INVENTORY and ANALYSIS of RESIDENTIAL LAND USE

FRANKLIN COUNTY REGIONAL PLANNING COMMISSION.....COLUMBUS, OHIO

RESIDENTIAL LAND USE INVENTORY AND ANALYSIS

Prepared for

The Comprehensive Regional Plan for
Columbus and Franklin County

Regional Planning Commission
Franklin County

Roy C. Willey

November, 1967

Preparation of this publication was financed by appropriations from Franklin County, Municipalities in Franklin County, and other Local Public and Private Agencies together with an urban planning grant from the Department of Housing and Urban Development, under the provisions of Section 701 of the Housing Act of 1954, as amended.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

This report on residential land use consists of an inventory and analysis of available data. The bulk of this material is descriptive, attempting to identify and evaluate the many determinants of residential land use. A preliminary effort has been made to consider each residential determinant independently, despite the fact that there is great interdependence of factors and the influence of each on the aggregate is not always known.

It is possible, however, to make a reasonable appraisal of current residential development, to compare it with an earlier study,[1] and to extract elements indicative of certain trends which have validity and usefullness for future projections.

Residential land use is described first in terms of density (number of dwelling units per net residential acre), then with respect to socio-economic data from the 1960 census; private and public development policies are examined; subdivisions, the preponderant residential land uses, are analyzed; the changes between 1954 and 1964 are considered, as well as current residential trends and their forecast to 1975 and 1985.

Each subject is treated in an expository manner. Later reports will consider detailed data which has been collected and is being processed to make it adaptable to requirements for projections of residential land use in the future.

[1] Economic Base Study and Related Reports, for the City Planning Commission and Franklin County Regional Planning Commission by Harland Batholomew and Associates, 1954-1956.

2. METHODOLOGY - USE OF DENSITY

Planners long have struggled with the problem of how best to classify and describe residential land use. One method is to map housing according to type, in the same manner as housing data is collected in a field survey. A simple code is designed to indicate single-family dwelling units; multiple-family units, from a duplex or twin single up to a large apartment building, are distinguished by a group of coded numbers; dormitories, barracks, and trailer parks are also coded.

Using this system, it soon becomes apparent that it is too complex to map. It is statistically useful, interesting, and readily available from a computer; but to comprehend fully the urban residential pattern, the information must be mapped, and to make such a graphic presentation, parcel by parcel, requires a map scale so large that the size would be unwieldy. For example, a map of Franklin County at a scale which could show each parcel by a color or numerical code would measure about 30 feet to a side. Cutting it into smaller pieces is an unsatisfactory solution. Such detail is not always necessary because many planning decisions and suggestions can be derived from a less specific presentation of data.

A popular substitute for the above is density distribution. By this method, an entire city block can be coded according to the number of dwelling units per net residential acre in the particular block. Net residential acre means that streets and other land uses, such as commercial, are excluded from the determination of how many acres of a block are devoted exclusively to residential use. Gathering the measurements needed is a tedious task, but it has the advantage of being a very graphic technique for mapping. By color coding densities, large areas will often stand out clearly on a map. Thus, a subdivision of identical lot sizes may extend for many blocks, and, having the same densities (or falling within the limits of a narrow range of densities), the blocks will all have the same color.

Neither of two methods reveals anything about crowding, quality of housing, rental property versus owner occupied, etc. Another method, recently developed, is the Land Use Intensity Rating.[2] It is related to a ratio of floor area to land area. This rating also established minimum amounts for open space, non-vehicular livability space, and recreation space for each square foot of floor area of a property. It is a highly complex concept, involving many variables, and is presently being used by FHA.

The density distribution method provides residential land use planners with a technique for suggesting the best possible allocation of land in order to house properly the expected increase in population.

The present pattern of residential density is examined in detail throughout the region. This pattern is analyzed in the light of historical development, recent observed trends, problems of access, flood plains, availability of sewers, presence of conflicting uses or land uses which, for one or many reasons, are not conducive to residential development, and all other factors which seem to

---

[2]"Land Use Intensity," Land Policy Bulletin No. 7, FHA, issued December, 1966.

have an effect on the problem. Then, keeping in mind these analyses, all vacant land is studied with regard to suitability for further residential development.

The population projections, which are derived as objectively as possible, are then distributed over these vacant areas according to what the analysis tells us about the potential of a particular area's development. There are admitted difficulties in this procedure; the tendency must be resisted to rely on a subjective intuition. Not even a builder can tell us with confidence that a given area will be developed, beyond his own short range plans.

In order to optimize the utilization of land in the future, the implications of annexation policies must be effectively incorporated into the planning and development process.

Residential land use data for 1964 is available in several forms; in tables, computer printout, and on maps. Most of this data is available by blocks, with census tract, city, and county summaries, based on the Blue Plan Origin and Destination Field Survey, conducted by the Ohio Department of Highways in the summer of 1964.

On maps, residential land use is illustrated by densities instead of by type of structure. Net residential density is the number of dwelling units per acre of land devoted exclusively to residential use. Dwelling units which are part of mixed uses are excluded. On the 4,000' scale map, a color code indicates four net residential density classifications: On 1,000' scale maps, there is a finer breakdown into nine density categories. (See Appendix II for the nine categories.)

Data available by computer tabulation consists of the following items: a block summary of types of dwelling units, area in acres, number of dwelling units, net residential density, and various percentage tabulations of the above data.

3. DISTRIBUTION OF RESIDENTIAL DENSITY

3.1 General

According to the 1964 Land Use Inventory conducted as part of the Blue Plan, land devoted exclusively to residential use constituted 44.6 percent of the total urbanized area in Franklin County.[3] This was the largest percentage of urban land devoted to a single use. In contrast, manufacturing accounted for only 4.1 percent of the urbanized area, and commercial land use was only 4.8 percent. The only other greatly significant category of land use was streets and highways which amounted to 20.6 percent of the total urbanized area. In comparison to most older and larger metropolitan areas, the Franklin County residential land use percentage is quite high.

The shape of density distribution in Franklin County is best described as a blend of two different theories of urban development; first, the sector theory of radial development, with high densities arrayed along the arterial streets leading out from the center of Columbus, and second, the concentric circle concept of circular bands of decreasing densities as the distance from the center increases. A merger of these two theories would resemble a spider web, with highest densities along the radial strands, and lower densities between, decreasing from the center out towards the suburbs. This is an approximate description of the present situation in Columbus (see Figure 1).

3.2 Very High Density

Very high residential densities (over 36.1 DU/acre) are restricted to the Columbus Central Business District (CBD) and to Ohio State University. Most of the dwelling units close to the CBD are high rise structures built as public housing for elderly or low income households, or as luxury priced housing. Primary requirements of these types of housing have been easy transit accessibility, access to the freeway system, a major street, and to the CBD. Most of the public housing has been built in urban renewal or other cleared areas of the center city. A few luxury high rise apartments have been built in urban renewal areas or on the sites of older homes. One luxury high rise has been built in the suburb of Grandview Heights at a location close to U.S. 33.

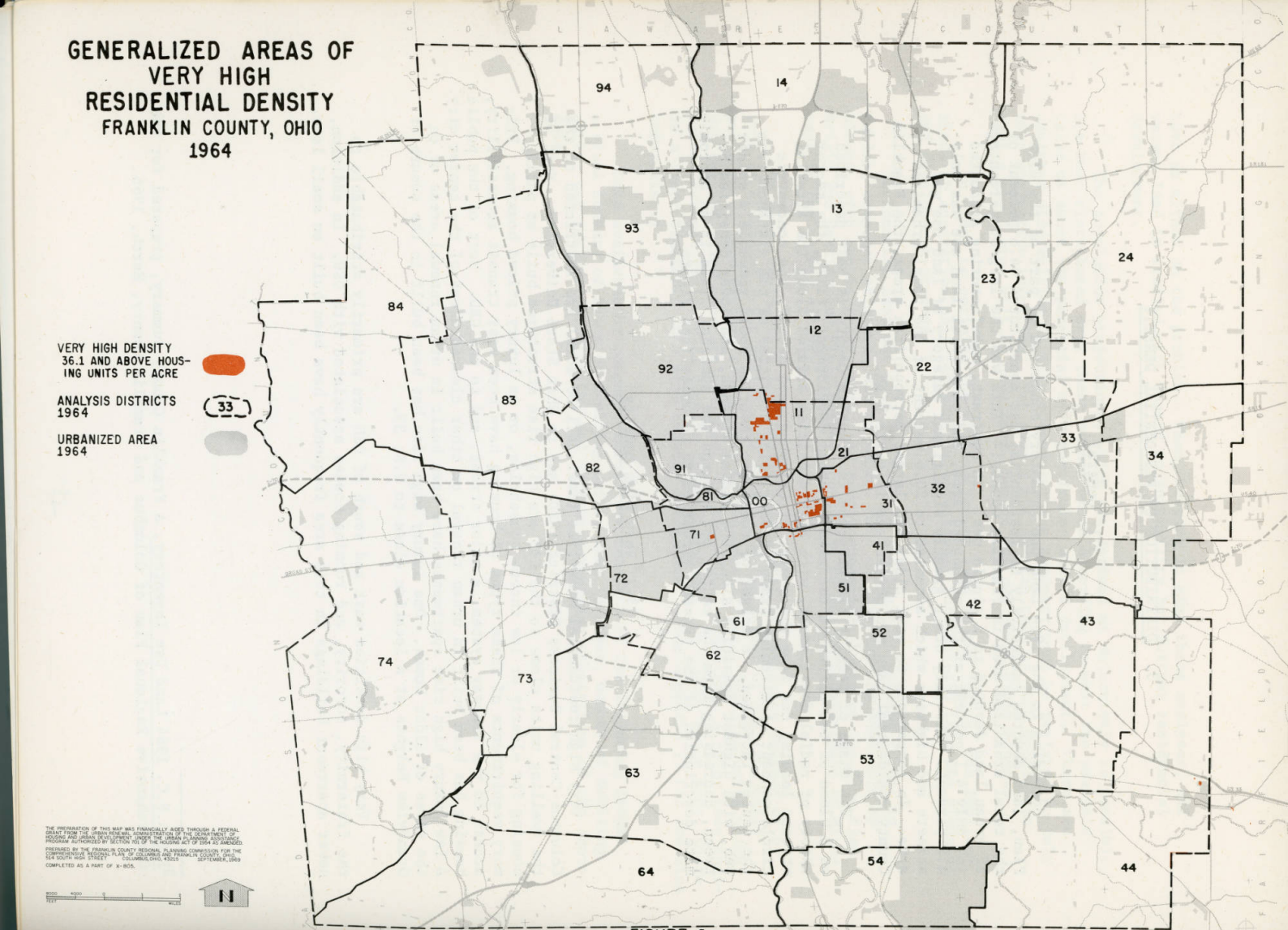
Very high densities east and south of OSU are primarily attributable to the fraternity, sorority, and rooming houses associated with OSU. In addition, newer apartment buildings in this area frequently have been built on small lots.

---

[3] F.C.R.P.C. 1964 Land Use Inventory, A Franklin County Summary, prepared for the Comprehensive Regional Plan of Columbus and Franklin County, March, 1966.

GENERALIZED AREAS OF VERY HIGH RESIDENTIAL DENSITY

FRANKLIN COUNTY, OHIO
1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

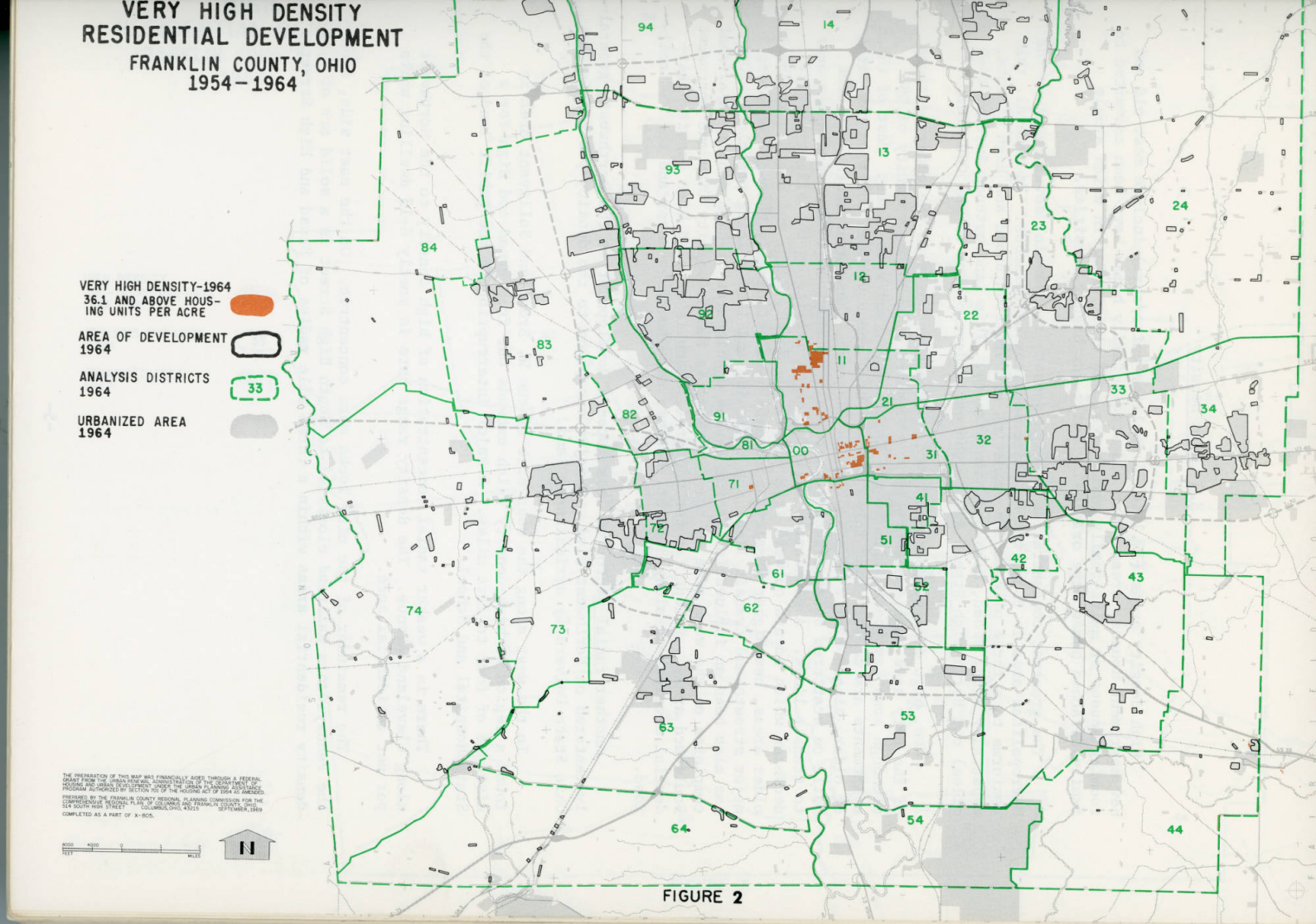
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO
514 SOUTH HIGH STREET COLUMBUS, OHIO 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 1

VERY HIGH DENSITY RESIDENTIAL DEVELOPMENT

FRANKLIN COUNTY, OHIO
1954–1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 2

3.3 High Density

High density areas (10.1 to 36 dwelling units/acre) include most old and new apartment houses, areas where old single family homes have been converted to rooming houses or multi-family structures, and older areas in which single family detached homes were originally built for higher densities.

The greatest concentration of high density residential development in the Metropolitan area is found in the older sections of Columbus. In general, this conforms to a three mile radius eminating outward from Broad and High Streets, especially along Broad, High and Main Streets. This land extends further (4-5 miles) out North High Street due to the early development of the OSU area.

New, high density apartments which have been built in the older sections of the city have been concentrated on the North side in the vicinity of OSU although some have been built on the East, South, and West sides. Most of these apartments are no more than three stories high and have been built on the sites of older, single family houses. In the OSU area, these apartments have been built on scattered sites although there is a tendency to locate reasonably near to transit lines. A pedestrian orientation is implied by the slight density decrease which occurs outward from OSU to the North, East, and South. In the older areas, new higher density apartments have principally been placed along major streets and transit lines due to zoning and land pricing practices. OSU has also been an influential factor in the development of high density apartment complexes on the west side of the Olentangy in the University City and Northwest Boulevard areas. Except for the OSU area, there is a solid high density residential development along High St. between the Olentangy River and the NYC railroad.

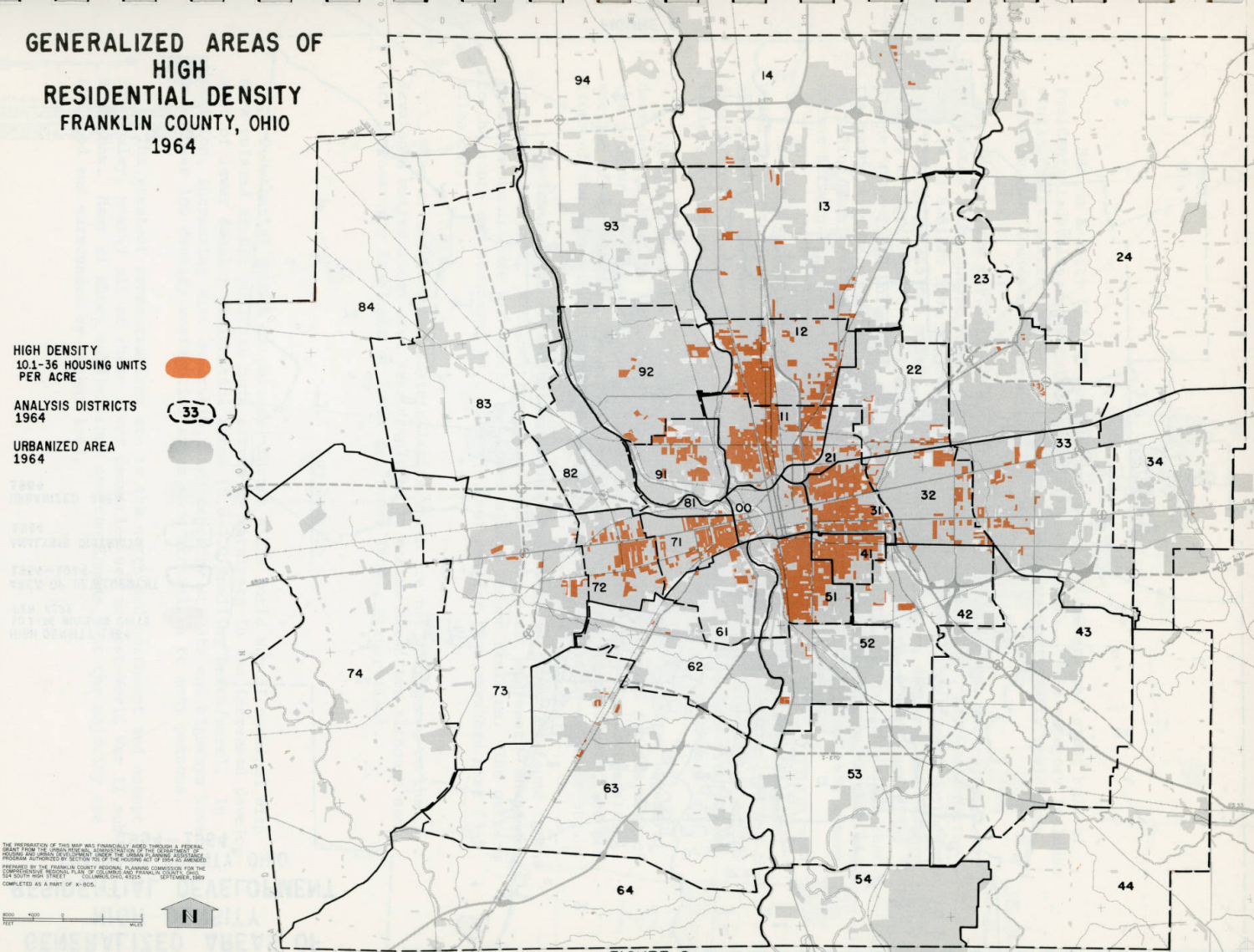
Another radial sector of less intense development is the northwest, generally centered on Northwest Blvd. A major exception to the density pattern is the Ohio State University agricultural land.

To the west along the west side of the W. Broad and Sullivant area is found a region of high density which extends out from Broad and High for a distance of four to five miles. A major interruption is the public land of the State Hospital and School.

There is a weaker radial concentration of high density to the northwest along Cleveland Avenue. The density range here is mostly 8-15 dwelling units per net residential acre.

The remainder of the city looks more concentric. On the east side, from the Pennsylvania Railroad clockwise to South High Street is a solid arc of high density residential areas within a three mile radius of Broad and High Streets.

GENERALIZED AREAS OF HIGH RESIDENTIAL DENSITY
FRANKLIN COUNTY, OHIO
1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

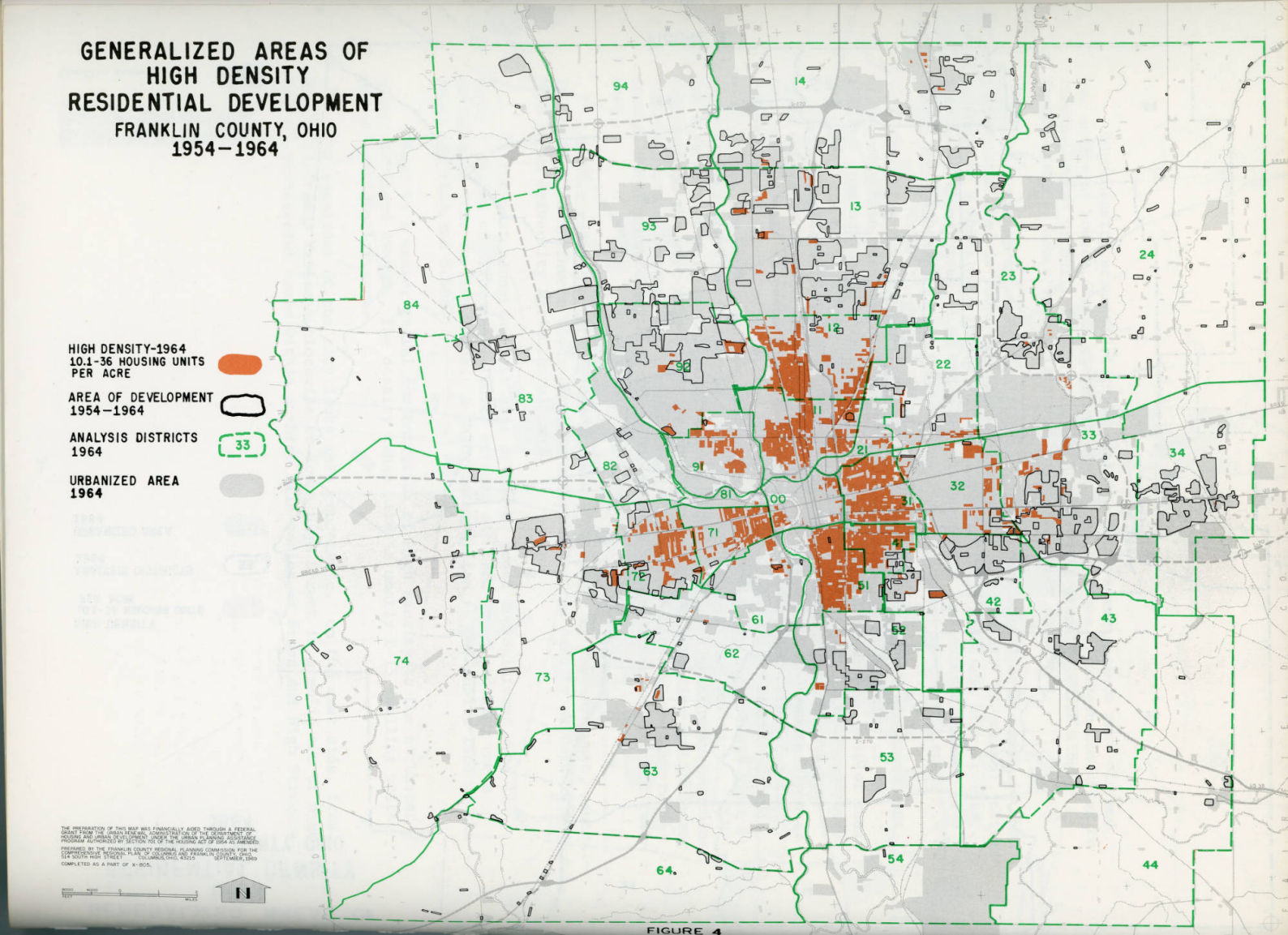
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE DEVELOPMENT PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO. 373 SOUTH HIGH STREET, COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 3

GENERALIZED AREAS OF HIGH DENSITY RESIDENTIAL DEVELOPMENT

FRANKLIN COUNTY, OHIO
1954–1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO.
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF K-805.

FIGURE 4

3.4 Medium Density

Medium density (4.1-10 dwelling units/acre) includes the great bulk of residential development outside the older central city. This category includes single family detached homes, two family residences, four family residences, and some town houses or apartments.

The pattern for medium range densities is irregular but more closely approximates a concentric ring pattern to the west, northwest, north and northeast (4 to 8 miles from the central city). On the north side toward Worthington this ring bulges to ten miles. The medium ring, with its northern and eastern bulges, is interrupted by mining, sewage treatment plants, rivers, and flood plains, Ohio State University, railroads, and industry, to such an extent that the pattern is very nearly radial. The most significant exception to this ring of medium densities is in the northeast, which until recently, has been almost vacant between Port Columbus Airport and Westerville Road.

Generally, upper middle income single family residential developments which remain today as medium density areas were constructed between 1920 and the early 1950's. In recent years, this income class has generally shifted to low density development. Areas representative of these would include portions of Bexley, Arlington, Grandview Heights, and the north side of Columbus.

Middle income single family residential development indicates a general decrease in density. The areas of higher medium density would include most of the pre-war and post-war housing built south of Morse Road, the southeastern section of Worthington, the west side between Mound and Broad Streets, and portions of the east side, especially centered on Main St. from 3-10 miles out.

The lower range of medium density (4-6 DU/acre) is generally found in the northeast and east. A higher range is found in the south and west. These newer developments include mid-middle and lower middle income families. The pattern to the south and southeast is concentric, but smaller than anywhere else (3-5 miles out).

Most of the suburban municipalities which are not contiguous to the developed metropolitan area have developed at medium densities although some are increasingly developed at lower densities (e.g., Westerville).

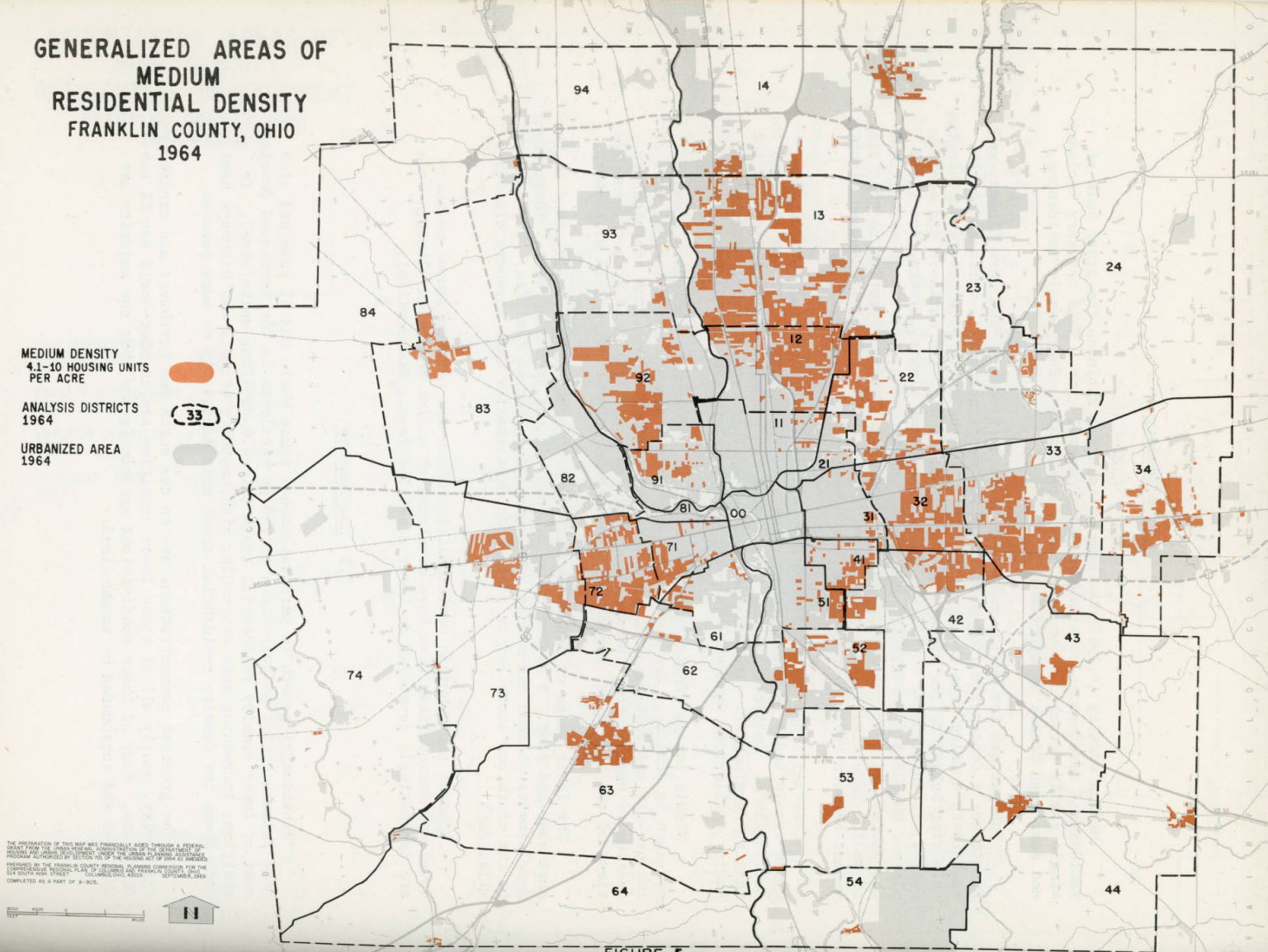
3.5 Low Density

Substantial growth in personal income since World War II combined with more relaxed credit policies have served as catalysts in the increased development of lower density residential areas (0.6-4.0 dwelling units/acre). In addition, increasing auto ownership, high capacity streets and highways have made these low density residential areas more accessible to many persons.

The greatest concentrations are to the north and northwest and except for Bexley, nearly all of these lower densities are in post-World War II subdivisions. Many of these subdivisions are contiguous, but the majority are isolated and surrounded by vacant land.

GENERALIZED AREAS OF MEDIUM RESIDENTIAL DENSITY

FRANKLIN COUNTY, OHIO
1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE HOUSING AND HOME FINANCE AGENCY UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

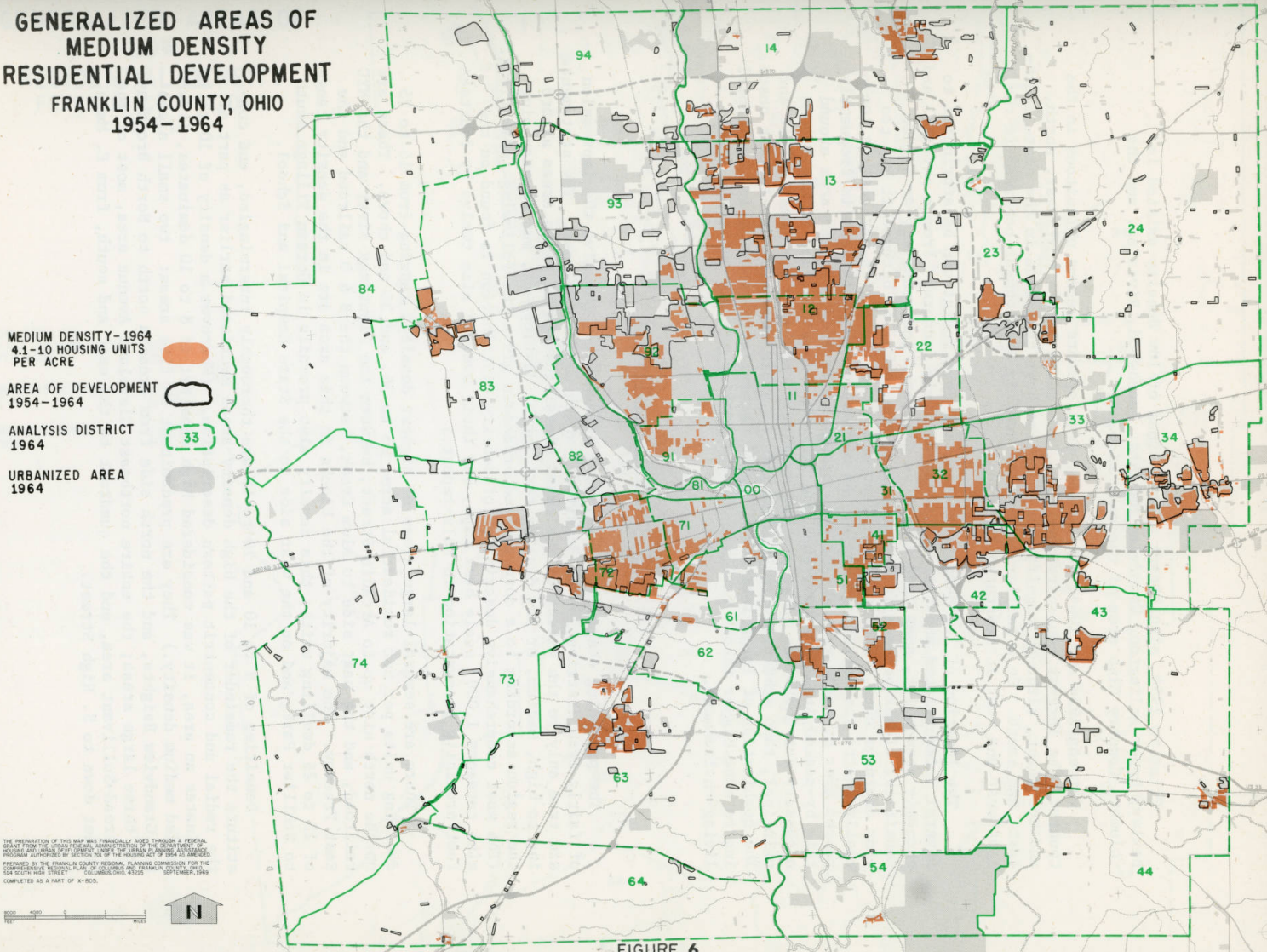
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 5

GENERALIZED AREAS OF MEDIUM DENSITY RESIDENTIAL DEVELOPMENT

FRANKLIN COUNTY, OHIO
1954–1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO.
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF K-805.

FIGURE 6

Prior to 1954, significant aggregations of low density existed in Bexley, Upper Arlington, Grandview Heights, Beechwood, Riverlea, and the Columbus Country Club area of the east side.

Between 1954 and 1964, low density developments became ubiquitous in the County. The largest concentrations have been added in the northwest, north, and northeast, although significant additions have been made in the east, southeast, and south. On a smaller scale, low density development occurred in the southwest and west in scattered locations.

The location of low density residential development can be attributed to several inter-related physical and socio-economic factors. From a physical and economic standpoint, some land cannot be developed inexpensively at higher densities, either because it is too hilly, too rocky, or because it has too many drainage cuts. Provision of sewer and water facilities may also be too costly due to the terrain or soils. As a consequence, such land is frequently passed over by early residential development in an area. As the area around this by-passed land develops, the land increases in value, and it may become necessary for the owner to sell. The developer, applying the least effort and principal, then subdivides into large lots to avoid expensive development costs. The combination of large lots and a rugged naturalistic setting is also appealing to most higher income families who are seeking privacy and a pleasant living environment.

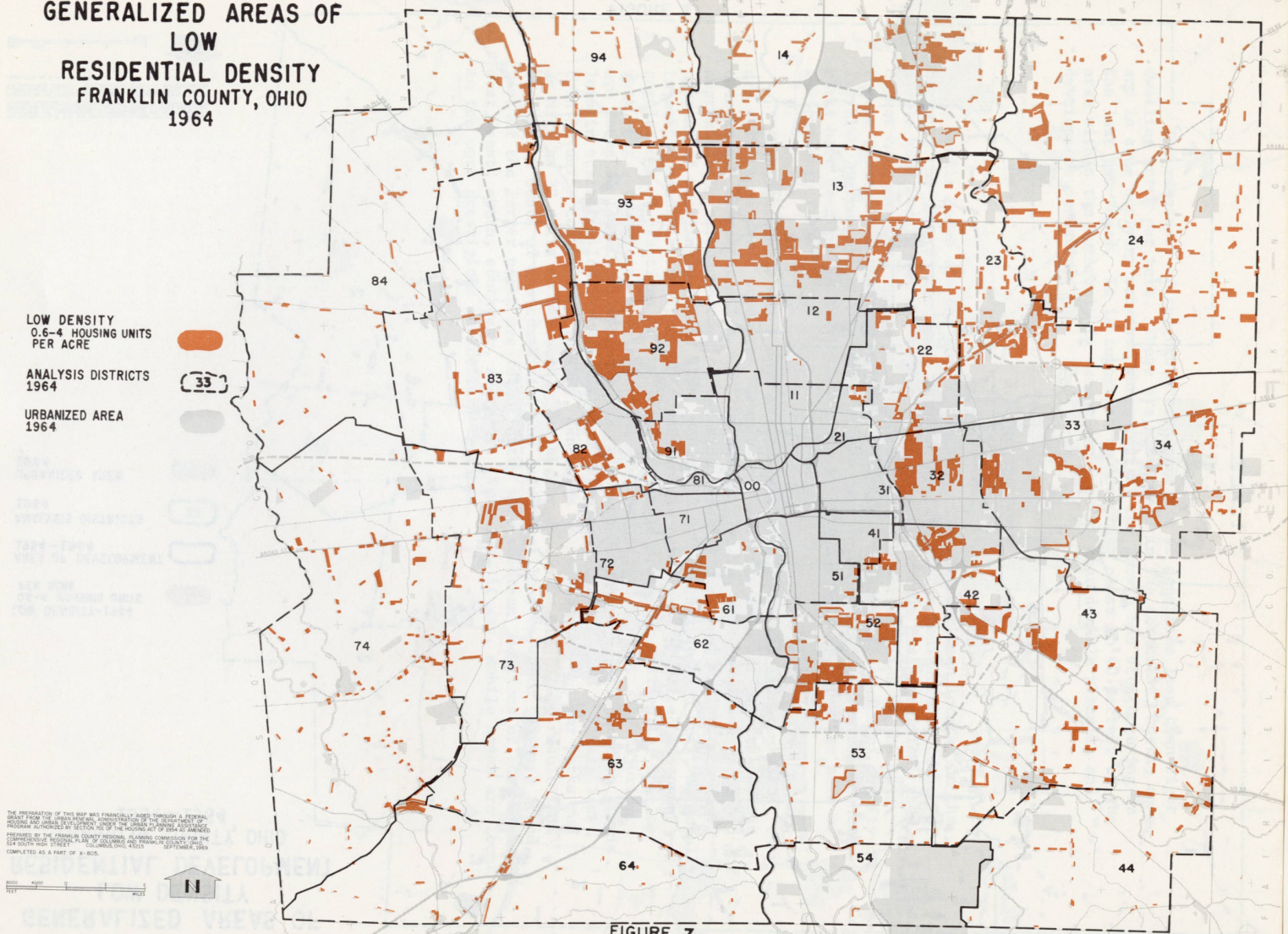
3.6 Uniformity of Distribution

The preceding observations are very generalized, and give the impression of fairly even distribution of densities, which is not the case. The statements are true only to the extent of the broad classification of urban areas according to high, medium, or low density residential development, but re-examining the region according to a more refined breakdown gives the following indications. (The most comprehensive description of density distribution is found on the nine category 1,000' scale base maps, but their overall size twelve by fourteen feet prohibits presentation in this report.)

There are several large areas of highest density, ranging from 15 to 25 dwelling units per net residential acre, 25 to 36, and 36 and above. These are on the north side up to Arcadia Street, between the Olentangy River and the NYC railroad, and the east side to Alum Creek, between the B & O railroad and the East Freeway. The majority of the blocks in this area are in the density range of 15 to 25 dwelling units; this density also prevails in German Village south to Schiller Park, and on the west side to the State Hospital and School.

Densities of 8 to 10 and 10 to 15 are thoroughly intermingled, and constitute the remainder of the high density areas mentioned earlier as part of the radial and concentric pattern description. (Wherever a density of 10 to 15 dominates an area, it was considered high density; if 8 to 10 dominates, it was called medium density.) They are predominant in five areas: two small areas are Grandview Heights, and the north side from Arcadia north to North Broadway; and three large areas; the entire northeast Cleveland Avenue area, most of the W. Broad-Sullivant area, and the quadrant to the east and south, from E. Main Street down to S. High Street.

GENERALIZED AREAS OF LOW RESIDENTIAL DENSITY
FRANKLIN COUNTY, OHIO
1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE HOUSING AND HOME FINANCE AGENCY, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

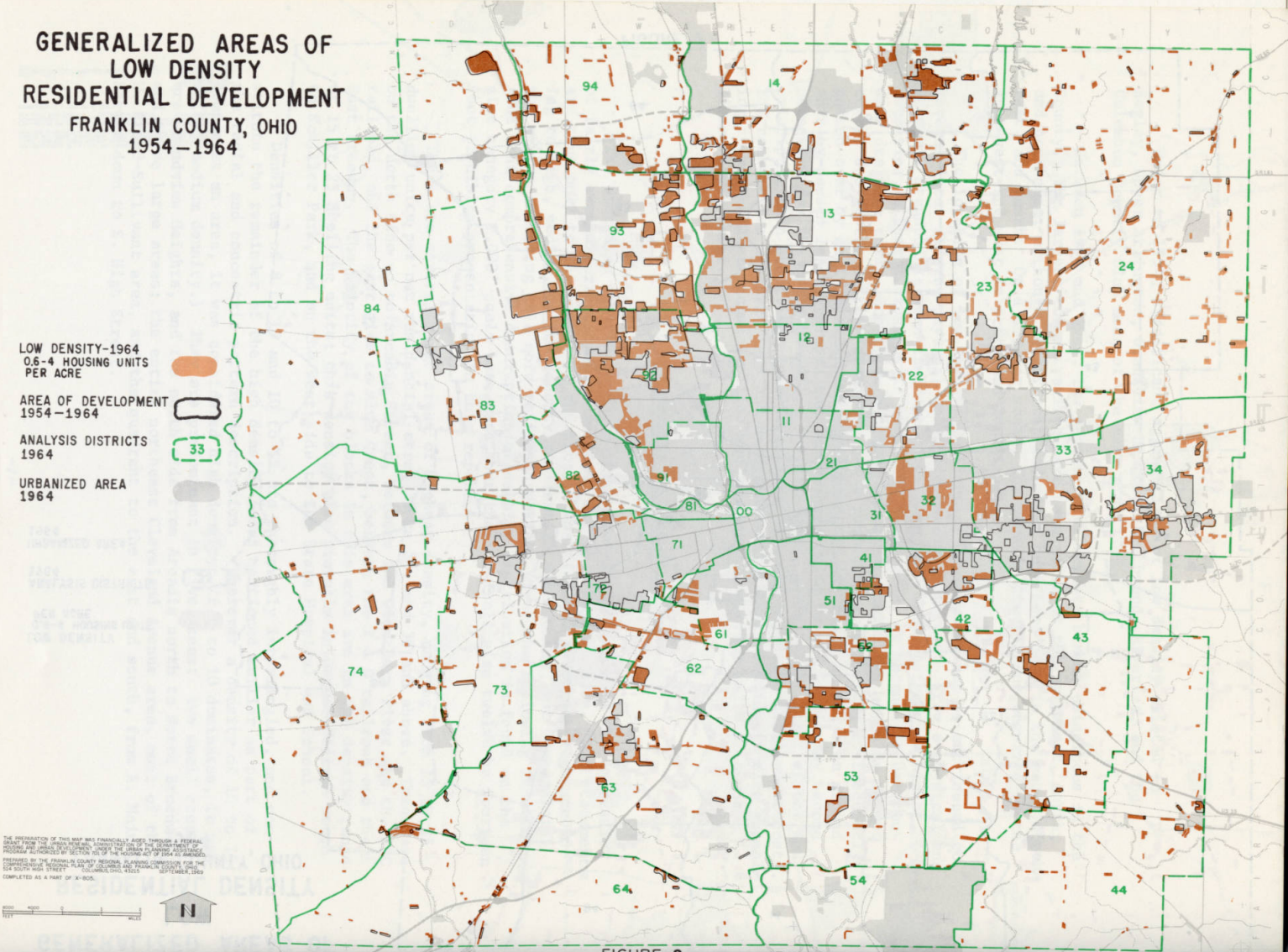
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215
SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 7

GENERALIZED AREAS OF LOW DENSITY RESIDENTIAL DEVELOPMENT

FRANKLIN COUNTY, OHIO
1954–1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLANS OF COLUMBUS AND FRANKLIN COUNTY, OHIO
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969
COMPLETED AS A PART OF X-805.

FIGURE 8

The remainder of the urban area consists of densities less than eight dwelling units per acre. These are widespread in the northwest, north, east, and in some outlying suburbs, where most of the growth has been occuring in the last ten years. It is important to note that close to 40 percent of the area within the outerbelt is vacant, an area of considerable planning and development potential.

3.7 Mobile Homes

Mobile homes are one form of housing which has not been located on the basis of the owners' incomes. Despite the fact that a considerable number of mobile home owners are mid-middle class or lower middle class families, they do not have the same choice of area location as other families in the same income classes who chose conventional housing. The owners' choice of density are also limited by the high cost of the land to which most of the mobile home parks have been restricted. (Densities in 1964 averaged 13 units per acre as indicated in Table 1.)

Although mobile homes have changed drastically in the last ten years, they are still considered nuisances because of their past association with certain undesirable characteristics. In the past few years, they have been accounted for approximately thirty percent of all single-family dwellings and seventy-five percent of the single-family homes under $12,000 which have been built nationally. In most communities in Franklin County mobile homes are restricted by zoning regulations or practices to the least desirable areas for residential development, e.g., commercial and industrial areas and flood plains. The majority are found in large mobile home parks, although some have been located on single lots in scattered locations. Although the average density was a little less than 13 units to the acre in 1964, densities in some of the smaller parks run as high as 32 units to the acre. The higher densities frequently result from the higher costs of the commercial and industrial land on which they are found. Most of the larger parks are found in the more suburban locations of the northeast, east, south, southwest, and west. Very few, if any, mobile homes are found in the more prestigious residential sections.

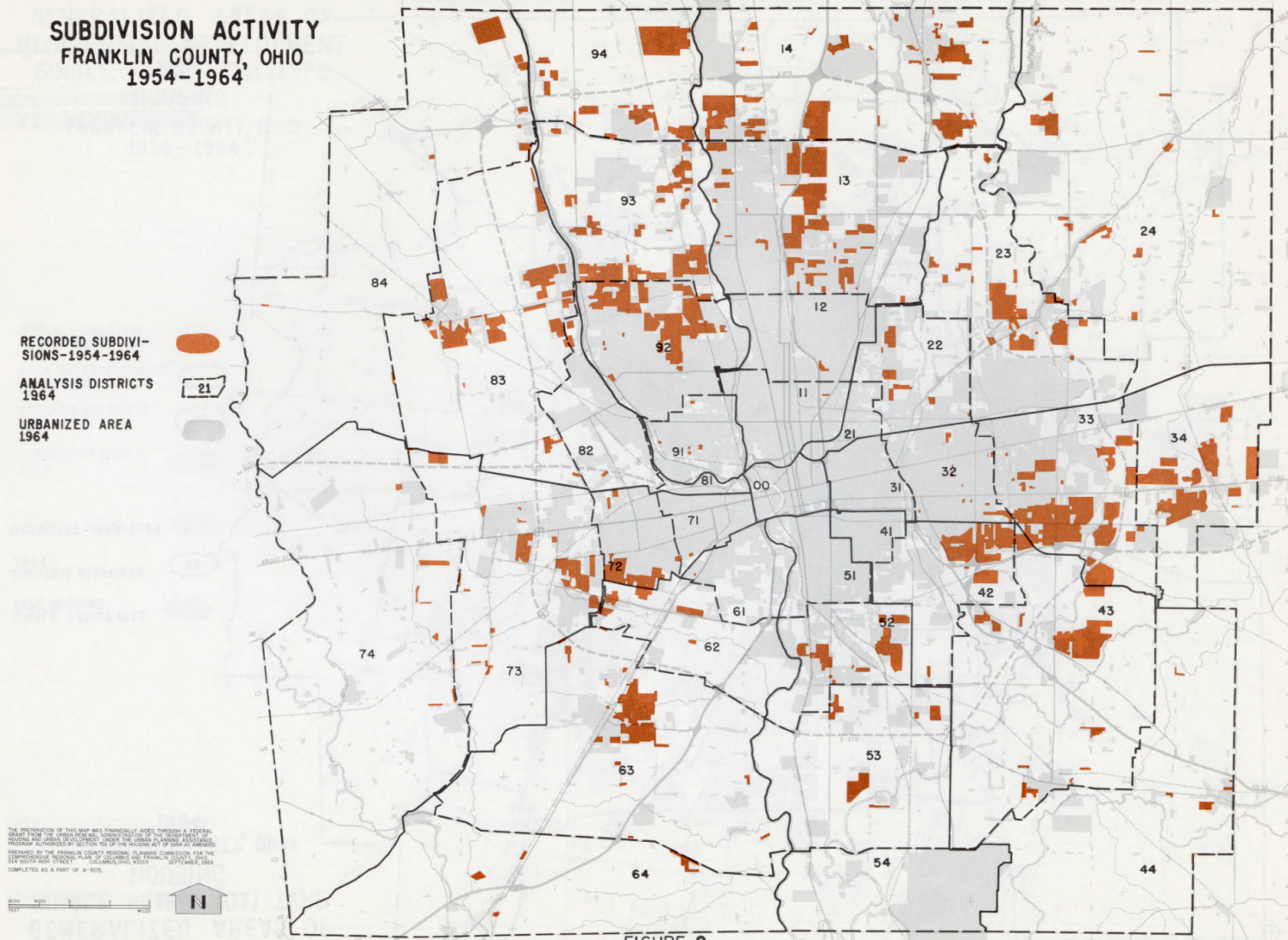
Table 1

NET CHANGE IN MOBILE HOMES, 1954-1964

Type 06

District Number	1954 Number of Units	1954 Number of Acres	1954-1964 Net Change Units	1954-1964 Net Change Acres	1964 Number of Units	1964 Number of Acres
00	1	.02	-	-	1	.02
11	1	.02	-	-	1	.02
12	1	.03	97	3.94	98	3.97
13	330	17.51	51	1.87	381	19.38
14	5	1.70	-	-	5	1.70
21	-	-	-	-	-	-
22	428	31.23	207	8.94	635	40.10
23	1	.75	1	.12	2	.87
24	1	1.25	2	.18	3	1.43
31	2	.04	-	-	2	.04
32	-	-	11	1.77	11	1.77
33	144	13.89	282	10.14	426	24.03
34	74	7.40	69	8.24	143	15.64
41	33	1.10	-	-	33	1.10
42	25	1.57	48	2.00	73	3.57
43	4	.57	12	1.91	16	2.48
44	-	-	1	.25	1	.25
51	40	2.49	73	9.10	113	12.04
52	427	22.67	82	4.74	509	27.41
53	15	2.17	27	7.24	42	9.41
54	8	.60	10	.85	18	1.45
61	545	37.24	35	3.64	580	40.88
62	126	14.10	5	1.20	131	15.30
63	68	3.20	31	9.52	99	12.72
64	2	2.23	11	4.24	13	6.47
71	1	.06	-	-	1	.06
72	-	-	9	.59	9	.59
73	105	7.33	245	19.46	350	26.79
74	-	-	8	4.05	8	4.05
81	-	-	-	-	-	-
82	42	2.50	111	14.75	153	17.25
83	3	1.43	5	2.75	8	4.18
84	5	1.01	29	5.20	34	6.21
91	-	-	-	-	-	-
92	10	.25	33	2.15	43	2.40
93	-	-	1	.70	1	.70
94	-	-	-	-	-	-
Total	2,447	174.81	1,496	129.54	3,943	304.35
	13.98 D.U./Acre		11.51 D.U./Acre		12.97 D.U./Acre	

SUBDIVISION ACTIVITY
FRANKLIN COUNTY, OHIO
1954-1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

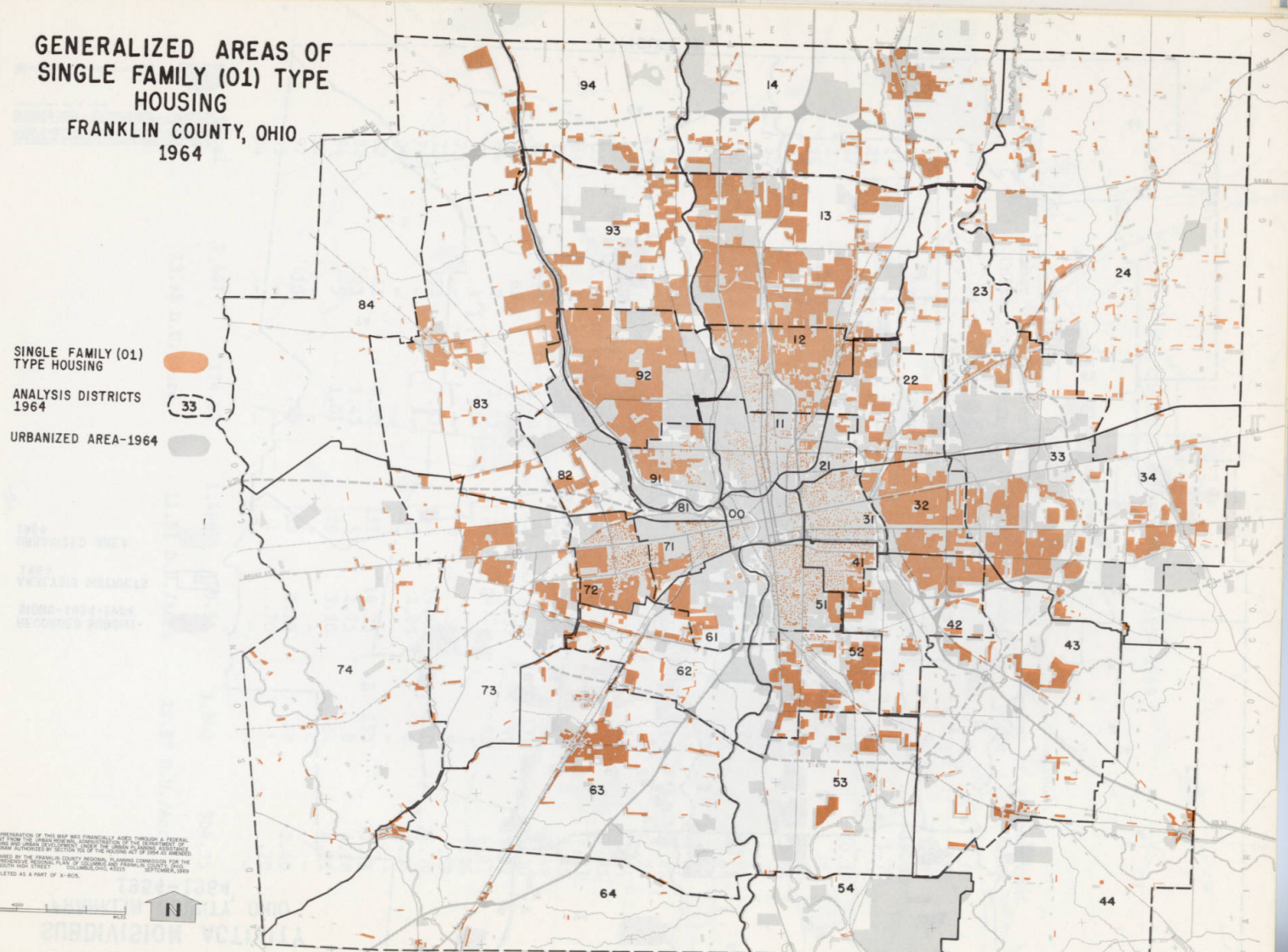
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO.
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 9

GENERALIZED AREAS OF SINGLE FAMILY (01) TYPE HOUSING

FRANKLIN COUNTY, OHIO
1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

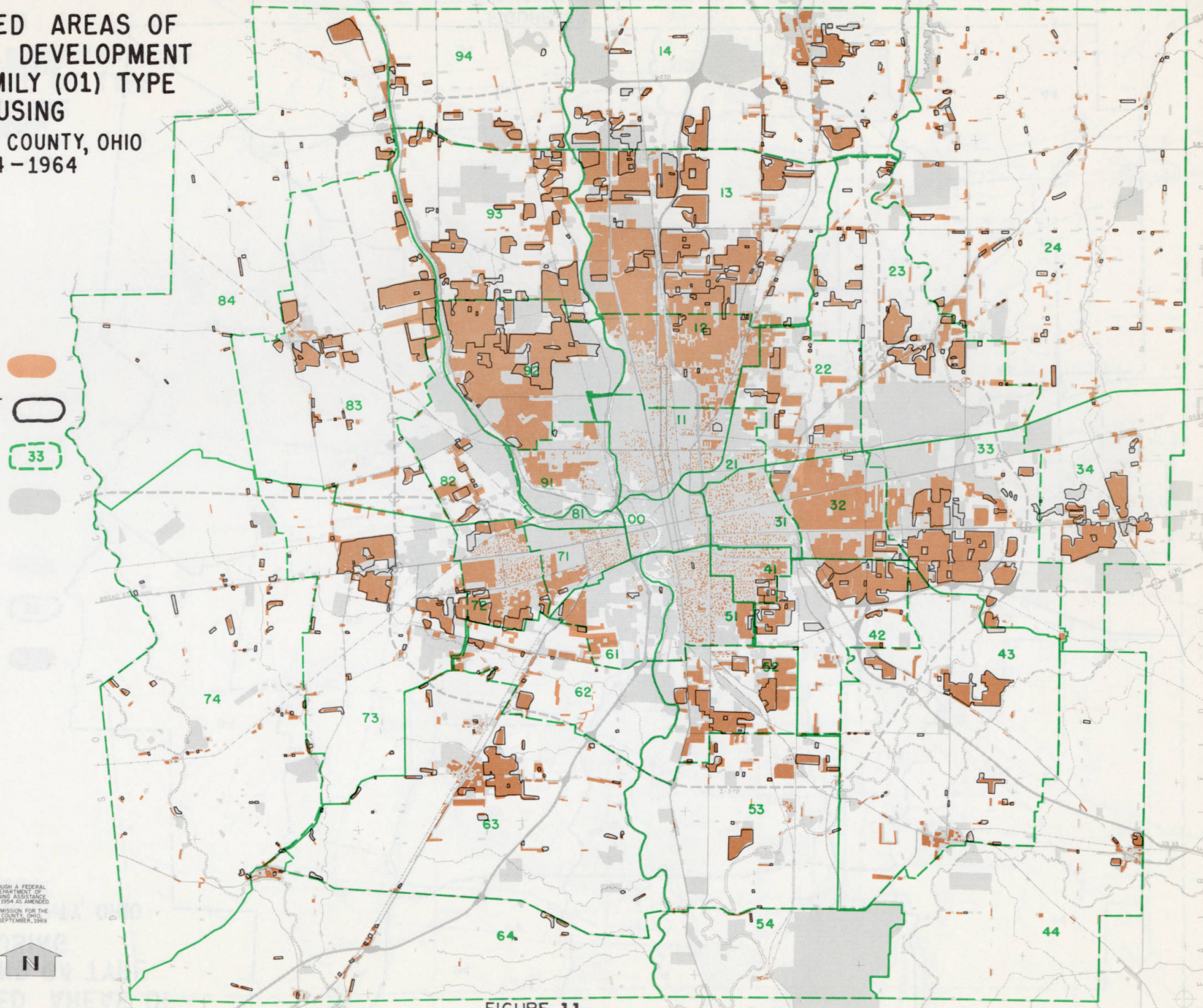
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO.
514 SOUTH HIGH STREET, COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 10

GENERALIZED AREAS OF RESIDENTIAL DEVELOPMENT SINGLE FAMILY (01) TYPE HOUSING

FRANKLIN COUNTY, OHIO 1954 – 1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

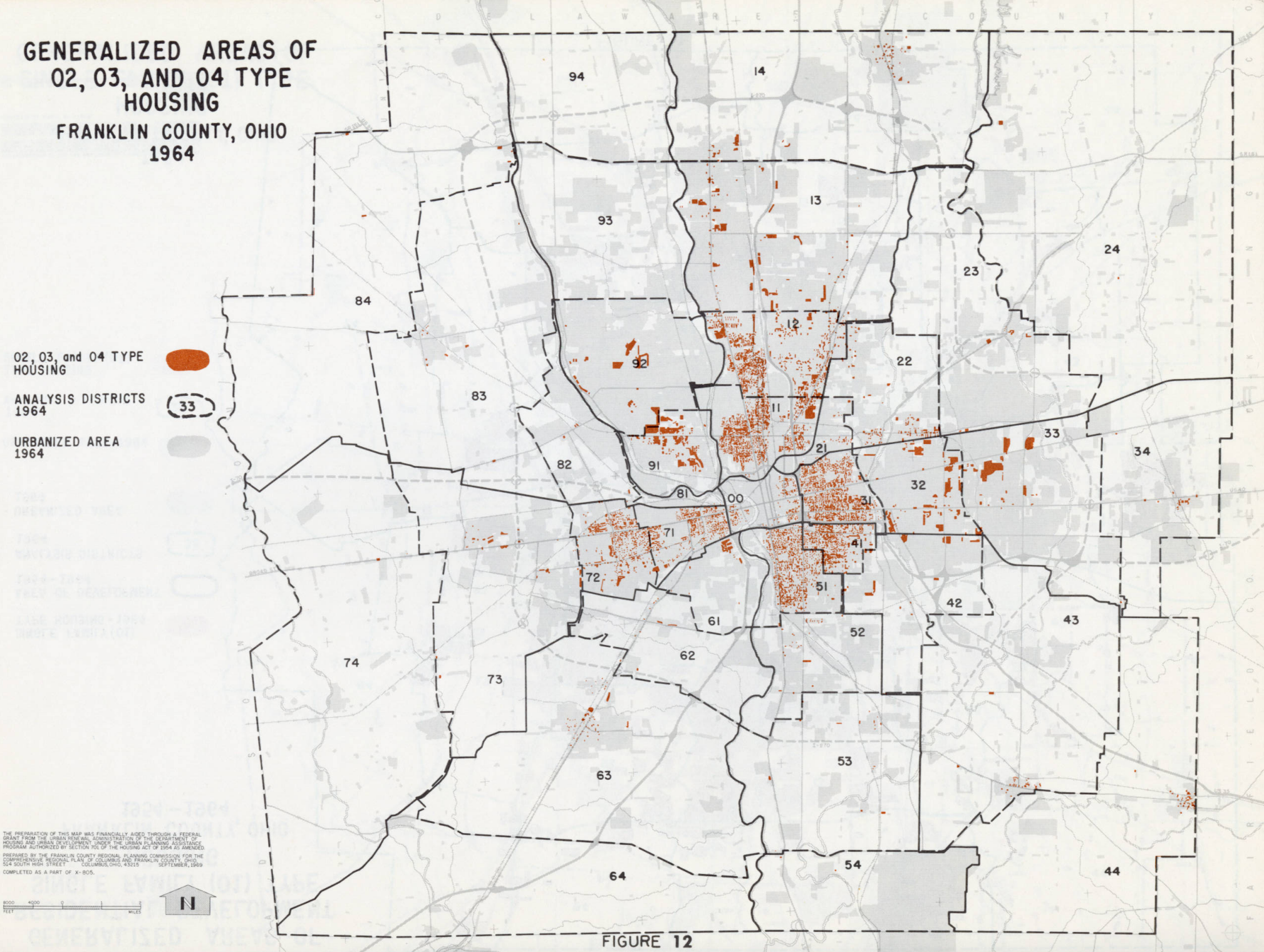
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO.
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 11

GENERALIZED AREAS OF 02, 03, AND 04 TYPE HOUSING

FRANKLIN COUNTY, OHIO
1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

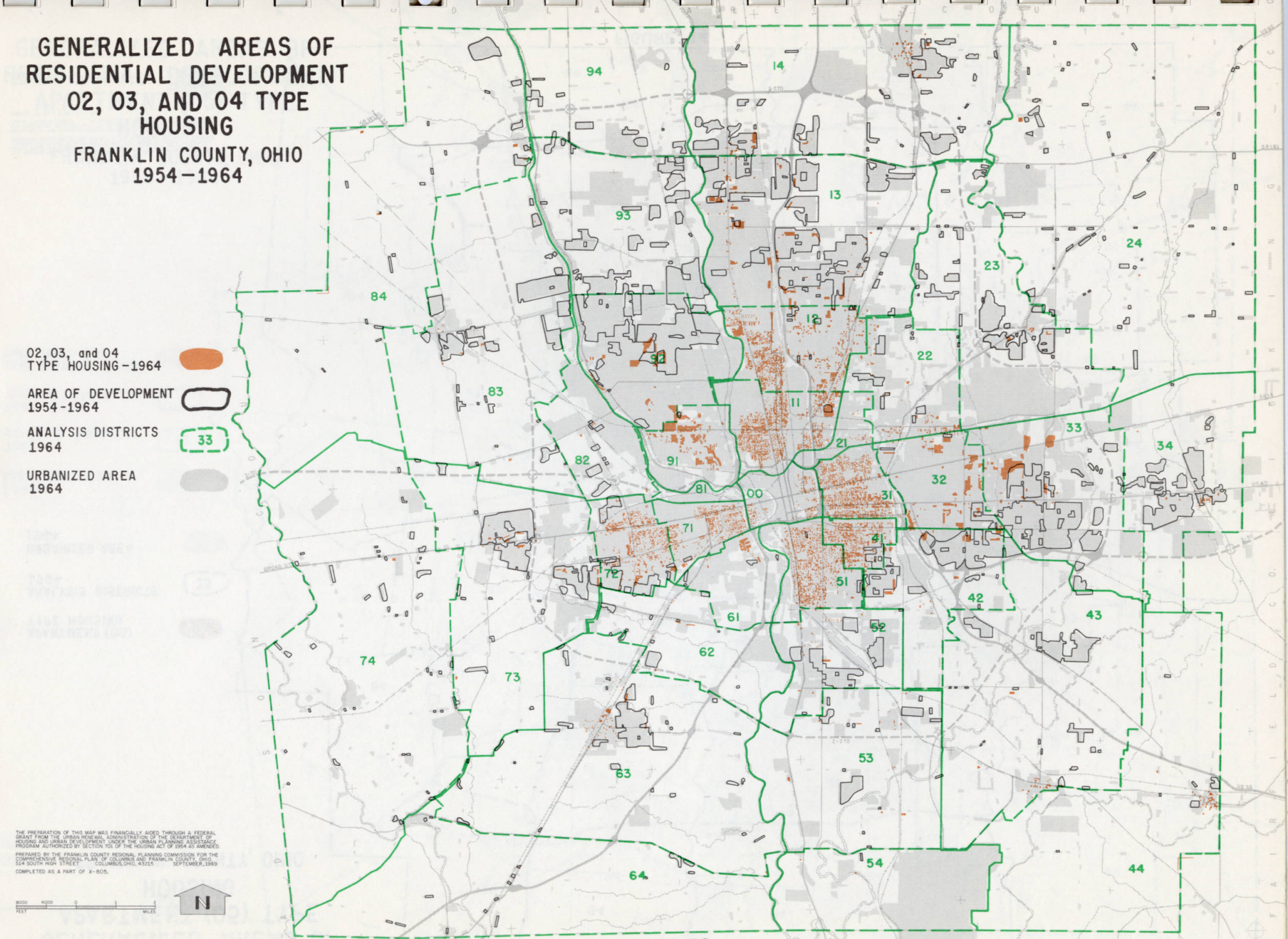
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969

COMPLETED AS A PART OF X-805.

FIGURE 12

GENERALIZED AREAS OF RESIDENTIAL DEVELOPMENT 02, 03, AND 04 TYPE HOUSING

FRANKLIN COUNTY, OHIO 1954–1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

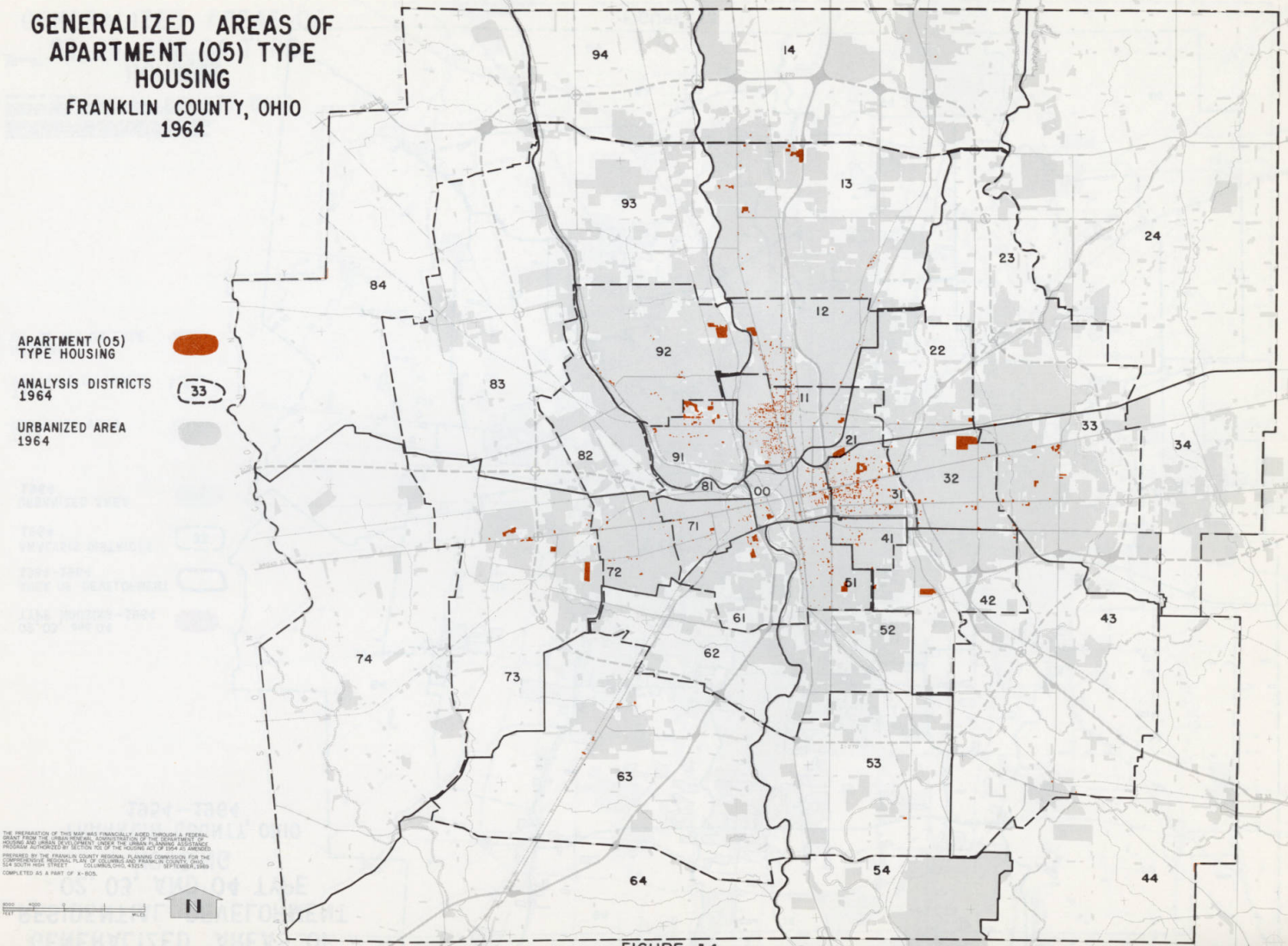
PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO.
514 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969
COMPLETED AS A PART OF X-805.

8000 4000 0 1 MILES
FEET

FIGURE 13

GENERALIZED AREAS OF APARTMENT (05) TYPE HOUSING

FRANKLIN COUNTY, OHIO
1964



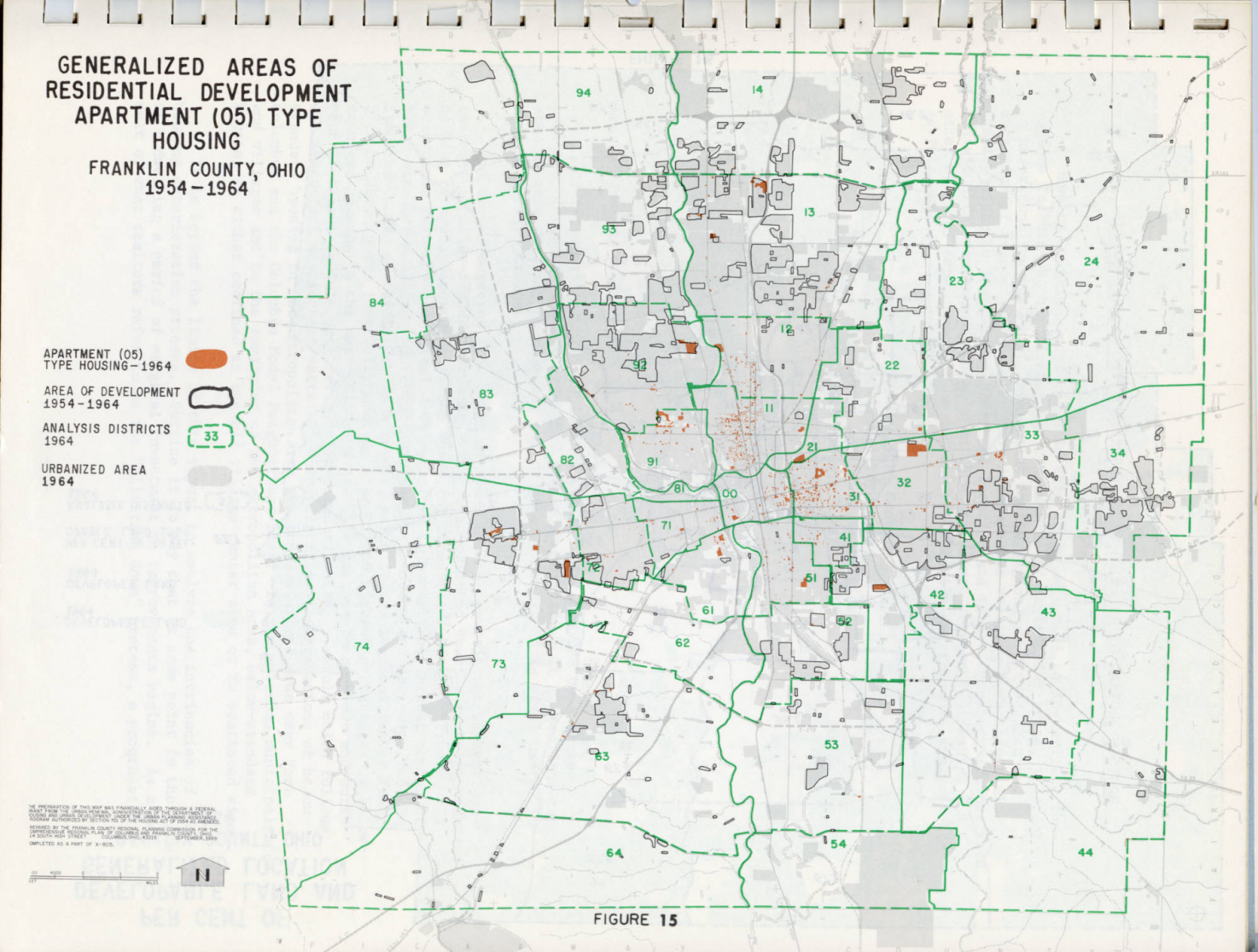
THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO
514 SOUTH HIGH STREET COLUMBUS, OHIO 43215 SEPTEMBER, 1969
COMPLETED AS A PART OF X-805.

FIGURE 14

GENERALIZED AREAS OF RESIDENTIAL DEVELOPMENT APARTMENT (05) TYPE HOUSING

FRANKLIN COUNTY, OHIO
1954–1964



THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE HOUSING AND HOME FINANCE ADMINISTRATION OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954 AS AMENDED.

PREPARED BY THE FRANKLIN COUNTY REGIONAL PLANNING COMMISSION FOR THE COMPREHENSIVE REGIONAL PLAN OF COLUMBUS AND FRANKLIN COUNTY, OHIO
24 SOUTH HIGH STREET COLUMBUS, OHIO, 43215 SEPTEMBER, 1969
COMPLETED AS A PART OF A-805.

FIGURE 15

PER CENT OF DEVELOPABLE LAND AND GENERALIZED LOCATION

FRANKLIN COUNTY, OHIO
1964

DEVELOPABLE LAND 1964

DEVELOPED LAND 1964

PER CENT OF DEVELOPABLE LAND-1964 22.7

ANALYSIS DISTRICTS 1964 (33)

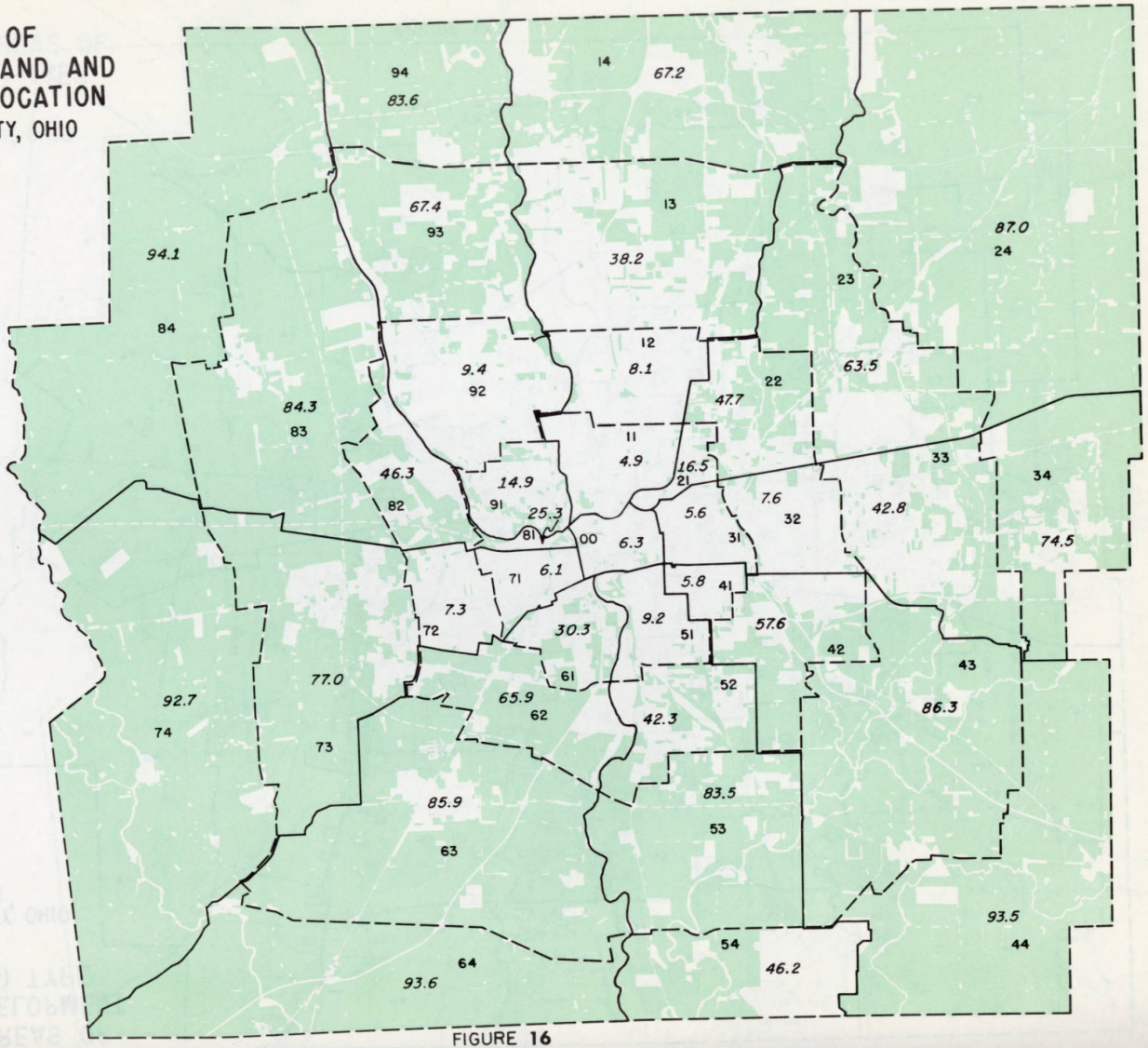


FIGURE 16

4. RESIDENTIAL DENSITY DISTRIBUTION IN RELATION TO VARIOUS FACTORS

Density distribution is used in this study as a tool to investigate the various factors which influence the composition of residential areas, in order to understand the nature of development in the region, and to suggest the direction of future growth. The many determinants relating to residential density distribution, which affect the location and type of housing, are analyzed individually even though there is an interdependence between residential and other types of development. The density distribution determinants analyzed are as follows:

The Regional Center
Soils and Topography
Water and Sewer Facilities
Major Streets
Commerce and Industry
Railroad Lines & Yards
Undesirable Features
Other Large Tract Uses
Community Focal Points
Age of Structures

4.1 The Regional Center

General Housing Conditions

The information contained in this section was obtained by a macro-analysis of census data from the 1960 census enumeration. It is realized that some of this data may be slightly out of date; however, it is still useful in analyzing major trends.

As can be expected, the areas of older housing contain the highest percentages of below-standard housing. The ratio of sound housing to below standard housing generally increases as one moves out from Broad and High Streets. In accordance with the historical development of Columbus, the largest number of below-standard dwellings is found along the north-south and east-west radials from the center of the city. As a result, parts of the regional center (the area bounded by the innerbelt) contain some of the highest percentages of below-standard housing in the metropolitan area. The northeast-southwest and northwest-southeast radials have fewer below-standard units, a result which follows the historical development pattern. Other significant aggregations of below-standard housing in the metropolitan area are the Wonderland area near Port Columbus and the Columbus Model Neighborhood area. In the suburban municipalities and villages and in the remainder of the metropolitan area, below-standard housing is either confined to the old village center area or to scattered sites.

It is beyond the limits of this report to analyze the intricacies of the housing deterioration process. Suffice it to say that at some point in the life of a dwelling a period of marginal investment in improvements begins. As a result of what realtors refer to as the "filtering down" process, a progression

begins in which the dwellings become the homes of lower and lower income families. In what has usually been the final stage, investors buy the homes to convert them into rental units for the lowest income groups who are unable to buy a home or rent a decent apartment. As a result of this process, most of the older areas are the areas with the highest percentages of rental housing. Since much of the rental housing is the result of the filtering down process, the percentages of rental housing and below-standard housing bear a strong correlation.

According to prevailing practices of real estate investment, the life of any building as a residential unit is terminated when the "highest and best use" for the property requires either its conversion to another use (commercial or industrial) or its demolition in order to reap what is considered a fair return on invested capital.

The long process of deterioration towards demolition can be and has been interrupted either by rehabilitation or by wholesale clearance of large areas. Although such programs as urban renewal and the older slum clearance programs have usually torn down houses which were at the end of their cycle, some sound housing has occasionally been torn down in order to allow greater freedom in redevelopment. Under the old slum clearance programs, several public housing projects were built in the regional center area.

Although some urban renewal clearance projects have been carried out for the purpose of public housing (e.g., Bolivar Arms), considerable emphasis has been placed upon redevelopment housing for middle class families (e.g., the Market-Mohawk and Thurber Village areas). Columbus' metropolitan housing authority has also redeveloped other deteriorated areas for senior citizen villages without resorting to urban renewal.

Private rehabilitation in Columbus' center city area is primarily limited to the historical German Village area, an upper-middle and mid-middle income effort. Expansion of private rehabilitation efforts have been limited primarily by financing difficulties.

Columbus' Urban Renewal Division has sponsored one urban renewal conservation project (the Dennison-Hunter Avenue area) and several code enforcement projects on the east and west sides, whose purposes are to effect rehabilitation. Since these public programs are directed towards improving older homes for use by lower income families, the amount of investment in the houses has been rather limited by the sponsoring federal programs. Due to limited funds, these projects (in contrast to the German Village rehabilitation area) have only been able to forestall complete deterioration of their areas. If changes are made in the federal programs, it is reasonable to suppose that these programs will become more effective.

Taking the regional center as the area enclosed by the Innerbelt, 7,441 of the total of 254,000 dwelling units in Franklin County are located here. Of this amount 2,000 are in the Central Business District. Some of these do not appear on the residential density map because it does not show the existence or distribution of commercial-residential or other mixed uses which contain dwelling units. Mixed uses have the designation of the ground floor use. The remaining 5,400 dwelling units constitute old residential areas east and west of the CBD. There is no significant residential development to the north and south.

The Regional Center is well defined by the Innerbelt, and except for urban renewal areas now cleared but not yet developed, its future seems determined with respect to density. While town houses and high-rise apartments may increase density considerably, there will be a net decrease of population in this area.

There are six distinct areas of residential development near the region center. On the west is the area associated with W. Broad Street and Sullivant Avenue. The area from the Innerbelt to the State Hospital and School is considered as near the regional center. This area has a density pattern of 10 to 25 dwelling units per acre. The houses are mostly of pre-war vintage (1939 or earlier), and only 50 percent of them are considered sound by the 1960 census. The area is also characterized by low property values and a high proportion of rental units (more than 60 percent of all dwelling units). To the northwest is the residential development bordered by Northwest Boulevard, Goodale Boulevard, West Fifth Avenue and the Olentangy River. The area considered as near the regional center extends to Kinnear Road. It has a density range of 6 to 25 dwelling units per acre and has a relatively low proportion of mixed uses. About one half of the houses in the area were built before 1940, but the area is considered to be 90 to 100 percent sound. Other important characteristics of the area are the middle range of property values ($10,000 to $20,000), and a fairly high proportion of rental units (40 percent or greater). This area is not directly related to the regional center because a river, railroad tracks, and a major freeway interchange separate the two.

The northern area is the residential complex associated with Neil Avenue, High Street, and the Summit-Fourth system. The area considered near the regional center extends north to Fifth Avenue. The density pattern of the area ranges from 15 to 36 dwelling units per acre, and it has a large amount of mixed and marginal uses. Houses in the area are mostly pre-war stock, and they are rated from 70 percent sound in one area, to less than 40 percent sound in another. Property values are low (less than $10,000), and the entire area is at least 60 percent rental. This district fully qualifies for urban renewal and part of it is being considered for redevelopment. The northeast is the residential area associated with Cleveland Avenue, St. Clair, and Fifth Avenue. The area considered as near the regional center extends north to Grogan Railroad Yards. The density pattern for this area is from 10 to 15 dwelling units per acre, which makes it the most uniform of the areas studied. Houses here are almost all of the pre-war type, and the entire area is considered to be less than 40 percent sound. Dwelling unit values in the area are also very low ($10,000 or less), and 60 to 80 percent of the housing units are rental. This area is separated from the regional center by a railroad yard, a freeway interchange, and Fort Hayes.

To the east is the residential complex with I-71, Mt. Vernon Avenue, Broad Street, and Main Street. The area associated with the regional center stops at Alum Creek, beyond which there is a substantial change in character. The predominant density pattern of the area is from 15 to 36 dwellings per acre. Houses in this area are mostly pre-war and the area ranges from less than 40 percent sound north of Broad Street to 60 to 70 percent sound south of Broad Street. The area also has a high percentage of rental units (60-80 percent) and a low range of property values.

The residential area to the South is associated with South High Street, Parsons Avenue, and Livingston Avenue. This area extends south to Shiller Park, and east to Parsons Avenue, and is considered to be almost an extension of the regional center. The density pattern of the area is from 10 to 25 dwelling units per acre. Here, too, the houses are mostly pre-war, including the German Village area. The 1960 Census reported that the north part of this area was 40 to 50 percent sound (changing) while the southern portion was 70 to 80 percent sound. This is also an area of predominantly rental units, and low property values.

The six areas outlined above represent the bulk of the old core area of Columbus. Each is separated from the other by a series of physical barriers including rivers, freeways, major railroad facilities, and areas of non-residential land uses.

Most of the land along the major arteries which cuts through these areas is characterized by a predominance of uses other than residential, such as strip commercial and light industry. Except for the northwest, these areas also contain a great deal of mixed uses within the residential areas. In addition to this mixture of residential and non-residential uses, there are also many mixed residential uses such as large, older single-family dwellings converted into multi-family units, and apartment buildings. Densities for these areas range from 10 to 36 units per acre and are much higher than other sections farther out.

Available statistical information (1964) indicates that presently only 40 to 50 percent of the housing in the regional center is sound; the median annual income ranged from $2,000 to $4,000; the number of persons per household is 2.5; and more than 80 percent of all housing is rental. There is some correlation between income and percentage of rental. The lowest income areas ($4,000 and below) include almost all of the predominantly rental areas. In the "core" area these census tracts containing 60 percent or more rental units include almost the entire area south from Oakland Park to German Village and east from the Sandusky Street Interchange to Franklin Park. Within this area there are three census tracts which are greater than 80 percent rental and contain more than half of the city's negro population.

There is some degree of correlation between income and percentage of rental. Those census tracts of predominantly rental units have smaller household size than those of predominantly owner occupied units. There is also an indication that wealthier areas have smaller household size. A deviation from this pattern occurs in the predominantly negro areas, which have a higher proportion or rental units and also have a larger household size.

The core area and older areas of the County have the lowest property values, while the new outlying areas and older prestige areas have the higher values. Generally, those areas of low property value are also the areas of high proportion of rental units and vice versa.

The 1964 land use survey reveals a total of 7,441 housing units in the regional center; group quarters contain 857 units; 2,428 housing units accounted for other mixed uses, such as commercial, industrial, etc.; and there were 4,156 housing units in residential areas.

The general atmosphere for high-rise apartment construction in Columbus apparently has not been good. The County does not have a history of this type of apartment construction. There are very few downtown apartments because the city has not yet been forced, either by market or public pressures, into the higher densities of residential development which would customarily locate in downtown.

Downtown Columbus is not yet an attractive place to live. This is substantiated by the fact that in 1954 this area contained an estimated 22,167 persons (excluding institutional inmates) or about four percent of the County's population. In 1964 there were only an estaimted 14,832 persons which represented 1.9 percent of the County's total population.

A more diversified series of night time activities is required to maintain resident population. Currently it appears that the only persons living in the downtown area are those lowest on the economic scale who cannot afford anything else. Working couples have also moved with the advent of new residential construction in the urban renewal areas.

By 1985 the estimated population for Franklin County will be 1,304,160 persons. The innerbelt population is expected to continue declining but will level off at about 6,500 persons or about 0.5 percent of the County. In the next twenty years no more than a token amount of new housing will be built in this area. A large percentage of this housing will be for persons on the highest economic levels who can afford the new luxury apartments. In addition, family size in this downtown area is expected to decline to approximately 2.0 persons; the total number of housing units will decline; blight and decay will remove some housing units from the scene; housing adjacent to downtown has possibly removed some pressure on downtown for residential construction; and the amount of acreage devoted to residential uses will decline.

4.2 Soils and Topography

The soils in Franklin County are such that there are very few large areas which are not suitable for most types of residential construction.[4] Franklin County's level terrain is particularly well suited to rapid residential growth. The few areas of steeply sloping land in the county have either been developed as low density upper income prestige areas or have not been developed at all. The only areas which cannot be developed without great expense are the West (West of Lincoln Village), Southwest (West of Grove City), and Northwest (West of Hilliard) sections of the county which are in the Big Darby Creek Valley. Since the slope of the land is toward this creek, these areas cannot be served by the current Columbus sewage system and sewage treatment plants.

The only serious physical restrictions on residential development in Franklin County have been the many rivers, creeks and their floodplains. Bridges capable of carrying heavy traffic over broad stream beds have always been expensive capital improvements for the taxpapers to finance. For many years most of

[4] Physical Studies of Franklin County, prepared for the Comprehensive Regional Plan of Columbus and Franklin County, Franklin County Regional Planning Commission, July, 1966.

or along the principal north-south (US 23) and east-west (U.S. 40 and East Broad St.) radials from the center city. The improvement of US 33's access to the center city later assisted in breaking down the cross-shaped pattern by further promoting residential development in the northwest.

The establishment of the Interstate Highway System, the anticipated completion of the Outerbelt, the improvement of other federal and state highways and the improvement of the major street system, should further alter the structure of employment and commercial centers which in turn will effect residential patterns. Ease of access to many employment and commercial centers has resulted in increased growth in most of the suburban communities and recently annexed areas of Columbus.

W. Broad St., west of the state properties
Sullivant Avenue
Northwest Blvd.
Livingston Avenue
Cleveland Avenue
Lane Avenue

The original influence of the above named streets was during the period of initial development when these streets were major lines of transportation. Today's existing high densities are a carryover from this past era which have been reinforced by additional development in the immediate proximity of these major arterials.

There are other major streets, like Olentangy River Road, which are large traffic arteries, providing access to heavy concentrations of residential development, but which do not pass directly through any significant aggregations of residential density.

These patterns of density distribution were established before the freeway system was constructed, and its regional influence on densities is apparent, as in the Morse Road - Interstate 71 - Route 161 area, where low density residential development is increasing rapidly.

4.5 Commerce and Industry

Prior to 1940, the major industrial, commercial, and office employment centers in the Columbus area were the Columbus central business, government and industrial districts. Also included in this category were the Ohio State University (OSU), the near north side of Columbus (along Cleveland and Fourth Avenues), and the south side of Columbus. In most of the suburban areas except possibly Westerville, there were no significant employment concentrations to influence residential growth.

During the 1940's Columbus experienced some revolutionary changes in its employment structure which significantly affected residential growth. Curtiss Wright aircraft company, opened on the east side in 1941 and hired 25,000 workers. At the same time, Columbus General Depot (now the DCSC) was expanded by the Federal Government to become the largest depot in the country. These two employment centers accounted for the residential development of most of the area between Gould and Hamilton Roads and from the Depot south to Main Street.

the major bridge structures which were constructed were those along state and national roads. This meant that local taxpapers did not have to bear the major financial burden. Dependence on this type of financing meant that only a limited number of bridges spanned the major rivers such as the Scioto and Olentangy. This situation restricted the early growth of such areas as Grandview Heights and Upper Arlington. Although there are a number of areas in the county which have been subject to flooding, the southern and southeastern portions of the county have usually experienced the most frequent and damaging floods. The existing and proposed dams and reservoirs north of Columbus should reduce flooding in the northern portion of the county. However, as urbanization increases in the northern section of the county, heavier runoffs may occur between the dams and the southern sections of the county which may renew the flood cycle.[5]

4.3 Water and Sewer Facilities

Two other factors which have influenced the direction and intensity of residential growth have been sewer and water facilities. Although wells and septic tanks have been permissible in some areas of the county, they are neither adequate nor sanitary for denser residential development. Consequently, zoning regulations have confined their use to very low density areas.

Major development of the western and northwestern portions of the county (excluding Hilliard and Dublin) would not have been possible without water supplies from Briggs and O'Shaughnessy Dams which were completed in 1908 and 1925, respectively. The eastern, northeastern, and portions of the southeastern sections of the metropolitan area could not have grown to the extent which they have without the construction of Hoover Reservoir in the middle 1950's and other improvements to the City water supply between 1940 and 1964. Low yield wells still serve most of the outlying municipalities and subdivisions which have central water systems such as Hilliard, Canal Winchester, Groveport, and subdivisions in the southeastern portion of the county.[6]

4.4 Major Streets

Since major urban development in Franklin County has occurred primarily in the last seventy years, the automobile and buses have been the transportation modes which have had the greatest effect on residential development. Consequently, the location of major streets or highways capable of accommodating these types of traffic has been a principal determinent of thrust of residential development.

For many years the only roads in Franklin County which were well developed were the inter-city routes, the federal and state highways. In the Columbus metropolitan area this situation resulted in a cross-shaped pattern of urban residential development. Residential development occurred in the hinterlands

---

[5] Inventory and Analysis of Water-Related Facilities in Franklin County, prepared for the Comprehensive Regional Plan of Columbus and Franklin County, June, 1966.

[6] Ibid.

After the war, Curtiss Wright's facilities were taken over by Lustron Homes and then North American Aviation. In 1946, General Motors opened its Ternstedt operation on the west side which provided impetus for residential growth in that area of the city.

One employment and institutional growth trend which has persisted from the 1940's through the early 1960's has been the growth of OSU, OSU-related research facilities, Battelle, and light industries and warehousing in the Olentangy River area of the north and northwest. These developments have further intensified residential development to the northwest (as far as Hilliard and Dublin) and to the north (in the Worthington area). During the same period, industrial growth north along the Penn-Central tracks increased residential construction in the north and northeast areas.

Other important changes in employment centers during the 1950's and 1960's were Westinghouse on the west side, Western Electric and the expansion of Port Columbus on the east, and the reopening of Lockbourne Air Force Base and the addition of several new industrial plants in the south. Westinghouse and Ternstedt provided an impetus for the development of the "new town" of Lincoln Village and several contiguous residential employments to the west. Western Electric's operation and the older employment complexes on the east side have apparently contributed to the residential growth of the Reynoldsburg and Gahanna areas. The effects of the changes on the south side are less easily identified since many other factors besides employment accessibility are involved (flooding, sewage disposal, etc.).

With only minor exceptions, all the major streets radiating out from the city core are lined with commercial development, and surrounded by residential lands. Considering only these two facts (the presence of commerce and the like presence of housing), there appears to be little correlation between density distribution and strip commercial development. However, factors such as character, type, and size of commercial development have an effect on and/or are affected by residential development.

Today, the developer of residential land provides streets in advance of occupancy of the land, along with sewers, water, electricity and gas. None of these requirements is much hindrance to development. The entire region is laced with roads to the extent that access is usually a matter of a short connection to an existing network. The traffic capacity of a particular road is not given much consideration; it is either adequate or not until its position is reached on a long list of capital improvement priorities. This is not to minimize problems of transportation, but rather to indicate that roads seem to play a minor role in residential development; they are readily built where and when they are needed.

Shopping centers, being a relatively new development, are generally located in suburban, low density areas. Some centers attract apartments or higher density residential, and exhibit some small effect on neighborhood density patterns. In other areas large lots are used on adjacent land as a buffer and therefore have a lower density than is usual for the neighborhood.

Another point to be considered is the understanding that commercial is a "following" land use rather than a "leading" one, that is, commerce is developed after the market exists or the residential development is well established.

This would lead us to say that commercial development is affected by residential density rather than density being affected by commercial development.

Industry located in the older areas of the city is associated with medium to high density housing, and in new and outlying areas it is associated with medium density housing. In the older areas of the city there is no apparent build-up of density as one approaches an industrial area; however, wherever there is industry, there is also high density housing nearby. In the newer areas and new industrial areas, there seems to be a tendency for density to increase in the surrounding area. For example, near the General Motors plant there are several new apartment projects in existence, and others under construction.

From a narrower point of view, the land immediately adjacent to industrial areas is usually not in residential use. The large industrial area in the eastern section of the city is buffered from residential areas by both vacant land, and intervening land uses such as commercial developments. A similar statement would be true for most other outlying industrial areas. In inner-city areas vacant land is not available to form a buffer, but the same effect is realized by intervening land uses, and rail lines; however, in some areas residences do border on industry and are usually the poorest quality housing.

4.6 Railroad Lines and Yards

Railroads have three obvious effects upon density distribution. First, in new subdivisions, there is a tendency to locate larger lots along the rail line to buffer the houses from noise and other "bad" influences. This practice has the effect of reducing density of land immediately adjacent to the rail lines. Second, and the most usual case, is the avoidance of rail lines by residential development. In many sections of the county the area immediately adjacent to rail lines is left vacant, or is left to land uses other than residential. This has led to a problem in many areas of a strip of unused land along rail lines. Third, railroad lines have restricted residential growth in a number of areas because they have constituted a barrier to the free movement of working people to and from places of employment or commerce. At-grade railroad crossings which also can cause considerable time delays can only be alleviated by the construction of overpasses or underpasses.

The most important point to make here is that railroad yards appear to be the least desirable of all major land uses, as far as housing is concerned. Of all the rail yards in this county, none are bordered by residential land. In the near northeast area of the city, residences approach rail yards, but remain buffered by vacant land or non-residential land uses. It is also important to note that all yards are located in the older areas of the city and in areas of medium density; no high density development approaches the yards.

4.7 Undesirable Features

Undesirable features are those large land uses which are considered to be detrimental to a good residential environment; a list of these uses would include railroad yards, mining areas, dumps, sewage treatment plants, and similar uses associated with large amounts of dirt, dust, noise, odor, or other unpleasantries. These types of land uses are uniformly avoided by all types of housing and tend to leave significant voids in the city's residential pattern.

4.8 Other Large Track Uses

There are a number of large land uses surrounded by residential development, which do not affect density patterns to a great degree. These uses and their effects are as follows:

1. Columbus State School and Hospital - Little effect (one apartment development)

2. State Schools for the Blind and Deaf - High density to the south, low density to the north. No apparent effect.

3. Port Columbus Airport - East and west of the airport (along the major flight patterns), is an area avoided by residential development. Along the north edge there is some low density development, but this density may not be the result of the airport. To the northeast of the airport is the dense Wonderland area, but this existed before the airport was constructed, and does not seem to be affected by it. To the southeast there is some increase in density patterns, but this is the result of industrial development rather than the presence of the airport.

4. Hospitals - Most hospitals have some higher density development in their immediate area, but never a large amount.

5. Lockbourne Air Force Base - Government built homes which were constructed on low budgets require high density development. The on-base housing appears to be of a good quality and sufficient in quantity.

6. Ohio State Fairgrounds - No effect.

The most important large tract development in Franklin County is the Ohio State University. It has a significant effect on the density pattern of all the near north side of Columbus. The area immediately east and south of the university is in the highest density classification.

4.81 Community Focal Points

Besides the many neighborhood and community focal points which are contigious and form the bulk of the regional urban core, there are a number of separate, scattered community focal points. Those with significant residential density are:

Grove City
Lincoln Village
Hilliard
Westerville
Gahanna
Reynoldsburg
Worthington

Of these, Lincoln Village is almost entirely a residential suburb. The others are more self-contained, providing a wide variety of services, including some industry. Smaller concentrations are:

Groveport
Canal Winchester
Dublin

For the most part these small communities are miniatures of Columbus, with higher densities at their centers and descending densities radiating outward until they blend into the surrounding rural patterns. These small communities, like Columbus, form the nucleus for many new subdivisions which have been and are continuing to be built. Density patterns for these areas tend to be in the low ranges, with residential peaks associated with small apartment developments.

4.82 Age of Housing Stock

Age is one of the most significant factors in the density pattern in the Columbus area. With only minor exceptions, the older the area the more dense it becomes. The housing in the core area of the city, for example, is among the most dense in the county, while the new subdivisions that ring the city are all of low density.

Several factors enter into this effect, the most obvious of which is the characteristics of subdivision design. The areas platted around the turn of the century have small city blocks, and very small lots. These small lot sizes produce a much higher density than is the normal procedure today. Another factor with considerable effect is the tendency to convert old single-family dwellings to multi-family. This has happened in many other areas where houses have lost their desirability for the single family home, and the original owners have moved to the suburbs leaving the old houses to be divided into two or even four apartments, so that the new owners may derive a satisfactory economic benefit from the property. This process can easily double the density of an area.

These two factors combine to make age and density pattern closely related. There are, of course, many exceptions to this statement, such as the older areas of Bexley and Upper Arlington, which are still low density, and the newer

An unfortunate by-product of this increasing accessibility has been that large scale residential development has tended to occur in more and more isolated areas, leapfrogging vast quantities of undeveloped land. Provision of essential public facilities then becomes an extremely expensive and uneconomic process. Isolated homes built along county roads or other unimproved roads are also posing a problem for future development since they are frequently closing off interior land from development and also restricting the future capacities of the roads on which they front since their driveways directly intersect these roads.

Similarly, most of these sections benefited from the growth and extension of municipal sewer and water services. Almost all of the high growth areas have linked up with Columbus sewer and water systems.

Single-family dwelling units still form the bulk of new construction. Most builders are fairly conservative with respect to materials and housing types in the low and medium price range. There is little experimentation. Current practices are sufficiently successful; thus there is no apparent demand for change.

The high apartment vacancy rate seems to be ignored. The feeling is that the rate applies less to new buildings than to old. Widely scattered throughout the urban area, apartments range from high-rise luxury to two-story low-rental apartments. (The latter are the most economical, for even a two and one-half story building requires a much more expensive foundation.) Some builders feel there are too many one-bedroom and efficiency apartments, but that a good market exists for two- and three-bedroom units.

In general, construction firms prefer to produce high priced, quality constructed dwellings. There are fewer problems in financing and construction dwellings of this type, and customer satisfaction is more easily achieved. The home builders also prefer to construct multiple units over single units as there is less repetition of the entire sequence of construction.

In order to finance subdivision developments, builders in this area primarily resort to either of two methods:

1. Property owners may sell on a lot release basis to the developer or builder. As the builder or developer sells a lot, the owner will release or sell to the developer or purchaser that particular lot. With this method the developer may be acting as a partner or agent of the owner. A similar method used by builders is to buy land on a land contract basis. These methods are primarily used by smaller builders, although a community builder might be the owner of the property.

2. A developer may obtain a land acquisition and/or development loan from a lender. Under this method the lending institution will loan up to 70 percent of the total costs of the land plus the costs of installation of streets, water, sewer, and other development costs.

5.2 Financial Institutions

The financial institutions engaged in financing residential development include commercial banks, savings and loan institutions, mortgage brokers, and their allied institutions. Prior to FHA and VA, conventional financing required substantial down payments (up to 50 percent or more) and high rates of interest. Loans for housing were rarely granted for more than ten years. As a consequence, during the 1930's, 60 percent or more of the nation's families could not afford to buy a home. FHA, other federal agencies, and federal regulations of lending institutions have changed most of these practices. Most of the financing rules for these institutions are now set nationally. However, there is considerable local fluctuation in policies set within the nationally applied limitations.

5. PRESENT PRIVATE AND PUBLIC POLICIES AFFECTING RESIDENTIAL DEVELOPMENT

5.1 Home Building Industry

Until the post-war housing boom, the homebuilding industry consisted of many small building companies which built a maximum of twenty units a year. The tremendous demand for housing after the war along with certain other factors contributed to the emergence of a small group of large building organizations and corporations which began to develop larger and larger residential sections. In many cases these corporations did not replace the smaller builders; e.g., Franklin County has about 100 home building companies listed in the telephone directory. Within the industry the giants have been referred to as "community builders." Although some of these companies actually construct all of the houses in their developments, a number of these large builders have acted as development corporations by preparing lots for sale to smaller builders.

The "community builders" either as builders or as land developers, are probably the most important policy makers in residential construction. In order to determine what policies these builders had concerning residential development, i.e., where and what kind, a number of them were interviewed by the staff. These builders deal in large projects involving several hundred single family dwelling units, as well as apartments, condominiums, planned unit developments, and commercial properties.

These builders try to have enough land in reserve to provide continuous construction over a period of at least three and up to ten years, based on current demand and estimates of future needs. None of the builders foresees any reduction of the building rate. The only limitations are financial since the builder must often provide his own capital for land acquisition and preparation (development) costs. While there is still a huge amount of undeveloped land in Franklin County, the bidding is highly competitive for choice properties to the north and east where most of the new subdivisions are being built. Builders look to these areas first, and the end of development in those directions is presently not in sight. It is anticipated that the outerbelt will make these areas even more popular. They see no immediate limit to geographical expansion and feel that a thirty minute commuting time from as far as Delaware County will be acceptable.

However, some builders feel that the west side is next in line for extensive development and view the outerbelt and the high cost of land elsewhere as the two motivating factors. The same can be said of the south side, although there is a traditional dislike for this area because of drainage problems, prevailing winds from the southwest which carry the odors of Columbus sewage plant, sewers which are inadequate or non-existent, the fear of industrial encroachment, and possibly the effect of Lockbourne Air Force Base. The new sewage treatment plant, the outerbelt, and the inflated cost of land elsewhere may stimulate development of the south side. Most builders are not interested in filling in vacant lots in the central city area except in the case of apartment buildings. There is not sufficient profit in individual houses in older areas because they cannot be built on an assembly line basis.

Of the various institutions in the field of housing, savings and loan institutions are pre-eminent due to their liberal loan ceilings and their limitation to single family through four family dwellings.

Interviews in 1965 with representatives of the Columbus Savings and Loan League defined a number of their financing policies. The reader should bear in mind that these policies change over time and are subject to the general economic situation.

In a normal market situation, most savings and loan institutions do not express a preference in the financing of various dwelling unit types. Such a distinction is made only in a "tight money market," and the preference is then to finance only single family units.

As a rule, most financial institutions set an upper limit on single family home financing. Generally, such figures range from $25,000 to $40,000. In apartment construction, loans at $7,500 to $8,500 per unit (typical two-bedroom apartments) are acceptable. Loans at $9,500 to $11,000 per unit are acceptable, if they represent large, three-bedroom luxury apartments with special features (1965 dollars).

While most of the construction in Franklin County is occurring in the suburban areas, financial institutions have no preference in advancing loans in urban and rural areas. It was pointed out that this is a change from views held by lenders twenty years ago. At that time most lenders preferred to make loans only in Columbus.

Criteria applying to individual home loans as they concern the income and desired loan amount of the applicant vary among lending institutions. In general, savings and loan institutions are limited to a statutory maximum loan of 80 percent of the appraised value of the house involved. In some cases, insured loans of 90 percent of value are approved. These limitations do not apply to FHA and VA insured loans which are assumed by the savings and loan companies. Generally, the amount of the loan is further limited to a figure not to exceed two and one-half times the applicant's annual income; in some cases allocating all or part of a working wife's income.

Policies concerning loans for repair or rehabilitation of single-family and apartment units are varied. Generally, loans for such activities may be handled in two ways:

1. The existing mortgage may be refinanced to a larger amount, taking into consideration the appraisal of the proposed improvements. The amount involved in the refinancing is then disbursed by the lending institution as the proposed work progresses. This method is usually cheaper than the home improvement loans which discount interest.

2. Home Improvement Loans--This involves separate financing apart from the real estate mortgage and is made principally through the analysis of the homeowner's credit information. Such a loan may or may not be secured by a second mortgage on the property to be improved. Generally,these loans are made for shorter terms (usually less than seven years) and

for amounts not to exceed $5,000. FHA insured home improvement loans are also possible on a slightly different basis.

Some areas in Franklin County and Columbus are not considered acceptable for lending purposes by some lending institutions. This would preclude rehabilitation loans through an increase of an existing mortgage. This also precludes purchase of homes in these areas by lower income families. Home improvement loans are not, however, analyzed on the basis of location of the property and can consequently be made more easily for rehabilitation of properties in any area. Since home improvement loans are for such short terms and at higher effective interest rates, they really do not offer much of an alternative for lower-income home owners or investors.

The financing of mobile homes is not currently approved by the Federal Home Loan Bank. As a result, those people who desire this type of housing must pay for it in the same manner as buying a car (discount interest rate with seven years to pay). Although the mobile home could be a reasonable alternative to slum housing for low-income families, this type of financing (high effective interest rates for short terms) has precluded such use. The savings and loan associations are working for federal legislation to permit federal insurance of financing of mobile homes. Passage of such a bill is expected.

5.3 Governmental Agencies

Various local governmental agencies in Franklin County control residential development. The instruments used to exert control may be direct or indirect and consist of zoning codes, subdivision regulations, building codes, and taxing and assessment policies. The impact of these controls varies among communities depending on the complexity of the codes and the degree to which they are enforced.

Zoning plays a two-fold role in residential development. It influences the location of residential areas through districting, and it influences the intensity of development in particular areas by stipulating minimum lot and yard requirements. While zoning is generally considered a "tool" of development planning, its application may prove to be a liability if its users fail to recognize the overall effect on the community. The Franklin County area is a case in point. The existing emphasis on large lot, low-density development can only perpetuate and greatly accelerate sprawl. It also perpetuates low-income concentrations in central areas by zoning low-income, higher density housing from suburban areas. The result of this practice is the expansion of utilities beyond efficient economic limits with the increased cost occurring to the citizens and taxpayers.

Low-density development also creates a dependence on the private automobile. An increase in automobiles means that existing over-loaded road network segments must be upgraded or replaced. New and enlarged circulation systems must also be created. Again, the result is increased costs to the taxpayer.

The purpose of subdivision regulations includes the assurance that necessary public facilities will be provided, that lot sizes, land uses, and streets will conform to the provisions of the applicable zoning ordinances,

and that future plats, or dedications, will be improved in accordance with established public policy. Subdivision regulations are essential to orderly growth, but their emphasis is in the same vein as that of the zoning ordinances--low-density development.

A third control by local government involved the assessment of property taxes. The current system involves the assessment of improvements on the land rather than the land itself. Such an approach tends to push up property costs which may exert influence on the location of development, its intensity, and its quality.

The provision of utilities in the costly manner explored previously requires that the community employ a high tax or service rate in order to meet the costs of such expansion. This approach to broadening the tax base is economically inefficient and precludes a truly equitable assessment.

There are three alternatives to the current practice of taxing that might be utilized in order to broaden the tax base. The easiest way is to relate assessments more closely to the market value of the site, especially on vacant land. A second alternative is to shift more of the assessment from improvements on the land to the land itself. This approach would produce more income from vacant land held by speculators and help drive down land prices to a more realistic level. It might also produce more income from deteriorating and slum property. The third alternative involves a less liberal definition of tax-exempt properties. As much as 30 percent of all real property may be tax-exempt and as much as 10 percent of an individual tax bill may be payment for someone else's exemptions. This last suggestion could be coupled with either of the other two.

Building codes are another control exercised by local government in the regulation of residential properties. Although less influential than the controls previously mentioned, it nevertheless has an influence on development.

Building codes are adopted for the purpose of maintaining safe and sanitary conditions in buildings, structures, and premises in the metropolitan area, for establishing minimum housing standards, and providing for the abatement of nuisances. The influence exerted by the building code varies considerably depending on whether code application is strict or loose, the strictness of permit-granting procedures and inspection, and the availability and efficiency of the local enforcement staff.

The attitude shown towards alterations, maintenance, and conservation of older buildings and the condemnation of substandard units also influence the supply and development of residential units. Stiff standards may retard development and rigid material requirements may push the cost of construction or alteration to a prohibitive level. If the code is loosely applied or if inspection is weak, the units constructed may be sub-standard at their completion.

5.4 Potential Effects of Continuing Present Policies

The most obvious result of continuing these policies is that land will be developed at a prodigious rate, at low densities, and primarily in single-family subdivisions. It also means that choice land in outlying areas will be used first, generally for development unrelated to an existing urban area. Such development is usually executed with no regard for the results that will occur when such development is part of the urban structure.

Assuming that present financial trends continue, construction will continue to be high-priced with little emphasis on units of less than $20,000. Such a trend means little new housing for lower and lower-middle income groups which represent a considerable share of the market. The inability of these groups to participate in the mortgage market, as is now the case, only complicates the situation. Low-density zoning is a further insurance that low-income housing will not be built in suburban areas.

If present trends continue, the older sections of the city will be ignored by private groups capable of physically upgrading such areas. Instead, the problem will continue to lie with municipal grovernment through urban renewal.

The continuation of low-density development means an increase in the use of automobiles. An increase in auto usage means the perpetuation and complication of an already complex circulation problem. New highway systems (freeways) will have to be added which cost more to provide in construction costs, land utilization, etc. than the benefits received. Assuming present trends, freeways will only be expensive, temporary problem solvers. New freeways may be overloaded the moment they are opened. Low-density development also means that mass transit is difficult if not impossible to support. Inasmuch as mass transit is the most important alternative to the automobile--and much less expensive--its neglect would only compound a difficult problem.

The proper service areas of public facilities are also extended beyond points of economic efficiency in low-density development. Such extensions require duplication of facilities and the personnel to man them, e.g., more fire stations and more firemen.

All these problems point out several common facts: present development practices are uneconomical; they do not serve the groups most in need of their services; and they can only complicate, collectively, a serious existing problem.

6. LOCATIONAL TRENDS IN RESIDENTIAL DEVELOPMENT

6.1 Significant Residential Trends

Between 1954 and 1964 Franklin County experienced a net increase of approximately 71,000 housing units which absorbed 16,000 acres of land. During the same period a total of 27,300 acres of land were developed for urban uses. Residential use accounted for an estimated 59 percent of all new development.

During the time period under discussion, over 15,000 acres, or 55 percent of all new urban development was in the form of single-family units.

In 1954 the net residential density for the County was 6.4 housing units per acre, or 6,806 square feet for each unit. By 1964 the Land Use survey indicated that this density had decreased to 5.6 units per acre, or 7,770 square feet per housing unit. During the 1954 to 1964 interim period, new residential development occurred at a rate of 4.39 housing units per acre. This density means that 9,920 square feet of land was used for each new unit built during the 1954 to 1964 period. The fact is that although population is increasing, and more land is being developed for all types of land uses, there is a distinct decline in the net residential density. Stated more simply, each new housing unit now being built is taking up more space, and the consumption of land for residential uses is increasing at an increasing rate.

6.2 Summary of Subdivision Activity

The period from 1954 to 1964 is representative of the bulk of recent subdivision activity both in terms of location and densities. An average of over 4,600 lots, consuming over 1,600 acres, have been added to the County annually. The subdivision activity reached highs of 6,300 and 6,200 lots, in 1955 and 1960 respectively and a low of 2,000 lots in 1957. In examining lot sizes for this period, the average sizes ranged from a low of 10,037 square feet per lot in 1957 to a high of 15,447 square feet in 1957 and 1964.

The trends in residential development in Franklin County reveal the following characteristics:

In the northwest, most of the new suburbs contain higher priced housing to the immediate west of the Scioto River. Lower priced housing around Hilliard has stopped temporarily for lack of sewers. Also there is no significant building going on south of Hilliard to Broad Street. In the southwest quadrant, near Grove City, a large residential tract is about to be developed. The influence of I-71 on such development is considerable.

In the southeast quarter, little is happening in the vicinity of south High Street, but to the east, there is much medium and low cost housing. The area is rapidly filling in along the improved Route 33, and the outerbelt - in such suburbs as Blacklick Estates, Eastland Park, Glenhaven and others.

Two strong influences here seem to be the availability of relatively cheap land, and the anticipated access provided by the east freeway. However, the extensive flood plain in this area should restrict growth to some extent. Directly to the east, many medium and high priced suburbs are developing.

In the northeast quadrant, there is a large concentration of lower cost suburban development in the vicinity of Gahanna.

The aforementioned areas are growing; most of the other development is spotty and irregular. There is hardly a County road which does not contain a residential strip of new houses, but none of these constitute significant aggregations or trends, however, they do present the problem of potentially sealing off interior land from future access.

There are preferred sections of the region, and a number of factors are involved. The north side has always been popular, influenced by Ohio State University, Upper Arlington, Worthington, and Beechwold - all old but good neighborhoods, with easy access to the central area, no industry, and no airports. The only way this still popular area can grow is outward, and I-71 has made the area even more accessible and popular.

There appears to be a tendency for lower income groups to spread north (to North Broadway), higher income groups move west, and middle income groups move north and east. The near north side has almost engulfed OSU, and has changed to rental property. There are many signs of deterioration here, rehabilitation and conservation are urgently needed in this area, but to date renewal has taken the form of new apartment buildings on cleared land. Their influence on surrounding properties could be good, but as yet there is no extensive evidence of this.

Another popular area is the east side. Bexley and Berwick are the dominant areas, but tremendous growth is occurring farther east in the vicinity of Blacklick Creek. There are many upper and middle income subdivisions under construction.

Table 2 is a summary of recorded subdivision activity within Franklin County for the period under discussion. A profile of the table, shown through averages, indicates the cross section of subdivision activity.

Table 3 lists the years in which various areas of the County has subdivision activity of a significant nature. The annual number of subdivisions added to Franklin County has been moderately stable through the years.

A more accurate indicator of building activity is reflected by Table 4 which shows the number of new dwelling units reflected in building permit applications. This contrasts with the previous material on subdivisions which does not necessarily coincide with actual construction. It is a common practice for a developer to subdivide a piece of property one year and then wait another year or two before building any houses. The developer must, however, apply for a building permit for each structure. When a permit has been applied for the structure is usually built.

Table 2

YEARLY SUMMARY OF SUBDIVISION ACTIVITY (SUBDIVISIONS OVER 10 ACRES)
1954-1964

Year	Total Acres	Total Number of Subdivisions	Total Number of Lots	Average Subdivision Size (Acres)	Lots per Acre (Gross)	Lots per Acre (Net)	Average Lot Size	Average Number Lots per Subdivision
1954	1,443.7	54	4,287	26.7	2.97	3.56	12,236	79.4
1955	1,926.3	64	6,300	30.1	3.27	3.92	11,112	98.4
1956	1,978.1	59	5,289	33.5	2.67	3.20	13,612	89.6
1957	892.3	34	2,101	26.2	2.35	2.82	15,447	61.8
1958	1,240.9	38	3,945	32.7	3.28	3.82	11,403	103.8
1959	1,473.8	41	4,337	35.9	3.62	4.34	10,037	130.2
1960	2,588.2	47	6,194	55.1	2.39	2.87	15,178	131.8
1961	1,109.9	38	3,037	29.2	2.74	3.29	13,240	79.9
1962	1,534.4	40	5,293	38.4	3.45	4.14	10,522	132.3
1963	2,102.3	52	5,752	40.4	2.74	3.29	13,240	110.6
1964	1,561.3	40	3,668	39.0	2.35	2.82	15,447	91.7
Totals	17,851.2	507	51,203					
Averages	1,622.8	46	4,655	35.2	2.87	3.44	12,663	101.0

Table 3

GENERALIZED SUBDIVISION LOCATION
1954-1964

Area	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Columbus											
Northwest		x		x				x			
Northeast	x	x			x	x	x	x	x	x	x
East North					x	x	x			x	x
East South		x	x		x	x	x		x	x	x
South			x		x	x	x				
West		x	x			x			x		
Dublin			x								
Worthington				x			x			x	x
Westerville											x
Gahanna	x						x		x		x
Whitehall	x		x								
Reynoldsburg		x		x	x	x	x				x
Grove City	x	x	x					x		x	
Alton						x					
Upper Arlington	x	x	x	x			x		x	x	
Hilliard			x			x	x				

Table 4

BUILDING PERMITS ISSUED
1954-1964

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	Total
Bexley	45	47	59	26	21	29	20	17	129	62	36	491
Columbus	1,866	2,292	2,967	2,972	5,681	4,382	3,533	4,343	5,704	6,752	5,126	45,618
Franklin Co.	n.a.	-	-	-	-	-	733	1,229	1,311	1,906	1,305	6,484
Gahanna	n.a.	-	-	-	-	-	123	339	392	406	289	1,549
Grandview	33	16	16	1	2	77	2	2	21	4	68	242
Grove City	n.a.	517	400	71	81	195	87	135	371	185	176	2,218
Groveport	n.a.	13	19	2	6	3	3	5	32	19	7	109
Hilliard	n.a.	-	-	-	199	159	334	75	31	11	17	826
Marble Cliff	n.a.	4	2	2	0	0	3	14	0	5	1	31
Riverlea	n.a.	11	0	2	2	6	2	1	0	1	0	25
Westerville	n.a.	86	152	68	102	141	63	71	76	299	156	1,214
Whitehall	n.a.	361	278	109	204	176	28	89	365	513	88	2,211
Worthington	n.a.	66	175	151	276	205	64	65	98	214	198	1,512
Reynoldsburg	n.a.	-	-	-	485	254	334	224	194	61	53	1,605
Upper Arlington	398	646	510	508	488	425	246	277	700	260	259	4,717
Total	2,342	4,059	4,578	3,912	7,547	6,052	5,575	6,886	9,424	10,698	7,779	68,852

n.a. = not available

6.3 Single Family Housing Trends

Approximately 53,000 units consuming over 15,000 acres were added to the County-between 1954 and 1964. The rate of consumption was 3.52 dwelling units per net residential acre or an average lot size of 12,375 square feet. In 1954, 51.5 percent of all housing was single family. By 1964 this percentage had increased to 57.9 percent. The absolute numbers indicate a growth from 94,103 units on 22,696 acres to 147,114 units on 37,340 acres in 1964. Reference to Table 5 reveals the changes in percentages by net densities.

The single-family house continued to be the most popular dwelling unit, and most of the newly-developed land has been devoted to this type. Such units are still being built at an accelerated rate in outlying suburbs, particularly along I-71 north and to the east of Morse Road. There is a house priced within the means of most families, and despite complaints for twenty years about "suburbia," it has survived and grown. Builders, realizing success with this type, naturally continue to build it, though rising costs of land acquisition tend to make it more difficult for anyone but the large tract developer-builder. The trend seems to be in the direction of larger planned-unit schools and other services. There is a lot of merit in this, if the development is preceeded by careful planning. Results can be more comprehensive than those reproduced by the small builder who cannot create a community or a neighborhood without control over the surrounding properties.

6.4 Rental Units

According to the 1960 Census, rental units comprise nearly half of the total housing market (40.7 percent) of which more than half are in multi-family units (57.9 percent). This means that less than one quarter of the County's housing is in apartments (23.5 percent of the buildings have more than one housing unit). In 1950 a slightly higher percentage of the housing was rental (46.0 percent). At that time more than a quarter of the total housing market was in apartment units (27.3 percent). This would seem to indicate that the trend is away from central units, but the present boom in the apartment building industry will surely off set this apparent long range trend. The estimate of housing units by the 1964 land use survey indicates this observation is true. In 1964, the rental market was 47 percent of the total housing market, and multi-units or apartments were about 30 percent of the market.

The type of apartment construction is characterized by two recent trends. First, there are a number of high rise apartments outside the Regional Center, generally of the luxury type; second, a very real attempt to create an architectually inspiring building group, such as Wyandotte Apartments, Georgetown, and the French Quarter. Some of these are almost indistinguishable from the few new townhouses. Despite a fairly high apartment vacancy rate, there is no letup in new apartments and townhouses, the feeling is that their attractiveness will assure full rental, while older apartments will suffer. The apartment boom started about 1965, and seems to be a very high rate, but compared to national statistics, Columbus probably started late.

Table 5

DENSITY DISTRIBUTION BY TYPE OF DWELLING UNIT, 1954-1964

Density of D.U./Net Residential Acre	Percent of Type 01			Percent of Type 02-04			Percent of Type 05		
	1954	1954-1964	1964	1954	1954-1964	1964	1954	1954-1964	1964
.6-2	6.5	8.22	5.5	-	-	-	-	-	-
2.01-4	34.5	32.84	33.9	.09	.26	.12	.07	-	.05
4.01-6	13.3	56.11	28.9	.04	1.28	.19	-	-	-
6.01-8	21.9	.68	18.6	.18	-	.11	.11	-	-
8.01-10	19.1	.69	9.9	2.06	10.03	1.44	-	-	-
10.01-15	4.7	1.45	3.1	11.19	44.18	18.56	.14	-	.58
15.01-25	-	-	-	82.43	44.23	77.02	7.97	21.86	9.37
25.01-36	-	-	-	-	-	2.54	28.57	64.52	44.64
36-	-	-	-	4.01	-	-	63.14	13.56	45.35

There was no significant apartment building after World War II, as there was in comparable cities. Apartments are being built in small developments around OSU and in large developments in the west and east areas of the city.

Table 6

NUMBER OF DWELLING UNITS IN PUBLIC AND QUASI-PUBLIC FACILITIES

District Number	Number Units 1954	Net Change Units 1954-1964	Number Units 1964
00	647	2	649
11	3,293	-	3,293
12	6	-	6
13	137	37	174
14	323	181	504
21	148	-	148
22	82	12	94
23	-	-	-
24	-	9	9
31	286	1	287
32	597	22	619
33	48	11	59
34	-	1	1
41	9	-	9
42	34	25	59
43	-	-	-
44	-	2	2
51	33	1	34
52	2	1	3
53	-	-	-
54	2,416	-	2,416
61	-	-	-
62	-	8	8
63	-	-	-
64	-	-	-
71	179	-	179
72	3	7	10
73	3	-	3
74	-	1	1
81	-	-	-
82	-	-	-
83	-	-	-
84	1	-	-
91	-	5	5
92	81	476	557
93	-	-	-
94	-	-	-
Total	8,328	802	9,130

Table 7

LOCATION AND NUMBER OF DWELLING UNITS IN MIXED LAND USES

District Number	Number Units 1954	Net Change Units 1954-1964	Number Units 1964
00	1,278	-131	1,147
11	1,203	36	1,239
12	482	23	505
13	76	13	89
14	56	2	58
21	11	3	14
22	36	8	44
23	9	1	10
24	4	1	5
31	826	21	847
32	65	19	84
33	19	41	60
34	3	39	42
41	165	-11	154
42	5	7	12
43	9	3	12
44	5	6	11
51	523	6	529
52	21	7	28
53	2	3	5
54	920	3	923
61	16	10	26
62	1	7	8
63	27	15	42
64	4	0	4
71	258	16	274
72	286	25	311
73	18	8	26
74	3	3	6
81	4	1	5
82	11	3	14
83	25	-9	16
84	1	0	1
91	28	2	30
92	12	0	12
93	8	4	12
94	1	0	1
Total	6,421	185	6,606

Appendix I

1975 AND 1985 TRENDS FORECAST

The Trends Forecast is an attempt to take present residential land use trends, analyzed and interpreted for the period of time from 1954 to 1964, and to project these trends into the future to examine the resulting residential pattern. Basic data have been tabulated and examined in the previous sections of this report and this immediate section will present a synthesis pertinent to the explanation of the methodology incorporated in the Trends Forecast.

Location Criteria for New Residential Development

There are four major ways to meet a demand for new housing. These are through the speculator, public housing, urban renewal, and group quarters. For the purposes of this study it is assumed that public housing and urban renewal will not be major contributors to the housing market. The Columbus Metropolitan Housing Authority has only approximately 1800 units programmed for the future. For all intents and purposes it can be assumed that the Ohio State University will be the only major contributor to the area of group quarters. The number, locations, and estimated population of public housing projects and dormitories will be obtained from those organizations providing them.

A source of housing not covered in the above section is housing in mixed uses, public and Quasi-public facilities. Between 1954 and 1964 there was an increase of approximately 1,000 units from 14,764 to 15,711. Within the context of the total housing change, this 1,000 units amounted to less than one out of seventy units. It is also recognized that the older sections of the community, with large many-roomed houses, will undergo an increase in density as these large houses are divided into apartments. During the forecast, a small percentage of the total number of H.U.'s will be taken out for later distribution into those areas which would expect to acquire this type of housing.

The first major assumption in this forecast of residential development is that the greatest percentage of new housing will locate on previously vacant land. Most new housing will consist of single-family detached units which require raw land for development. Currently, apartment and other multi-unit structures are not located, for the most part, in already developed areas. It is recognized that in certain sections of the city, apartments are replacing other housing types, but this is quite small within the total picture. This urban-to-urban change will be treated similar to mixed housing in that a small percentage will be removed from the total number of housing units to be distributed after the majority of units have been located.

In order to properly deal with the expected acreage needs for Franklin County a series of control figures were derived from the population and housing unit figures submitted to the RPC by OSU. These control figures are shown, in detail, in Exhibit A by housing type and acreage for each five year period up to 1985. The total housing unit figures for each period is not expected to change; however, figures for individual housing types and the

densities and acreages for these housing types are subject to possible change. Exhibit A represents the results of a certain set of assumptions and as new facts are known, the resultant areal requirements may be modified.

Having arrived at the basic assumption that new housing will be supplied by speculators on previously undeveloped land a scoring system was evolved to take these assumptions into consideration while locating future residential development. The attached "Score Card," Exhibit B, and the following explanation thereof are the result of the personal experiences of the authors, a fair amount of research into the area of why housing tends to locate where it does, the examination of available data concerning the residential segment of Franklin County, and the previous work of several predecessors on this study. There were many modifications of the initial scoring system both in the subjects felt important enough to be included in the system and the actual numbers (or grades) assigned to a subject and in the arithmetic relationship between the various subjects. The abovementioned modifications were made during and after an extensive trial and error period of attempting to project the 1954 residential land use data, by Analysis District, forward to the 1964 known totals.

Originally there were more items thought to influence development than what are currently on the Score Card. Also considerably more emphasis was given to the developer and less to the consumer than in the present Score Card. The result being that the initial trial runs had a tendency towards a much more even distribution of residential units with those districts on the outside fringe (24, 64, 44, etc.) and the inner districts (21, 61, 81, etc.) getting disproportionately large shares of housing. After several unsuccessful trial runs a re-evaluation of the scoring system gave a great deal more weight to the consumer and the negative numbers were introduced into the system to more closely approximate the decision making of the consumer. Several runs of the revised system proved successful in predicting current development known to have occurred through the "Known Plans File." (The "Known Plans File" contains information gathered from newspaper articles, building permit records, subdivision records, zoning and re-zoning cases, and the personal knowledge of the RPC staff on development within the County since 1964). The authors were given the time period and the total number of housing units as control figures from the Known Plans data and told to locate these units. Overall, the results were quite satisfactory. To be sure, not every last housing unit was exactly predicted in location, but the magnitude of numbers and those Districts where residential units were not locating were very accurately predicted.

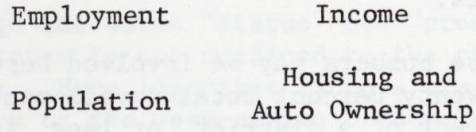
The scoring system for locating new residential development has then proven itself both workable and accurate in actual testing; therefore, this system has been continued in the forecast game. Comments and criticisms on the scoring system have also been solicited from Professor W. Raymond Mills of OSU and the Columbus Division of Planning.

The basic assumption of future residential development is that the vast majority of all new residential construction will be the function of the speculative builder. For all intents and purposes there is extremely little development in the residential category which is custom built. The general public, in purchasing or renting, is presented a package deal of a house in a location. If the public gives a particular housing style and a particular

location a vote of confidence by acquiring or renting; other speculators jump on the bandwagon and copy, in the general sense, that housing type and location. We then have in the residential sector a considerable "multiplier effect" which will continue until market conditions have been satisfied.

A short explanation of how the multiplier effect works is in order. This effect is partially made up of sections II and III-2 of the Score Card. Points scored in these sections contribute to the multiplier and are, in turn, dependent on other sections, particularly III-1 and III-3. The multiplier effect is curtailed when the percent of developable land drops below 20 percent of the total land area, as demonstrated by Districts 92, the Known Plans trial run. An example of the multiplier effect is now occurring between Districts 92 and 93. There is really a continuation of an existing trend, in an overall attractive area, creating a spill-over from an adjacent built-up District. As District 92 is becoming full developed the residential movement is continuing northward into District 93.

Having taken into account these three interdependent factors, the speculator, the general public, and a multiplier effect, the scoring system was devised. Considerable information on the speculator was gathered through interviews conducted by a predecessor and it is this information which has helped determine the speculator's role. Several other important assumptions need mentioning here with regard to how the scoring is actually carried out. The major "givens" are that there will be a certain number of people in Franklin County in 1985 as governed by economic conditions. Future demographic conditions will dictate the amount and type of housing required.



Appendix Figure 1

The above is a diagrammatic explanation of the interrelationships of the five major topics contained within the three volumes produced by the Ohio State University for the Blue Plan. In the above sequence of events in this study the economy was first examined and projected into the future, giving us the potential future employment. From this first step, both the potential population levels and composition, and personal income were then derived. Population and income are the inputs to the sections on housing requirements and auto ownership.

It is expected that the provision of water and sewer will not be a constraint to development but only a factor in timing as virtually the entire County will be served by 1985.

The actual scoring begins with a brief analysis of where people will not prefer to locate in new residential development, and where people will most generally want to locate. As we are going to work within a given number of residential units for each time increment, it can be logically assumed that certain Analysis Districts will get a great number of units and some Districts will not get any, or at least relatively few units. About ten

percent of the total units for the given time period will be removed and later distributed as urban renewal, public housing, mixed uses, and to low volume Districts.

On the Score Cards, sections I and II represent what the speculator attempts to take into consideration when offering his product to the public. Section III tries to assume the position of the buyer and what he thinks in choosing the location of his home. The speculator also gives a good deal of attention to the elements of the third section and he considers these elements quite carefully. Therefore the Score Card is an attempt to duplicate the thinking of both developer and buyer with the actual scoring system reflecting the multiplier effect brought on by the success of certain Districts.

The following is a brief description of each subject of the Score Card:

I. Land Availability

1. Amount developable and size of parcel.

In this portion of the Score Card it is theorized that a developer will be attracted by large amounts of raw land. Here he is able to use whatever methods of mass production he is capable of using. If the developer is large enough, and he is able to assemble a sufficient amount of land, he may build a development large enough to incorporate some commercial activity and perhaps a school into his total package. The majority of new housing units are expected to be built in larger types of developments.

Negative numbers may be involved here and a breaking-off point of twenty percent total development is assumed. If twenty percent of a district, or less, is undeveloped a score of 0 or minus number may result. In Districts with a limit of available land, residential activity will be very slight with only a filling-in action taking place. The breaking-off point and negative numbers are a direct result of examining what trends occurred from 1954-1964. These trends were plotted on a graph to correlate vacant land availability with a potential score. At the opposite end of the scale, a maximum of twenty points is given to a district which is from 90-100 percent developable.

II. Market Trends

1. Housing types and costs.

2. Public preference and income.

This section attempts to partially represent the tendency of a housing type to locate in a given District. The contractor has acquired land at a certain price and is capable of placing certain types of housing on this land in order to realize a profit. His interpretation of the public's preference and income dictates his choice in type of housing. For forecast purposes we have been limited to examining what exists and assuming

approximately the same for the future. In other words, we may expect to see a continuation of $25,000 housing in a neighborhood where this price housing already exists. District 13 scores high because of a variety of housing types locating there, while District 21 scores 0 because of its overall unattractiveness. Multi-family housing has not been locating in districts historically associated with this type of development but is now being built in tracts of subdivisions in the same manner as single-family.

III. Marketability

1. Access

A. Employment
B. Shopping
C. Schools

Access is treated here as a time-distance-convenience relationship to centers of employment, shopping, and to schools. Employment and the access thereto is assumed to be the most important element here.

2. Development trends (status)

A. Prestige or social attractiveness (drawing power)
B. Contiguous to existing built-up area (wave action)

Even though the words "status" and "prestige" are used, the scoring system is not confined to the strict definition of these words. More important factors are the attractiveness of an area or the wave-action of new development radiating from existing built-up areas. The scoring in this section will be from -30 to +30, the amount of which will really make or break a District. Emphasis is placed on those areas of the County which have always had an attraction such as the north and east ends of Columbus and Arlington. Most Analysis Districts will score negative points unless it can be actually demonstrated that a positive attraction exists. District 13 scores the maximum points and districts such as 61 and 44 score the minimum.

3. Amenity factors

A. Noise
B. Smells
C. Flood Plains
D. General neighborhood appearance
E. Area with a "stigma"

The above listed items are self evident in their contribution to attracting or repelling new development. If a District has a history of noise, smells, or some other detrimental factor, no points are given. A District will score only in the absence of these factors.

Examples are: noise - Districts 21,000, and 22; smells - Districts 61, 62, 51, and 52; flood plain - Districts 43 and 54; general neighborhood appearance - Districts 81 and 82; and areas with a "stigma" - Districts 44, 54, 64, and 84.

Exhibit A

Estimated Future Residential Acreage Requirements

by Housing Type and Densities

The estimated acreage, over and above the existing 1964 level, needed for future residential uses by 1985 is indicated below by five year intervals, housing type, and net H.U./acre densities. As a control total for the anticipated numerical increase in housing units, Appendix Table B13 of Volume II, Income, Trade, Housing, intermediate projections produced by the Ohio State University has been used.

Year	H.U.'s Needed (OSU)		Total H.U.'s (RPC)	Total H.U.'s (OSU)	Acres Needed		Total Acres
1964			253,822	229,983	-		41,990
1970	41,267		295,089	271,250	9,053		51,043
1975	64,282	23,015	318,104	294,265	14,335	5,282	56,325
1980	85,655	21,373	339,477	315,638	19,251	4,916	61,241
1985	132,912	47,257	386,734	362,895	29,636	10,385	71,626

1954-1964	74.4% (01) 10.0 (02-04) 10.7 (05) 4.9 (other)	% occurrence of each housing type in 1954-1964 period.	Used to compute individual housing type in 1975 and 1980 acreage requirements.

70.0% (01) 11.0 (02-04) 14.1 (05) 4.9 (other)	Used to compute individual housing type in 1970 and 1985 acreage requirements.

The apparent discrepancy between the O.S.U. and RPC figures is one of definition. In enumerating housing units, the RPC used the following guideline:

> Human habitation in a housing unit, or in a commercial establishment or institution. A housing unit is a house, apartment, or other group of rooms, or a single room which is occupied or intended for occupancy as separate living quarters. Occupants of a housing unit do not live and eat with any other persons in the structure and there is direct access from the outside or through a common hall, or cooking equipment for the exclusive use of the occupants. Commercial establishments or institutions furnishing lodging, or lodging and meals on a fee or memebership basis are included.

O.S.U., on the other hand, used the definition adopted by the U.S. Bureau of Census for a housing unit which is as follows:

> A house, an apartment or other group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters, that is, when the occupants do not live and eat with any other persons in the structure and there is either (1) direct access from the outside or through a common hall or (2) a kitchen or cooking equipment for the exclusive use of the occupants of the unit.

The basic difference between these two definitions lies in the area of group quarters. Group quarters are not included in the OSU housing inventory and projection but are included in the RRC inventory of 1964. Therefore, the resulting apparent discrepancy is a constant 23,839 H.U.'s and are actually barracks (Lockbourne A.F.B.), college dormitories (OSU, Franklin University, Otterbein College, etc.), fraternity and sorority houses, institutions, nursing homes, rooming houses, and other similar places.

In computing future acreage requirements, densities for new residential development will depend upon the type of housing and the particular District in which it will be located. The prime determining factor will be what has located in the area in the past. Housing predominately locates on trends, particularly with regard to densities as space or lot area is a function of cost. Like housing of the same cost range tend to locate together.

Assumptions for Trends Forecast

1. The percent occurrence of each housing unit (H.U.) type will continue at the 1954-1964 level, except where otherwise indicated.

2. H.U. densities will remain the same as the 1954-1964 densities.

3. Residential development is extremely sensitive to transportation technology as demonstrated by the historic areal growth of cities. The motor car will continue to be the chief mode of travel during the next two decades.

4. Public expenditures will continue to cater to the automobile: the outerbelt; I-70, Olentangy Freeway and numerous other improvements and expansions in the circulation system.

5. Public expenditures will continue to cater to suburbia: extensions of water and sewer systems by Columbus and other communities; other capital expenditures to expand public services on a decentralized basis.

6. Multi-family structures will continue to be built away from historical apartment sites in the built up areas of the city. Multi-family projects are being built in suburbia where larger tracts of land at relatively lower prices are available. Larger parcels are being sought after to provide parking space, swimming pools, extensive open space, other recreation areas, etc., all of which lower H.U. densities.

7. Columbus will not arrive at the population size needed to pressure an inward movement to the city nor will the attractions be created within downtown to draw people.

8. The new generation currently forming new households has grown up in suburbia and will not care to move into the city, but will have strong desires and tendencies to remain in suburbia.

9. The current pressure for new housing created by the formation of new households is a demographic pressure and not a reflection of changing preferences in housing types. There will be an upswing in apartment building in the next few years, but will take into consideration that the demand will be short term. This new group of households will be house-hunting as soon as possible.

10. Rising incomes and the increasing ease in buying a house will continue. The present mortgage market is a short term consideration. A deterring factor to purchasing a house used to be the "permanence" to home owning. Now housing is increasingly being viewed as a commodity which has a built-in obsolescence, therefore, to be sold in order to purchase a newer model.

11. The projections shown here for housing types and acreages are within the owner vs. renter projections given by O.S.U. Housing types 02, 03, 04 and 05 are those primarily intended for rentals.

1975 and 1985 Distributions by Districts

1. Distribute total number of D.U.'s by District with Scoring System, County totals are provided by OSU. Base figure of 253,822 D.U.'s for 1964.

   a. Problem is to distribute 01, 02, 03, 04, 05, 06, 07, and Mised Uses D.U.'s.

   b. Urban Renewal and Public Housing are treated as known plans and are removed from a 10 percent residual figure.

      64,282 - Total number D.U.'s expected from 1964-1975
      -6,428 - 10% removed for residual (approximate only)
      57,854 - number distributed through Scoring System

   c. L.U. Code 7 - population is distributed but not numbers of D.U.'s

   d. Score Card - Scoring must be done by one person at a single sitting in order to keep as much continuity as possible.

2. Scoring is relative; each District is judged for every factor on the score card relative to all other Districts.

3. A residual number (10 percent approximately) of the total D.U.'s for that time period is removed from the total for later distribution. This later distribution is to account for public housing, urban renewal and random distribution of D.U.'s.

4. All positive numbers on the score card are added together for a cumulative score. This cumulative score is then divided into the total number of D.U.'s to be distributed for the time period. Then, one point in the scoring system equals X number of D.U.'s and the score for each District is multiplied by the number of D.U.'s per point to get the number of D.U.'s per district.

5. Compare these results with previous brief analysis of distribution and location.

6. Breakdown D.U. figures into component mix (01, 02-04, 05, and Other) by Districts using the aggregate County percent for test year as a control total. The D.U. mix for each District is arrived at by examining existing conditions (mixture %), locational criteria for each housing type, and apparent trends.

7. Apply assumed net density rates, at the District level, and compute acreages. The aggregate County totals are the check points. Assumed net density rates are arrived at by examining existing densities by housing type, relative position of an individual District within County structure, and availability of utilities.

$$\text{District acreage} = \frac{\text{Number D.U.'s by type*}}{\text{Assumed Density ('54-'64 Occurrence)*}}$$

*The assumed density may not be the 1954-1964 occurrence if more recent data on both the type and density indicate a change taking place stronger than the 1954-1964 trend.

8. Make future population projection by District using the procedure for 1954 and 1964. Apply vacancy rate (OSU figure) and "vacant but not available" rate to D.U.'s. The number of D.U.'s which are vacant but not for sale or rent must first be removed proportionately from each District.

   District Population = number of D.U.'s by owner and renter, (owner and renter vacancy rates) (estimated District household size).

   OSU population totals are controls.

   District household size is estimated through examining 1950, 1950 to 1960, and 1960 household size for that District and by examining more recent trend data if available.

Number of Units
Number of Acres
Net Residential Density
01 Housing as Percent of Total H.U.'s

B. 02, 03, and 04 Housing

Same as 01

C. 05 Housing

Same as 01

D. Other Housing
Number of Units
Number of Acres
Other Housing as percent of total H.U.'s

E. Zone Totals
Total Number of Units
Total Number of Acres

4. 1964 (Printout 0301)

A. 01 Housing
Number of Units
Number of Acres
Net Residential Density
01 Housing as Percent of Total H.U.'s

B. 02, 03 and 04 Housing

Same as 01

C. 05 Housing

Same as 01

D. Other Housing
Number of Units
Number of Acres
Other Housing as percent of Total H.U.'s

E. Zone Totals
Total Number of Units
Total Number of Acres

5. 1954 to 1964 Net Residential Changes

A. Total Residential Acreage
B. L.U. Group 09 H.U.'s
C. Other Residential H.U.'s
D. Total Number H.U.'s
E. Net Residential Density
F. 1954-1964 Occurrence of New Development

6. 1954 to 1964 Residential Changes

A. 01 Housing

Zone Level Distribution of D.U.'s, Allocation of Acreage, and Estimation of Population

1. Method One - Locate D.U. Distribution by type and acreage in anticipated locations at District level on a work map. Flop on an overlay of Zone boundaries and pick off D.U.'s and acreage. Population would equal X persons per D.U.

2. Method Two - Estimate D.U. distribution from District down to Zone level using same criteria as on Score Card for Districts. Estimating will locate 01's, 05's, etc. in anticipated areas. A density level, generally corresponding to 1954-1964 change level, (see section B3), will be applied to determine acreage. The Zonal population for 1954-1964 estimates (see section B4) with the vacancy rates and "vacant but not available" rate applied. Previously determined District totals will be control figures.

Data Inputs Needed by Zone (Individual Tabular Form)

1. 1954 (Printout 0000B)

   A. Total Res. Acreage
      L.U. Group 09 Acreage
      Other Residential Acreage
   B. Total number H.U.'s
      L.U. Group 09 H.U.'s
      Other H.U.'s
   C. Net Residential Density

2. 1964 (Printout 0301)

   A. Total Residential Acreage
      L.U. Group 09 Acreage
      Other Residential Acreage
   B. Total number H.U.'s
      L.U. Group 09 H.U.'s
      Other H.U.'s
   C. Total Land Area (acreage)
      Developed Land Acreage
      Undeveloped Land Acreage
   D. Analysis
      Percent of total land area as developed area
      Percent of total number H.U.'s as Residential (L.U. Group 09)
      Net Residential Density
      Percent of Developed Land as Residential area
      Vacant Land Acreage (Undeveloped acreage minus L.U. category 90)
      Vacant Land as Percentage of Total Land Area

3. 1954 (Printout 0000B)

   A. 01 Housing

8. 1975 Trends Forecast Theoretical Acreage Available (for use in scoring system).

   A. Total Land Area in Zone
   B. 1964 Vacant and Developable (table No. 2, Sec. D; or Printout 0301 Sub-9 minus L.U. Category 90)
   C. +/- Independent Locators (gathered from appropriate sources*)
   D. Current available acreage - 1975 (Vacant and Developable minus Independent Locators)
   E. Vacant and Developable (1975 Available Acreage) as percent of Total Land Area.

*Independent Locators are proposed new freeways and roads, select community facilities, select parks and open space, and new industrial.

Table 8

1964 DENSITIES, ACREAGES, AND PERCENTAGES BY HOUSING TYPES

Type 01

District Number	Number of Units	Number of Acres	Net Res. Density	Percentage of H.U.'s in District
00	682	46.72	14.6	9.1
11	3,841	375.82	10.2	14.8
12	13,451	1,787.04	7.5	58.0
13	18,607	4,481.57	4.1	80.4
14	5,041	1,880.79	2.6	79.9
21	555	83.54	6.6	41.7
22	4,692	1,007.87	4.6	74.3
23	2,932	1,300.85	2.2	93.1
24	2,009	2,188.53	0.9	98.1
31	4,097	415.35	9.8	23.9
32	7,852	1,605.90	4.8	58.4
33	8,780	1,988.73	4.4	70.6
34	3,730	1,019.54	3.6	91.9
41	4,294	514.14	8.3	55.4
42	3,972	1,021.06	3.8	69.6
43	2,946	994.51	2.9	95.0
44	820	359.20	2.2	84.1
51	6,120	630.95	9.7	49.5
52	4,336	1,107.61	3.9	86.5
53	1,783	553.32	3.2	93.6
54	174	68.23	2.5	4.9
61	1,048	380.03	2.7	43.1
62	1,534	675.90	2.2	86.5
63	3,930	1,146.87	3.4	85.0
64	610	346.43	1.7	93.4
71	4,216	459.14	9.1	55.1
72	9,300	1,284.84	7.2	74.0
73	4,775	1,418.44	3.3	63.7
74	802	704.44	1.1	95.8
81	56	11.67	4.7	81.1
82	668	461.98	1.4	78.8
83	3,284	1,620.12	2.0	97.7
84	804	662.74	1.2	91.8
91	2,605	456.71	5.7	34.6
92	9,546	2,653.84	3.6	71.5
93	2,435	1,492.42	1.6	97.6
94	787	533.00	1.4	99.8
Total	147,114	37,740.00	3.9	57.9

Type 02-04

District Number	Number of Units	Number of Acres	Net Res. Density	Percentage of H.U.'s in District
00	1,265	40.96	31.3	17.0
11	8,134	353.37	23.0	31.5
12	6,253	347.15	18.0	26.9
13	2,507	189.14	13.2	10.8
14	504	47.04	10.7	8.0
21	141	10.42	13.5	10.6
22	634	51.48	12.3	10.0
23	179	13.94	12.8	5.6
24	21	4.09	5.1	1.0
31	6,495	293.13	22.1	37.9
32	3,066	184.29	16.6	21.9
33	2,380	202.02	11.7	19.1
34	72	7.82	9.2	1.7
41	2,770	149.18	18.5	35.8
42	750	56.98	13.1	13.1
43	119	16.93	7.0	3.8
44	126	12.98	9.7	12.9
51	4,236	195.11	21.7	34.3
52	125	13.86	9.0	2.5
53	60	11.57	5.1	3.1
54	14	2.34	5.9	-
61	303	28.89	10.5	12.4
62	92	7.87	11.7	5.1
63	415	41.50	10.0	8.9
64	21	3.13	6.7	3.2
71	2,314	120.01	19.2	30.2
72	2,623	166.96	15.7	20.9
73	603	49.81	12.1	8.0
74	14	4.11	3.4	1.6
81	8	0.51	15.7	11.5
82	12	3.91	3.0	1.4
83	37	5.98	6.1	1.1
84	32	9.66	3.3	3.6
91	3,062	181.97	16.8	40.7
92	1,172	113.53	10.3	8.8
93	4	1.25	3.2	0.2
94	-	-	-	-
Total	50,561	2,943.00	17.2	19.9

Type 05

District Number	Number of Units	Number of Acres	Net Res. Density	Percentage of H.U.'s in District
00	2,128	29.37	72.4	28.5
11	5,323	96.76	55.0	20.6
12	1,629	46.00	35.4	7.0
13	1,356	59.64	22.7	5.8
14	70	2.84	24.6	1.1
21	462	16.91	27.3	34.7
22	154	4.65	33.1	2.4
23	24	1.65	14.5	0.7
24	-	-	-	-
31	4,374	97.54	44.8	25.5
32	2,338	84.07	27.8	16.6
33	694	28.38	24.4	5.5
34	46	0.67	68.6	1.1
41	401	13.03	30.7	5.1
42	822	32.10	25.6	14.4
43	5	0.38	13.1	0.1
44	-	-	-	-
51	1,186	33.83	35.0	9.6
52	5	0.60	8.3	-
53	14	3.75	3.7	0.8
54	-	-	-	-
61	441	21.57	20.4	18.1
62	-	-	-	-
63	130	9.42	13.8	2.8
64	5	0.20	25.0	0.8
71	623	13.74	45.3	8.1
72	289	8.25	35.0	2.3
73	1,662	60.74	27.3	22.1
74	-	-	-	-
81	-	-	-	-
82	-	-	-	-
83	16	0.64	25.0	0.5
84	-	-	-	-
91	1,781	61.68	28.8	23.6
92	1,575	57.17	27.5	11.8
93	-	-	-	-
94	-	-	-	-
Total	27,553	786.00	35.1	10.9

	Other			Totals	
District Number	Number of Units	Number of Acres	Percentage of H.U.'s in District	Number of Units	Number of Acres
00	3,366	18.95	45.4	7,441	136.00
11	8,530	62.82	33.1	25,828	888.77
12	1,835	26.51	8.1	23,166	2,206.70
13	670	36.93	3.0	23,140	4,767.28
14	694	23.14	11.0	6,309	1,953.81
21	171	0.40	13.0	1,329	111.27
22	830	55.62	13.3	6,310	1,119.62
23	13	4.10	0.6	3,148	1,320.54
24	17	1.43	0.9	2,047	2,194.05
31	2,165	21.28	12.7	17,131	827.30
32	755	5.12	3.1	14,011	1,879.38
33	569	45.75	4.8	12,423	2,264.88
34	208	19.45	5.3	4,056	1,047.48
41	277	2.25	3.7	7,742	678.60
42	156	7.01	2.9	5,700	1,117.15
43	29	2.48	1.1	3,099	1,014.30
44	28	0.75	3.0	974	372.93
51	807	15.67	6.6	12,349	875.56
52	541	28.56	10.8	5,007	1,150.63
53	47	9.41	2.5	1,904	578.05
54	3,357	6.43	89.2	3,545	77.00
61	639	41.54	26.4	2,431	472.03
62	147	15.80	8.4	1,773	699.57
63	144	13.47	3.3	4,619	1,211.26
64	17	6.47	2.6	837	356.23
71	488	0.48	6.6	7,641	593.34
72	341	1.26	2.8	12,553	1,461.31
73	447	54.99	6.2	7,487	1,583.98
74	21	9.45	2.6	837	718.00
81	5	0	7.4	69	12.18
82	167	17.25	19.8	847	483.14
83	24	4.18	0.7	3,361	1,630.92
84	39	10.80	4.6	875	683.20
91	68	16.44	1.1	7,516	716.80
92	1,048	31.02	7.9	13,341	2,855.56
93	55	5.95	2.2	2,494	1,499.62
94	1	2.25	0.2	788	535.25
Total	28,696	634.00	11.3	253,944	42,103.00

Table 9

NET CHANGES IN HOUSING TYPES AND ACREAGES 1954-1964

District Number	Type 01 Number of Units	Type 01 Number of Acres	Type 02-04 Number of Units	Type 02-04 Number of Acres	Type 05 Number of Units	Type 05 Number of Acres
00	-31	-2.03	-457	-6.80	-289	-2.24
11	142	15.62	362	18.10	194	3.44
12	766	63.05	424	24.82	101	2.48
13	6,680	1,493.26	1,312	97.55	1,057	50.02
14	3,150	1,014.52	330	31.61	29	1.05
21	86	9.39	27	2.03	0	4.50
22	1,473	283.10	269	20.50	99	2.91
23	1,865	703.43	116	9.19	0	0
24	733	848.80	2	0.75	-	-
31	138	15.12	131	6.52	199	450.00
32	1,148	209.48	1,223	63.15	454	15.05
33	6,228	1,239.67	624	40.77	385	15.88
34	3,190	751.89	62	6.66	46	0.67
41	272	46.61	150	8.49	151	3.66
42	2,940	698.06	532	42.37	815	31.92
43	1,915	538.37	36	7.16	0	0
44	191	79.88	7	1.10	-	-
51	232	38.45	98	6.29	50	1.67
52	2,831	605.03	51	4.84	5	0.60
53	919	237.85	24	5.51	0	0
54	17	7.04	4	0.93	-	-
61	181	61.48	-154	-24.82	181	8.15
62	456	242.25	9	0.93	-	-
63	2,472	647.21	310	30.16	108	6.52
64	112	74.80	0	0	0	0
71	129	19.13	111	6.72	237	5.13
72	1,855	335.22	351	26.48	146	4.05
73	3,143	760.70	439	29.64	1,262	45.48
74	319	206.85	6	1.55	-	-
81	3	0.20	0	0	-	-
82	182	119.54	0	0	-	-
83	2,396	877.38	33	5.74	10	0.36
84	299	336.40	14	4.42	-	-
91	38	16.41	308	16.18	967	27.77
92	4,275	1,221.63	397	47.07	1,423	49.30
93	1,812	899.67	2	1.00	-	-
94	448	298.79	-	-	-	-
Total	53,011	15,044.00	7,143	537.00	7,625	283.00

District Number	Other Number of Units	Other Number of Acres	1954 D.U./Acre 01	1954 D.U./Acre 02-04	1954 D.U./Acre 05	1964 D.U./Acre 01	1964 D.U./Acre 02-04	1964 D.U./Acre 05
00	+7	-0.13	14.63	36.47	76.46	14.60	31.37	72.45
11	56	0.40	10.27	23.18	54.96	10.22	23.02	55.01
12	269	4.06	7.36	18.08	35.23	7.53	18.01	35.41
13	109	13.20	3.99	13.04	31.08	4.15	13.25	22.74
14	196	0.73	2.18	11.28	22.91	2.68	10.71	24.65
21	2	-0.05	6.33	13.59	37.23	6.64	13.53	27.32
22	263	22.91	4.44	11.78	31.61	4.66	12.32	33.12
23	3	2.72	1.79	13.26	14.55	2.25	12.84	14.55
24	12	0.18	0.95	5.69	-	0.92	5.13	-
31	84	0.06	9.89	22.20	44.87	9.86	22.16	44.84
32	53	2.20	4.80	15.21	27.30	4.89	16.64	27.81
33	334	18.86	3.55	10.89	24.72	4.41	11.78	24.45
34	130	11.66	2.02	8.62	-	3.66	9.17	68.66
41	19	0.40	8.60	18.62	26.68	8.35	18.57	30.78
42	80	2.00	3.20	14.92	38.89	3.89	13.16	25.61
43	16	1.91	2.26	8.50	13.16	2.96	7.03	13.16
44	9	0.25	2.25	10.02	-	2.28	9.71	-
51	76	9.05	9.94	21.92	35.32	9.70	21.71	35.06
52	90	4.74	2.99	8.20	-	3.91	9.02	8.33
53	30	7.24	2.74	7.59	3.73	3.22	5.19	3.73
54	+13	-1.97	2.47	7.09	-	2.55	5.98	-
61	45	3.12	2.72	8.51	19.37	2.76	10.49	20.45
62	20	0.69	2.49	11.96	-	2.27	11.69	-
63	49	10.27	2.92	9.26	7.59	3.43	10.00	13.80
64	11	4.24	1.83	6.71	25.00	1.76	6.71	25.00
71	16	0.03	9.29	19.44	44.83	9.18	19.28	45.34
72	41	0.28	7.84	16.17	34.05	7.24	15.71	35.03
73	314	40.16	2.48	8.13	26.21	3.37	12.11	27.36
74	+13	-0.40	0.97	3.13	-	1.14	3.41	-
81	01	0	4.62	15.69	-	4.80	15.69	-
82	114	14.75	1.42	3.07	-	1.45	3.07	-
83	-14	+2.75	1.20	16.67	21.43	2.03	6.19	25.00
84	32	9.79	1.55	3.44	-	1.21	3.31	-
91	+11	2.44	5.83	16.61	24.00	5.70	16.83	28.87
92	945	30.77	3.68	11.66	19.31	3.60	10.32	27.55
93	+13	0.60	1.05	8.00	-	1.63	3.20	-
94	1	0	1.45	-	-	1.48	-	-
Total	3,455	220.00	4.15	18.05	39.62	3.90	17.19	35.06

Table 10

1964 RESIDENTIAL LAND USE DATA

District Number	H.U. and Group Quarter Rooms			Dev. and Undev. Land Acreage		
	Total Resid. Acreage	Total H.U.	Total Pop.	Dev. Land Acreage	Undev. Land Acreage	Total Acreage
00	136	7,441	14,832	1,392	200	1,592
11	389	25,828	67,540	2,989	192	3,181
12	2,207	23,166	67,185	3,761	357	4,118
13	4,767	23,140	77,482	8,149	5,212	13,361
14	1,954	6,309	20,475	5,145	12,081	17,226
21	111	1,329	4,326	878	174	1,052
22	1,120	6,310	21,198	2,334	2,227	4,561
23	1,321	3,148	11,106	4,025	7,442	11,467
24	2,194	2,047	7,191	4,000	30,811	34,811
31	827	17,131	48,502	1,861	120	1,981
32	1,879	14,011	41,138	3,186	288	3,475
33	2,265	12,423	44,250	4,906	3,821	8,728
34	1,047	4,056	14,292	2,297	6,938	9,236
41	679	7,742	23,637	1,099	67	1,166
42	1,117	5,700	19,662	2,322	3,256	5,578
43	1,014	3,099	10,555	2,055	14,983	17,038
44	373	974	3,230	1,047	16,889	17,936
51	876	12,349	37,190	2,212	445	2,657
52	1,151	5,007	18,883	2,387	2,316	4,703
53	578	1,904	6,815	1,551	9,436	10,987
54	77	3,545	6,510	3,478	3,398	6,876
61	472	2,431	8,439	1,346	1,374	2,720
62	700	1,773	6,211	1,435	4,189	5,624
63	1,211	4,619	16,186	2,545	16,746	19,291
64	356	653	2,267	871	14,871	15,742
71	593	7,641	23,449	1,653	108	1,761
72	1,461	12,553	39,758	2,449	192	2,641
73	1,584	7,487	25,033	3,092	10,370	13,462
74	718	837	3,151	1,836	26,148	27,984
81	12	69	222	249	247	496
82	483	847	2,910	1,152	2,721	3,873
83	1,631	3,361	12,019	2,558	14,670	17,227
84	683	875	2,966	1,347	23,394	24,741
91	717	7,516	20,577	2,006	660	2,666
92	2,856	13,341	42,009	5,974	831	6,805
93	1,500	2,494	8,267	2,873	6,419	9,293
94	535	788	2,705	1,256	6,980	8,236
Total	42,103	253,944	782,168	93,716	250,575	344,291

Analysis

District Number	Percent Dev.	Percent Res.	Net Res. Density D.U./Acre	Dev. Acres Per 1000 Pop.	% of Dev. Acres as Res. Acre	Vacant Land	Percent Vacant Land
00	87.4	63.9	37.4	93.8	9.7	99.5	6.3
11	94.0	82.2	23.9	44.3	29.7	155.7	4.9
12	91.3	97.3	10.2	56.0	58.4	335.2	8.1
13	61.0	98.8	4.8	105.2	58.4	5,100.3	38.2
14	29.9	90.9	3.0	251.3	37.7	11,700.3	67.2
21	83.5	87.8	10.1	203.0	12.6	174.0	16.5
22	51.2	97.6	5.5	110.1	48.0	2,173.9	47.7
23	35.1	99.7	2.4	362.4	32.7	7,282.4	63.5
24	11.5	99.3	0.9	556.3	54.9	30,278.9	87.0
31	93.9	93.4	19.4	38.4	44.4	111.3	5.6
32	91.7	94.9	7.1	77.4	58.9	264.6	7.6
33	56.2	98.8	5.5	110.9	45.8	3,732.5	42.8
34	24.9	98.6	3.8	160.7	45.5	6,883.8	74.5
41	94.3	97.9	11.2	46.5	61.8	67.0	5.8
42	41.6	98.8	5.0	118.1	48.1	3,213.9	57.6
43	12.1	99.6	3.0	194.7	49.3	14,709.2	86.3
44	5.8	98.7	2.6	324.1	35.6	16,777.3	93.5
51	83.3	95.2	13.5	59.5	39.5	243.1	9.2
52	50.8	99.4	4.3	126.4	48.1	1,987.2	42.3
53	14.1	99.7	3.3	227.6	37.3	9,173.5	83.5
54	50.6	5.8	2.9	534.3	2.1	3,176.3	46.2
61	49.5	98.8	5.1	159.5	35.1	823.1	30.3
62	25.5	99.1	2.5	231.0	48.7	3,705.2	65.9
63	13.2	99.1	3.8	157.2	47.6	16,562.7	85.9
64	5.5	99.4	1.8	384.2	40.9	14,729.7	93.6
71	93.9	94.1	12.1	70.5	35.9	108.0	6.1
72	92.7	97.4	8.4	61.6	59.7	192.0	7.3
73	23.0	99.1	4.8	123.5	50.4	10,360.0	77.0
74	6.6	98.7	1.2	582.7	39.1	25,946.1	92.7
81	50.2	92.8	5.3	1,121.6	4.8	125.4	25.3
82	29.7	98.3	1.7	395.9	41.9	1,791.8	46.3
83	14.8	99.5	2.1	212.8	63.8	14,525.4	84.3
84	5.4	99.4	1.3	454.1	50.5	23,272.6	94.1
91	75.2	99.5	10.6	97.5	35.2	396.4	14.9
92	87.8	95.7	4.5	142.2	47.7	641.7	9.4
93	30.9	99.5	1.7	347.5	52.2	6,265.0	67.4
94	15.3	99.9	1.5	464.3	42.6	6,884.0	83.6
Total	27.1	93.3	5.6	119.8	44.8	243,971.0	70.9

Table 11

RESIDENTIAL CHANGE 1954-1964

District Number	Total Residential Acreage	Developed Land Acreage	Percent Dev.	Change all H.U.'s	Percent Res.	Total Population
00	-11.2	8	0.5	-770	-1.8	-7,295
11	37.8	111	3.5	754	0.4	3,626
12	94.7	190	4.6	1,555	-0.1	2,361
13	1,653.8	2,713	20.3	9,158	0.3	30,172
14	1,048.1	2,380	13.8	3,705	3.6	12,161
21	15.6	66	6.3	116	-11.2	321
22	329.8	753	16.5	2,104	0.8	7,335
23	715.8	1,179	10.3	1,984	0.5	7,007
24	849.7	1,016	13.3	747	-0.4	2,670
31	25.9	60	3.0	552	-	548
32	289.5	480	13.8	2,878	-0.4	8,022
33	1,345.0	2,389	27.4	7,571	0.7	28,777
34	770.4	1,178	12.8	3,428	-0.8	12,181
41	59.6	85	7.3	592	0.3	1,763
42	774.2	1,258	22.5	4,367	1.7	15,320
43	547.1	1,465	8.6	1,967	0.4	6,756
44	81.3	240	1.3	207	-0.6	680
51	55.9	154	5.8	456	0.1	477
52	615.6	975	20.8	2,977	0.6	11,627
53	250.6	555	5.0	963	-0.1	3,385
54	6.0	322	4.7	40	1.0	165
61	48.0	5	0.2	253	-0.4	716
62	244.3	485	8.6	485	-0.8	1,593
63	693.9	841	4.4	2,939	0.7	10,163
64	78.8	270	1.7	123	0.2	423
71	30.6	60	3.4	493	-2.1	574
72	365.7	633	23.9	2,393	0.2	6,394
73	876.0	1,333	9.9	5,158	0.3	17,067
74	208.0	276	1.0	338	0.1	1,441
81	-	23	4.6	4	-1.0	-3
82	134.2	203	5.2	296	0.3	1,000
83	886.3	1,217	7.0	2,425	3.2	8,759
84	350.4	385	1.5	345	-0.2	1,259
91	63.0	259	9.7	1,324	-	1,824
92	1,349.2	1,912	28.1	7,040	-2.8	21,876
93	901.8	1,313	14.1	1,819	0.7	6,099
94	298.5	542	6.6	448	0.2	1,557
Total	16,093.3	27,334	7.9	71,284	1.5	228,801

District Number	Dev. Acres 11,000 Pop.	Net Residential Density	Occurrence New Development	% of Dev. Acres as Res. Acres	% of Vacant Land Net Change
00	31.3	-1.7	-57.2	-	0.5
11	-0.7	-0.2	18.8	34.2	3.5
12	0.9	0.2	15.1	49.6	4.7
13	-9.7	0.4	5.5	60.6	20.3
14	-81.3	0.5	3.3	44.2	14.5
21	0.3	-1.1	7.2	23.6	6.3
22	-3.9	0.3	6.3	43.8	16.5
23	-331.9	0.5	2.7	60.4	10.3
24	-103.7	-0.1	0.9	83.6	2.9
31	0.8	-	21.0	43.2	3.0
32	-4.3	0.5	9.8	59.9	13.9
33	-51.8	0.3	5.6	55.5	27.4
34	-369.4	1.5	4.4	65.1	12.8
41	0.1	5.0	10.1	70.6	7.2
42	-126.9	1.2	5.6	61.5	22.7
43	39.4	0.6	3.9	33.7	9.0
44	7.6	-	2.4	32.6	1.4
51	3.4	-0.3	8.4	35.0	5.7
52	-68.2	0.5	4.8	63.2	20.7
53	-62.8	0.5	3.8	45.2	5.5
54	36.9	0.2	6.1	1.9	6.4
61	-14.1	-	5.0	-	4.3
62	25.3	-0.3	1.9	50.3	8.6
63	-125.7	0.6	4.2	82.5	2.4
64	58.3	0.1	1.6	29.2	1.0
71	0.9	0.2	15.4	51.7	3.4
72	7.2	-0.6	6.4	57.8	23.9
73	-97.3	1.5	6.0	63.8	9.9
74	-329.6	0.2	1.6	75.4	1.0
81	117.2	-0.2	3.0	-	4.6
82	-101.0	0.1	2.2	66.1	5.3
83	-198.5	0.9	2.8	72.8	7.1
84	-109.5	-0.3	1.0	90.2	1.5
91	4.3	1.0	24.7	20.5	9.7
92	-59.6	0.4	4.8	70.3	28.1
93	-372.1	0.6	2.0	68.6	14.2
94	-157.7	0.1	1.5	55.1	6.6
Total	-0.2	-0.8	4.39	58.3	7.9

Appendix II

Residential Land Use Coding System

CODE NO.

0 - RESIDENTIAL

Human habitation in a housing unit, or in a commercial establishment or institution. A housing unit is a house, apartment, or other group of rooms, or a single room which is occupied or intended for occupancy as separate living quarters. Occupants of a housing unit do not live and eat with any other persons in the structure and there is direct access from the outside or through a common hall, or cooking equipment for the exclusive use of the occupants. Commercial establishments or institutions furnishing lodging, or lodging and meals on a fee or membership basis are included.

0100 - HOUSING UNIT IN A ONE-UNIT DETACHED STRUCTURE

A one-unit detached structure has open space on all four sides and contains one housing unit.

0200 - HOUSING UNIT IN A ONE-UNIT ATTACHED STRUCTURE

A one-unit attached structure has one or more common walls separating it from adjoining structures and each unit has a separate entrance, e.g., row houses, double houses, and houses attached to non-residential structures.

0300 - HOUSING UNIT IN A TWO-UNIT STRUCTURE

A two-unit structure is one in which the two units are not separated by a common wall extending from ground to roof. For example, a two-unit structure may contain two units, one upstairs and one down, or the two units may be side-by-side, but sharing a common hallway and front entrance.

0400 - HOUSING UNIT IN A THREE OR FOUR UNIT STRUCTURE

A three or four unit structure is one where the units are not separated by common walls extending from ground to roof and have common or separate entrances, e.g., apartment houses with three or four dwelling units.

0500 - HOUSING UNIT IN A FIVE OR MORE UNIT STRUCTURE

With common or separate entrances.

CODE NO.

0600 - HOUSING UNIT IN A TRAILER

In a trailer park each stall or pad is to be coded 0600. Empty pads and vacant trailers are to be identified.

0700 - HOUSING UNIT IN A TENT, BOAT, RAILROAD CAR, OR OTHER MAKESHIFT STRUCTURE (SPECIFY)

0800 - HOUSING UNIT IN A MIXED-USE STRUCTURE

A mixed-use structure is a structure in which the establishments are classified under more than one of the broad land-use categories. For example, apartments above a grocery store. The classification does not include home occupations.

0910 - HOTELS, TOURIST COURTS, AND MOTELS

0920 - ROOMING AND BOARDING HOUSES

0930 - BARRACKS

A Barracks is a residential structure whose interior is open so that each individual resident has an assigned space, but no visual separation.

0950 - DORMITORIES

A dormitory is internally subdivided by partitions and walls into smaller living units.

0960 - ORGANIZATION HOTELS AND LODGING HOUSE MEMBERSHIP

Lodging for the benefit of the constituents, and not open to the general public.

0970 - HOMES FOR THE AGED, EXCEPT SANITORIA

0990 - OTHER GROUP QUARTERS NOT CLASSIFIED

0999 - VACANT RESIDENTIAL, OR UNDER CONSTRUCTION

BIBLIOGRAPHY

Burgess and Niple Limited. Inventory and Analysis of Water - Related Facilities in Franklin County. A Summary Report, Columbus Ohio: Prepared for The Comprehensive Regional Plan of Columbus and Franklin County, June, 1966. Economic Base Study and Related Reports for the Columbus City Planning Commission and the Franklin County Regional Planning Commission. Harland Bartholemew and Associates, St. Louis, Missouri, 1954-1956.

Federal Housing Administration. Analysis of the Columbus, Ohio Housing Market as of November, 1965. Department of Housing and Urban Development. Washington, D.C., May, 1966.

Federal Housing Administration. Land Use Intensity - Land Policy Bulletin No. 7. Department of Housing and Urban Development. Washington, D.C., December, 1966.

Franklin County Regional Planning Commission. Physical Studies of Franklin County. Prepared for the Comprehensive Regional Plan of Columbus and Franklin County, July, 1966.

Franklin County Regional Planning Commission. 1964 Land Use Inventory. A Franklin County Summary. Prepared for the Comprehensive Regional Plan of Columbus and Franklin County, March, 1966.

Ohio Department of Highways. Origin and Destination Study. Prepared for the Comprehensive Regional Plan of Columbus and Franklin County, 1966.

The Ohio State University, Bureau of Business Research, Population and Labor Force, Volume 1. The Columbus Area Economy - Structure and Growth 1950-1985. Prepared for the Comprehensive Regional Plan of Columbus and Franklin County, 1966.

The Ohio State University, Bureau of Business Research, Income, Trade, Housing, Volume II. The Columbus Area Economy. Structure and Growth 1950-1985. Prepared for the Comprehensive Regional Plan of Columbus and Franklin County, 1966.

The Ohio State University, Bureau of Business Research, Population and Labor Force, Volume III. The Columbus Area Economy - Structure and Growth 1950-1985. Prepared for the Comprehensive Regional Plan of Columbus and Franklin County, 1966.