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NORTHLAND AREA STUDY



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THE SPIRIT OF BETTERMENT
BLUE PLAN
FOR THE CENTRAL OHIO COMMUNITY

- LAND USE
- COMMUNITY FACILITIES
- STREETS

COLUMBUS . . .

COMPREHENSIVE REGIONAL PLAN

LAND USE • TRANSPORTATION • FACILITIES

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COMPREHENSIVE REGIONAL PLAN

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Harrison W. Smith, Jr., Chairman, Coordinating Committee

Philip D. Hertenstein, Program Director

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The Coordinating Committee of the Blue Plan is proud to present the Northland Study to the citizens of Central Ohio. The concepts of this study, the largest and most comprehensive ever undertaken by our local planners, reach far beyond the boundaries of Northland and are applicable to almost any section of Central Ohio. This is not a program for planning agencies alone; businessmen, land developers, home builders, parents of school children--all of us can profit from this study.

Since planning is for people, our planners took the study to the people for guidance during its development. The Coordinating Committee and the planning staffs want to thank the many individuals, civic groups, and governmental agencies for their time and effort in helping to make a better Northland Study.

The Northland Study is not a final output of the Blue Plan; it is a product of today's information and today's standards. Northland is, however, a springboard to be used in designing the goals, objectives, standards, and guide lines of our future growth through the more sophisticated programs of the Blue Plan. As these new projects are developed the results will be incorporated into the Northland Study to give Northland and all of Central Ohio an up-to-date, practical, and sensible comprehensive plan.

Very truly yours,

Philip D. Hertenstein
Program Director

COLUMBUS METROPOLITAN LIBRARY

NORTHLAND AREA STUDY

Prepared for:

THE COMPREHENSIVE REGIONAL PLAN
Of Columbus and Franklin County
514 South High Street
Columbus, Ohio 43215

Prepared by:

FRANKLIN COUNTY REGIONAL
PLANNING COMMISSION

COLUMBUS CITY PLANNING COMMISSION

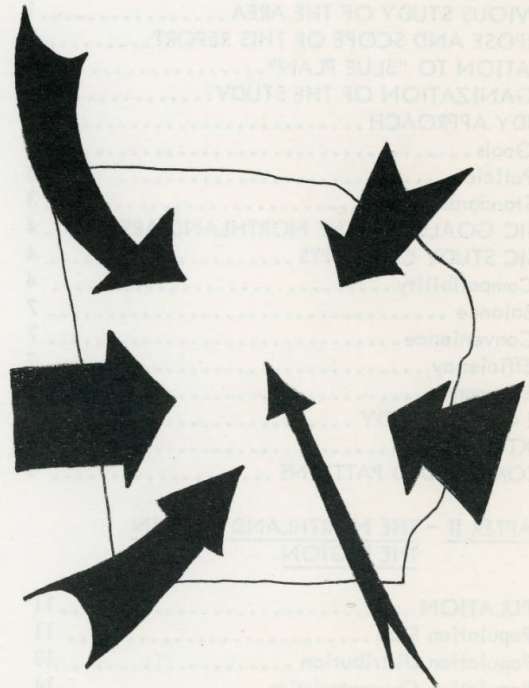
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The Northland Area is a rapidly developing segment of the Franklin County Region. It is located in the north-central portion of Franklin County including portions of Worthington and Columbus, and all of Minerva Park.

DELINEATION OF THE STUDY AREA

The Northland Area is bounded by the New York Central and the Pennsylvania Railroads on the west, Cooke Road realigned on the south, Alum Creek on the east, and the Outerbelt (1-270) on the north. These boundaries encompass roughly 17.5 square miles or over 11,000 acres.

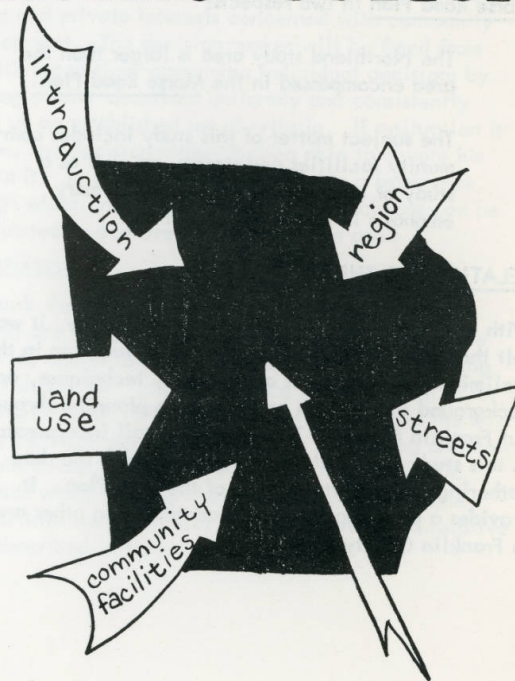
PREVIOUS STUDY OF THE AREA

In 1960 the Columbus City Planning Commission and the Franklin County Regional Planning Commission directed their staffs to jointly prepare a land use plan for the Northland Area, then called the Morse Road Area. The purpose of this plan was to encourage the development of identifiable and pleasant neighborhoods, to increase the efficiency of all streets, and to help overcome the growing tendency for strip commercial development along major streets in the Area. This plan, entitled The General Land Use Plan for the Morse Road--State Route 161 Area, was adopted by resolutions of the Columbus City Council and the Franklin County Board of Commissioners in July, 1961.

CHAPTER I

the

INTRODUCTION



PURPOSE AND SCOPE OF THIS REPORT

The purpose of this report is to re-evaluate the Area in relation to the rapid urbanization and the significant developments which have occurred in this vicinity since the adoption of the Morse Road Plan.

The scope of this study is broadened over that of the Morse Road Plan in two respects:

- The Northland study area is larger than the area encompassed in the Morse Road Plan.
- The subject matter of this study includes community facilities and streets, as well as a study of land use, which was of primary emphasis in the Morse Road Plan.

RELATION TO THE "BLUE PLAN"

With the comprehensive "Blue Plan" underway, it was felt that this study could serve a useful function in the preliminary development of concepts, techniques, and background information applicable to planning throughout Franklin County. The level of detail incorporated in this study is a result of integration with the data gathering and analytic phases of the Blue Plan. It provides a planning framework adaptable to other areas in Franklin County.

ORGANIZATION OF THE STUDY

The Northland Study is presented in five parts. This chapter provides an overall view of the study approach and outlines some of the uses which can be made of the Study. General goals and study concepts are listed and discussed. Specific goals (objective), policies, standards and recommendations are contained in each chapter.

Chapter II, "Northland Area in the Region", establishes background data which has a bearing on the policies and recommendations suggested in later chapters. It is primarily a description of the population, economic, and physical characteristics of the Northland Area and the Franklin County Region.

Chapter III, "Land Use", has four major sections: (1) existing, (2) residential, (3) commercial, and (4) industrial land use. Utilization of the existing land use data is discussed in the first section, and the other sections discuss policies, standards, and recommendations for the three types of land use. The development of each use is projected.

Chapter IX, "Community Facilities", discusses the standards being used by operating agencies and projects community facility needs based on the anticipated population of the Area. Policies, standards and recommendations are suggested for several types of community facilities.

Chapter V, "Streets", includes a recommended street classification system and major street pattern, based on anticipated Area needs, "Blue Plan" Street classifications, and the Regional Major Thorofare Plan.^{*} Policies and standards are suggested on the basis of the street classification system.

STUDY APPROACH

This study establishes general guidelines for Northland Area development. These guidelines must approach a consensus of private and public interests concerned in the development of the Area. To achieve this, a policy planning approach has been followed, emphasizing that goals be identified and agreed upon as the basis for establishing the long-range purposes and direction of development effort. This provides a framework for coordinating decision-making and is basic to developing a comprehensive plan. Where the emphasis of a physical plan is on specific recommendations, the emphasis of this policy plan is on the criteria for making specific recommendations. These criteria are goals, policies, and standards.

GOALS

Goals (objectives) set forth the desired outcome of planning and development activity and establish long-range purposes. Because of this, goals are the measuring rod for determining the effectiveness of on-going development activities. To serve this function, goals must represent a consensus and have permanence over time. Once the goals are determined, policies should be developed to carry out these goals.

^{*} Franklin County Regional Planning Commission, 1961.

POLICIES

Policies are formulated decision guides for achieving established goals or objectives. They standardize day-to-day decisions and free the decision-maker to concentrate on unique problems. For example, a zoning ordinance, when properly drafted and used, constitutes an established and predictable course of action. Assuming it reflects the goals of the community, it becomes a policy guide to the public and private interests concerned with community development. The decision-maker will be freed from repetitive and time-consuming individual decisions by treating similar situations uniformly and consistently based on an established set of criteria. If a situation is unique, the decision-maker is then able to devote his time to it. In essence, policies provide a framework through which individual development decisions can be coordinated to achieve the agreed upon goals.

STANDARDS

Standards define policies and are the means by which policies are implemented. Each standard is a separate criterion, useful in determining whether or not a thing is as it should be. Standards bring policies down to an operational level so they can be integrated into the day-to-day decision-making process. In the zoning ordinance example above, policies are defined in the specific standards which makeup the ordinance. By example, a residential density policy will be abstract and relative until described in terms of standards.

By analogy, goals are a destination to be reached, policies are a vehicle for reaching that destination; and standards indicate the limits in which it is desirable to move.

BASIC GOALS FOR THE NORTHLAND AREA

The importance of achieving a consensus on goals has just been emphasized. Goals establish a common set of criteria toward which all development decisions can be directed, measured, and coordinated. In the course of preparing the Northland Area Study many public and private groups were contacted so that a consensus could be achieved. On the basis of these contacts, the following goals have been identified.

- Achieve potential economic and population growth.
- Promote balanced and compatible land use relationships.
- Foster an efficient and convenient land use arrangement.
- Identify and conserve natural amenities and resources.
- Promote a healthful, safe, and visually satisfying environment.

These are basic goals. They are highly generalized, but serve as a basis for the more detailed objectives outlined at the beginning of each chapter or major section of the study: land use (residential, commercial, and industrial), community facilities, and streets. They provide a framework for the continued coordination sought among development agencies and citizen groups indicated in the Next Steps section of this chapter.

BASIC STUDY CONCEPTS

Numerous concepts are incorporated in the statement of goals outlined in the previous section. These concepts are a common thread running through the study. They are discussed below under the headings compatibility, balance, convenience, efficiency, and economy. In reality they are interrelated, but since each provides a different vantagepoint from which to view community development, their separation is analytically useful.

COMPATIBILITY

Compatibility is defined as a harmonious relationship among land uses. It is achieved by recognizing the individual characteristics and functions of each land use in association with others. These characteristics include space requirements, locational criteria, traffic generation, and nuisance factors. To illustrate, convenience-level commercial land use, public and quasi-public land use and residential land use readily associate because they

supplement one another functionally. The characteristics of each, although different, must be basically similar in scale and scope so they can coexist in harmony.

This functional overlap among land uses is paralleled by the need to protect their separate identity and character. Compatibility is a guide to meshing these seemingly opposite ideas which creates a desirable land use arrangement. Achieving compatibility involves identifying (1) which land uses can exist side-by-side without undesirable results, and (2) how a successful transition can be provided where whole areas of one land use meet whole areas of another land use. These problems require individual solutions based on the unique considerations in each case.

Since compatibility results from workable relationships among land uses, and is a measure of how well various aspects of the community fit together, compatibility relates to the "quality" of overall community development. In keeping with the basic goals of this study, compatibility works toward the following:

1. An Adequate Level of Services and Amenities

The desirability and stability of an area is affected by the level of services and amenities provided. If these are lacking, the area is apt to be passed over in the future, left vacant, unproductive, and subject to blight and deterioration. Inadequate services and amenities most often result from (1) premature development, (2) attempts to minimize development costs at the expense of quality,

and (3) inappropriate or non-existent development standards. Areas which suffer from these characteristics are common at the rural-urban fringe, but isolated pockets are sometimes found within otherwise desirable areas.

An adequate level of services and amenities is illustrated in residential areas with paved streets, appropriate sewer and water facilities, schools, parks and convenient shopping facilities, or in industrial areas which boast something more than flat land and a rail siding. To achieve long-range productive use of land and to prevent blight, the adequacy of services and amenities must be considered and related to the timing of development.

2. A Continuity of Appropriate Developmental Character

The unity, identity, and appropriately established character of land use areas should be maintained. This requires an awareness of the adverse affects possible when various land uses are intermixed. Although generalizations can be made by major land use groupings, individual characteristics need to be considered.

If a desirable land use character has been established in an area, superimposing or intermixing land uses with dissimilar characteristics will result in blight. Both the established and the new uses will suffer. This may take form in areas where high density dwelling types are later crowded in among low density types, where major commercial or industrial uses are permitted in the interior of established residential areas, or where scattered residential uses are permitted within established commercial and industrial areas.

The long-range character of an area should be considered where an appropriate land use pattern is not yet established. The development potential of an area is also hampered by premature land use developments which render major portions of the area unusable in the future. For example, marginal commercial development, stringing out along a major street into open land, can isolate large portions of that open land in such a way that it cannot be used as the area develops. This is evidenced by vacant pockets which urban growth has jumped over, and by pockets that have only attracted the economically marginal and unstable developments which blight areas.

3. A Suitable Land Pattern

A suitable land pattern (the physical arrangement of parcels and streets) will work against (1) overcrowding and overtaxing of land, streets, and public facilities or (2) a wasteful and uneconomic under-utilization of land, streets, and public facilities.

Overcrowding is common in older areas having small lots which are later assembled to accommodate land uses not intended initially. Although less common, newer areas may suffer from this blighting influence, if at a later time, lots intended for one use are converted to higher density residential, commercial, or industrial uses.

Under-utilization can be observed in any area which has not developed to its intended capacity. In these areas, land lies fallow although streets and public facilities may be provided.

4. An Appropriate Traffic Pattern

Residential, commercial, and industrial areas alike suffer if high volumes of unrelated automobile and truck traffic pass through them. An appropriate traffic pattern can be achieved through an adequate street system which encourages traffic to pass around rather than through areas.

Access is an allied problem. Controlling access points and providing adequate separation between the roadway and the uses along the roadway promotes the better functioning of each.

5. A Proper Spacing of Structures

A proper spacing of structures should be encouraged because (1) it promotes public health and safety (such as human needs for light and air), and (2) it works toward the maintenance of desirable amenities (such as play space for children). Overcrowding, the opposite of proper spacing of structures (do not confuse this with high population density), results when uses are permitted to take-up open areas needed to maintain an appropriate developmental character.

BALANCE

Balance relates to achieving an equilibrium among land uses. Based on the number of people to be served, adequate and appropriate commercial facilities, utilities, schools, parks, fire and police protection, libraries, industrial space, residential space, and a suitable street system should be provided. If adequate and appropriate facilities, space, and services are not provided, public health, safety, and welfare is menaced; the community is subjected to blight; and public and private investments are undermined. These dangers exist when services or facilities are over-built or under-built. For example, when too much space, or space in inappropriate locations, is given over to commercial use, often the result is that no merchant does well. There is simply not enough business potential. When this happens, stores degenerate and close leaving the community with a crippled tax base, an unpleasant main street, and wasted land. When commercial uses are under-built, congestion, inconvenience, and inefficiency results.

The balance concept relates to the entire system of land uses, attempts to match demand and supply, space need and space availability, locational need and locational availability. Land is a limited resource. By balancing needs and demands, it can be used wisely.

Balance also refers to the relationship between stability and adaptability; both are desirable. Stability helps to maintain property values, public investments, and community character. Adaptability permits desirable change to take place in recognition of new technology or social desires. These are counterbalancing influences. For example, rigidity works against change, and excessive adaptability destroys all permanence in the community. Balance seeks to promote each to the extent that both change and permanence can be achieved.

CONVENIENCE

Convenience takes many forms. To illustrate, it may be found in a nearby freeway interchange, commercial center or school. The concept of convenience is to provide facilities so that peoples needs are easily met. To be convenient, facilities must not only be accessible, but appropriately designed and fitted to the scale and scope of surrounding land uses.

EFFICIENCY

Efficiency is in many ways the counterbalance of convenience. It might be most efficient to have all commercial facilities concentrated so they could be serviced easily and so that price and quality could be easily compared. But in exchange for this, a customer might have to travel long distances for a loaf of bread, indicating a false efficiency. True efficiency is to promote an arrangement of land uses which meets the needs of those providing service - and the needs of those being served.

ECONOMY

Economy relates to public and private costs, measured in terms of spendable resources. This concept seeks to promote a land pattern which will meet needs in such a way as to stretch limited resources and conserve dollars, equipment, land or lives. For example, a very low population density may burden the public in terms of providing utilities and public facilities. A roadway that should be four lanes wide, but is only two lanes, may cause excessive wear and tear on vehicles, time loss, and, perhaps, a higher traffic death rate, although its construction cost is lower.

USE OF THE STUDY

There are many ways that the Northland Area Study can be used by public and private agencies and individuals. Five significant uses of the study are:

1. As an Over-view of Development

The study indicates probabilities and opportunities for development in the Northland Area.

2. As a Statement of Objectives

The study gives direction to the developments taking place in the Northland Area.

3. As a Statement of Policy

The study is a stable base for determining public and private responsibilities in developing the Northland Area.

4. As a Statement of Standards

The study provides a framework for the evaluation of proposals by public and private agencies and individuals.

5. As a Development Guide

The study broadly sets forth the physical needs of the Northland Area in recommendations.

In combination, the above uses provide a basis for a Northland Area comprehensive plan. Such a plan, based on agreed-upon policies and standards, would constitute a total development guide for the Northland Area.

At present, the Northland Area Study is valuable as a general planning and development guide, specific to the Northland Area, and as a guide for policy decisions throughout the Region during the development of the "Blue Plan".

NEXT STEPS

A Guidance Committee should be established to make maximum use of the Northland Area Study and to ensure that the goals, policies, and standards are carried out as outlined in the Study. This group, coordinating its efforts with local planning commissions*, would represent the varied interests within the Area. Suggested representative groups are the Northland Community Council, area developers, and area business and professional leaders. Strong liaison should be maintained with all public agencies having a development responsibility, such as the various school boards.

In addition to reviewing and evaluating this Study, the Guidance Committee should:

1. Review the various governmental regulations and programs that most directly relate to development in the Northland Area. These are the capital improvement programs, zoning ordinances, and subdivision regulations. In the application of the standards and administrative policies of these regulations, the public can best guide development to maintain the goals and foster the policies established for the Northland Area.

*The Columbus City Planning Commission should serve as chief coordinator.

2. Provide continued coordination with the "Blue Plan". This coordination can take the form of evaluating the effectiveness of policies and concepts to be employed within Northland. There will also be a need to coordinate with "Blue Plan" regional studies which affect the Northland Area.

RECOMMENDED PATTERNS

Plate 1 provides a graphic summary of Northland Area Study recommendations. Its purpose is to illustrate the general land use patterns recommended for the Area. There is no attempt to indicate the specific locations or space requirements of the land uses shown. Although the space allocated is proportionally representative by land use, the objective here is to be graphic rather than precise. The residential, commercial, industrial, community facility, and street patterns recommended are described more fully in the text (ORGANIZATION OF THE STUDY, page 2).

TOTAL AREA - 17.5 Square Miles

FLOOD PLAIN - $\frac{1.5}{16}$ Square Miles
Square Miles

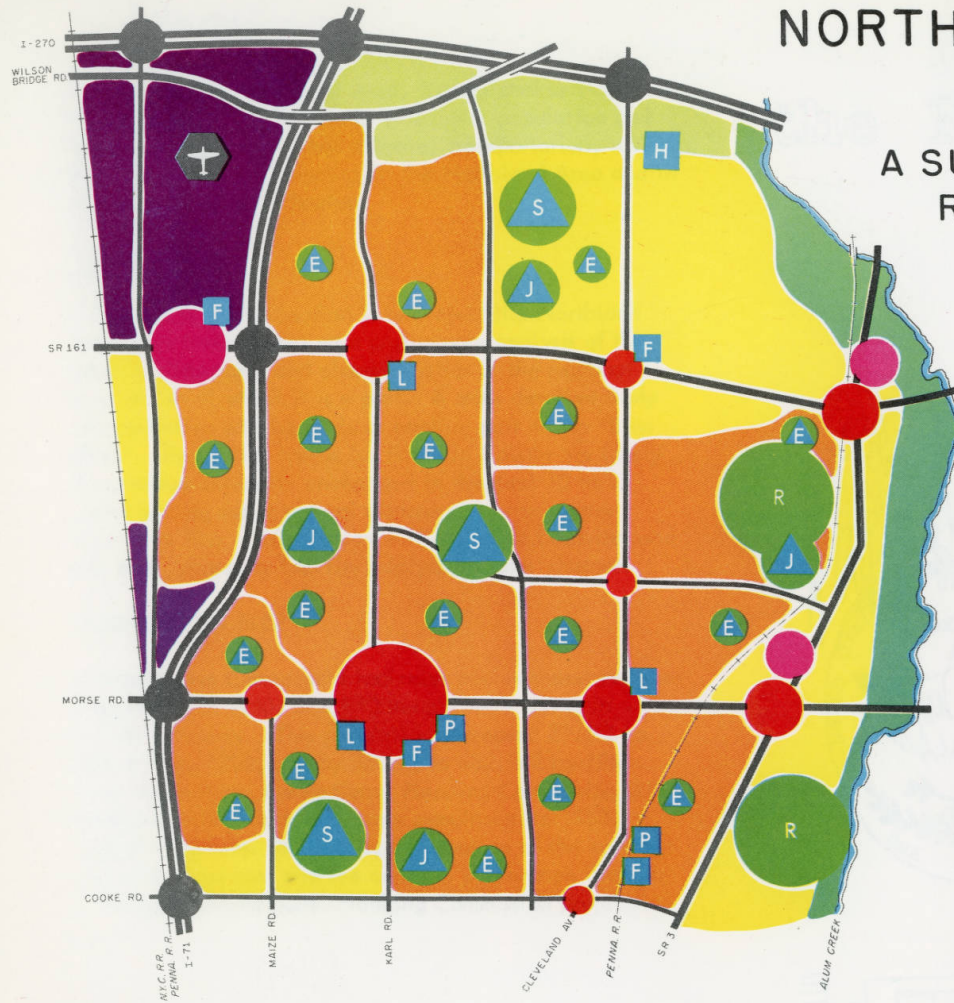
DEVELOPABLE SPACE - 16 Square Miles = 41,000 Acres

SUMMARY OF SPACE UTILIZATION

RESIDENTIAL	<u>Acres</u> 5,500	50%	COMMUNITY FACILITIES	<u>Acres</u> 1,200	12%
Urban	3,500		Schools	490	
Suburban	1,500		Recreation	640	
Rural	500		Services	70	
COMMERCIAL	390	3%	TRANSPORTATION	2,800	25%
Local	95		Streets	2,300	
Community	65		Railroads and		
Regional	110		Airport	500	
Special	120				
INDUSTRIAL	1,100	10%			
Production	900				
Distribution	150				
Service	50				

NORTHLAND AREA PATTERN

A SUMMARY OF STUDY
RECOMMENDATIONS
1964



LEGEND

- | | |
|---|---|
| RESIDENTIAL | COMMUNITY FACILITIES |
| <ul style="list-style-type: none"> RURAL SUBURBAN URBAN | <p><u>SCHOOLS</u></p> <ul style="list-style-type: none"> E ELEMENTARY J JUNIOR HIGH S SENIOR HIGH <p><u>RECREATION</u></p> <ul style="list-style-type: none"> P PARK R REGIONAL <p><u>SERVICES</u></p> <ul style="list-style-type: none"> L LIBRARY F FIRE STATION P POLICE STATION H HOSPITAL |
| <ul style="list-style-type: none"> LOCAL COMMUNITY REGIONAL SPECIAL | <p><u>TOPOGRAPHY</u></p> <ul style="list-style-type: none"> I AIRPORT + RAILROAD = FREEWAY — MAJOR ARTERIAL — MINOR ARTERIAL ● INTERCHANGE |

PREPARED BY:
FRANKLIN COUNTY REGIONAL PLANNING COMMISSION
AND COLUMBUS CITY PLANNING COMMISSION 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



CHAPTER II

the NORTHLAND AREA in the REGION

To analyze the Northland Area, its Regional setting must be established. This chapter will cover population and economy, topography and climate, transportation, utilities, and other factors prevailing in the Northland Area and in the Franklin County Region.

POPULATION

The purpose of this section is to project the Northland Area population based on a preliminary analysis of the size, distribution, and characteristics of the regional population of which it is a part. A more detailed study of population will be made as another part of the "Blue Plan". Population trends for Franklin County are likely to continue basically unchanged in the next 10 to 15 years barring major natural disaster, war, or severe economic flux. This section will provide a basis for land use and community facility analysis in later chapters.

POPULATION SIZE

United States Census data indicates past regional population size. In 1940, 388,712 people were living in Franklin County. This population increased 29.5% to 503,410 by 1950, and by 35.7% to 682,962 by 1960. From these data, the Regional Planning Commission (RPC) staff projected Franklin County population to 1980. Chart 1 indicates the results; the average of the constant numerical increase and the constant percentage increase is taken as the Regional Planning Commission projection.

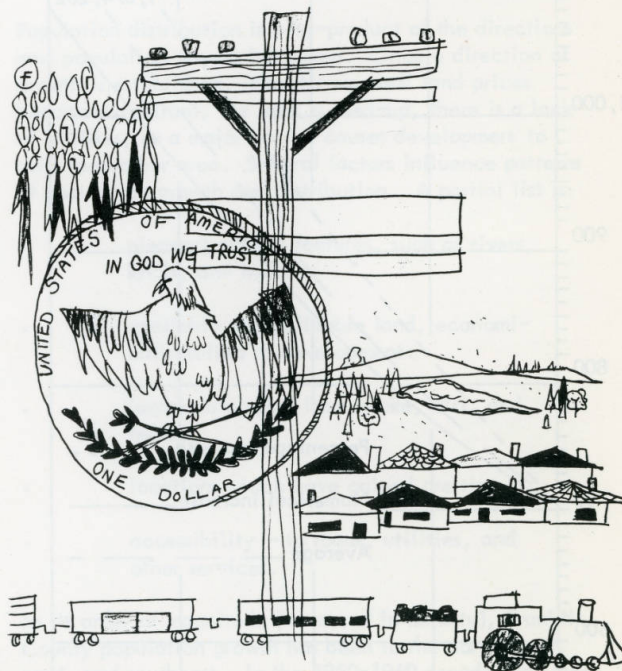
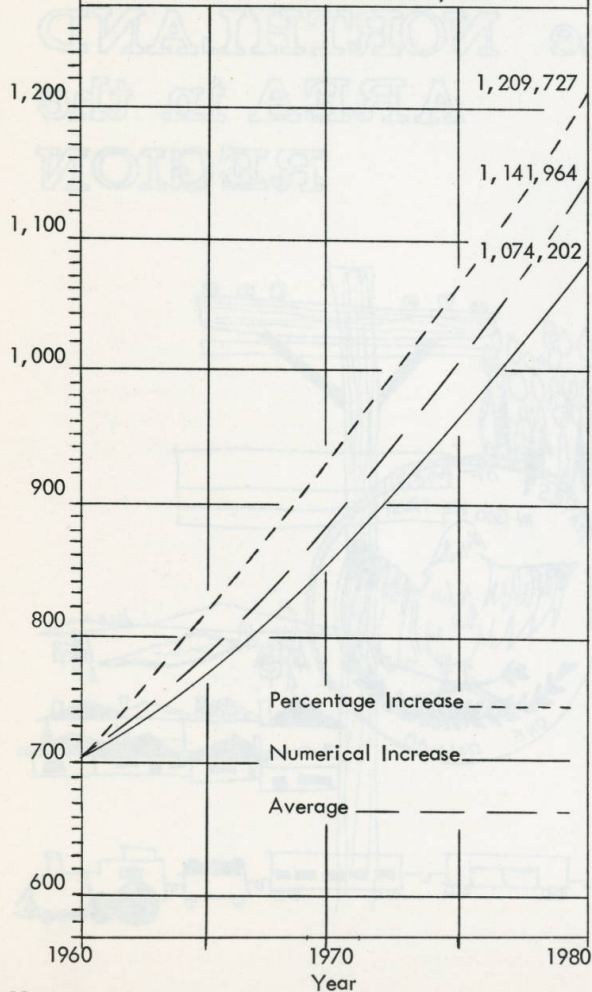


CHART 1

REGIONAL POPULATION PROJECTION,
1960-1980, FRANKLIN COUNTY, OHIO



The RPC projection was then compared with projections made by the Columbus Area Chamber of Commerce (CACC) and the State of Ohio Department of Industrial and Economic Development (DIED).

Chart 2 plots the three estimates. CACC estimated the Region would contain 1,230,852 people by 1980; DIED predicted 1,057,016. The RPC projection - 1,141,964 - is near their midpoint. All three agencies agree that the Franklin County population will reach one million by about 1975.*

The Northland Area will share in this Regional population growth, but since census data is not directly available to establish a trend, Northland Area population is estimated in terms of "holding capacity".

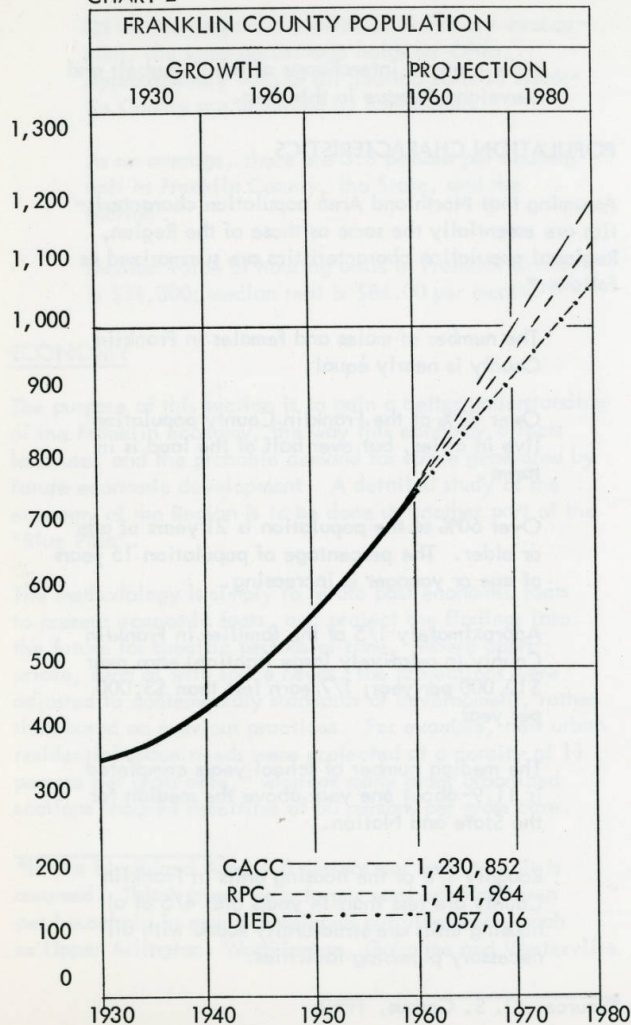
Holding capacity is that population which results when an assumed gross density is applied over a fixed geographic area. This method is used to determine design capacity for utility lines in undeveloped areas.** Its accuracy depends primarily on the validity of the gross density assumption.

In estimating future Northland Area population, a holding capacity of three dwelling units (roughly 11 persons) per gross acre was assumed. This dwelling unit density yields about 1,900 families or 7,000 people per square mile and results in a rough population estimate of 112,000

*The accuracy of any projection depends on the continuation of the set of factors responsible for population change in the past.

**Ten persons per gross acre is often used locally to determine the design capacity for utility lines.

CHART 2



people over the 17 1/2 square mile Northland Area, assuming complete residential development. The current population estimated to be living in the Northland Area is roughly 35,000 people based on land use data.

POPULATION DISTRIBUTION

The population of Franklin County is distributed unevenly. As might be expected, the number of people per acre generally decreases in moving outward from the center of Columbus.

Population distribution is a by-product of the directions past population growth has taken. Once a direction of growth is established, it continues until land prices become exorbitant, the land is used-up, there is a lack of utilities, or a major barrier causes development to shift to another area. Several factors influence patterns of population growth and distribution. A partial list is:

- pleasant natural features, such as rivers, knols, and trails.
- available and buildable land, economically suited to development.
- locations upwind from smoke, dirt, and refuse.
- locations which have gained prestige.
- accessibility - to roads, utilities, and other services.

In its order of magnitude (measured in density), Franklin County population growth has been to the north, east, west, and southeast. In the 1950-1960 decade the Upper Arlington population grew over 215%, the Worthington

population increased over 230%, and the Westerville population expanded over 70%. Assuming northward population growth of this magnitude continues, the Northland population is likely to increase rapidly in the next decade.

Population distribution within Northland hinges on the same factors reported above, but at a different scale. within the Northland Area the availability of sewer and water facilities seems to have been the major influence in past population distribution. Existing development has generally occurred in broad bands along the western and southern boundaries, adjacent to existing urban developments where sewer and water lines were available or could be extended. The completion of the Alum Creek Trunk sewer will have a significant effect in opening the eastern and central portions of the Area.

With this as a basis, factors bearing on population distribution within the Northland Area are predictable:

1. Development is apt to be most dense adjacent to existing urban development because of the advantage of established amenities and facilities (utilities, shopping facilities, churches, etc.).
2. The Alum Creek Trunk Sewer will open to development the eastern and central portions of the Northland Area; but the eastern area is likely to develop less densely because of topographic considerations along the Alum Creek flood plain.
3. Extensive development in the vicinity of the Outerbelt is unlikely in the immediate future because of topographic considerations and problems in providing sewer and water facilities. An offsetting influence

14.

is the planned interchange of the Outerbelt and Cleveland Avenue in this area.

POPULATION CHARACTERISTICS

Assuming that Northland Area population characteristics are essentially the same as those of the Region, Regional population characteristics are summarized as follows:*

The number of males and females in Franklin County is nearly equal.

Over 92% of the Franklin County population live in cities, but over half of the land is in farms.

Over 60% of the population is 21 years of age or older. The percentage of population 15 years of age or younger is increasing.

Approximately 1/5 of the families in Franklin County (a relatively large fraction) earn over \$10,000 per year; 1/7 earn less than \$3,000 per year.

The median number of school years completed is 11.9—about one year above the median for the State and Nation.

Roughly 1/3 of the housing units in Franklin County are less than 14 years old; 4/5 of all housing units are structurally sound with all necessary plumbing facilities.

*Source: U. S. Census, 1960.

- Of all housing units available, 6.2% are unoccupied, the same percentage holds for Ohio. Approximately 40% of all housing units in Franklin County are occupied by non-owners.
- As an average, there are 3.3 persons per housing unit in Franklin County, the State, and the Nation.*
- Median value of housing units in Franklin County is \$14,300; median rent is \$84.00 per month.

ECONOMY

The purpose of this section is to gain a better understanding of the Franklin economy, the way this economy affects land use, and the probable demand for space generated by future economic development. A detailed study of the economy of the Region is to be done as another part of the "Blue Plan".

The methodology is simply to relate past economic facts to present economic facts, and project the findings into the future for specific periods of time. Where appropriate, such as with space needs, the projections were adjusted to contemporary standards of development, rather than based on previous practices. For example, new urban residential space needs were projected at a density of 11 persons per gross acre,* whereas many older urbanized sections reached densities of 50 persons per gross acre.

*In the Northland Area 3.6 persons per housing unit is assumed. This is based on a larger number of children per household in newly developed outlying areas, such as Upper Arlington, Worthington, Gahanna and Westerville.

All economic data was considered on a County-wide basis without attempting a sectional breakdown. The resulting generalized data are for the most part applicable to the Northland Area, since only within the Regional economic framework can such an Area develop. While this is admittedly a summary look at the complex economy of Franklin County, it provides some basis for decisions concerning economic development.

LOCAL EMPLOYMENT

United States labor force statistics give a composite picture of the Franklin County economy and indicate how the population derive income. Table 1 provides a percentage breakdown of the Franklin County Labor Force in 1960. It indicates a highly diversified economy with no one industrial sub-group accounting for much more than 12% of total employment.

- (1) Manufacturing, the largest work group, includes over one-fourth of all persons employed. The distribution of this employment among manufacturing sub-groups is diverse, although there is some dependence on Metals and Machinery.
- (2) Wholesale and Retail Trade, the second largest work group, includes one-sixth of all persons employed. Retail Trade, one of its sub-groups, is the largest in the total labor force.
- (3) Professional Services is the third largest work group. Together, these three work groups account for over 60% of the total Franklin County Labor Force. The remainder of the labor force is distributed almost evenly among the eight remaining work groups.

TABLE 1

THE CIVILIAN LABOR FORCE NUMERICALLY AND AS A PERCENT
OF THE TOTAL EMPLOYED IN FRANKLIN COUNTY - 1960*

Industry	Number Employed	Percent of Labor Force
Agriculture	2,590	1
Mining	676	-
Construction	15,372	6
Manufacturing	67,209	26
Furniture, Lumber & Wood Products	1,317	.53
Metal	10,507	4.10
Machinery	18,582	7.25
Transportation Equipment	8,644	3.35
Other Durable Goods	5,820	2.26
Food & Kindred Products	7,061	2.75
Textile & Apparel Products	2,073	.82
Printing, Publishing & Allied Industries	6,036	2.34
Other Nondurable Goods	7,169	2.78
Transportation, Comm., & Utilities	18,057	7
Railroad & Railway Express	5,086	
Other Transportation	5,706	
Comm. & Utilities	7,265	
Wholesale & Retail Trade	48,894	19
Wholesale Trade	9,824	3.83
Retail Trade	31,232	12.17
Eating & Drinking Places	7,838	3.04
Business & Personal Services	20,651	8
Business & Repair Services	6,396	2.49
Personal Services	8,030	3.13
Private Households	6,225	2.47
Professional Services	39,742	15
Medical Services	7,983	3.11
Educational Services	17,285	6.73
Other Prof. Services	14,474	5.64
Finance, Insurance & Real Estate	13,682	5
Public Administration	17,076	7
Other Industry	15,325	6
TOTAL	259,274	100.

*Compiled from U. S. Census Data

Typically a diverse economy is more stable and independent of national economic change than one more heavily dominated by manufacturing. While there are large and important economic groups within the Franklin County economy, no one group or sub-group dominates its economic structure. On the one hand, this stability promotes a degree of security within all segments of the local economy, particularly the sales and service groups which have increased in number and size accordingly. On the other hand, stability may have an inflationary effect since it leads to less restrained spending and less concern about future needs.

COMPARING THE LOCAL EMPLOYMENT

Table 2 (page 18) compares the Franklin County economic structure with that of the other three most populous Ohio counties and shows more graphically the diversification of the local economy. Franklin County has the highest percentage of employment in all the groups listed except Manufacturing (which is lowest), and Public Administration (which is surpassed by Montgomery County). The Franklin County lead in Wholesale and Retail Sales is significant in that Franklin County has the lowest median family income as well. Two reasons: (1) Franklin County serves a very broad market area as a retail trade center; and (2) diversity in the Franklin County economy promotes a stability conducive to retail trade.

REASONS FOR DIVERSITY IN THE LOCAL ECONOMY

The diversity in the local economy is apparent in Table 3, (page 19). A number of factors support this: (1) Columbus is a governmental center (state capital, county seat and major city), (2) the metropolitan area is an educational center (Ohio State University, Capital University,

and Otterbein College), (3) Columbus is a growing administrative center (regional and national insurance offices, sales and service headquarters), and (4) Columbus is in the heartland of national industrial and consumer markets and has access to suppliers of many raw materials. Note in Table 3 the percentage growth in the industries representing these areas: Public Administration - 16.7%; Educational Services - 80.8%; Other Professional Services - 75.1%; and Other Industry - 38.5%.

PROJECTED EMPLOYMENT

Total employment is expected to increase 62% by 1980. As shown in Table 4 (page 20), employment will be about 420,000 persons. Manufacturing will continue as the largest source of employment with over 100,000 persons employed in 1980. Retail sales will remain second in total employment, but most retail sales employment is in service industry related to the local areas. Government, education, and business and professional employment will continue as a major source of employment. By 1980, these activities are expected to have a combined employment of 137,000 people with 54,000 basic employees.

The 1960 ratio between service and base employment is 1.3 to one. This ratio should remain about the same through 1980, although there will be growth in a few service industries. This indicates that roughly 235,000 people will be employed in service industries by 1980.

A comparison of base industry employment to total population yields a ratio of 1 to 6.1; that is, each basic industry worker supports 6.1 persons. Applying this ratio to projected base employment, the 1980 population will be 1,130,000. This figure is only 12,000 people short of that projected by RPC using growth trends (page 12).

TABLE 2

SELECTED ECONOMIC FACTORS COMPARING THE CIVILIAN LABOR FORCE
NUMERICALLY AND BY PERCENT FOR FRANKLIN, HAMILTON, CUYAHOGA
AND MONTGOMERY COUNTIES, OHIO *

County	Total Labor Force	Employed									All White Collar Occupations	Med. Family Income
		Agri.	Const.	Manufacturing		Trans., Comm. Util.	Wholesale & Retail Trade	Finance, Insur., Real Estate	Education	Public Adm.		
				Durable	Non-Durable							
Franklin	256,684 100%	2,590 1.01%	15,372 5.99%	44,870 17.48%	22,339 8.70%	8,057 7.04%	48,894 19.04%	13,682 5.33%	17,285 6.73%	17,076 6.72%	49.1%	\$6,425
Hamilton	323,506 100%	2,006 .62%	17,359 5.37%	61,787 19.10%	17,367 14.64%	21,991 6.77%	57,261 17.80%	14,433 4.46%	13,445 4.15%	13,075 4.11%	45.4%	\$6,451
Cuyahoga	642,835	2,192 .34%	27,018 4.20%	182,352 28.37%	66,360 10.32%	44,774 6.96%	115,310 17.94%	26,681 4.15%	27,314 4.25%	27,180 4.23%	44.8%	\$6,943
Montgomery	198,660	1,953 .98%	8,830 4.44%	51,801 26.07%	25,688 12.93%	8,842 4.45%	32,376 16.30%	5,816 2.93%	7,899 3.78%	17,216 8.67%	43.1%	\$6,821

*Compiled from U. S. Census Data.

TABLE 3

THE NUMERICAL AND PERCENTAGE INCREASE IN THE NUMBER EMPLOYED BY
INDUSTRIAL GROUP, FRANKLIN COUNTY CIVILIAN LABOR FORCE, 1950-1960*

Industry Group	1950 Number Employed	1960 Number Employed	Numerical Increase	Percentage of Increase
Agriculture	3,070	2,590	---	---
Mining	541	676	135	24.9
Construction	11,687	15,372	3,685	31.5
Manufacturing	50,445	67,209	16,764	34.3
Transp. Communication, Utilities	19,428	18,057	---	---
Wholesale Trade	8,644	9,824	1,180	13.6
Retail, incl. Eating and Drinking	34,081	39,070	5,039	14.8
Business Service & Repair	5,461	6,396	935	17.1
Pers. Serv. incl. Priv. Household	11,687	14,255	2,568	21.9
Medical	6,995	7,983	988	14.1
Educational	9,558	17,285	7,727	80.8
Other Professional	5,261	14,474	9,213	175.1
Public Administration	14,636	17,076	2,440	16.7
Other Industry including Finance, Insur., & Real Estate	20,943	29,007	8,064	38.5

*Compiled from U. S. Census Data.

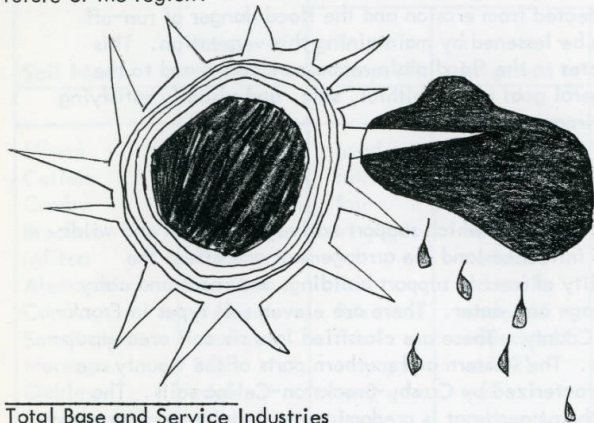
TABLE 4

PROJECTED EMPLOYMENT IN THE FRANKLIN COUNTY REGION BASED
ON THE 1960 CIVILIAN LABOR FORCE--1960 - 1980

Population Increasing Industries*(Base)	Percentage of Base or Service Industries**	1960 Number Employed	Projection	
			1970 Number Employed	1980 Number Employed
Agriculture	100%	2,590	2,500	2,500
Mining	100%	676	800	900
Construction	100%	15,372	18,600	23,600
Manufacturing	85%	57,128	71,000	90,800
Wholesale Trade	25%	2,456	3,400	4,100
Retail Trade	15%	5,860	6,500	7,200
Business Service & Representation	10%	640	700	800
Medical	10%	798	900	1,000
Educational	50%	8,643	15,000	22,000
Other Professional	10%	1,447	4,400	8,700
Public Administration	60%	10,245	12,400	14,500
Other Industry	20%	5,801	7,400	9,200
		<u>111,656</u>	<u>143,600</u>	<u>185,300</u>
<hr/>				
Population Serving Industries (Service)				
Manufacturing	15%	10,081	12,800	16,000
Transportation, Communication, Utilities	100%	18,057	22,900	28,600
Wholesale Trade	75%	7,368	9,400	11,800
Retail Trade	85%	33,210	42,200	52,700
Business Service & Representation	90%	5,756	6,600	8,500
Personal Service	100%	14,255	18,100	23,300
Medical	90%	7,185	8,600	11,000
Educational	50%	8,642	11,000	13,500
Other Professional	90%	13,027	16,500	20,600
Public Administration	40%	6,831	8,700	11,200
Other	80%	23,206	29,500	38,000
		<u>147,618</u>	<u>186,300</u>	<u>235,200</u>
		<u>259,274</u>	<u>329,900</u>	<u>420,500</u>

See page 21 for Footnotes

Since population growth depends largely on economic growth, the population projection is dependent, in part, on the "quality" of economic development in the Region. If good physical development and a high level of service is offered, this can significantly improve the economic future of the region.



Total Base and Service Industries

* "Population Increasing Industries" is defined as industries which create capital or bring money into the region by exporting goods and services to other areas. "Population Serving Industries" is defined as industries which tend to circulate money within the region by rendering services or distributing goods internally.

** This is the percentage of the industry group that is designated as "Base" or "Service, i.e., Retail Trade -15% / 85%" which indicates that 15% of the Retail Trade labor force of Franklin County serves people from outside the County while 85% is engaged in serving the retail needs of the people of Franklin County.

NATURAL FEATURES

The purpose of this section is to investigate the environmental features common to the Northland Area and the Region, including climate, vegetation and wildlife, soils and minerals, rivers and drainageways, and topography. These present certain problems to land development which should be recognized and accommodated, but their value as resources and amenities should be recognized and exploited.

CLIMATE

The climate of Franklin County and the Northland Area is characterized by (1) significant temperature variations, (2) moderately high humidity, (3) frequent rain and snow storms, (4) westerly winds of moderate velocity, and (5) a flash flood capability. In an average year, mean annual precipitation is 36.67 inches. Flooding is most common from January to March. Winds generally prevail from the west at an average velocity of 8.5 miles per hour and storms most often move west to east across the Region.

The significance of these climatic characteristics is in their effects on types and methods of construction, sizes of storm sewers, methods of water supply, and street design within the Area and Region. For example, the mean annual precipitation and flash flood capability of the Region increases the importance of providing adequate storm sewer facilities and maintaining clear flood plains and drainageways in the Area. Because climate has a direct affect in the Northland Area in terms of flood plain development and community facility needs, it is in the public interest to develop policies which recognize

climatic conditions and overcome possible ill effects.*

VEGETATION AND WILDLIFE

As with climate, there are problems and assets associated with vegetation and wildlife. In the course of land development, mature trees are often cleared only to be replanted as sapplings later. A distinguishing feature of mature residential areas (and a pleasing one) is their tree dotted streets and yards.

Although community appearance is a major factor, other reasons for maintaining the Beech, Sycamore, and Maple trees common to Franklin County and the Northland Area are:

1. Vegetation is useful insulation against noise, dust, wind and sun.
2. Vegetation can serve as a visual buffer between incompatible land uses.
3. Vegetation aids in controlling erosion and in retarding run-off in time of floods.
4. Vegetation provides food and shelter for a variety of wildlife.

Wildlife is also an asset to community appearance, but more often its value is as a control over undesirable insect-pests and as a recreational resource.

*This relates specifically to the flood plain recommendations on page 24 and to several community facility recommendations in Chapter III.

In the Northland Area much of the vegetation which supports useful wildlife should be retained, especially along Alum Creek and its drainageways where there is opportunity for establishing a "natural" recreation corridor of regional significance. The steep slopes occurring along the Creek and its tributaries can be protected from erosion and the flood danger of run-off can be lessened by maintaining this vegetation. This relates to the flood plain recommendations and to the general goal of a healthful, safe, and visually satisfying environment.

SOILS AND MINERALS

The soil types which support native vegetation and wildlife influence land use arrangement and effect the ability of land to support buildings and roads and carry sewage and water. There are eleven soil types in Franklin County. These are classified into six soil area groups. The western and southern parts of the County are characterized by Crosby-Brookston-Celina soils. The northeast quadrant is predominantly Bennington-Marengo-Cardington soils. Miami-Celina soils, Alexandria-Cardington soils, Milton-Miami soils, and Ockley-Eel soils are found along the region's flood plains and drainageways.

Table 5 indicates the generalized agricultural and engineering characteristics of Franklin County soils. The last six soils reported in Table 5 and shown on Plate 2 are found in the Northland Area. Although this Table cannot be used for detailed planning, it provides useful information for analyzing the likely effects of soil conditions on Northland Area development.

Northland Area soils have a high agricultural productivity, but urbanization has taken much of the best farmland out

TABLE 5

AGRICULTURAL AND ENGINEERING CHARACTERISTICS OF
MAJOR SOILS - FRANKLIN COUNTY, OHIO*

Soil Name	Produc- tivity(1)	Suitability for			Bearing Value For Foundations		General Rating as Subgrade		Source of Gravel
		Truck Crops (1)	Irrigation	Septic Tanks	Subsoil	Substratum	Subsoil	Substratum	
Miami	Mod. High	good	moderate	fair	poor-fair	fair	poor	poor-fair	
Celima	Mod. High	fair	moderate	fair	poor-fair	fair	poor	poor-fair	no
Crosby	Mod. High	fair	moderate(2)	poor	poor	fair	poor	poor-fair	no
Brookston	very high	very gd.	well(2)	poor	poor	fair	very gd.	poor-fair	no
Milton	medium	fair	moderate	poor	poor-fair	excellent	poor	---	no
Alexandria	medium	fair	moderate	fair	poor	fair	poor	poor-fair	no
Cardington	medium	fair	moderate	fair	poor	fair	poor	poor-fair	no
Bennington	medium	fair	moderate(2)	poor	poor	fair	poor	poor-fair	no
Marengo	high	very gd.	well(2)	poor	poor	fair	very poor	poor-fair	no
Ockley	high	very gd.	well	good	fair	very good	poor	excellent	yes
Eel	Mod. high	good	moderate	(3)	(4)	poor-good	(4)	poor-fair	no

- (1) These interpretations are based on little or no erosion; also, interpretations for truck crops and irrigation apply only to slopes of six percent or less.
- (2) These soils are moderately or well adapted for irrigation only if adequately drained.
- (3) Flood plains are not adapted to dwellings because of the flood hazard.
- (4) No subsoil development. Ratings for the substratum apply throughout the depth of the soil.

* Adapted from Soil Areas of Franklin County, State of Ohio, Department of Natural Resources.

of production. Ockley and Marengo are good truck crop soils and could be used agriculturally. Because none of the soils are more than fair for septic tank disposal, development is likely to be limited unless sewer and water lines are provided in a newly urbanizing area (see page 27).

The foundation-bearing-quality of Northland Area soils is generally poor. This will limit the kinds of structures likely in the Area. For example, construction of high-rise buildings may be hampered. The Ockley flood plain soil is an exception. Its fair to very good bearing-quality may support high-rise structures, but other conditions must also be met. The subgrade rating for Area soils, although not good, is little different from Franklin County generally and should not be a materially limiting factor.

Minerals also influence land development. Because of its quality, limestone has been mined in the Franklin County Region, adding to the Regional economy. In the Northland Area, potential gravel deposits in the Ockley soil areas merit further investigation. If desposits of sufficient quality and quantity are found, they should be extracted.

RIVERS AND DRAINAGEWAYS

Rivers and drainageways provide water for domestic, industrial and recreational use, help eliminate wastes, house certain kinds of wildlife, and store excess flood waters. Because of these functions, they are among the more important natural features to be taken into account.

Several significant watercourses pass through Franklin County. In this predominantly level region, these

water-courses are a major natural amenity which should be exploited. The largest watercourse is the Scioto River, which drains 16% of Ohio.* Of the other six, all tributaries of the Scioto, Alum Creek passes along the eastern boundary of the study area.

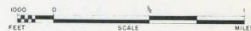
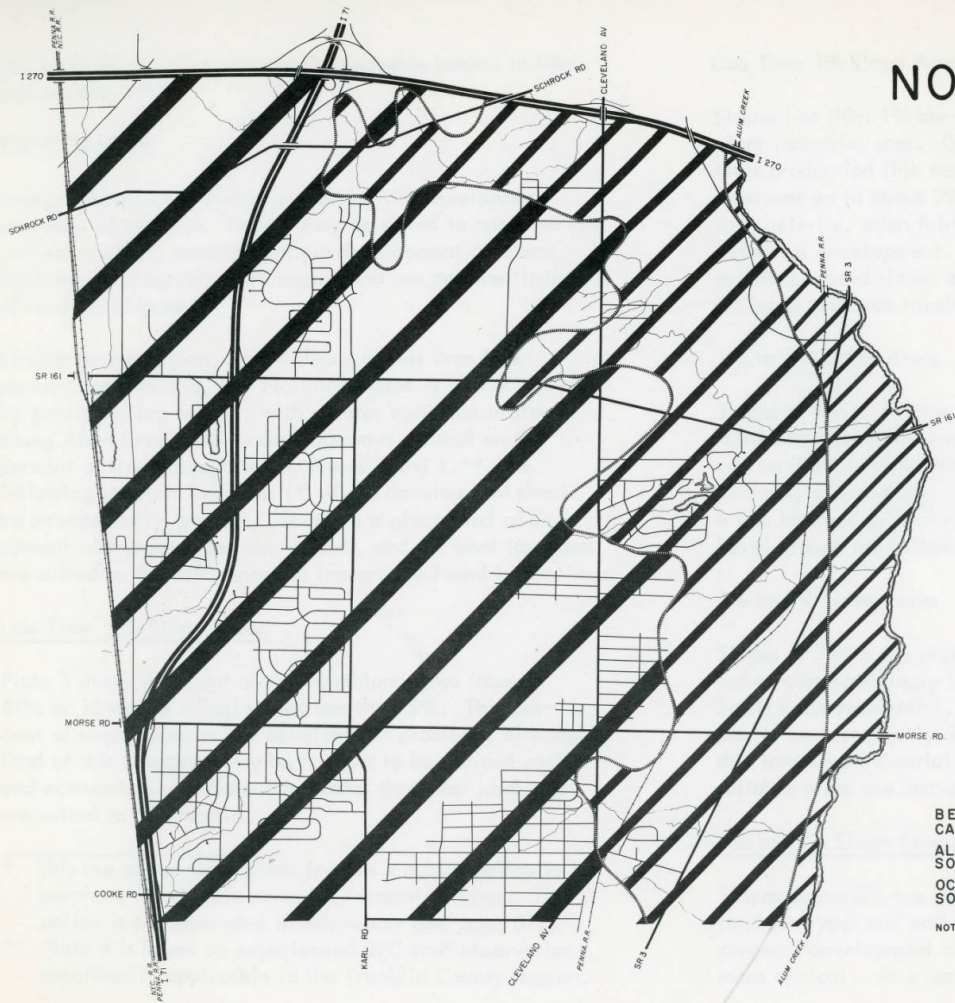
The flood plain and drainageways along Alum Creek (and throughout the Region) are natural basins which periodically fill with flood water, presenting a hazard to life and property. The 1959 Flood covered roughly one square mile (almost 6% of the Northland Area. The Alum Creek Reservoir and Dam, to be constructed north of the study area, will greatly reduce the flood potential in the Area from up-stream. Nevertheless, the flash flood** potential of the Region and the continuing urbanization of the Area (which increases run-off) necessitate restricted use of flood plain areas. Three activities recommended for the Alum Creek flood plain are:

1. The Ockley soils along Alum Creek are a potential source of gravel which, if of sufficient quantity and quality, can be extracted safely.
2. The Eel soils found in the flood plain area have a high agricultural productivity and are excellent for truck farming. The hazards to an agricultural use of the flood plain are not severe in loss of life and property.
3. The Alum Creek flood plain, its drainageways, and the steep slopes a short distance from the creek banks are a natural recreation area which would be costly to provide elsewhere. The James J. Thomas Park, along the Scioto River flood plain, is an example of

* Water Inventory of the Scioto River Basin, Ohio Department of Natural Resources.

** A flash flood can result from intense thundershowers occurring over a relatively small area.

NORTHLAND AREA SOILS



PREPARED BY:
FRANKLIN COUNTY REGIONAL PLANNING COMMISSION
AND COLUMBUS PLANNING COMMISSION 1964

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LEGEND

BENNINGTON - MARENGO -
CARDINGTON SOIL AREA
ALEXANDRIA - CARDINGTON
SOIL AREA
OCKLEY - EEL
SOIL AREA



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this kind of use. It creates no appreciable hazard to life and property.*

TOPOGRAPHY

Topography is a key factor in assessing the development potential of an area. Terrain may be suited to one land use and not another, creating unique development problems. Therefore, topography influences land use and the timing of land development.

Similar to the Region, where slopes of less than five percent predominate, the Northland Area is characterized by gently rolling terrain, with greater variation in slope along Alum Creek and its drainageways. Based on the percent of slope categories on Plates 3 and 4.** The following analysis indicates (1) where development should be economically feasible, (2) where a given kind of development will present certain hazards, and (3) what land uses are suited to the differences in topography found in the Area.

Less Than 5 % Slope Areas

Plate 3 shows that most of the Northland Area (about 87% or 15 square miles) slopes less than 5%. This percent of slope presents few development problems, although land of this character may be too flat to be drained easily and economically. Plate 4 indicates that most land uses are suited to this terrain.

* This use of the flood plain implies a public policy to purchase flood plain areas for recreational use. This policy is recommended in this report (see page 81).

** Plate 4 is based on experienced RPC staff observation specifically applicable to the Franklin County Region.

Less Than 1% Slope Areas

Slopes less than 1% are adaptable primarily to large-plant industrial uses. Greater slopes interfere with their production line methods. Smaller plants operate on slopes up to about 3%, but if all factors favor industrial activity, even fairly severe slopes will not retard industrial development. Residential and commercial uses generally avoid slopes of 1% or less because of the drainage problems involved in their development.

1% to 3% Slope Areas

Slopes of 1% to 3% are desired for most large-scale residential and commercial developments. Such slopes can be drained easily and development costs are typically minimal, although the lack of topographic relief makes for a less interesting land scape. Playfields which require level ground are suited to terrain of this character.

3% to 5% Slope Areas

Slopes of 3% to 5% provide greater topographic relief, but at correspondingly increased development costs. Small scale residential, commercial, public and quasi-public uses frequently develop on land of this character and intensive industrial development may occur if more suitable areas are unavailable.

5% to 12% Slope Areas

Slopes above 5% are less adaptable to a full range of land use types and activities. As percent of slope increases, development costs and siting problems become more critical. As a result, there are usually fewer

structures on this type of terrain. Because of the lack of topographic relief in the region, it is desirable to maintain the open character of this terrain at an appropriate density. Plate 4 indicates the generalized land use types which meet this criteria. Residential, commercial, and industrial developments requiring extensive level areas are unsuitable while certain recreational and specialized agricultural uses are suitable.

More than 12% Slope Areas

These severe slopes, primarily along Alum Creek, are the least adaptable to a full range of land uses and development types. Although isolated residential development may occur, commercial and industrial development is generally infeasible. Specialized agriculture, public and quasi-public uses are the most adaptable to this terrain.

Slopes of more than 12% are ideal for parks offering nature trails, picnic places, and scenic beauty. Since these slopes occur along the flood plain and drainageways, it is recommended that they be combined with the flood plain as permanent open space under public ownership. Such areas are scarce in Franklin County.

MAN-MADE FEATURES

Although roads, utilities, and other large facility systems are controlled by man, they have a permanence and scale which, like natural features, affects land development. The purpose of this section is to investigate the effects of these man-made features in the Northland Area.

TRANSPORTATION

Transportation facilities affect land use locations and, consequently, the overall pattern of urbanization. These facilities can link and divide whole areas, affect the speed of land development, and the need for services and facilities in surrounding areas.

Highways

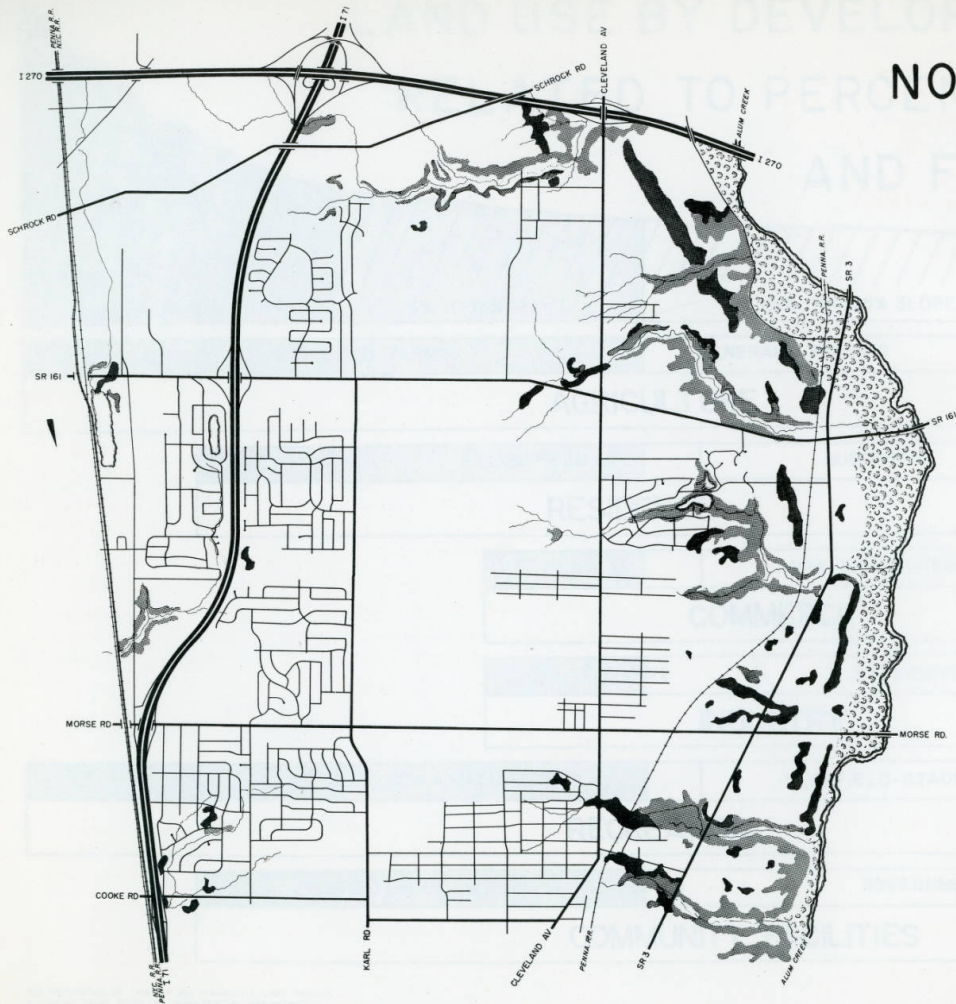
The highway system in Franklin County, partially shown on Plate 5, includes the Innerbelt, Outerbelt, North-South Freeway, and East-West Freeway (all inter-state highways) in addition to numbered federal and state highways (not a part of the interstate system). These roadways link the region socially and economically with other regions.

The Northland Area is adequately served by major roadways. The Outerbelt (with one interchange at Cleveland Avenue) and the North Freeway (with interchanges at Cooke Road, Morse Road, and State Route 161) provide excellent inter- and intra-regional accessibility. State Route 161 and 3 serve similar needs. The accessibility these roadways provide increases the development potential of the Area and are one reason rapid growth is anticipated.

Rail Lines

Franklin County is served by five major railroads. There are large terminal, yard, and maintenance facilities on the north, west and south sides of Columbus. These lines radiate in all directions and have hampered land use development in some segments of the Region.

NORTHLAND AREA PHYSICAL FEATURES



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1964

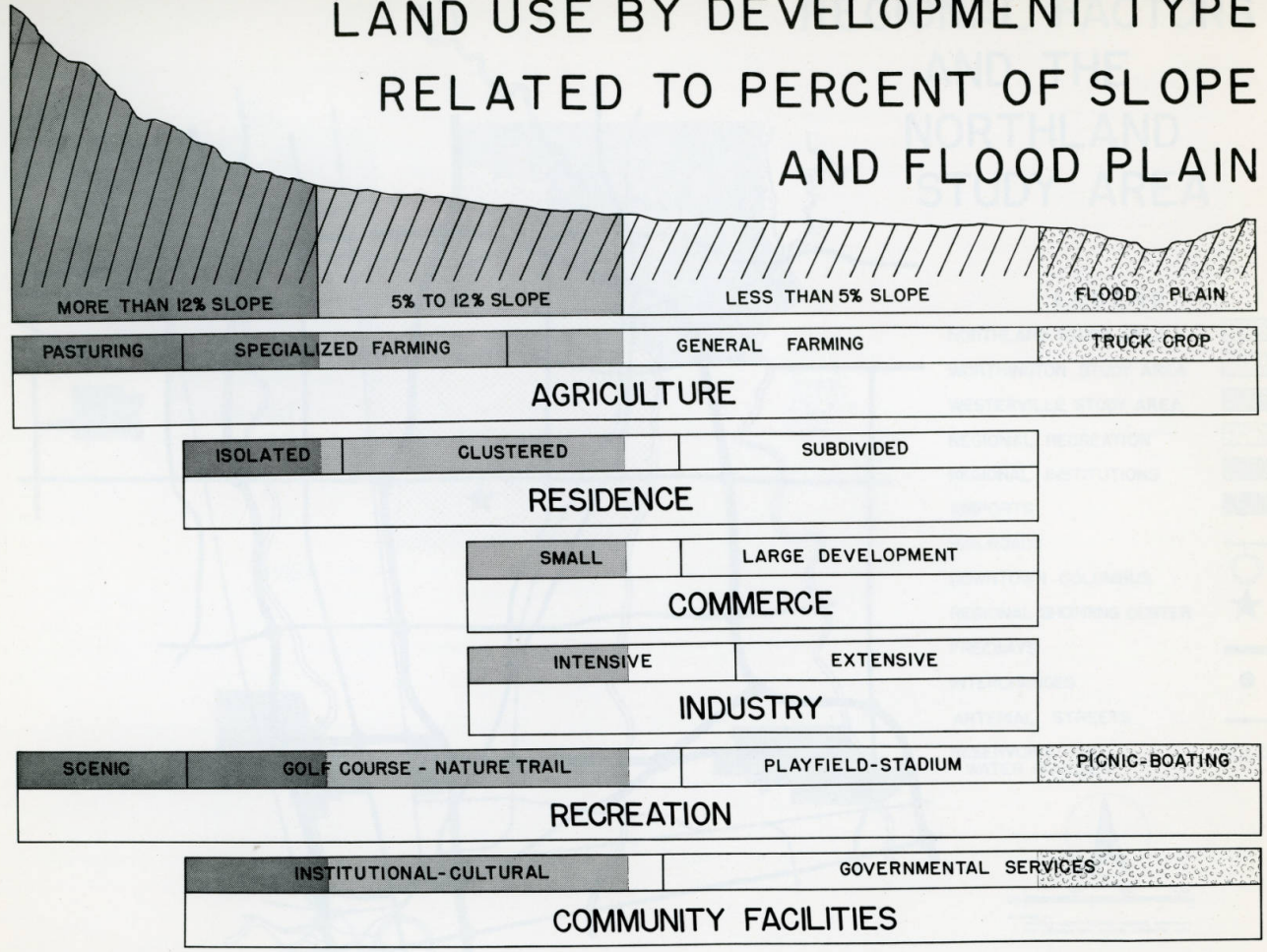
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LEGEND

TRANSPORTATION	
RAILROADS	
FREEWAYS	
TOPOGRAPHY	
WATER	
FLOOD PLAIN	
PERCENT OF SLOPE	
5% OR LESS	
5.1% TO 12%	
12.1% OR MORE	

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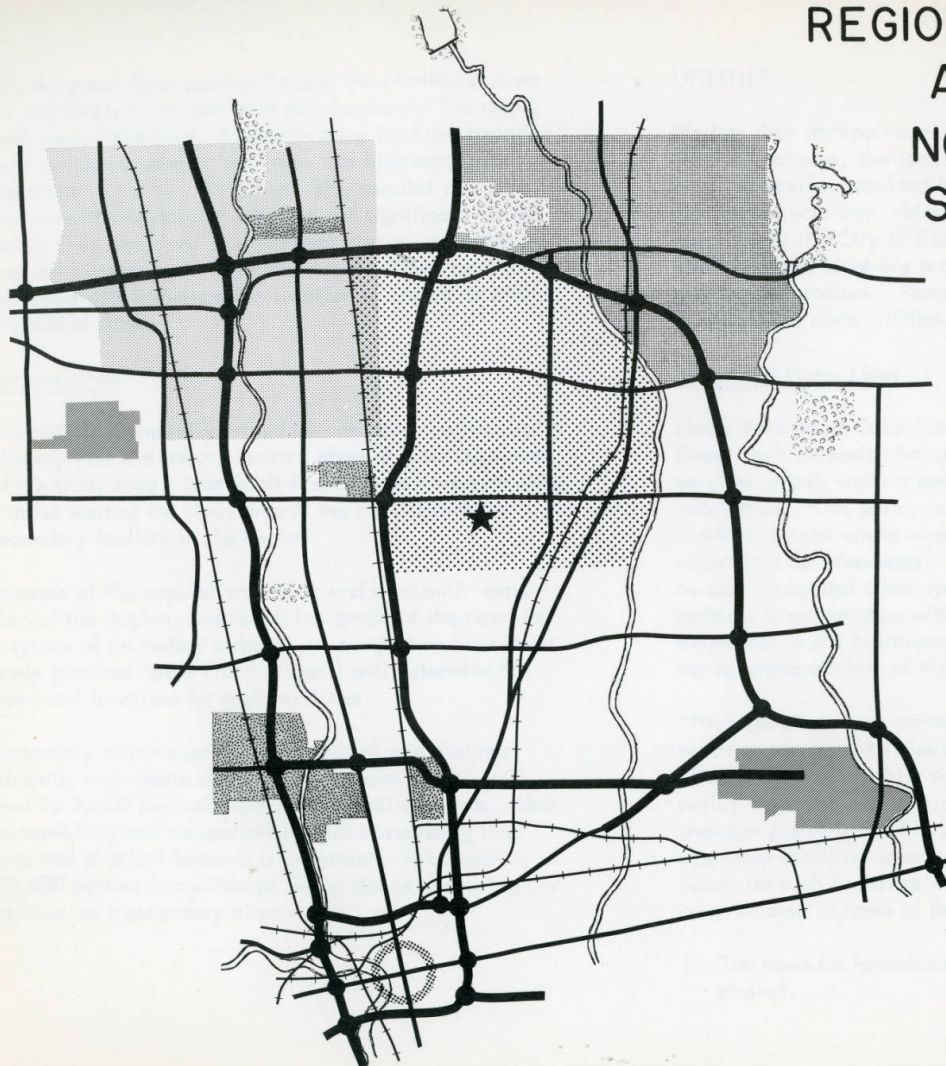
LAND USE BY DEVELOPMENT TYPE RELATED TO PERCENT OF SLOPE AND FLOOD PLAIN



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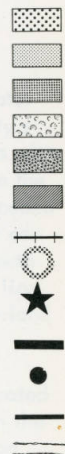
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REGIONAL FACTORS AND THE NORTHLAND STUDY AREA



LEGEND

- NORTHLAND STUDY AREA
- WORTHINGTON STUDY AREA
- WESTERVILLE STUDY AREA
- REGIONAL RECREATION
- REGIONAL INSTITUTIONS
- AIRPORTS
- RAILROADS
- DOWNTOWN COLUMBUS
- REGIONAL SHOPPING CENTER
- FREEWAYS
- INTERCHANGES
- ARTERIAL STREETS
- RESERVOIRS AND WATER COURSES



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The three rail lines passing through the Northland Area are not likely to hamper land development. The single track near State Route 3 presents some land use arrangement problems between the track and highway, but these should not be restrictive. The parallel tracks at the western boundary of the Area are significant for the traffic they carry and as a physical barrier, separating the Worthington and Northland Areas. These tracks have and will influence the location of industries in the Northland Area.

Air Facilities

The region is presently served by one major commercial airport, Port Columbus, located about 8 miles southeast of the study area. Don Scott Field located approximately 7 miles west of the study area is the most significant secondary facility in the Region.

Because of the population growth and economic expansion of the Region, awareness has grown of the need for a system of secondary airports. A comprehensive airport study (another "Blue Plan" project) will determine the need and locations for such facilities.

Secondary airports serve small personal and business aircraft, and require about 50 to 60 acres roughly 600 feet by 3,600 feet oriented with prevailing winds. User accessibility and compatibility with surrounding land uses and physical features is important. A community of 25,000 persons is considered the minimum supporting population for a secondary airport.

UTILITIES

No less than transportation facilities, utilities affect land use patterns, the speed of land development, the level of services provided in the Region, and consequently the overall economy. Most sewer and water lines are provided by the City of Columbus; natural gas and most electric power lines are provided by publicly regulated private corporations. Plate 6 shows the existing pattern of Northland Area utilities.

Sewer and Water Lines

Since the City of Columbus provides most sewer and water lines, their extension has generally paralleled that city's outward growth under a policy coupling line extensions with annexation. This policy has had a significant affect in the Northland Area where annexations have generally preceded major land developments. A definite extension policy can be used to control urban sprawl and to guide urban growth patterns in accordance with a plan. Sewer and water line extensions in the Northland Area should recognize the land use recommendations of this study.

"Package plants", or privately built, owned, and operated sewer and water facilities serving limited areas, lessen the effectiveness of a public sewer and water line extension policy in controlling sprawl. At this time, there are no package plants in the Northland area, but there are package plant facilities in areas adjacent to Northland. Proposals for such facilities within the Northland Area should be evaluated in terms of the following criteria:

1. The need for immediate development must be demonstrated.

2. It must be infeasible to provide public sewer and water facilities to the area. (Extension must be unreasonable or uneconomical.)
3. If public facilities are infeasible at time of evaluation, the "package plant" design must meet established performance standards, making it possible to incorporate the plant into the future public system.

Natural Gas and Electric Power Lines

These utilities affect the general level of service available in the Region, but being privately owned and operated, they tend to follow rather than lead land development patterns. Nevertheless, large transmission lines, especially those above ground, affect land use arrangements.

A 20 inch natural gas transmission line crosses the Northland Area roughly parallel and south of State Route 161 (Plate 6). Because it is below ground, its effect will be lessened, although its right-of-way easement must be recognized.

A high tension electric power transmission line, crossing the area north of Morse Road, (Plate 6) will influence land development. It is a significant man-made physical feature which can be used to differentiate residential areas.

OTHER MAN-MADE FEATURES

Several regional factors, shown on Plate 5, affect land use arrangement and community facility needs within the Area. They should be recognized and coordinated in Area development.

Planning Studies

The comprehensive plans prepared for Worthington and Westerville affect Northland Area planning. For example, the area along Huntley Road east of the New York Central and Pennsylvania tracks is within the Worthington corporation boundary and shown in the Worthington Plan as an industrial area. This Plan also shows Wilson Bridge Road connected with Schrock Road as a cross-county arterial. These decisions have been recognized in recommendations of this study.

The population projected east of Alum Creek in the Westerville Plan has influenced the recommended density pattern along Alum Creek in the study area. This affects likely commercial patterns in both Westerville and the Northland Area.

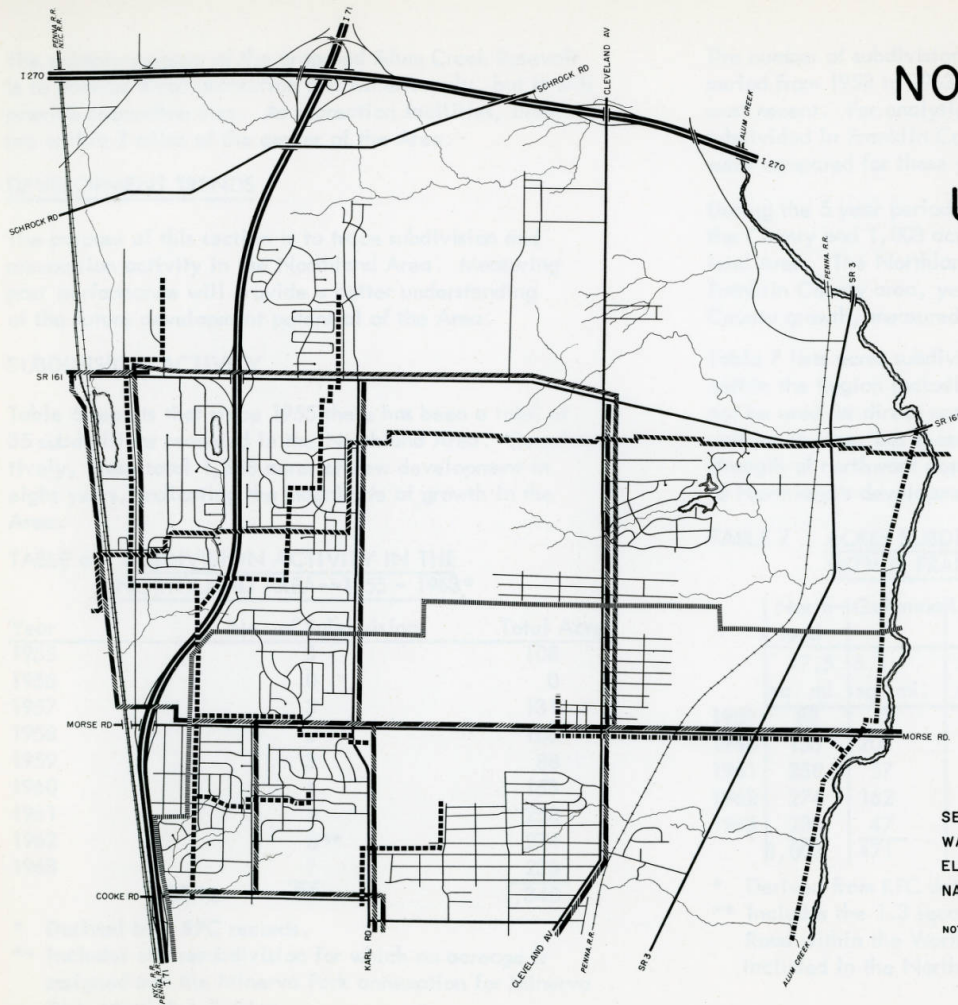
Developments within the Northland Area, such as the 64 acre Northland Shopping Center, affect commercial patterns in Worthington, Westerville, and Columbus. These reciprocal effects should be recognized to achieve optimum overall development in all of these areas.

Public Recreation and Reservoir Developments

Blendon Woods, Spring Hollow, and High Banks Metropolitan Parks are all within 2 1/2 miles of the center of the Northland Area. Because of their proximity, these regional facilities enhance the development potential and affect the acreage needed for regional level recreation space within Northland.

Hoover Reservoir is primarily a water supply facility, however, it also serves a recreation function and in some instances provides flood protection.

NORTHLAND AREA UTILITIES



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OF THE HOUSING ACT OF 1954, AS AMENDED.

LEGEND

	EXISTING	PROPOSED
SEWER	— — — — —	- - - - -
WATER	—————	- - - - -
ELECTRIC	—————	- - - - -
NATURAL GAS	~~~~~	- - - - -

NOTE: THE UTILITY LINE LOCATIONS SHOWN ON THIS
MAP ARE GENERALIZED. ONLY SEWER LINES OF
15 INCHES DIAMETER OR MORE, WATER LINES OF
12 INCHES DIAMETER OR MORE, AND ELECTRIC AND
NATURAL GAS TRANSMISSION LINES ARE SHOWN.

The primary purpose of the proposed Alum Creek Reservoir is to provide flood protection and water supply, but it will provide recreation also. As recreation facilities, both are within 3 miles of the center of the Area.

DEVELOPMENT TRENDS

The purpose of this section is to trace subdivision and annexation activity in the Northland Area. Measuring past performance will provide a better understanding of the future development potential of the Area.

SUBDIVISION ACTIVITY

Table 6 reports that since 1955 there has been a total of 35 subdivisions recorded in the Northland Area. Cumulatively, these total 1,348 acres of new development in eight years, indicating the magnitude of growth in the Area.

TABLE 6 SUBDIVISION ACTIVITY IN THE NORTHLAND AREA--1955 - 1963*

Year	No. of Subdivisions	Total Acres
1955	3	108
1956	0	0
1957	3	131
1958	2	106
1959	3	88
1960	4	153
1961	5	258
1962	8**	274
1963	7	230
TOTAL	<u>35</u>	<u>1,348</u>

* Derived from RPC records.

** Includes one resubdivision for which no acreage is assigned and the Minerva Park annexation for Minerva Park North Subdivision.

The number of subdivisions and their total acreage in the period from 1959 to 1963 is most significant because it is most recent. For analytical purposes the total acres subdivided in Franklin County and in the Northland Area were compared for these years.

During the 5 year period, 9,625 acres were subdivided in the County and 1,003 acres were subdivided in the Northland Area. The Northland Area is roughly 3% of the total Franklin County area, yet it experienced 9.6% of the County growth, measured in subdivided acres.

Table 7 lists acres subdivided by year for various areas within the Region including Northland. The table should not be used for direct comparison since all areas are not uniform in size, but it serves as a further indication of the strength of northward population growth, and consequently of Northland's development potential.

TABLE 7 ACRES SUBDIVIDED FOR SELECTED AREAS WITHIN FRANKLIN COUNTY, 1959-1963*

	Northland	Gahanna	Upper Arl.	Grove City	Worthington	Westerville
	sq. mi.	sq. mi.	sq. mi.	sq. mi.	sq. mi.	sq. mi.
1959	88	0	86	0	29	30
1960	153	205	132	0	260	19
1961	258	57	54	84	3	44
1962	274	162	111	6	12	3
1963	230	47	136	128	129	69
	<u>1,003</u>	<u>471</u>	<u>519</u>	<u>218</u>	<u>433</u>	<u>165</u>

* Derived from RPC data.

** Includes the 1.3 square miles of territory along Huntley Road within the Worthington corporate boundary, also included in the Northland Planning Area.

Subdivision development in the Northland Area has generally occurred in broad bands along the west and south boundaries. A reason for this is found in studying Plate 6, Northland Area Utilities. Subdivisions have occurred where sewer and water facilities were available or could be easily extended; development has been limited elsewhere. This indicates that sewer and water facilities are a prerequisite to the full development potential of the Northland Area.

ANNEXATION ACTIVITY

The City of Columbus provides most sewer and water lines in the Region under a policy linking line extensions and annexation. As a result, Columbus annexations have generally preceded land development in the Area. Worthington, Westerville, and Minerva Park could also annex parts of Northland. On Plate 7 one annexation to Minerva Park is shown, along with the Columbus annexations to date.

With the extension of the Alum Creek trunk sewer, the Northland Area is likely to experience greater growth than it did in the 1955-1963 period. Additional annexations are likely to accompany this growth.

CHAPTER III

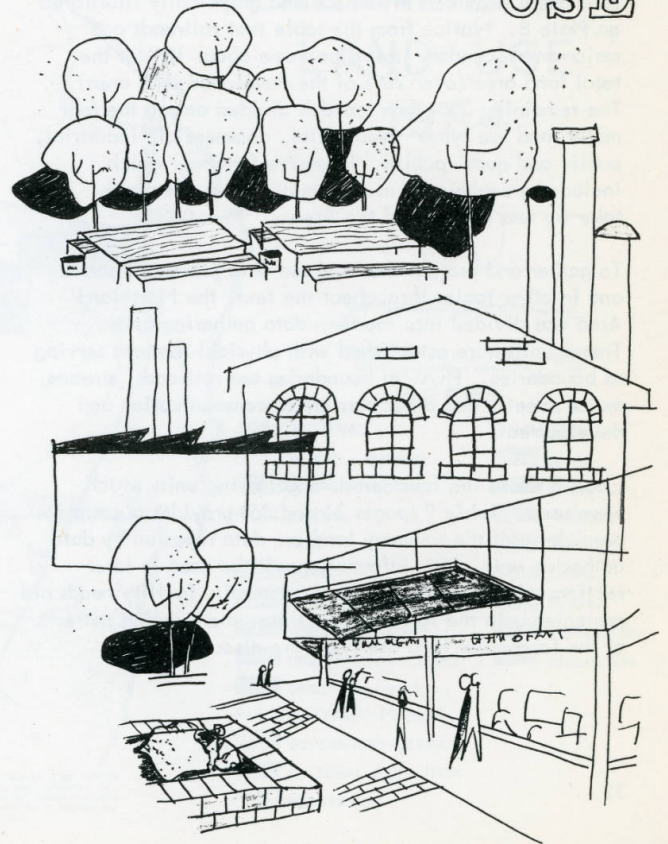
the LAND USE

The purpose of this land use study is to promote a logical and orderly arrangement of all land uses, indicating the space requirements and locational criteria of each. The policies suggested in this chapter foster productive use of all available land and resources, and relate to community facility and street planning.

LAND USE OBJECTIVES

The Northland Area "Land Use Study" looks toward the ultimate and optimum development of the Northland Area. It provides a guide to allocate adequate space in appropriate locations so that all land uses will be functionally and compatibly related, and promotes an appropriate population density so that an adequate level of amenity and service can be assured. This makes it possible to plan realistically for schools, parks, fire stations, shopping centers, streets, and all of the other land uses necessary to meet the varied needs of people who now live in the Northland Area and those who will live there in the future.

This study is oriented to the future and the present. The policy approach permits adjustments to the changes likely to occur over time. An appropriate and productive use of land today may be inappropriate and unproductive in the future. Reevaluation of land uses must be made from time to time, but resultant recommendations should be in keeping with established goals, amenities, and physical characteristics. Adaptability is meant to accommodate change which enhances the overall desirability of the community in view of new facts and conditions. Existing conditions must be considered when evaluating land use arrangement.



EXISTING LAND USE

In 1964, 45% of the land in the Northland Area was developed, leaving 55% vacant, underwater, or in agricultural use. A summary of the Northland Area 1964 land use is provided in Table 8 and graphically illustrated on Plate 8. Notice from the table that railroads and major and secondary streets consume about 10% of the total land area (over 20% of the developed land area). The remaining 35% developed is divided among the four major land use types--residential, commercial, industrial, public and quasi-public. Intensive farming, which includes greenhouses, mushroom barns, and orchards, take-up less than 1% of the Area.

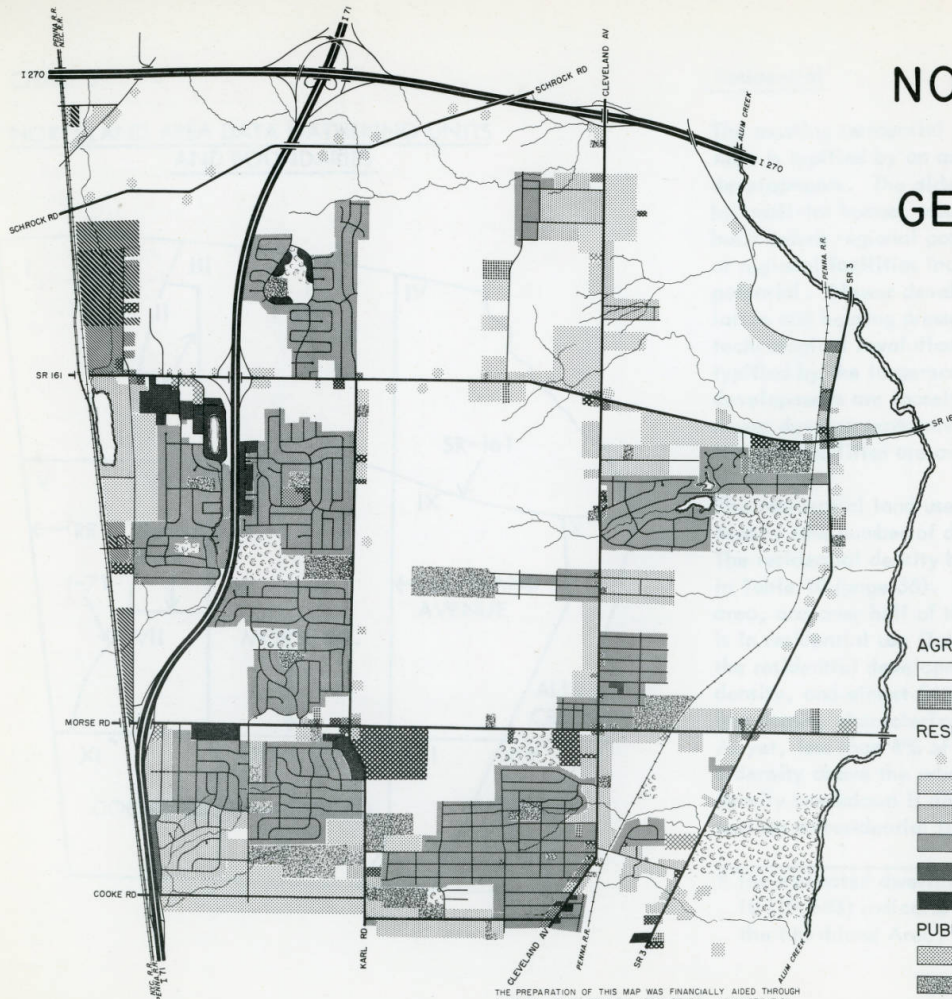
To gather and project the land use data presented above and in other tables throughout the text, the Northland Area was divided into fourteen data gathering units. These units were established with physical features serving as boundaries. Physical boundaries are railroads, streams, major streets, and other barriers to communication and development.

Chart 3 shows the fourteen data gathering units which were used. Table 9 (pages 34 and 35) provides a complete breakdown of the summary land use data reported by data gathering unit. This information will be used in later sections where commercial and community facility needs are projected. In the following sections, the existing patterns of the four major land use types are discussed.

TABLE 8 SUMMARY OF EXISTING LAND USE
IN NORTHLAND AREA

Land Use	Square Miles	Acres	% Developed	% of Total
Residential	4.33	2769	55.97	24.78
Commercial	.30	192	3.88	1.72
Industrial	.25	157	3.17	1.41
Public & Quasi-Public	1.15	733	14.82	6.56
Intensive Farming	.04	26	.53	.23
Streets-Major	.74	476	9.62	4.26
Streets-Secondary	.77	492	9.95	4.40
Railroads	.16	102	2.06	.91
Total Developed Land	7.74	4947	100.00%	44.27
Vacant or General Farming	9.57	6125		54.80
Underwater	.16	104		.93
Total Land	17.47	11,176		100.00%

NORTHLAND AREA GENERALIZED LAND USE 1964



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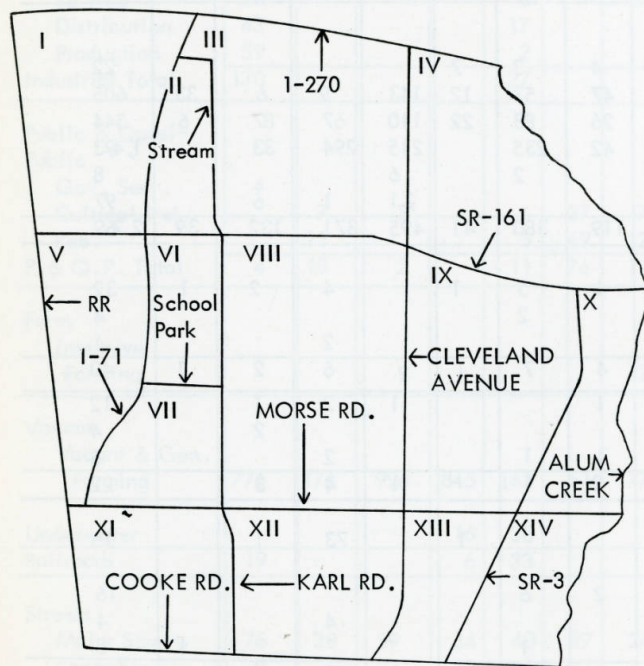
LEGEND

- | | |
|----------------------------|-------------------|
| AGRICULTURAL | COMMERCIAL |
| □ VACANT - FARMING | ▨ LOCAL |
| ▨ INTENSIVE FARMING | ▨ COMMUNITY |
| RESIDENTIAL | ▨ REGIONAL |
| ○ FARM | ▨ SPECIAL |
| ▨ RURAL | INDUSTRIAL |
| ▨ SUBURBAN | ▨ SERVICE |
| ▨ URBAN - LOW DENSITY | ▨ DISTRIBUTION |
| ▨ URBAN - MODERATE DENSITY | ▨ PRODUCTION |
| ▨ URBAN - HIGH DENSITY | |
| PUBLIC/QUASI-PUBLIC | |
| ▨ GOVERNMENT - SERVICE | |
| ▨ CULTURAL-INSTITUTION | |
| ▨ RECREATION | |

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CHART 3

NORTHLAND AREA DATA GATHERING UNITS
AND BOUNDARIES



Residential

The existing residential land use pattern of the Northland Area is typified by an amalgamation of old and new developments. The older developments are characterized by small-lot homes, estates, and isolated farmhouses built before regional population growth and the extension of regional facilities increased the Area's development potential. Newer developments--influenced by population and housing pressure, easy home financing, and a technological revolution in the building industry--are typified by the large-scale subdivision. The older developments are loosely-knit and scattered, and the newer developments have seemed to cluster where utilities and facilities are available (Plate 8).

This residential land use pattern is described in terms of density (the number of dwelling units or families per acre). The residential density breakdown in Plate 8 is described in Table 10 (page 36). Almost one-quarter of the total area, and over half of the developed area in Northland is in residential use (Table 8).* In 1964, almost 42% of the residential development is at suburban or lower density, and almost 54% is at urban low density. Urban low density characterizes newer subdivision developments. As yet, less than 4% of the land used residentially is of a density above the urban low classification. This density breakdown is discussed in greater detail in the section on residential (page 40).

* The estimated dwelling unit count reported in Table 10 (10,683) indicates about 35,000 people now live in the Northland Area.

TABLE 9

NORTHLAND AREA
EXISTING LAND USE BY DATA GATHERING UNIT

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	TOTAL
Residential															
Farm	2	1	4	1				4	3	7					22
Rural	34	4	108	83	64	5		47	57	12	143	9	6	33	605
Suburban			50	43	49		1	26	83	22	110	67	87	6	544
Urban-Low		128	57		151	175	163	42	235		215	294	33		1,493
Urban-Moder.									2		6				8
Urban-High		10			46	13					21	1	6		97
Residential Total	36	143	219	127	310	193	164	119	380	41	495	371	132	39	2,769
Commercial															
Local conven.	2		3	2	3	3	2	4	5	1		4	2	1	32
Loc. recr.						2			2						4
Loc. shopping					1	1						2			4
Sub Total	2		3	2	4	6	2	4	7	1		6	2	1	40
Commun. office	2			1	2	1	1	1			1	2	1		12
Commun. recr.						2							2		4
Commun. Serv.			1	1				1	1			2			6
Sub Total	2		1	2	2	3	1	2	1		1	4	3		22
Regional pri- mary shopping										1		73	1		75
Regional second- ary shopping				4	4			2	6						16
Reg. Recr.												4			4
Reg. service				3					1					1	5
Sub Total				7	4			2	7	1		77	1	1	100
Spec. trav. serv.			1		8				1	1	4		7		22
Spec. traffic dep.										6			2		8
Sub Total			1		8				1	7	4		9		30
Commercial Total	4		5	11	18	9	3	8	16	9	5	87	15	2	192

TABLE 9 CONT'D

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	TOTAL
Industrial															
Service	28				8										36
Distribution	43				17										60
Production	59				2										61
Industrial Total	130				27										157
Public & Quasi-Public															
Gov. Serv.	4							1	8			3	1		17
Cultural Inst.		7	2		6	27	7	53	66	2	54	52	4		280
Rec.		11			5	49	12		97			42	14	206	436
P. & Q.P. Total	4	18	2		11	76	19	54	171	2	54	97	19	206	733
Farm															
Intensive Farming			9				2	3		10		1		1	26
Vacant															
Vacant & Gen. Farming	776	174	996	845	143	61	177	1518	439	373	31	154	226	212	6,125
Underwater				16	30				11	26				21	104
Railroads	19			6	33				14		16		14		102
Streets															
Major Streets	76	38	59	34	40	27	24	25	26	14	60	27	16	10	476
Local Streets	1	35	27	13	61	47	41	12	79		74	92	10		492
Streets Total	77	73	86	47	101	74	65	37	105	14	134	119	26	10	968
TOTALS	1046	408	1317	1052	673	413	430	1739	1136	475	735	829	432	491	11,176

TABLE 10

CLASSIFICATION OF RESIDENTIAL LAND USE BY DENSITY AND
NUMBER OF DWELLING UNITS

Density Type	DU* - Acreage Ratio (Net Acres)	Existing Number of Acres	Estimated % of Res. Acreage	Estimated No. of d.u.'s (based on column 1)	Estimated % of no. d.u.'s
Farm	5 or more ac/du	22	.8	23	.2
Rural	2-5 ac/du	605	21.8	173	1.4
Suburban	1/4-2 ac's/du	544	19.7	598	4.9
Urban-Low Density	4-10 du's/ac	14 93	53.9	7,465	73.6
Urban-Mod. Density	10-20 du's/ac	8	.3	96	.8
Urban-High Density	20-35 du's/ac	97	3.5	2,328	19.1
Total		2,769	100.00%	10,683	100.00%

*DU/du represents dwelling units.

Commercial

Commercial land uses are found at most major street intersections in the Northland Area (Plate 8). Scattered strip development is apparent along Cleveland Avenue and State Route 3. The Morse Road Plan undoubtedly prevented a greater stripping-out of commercial uses. Very little strip development has occurred in the Northland Area developed since the Morse Road Plan was adopted. Recent commercial developments include motorist-oriented facilities at interchanges along the North Freeway, the internal neighborhood shopping centers located in a few newer subdivisions, and the Northland Regional Shopping Center at Morse and Karl Roads.

Table 11 gives a breakdown of existing commercial activity in the Area. A detailed description of these commercial types appears in the Commercial section (page 53). The magnitude of more recent commercial developments is revealed in that over 50% of total commercial space is taken up by regional primary shopping and special travel services, representing the comparatively new commercial developments in Northland.

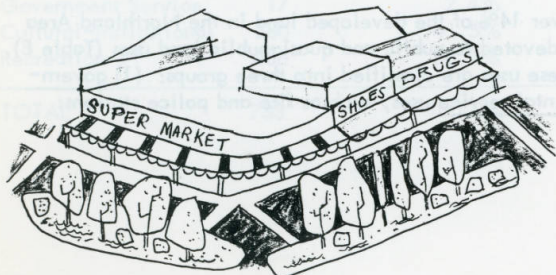


TABLE 11 CLASSIFICATION OF EXISTING
COMMERCIAL LAND USE IN THE
NORTHLAND AREA

Type of Commercial Use	No. of Acres	% of Total Commercial Land
Local		
Convenience	32	16.6
Recreation	4	2.1
Shopping	4	2.1
Sub Total	40	20.8
Community		
Office	12	6.3
Recreation	4	2.1
Service	6	3.1
Sub Total	22	11.5
Regional		
Primary Shopping	75	39.1
Second. Shopping	16	8.3
Recreation	4	2.1
Service	5	2.6
Sub Total	100	52.1
Special		
Travel Service	22	11.5
Traffic Depend.	8	4.1
	30	15.6
TOTAL	192	100.00%

Industrial

Northland Area industrial land uses take-up slightly more than 3% of the total developed space. This percentage fails to indicate the potential of the Area as a regional industrial center. A few industrial activities are scattered throughout the Area, but most are along Huntley Road, adjacent to the New York Central and Pennsylvania tracks at the western boundary (plate 8). The reasons for this are: (1) The rail facilities which form this boundary (and the North Freeway) provide desired accessibility to market and material; (2) utilities are available in this portion of the Area; and (3) large and relatively level parcels of land, suitable to industrial plant design and production processes, are also available.

Older industrial developments in the Area seem to have followed the "industrial corridor pattern" prevalent in other parts of the Region. The industrial uses along Sinclair Road, between State Route 161 and Morse Road, illustrate this pattern. More recent industrial developments have taken a form similar to the "industrial district concept". The Huntley Road complex is an example of this.

Industrial land uses are classified into three groups: (1) service, which includes construction contractors and research establishments; (2) distribution, which includes terminal, storage, and warehousing activities; and (3) production, which includes fabricating durable and non-durable goods, and extraction processes. Table 12 gives

a breakdown of existing industrial uses in the Northland Area based on this classification. (For more detail, see the Industrial section, page 72.)

TABLE 12 CLASSIFICATION OF EXISTING INDUSTRIAL LAND USE IN THE NORTHLAND AREA

Types of Industrial Use	Number of Acres	% of Total Industrial Acres
Service	36	22.9
Distribution	60	38.2
Production	61	38.9
<hr/>		
TOTAL	157	100.0%

Public and Quasi-Public

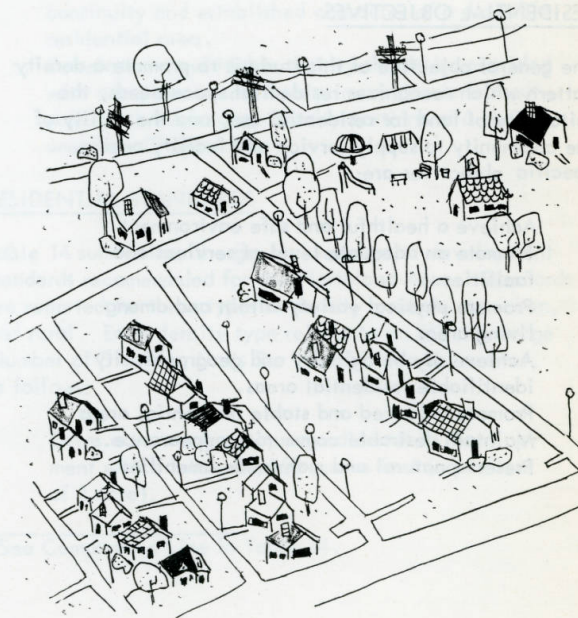
Over 14% of the developed land in the Northland Area is devoted to public and quasi-public land uses (Table 8). These uses are classified into three groups: (1) governmental service uses, such as fire and police stations;

(2) cultural-institutional uses, such as schools, churches, and lodge halls; and (3) recreational uses, such as parks, playgrounds, and golf courses.

Table 13 indicates that over half the existing public and quasi-public acreage in the Northland Area is used recreationally. Much of this acreage is taken by two golf courses. Existing public parks and playfields occur most frequently with residential developments, often in association with school sites. Most of the 297 acres classified as cultural-institutional is used by schools and churches. Governmental service (two fire and police substations) take less than 3% of the total public and quasi-public acreage.

TABLE 13
CLASSIFICATION OF EXISTING
 PUBLIC AND QUASI-PUBLIC LAND
 USE IN THE NORTHLAND AREA

Types of Public & Quasi-Public Land Use	No. of Acres	% of Total Public/Quasi-Public Acres
Government Service	17	2.4%
Cultural-Institutional	280	41.5%
Recreation	436	56.1%
TOTAL	733	100.0%



Analysis of existing land use and experience in other urbanizing areas indicates that residential will be the largest single land use in the Northland Area. Typically 70% of the land developed for housing is residential, and roughly another 30% is devoted to closely associated non-residential uses including churches, schools, local streets and parks. Due to the extensiveness of this major land use, and its influence on the scale and scope of other land use developments, this study is useful as a guide for residential development in the Northland Area.

RESIDENTIAL OBJECTIVES

The general objective of this study is to promote a density pattern which recognizes residential space needs, the suitability of land for residential use, and the ability of the community to supply service and facility needs. Specific objectives are:

- Achieve a healthful and safe environment.
- Promote an adequate level of services and facilities.
- Promote physical variety within and among living areas.
- Achieve psychologically and geographically identifiable residential areas.
- Promote balanced and stable residential areas.
- Maintain desirable community appearance.
- Preserve natural and man-made amenities.

RESIDENTIAL POLICIES

The purpose and objectives as stated are the basis for the suggested development policies. These general policies are closely tied to the recommended density pattern (Plate 9). The policies constitute a guide for residential development in the Northland Area, implemented through the standards and recommended density pattern.

- Residential areas should be bounded by significant physical features such as rivers, streets, and railroads to promote physical and psychological identity.
- A variety of dwelling types and physical groupings should be encouraged within and among living areas to meet the varying needs of all persons desiring to reside in the Northland Area.
- Only those non-residential uses which serve and are compatible with residential uses should be permitted within residential areas, and these should bring little additional traffic into the area.
- In rural and suburban density areas, premature development should be avoided until orderly development becomes feasible.
- The tendency for residential uses in sparsely developed areas to strip-out along a roadway should be avoided; clustered residential groupings should be fostered to promote a land pattern suitable to long-range development.

- Special housing types such as hospital, sanitariums, and rest homes, which meet density requirements but leave much of the land open, should be encouraged in suburban and higher density areas to provide valuable open space.
- Useable open space should be provided in all residential areas to conserve the land and to promote efficiency, economy, and convenience within the developed land use pattern.
- Open spaces within residential areas should be connected whenever possible to maximize the possibilities for pedestrian travel and social interaction.
- In rural and suburban density areas, incentives should be given to maintain the openness of the landscape, and to encourage clustering which makes higher density development feasible in the future (page 52).
- Appropriately developed, mature residential areas should be maintained at their established density to prevent possible deterioration and blight brought about by a second wave of development.
- A logical sequence of residential development should be followed, based on the character of the land and the ability of the community to supply needed facilities and services, in the interest of public health, safety, and welfare.
- If in the logical sequence of development, low density residential areas can achieve the criteria necessary to higher density residential development, that higher density should be considered.

- Residential development should be prohibited where it would be isolated and out of keeping with a logically planned sequence of development, or where adequate services and facilities cannot be provided.
- Recommended densities should be sought in all residential areas to assure balanced community development, including appropriate levels of service and facilities.
- Tracts developed at a density significantly different from the average established in the recommended density pattern (Plate 9) should maintain the continuity and established character of a desirable residential area.
- Developments of higher density should be provided with adequate access from primary streets without passage through lower density portions of a living area (see Chapter V).

RESIDENTIAL STANDARDS

Table 14 summarizes the general residential development standards recommended for the Northland Area. Standards are reported for three types of density - urban, suburban, and rural. Each density type relates to an (1) *Average Number of Dwelling Units Per Net and Per Gross Acre, as follows:

Gross acre - any area, regardless of its development which totals 43,560 square feet (equivalent of 1 acre).

*See Comparable Line in Table 14.

TABLE 14

GENERAL STANDARDS FOR RESIDENTIAL DEVELOPMENT BY DENSITY TYPE

	Criteria	Urban	Suburban	Rural
1.	Average Number of Dwelling Units per Residential Acre	6 net 4 gross	2 net 1 gross	1/5 net 1/10 gross
2.	Typical Lot Size	7,000 to 10,000 Square Feet Lots	1/4 to 2 Acre Sites	2 to 5+ Acre Sites
3.	Typical Dwelling Unit Types	Single Family, Duplex, Town House, Garden Apartment	Single Family	Farm and Single Family
4.	Unit Size (acres)	180+350	Variable	Not Applicable
5.	Range in Number of Families	750 to 1,500	Not Applicable	Not Applicable
6.	Physical Form	Planned	Clustered	Scattered
7.	Boundaries	Physical Features	Physical Features	Not Applicable
8.	Community Facility Requirement	Integrated with Development (within walking distance)	Convenient to Development (within driving distance)	Available to Development (within reasonable driving distance)
9.	Sewer and Water	Comp. and Adequately Provided	Available or Indi- vidually Provided	Individually Provided
10.	Topography (% of slope)	5% or less	12% or less	Variable
11.	Access to Street System	Dependent	Semi-dependent	Independent

Net acre - the remaining portion of a gross acre, after subtracting all uses other than the desired use. (Example: In 5 gross acres, there may be 3 net residential acres, 1 net commercial acre, and 1 acre of local streets).

Gross residential acre - a gross acre in a residential area, including streets and other associated land uses.

Net residential acre - a gross acre in a residential area, excluding streets and other associated land uses.

The (2) Typical Lot Size and (3) Dwelling Unit Types reported in Table 14 for each density type, generally characterize that density. The figures reported are based on observation of residential developments within and adjacent to the Northland Area and in similarly situated areas throughout Franklin County. These densities have occurred in the normal sequence of development and are to be applied in a planned and logical way in the further residential development of the Northland Area.

The (4) Unit Size refers to the desirable scale of residential development within each broad density type. For example, within the urban density area, neighborhood units (generally a subdivision) are the unit of development, and these should range in size from roughly 180 to 350 acres so that other standards (e.g., community facility requirement) can be accomplished.

Based on the average number of dwelling units per acre and the unit size, the (5) Range in Number of Families is reported*. When a desirable unit size cannot be established, "variable" or "not applicable" appears in the column.

The standards for (6) Physical Form and (7) Boundaries relate primarily to unit size. "Planned" means organized and developed simultaneously as a physical grouping. "Clustered" means organized physical groupings, not necessarily developed simultaneously or as a unit. "Scattered" means unrelated developments having no necessary relationship to one another. "Physical features" refers to rivers, streets, and other significant natural and manmade features (page 46).

The (8) Community Facility and (9) Sewer and Water Requirement standards depict the general relationship necessary between these facilities and residential developments within each density type.

The (10) Topography standards relate to Plate 3. Typical unit size and physical form relate to the percentages slope economically suitable to development at each density. The (11) Access to Street System listing establishes the desired degree of integration between the street system and residential development at each density.

*Based on 3.6 persons per family.

RESIDENTIAL RECOMMENDATIONS

To achieve the objectives of this study, the density pattern shown on Plate 9 is recommended in the Northland Area. This pattern reflects a logical sequence of development, the physical characteristics, the need to physically differentiate among different densities, and the need to establish and maintain areas of identifiable development character. The recommended residential density pattern is vital to this entire study in that it also serves as a basis for determining a community facility pattern and a functional street pattern.

The following specific recommendations relate to achieving the recommended density pattern. In addition to Plate 9, Plates 3, 4, and 6 will be useful for reference.

- Because of its topography (Plate 3), distance from existing development, and the problem of supplying adequate utilities and facilities (Plate 6), the area immediately south of the Outerbelt between the North Freeway and Alum Creek should be maintained at rural density (page 52).
- Two areas (Plate 9), one along Sinclair Road south of State Route 161, and the other along Cooke Road, west of Karl Road, should be maintained at suburban density (page 51) because of the desirable character of existing development and the appropriateness of this development to the topography in these areas.
- Because of unique topography (Plate 3) and the problem of providing adequate utility and facility services, the area immediately west of Alum Creek, as shown on Plate 9, should be developed at suburban density (page 51) to achieve a logical sequence of development.

Recognizing a logical sequence of development, the suitability of terrain (Plates 3 & 4) and the availability of adequate services and utilities (Plate 6), the central portion of the Northland Area should be developed at urban density (see page 46) as shown on Plate 9.

RESIDENTIAL DENSITY PATTERN AND DEVELOPMENT POTENTIAL OF THE NORTHLAND AREA

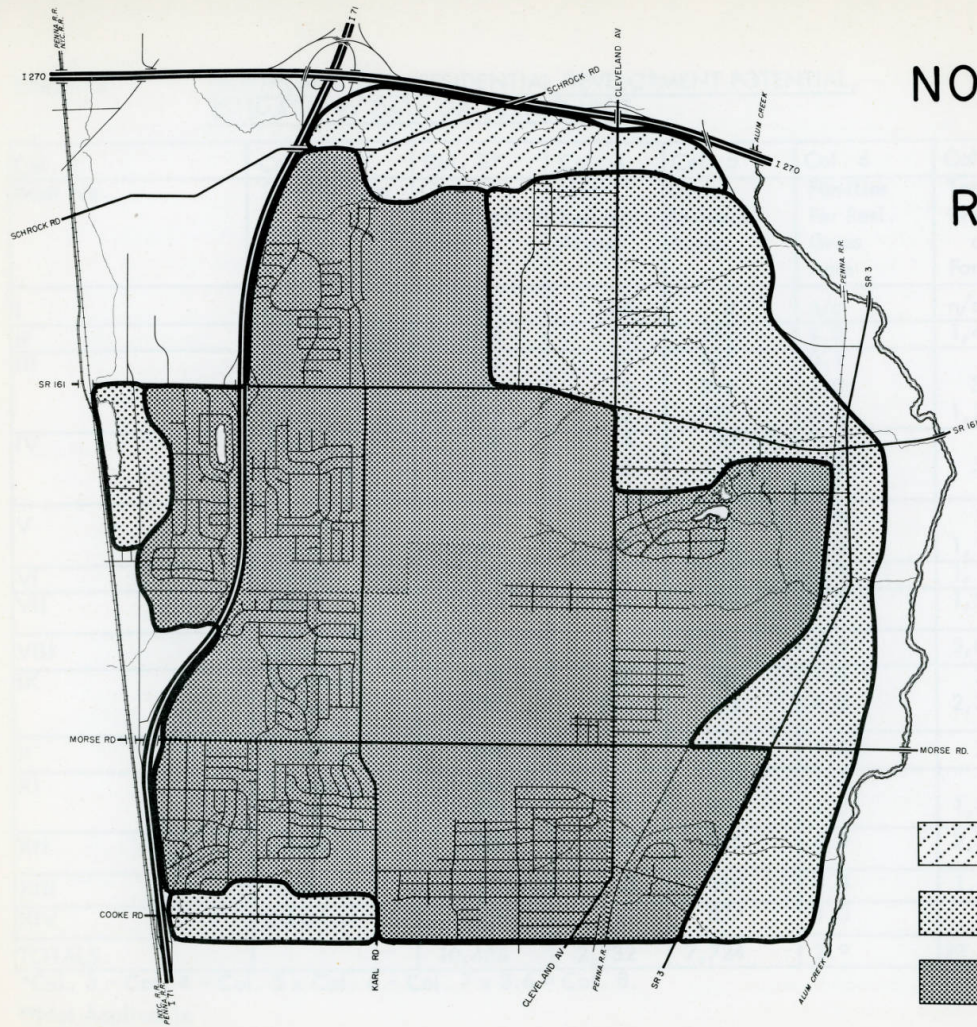
Table 15 provides a summary of detailed information derived from existing land use data, pertinent population data, and the recommended density pattern shown on Plate 9. For each data gathering unit within Northland (Chart 3, Page 33), gross developable acres, non-residential acres (actual and estimated), gross residential acres, and families per gross residential acre are listed by density type. Of the 10,456 gross developable acres (roughly 16 square miles), 7,724 acres (roughly 12 square miles) remain for residential development when non-residential acreage is subtracted.* Of these 7,724 acres or 12 square miles, approximately 8 square miles are at urban density, 3 square miles are at suburban density, and 1 square mile is at rural density.

The number of families per gross acre, listed in Table 15 by density type, is then fed into the analysis. The weighted average of these is 2.9 families per gross residential acre.**

*In data gathering units where the amount of non-residential space is known, this was subtracted; where known, 15% of the gross developable area was subtracted.

**The weighted average is derived by dividing the total of column 5 into the total of column 7, Table 15.

NORTHLAND AREA RESIDENTIAL DENSITY PATTERN



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AND COLUMBUS PLANNING COMMISSION 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.

LEGEND




	RURAL	1 DWELLING UNIT PER 5 OR MORE NET RESIDENTIAL ACRES
	SUBURBAN	2 DWELLING UNITS PER NET RESIDENTIAL ACRE
	URBAN	6 DWELLING UNITS PER NET RESIDENTIAL ACRE

TABLE 15

NORTHLAND AREA RESIDENTIAL DEVELOPMENT POTENTIAL,
ESTIMATED BY DATA GATHERING UNIT

Col. 1 Area No.	Col. 2 Density Type	Col. 3* Gross Developable Acres	Col. 4 Non- Resident. Acres	Col. 5 Gross Resident. Acres	Col. 6 Families Per Resi. Gross Acre	Col. 7 Total Number of Families	Col. 8 Total Population (3.6/Fam.)
I	n/a **	1,046	1,046	0	n/a	n/a	n/a
II	Urban	408	56	352	4.0	1,408	5,069
III	Rural	475	30	445	0.1	44	158
	Suburban	469	70	399	1.0	399	1,436
	Urban	373	56	317	4.0	1,268	4,565
IV	Rural	94	4	90	0.1	9	32
	Suburban	679	102	577	1.0	577	2,077
V	Suburban	124	9	115	1.0	115	414
	Urban	361	69	292	4.0	1,168	4,205
VI	Urban	413	121	292	4.0	1,168	4,205
VII	Urban	430	52	378	4.0	1,512	5,443
VIII	Urban	1,739	315	1,424	4.0	5,696	20,506
IX	Suburban	328	37	291	1.0	291	1,048
	Urban	797	201	596	4.0	2,384	8,582
X	Suburban	296	51	245	1.0	245	882
XI	Suburban	143		143	1.0	143	515
	Urban	592	145	447	4.0	1,788	6,437
XII	Urban	829	254	575	4.0	2,300	8,280
XIII	Urban	432	63	369	4.0	1,476	5,314
XIV	Suburban	428	51	377	1.0	377	1,357
TOTALS		10,456	2,732	7,724	2.9	22,400	80,640

*Col. 3 - Col. 4 = Col. 5 x Col. 6 - Col. 7 x 3.6 = Col. 8.

**Not Applicable

The weighted average is nearly identical to the 11 persons per gross acre "holding capacity" density used to estimate Northland Area population earlier. The rough holding capacity population, 112,000 people, is now refined by calculating the total number of families in each data gathering unit and multiplying by the anticipated 3.6 persons per family. From this, the anticipated population of the Northland Area, 80,525 people, is derived, the difference being that the original "holding capacity" assumed a total urbanization of the Northland Area.

APPLICATION OF DENSITY PATTERN TO RESIDENTIAL DEVELOPMENT

The concepts, established here, are meant to guide public and private agencies, operating in the Area, so their activities can be coordinated to achieve desirable overall development. To achieve balanced community development, these concepts are based on the three recommended density types, recognizing physical, social and economic characteristics prevalent in the Area.

URBAN DENSITY RESIDENTIAL DEVELOPMENT CONCEPT

Urban density, as defined in this study, prevails in most outlying areas of Franklin County "built-up" since the advent of suburbs, FHA home financing, and "automobility". This density (6 dwelling units per net residential acre seems to reflect contemporary values.

These values, and the objectives for residential land use development outlined earlier in this chapter, are fostered in the urban density residential planning unit concept described below. This concept is a modification of the traditional neighborhood concept based on contemporary subdivision development principles. Its purpose is to promote the comprehensive, balanced, and economical






provision of services, utilities, and facilities required at urban density in the interest of public health, safety, and welfare. It is to serve as a model and not a mold for urban density residential development in the Northland Area.

The Urban Residential Planning (URP) Unit is illustrated in Plate 10 and Table 16. The largest circle on Plate 10 represents the size of the entire residential unit. Many factors including the spacing of major streets, the distribution of commercial facilities, and the economics of providing utilities, contribute to determining the size of the URP Unit, but the elementary school is the prime factor because its size is less flexible, and it is not directly related to other systems or facilities. The desirable range in elementary school size is shown in Table 16. An enrollment of from 450-900 students achieves economies in providing school buildings and in school administration. Within newer residential areas of Franklin County, an average of .6 children per family attend public elementary school. To achieve an elementary school population within the desirable range, a planning unit population of from 750 to 1,500 families is required. Based on the established urban density, this population requires a planning unit size range of approximately 180 to 350 acres, depending on the actual anticipated school enrollment and other pertinent factors such as boundaries, physical characteristics, and so forth.

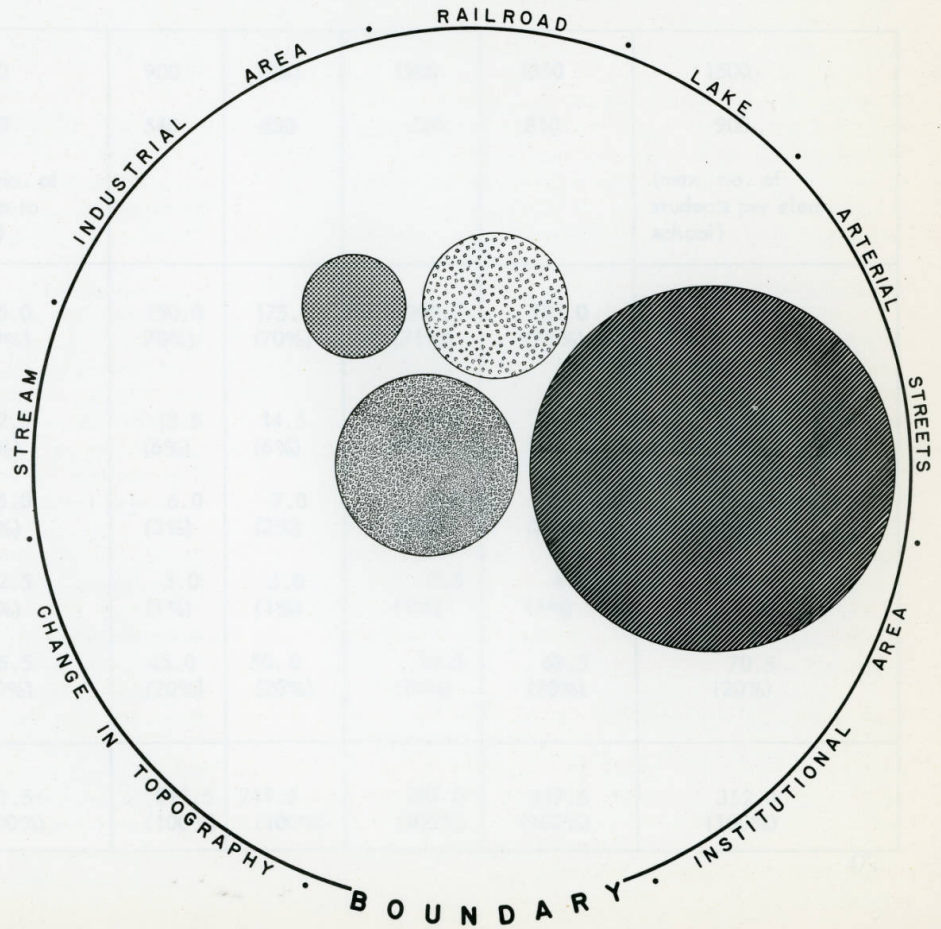
Significant boundaries are very important if psychological and geographic identity of living areas is to be achieved and if a logical land pattern is to be promoted. Significant natural and man-made features are listed around the largest circle shown on Plate 10, indicating suitable boundaries for the residential unit.

SPACE NEEDS OF A BALANCED URBAN RESIDENTIAL PLANNING UNIT

LAND USE **PERCENT OF
UNIT AREA**

	RESIDENTIAL	70%
	SCHOOL PARK	6%
	OTHER COMMUNITY FACILITIES	3%
	CONVENIENCE COMMERCIAL	1%
	LOCAL STREETS	20%

TOTAL **100%**



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TABLE 16

ILLUSTRATIVE SPACE ALLOCATION IN URBAN DENSITY RESIDENTIAL
PLANNING UNITS

No. of Families	750	900	1050	1200	1350	1500
No. of Elementary Students (.6/Family)	450	540	630	720	810	900
	(min. no. of students to school)					(max. no. of students per elem. school)
Acres of Res. and Non- Res. Permanent Open Space (6 d.u./net acre)	125.0 (69%)	150.0 (70%)	175.0 (70%)	200.0 (71%)	225.0 (71%)	250.0 (71%)
Acres of Elem. School-Park (8 ac+ 1 ac/100)	12.5 (7%)	13.5 (6%)	14.5 (6%)	15.0 (5%)	16.0 (5%)	17.0 (5%)
Acres of Other Community Facilities (1 ac/150 families)	5.0 (3%)	6.0 (3%)	7.0 (3%)	8.0 (3%)	9.0 (3%)	10.0 (3%)
Acres of Local Commercial (3 ac/1000 families)	2.5 (1%)	3.0 (1%)	3.0 (1%)	3.5 (1%)	4.0 (1%)	4.5 (1%)
Acres of Streets (25% of above total)	36.5 (20%)	43.0 (20%)	50.0 (20%)	56.5 (20%)	63.5 (20%)	70.5 (20%)
TOTAL ACRES	181.5 (100%)	215.5 (100%)	249.5 (100%)	283.0 (100%)	317.5 (100%)	352.0 (100%)

The legend to Plate 10 indicates a generalized "land use mix" desired in association with residential development at urban density. Each of the patterned circles within the largest circle represents the approximate proportion of space to be allocated from the unit to that land use. The white area represents the space allocated to residential land use.

A variety of structural types is encouraged within URP Units in keeping with study objectives. The possible residential mix within a unit includes any combination of structural types which, in total dwelling units, average 6 per net acre over the entire unit (180-350 acres). For illustrative purposes only, the following table shows how all structural types might be incorporated into an urban residential planning unit.

TABLE 17 POSSIBLE RESIDENTIAL MIX WITHIN AN URBAN RESIDENTIAL PLANNING UNIT

Dwelling Unit Type	Number of Dwelling Units	Number of Net Res. Acres	Density
Single Family	470	94	5
Two Family	150	15	10
Town house	240	20	12
Four Family	100	5	20
Low rise apts. (2-3 stories)	144	4	36
High rise apts. (6 or more stories)	96	2	48
Permanent Open Space	0	60	0
TOTAL	1200	200	6

d.u./acre

As a supplement to Table 17, Table 18 indicates desirable densities by dwelling unit types. The desirable density reported in the column on the right should serve as a guide in developing the corresponding structural types shown in the column on the left. The density range shown relates to the lot size standards reported in Table 14.

TABLE 18 DESIRABLE DENSITY BY DWELLING UNIT TYPES

Structural Types	Density Range (D.U.'s per net acre)	Desirable Density (D.U.'s per net acre)
Single Family	4-6	5
Two Family	8-12	10
Town House	10-16	12
Four Family	18-24	20
Low rise apts. (2-3 stories)	30-48	32
High rise apts. (6 or more stories)	40-60	48

Density Credits - Incentive to Provide Useable Permanent Open Space

As recommended on page 24, where unique natural features exist and are dedicated to the public; where useable, organized, and permanent open space is set aside; or where open space is provided by the developer in the form of school and park sites dedicated to the public, density credits should be given the developer. A density credit is permission granted a developer by the public to achieve a higher than standard density in a portion of his tract in exchange for either lower than standard density or useable and permanent open space in another portion of

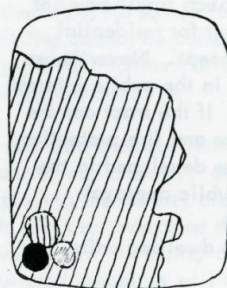
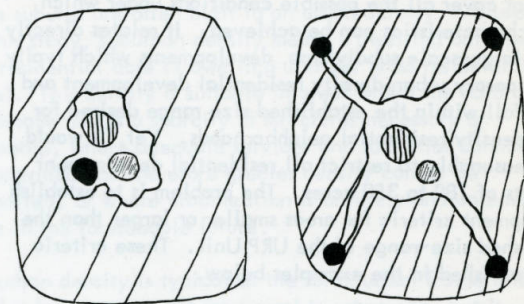
his tract, based on an approved plan of development. Density credits are meant to encourage developers to set aside useable open space in the public interest. For example, if from a 200 acre URP Unit, 50 acres are given over to organized and permanent public use as described above, the density on the remaining acres used residentially should be equal to that which would have been permitted had the entire 200 acres been developed residentially. In this way, the public interest is served and the developer can achieve certain economies in developing at a higher density than usually permitted.

In many cases, the areas desired as open space are aptly suited to public use and unsuited to residential development. This is usually the case with flood plains, severly sloping terrain, and wooded areas (see Chapter II). To achieve a density credit, the land must be permanently given over to public use and must serve a recognized public purpose (e.g., school site, park site, park chain, historic preservation, and flood plain protection).






Distribution of Land Uses in the URP Unit

In developing a URP Unit, land uses should be in approximately the proportion shown on Plate 10 to assure a balanced and adequate level of services and facilities. Permanent and organized open space should be encouraged through the use of the density credit. However, the distribution of necessary and desirable land uses is not strictly prescribed under the URP Unit Concept. Within limitations discussed elsewhere (see commercial and community facility locational criteria), distribution is left to the developer to encourage reasonable variety among living areas. The sketches shown on Chart 4 indicate several alternative land use distribution patterns. There is no attempt to exhaust all possible alternatives, only to indicate how the land uses within a unit might be distributed, using the concepts and policies of this study.

CHART 4 ILLUSTRATIVE DISTRIBUTION OF LAND USES WITHIN AN URBAN RESIDENTIAL PLANNING UNIT



LEGEND

-  RESIDENTIAL*
-  SCHOOL-PARK
-  COMMUNITY FACILITIES
-  COMMERCIAL
-  OPEN SPACE

*Higher density indicated by closeness of pattern, illustrating density credit concept.

Implementing the Urban Residential Density Concept

As a model, the URP Unit Concept indicates the desired characteristics of living areas at urban density, but it does not cover all the possible conditions under which those characteristics can be achieved. It relates directly to the large-scale subdivision developments which typify contemporary urban density residential development and which fall within the established size range desired for urban density residential neighborhoods. Yet, it would be unreasonable to restrict all residential development to tracts of 180 to 350 acres. The problem is to establish development criteria for areas smaller or larger than the established size-range of the URP Unit. These criteria are established in the examples below.

Small Isolated Tract:

Often as a result of the street pattern in combination with unique natural features, a tract of land is left isolated from surrounding residential areas. Such tracts may not meet the minimum size requirement set for residential development under the URP Unit Concept. Nevertheless, when this situation exists, it may be in the public interest to promote residential development. If the tract can be adequately served by utilities, police and fire protection, and other public services, it might be developed in the following ways subject to advance public approval:

- At lower than urban density (6 dwelling units per net acre) providing:
 - a) an elementary school in an adjacent urban residential neighborhood can accept, without hardship, the elementary school population anticipated in the isolated tract:

- b) an adequate level of community facilities and commercial establishments can be provided in or adjacent to the area.
- c) topography or other natural features encourage a lower than urban density.
- d) Surrounding residential area will not be adversely affected by the isolated development at the lower density.

At a higher than urban density providing:

- a) the isolated tract is large enough to accommodate higher density structural types without overcrowding the land.
- b) higher density will permit a balanced residential neighborhood to develop in the isolated tract, including adequate school, commercial, and community facilities.
- c) topography and other natural features encourage higher density development.
- d) surrounding residential areas will not be adversely affected by the isolated development at the higher density.

Small Non-Isolated Tracts:

Within the urban density area shown on Plate 10, it is likely that developers will seek to develop tracts of land smaller than the 180 acre minimum prescribed under the URP Unit Concept. It would be unreasonable to reserve development rights only to large scale developers who

control over 180 acres. Yet to achieve a balanced community and to assure residents of the Northland Area an adequate level of facilities, development coordinated on a larger scale should be encouraged. The following criteria establish a basis on which small tract development can take place within the urban density residential area.

- Small tracts should develop in accordance with a logical and planned sequence of development.
- Small tracts should develop at the established urban density (6 dwelling units per net acre).
- The development of small tracts should be coordinated with the anticipated development of adjacent tracts to achieve the characteristics of the URP Unit over an appropriately larger area.
- Small tracts should be independently developed only when adequate services and facilities are available without hardship in developed areas close at hand, or when these services and facilities can be supported by the anticipated population of the small tract.

Large Non-Isolated Tracts

Urban density neighborhood development should be limited in tract size to 350 acres to achieve school economy, convenience, identity and a balanced land use relationship. In larger tracts, development should be planned to divide the area into two residential neighborhoods. For example, a developer controlling 500 acres within the urban density area shown on Plate 9 should plan two 250 acre residential units, or one 300 acre and one 200 acre unit. The size would be determined by existing physical boundaries and other factors.

SUBURBAN DENSITY RESIDENTIAL DEVELOPMENT CONCEPT

The terms "suburban density" and "suburb" are not necessarily synonymous. Residential areas commonly thought of as suburbs are often built to an urban density. As used in this study, suburban density means 2 dwelling units per net residential acre (1 dwelling unit per gross residential acre). This density is suitable in areas where the natural landscape makes a sparsity of structures necessary or desirable, where adequate services and facilities cannot be provided and therefore greater density cannot be supported, or where urbanization is unlikely and unreasonable in the foreseeable future.

Suburban density is typical at the rural-urban fringe where land is being converted from rural to urban use, but it is sometimes found within highly built-up areas where topography and other factors have encouraged less intensive developments.* The large lot requirement, noted in Table 14, is based on local health regulations which specify a minimum 20,000 square foot lot where sewer and water facilities cannot be comprehensively provided. Large lots help prevent contamination of water and promote proper sewage treatment.

To maintain the required low density and to achieve economy and amenity, clustered (grouped) development employing the density credit concept is encouraged. This will also overcome the problem of suburban residential development "stripping-out" along an existing roadway. Clustered groupings will not destroy the potential of the area for later urbanization.

*The Suburban density areas south of State Route 161 along Sinclair Road and west of Karl Road along Cooke Road are examples of this.

Special housing types such as hospitals, sanitariums, and rest homes, as noted in the policy section, should be encouraged in suburban density areas. These residential types promote a higher density while leaving the land open, and are aptly suited to the physical characteristics typical of suburban density areas. They do not require a comprehensive provision of community facilities, but sewer and water facilities should be available.

When a suburban density area achieves the criteria necessary to comprehensive development at urban density, higher density development should be considered. These criteria include population pressures to develop to higher density, and the availability of necessary facilities and utilities. In the suburban density area along Alum Creek (Plate 9), physical uniqueness should be considered along with potential to develop to urban density in the future. Unique terrain or other physical features should be conserved in keeping with the objectives of this Study. Density credits should be provided if land is given over to organized permanent open space, helping to preserve valuable physical features.

Natural and man-made features will serve as boundaries for suburban density residential areas as well as for urban. Because of the character of suburban areas generally, natural features are apt to be most significant. Identifiable boundaries are desirable to assure some measure of physical and psychological identity, since no unit size can be established. Voluntary architectural controls may serve to identify some areas.

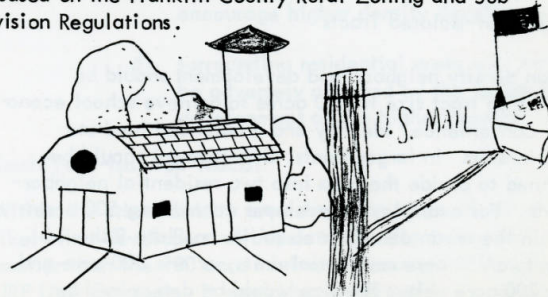
RURAL DENSITY RESIDENTIAL DEVELOPMENT CONCEPT

Rural density development is characterized by open land devoted primarily to agricultural activity. Residential development in these areas is limited chiefly to farm

houses and large estates. Typically, these areas are farthest from urban development and least likely to urbanize in the foreseeable future.

The concept for rural density development is to maintain the natural open land scape and agricultural character of rural areas. Marginal, disruptive, or premature development should be avoided and the land conserved until development to a higher residential density is feasible or another appropriate land use is determined. This concept is to be employed in areas which cannot be provided with the services and utilities necessary at a higher density, which are especially adaptable to agricultural use, or which have unique physical features strongly suggesting the maintenance of a natural and open character. When higher densities become feasible, these areas should not have been usurped by marginal or inappropriate land uses.

One dwelling unit to 5 or more net residential acres (1 dwelling unit per 10 or more gross residential acres) is the established density for rural areas in Table 14. The unit size at rural density is the residential parcel - the farm or estate. Since few if any services or utilities are shared, only a minimum size unit is noted. This minimum is based on the Franklin County Rural Zoning and Sub-division Regulations.





A great number and variety of commercial establishments are required to supply the goods and services which now and in the projected future will be demanded by people in the Northland Area. Often the commercial pattern which arises to meet these needs is unplanned and disorganized to such an extent that the total community suffers from congested streets, lost property value, and an uneconomical and inefficient distribution of commercial facilities. The purpose of this study is to serve as a commercial development guide in the Northland Area. In addition to seeking balance between the demand and supply for commercial goods and services, this includes establishing a framework for estimating commercial space needs and locational criteria, and for relating commercial land use to other land uses, including the street system.

COMMERCIAL OBJECTIVES

Commerce objectives reflect the purposes outlined above. The objectives are to:

- Recognize and project the commercial needs of Area residents.
- Balance the allocation of space for commercial facilities with anticipated goods and service demands, based on population and economic analysis.
- Achieve a desirable relationship between the commercial pattern and the street pattern in the Area.
- Recognize the space and locational needs of commercial establishments in projecting the commercial pattern of the Area.

- Promote and maintain the functional integrity of commercial and other land use areas by establishing the commercial pattern for the Area.

COMMERCIAL POLICIES

The policies suggested below are the basis for the standards and recommendations which follow. They require a coordinated approach on the part of all organizations concerned with community development in the Area, especially zoning. But if followed they will result in a functional and efficient commercial pattern.

- Discourage an inappropriate commercial scattering by encouraging continued development of existing commercial locations which meet recommended standards.
- Achieve user accessibility and convenience to commercial goods and services by promoting appropriate street intersections as commercial locations.
- Prevent strip-commercial development by promoting commercial nucleations with identifiable and containing boundaries.
- Promote competitive, supplementary, and complementary relationships within the commercial pattern by organizing commercial nucleations on a functional basis, recognizing the physical characteristics and economic association of the various commercial types.

COMMERCIAL STANDARDS

Table 19 (pages 56 and 57) summarizes the commercial standards recommended in the Study. For each commercial group and sub-group (Columns one and two) the space needs reported in columns three and four relate to the typical supporting population and market area size. Economic association is noted in columns five and six. Column five indicates the commercial grouping in which the establishments of the sub-group dominate and establish the commercial character. Column six indicates where establishments of the sub-group are dominated by another commercial group. Columns seven, eight, and nine report locational standards relative to the street system and the location of other commercial areas. Columns ten, eleven, and twelve relate specifically to physical development. In column ten, a typical site size-range is noted for each sub-group. In certain cases these figures do not agree with those listed in column four. The difference arises if establishments within the sub-group may have several locations in a market area. Column eleven indicates the desired physical arrangement when establishments of the sub-group dominate a commercial area. The terminology describing this is defined as follows: Planned - completely integrated physical development with parking and other supplementary facilities provided in common. Organized - similar to planned, except that several uses within the area may function independently and require separate facilities. Grouped - a mixture of independent activities coordinated to the extent that a common density is established. Independent - separate physical units. (These may be coordinated with adjacent commercial developments).

Column twelve indicates the general impact of different commercial sub-groups on residential areas. The terminology describing the degree of physical compatibility is defined as follows: Within - internally located in the residential area being served. Adjacent - located at the edge of residential areas with appropriate physical separation of structures. Separated - located so that space, other uses, or physical features intervene between the commercial and residential uses. (Where separation is not possible, site arrangement and development must overcome possible adverse affects on residential areas). Isolated - because of their nature, these activities should be distinctly separated from residential areas. (Rarely can the physical impact of these establishments be overcome by site arrangement and control of operation).

In addition to the standards reported in Table 19, the purpose of the following standard is to serve as a guide in the commercial development of intersections, which are the framework of the commercial structure recommended in this Study. This standard is oriented to prevent strip commercial development and street congestion while permitting adequate space for commercial development. These commercial standards, this one in particular, are intended to encourage planned commercial development.

- Limit development to 300 feet frontage and 200 feet depth from the proposed right-of-way line of an intersection, except where:
 - a) minor adjustment will correspond with an existing property line.
 - b) a demonstratable need exists for additional frontage or depth to accommodate a normal commercial arrangement on the land or meet the space requirements of an appropriate commercial use, including

planned shopping centers and organized commercial areas (linear expansion along a street should be of the same or of a less intensive functional commercial grouping).

- c) a demonstratable need exists for additional space to correspond with the extent of commercial development on the opposite side of the street. (Shopping uses, including convenience, local and primary, should not be extended across streets in most cases).

COMMERCIAL RECOMMENDATIONS

The following recommendations stem from an analysis of existing Northland Area commercial land use and zoning (Plate 11), and projected commercial space needs by data gathering unit in Table 20. Based on these data, a Northland Area commercial pattern has been projected in Plate 12 which reflects the general recommendations included in this summary. The table and plates are discussed in the text, (pages 60-71) but are included here for easy reference.

- Commercial space allocations should be based on existing and projected population needs.
- The location of commercial establishments should relate to the street system in such a way as to maximize accessibility and minimize congestion.
- Commercial zoning should reflect projected space needs once a location is fixed. (Over-zoning should be avoided).

TABLE 19

COMMERCIAL SPACE NEEDS, LOCATIONAL CRITERIA, AND DEVELOPMENT STANDARDS

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
GROUP	SUB-GROUP	MINIMUM SPACE NEED		POSSIBLE ASSOCIATION	
		Acres per 1,000 families	Acres per Market Area	Desirable	Acceptable
LOCAL	CONVENIENCE	2	1-3	Local Group	Community Group
	RECREATION	1	1-2	Local Group	Community Recrea.
	SHOPPING	1	3-9	Independent	Community Group
COMMUNITY	BUSINESS	1.5	4-10	Community Group	Local Shopping
	RECREATION	.5	3-8	Community Group	Independent
	SERVICE	.75	6-10	Community Group	Regional Group
REGIONAL	PRIMARY SHOPPING	1.5	30-90	Regional Group	Local Shopping
	SECONDARY SHOPPING	1	15-30	Regional Group	Local Shopping
	SERVICE	.5	8-30	Independent	Regional Shopping
SPECIAL	RECREATION	1	15-30	Independent	Independent
	ADMINISTRATIVE OFFICE	Not Applicable	Not Applicable	Regional Group	Independent
	TRAVEL SERVICE	Not Applicable	Not Applicable	Independent	Regional Service
	TRAFFIC DEPENDENT	Undetermined	Undetermined	Regional Group	Community Group

TABLE 19 cont'd

Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12
LOCATIONAL REQUIREMENTS			PHYSICAL DEVELOPMENT		
Relation to Street System		Miles Between Commercial Areas	Size of Area in Acres	Arrangement of Commercial Area	Relationship to Residential Area
Desirable	Acceptable				
col/col	col.	.5	1-3	Planned	Within
col/col	col.	.5	1-2	Organized	Within
ma/ma	ma/COL	1	3-9	Planned	Adjacent
ma/ma	ma/MA ma/col.	1.5	1-4	Organized	Adjacent
MA/ma	ma/ma	1.5	1-4	Independent	Separated
MA/ma	ma/ma	1.5-2	3-10	Grouped	Separated
MA/ma MA/MA	ma	2-3	5-60	Planned	Separated
MA/MA MA/ma	MA	1-2	3-10	Grouped	Separated
MA/MA	MA/ma MA	2-3	2-15	Grouped	Isolated
MA/MA	MA/ma	Not Applicable	5-100	Independent	Isolated
MA	ma	Not Applicable	1+	Organized	Separated
FW/MA	Major Business or Industrial Area	Not Applicable	5-15	Grouped	Isolated
MA	ma	Not Applicable	Undetermined	Independent	Separated

col - collection. ma - minor arterial. MA - major arterial. FW - freeway.

Example: col/col - indicates intersection of 2 collector streets.

MA/ma - indicates intersection of major arterial and minor arterial or
MA along a major arterial.

TABLE 20 ESTIMATED MINIMUM COMMERCIAL SPACE NEEDS BY DATA GATHERING UNIT

Area			I	II	III	IV	V
No. of Families (Thousands)			0	1.63	2.18	.70	1.10
GROUP		Acres per 1000 Fam.					
LOCAL	Convenience	2	0	3.25	4.35	1.40	2.20
	Recreation	1	0	1.60	2.20	.70	1.10
	Shopping	1	0	1.60	2.20	.70	1.10
	SUB TOTAL	4	0	6.45	8.75	2.80	4.40
COMMUNITY	Business	1.50	0	2.45	3.25	1.00	1.65
	Recreation	.50	0	.80	1.00	.35	.55
	Service	.75	0	1.25	1.60	.50	.80
	SUB TOTAL	-		4.50	5.85	1.85	3.00
REGIONAL	Primary Shopping	1.5	0	2.45	3.25	1.00	1.65
	Secondary Shopping	1.0	0	1.60	2.20	.70	1.10
	Service	.5	0	.80	1.00	.35	.55
	SUB TOTAL	3.0	0	4.85	6.45	2.05	3.30
SPECIAL	Recreation	1.0	0	1.60	2.20	.70	1.10
	Admin. Office	n/a**	0				
	Travel Service	n/a					
	Traffic Depend.	n/a	0				
	SUB TOTAL	n/a	0	1.60	2.20	.70	1.10
	TOTAL	-	0	17.40	23.25	7.40	11.80

**n/a - Not applicable

TABLE 20 cont'd

VI	VII	VIII	IX	X	XI	XII	XIII	XIV	Outside of Area*	TOTAL
1.63	1.50	7.15	3.14	.22	1.78	1.81	1.58	.22		24.64
3.25	3.00	14.40	6.30	.45	3.50	3.60	3.15	.45		49.30
1.60	1.50	7.20	3.15	.25	1.80	1.80	1.60	.25		24.75
1.60	1.50	7.20	3.15	.25	1.80	1.80	1.60	.25		24.75
6.45	6.00	28.80	12.60	.95	7.10	7.20	6.35	.95		98.80
2.45	2.25	10.80	4.70	.35	2.70	2.70	2.40	.35		37.05
.80	.75	3.60	1.60	.10	.90	.95	.80	.10		12.30
1.25	1.10	6.40	2.35	.15	1.35	1.35	1.20	.15		18.45
4.50	4.10	19.80	8.65	.60	4.95	5.00	4.40	.60		67.80
2.45	2.25	10.80	4.70	.35	2.70	2.70	2.40	.35	36.00	73.05
1.60	1.50	7.20	3.15	.25	1.80	1.80	1.60	.25		24.75
.80	.75	3.60	1.60	.10	.90	.95	.80	.10		12.30
4.85	4.50	21.30	9.45	.70	5.40	5.45	4.80	.70	36.00	110.10
1.60	1.50	7.20	3.15	.25	1.80	1.80	1.60	.25	45.00	24.75 45.00
1.60	1.50	7.20	3.15	.25	1.80	1.80	1.60	.25	45.00	69.75
17.40	16.10	77.40	33.85	2.50	19.25	19.45	17.15	2.50	81.00	346.45

*Outside of Area - Assumed additional space need because of regional facilities serving a radius beyond the Northland Area.

- At intersections, the majority of commercial land and the dominant commercial establishments should be grouped in one quadrant.
- All quadrants of an intersection should not be developed until the space need at that location has been determined.
- Commercial groupings should be based on similar economic and physical characteristics and new commercial uses should be encouraged to develop within existing commercial areas.
- Boundaries to commercial area expansion should be established, based on projected commercial space needs at the location, to prevent strip-commercial development.

COMMERCIAL STRUCTURE

The organization and order which exists within a commercial pattern can be perceived in terms of the economic and physical characteristics of commercial establishments. Tables 21 and 22 outline these characteristics. The information presented applies to commercial land use, not only in the Northland Area, but in the Region as well. It should be recognized that the Northland Area commercial pattern will be influenced by the commercial pattern elsewhere in the Region, especially in immediate adjacent areas.

ECONOMIC CHARACTERISTICS

Table 21 (page 62) indicates the various commercial types which may seek to locate in the Area and classifies them 60.

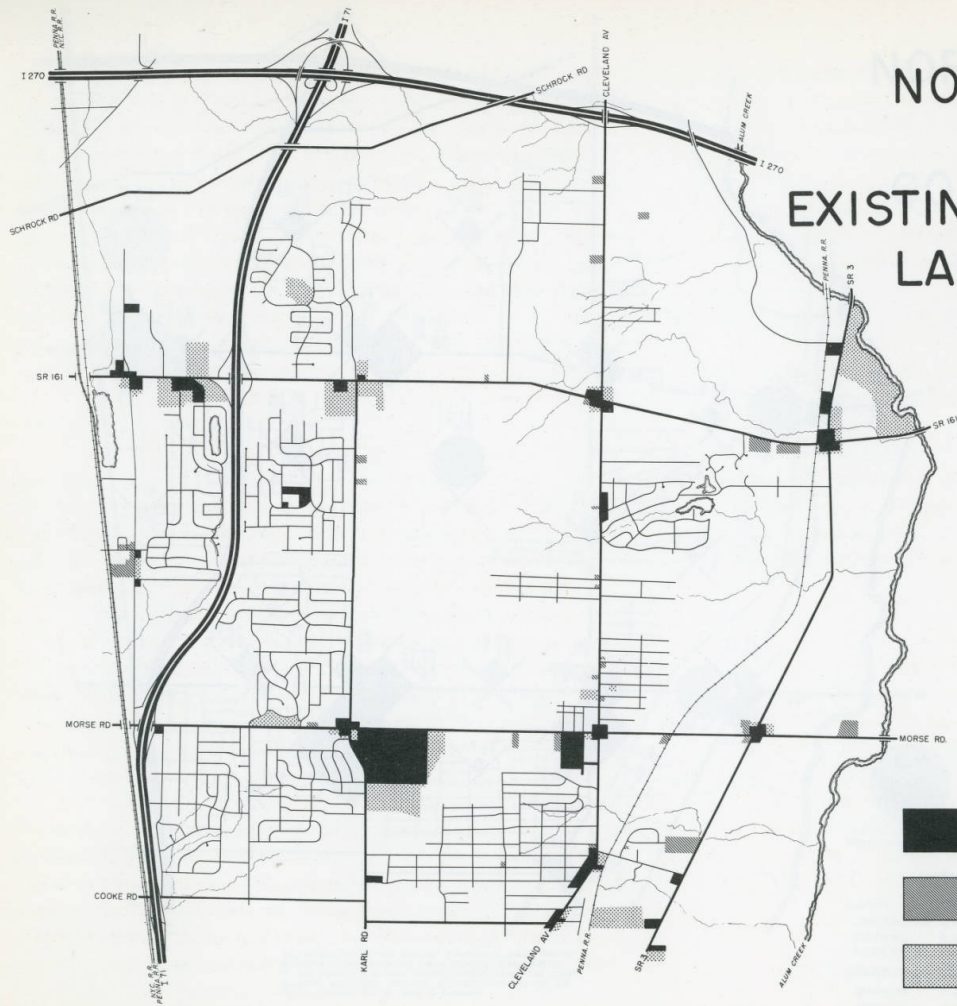
by economic characteristics into four major categories - shopping, recreation, office, and service. Within each major category are sub-categories which define different levels of commercial activity. Establishments typical of each sub-category are listed. These have in common the set of economic characteristics noted in the column on the right. For example, within the category SHOPPING, is the sub-category CONVENIENCE which typifies such establishments as grocery stores and supermarkets, drug stores and carryouts. All of these establishments deal in low bulk, high volume goods which are frequently purchased and which need to be convenient, since customers will not travel far to secure them.

ECONOMIC AND PHYSICAL ASSOCIATION

Commercial establishments tend to locate relative to a common market area based on competitive, supplementary, and complementary economic linkages. The term "competitive" relates to establishments selling goods or rendering services of the same general quality and price range. For example, two grocery stores are competitive. "Supplementary" relates to establishments offering similar goods or services of different quality and price range, thus providing depth for product or service choice. A grocery store and a delicatessen are supplementary. "Complementary" relates to establishments offering closely associated services, giving breadth to the number of products or services available. A grocery store and a drug store are complementary. In the public interest, these relationships should be encouraged among commercial establishments. A commercial pattern is the result of this economic interplay expressed in the physical relationship which commercial land uses seek.

Plate 13 illustrates the probability of various commercial establishments to associate, and indicates which commercial




NORTHLAND AREA EXISTING COMMERCIAL LAND USE AND ZONING - 1964



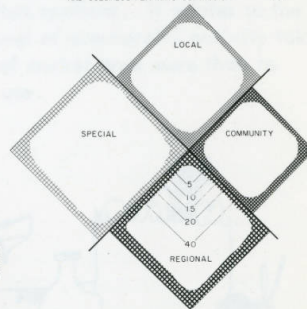
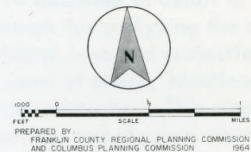
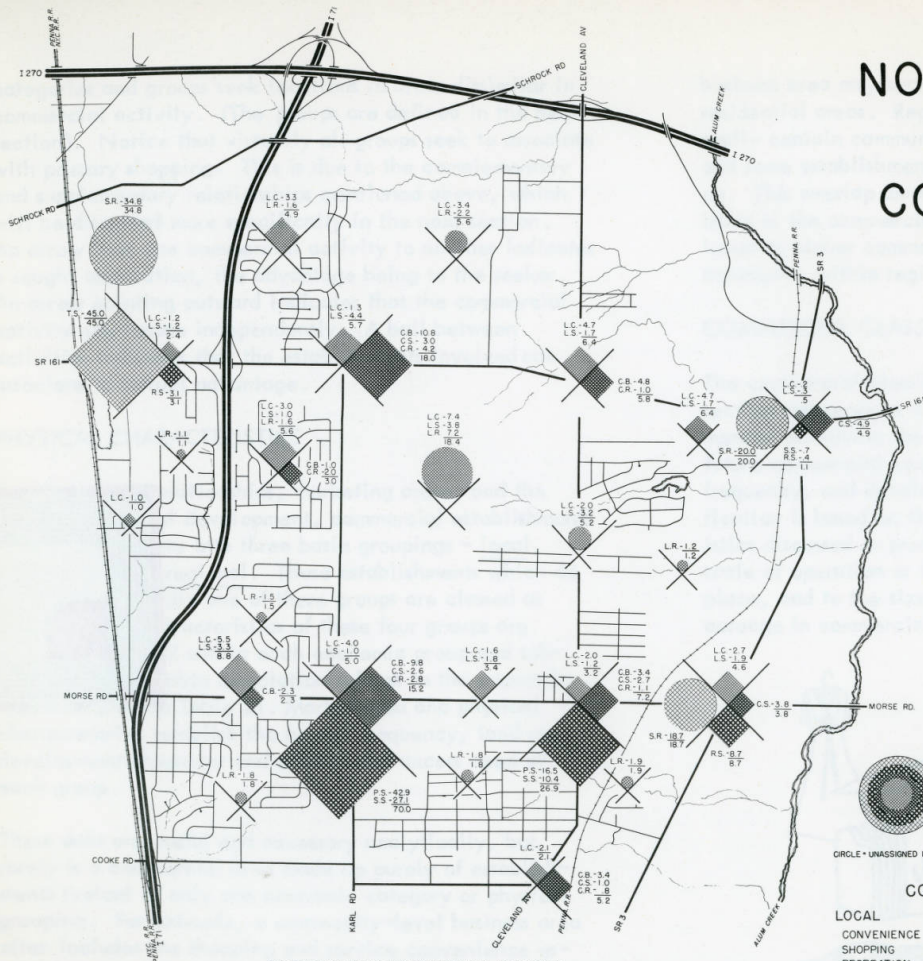
PREPARED BY
FRANKLIN COUNTY REGIONAL PLANNING COMMISSION
AND COLUMBUS PLANNING COMMISSION
1964

THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH
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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.

LEGEND

-  EXISTING COMMERCIAL
USE ZONED COMMERCIAL
-  EXISTING COMMERCIAL USE
NOT ZONED COMMERCIAL
-  EXISTING COMMERCIAL ZONING
NOT USED COMMERCIAL

NORTHLAND AREA COMMERCIAL PATTERN



CIRCLE - UNASSIGNED LOCATION

COMMERCIAL SPACE NEED IN ACRES
COMMERCIAL AREA SCALE IS TIMES BASE MAP 50:1

COMMERCIAL SPACE ALLOCATION

LOCAL	95.6	REGIONAL	1098
CONVENIENCE (L.C.)	47.4	PRIMARY SHOPPING (P.S.)	59.4
SHOPPING (L.S.)	23.5	SECONDARY SHOPPING (S.S.)	38.2
RECREATION (L.R.)	24.7	SERVICE (R.S.)	12.2
COMMUNITY	65.3	SPECIAL	1185
BUSINESS (C.B.)	35.5	TRAVEL SERVICE (T.S.)	45.0
SERVICE (C.S.)	17.9	RECREATION (S.R.)	73.5
RECREATION (C.R.)	11.9	ADMINISTRATION OFFICES (A.O.)	N.D.
		TRAFFIC DEPENDENT (T.D.)	N.D.

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.

categories and groups seek locations in areas dissimilar in commercial activity. (The groups are defined in the next section). Notice that virtually all groups seek to associate with primary shopping. This is due to the complementary and supplementary relationships mentioned above, which will be discussed more specifically in the next section. An arrow from one commercial activity to another indicates a sought association, the advantage being to the seeker. An arrow pointing outward indicates that the commercial activity can locate independently. A ball between activities indicates that the establishments involved can associate to mutual advantage.

PHYSICAL CHARACTERISTICS

Based on these relationships, marketing areas, and the nature of physical development, commercial establishments tend to congregate into three basic groupings - local, community, and regional. Those establishments which do not readily fall into one of these groups are classed as special. The characteristics of these four groups are shown in Table 22 within each economic group and subgroup. The probable association relates to the economic characteristics in Table 21. Market area and physical characteristics establish the normal frequency, land use development character and effect, and access need of each group.

These data are useful and necessary analytically, but rarely is a commercial area made up purely of establishments typical of only one economic category or physical grouping. For example, a community-level business area often includes the shopping and service convenience establishments of the local-level groups. Physical association (Plate 13) indicates the range of physical development possibilities for each group. Because of this the community

business area may serve as a convenience center to adjacent residential areas. Regional-level commercial areas generally contain community and local-level establishments, and some establishments in the special group are not uncommon. This overlap among economic and physical characteristics in the commercial pattern generally progresses from lower to higher commercial levels (local within community, community within regional) and rarely the reverse.

COMMERCIAL CLASSIFICATION

The commercial classification discussed in detail in this section can serve as a framework for analyzing the commercial pattern in the Northland Area and projecting future commercial needs in terms of space, location, frequency, and developmental character. This classification is based on the economic and physical characteristics discussed in previous sections. It relates to the scale of operation or level of commercial activity taking place, and to the size of market area more than to acreage in commercial use.



TABLE 22

PHYSICAL CHARACTERISTICS OF COMMERCIAL GROUPS AND SUB-GROUPS

GROUP	Sub-group	Probable Association	MARKET AREA			PHYSICAL CHARACTERISTICS		
			Radius (Miles)	Source (Families)	Minimum (Families)	Typical Form	Usual Affect	Access Need
LOCAL	Convenience	Independent; seeks other convenience or higher level establishments	1/4-1/3	750-1,500	300-900	Small building	Compatible with residential	Walk-in
	Recreation	Independent; complements community-level recreation	1/4-1/2	750-1,500	400-1,500	Intensive open development	Produces noise and glare	High walk-in
	Shopping	Complementary group; competitive	1/2-1	2,000-6,000	1,500-1,600	Small to medium size building	Produces glare and some noise	Moderate vehicular
COMMUNITY	Business	(Complementary or supplementary group); may be independent	3/4-1-1/2	5,000-15,000	1,500-10,000	Small building	Quiet	Low to moderate vehicular
	Recreation	Independent; group with supplementary establishments	3/4-1	5,000-12,000	1,000-8,000	Open and enclosed development	Creates glare and noise	High vehicular
	Service	Independent; seeks supplementary establishments	3/4-1-1/2	5,000-15,000	1,000-6,000	Building and possible open storage	Produces glare; can be unsightly	Low vehicular

TABLE 22 cont'd

GROUP	Sub-group	Probable Association	MARKET AREA			PHYSICAL CHARACTERISTICS		
			Radius (Miles)	Source (Families)	Minimum (Families)	Typical Form	Usual Affect	Access Need
REGIONAL	Primary Shopping	Complementary, supplementary, and competitive	3-6	20,000-80,000	10,000-50,000	Extensive building	High traffic volume	Very high vehicular
	Secondary Shopping	Independent; supplementary and complementary to primary shopping	1-1/2-3	10,000-40,000	2,000-20,000	Medium size building; large open display & storage	Quiet to noisy; un-sightly	Low to moderate vehicular
	Service	Independent	1-5	10,000-80,000	3,000-40,000	Medium to large size building & storage	Produces noise, dust, & odor. May be unsightly	Very low vehicular
	Recreation Facilities	Independent	3-10	20,000-200,000	5,000-50,000	Extensive open area or intensive development	Produces noise, dust, and glare	High to very high vehicular
	Administrative Offices	Independent	Not applicable	Not applicable	Not applicable	Small to large size building with open area	Quiet, prestigious development	Low to moderate vehicular
SPECIAL	Travel Service	Complementary; supplementary	Not applicable	Inter-regional traffic	Not applicable	Medium sized building; extensive accessory development	Produces noise and glare	Moderate vehicular; easily identified access
	Traffic Dependent	Supplementary; dependent upon other establishments	Not applicable	Large traffic volumes	Not applicable	Unique building	Produces noise & glare (may be garish)	Low vehicular; easily identified access

Local Group Level

There are three sub-groups of commercial establishments at the local commercial level: local convenience, local recreation, and local shopping. Local convenience and local shopping assume two types of physical groupings: (1) the small convenience cluster, and (2) the local shopping center; the basic difference between the two is scale of operation. A more detailed discussion of the three local sub-groups, based on Table 22, follows:

Local Convenience

Convenience establishments may exist as the smaller corner grocery or as a group of small stores and service shops in a planned shopping center. Typical establishments within this sub-group are grocery stores, drug stores, beauty and barber shops. Establishments of this kind serve the immediate surrounding residential area and draw a high percentage of walk-in patrons, although a certain amount of automobile traffic can be expected because of the low population densities common in newer areas. Often the convenience center is isolated from other business activity, but in close proximity to such community facilities as schools, parks, and recreation areas. Usually these clusters require from 2 to 3 acres.

Local Recreation

Local (commercial) recreation most frequently develops under the control of a private club or neighborhood association, and usually occurs in conjunction with a school or park. It is typified by swimming pools, tennis courts and other active sports facilities oriented to family participation with emphasis on children. Such facilities are intended to serve the immediate residential area and usually require 2 to 4 acres.

Local Shopping

Local shopping areas are larger groupings of stores and shops of the local convenience type. Frequently occurring at the periphery of a residential area at the intersection of collectors or arterials, they serve two to four adjacent residential areas (local convenience clusters serve one residential area) and may contain two or more supermarkets, one or two drug stores, a hardware store, specialty stores, personal services, and business and professional offices. A local shopping group usually requires 5 to 10 acres for development.

Community Group Level

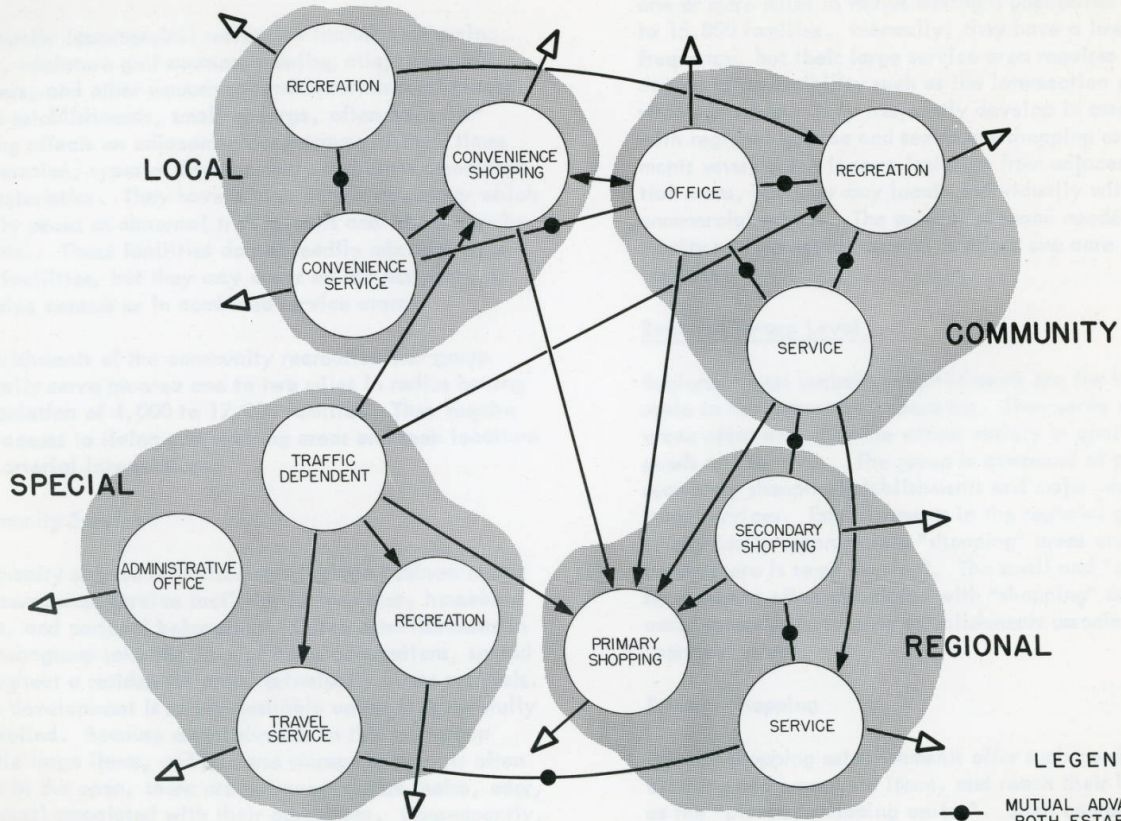
There are three sub-groups within the community-level commercial group: community business, community service, and community recreation. These are discussed below.

Community Business

Community business is characterized by professional and business offices and by small consumer service establishments. These do not readily lend themselves to organized "shopping center" development and tend to strip-out along arterial streets. This tendency may be offset by providing streets within an area which serve to foster desirable compactness and needed accessibility.

Community business establishments usually serve a market area up to one and one-half mile radius, containing from 5,000 to 15,000 families. Usually they are closely related to residential development and often combine with "local shopping centers". (They may associate with community recreation establishments on a scale small enough to be compatible with adjacent residential areas). The number of persons patronizing establishments in the community business sub-group is not likely to be great at any one time, but easy access to a relatively large area and population is required. The intersection of arterial streets is a common location for these establishments, and an area of 6 to 12 acres is usually needed.

ATTRACTION BETWEEN COMMERCIAL ESTABLISHMENTS



- LEGEND**
- MUTUAL ADVANTAGE TO BOTH ESTABLISHMENTS
 - ADVANTAGE TO SEEKER
 - ◁ POSSIBLE INDEPENDENT LOCATION

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.

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Community Recreation

Community (commercial) recreation includes swimming pools, miniature golf courses, bowling alleys, taverns, theaters, and other amusement and entertainment places. These establishments, small or large, often have disturbing affects on adjacent areas because of their times of operation, types of development, and other associated characteristics. They have a high patron frequency which usually peaks at abnormal traffic hours and which may be seasonal. These facilities do not readily mix with shopping facilities, but they may occur on the periphery of shopping centers or in combined service areas.

Establishments of the community recreation sub-group typically serve an area one to two miles in radius having a population of 4,000 to 12,000 families. They require easy access to living and working areas and seek locations near arterial intersections.

Community Service

Community service establishments include business repair and consumer service facilities for vehicles, household items, and personal belongings. Often establishments in this sub-group take the form of home occupations, spread throughout a residential area, principally along arterials. Such development is rarely desirable unless it is carefully controlled. Because establishments in this sub-group handle large items, and because storage or work is often done in the open, there are nuisance factors (noise, odor, and dust) associated with their operations. Consequently, these establishments do not readily fit into shopping areas, and residential areas must be protected from their adverse affects.

Community service establishments typically serve an area one or more miles in radius having a population of 4,000 to 15,000 families. Normally, they have a low patron frequency, but their large service area requires a high degree of accessibility such as the intersection of arterial streets provide. They frequently develop in association with regional service and secondary shopping establishments where there is some isolation from adjacent residential areas, but they may locate individually within other commercial groups. The amount of space needed for community service establishments is about one acre per 2,000 families.

Regional Group Level

Regional-level business establishments are the largest in scale in the commercial spectrum. They serve whole urban areas and offer the widest variety in quality of goods and services. The group is composed of primary and secondary shopping establishments and major repair and trade services. Establishments in the regional group tend to physically separate into "shopping" areas and "service" areas (there is some overlap). The small and "cleaner" services are often associated with "shopping" areas, and many secondary shopping establishments associate with "service" areas.

Primary Shopping

Primary shopping establishments offer such goods as clothing and household items, and reach their highest form as the "planned shopping center". Such centers should have orderly and functional store arrangement, adequate and convenient off-street parking, and one or more major department stores (the major shopper magnet).

Primary shopping areas have developed piecemeal in the past. As a result, they suffer from problems common to strip-commercial development - inadequate parking, lack of controlled access, difficult pedestrian movement, incompatible and inconvenient store relationships and wasted land - all detrimental to the center and to adjacent areas. These conditions result in early functional and economic deterioration, even when development is under single control as it is with the planned shopping center. Single ownership no more assures adequate development than multiple ownership prevents it. High development standards are necessary to long-term economic well-being, and to assure compatibility with adjacent land uses and the street system.

Primary shopping centers have a market radius ranging up to 5 or more miles and serve a population of 20,000 to 80,000 families. Because of their large market area and high traffic volume, these areas require access to the entire region. The intersection of two arterial streets is generally required. A department store is typically the major magnet of a primary shopping center while other stores supplement and complement the various department store lines. A group of convenience stores, service facilities, business and professional offices are often associated with the center.

Some of these may be incorporated in the center itself, or arranged at the periphery in the immediate area. A regional center draws other business establishments because it draws people. As a result, regional centers often function as the local shopping and community business area for adjacent residential neighborhoods. The physical development of the street system should be adequate to carry large volumes of traffic, and access to parking should be controlled and coordinated through a separate internal traffic

system. The minimum acreage of a regional center site averages 40 acres*, not including space for expansion. Depending on the amount of local, community, and other regional-level functions provided, the total commercial area could range from 80 to 90 acres.

The "discount store", as it has evolved in recent years, usually houses shopping, convenience, and service departments, and functions similarly to a regional shopping center. The larger discount stores (75,000 square feet or more) take on most, if not all, characteristics of the regional center and should accordingly be considered a regional facility.

Secondary Regional Shopping

Secondary shopping includes the wide range of establishments dealing in large, low volume, high cost items such as furniture, automobiles (new and used), lumber and building materials, boats, mobile homes, farm machinery, and garden supplies. Secondary shopping establishments are similar in market and population requirements to primary shopping establishments, but, because of the cost of the items sold and the infrequency of purchase, customers are willing to travel greater distances to compare price and quality. In response to the wide range of items sold and the varied physical and transportation requirements involved, these establishments are rarely suited to planned shopping centers (except for household furnishings such as furniture and appliances) and seek locations accessible to a large population because they have a relatively low patron frequency. Intersections of primary streets, or near these intersections along a major arterial, meet their access needs. Their location should be near developments with similar physical characteristics, suitably separated from residential areas. Because of wide variety in their

*Urban Land Institute.

development, extensive storage and display needs, and need to associate with other business, wholesale, and distribution activities, these establishments cannot be organized into independent functional shopping centers. The general space requirements for secondary shopping needs is one acre per 1,000 families.

Regional Service

Regional services provide repair and consumer services to residential areas and to other business establishments; their characteristics often appear to be industrial in nature. As family purchasing power increases, the importance of this segment of the economy grows. The regional service sub-group includes service contractors (plumbing, heating, air conditioning, electrical, housing repairs, and maintenance), laundries and dry-cleaning plants, frozen food storage and custom food processing, major household and commercial appliance repair, and major automobile and truck overhaul or body repair. Many of these activities are compatible with business activities of a less intense nature, and are often accessory to retail sales activity, such as a service department of an appliance store.

Because these establishments have low patronage and often a large site requirement, they generally seek independent locations with low land costs and good accessibility. They should be separated from residential areas by physical barriers and by a proper orientation and spacing of structures and storage yards. Appropriate locations are along a major arterial or near the intersection of arterial streets. Usually these establishments are compatible with other service establishments, some secondary shopping establishments, and with distributive industries. When locating these establishments, it is important to prevent detrimental

affects on adjacent land and to ensure proper access to the street system. One acre per 2,500 families is the estimated space need for these establishments, but this may increase in the future if the growth trend in this segment of the economy continues.

Special Business Group

Special business establishments require special locational considerations because of their unique functions and characteristics. This group includes special recreation facilities, administrative offices, travel services, and traffic-dependent businesses.

Special Recreation Facilities

Special recreation facilities, including recreation clubs, drive-in movies, golf driving ranges and sports stadium, are large land users and have unique topography, location, and development requirements. The location of these establishments is primarily dependent upon finding sites of adequate size with good accessibility. Each establishment in this group is unique, but the common and major factors of concern in their development are the affect each has on the street system and the land use pattern (possible detrimental affect on adjacent land). Because these establishments generally serve a large population and locate independently of other business establishments and residential areas, their locations cannot be predetermined except in terms of possible or acceptable development areas. Some generalizations of their frequency and space demand are shown in Table 23.

Administrative Offices

The administrative office group includes all business management activities ranging from the small business office directly associated with an industrial or service establishment to the large central office complex required to administer a national or international concern. Administrative offices generally seek urban locations where communication is easier, but needs vary; suburban and rural locations are sometimes sought to avoid concentrations of people and traffic. Although customer patronage is usually low, administrative offices often seek locations having easy access from inter-regional traffic and with a high degree of visibility from significant traffic routes. These activities are typified by quiet operations and are frequently developed in a prestigious manner. Location and space requirements are a function of regional development and cannot be readily determined on a local basis, but it is important to locate these establishments so they do not interfere with the logical arrangement and growth of other land uses. Administrative offices can be an effective and desirable separator between incompatible uses.

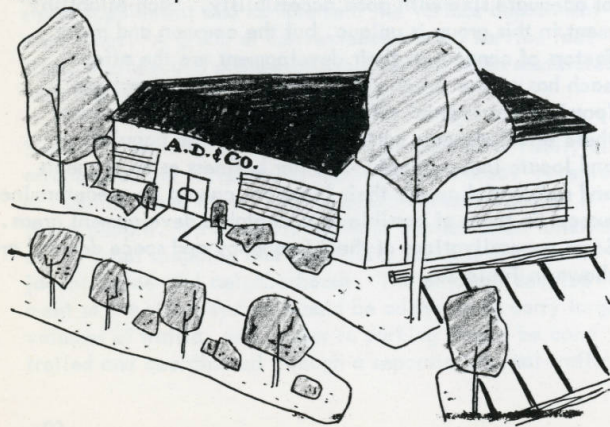


TABLE 23 FREQUENCY AND SPACE NEED FOR SPECIAL RECREATION FACILITIES

Facility	Frequency Population (families)	Space Needs (acres)	Desirable Access from Street	Traffic Characteristics
Sports Club	20,000	10-50	Minor Arterial	Low traffic load with few peak times
Drive-in Theater	12,000	10-15	Minor Arterial Major Arterial	High traffic load with peak periods
Major Sports Stadium	50,000	25-50	Major Arterial	Very high traffic load with peak periods
Amusement Park	70,000-100,000	50-100	Major Arterial	Very high continuing traffic load

* Access from two primary streets desirable.

** May require special traffic handling.

*** Requires special traffic facilities and handling.

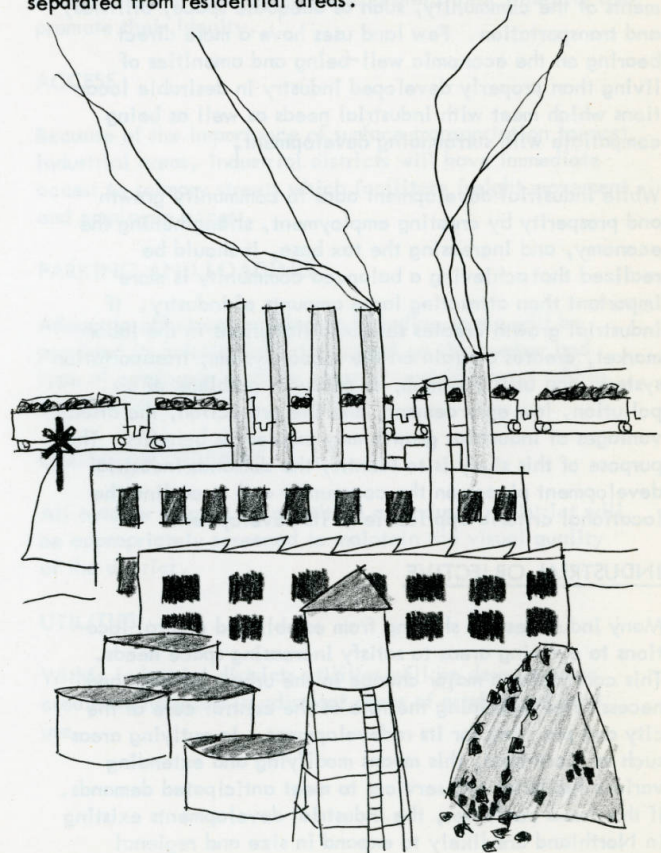
Travel Services

Travel service areas, including motels, highway-oriented service stations, and restaurants, serve business and industrial areas as well as the traveling public. These establishments should be accessible to inter-regional traffic, but they need not have direct roadway access as long as their location is easily identifiable. While many patrons pass through the region and stop only overnight, these establishments also serve as the residence of people visiting the area on business. Their space requirements relate to the needs of the entire metropolitan area. The space requirement for a specific location is dependent on the amount and type of transient traffic and the needs and extensiveness of nearby business and industrial areas. A site of five or more acres is required to provide a full range of travel services and facilities. Two important factors in developing travel service areas are: (1) maintaining a functional street system through access control, and (2) preventing detrimental affects on or by adjacent land uses.

Traffic Dependent

Traffic dependent businesses serve the whim and fancy of the motoring public. Typical of this group are such "impulse" establishments as "hot dog" stands, roadside fruit stands, ice cream stands, and novelty or curio stands. Because of their dependence on high traffic volumes, they generally locate on the edge of a group of retail establishments or near recreation facilities. They require direct access to the street and a high degree of visibility. Because they are unique and generally incompatible with other land uses, they are not good neighbors to residential areas or to certain commercial areas. Their frequency and space needs are too diverse to project.

Possibly the most unobtrusive locations for traffic dependent businesses are along major streets developed at low density and adjacent to extensive business or recreation areas. Traffic dependent business establishments should be separated from residential areas.



Industry is vital to regional growth and development. It provides employment, brings money into the community, and helps pay for schools, roads, and other public facilities and services. Industry also makes certain requirements of the community, such as adequate space, utilities, and transportation. Few land uses have a more direct bearing on the economic well-being and amenities of living than properly developed industry in desirable locations which meet with industrial needs as well as being compatible with surrounding development.

While industrial development adds to community growth and prosperity by creating employment, strengthening the economy, and increasing the tax base, it should be realized that achieving a balanced community is more important than attracting large amounts of industry. If industrial growth creates serious dislocations in the labor market, creates a strain on the school system, transportation system, and utility system, or produces problems of air pollution, law enforcement, and fire protection, the disadvantages of industrial growth may exceed its benefits. The purpose of this study is to identify the demands industrial development places on the community and to outline the locational criteria applicable to its development.

INDUSTRIAL OBJECTIVE

Many industries are shifting from established central locations to outlying areas to satisfy increasing space needs. This constitutes a major change in the urban pattern, and necessitates redefining the role of the central core of the city and planning for its redevelopment. In outlying areas such as Northland, this means modifying and extending various facilities and services to meet anticipated demands. If this trend continues, the industrial developments existing in Northland are likely to expand in size and regional importance. The objective of this study is to identify the

areas within Northland, physically suited to industrial development, so that services and facilities, if needed, can be provided without creating adverse affects on the economy and other land uses.

INDUSTRIAL POLICIES

Industrial development takes place on a regional basis and requires regional analysis beyond the scope of this report. The development policies outlined below are highly generalized, but will serve as a guide if the industrial development anticipated in the Region (Chapter II) materializes proportionately in the Northland Area.

- Planned industrial areas having adequate space for industrial expansion should be encouraged.
- The location of industrial areas should not disrupt the physical development, or interfere with the proper functioning of other land use areas.
- The physical development of industrial areas should recognize the need for compatibility among the industrial establishments involved.
- Industrial traffic should not interfere with the functioning of other land use areas.
- The industrial activities and related services provided in an industrial area should perform functions necessary and desirable in the overall operation of the industrial area.
- The development of an industrial area should adequately provide for internal traffic, utilities, and other operational needs, and each industrial

establishment within the area should fully provide for its individual needs (employee parking, loading, storage).

- Nuisance factors (noise, smoke, dust, odor and glare) should be controlled and not permitted to exceed the normal level emitting from other developments in the vicinity or from traffic along adjacent streets.
- Industrial areas should be located relative to a high level of transportation and utility service.

INDUSTRIAL STANDARDS

The following standards are based on the recommended policy to encourage planned industrial areas. Because of the diverse nature of industry, and because industrial development hinges on regional factors, specific industrial standards are beyond the scope of this report. The standards below relate to the development of industrial areas generally.

AREA SIZE

The size of an industrial area will be large enough to promote identity and ensure that appropriate site development, anticipated expansion, and supplementary facilities can be accommodated. Although area requirements are not common among industrial districts, a 50 acre minimum seems necessary to achieve the objectives outlined.

BOUNDARIES

As with other major land use areas, industrial districts will be bounded by significant physical features such as primary streets, streams, and railroads to protect their integrity and promote their identity.

ACCESS

Because of the importance of surface transportation to most industrial areas, industrial districts will have immediate access to primary streets which facilitate freight movement and employee access.

PARKING AND LOADING

Adequate off-street parking and loading space will be provided in industrial districts based on the number and type of employees or floor areas of establishments within the district.

OUTDOOR STORAGE

All outdoor storage space within an industrial district will be appropriately screened to maintain the visual quality of the district.

UTILITIES

Within industrial districts utilities will be developed to create no hardship in adjacent areas of established land use.

NUISANCE CONTROL

Nuisances, such as noise, smoke, dust, odor, and glare, will be completely controlled within the district and will create no appreciable adverse affect on adjacent streets and in surrounding land use areas.

INDUSTRIAL RECOMMENDATIONS

Based on industrial location criteria (page 77) and on analysis of physical and man-made factors in the area (pages 21-28), two large areas shown on Plate 14 are recommended for industrial use. The large area located in the extreme northwest corner totals about 1,000 acres. Although this acreage far exceeds industrial land use needs anticipated in the foreseeable future, it is designated for long-range industrial development because it possesses the following set of desirable factors:

- Suitable physical characteristics.
- Physical identity (it would not interfere with the development or functioning of other land uses areas).
- Available major surface transportation facilities.
- Strategic location in the Region.
- Available utilities.
- Adequate space for future industrial development and expansion.
- Established industrial character.

The advisability of maintaining this amount of industrial space at this location, in advance of an established need, must await the regional industrial analysis contemplated in the "Blue Plan". Agricultural, extraction, and other interim land uses should be encouraged in this area until its ultimate land use character can be definitely established.

The smaller industrial area shown north of Morse Road along the western edge of the Area is primarily a center for distribution and service industries and is likely to continue as such. The area shown is generalized to coincide with significant physical boundaries taking into account limited expansion needs.

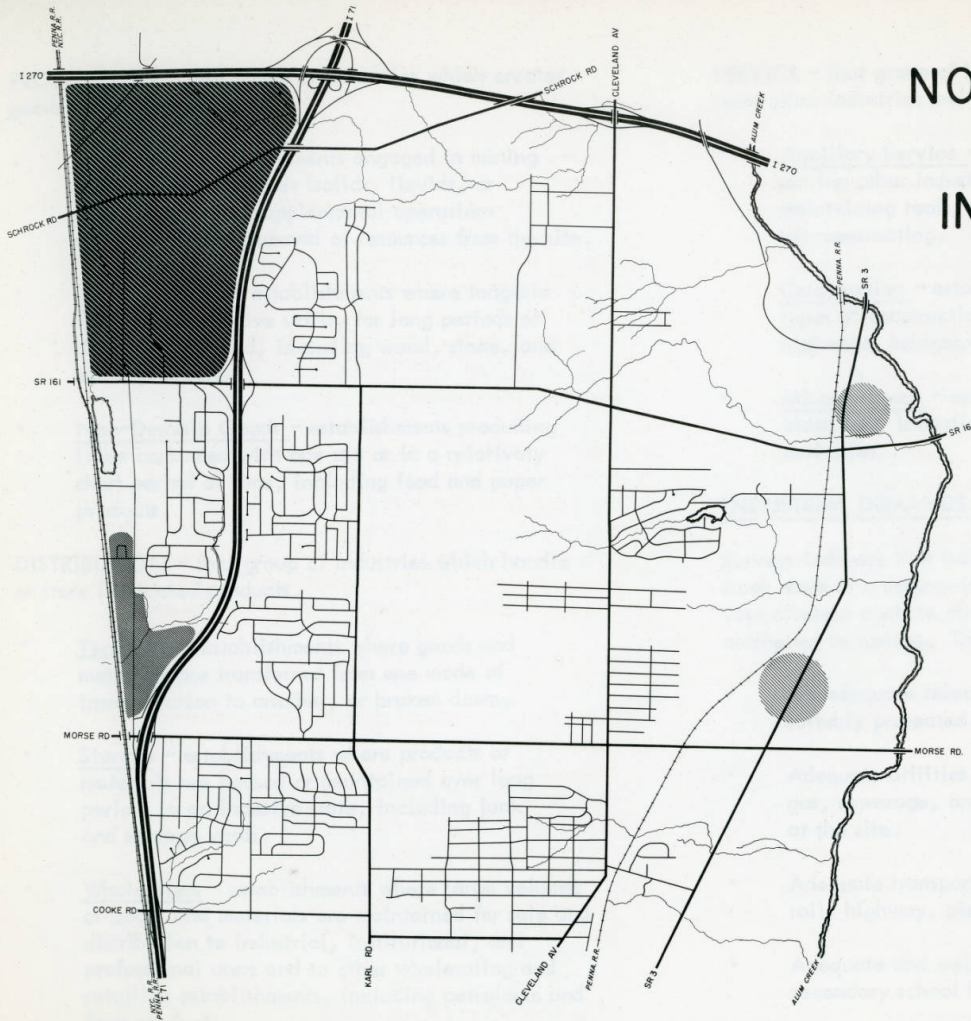
Isolated locations, between the Pennsylvania Railroad track and State Route 3, are appropriate for developing small industrial areas or independent industrial establishments*. It is anticipated these will be service industries. To guide this development, standards in the Commercial Study (Regional Service establishments, page 69) and the locational criteria on page 77 should be followed.

INDUSTRIAL CLASSIFICATION

Many industrial classifications have been developed to explain industrial patterns. One of the most widely used classifications groups industries as "light" and "heavy" according to the product produced or service rendered. This classification is most unfair because it fails to recognize changes in technology and individual industrial characteristics. The classification system recommended is based on functional industrial characteristics. In a later section locational criteria will be discussed.

*The Alum Creek flood plain may be used for extractive industrial use (Chapter II).




NORTHLAND AREA INDUSTRIAL PATTERN



PREPARED BY
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LEGEND

-  PRODUCTION
-  DISTRIBUTION
-  SERVICE

NOTE:
THE CLASSIFICATION OF THE INDUSTRIAL AREAS DENOTES ONLY THE DOMINANT TYPE OF ACTIVITY ANTICIPATED.

- Opportunities for adult education and employee training, including the availability of libraries, trade schools, evening colleges, and university extension courses.
- Adequate public recreation facilities and programs close at hand, including parks, playgrounds, swimming pools, golf courses, and other facilities.
- Convenient health facilities offering effective health programs, including hospitals and clinics.
- Efficient and effective governmental services including police and fire protection.
- Adequate and available housing.
- An equitable and stable tax system including evidence of fiscal soundness.
- Favorable living standards including community appearance, cultural facilities, and community attitudes.

This checklist indicates that the demands of industry and the requirements for a balanced community are basically the same. When these demands are not met, industry and the community suffer alike--industry from a lack of needed facilities; the community from over-burdened facilities. Because industrial development is vital to the Regional economy, the demands industry places on the community should be anticipated and met.

INDUSTRIAL GROUPING

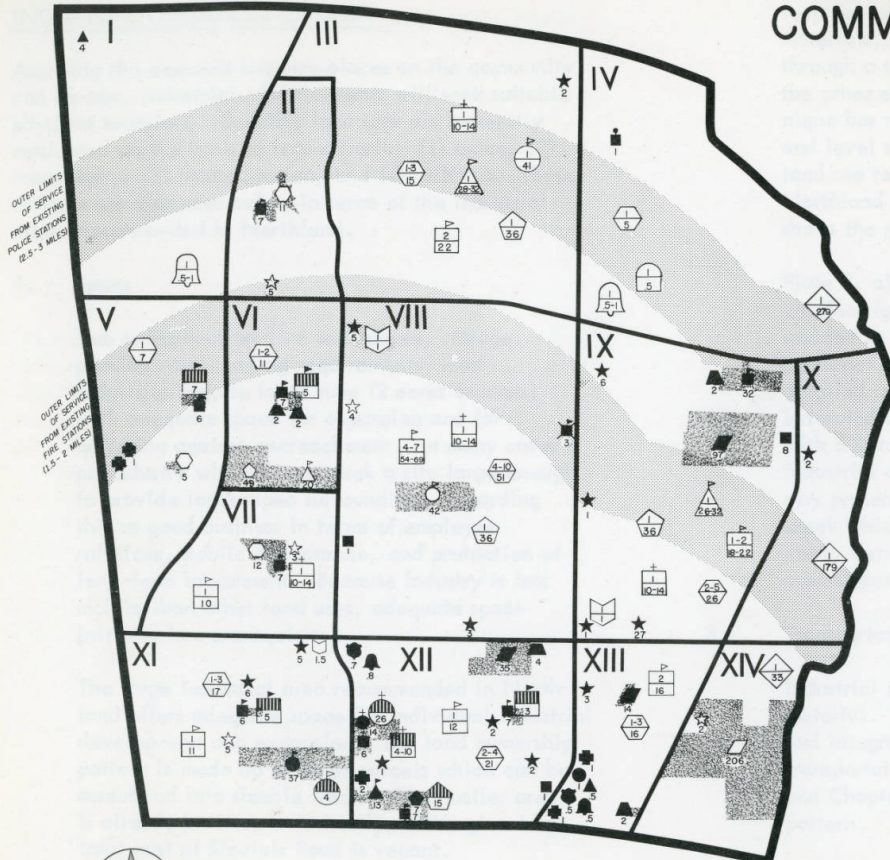
Establishing industrial areas solely by product or economic function is unrealistic. Many types of industrial activity are not only compatible, but find it desirable and necessary to be in close physical proximity. By grouping, industries are able to achieve the physical integrity, communication, and economic linkage they require, and are better able to protect themselves from incompatible activities that would be detrimental to their operation. Mutually disadvantageous results occur when residential and unrelated commercial activities* intrude into industrial areas. Industry needs protection no less than any other land use; industrial establishments have tended to group together to achieve this protection. To build on this tendency, organized or planned industrial development is recommended in the Northland Area. The U. S. Department of Commerce, Office of Technical Services' definition is:

An 'organized' or 'planned' industrial district is a tract of land which is subdivided and developed according to a comprehensive plan for the use of a community of industries, with streets, rail lead tracks, and utilities installed before sites are sold to prospective occupants.

As with other land uses, orderly industrial development produces a more aesthetic and efficient land use pattern, and encourages a more efficient and economic utilization of facilities. An industry selecting a site in a planned industrial district is assured that needed facilities will be available when its plant is built and that neighborhood antagonism will not be present. The industry is protected by tailored zoning controls, building regulations and architectural controls. Both industry and the community benefit.

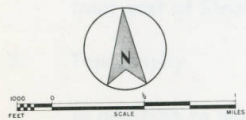
*Some commercial uses are advantageously located in industrial areas.

NORTHLAND AREA COMMUNITY FACILITIES PATTERN



OUTER LIMITS
OF SERVICE
FROM EXISTING
POLICE STATIONS
(0.5-3 MILES)

OUTER LIMITS
OF SERVICE
FROM EXISTING
FIRE STATIONS
(1.5-2 MILES)



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ESTABLISHED OPEN SPACE
EXISTING FACILITY TO
BE ABANDONED
PROPOSED NUMBER
OF FACILITIES
PROPOSED ACRES

LEGEND

	EXIST FACIL. (ACREAGE)	EXIST SITE (ACREAGE)	ADDIT ACREAGE	PROP FACILITY (SITE UNDETERM)
POLICE STATIONS	12	0	0	0
FIRE STATIONS	13	0	0	1-2
HEALTH SERVICE	0	0	0	0
POST OFFICES	0	1.5	0	1-5
LIBRARIES	0	1.5	0	2
PUBLIC SCHOOLS				
ELEMENTARY	82	0	20	12-14 43-82
JR. HIGH	13	20	0	8-13 8-13
SR. HIGH	37	42	5	41
PAROCHIAL SCHLS.				
ELEMENTARY	0	0	4-15	4
SECONDARY	14	0	25	0
PRIVATE SCHOOLS	1	0	0	0
PUBLIC RECREATION				
LOCAL	0	28	0	14-21 169
COMMUNITY	7	48	15	3
REGIONAL	0	0	0	291
QUASI-PUBLIC REC.	372	0	0	0
COMMERCIAL REC.	12	0	0	0
SOCIAL & CULTURAL				
RELIGIOUS	65	19	0	0
OTHER	1	0	0	0
UTILITIES	10	0	5	0
GOVT. SERVICE	4.5	0	0	0

the eastern boundary of both areas. The Outerbelt, State Route 161, Morse Road, and other arterials complete the roadway network.

The possibility of a secondary airport serving the Northland Area was suggested in Chapter II. Although the need for such a facility cannot be established without a comprehensive regional airport study, a secondary airport facility could be located advantageously in the large industrial area. The characteristics of a secondary airport facility are compatible with those of industry and would enhance the industrial potential of the Area.

4. Utilities

Industry tends to locate where adequate utility services are available. Industrial processes depend on varying quantities of natural gas and electrical power. Although needs must be determined on an individual basis, essential adequate service must be assured. Water and sewerage requirements must also be identified and met.

The smaller industrial area north of Morse Road, is well served by utilities. This area is established and partially developed. The large industrial area in the northwest corner is not fully served by utilities at this time; however, utility services are available as shown on Plate 6 (Chapter II). As stated on page 27, a 20 inch high-pressure natural gas transmission line and a high-tension electrical transmission line pass through Northland. Adequate sewer and water facilities can be provided to meet anticipated needs.

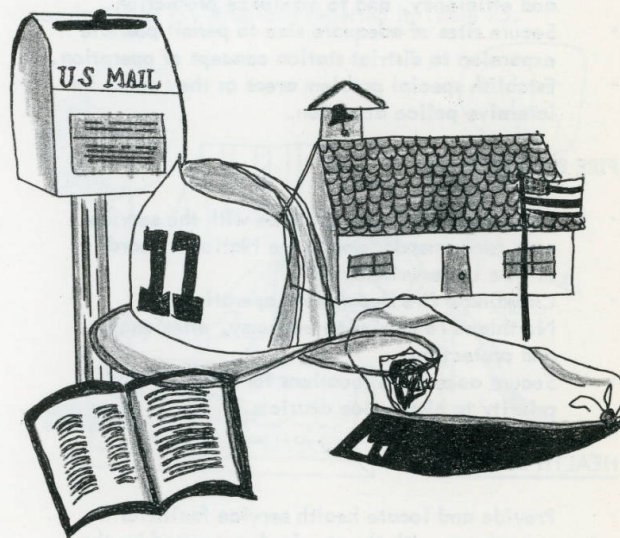
Community facility needs are related to people - where they live, the density at which they live, their means of transportation, and the levels of service they want and for which they are willing to pay. Community facility needs can be identified, but the means of fulfilling these needs require coordination and cooperation among the many agencies and governments charged with providing the services. Eleven separate political entities have a responsibility in the Northland Area.

COMMUNITY FACILITY OBJECTIVE

The objective of this study is to provide a guide to community facility development in the Northland Area, which encourages an adequate, convenient, and efficient distribution of facilities, and balances projected Area service needs and projected Area population. In keeping with this objective, the study includes an inventory of existing facilities (Plate 15), identifies community facility standards (where they exist), and indicates anticipated community facility needs in the Area. The following is a brief summary of the major community facility policies, recommendations, standards, and needs discussed in the text. Plate 15 provides a graphic summary of the Northland Area community facility pattern.

CHAPTER IV

the COMMUNITY FACILITIES



COMMUNITY FACILITY POLICIES

The following policies are incorporated in this study as a basis for the recommendations and standards set forth in the following sections. They are based on policies employed by the various operating agencies concerned, and are recommended as guides to continued operation in the Northland Area.

POLICE PROTECTION

- Coordinate all police department operations in the Northland Area to achieve economy and efficiency, and to maximize protection.
- Secure sites of adequate size to permit possible expansion to district station concept of operation.
- Establish special problem areas as they arise for intensive police attention.

FIRE PROTECTION

- Locate stations in accordance with the service area recommendations of the National Board of Fire Underwriters.
- Coordinate fire department operations in Northland to maximize economy, efficiency, and protection.
- Secure accessible locations for stations, giving priority to high value districts.

HEALTH SERVICES

- Provide and locate health service facilities in accordance with the standards suggested by the Columbus Hospital Federation.

SANITATION

- Identify sanitation facility space needs in the Area.
- Choose locations which are compatible with adjacent areas of land use.

LIBRARIES

- Promote library locations highly accessible to residential areas.
- Secure sites for future library facilities.

PUBLIC SCHOOLS

- Promote school-park combinations.
- Orient school plant size to the anticipated school population to be served.
- Provide sidewalks in urban density areas to promote safety of travel to and from school.
- Maintain neighborhood school concept.

PAROCHIAL SCHOOLS

- Provide adequate sites where church or other church-related facility is associated with a parochial school.
- Achieve adequate physical standards equivalent to public school facilities.

PRIVATE SCHOOLS

- Achieve adequate physical standards equivalent to public school facilities.



PUBLIC RECREATION

- Provide enough space at all levels of recreation to meet projected Area population needs based on recommended standards.
- Secure flood plain areas for recreational use.
- Encourage school-park combinations at the local and community recreation levels.
- Ensure adequate user accessibility to all public recreation areas.
- Secure historic and scenic areas for public recreation use.

QUASI-PUBLIC RECREATION

- Promote quasi-public recreation facilities as a means of supplementing public recreation facilities.

SOCIAL AND CULTURAL INSTITUTIONS

- Promote compatible and accessible locations for social and cultural facilities.
- Ensure appropriate performance criteria are established and met.

UTILITIES

- Identify utility space needs in the Area.
- Choose locations which are compatible with adjacent areas of land use.

COMMUNITY FACILITY STANDARDS

Table 24 provides a summary of community facility standards recommended for the Northland Area, by type of facility, space need, service area, and locational criteria. For the most part, the standards listed are being used by the local public and private agencies charged with providing the services involved. Where no precise standards were available, or the nature of the particular facility was such that no standards could be computed, an asterisk appears in the table. Based on this table and the proposed density pattern recommended in the Residence section of the Land Use Chapter, community facility needs were computed for the projected population of the Area and reported in Table 25.

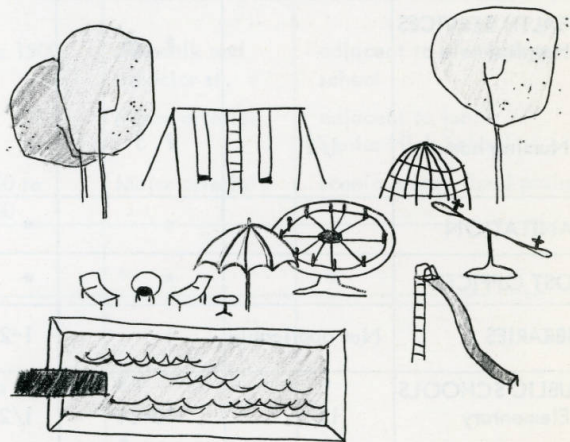


TABLE 24

RECOMMENDED COMMUNITY FACILITY STANDARDS FOR THE NORTHLAND AREA

Type of Facility	SPACE NEEDS		SERVICE AREA		LOCATIONAL CRITERIA	
	Acres per 1,000 families	Typical size of facility(acres)	Radius (Miles)	Number of families	Access	Possible Location
POLICE STATIONS	Not applicable	1/2-1	2 1/2-3	50,000 to 70,000	Major or minor arterial	Intersection of primary streets
FIRE STATIONS Residential	Not applicable	1/2-1	1 1/2-2	18,000 to 32,000	Near major or minor arterial	Wherever greatest accessibility can be obtained
High Value districts	Not applicable	1/2-1	3/4-1	Not Applicable		
HEALTH SERVICES Hospital		# 25	r	30,000	Major Arterial	Wherever greatest degree of accessibility can be obtained
Nursing home	1/2	# 5	r	14,000	Major or Minor arterial	Near hospital or commercial concentration
SANITATION	*	*	*	*	*	*
POST OFFICES	*	*	*	*	*	*
LIBRARIES	Not applicable	1	1-2	8,000 to 32,000	Major Arterial	Shopping centers
PUBLIC SCHOOLS Elementary	11	10-14	1/2	750 to 1,500	sidewalk and collector st.	Center of Urban Residential Planning Unit
Elem. -Park	14	13-17	1/2	750 to 1,500	sidewalk and collector st.	Center of Urban Residential Planning Unit
Jr. High	5	28-32	1-1 1/2	5,000 to 8,000	Minor arterial	Adjacent to Comm. Park
Sr. High	5	39-45	1-2	6,000 to 10,000	Minor arterial	Adjacent to Comm. Park

TABLE 24 cont'd

Type of Facility	SPACE NEEDS		SERVICE AREA		LOCATIONAL CRITERIA	
	Acres per 1,000 families	Typical size of facility(acres)	Radius (Miles)	Number of families	Access	Possible Location
PAROCHIAL SCHOOLS						
Elementary	*	10+100 pupils	varies	varies	collector or minor arterial	*
Secondary	*	30+1/100 pupils	varies	varies	Major arterial	*
PRIVATE SCHOOLS	*	*	*	*	Major arterial	*
PUBLIC RECREATION						
Local	9	5-7	1/4-1/2	750 to 1500	sidewalk and collector st.	adjacent to elementary school
Community	8	2-20	1-2	8000	Minor arterial	adjacent to junior Senior High School
Regional	55	50-500	2-3	40,000 to 60,000	Major arterial	scenic areas, flood plains
QUASI-PUBLIC Recreation	*	*	*	*	*	*
SOCIAL AND CULT. INST:						
Religious	*	3-10	Not Applicable	415 to 8,000	*	*
Other	*	*	*	*	*	*
UTILITIES	*	*	r	r	*	*
OTHER GOV'T SERVICES	*	*	r	r	*	*

* No precise standards available

r Regional facility. Area of service may extend beyond Northland Area boundaries

If warranted by further study.

TABLE 25 NUMBER AND ACREAGE OF COMMUNITY FACILITIES RECOMMENDED IN THE NORTHLAND AREA

Type of Facility	Number of Facilities Needed	Needed Acreage
Police Stations	3-4	11/2-4
Fire Stations	4	2-4
Health Services		
Hospitals	1*	25 +
Nursing Homes	2*	*
Sanitation	*	*
Post Offices	*	*
Libraries	2-4	2-4
Public Schools		
Elementary	13-23	224-249
Jr. High	4	114
Sr. High	3	124
Parochial Schools		
Elementary	*	*
Senior High	*	*
Private Schools	*	*
Public Recreation		
Local	27-33	201
Community	5	179
Regional	Not applicable	1,230
Quasi-Public Recreation	*	*
Soc & Cult Institutions		
Religious	18-53	100-275
Others	*	*
Utilities	*	*
Other Gov't Services	*	*

*Actual need could not be projected, although consideration should be given for the possible location of these facilities within the Area.

COMMUNITY FACILITY RECOMMENDATIONS

Action-oriented community facility policies are the product of several operating agencies and governments. The following recommendations are meant to assist these agencies and governments in accomplishing their goals.

- One or two additional police stations are recommended to provide adequate police protection in the Northland Area.
- Two additional fire stations are recommended to adequately serve the Northland Area.
- A 150 to 200-bed satellite hospital and two or more 150-bed nursing homes are needed to serve the Northland Area.
- A detailed study of Northland Area sanitation needs is recommended.
- A U. S. Post Office is recommended within the Northland Area.
- One to three additional branch libraries are recommended to adequately serve the Northland Area.
- A total of between 18 and 23 schools (224-249 acres) are recommended to adequately serve the elementary school population of the Northland Area.
- The Minerva Elementary School on Cleveland Avenue adjacent to Minerva Park should be abandoned and the other existing elementaries should add 20 acres among them to meet the space demands of the projected population.
- An undeveloped tract of land east of Clinton Junior High School, the North Linden Recreation Center, and the North Linden Elementary School should be purchased by the Columbus School Board to secure adequate acreage for the Junior High.

- Two new junior high school sites are recommended: one in data gathering unit III, the other in data gathering unit IX. Brookhaven High School is below minimum site standards and should be upgraded.
- The parochial elementary and secondary school site, located south of Morse Road on Karl Road, is inadequate by public school standards and should be upgraded.
- An additional 172 acres of local level recreation space, 120 acres of community level recreation space, and a total of 1,230 acres* of regional level public recreation space is recommended to adequately serve the Northland Area.

POLICE PROTECTION

The Federal Bureau of Investigation annually reports the average level of police protection for cities of various sizes based on the number of police employees (including staff) per 1,000 population. It no longer suggests standards since each city is unique in crime rate and allied problems and needs to evolve individual standards of service.

Presently, Columbus has no established standards and is considerably below the national average level of police protection reported by the F.B.I. for cities over 250,000. In 1963, compared to the National average of 2.7, Columbus had 1.37 employees per 1,000 people.

Remembering that each city's requirements are unique, police protection in Columbus is compared with two other major Ohio cities in Table 26.

*This includes city parks, golf courses and metropolitan parks. (See Regional-Level Public Recreation, page 95).

TABLE 26 NUMBER OF POLICE OFFICERS IN COLUMBUS COMPARED TO TWO OTHER MAJOR OHIO CITIES

<u>City</u>	<u>Police Officers* per 1,000 pop.</u>	<u>Police Officers* per square mile</u>
Columbus	1.13	5.96
Cincinnati	1.76	11.53
Cleveland	2.22	25.70

*does not include staff.

The Columbus Police Department operates from one central police station and six unstaffed substations. It has remained centralized because there are currently no major problem areas in outlying sections of the City. As the City grows, there will likely be a need to decentralize police operations and to establish district stations. Staffed district stations duplicate the files and services provided by the central office, but are likely to be essential to assure adequate service to all parts of the city in the future.

Standards used elsewhere for the location of police stations indicate that at urban densities, stations should serve an area having a radius of 2 1/2 to 3 miles, containing 50,000-70,000 families. To accommodate possible expansion from substation to district station, sites should be between 1/2 to 1 acre, located near the intersection of primary streets, readily accessible to all parts of the precinct, and centrally located according to future growth trends and the probable police work-load in the area.

Of the political entities in the Northland Area many provide some police protection ranging from a local constable or marshal to a full police department. As the Northland Area matures, police protection should be coordinated to maximize economy and efficiency.

Two police facilities now exist in the Area. A Columbus Police Substation is located at Karl and Morse Road; the Clinton Township Police Department is on Cleveland Avenue, south of Ferris Road. Based on a service radius of 2 1/2 to 3 miles, these stations, if their operations are coordinated, provide adequate police protection to most of the Northland Area (see Plate 17). One or two additional stations are needed (not necessarily within Northland) to fully protect the Area, especially to the north. Since their service radius would extend beyond the boundaries of the Northland Area, locations for additional police stations should be determined by specific and detailed study.

FIRE PROTECTION

The National Board of Fire Underwriters (NBFU) periodically reviews the level of fire protection offered by communities throughout the United States. Communities are rated on a scale of service from Class 1 (superior) to Class 10 (no fire protection). Quality of fire protection is reflected in insurance rates - which demonstrates an economic advantage for maintaining a high scale of service.

The NBFU recommends standards for the location and spacing of fire stations. At urban density, stations should be located so that no home is more than 2 1/2 miles distant. This gives a service area of roughly 1 1/2 to 2 miles in radius and containing 18,000-32,000 families. In high-value districts (typically major commercial or industrial areas), stations should be spaced at a 3/4 to 1 mile radius. These stations should be located on 1/2 to 1 acre of land to allow the greatest degree of flexibility in operation. Usually the best location is off, but near primary streets, to allow time for traffic to stop before fire engines reach the primary street. This advantageous to locate on a corner lot with access to two lesser streets, providing more flexibility.

Like police protection, fire protection is provided by several separate political entities in the Northland Area. To prevent costly duplication and provide better service to the residents of the Northland Area, fire protection should be coordinated. If coordinated action is taken, the two existing fire stations could adequately serve the southern portion of the Northland Area (Plate 15). Two additional stations are necessary to serve all of the Northland Area, one possibly located near State Route 161 and Cleveland Avenue, and another at Route 161 and Interstate 71.

HEALTH SERVICES

Hospitals and nursing homes (doctors' offices are considered under commercial professional offices) are essential to a balanced community. The Columbus Hospital Federation suggests standards for the development of these facilities.

One 150 to 200 bed hospital serves approximately 30,000 families, or at urban density, the population within about 20 minutes driving time. A standard of one acre per 1,000 families has been established by the Federation for hospital facilities. A minimum site of 25 acres is needed to accommodate a hospital of this size, to permit future expansion, and to provide adequate space for parking, other subordinate uses and facilities. A 150 to 200 bed facility is most economically operated as a satellite of a larger hospital. Satellite hospitals should be readily accessible both to the parent hospital and to the population served. They should be located near freeways on a major arterial.

The combination of projected population in the Northland and Westerville Areas*, the absence of any existing hospital facilities in these areas, and the presence of a good

*Comprehensive Master Plan for Westerville, Ohio and Environs, Ladislav Segoe & Associates, 1962, Plate 1 (Population Growth Projections 1960-1980).

transportation network, point toward the desirability of a satellite hospital serving the Northland and Westerville Areas. A possible location is in the vicinity of the Outerbelt-State Route 3 interchange.

Around 14,000 families are served by one 150 bed nursing home. These facilities require a minimum five acre site, a standard of 1/2 acre per 1,000 families being typical for nursing homes. Nursing homes should be located on a minor or major arterial street and either near a hospital, a major commercial concentration, or a suburban area where services and utilities are available.

The Northland Area population will support at least two nursing homes, but these need not be located within the Northland Area. Detailed study is needed to determine the desirable location for each facility.

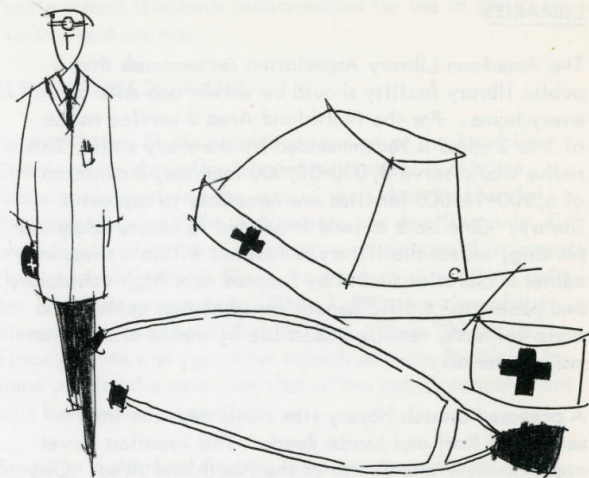
SANITATION

In this content, sanitation refers to physical facilities such as disposal and filtration plants. At this time, no sanitation facilities exist in the Northland Area. If continued urbanization requires a plant location there, it should be compatibly related to the overall land pattern, taking all natural features into account.

POST OFFICES

The U. S. Post Office Department employs the following guides rather than set standards for locating post office buildings:

- Postal substations are generally no closer than one mile.
- Location of a post office is based primarily on the travel time of the carrier (he may walk or ride).



Other influences are density and housing types, circulation patterns and barriers.

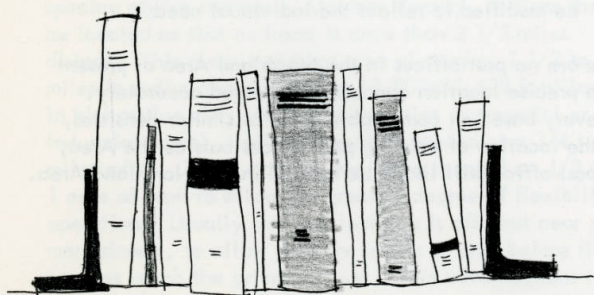
- Parking, mail handling, loading space, and other characteristics should be considered for each post office individually.
- A 1/2 acre site is generally adequate, but may be modified to reflect the individual needs.

There are no post offices in the Northland Area at present and a precise location cannot be projected accurately. However, based on comparable areas at similar densities, and the location of existing post offices outside the Area, one post office will likely be needed in the Northland Area.

LIBRARIES

The American Library Association recommends that a public library facility should be within one mile of every home. For the Northland Area a service radius of 1 to 2 miles is recommended by the study staff. This radius would serve 8,000-32,000 families; a minimum of 6,900-14,000 families are necessary to support a library. One acre of land is needed to ensure adequate parking, unless the library is located within a shopping center. Libraries should be located near high vehicular, and pedestrian traffic generators (shopping centers and civic centers), readily accessible by means of minor or major arterials.

A proposed branch library site exists near the intersection of Karl and Morse Roads. This location serves approximately one-fourth of the Northland Area. One to three additional branch libraries, depending on their locations and library facilities adjacent to the Area, will be needed. Possible locations are near: (1) Karl Road and State Route 161 and (2) Morse Road and Cleveland Avenue.



PUBLIC SCHOOLS

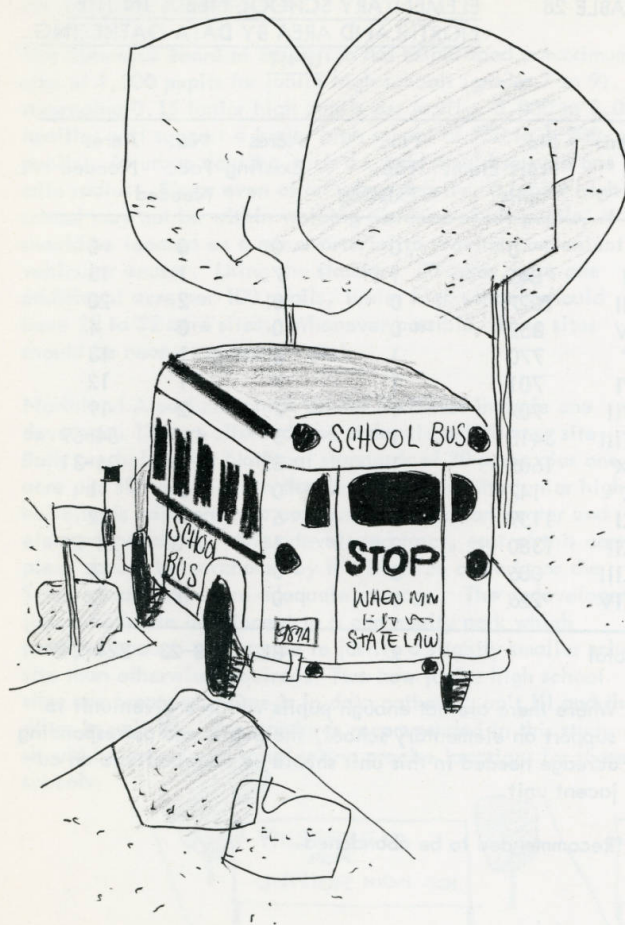
Three public school districts operate within the Northland Area: Columbus, Westerville, and Worthington. Because Columbus is the largest system, their standards are used for this study.

The Columbus Board of Education and the Columbus Division of Parks own several adjacent tracts of land, thus providing larger school sites and less costly recreational facilities. This highly desirable situation should be encouraged in the future, whenever possible. The School Board has an established policy, allowing school buildings and play areas to be used for other community purposes when they are not scheduled for school functions. This also fosters economy and efficiency.

Table 27 compares national and local school standards, indicating that Columbus standards are below national standards.

TABLE 27 COMPARISON OF LOCAL AND NATIONAL SCHOOL STANDARDS

Type of School	Standards used by the Columbus Board of Educ. (Acres)	National Council on School House Const. (Acres) Minimum Standards
Elementary	7	5 plus 1 per 100 pupils
Jr. High School	12-15	20 plus 1 per 100 pupils
Sr. High School	25-35	30 plus 1 per 100 pupils



Public school standards recommended for use in the Northland Area are:

ELEMENTARY SCHOOLS

As established in the residence section of the Land Use Chapter, the size of an elementary school is a prime factor in determining the size of the Urban Residential Planning Unit. Of the 3.6 persons per dwelling unit, 0.6 are considered to be of elementary school age (kindergarten through sixth grade). Since the number of dwelling units per URP Unit ranges from 750 to 1,500, the size of the elementary school could range from 450 to 900 pupils. Since private and parochial schools provide facilities for some pupils, the maximum size of the public school plant will be lowered accordingly.

Based on a standard five acres, plus one additional acre per 100 pupils, elementary schools should be located on 10 to 14 acre sites. Where possible these sites should be located adjacent to local playground-parks in urban density areas (page 46). A desirable standard for the elementary school-playground-park combination is 8 acres, plus one additional acre per 100 pupils.

At urban density, the school should be centrally located to serve children within a half-mile radius in safety. This requires an adequate sidewalk and collector street system. At suburban and rural density (page 51,52), where walking distance is not a criterion, elementary school sites should be centrally located to the whole school population served. Since most pupils will ride buses to these schools, emphasis should be placed on the relationship of the school to the street system to ensure safety and convenience.

Of the three school systems in Northland, Columbus and Westerville have actual school facilities within the Area. Worthington serves the Area, but has no facilities within it. Including both the Columbus and Westerville systems, there are nine elementary schools in the Area, totaling 82 acres. Table 25 indicates that between 18 and 23 schools (224 to 249 acres) will be needed to serve the projected elementary school population. Table 28 gives a more complete breakdown of elementary school needs for the 14 data gathering units.

Plate 15 and Table 28 show existing elementary schools, their needed acreage increases, and the general distribution of proposed elementary schools by data gathering unit. The actual location of future elementary school sites depends on the way a unit is developed and should be related to established elementary school standards.

Of the nine existing elementary schools, three meet established school standards (one in data gathering unit IX and two school-park combinations in data gathering units II and VII). The school in data gathering unit XII near the intersection of Karl and Cooke Roads is combined with a junior high and community recreation center and its space needs are discussed later in relation to the total complex. One older, rural-type school on Cleveland Avenue, due to inadequate facilities and inappropriate location, should be abandoned as the Area urbanizes (Plate 15, Unit VIII). The four remaining schools need 20 more acres among them to meet the space demands of the projected population.

TABLE 28 ELEMENTARY SCHOOL NEEDS IN THE NORTHLAND AREA BY DATA GATHERING UNIT

Unit	No. Proj. Pupils	No. Elem. Fac. Existing	Acres Existing	No. Fac. Needed	Acres Needed
I	0	0	0	0	0
II	845	1	7	1	13
III	1027	0	0	2	20
IV	352*	0	0	0	4
V	770	1	6	1	13
VI	701	1	7	1	12
VII	907	1	7	2	19
VIII	3418	1**	3**	4-7	54-69
IX	1605	1	32	2-3	26-31
X	147*	0	0	0	1
XI	1159	1	6	2	22
XII	1380	2	14	2-3	24-29
XIII	886	0	0	1	14
XIV	226*	0	0	0	2
Total		9	82	18-23	224-249

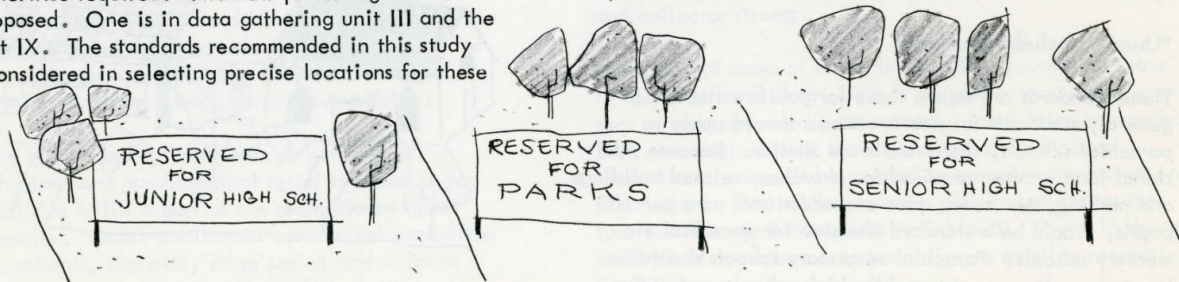
* Where there are not enough pupils within a given unit to support an elementary school, the pupils and corresponding acreage needed in this unit should be absorbed into an adjacent unit.

**Recommended to be abandoned.

JUNIOR HIGH SCHOOLS

The Columbus Board of Education has established a maximum size of 1,200 pupils for junior high schools (grades 7 to 9). Averaging 0.15 junior high pupils per family, 5,000 to 8,000 families will support a junior high school of 750 to 1,200 pupils. At urban density, such a school would serve a one mile radius. Since even at an urban density, a junior high school may not be within walking distance of all pupils, it should be located on a minor arterial to provide convenient vehicular access. Using the standard 20 acres, plus one additional acre per 100 pupils, junior high schools should have 28 to 32 acre sites. Whenever possible, these sites should be near a community park.

Northland Area junior high school facilities include one developed 13 acre site and one undeveloped 20 acre site. Both are below the National standards of 20 acres plus one acre per 100 pupils. On the developed site the junior high building is adjacent to a community recreation center and elementary school. An undeveloped tract, east of this complex, should be purchased by the Division of Parks or the School Board to secure adequate acreage. The undeveloped junior high site is adjacent to a community park which provides enough open space to justify a slightly smaller school site than otherwise required. Two new junior high school sites are proposed. One is in data gathering unit III and the other in unit IX. The standards recommended in this study should be considered in selecting precise locations for these schools



SENIOR HIGH SCHOOLS

The maximum size for senior high schools (grades 10 to 12) established by the Columbus Board of Education is 1,500 pupils. On an average, 0.15 persons per family are of senior high age. This means 6,000 to 10,000 families are needed to support a senior high school of 900 to 1,500 pupils. Based on the National standard of 30 acres, plus one acre per 100 pupils, high schools should be located on 39 to 45 acre sites. These sites may also be advantageously located next to a community park.

At an urban density a senior high school would serve a radius of 1 1/2 to 2 miles and should be located on a minor arterial.

There is one senior high and a site now in the Northland Area. The size of the existing school, 37 acres, is slightly below the national standard of 30 acres plus one acre per 100 pupils. Additional land could be assembled from the vacant land which surrounds this school site.

An additional proposed senior high school site is recommended in data gathering unit III. Totalling 41 acres, this facility could advantageously occupy a site with the junior high school proposed in the same area.

PAROCHIAL SCHOOLS

In the Columbus area one out of seven children attends a Roman Catholic parochial school. This and other religious school facilities affect the need for public school facilities. Parochial schools require sizeable quantities of land because church facilities are usually located on the same site.

Due to their independent and varied service areas, general standards are not available for parochial schools. The Catholic Diocese of Columbus offers the following standard for their schools:

TABLE 29 EXISTING STANDARDS FOR CATHOLIC PAROCHIAL SCHOOLS IN COLUMBUS

Type of School	Site size (acres)	Minimum Size (pupils)	Radius Served (miles)
Elementary (grades 1-8)	8-12*	varies	1/2-1
Secondary (grades 9-12)	15-20	1,000	as needed

*Usually includes a church.

These standards are below those for public schools. In general, standards for public schools should apply to parochial schools, since needs are similar. Because additional land is often required for churches, related buildings, and parking, ten acres, plus one additional acre per 100 pupils, should be a standard site size for parochial elementary schools. Parochial secondary schools should be located on sites equal to public high schools, using the

standard 30 acres, plus one additional acre per 100 pupils. Parochial schools and related facilities should be compatible with surrounding land uses.

Two parochial schools exist in the Northland Area: a Roman Catholic elementary and secondary. Both are located on a site south of Morse Road on Karl Road, and this site is inadequate by public school standards. Thirty to 36 acres are needed to meet established standards.

A new parochial elementary school is proposed in conjunction with a Roman Catholic church to be built in the vicinity of Woodward Park. Based on the population characteristics reported earlier and on a service radius of 1/2 to 1 mile, three additional Roman Catholic elementary schools, located in data gathering units III, VIII, and IX, will be needed to serve the projected population. No projection can be made for other parochial schools.



PRIVATE SCHOOLS

Private schools include day nurseries, kindergartens, and academies. Because these operate independently and draw pupils from a wide area, precise standards cannot be applied. The facilities should be designed to meet standards tailored to the particular type of activity taking place. In general, where they correspond to public school facilities, public school standards should apply. Different standards apply, if for example, a private school houses its pupils and provides other supplementary facilities and functions.

The possibility of private schools in the Northland Area cannot be projected. A day nursery does exist east of Cleveland Avenue and north of State Route 161. If additional private school facilities seek to locate in the Area, they should meet the same criteria as required of public and parochial facilities.

PUBLIC RECREATION

Increasing amounts of leisure time and income put increasing demands on improving standards for public recreation facilities. The number and kind of public recreation facilities needed is related to the types of housing and the density of population in the area served. For example, a high-rise apartment building has need for active play space not so pressingly needed in a single-family development where back yards are available.

All housing types need access to large parks which provide physical and psychological relief to urban living. Public facilities fulfill a part of the recreational needs of a community. Quasi-public and commercial recreation facilities, schools, libraries, other social and cultural institutions also serve recreational needs.

Public recreation facilities are classified by level of service into three groups: local, community and regional. The following standards for these facilities reflect those suggested by the National Recreation Association and those used by the local responsible agencies. The standards provide two acres of recreation space per 100 persons, or 72 acres per 1,000 families. Half of this acreage is to be provided by local governments and the other half by a metropolitan park authority.

LOCAL-LEVEL PUBLIC RECREATION

Nine acres per 1,000 families are needed to adequately provide public recreation facilities at the local level. Because URP Units contain between 750 and 1,500 families, 7 to 14 acres are needed per URP Unit. Elementary school playgrounds can provide a portion of this need when a park is associated with them. When not in association with an elementary school, a local park should be a minimum of 5 to 7 acres. It is desirable and economical to combine the school and park. The standard of 8 acres, plus an additional acre per 100 pupils, for the school-park combination requires 13 to 17 acres as compared to the 15 to 21 acres needed for separate local park and elementary school facilities. These facilities serve the population in a radius of 1/4 to 1/2 mile and should be accessible by sidewalks and collector streets.

There are 28 acres of local-level public recreation space in the Northland Area. This is divided among two elementary school-park combinations and a small interior wooded park. A total of more than 200 acres of local-level recreation space will be needed to serve the projected Area population. This needed space is distributed among the fourteen data gathering units in Table 30. Plate 15 shows a distribution of these needs relative to existing recreation facilities.

TABLE 30 DISTRIBUTION OF LOCAL-LEVEL PUBLIC RECREATION SPACE NEEDED IN THE NORTHLAND AREA BY DATA GATHERING UNIT

Unit	Projected Population (families)	Number of Facilities needed	Number Acres Needed
I	0	0	0
II	1,408	1-2	13
III	1,711	1-3	15
IV	586	1	5
V	1,283	1-2	12
VI	1,168	1-2	11
VII	1,512	1-2	14
VIII	5,696	4-10	51
IX	2,675	2-4	24
X	245*	0	2
XI	1,931	1-3	17
XII	2,300	2-4	21
XIII	1,476	1-2	13
XIV	377*	0	3
Total	22,368	16-35	201

* No facility is proposed where there are not enough families within the data unit to support a least five acres of local-level recreation land. Acreage needed by these families is absorbed in adjacent units.

COMMUNITY-LEVEL PUBLIC RECREATION

Community-level public recreation facilities require eight acres per 1,000 families. These eight acres are divided among three types of recreational facilities: 4.4 acres for the playfield-park (requires a site from 10 to 20 acres), 2.7 acres for the community recreation center (requires a site from 5 to 7 acres), and 0.9 acres for the community swimming pool (requires a site from 1 to 2 acres). All of these facilities may locate together, with a junior or senior high, or separately. They generally serve 8,000 families or the population in a radius of 1 to 2 miles. They should be located on minor arterials and have adequate parking facilities. Small commercial swimming pools may serve at the local-level, but it is normally economically infeasible to provide public swimming facilities at the local-level. The need for public swimming pools depends, in part, on the number of commercial pools provided.

At the community-level, existing public recreation facilities consist of an undeveloped 49 acre park located adjacent to a junior high school site, and a community recreation center on a seven acre site. Total space at these locations is 56 acres. An additional 120 acres is needed to provide adequate community-level recreation facilities within Northland. The extent of commercial and quasi-public community-level recreation facilities (bowling alleys, large swimming pools, or skating rinks) may modify this need. Relatively impermanent commercial and quasi-public facilities such as par-three golf courses should not be included when calculating this space need. Based on existing land use, proposed densities, and other factors, approximately 35 acres of new community level public units III, VIII, and IX (Plate 15). These facilities may advantageously locate in conjunction with the proposed junior and senior high schools. The existing site of the community recreation center should be expanded, as discussed earlier (page 85).

REGIONAL-LEVEL PUBLIC RECREATION

In the Columbus Area regional public recreation facilities are provided by the (1) local government jurisdictions and (2) the Columbus Metropolitan Park Board.

- (1) The governments should provide 19 acres of regional public recreation facilities per 1,000 families. This could be a large city park or a public golf course. There should be one large city park per 40,000 families and one public golf course per 50,000 to 60,000 families. The number of public golf courses needed depends, in part, on the number of private courses in the area. Both parks and golf courses should be located on major or minor arterials and may locate in flood plains and scenic areas. These facilities serve a radius of 2 to 3 miles at urban density.
- (2) Metropolitan parks are typically natural reservations of at least 500 acres. Thirty-six acres per 1,000 families are needed to adequately provide this type of facility. Locations are often of historic or scenic interest. They serve the entire metropolitan region and should be accessible by major arterials or freeways. A metropolitan park should be within a half-hour driving time of each family in the Region.

Table 25 indicates that 1,230 acres of regional-level public recreation space will be needed to serve the Northland Area. Presently there are no regional public recreation facilities within the Area, although three metropolitan parks - Blendon Woods, Spring Hollow, and High Banks - are close at hand (Plate 5). Because of their size and proximity to the Northland Area, it can be assumed these parks will provide approximately 400 acres of the regional-level public recreation land needed

for the Northland Area. In addition, there are two quasi-public golf courses in the Area. These provide 303 acres of regional-level recreation space. In order to satisfy the remaining need at this level, it is recommended that the Alum Creek flood plain, within the Northland Area, be ultimately given over to regional recreational use. Thirty acres of this flood plain are currently in use by one of the existing golf courses. Recreational development of the flood plain should be correlated with anticipated population growth. Although the entire flood plain is recommended for ultimate recreation use, extractive, agricultural, and other appropriate use may be made of the flood plain until recreational development is feasible. If use is made of the entire flood plain for recreation, the acres of regional recreation space needed for Northland will be provided.

QUASI-PUBLIC RECREATION

Quasi-public and public recreation facilities serve similar functions, although quasi-public facilities are not available to everyone. Many quasi-public facilities offer the amenity of open space to adjacent neighborhoods even though they are not open to the general public as active recreation facilities. Due to their varied nature and the lack of direct public control over location, frequency, and permanence, no precise standards can be established.

The two Area golf courses discussed previously exemplify existing quasi-public recreation in the Northland Area. Additional quasi-public facilities include the par 3 golf course located on a 35 acre site in data gathering unit XII and the motorcycle club located on a 14 acre site in data gathering unit XIII. Together, these facilities total 352 acres. Although precise standards cannot be established in advance, wherever possible, public recreation standards should be followed.

SOCIAL AND CULTURAL INSTITUTIONS

The space needs and locational requirements of social and cultural institutions such as temples, churches, museums, fraternal organizations, and social clubs must be considered in the Northland Area. As with other facilities, performance standards, based on activity characteristics such as parking, noise, and other factors, should be established in each case to guarantee compatibility with surrounding land uses.

Social and Cultural facilities should be convenient to the population they serve, but since a broad range of activities are represented and the facilities themselves are often regional in scope, standards must be determined on an individual basis. Churches are an exception and certain generalizations can be made. Needs and standards are reported in Table 31.

Thirteen existing churches, five proposed churches, and one church camp occupy 84 acres in the Northland Area. Over half of these facilities are located on inadequate sites, based on Table 31 standards. Although definite acreage projections cannot be made, the generalized standards suggested by the Columbus Area Council of Churches and the Roman Catholic Diocese suggest a possible need for 53 churches in the Area. This would require about 275 acres in total.

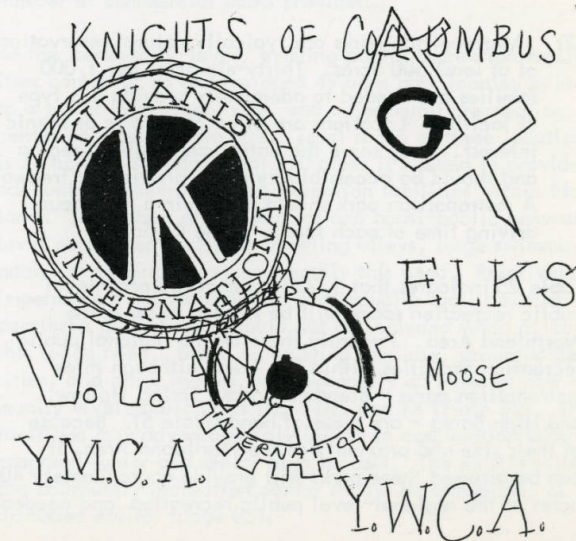
Except for churches, only one other social-cultural institution exists in the Northland Area - the VFW Hall south of Ferris Road on Cleveland Avenue. Because there are no established standards for these facilities, space needs cannot be projected.

TABLE 31 SPACE NEEDS AND LOCATIONAL STANDARDS FOR CHURCHES

Type of facility	Families * required to support	Land Area required	Access	Service Radius (miles)
Protestant Churches	415-1110	3-7 acres	Minor Arterials	Not Applicable
Catholic Churches	2000-8000	8-10** acres	Minor Arterials	1/2-1

* Columbus Area Council of Churches and Roman Catholic Diocese.

** Usually includes elementary school.



UTILITIES

The impact and importance of various utilities has been covered previously (page 27). Utilities are mentioned again to consider their land consuming aspects; i.e., their space needs and locational requirements as land uses. Most utility stations and facilities serve areas larger than Northland, but space should be provided in the Area where the need for it is apparent.

The utility land uses existing in the Northland area are a State maintenance garage and combination maintenance centers and electric substations. Locations for these facilities cannot be projected prior to a comprehensive regional utilities study. But, if locations are sought within Northland, performance characteristics should be employed to determine compatibility.

GOVERNMENTAL SERVICES

Governmental services are related to community needs. They may include storage yards for street maintenance and snow removal equipment, repair shops, and material storage areas. No local standards exist for these facilities, but consideration should be given to an adequate allocation of land for these purposes. Care in development should be employed to assure compatibility with surrounding land uses.

Two service maintenance centers exist in the Area. One, the Clinton Township highway maintenance facility, is located on Cleveland Avenue adjacent to the Clinton Township Hall, Fire Department, and Police Department. A Worthington maintenance center, is located on Wilson Bridge Road in the northwest corner of the Area. Additional facilities may be needed in the future.



CHAPTER V

the STREETS

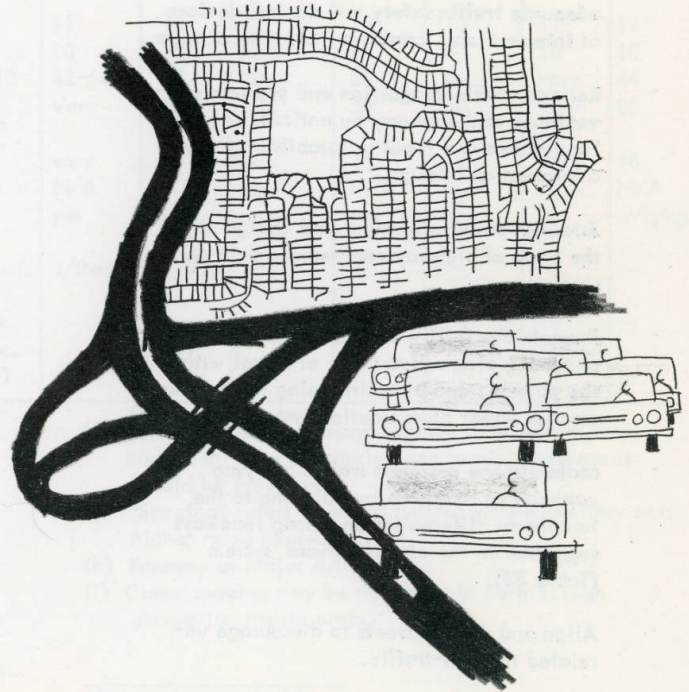
The land use pattern and street system for the Northland Area must be coordinated to achieve optimum physical development. The land use pattern serves as the basis for establishing a functional street system. In turn, a functional street system is necessary to accomplish desirable land use arrangements, growth patterns, and densities. The purpose of this study is to establish street standards which recognize and reinforce the land use pattern recommended in Chapter III.

STREET OBJECTIVES

The objective of this study is to promote a street pattern which meets Area and Regional traffic needs. To reach this the following must be achieved:

- Safety of travel, measured in lowered traffic accidents and deaths per vehicle mile.
- Convenience, measured by a smooth, rapid flow of traffic.
- Economy, related to the cost of providing and using roadways, measured in safety, travel time, maintenance of roadways, and vehicle "wear and tear". (Low initial construction cost may result in higher total cost when these criteria are considered).
- Adaptability of the street system - adjustments for different daily traffic flow peaks, changing user requirements, foreseeable technological changes, and expansion needs.
- Functional efficiency, requiring the purpose of each roadway and adjacent land use be determined, and that development accomplish these purposes.

The following summary includes policies, standards, and a recommended primary street system for the Northland Area.



STREET POLICIES

The following policies stem from the study objectives outlined above and are the basis for the standards and recommendations summarized in the next two sections. More specific action must be based on engineering analysis.

- Promote traffic safety by separating pedestrian and vehicular traffic and by providing adequate traffic safety and control devices at intersections, crossings, and interchanges.
- Relieve traffic congestion and promote convenience and economy by anticipating traffic volumes and types in establishing street alignment and design.
- Establish street alignment and design on the basis of highway engineering data and studies.
- Promote flexibility and convenience by providing alternative paths of travel within the pattern, and by maintaining the recommended street classification system. (page 103).
- Maintain the designed traffic carrying capacity of roadways by adhering to the functional differentiation among roadways suggested in the classifications system (Table 33).
- Align and design streets to discourage unrelated through-traffic.
- Recognize the Regional Major Thorofare Plan and the "Blue Plan" street classification system in the development of the Northland Area Pattern.

STREET STANDARDS

Recommended standards for Northland Area streets are reported in Table 32. For each class of roadway within the primary and secondary street systems various design standards are suggested. The right-of-way and spacing standards should be followed in all cases to assure the proper functioning of each roadway, and ultimately the entire street system.

PRIMARY SYSTEM STREET RECOMMENDATIONS

The recommendations outlined below apply to the primary street system which is the framework of the proposed Northland street pattern. Except in terms of standards, secondary street recommendations are not included in this study. Plate 16 graphically illustrates the recommended primary street pattern for the Area.

- Interstate Routes 71 and 270 are recommended freeways in accordance with the Regional Major Thorofare Plan.
- Morse Road, State Route 161, and State Route 3 are recommended major arterials in accordance with the Regional Major Thorofare Plan.
- A connection between Wilson Bridge and Schrock Road is recommended in accordance with the Worthington Plan. This roadway will serve as a cross-county major arterial and will supplement the Outerbelt by serving local needs.
- Cleveland Avenue is retained in its present alignment as a minor arterial. The proposed interchange of Cleveland Avenue and the Outerbelt indicates above average traffic volumes may require minor arterial standards for Cleveland Avenue to be adjusted to reflect a higher anticipated traffic volume.

TABLE 32

RECOMMENDED STANDARDS FOR THE NORTHLAND AREA STREET PATTERN

Design Elements	PRIMARY SYSTEM			SECONDARY SYSTEM							
	Freeway	Major Arterial	Minor Arterial	Collector Streets			Local Streets				
				Res.	Comm.	Indus.	Suburb. Res. (a)	Urban Res. (b)	Multi Fam. Res.	Comm.	Indus.
Number of traffic lanes (c)	4-8	4-6	4	2-4(d)	2-4	2-4	2	1 or 2(e)	2	2-4	2
Traffic Lane Width	12	12	12	10	11	12	10	10	10	11	12
Parking Lane Width	N/A*	N/A	11	8	10	12	N/A	8	8	10	10
Pavement Width	Vary	44-66	48(f)	36-40	42-64	48	20	28	36	vary	44
Right-of-way Width	200- vary	100- 200	80	60	Vary	80	60	50	60	vary	80
Border Area Width	vary	20	18	12	vary	16	20	11	12	vary	18
Median Width	20-60	16-20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sidewalks	No	No	w/prkg.	yes	yes	no	no	yes	yes	yes	w/prkg.
Desirable spacing of streets (g)	1-3 mi. (h)	1-3 mi.	3/4-1 mi.	1/2 mi.	1/2 mi.	1/2 mi.	--	--	--	--	--
Min. spacing of intersections (i)	1 mi. more	1/4- 1/2	1/4 mi.	1 blk. (aprx. 600')			--	--	--	--	--

- (a) Less than 4 dwelling units per net acre and lot frontage of 75 feet or more with driveway parking only.
- (b) Five or more dwelling units per net acre.
- (c) Number of lanes determined on the basis of traffic volume and characteristics.
- (d) Four traffic lanes provided if collector street serves more than 750 dwelling units.
- (e) Two parking lanes and one moving lane or 2 moving lanes and one parking lane. Generally parking takes place on both sides, but it is usually dispersed enough to permit private and emergency vehicle operation.

- (f) Where parking or property access is permitted, an additional lane for parking and turning movements should be provided.
- (g) "Spacing" refers to an equivalent system roadway or a higher rated roadway.
- (h) Freeway or Major Arterial.
- (i) Closer spacing may be necessary in certain high generation traffic areas.

N/A - Not Applicable.

- Karl Road is a proposed minor arterial extended in its present alignment north to Wilson Bridge-Schrock Road.
- Maize Road is proposed as a minor arterial from Morse Road south.
- Sinclair-Huntley Road is a proposed connection which would serve as a minor arterial from Morse Road north to the Outerbelt. An interchange with the Outerbelt will likely be needed if the industrial potential of the abutting areas is achieved. The possibility merits further planning and engineering analysis. If the interchange is not needed, Sinclair-Huntley Road drops from a minor arterial to an industrial-residential collector.
- A new minor arterial is proposed extending from Cooke Road to Wilson Bridge-Schrock Road, incorporating Walford Road. Located between Cleveland Avenue and Karl Road, the alignment shown on Plate 16 is representative. This roadway will be needed as the central portion of the Northland Area develops to an urban density.
- A new minor arterial is proposed from Karl Road to State Route 3, midway between State Route 161 and Morse Road.
- Cooke Road is realigned from the interchange with the North Freeway to intersect with State Route 3. The feasibility of extending Cooke Road across Alum Creek merits study, but is beyond the scope of this report.

The need for various classes of streets can be foreseen, but their precise location and alignment cannot always be determined from existing data. For this reason, only primary streets alignments are recommended on Plate 16, and except where these coincide with an existing right-of-way, they are illustrative only. The alignments of 102.

primary streets relate to regional considerations, and generally coincide with the Regional Major Thoroughfare Plan. Street alignments require detailed engineering studies beyond the scope of this report. However, the recommended street standards will serve as a guide in determining and evaluating street alignment proposals.

CLASSIFICATION OF STREETS

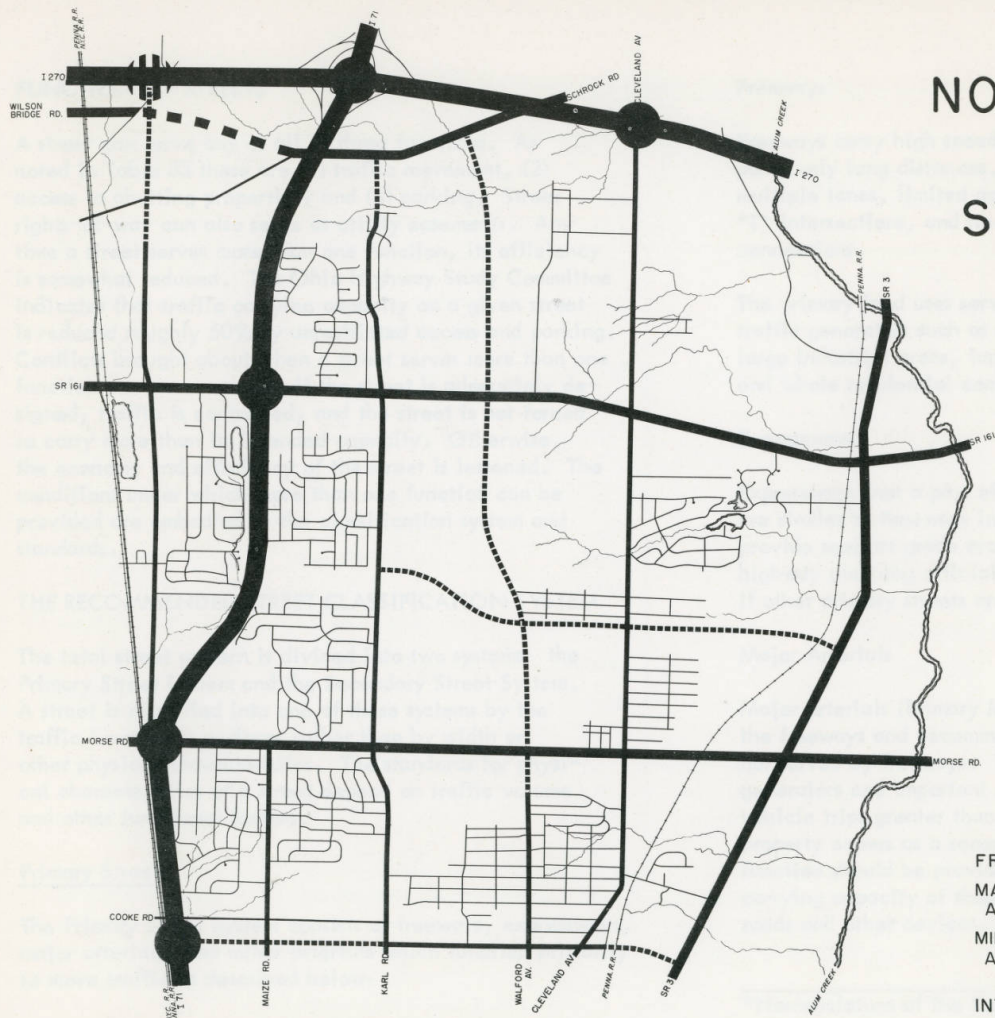
Based on types of traffic and functional characteristics, the street classification system recommended reflects study objectives. This system relates to the Regional Major Thoroughfare Plan, although changed conditions and the recommended concepts of the National Committee on Urban Transportation have caused some minor revisions in nomenclature. Nomenclature in the Northland Area "Streets" study is based on contemporary concepts giving a clearer understanding of the nature and purpose of each roadway.

TRAFFIC TYPES

There are four types of traffic needs anticipated in the Study Area:

1. Regional traffic desiring to travel through the Area quickly, without stopping.
2. Regional traffic destined for some point within the Area, or conversely, from the Area into other parts of the Region.
3. Local traffic traveling within the Area, from one point to another.
4. Local traffic moving solely within a residential, industrial, or commercial area.

NORTHLAND AREA STREET PATTERN



PREPARED BY:
FRANKLIN COUNTY REGIONAL PLANNING COMMISSION
AND COLUMBUS PLANNING COMMISSION
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A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION
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OF THE HOUSING ACT OF 1954, AS AMENDED.

LEGEND

	EXISTING	PROPOSED
FREEWAY		
MAJOR ARTERIAL		
MINOR ARTERIAL		
INTERCHANGE		

FUNCTION OF STREETS

A street can serve any or all of three functions. As noted in Table 33 these are (1) traffic movement, (2) access to abutting properties, and (3) parking. Street rights-of-way can also serve as utility easements. Any time a street serves more than one function, its efficiency is somewhat reduced. The Ohio Highway Study Committee indicates that traffic carrying capacity on a given street is reduced roughly 50% by unrestricted access and parking. Conflicts brought about when a street serves more than one function can be overcome, if the street is adequately designed, traffic is controlled, and the street is not forced to carry more than its intended capacity. Otherwise, the economy and efficiency of the street is lessened. The conditions under which more than one function can be provided are embodied in the classification system and standards.

THE RECOMMENDED STREET CLASSIFICATION SYSTEM

The total street pattern is divided into two systems: the Primary Street System and the Secondary Street System. A street is classified into one of these systems by the traffic function it performs rather than by width or other physical characteristics. The standards for physical characteristics of a street depend on traffic volume and other functional factors.

Primary Streets

The Primary Street System consists of freeways, expressways, major arterials, and minor arterials which function primarily to move traffic as described below:

Freeways

Freeways carry high speed traffic moving over comparatively long distances. These divided roads have multiple lanes, limited access, no at-grade crossings or "T" intersections, and no direct private driveway connections.

The primary land uses serviced by freeways are major traffic generators such as central business districts, large industrial areas, important transport terminals, and whole residential communities.

Expressways

Expressways (not a part of the Regional Thorofare Plan) are similar to Freeways in purpose and design, but may provide some at grade crossings. According to several highway planning officials, expressways are unnecessary if other primary streets are built to adequate standards.

Major Arterials

Major arterials (Primary Major*) bring traffic to and from the freeways and accommodate the major traffic movements not served by freeways. They interconnect major traffic generators and important rural routes, primarily serving vehicle trips greater than one mile in length and providing property access as a secondary function. This access function should be provided without reducing the traffic-carrying capacity of these streets, by installing frontage roads and other devices.

*Nomenclature of the Regional Major Thorofare Plan.

TABLE 33

FUNCTIONAL STREET CLASSIFICATION SYSTEM CRITERIA*

ELEMENTS	PRIMARY STREETS			SECONDARY STREETS	
	Freeway	Major Arterial	Minor Arterial	Collector	Local
<u>Service Function</u>					
Traffic Movement	Primary	Primary	Primary	Equally as important as access.	Secondary
Access to Land	None	Secondary	Secondary	Equally as important as traffic.	Primary
Parking	None	None	Tertiary	Tertiary	Tertiary
<u>Other Characteristics:</u>					
Primary Land Use Served	Major Traffic generators	Major traffic generators	Secondary traffic generators	Local areas, neighborhoods.	Individual sites
Typical Trip Length	Over 3 miles	Over 3 miles	Over 1 mile	Under 1 mile	Under 1/2 mile
Designated through Street	Always	Always	Usually	Sometimes	Never
Transit Service	Express	Regular	Regular	Regular	None (except CBD)
Equivalent Rural Highway**	Federal-aid interstate and State Freeway System	Major State and County Highways	Auxiliary State and County Highway	County	Township Road

* Adapted from Twin Cities Metropolitan Planning Commission Street and Highway Standards and National Committee on Urban Transportation Standards for Street Facilities and Services.

** Rural highways should join with an equivalent or higher rated urban system.

Minor Arterials

Minor arterials (Secondary Major*) carry through-traffic movements between the freeway systems and the collector secondary street system, and link areas not served by freeways and major arterials. Minor arterials have the secondary function of providing access to abutting property and limited space for loading or unloading persons and goods. The primary land uses they service are secondary traffic generators such as large commercial areas and schools.

Outlying streets often begin as collectors, but in the course of urbanization, functional needs change and increase. Where this transition is likely, additional right-of-way should be provided to assure an adequate future roadway and to prevent undesirable affects on abutting property.

Secondary Streets

The Secondary Street System consists of collector and local streets. A chief function of these is to provide access to abutting properties. The design of secondary streets depends on the requirements of the land uses being serviced (residential, commercial, industrial, public and quasi-public).

Collector Streets

Collector streets serve traffic movements within land use areas and distribute traffic between the Primary system and local streets. They do not handle long-distance through-traffic and are not necessarily continuous for any great length. Collectors should be able to accommodate public transit and provide access to abutting land use areas, but

should discourage unrelated through-traffic. The collector street is intended to serve internal traffic movement and provide property access in much the same manner as a minor arterial. If the traffic is great, a street as wide as some primary streets may be required.

Local Streets

Local streets provide direct access to abutting properties and take-up a large percentage of total street mileage while carrying only a small proportion of all vehicle trips. Within the local street system (and the collector street system) there are three classes of streets: residential, commercial, and industrial. These designations emphasize the different service demands placed on local streets - a reason street width should not depend on street classification alone.