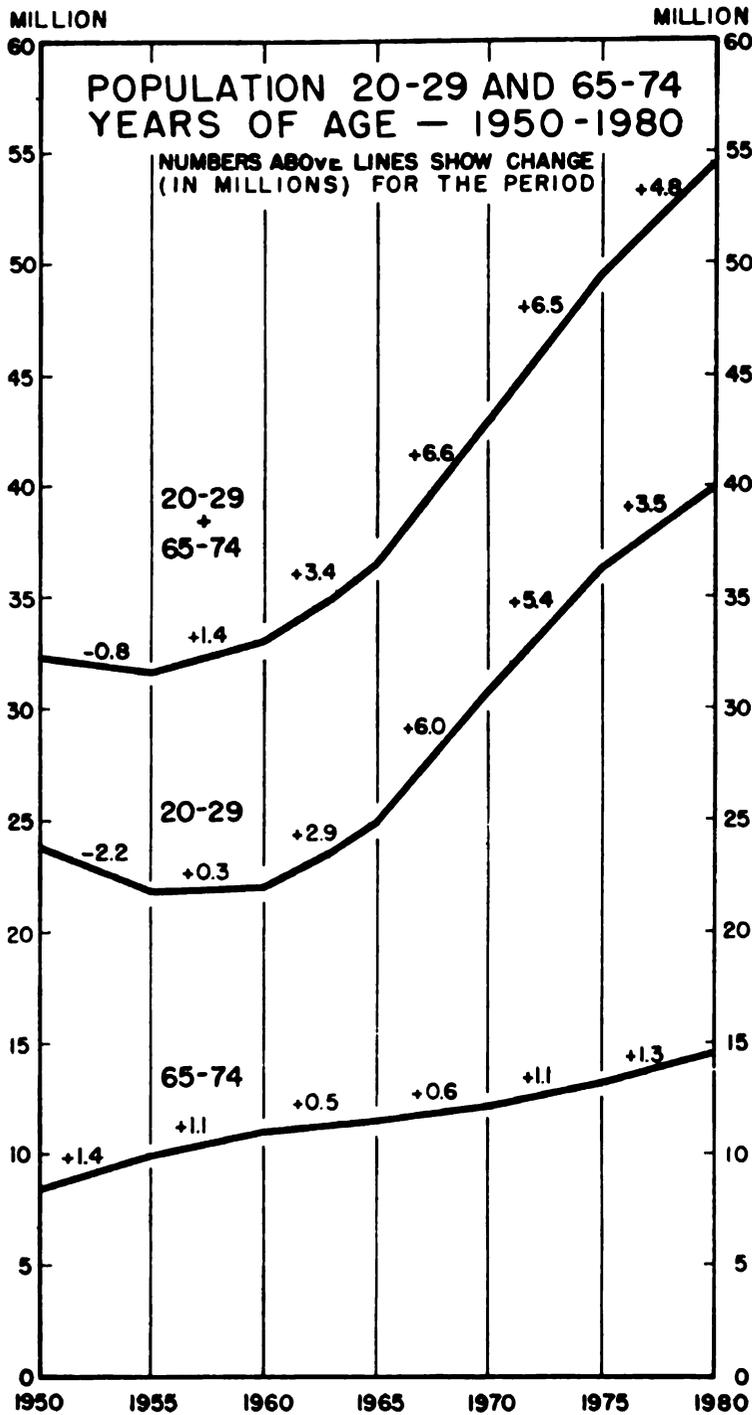


Figure 15

TABLE 36.--  
AGE GROUPS 20-29 AND 65-74—1960 to 1980

Year	Age Group		
	20-29	65-74	20-29 + 65-74
1950	23,855,000	8,433,000	32,388,000
1955	21,742,000	9,848,000	31,590,000
1960	22,044,000	10,997,000	33,041,000
1964	24,330,000	11,409,000	34,739,000
1965	24,492,000	11,496,000	35,988,000
1970	30,899,000	12,131,000	43,030,000
1975	36,311,000	13,227,000	49,538,000
1980	39,819,000	14,489,000	54,308,000

Source: 1950 and 1960 Census; Current Population Reports, Series P-25, No. 286 and No. 293.

And indeed, Fortune predicts almost a doubling of mobile home shipments in the early Seventies.

Shipments ran well above 200,000 a year in 1965 and 1966, nearly double the level of the late Fifties. On FORTUNE's estimates shipments should average at least 250,000 a year over the rest of the decade and 350,000 or more in the early Seventies.

. . . the industry has a powerful and probably decisive advantage going for it; mobile homes cost a lot less than conventional one-family housing. The average retail price of mobiles last year, according to the association, came to \$5,700, furnished. Conventional builders cannot come close to matching that.<sup>9</sup>

Roy Wenzlick Research Corporation in 1964 used two growth rate assumptions to project mobile home sales to 1970--8% of single family housing starts, which was the approximate rate of mobile home growth after World War II; and 15% which had been maintained for eight years (1955 to 1963).<sup>10</sup>

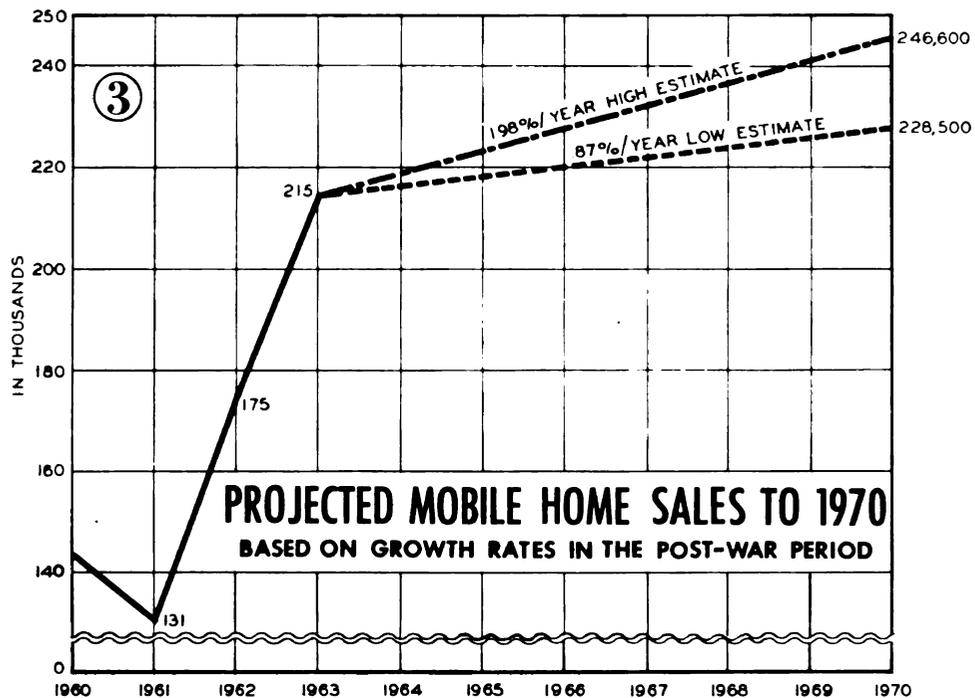


Figure 16.--Projected Mobile Home Sales to 1970.

<sup>9</sup>Cohen, op. cit., p. 135.

<sup>10</sup>Roy Wenzlick Corp., op. cit., p. 65.

By 1967, however, the high projections had already failed short of actual shipments (232,000 projected to 240,000 actual) and shipments to February, 1968 are already 40% above 67 figures. Projections of past growth do not seem to indicate the increasing penetration of mobile homes in the market.

FORTUNE also predicts an increase in apartments using reasons similar to Bair when he forecasts mobile home increases.

For one thing, it is clear that a big percentage of the housing units built over the next several years are going to be apartments. The age structure of the population points to booming demand for apartments. During the late Sixties and the early Seventies, the number of younger households (where the head is under 35) will be rising rapidly. In contrast, the number of households headed by persons in their middle years, thirty-five through fifty-four will hardly increase at all. The latter group of course, includes a far higher proportion of homeowners, and accounts for a lopsidedly greater percentage of the purchases of higher-priced houses.

. . . Some experts forecast a fifty-fifty split between houses and apartments in housing starts over the next several years, but the trend to apartments probably won't go quite that far that fast. Until, now, apartment living as a way of life has been concentrated in New York, Los Angeles, and a few other big cities. If apartment starts were to account for as much as 50% of all housing starts over the late Sixties and early Seventies, that would mean a large-scale diffusion of apartments throughout the U.S. Enormous numbers of families whose age-and-income counterparts in the Fifties lived in houses would have to choose to live in apartments.

. . . But in view of the age structure of the population, it is clear that over the next several years the apartment share in total housing starts will at least match the one-third level of recent

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years. Even that kind of share for apartments will bring an extensive spread of apartment living.

. . . One might suppose that most of the new apartments have been luxury units in high-rise buildings. But, in fact, most of them have been smallish units in garden developments. Nearly four-fifths of all apartment starts in 1965 were contained in buildings of three stories or less. In recent years the average construction cost of apartments has run to not much more than half the average for one-family houses. No wonder then, that, measured in constant dollars, the average construction cost of new housing units shrank from the late Fifties to the middle Sixties. In view of the traditional importance that Americans have attached to housing and home ownership, that shrinkage in the average real construction cost of new housing units during a period of rapidly rising real income per family is a stunning social-economic phenomenon.<sup>11</sup>

The real issue then is, since single family housing has lost penetration in the low cost field and does not show any immediate indicators of regaining it, what per cent of the low cost market can be expected to go to mobile homes and what per cent to apartments. Here the issue becomes more complicated because most discussion tends to deal with apartments or mobile homes alone and not with their interrelationship or their differences.

Merely analyzing the shift in numbers and income of major age groups omits three considerations which are critical to the competition between apartments and mobile homes;

1. The location of primary age groups compared to the economics of location for mobile homes and apartments.

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<sup>11</sup>Cohen, op. cit., pp. 137-230.

2. The ability of apartment and mobile home construction to expand rapidly to meet the demand.
3. The housing preferences of primary age groups-- both economic and social preferences.

The author does not propose to answer the question of competition between mobile homes and apartments, nor to thoroughly explore the above three considerations, but several issues have already been brought out which point to increased penetration by mobile homes.

1. Location

rapid expansion of urban fringe 1950-1960  
 high migration rates and mobile labor force  
 mobile homes found in  
 low density and high population increase areas  
 along transportation routes  
 2/3 within city or village limits according  
 to national study.<sup>12</sup>  
 mobile home cost per unit about 1/3 of single  
 family cost  
 mobile home space development cost runs  
 \$2,000-\$3,000 per space  
 mobile home land extensive--low land value areas

Apartments

land intensive--high land value areas  
 high construction cost per building  
 construction cost per unit about 1/2 of single  
 family cost

2. Ability to expand

mobile home units--excellent  
 mobile home parks--not as good--35% expansion  
 in last decade but sales of units expanded  
 over 100%--takeoff point in financing may be  
 close--restrictive zoning and community  
 attitude still a problem  
 mobile home apartments--excellent cost and  
 labor considerations but few examples  
 available--Vicksburg redevelopment townhouses  
 Milwaukee high rise, and Seaside,  
 Cal. high rise

## Apartments

high construction costs  
 integration needed between work groups--  
 on site construction  
 construction companies may not be able to  
 expand rapidly  
 rising land costs and construction costs  
 work against low rent units

## 3. Housing preferences

## Social

image of mobile homes versus apartments  
 difficult to test  
 mobile homes lie between apartments and single-  
 family in regard to intangibles such as  
 ownership, ease of maintenance, convenience  
 and location, social involvements in  
 "neighborhood."

## Economic--need for low cost housing

inelastic demand for housing  
 inability of home-building industry to supply  
 low cost housing  
 comparison of out-of-pocket cost and long range  
 investment shows mobile homes cheaper than  
 apartments and single-family on both counts.  
 (space limitation of 720 sq. feet compared  
 to 1,000 sq. feet for apartment--both 3  
 bedroom; yet national survey shows only 1½%  
 of mobile home owners said they would move  
 as soon as possible)<sup>13</sup>

TABLE 37.--Comparison of Costs of Ownership for Mobile Homes,  
 Apartments and Single-Family Homes.<sup>a</sup>

Item	House	Apartment	Mobile Home
Average per month of total costs	\$ 207.00	\$ 175.00	\$ 98.00
Average out-of-pocket per month cash costs	154.00	175.00	145.00
Value of investment from specified monthly commit- ment at end of 30 years	25,756.00	25,733.00	37,472.00

<sup>a</sup>Carlton M. Edwards, "Mobile Home Costs Compared to House and Apartment Costs" (Department of Agricultural Engineering, Michigan State University, mimeograph, 1967).

<sup>13</sup>Carlton M. Edwards, Mobile Life Consumer Survey (New York: Davis Publications, Inc., 1965), p. 35.

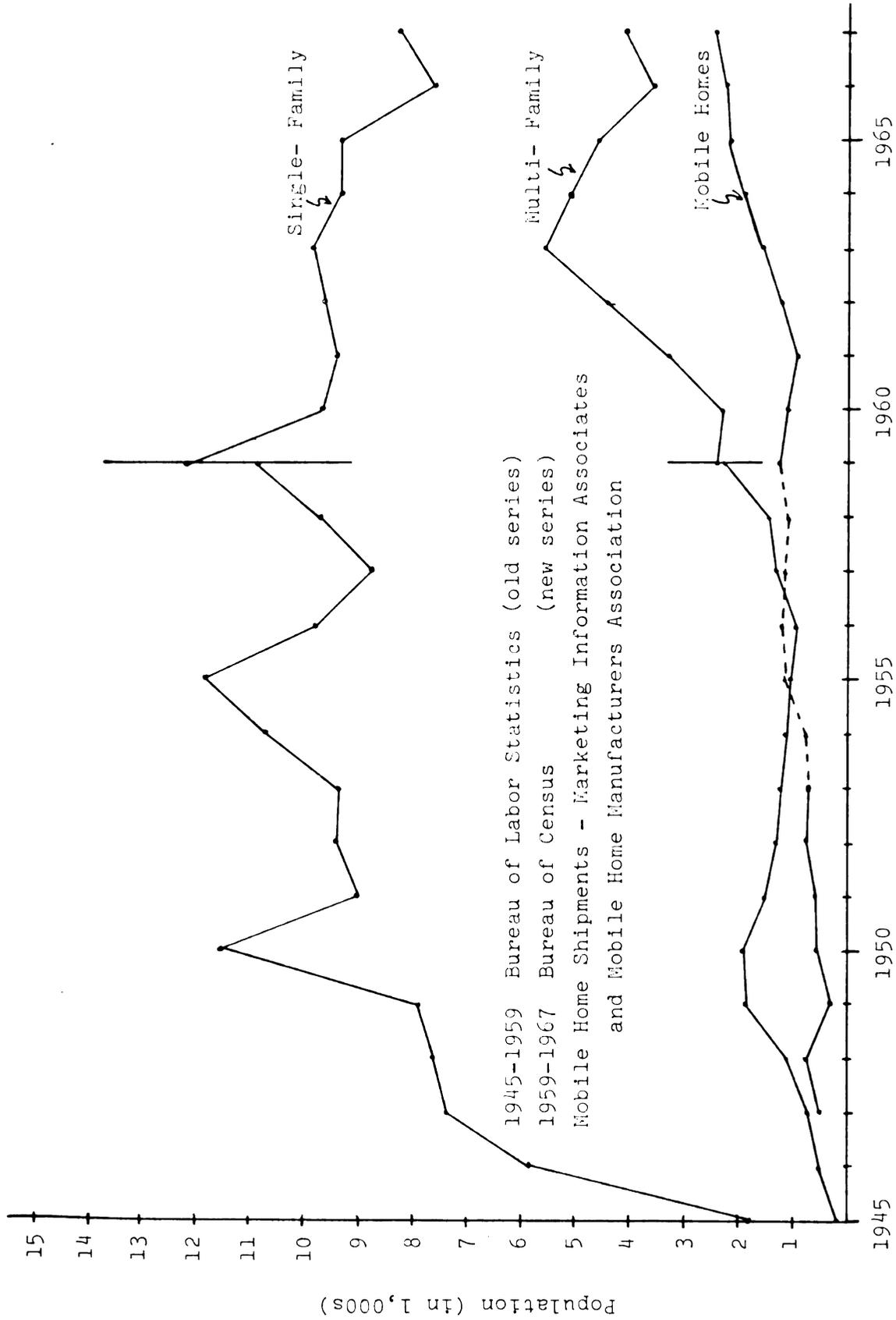


Figure 17.--Annual Housing Starts, Including Mobile Homes and Apartments: 1945-1967.

Future Regional and State Markets  
for Mobile Homes

Bair has examined the regional population patterns and the growth potentials of mobile homes with modified cohort graphs showing the increase which can be expected for newlywed and retiree age groups. He analyzes the North Central States as an example, using the charts on the next page.

In the East North Central states, the top pair of bars in the upper left corner indicates that in 1950 there were 4.8 million persons in the 20-29 age group. Coming on as replacements were 4.1 million aged 10-19. If all these replacements had survived until 1960, and if there had been no migration, the 20-29 bar for 1960 (lower left in the box) would have indicated 4.1 million. Instead, it shows 4.3 million, indicating regional net immigration sufficient to add 200,000 plus whatever was needed to replace mortality losses.

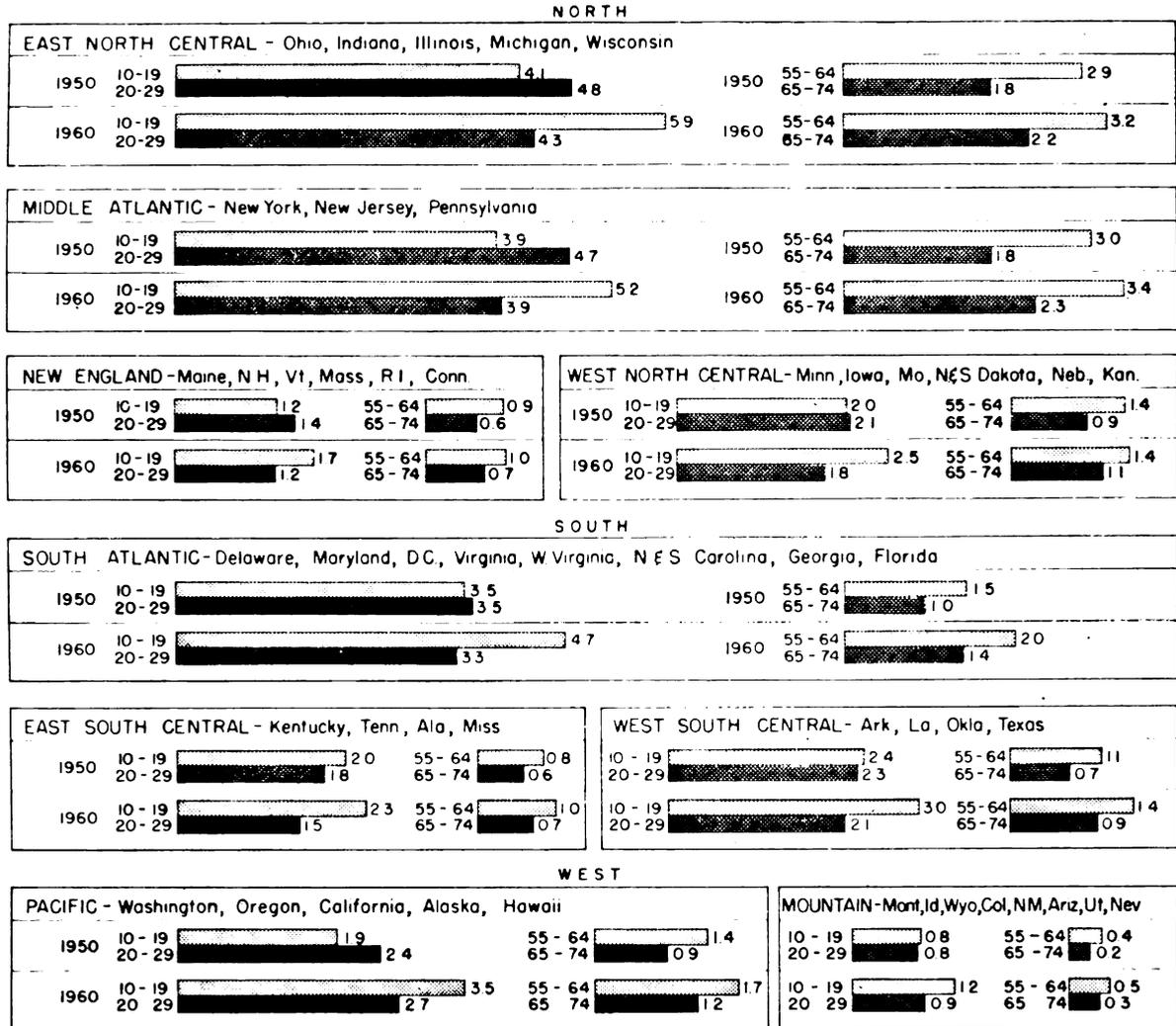
Coming up in 1960 in this region were 5.9 million replacements for the present 4.3 million aged 20-29. Given the same patterns of migration and mortality during the 1960s, by 1970 there will be about 6.3 million persons 20-29 years old in the East North Central states.

On the right side of the East North Central chart are bars indicating the situation in the older age brackets. The top two, for 1950, show 2.9 million persons 55-64 coming on during the '50s as replacements for 1.8 million aged 65-74 at the beginning of the decade. If all had survived, and if there had been no migration, there would have been 2.9 million aged 65-74 in 1960, as against the 2.2 million actually counted by the census.

Mortality is relatively higher in these older age groups. Nationally, 17.5% of the population aged 55-64 in 1950 failed to age into the 65-74 bracket in 1960. If this mortality factor is applied to the East North Central population, it appears that mortality alone would not have accounted for the attrition which took place during the '50s. From this, it appears that about a quarter of a million persons in the 55-64 group moved out of the East North Central region during the '50s.<sup>14</sup>

Figure 18.--

REGIONAL AGE PATTERNS-AGE GROUPS 10-19, 20-29, 55-64, 65-74 — 1950 AND 1960  
(Population figures in millions)



DETAILED STATISTICS ON AGE GROUPS

AREA	10 - 19		20 - 29		55 - 64		65 - 74	
	1950	1960	1950	1960	1950	1960	1950	1960
<b>NORTH</b>	11,238,721	15,324,643	12,999,001	11,176,454	8,174,893	8,952,272	5,046,053	6,362,071
NEW ENGLAND	1,224,802	1,574,021	1,436,243	1,205,982	930,752	988,912	601,567	731,743
MIDDLE ATLANTIC	3,850,032	5,224,117	4,729,405	3,902,716	2,980,552	3,359,241	1,757,804	2,303,827
E.N.CENTRAL	4,118,562	5,883,239	4,761,718	4,291,969	2,894,755	3,154,233	1,747,419	2,227,743
W.N.CENTRAL	2,045,325	2,543,246	2,071,615	1,775,787	1,368,719	1,429,186	909,263	1,098,758
<b>SOUTH</b>	7,880,204	9,985,071	7,635,180	6,942,223	3,383,660	4,384,431	2,265,019	3,050,877
SOUTH ATLANTIC	3,472,975	4,671,652	3,549,818	3,345,932	1,487,988	2,031,382	980,399	1,422,719
E.S.CENTRAL	2,043,060	2,289,354	1,779,921	1,469,254	808,483	971,048	570,245	688,678
W.S.CENTRAL	2,364,169	3,024,055	2,305,441	2,127,027	1,087,189	1,382,001	714,375	939,480
<b>WEST</b>	2,710,847	4,583,021	3,221,125	3,551,208	1,768,334	2,235,614	1,121,626	1,583,894
MOUNTAIN	812,059	1,227,870	798,345	879,911	398,422	493,156	247,632	349,634
PACIFIC	1,907,815	3,455,151	2,422,780	2,671,297	1,369,912	1,742,458	873,994	1,234,260
<b>U. S. TOTAL</b>	21,838,799	29,992,735	23,855,306	21,669,885	13,326,887	15,572,317	8,432,698	10,996,842

TABLE 38.--Detailed Statistics on Age Groups by Region: 1950 and 1960.

Bair goes on to analyze the South Atlantic region which shows almost the opposite trend of the East North Central region. The 10-19 age group had a net migration out of the South Atlantic from 1950-1960 and the 55-64 group had a net migration into the region. Further comparison of regional patterns of population are not very useful due to extreme variation by state. Therefore, housing and population in Michigan will be analyzed in a separate section.

Other factors at the regional level reinforce the population growth projections and give an insight into the regional economy in which Michigan plays an important part.

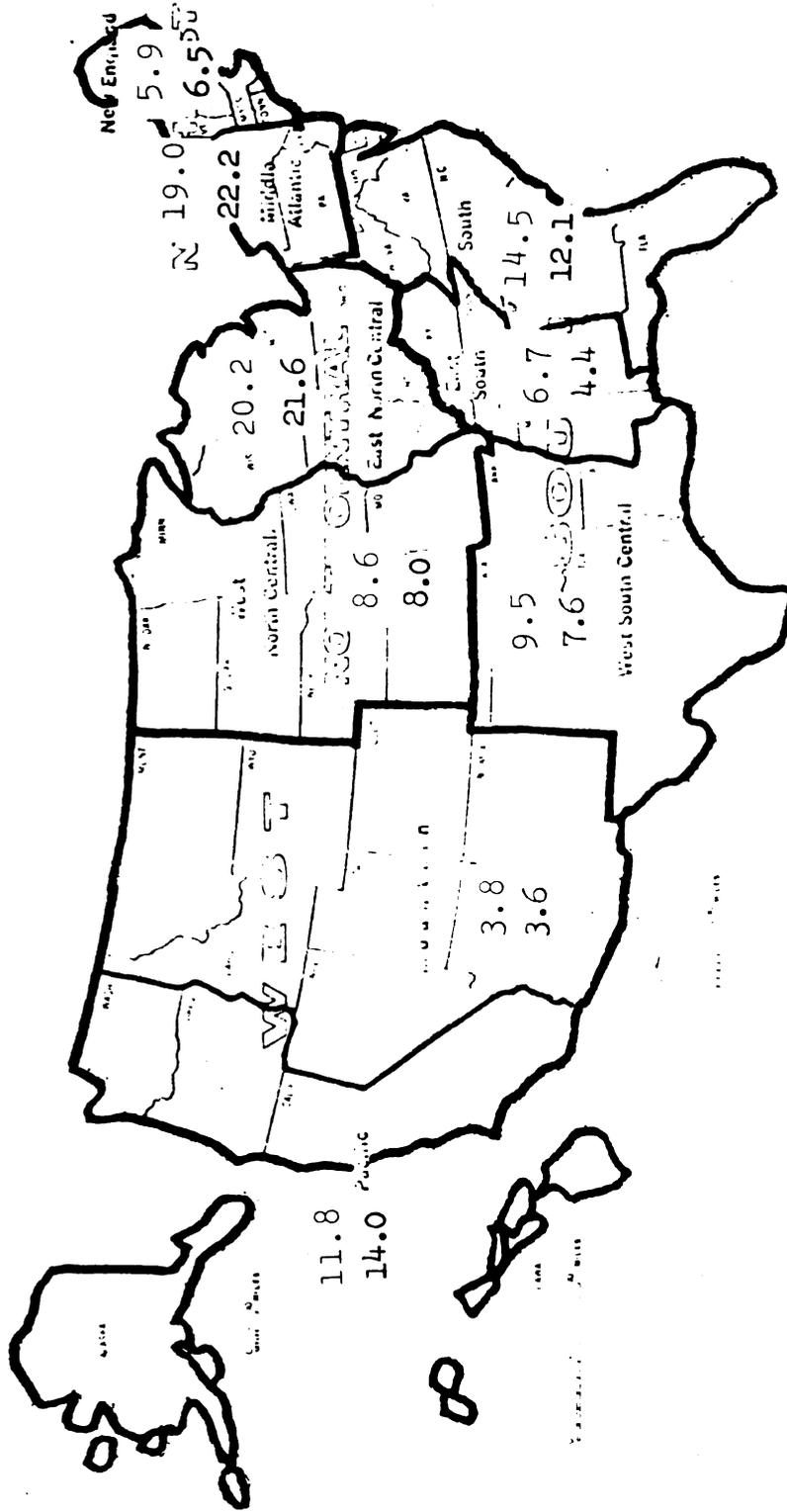
The East North Central Region has the largest per cent of U.S. population and the largest per cent of U.S. total manufacturing of any region in the United States. It also has the second largest per cent of U.S. total personal income and the second largest per cent of U.S. total agricultural production as shown in the following charts. (See Figures 21-27)

This regional concentration of economic activity, personal income and mass markets has a future growth potential unmatched by any region in the United States. The Michigan Department of Highways has stated,

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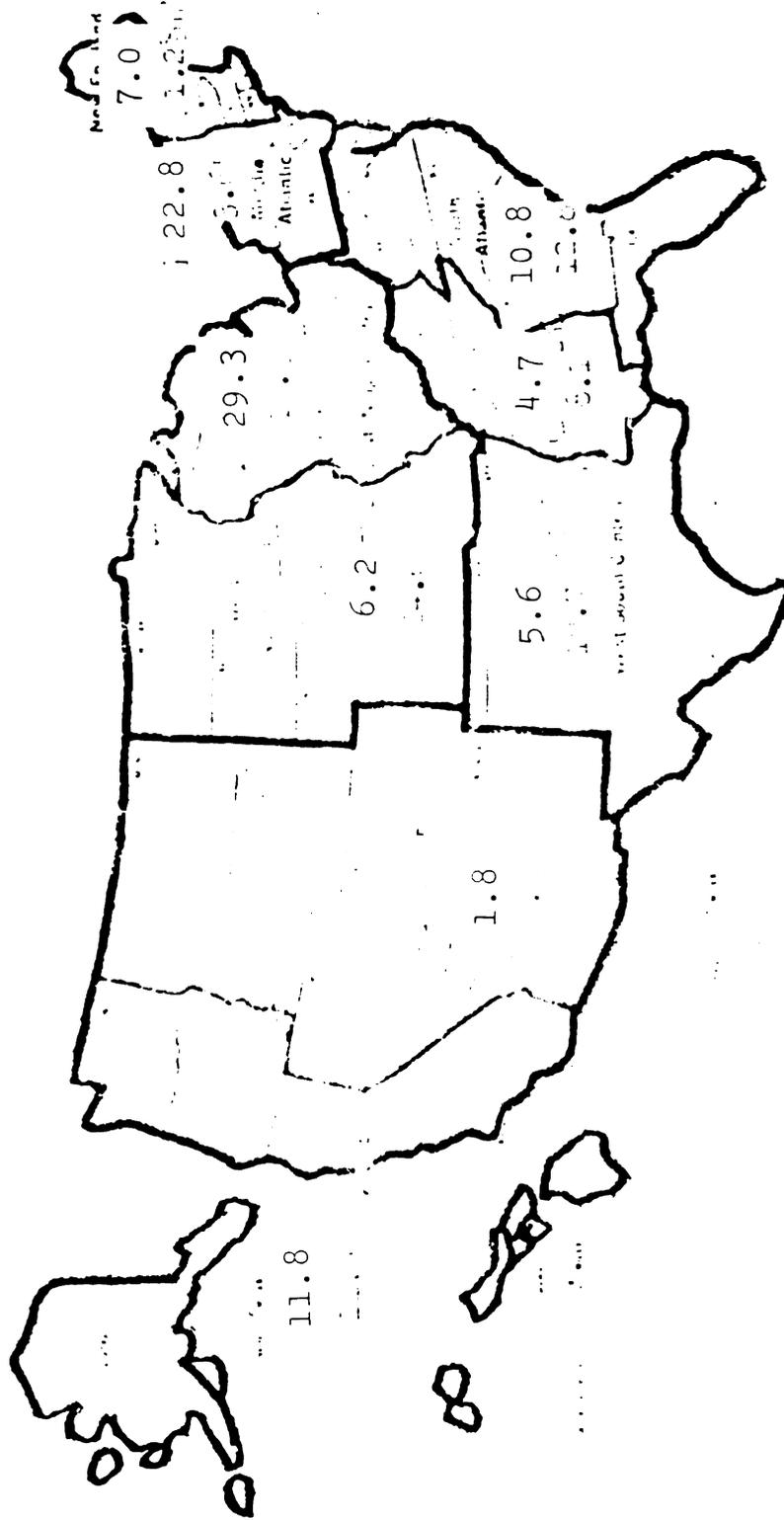
<sup>14</sup>Bair, op. cit., p. 7.

Figure 19.--Population and Personal Income by Regional Divisions 1960.



0.0 Percent of U.S. Population  
 0.0 Percent of U.S. Total  
 Personal Income

Figure 20.--Manufacturing and Agricultural Production by Regional Divisions 1963.  
 (Value added by manufacture and farm value of 78 crops)



Source: Department of Commerce, Bureau of Economic Analysis  
 0.0 Percent of U.S. Total (Manufacturing)  
 0.0 Percent of U.S. Total (Agriculture)

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MAIN ROAD NETWORK



Source: U. S. Dept. of Comm

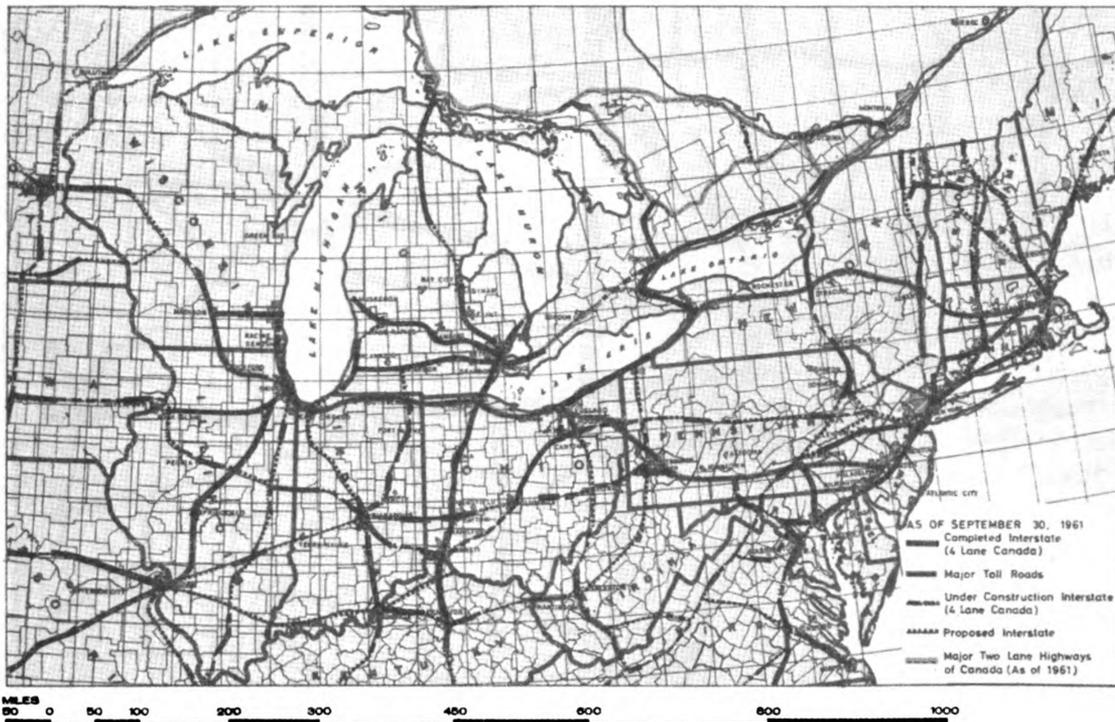
Figure 21.--

15 Edgert  
Section, Michi  
March, 1968.

In the foreseeable future, it is expected to expand into a megalopolis similar to that now in existence on the eastern seaboard but with an even greater potential.<sup>15</sup>

The following diagrams examine the interlocking urban-metropolitan complex which may develop across Michigan linking Chicago and Detroit along a transportation network formed primarily by the interstate highway system and reinforced by the railroad and secondary highway network.

#### MAIN ROAD NETWORK



Source: U. S. Dept. of Commerce, Bureau of Public Roads, 1965.

Figure 21.--The Emerging Great Lakes Megalopolis.

<sup>15</sup>Edgerton Bailey, Chief, Transportation Planning Section, Michigan Department of Highways private files, March, 1968.

Major High

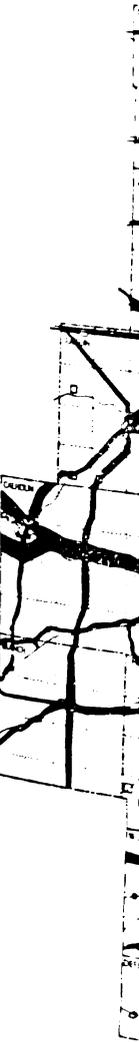
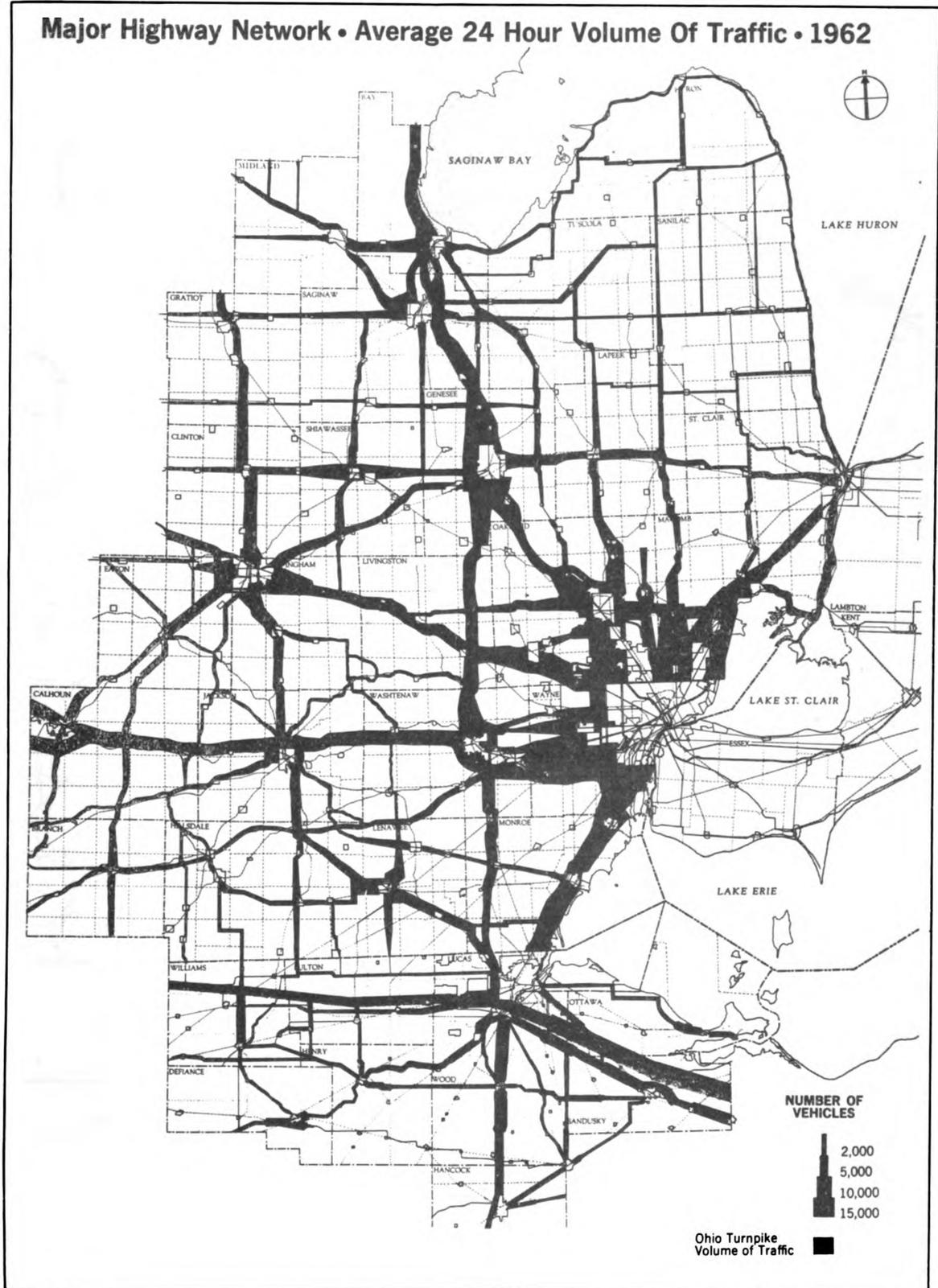


Figure 22



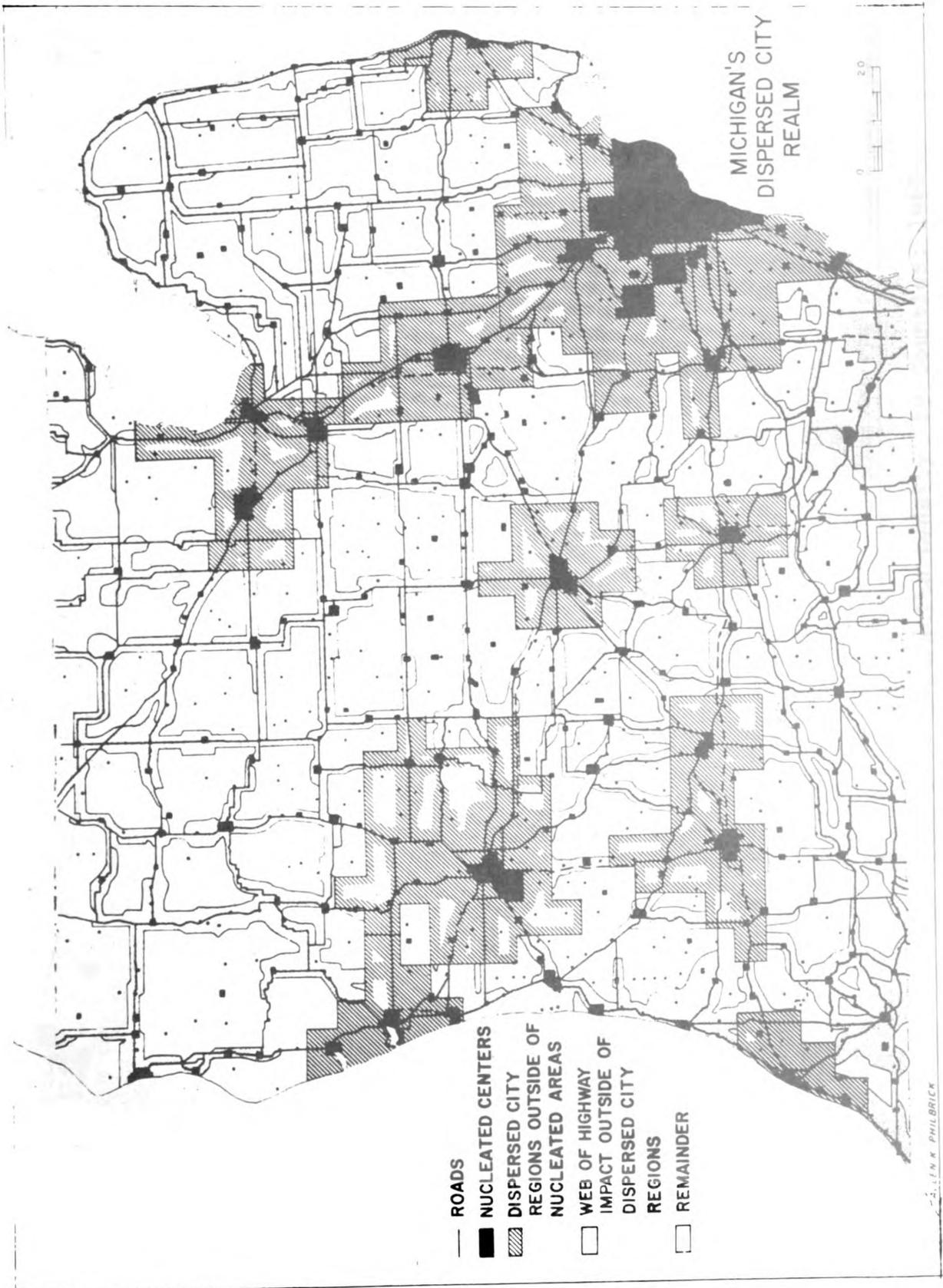


Figure 23.--Michigan's Dispersed City Realm.

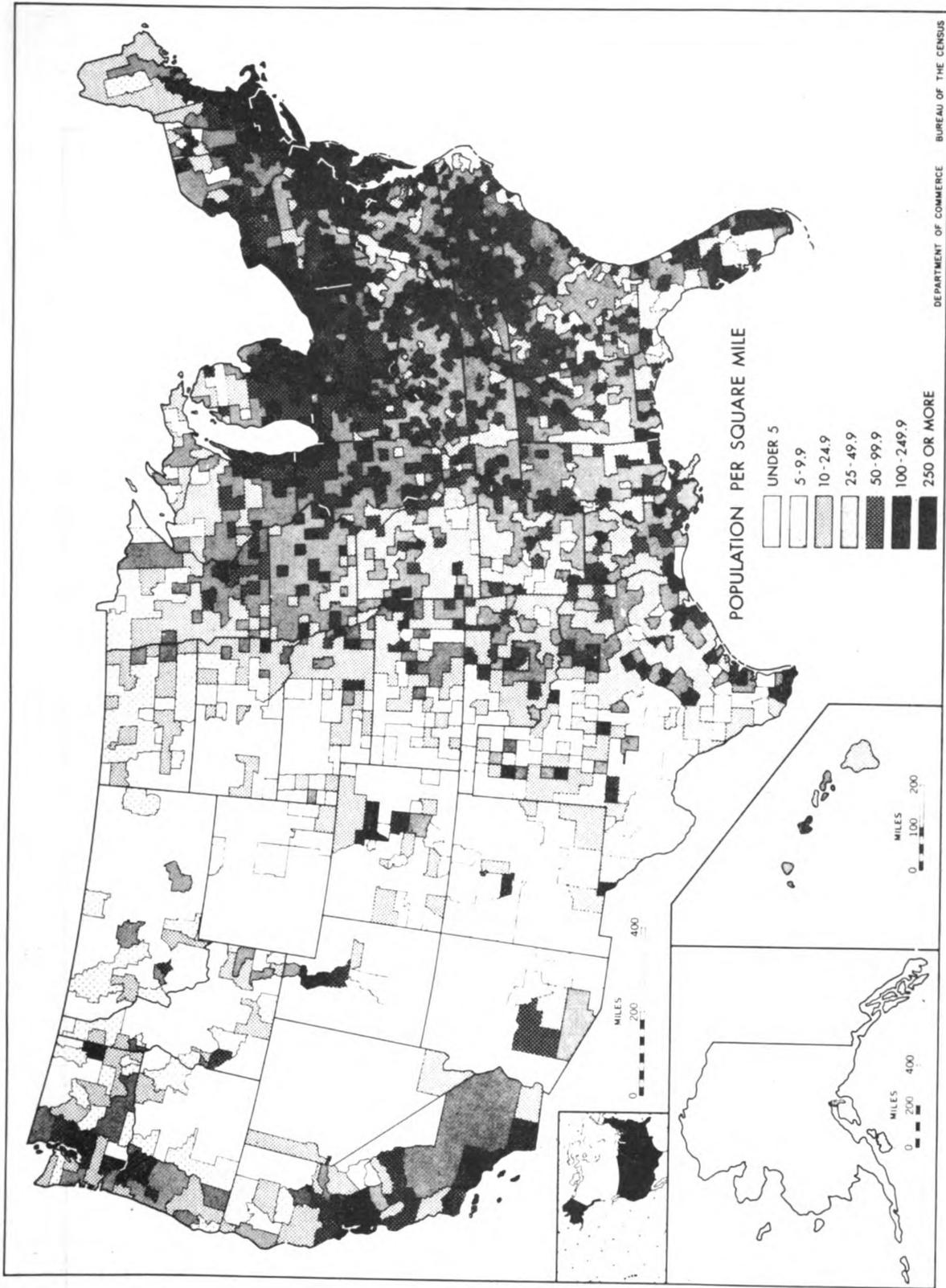


Figure 24.--Population Density, by Counties: 1960

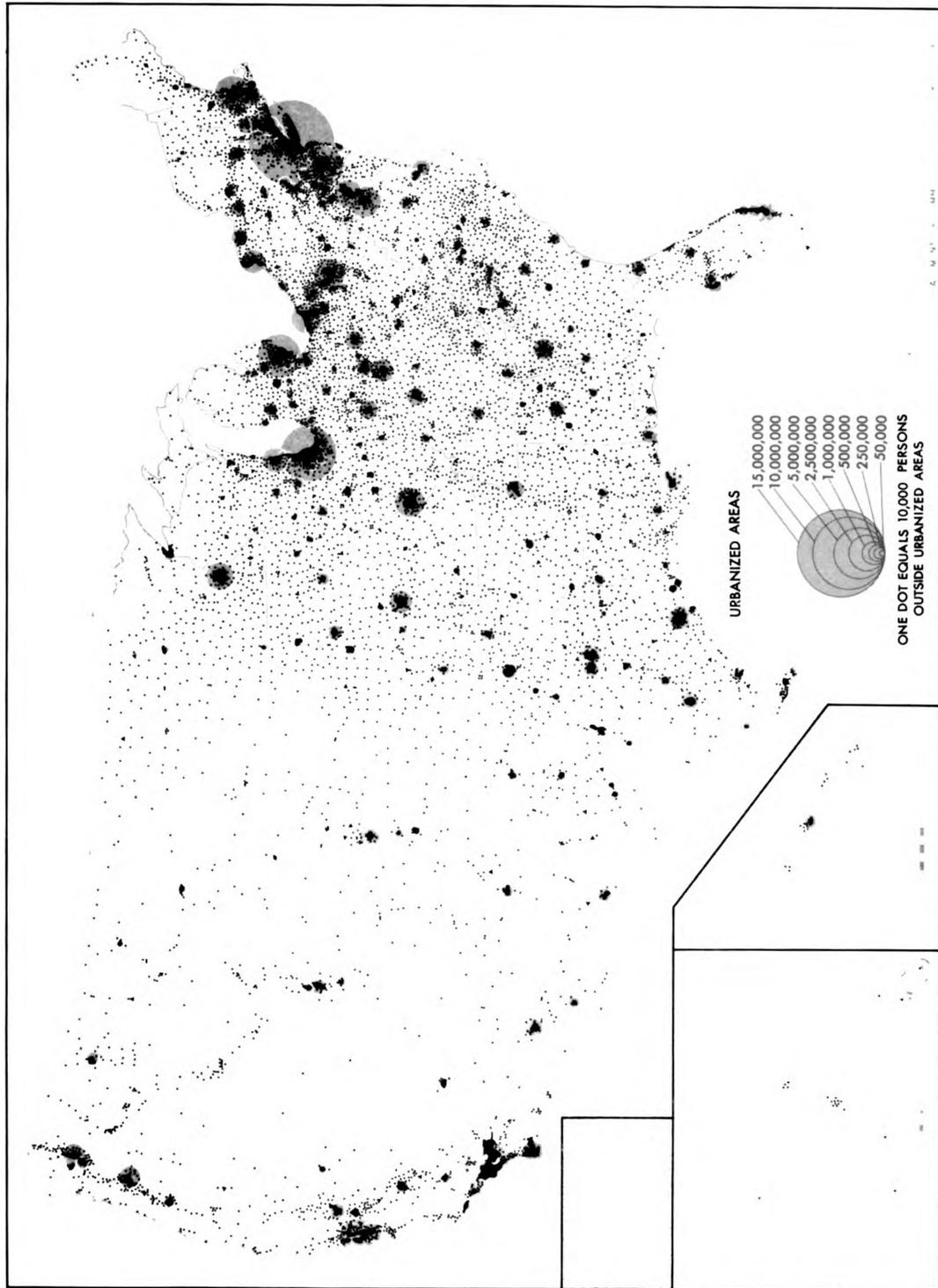


Figure 25.--Population Per Square Mile for the United States: 1960.

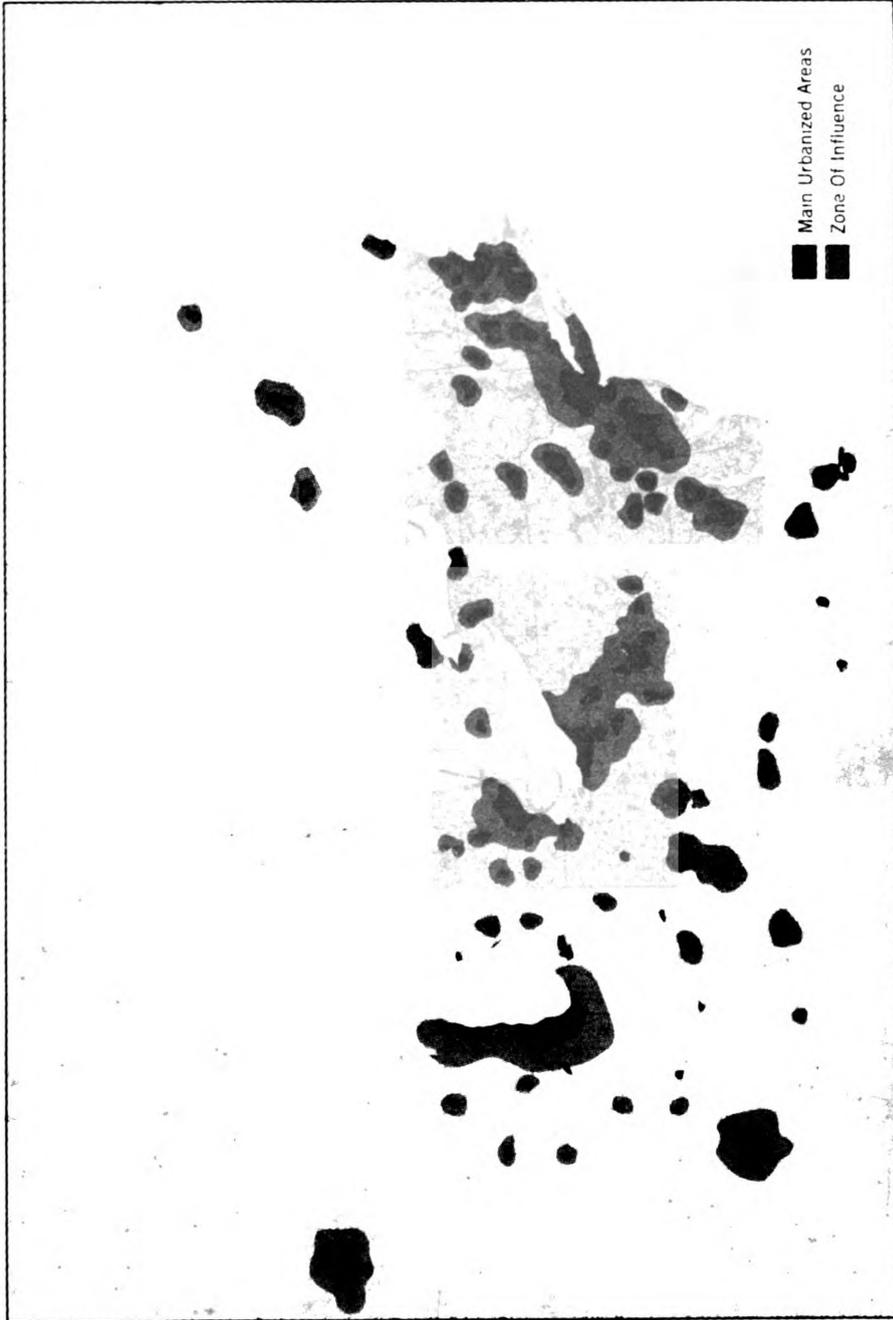
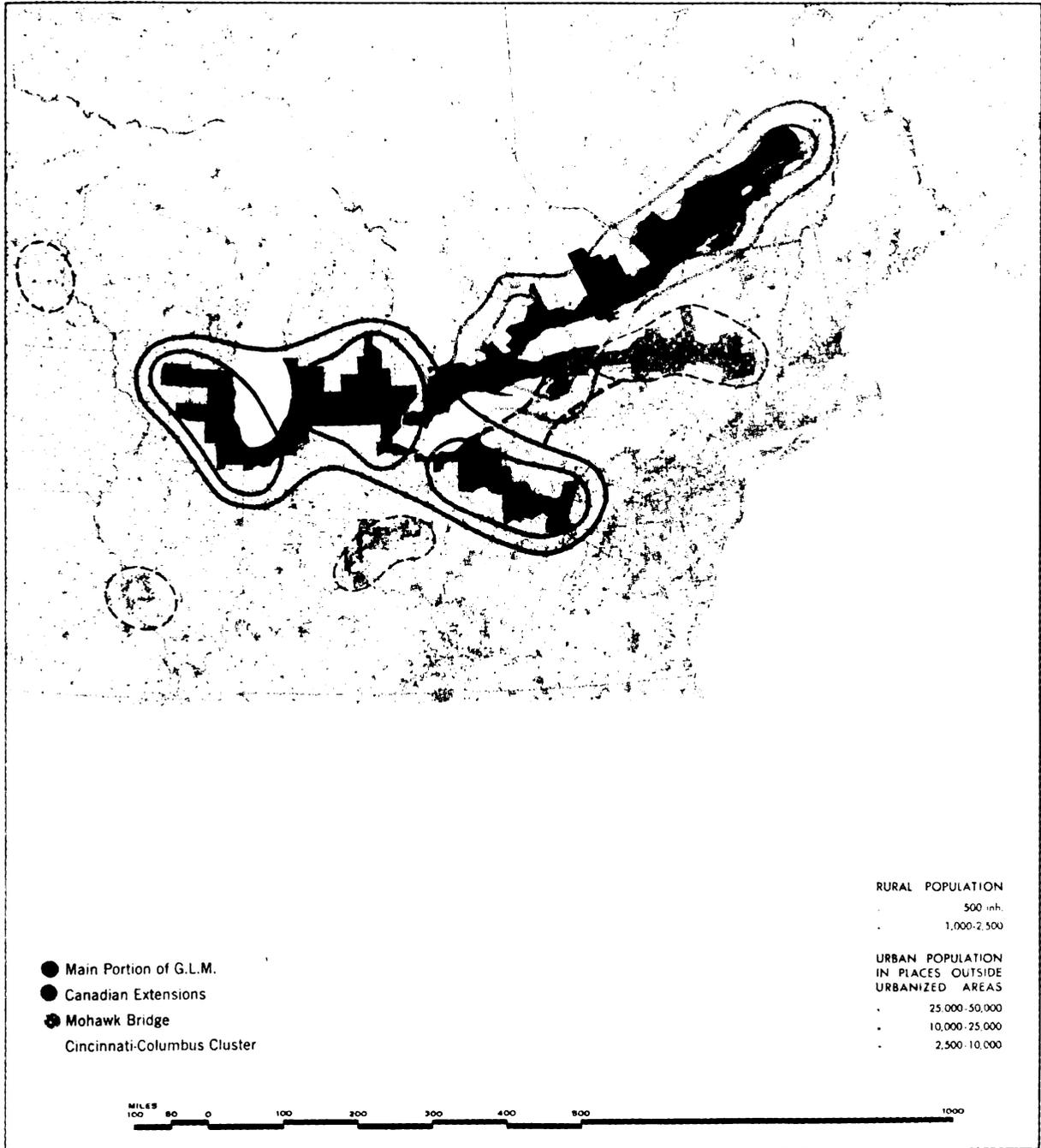


Figure 26.--Main Urbanized Areas and Their Zone of Influence, Great Lakes Region.

Figure 27.--

**Tentative Boundaries Of The Great Lakes Megalopolis  
And Its Probable Extensions**



Future Housing Problems for Municipalities

The unfortunate situation in Michigan and in much of the United States is that municipalities not only argue against allowing mobile homes in their area but they also argue against apartments or any form of low cost housing. Municipalities refuse to face the facts about future population growth especially near urbanizing areas. By 1975, one-half of the population will probably be under the age of 25. It is not a matter of whether a municipality should have apartments or mobile homes but what kind, how many and how well they are designed.

The increasing services required by citizens and the critical necessity to therefore improve the tax base, has forced municipalities to analyze construction solely in terms of tax revenue. High investment, high return land use is the desired goal. Low cost housing does not fit into this picture. In the coming decade however and in the following decade, the housing market is going to require a basic shift in this position.

The rise in real income in the U.S. is used to support the argument that we will be able to afford higher priced housing and demand will become more elastic, but the rise in real income does not take into account the proportion of the population which moved into the higher income age brackets (30-45) compared to the shortage of labor force age groups which are just beginning to build up their

income potential (20-30). What will municipalities, and the urbanized area in general, do in the next two decades when the proportions shift toward lower income age levels? The competition for jobs could also hold wages down in these age groups.

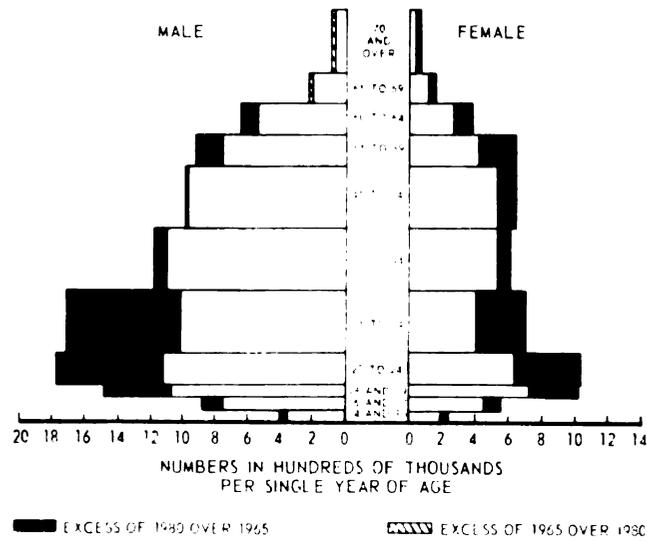


Figure 28.--Total Labor Force, by Age and Sex: 1965 and 1980.

## CHAPTER IV

### ANALYSIS OF MOBILE HOME LAND DEVELOPMENT IN MICHIGAN

#### Michigan

Michigan population is the first consideration in analyzing future housing. In the following diagrams the 1960 pyramid by Beegle is compared to the future population pyramid which has been prepared by the author from population projections to 1985 by the Michigan Department of Public Health. (See Figures 29 and 30.)

As in the United States situation, Michigan can expect a need for low cost housing for starting households and retirees in the next two decades. The extent of this need can also be shown by examining the graph in Figure 31 which shows the tremendous increase expected in the 20-29 and 65+ age groups by 1980. The proof of these projections lies in the 1950-1960 census figures for Michigan which already show a 44.8% increase in the 10-19 age group and a net gain of 13.9% in the 55-64 age groups.<sup>1</sup> These are the groups which will form the starting households (20-29) and

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<sup>1</sup>See Table III-1, in Appendix III, Population: Age Groups 10-19, 20-29, 55-64 and 65-75, 1950 and 1960.

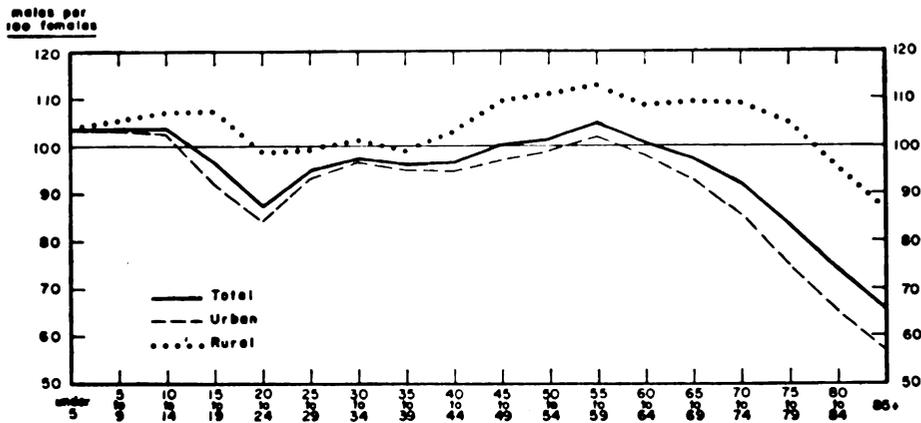
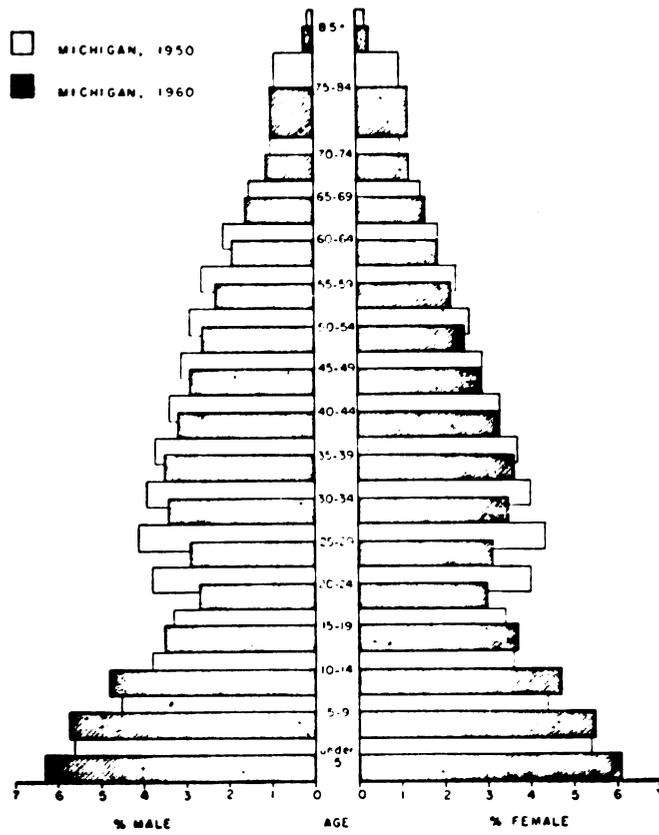


Figure 29.--Age-Sex Pyramid for Michigan, 1950 and 1960.

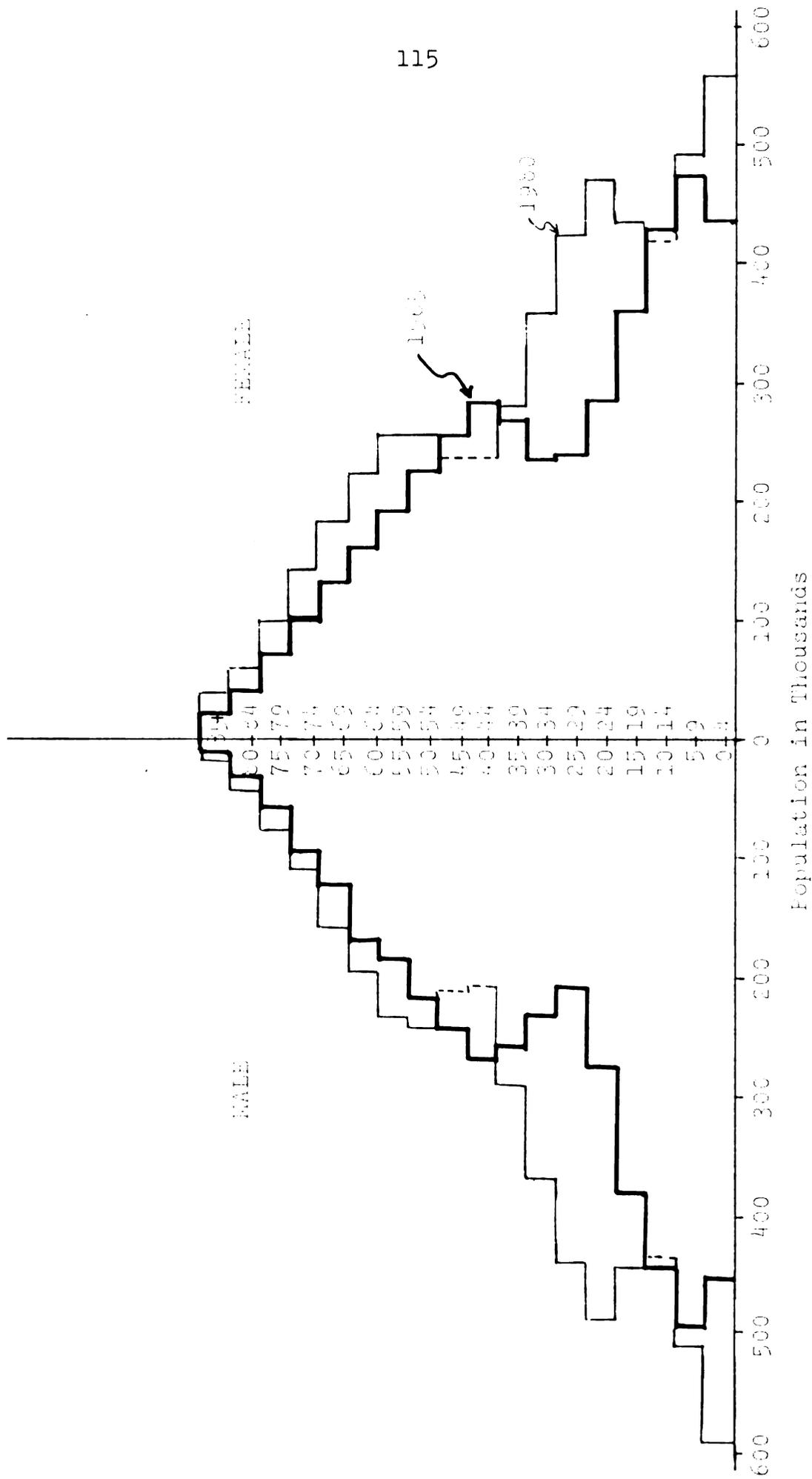


Figure 30.--Projections of the Population of Michigan, by Age and Sex: 1909-1960.

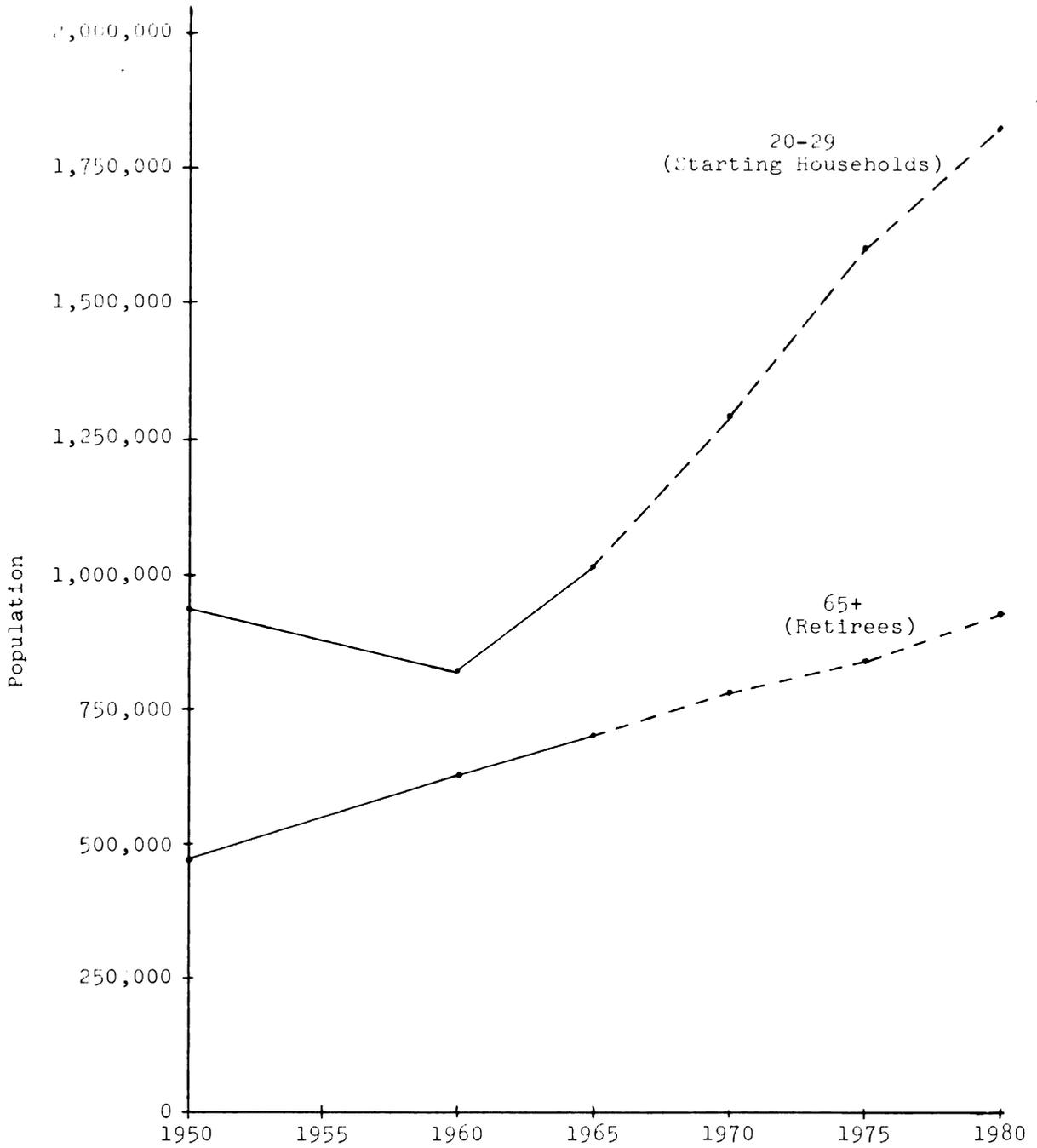


Figure 31.--20-29 and 65+ Age Groups: Projections of Population in Michigan: 1950-1980.

the retirees (65-74) during the decade of 1960-1970. As on the national level, the 20-29 age group will have the most impact in numbers and in rate of increase. The 20-29 age group in Michigan may increase even faster due to inmigration if present trends continue.

The retiree group in Michigan would become slightly larger in the next decade if mortality were no greater than the national average of 17.5% but net outmigration will probably cause a decline in the absolute numbers of retirees in Michigan. Bair has produced the following maps (Figure 32) of net migration by charting the OASI movement figures from 1959-1960.

The net migration out of Michigan is -5 to -9 per 1000 population and a total net migration of -2,000 to -2,499, one of the highest states in net migration both in numbers and in per cent. The movement of retirees to Arizona, California Florida is immediately noticeable in these maps.

The difficulty in predicting population totals is shown in the following graph (Figure 33) which depicts the wide fluctuation in migration compared to the more predictable natural increase. R. Raja Indra, demographer for the Michigan Department of Health explains:

These trends and differences are largely due to there having been heavy inmigration during recent decades (though not during the last

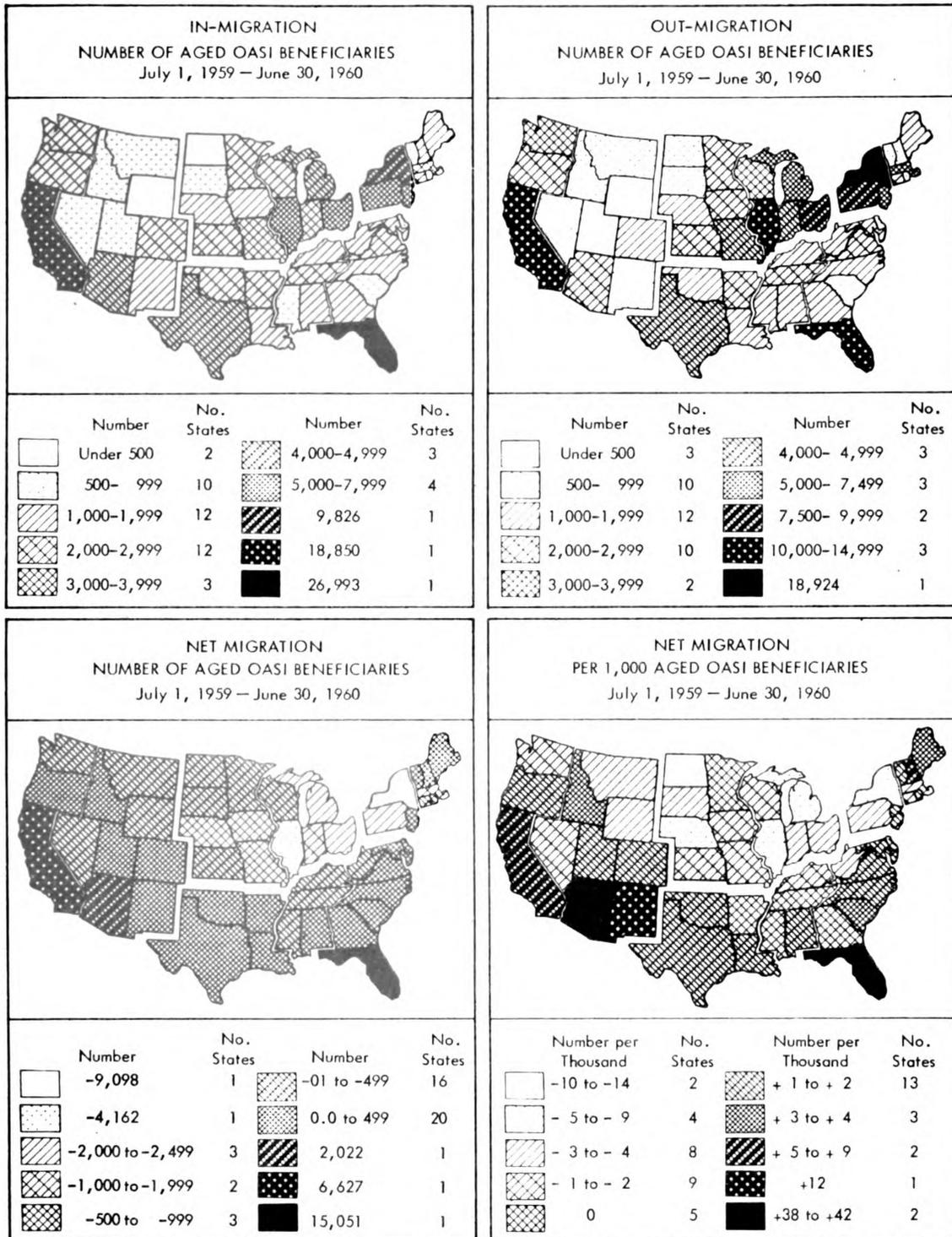


Figure 32.--Retiree Migration Patterns by State: Number of Aged OASI Beneficiaries: 1959-1960.

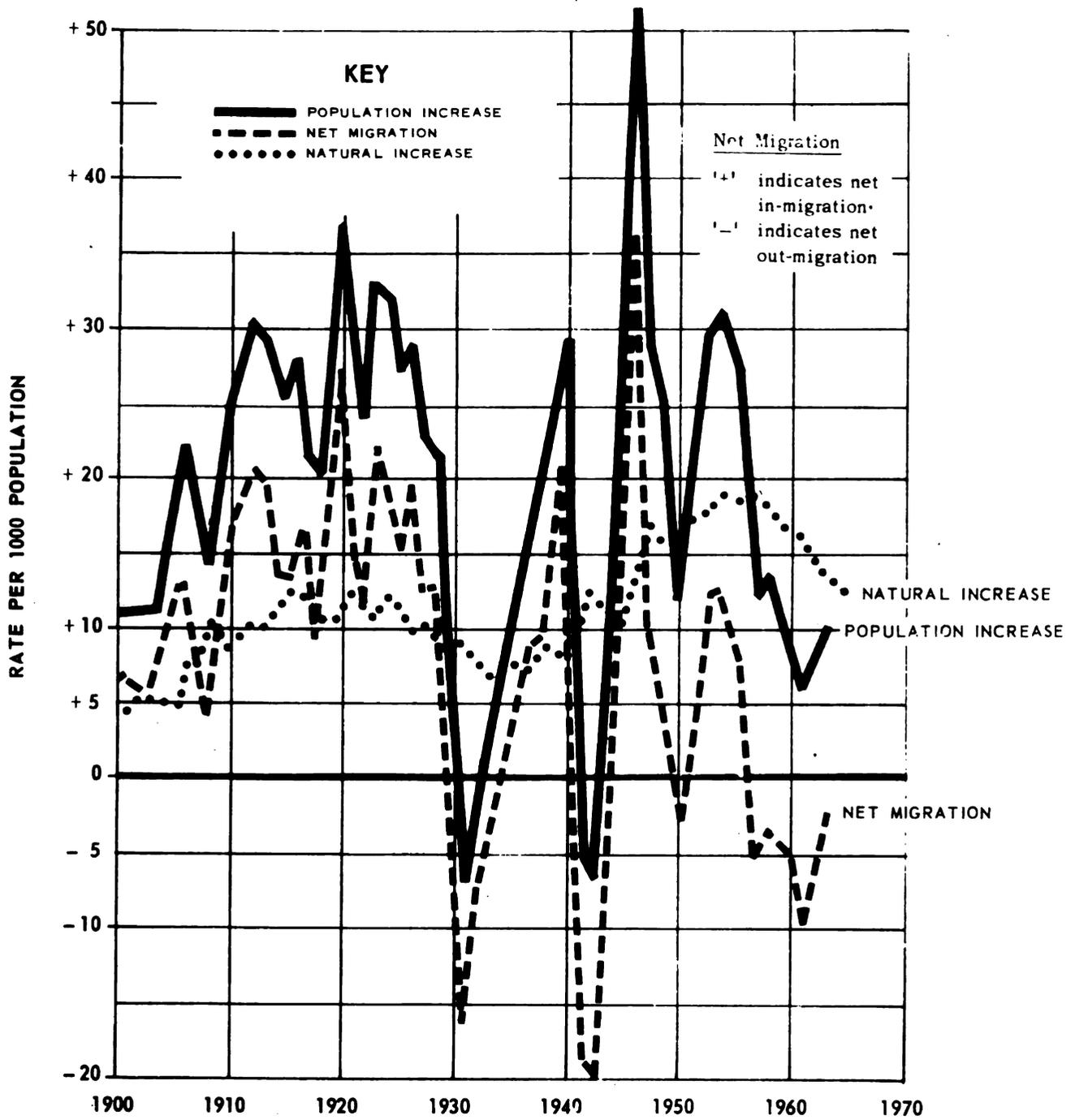


Figure 33.--Michigan: Demographic (Annual) Rates: 1900-1964.

few years) into Michigan--and immigrants are generally males in the younger age groups.<sup>2</sup>

The Bureau of Census in Summary of Demographic Projections from the March 1968 Current Population Reports, Series P-25, has produced the following map (Figure 34) showing the projected new migration for each state in 1975 and 1985. Only four states have large outmigrations scheduled for both 1975 and 1985; these are Michigan, Pennsylvania, West Virginia, and Kentucky. Whether this projection will hold true and whether the migrants are retirees or young age groups will have a great impact on housing demand in Michigan. The assumptions of the Bureau of Census are therefore important.

The projections assume that the most recent migration patterns will prevail immediately after 1965 but that the 1955-60 patterns will reassert themselves gradually.<sup>3</sup>

The 1955-1960 migration patterns in Michigan as shown in Figure 33 indicate a tremendous shift from immigration to outmigration and wide fluctuation in migration patterns. The assumptions of the Bureau could indicate that while Michigan will have an outmigration of older people, it will,

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<sup>2</sup>Michigan Department of Public Health, Michigan Population Handbook: 1965 (Lansing, Michigan Department of Public Health, 1965), p. 10.

<sup>3</sup>U.S. Bureau of the Census, Current Population Reports, Series P-25, "Summary of Demographic Projections," March 1968 (Washington: U.S. Government Printing Office, 1968), p. 21.

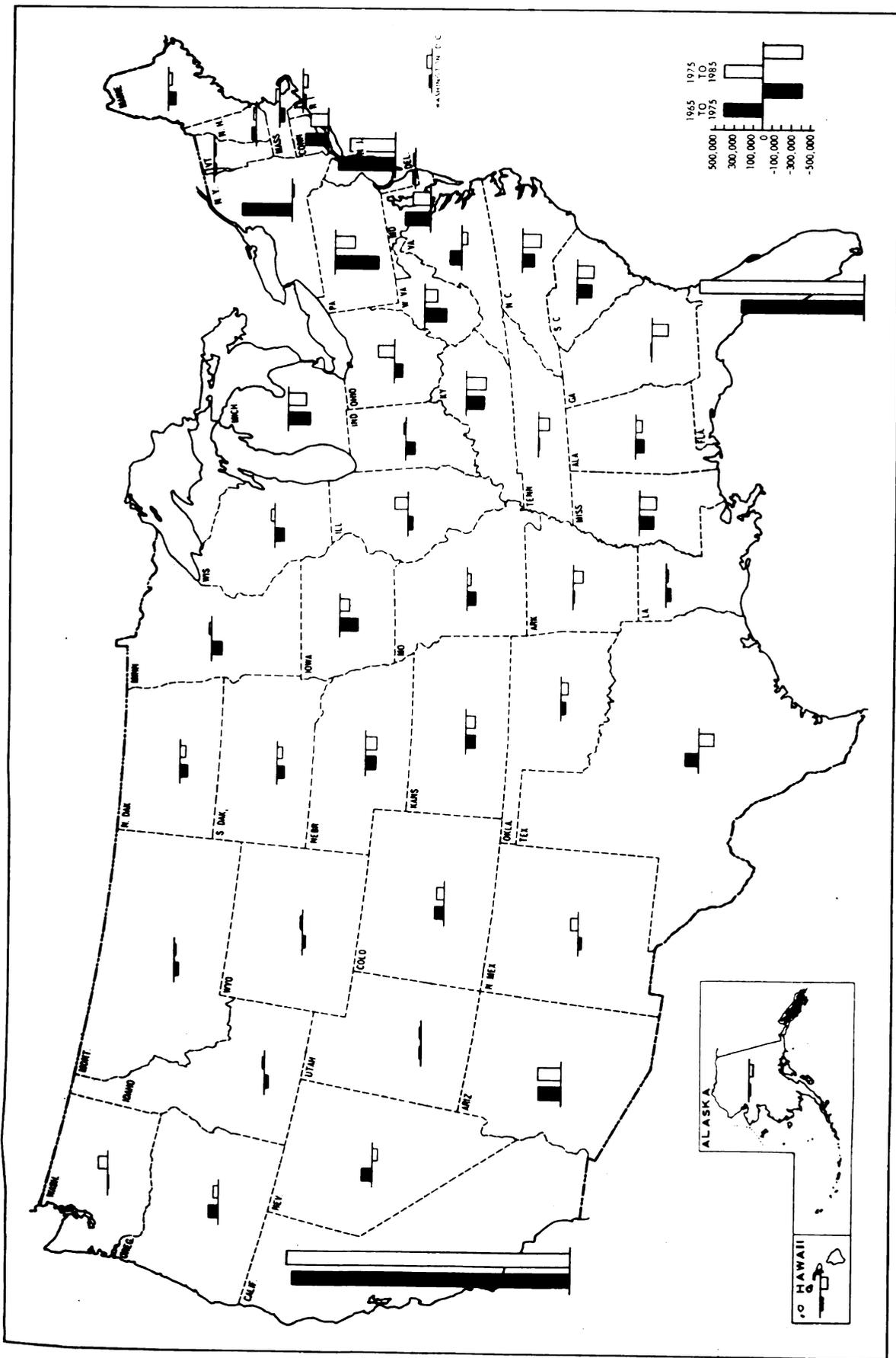


Figure 34.--Projected Net Migration for States: 1965-1975 and 1975-1985.

at the same time, have an immigration of younger age groups in the labor force brackets. Low cost housing will be a critical factor in migration tendencies as well as the regional development potential and the job market.

Population projections alone, do not relate the many types of change in Michigan and especially the locational factors in the space economy of the state and the Great Lakes Region. The map in Figure 35 plots the population changes by county from 1950-1960 showing the influence of the metropolitan areas and the transportation net on the location of population. This is further demonstrated by the growth rates of the urban and rural population.

. . .urban dwellers now exceed by three to one the rural population in the State.

Approximately 40 per cent of Michigan's farm residents work away from their farms 100 or more days in the year, mostly in industry.<sup>4</sup>

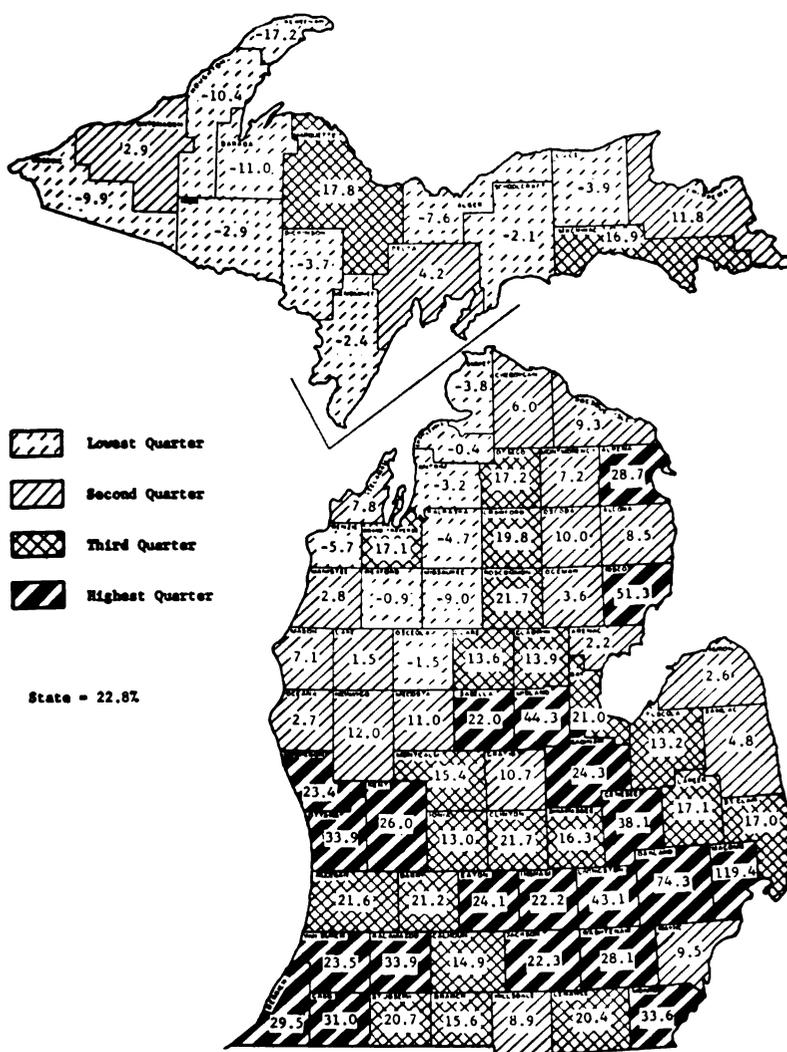


Figure 35.--Percent Change in Total Population, by County, 1950-1960.

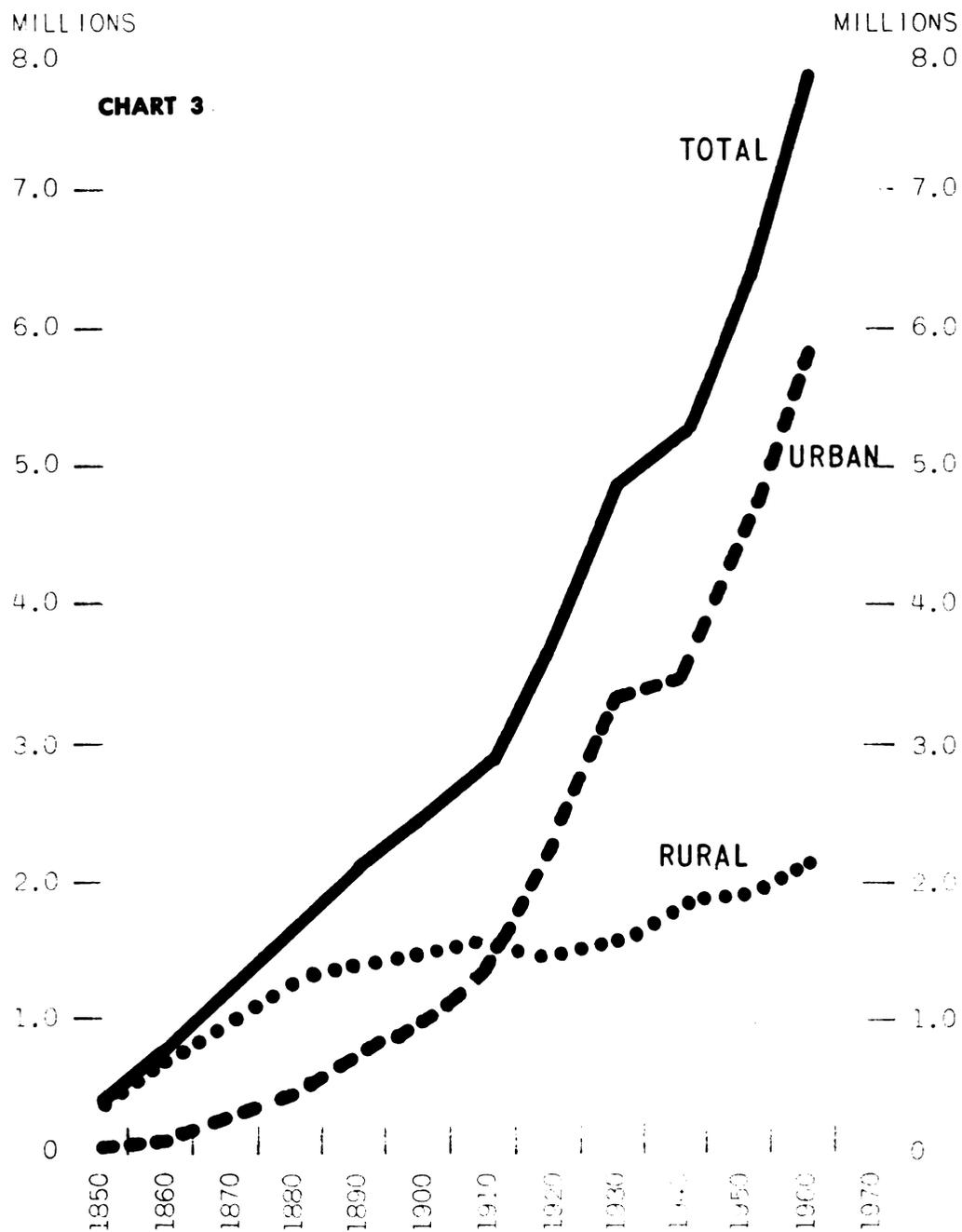


Figure 36.--Urban and Rural Population in Michigan:  
1850-1970.\*

\*Source: U. S. Bureau of the Census.

The Detroit Region

The Detroit region in particular has grown in population and land area at a rapid pace, reaching out to affect development of nearby urban areas such as Flint, Lansing, Ann Arbor. This interconnection of urban areas and the economic-market complex depends in large part on the time-cost-distance factors related to transportation efficiency. Metropolitan area projections to the year 2,000 were undertaken by Doxiadis Associates, international planning consultants, in cooperation with Detroit Edison Company and Wayne State University to study the Urban Detroit Area. The following graphic presentations developed for this study compare the present situation with a series of projections to the year 2,000 based on different assumptions of economic activity and transportation efficiency.

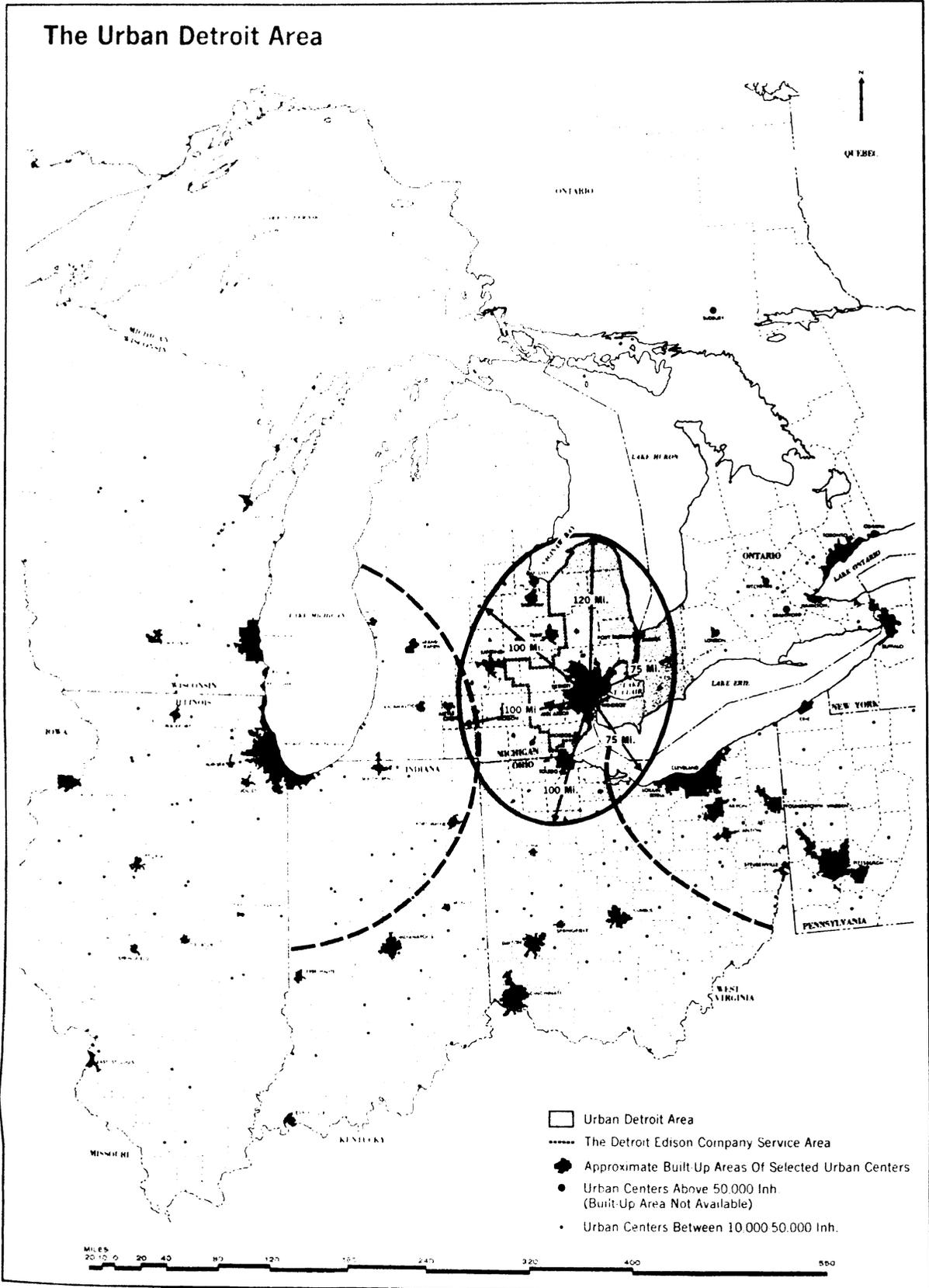


Figure 37.--The Urban Detroit Area.

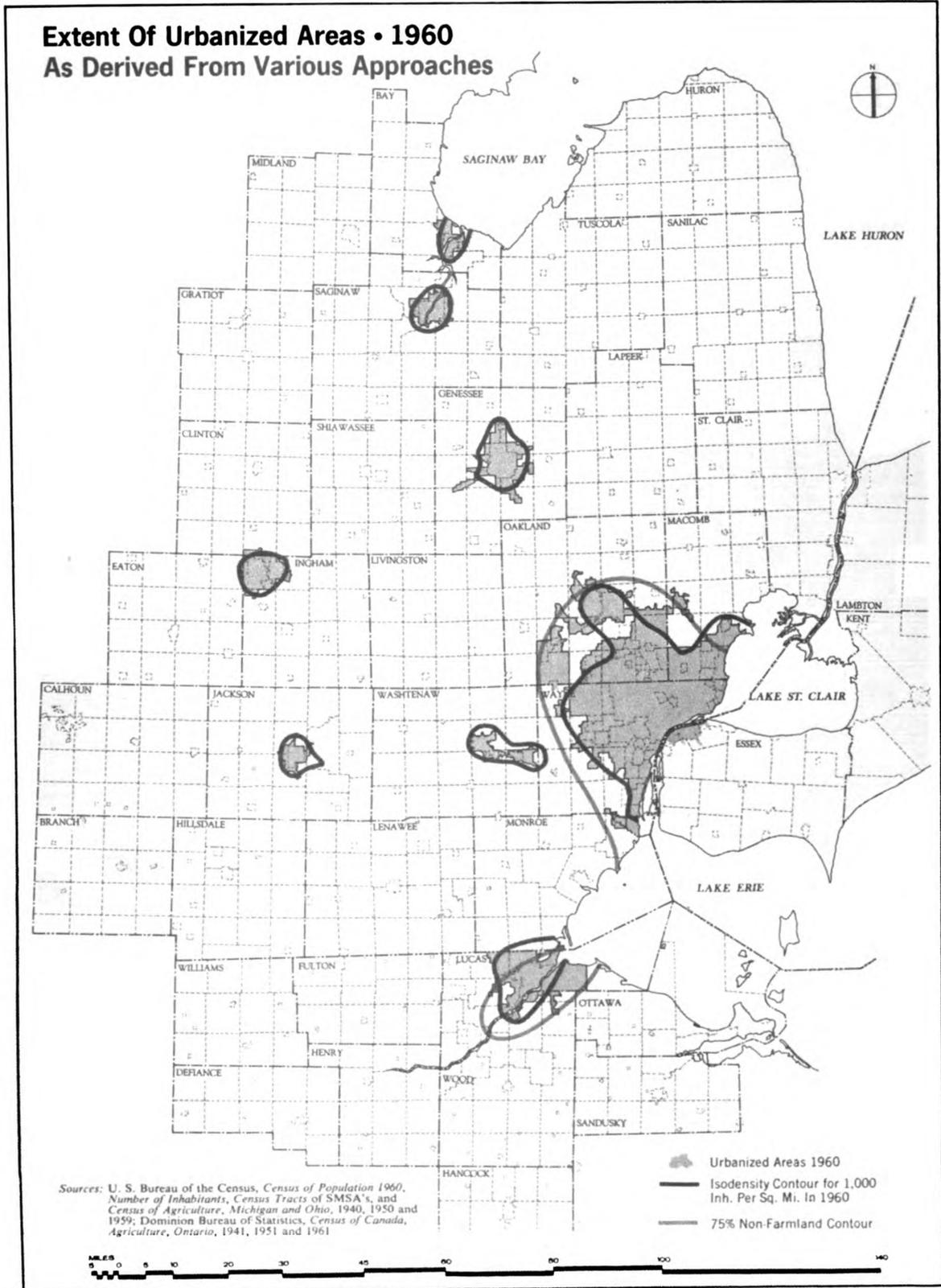


Figure 38.--Extent of Urbanized Area: 1960.

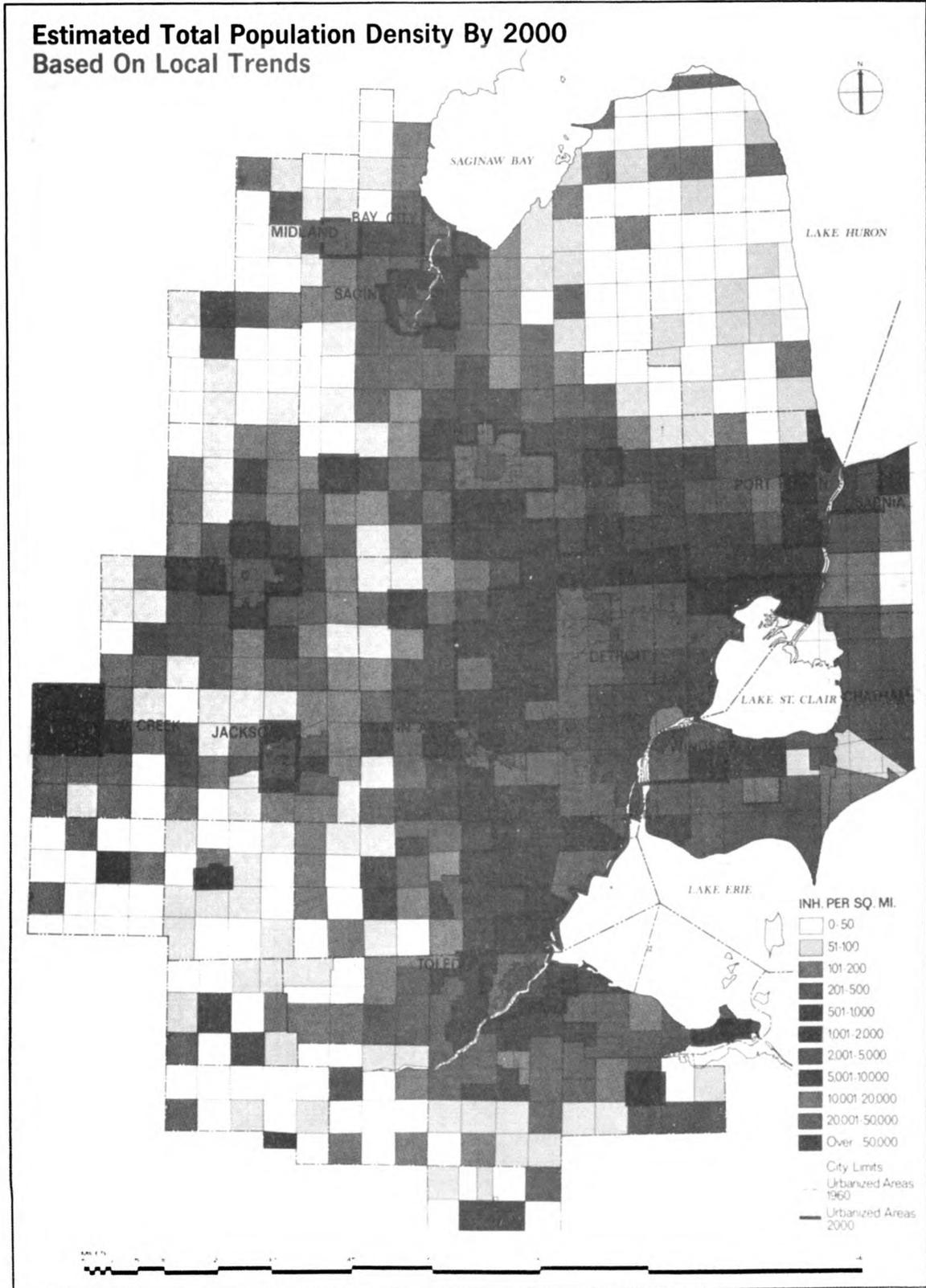


Figure 39.--Estimated Total Population Density by the Year 2000 Based on Local Trends.

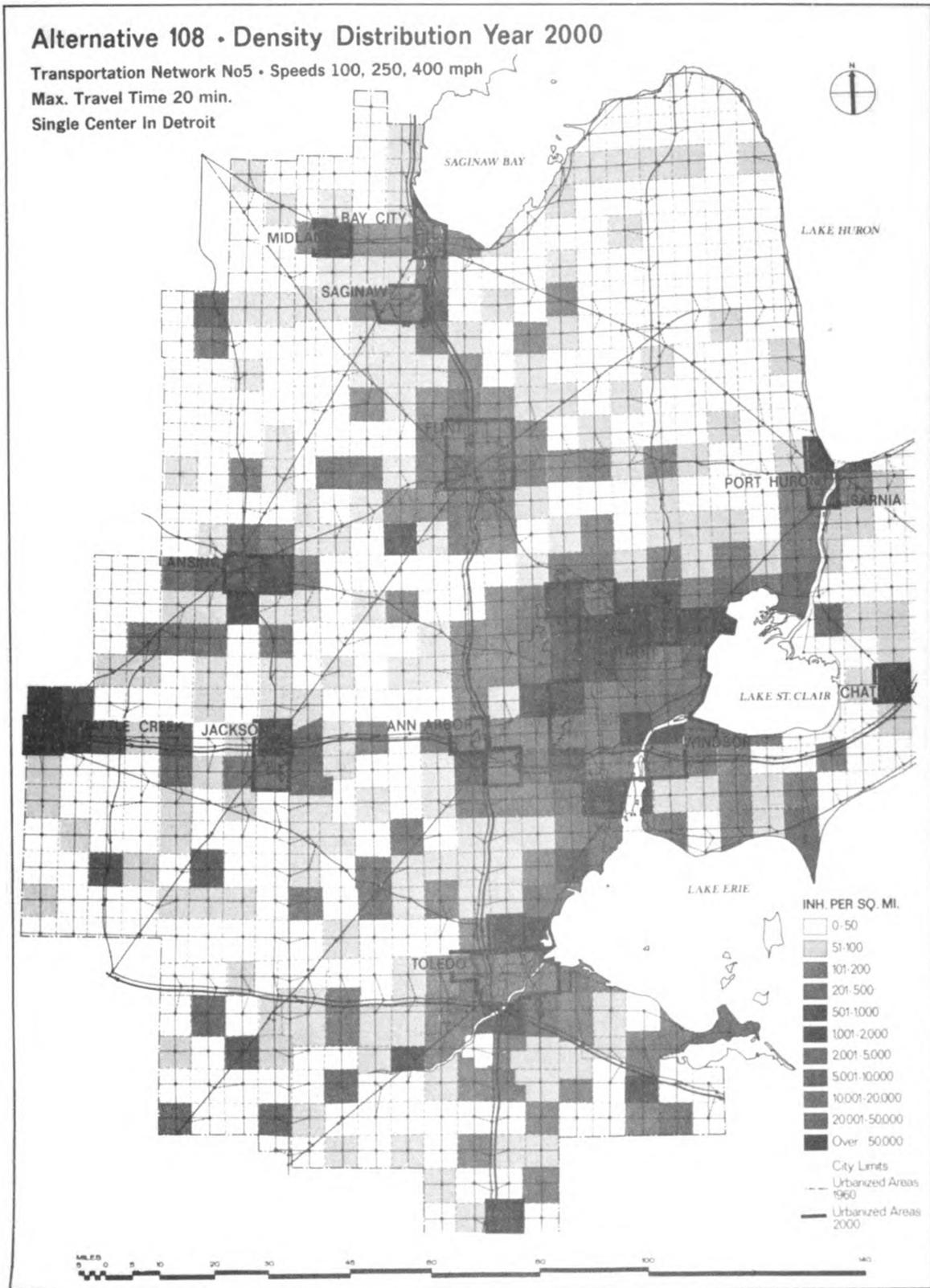


Figure 40.--Alternative 108: Density Distribution Year 2000.

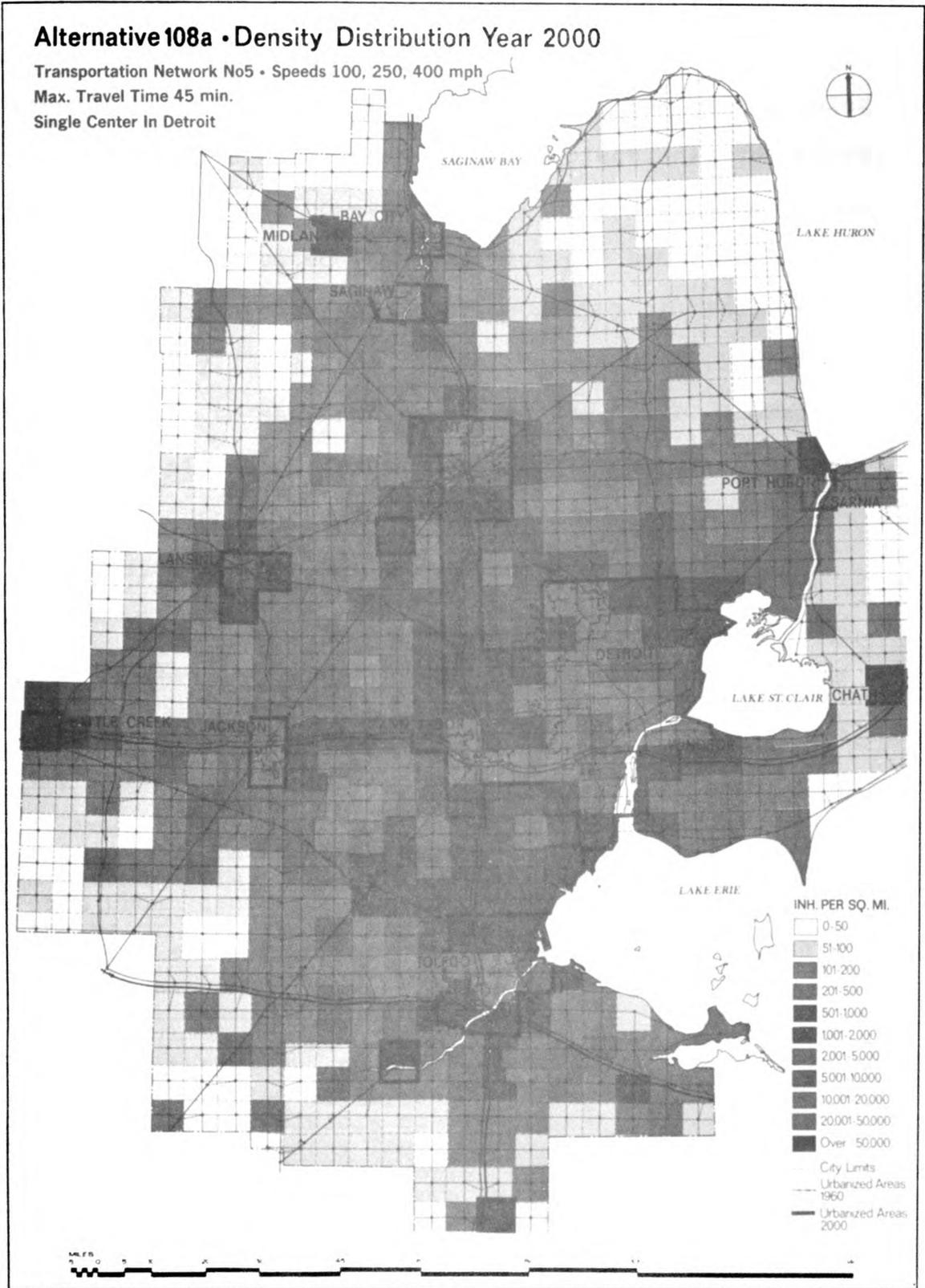


Figure 41.--Alternative 108a: Density Distribution Year 2000.

The impact of regional development and the consequent growth of interrelated urban areas is seldom visually noticeable. Land use changes occur slowly in the beginning periods of agglomeration. Doxiadis' projections, therefore, may seem exaggerated, however the extent of existing urbanization has been plotted in Lower Michigan by Allen Philbrick, Associate Professor of Geography at Michigan State University. The land use information was plotted by quarter section to show non-farm land use, agricultural use or urban city block patterns. "In the construction of this map all quarter sections outside the city-block patterns which contain non-farm land uses are inked in black."<sup>5</sup>

From this map, the tendency toward urban agglomeration and economic networks based on transportation can already be seen extensively in Michigan.

It reveals the basic pattern of the new form of settlement, called the Dispersed City. The double association of such non-farm land-uses with urban centers on the one hand and with the major highways on the other, is clearly visible.<sup>6</sup>

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<sup>5</sup>Allen Philbrick, "Geographical Patterns of Gross Land Uses in Relation to Major Highways in the Southern Half of the Lower Peninsula of Michigan," Economic and Social Effects of Highway Improvements, Joint Research Program, Michigan State University Highway Traffic Safety Center, Michigan Department of Highways, U.S. Department of Commerce, Bureau of Public Roads (East Lansing: Michigan State University, 1961), p. 88.

<sup>6</sup>Ibid.

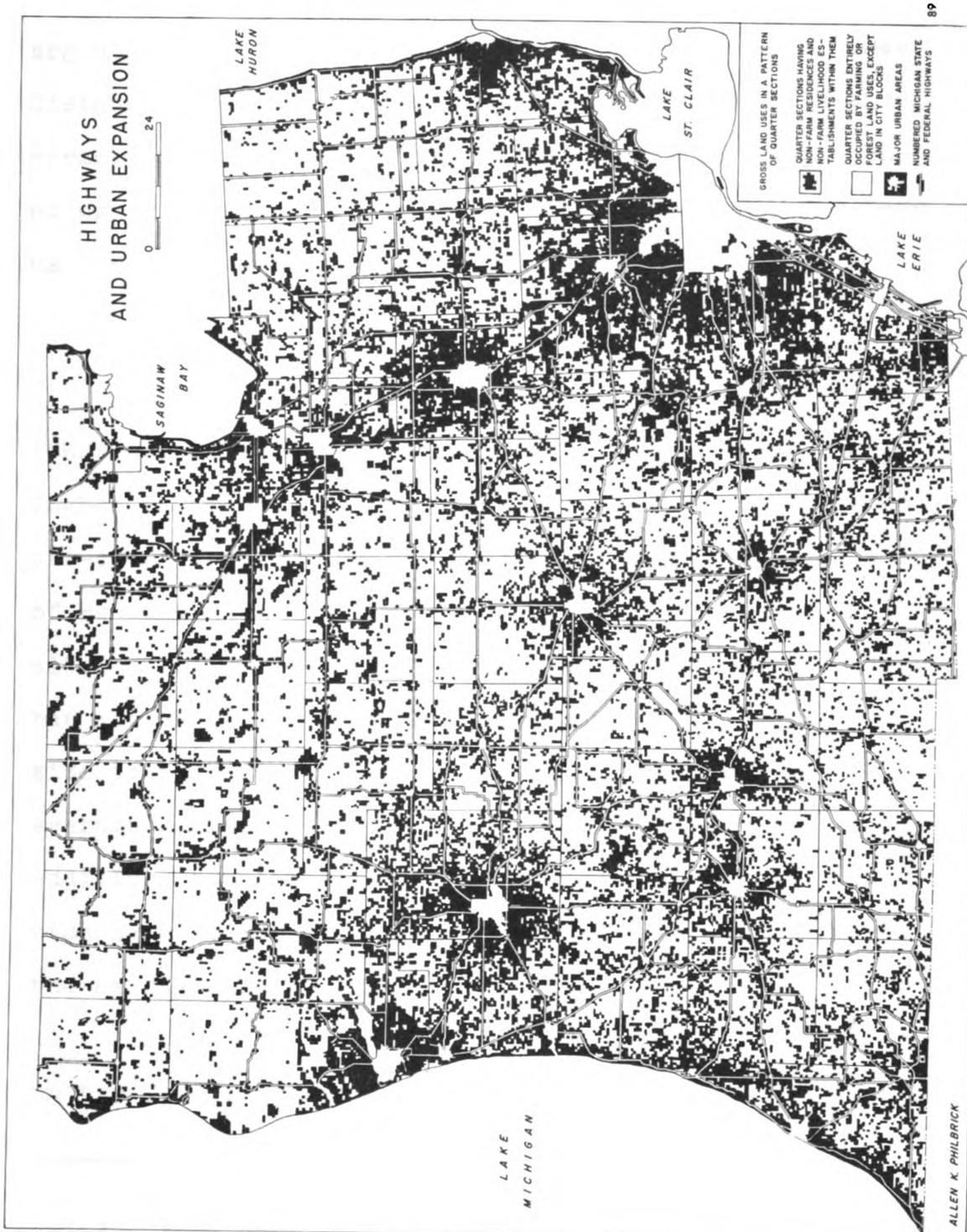


Figure 1  
 Figure 42.--Highways and Urban Land Uses in Michigan.

The potential for land extensive housing does exist in Michigan if the present trends continue. It can be argued however, that population concentration and time-distance-cost relationships will prevent such extensive sprawl in the future. Transportation and housing technology will be major factors in determining which alternative will be fulfilled.

#### The Lansing SMSA

The Lansing Standard Metropolitan Statistical Area (SMSA) consists of three counties--Clinton, Eaton and Ingham counties. The number of mobile home sites in this tri-county region, as recorded by the Michigan Department of Health, has tripled since 1955 from 902 sites to 2,714 sites as of April 1968. The number of mobile home parks has increased 1½ times from 13 to 31. The increase in size of parks is evident from the 17% increase in the average number of spaces per park from 66 to 77. In addition, the State Health Department has issued construction permits for 822 sites for future development within the existing parks.<sup>7</sup>

The location and size of these parks has been plotted on the following map (Figure 43) of the tri-county area.

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<sup>7</sup>See Table in Appendix , Mobile Home Parks in the Lansing SMSA: Number of Licensed Sites 1951-1968, compiled by the author from Michigan Department of Health records, of licensed mobile home parks and spaces as required under Michigan's Trailer Park Law, Act No. 243, P.A. of 1959.

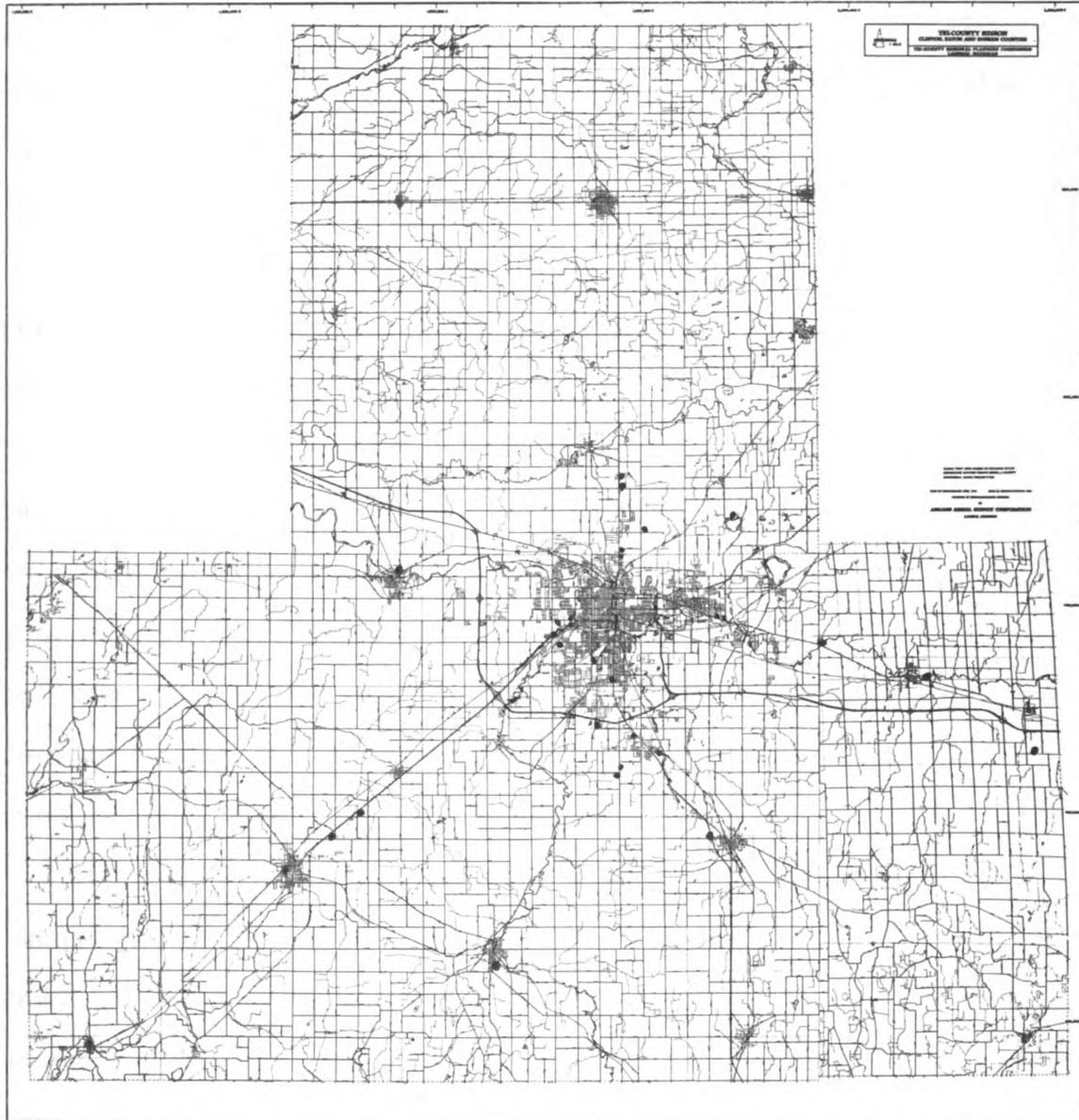


Figure 43.--The Lansing, Michigan, SMSA, Tri  
County Area.

The relationship of park location to the urbanized area and to transportation routes supports the position that mobile homes are essentially land extensive housing--that is, they occur primarily in low density areas at the outskirts of urban areas.<sup>8</sup> This is partially due to economic conditions and partially to political considerations, namely zoning restrictions.

The role of transportation in supporting land extensive housing and peripheral urban development is graphically illustrated in the following chart (Figure 45) which plots mobile home park location against time-distance relationships, and the urbanization patterns of the Lansing SMSA. The evidence points out a situation where transportation technology and the dispersal of urban functions will allow mobile home development to compete effectively for the expanding low cost housing market formed by the starting households and retirees.

The rapid growth of mobile homes in the Lansing SMSA, as measured by the number of sites built within existing parks, has amounted to more than 20% of the single-family housing starts for the last three years.<sup>9</sup> Comparative

---

<sup>8</sup>This is not to be confused with the medium density residential land use category of mobile home parks which refers to the number of housing units or people per acre. Thus a medium density use (a mobile home development) can and does occur in a low density area.

<sup>9</sup>Total mobile homes will undoubtedly be a larger percentage of single-family starts, since rural use of mobile homes is not calculated in this figure.

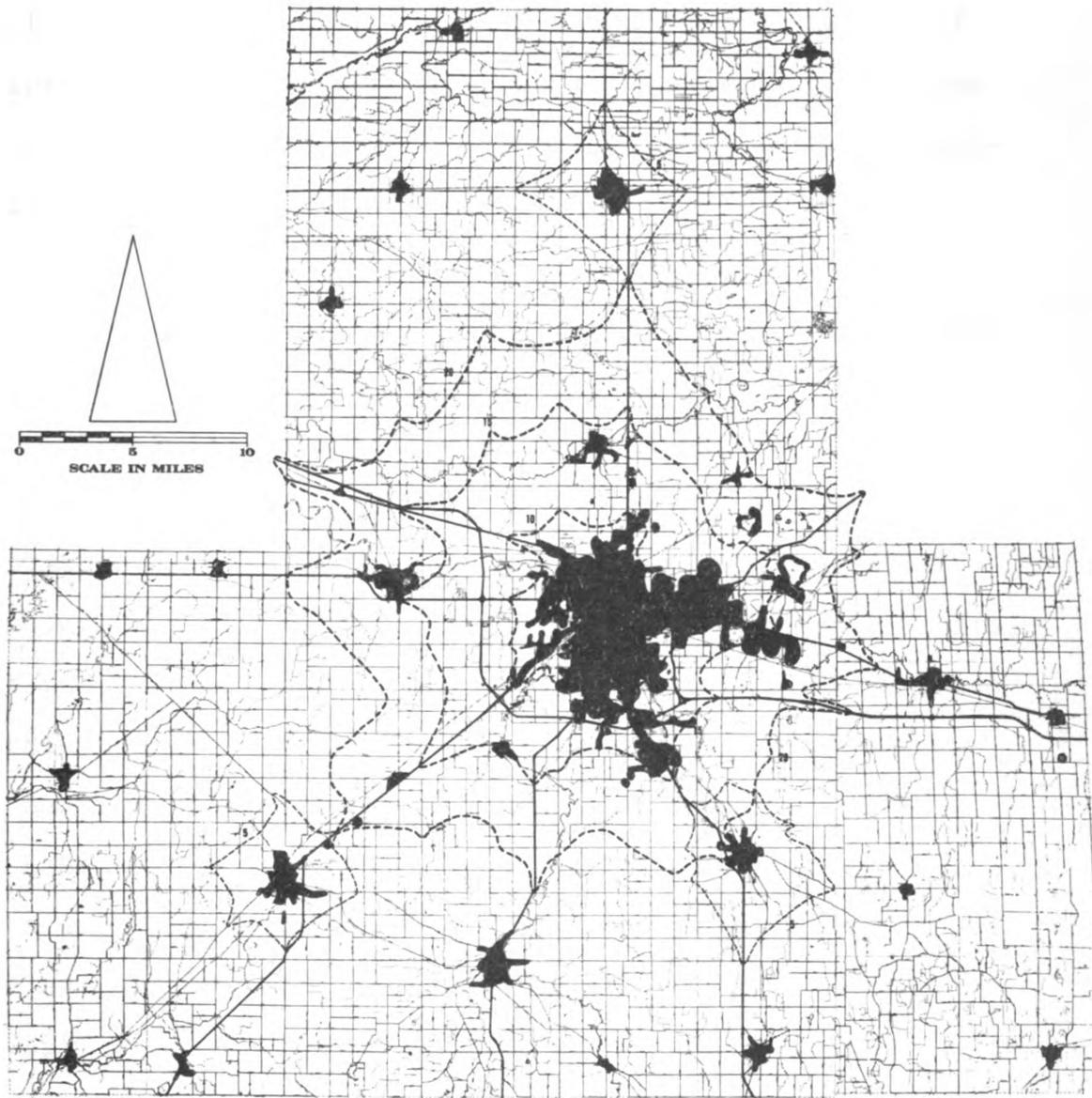


Figure 45.--Location and Size of Mobile Home  
Parks in the Greater Lansing Area.

figures for apartment starts in the region are not available except through analysis of building permits from each jurisdiction. Further research would be very useful if apartment location, subdivision location and mobile home location could be compared for the Lansing SMSA. Comparative tax figures for the region are also unavailable but a map of assessed valuation from each jurisdiction could be used in comparing the location-cost relationship of these housing types.

The Builders Exchange of Greater Lansing supplies single-family starts in permit-issuing places and their valuation. These figures do not include the complete Lansing SMSA nor do they supply cost per square foot data, but the greater portion of housing in the region is built within the Greater Lansing Area which includes the City of Lansing, the City of East Lansing, and the townships of Lansing, Meridian, Delhi and Delta, and therefore the data supply a general picture of single-family starts. The average cost of single-family starts in 1967 was \$20,555 for the Greater Lansing Area. The number of starts and average value since 1960 can be seen in Table 39.

The average value of single-family houses has changed from \$14,497 in 1960 to \$20,555 in 1967--a 41% increase in 8 years. This rising cost of housing must be compared to the income of residents in the Lansing SMSA. In 1960, the median family income as recorded by the 1960 Census was

TABLE 39.--Average Valuation and Number of Single-Family Housing Starts in the Greater Lansing Area: 1960-1967.<sup>a</sup>

Year	Total Valuation	Single-Family Housing Starts	Average Value
1967	\$ 28,922,003.00	1,407	\$20,555
1966	24,920,746.00	1,057	23,576
1965	24,474,913.00	1,425	17,175
1964	18,616,930.00	1,176	15,830
1963	16,146,651.00	1,063	15,189
1962	14,062,920.00	999	14,077
1961	11,936,824.00	842	14,176
1960	<u>13,192,438.00</u>	<u>910</u>	<u>14,497</u>
1960-1967	\$152,273,425.00	8,879	17,149

<sup>a</sup>Compiled by the author from annual data sheets, personal files of J. Revell Hopkins, President, Builder's Exchange of Greater Lansing.

\$6,180.<sup>10</sup> The 1966 estimate of median family income by the Federal Housing Administration was \$7,000<sup>11</sup>--a 13% increase in 7 years. Thus, the cost of housing increased about 5% per year while income increased about 1.8% per year.

Sales Management magazine's Survey of Buying Power for 1966 shows the following breakdown of cash income by household, as compared to FHA's figures on family income after Federal Income Tax.

<sup>10</sup>U.S. Bureau of the Census, City & County Data Book 1967 (Washington: U.S. Government Printing Office, 1967), Table 3.

<sup>11</sup>Federal Housing Administration, Analysis of the Lansing, Michigan Housing Market (Washington: Federal Housing Administration, 1965), p. 9.

TABLE 40.--Per Cent of Households by Cash Income Groups in the Lansing SMSA 1966.<sup>a</sup>

Income Groups	% of Households	
\$0 - 2,999	15.7	)
\$3,000 - 4,999	11.7	) 56.6%
\$5,000 - 7,999	29.2	)
\$8,000 - 9,999	16.6	)
\$10,000 and over	26.8	)

<sup>a</sup>Sales Management Magazine, Survey of Buying Power (New York: Sales Management, Inc., 1967), p.

TABLE 41.--Estimated Distribution of Family Income after Deduction of Federal Income Tax, Lansing, Michigan, SMSA, 1964-1966.<sup>b</sup>

Annual Family Income	Percentage Distribution			
	1964		1966	
	All	Tenant	All	Tenant
Under \$4,000	17	32	( 16	30
\$4,000 - 4,999	9	14	( 8	13
5,000 - 5,999	15	17	61%( 11	15
6,000 - 6,999	14	12	( 15	13
7,000 - 7,999	11	8	( 11	9
8,000 - 8,999	9	6	10	6
9,000 - 9,999	7	4	7	5
10,000 - 12,499	11	5	13	5
12,500 and over	7	2	9	4
TOTAL	100	100	100	100
Median	\$6,650	\$5,230	\$7,000	\$5,500

Source: Estimated by Housing Market Analyst. Based on 1960 census report of 1959 incomes adjusted for under-reporting and subsequent increases in income.

<sup>b</sup>Federal Housing Administration, op. cit., Appendix, Table II.

From this table it can be seen that 55-60% of the households make less than \$8,000 per year. If the amount of investment for a home is considered as 2½ times the annual income, which is the established rule of thumb, then over half of the people in the region cannot afford to buy the average home being built today. Furthermore, the cash income of households is larger than the cash income of head of household which is used for mortgage determinations. The cost of utilities and land must also be subtracted from the 2½ times annual income so that the house which these people can afford would have to cost between \$15,000 and \$17,000. Table 42 by C. M. Edwards, extension specialist in housing at Michigan State University, shows the relationship between income and home investment using national figures.

From this table it can be seen that 64.2% of the U.S. male workers cannot afford to buy a house over \$15,000 or 1,000 square feet of living space. This low cost market has been dominated by mobile homes and has been the major factor in its rate of growth.

The market penetration of mobile homes has been analyzed by Elrick and Lavidge, Inc., marketing consultants. In 1963, there were 1,543 mobile homes out of 85,100 total households within the Lansing SMSA. Mobile homes thus accounted for 1.81% of total households in the region. In Clinton county penetration was 3.55%, Eaton county was

TABLE 42.--Relationship Between Income and Home Investment.<sup>a</sup>

Income*	% Pop.	\$ Home	% House	Util. & Land	Size Feet
\$ 3,000	26.5	\$ 7,500	\$ 6,000	\$ 1,500	500
3,000- 5,000	17.9	12,500	10,000	2,500	890
5,000- 7,000	19.8	17,500	15,000	2,500 (?)	1000
7,000- 10,000	17.4	25,000	20,000	5,000 (?)	1333
10,000- 15,000	7.9	37,000	27,000	10,000	1833
15,000 Over	3.4	+	+	10,000 +	+

<sup>a</sup>Carleton M. Edwards, Housing is Family's Largest Expense, Michigan State University, Agricultural Engineering Department, Information Series #197, 1967. (Mimeographed)

\*Income of Male Workers in the U.S. as of March, 1966.



1.55% and Ingham county was 1.58%; however, 71% of all households in the region and 62% of the mobile home households were located in Ingham county.

1.81% is good penetration for mobile homes compared to the East North Central Region which averages 1.68% and the United States which averages 1.48%. This is related to the high population increase (22.4% increase from 1950 to 1960) and to the low density, land extensive situation in the tri-county region (Lansing SMSA). The market summary points out that small sized, economy units for young households are the greatest market opportunities.<sup>12</sup>

The need for low cost housing is further supported by Elrick and Lavidge data on the market penetration of each income group as shown on the following page (Figure 46). Although mobile homes constituted only 1.8% of total households in 1963, and may seem insignificant; this is only part of the story. It is the proportion of new housing starts which must be examined, and mobile homes comprise about one out of every five new single-family houses. Furthermore, mobile homes have a virtual monopoly on the low cost market for houses. The FHA report on the housing market in the Lansing SMSA to October 1964 points out that, ". . . the construction of single-family

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<sup>12</sup>Elrick & Lavidge, Inc., Market Report #89, Lansing Michigan (Chicago: Mobile Homes Manufacturers Association, 1964), pp. 2-3.



**INCOME OF HOUSEHOLD**

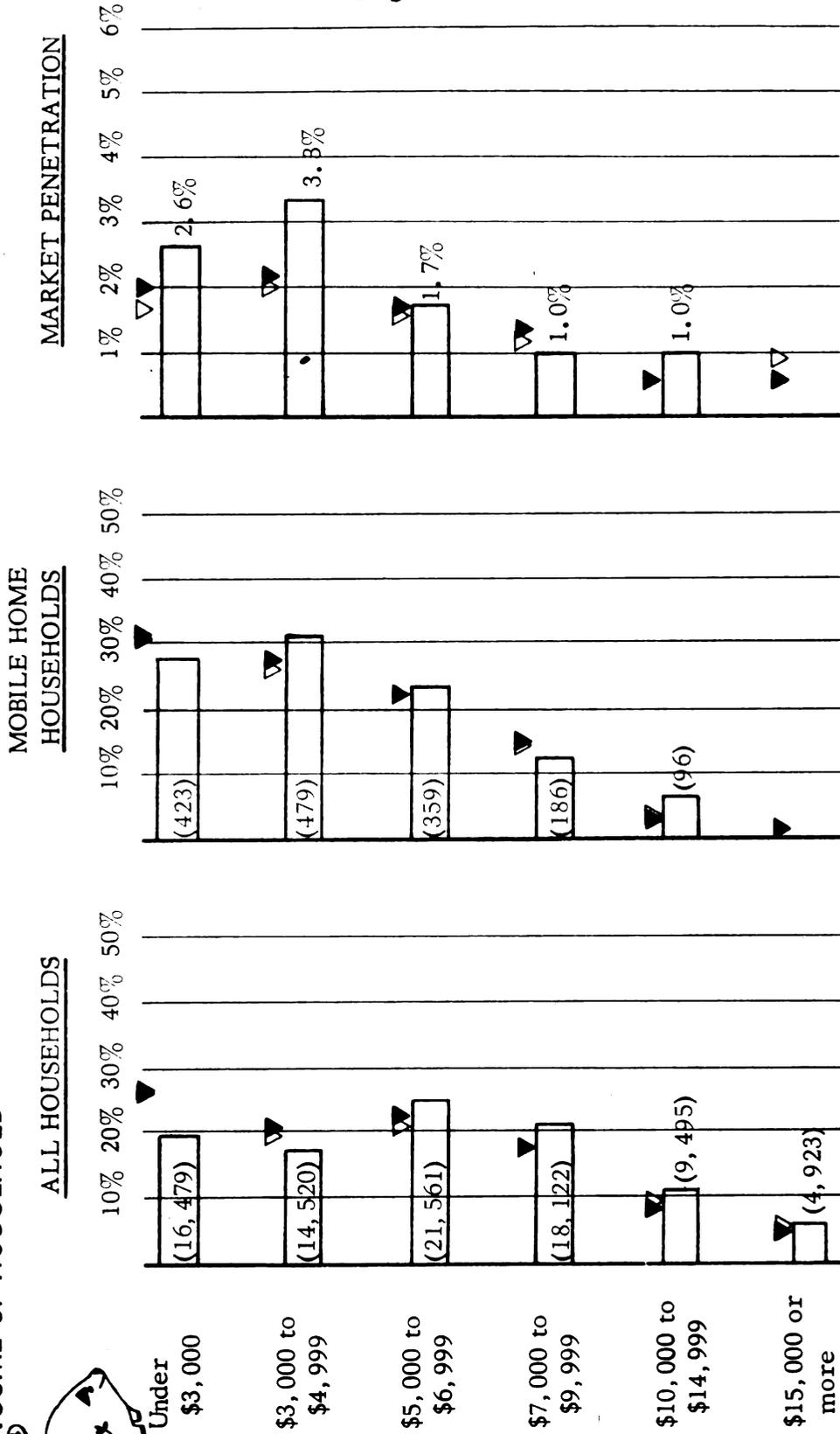


Figure 46.--Market Penetration of Mobile Homes in the Lansing, SMSA.

residences is not economically feasible for less than \$10,000 in the Lansing area."<sup>13</sup> Four years later, in 1968, John Mandersfield of the Detroit FHA cost division reported that "the standard home of only 1,022 square feet of floor space is tagged at \$18,000 today."<sup>14</sup> Yet, Detroit is still building houses cheaper than other cities in the nation. Home ownership cost figures reported by the Bureau of Labor Statistics Consumer Price Index shows Detroit at 115.7 compared to a national city average of 122.6.<sup>15</sup>

The low cost market which has been taken over by mobile homes is precisely the market that will expand in the next two decades as the post war baby boom hits the 20-29 age group and begins starting households. Population projections for the Lansing SMSA, prepared by the Tri-County Regional Planning Commission, show a 40% increase in population within 15 years, from 340,000 in 1965 to 490,000 in 1980. Projections from 1965 to 1990 indicate a 71% increase in 25 years to a total population of 590,650 for the Lansing SMSA. The 20-29 age group alone is expected to expand more than 120% by 1990.<sup>16</sup>

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<sup>13</sup>Federal Housing Administration, op. cit., p. 23.

<sup>14</sup>"What the Construction Strike Means: Higher Housing Prices," Detroit Scope Magazine, May 11, 1968, p. 6.

<sup>15</sup>Ibid., p. 6.

<sup>16</sup>See Table in Appendix , Population Forecasts by Age-Sex Groups for The Lansing Tri-County Region.

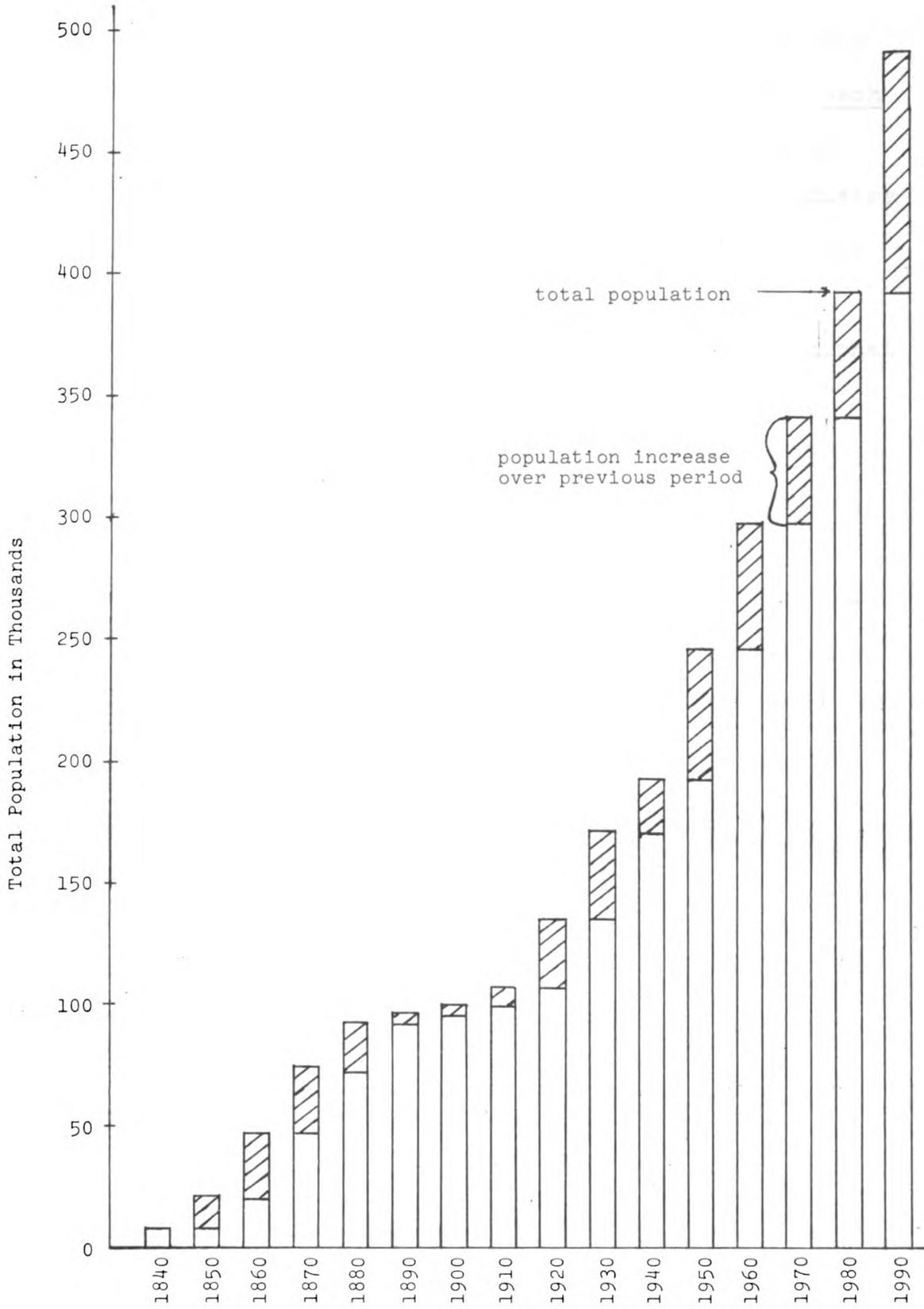


Figure 47.--Total Population for the Tri-County Region: 1840-1990.



To provide housing for this total population to 1990 will require more than 2,800 additional dwelling units each year for the next 25 years merely to maintain the status quo.<sup>17</sup> For the past 15 years, however, the housing industry has only been able to average around 2,000 units per year, and the average price has been rising steadily.<sup>18</sup>

These factors of population, urban dispersal, regional economic expansion and the high cost of housing have produced high demand for mobile homes in the Lansing SMSA particularly within the last 5-8 years. These factors will persist and increase in intensity during the next two decades according to available evidence. Furthermore, the characteristics of the present mobile home market show that mobile homes are particularly suited to these conditions on more than just economic grounds. The occupation, age and family size of mobile home inhabitants in the Lansing SMSA have been analyzed by Elrick and Lavidge in the charts in Figures 48 and 49. The young age groups are noticeably important in the mobile home market. 7.5% of all households

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<sup>17</sup>Calculated using a ratio of 3.2 people per dwelling unit from the 1960 census. This is a conservative estimate considering the increased proportion of newlyweds and retirees in the future.

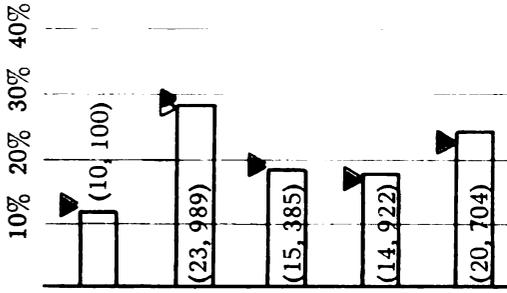
<sup>18</sup>Figures taken from "Dwelling Units Authorized by Building Permits for Selected Areas and the Lansing, Michigan, SMSA, 1950-1964," Federal Housing Administration, Analysis of the Lansing, Michigan Housing Market, Table 6 in the Appendix.

**NUMBER PERSONS  
IN HOUSEHOLD**

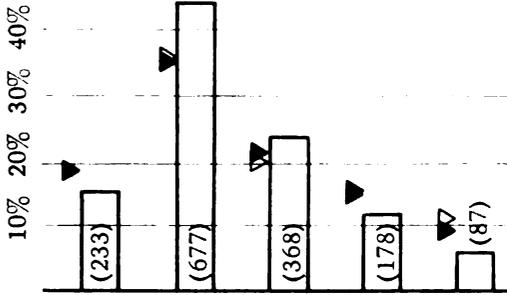


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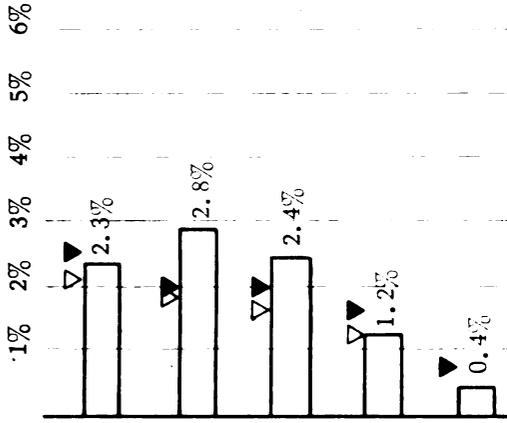
**ALL HOUSEHOLDS**



**MOBILE HOME  
HOUSEHOLDS**



**MARKET PENETRATION**



**HEAD OF  
HOUSEHOLD'S AGE**



Under 25  
25 to 34  
35 to 44  
45 to 54  
55 to 64  
65 and over

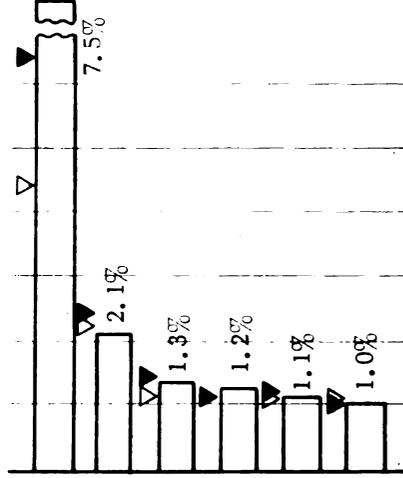
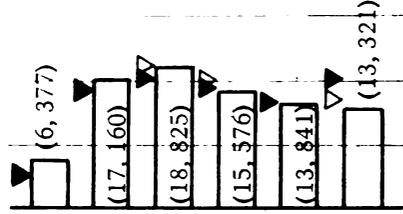


Figure 48.--Number of Persons in Household and Head of Household's Age: Mobile Homes and All Households Compared in the Lansing, SMSA.

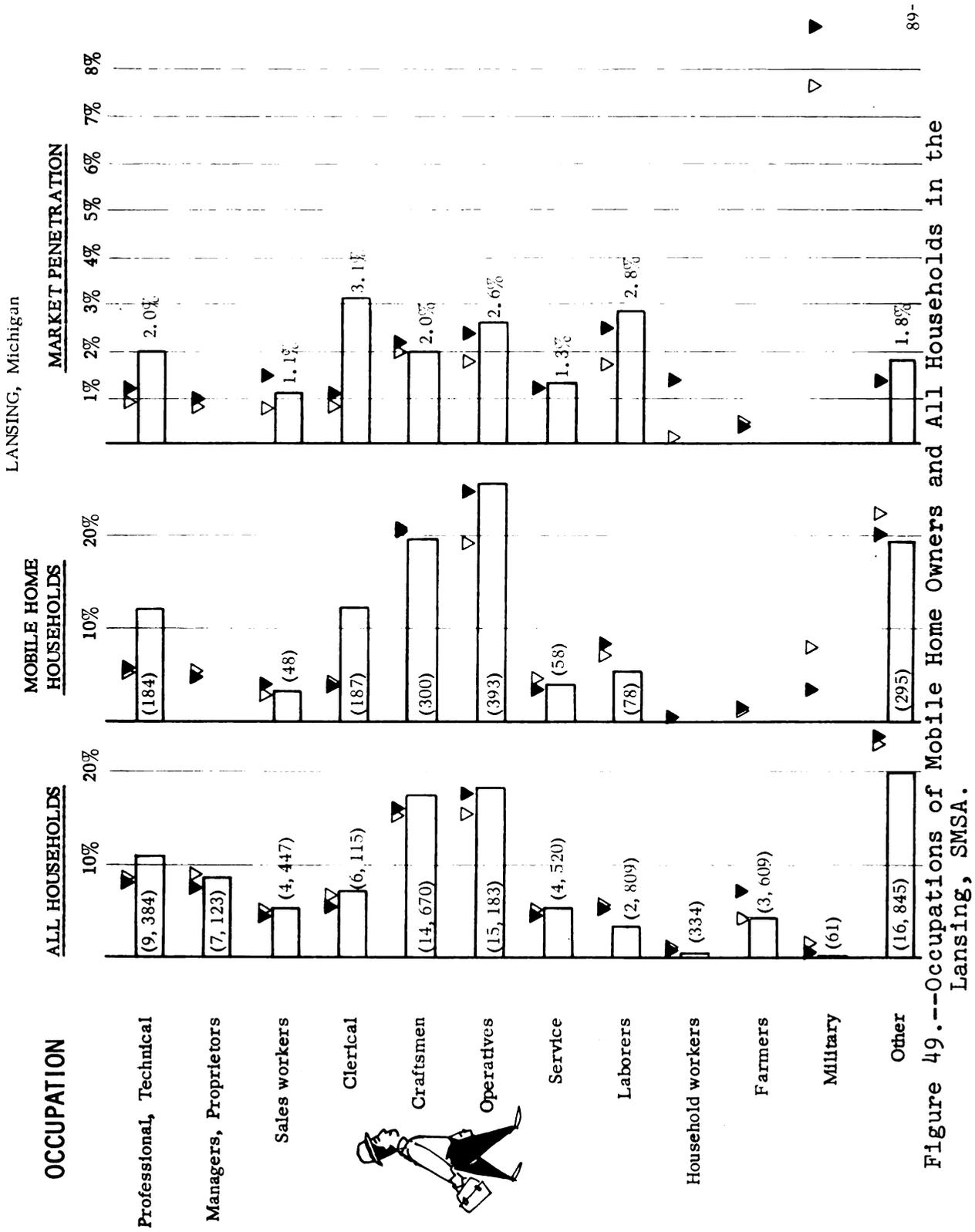


Figure 49.--Occupations of Mobile Home Owners and All Households in the Lansing, SMSA.



in the region with the head of household under the age of 25 live in mobile homes. Only 18% of the mobile homes in the Lansing SMSA have more than three persons in the household. Family size is much smaller for mobile homes compared to all households.

## CHAPTER V

### RECOMMENDATIONS FOR MUNICIPALITIES

#### The Lansing SMSA

What has been done then to accomodate and improve this form of housing in the Lansing SMSA? The zoning ordinance of the City of Lansing was revised in 1966 by Vilican-Leman and Associates, Inc., a large planning consultant firm which had prepared the Lansing Master Plan. Mobile home developments were included under special use permits (Section 36 - 6.3). Standards for spacing of units, lot size, construction of utilities, accessory buildings, fencing and greenbelts were supplied, however section 1A requires "ten percent of the circumference of the development shall abut an Industrial Zone, 1-1, or 2-2."<sup>1</sup> This is not only restrictive zoning for mobile home parks, it is also a questionable practice in terms of the very purpose of zoning as a public direction of land use. The purpose should be to separate out categories of land use so that compatible uses can occur together and incompatible uses can be separated. This ordinance, however, requires that mobile home parks as a residential land use will in every case be placed next to an industrial zone.

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<sup>1</sup>Proposed zoning ordinance, City of Lansing, August 1966, p. 27.

The implication of such zoning is that planners do not recognize mobile homes as a form of housing but as a commercial land use because of the ownership and management of the land as a business. This forces mobile home developments to compete for commercial and industrial land at high value and high taxation. Any mobile home development that would occur under this situation is predisposed to high rents, poor maintenance and limited capital for improvement. Profit under these conditions requires a seller's market and limited competition.

Dan Dowsett, executive director of the Michigan Mobile Home Association reviewed this ordinance at the request of the City. He pointed out some additional factors of competition and economic feasibility.

It [the ordinance] provides for high standards that will insure you that any mobile home development in Lansing will be modern and of high quality. It insures that these developments will be an asset to the community. However, the regulations [for design and utilities as differentiated from zoning] are not overly restrictive, which could result in a lack of economic feasibility of parks and create a situation where park operators couldn't correctly maintain the developments.

. . . Rather than requiring mobile developments abutting industrial uses, the same result could be accomplished by treating the cases on an individual basis, the same as multi-family cases are treated.<sup>2</sup>

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<sup>2</sup>Letter to Lansing City Council Ordinance Committee from Dan Dowsett, Michigan Mobile Home Association, June 16, 1967.

The East Lansing ordinance does not mention mobile homes, and the City does not allow or have any mobile home parks. If a mobile home park were proposed, the developers would have to request the board of appeals to change the ordinance to allow mobile home parks.<sup>3</sup>

Meridian township has developed a "mobile home park subdivision ordinance" which insures high quality development of future mobile home parks and permits flexibility in the design. A special use permit must be obtained through the Township Planning Commission for expansion or improvement of existing parks or for any new development.

Mobile home parks shall be permitted only in the outermost sections of the Township. . . , in areas zoned RR--Rural Residential which are located on or near to a major road as designated by the adopted "Master Plan for Major Streets and Highways" as amended.<sup>4</sup>

This ordinance not only insures higher standards of design and construction than the Lansing proposed ordinance, but it promotes the opposite trend in zoning--away from high density, high value areas to low density, land extensive housing areas. Part of this is of course due to the differences in Lansing and Meridian Township, one a city and the other a suburban township; nonetheless, the Meridian

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<sup>3</sup>Interview with Bruce Brown, Senior Planner, East Lansing Planning Department, March, 1968.

<sup>4</sup>Recommended Zoning Ordinance Amendments for Mobile Home Parks, Section 6.3.1.

Township ordinance will provide more amenities for the inhabitants of future parks than the restrictive Lansing ordinance. A copy of the ordinance has been presented in the Appendix.

The townships of Delta, Delhi, Windsor and others have contracted with the Tri-County Regional Planning Commission to write their mobile home ordinances. By nature of the townships, mostly rural agriculture with some subdivision activity, and by nature of the ordinances, similar in intent to the Meridian Township ordinance, mobile home parks will be able to exist as a form of land extensive housing with adequate residential character and services. These ordinances (1) accomodate mobile homes within the regulatory structure of the Township and (2) they improve the mobile home park with a set of design and utility standards. These are the first two steps that municipalities or other local government units must make in fulfilling their very important role in controlling and shaping mobile home developments. This will allow new mobile home parks to be developed to meet the rising demand and to improve the competition for the market. Whether the design standards or the zoning ordinance are too restrictive or too lenient is another matter which must be decided by the needs of each municipality. The important point is that the municipality must have an ordinance for mobile homes and mobile home parks.

The adoption of the ordinance is the first step. However, public opinion towards mobile home parks still rests on images from the past. The following quote from the State Journal on September, 22, 1967 shows the intense feelings which mobile home parks induce. An Eaton County zoning request for a mobile home subdivision met the following outcry at a public hearing.

Charlotte, Michigan--Two requests to rezone land for mobile home parks were denied by the Eaton County Zoning Commission Thursday night.

The denials followed strong objections filed at the commission's previous meeting by the residents of the areas involved.

The requests were made by two Charlotte developers who wanted the land rezoned from the residential and farm category to the county's new zone "G" classification.

Zone "G" was set up in the county zoning ordinance by the board of supervisors to allow for mobile home sites.

The developers, Elmer Mehlberg and Lloyd Eaton, told the commission they wished to plat and sell half-acre lots to mobile home owners.

Both men explained the proposals would allow mobile home owners to own their lots and would prevent trailer units from being scattered all over the county.

Mehlberg's proposed mobile home subdivision is located at Wheaton Road and M-50 in Chester Township. Eaton's land is at Eaton Road and Kinsel Highway in Carmel Township.

At last month's meeting of the commission, residents were present with an attorney to voice their complaints. They said mobile homes would depreciate property values and they also objected to mobile homes getting a bargain on taxation.

These homes are taxed \$3 a month, \$2 of which goes to the Schools, 50 cents to the county and 50 cents to the township.<sup>5</sup>

Here we have the same arguments against mobile homes that are presented to zoning boards all over Michigan with the same inaccuracies about taxation and property value. For the most part, these citizens are not aware of the \$3 a month tax per unit nor does the article mention the property tax on the improved land or the sales tax on each unit. On a per acre basis the mobile home land will usually produce more revenue than the nearby subdivisions and there will be fewer school children and fewer government services required. If mobile homes depreciate property values it is generally because the local government or municipality does not provide adequate standards for design, construction, and utilities.

#### Planned Unit Development

The point which should be made from this case is that mobile home parks are not what people think they are. Municipalities which choose to ignore mobile home parks will probably end up with the very kinds of mobile home parks which they deplore so loudly. The reasonable alternative for municipalities is to provide an ordinance which guides the development of future mobile home parks and assures a

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<sup>5</sup>State Journal, Sept. 22, 1967.

high standard of quality and service for the inhabitants. At the same time however, the ordinance should not restrict the mobile home park owner to a standard which is lower than he would like to provide, or to restrict the developer to a rigid type of mobile home courts with row on row of shiny boxes perched on unused wheels. This has been aptly called the "domino effect."

Mobile home parks should be regulated under subdivision regulations with the option of planned unit development. A planned unit development subsection from the Pittsfield Township Mobile Home Ordinance (Washtenaw County) is presented on the following page with a sketch of a potential modular development scheme which utilizes cluster techniques (Figure 50). This plan requires the flexibility in design which is provided by a Planned Unit Development section.

#### Model Ordinances and Their Uses

Before consideration can be given to quality neighborhoods and improved design of the housing site, the functional needs of utilities, streets, parking and lot size must be met. The municipality must insure that these minimum standards and functional requirements are taken care of, but in doing so, they should not prevent mobile home parks from becoming a quality environment for living.



Figure 50.--Interior Space Created by Cluster Plan for Mobile Home Units.  
(Sketch courtesy of Richard D. Ahern, Architect-Planner, Ann Arbor, Mich.)

Figure 51.-- Proposal for Pittsfield Township  
Model Ordinance<sup>a</sup>

Unique Character Design:

In the event an applicant of a conditional use permit desires flexibility in mobile home park design that can obtain a unique character of development that conforms to the purpose and intent of this ordinance even though the project does not comply with all of its provisions, he may apply for such by so stating on conditional use permit application. Qualification for such unique character design shall be determined by the Township Planning Commission on review of the preliminary sketch plan.

Park standards shall be in accordance with the provisions under subparagraph (4) of this section except for the following:

- (a) An added degree of flexibility may be granted in the placement and interrelationship of mobile home sites within the mobile home park. A gross density of not more than 7 mobile home sites per any single acre and not more than 12 mobile home sites per any single acre within the park shall be maintained.
- (b) An added degree of flexibility may be granted in the yard dimensions of a mobile home site in the following manner:
  - (1) There shall be unobstructed open spaces of at least 10' between the sides or end and sides of adjacent mobile homes for the full length of the mobile home and equal to or greater than 10' of unobstructed open space between the ends of the mobile home.
  - (2) No mobile home shall be less than 5' from any driveway or 10' from any common sidewalk within the mobile home park.
  - (3) No doorway or window of any mobile home shall open onto any other mobile home face unless such dimensions between mobile homes is equal to or greater than 20'.

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<sup>a</sup>Proposal developed for Pittsfield Township by  
Richard D. Ahern and Washtenaw County Planning Commission.

Leigh Grosenick has provided a checklist of items which should be considered for a municipal mobile home ordinance. It is important that all of these functions be considered by the municipality, especially items II-A, VII-G, IX-B and XVI-C which provide for variance and conditional situations. A Planned Unit Development subsection should also be included under item 1 however, to insure greater flexibility in design.

While the standards will vary according to the needs of the municipality and the mobile home development, the framework of the ordinance as described in this checklist, will insure that the municipality has a set of minimum standards; and it will provide a legal mechanism for administration of the ordinance and any violations which occur.

In the appendix, three model ordinances for mobile home courts are presented for comparison: The F. H. A. Minimum Property Standards for Mobile Home Courts, the Environmental Health Guide for Mobile Home Parks and the Meridian Township Mobile Home Park Subdivision Ordinance. These ordinances provide examples of the specific requirements and standards which can be included in an ordinance. These specifics should not be copied in total and adopted by municipalities, but they can be modified to fit municipal needs. Most important, the framework and coverage of each ordinance can be examined.

Figure 52.--Mobile Home Park Ordinance Guide<sup>a</sup>

- I. Adoption of Standards
  - A. Comprehensive ordinance
  - B. Comprehensive standards adopted by resolution for use by a planning commission.
- II. Zoning Standards
  - A. Authorized or conditional use in multiple dwelling zones
  - B. Conditional use on the borders of commercial zones when such area is adjacent to residential areas
  - C. Prohibition of parks in industrial or fully commercial zones
- III. Application Procedures
  - A. Designation of municipal officer to receive and process application
  - B. Number of copies and content of plans
  - C. Application fee
  - D. Public hearing requirements
- IV. Approval and Issuance of Building Permit
  - A. Reviewal of plans and specifications by Planning Commission and/or building inspector
  - B. Issuance mandatory upon compliance with ordinance
  - C. Designation of official to issue permit
- V. Area Specifications
  - A. Minimum area of park
  - B. Dedication of certain areas for recreation
  - C. Parking areas
  - D. Dead storage areas
  - E. Central facility area
  - F. Laundry drying area
  - G. Limitation on area for transient purposes.
- VI. Progress of Development Standards
  - A. Designation of number of fully developed unit sites before final approval
- VII. Unit Site Standards
  - A. Minimum unit site area
    - 1. Length
    - 2. Width
  - B. Internal set-backs
    - 1. Front roadway
    - 2. Sidewalk
    - 3. Between units
    - 4. Parking area

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<sup>a</sup>Leigh Grosenick, op. cit., pp. 104-106.

Figure 52.--Continued.

- C. Front Yard area
- D. Percentage of lot area to be occupied
- E. Buildings on unit sites
- F. Identification of unit site
- G. Variance for irregular sites

VIII. Sanitation

- A. Drainage and grading of entire park
- B. Water system
- C. Sewerage system
- D. Garbage, waste and trash disposal
- E. Central facility sanitation
- F. Storm drainage

IX. Utilities Placement

- A. Underground requirement
- B. Variances on requirement

X. Streets, Sidewalks, Curb and Gutter

- A. Concrete specifications
- B. Street surfacing
- C. Curb and gutter design
- D. Width of unit site right-of-way
- E. Off-street parking
- F. Access drives to parking spaces and parking areas
- G. Sidewalks
  - 1. Composition
  - 2. Width
  - 3. Position

XI. Buffering Zone and Park Condition

- A. Width of buffer zone
- B. Landscaping of buffer zone
- C. Collections of dust, debris and garbage
- D. Street and boulevard trees
- E. Condition of buildings

XII. Safety Standards

- A. Fire
- B. Hydrant placement
- C. Access and egress to Park
- D. Lighting of interior streets

XIII. Nuisances

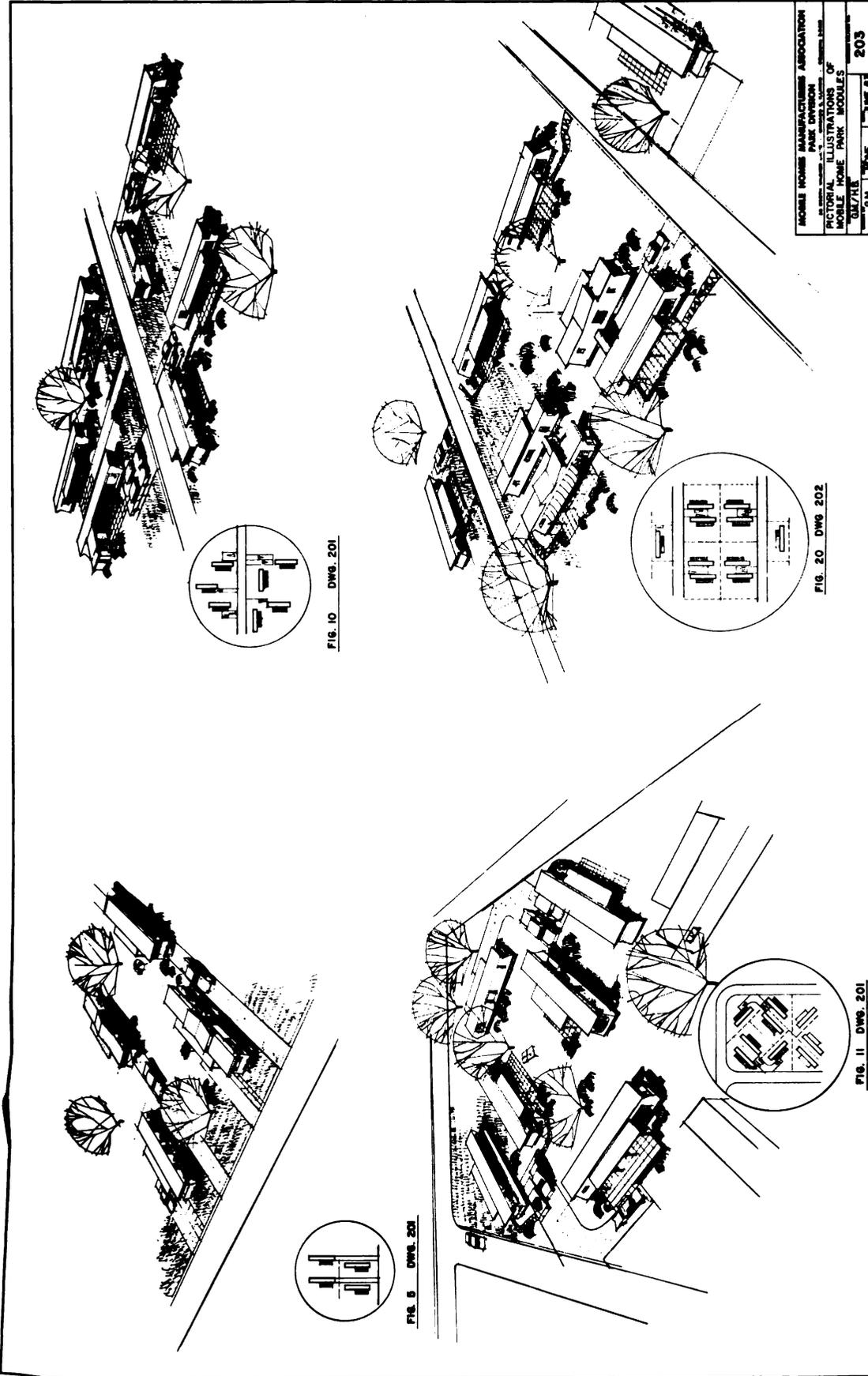
- A. State and local requirements
- B. Public address and loudspeaker systems
- C. Advertising
- D. More than one unit on a site

Figure 52.--Continued.

- XIV. Management
  - A. Full-time caretaker
  - B. Caretaker's office
  - C. Map of area
  - D. Registration of occupants
  - E. Responsibilities of caretaker
    - 1. Units not conforming to motor vehicle or health code
    - 2. Units in bad repair
    - 3. Structurally unsound units
    - 4. Over-populated units
  - F. Outdoor camping in park
- XV. Sales Lot Disposition
- XVI. Administration and Violation
  - A. Conformance to ordinance
  - B. Revocation of permit
  - C. Modification under special circumstances
  - D. Violation a misdemeanor
- XVII. Effective Date

Site Integration and Design of Mobile  
Home Land Development

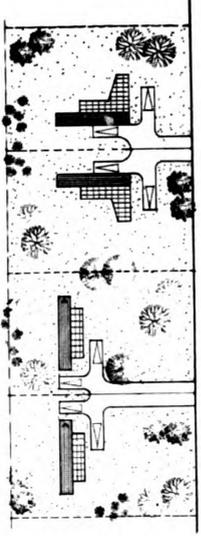
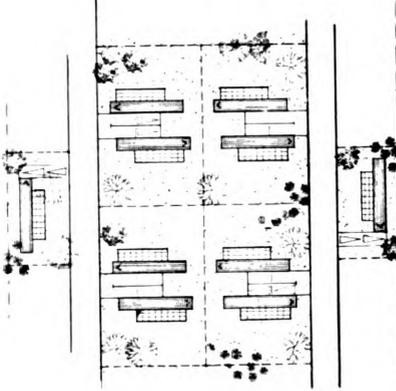
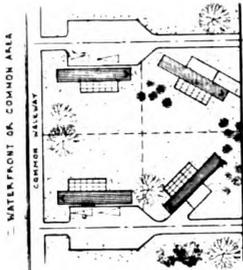
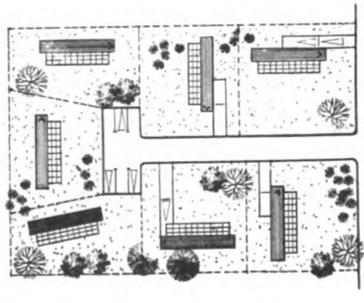
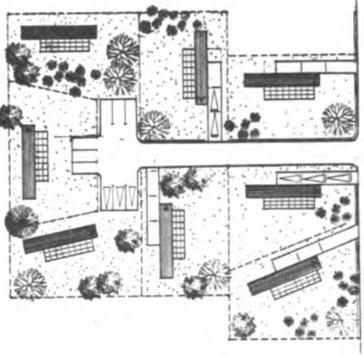
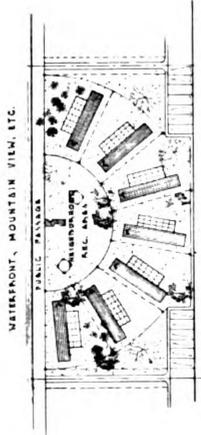
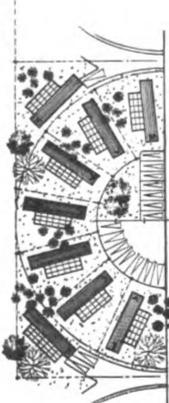
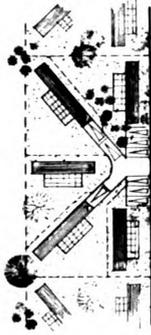
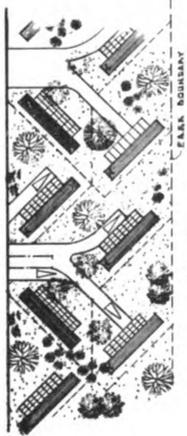
On the following pages, site integration of the dwelling unit, and the design of mobile home land development is explored. Using the mobile home unit that exists today, but concentrating on the design of the housing site, can produce extremely livable environments. The importance of design flexibility and planned unit development is evident from these plans. Municipalities should move toward these ideas with their ordinances rather than restricting the quality of future mobile home parks with "blueprint regulations" which do not allow for any variance in design.



MOBILE HOME MANUFACTURERS ASSOCIATION	
PICTORIAL ILLUSTRATIONS OF	
MOBILE HOME PARK MODULES	
DATE	203
BY	
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Figure 53.---Modular Arrangements for Mobile Home Units. (Source: Site Planning Kit, Land Development Division, Mobile Home Manufacturers Association, Chicago, 1967)

**GENERAL NOTES**  
 ALL MODULES MAY BE USED FOR BOTH RENTAL PARKS & MOBILE HOME SUBDIVISIONS. FIG. 17 THROUGH 21 ARE VERY SPACIOUS ARRANGEMENTS. PLACEMENT OF MODULE UNITS, INGRESS & EGRESS BECOME SECONDARY FOR SUBDIVISION MODULES.



MOBILE HOMES MANUFACTURERS ASSOCIATION  
 TYPICAL MOBILE HOME ARRANGEMENTS  
 CLUSTERS, SCHEME'S, PARKING ARRANGEMENTS  
 FIG. 7 / H.B. 10/20/63 202

Figure 54.--Plan View of Typical Modules, Clusters and Parking Arrangements for Mobile Homes. (Source: Site Planning Kit, Land Development Division, Mobile Home Manufacturers Association, Chicago, 1967.)

*"The Master of Mobile Homes"*

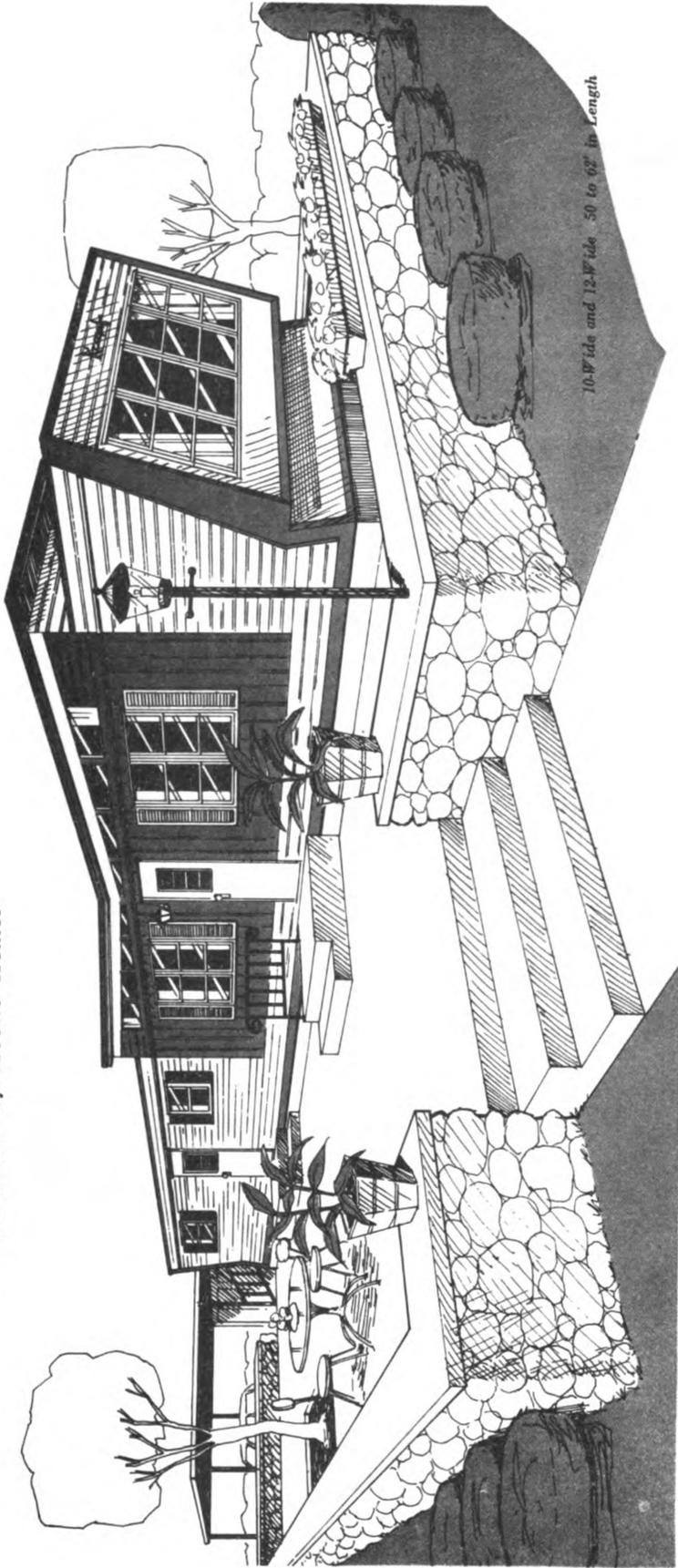
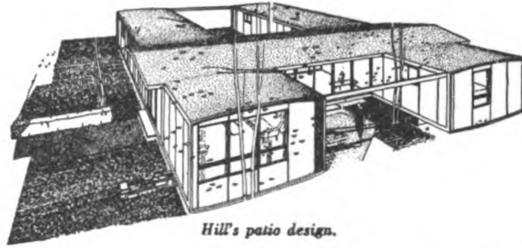
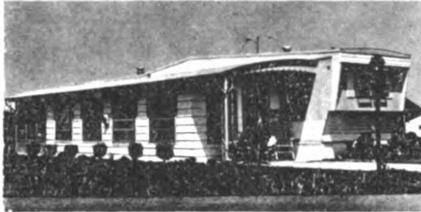


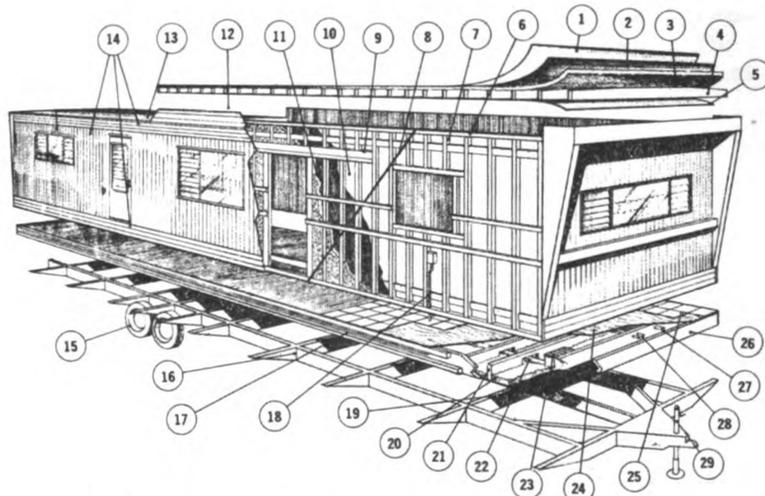
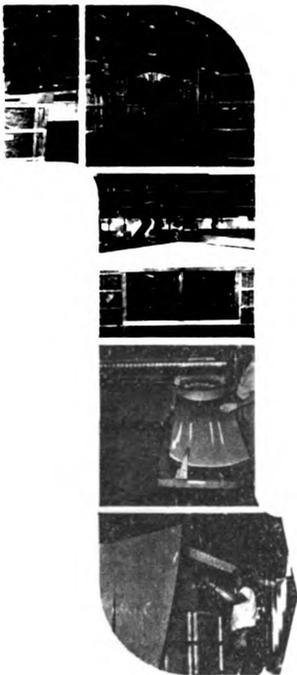
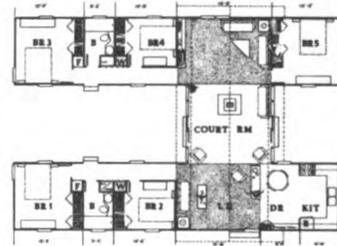
Figure 55.--Site Integration and Landscape Design of the Mobile Home Unit. (Illustration courtesy of Kaoff Manufacturing Company, Inc.)

*Cabaña add-on construction, fold-out rooms*



*Hill's patio design.*

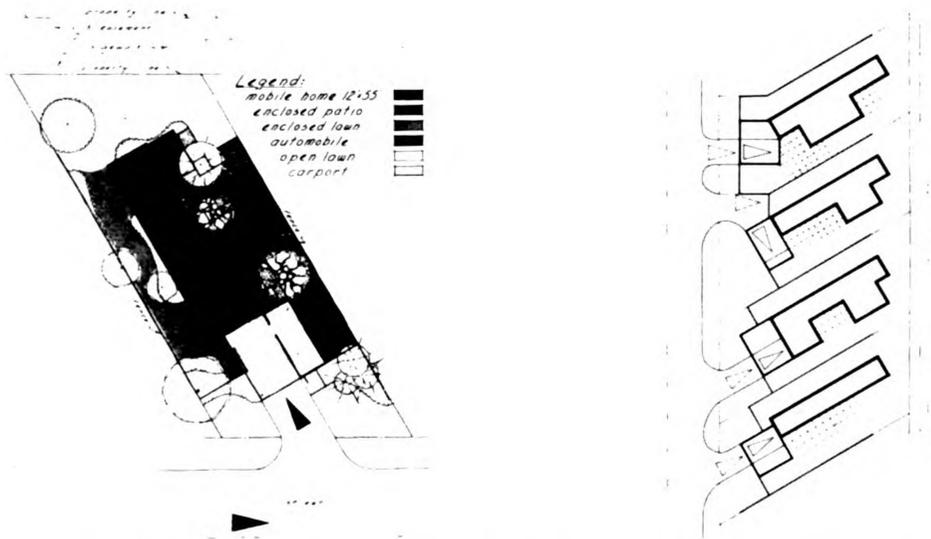
*McRill's natural-wood siding.*



- |   |  |   |
|---|--|---|
| 1 — 30 gauge galvanized roof overlapping both sides and ends.                   | 10 — Sidewall panels glued and nailed to studs.                                  | 22 — 6" round heat ducts laid on fibre glass through open web of joists, one duct to each register. |
| 2 — Asphalt impregnated hemp board.   | 11 — 1/4" high density fibre glass between studs.                                | 23 — Floor register with adjustable dampers.  |
| 3 — 2" high density fibre glass.  | 12 — Amming rails (drip cap) both sides front to rear of unit.                   | 24 — 1/2" drain plywood glued and screwed to all joists and perimeter floor members.                |
| 4 — 2"x6" rafters tapered to 2"x3", 40" from outer end.                         | 13 — Amming rails (drip cap) both sides front to rear of unit.                   | 25 — Vinyl flooring.  |
| 5 — 1/4" ceiling panels.  | 14 — Pre-painted aluminum siding.  | 26 — Hot and cold water pipes inside floor.   |
| 6 — 2"x2" plate on top of studs.  | 15 — Goodyear tires and wheels on 4500 lb. axles.                                | 27 — Front drain member connects to central 3" drain under bathroom.                                |
| 7 — 2"x2" and 2"x3" studs, 16" on center.                                       | 16 — Zelman chassis — 7" channel with formed steel cross members and outriggers. | 28 — Clean out access hole making forward drain accessible for direct cleaning if clogged.          |
| 8 — 1 1/2" steel triangulation bracing.   | 17 — Raceway for Romex wiring.   | 29 — Hitch jack.  |
| 9 — 2"x6" lintel over Panview door or 2" LAMINATED LINTEL over EXPANDING ROOMS. | 18 — Convenient outlets fastened to studs.                                       |   |
|   | 19 — Asphalt impregnated hemp board between each floor joist.                    |   |
|   | 20 — 1/4" high density fibre glass between each joist.                           |   |
|   | 21 — 1 1/2" open web laminated floor joist.                                      |   |

EXPLODED DRAWING OF ANGELUS MOBILE HOME

Figure 56.--Flexibility in Design and Construction of the Mobile Home Unit. (Source: "Stable Homes," Progressive Architecture, May, 1966, p. 187.)



In cul de sac arrangements, the same principles can be made to apply and increased variation is possible. Figure 12 is a detail on one use of an irregular lot. Figure 13 is a cul de sac merging into rows of straight lots. The cul de sac diagram indicates that for mobile home lots, at least, there is no overpowering reason why side lot lines should be radial to a curve.

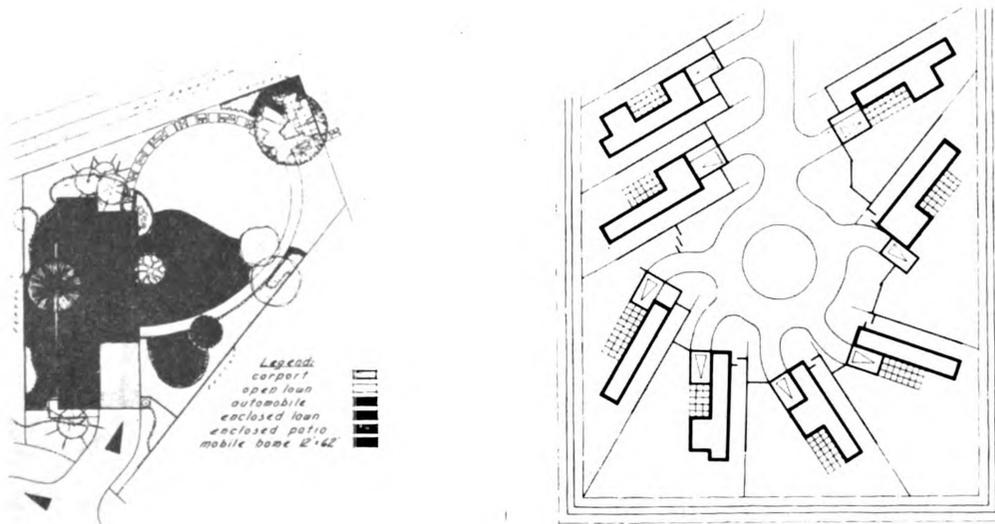
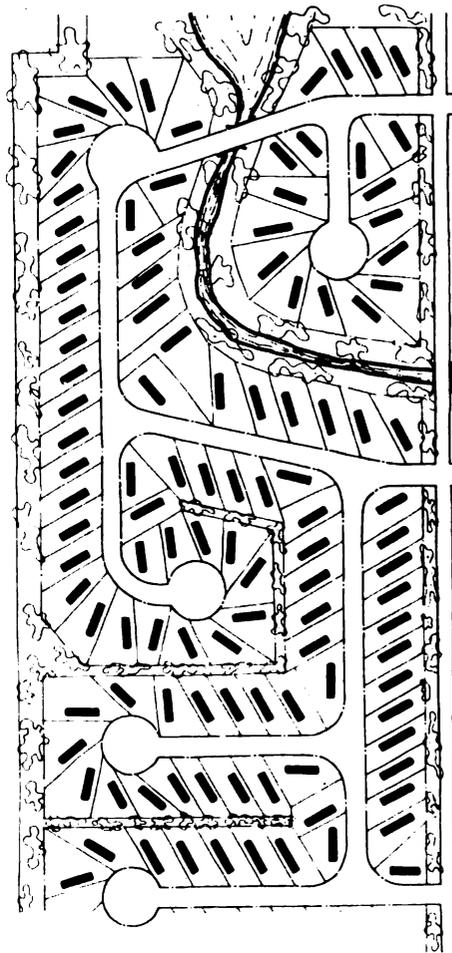
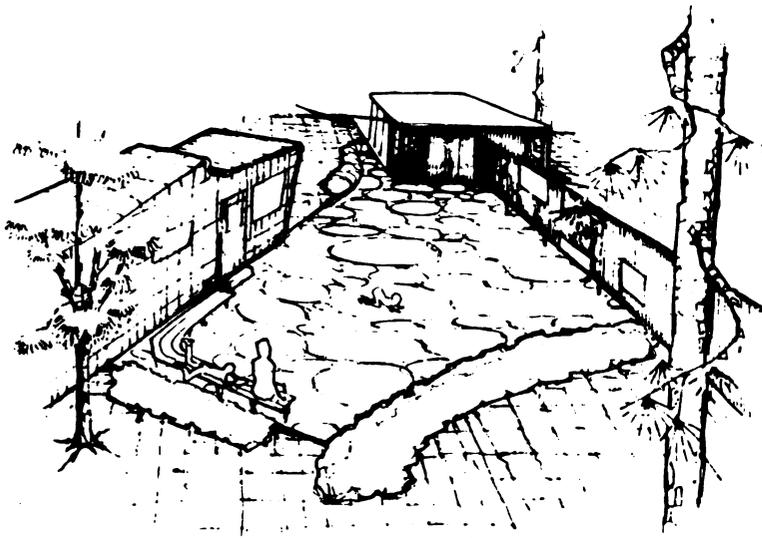


Figure 57A.--Site Plan and Landscape Design for Typical Mobile Home Lots. (Source: Frederick H. Bair, Jr., "Regulation of Mobile Home Subdivisions," Information Report No. 145, Planning Advisory Service, American Society of Planning Officials, Chicago, April, 1961, p. 25.)

To extend the ideas indicated from individual lots and small groups of lots to a subdivision, the layout in Figure 14, adapted from the site used in *How to Subdivide*,<sup>15</sup> shows a portion of a mobile home subdivision. The main road runs north and south at the right. No lots have direct access to this artery - it is separated from lots by a landscaped strip which would serve as insulation, for easements, and on its inner margin as a pedestrian way. Interior traffic would not be through traffic, and would be slow. A variety of lot sizes and shapes are available. The plan would be improved if the walkways converged on the stream-side parkway, which leads to a community center to the north, outside the area shown.



The illustrations thus far were prepared especially for this report. Figures 15 and 16 show a part of the prize-winning entry of Arthur G. Foster, Jr. in the Mobile Home Manufacturers Association's student contest.



▲ typical carport patio mobile home relation ▲

Figure 57B.--Planned Unit Development of a Mobile Home Subdivision with Sketch of Carport and Patio Area of a Typical Mobile Home Lot. (Source: Same as Figure 57A.)

Again, the lot arrangement is oriented away from the street and the patio is enclosed. The joint carport might be difficult in a mobile home subdivision.

In Figure 16, the general plan emphasizes landscaping, commons, and an interior walkway system, with streets subordinate to the primary residential purpose.

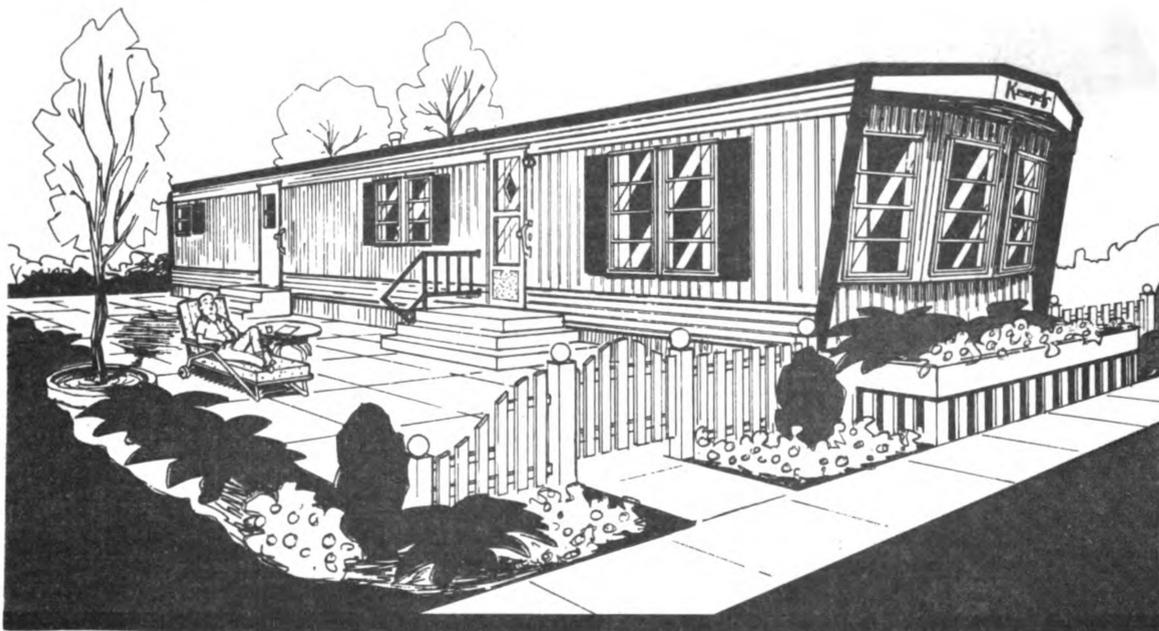
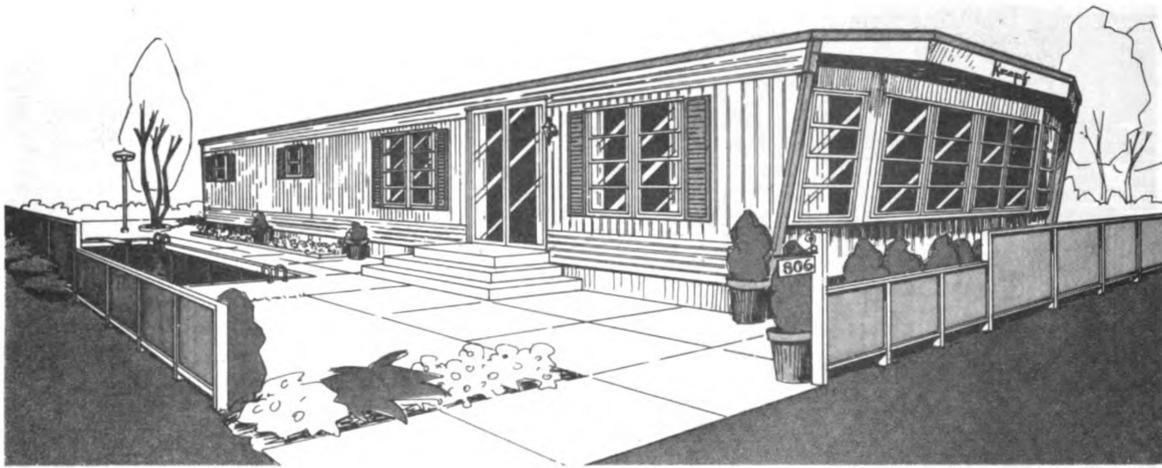
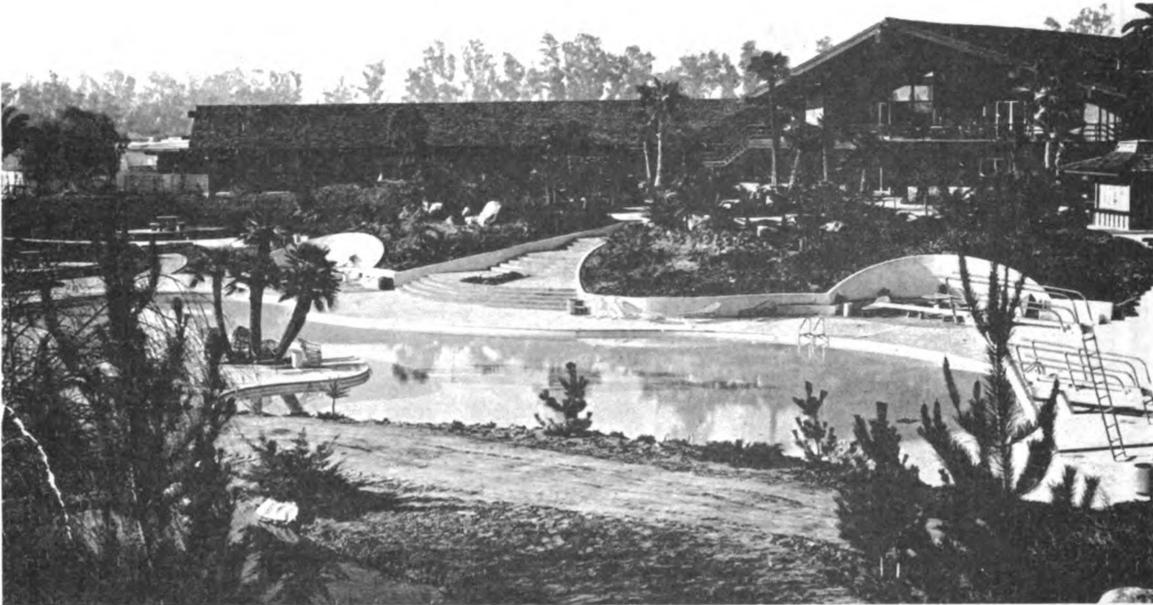


Figure 58.--Site Planning and Landscaping Alternatives.  
(Illustrations courtesy of Kropf Manufacturing  
Co., Inc.)



*The center of the community is the clubhouse, which is often elaborate in scale and décor (photo at top shows architect James Wilde's clubhouse for Swan Lake). Many activities that, in the conventional residence, are centered in the home itself—entertaining and hobbies, for example—have here been shifted to communal centers such as the clubhouse, the laundries, and arts-and-crafts centers. Many parks have social or recreation directors who plan events for the residents.*

Figure 59.--Community Center and Swimming Pool for a Mobile Home Community. (Source: "Stable Homes," Progressive Architecture, May, 1966, p. 189.)

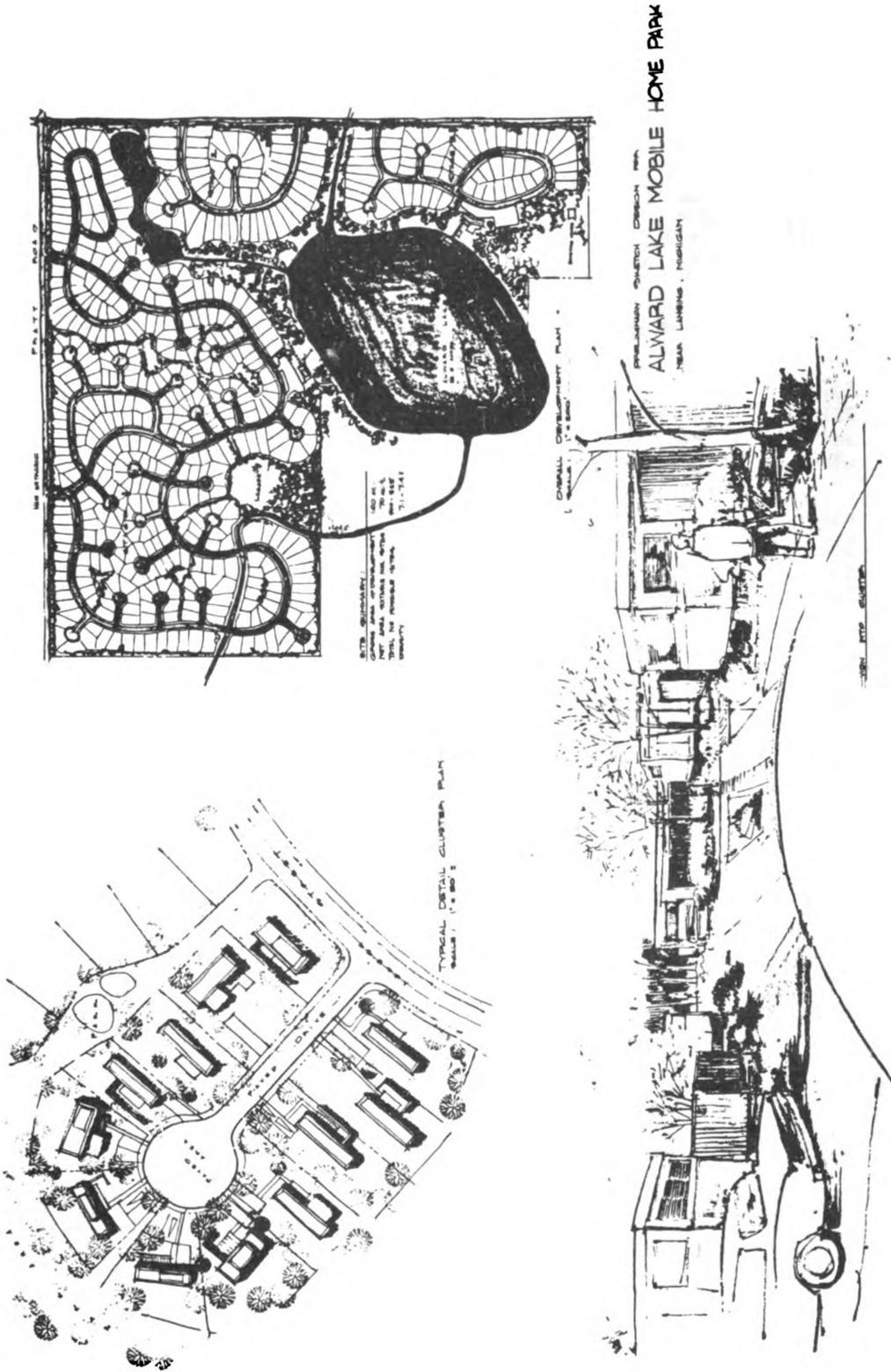
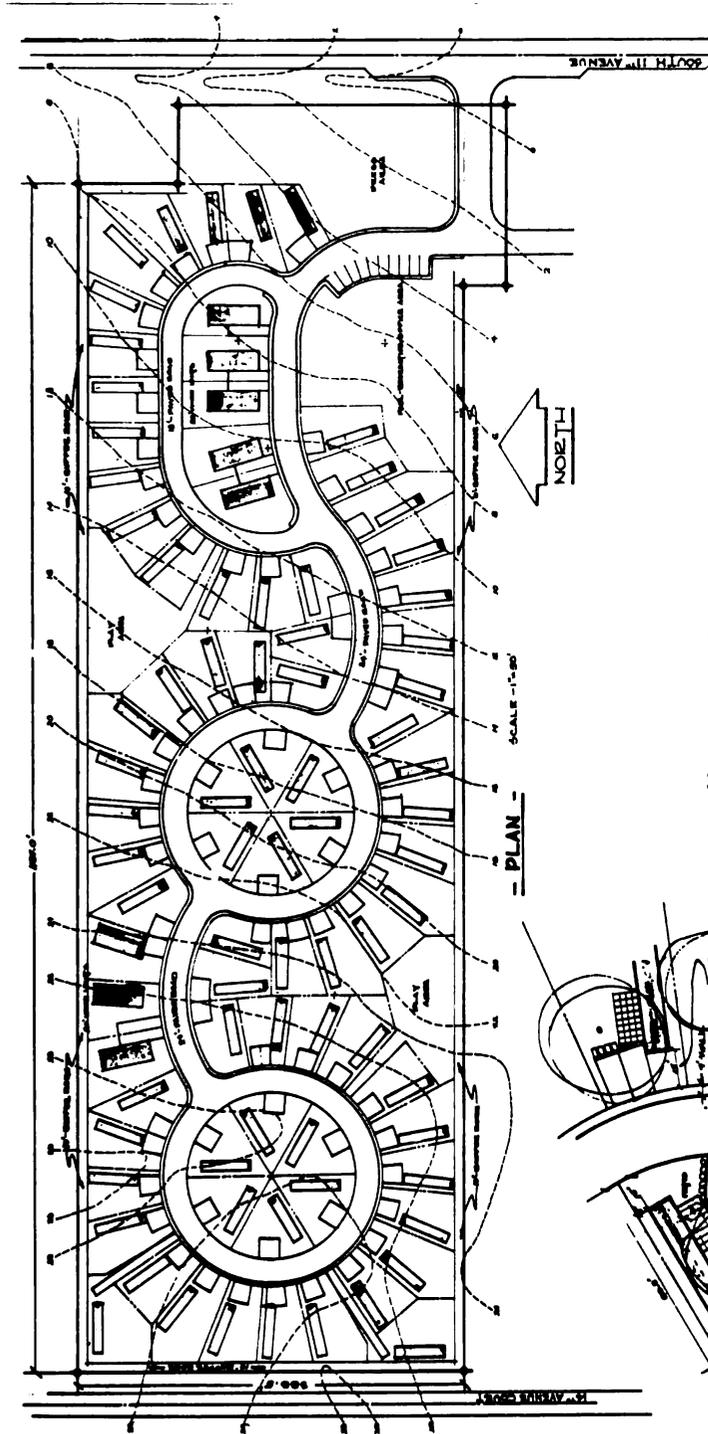
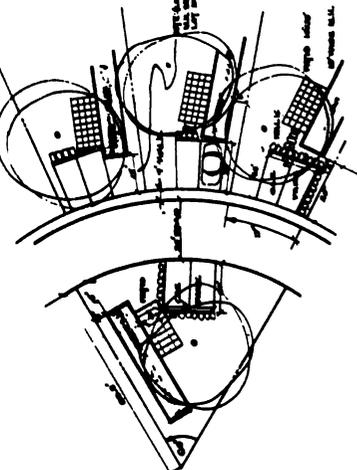


Figure 60.--Planned Unit Development with Cluster Arrangement. (Source: Site Planning Kit, Land Development Division, Mobile Home Manufacturers Association, Chicago, 1967.)





PLAN - SCALE - 1" = 50'



LOT BLOWUP SCALE - 1/4" = 10'

SUGGESTED SITE PLAN  
**A MOBILE HOME PARK**  
 GREELEY, COLORADO

SITE DATA:  
 AREA OF PARK - 10 ACRES  
 TOTAL NUMBER OF LOTS - 88  
 DENSITY - 8.8 LOTS/ACRE

MOBILE HOMES MANUFACTURERS ASSOCIATION	
PARK DIVISION	
STATE OF COLORADO	
GREELEY, COLORADO	
ARCHITECT: J. W. HARRIS ARCHITECTS	
DATE: 11-1-1967	
PROJECT NO. 1027-C	

Figure 62.--Sector Design of Mobile Home Development. (Source: Site Planning Kit, Land Development Division, Mobile Home Manufacturers Association, Chicago, 1967.)

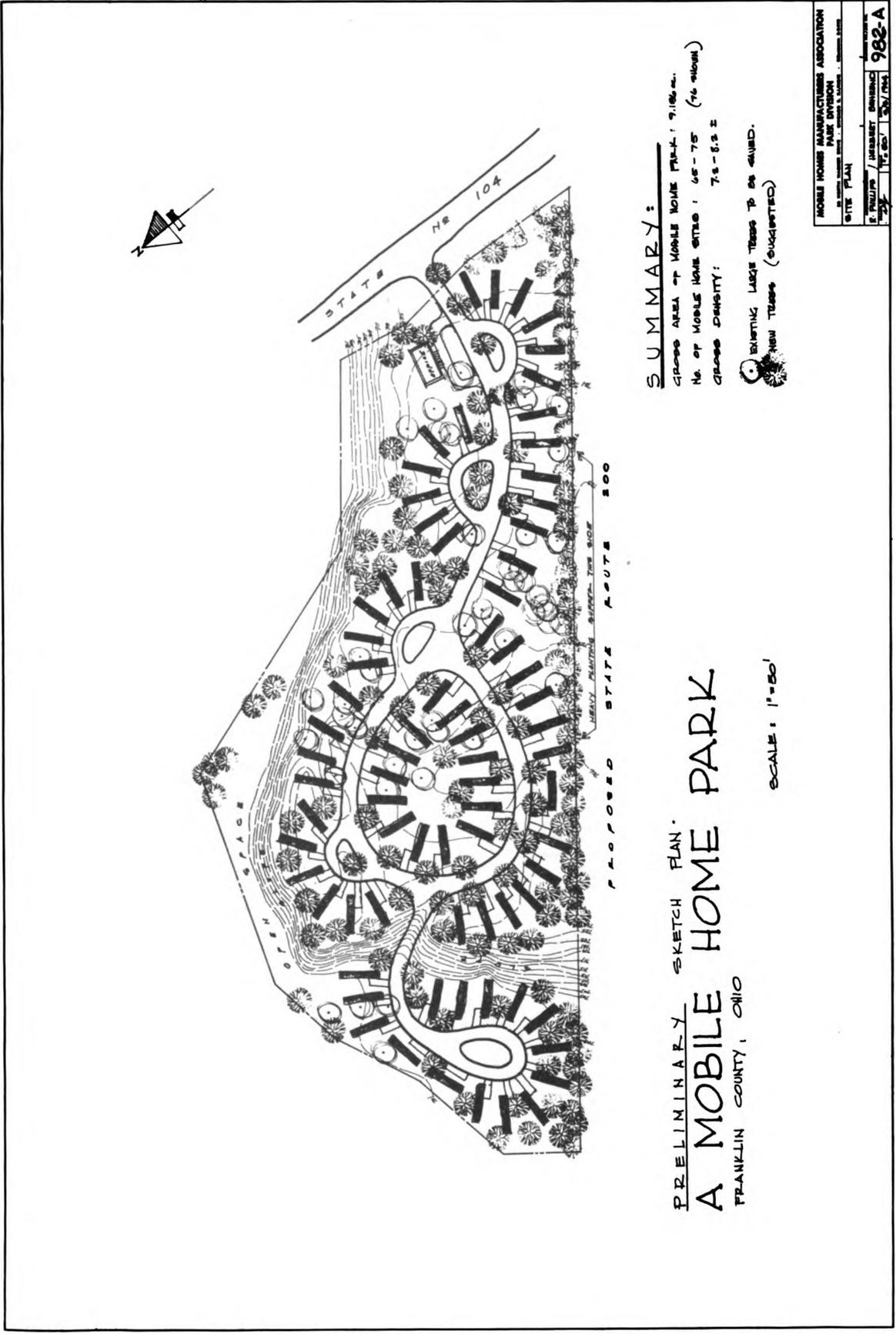


Figure 63.--Open Space, Topography and Existing Trees Utilized in Development Plan.  
 (Source: Site Planning Kit, Land Development Division, Mobile Home Manufacturers Association, Chicago, 1967.)

**WINDMILL PARK  
HOLT, MICHIGAN**

**Date of Completion:**

**Rental Average:**

\$45 per space per month

**Number of spaces projected:**

484

**Cost of Construction for 484 spaces:**

\$1,141,104

**First phase costs:**

\$378,550 for Mobile Home Spaces

\$225,000 for Central area facilities

Windmill Park will have underground utilities, 30 foot wide paved streets with curbed sidewalks and street lighting; complete oil system underground; central television antennas; all areas sodded and landscaped; paved Mobile Home spots with paved driveway adequate for parking two cars.

The first phase includes 163 sites plus recreation and office building, picnic pavilion and landscaping.

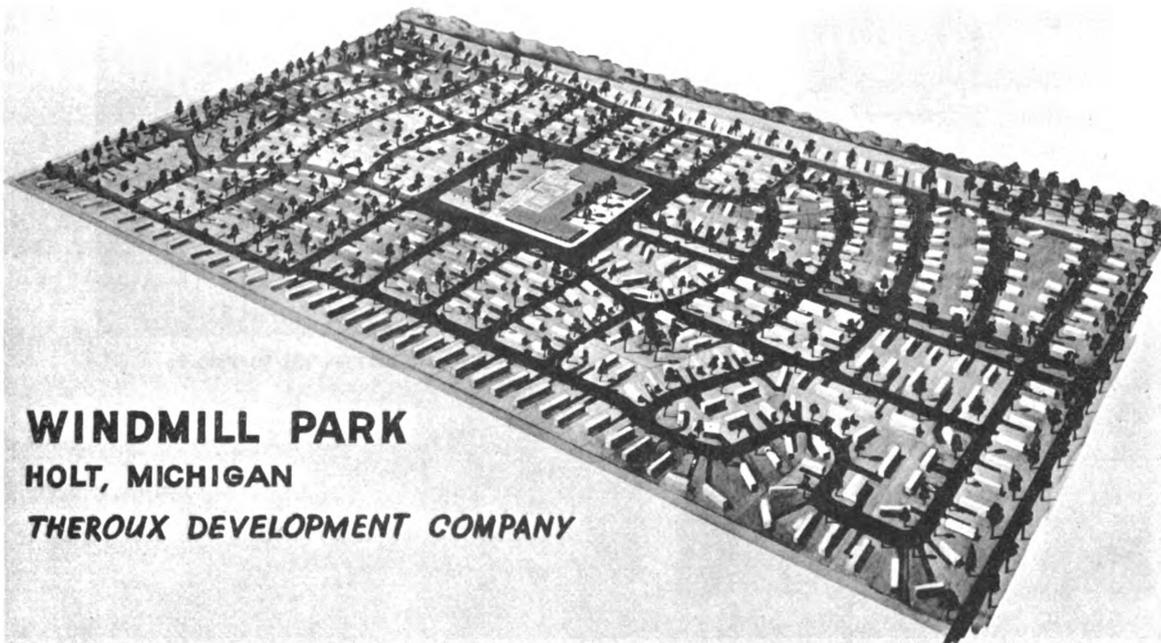


Figure 64.--Development Plan for Windmill Park, Holt, Mich.  
(Source: Mobile Homes Manufacturing Association  
14th Annual Industry Report: 1965, MHMA Chicago,  
1965, p. 10.)

## CHATEAU ESTATES — UTICA, MICHIGAN



*Park office and community building*



*A sample of homes in Chateau Estates*



*A part of the recreation area*



*The central TV antenna*



*The swimming pool and lounge area*

Figure 65.--Chateau Estates, Utica, Michigan Club House with Central Open Space and Recreation Area. (Source: Carleton M. Edwards, A Manufactured Homes Development for Pittsfield Township. by the author, 1967, p. 11.)

Community and Neighborhood Planning

The model ordinances as presented and the FHA Property Standards for Mobile Home Courts, are the culmination of a decade of effort to get municipal recognition for mobile homes. But in this author's opinion they do not go far enough. Future recommendations must go one step further by finally asking the mobile home industry and mobile home site developers to consider mobile homes as part of the community.

At the present time, mobile home parks are merely copying the ills inherent in conventional subdivisions.

1. Subdivisions are not neighborhoods. Most subdivisions do not have facilities for shopping, recreation, schools or parks--these must be provided by the city in other locations.

2. Subdivisions are therefore dependent on the facilities of the city--the automobile becomes a requirement, a necessity, not a luxury. The transportation problem of metropolitan areas, the dominance of the automobile over the pedestrian, is inherent in this type of development. The residential area is no longer a place for pedestrians.

3. Subdivisions are not neighborhoods in the social sense--there is little or no consideration and planning given to social interaction, recreation, neighborhood centers, pedestrian parks and market places.

4. Separate ownership of lots promotes individual maintenance and lack of architectural harmony.

5. A subdivider or developer is not responsible for social cost accounting above and beyond the sometimes required performance bond; that is, he is free to leave and let home owners or the municipality bear the long range cost of poor planning or inadequate streets and utilities. (Contrast the mobile home park developer who must face the long-term costs of poor materials, poor planning and poor maintenance just as any other business.)

6. Subdivisions are based on the concept of permanency. Drury points out some of the problems inherent in this concept.

Is housing going to continue to be craft-produced, long term structures built to last for generations, if properly repaired? Or will it keep pace with our rapidly developing technology? Will it become an industrialized consumer product with a limited life expectancy?

. . . Minor evidence has already been found that indicates that areas that have limited life housing blight less readily than areas with permanent housing. The social and economic implications of this need to be analyzed.<sup>6</sup>

This is a major untapped potential for mobile home parks--to provide quality neighborhoods and community ties that subdivisions were unable to provide. A wealth of literature on neighborhood design and cluster development exists in the fields of Urban Planning, Sociology and

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<sup>6</sup>Drury, op. cit., pp. 144-145.

Landscape Architecture. These concepts have filtered down to the construction and land development sectors of conventional housing only through the application of state and local regulations.

The mobile home park owner on the other hand, has a unique role in land and neighborhood management. The potential of this unique situation has been overlooked by most writers as they concentrate on the features of the mobile home unit. The management of common or group facilities such as recreation and park areas, neighborhood service buildings and community centers; the maintenance of streets, lawns, landscaping, parking areas, pedestrian walkways, etc., could provide a type of service which is unavailable today in most single family housing and apartments developments.

Fred Bair Jr. has said that mobile home parks are the only true neighborhoods left in America. Whether this is true or not, the potential and the framework for neighborhoods exists in the mobile home park and not in conventional subdivisions. The Department of Housing and Urban Development is spending a great deal of money and effort in promoting new towns and neighborhood or cluster planning. \$2,000,000 was originally requested for demonstration cities, yet the mobile home park is already set up to utilize many of these design concepts. The mobile home neighborhood as a complete residential environment must

be explored by both the municipality and the mobile home industry.

Anyone associated with new mobile home parks built in the last three to five years, has seen the tremendous upgrading of quality and facilities. In spite of its financial limitations, the Mobile Homes Manufacturers Association has promoted new developments which far outstrip the quality of previous examples. The Land Development Division of Mobile Homes Manufacturers Association should be congratulated on the excellent services they have provided to municipalities and to mobile home park operators. But now it is time for the mobile home industry to stop explaining that mobile homes are just as good as conventional housing. It must show that mobile homes can be better. It is time to encourage more concrete examples of mobile home neighborhoods and even mobile home new towns. Mobile home parks do not have to be second rate subdivisions for low cost housing. A mobile home neighborhood with nothing but economy models of mobile homes could with proper design be a better place to live than most conventional subdivisions or "prestige communities."

It is not the housing unit which is critical to future improvements in the quality of urban life, it is the environment of the housing unit. The Mobile Homes Manufacturers Association must recognize that future sales rest on site development, not on improved marketing or unit

construction. In this author's opinion, the mobile home unit is far above the quality of most mobile home parks. The Mobile Home Manufacturers Association could well consider changing its priorities in the next few years, from 90% promotion and 10% land development, to at least a 50-50 split in their efforts.

Cost and convenience have been major contributors to demand for mobile homes in the past, but they do not need to be the only factors in the future if the industry will concentrate on development problems rather than marketing strategies. Elrick and Lavidge, marketing consultants for Mobile Homes Manufacturers Association has stated in the 1966 Annual Industry Review:

The future growth of this industry will be dependent upon attracting a broader segment of the housing market. In this respect, we believe the manufactured home can make a great contribution.

. . . We believe the industry must seriously reappraise the manufactured home with respect to its total marketing strategy. If the mobile home industry elects to ignore the manufactured home, we suspect other people will pick up the ball and run with it.<sup>7</sup>

Notice that the emphasis is on the unit and on the market. I believe this ignores the desperate need for a place to put these units. The mobile home industry has no place to put the manufactured home unless it relies

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<sup>7</sup>Mobile Homes Manufacturers Association, 15th Annual Industry Review: 1966 (Chicago: Mobile Homes Manufacturers Association, 1966), p. 4.

on conventional subdivisions or even less adequate mobile home parks. These alternatives will only build up future municipal resistance to manufactured housing.

## CHAPTER VI

### FUTURE IMPLICATIONS

#### Alternative Types of Mobile Home Development

There is one problem which will continue to plague municipalities even though they recognize and accomodate mobile homes by adapting and modifying model ordinances to their needs. The problem is this:

Municipalities must work with today's mobile home--this requires, in general, mobile home parks as a medium density, residential land use, with service facilities, recreation space and landscaping, but discourages mobile homes on a private lot within the city.

Municipalities must also consider tomorrow's mobile home--this may require several different sets of regulations covering several different functions for mobile homes. Requirements for today's mobile home will not cover the following possibilities in the future:

1. Sectionalized manufactured housing used on a private lot or in a conventional subdivision.
2. Mobile home townhouses, row houses and stacked units may be needed for urban renewal, for company or university housing, for high density garden apartments, or even for temporary housing for military and construction personnel.

3. A medium density mobile home park may be proposed as a 10-15 year temporary land use while the city grows out to meet a suburban area and the land value "ripens" for commercial or higher density residential use.

4. A mobile home park may be needed for a five year construction program by private industry or government and military agencies.

5. Modular housing units designed for cluster housing may require cooperative ownership of land for open space, recreation and maintenance purposes.

6. A mobile home subdivision may be requested where mobile home owners own their lot but share utilities, maintenance, service buildings, etc.

7. A mobile home community with shopping center, schools, parks and community centers may be proposed for development.

8. A modular unit apartment plan may be submitted for the downtown area with rental or condominium units fixed to a utility superstructure on the upper floors and modular offices attached to the lower floors.

9. Modular units or sectional module clusters may be used for banks, offices, schools or commercial stores.

Will the municipality change its zoning and building ordinances to accomodate these situations as they arise or will today's "mobile home ordinance" be flexible enough to accomodate these new functions? These are not pie-in-the-sky

proposals by the author--each one of these plans is being used or proposed at the present time. After a decade of lumping mobile homes uses and potentials together under one category of land use--medium density residential--so that people would begin to understand that mobile homes were no longer trailers, and municipalities would adopt a regulatory structure to deal with them; it is time to point out the diversity of function in mobile homes and in mobile home parks before municipalities create new problems with inflexible ordinances.

In the following pages, some of these new proposals and potentials are presented in graphic form. The purpose of this thesis is not to recommend these proposals to municipalities, but to point out that these new developments in manufactured, modular housing are happening today. Will municipalities be looking backward at trailer camps or will they be looking ahead to new housing environments? More probably they will consider these new developments under their present regulatory structure, the "mobile home park ordinance." It is questionable whether the present ordinances of municipalities or even the model ordinances will be at all applicable.

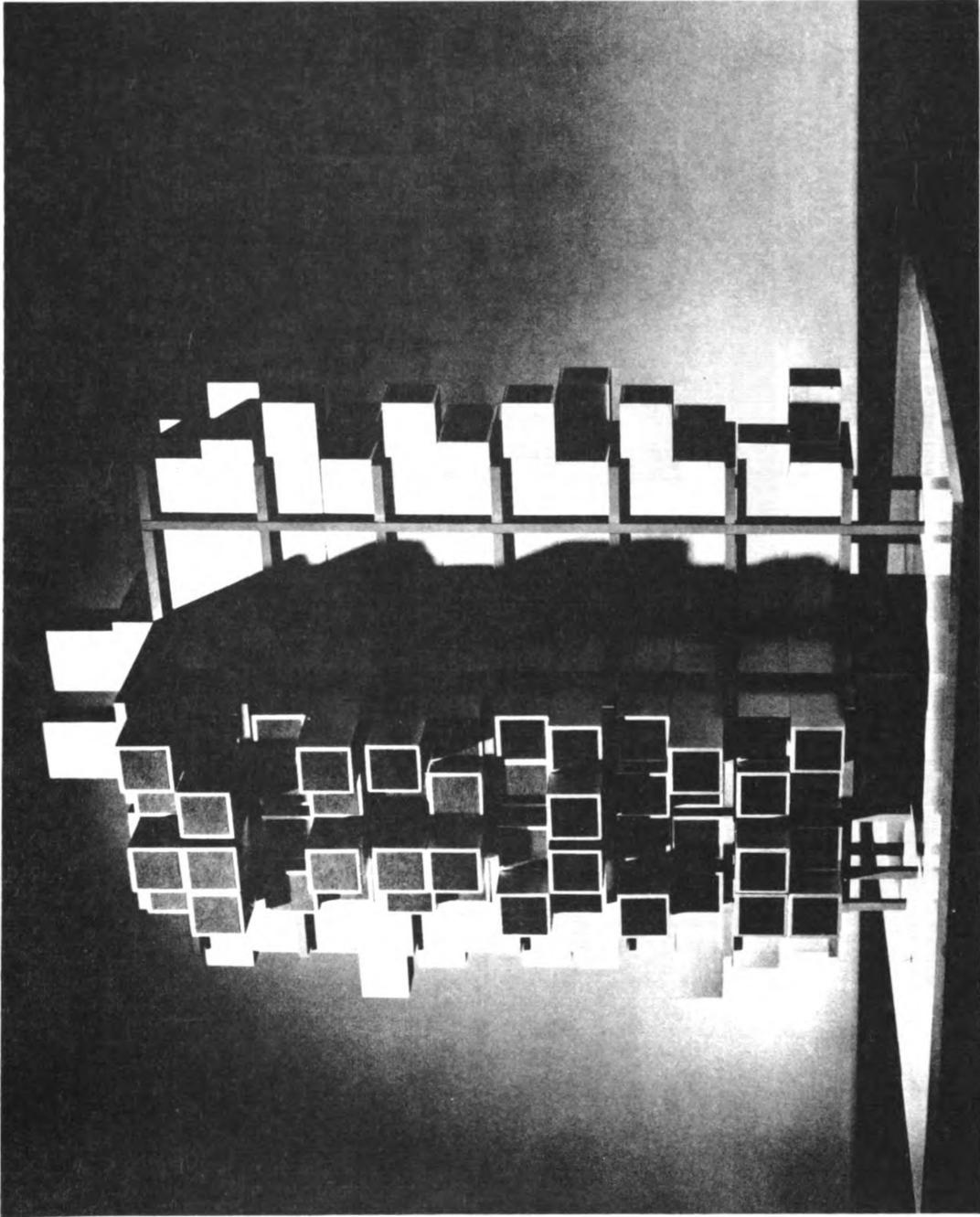
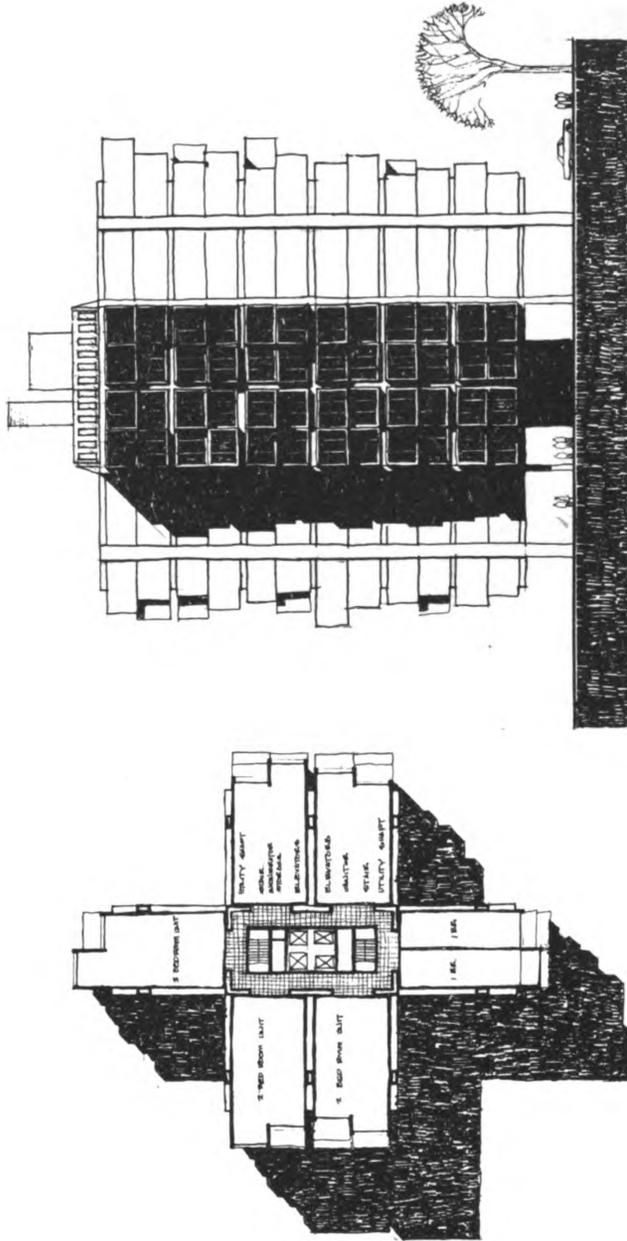


Figure 66.--The High Rise Modular Apartment: A Steel Frame with Plug in Housing Units.  
(Source: New Concepts in Low Cost Residential Housing, Pittsburgh: Jones & Laughlin Steel Corporation, 1967, p. 4.)

- Individual residential units, completely furnished, can be slid in or out of the steel skeleton frame, which permits changing of complete units.
- The steel framing concealed in each unit makes it possible to project the units to form balconies.
- Utility service lines run in chases at the corners of the core. Structural and utility connections are designed to be simple and easily made, so that units can be removed on short notice.
- Hoisting equipment on the roof or ground facilitates prompt handling of units.



PLAN

ELEVATION

Each apartment is separated by two walls, its own and that of the adjacent unit. The steel frames are fastened together with simple bolted connections.

A steel frame for each apartment unit makes it possible to hoist it into place in the high rise skeleton framework.

Figure 67.--The High Rise Modular Apartment. Plan View and Elevation Details. (Source: New Concepts in Low Cost Residential Housing, Pittsburgh: Jones & Laughlin Steel Corporation, 1967, p. 5.)

# High Rise Structure Is Devised for Mobile Homes

## Twin, Twenty Story Circular Unit Is Proposed by Marshfield Man for Downtown Sites

A Marshfield (Wis.) mobile home manufacturer has devised a twin, twenty story structure for parking mobile homes which would eliminate much of the high land cost needed for such developments. The open, circular structures would accommodate 504 mobile homes and would enable owners to park their mobile homes in downtown locations, rather than in the suburbs or rural areas, according to Elmer W. J. Frey, president of Marshfield Homes, Inc.

The structure still is in the tentative stage, Frey said. He hopes to attract investors in such a project and to raise necessary funds to erect the structure in Milwaukee, Wis.

**Needs Big City**

"We would like to erect it in Milwaukee," Frey said, "because the proposed structure is a Wisconsin idea and we would like to see the first such structure erected in Wisconsin. Milwaukee needs and can support such a development."

Frey explained the reasoning behind the design of the structure:

There are mobile home owners who do not want to stay in rural or suburban areas. With such a structure downtown, they are convenient to urban facilities."

**Connected With Tower**

Under Frey's plans, the structure would be like an open parking structure for automobiles.

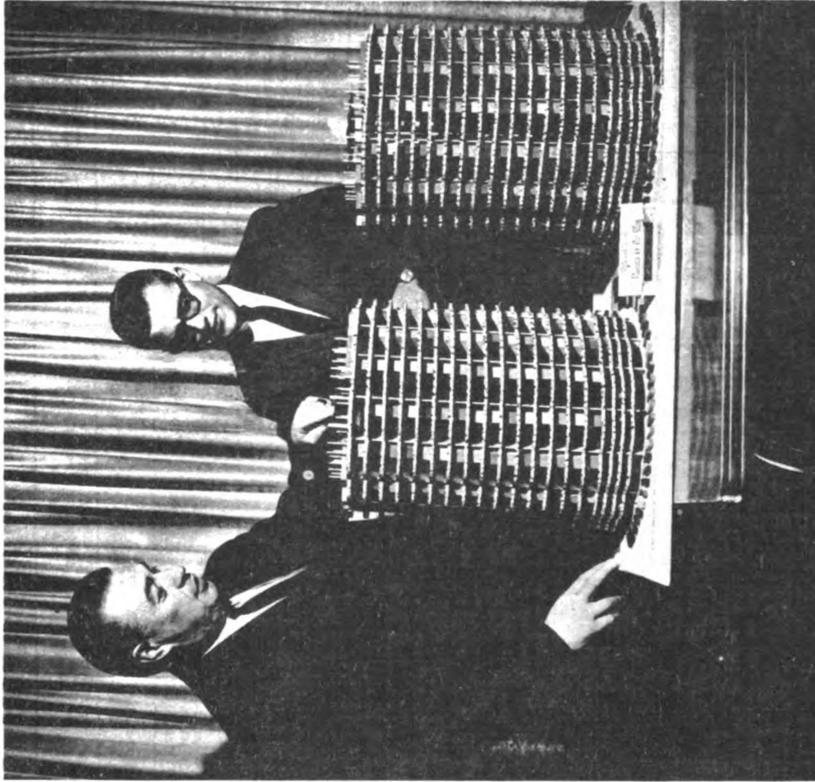
**Modified Old Plan**

Frey said that the structure would be 292 feet high, and the outside diameter would be 232 feet.

Each mobile home would be in a space containing 2,609 square feet.

The spaces would accommodate mobile homes up to 12 feet wide and 68 feet long, Frey said. The most common mobile home size in Wisconsin, he added, is presently 12 feet wide and 60 feet long.

In 1962, Frey introduced a circular plan which was an improvement of a rectangular model he designed in 1959 but never built. That structure would have been six stories high. The rectangular design would have required the use of more land than a circular structure. However, he said, this new model is an improvement of the 1962 model Frey displayed at various mobile housing shows, which was only 10 stories high, all floors for parking mobile homes. The new



A model of a twin 20 story downtown parking structure is being displayed at the annual Mobile Home Manufacturers Association Show in Louisville, Ky. by its designer, Elmer W. J. Frey (left), president of Marshfield Homes, Inc. Looking on is James Kemps, sales manager of the Marshfield, Wisconsin firm.

current model is improved in that it consists of first floor for shopping centers, the 2nd, 3rd and 4th floor for automobile parking and the 5th thru 20th floors for mobile home parking. Three spaces on top floor of each structure are set aside for swimming pool and recreational area.

**Frey, An Industry Pioneer**

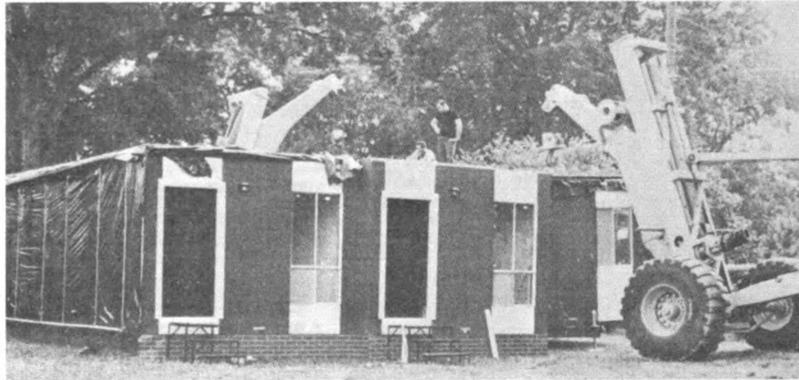
Frey was honored on November 11, 1964 at "The 10th Anniversary of the Breaking of the Width Barrier," banquet celebration with trophies and plaques sufficient to provide the nucleus for a museum for his efforts and accomplishments in pioneering the 10 and 12 wide mobile homes. Frey is also accredited nationally for his campaigning and efforts since 1952 for changing the then used trailer coach phraseology to using the more accurate "better image" phraseology of mobile homes.

Figure 68.--Circular High Rise for Present Day Mobile Homes. (Article courtesy of Marsafield Homes, Inc., and MHMA.)

Figure 69.--Mobile Home High Rise and Mobile Home Town Houses. (Source: "Some New Approaches to Industrialized Housing," Journal of Housing, No. 8, 1967, p. 432.)



ABOVE, proposed use of mobile home type units for low-cost, highrise project in Seaside, California. BELOW, actual use of same type of units in construction of two-story 221(d)(3) townhouses in Vicksburg, Mississippi.



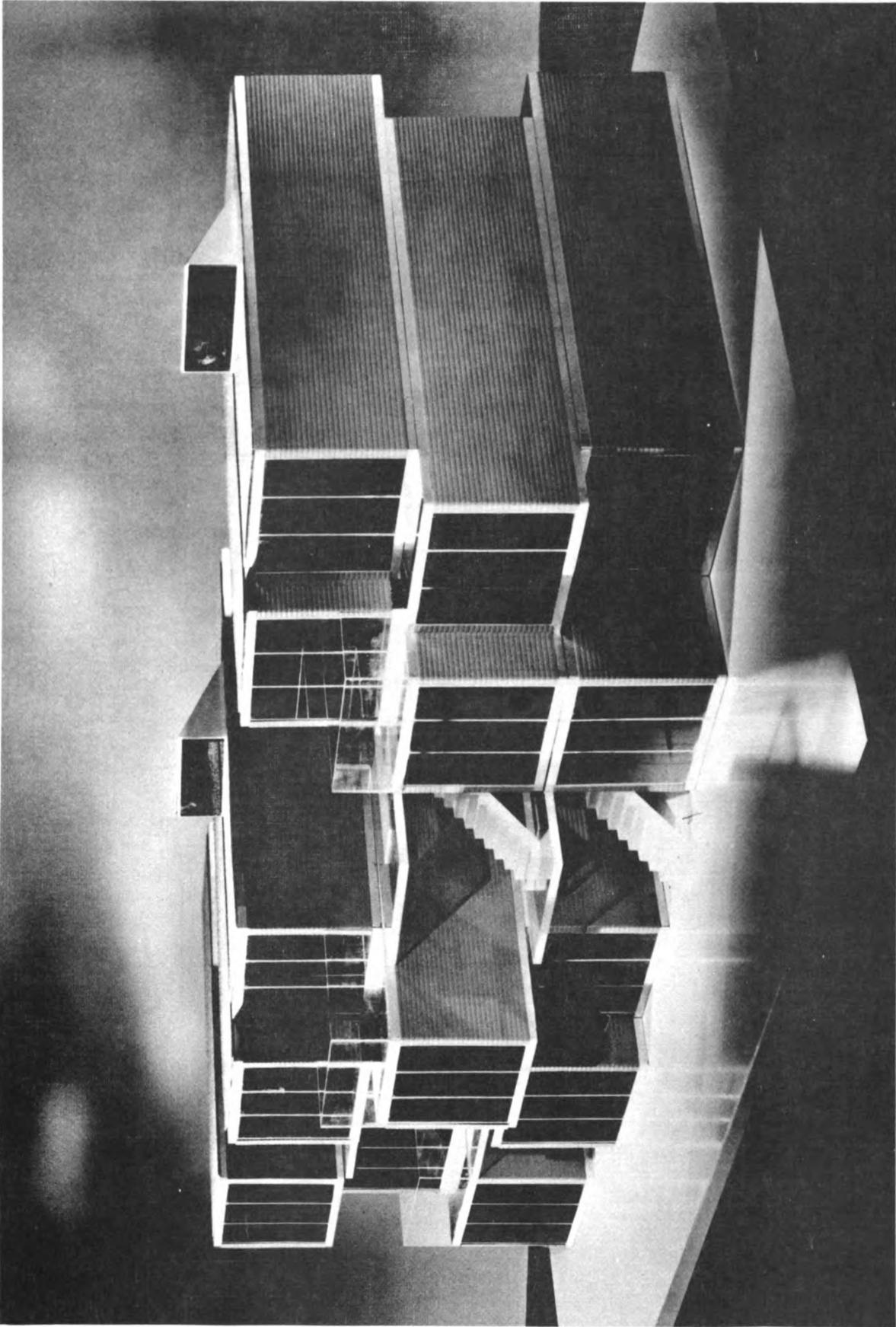
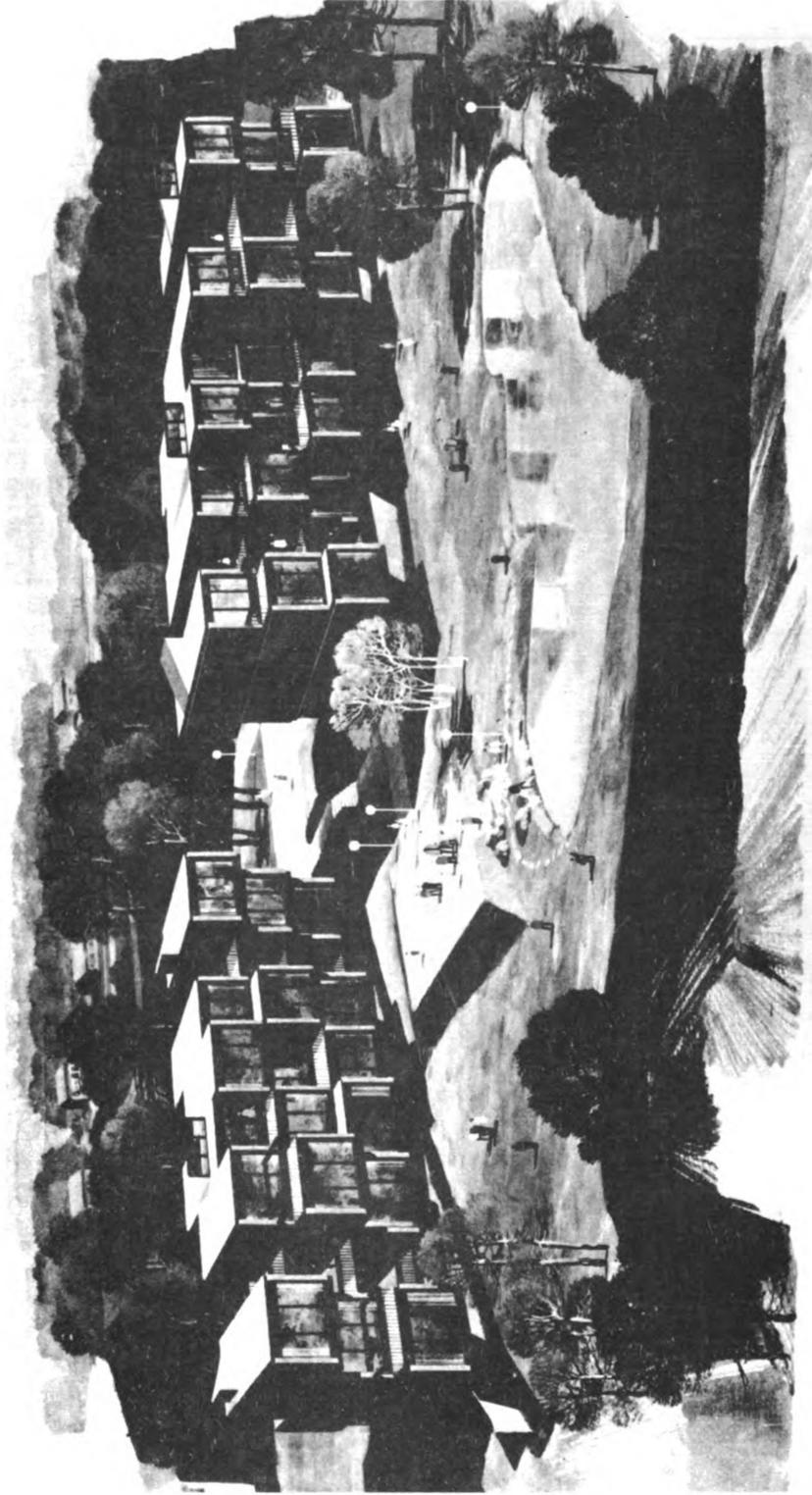
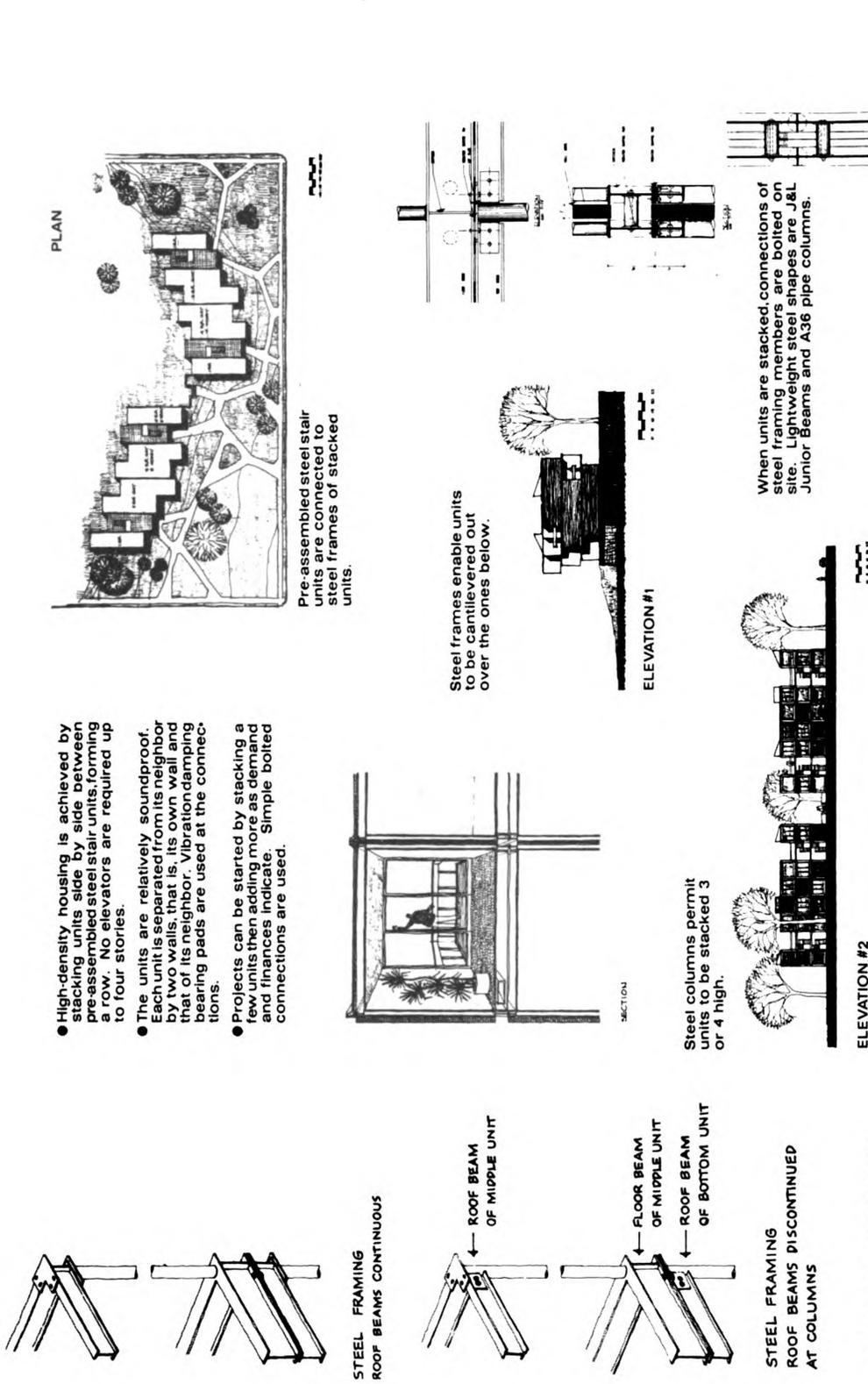


Figure 70.--The Town House--Three Story Stacked Housing. (Source: Same as Figure 67.)



The Town House is easily adaptable to a suburban as well as urban environment.

Figure 71A.--Sketch of Town House Development. (Source: New Concepts in Low Cost Residential Housing, Pittsburgh: Jones & Laughlin Steel Corporation, 1967, p. 9.)



- High-density housing is achieved by stacking units side by side between pre-assembled steel stair units, forming a row. No elevators are required up to four stories.
- The units are relatively soundproof. Each unit is separated from its neighbor by two walls, that is, its own wall and that of its neighbor. Vibration damping bearing pads are used at the connections.
- Projects can be started by stacking a few units then adding more as demand and finances indicate. Simple bolted connections are used.

Pre-assembled steel stair units are connected to steel frames of stacked units.

Steel frames enable units to be cantilevered out over the ones below.

Steel columns permit units to be stacked 3 or 4 high.

When units are stacked, connections of steel framing members are bolted on site. Lightweight steel shapes are J&L Junior Beams and A36 pipe columns.

CORNER CONNECTIONS FOR TOWN HOUSE AND CROSS STACK

Figure 71B.--The Town House--Plan View and Elevation Details. (Source: New Concepts in Low Cost Residential Housing, Pittsburgh: Jones & Laughlin Steel Corporation, 1967, p. 9.)

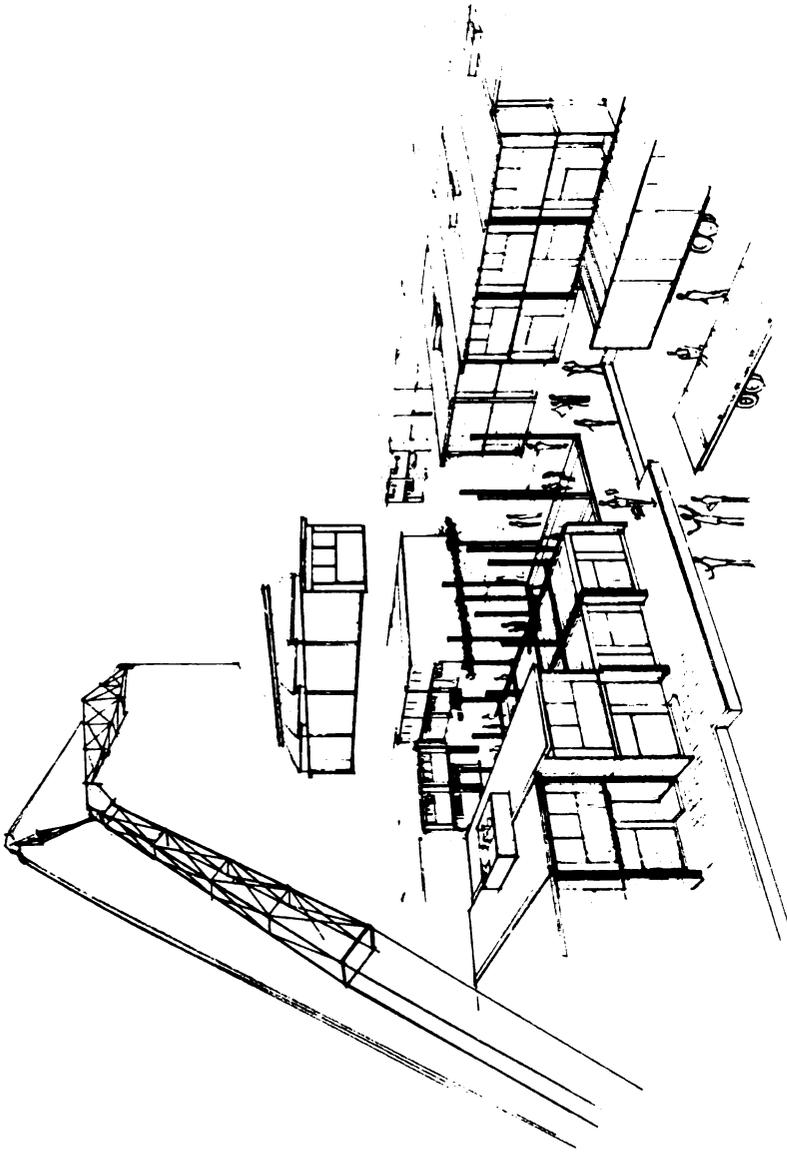
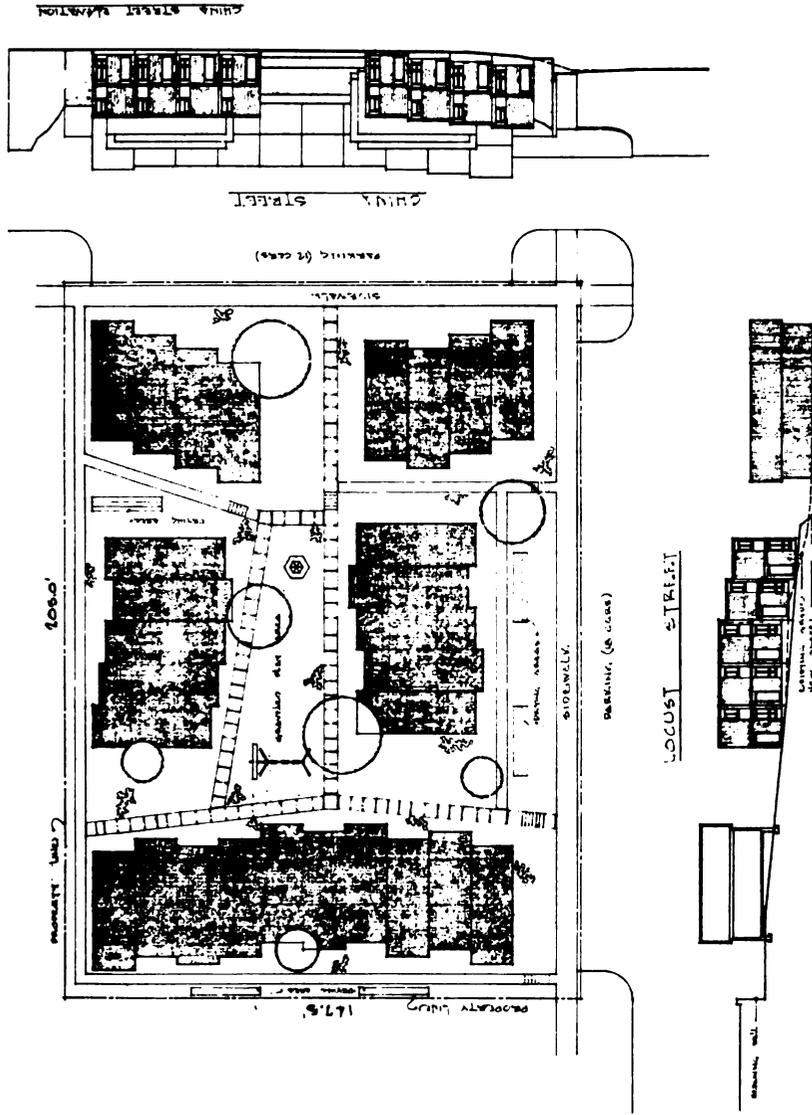


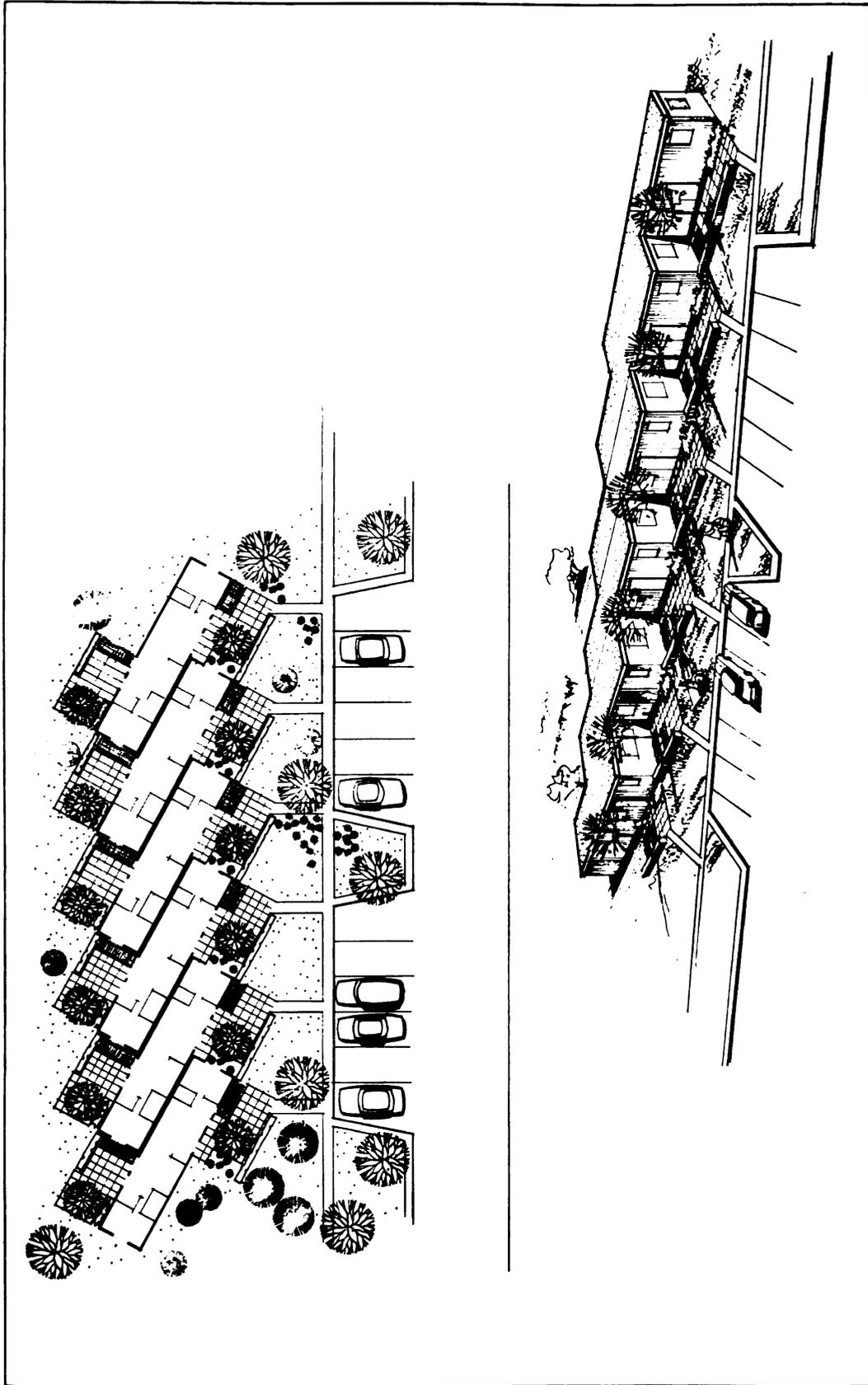
Figure 72.---Construction Techniques for Stacked Housing. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., February, 1967, p. 71.)

MULTI-FAMILY HOUSING DESIGN  
FOR REDMAN INDUSTRIES  
A. S. SWANK, ARCHT. ARCHT. ASSOC.  
JAN 1967 24000-2 DATE: 02 NOV 1968



LONGITUDINAL SECTION TUBO PROPERTY CENTER  
 SITE PLAN STUDIOS FOR MULTI-FAMILY ROW HOUSING  
 MAGNOLIA CORPORATION  
 MOBILEVILLE VILLAGE  
 VICKSBURG, MISSISSIPPI

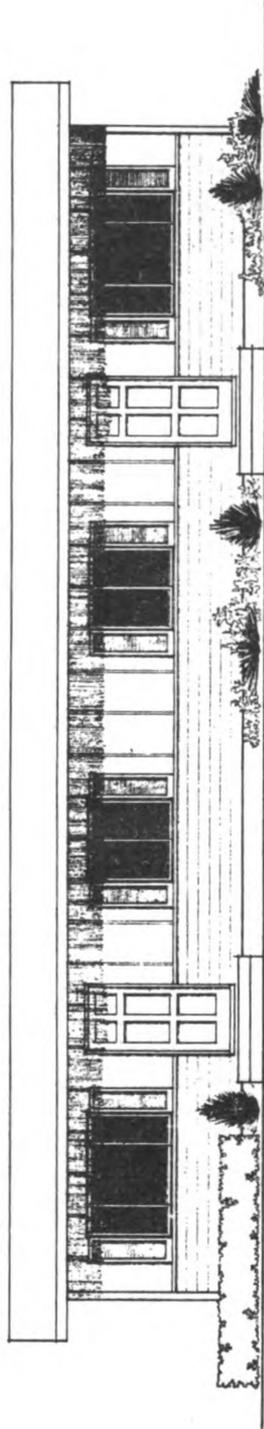
Figure 73.--Site Plan for Urban Renewal Using Stacked Housing Complex. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., February, 1967, p. 63.)



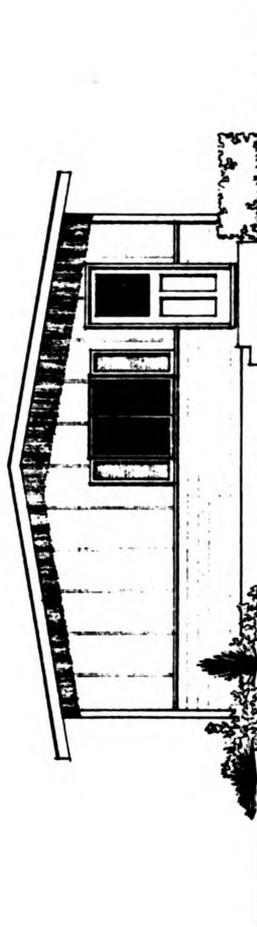
MOBILE HOMES MANUFACTURERS ASSOCIATION LAND DEVELOPMENT DIVISION  
M. GILCHRIST / A. BISHOP  
JANUARY 1967 1" = 40' 0"  
H H 1000 NS

Figure 74.--Mobile Home Row Housing. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., February, 1967, p. 31.)





FRONT



SIDE

DUPLEX RESIDENCES FOR SENIOR CITIZENS  
EXTRACORPORATIONS EQUITIES . . . . .

**MAGNOLIA HOMES CORPORATION** ~~III~~

Figure 75.--Mobile Home Duplex for Senior Citizens. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., February, 1967, p. 62.)

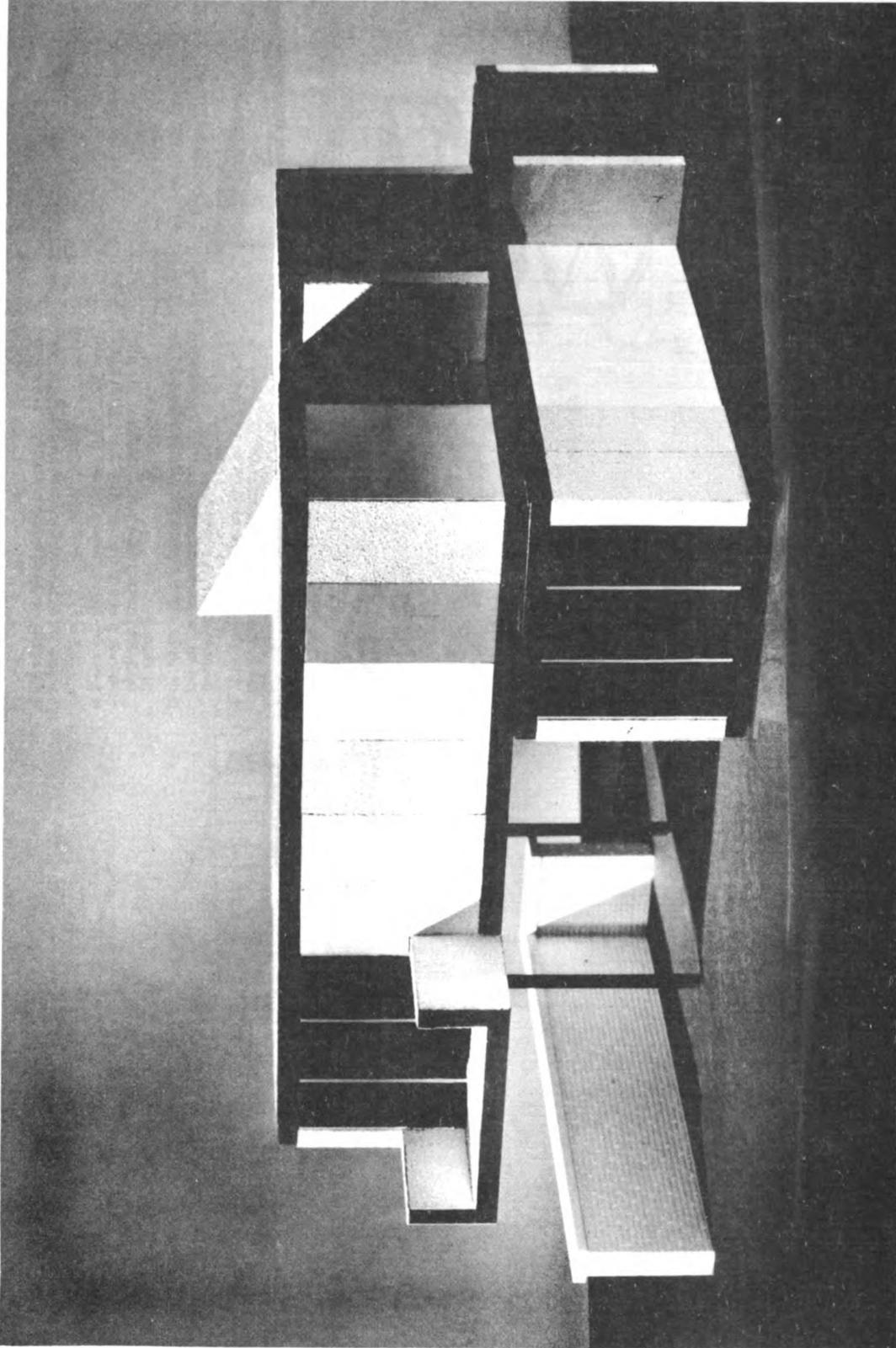
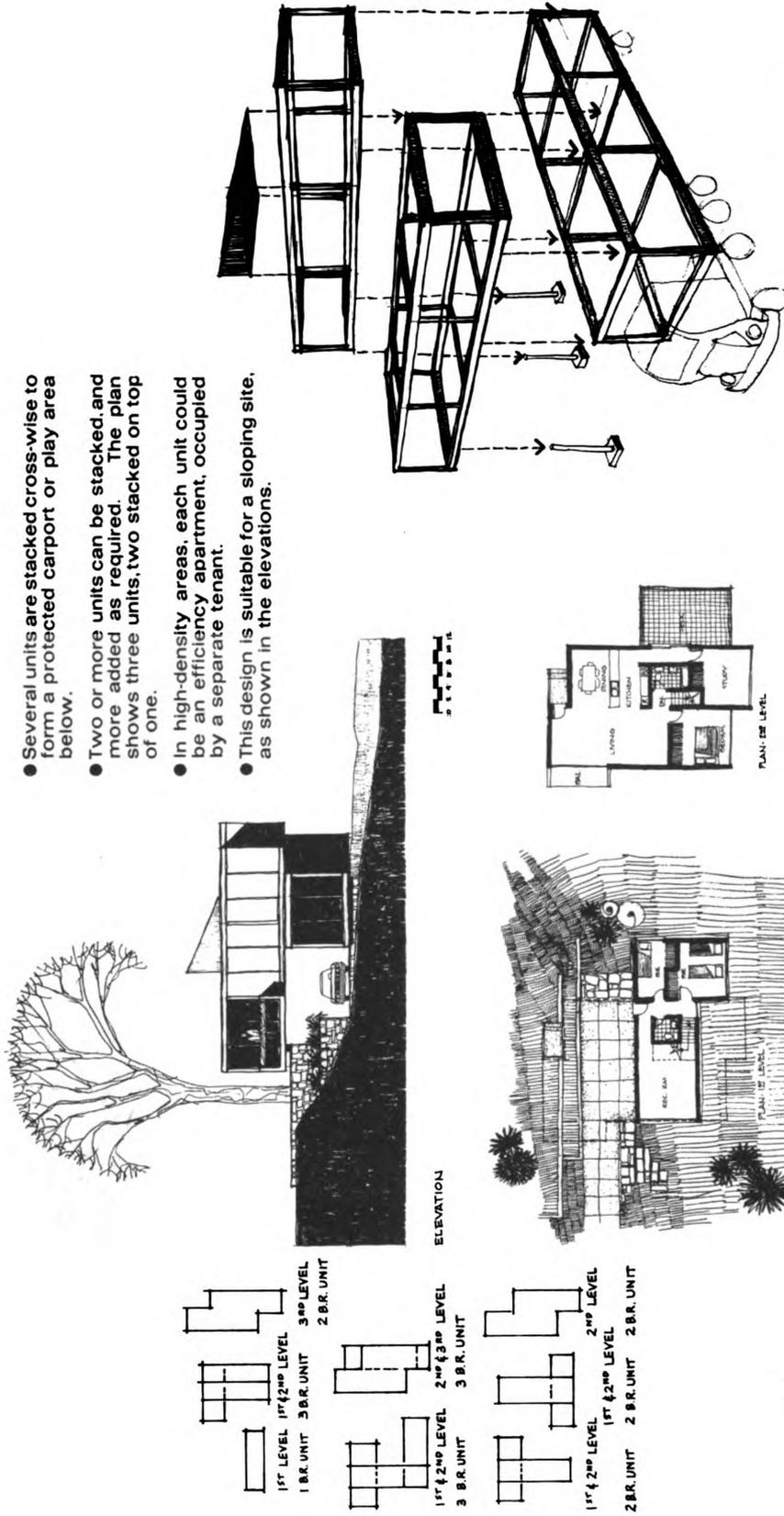


Figure 76.--Cross Stacked Housing. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., February, 1967, p. 10.)



- Several units are stacked cross-wise to form a protected carport or play area below.
- Two or more units can be stacked, and more added as required. The plan shows three units, two stacked on top of one.
- In high-density areas, each unit could be an efficiency apartment, occupied by a separate tenant.
- This design is suitable for a sloping site, as shown in the elevations.

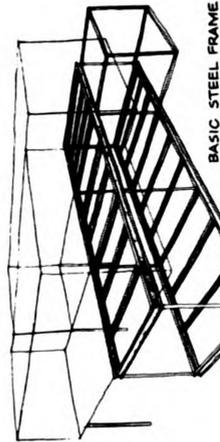
The steel frame of lightweight J&L Junior Beams and A-36 Pipe Columns for each unit permits stacking units on a module as shown. Units can be cantilevered in the other direction without any special framing.

More units can be added as required. Units shown are 12'x36' or 432 sq. ft. each.

Figure 77.--Cross Stacked Housing Plan View and Elevation Details. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., 1967, p. 11.)

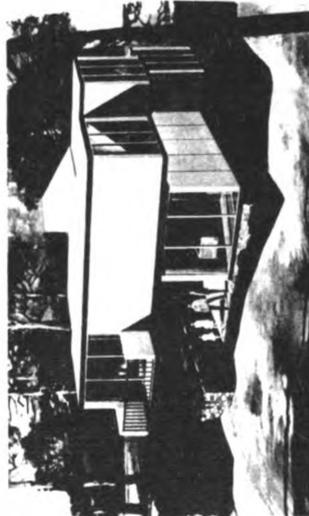
**PLAN**  
Cross-stacking of units creates protected area below, as well as sundeck on second floor. Plan shows 1360 sq. ft. of floor area for one family.

TOTAL UNIT 6 B.R.

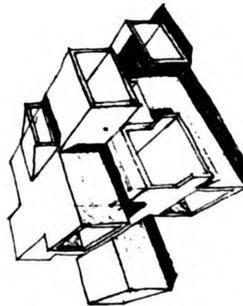


BASIC STEEL FRAME

**CROSS STACK**  
Bottom units require steel columns. Stacked units use a steel frame for rigidity.

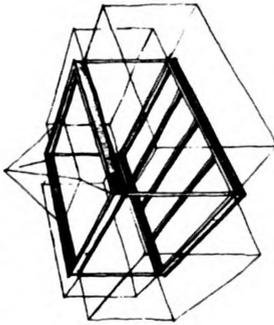


Architects rendering shows split-level and hillside construction possibilities of this concept.



MULTI-LEVEL CROSS STACK MULTI-FAMILY

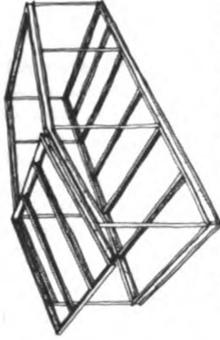
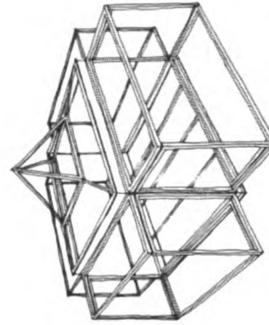
BASIC STEEL FRAME



**FOLD-SIDES**  
Basic frame is steel cage. Foldout wings are framed in steel so that the wings can be cantilevered from the basic frame.



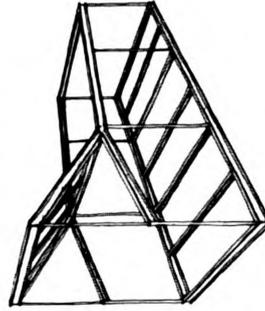
VIEW SHOWING ALL STRUCTURAL MEMBERS  
(WINGS FOLDED OUT.)



STEEL FRAME WITH ROOF IN CLOSED POSITION FOR SHIPMENT



This rendering shows how adaptable the Flip-Top design is to a vacation-home setting.



**FLIP-TOP**  
Movable roof section is supported on steel pipe columns. Outer columns telescope from 8' to 16' high.

STEEL FRAME WITH ROOF IN OPEN POSITION (FINAL POSITION)

Figure 78.--Vacation Homes Using Various Manufactured Housing Units. (Source: New Housing System Concepts. Prepared by MHMA for the Office of Science and Technology, Executive Office of the President, Washington, D. C., 1967, pp. 10, 12 and 14.)

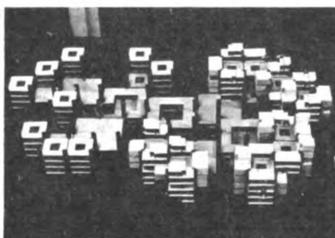
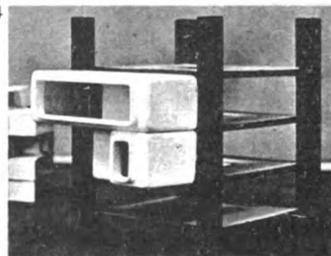
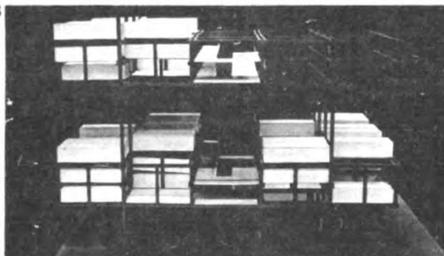
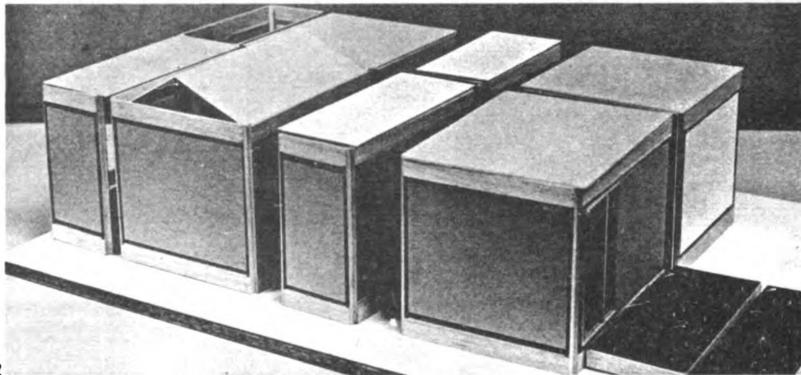
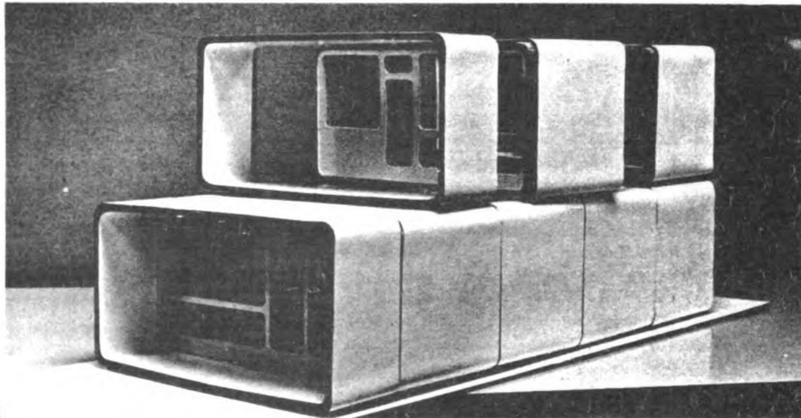
### Students Envision Mobile-Home Living in 2000 A.D.

The architectural profession is beginning to realize that mobile-home design falls within the province of the profession. This year, students at the University of Minnesota were given the problem of studying the industry and designing a project. Rather predictably, however, the preliminary findings were discouraging enough to throw the whole project out into the more imaginative realms explored by Le Corbusier for plug-in disposable housing. The assignment turned out to be to design an armature for a plug-in community in the year 2000, with densities far greater than the average mobile home park.

Given this program, the projects were mostly breathless in their scale and scope, and had little to do with the problems of the industry today. The size of the armatures often baffled the venerable jurors, who had difficulty imagining cities in the sky a full 60 blocks long. However, many of the awesome designs were trying to establish small neighborhoods within the cosmos of a city, and some realized the necessity of preserving as much recreation land as possible.

Unfortunately, the students were so far ahead of the game that it was impossible to judge whether the armatures themselves might be so expensive as to defeat the economy of the prefabricated unit. Although they conceived of transporting units via helicopters, for example, many of the designs were confined to the long trailer look derived from the road days.

It was regrettable that the project could not have been closer to the present-day problems and needs of mobile-home housing and design. As such, it could have been useful to the industry, and the disciplines imposed would have been more realistic. As it was, the projects present some interesting potentials, some interesting pies in the sky.



Student Winden's plug-in disposable unit (1) breaks up into sections and stacks. Cox's version (2) is an assemblage of rectangles; walls lie flat while traveling, floor slab contains utilities. Sandell's armature (3, 7) is broken up into sections with air space between them. Each level has a walkway and can hold three stories of disposable units. Mazzara's plastic containers (4, 5) plug into towers; piers contain utilities. Both LaFrance (6) and Sandell (7) place their towering armatures on thruways overlooking countryside. Myklebust's enormous grid (8) houses 15,000, at 400 persons per acre. Each 60-ft cube holds 10 living units. The structure is 300 ft above grade; the landscape far below is reserved for recreation.

Figure 79.--The Mobile Home and the Manufactured Housing in the Year 2000. (Source: "Stable Homes," Progressive Architecture, May, 1966, p. 192.)

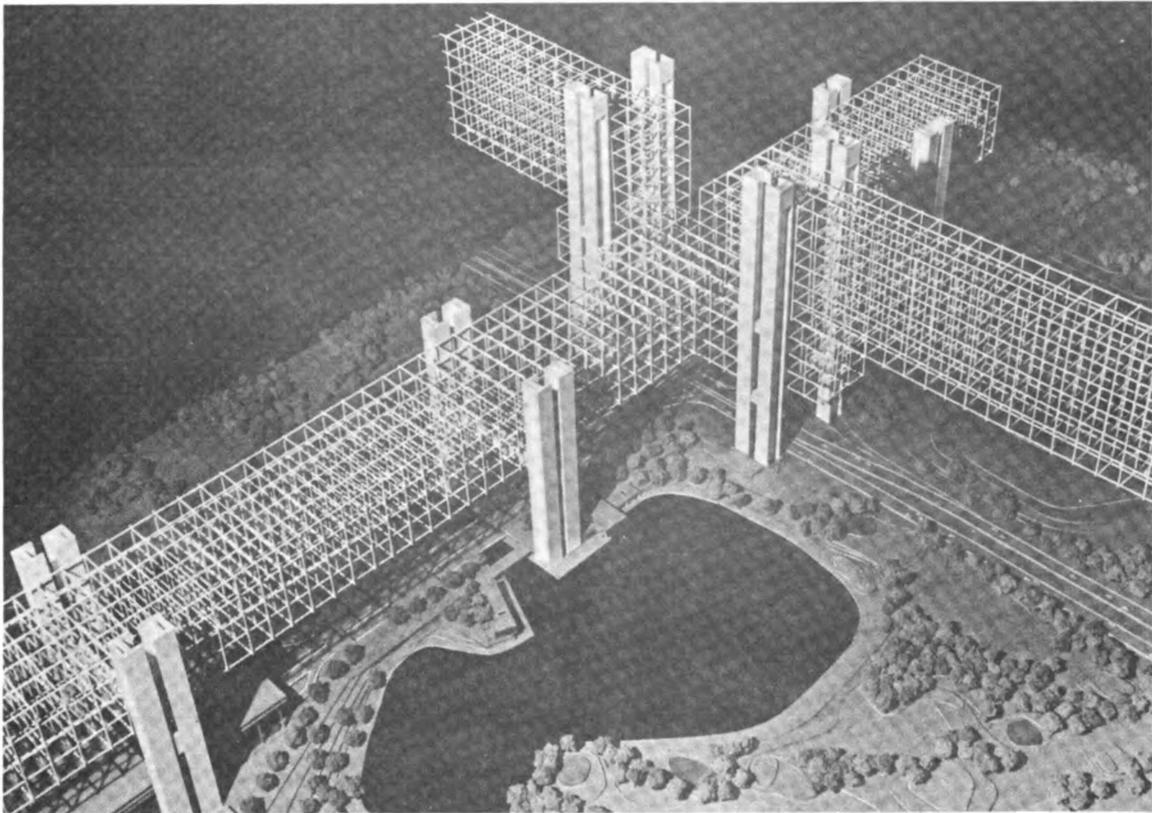
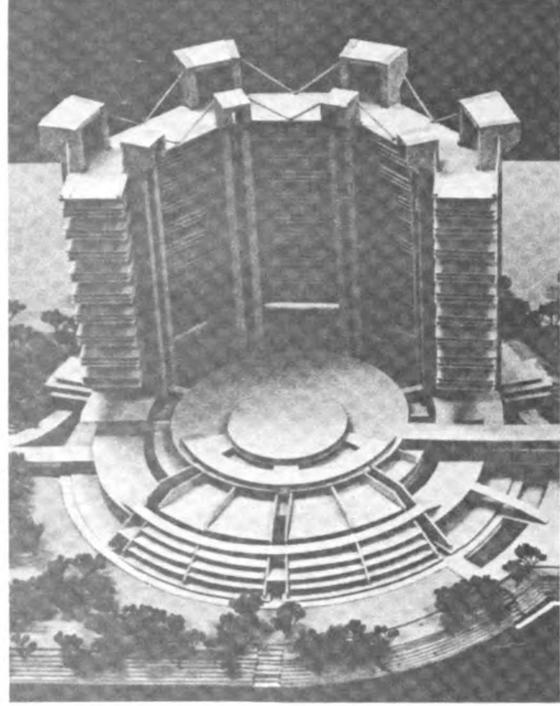
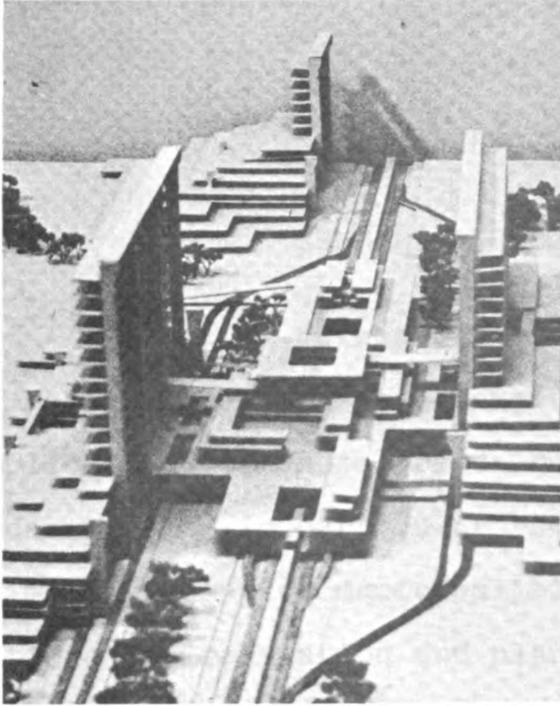


Figure 80.--Super Structures, High Rise and Grids for the  
Manufactured Housing Unit in the Year 2000.  
(Source: "Stable Homes," Progressive Architecture, May, 1966, p. 193.)

## CHAPTER VII

### SUMMARY AND CONCLUSIONS

This study brings together data on the past trends in mobile home land development and discusses the future implications of these trends on the national, state, and local level. In particular the study analyzes the impact of mobile homes on municipalities and provides recommendations for regulation and planning of mobile home land developments (mobile home parks).

A major conclusion of the study is that present mobile home developments are land extensive, transportation oriented housing, located in low density or outlying urban areas. Second, available evidence on population growth, regional land use patterns, and housing cost in the North-Central Region, including Michigan, indicate rapid expansion of mobile home developments. Third, most municipalities have an inadequate regulatory framework for dealing with mobile home developments.

Therefore, a major recommendation of this study is that municipal regulation and planning of mobile home developments be strengthened through the use of improved ordinances and planned unit development or conditional use regulations. Further recommendations deal with the

future potential of mobile home development as quality environments for living. These recommendations involve such concepts as neighborhood management, improved site planning, future ordinances, and new forms of manufactured or systems housing.

### Methodology

Relevant literature on municipal regulation of mobile homes was reviewed. In-depth interviews were conducted with personnel at all levels involved with planning and regulation of mobile home developments. These included: (1) officials at the local and state level with responsibility for the health, safety and planning of mobile home parks (state and county health departments; state, regional and local planning offices; state motor vehicle registration offices; and state and local tax officials); (2) manufacturers of mobile homes and their national representatives at the Mobile Homes Manufacturers Association in Chicago; (3) Michigan Mobile Homes Association in Detroit and Minnesota Mobile Homes Association in St. Paul; (4) mobile home court managers and owners in Minnesota, Illinois and Michigan; (5) mobile home inhabitants in Michigan and the Lansing, Michigan Standard Metropolitan Statistical Area (SMSA). From this research data, three levels of analysis were undertaken: national, state and local.

AnalysisNational

The national housing market has changed appreciably in the last decade. Mobile home shipments have grown steadily while single-family housing starts have declined. Mobile home shipments amounted to more than one out of every four single-family housing starts in 1967 and more than three-fourths of all low cost housing under \$12,500.

The price of single-family housing increased 46% from 1954-1964. In the last three years however, from 1964-1967, the average price increased an additional 41%. The average American can no longer afford to buy a new home. The median income of male workers in the United States as of March 1966 was \$6,500 while the median sales price of single-family homes during second quarter 1966 was \$22,100. In the next two decades the national housing market will require even larger numbers of low cost housing units to fill the demand created by the expected increase in starting households. Demographic projections for the United States show a 47% increase in starting households by 1985.

State

The State of Michigan can also expect a rapid increase in population, both from natural increase and from net migration due to expanding regional economies and the development of a Great Lakes Megalopolis along an axis from Chicago to Detroit and New York. The Urban Detroit Area is

expected to expand along the transportation network which connects the major metropolitan areas in Michigan. A pattern of urban dispersal based on transportation can be already seen extensively in Michigan. This pattern is also characteristic of mobile home land developments. A summary of 1960 census data shows that mobile home parks are located primarily in areas with low population density and rapid population increase. Projections of Michigan population to 1980 show an 80% increase in the 20-29 age groups which will form starting households. These projections indicate a need for low cost housing in Michigan associated with a pattern of urban dispersal based on transportation. This market is ideally suited for rapid expansion of mobile home development.

### Local

The Lansing, Michigan Standard Metropolitan Statistical Area (SMSA), consisting of three counties, Clinton, Eaton and Ingham, was used as a case study area. Mobile home park locations and the number of mobile home spaces were plotted for the three county area. The spatial pattern of mobile home park location primarily involves outlying, low density, urban areas near major highways. The number of mobile home spaces in the region increased 300% since 1955. The number of parks doubled and the average size of parks increased 17%. This increase in mobile home spaces amounts to 26% of the increase in dwelling units for the last four years. The average value of single-family housing in the Greater Lansing Areas increased 41% in 8 years from \$14,497 in 1960 to

\$20,555 in 1967, while the median family income in the Lansing SMSA grew 13% in 7 years from \$6,180 in 1960 to \$7,000 in 1966. Thus the cost of housing increased about 5% per year while the median income increased 1.8% per year. In addition, 61% of the families earn less than \$8,000 per year after taxes. This means they cannot afford to buy a home over \$17,000. The population projections for the Lansing SMSA show that this low cost housing need will increase sharply in the next two decades. The 20-29 age group alone is expected to increase 120% by 1990. These factors of population growth, housing cost, urban dispersal and regional economic expansion have produced high demand for mobile homes in the Lansing SMSA, particularly within the last 5-8 years. These factors will persist and increase in intensity during the next two decades according to available evidence.

### Recommendations

#### Municipal Regulation

To meet this increased demand for low cost housing in the future, it is recommended that municipalities adopt a regulatory structure for mobile home parks in order to protect the health and safety of its citizens and prevent inadequate mobile home development. Municipal ordinances and building codes provide the legal framework for assuring minimum standards of development and maintenance. Model ordinances are presented and discussed.

### Municipal Planning

The planning function of municipal government goes beyond these minimum standards. Planned Unit Development or Conditional Use Permit sections must be written into the mobile home ordinance to allow the municipality, under the aegis of a planning department or a planning commission, to oversee and encourage quality in future mobile home developments through administrative review of site plans and proposed designs. Mobile home land development can then utilize neighborhood planning concepts and community development plans. Suggested design concepts and modular development schemes are presented.

### Future Implications

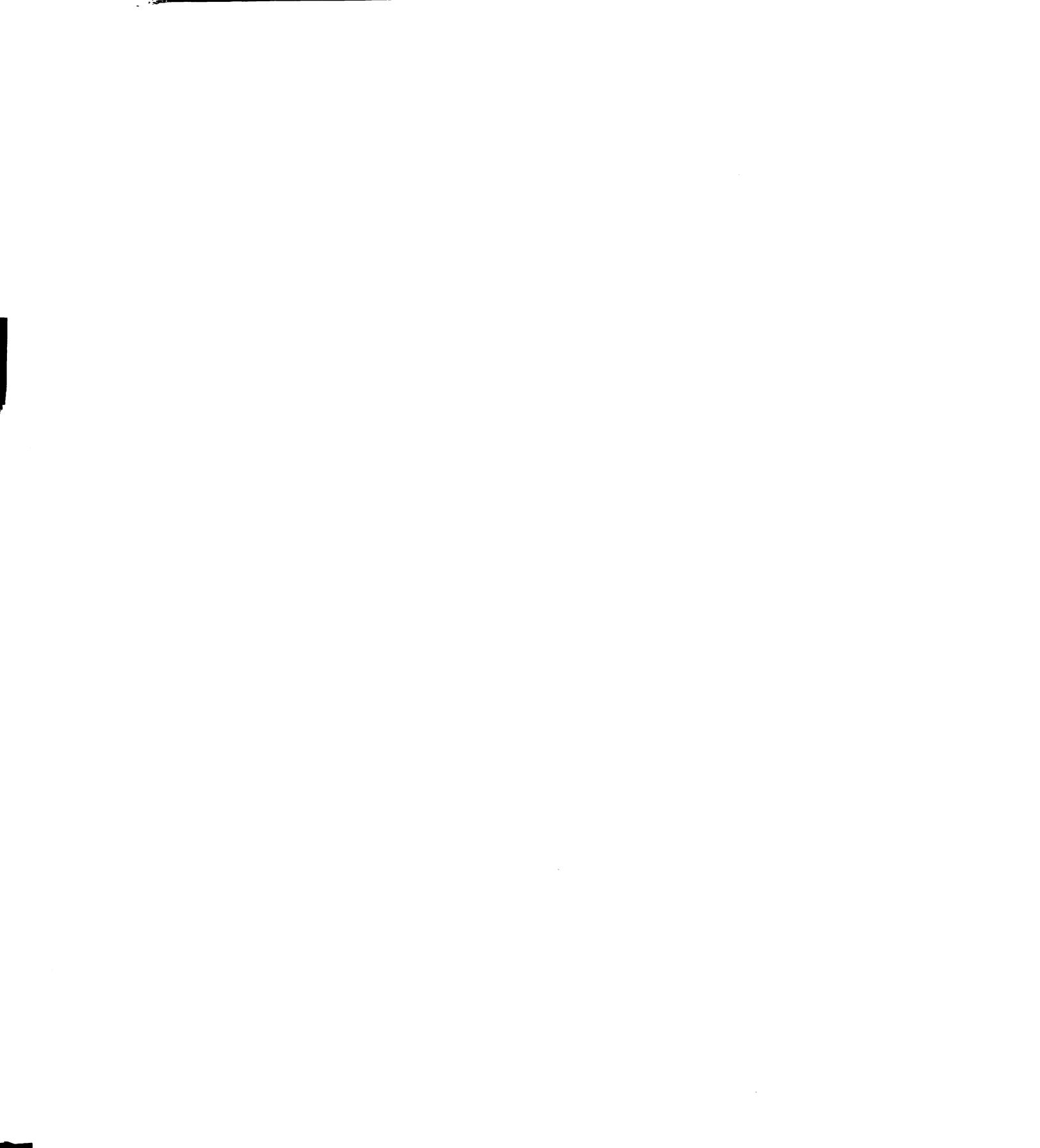
Future developments in the mobile home unit are in experimental and prototype stages. The concepts of manufactured, modular housing in single-family, townhouse or apartment formats are presented in preliminary sketches and photographs. Manufactured or system housing may become a new consumer product in the United States. Municipal government will play an important role in encouraging, shaping or preventing the quality of this future housing product and its environment.

APPENDICES .

APPENDIX I

## INTERVIEWS

- Richard Ahern, Architect and Site Planner, Ann Arbor, Michigan, May 7, 1967.
- Sheldon Beanblossom, Executive Secretary, Minnesota Mobile Homes Association, July 21, 1967.
- Edgerton Bailey, Chief Transportation Planning Section, Michigan State Highway Department, May 20, 1968.
- Herbert Behrend, Land Development Division Staff Engineer, Mobile Homes Manufacturers Association, September 19, 1967.
- Dr. John Borchert, Department of Geography, University of Minnesota, August 16, 1967.
- Daniel Dowsett, Executive Director, Michigan Mobile Home Association, March 3, 1967.
- Vincent Gould, Director, Mobile Home Tax Division, Secretary of State, State of Minnesota, July 21, 1967.
- Leigh Grosenick, Minnesota League of Municipalities, Staff Member, August 6, 1967.
- Robert Gurnam, Director, Meridian Township Planning Department, May 10, 1968.
- Fred Horsington, Staff Planner, Tri-County Regional Planning Commission, Lansing, Michigan, May 17, 1968.
- J. R. Hopkins, Executive Secretary, Builders Exchange of Greater Lansing, May 20, 1968.
- Robert Hunt, Director, Division of Hotels, Resorts and Restaurants, Minnesota Department of Health, July 21, 1967.
- Leslie M. Jones, Director, Finance Division, Mobile Homes Manufacturers Association, September 19, 1967.
- Robert Murray, Chief Weighmaster, Michigan State Highway Department, May 23, 1968.
- Larue Miller, Engineering Division, Michigan Department of Public Health, June 1, 1968.
- William Rowden, Assistant Director, Tri-County Regional Planning Association, May 17, 1968.
- Don Smith, Land Development Division, Mobile Homes Manufacturers Association, September 19, 1967.
- John Vogt, Chief, Division of Engineering, Michigan Department of Public Health, June 7, 1968.



APPENDIX II

ORDINANCES

MERIDIAN CHARTER TOWNSHIP  
INGHAM COUNTY, MICHIGAN

RECOMMENDED MOBILE HOME PARK

SUBDIVISION ORDINANCE

Section 1 Purposes:

It is the purpose of this Mobile Home Park Ordinance to promote the public health, safety, morals, convenience and general welfare; to set forth regulations and standard procedures by which Mobile Home Parks must abide; to govern the design, arrangement, location, grading and construction of Mobile Home Parks; to provide for the installation of curbing, sanitary and storm sewers, water facilities, sidewalks and other appurtenances; to provide for the guarantee of such installations; to provide for penalties for the violation of said regulations.

It is the purpose of this Ordinance to complement any state law applicable to Mobile Parks.

Section 2 Definitions, as used in this Ordinance:

- 2.1 Effective width - measured at right angles from the diagonal having the greatest divergence from perpendicular to the street, through the midpoint of the rear line of the required front yard, to the opposite side lot line or extension thereof.
- 2.2 Health Authority means the State Health Commissioner and his designated agents, being full-time administrative officers of an approved city, county or district board or department of health.
- 2.3 License means a written license issued by the Commissioner of the Michigan Department of Health, allowing a person to operate and maintain a mobile home park under the provisions of this Ordinance and regulations issued hereunder.

- 2.4 Mobile Home means a movable or portable dwelling constructed to be towed on its own chassis, connected to utilities, and designed without a permanent foundation for year-around living as a single family dwelling unit, but not including pick-up campers, travel trailers, converted buses, or tent-trailers.
- 2.5 Mobile Home Lot or Site means a parcel of land for the placement of a single living unit and the exclusive use of its occupants within a licensed mobile home park.
- 2.6 Mobile Home Park means a parcel of land under single ownership which has been planned and improved for the placement of mobile homes as defined in Section 2.4.
- 2.7 Mobile Home Stand means that part of an individual lot which has been reserved for the placement of the mobile home, appurtenant structures or additions.
- 2.8 Permit Health Department means a written permit issued by the Michigan Department of Health, permitting the construction, alteration or extension of a mobile home park under the provisions of Act 243 of 1959 as amended.
- 2.9 Permit: Special Use Permit: means a written permit issued by the Meridian Charter Township Planning Commission, permitting the construction, alteration or extension of a mobile home park.
- 2.10 Person means any individual, firm, trust, partnership, public or private association or corporation.
- 2.11 Service Building means a structure housing laundry facilities or storage facilities and such other facilities as may be required by this Ordinance.

### Section 3 Permits and Licenses

- 3.1 It shall be unlawful for any person to construct, alter or extend any mobile home park within the limits of Meridian Charter Township unless he holds a valid Special Use Permit issued by the Meridian Charter Township Planning

Commission in accordance with the Meridian Charter Township Zoning Ordinance, Ordinance No. 30, Sections 6.1 & 6.3 and with this ordinance.

- 3.2 All Mobile Home Parks must obtain a valid construction permit issued by the Michigan Department of Health in accordance with the provisions of Public Act 243 of 1959 as amended.
- 3.3 No permit for occupying any completed mobile dwelling unit site shall be granted until all basic elements (utilities, parking, access, drives, walkways) and all appurtenances (landscaping, recreation areas, swimming pools, etc.) indicated on the approved plan have been inspected and approved or a performance bond equal to the estimated cost of these items has been posted. Further, no mobile dwelling unit shall occupy any site until at least 50% of the sites are prepared and approved for use.
- 3.4 Licenses  
No person shall maintain, conduct or operate a mobile home park without an annual license from the Michigan Department of Health.
- 3.5 Inspection of Mobile Home Parks
- a. The health authority or Township Building Inspector may make an inspection of all construction at any reasonable time to determine whether the work is being done according to the approved plans and specifications. The park owner shall make available any records, test data or other information essential to the determination.
- b. The zoning administrator shall be charged with enforcing this ordinance and any other applicable regulations as stated in the special use permit.

#### Section 4 Environmental Open Space and Access Requirements

- 4.1 General
- a. Conditions of the soil, ground water level, drainage and topography shall not create hazards to the property or the health or safety of the occupants, as determined by the County Health Department.

- b. Soil and ground cover - exposed ground surfaces in all parts of every mobile home park shall be maintained in a reasonably dustproof condition.
- c. Site Drainage - The ground surface in all parts of every mobile home park shall be graded and equipped to drain all surface water to the satisfaction of the township engineer.

#### 4.2 Use of Park Areas for Non-Residential Purposes

- a. No part of any mobile home park shall be used for non-residential purposes, except such uses that are required for the direct servicing and well being of park residents and for the management and maintenance of the park.
- b. Nothing contained in this section shall be deemed as prohibiting the sale of a mobile home located on a mobile home stand, or home occupations as permitted in section 4.2.2.b. of the Zoning Ordinance.

#### 4.3 Required Separation Between Mobile Homes

No mobile home shall be permitted to occupy any mobile home site if the home is either longer or wider than would permit compliance with the following requirements:

1. The boundaries of every mobile home site shall be clearly and permanently designated according to the dimensions and locations shown on the approved plot plan.
2. There shall be open space of at least twenty-five (25) feet between the sides, ends or side and end of any two (2) mobile homes. In parks incorporating a "cluster" arrangement, the required distance between mobile homes may be reduced to fifteen (15) feet at one end provided that the average distance between homes is not less than 25'.
3. No mobile home shall be located closer than thirty (30) feet to any park vehicular drive or street.

4. No mobile home shall be located closer than fifty (50) feet to any park boundary line abutting other than a public street.
5. No mobile home, occupied or vacant, shall be located closer than forty (40) feet to any public road or in accordance with the set back requirements of the "Master Plan for Major Streets and Highways, Meridian Charter Township, Ingham County, Michigan" for the type of street upon which its fronts or sides, whichever is greater.
6. No motor vehicles shall be parked within the open space required between mobile homes or closer than ten (10) feet to any mobile home, as required in this Section 4.3.a.

#### 4.4 Park Street System

- a. All mobile home parks shall be provided with at least two points of safe and convenient vehicular access from an abutting street. No entrance to a park shall be located closer than 125 feet from the point of intersection of the proposed rights-of-way of any two streets.
- b. Each individual mobile home site shall abutt, face, or have clear, unobstructed access to a drive, road or street, within the park. All streets shall have an approved cross-section and the paved surface shall not be less than 24 feet in width. No park shall provide or have direct access through any recorded single family subdivision.
- c. All streets or drives, shall be provided with a smooth, graded, drained, and paved durable surface commencing from the public street to and throughout the park. All street surfaces shall be maintained free of holes and other hazards.

#### 4.5 Required Parking Areas

- a. Paved, off street parking shall be provided in all mobile home parks for the use of occupants and guests. Parking spaces shall be at the ratio of at least 2 car spaces, not less than ten (10) feet by twenty (20) feet in size for each mobile home site.

- b. No motor vehicle shall be permitted to be parked or stored within any required open space between mobile homes or any drive or street within the park.
- c. Paved parking bays or off-street parking spaces shall be provided within the 30 foot setback areas between the street and mobile home provided that no parking space shall be located closer than 10 feet to any mobile home.
- d. If carports are provided, they shall comply with all setback and open space requirements for mobile homes.
- e. Additional parking, equal to one (1) space for four (4) mobile homes shall be provided for storage of park equipment and any tenant vehicles, boats, trailers, etc., temporarily out of service.

#### 4.6 Walks

- a. All parks shall be provided with safe, convenient, all season pedestrian access of adequate width for intended use, durable and convenient to maintain, between individual mobile homes, the park streets and all community facilities provided for park residents.
- b. Common walks. A common concrete or paved walk system shall be provided and maintained between locations where pedestrian traffic is concentrated. Such common walks shall have a minimum width of four (4) feet.
- c. Individual walks. All mobile homes shall be connected by concrete or paved individual walks, not less than two (2) feet in width, to common walks and parking areas.

#### 4.7 Mobile Home Stands

- a. The area of the home stand shall be improved to provide an adequate foundation for the placement of the mobile home. On the smaller sites (see part b) such foundation shall be a concrete pad not less than 4" thick nor less than ten (10) feet in width and forty (40) feet in length. All other foundations shall be not less than twelve (12) feet in width and sixty (60) in length.

## 4.8 Minimum Site Dimensions

- a. Seventy-five (75) percent of all the mobile home sites shall have a minimum effective lot width of fifty (50) feet and an area of not less than 5,000 square feet. Twenty-five (25) percent of the sites may have a minimum effective width of forty (40) feet but not less than four thousand (4,000) square feet.
- b. Parks so designed as to provide "clusters" utilizing common open space areas for recreations etc., may reduce for those lots abutting on the common space, the area of the individual lots by 15% provided that the common open space must be at least equal to the total area by which abutting lots have been reduced.
- c. The Planning Commission may authorize up to 10% variances of any required site dimensions provided that the average dimensions of all lots is in compliance with the minimum required dimensions required by the ordinance.

## Section 5 Utilities

- 5.1 Water Supply: The water supply serving any mobile home park shall be obtained from a municipal supply if it is available and accessible. If a connection is not available and accessible, the water shall be obtained from a source approved by the health authority and Township Engineer in accordance with the adopted water standards for Meridian Charter Township. A connection from the park system shall be provided for each mobile home site.
- 5.2 Sanitary Sewage Disposal (To be supplied by Township Engineer)
- 5.3 Electrical System: Every park shall contain an electrical system which shall be installed and maintained in accordance with applicable codes and regulations governing such systems.

Whenever possible the electrical distribution system shall be installed underground with electrical meters being placed on a uniform type of post at each mobile home site throughout the park.

- 5.4 T.V. antennas: Every park shall contain a central television antenna with service to each mobile home site. Individual antennas on mobile homes shall be prohibited.
- 5.5 Fuel: Every park shall have a central distribution system servicing every mobile home site with gas and oil for use of the tenants. Individual fuel and gas tanks shall be prohibited.

## Section 6 Miscellaneous Regulations

- 6.1 Refuse
- a. Garbage and rubbish shall be disposed of in a manner approved by the health authority and so as not to create a nuisance or a menace to health.
- b. All refuse and garbage shall be collected at least once weekly. Where suitable collection service is not available from municipal or private agencies, the mobile home park operator shall provide the service. If provided, refuse incinerators shall be constructed in accordance with engineering plans and specifications which shall be reviewed and approved by the Building Department and Fire Department.
- 6.2
- a. Parks shall be maintained free of accumulations of debris which may provide rodent harborage or breeding places for flies, mosquitoes, and other pests.
- b. Construction material storage areas for the park shall be so maintained as to prevent rodent harborage; lumber, pipe and other building material shall be stored within a structure or fenced in storage area.
- c. Storage of any flammable materials under any mobile home shall be prohibited.
- d. The growth of brush, weeds, and grass shall be controlled.

Detailed Provisions, F.H.A. "Minimum Property  
Standards for Mobile Home Courts,"  
with Commentary

If FHIA's "Minimum Property Standards for Mobile Home Courts" is to be used as a source for local standards, either by reference or by detailed restatement, with local adoption, it is strongly urged that the latest version be obtained and studied.

Here is a sampling of some of the more important provisions of the August 1962 revision, with comments concerning adaption. Few localities would want to regulate in such detail, and in most places such detailed regulation would be completely out of balance with scope of regulation for other uses. And if state regulations are modern, well drafted and well enforced, there is rarely any justification for duplicate regulatory coverage at the local level.

**2205 COMMUNITY FACILITIES AND SERVICES**

*Essential community facilities and services for the type of court under construction, such as employment centers, shopping centers, schools, recreation areas, and police and fire protection, shall be reasonably accessible to the court or provisions shall be made assuring these facilities and services.*

**2206 SITE CONDITIONS**

**2206-1** *The court shall not be subject to hazards such as objectionable smoke, noxious odors, unusual noise, the possibility of subsidence, the probability of flood or erosion or the probability of insect or rodent infestation.*

**2206-2** *The condition of soil, ground water level, drainage, rock formations, and topography shall be such as not to create hazards to the property or to the health and safety of the occupants.*

These considerations, which should apply equally to any form of residential development, are not likely to conflict with other laws. In some respects, they might be made more specific.

For example, if the zoning ordinance includes good performance standards in relation to industrial districts, 2206.1 might be made more definite on "hazards such as objectionable smoke, noxious odors and unusual noise" by including language to the effect that no portion of the mobile home park in which units are occupied for residential purposes shall be subjected to noise, vibration, smoke or other particulate matter, odorous matter, toxic or noxious matter, radiation, fire or explosive hazards, humidity, heat or glare at levels greater than those permissible at the outer limits of light industrial districts.

If flood plains have been defined adequately for regulatory purposes, reference to such areas should be substituted for the general language on "probability of flood," and portions of mobile home parks likely to be adversely affected by flooding, or to create adverse effects during flood periods, should be prohibited in such flood plains or required to be designed and constructed in a manner appropriate to the problem.

## **2208 ACCESS TO THE PLOT**

**2208-1** *Character of Access Street. Direct vehicular access to the court shall be provided by means of an abutting approved public street or way or improved and permanently maintained private street or way which is protected by a permanent easement. Sole vehicular access shall not be by an alley.*

**2208-2** *Street Width and Construction. The width and construction of the access streets or ways shall be suitable for the vehicular traffic requirements of the properties served.*

These are both common-sense provisions. It may not be necessary to include either by reference if other portions of the regulations cover access requirements generally.

## **2210 INDIVIDUAL SERVICES AND FACILITIES**

*The following shall be provided for each mobile home space.*

- a. *A continuing supply of safe and palatable water. See 2701, 2702 and 2703.*
- b. *Sanitary facilities and a safe method of sewage disposal. See 2701, 2704 and 2705.*
- c. *Electricity for artificial lighting and to serve electrical equipment used in the mobile home. See 2708.*
- d. *Patio or out of door sitting area to the extent determined by the FHA field office in relation to the ratio of policies or similar improvement supplied with current mobile home models. When not provided by the mobile home, 180 sq. ft. shall be provided for each space. See 2405.*
- e. *Tenant storage to the extent determined by the FHA field office in relation to the amount of storage space provided in current mobile home models. When not provided in the mobile home, at least 90 cubic feet of individual storage space shall be provided. See 2406.*
- f. *Parking space. See 2410.*

## **2211 COMMON SERVICES AND FACILITIES**

*The following shall be provided in appropriate locations:*

- a. *Parking spaces. See 2410.*
- b. *Laundry drying facilities and toilets. See 2413 and 2504.*
- c. *Recreation facilities. See 2414.*
- d. *Management office. See 2415 and 2502.*
- e. *Management storage. See 2415 and 2503.*
- f. *Garbage and trash disposal. See 2706.*

Sections 2210 and 2211 indicate general requirements. More detailed specifications appear in the sections to which reference is made.

At this point, the reason becomes clear for the wording at the end of item 5 of the suggested regulations: "provided throughout that where these provisions require FHA approval or acceptance by FHA is required, mobile home parks not insured by FHA shall obtain written approval or acceptance from appropriate local authori-

ties." If FHA approval is obtained in connection with provisions like 2210d and e, it is probable that local authorities will either have been consulted or will not need to be consulted, and additional approval would be unnecessary. If FHA is not involved, local approval should be required.

#### CHAPTER 4. SITE PLANNING AND IMPROVEMENTS

##### 2401 General

*Site planning should adapt to individual site conditions, type of market to be served, reflect advances in site planning techniques, and be adapted to the trends in design of the mobile home itself. An informal park type of site planning which conforms to terrain, existing trees, shrubs, and rock formations is preferred. Adoption of a stylized pattern should be avoided. See 2401-5.*

**2401-1 Objective.** *Site planning and improvements shall provide for (a) facilities and amenities appropriate to the needs of the occupants, (b) safe, comfortable and sanitary use by the occupants under all weather conditions, and (c) practical and efficient operation and maintenance of all facilities at reasonable costs.*

**2401-2 Arrangement of Structures and Facilities.** *The site, including mobile home stands, patios, structures, and all site improvements shall be harmoniously and efficiently organized in relation to topography, the shape of the plot, and the shape, size, and position of structures and common facilities and with full regard to use, appearance and livability. Special attention should be given to new mobile home designs and the common appurtenances that are available.*

**2401-3 Adaptation to Site Assets.** *The mobile home unit shall be fitted to the terrain with a minimum disturbance of the land. Existing trees, rock formations, and other natural site features shall be preserved to the extent practical. Favorable views or outlooks should be emphasized by the plan.*

**2401-4 Protection from Adverse Influences.** *Adequate protection shall be provided against any undesirable off-site views or any adverse influence from adjoining streets and areas.*

**2401-5 Type of Site Plan.** *Court facilities shall be arranged to*

*create a home-like atmosphere. This objective is achieved by variations in the street pattern, block shapes, and location of mobile home stands. Excessive repetition of the principal elements of the plan is not acceptable.*

**2401-6 Suitability of Site Improvements.** *All site improvements shall be appropriate to the type of development and durable under the use and maintenance contemplated.*

**2401-7 Standard Details and Specifications.** *See data sheets in Neighborhood Standards, Land Planning Bulletin No. 3 for standard details and specifications for pavement edging, pavements and other site improvements.*

At 2401-7, there is possibility of conflict with other local regulations. If local requirements are not in line with Land Planning Bulletin No. 3, an appropriate change should be made in the wording of item 5 of the supplementary zoning regulations suggested, along these general lines: "... chapter 4 (provided however that in section 2401-7 thereof, standards contained in (identify local code) shall be substituted for standard details and specifications contained in Neighborhood Standards, Land Planning Bulletin No. 3), . . ."

##### 2402 Density

*The density of a court will be governed by application of the standards for yards and distances between stands and structures. (See 2404 and Figure 2404-6) Density will vary considerably in accommodating different sizes of mobile home units used in the locality and in the type of layout proposed.*

There seems to be no reason for concern as to the absence of direct density limitations here. If spacing and yards are adequate and suitable sewerage, water supply, access and interior streets, off-street parking, recreational space and community facilities are required, a type of direct performance standards have been applied which make crude density limits unnecessary in the achievement of the objectives of public controls. Within the limitations of the language of 2402 and other requirements of the FHA standards and generally-applicable state and local regulations, it is most unlikely that density exceeding 10-12 units per gross acre in the park could be achieved.

##### 2403 MOBILE HOME STAND

**2403-1 Objective.** *The objective of the stand requirements is to provide for (a) practical placement on and removal from*

the lot of both the mobile home and its appurtenant structures, and (b) retention of the home on the lot in a stable condition and in satisfactory relationship to its surroundings.

**2403-2 Size.** *Acceptable to FHA Field Office on the following basis:*

1. Suitable for the general market to be served by the individual proposal.
2. To fit dimensions of mobile homes anticipated.
3. Mobile home appurtenant structures or appendages.

Earlier versions of FHA's "Minimum Property Standards for Mobile Home Courts" specified sizes for the stands. In view of the rapid evolution of the mobile home (increase in proportion of units 12 ft. in width, expandables, double-wides, etc.) and the growing use of "appurtenant structures and appendages" including prefabricated "Florida rooms," car ports, and storage structures, it is probably wise to leave this regulation in flexible form.

**2403-3 Location.** *The location of each mobile home stand shall be at such elevation, distance, and angle in relation to the access street and the mobile home accessway (2408) that placement and removal of the mobile home is practical.*

**2403-4 Gradient.** *0%–5% longitudinal and adequate crown or cross-gradient for surface drainage.*

**2403-5 Construction.** *Appropriate material, properly graded, placed and compacted, so as to be durable and adequate, for the support of the maximum anticipated loads during all seasons.*

**2403-6 Special Facilities.** *Special mobile home stand facilities shall be provided as necessary to properly serve newer units. Also special situations may require special facilities such as hurricane anchors in some locations.*

Here FHA requirements permit adjustment of regulations to continuing evolution of the mobile home. As phrased, this is a step in the right direction, but it would be much better to indicate in local regulations what special facilities are to be supplied, if any, and to what standards they should be constructed.

**2404 YARDS AND DISTANCES BETWEEN STANDS AND STRUCTURES**

**2401-1 Objectives.** *The objectives of yard requirements are (a) to obtain sufficient distances between the mobile home stand*

*on its lot and obstructions on adjoining land to assure privacy, adequate natural light and air, and convenient access to the unit, and (b) to provide for circulation around the unit for such uses of the yard spaces as are considered essential to the mobile home.*

**2404-2 Determination of Yards.** *Yard width shall be measured from the required mobile home stand to the individual mobile home lot line. At every point it shall be at least equal to the required minimum. Expandable rooms, enclosed patios, garages or structural additions shall be included in the mobile home stand area. Patios, carports and individual storage facilities shall be disregarded in determining yard widths.*

A note of caution concerning 2404-2. It may be in conflict with yard definitions elsewhere in the zoning ordinance, in that it permits carports and storage facilities in required yards. If there is a conflict, perhaps it can be eliminated by adding to the general definition of yard the words "provided however that in the case of mobile homes in mobile home parks, yard requirements shall be as indicated in the regulations for mobile home parks."

**2404-3 Distance Across Streets.** *The distance from the line or corner of any mobile home stand to any stand on the opposite side of a street shall be 36 feet minimum.*

**2404-4 Yards Abutting Common Areas.** *The distance from the line or corner of the mobile home stand to a street pavement, a common parking area, a common walk or other common area shall be 8 feet minimum.*

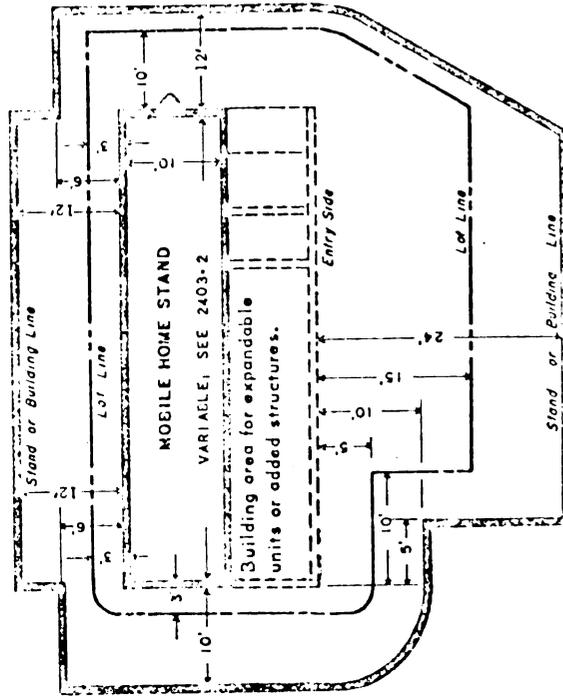
**2404-5 Distance to Court Boundaries.** *The distance from the line or corner of any mobile home stand to a boundary line of the mobile home court shall be adequate to protect the residential use in the court and in any case shall be not less than the following:*

- a. *Adjoining land use (existing or permitted) is other residential use or is a minor or collector street . . . 15' minimum.*
- b. *Adjoining land use is an arterial street or a non-residential use . . . special protection acceptable to FHA Field*

Office shall be provided by walls, solid or louvered fencing, or open fencing with appropriate planting, at a minimum distance of 15' from the mobile home stand.

**24046 Other Yards and Distances.** Comply with Figure 2404-6 which shows the requirements for (a) other minimum yard dimensions from any mobile home stand to its lot lines and (b) other minimum distances from any mobile home stand to any other mobile home stand or to any building other than a structure used solely by the individual mobile home tenant.

**FIGURE 2404-6. REQUIRED MINIMUM DISTANCES FROM A MOBILE HOME STAND TO ITS LOT LINES AND TO OTHER STANDS AND BUILDINGS.**



(In connection with the diagram, an apparent drafting error should be noted. This will undoubtedly be corrected in future revisions of the FHA document, but may require correction earlier for administrative purposes thus: In detailing sections and chapters of "Minimum Property Standards for Mobile Home Courts" for inclu-

sion by reference, in connection with chapter 4, indicate "provided however that with respect to the dimensions indicated in Figure 2404-6, the distance from the hitch end of the unit to an adjacent stand or building line opposite such end shall be 12 ft., and the distance to the lot line opposite such end shall be 10 ft." In the illustration, the figures seem to have been transposed.)

It would be well to check carefully to see whether state regulations which over-ride local controls require greater minimum distances than indicated here. If so, there is little point in using lesser distances in the local regulations, even though they serve their purpose adequately.

**24047 LOT MARKERS.**

**24047.1** The limits of each mobile home lot shall be clearly marked on the ground by permanent flush stakes, markers or other suitable means.

**24047.2** Location of lot limits on the ground shall be approximately the same as shown on the accepted plans. The degree of accuracy obtainable by working with a scale on the plan and then a tape on the ground is acceptable. Precise engineering of lot limits is not required either on the plans or on the ground.

**2405 PATIO**

**2405-1 Objective.** The objective of the patio requirements is to provide an appropriate outdoor living space to supplement the limited interior space of a mobile home. Patio may be omitted when its equivalent is provided by mobile home models.

**2405-2 Size.** Minimum 180 square feet.

**2405-3 Location.** Patio location shall be: (a) convenient to the entrance of the mobile home, (b) appropriately related to open areas of the lot and other facilities, (c) fitted to terrain and natural features and (d) related to anticipated mobile home models.

As a practical matter, the combination of minimum distances indicated in Figure 2404-6 and the characteristics of new mobile homes makes it likely that the foresighted park developer will provide space in excess of the 180 sq. ft. indicated for patios in order to accommo-

date expandable units or additions or to provide patios. In areas where developers do not appear inclined to be foresighted, it may be desirable to make the patio mandatory, and perhaps to increase its size. This could be done by eliminating the last sentence of 2405-1 and increasing the square footage indicated in 2405-2 by the appropriate "provided however" language in the reference in the supplementary regulations section of the zoning ordinance.

#### 2406 TENANT STORAGE

**2406-1 Objective.** *The objectives of the requirements for tenant storage are to provide adequate storage facilities on or conveniently near each mobile home lot (1) for the active storage of outdoor equipment, furniture and tools, (2) for the inactive storage of such other material as is used only seasonally or infrequently by the typical tenant and cannot be conveniently stored in the typical mobile home.*

**2406-2 Size.** *Minimum 90 cubic feet for general storage for each mobile home lot, when required.*

**2406-3 Design and Location of Storage Facilities.** *Unless provided in current mobile home models, storage facilities shall be provided on the lot, or in compounds located within a reasonable distance, generally not more than 100' from each stand. Storage facilities shall be designed in a manner that will enhance the appearance of the court and shall be constructed of suitable weather resistant materials appropriate under the use and maintenance contemplated. Comply with Par: 2601, 2602, 2604 and 2607.*

**2406-4 Fuel Oil Storage.** *In areas where oil heating of a mobile home is customary a 50 gallon fuel storage facility shall be provided in each mobile home lot in an inconspicuous location or manner.*

#### 2407 STREETS

**2407-1 General.** *Streets shall be provided on the site where necessary to furnish principal traffic-ways for convenient access to the mobile home stands and other important facilities on the property. Streets shall be privately owned.*

The requirement that streets shall be privately owned may require adjustment of other regulations in jurisdictions generally prohibiting

private streets. Aside from eliminating the requirement for public maintenance, private streets in mobile home parks offer other advantages. They make it possible to prevent through traffic in the park. And they reduce the complications which might otherwise arise if the land is converted to another use. Streets laid out to serve the needs of a mobile home park probably would not be in a pattern properly suited for other uses. If they were constructed and dedicated as public streets, it is likely that they would remain after the park disappeared. As private streets, they can go when the park goes without the necessity for proceedings to vacate and redevelop.

**2407-2 Recognition of Existing Facilities.** *The street system shall be designed (a) to recognize existing pavements, utility lines, etc., which are to be preserved, and (b) to permit connection to existing facilities where necessary for the proper functioning of the drainage and utility systems.*

**2407-3 Block Size and Shape.** *The street system shall be designed with blocks of proper size and shape to provide desirable mobile-home lots and to reduce excessive length of street construction without impairing convenient circulation and access.*

**2407-4 Circulation.** *The street system shall provide convenient circulation by means of minor streets and properly located collector streets. Closed ends of dead-end streets shall be provided with adequate paved vehicular turning or backing space. A turning circle shall be at least 80 feet diameter.*

**2407-5 Pavement Widths.** *Pavements shall be of adequate widths to accommodate the contemplated parking and traffic load in accordance with the type of street with 10 feet minimum moving lanes for collector streets, 9 feet minimum moving lanes for minor streets, 7 feet minimum lane for parallel guest parking and 2 feet additional width for pedestrian use where adjacent sidewalk is not provided.*

**a.** *All entrance streets and other collector streets with guest parking both sides . . . 36' minimum.\**

- b. *Collector street with no parking . . . 22' minimum\**
- c. *Minor or cul-de-sac street with no parking . . . 20' minimum\**
- d. *One-way minor street with no parking (acceptable only if less than 500' total length and serving less than 25 mobile home stands) . . . 11' minimum\**

**2407-6** *Alignment and Gradient.* Streets shall be adapted to the topography and shall have suitable alignment and gradient for safety of traffic satisfactory surface and ground water drainage, and proper functioning of sanitary and storm sewer systems.

**2407-7** *Intersections.* Street intersections shall generally be at right angles. Off-sets at intersections and intersections of more than two streets at one point shall be avoided.

**2407-8** *Extent of Improvements.* The street improvements shall extend continuously from the existing improved street systems to provide suitable access to the mobile home stands and other important facilities on the property, to provide adequate connections to existing or future streets at the boundaries of the property and to provide convenient circulation for vehicles.

**2407-9** *Grading.* Graded for their full width to provide suitable finish grades for pavement and any sidewalks with adequate surface drainage and convenient access to the mobile home stands and other important facilities on the property.

It should be noted that since the streets are private, they would not normally come under subdivision or other regulations relating to specifications for construction of public streets. If reference to 2407-8 is used, it should be made clear that the intent is not to encourage through traffic in the park. If desired, local standards can be substituted for section 2407-9, but this should be done specifically, and not left dangling in mid-air on the assumption that standards for construction of public streets apply automatically to private streets. If local standards are substituted, they should be indicated

\* Reduce by 2' if adjacent sidewalk is provided.

under the same section numbers and subject heads, or else numerous cross-references elsewhere will need to be changed.

**2405 ACCESSWAY TO MOBILE HOME STAND**

**2405-1** *Objective.* Convenient access shall be provided to each mobile home stand by means of an accessway reserved for maneuvering mobile home into position and kept free from trees and other immovable obstructions.

**2405-2** *Width.* Minimum width of accessway shall be 12 feet, plus extra width as necessary for maneuvering a mobile home on a curve, and as required by newer mobile home models.

**2405-3** *Alignment and Gradient.* Accessway shall have safe alignment and gradients adequate to prevent contact of the undercarriage of the mobile home.

**2405-4** *Surface.* Placement of the reserved accessway is not required; use of planks, steel mats, or other means during placement of a mobile home is considered satisfactory for the infrequent moves occurring with non-transient occupancy.

**2409 DRIVEWAYS**

**2409-1** *Extent.* Driveways shall be provided on the site where necessary for convenient access to service entrances of buildings, to delivery and collection points for coal, refuse and other material, and elsewhere as needed.

**2409-2** *Recognition of Existing Facilities.* Comply with 2407-2.

**2409-3 Width**

**2409-3.1** *Driveway serving a single facility or single mobile home lot:*

- a. *Full-width driveway; minimum 8 feet; where used as walk, minimum 10 feet.*

**2409-3.2** *Other driveway or street: comply with 2407-5.*

**2409-4** *Entrance.* Flare or radii adequate for safe and convenient ingress and egress.

**2409-5** *Horizontal Alignment.* Safe and convenient to back car out, or provide adequate turn around.

**2410 PARKING SPACES**

**2410-1** *Number.* Car parking spaces shall be provided in sufficient number to meet the needs of the occupants of the property and their guests without interference with normal move-

ment of traffic. Such facilities shall be provided at the rate of at least one car space for each mobile home lot plus an additional car space for each 4 lots to provide for guest parking, for 2-car tenants and for delivery and service vehicles.

**2410-2 Location.** Required car parking spaces shall be located for convenient access to the mobile home stands. Insofar as practicable one car space shall be located on each lot and the remainder located in adjacent parking bays.

On number and location of parking spaces, FHA specifications have been found generally satisfactory, but in unusual cases it may be desirable to raise or lower them after careful study of the local situation. Some areas may have more families than normal with two cars, others extraordinary proportions of families with no cars.

**2410-3 Size of Individual On-Lot Space.**

**2410-3.1 Width:** 9 feet.

**2410-3.2 Length:** 20 feet minimum.

**2410-4 Size of Off-street Parking Bays.**

Parking Angle	Curb Length Per Car	Minimum Bay Depth*	Minimum Backing Depth*
2410-4.1 90°	9'	18'	26'
2410-4.2 60°	12.5'	17'	20'
2410-4.3 45°	12.7'	16'	19'

**2411 WALKS**

**2411-1 Objective.** Safe, convenient, all-season pedestrian access; of adequate width for intended use; durable and convenient to maintain.

**2411-2 Extent.**

**2411-2.1 Individual walks:** to each mobile home stand from a paved street or from a paved driveway or parking space connecting to a paved street.

**2411-2.2 Common walks:** in locations where pedestrian traffic is concentrated; for example, at the court entrance, and to the court office and other important facilities. Common walks should preferably be through interior areas removed from the vicinity of streets.

\*Perpendicular to curb line.

**2411-3 Width, Alignment and Gradient.**

**2411-3.1 Width, alignment and gradient of walks shall be appropriate for safety, convenience and appearance, and shall be suitable for use both by pedestrians and for the circulation of small-wheeled vehicles such as baby carriages and service carts.**

**2411-3.2 Width shall generally be at least 1½ feet for walks on individual lots and at least 3 feet for common walks.**

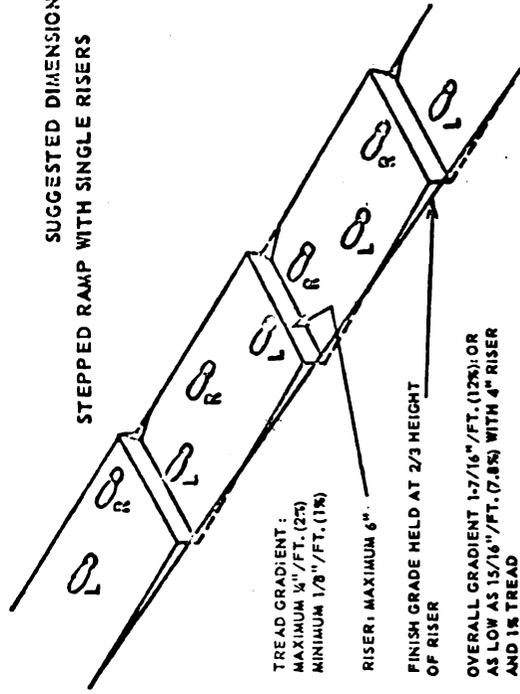
**2411-3.3 Sudden changes in alignment and gradient shall be avoided.**

**2413 LAUNDRY FACILITIES**

**2413-1 Objective.** Laundry facilities acceptable to the FHA field office shall be provided either individually in each mobile home and its space, in a centralized common facility, in decentralized common facilities, or in a combination of these to suit local preferences and the availability of washers and dryers supplied in current mobile home models.

**2413-1.1 Where required, individual facilities, appropriate for local**

**SUGGESTED DIMENSIONS FOR STEPPED RAMP WITH SINGLE RISERS**



use as to type, design, and construction are acceptable as follows:

- a. Umbrella type lines in permanent sockets.
  - b. Retractable drying lines.
  - c. Other comparable unobtrusive facility.
- 2413-2 **Location.** Where centralized provisions of washers, dryers, or common drying yards are required they shall be located convenient to the mobile home spaces.

2413-3 **Drying Yard Size.** Outdoor drying yard shall be adequate for the number of living units served, usually approximately 2500 square feet per 100 living units with rotated use.

Some state regulations contain provisions regarding laundry facilities, including both quantity and type to be supplied. Where state regulations take precedence over local, and are at variance with requirements indicated here, the ordinance provisions should be adjusted accordingly.

2414 **RECREATION FACILITIES**

2414-1 **Extent.** Recreation areas and facilities, such as play-

grounds, swimming pools, and community buildings shall be provided to meet the anticipated needs of the clientele the court is designed to serve. Provision of separate adult and child recreation areas is encouraged.

2414-2 **Location.** Generally convenient to the project community center. Adjacent location is preferable for efficient construction, use and maintenance of all facilities.

2414-3 **Recreation Area.**

2414-3.1 **Size of Recreation Area.** Not less than 8% of the gross site area shall be devoted to recreational facilities, generally provided in a central location or, in the larger courts, decentralized. Recreation area includes space for community buildings and community use facilities, such as guest parking, adult recreation and child play areas, swimming pools, utilities and drying yards.

2414-3.2 **Design:** appropriate for intended use and location.

2414-4 **Equipment.**

2414-4.1 **Design:** appropriate for intended use and location.

2414-4.2 **Construction:** durable to withstand weather and use; firmly fixed in place where possible.

2414-5 **Other Requirements For Recreation Facilities.**  
See chapters 5, 6 and 7.

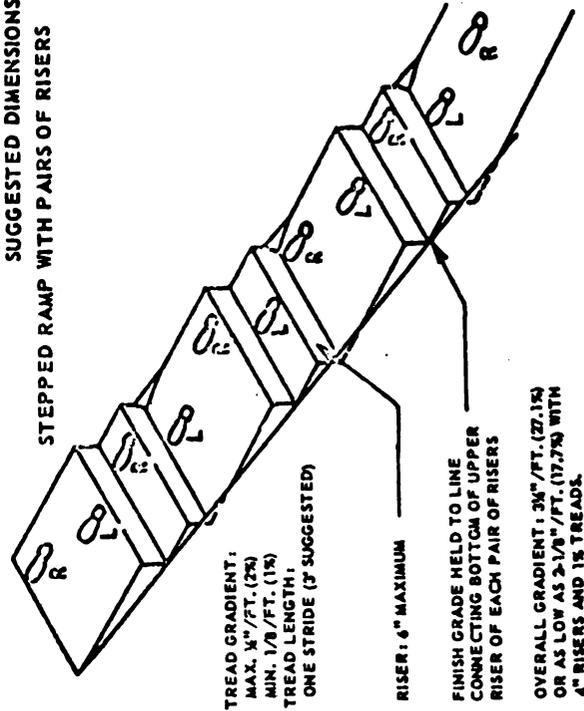
On recreation facilities, some state regulations specify that a certain area per mobile home shall be developed for recreational facilities. Usually this comes to a smaller total than the 8% indicated by FHA, but it would be well to check.

2415 **MANAGEMENT OFFICE AND OTHER COMMON FACILITIES**

2415-1 **Location.** The structure or structures containing the management office and other common facilities shall be conveniently located for the uses intended. Consolidation of laundry, recreation management and other common facilities in a single building and location is acceptable if the single location will adequately serve all mobile home lots. Where feasible, such consolidation is preferable for efficient construction, use and maintenance of all facilities and of the court as a whole.

2415-2 **Other Requirements for Common Facilities.**  
See chapters 5, 6 and 7.

SUGGESTED DIMENSIONS FOR STEPPED RAMP WITH PAIRS OF RISERS



TREAD GRADIENT:  
MAX. 3"/FT. (2%)  
MIN. 1/8"/FT. (1%)  
TREAD LENGTH:  
ONE STRIDE (3' SUGGESTED)

RISER: 6" MAXIMUM

FINISH GRADE HELD TO LINE  
CONNECTING BOTTOM OF UPPER  
RISER OF EACH PAIR OF RISERS

OVERALL GRADIENT: 3 3/4"/FT. (27.1%)  
OR AS LOW AS 2 1/8"/FT. (17.7%) WITH  
4" RISERS AND 1 1/2 TREADS.

- 2416 GRADING DESIGN**
- 2416-1 Objectives.**
- 2416-1.1** To preserve desirable site features where practicable.
- 2416-1.2** To provide diversion of water away from buildings, patios and mobile home stands.
- 2416-1.3** To prevent standing water and soil saturation detrimental to structures and to lot use.
- 2416-1.4** To provide disposal of water from each lot or other site, except as necessary for controlled irrigation.
- 2416-1.5** To provide appropriate finish grades for safe and convenient access to and use of lot areas with ease of maintenance and for safe access around structures for their maintenance.
- 2416-2 Protective Slopes of Unpaved Areas Around Buildings, Stands and Patios.**
- 2416-2.1** Sloped downward from patios and stands, from all walls and foundations of structures, and from water supply wells, to adequate outfalls or to drainage swales discharging to adequate outfalls.
- 2416-5 Storm Water Disposal.**
- 2416-5.1** All areas sloped to lower elevations off the site or to drainage structures on the site.
- 2416-5.2** Unpaved drainage swales formed by intersecting slopes: adequate depth and width; longitudinal gradient not less than required for other unpaved areas; permanence and maintenance of off-site drainageways assured by public rights-of-way, by easements, or by other means.
- 2416-5.3** Emergency surface overflow for drain inlets or catch basins, where installed: surface drainage overflow provided to prevent flooding against structures and wells in the event of failure of the underground drainage structures.
- 2417 ROUGH GRADING**
- 2417-1 Objectives.**
- Same as 2416-1.
- 2417-2 Extent.** As necessary to prepare for required finish grading (2418).
- 2417-3 Preservation of Site Assets.**
- 2417-3.1** Suitable available topsoil and desirable existing trees, shrubs and ground cover preserved and protected where practicable.
- 2417-3.2** Topsoil which is suitable and needed for later use in finish grading and planting shall be stripped from areas to be occupied by structures, parking areas, streets and drives, and from areas to be regraded or disturbed during construction. Topsoil which has been stripped shall be piled on the site in convenient places for future use and shall be kept free of debris during construction.
- 2417-3.3** Trees to be retained shall be protected by boxing, planking or other protective barriers against any damage by construction or grading.
- 2417-3.4** Trees to be retained in fills over 16 inches deep shall be provided with tree wells of adequate size, or with other suitable means of assuring aeration and normal functioning of the root system and the lower portion of the tree trunk.
- 2417-3.5** Trees to be retained that are above proposed finish grades shall stand on broadly rounded mounds which are of adequate size to preserve the tree roots and are smoothly sloped into the lower grade.
- 2418 FINISH GRADING**
- 2418-1 Objectives.**
- Same as 2416-1.
- 2418-2 Extent.** As necessary to make entire area comply with required grading design (2416) and required soil quality and depth (2418-3)
- 2418-3 Topsoil.** Workable soil, suitable to support plant growth; free of stones, lumps, weeds and debris.
- 2418-4 Subgrade.** Smoothed by elimination of irregularities to provide an even surface parallel to the proposed finish grades and elevations; allowance made for thickness of top soil.
- 2418-5 Scarifying.** Subgrade scarified to insure proper bond between subgrade surface and top soil.
- 2419 DRAINAGE STRUCTURES**
- 2419-1 Objectives.** Provision for collection and disposal of surface

and subsurface water to protect the structures and mobile home stands, and to provide safe and convenient use of streets, lot areas and other improvements.

- 2419-2 **Extent.**
- 2419-2.1 *Splash blocks installed, or downspouts connected to drain lines, if roof has gutters.*
- 2419-2.2 *Paved gutters, drain lines or other necessary drainage structures constructed where erosion due to high runoff velocity is not prevented by appropriate finish grading or planting.*
- 2419-2.3 *Paved gutters, drain inlets or other necessary drainage structures constructed where surface water runoff complying with 2416-3, Minimum Slopes for Unpaved Areas and 2416-5, Storm Water Disposal is not obtained without drainage structures.*
- 2419-3 **Paved Gutters.**
- 2419-3.1 *Constructed of concrete, paving brick or other durable material, of adequate depth and width for the intended use and installed in such a manner that it will provide permanent drainage with reasonable maintenance.*
- 2419-3.2 *Connected to adequate outfall; permanence and maintenance of off-site drainageways assured by public rights-of-way, by easements, or by other means.*
- 2419-4 **Drain Inlets.**
- 2419-4.1 *Of adequate size, design and construction to be durable for intended use.*
- 2419-4.2 *Connected to adequate outfall; permanence of off-site drainageways assured by public rights-of-way, by easements, or by other means.*

## 2420 FENCES, WALLS AND OTHER MINOR STRUCTURES

- 2420-1 **Screen Fences and Walls.**
- 2420-1.1 *Fences or free-standing walls shall be installed where necessary for screening purposes, such as around property boundary lines, laundry yards, refuse collection points, and playgrounds; for screen planting, see 2422.*

This should not be interpreted as meaning that fences, walls or screen plantings must be installed along all property boundary lines, or completely surround all laundry yards, playgrounds and refuse

collection points.

Screening is to be installed where necessary in relation to these locations.

- 2420-1.2 *All fences and walls shall be located at least 18 feet from the street center lines and at least 18 inches from the pavement edge of streets, driveways, parking spaces and walks.*
- 2420-1.3 *Fences and walls shall be appropriately designed for the function intended and shall be substantially constructed to withstand conditions of soil, weather and use.*
- 2420-2 **Protective Barriers.**
- 2420-2.1 *Fences, free-standing walls, guard rails or other suitable protective barriers shall be provided on retaining walls or around areas which because of height or other factors constitute a hazard to the public or to property.*
- 2420-2.2 *Location: comply with 2420-1.2.*
- 2420-2.3 *Design and construction: comply with 2420-1.3.*
- 2420-3 **Retaining Walls and Cribbing.**
- 2420-3.1 *Retaining walls or cribbing shall be installed where necessary to reduce steep slopes or prevent erosion.*
- 2420-3.2 *Location: comply with 2420-1.2.*
- 2420-3.3 *They shall be appropriately designed in accordance with sound engineering practice and shall be constructed to withstand the load, soil conditions, weather and use.*
- 2420-3.4 *Retaining walls shall be constructed on stable well-drained foundations and shall be provided with properly spaced weep holes to assure subsurface drainage.*
- 2420-4 **Other Minor Structures.**
- 2420-4.1 *Street name signs, court signs, bridges and other minor structures shall be installed as necessary for the proper use and maintenance of the property.*
- 2420-4.2 *Such structures shall be appropriately designed and located and shall be of durable construction.*
- 2421 **LAWN AND OTHER GROUND COVER**
- 2421-1 **Objective.**
- 2421-1.1 *Lawn and ground cover shall be provided where needed to prevent erosion of swales and slopes and on other areas to obtain usable yards.*

2421-1.2 *Lawn and ground cover shall be appropriate for the use and location.*

2421-1.3 *A thick permanent stand shall be established.*

2421-2 **Extent.**

2421-2.1 *Required on all areas except those covered by structures, paved or surfaced areas and planting beds, and except undisturbed areas such as woods, ravines, etc. which are to be preserved in their natural state.*

Sections 2421-3, 4 and 5 deal with lawn materials, lawn methods and maintenance in considerable detail, and probably need not be included. Similarly sections 2422-3, 4, 5 and 6 deal with nursery stock planting soil, planting methods and maintenance for trees, shrubs and vines and might well be excluded, although 2422-1 and 2, below, have a place in the regulations.

**2422 TREES, SHRUBS AND VINES**

2422-1 **Objective.**

2422-1.1 *Planting is required to the extent needed to provide for (a) screening of objectionable views, (b) adequate shade and (c) a suitable setting for the mobile homes and other facilities.*

2422-1.2 *Planting shall be hardy, appropriate for use and location, and planted so as to thrive with normal maintenance.*

2422-2 **Extent.**

2422-2.1 *Screen planting: adequate to screen objectionable views effectively within a reasonable time; views to be screened include laundry drying yards, garbage, and trash collection stations, nonresidential uses and rear yards of adjacent properties.*

2422-2.2 *Other planting: adequate in size, quantity and character to provide an attractive setting for the mobile homes and other improvements, to provide adequate privacy and pleasant outlooks for living units, to minimize reflected glare and to afford summer shade.*

2422-2.3 *Existing planting: acceptable as required planting to the extent that it is equivalent, suitable and preserved in good condition.*

**2423 OTHER IMPROVEMENTS**

2423-1 **Water Supply.**

*See 2701 and 2702.*

2423-2 **Scavage Disposal.**

*See 2701 and 2703.*

2423-3 **Lighting of Grounds.**

*See 2706-6.*

2423-4 **Buildings.**

*See Chapters 5 and 6.*

This concludes Chapter 4, "Site Planning and Improvements." Obviously, it covers a great deal of territory. If it is desired to simplify administration by eliminating some of the material, the mechanics are relatively simple. The language adopting the material by reference might be made to read "Chapter 4, except sections and subsections as follows . . . ." or the sections and subsections to be applied could be itemized.

**CHAPTER 5. PLANNING PERMANENT STRUCTURES**

2501 **General.** *Provide adequate facilities for the following services:*

a. *Management office*

b. *Laundry and toilets*

c. *Recreation facilities, if essential.*

2502 **Management Office.** *The management office shall include room for the usual office furniture and supplies and shall contain a lavatory and water closet, unless office is a part of a larger community building having these facilities.*

2503 **Management Storage.** *Storage space shall be provided for utility connection supplies in quantity, mobile home accessories, and maintenance materials and equipment.*

2504 **Laundry and Toilets.**

2504-1 *Provide laundry facilities equipped with washing machines and dryers. Satisfactory concession arrangements for washers and dryers may be accepted if suitable water, plumbing and electrical facilities are provided for installation of such equipment.*

2504-2 *At each laundry location, provide for each sex at least one lavatory and one water closet in a distinctly-marked room with sound-resistant walls and with a vestibule or screen*

wall which prevents direct inside view when the door is open.

2504-3 Finish material of toilet rooms and laundry shall be of moisture-resistant and capable of withstanding frequent washing and cleaning.

2504-4 For location of drying yards and laundry facilities, see 2413.

2505 Recreation Facilities.

See 2414.

2506 **Light and Ventilation.** The objective is (a) to assure satisfactory and healthful conditions by providing natural light and ventilation in sufficient volume, proportioned to the size and intended use of the facilities; and (b) to provide sufficient ventilation to spaces, such as attics and basementless areas, to prevent conditions conducive to decay and deterioration of the structure.

2507 **Enclosed Spaces.** The objective is to assure (a) that each structure provides complete facilities ordinarily considered necessary to its full use, and (b) rooms of such size and so planned as to permit the proper placing of adequate furniture and equipment, appropriate to and essential for the use of the structure.

Chapter 5 is brief and general, and is unlikely to be at substantial variance with state regulations, except possibly on the matter of laundry facilities and their toilets. Here state law should be checked to determine whether there is any conflict, and if more restrictive regulations are imposed, they should be cited in place of the ones given here.

#### CHAPTER 6. STRUCTURAL STANDARDS

2601 **General.** The objective of structural requirements is to obtain well-built and durable accessory structures which provide a weather-resistant shelter. The attainment of this objective requires that:

a. All portions of the structure subjected to exterior exposure be of such materials and be so constructed and protected as to prevent entrance or penetration of moisture and the weather.

b. Adequate precautions be taken to properly protect materials and construction from damage by ordinary use and

by decay, corrosion, termites and other destructive elements.

c. Workmanship be of a quality equal to good standard practice and materials used be of such kind and quality as to assure reasonable durability and economy of maintenance, all commensurate with the class of building under consideration.

d. All members and parts of the construction be properly designed to carry all loads imposed without detrimental effect on finish or covering materials.

e. Each member be correctly fitted and connected.

f. The structure be adequately braced against lateral stress.

g. Adequate precautions be taken to protect against fire and accidents.

2602 **Construction.** The Minimum Property Standards for One and Two Living Units are applicable insofar as structural quality and durability of structures are concerned. Other items, such as insulation, may be required where considered necessary by the Federal Housing Administration.

2603 **Plumbing.** All plumbing systems shall be new and shall comply with local and state codes and ordinances. In the absence of such codes, or where they are deemed inadequate, the systems shall comply with the National Plumbing Code, ASA-A40.8. See 2502 and 2504.

2604 **Electrical.**

2604-1 Wiring for lights shall be based on a demand of 3 watts per square foot of floor area.

2604-2 Lighting outlets shall be located over mirrors, work spaces and equipment.

2604-3 A general illumination level of not less than 5 foot candles shall be maintained with 20 to 40 foot candles being available at specific work surfaces such as lavatories, laundry trays and ironing boards.

2604-4 Separate circuits shall be provided for lighting and power.

Power circuits shall be not less than 20 amperes.

2605 **Heating.**

2605-1 Service structures shall be provided with space heating equipment adequate to maintain 70°F. temperatures at out-

*side design conditions.*

**2605-2** *Heating equipment shall conform to A.S.A., A.G.A., Underwriters' Laboratories, Inc., or other nationally recognized standards.*

Whether this chapter is included or excluded, it presents some problems in drafting. Most jurisdictions will have codes covering some or all of the items listed, and the language suggested for the provision adopting by reference this and other portions of "Minimum Property Standards for Mobile Home Courts" started by saying: "In addition to meeting the above requirements and conforming to other laws of the city, county or state, mobile home parks shall also conform to the requirements set forth in sections or chapters of "Minimum Property Requirements for Mobile Home Courts" . . . as follows . . ."

Leaving out Chapter 6 would appear to be the solution if local laws already cover the subject matter. But other sections of "Minimum Property Standards for Mobile Home Courts" are liberally cross-referenced to Chapter 6.

As a practical solution, it appears best to include Chapter 6 by reference, with specific indication as to which local codes apply on items where there are local codes. Phrasing like the following would serve the purpose: . . . "Chapter 6, provided that construction and plumbing shall be in accordance with the building code of the city of \_\_\_\_\_." This would leave entries under the section heads to which reference is made elsewhere in the FHA document.

#### CHAPTER 7. UTILITIES

**2701** *General for Water and Sewerage Systems.*

**2701-1** *Water Supply*

**2701-1.1** *The object is to furnish an adequate supply of safe water of satisfactory quality under adequate pressure to all mobile homes and utility buildings and in addition to furnish an adequate supply for fire protection.*

**2701-1.2** *Wherever feasible connection shall be to a public water system.*

**2701-1.3** *Wherever connection to a public water system is not feasible connection shall be to a community system which is acceptable to FHA.*

**2701-2** *Sewage Disposal*

**2701-2.1** *The object is to furnish each mobile home and utility building with an adequate and safe method of sewage disposal by a water carriage sewerage system.*

**2701-2.2** *Wherever feasible, connection shall be made to a public sewerage system.*

**2701-2.3** *Where connection to a public sewerage system is not feasible, connection shall be to a community sewerage system which is acceptable to FHA.*

**2702** *Community Water System*

**2702-1** *Acceptability to FHA*

*Prior to recommending the issuance of any commitments pertaining to the related property, FHA will determine that all details of the design of the proposed system are acceptable. Before recommending final acceptance for mortgage insurance and prior to final inspection of a mobile home court, it shall be determined that the completed construction and operation of the system are acceptable to FHA.*

**2702-2**

*Local Regulations. A community system also shall have approval of the design of the system from the State Health Authority. Where local laws or regulations require approval prior to construction by an organization other than the health authority, such approval shall also be secured and submitted.*

**2702-3**

*Quality of Water. The bacteriological and chemical quality of the water shall be acceptable to State Department of Health or health authority having jurisdiction and to FHA.*

**2702-4**

*Volume of Water Source. The source shall be capable of producing an adequate volume of water to supply the requirements of the court. The volume shall be determined by local water consumption but in no case shall it be less than 125 gallons per unit per day.*

**2703**

*Water Distribution System and Connections*

**2703-1**

*Distribution System. The distribution system shall be constructed of material acceptable to FHA.*

**2703-1.1**

*The distribution system shall be constructed of material acceptable to FHA.*

**2703-2**

*Hose Connections. Adequate hose connections shall be*

- provided for watering park and utility building lawns.*
- 2703-3** **Drinking Fountains**
- 2703-3.1** *Drinking fountains shall be provided in or near park or play areas.*
- 2703-3.2** *Drinking fountains shall conform to all State and local health authority requirements.*
- 2703-4** **Fire Protection.** *The water supply system serving the mobile home court area shall be subject to the rules and regulations of the local fire prevention authority or the system shall meet the standards for adequate fire protection established by the National Fire Protection Association Standard NFPA No. 501A, whichever is the more stringent.*

Here it would be well to indicate which standards are to govern, so that it is clearly one set of regulations or another with which the administrative officials and developers will be concerned.

- 2703-5** **Individual Water Connections.**
- 2703-5.1** *An individual water connection shall be provided at each mobile home lot.*
- 2703-5.2** *The connection shall be located a safe distance from the sewer connection in accordance with the National Plumbing Code (ASA-A-40.8).*
- 2704** **Community Sewerage System**
- 2704-1** **Acceptability to FHA.** *Prior to recommending the issuance of any commitments pertaining to the related property, FHA will determine that all details of the design of the proposed system are acceptable. Before recommending final acceptance for mortgage insurance and prior to final inspection of a mobile home court, it shall be determined that the completed construction and operation of the system are acceptable to FHA.*
- 2704-2** **Local Regulations.** *The design of a central sewerage system also shall have the unqualified approval or acceptance of the State Health Authority. Where local laws or regulations require approval prior to construction by an organization other than the health authority, such approval also shall be secured and submitted.*

- 2704-3** **Location.** *Location and installation of the sewerage disposal system and each part thereof shall be such that, with reasonable maintenance, it will function in a sanitary manner and will not create a nuisance nor endanger the safety of any domestic water supply. In determining a suitable location for the system, consideration shall be given to the size and shape of the court, slope of natural and finished grade, depth of ground water, proximity to existing or future water supplies, and possible expansion of the system.*
- 2704-4** **Capacity.** *The system shall be designed adequate for a minimum flow of 125 gallons per day per mobile home lot. The trend in mobile home design is to install garbage grinders. Therefore, this factor must be considered and provided for in the design of the sewerage system.*
- 2705** **SEWER SYSTEM AND CONNECTIONS**
- 2705-1** **Design and Construction**
- 2705-1.1** *All sewer lines shall be constructed of material acceptable to FHA and the lines should be laid in trenches separated a safe distance from any drinking water supply line under pressure.*
- 2705-1.2** *Sewers shall be at a grade which will insure a velocity of 2 feet per second when the sewer is flowing full.*
- 2705-1.3** *All joints in the sewer line shall be made watertight and every effort shall be made to minimize ground water infiltration into the sewerage system.*
- 2705-1.4** *All sewer connections and manholes shall be so constructed as to prevent surface water from entering the sanitary sewers.*
- 2705-2** **Individual Sewer Connections.** *Each mobile home lot shall be equipped with at least a 3 inch sewer connection so located as to provide a suitable connection from the home with a continuous grade and not subject to surface drainage.*
- 2705-2.4** *The connection shall be equipped with couplings that will assure tight joints at the mobile home and at the drain. Provision shall be made for plugging the drain when a mobile home does not occupy the space.*

## 92 Local Regulation of Mobile Home Parks, Travel Trailer Parks and Related Facilities

On sewer and water systems and connections, there is at least a possibility of a three-way split on regulations, with state, local and FHA requirements somewhat at variance. Where such differences exist, there should be a clear indication as to which regulations are to govern. Federal standards, and those for most states, are so drafted as to present no problems for manufacturers, park developers, or mobile home owners who have adjusted to them. Occasionally, however, local requirements create needless complications and expense by making it necessary to provide custom-built fittings for junctions, requiring duplication outside the mobile home of traps already provided inside the unit, or in other ways. Unless it can be demonstrated that there is real public purpose to be served by requiring installations differing from standards accepted nationally or statewide, the general standards should be used.

## 2706 GARBAGE AND TRASH DISPOSAL

## 2706-1 General

2706-1.1 *The object is to dispose of garbage and trash in a safe manner without creating a nuisance, or unsanitary condition.*

2706-1.2 *Whenever reasonable, garbage and trash collections and disposal shall be by means of a public system.*

2706-1.3 *Whenever a public system is not reasonable, arrangements for the disposal of garbage and trash shall be approved by the State Department of Health, or health authorities, and shall comply with all State and local laws and regulations and be acceptable to FHA.*

2706-1.4 *To be acceptable, arrangements and any agreements for garbage and trash disposal shall cover a period of at least one year.*

## 2707 MASTER TELEVISION ANTENNA SYSTEMS

2707-1 *Where master television antenna systems are to be installed as part of the property to be covered by mortgage insurance, a warranty shall be obtained to assure satisfactory service.*

2707-2 *Distribution to mobile home stands may be overhead or underground, but shall be in general accord with the placement of the electrical distribution system as required in 2708-4 and 2708-5.*

## 2708 ELECTRICAL DISTRIBUTION AND EXTERIOR LIGHTING

2708-1 *Objectives. To obtain a system of wiring and appliances properly installed to provide electrical service adequate for efficient illumination and safe operation of appliances and equipment, and which in appearance will be appropriate to the type of property under consideration.*

2708-2 *Codes and Local Regulation. The complete electrical system shall be new and all parts thereof shall comply with:*

- a. *Local and state codes and ordinances*
- b. *In the absence of local or state codes, or where such codes are deemed inadequate, installations shall comply with the National Electrical Code unless otherwise modified herein.*

Again, reference should be made to the specific code or codes which apply.

2708-3 *Primary Lines. Primary distribution lines and service equipment installed and maintained by the local utility may be overhead or underground.*

## 2708-4 Feeders

2708-4.1 *Feeders (secondary distribution lines), in general, shall be installed underground. Feeder systems, or parts thereof may be installed:*

2708-4.2 *Above ground in connection with mid-block fences or walls, under canopies of covered walkways, or in similarly protected locations, or*

2708-4.3 *Overhead on acceptable type poles of suitable height, number and location to blend unobtrusively with the general character and appearance of the mobile home court.*

2708-4.4 *For a feeder system involving any above ground or overhead installation, the installation shall be in accordance with detailed plans previously submitted to the FHA insuring office and found acceptable to it as achieving the objectives of an underground system.*

## 2708-5 Service Facilities

94 Local Regulation of Mobile Home Parks, Travel Trailer Parks and Related Facilities

2708-5.1 *Service drops from underground, above ground, or overhead feeder distribution shall be installed in suitable conduit between point of connection to feeder and service equipment.*

2708-5.2 *Service equipment. A weatherproof overcurrent protection device and disconnecting means shall be provided for each mobile home space. Individual mobile home space overcurrent protection device, disconnect means, and branch service shall be minimum 50 amp for 220 volt service.*

2708-5.3 *Branch Service and Receptacle. Branch services shall be installed underground and shall terminate in a weatherproof receptacle located adjacent to the water and sewer outlets provided for each mobile home space. Receptacle shall be of the polarized type with grounding conductor and shall have 4 prong attachment for 110/220 volts.*

2708-6 *Exterior Lighting. Adequate lights shall be provided to illuminate streets, driveways, and walkways, for the safe movement of vehicles and pedestrians at night.*

2709 **TELEPHONE SERVICE**

*When telephone service to mobile home stands is provided, the distribution systems may be overhead or underground, but shall be in general conformance with the placement of the electrical distribution system as required in 2708-4 and 2708-5.*

— APPENDIX —

**RECOMMENDED ORDINANCE GOVERNING  
MOBILE HOME PARKS**

(TITLE: The following is a suggested title; the actual title should conform to local requirements.)

AN ORDINANCE enforcing MINIMUM STANDARDS for mobile home parks; establishing requirements for the design, construction, alteration, extension and maintenance of mobile home parks and related utilities and facilities; authorizing the issuance of permits for construction, alteration and extension of mobile home parks; authorizing the licensing of operators of mobile home parks; authorizing the inspection of mobile home parks; and fixing penalties for violations.

Be it, therefore, ordained by the (name of municipality) as follows:

**SECTION 1: DEFINITIONS**

As used in this ordinance:

- a. **HEALTH AUTHORITY** means the legally designated health authority or its authorized representative of (name of municipality).
- b. **LICENSE** means a written license issued by the health authority allowing a person to operate and maintain a mobile home park under the provisions of this Ordinance and regulations issued hereunder.
- c. **MOBILE HOME** means a transportable, single-family dwelling unit suitable for year-round occupancy and containing the same water supply, waste disposal and electrical conveniences as immobile housing.
- d. **MOBILE HOME LOT** means a parcel of land for the placement of a single mobile home and the exclusive use of its occupants.
- e. **MOBILE HOME PARK** means a parcel of land under single ownership which has been planned and improved for the placement of mobile homes for non-transient use.
- f. **MOBILE HOME STAND** means that part of an individual lot which has been reserved for the placement of the mobile home, appurtenant structures or additions.
- g. **PERMIT** means a written permit issued by the health authority permitting the construction, alteration and extension of a mobile home park under the provisions of this Ordinance and regulations issued hereunder.
- h. **PERSON** means any individual, firm, trust, partnership, public or private association or corporation.
- i. **SERVICE BUILDING** means a structure housing toilet, lavatory and such other facilities as may be required by this Ordinance.
- j. **SEWER CONNECTION** means the connection consisting of all pipes, fittings and appurtenances

from the drain outlet of the mobile home to the inlet of the corresponding sewer riser pipe of the sewerage system serving the mobile home park.

- k. **SEWER RISER PIPE** means that portion of the sewer lateral which extends vertically to the ground elevation and terminates at each mobile home lot.
- l. **WATER CONNECTION** means the connection consisting of all pipes, fittings and appurtenances from the water riser pipe to the water inlet pipe of the distribution system within the mobile home.
- m. **WATER RISER PIPE** means that portion of the water supply system serving the mobile home park which extends vertically to the ground elevation and terminates at a designated point at each mobile home lot.

**SECTION 2: PERMITS**

**2.1**

It shall be unlawful for any person to construct, alter or extend any mobile home park within the limits of (name of municipality) unless he holds a valid permit issued by the health authority in the name of such person for the specific construction, alteration or extension proposed.

**2.2**

All applications for permits shall be made to the health authority and shall contain the following:

- (a) Name and address of applicant.
- (b) Interest of the applicant in the mobile home park.
- (c) Location and legal description of the mobile home park
- (d) Complete engineering plans and specifications of the proposed park showing:
  - 1. The area and dimensions of the tract of land;
  - 2. The number, location, and size of all mobile home lots;
  - 3. The location and width of roadways and walkways;
  - 4. The location of service buildings and any other proposed structures;
  - 5. The location of water and sewer lines and riser pipes;
  - 6. Plans and specifications of the water supply and refuse and sewage disposal facilities;
  - 7. Plans and specifications of all buildings constructed or to be constructed within the mobile home park; and
  - 8. The location and details of lighting and electrical systems.

**2.3**

All applications shall be accompanied by the deposit of a fee of .....dollars.

**2.4**

When, upon review of the application, the health authority is satisfied that the proposed plan meets the requirements of this Ordinance and regulations issued hereunder, a permit shall be issued.

**2.5**

Any person whose application for a permit under this Ordinance has been denied may request and shall be granted a hearing on the matter before the health authority under the procedure provided by Section 5 of this Ordinance.

**SECTION 3: LICENSES**

**3.1**

It shall be unlawful for any person to operate any mobile home park within the limits of (name of municipality) unless he holds a valid license issued annually by the health authority in the name of such person for the specific mobile home park. All applications for licenses shall be made to the health authority, who shall issue a license upon compliance by the applicant with provisions of this Ordinance and regulations issued hereunder and of other applicable legal requirements.

**3.2**

Every person holding a license shall give notice in writing to the health authority within twenty-four hours after having sold, transferred, given away, or otherwise disposed of interest in or control of any mobile home park. Such notice shall include the name and address of the person succeeding to the ownership or control of such mobile home park. Upon application in writing for transfer of the license and deposit of a fee of ( ) dollars, the license shall be transferred if the mobile home park is in compliance with all applicable provisions of this Ordinance and regulations issued hereunder.

**3.3**

- (a) Application for original licenses shall be in writing, signed by the applicant, accompanied by an affidavit of the applicant as to the truth of the application and by the deposit of a fee of ( ) dollars, and shall contain: the name and address of the applicant; the location and legal description of the mobile home park; and a site plan of the mobile home park showing all mobile home lots, structures, roads, walkways, and other service facilities.
- (b) Applications for renewals of licenses shall be made in writing by the holders of the licenses, shall be accompanied by the deposit of a fee of ( ) dollars and shall contain any change in the information submitted since the original license was issued or the latest renewal granted.

**3.4**

Any person whose application for a license under this Ordinance has been denied may request and shall be granted a hearing on the matter before the health authority under the procedure provided by Section 5 of this Ordinance.

**3.5**

Whenever, upon inspection of any mobile home park, the health authority finds that conditions or practices exist which are in violation of any provision of this Ordinance or regulations issued hereunder, the health authority shall give notice in writing in accordance with Section 5.1 to the person to whom the license was issued that unless such conditions or practices are corrected within a reasonable

period of time specified in the notice by the health authority, the license shall be suspended. At the end of such period, the health authority shall reinspect such mobile home park and, if such conditions or practices have not been corrected, he shall suspend the license and give notice in writing of such suspension to the person to whom the license is issued. Upon receipt of notice of such suspension, such person shall cease operation of such mobile home park except as provided in Section 5.2.

**3.6**

Any person whose license has been suspended, or who has received notice from the health authority that his license will be suspended unless certain conditions or practices at the mobile home park are corrected, may request and shall be granted a hearing on the matter before the health authority, under the procedure provided by Section 5 of this Ordinance; provided that when no petition for such hearing shall have been filed within ten days following the day on which notice of suspension was served, such license shall be deemed to have been automatically revoked at the expiration of such ten-day period.

**3.7**

A temporary license, upon written request therefor, shall be issued by the health authority, for every mobile home park in existence upon the effective date of this Ordinance, permitting the mobile home park to be operated during the period ending 180 days after the effective date of this Ordinance in accordance with such conditions as the health authority may require.

**3.8**

The term of the temporary license shall be extended, upon written request, for not to exceed one additional period of 180 days, if (1) the licensee shall have filed application for a license in conformity with Section 3.3 of this Ordinance within 90 days after the effective date of this Ordinance; (2) the plans and specifications accompanying the application for license comply with all provisions of this Ordinance and all other applicable ordinances and statutes; (3) the licensee shall have diligently endeavored to make the existing mobile home park conform fully to the plans and specifications submitted with application; and (4) failure to make the existing mobile home park conform fully to such plans and specifications shall have been due to causes beyond the control of the licensee.

**SECTION 4: INSPECTION OF MOBILE HOME PARKS**

**4.1**

The health authority is hereby authorized and directed to make such inspections as are necessary to determine satisfactory compliance with this Ordinance and regulations issued hereunder.

**4.2**

The health authority shall have the power to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relating to the enforcement of this Ordinance and regulations issued hereunder.

**4.3**

The health authority shall have the power to inspect the register containing a record of all residents of the mobile home park.

**4.4**

It shall be the duty of the owners or occupants of mobile home parks, and mobile homes contained therein, or of the person in charge thereof, to give the health authority free access to such premises at reasonable times for the purpose of inspection.

**4.5**

It shall be the duty of every occupant of a mobile home park to give the owner thereof or his agent or employee access to any part of such mobile home park or its premises at reasonable times for the purpose of making such repairs or alterations as are necessary to effect compliance with this Ordinance and regulations issued hereunder, or with any lawful order issued pursuant to the provisions of this Ordinance.

**SECTION 5: NOTICES, HEARINGS AND ORDERS**

**5.1**

Whenever the health authority determines that there are reasonable grounds to believe that there has been a violation of any provision of this Ordinance, or regulations issued hereunder, the health authority shall give notice of such alleged violation to the person to whom the permit or license was issued, as hereinafter provided. Such notice shall (a) be in writing; (b) include a statement of the reasons for its issuance; (c) allow a reasonable time for the performance of any act it requires; (d) be served upon the owner or his agent as the case may require: Provided: That such notice or order shall be deemed to have been properly served upon such owner or agent when a copy thereof has been sent by registered mail to his last known address, or when he has been served with such notice by any method authorized or required by the laws of this state; (e) contain an outline of remedial action which, if taken, will effect compliance with the provisions of this Ordinance and regulations issued hereunder.

**5.2**

Any person affected by any notice which has been issued in connection with the enforcement of any provision of this Ordinance, or regulation issued hereunder, may request and shall be granted a hearing on the matter before the health authority: Provided: That such person shall file in the office of the health authority a written petition requesting such hearing and setting forth a brief statement of the grounds therefor within ten days after the day the notice was served. The filing of the request for a hearing shall operate as a stay of the notice and of the suspension except in the case of an order issued under Section 5.5. Upon receipt of such petition, the health authority shall set a time and place for such hearing and shall give the petitioner written notice thereof. At such hearing the petitioner shall be given an opportunity to be heard and to show why such notice should be modified or withdrawn. The hearing shall be commenced not later than ten days after the

day on which the petition was filed: Provided: That upon application of the petitioner the health authority may postpone the date of the hearing for a reasonable time beyond such ten-day period when in his judgment the petitioner has submitted good and sufficient reasons for such postponement.

**5.3**

After such hearing the health authority shall make findings as to compliance with the provisions of this Ordinance and regulations issued hereunder and shall issue an order in writing sustaining, modifying or withdrawing the notice which shall be served as provided in Section 5.1(d). Upon failure to comply with any order sustaining or modifying a notice, the license of the mobile home park affected by the order shall be revoked.

**5.4**

The proceedings at such a hearing, including the findings and decision of the health authority, and together with a copy of every notice and order related thereto shall be entered as a matter of public record in the office of the health authority but the transcript of the proceedings need not be transcribed unless judicial review of the decision is sought as provided by this Section. Any person aggrieved by the decision of the health authority may seek relief therefrom in any court of competent jurisdiction, as provided by the laws of this State.

**5.5**

Whenever the health authority finds that an emergency exists which requires immediate action to protect the public health, he may without notice or hearing issue an order reciting the existence of such an emergency and requiring that such action be taken as he may deem necessary to meet the emergency including the suspension of the permit or license. Notwithstanding any other provisions of this Ordinance, such order shall be effective immediately. Any person to whom such an order is directed shall comply therewith immediately, but upon petition to the health authority shall be afforded a hearing as soon as possible. The provisions of Section 5.3 and 5.4 shall be applicable to such hearing and the order issued thereafter.

**SECTION 6: ADOPTION OF REGULATIONS BY THE HEALTH AUTHORITY**

**6.1**

The health authority is hereby authorized to make and, after public hearing, to adopt such written regulations as may be necessary for the proper enforcement of the provisions of this Ordinance. Such regulations shall have the same force and effect as the provision of this Ordinance, and the penalty for violation of the provisions thereof shall be the same as the penalty for violation of the provisions of this Ordinance, as hereinafter provided.

**SECTION 7: ENVIRONMENTAL, OPEN SPACE AND ACCESS REQUIREMENTS**

**7.1**

**General Requirements**

Condition of soil, ground water level, drainage and topography shall not create hazards to the prop-

etry or the health or safety of the occupants. The site shall not be exposed to objectionable smoke, noise, odors or other adverse influences, and no portion subject to unpredictable and/or sudden flooding, subsidence or erosion shall be used for any purpose which would expose persons or property to hazards.

#### 7.2

##### **Soil and Ground Cover Requirements**

Exposed ground surfaces in all parts of every mobile home park shall be paved, or covered with stone screenings, or other solid material, or protected with a vegetative growth that is capable of preventing soil erosion and of eliminating objectionable dust.

#### 7.3

##### **Site Drainage Requirements**

The ground surface in all parts of every mobile home shall be graded and equipped to drain all surface water in a safe, efficient manner.

#### 7.4

##### **Park Areas for Nonresident Uses**

- (a) No part of any park shall be used for nonresidential purposes, except such uses that are required for the direct servicing and well being of park residents and for the management and maintenance of the park.
- (b) Nothing contained in this Section shall be deemed as prohibiting the sale of a mobile home located on a mobile home stand and connected to the pertinent utilities.

#### 7.5

##### **Required Separation Between Mobile Homes**

- (a) Mobile homes shall be separated from each other and from other buildings and structures by at least 15 feet; provided that mobile homes placed end-to-end may have a clearance of 10 feet where opposing rear walls are staggered.
- (b) An accessory structure which has a horizontal area exceeding 25 square feet, is attached to a mobile home or located within 10 feet of its window, and has an opaque top or roof that is higher than the nearest window shall, for purposes of all separation requirements, be considered to be part of the mobile home.

#### 7.6

##### **Required Recreation Areas**

- (a) In all parks accommodating or designed to accommodate 25 or more mobile homes, there shall be one or more recreation areas which shall be easily accessible to all park residents.
- (b) The size of such recreation areas shall be based upon a minimum of 100 square feet for each lot. No outdoor recreation area shall contain less than 2,500 square feet.
- (c) Recreation areas shall be so located as to be free of traffic hazards and should, where the topography permits, be centrally located.

#### 7.7

##### **Required Setbacks, Buffer Strips and Screening**

- (a) All mobile homes shall be located at least 25 feet from any park property boundary line abutting upon a public street or highway and at least 15 feet from other park property boundary lines.
- (b) There shall be a minimum distance of 10 feet between an individual mobile home and adjoin-

ing pavement of a park street, or common parking area or other common areas.

- (c) All mobile home parks located adjacent to industrial or commercial land uses shall be provided with screening such as fences or natural growth along the property boundary line separating the park and such adjacent nonresidential uses.

#### 7.8

##### **Park Street System**

- (a) **GENERAL REQUIREMENTS:** All mobile home parks shall be provided with safe and convenient vehicular access from abutting public streets or roads to each mobile home lot. Alingment and gradient shall be properly adapted to topography.
- (b) **ACCESS:** Access to mobile home parks shall be designed to minimize congestion and hazards at the entrance or exit and allow free movement of traffic on adjacent streets. The entrance road connecting the park streets with a public street or road shall have a minimum road pavement width of 34 feet where parking is permitted on both sides, or a minimum road pavement width of 27 feet where parking is limited to one side. Where the primary entrance road is more than 100 feet long and does not provide access to abutting mobile home lots within such distance, the minimum road pavement width may be 24 feet, provided parking is prohibited at both sides.
- (c) **INTERNAL STREETS:** Surfaced roadways shall be of adequate width to accommodate anticipated traffic, and in any case shall meet the following minimum requirements:
  - 1. All streets, except minor streets ... 24 feet
  - 2. Minor streets, no parking ..... 18 feet  
(Acceptable only if less than 500 feet long and serving less than 25 mobile homes or of any length if one-way and providing access to abutting mobile home lots on one side only.)
  - 3. Dead end streets shall be limited in length to ..... 1,000 feet and shall be provided at the closed end with a turn-around having an outside roadway diameter of at least 60 feet.
- (d) **REQUIRED ILLUMINATION OF PARK STREET SYSTEMS:** All parks shall be furnished with lighting units so spaced and equipped with luminaires placed at such mounting heights as will provide the following average maintained levels of illumination for the safe movement of pedestrians and vehicles at night:
  - 1. All parts of the park street systems: 0.6 foot-candle, with a minimum of 0.1 foot-candle.
  - 2. Potentially hazardous locations, such as major street intersections and steps or stepped ramps: individually illuminated, with a minimum of 0.3 foot-candle.
- (e) **STREET CONSTRUCTION AND DESIGN STANDARDS:**
  - 1. **PAVEMENT:** All streets shall be provided with a smooth, hard and dense surface which shall

be durable and well drained under normal use and weather conditions. Pavement edges shall be protected to prevent raveling of the wearing surface and shifting of the pavement base. Street surfaces shall be maintained free of cracks, holes and other hazards.

2. GRADES: Grades of all streets shall be sufficient to insure adequate surface drainage, but shall be not more than eight percent. Short runs with a maximum grade of 12 percent may be permitted, provided traffic safety is assured by appropriate paving, adequate leveling areas and avoidance of lateral curves.
3. INTERSECTIONS: Within 100 feet of an intersection, streets shall be at approximately right angles. A distance of at least 150 feet shall be maintained between center lines of offset intersecting streets. Intersections of more than two streets at one point shall be avoided.

#### 7.9

##### Required Off-Street Parking Areas

- (a) Off-street parking areas shall be provided in all mobile home parks for the use of park occupants and guests. Such areas shall be furnished at the rate of at least 1.25 car spaces for each mobile home lot.
- (b) Required car parking spaces shall be so located as to provide convenient access to the mobile home, but shall not exceed a distance of 200 feet from the mobile home that it is intended to serve.

#### 7.10

##### Walks

- (a) GENERAL REQUIREMENTS: All parks shall be provided with safe, convenient, all season pedestrian access of adequate width for intended use, durable and convenient to maintain; between individual mobile homes, the park streets and all community facilities provided for park residents. Sudden changes in alignment and gradient shall be avoided.
- (b) COMMON WALK SYSTEM: A common walk system shall be provided and maintained between locations where pedestrian traffic is concentrated. Such common walks shall have a minimum width of three and one-half feet.
- (c) INDIVIDUAL WALKS: All mobile home stands shall be connected to common walks, to paved streets, or to paved driveways or parking spaces connecting to a paved street. Such individual walks shall have a minimum width of two feet.

#### 7.11

##### Mobile Home Stands

The area of the mobile home stand shall be improved to provide an adequate foundation for the placement and tie-down of the mobile home, thereby securing the superstructure against uplift, sliding, rotation and overturning.

- (a) The mobile home stand shall not heave, shift or settle unevenly under the weight of the mobile home due to frost action, inadequate drainage, vibration or other forces acting on the superstructure.

- (b) The mobile home stand shall be provided with anchors and tie-downs such as cast-in-place concrete "dead men", eyelets imbedded in concrete foundations or runways, screw augers, arrow-head anchors, or other devices securing the stability of the mobile home.
- (c) Anchors and tie-downs shall be placed at least at each corner of the mobile home stand and each shall be able to sustain a minimum tensile strength of 2,800 pounds.

## SECTION 8: WATER SUPPLY

### 8.1

#### General Requirements

An accessible, adequate, safe, and potable supply of water shall be provided in each mobile home park. Where a public supply of water of satisfactory quantity, quality, and pressure is available, connection shall be made thereto and its supply used exclusively. When a satisfactory public water supply is not available, a private water supply system may be developed and used as approved by the health authority.

### 8.2

#### Source of Supply

- (a) The water supply shall be capable of supplying a minimum of 150 gallons per day per mobile home.
- (b) Every well or suction line of the water supply system shall be located and constructed in such a manner that neither underground nor surface contamination will reach the water supply from any source. The following minimum distances between wells and various sources of contamination shall be required.

Contamination Sources	Well or Suction Line (Distance in Feet)
Building Sewer	50
Septic Tank	50
Disposal Field	100
Seepage Pit	100
Dry Well	50
Cesspool	150

- (c) No well-casings, pumping machinery or suction pipes shall be placed in any pit, room or space extending below ground level nor in any room or space above ground which is walled in or otherwise enclosed, unless such rooms, whether above or below ground, have free drainage by gravity to the surface of the ground.
- (d) The treatment of a private water supply shall be in accordance with applicable laws and regulations.

### 8.3

#### Water Storage Facilities

All water storage reservoirs shall be covered, watertight and constructed of impervious material. Overflows and vents of such reservoirs shall be effectively screened. Manholes shall be constructed with overlapping covers, so as to prevent the en-

trance of contaminated material. Reservoir overflow pipes shall discharge through an acceptable air gap.

#### 8.4

##### Water Distribution System

- (a) The water supply system of the mobile home park shall be connected by pipes to all mobile homes, buildings, and other facilities requiring water.
- (b) All water piping, fixtures and other equipment shall be constructed and maintained in accordance with state and local regulations and requirements and shall be of a type and in locations approved by the health authority.
- (c) The water piping system shall not be connected with non-potable or questionable water supplies and shall be protected against the hazards of backflow or back siphonage.
- (d) The system shall be so designed and maintained as to provide a pressure of not less than 20 pounds per square inch, under normal operating conditions at service buildings and other locations requiring potable water supply.

#### 8.5

##### Individual Water-Riser Pipes and Connections

- (a) Individual water riser pipes shall be located within the confined area of the mobile home stand at a point where the water connection will approximate a vertical position.
- (b) Water riser pipes shall extend at least four inches above ground elevation. The pipe shall be at least three-quarter inch. The water outlet shall be capped when a mobile home does not occupy the lot.
- (c) Adequate provisions shall be made to prevent freezing of service lines, valves and riser pipes and to protect risers from heaving and thawing actions of ground during freezing weather. Surface drainage shall be diverted from the location of the riser pipe.
- (d) A shutoff valve below the frost line shall be provided near the water riser pipe on each mobile home lot.
- (e) Underground stop and waste valves shall not be installed on any water service.

## SECTION 9: SEWAGE DISPOSAL

### 9.1

#### General Requirements

An adequate and safe sewerage system shall be provided in all mobile home parks for conveying and disposing of all sewage. Such system shall be designed, constructed and maintained in accordance with state and local laws.

### 9.2

#### Sewer Lines

All sewer lines shall be located in trenches of sufficient depth to be free of breakage from traffic or other movements and shall be separated from the park water supply system at a safe distance. Sewers shall be at a grade which will insure a velocity of two feet per second when flowing full. All sewer lines shall be constructed of materials approved by the health authority, shall be adequately vented, and shall have watertight joints.

### 9.3

#### Individual Sewer Connections

- (a) Each mobile home stand shall be provided with at least a four inch diameter sewer riser pipe. The sewer riser pipe shall be so located on each stand that the sewer connection to the mobile home drain outlet will approximate a vertical position.
- (b) The sewer connection (see definition) shall have a nominal inside diameter of at least three inches, and the slope of any portion thereof shall be at least one-fourth inch per foot. The sewer connection shall consist of one pipe line only without any branch fittings. All joints shall be watertight.
- (c) All materials used for sewer connections shall be semirigid, corrosive resistant, nonabsorbent and durable. The inner surface shall be smooth.
- (d) Provision shall be made for plugging the sewer riser pipe when a mobile home does not occupy the lot. Surface drainage shall be diverted away from the riser. The rim of the riser pipe shall extend at least four inches above ground elevation.

### 9.4

#### Sewage Treatment and/or Discharge

Where the sewer lines of the mobile home park are not connected to a public sewer, all proposed sewage disposal facilities shall be approved by the health authority prior to construction. Effluents from sewage treatment facilities shall not be discharged into any waters of the State except with prior approval of the health authority.

## SECTION 10: ELECTRICAL DISTRIBUTION SYSTEM

### 10.1

#### General Requirements

Every park shall contain an electrical wiring system consisting of wiring, fixtures, equipment and appurtenances which shall be installed and maintained in accordance with applicable codes and regulations governing such systems.

### 10.2

#### Power Distribution Lines

- (a) Main power lines not located underground shall be suspended at least 18 feet above the ground. There shall be a minimum horizontal clearance of three feet between overhead wiring and any mobile home, service building or other structure.
- (b) All direct burial conductors or cable shall be buried at least 18 inches below the ground surface and shall be insulated and specially designed for the purpose. Such conductors shall be located not less than one foot radial distance from water, sewer, gas or communication lines.

### 10.3

#### Individual Electrical Connections

- (a) Each mobile home lot shall be provided with an approved disconnecting device and overcurrent protective equipment. The minimum service per outlet shall be 120/240 volts AC, 50 amperes.
- (b) Outlet receptacles at each mobile home stand shall be located not more than 25 feet from the

overcurrent protective devices in the mobile home and a three-pole, four-wire grounding type shall be used. Receptacles shall be of weatherproof construction and configurations shall be in accordance with American Standard Outlet Receptacle C-73.1.

- (c) The mobile home shall be connected to the outlet receptacle by an approved type of flexible cable with connectors and a male attachment plug.
- (d) Where the calculated load of the mobile home is more than 50 amperes either a second outlet receptacle shall be installed or electrical service shall be provided by means of permanently installed conductors.

#### 10.4

##### Required Grounding

All exposed noncurrent carrying metal parts of mobile homes and all other equipment shall be grounded by means of an approved grounding conductor with branch circuit conductors or other approved method of grounded metallic wiring. The neutral conductor shall not be used as an equipment ground for mobile homes or other equipment.

## SECTION 11: SERVICE BUILDING AND OTHER COMMUNITY SERVICE FACILITIES

### 11.1

#### General

The requirements of this Section shall apply to service buildings, recreation buildings and other community service facilities such as:

- (a) Management offices, repair shops and storage areas;
- (b) Sanitary facilities;
- (c) Laundry facilities;
- (d) Indoor recreation areas;
- (e) Commercial uses supplying essential goods or services for the exclusive use of park occupants.

### 11.2

#### Required Community Sanitary Facilities

Every park shall be provided with the following emergency sanitary facilities;

For each 100 mobile home lots, or fractional part thereof, there shall be one flush toilet and one lavatory for each sex.

The building containing such emergency sanitary facilities shall be accessible to all mobile homes.

### 11.3

#### Structural Requirements for Buildings

- (a) All portions of the structure shall be properly protected from damage by ordinary uses and by decay, corrosion, termites and other destructive elements. Exterior portions shall be of such materials and be so constructed and protected as to prevent entrance or penetration of moisture and weather.
- (b) All rooms containing sanitary or laundry facilities shall:
  - 1. Have sound resistant walls extending to the ceiling between male and female sanitary facilities. Walls and partitions around showers, bathtubs, lavatories and other plumbing

ing fixtures shall be constructed of dense, nonabsorbent, waterproof material or covered with moisture resistant material.

- 2. Have at least one window or skylight facing directly to the outdoors. The minimum aggregate gross area of windows for each required room shall be not less than 10 percent of the floor area served by them.
  - 3. Have at least one window which can be easily opened, or a mechanical device which will adequately ventilate the room.
- (c) Toilets shall be located in separate compartments equipped with self-closing doors. Shower stalls shall be of the individual type. The rooms shall be screened to prevent direct view of the interior when the exterior doors are open.
  - (d) Illumination levels shall be maintained as follows: (1) general seeing tasks—five footcandles; (2) laundry room work area—40 footcandles; (3) toilet room, in front of mirrors—40 footcandles.
  - (e) Hot and cold water shall be furnished to every lavatory, sink, bathtub, shower and laundry fixture, and cold water shall be furnished to every water closet and urinal.

### 11.4

#### Barbecue Pits, Fireplaces, Stoves and Incinerators

Cooking shelters, barbecue pits, fireplaces, wood-burning stoves and incinerators shall be so located, constructed, maintained and used as to minimize fire hazards and smoke nuisance both on the property on which used and on neighboring property. No open fire shall be permitted except in facilities provided. No open fire shall be left unattended. No fuel shall be used and no material burned which emits dense smoke or objectionable odors.

## SECTION 12: REFUSE HANDLING

### 12.1

The storage, collection and disposal of refuse in the mobile home park shall be so conducted as to create no health hazards, rodent harborage, insect breeding areas, accident or fire hazards or air pollution.

### 12.2

All refuse shall be stored in flytight, watertight, rodentproof containers, which shall be located not more than 150 feet from any mobile home lot. Containers shall be provided in sufficient number and capacity to properly store all refuse.

### 12.3

Refuse collection stands shall be provided for all refuse containers. Such container stands shall be so designed as to prevent containers from being tipped, to minimize spillage and container deterioration and to facilitate cleaning around them.

### 12.4

All refuse containing garbage shall be collected at least twice weekly. Where suitable collection service is not available from municipal or private agencies, the mobile home park operator shall provide this service. All refuse shall be collected and transported in covered vehicles or covered containers.

### 12.5

Where municipal or private disposal service is

not available, the mobile home park operator shall dispose of the refuse by incineration or transporting to a disposal site approved by the health authority.

**12.6**

Refuse incinerators shall be constructed in accordance with engineering plans and specifications which shall be reviewed and approved by the health authority or other authority having jurisdiction.

**12.7**

Incinerators shall be operated only when attended by some person specifically authorized by the owner or operator of the mobile home park.

## **SECTION 13: INSECT AND RODENT CONTROL**

**13.1**

Grounds, buildings and structures shall be maintained free of insect and rodent harborage and infestation. Extermination methods and other measures to control insects and rodents shall conform with the requirements of the health authority.

**13.2**

Parks shall be maintained free of accumulations of debris which may provide rodent harborage or breeding places for flies, mosquitoes and other pests.

**13.3**

Storage areas shall be so maintained as to prevent rodent harborage; lumber, pipe and other building material shall be stored at least one foot above the ground.

**13.4**

Where the potential for insect and rodent infestation exists, all exterior openings in or beneath any structure shall be appropriately screened with wire mesh or other suitable materials.

**13.5**

The growth of brush, weeds and grass shall be controlled to prevent harborage of ticks, chiggers and other noxious insects. Parks shall be so maintained as to prevent the growth of ragweed, poison ivy, poison oak, poison sumac and other noxious weeds considered detrimental to health. Open areas shall be maintained free of heavy undergrowth of any description.

## **SECTION 14: FUEL SUPPLY AND STORAGE**

**14.1**

### **Natural Gas System**

- (a) Natural gas piping systems shall be installed and maintained in accordance with applicable codes and regulations governing such systems.
- (b) Each mobile home lot provided with piped gas shall have an approved manual shutoff valve installed upstream of the gas outlet. The outlet shall be equipped with an approved cap to prevent accidental discharge of gas when the outlet is not in use.

**14.2**

### **Liquified Petroleum Gas Systems**

- (a) Liquified petroleum gas systems shall be installed and maintained in accordance with applicable codes and regulations governing such systems.
- (b) Systems shall be provided with safety devices to relieve excessive pressures and shall be ar-

ranged so that the discharge terminates at a safe location.

- (c) Systems shall have at least one accessible means for shutting off gas. Such means shall be located outside the mobile home and shall be maintained in effective operating condition.
- (d) All LPG piping outside of the mobile homes shall be well supported and protected against mechanical injury. Undiluted liquified petroleum gas in liquid form shall not be conveyed through piping equipment and systems in mobile homes.
- (e) Liquified petroleum gas containers installed on a mobile home lot shall be securely but not permanently fastened to prevent accidental overturning. Such containers shall not be less than 12 nor more than 60 U. S. gallons gross capacity.
- (f) No liquified petroleum gas vessel shall be stored or located inside or beneath any storage cabinet, carport, mobile home, or any other structure, unless such installations are approved by the health authority.

**14.3**

### **Fuel Oil Supply Systems**

- (a) All fuel oil supply systems shall be installed and maintained in accordance with applicable codes and regulations governing such systems.
- (b) All piping from outside fuel storage tanks or cylinders to mobile homes shall be permanently installed and securely fastened in place.
- (c) All fuel oil storage tanks or cylinders shall be securely fastened in place and shall not be located inside or beneath any mobile home or less than five feet from any mobile home exit.
- (d) Storage tanks located in areas subject to traffic shall be protected against physical damage.

## **SECTION 15: FIRE PROTECTION**

**15.1**

The mobile home area shall be subject to the rules and regulations of the (name of municipality) fire prevention authority.

**15.2**

Mobile home parks shall be kept free of litter, rubbish and other flammable materials.

**15.3**

Portable fire extinguishers of a type approved by the fire prevention authority shall be kept in service buildings and at all other locations designated by such fire prevention authority and shall be maintained in good operating condition.

**15.4**

Fires shall be made only in stoves, incinerators and other equipment intended for such purposes.

**15.5**

- (a) Fire hydrants shall be installed if the park water supply system is capable to serve them in accordance with the following requirements:
  1. The water supply system shall permit the operation of a minimum of two one and one-half inch hose streams.
  2. Each of two nozzles, held four feet above the ground, shall deliver at least 75 gallons of water per minute at a flowing pressure of at least 30 pounds per square inch at the highest elevation point of the park.

- (b) Fire hydrants, if provided, shall be located within 500 feet of any mobile home, service building or other structure in the park.

**SECTION 16: MISCELLANEOUS REQUIREMENTS**

**16.1**

**Responsibilities of the Park Management**

- (a) The person to whom a license for a mobile home park is issued shall operate the park in compliance with this Ordinance and regulations issued hereunder and shall provide adequate supervision to maintain the park, its facilities and equipment in good repair and in a clean and sanitary condition.
- (b) The park management shall notify park occupants of all applicable provisions of this Ordinance and inform them of their duties and responsibilities under this Ordinance and regulations issued hereunder.
- (c) The park management shall supervise the placement of each mobile home on its mobile home stand which includes securing its stability and installing all utility connections.
- (d) The park management shall maintain a register containing the names of all park occupants. Such register shall be available to any authorized person inspecting the park.
- (e) The park management shall notify the health authority immediately of any suspected communicable or contagious disease within the park.

**16.2**

**Responsibilities of Park Occupants**

- (a) The park occupant shall comply with all applicable requirements of this Ordinance and regulations issued hereunder and shall maintain his mobile home lot, its facilities and equipment in good repair and in a clean and sanitary condition.
- (b) The park occupant shall be responsible for proper placement of his mobile home on its mobile home stand and proper installation of all utility connections in accordance with the instructions of the park management.
- (c) No owner or person in charge of a dog, cat or other pet animal shall permit it to run at large or to commit any nuisance within the limits of any mobile home lot.

**16.3**

**Restrictions on Occupancy**

A mobile home shall not be occupied for dwelling purpose unless it is properly placed on a mobile home stand and connected to water, sewerage and electrical utilities.

**SECTION 17: PENALTIES<sup>1</sup>**

Any person who violates any provision of this Ordinance shall upon conviction be punished by a fine of not less than .....dollars nor more than .....dollars; and each day's failure of compliance with any such provision shall constitute a separate violation.

**SECTION 18: CONFLICT OF ORDINANCES: EFFECT OF PARTIAL INVALIDITY**

**18.1**

In any case where a provision of this Ordinance is found to be in conflict with a provision of any other ordinance or code of this (name of municipality) existing on the effective date of this Ordinance, the provision which, in the judgment of the health authority, establishes the higher standard for the promotion and protection of the health and safety of the people shall prevail. In any case where a provision of this Ordinance is found to be in conflict with a provision of any other ordinance or code of this (name of municipality) existing on the effective date of this Ordinance which establishes a lower standard for the promotion and protection of the health and safety of the people, the provisions of this Ordinance shall be deemed to prevail, and such other ordinances or codes are hereby declared to be repealed to the extent that they may be found in conflict with this Ordinance.

**18.2**

If any section, subsection, paragraph, sentence, clause or phrase of this Ordinance should be declared invalid for any reason whatsoever, such decision shall not affect the remaining portions of this Ordinance which shall remain in full force and effect; and to this end the provisions of this Ordinance are hereby declared to be severable.

**SECTION 19: EFFECTIVE DATE<sup>2</sup>**

This Ordinance shall be effective on and after the ..... day of ....., 19.....

<sup>1</sup>Since the penalties which may be prescribed for violations will be governed by state constitutional or statutory limitations which vary from state to state, blank space in the Penalty Section of this Ordinance must be filled in by local authorities.

<sup>2</sup>In many states a local ordinance cannot become effective until it has been published or until a specific period of time after adoption has elapsed, etc. Even in the absence of such requirements, however, it will probably be considered advisable to prescribe an effective date which is at least 30 to 60 days later than the date of adoption of this Ordinance to give ample time for compliance.

specting the mobile home park and should be preserved for a period designated by the health authority.

#### **Communicable Disease Control**

The owner or operator of a mobile home park, must notify the health authority immediately of any known or suspected case of a communicable disease. In the case of diseases that are diagnosed as quarantinable, the mobile home and its occupants should not be allowed to depart from the

park and clothing or other articles that have been exposed to the infection should not be removed, without the approval of the health authority.

#### **Pets**

No dogs, cats, or other domestic animals should be permitted unrestricted freedom in a parking area. Any kennels, pens, or other facilities provided for such pets should be maintained in a sanitary condition at all times.

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APPENDIX III

TABLE III-1.--Population: Age Groups 10-10, 20-29, 55-64, and 65-74, 1950 and 1960.

REGIONS & STATES	10-19 AGE GROUP				20-29 AGE GROUP				55-64 AGE GROUP				65-74 AGE GROUP			
	NUMBER		CHANGE		NUMBER		CHANGE		NUMBER		CHANGE		NUMBER		CHANGE	
	1950	1960	No.	%	1950	1960	No.	%	1950	1960	No.	%	1950	1960	No.	%
<b>UNITED STATES</b>	<b>21,828,799</b>	<b>29,992,735</b>	<b>8,153,936</b>	<b>37.3</b>	<b>23,855,206</b>	<b>21,669,885</b>	<b>-2,185,321</b>	<b>-9.2</b>	<b>13,326,887</b>	<b>15,572,317</b>	<b>2,245,430</b>	<b>16.8</b>	<b>8,437,698</b>	<b>10,996,842</b>	<b>2,559,144</b>	<b>30.4</b>
<b>NORTH</b>	<b>11,238,721</b>	<b>15,324,643</b>	<b>4,085,922</b>	<b>36.4</b>	<b>12,999,001</b>	<b>11,176,454</b>	<b>-1,822,547</b>	<b>-14.0</b>	<b>8,174,893</b>	<b>8,952,272</b>	<b>777,379</b>	<b>9.5</b>	<b>5,046,053</b>	<b>6,362,071</b>	<b>1,316,018</b>	<b>26.1</b>
New England	1,224,802	1,674,021	449,219	36.7	1,436,243	1,205,992	-230,251	-16.0	930,752	988,912	58,160	6.2	601,567	731,743	130,176	21.6
Maine	141,833	168,456	26,623	18.8	157,690	114,475	-43,215	-27.5	87,737	87,737	0	0.0	59,971	66,174	6,203	10.3
New Hampshire	74,728	100,804	26,076	34.9	74,606	69,159	-5,447	-7.3	52,645	57,321	4,676	8.9	36,826	42,982	6,156	16.7
Vermont	58,208	69,213	11,005	19.0	54,271	43,456	-10,815	-19.9	34,239	35,787	1,048	3.1	25,072	26,959	1,887	7.5
Massachusetts	604,013	806,409	202,396	33.5	725,369	591,908	-133,461	-18.4	482,178	500,906	18,728	3.8	311,683	373,260	61,577	19.8
Rhode Island	102,756	137,037	34,281	33.4	135,115	101,456	-33,659	-24.9	76,881	82,055	5,174	6.7	47,291	59,445	11,654	24.4
Connecticut	243,264	391,622	148,358	61.0	311,983	285,528	-26,455	-8.5	201,872	225,610	23,738	11.8	120,274	162,923	42,649	35.5
Middle Atlantic	1,890,012	2,374,117	484,105	25.6	2,291,735	1,902,716	-389,019	-17.0	2,980,637	3,369,941	389,304	13.1	1,767,804	2,303,827	536,023	30.3
New York	1,196,218	2,498,479	1,302,261	109.1	2,291,735	1,958,413	-333,322	-14.5	1,513,102	1,741,178	228,076	15.1	1,162,155	2,291,613	1,129,458	97.1
New Jersey	580,403	920,743	340,340	58.8	760,293	681,427	-78,866	-10.4	479,067	566,889	87,822	18.3	274,362	385,606	111,244	40.5
Pennsylvania	1,467,411	1,804,915	337,504	23.0	1,677,377	1,260,876	-416,501	-24.8	988,493	1,061,874	73,381	7.4	610,900	756,066	145,166	23.8
East North Central	4,118,502	5,883,239	1,764,737	42.8	4,761,738	4,291,969	-469,769	-9.9	2,894,765	3,164,231	269,466	9.3	1,767,419	2,227,743	460,324	26.0
Ohio	1,055,084	1,580,838	525,754	49.8	1,258,512	1,161,346	-97,166	-7.7	753,672	816,894	63,222	8.4	479,750	585,868	106,118	22.1
Indiana	536,507	784,582	248,075	46.3	620,682	567,053	-53,629	-8.6	359,901	394,070	34,169	9.5	241,024	289,683	48,659	20.2
Illinois	1,101,622	1,554,933	453,311	41.1	1,351,975	1,190,640	-161,335	-11.9	880,257	947,025	66,768	7.6	514,941	655,423	140,482	27.3
Michigan	903,077	1,307,678	404,601	44.8	1,079,760	970,921	-108,839	-10.5	566,461	645,434	78,973	13.9	319,653	435,004	115,351	36.1
Wisconsin	476,267	655,208	178,941	37.6	501,407	450,009	-51,398	-10.2	334,474	360,850	26,376	7.9	208,051	265,798	57,747	27.7
West North Central	2,045,325	2,547,246	491,921	24.1	2,071,615	1,775,287	-296,328	-14.3	1,368,715	1,429,186	60,471	4.4	909,263	1,098,758	189,495	20.8
Minnesota	411,247	579,062	167,815	40.8	434,492	388,043	-46,449	-10.7	292,544	305,896	13,352	4.6	178,493	231,401	52,908	30.3
Iowa	381,391	461,759	80,368	21.1	382,631	307,139	-75,492	-19.7	259,790	259,261	-529	-0.2	176,449	205,668	29,219	16.6
Missouri	551,864	685,524	133,660	24.2	576,785	500,652	-76,133	-13.2	390,856	425,074	34,218	8.8	270,222	319,871	49,649	18.2
North Dakota	105,492	116,501	11,009	10.4	92,318	74,029	-18,289	-19.8	50,971	51,711	740	1.5	31,557	37,844	6,287	14.1
South Dakota	104,269	112,509	8,240	7.9	98,898	76,988	-21,910	-22.2	60,444	60,048	-396	-0.7	32,527	47,111	14,584	45.1
Nebraska	194,975	228,490	33,515	17.2	198,012	165,969	-32,043	-16.4	132,365	132,375	10	0.0	85,660	107,189	21,529	25.2
Kansas	274,045	351,401	77,356	28.2	268,479	263,147	-5,332	-2.0	182,249	194,621	12,372	6.8	127,010	149,714	22,704	17.9
<b>SOUTH</b>	<b>7,880,704</b>	<b>9,985,071</b>	<b>2,104,367</b>	<b>26.7</b>	<b>7,615,180</b>	<b>6,942,223</b>	<b>-672,957</b>	<b>-8.8</b>	<b>3,381,660</b>	<b>4,384,431</b>	<b>1,002,771</b>	<b>29.6</b>	<b>2,265,019</b>	<b>3,050,822</b>	<b>785,803</b>	<b>34.7</b>
South Atlantic	1,472,925	4,671,662	3,198,737	216.0	3,249,818	1,145,932	-2,103,886	-64.8	1,487,988	2,031,362	543,374	36.5	980,199	1,422,719	442,520	45.1
Delaware	42,752	70,477	27,725	64.9	56,997	6,849	-50,148	-88.1	27,982	34,420	6,438	23.0	12,705	15,505	2,800	22.1
Maryland	312,321	520,252	207,931	66.9	401,157	384,894	-16,263	-4.1	184,634	240,139	55,505	30.1	111,898	152,333	40,435	36.0
D.C.	87,440	101,409	13,969	15.9	156,201	114,967	-41,234	-26.4	69,149	76,004	6,855	9.9	31,081	42,384	11,303	36.4
Virginia	531,982	712,253	180,271	33.9	586,098	541,885	-44,213	-7.5	278,736	290,911	12,175	4.4	144,000	191,178	47,178	32.7
West Virginia	357,419	498,761	141,342	39.5	318,348	281,273	-37,075	-11.6	144,762	140,555	-4,207	-2.9	95,534	115,922	20,388	21.2
North Carolina	747,210	894,135	146,925	19.7	698,441	610,509	-87,932	-12.6	248,077	325,521	77,444	31.2	160,245	210,454	49,769	31.0
South Carolina	406,575	491,749	85,174	21.0	349,441	314,139	-35,302	-10.1	172,207	171,900	-307	-0.2	84,348	103,429	19,241	22.9
Georgia	601,099	744,204	143,105	23.8	552,461	527,941	-24,520	-4.4	276,405	281,155	4,750	1.7	165,162	194,791	29,629	18.0
Florida	159,165	252,670	93,505	58.8	137,577	94,415	-43,162	-31.4	76,015	102,545	26,530	34.9	42,000	69,289	27,289	64.9
East South Central	2,041,040	2,789,134	748,094	36.6	1,779,921	1,469,244	-310,677	-17.5	808,481	971,048	162,567	20.1	570,243	808,538	238,295	41.8
Kentucky	514,812	645,279	130,467	25.5	450,124	368,411	-81,713	-18.2	228,027	256,882	28,855	12.6	158,541	188,401	29,860	18.8
Tennessee	537,012	655,552	118,540	22.1	512,280	444,500	-67,780	-13.2	272,145	291,130	18,985	6.9	162,704	201,061	38,357	23.6
Alabama	588,640	679,772	91,132	15.5	477,244	402,511	-74,733	-15.7	200,007	248,979	48,972	24.5	141,576	171,900	30,324	21.4
Mississippi	412,531	498,551	86,020	20.9	320,199	250,518	-69,681	-21.8	143,234	172,037	28,803	20.1	107,384	124,524	17,140	16.0
West South Central	2,364,169	3,024,015	659,846	27.9	2,305,441	2,122,027	-183,414	-7.9	1,087,189	1,462,001	374,812	34.4	714,375	939,480	225,105	31.5
Oklahoma	339,730	318,244	-21,486	-6.3	265,884	191,499	-74,385	-28.0	150,551	165,621	15,070	10.0	104,004	121,521	17,517	16.8
Louisiana	445,281	569,198	123,917	27.8	475,887	403,447	-72,440	-15.2	184,915	248,615	63,700	34.5	125,648	161,225	35,577	28.3
Oklahoma	365,573	404,526	38,953	10.6	331,095	281,801	-49,294	-14.9	185,179	216,036	30,857	16.7	122,251	137,365	15,114	12.3
Texas	1,213,065	1,642,151	429,086	35.4	1,278,575	1,250,280	-28,295	-2.2	566,544	751,729	185,185	32.7	350,472	491,449	140,977	40.2
<b>WEST</b>	<b>2,710,874</b>	<b>4,683,021</b>	<b>1,972,147</b>	<b>72.7</b>	<b>3,221,125</b>	<b>3,551,298</b>	<b>330,173</b>	<b>10.2</b>	<b>1,768,334</b>	<b>2,235,614</b>	<b>467,280</b>	<b>26.4</b>	<b>1,211,626</b>	<b>1,983,894</b>	<b>772,268</b>	<b>63.7</b>
Mountain	811,059	1,227,870	416,811	51.3	798,345	879,911	81,566	10.2	398,422	491,136	92,714	23.3	247,632	349,514	101,882	41.2
Montana	87,174	111,809	24,635	28.1	85,897	78,460	-7,437	-8.7	56,752	51,950	-4,802	-8.5	35,887	42,996	7,109	19.8
Idaho	97,282	125,809	28,527	29.3	85,485	76,357	-9,128	-10.7	46,951	50,144	3,193	6.8	20,365	27,717	7,352	36.4
Wyoming	45,191	51,440	6,249	13.8	48,485	40,522	-7,963	-16.4	23,499	25,455	1,956	8.3	12,880	17,580	4,700	36.5
Colorado	195,684	297,472	101,788	52.0	212,227	224,875	12,648	6.0	115,103	134,907	19,804	17.3	77,018	100,731	23,713	30.8
New Mexico	122,341	179,698	57,357	46.9	115,052	134,425	19,373	16.8	41,225	56,043	14,818	35.9	22,723	34,948	12,225	53.6
Arizona	124,642	234,237	109,595	87.9	115,991	169,607	53,616	46.2	53							

TABLE III-2.--Mobile Home Parks in the Lansing SMSA; Number of License Sites 1951-1968.

Park Name	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total
Barnell																				
Della Harter																				
Francis	23	23	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Geoffrey	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Harlin																				
Karsh-Wink																				
Lisa O'Reilly	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Milroy																				
Mobile Home Park W. W. W.	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Losers																				
Plyer Hill	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Shagbark	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Sharon																				
Sprayer																				
Triller Park	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Williams																				
Willow																				
Wishmill																				
Worlow's																				
Y. P. O.																				
Yvonne																				
Zavani																				
King's Pointe																				
Kristana																				
Norman Heights																				
Lark Oak																				
St. John																				
Yves																				
Hickory Park																				
Hixey																				
Imperial																				
Mablewood																				
Total	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37

NOTE: - Includes mobile home parks in the SMSA.

TABLE III-3.--Population forecasts by age-sex groups for the Lansing tri-county region.

Age Group	1960*	1965	1970	1975	1980	1985	1990
Male Population							
0-4	18924	20860	23850	26810	30590	33570	36830
5-9	16829	18140	19310	21010	23150	26290	28670
10-14	14045	16720	19180	19380	20790	21870	25920
15-19	12690	17950	23580	26470	29290	30920	33140
20-24	11818	17750	25300	30030	34230	36500	38980
25-29	10198	10700	15340	18740	22400	24610	25550
30-34	9760	9730	9670	12950	15840	18900	20730
35-39	9397	9930	9830	9410	12470	15200	18280
40-44	8420	9470	9890	9620	9130	12120	14760
45-49	7849	8250	8220	9560	9200	8630	11590
50-54	6803	7730	8030	9040	9170	8910	8380
55-59	6188	6350	7120	7500	8330	8560	8300
60-64	4845	5500	5570	6470	6680	7540	7700
65-69	3972	4100	4660	4810	5480	5700	6440
70-74	2912	3170	3230	3780	3850	4450	4580
75-79	1919	2040	2240	2330	2700	2770	3200
80-84	1025	1320	1390	1600	1620	1910	1990
85	554	650	700	890	850	1000	1130
Total Male	148148	170270	197110	220200	244760	270510	296170
Female Population							
0-4	18367	19785	22480	25170	28830	31720	34900
5-9	16268	17700	18110	20000	20810	25070	27480
10-14	13604	16520	17690	18220	19310	21570	24630
15-19	13097	18000	23100	25280	27020	29020	31460
20-24	11818	15740	22380	26530	29580	31770	33750
25-29	9782	10870	14230	18230	21440	23010	23700
30-34	9796	9740	10550	12770	16530	19130	20160
35-39	9727	10040	10020	10600	12660	16280	18770
40-44	8839	9840	10130	9840	10260	12240	15800
45-49	7926	8740	9720	9960	9510	9940	11940
50-54	7120	7850	8660	9690	9690	9390	9730
55-59	6301	6760	7410	8270	9100	9260	8960
60-64	5217	5940	6330	7090	7730	8680	8820
65-69	4400	4850	5510	6000	6570	7260	8150
70-74	3647	3740	4110	4820	5190	5780	6380
75-79	2588	2870	2950	3420	3870	4260	4750
80-84	1442	1930	2110	2230	2550	2790	3220
85	929	1040	1170	1410	1360	1720	1880
Total Female	150801	171955	196660	219530	243110	268890	294480
Grand Total	298949	342225	393770	439730	487870	539400	590650
Employment	111400	119800	131000	147800	158300	175700	193700
MSU Enrollment	17474	28564	42500	52500	60000	65000	67500

\*Figures from 1960 Census

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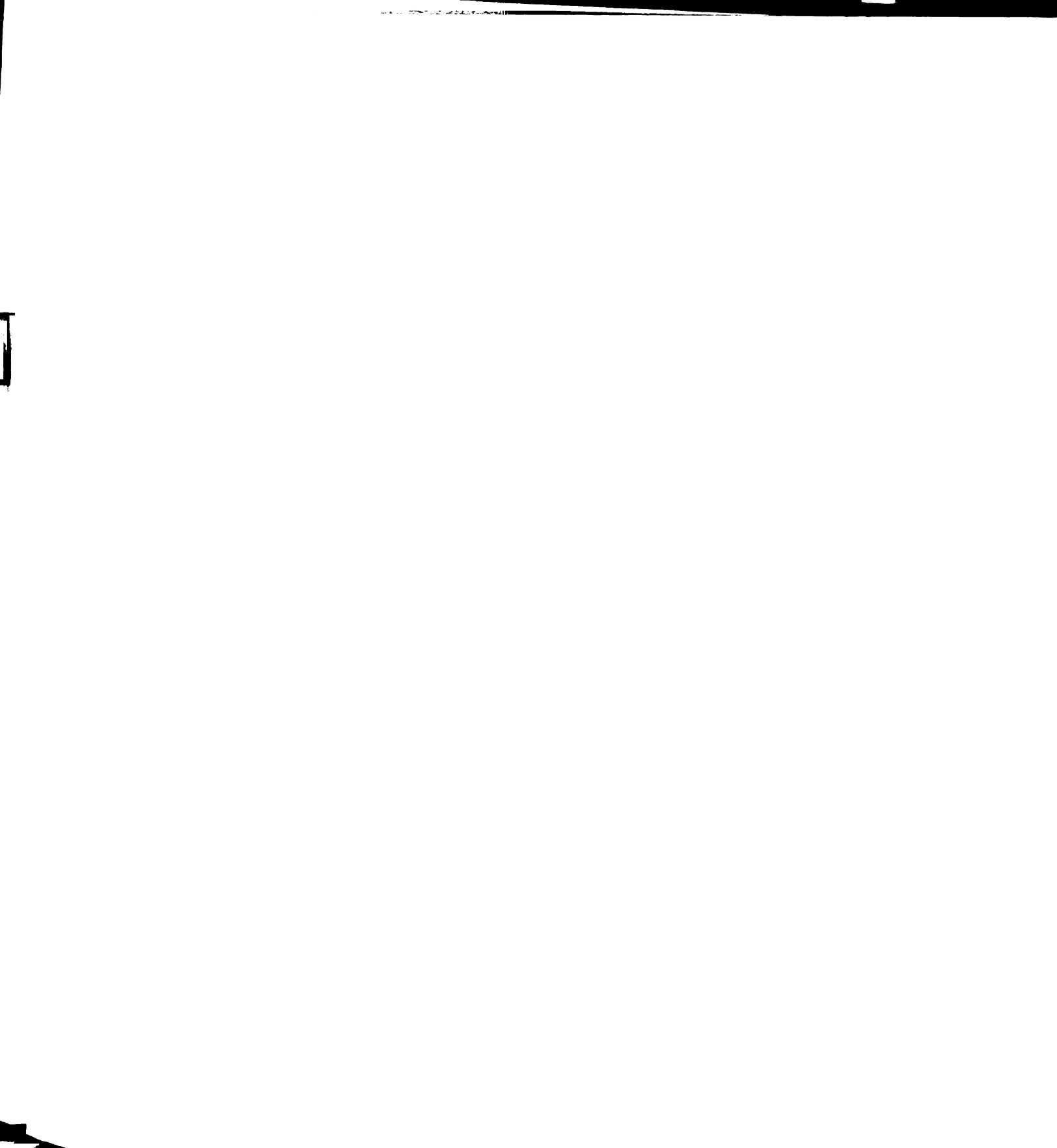
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