

URBAN HOUSING POLICIES AND PHYSICAL PROTOTYPES FOR THE LOW-INCOME SECTOR
IN METROPOLITAN SEOUL, KOREA.

by

WOO-SUNG KIM

B. ARCH., SEOUL NATIONAL UNIVERSITY, SEOUL (1968)

Submitted in partial fulfillment of the requirements for
the degree of Master of Architecture in Advanced Studies
at the Massachusetts Institute of Technology
June, 1972

Signature redacted

Signature of the Author

Department of Architecture May 1972

Signature redacted

Certified by

Thesis Supervisor

Signature redacted

Accepted by

Chairman, Department/Committee on Graduate Students



URBAN HOUSING POLICIES AND PHYSICAL PROTOTYPES FOR THE LOW-INCOME SECTOR
IN METROPOLITAN SEOUL, KOREA
by Woo-sung Kim

Submitted to the Department of Architecture in partial fulfillment of
the requirements for the degree of Master of Architecture (A.S.)

ABSTRACT

Mass-production of low-cost housing has been a major part of past public housing policies whose primary concern is the numbers and standards of the low-income shelters. However, it deprived the low-income families the freedom to shape their shelters according to their needs. Housing should be more than a "structure". It can be a means for social identity and economic security through the process of shaping their shelters.

This study attempts to provide alternatives of housing policies for maximum freedom and benefits to the low-income sector. Through the case-study of "Sung-nam City" which has a difficult sloped topography, physical prototypes are presented based on alternative goals and criteria for low-income housing.

Thesis Supervisor: Horacio Caminos
Title: Professor of Architecture

May, 1972

ACKNOWLEDGEMENTS

I am very grateful to Professor, Horacio Caminos for many helpful discussions and "good pressures" which I enjoyed, and many and many thanks to Instructor, Reinhard Goethert (Shrimp) for various comments and practical helps which I badly needed.

I should thank M.I.T. itself, and some of its professors, and also, the class for providing a pleasant and stimulating environment in which I enjoyed "being".

Cambridge, Mass.

May, 1972

CONTENTS

TITLE i
ABSTRACTii
ACKNOWLEDGEMENTiii
INTRODUCTIONiv

I. CONTEXT : KOREA 1
 General Information 2
 1.1 Physical Context 3
 1.2 Economic Context 8
 1.3 Social Context11

II. CONTEXT : SEOUL METROPOLITAN AREA16
 2.1 General Background17
 2.2 Migration25

III. HOUSING FOR THE LOW-INCOME SECTOR IN METROPOLITAN
 SEOUL29
 3.1 Housing situation30
 3.2 Issues & priorities of low-income housing ..32
 3.3 Problems of current housing policy34
 3.4 Alternatives of housing action38
 3.5 Conclusion40

IV. CASE-STUDY : "SUNG-NAM" CITY42
 4.1 Site43
 4.2 Planning policies / Goals46
 4.3 Land use50
 4.4 Circulation57
 4.5 Segment prototypes62

NOTES & REFERENCES78

INTRODUCTION

Entering the 20th century as a kingdom, Korea began to be aware of western civilization. Since then, Korean experienced a rapidly changing social structure generated by influences from domestic and strong foreign powers. In 1945, Korea was liberated after 36 years of Japanese occupation and established a democratic regime in the southern part. Before long, the nation was swept and devastated by a self-destructing war driving the national economy to a marginal condition. Since the Korean War, a rapid urbanization was experienced. In 1970, 40% of the total population was living in cities having more than 50,000 inhabitants. Now, 17% of the total population is packed in the Seoul metropolitan area which has 5.5 million citizens. Needless to say, shortage of housing has become a serious problem. There is not only the quantitative problem, but also serious problem of housing quality. As of 1969, 30% of the total houses in Seoul were classified as "shacks", usually occupied by two or three families. Those shacks are located on hillsides, creeksides and along railroads. To cope with this problem, the Seoul Municipality launched a massive redevelopment and relocation plan in the slum areas. During 1969 - 70, this program provided 33,000 units by constructing 5 - 6 story walk-ups, "Citizen's Apartments", after clearing the slum areas. In the relocation program, the slum occupants were relocated to the outskirts, "Kwang-ju", 25 kilometers from central Seoul. This area was planned to accommodate 40,000 relocated families who were provided with 60 m² lots. The area did not include adequate employment opportunities. Both programs are frequently criticized as a "violence of instant ideas". Mass-production of streatype walk-ups and lots did not seem to solve the housing problems of the low-income sector, whose basic need is not only the substitution of their shacks with more expensive multi-story

housing. What is more appropriate is "shelter" as a means to social identity and economic security. What they need more than buying housing "packages", is the freedom to shape their shelters according to their needs.

This thesis will study alternatives in housing policies and physical prototypes for the low-income sector. The alternatives will be focused on a case-study on the outskirts of Seoul, "Sung-nam City".

CONTEXT : KOREA

GENERAL INFORMATION

1.1 PHYSICAL CONTEXT

- 1.11 LOCATION
- 1.12 TOPOGRAPHY
- 1.13 NATURAL RESOURCES
- 1.14 CLIMATE
- 1.15 URBANIZATION

1.2 ECONOMIC CONTEXT

- 1.21 STRUCTURE OF THE ECONOMY
- 1.22 INCOME DISTRIBUTION
- 1.23 LABOR FORCE

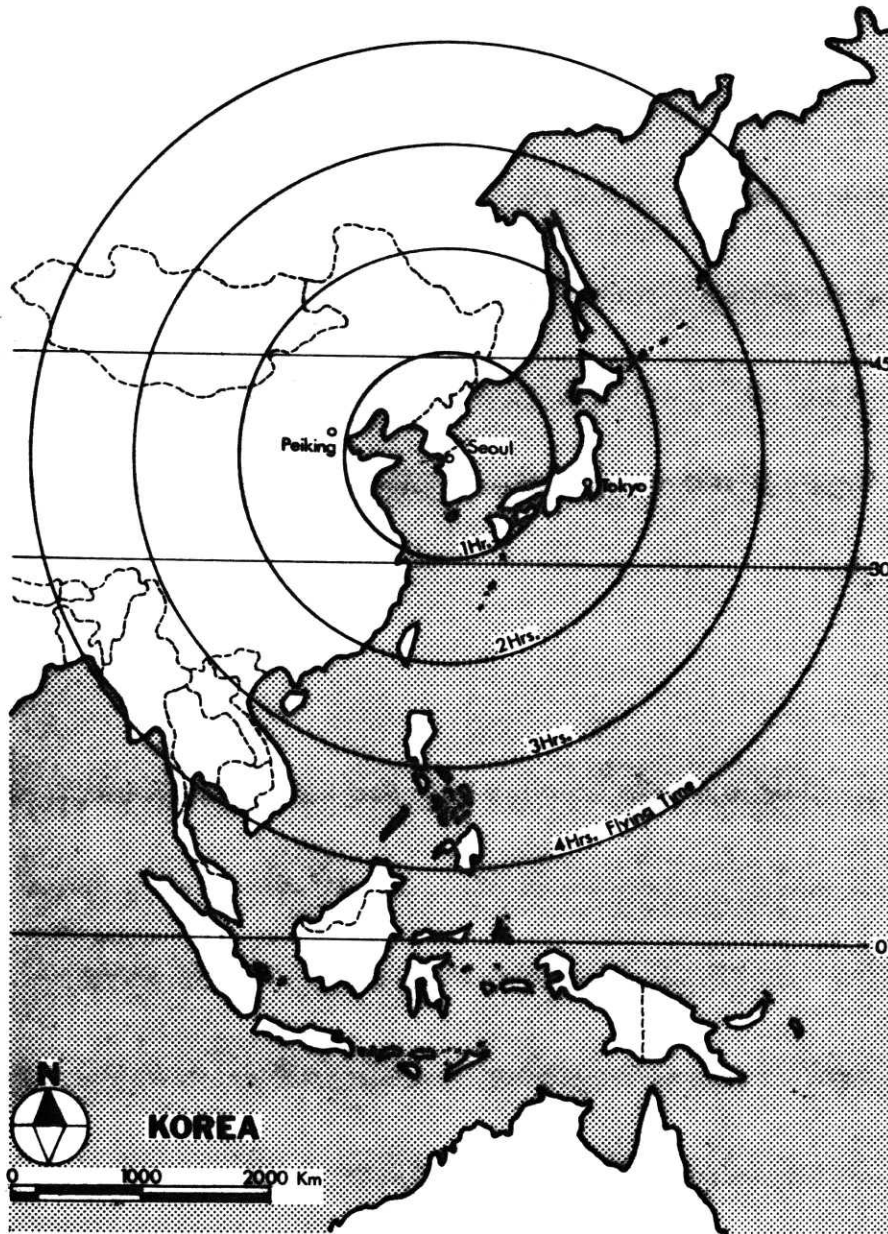
1.3 SOCIAL CONTEXT

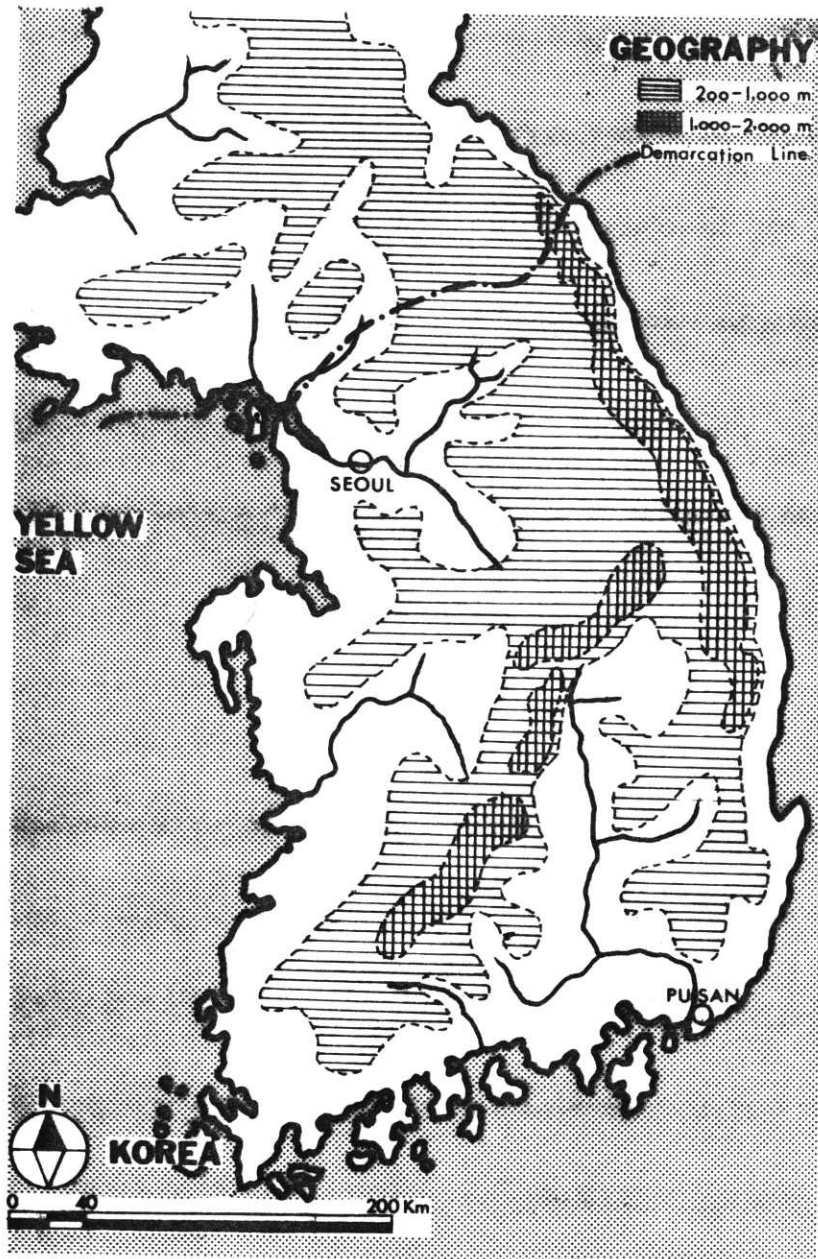
- 1.31 GENERAL BACKGROUND
- 1.32 HISTORY
- 1.33 POLITICAL SITUATION
- 1.34 SOCIO-CULTURAL VALUES
- 1.35 LIFE-STYLE

1.0 CONTEXT OF KOREA

GENERAL INFORMATION¹

- Official name : Republic of Korea
- Area : 98,500 Km²
- Population : 31,461,000
- Growth rate of population : 2.0%
- Language : Korean
- Currency : 1 Won = 0.3¢
- Per Capita income: \$225
- Literacy rate : 90%
- Capital city : Seoul (Pop.: 5.5 mil)





1 PHYSICAL CONTEXT

1.11 LOCATION

East longitude: 124' 11" - 130' 52"

North latitude: 33' 06" - 43' 11"

(Same with North Carolina - Massachusetts)

(Seoul: same with Washington D.C.)

1.12 TOPOGRAPHY

A) Mountains and hills occupy a large amount of the country's territory leaving only small areas of level land (15%).

B) The rugged mountain ranges have acted as barrier to man's movement and cut Korea from mainland Asia.

C) The rugged terrain causes local areas to be physically isolated from one another. Transportation by land is costly and difficult.

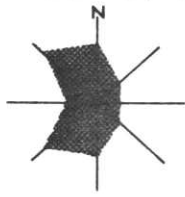
1.13 NATURAL RESOURCES

A) Korea is one of the more highly mineralized areas of Eastern Asia. However, most of the mineral resources and actual production lie in North Korea.

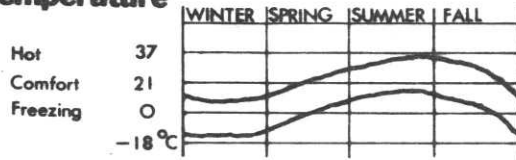
B) At one time, Korea was a heavily wood-

SEOUL 37°37'N

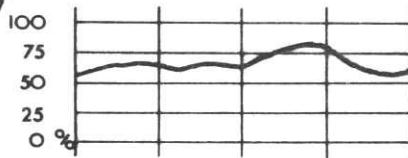
Wind



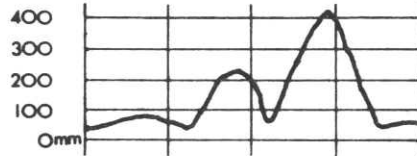
Temperature



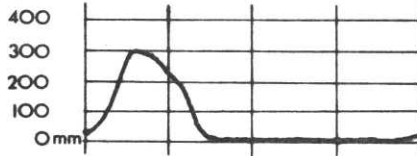
Humidity



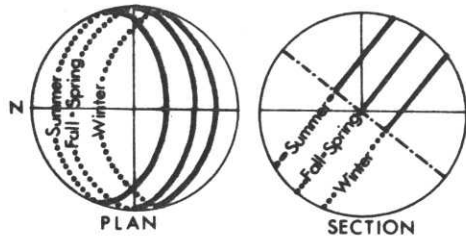
Rain



Snow



Sun

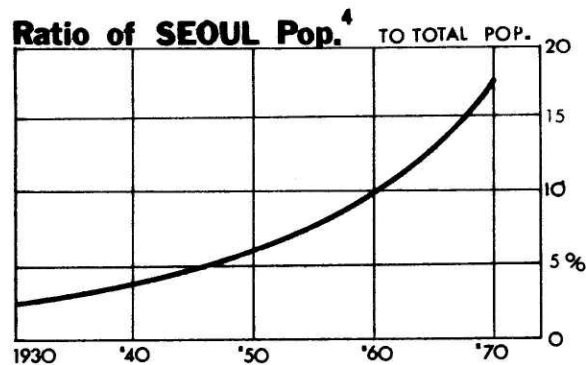
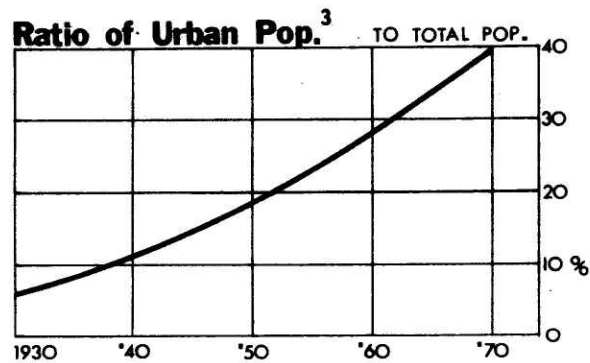
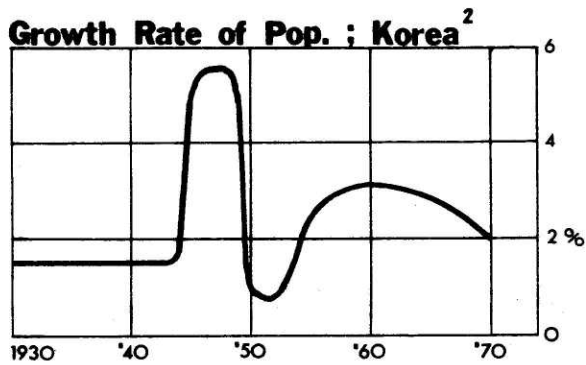


ed country, but much of the natural forest cover has been extensively exploited, largely for fuel and timber by individual farmers.

1.14 CLIMATE

A) Occasional cyclonic storms pass over the country and contribute to the rainfall, especially in the spring.

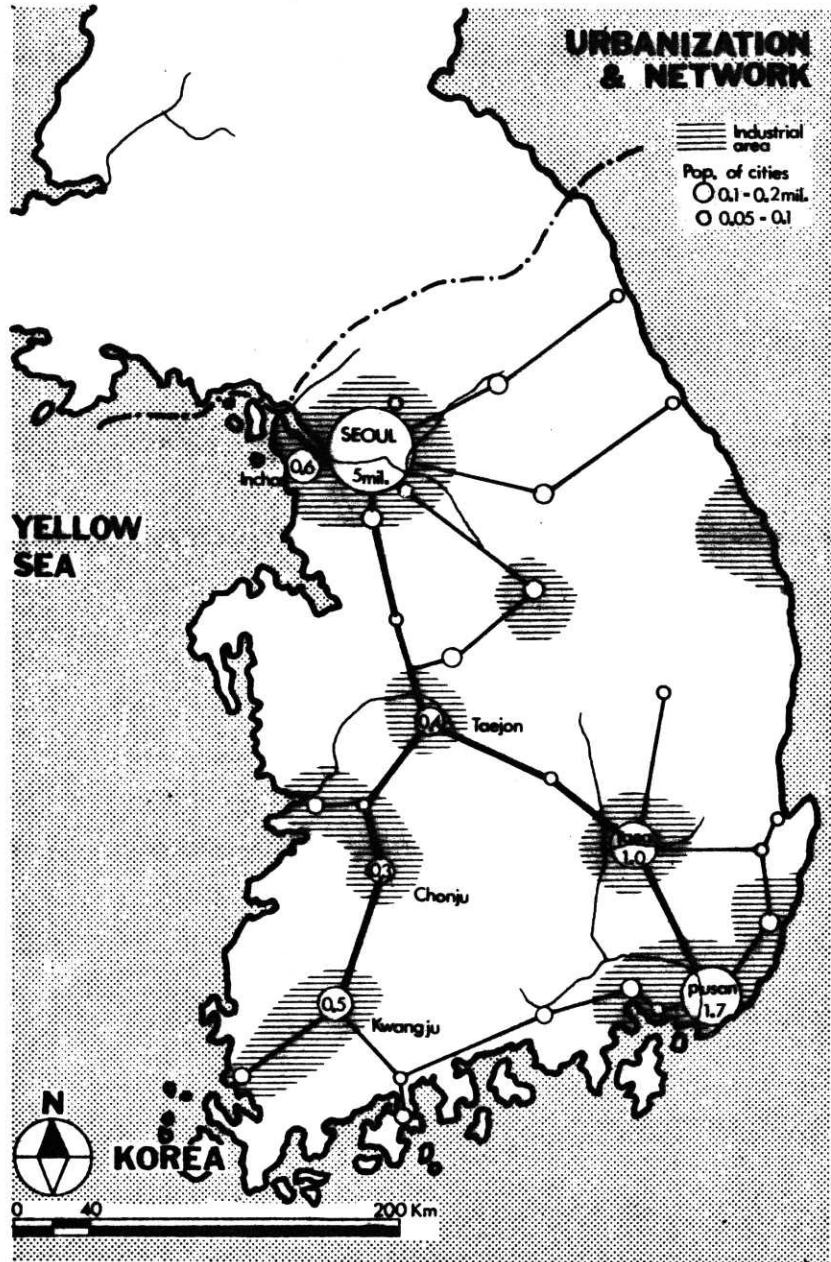
B) Typhoons are relatively infrequent, but at least one can be expected each year. They usually occur in late summer causing extensive damage to crops and homes.



1.15 URBANIZATION

A) Population Growth: Until 1945, Korean population growth was "many births = many deaths". But in 1945, the year of Korean Liberation from Japan, the population growth rate abruptly changed primarily due to repatriation from abroad. Another conspicuous change occurred during the Korean War, which resulted in the death of many people and a low birth rate. After the war, Korea experienced a second population growth, "many births - low deaths". But currently, the growth rate has been decreased by the intensive efforts of government on birth control.

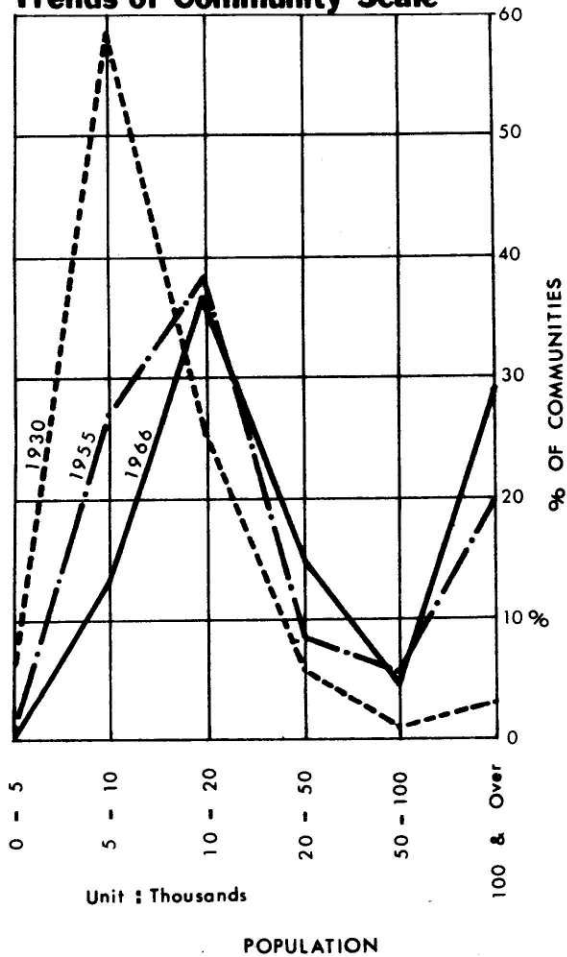
B) Trends of Urbanization: Before 1925, the growth rate of the urban population was unnoticeable, but when the Japanese Colonial Government began to build industries, mostly in the northern part, the migration to industrial cities was increased. The percentage of urban population in 1925 was only 4.5% of the total population. During the 1960's, the government placed emphasis on manufacturing industries, usually located within a specific region. Due to the intensive industrial development of specific areas for maximum effect, the heavy migration rate was resulted. The policy of maximum effect out of concentrated invest-



ment in already established urban centers is now being changed. Also, neglected rural developments are being restored with a hope to lessen the migration rate.

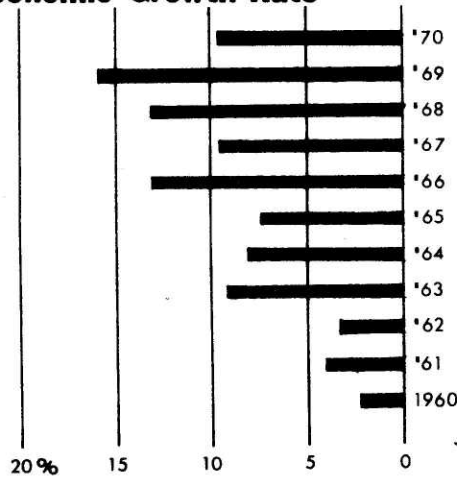
C) Characteristics of urban centers: Most of the cities are located on plains in predominant agricultural areas, therefore, cities enjoy the aggregating and distributing role of agricultural products. Also, the urban locations are focal points of the national transportation network. To take advantage of easy transportation and easy access to the consumers, most of the light industries occupy the suburbs of urban centers. Now, 70% of the nation's manufacturing industries are residing in the capital city, Seoul.⁵ The municipalities of Seoul and Pusan (the second largest city) are under the direct control of the central government because of their heavy importance in national politics and economy.

Trends of Community Scale⁶

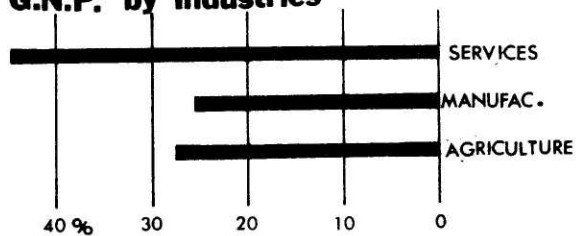


D) Trends of Community Scales: As a result of migration Communities are becoming larger. A distinctive characteristic of changing urban scales is the rapid increase of population in large cities which have population of more than 300,000. In 1969, the population of those cities have increased an average of 11.8%, but smaller cities (pop. : 50,000 - 300,000) have increased an average of 9.8%. Clearly this urbanization stems from migrants coming from small villages directly to the larger cities.

Economic Growth Rate⁷



G.N.P. by Industries⁸



Government Budget⁹



1.2 ECONOMIC CONTEXT

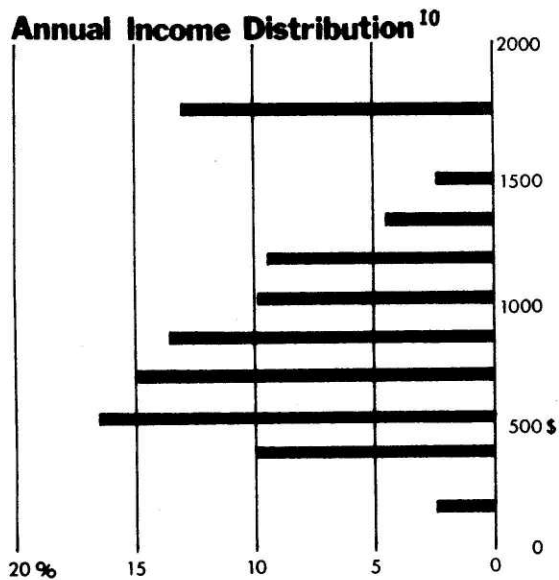
1.21 STRUCTURE OF THE ECONOMY

A) Mixed economic system involving both government and private enterprise, currently the government role is dominant.

B) Agriculture is still the dominant sector of the economy. (28.1% of G.N.P. in 1969 - with manufacturing: 24.8%)

C) The rate of economic development increased sharply in the period 1960 to 1970 (9% per year).

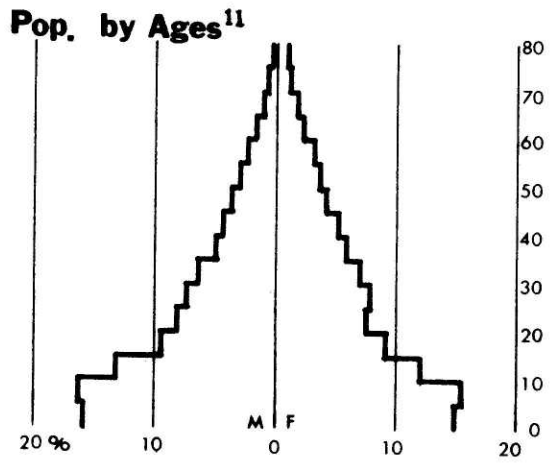
D) The government, through various policies and programs, has concentrated its attention on economic development in non-agricultural sectors. Thus, the government has been responsible to a considerable degree for the slow progress in the agricultural sector. The prevailing attitude toward agriculture as an occupation is one of disdain. Farming involves much hard work and little economic reward. The low social and economic status of farming probably explains the tendency for many young people to migrate from the farm to the city.



E) In spite of very substantial economic progress in recent years, the share of workers in the total national income has shrunk steadily, deteriorating the living standards of the mass of population. Wages in general fall far short of the minimum family living expense.

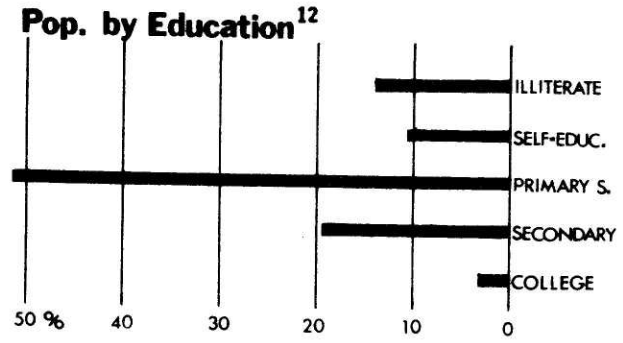
1.22 INCOME DISTRIBUTION

The national average income of a household was \$800 at the end of 1969. In Seoul the average income was \$1,200 per family. The farmer's averaged only \$600 per year in 1969. This shows a great gap of income between agricultural and the non-agricultural sectors. Also, there is a large difference of income between the higher and the lower income groups.

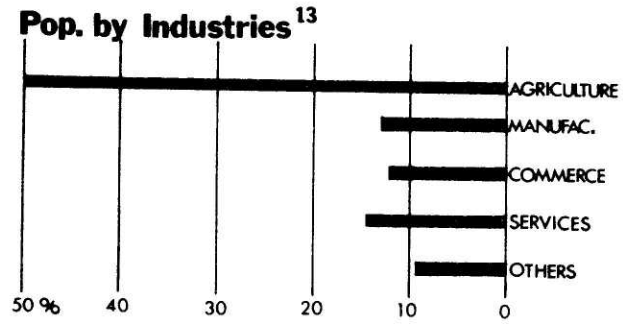


1.23 LABOR FORCE

A) Population under 14 years of age constitutes 43% of the total. Of the population over 15, only 60% are employed. The remainder are economically non-active. Even though 30% of total population is employed, many are under-employed. A half of the total employed persons are in the agricultural sector. Presumably, one third of the agricultural population is considered underemployed.



B) Educational background: There is a high level of education compared with other developing countries. Traditionally, schoars are respected and professional workers are regarded as second class. Therefore, Korea still has a shortage of skilled workers to support its industrialization and development. In recent years, it has placed increasing stress on vocational training while higher education is beginning to shift away from its traditional emphasis on the liberal arts in favor of science and engineering.



1.3 SOCIAL CONTEXT

1.31 GENERAL BACKGROUND

- A) Race: Single ethnic group, Koreans, similar to Northern Asians.
- B) Language: Official language since 1945 is Korean, spoken by all Koreans, indigenous to entire country. English is secondary language in cities.
- C) Religion and Ethical system: Traditional Confucian ethical system still is the primary influence; other religions are Buddhism, Christianity, an indigenous monotheism, and animism in rural areas.
- D) Educational system:¹⁴ Current system was molded on the United States systems in 1949. Constitution guaranteed an elementary education to all children free from fees.

1.32 HISTORY

3000B.C.-2000B.C.

People settled some four to five thousand years ago in Shantung Peninsula of Northern China, Southern Manchuria and Korean Peninsula, forming one cultural zone in lands around the Yellow Sea.

57B.C.-668A.D.

Recorded Korean history begins with the Three Kingdoms, KOGURYO, PAEKJE, and SILLA which fought one another in the Korean Peninsula and Manchuria for seven centuries.

668-1392

After unification of the peninsula, SILLA's culture advanced to a unprecedented height, and became one of the four cultural centers of Asia. In 918 A.D.

SILLA Kingdom was overthrown by KORYO Dynasty, from which the present English appellation of "Korea" was derived. Buddhism flourished at this period, and played an important role in the culture, ideology and way of life.

1392-1910

General Yi, enthroned as king after destruction of the KORYO, promptly moved the capital to "Seoul". Buddhism was replaced with Confucianism, and its teachings served as the code of conduct for people.

1910-1945

While Yi Dynasty was indulged in factionalism by the Confucian scholars in the 19th century, Japan became a power after importation of western civilization, and occupied Korea. During that period, national resistance continued against the forceful merging of the Korean with the Japanese.

1945

Korea was liberated after the World War II, but it was divided into north and south sectors by the U.S.A. and U.S.S.R.

1948

The Republic of Korea Government proclaimed its establishment, while Communist North Korea rejected the reunification plan.

1950-1953

The Korean War broke out initiated by the Communist regime of North Korea. U.N. became involved in the war and an armistice was finally signed in 1953, providing an uneasy, precarious peace in Korea.

1960

Students overthrew the corrupt regime which lasted for 12 years. The Second Republic was born with a parliamentary form of government.

1961

A military junta supplanted the Second Republic, and established the Third Republic in 1963. The presidential system was revived.

1.33 POLITICAL SITUATION

A) National governmental system: The government of the Republic of Korea patterned mainly after the system of the United States, which provides for the separation of powers in an executive, legislative and judicial branch. In practice, the executive branch, especially the office of the president, has developed into the focal point of the Korean political system.

B) Local governmental system: The Republic of Korea is divided administratively into two "special cities", Seoul and Pusan, and nine provinces which are in turn subdivided into counties, municipalities, towns, townships and villages. Local administrations are under the direct control and supervision of the central government, and the mayors of the Seoul and Pusan, provincial governors and heads of the local administration bodies are appointed by the central government.

C) Characteristics of government: As a nation strongly based on anti-communism, aspiring for a democratic system, it has a heavy burden on defense budget. In 1969, 22.5% of the total budget was spent on defense. Compulsory military system requires every male to serve for about 3 years. Foreign policy has been shaped primarily by the need for economic modernization and maintenance of military preparedness against Communists in the north, emerging nationalism and the desire to enhance the national prestige on the international scene. However, the future of Korea depends more on the behavior of governments in Moscow, Washington and Peking than those in Seoul and Pyung-yang.

D) Political attitude: In spite of the impressive economic strides, a large number

of citizens do not feel that the government's modernization programs are equally beneficial to all segments of the population. Educated and politically conscious Koreans think of their nation as "a shrimp between two whales". They lament that their nation has been victimized as a battle field for the foreign powers. An increasing number of persons believe that continued dependence on the United States is not consonant with national dignity.

1.34 SOCIO-CULTURAL VALUES

Korean social values are based primarily on the Confucian system of ethics. The introduction of Western notions of democratic equality and Western industrial technology, however, have upset the traditional values. The government has attempted to inculcate democratic concepts of social justice, individual freedom and the dignity of man - concepts that are alien to the Confucian system of social order. The system of authority of the Confucian has induced an attitude in most Koreans that is not compatible with a social system based on individual initiative and the determination of economic activities by the impersonal forces of the market place. Many of those millions who have been freed from the traditional system of familial control because of dislocation by war and migration to the cities have not been able to assimilate new values that are essential to a meaningful life in an industrialized society. The conflict of values has not been resolved despite impressive industrial development in recent years. Insufficient time has passed for the new social, economic, and political forces to alter many of the basic attitudes of the people.

For the rural society, which still accounts for about one half of the total population, the code of social relationships apparently has undergone little change. Urban society, on the other hand, displays increasing diversity, with social attitudes ranging from the traditional through the democratic to anarchic. The fundamen-

tal dilemma is the apparent irreconcilability of a system of social values based on a structure of kinship relationships with political and economic system requiring the cooperative interaction of autonomous individuals. Independent action and social relationships based on function rather than kinship are alien concepts to the average person, and individuals are finding it difficult to adapt to the changing character of life.

1.34 LIFE-STYLE

Since the beginning of Korean history, the basic unit of the society has been the family rather than the individual. The family unit was structured around the kinship or clan system, which has its nucleus in the conjugal and extended family. In the modern period the conjugal family is gradually replacing the traditional extended family as the basic dwelling and economic entity. The influence of Confucian upon family structure that behavior patterns formed within family carried over to social relations outside of family. In poor families where both parents work outside the home, in incomplete families, and among individuals detached from all family groups, the traditional value system seems to have lost its hold. Rural areas and middle and lower class families able to maintain stable ties are less affected.

CONTEXT : SEOUL

2.1 GENERAL BACKGROUND

- 2.11 URBAN GROWTH**
- 2.12 TOPOGRAPHY & CIRCULATION**
- 2.13 LAND USE & POPULATION DENSITY**
- 2.14 DEMOGRAPHIC CHARACTERISTICS**

2.2 MIGRATION

- 2.21 HISTORY OF MIGRATION**
- 2.22 CURRENT TRENDS & CAUSES OF MIGRATION**
- 2.23 STATUS OF MIGRANTS**

2.0 CONTEXT: METROPOLITAN SEOUL

2.1 GENERAL BACKGROUND OF SEOUL

2.11 URBAN GROWTH

Seoul is situated on the western plain a few miles upstream from the mouth of the Han River. It is at the heart of a industrialized area that includes some of the nation's larger cities. Within the limits of metropolitan Seoul are urban centers in addition to the main center of Seoul itself.

In 1392, the founder of the Yi-Dynasty moved the seat of his royal government to Hansung-Bu (old name of Seoul), where the location places at the southern end of the central transe-peninsula depression of Korea and at a strategic location on the west coast. Seoul lies accross the Yellow Sea from the Santung Peninsula of China. When the Yi-Dynasty ended 500 years of its rule in 1910, with the annexation of Korea to Japan, Seoul began developing into a modern city as a political, economic-
al and cultural center of nation. At that time, the population was about 250,000.¹⁵ As the nation was liberated from the Japanese Occupation in 1945, it was renamed Seoul as the capital city of the Republic of Korea. At the end of 1970, the administration of Seoul occupied an area of 619Km².

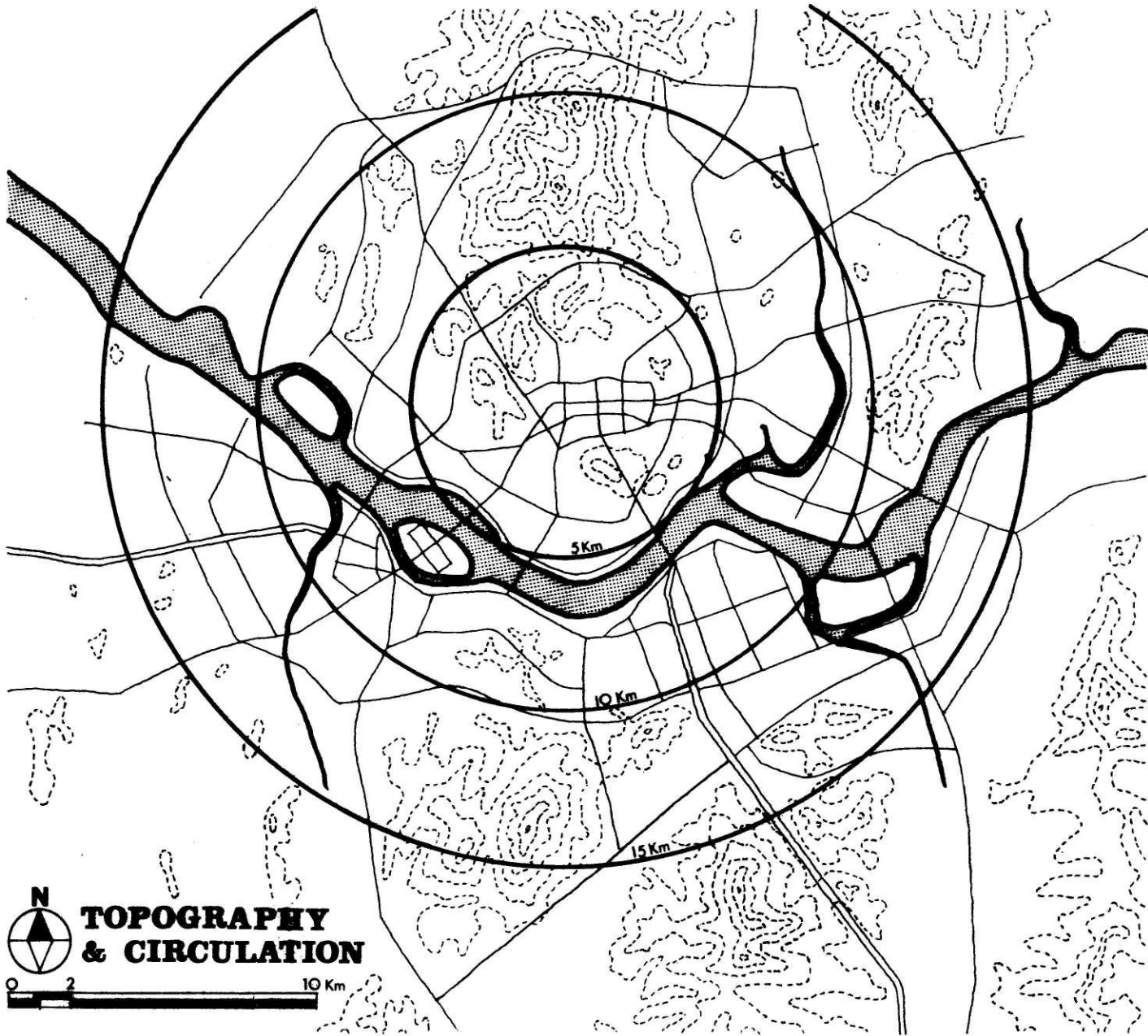
2.12 TOPOGRAPHY & CIRCULATION

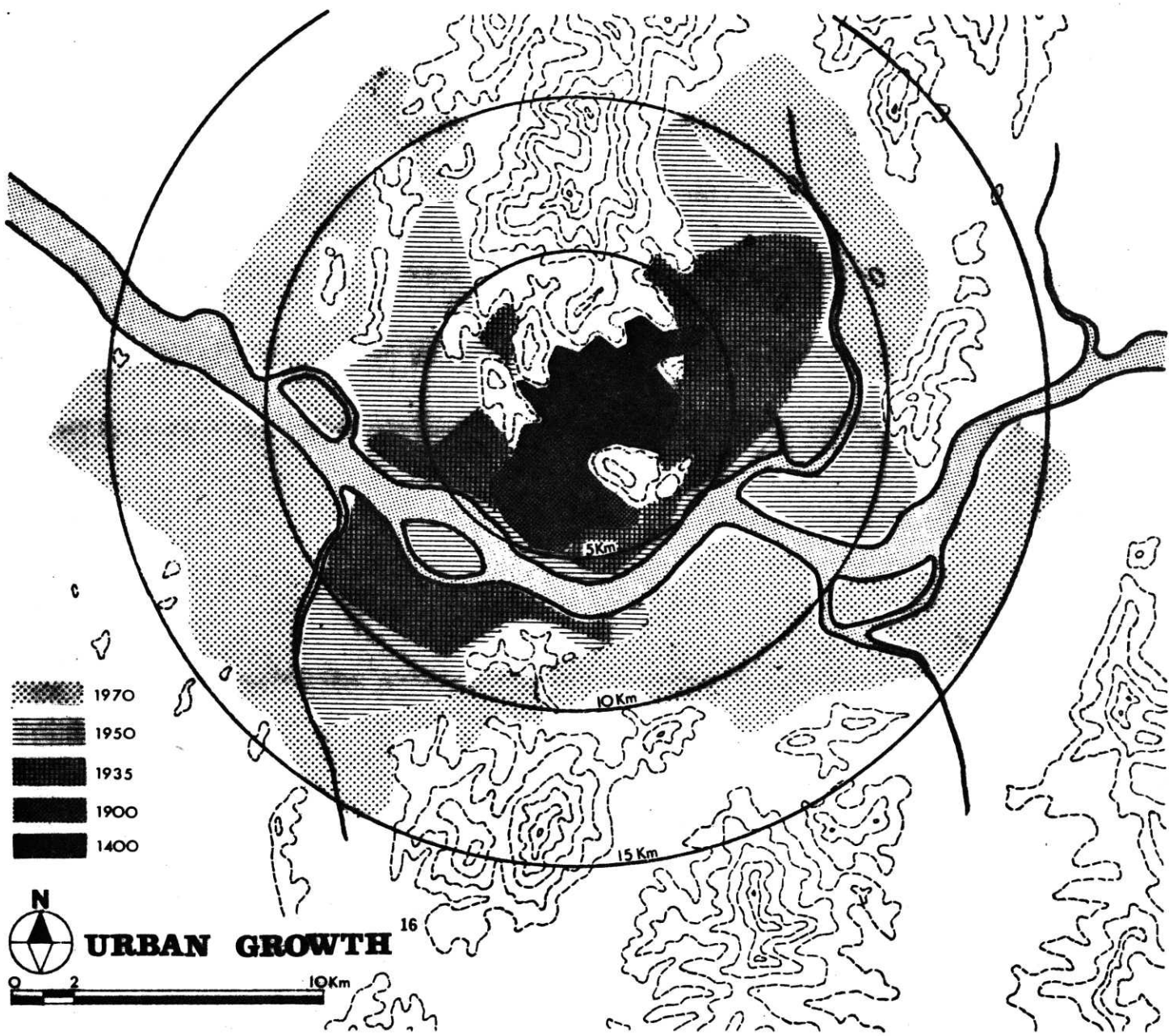
The topography was one of the strong influences in the formation of city. Seoul is surrounded by mountains and a river for the strategic reason of defending the capital from outside invasions. Influenced by peculiar geography, the circulation has been developed unsystematically. Most of streets in central Seoul were developed without linkage to each other, which provide a barrier to automobile traffic. In 1960's,

there was substantial improvements of traffic conditions with the construction of a large number of highways and bridges, but there still remains serious transportation problems due to the rapid increasing number of automobile owners encouraged by government policies of fostering automobile industries.

2.13 LAND USE & POPULATION DENSITY

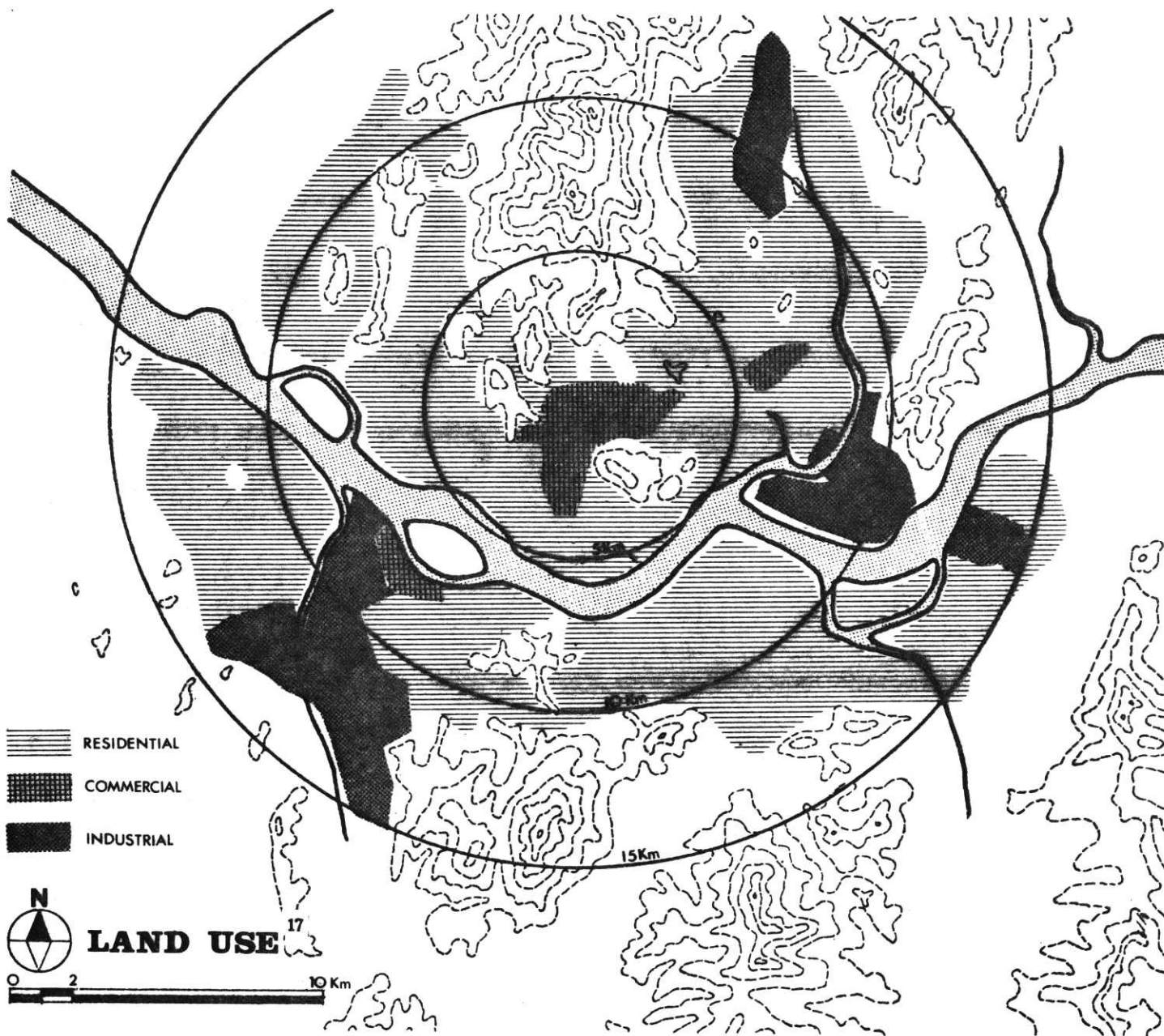
Most of the governmental and commercial activities are contained in the central Seoul (approximately, inside of the 2Km circle), except for two major local centers developed in the south-western and eastern portions of Seoul. The industries have been developed largely in the west-southern and eastern plains, while the residential areas have been dispersed along the major valleys. The population of central Seoul is slowly decreasing, on the other hand, the highest density is found around the central core. These areas of high density are generally occupied by the low-income sector, particularly the high density hillsides could be classified as slum areas or squatter settlements. The general trend of residential developments of the middle income sector is in suburban dwelling.

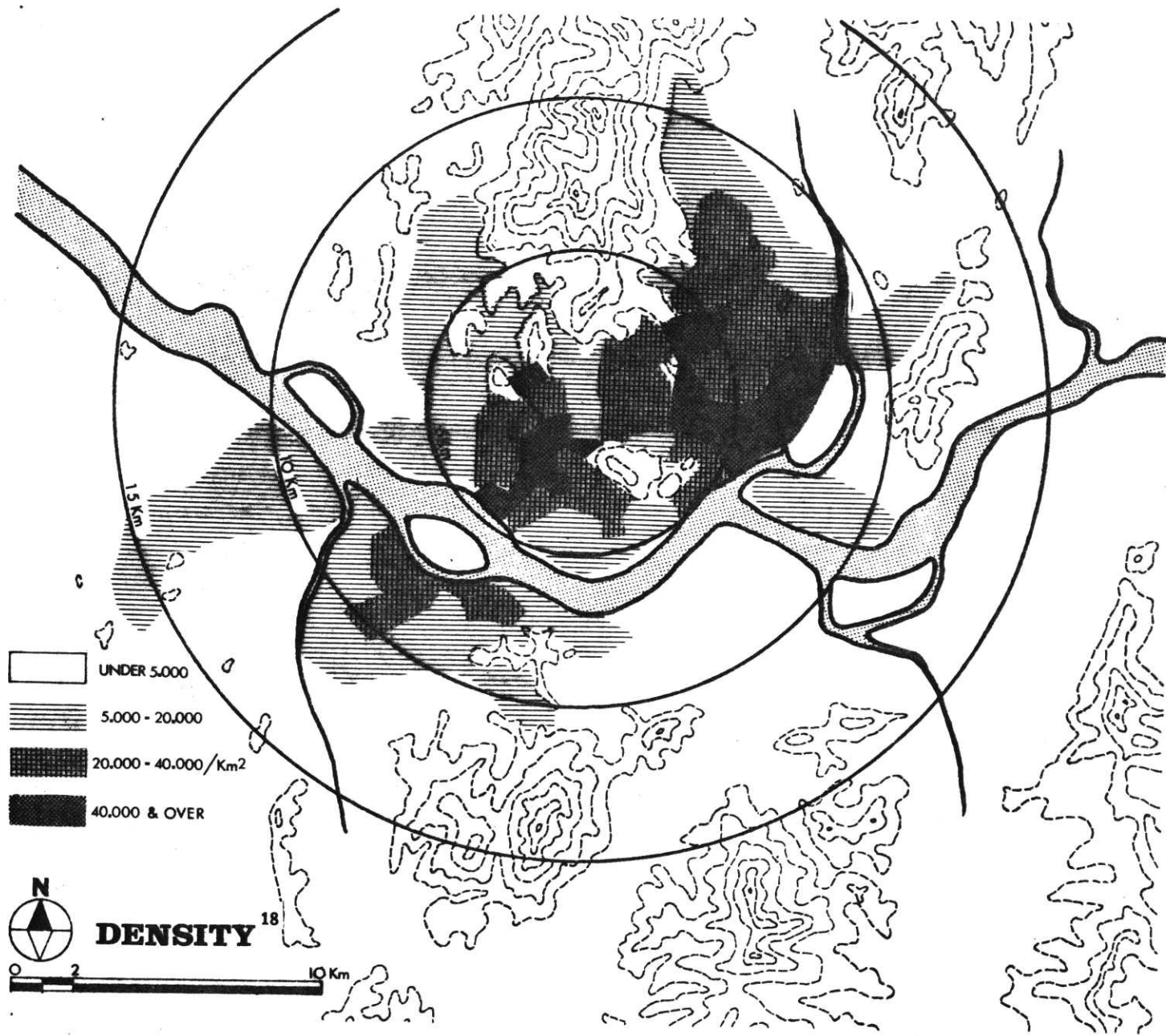




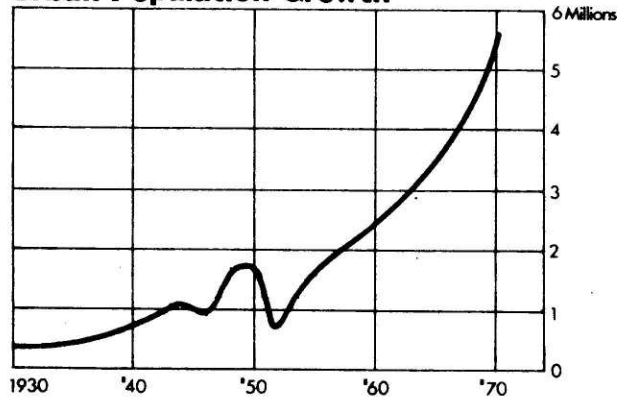
- 1970
- 1950
- 1935
- 1900
- 1400

N
URBAN GROWTH 16
 0 2 10km

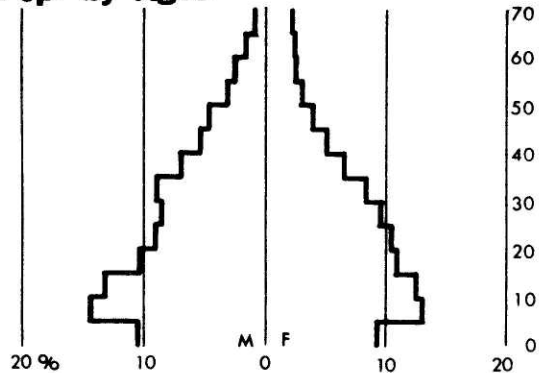




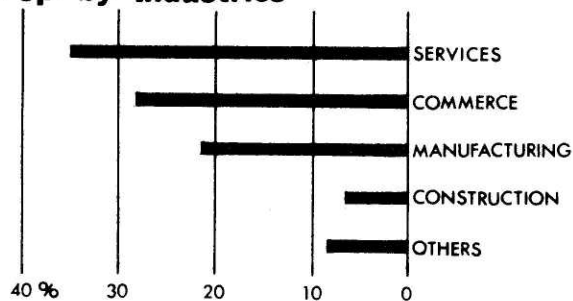
Urban Population Growth¹⁹



Pop. by Ages²⁰



Pop. by Industries²¹



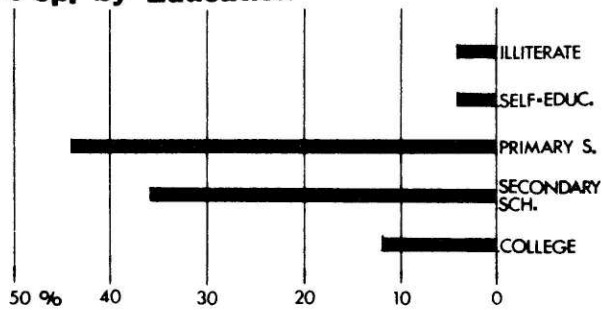
2.14 DEMOGRAPHIC CHARACTERISTICS

A) Population Growth: Rate of population growth of Seoul before 1940 was about 2.8% per year. During the time of Korean Liberation (1945) and Korean War (1950-1953), there were remarkable fluctuations of population in Seoul. During the 1960's, the growth rate increased to an average of 8.7% per year due to heavy migration from rural areas to Seoul.

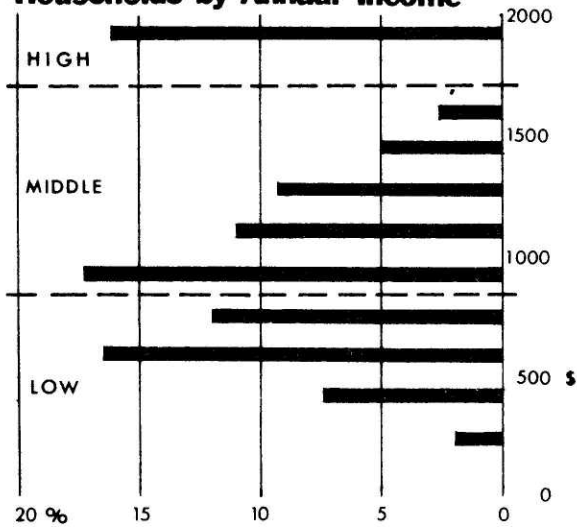
B) Age-sex Distribution: Compared with Korea, there is smaller number of people, ages 0 to 15 years, and larger number of people, ages 15 to 60 years. There are slightly more females than males over 15 years. The distinctive smaller group of people, ages 0 to 5 shows the effects of intensive birth control or a hard economic situation encouraging the people not to have babies. Another reason perhaps is that most of migrants who come to Seoul are unmarried seeking work.

C) Occupations: 26% of total work force of Seoul have clerical jobs, officials and etc., about 25% in sales, 14% in services, 14% in simple manufacturing jobs and 8.5% in daily labor jobs.

Pop. by Education²²



Households by Annual Income²³



D) Educational Background: While the percentage of population educated above the secondary school level in Korea is only 22% of the total population, that of Seoul is almost 50% of the total population. This remarkable difference seems to be the result of the concentration of higher educational facilities and more opportunities of higher technical jobs, therefore, inducing the higher educated migrants from other areas.

E) Income Groups: There are three distinctive indexes by which income groups can be classified. One is the income group, 16% of the total population, earning more than \$1,600 a year which can be classified as high-income sector. The low-income group, about 38% of the total population, earns less than \$800 which is considered the minimum subsistence level. 46% of the total population earning between \$800 and \$1,600 is the middle-income sector.

2.2 MIGRATION

2.21 HISTORY OF MIGRATION; INTRODUCTION

As the fate of nation was changed during the twentieth century, remarkable internal and external migrations have occurred. Millions of people have moved about within the country to and from foreign lands in response to changing economic and political pressures. Throughout the history of Korea, the population has been concentrated in the south, and the distribution of population has reflected the opportunities available to a predominantly agricultural people.

A) Period of Japanese Occupation (1910 - 1945):

The creation of economic opportunities in the growing industrial cities, due to the accelerated exploitation of the power, fuel and mineral resources of what is now North Korea, intensified the rural to urban movements from southern agricultural areas to the north.

B) Period of Liberation and Korean War (1945 -1953):

After the north-south partition which followed the liberation in 1945, the northward trend of migration was abruptly reversed. A rough estimation shows the numbers as high as two million during 1945 - 50.²⁴ The population movement to the south increased when the Korean conflict broke out in 1950. Perhaps a million former northern residents have remained in the south as refugees from the north.

C) Period after Korean War (1953 - 1970):

During the 1950's and 1960's Korea experienced a very rapid urban growth showing 40% of the urban population living in 32 cities having more than 50,000 in 1970,²⁵ mainly due to the heavy migration from rural areas where the economic situation has steadily stagnating.

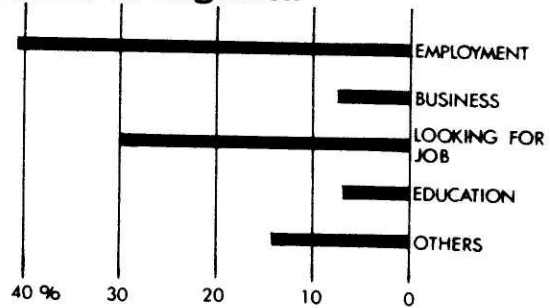
2.22 CURRENT TRENDS AND CAUSES OF MIGRATION

Since the Korean War, a ever greater number of migrants rushed to Seoul contributing about two thirds of the increase in population. The average annual increase of Seoul during 1960's was 8.6% per year, while the natural increase averaged 2.8% at that time.²⁶ Thus, 5.8% of the rate of increase of Seoul could be assumed as from migrants. From the above calculations, about one fourth of the present population of Seoul was living outside of Seoul five years ago, and one third ten years ago. This shows that a large number of Seoul families' background is out of status of migration. This means also that one third of the problems of Seoul are a result of migration. Reasons of in-migration are shown in a survey which was done during January to July in 1969 by the city. It shows that 58% of all migrants who came to during that time, arrived to Seoul with a prearranged job or business, which can be classified as migrants by pull factors, with the 7% of educational reason. The remnant, 35% of total migrants arrived only with hope of getting job which can be classified as sector by push factors.²⁷

A) "PUSH" factors in migration:

The major push factor is the impoverishment of the rural economy. For instance, the average farming area per family is 8,800m²²⁸ (about 2 acres a small patch of land) mainly because of the harsh topography (only 24% of the total area can be utilized) and the increase of the rural population. Current family incomes in rural areas are estimated to be less than half of family incomes in Seoul. This situation makes most farmers believe that even a job as shoeshining would be better than being a peasant. A part of the responsibility goes to the recent economic policy which emphasized only the development of the manufacturing sector. On the other hand, the interests of farmers were neglected, so that agricultural produc-

Reasons of Migration²⁷



tivity decreased and, in return, farmers became poorer. Another factor, but minor, would be the change of an extended family system to a conjugal one.

B) "PULL" factors in migration:

The heavy concentration of political, economical and socio-cultural activities in Seoul is a major inducement to the rural population. For instance, the present administrative machinery is heavily concentrated in the central government, so that even local actions are directly controlled and processed through the sophisticated bureaucracy located in Seoul.

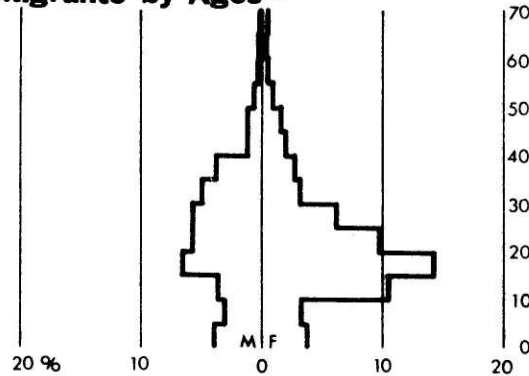
The governmental system has been the primary cause of the concentration of political and economical activities. For example, 70% of industries are located in Seoul, and 30% of all employees of manufacturing industries are living in Seoul. Also, 75% of all educational institutions and 65% of all college students are in Seoul.²⁹

2.23 STATUS OF MIGRANTS

A) Age-sex Distribution:

The most remarkable point is the heavy rate of female migrants, ages 10 to 25 years. This could be interpreted as that age could easily get a job such as housemaid or waitress. (Most of Seoul families usually have a house-maid who is cooking, cleaning, baby care and

Migrants by Ages ²⁷

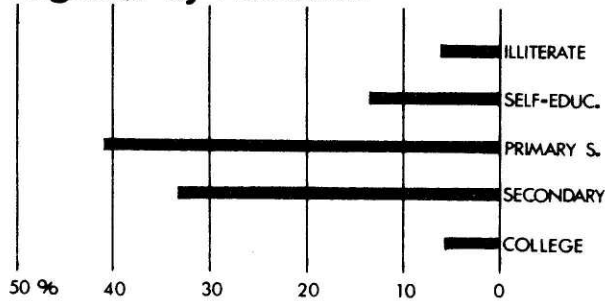


etc.) Another important point is the small number of children and relatively large number of males of working age. This shows that young age groups are coming to Seoul either unmarried or without children mainly because of economic insecurity.

B) Educational background:

They have a much higher degree of education compared with that of Korea, even if it is slightly lower than that of Seoul. It shows that the rural areas are suffering the drain of higher educated young people who have a good potential for upward mobility.

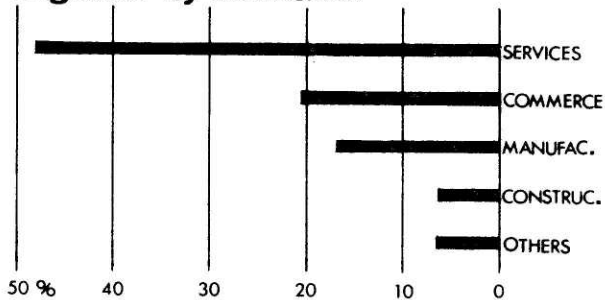
Migrants by Education ²⁷



C) Occupational background:

It is assumed that most of them have simple jobs such as non-technical workers, peddlers, retailers, waitress, house-maids, laborers and etc.

Migrants by Industries ²⁷



HOUSING FOR THE LOW-INCOME SECTOR IN METROPOLITAN SEOUL

3.1 HOUSING SITUATION

- 3.11 THE NATURE OF HOUSING DEMAND
- 3.12 CURRENT SYSTEMS OF HOUSING SUPPLY

3.2 ISSUES & PRIORITIES OF LOW-INCOME HOUSING

- 3.21 LOCATION
- 3.22 LAND OWNERSHIP
- 3.23 STANDARDS OF HOUSING
- 3.24 INCOME GROUPS

3.3 PROBLEMS OF CURRENT HOUSING POLICY

- 3.31 SLUM CLEARANCE & REDEVELOPMENT PROGRAMS
- 3.32 RELOCATION PROGRAM WITH "SITE & SERVICES"
- 3.33 ON-SITE IMPROVEMENT PROGRAM

3.4 ALTERNATIVES OF HOUSING ACTION

- 3.41 BASIC SUPPORTING PROGRAM
- 3.42 SITE & SERVICES PROGRAM
- 3.43 COMPLETE HOUSING PROGRAM

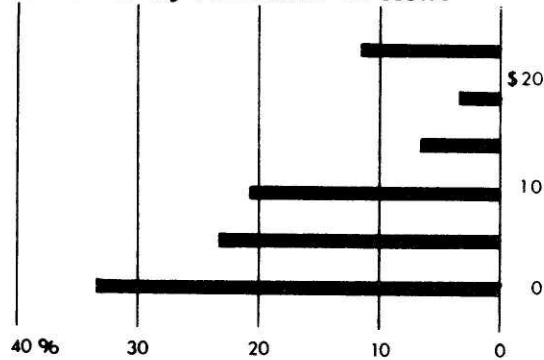
3.5 CONCLUSION

- 3.51 FREEDOM OF COOPERATIVE HOUSING ACTION
- 3.51 FREEDOM OF CHOICE IN SHELTERS
- 3.53 FUTURE ARGUMENTS OF HOUSING POLICY

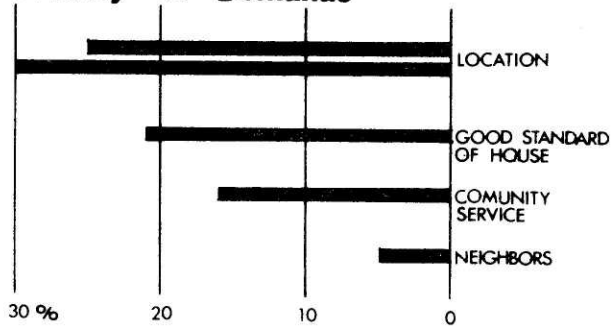
3.0 HOUSING FOR THE LOW-INCOME SECTOR IN METROPOLITAN SEOUL

3.1 HOUSING SITUATION

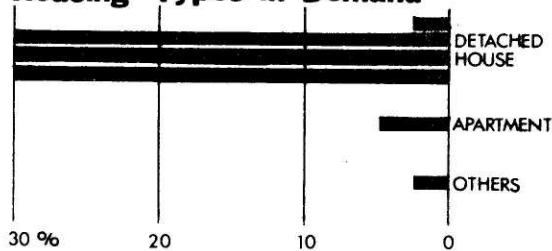
Tenants by Amounts of Rent³⁰



Priority of Demands³⁰



Housing Types in Demand³⁰

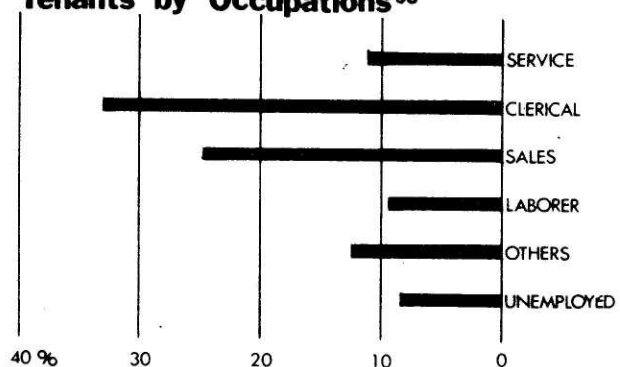


3.11 THE NATURE OF HOUSING DEMAND

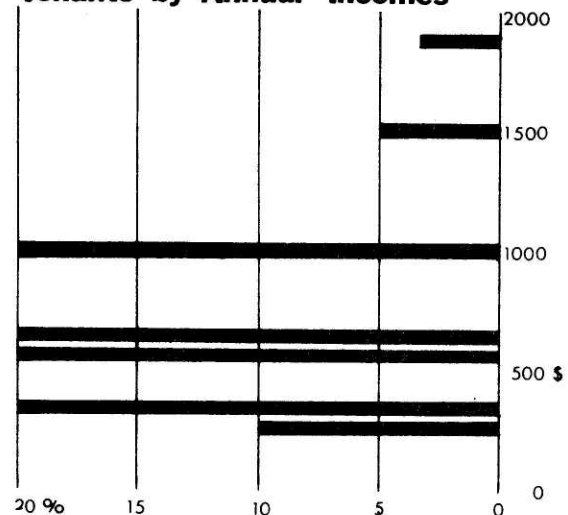
Rapidly increasing population primarily due to immigration accelerated the shortage of shelters in Seoul metropolitan area. Today, one half of total households are living in inadequate shelters. This one half is living in badly deteriorated dwellings which are usually occupied by two or three families. About 70% of this total states that economic incapability is the reason for not having adequate dwelling units. This group, approximately one third of total Seoul families, can be classified as the low-income sector who are directly affected by the lack of adequate housing. Their demand is for shelter within their purchasing capability and with a convenient location for easy access to employment which can be found in central Seoul. But because of high land value, they often have no alternative but to rent shacks or squatting. On the other hand, about 30% of the total families living in rent house not because of economic incapability, but because of other reasons such as the proximity of workplace, marriage, migration and etc. This group also requires adequate dwelling units which must be satisfied.

3.12 CURRENT SYSTEMS OF HOUSING SUPPLY

Tenants by Occupations³⁰



Tenants by Annual Incomes³⁰



The major contribution to the supply of housing has come from the private sectors rather than public sectors. Before 1969, more than 90% of total annual construction of housing was done by the private sectors which benefited primarily middle and high-income sectors. The low-income sector cannot afford housing of such standards, therefore, they usually build their own shelters by self-help. This kind of autonomous construction has contributed a substantial number of dwellings; as of 1966, about 30% of total dwellings in Seoul were classified as "shacks" which were usually built by the owners themselves.

Before 1969, the public sector, the Ministry of Construction and the Seoul Municipality, had supplied less than 10% of the total construction of dwellings, primarily for the middle-income families. But during 1969 - 70, the rate of publicly built dwellings abruptly increased to 25%. The Municipality, at this time, emphasized the construction of 5 to 6 story walk-ups primarily for the low-income sectors who were living in slum areas or squatter settlements. In addition, a substantial number of dwelling lots were provided on the periphery of central Seoul, but only a small segment of the low-income sector was benefited by these programs.

3.2 ISSUES AND PRIORITIES OF LOW-INCOME HOUSING

3.21 LOCATION: THE CENTRAL CITY VS. PERIPHERY

For the low-income sector, easy access to employment is a prime factor because of economic insecurity. Almost 60% of the occupations of the low-income sector, such as peddler, daily laborer and services, is considered to require proximity to major commercial areas. The present slums which usually occupy the hill-sides have a relatively good advantage in terms of location to the central Seoul. Therefore, a relocation plan without the provision of employment should be discouraged, otherwise, convenient economical transportation should be included. On the other hand, those areas having good potential to be developed as "high-income - high density" sectors because of topographical characteristics and proximity to central Seoul, should be steadily transformed with a higher standard of dwellings and the attraction of other income groups. New development plan in the periphery should include provision of employment and full services.

3.22 LAND OWNERSHIP: PRIVATE VS. PUBLIC

Land ownership is regarded as a good incentive for the low-income sector in improving their shelters because of more security of investment in housing. In this sense, private ownership is desirable. But in central Seoul, the land value is usually too high for the low-income sector, therefore, the only way of giving ownership seems to be long term - low interest mortgage system. Another way, even though it is not to provide ownership of land, it can be a system of ownership of the building with a long term lease of the land from the government, especially in case of walk-up housing. On the other hand, in case of new developments in the periphery where the land value is still low, another strategy could be used. For

example, after buying up the project site by a public agency, minimum services are provided with employment for the low-income sector, may help to keep the land value low, and later, full services will be provided. To avoid land speculation, the selling the lots can be reserved until a set period of years is spent occupying the lot, therefore, the lots may not be sold initially. This kind of of strategy will help provide land to the low-income sector within their economic capability. This short period of minimum services will allow ownership of land at a reasonable cost.

3.23 STANDARDS OF HOUSING: INSTANT DEVELOPMENT VS. PROGRESSIVE DEVELOPMENT

Imposing a high level of housing standards to the low-income sector places a heavy initial building expense and maintenance expense on them, even though a heavy subsidy at the maximum public expense is included. The instant development, in other word, package program, with a high standard of housing will deteriorate steadily until the area is a slum again, because the occupants cannot meet minimum maintaining expense. On the other hand, a progressive development, in other word, component program, which means steadily improving development without heavy initial investment is desirable. But the progressive development requires land ownership initially to encourage a long range investment in substantial housing. Another benefit of a component program like "Site and Services" is that it allows freedom to shape their own shelters by their needs as to their economic capability, family size, life style and so on. This freedom of choice should be emphasized in order to mobilize the resources of the low-income sector.

3.24 INCOME GROUPS: HOMOGENEOUS VS. HETEROGENEOUS

Segregation of different income groups is not so apparent as in the developed countries, but the current trend indicates greater segregation. A weakened clan

system, a big difference of incomes and the increased use of automobiles, perhaps, are reasons of segregation, but more importantly a "mass-producing culture" has promoted segregation. For example, the mass production of housing which only considers economics forces a classification of the income groups to find clients, eventually causing the grouping of homogeneous income sectors. To accomplish the mixing of income groups, package program seems to be a more effective tool than the component program which has less control over project characteristics.

3.3 PROBLEMS OF CURRENT HOUSING POLICY

Governmental housing projects have contributed less than 10% of total dwelling built per annum, but during the period of 1969-70, the rate of the governmental contribution to housing was abruptly increased to 25%. At this time, the Seoul Municipality launched "Slum clearance & Construction of walk-ups" and "Relocation programs based on Site & Services" policies. But unfortunately these programs exposed serious problems and questions.

3.31 SLUM CLEARANCE & REDEVELOPMENT PROGRAMS

A) Summary of Programs: These programs were mainly for the replacement of shacks with 5 to 6 story walk-ups in slum areas which usually occupy the hillsides of central Seoul. In 1969 alone, the Seoul Municipality constructed 406 walk-ups, providing 15,800 dwelling units at a total cost of some 5.1 billion Won (17 million dollars: \$1,077 per dwelling unit)³¹. These walk-ups, which were purchased by their occupants over a fifteen year period, were provided as a structural shell whose internal walls, finish floor, heating system, sanitary fittings and cupboards were installed by the household. While this measure considerably reduced the public

cost of the buildings, it required an initial household expenditure of between \$400 and \$800 to the monthly payment of some 3,500 Won (12 dollars).

B) Problems: The primary objectives were to clear the slum area and to provide better standard shelters at minimum public expense, primarily for the former inhabitants of that areas. Unfortunately, those goals apparantly were not achieved. First, the goal of provision of a better housing standard for slum inhabitants is questionable since there is little capability of maintenance by the low-income sectors. If low-income people transfer expenditure to better shelter from other more vital items such as food, clothing and medical care, the better standard housing will be disasterous for the survival of the low-income families. Secondly, the goal of minimum public expense was not achieved because complete, high cost "packages" were intended to be provided instead of "components & elements". Thirdly, the goal of reaccommodation of the former slum occupants in the same area was not achieved. According to a survey, about 30% of the families did not return to the redeveloped area, primarily because of the heavy initial expenditure for the right to move in. For example, 80% of the people who moved in to this area had to borrow money for the additional sanitary and interior work remained to be built by individual families.³² In conclusion, the modern standard of housing, which the Seoul Municipality planned to achieve at the risk of huge amount of public expense, makes more than 50% of occupants feel inconvenient except the provision of electricity.

3.32 RELOCATION PROGRAM WITH "SITE & SERVICES"

A) Summary of program: This program was mainly for the relocation of families from the inner-city slums in Seoul. This project was called "Kwangju Relocation

Project", located in Kwangju, a rural area some 25 kilometers southeast of central Seoul. The Municipality acquired a total of 1,130 hectares of land of which 680 hectares was to be developed through site and services programs. The site is planned to accommodate approximately 40,000 households, predominantly from the low-income sectors evicted from slum areas. This project includes about 100 hectares zoned for industrial use.

B) Problems:

Although primary objective was to accomodate the evicted slum population in this area 60% of the relocated families went back to Seoul after selling the right of residence which was issued by the municipality only for the relocated slum dwellers. Most of the people who bought the rights of residence were from the outside of Seoul. They were attracted by the promise of an industrial city and moved in this site expecting good opportunities of industrial employment. Most of them are directly from outside of Seoul without coming through Seoul. This clearly indicates the potential of in-migration from provincial areas to Seoul if there are opportunities of employment. Owing to the attraction of the promised industrial and residential development almost 200,000 people gathered in this site. However, there was little evidence of practical development and there were no job opportunities. Land speculators have pushed the land value up making it difficult for the low-income people to remain in this site. Only a few small industries were built later absorbing only a very small segment of the unemployed. Increasingly this site had become a "bed-town" where consumption was dominant instead of production. Eventually the population revolt to the municipality asking them to keep promise of industrial development.

The major defects of this relocation scheme was that the municipality did not

provide employment sufficient for 40,000 families. Secondly, the social effects of the relocation scheme to the slum inhabitants was not fully known. Thirdly, in spite of the big scale of the scheme which to be developed as a self-sustaining city, it was planned to accomodate only former slum inhabitants which resulted in a homogeneous low-income city. Furthermore, there was an insufficient provision of utilities and services for the use of the slum inhabitants.

3.33 ON-SITE IMPROVEMENT PROGRAM

A) Summary of Program: This program concerns the improvement of housing standards in selected inner-city hillside areas of public land occupied by squatters. Under this program, the city provides there areas with access roads, pedestrian ways and public utilities, and in some cases transfers land-title to the individual squatter occupants of the area at 30 to 40% below the market land-value, on condition that the households concerned re-build their houses to improved municipal standards with their own resources, within a two month period. Failure by a squatter family to carry out this reconstruction leads to its eviction from the area by the public authorities.

B) Consequences: Only 6% of the families in the program have been unable or unwilling to participate.³¹ This shows that the advantage of secure tenure of inner-city land, and the provision of urban utilities by the Municipality, evidently outweigh for most of the participants the compulsory manner in which the program was implemented and the financial burden that it must impose on many of the families involved. Perhaps this program should be combined with the economic development and social development programs in order to achieve a more comprehensive improvement of living conditions in these areas.

3.4 ALTERNATIVES OF HOUSING ACTION

There are various way of accomplishing the provision of housing from the provision of elements of housing to complete housing. But these can be simplified as three different levels: A) Basic supporting program B) Site & services program C) Complete housing program. Problems and future direction of each program may be pointed out based on prior discussion of housing issues.

3.41 BASIC SUPPORTING PROGRAM

This program means the provision of basic housing elements such as land, materials, tools, labor force & management, credit and information.³³ This program can emphasize the freedom of choice in shaping the shelters by the inhabitants themselves more than any other programs, because they can manage the elements as one sequence according to their economic capability and taste. These elements may be divided as physical elements and operational elements. Physical elements such as land, materials and tools are directly involved with economic capability. If these elements are not available at a cheap cost there will be no way to start construction. The land is the most important element which is usually too expensive for the low-income sector. In the case of Seoul, to ease land competition, land speculation should be controlled and utilization of difficult topographic areas should be encouraged, while preference of disposed public land is given to the low-income housing developers. Labor force & management, credit and information may be classified as operational elements for the physical elements. Most of low income sector has less education, power and economic capability, therefore, they need organization which can help them in building their shelters. For instance, cooperative institution can carry out those aspects which are difficult for the low-income people themselves. On the other hand, the procedure and method of

various housing systems should be guided by professionals who can give basic information and knowledge. The "basic supporting program" should be based on the highly correlated organization of every elements, otherwise, this program will be the most inefficient way of building housing.

3.42 SITE & SERVICES PROGRAM

Except for the construction of housing, all the services and land are provided in this program, so that people can build their shelters by themselves based on their economic situation and decision. This program allows control of the nature of the site and services which in turn may effect the nature of shelters indirectly, but it leaves the nature of the shelters up to each family. This program is particularly adequate for the low-income sector who cannot pay for the high cost of land and construction of shelter at the same time. But this program should be accompanied by an economic program for the provision of employment, if the location of the site is at a distance from the central city.

The future development of site & services programs should focus on development of strategies and tools in order to control the future shape of a development in favor of the low-income sector.

3.43 COMPLETE HOUSING PROGRAMS

These are package programs that provide a site, full services and a complete shelter, however, there are variations in the degree of completion. This program limits the choices of the people and requires a heavy initial investment, even though the cost can be cut down by lowering the standards of housing. Therefore, this program should aim toward middle and high-income groups who have enough economic resources to afford full housing packages. A variety of programs are

desirable to induce clients among the upper-income groups. Another direction of this program is a rental policy for the low-income group who cannot purchase a dwelling, and for the people of upper-income groups who feel renting is more convenient. However, this program should provide a maximum range of choices for the individual because of its nature defining the type of housing.

3.5 CONCLUSION

3.51 FREEDOM OF COOPERATIVE HOUSING ACTION

The serious housing shortage cannot be solved without a policy of encouraging private developments, because most of the housing supply has been done by the private sector rather than public. Therefore, all kinds of cooperative housing actions should be legalized and guaranteed by the government in order to give the low income sector the opportunities of expressing and executing their common interests. People need freedom to act for their shelters.

3.52 FREEDOM OF CHOICE IN SHELTERS

Current housing policy has been concerned with numbers and physical standards of housing. Housing gives not only a dwelling, but also the means of social identity and security. These other effects of housing are usually formulated according to needs and capabilities, which is apt to be jeopardized by the imposing of complete housing. The manner of making housing policy needs to be transformed to allow input from the users. Housing "for the people" should be changed to housing "by the people".

3.53 FUTURE ARGUMENTS OF HOUSING POLICY

- A) How to maximize the use of socio-economic resources of the low-income sector for housing ?
- B) How to relate housing program with social and economic programs for the low-income sector ?
- C) What kinds of development strategies may be carried out for the maximum benefits of the low-income sector ?
- D) How may the social and economic criteria be transformed to housing program and physical design ?
- E) How and what kinds of modern technology should be developed and applied to the low-income housing program without limiting the freedom of housing ?
- F) How to relate housing program with national modernization programs ?

CASE-STUDY:"SUNG-NAM" CITY

INTRODUCTION

4.1 THE SITE

4.2 PLANNING POLICIES / GOALS

4.21 PRIMARY USE

4.22 TARGET INCOME GROUPS

4.23 INTENSITIES OF USE

4.24 LAND TENURE

4.25 CIRCULATION

4.26 FINANCING GROUPS

4.27 UTILITIES

4.28 DEVELOPMENT MODE

4.3 LAND USE

4.31 CRITERIA

4.32 COMPARISON

4.4 CIRCULATION

4.41 CRITERIA

4.42 COMPARISON

4.5 SEGMENT PROTOTYPES

4.51 LAND USE

4.52 CIRCULATION

4.53 LAND SUBDIVISION

4.54 STAGING PLAN

4.1 INTRODUCTION

The site was planned for the relocation of inner-city slum occupants. (See chapter 3.32 for summary and problems.) This area exposed many problems primarily because this site was originally planned only as a relocation area for the relocated families not as a satellite city. The primary interest in this case-study, therefore, is to review the site as a city in which the low-income sector is suffering from lack of employment and adequate services. The first concern is what kinds of planning policies and goals should be established to generate the maximum benefits for the low-income sector in a new city. Secondly, how those goals and criteria can be transformed to the physical design specifically in this site which has difficult conditions of topography.

To approach these questions in this case-study, the planning policies and goals will be established viewing the site as a city, but considering the needs of the low-income sector in Seoul metropolitan area. The criteria of land use and circulation will be presented with two alternatives and the city's proposal for the site. Finally, segment prototypes will be shown based on two alternative plans of the whole site, comparing the advantages and disadvantages of two different approaches in land use, circulation, land subdivision and staging.

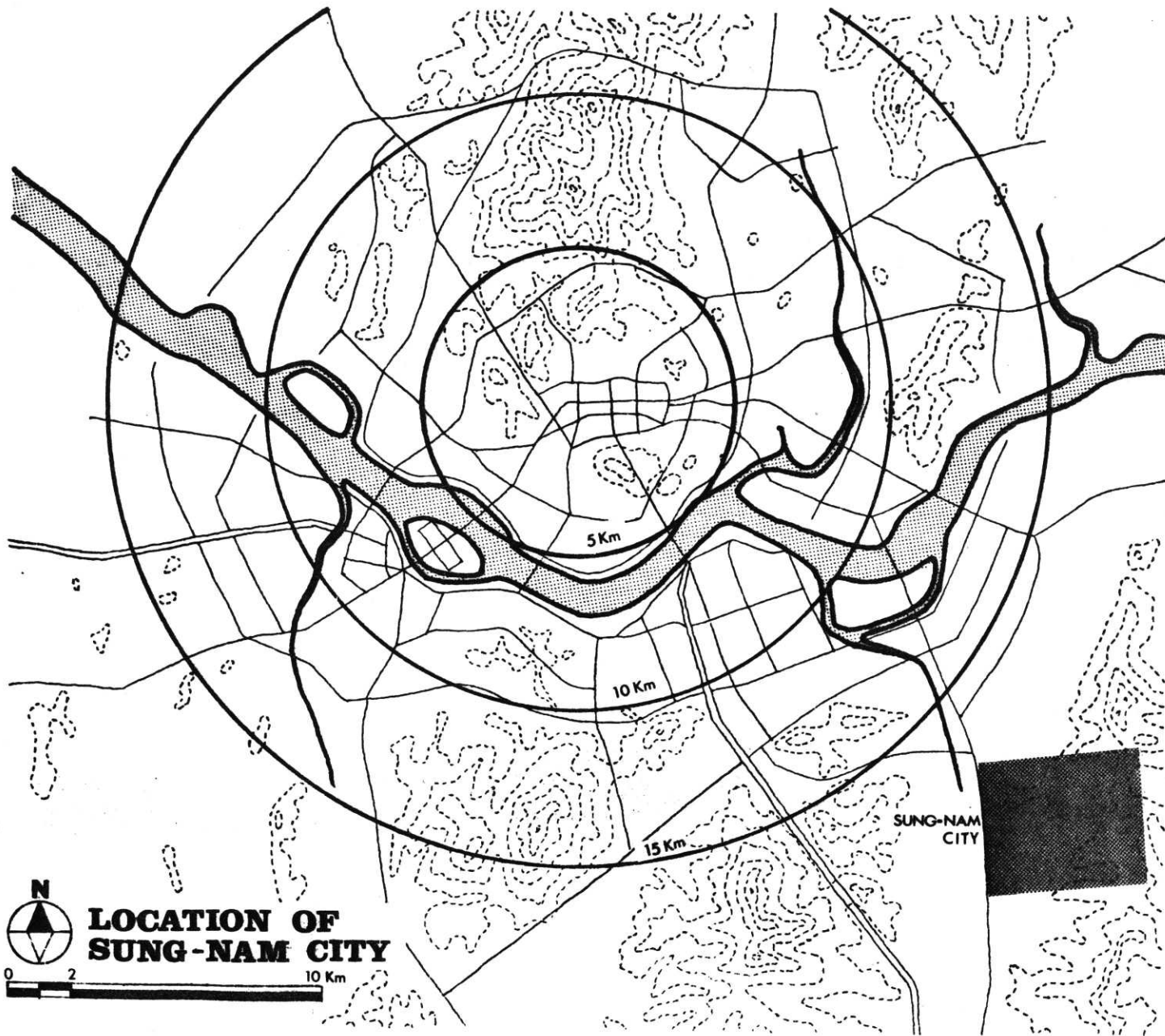
4.2 THE SITE

- Location : 25 kilometers southeast of central Seoul.
- Area : Approximately 1,130 ha.
- Access : The main access is from "Dae-gok-no" road (Highway system expected) to the west of the site.
- Main features : Previously agricultural area; adjacent to the National Park on the east.

-Topography : Predominantly steep sloped area leaving only small strips of flat land in the valleys.

0 - 10 % slope ; Approx. 20 % of site
10 - 20 % slope ; Approx. 40 % of site
20 - over ; Approx. 40 % of site

-Ownership : Bought by the Seoul Municipality.



N

**LOCATION OF
SUNG-NAM CITY**
0 2 10 Km

4.2 PLANNING POLICIES / GOALS

4.21 PRIMARY USE : DEVELOPMENT OF SELF-SUFFICIENT CITY

- A) Emphasizing the development of a residential community in favor of the low-income sector with the provision of employment.
- B) Residential use implies that the necessary supporting land uses will be included; schools, playgrounds, commercial facilities and other institutional requirements.
- C) The site will be developed maximizing the advantages of the sloped topography.
- D) The site will allow the development of a large regional commercial center. incremental planning will allow the commercial center readjust its size to the required area.
- E) The areas having convenient access from the main highway will be developed for industrial use.
- F) The areas adjacent to the National Park will consider the future development of a recreational center taking advantage of the scenic beauty.
- G) The future highway system and expected expansion of the site will be considered.

4.22 TARGET INCOME GROUPS

Initially, the site will be developed for the low-income sector, but it will become a "balanced community" at the saturated stage.

Low-income	:50%
Middle-income	:40%
High-income	:10%

4.23 INTENSITIES OF USE

A) Predominantly, the lots for detached houses will be provided at a medium density, but higher densities will be achieved through a variety of programs and building types such as walk-ups and row-houses.

B) Approximate population at saturation will be 40,000 units with 200,000 persons. This is approximately 4% of total population of Seoul Metropolitan area, and 8% of total housing demand of the present time.

4.24 LAND TENURE: PRIVATE OWNERSHIP

A) The site primarily stree ownership.

B) A rental situation for some portion of the low-income sector will be necessary, but this situation will be converted to ownership as quickly as possible.

4.25 CIRCULATION: EXTERNAL / INTERNAL NETWORK

A) Future extension of the highway system will be considered when planning the internal circulation network.

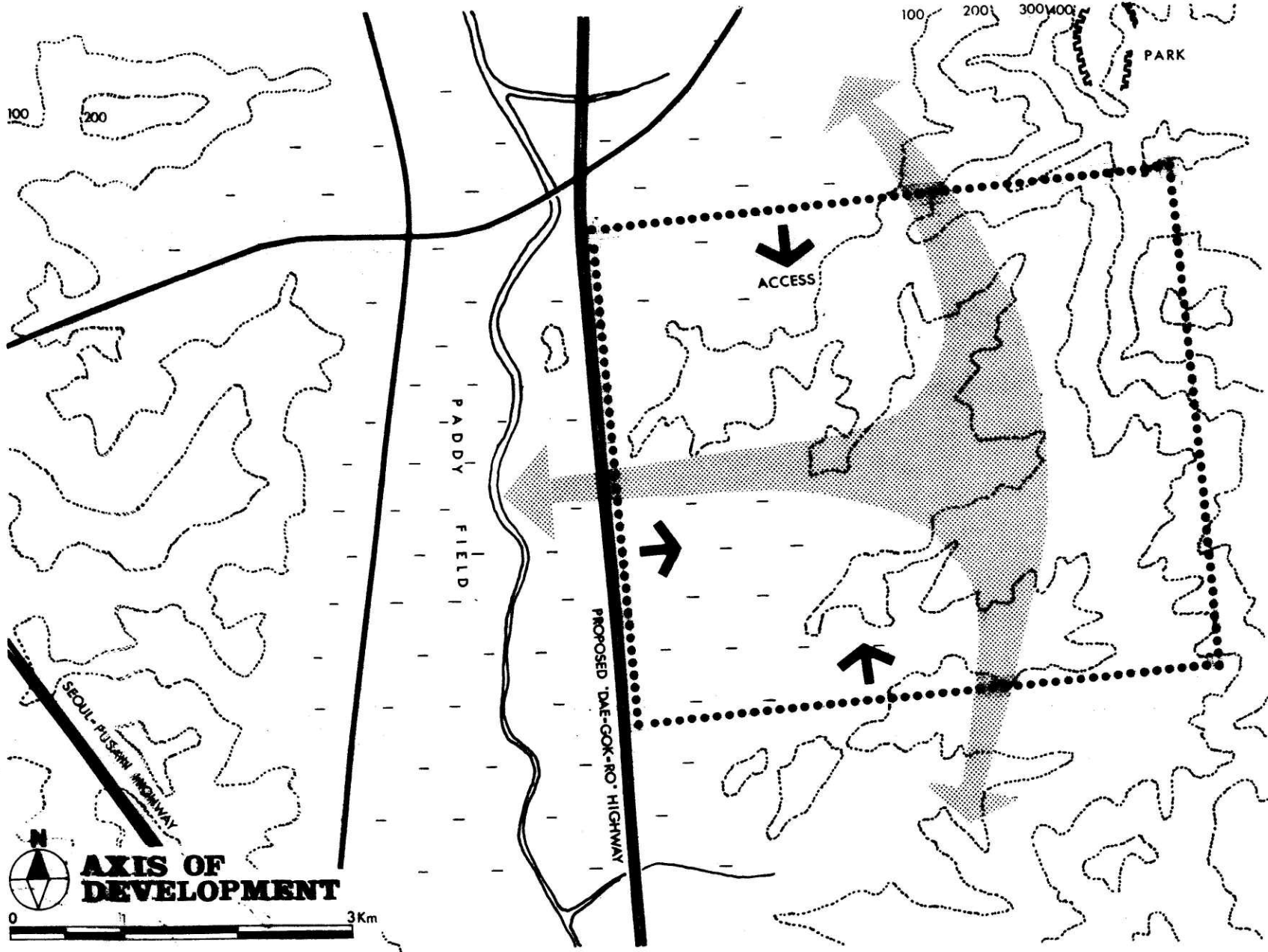
B) The circulation network will be adapted to natural topographic conditions to minimize development cost.

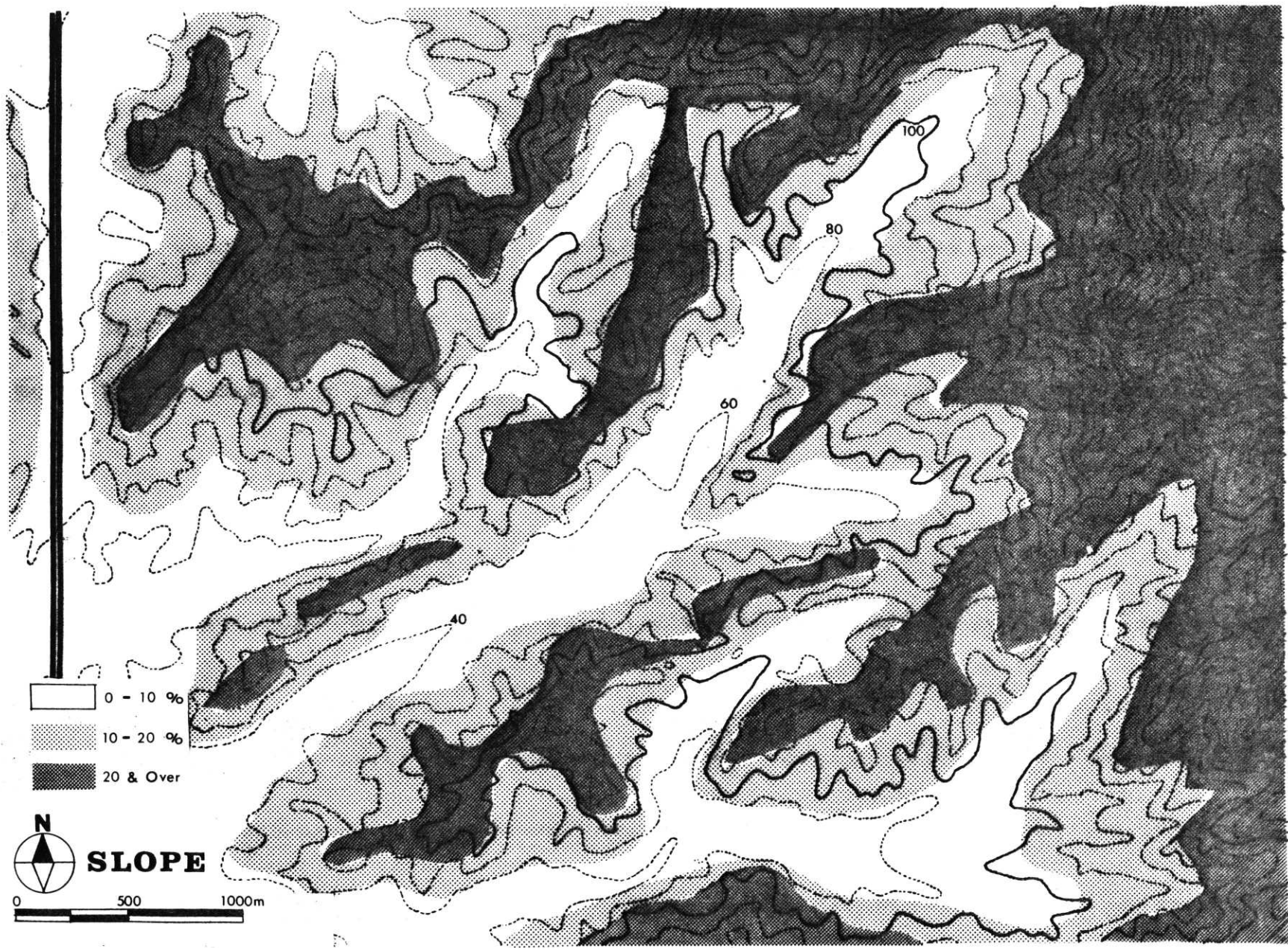
4.26 FINANCING GROUPS: BOTH PRIVATE AND PUBLIC

A) The magnitude of the development precludes funding only from public agencies. Private capital should be induced with reasonable incentives for investment.

4.27 UTILITIES: MAXIMIZATION OF TOPOGRAPHIC ADVANTAGES

A) All utility systems, water, sewer, storm drainage and electricity, will be developed considering the natural slope of the land to minimize the operating cost.





4.28 DEVELOPMENT MODE: INCREMENTAL GROWTH

- A) The site will be developed incrementally to allow flexibility of future adaptations.
- B) Implementation will have 3 to 4 stages at 5 to 10 years intervals.

4.3 LAND USE

4.31 CRITERIA

A) Residential:

-Basic planning units will be sized to create physical environments that will give a sense of community.

Neighborhood unit :Approximately, 400m X 400m to 600m X 600m;
inclusion of primary school and playground.

Community unit :Consisting of 6 - 9 neighborhood units;
inclusion of primary schools and 2 - 4 secondary
schools and community center.

Region (Total site):Consisting of 6 - 8 community units;
inclusion of 1 - 2 colleges and regional center.

-Type of housing will be determined according to the slope of land and intensities of land use;

0 - 10% : Detached house
10 - 20% : Row-house & Walk-ups
20 - over: Walk-ups

Higher density areas: Multi-story house
Lower density areas : Single story house

-The low-income sectors will be provided lots for detached house.

B) Commercial:

-Commercial areas will be developed along the main circulation network, with a priority for flat land.

-Flexibility in size and location will be developed in order to allow commercial use to respond to future demand.

-Commercial areas will be provided as following;

Local : size ;small, corner store
location ;scattered in residential areas
clientele;pedestrian, within walking distance

Vicinal : size ;large and small
location ;along main streets
clientele;predominantly pedestrian but automobile accessible

Regional: size ;large shopping centers
location ;on main through streets
clientele;pedestrian and automobile

C) Public areas: parks, schools, and other uses

-Parks will be developed on the upper parts of the sloped areas.

-Open spaces and parks will be inter-connected for continuous pedestrian access.

-Parks will be combined with school facilities.

-Types of parks;

Local : Primarily used for school-age children, and located in residential blocks with only pedestrian access.

Neighborhood: Primarily for young adults for active outdoor sports, and located within school play areas for maximum space utilization, only pedestrian access.

Area : Located in the vicinities of community units on sloped areas, inter-connecting to other communities primarily for pedestrian use, automobile accessible.

Regional: Open spaces on the hillsides on the western boundary which is adjacent to the National Park, primarily for automobile access.

-Schools;

Primary schools :The plan will provide 15 - 25 schools for approximately 30,000 - 50,000 childrens scaled by the neighborhood units, within walking distance.

Secondary schools:10 - 15 secondary & vocational schools will be provided for about 20,000 - 30,000 students, scattered in communities.

Colleges :1 - 2 colleges for approximately 2,000 - 4,000 students in the site.

-Other community facilities;

A cultural and health center will be located in each community unit and a large civic center in the site.

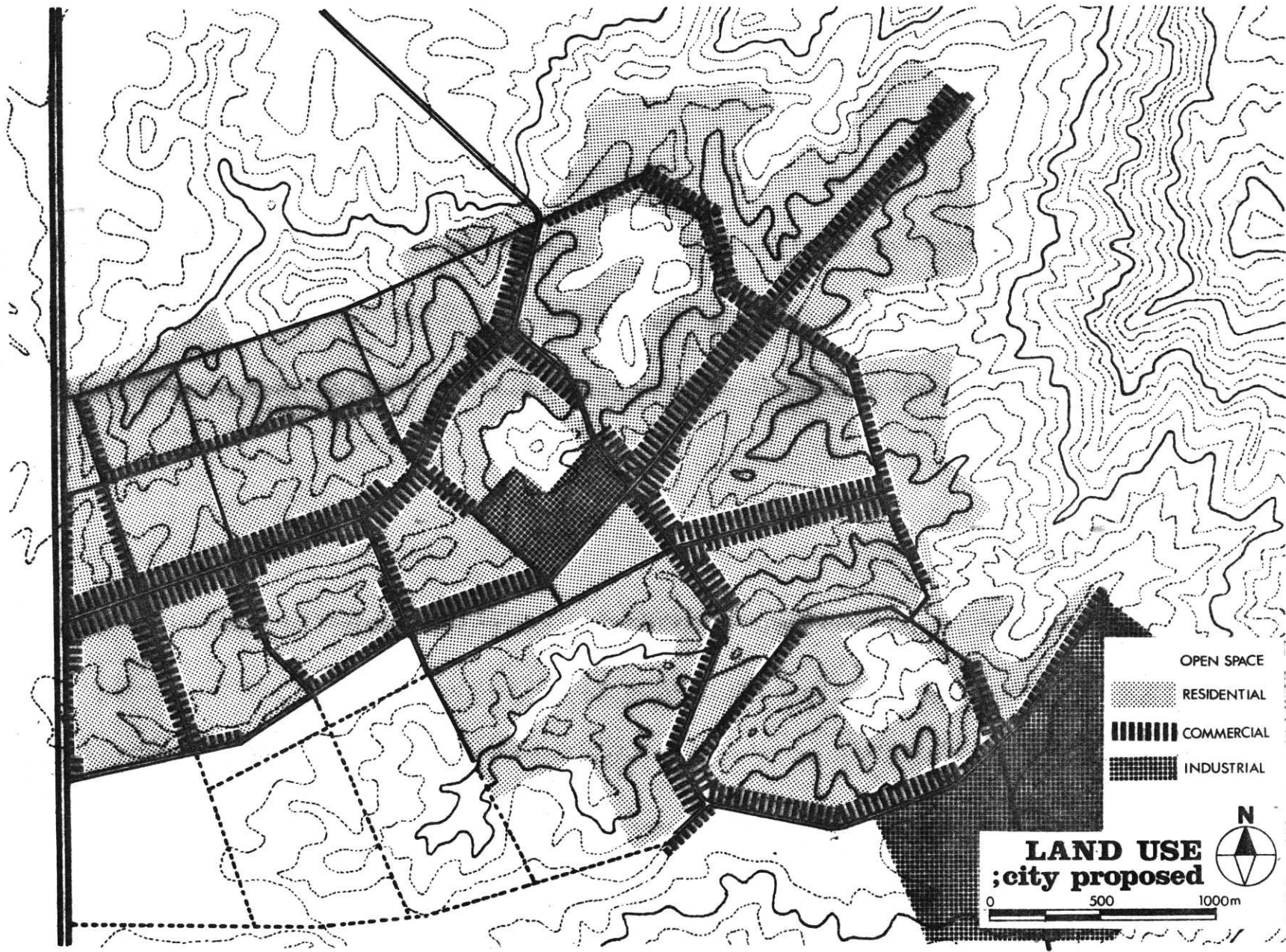
D) Industrial:

-Light industries are recommended because of topography.

-Vicinity of the site having convenient access from highway will be used.

-Industrial areas will be located in easily expandable site.

-Industrial areas will not be mixed up with residential areas.



OPEN SPACE

RESIDENTIAL

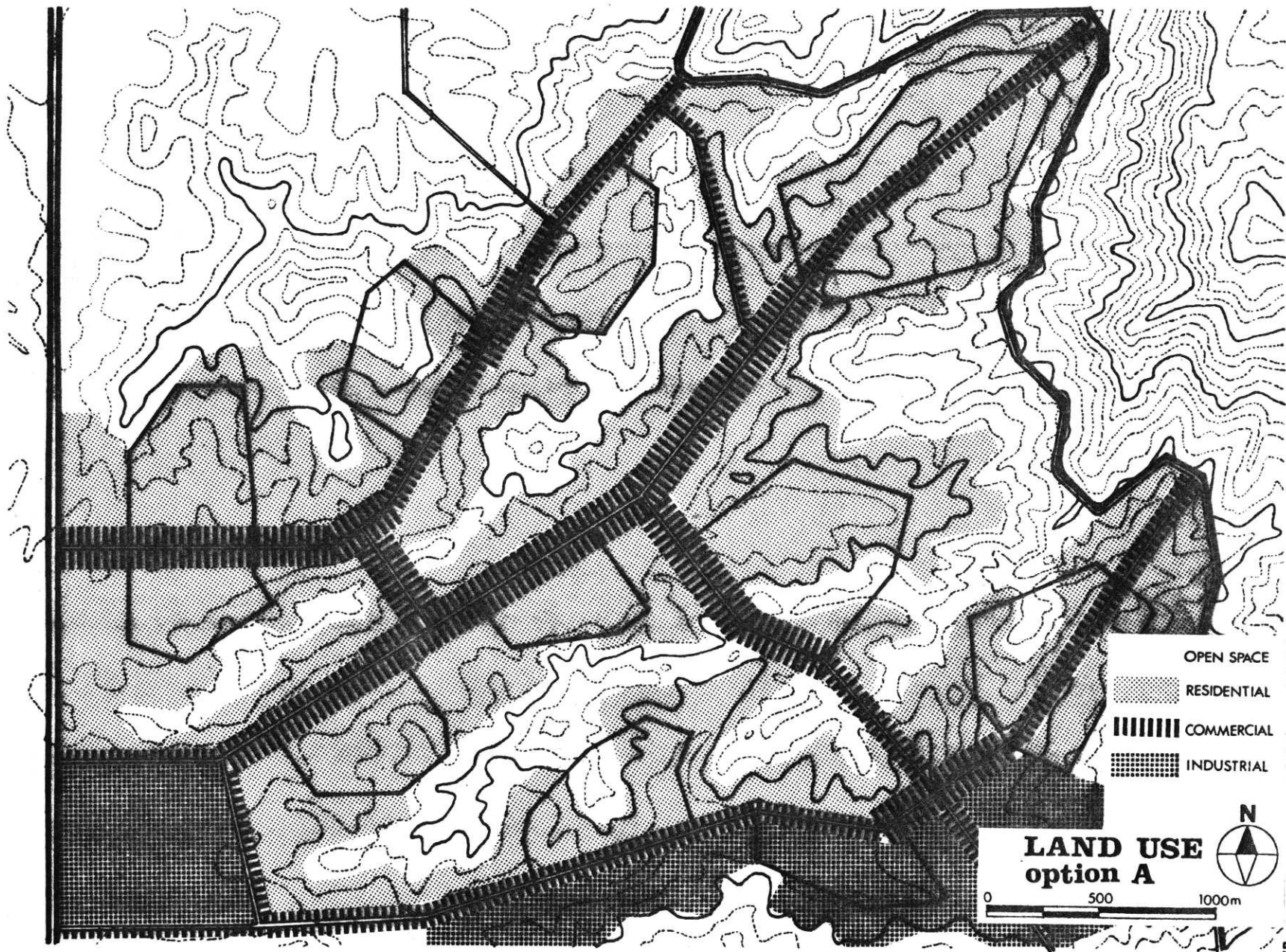
COMMERCIAL

INDUSTRIAL

N

LAND USE
; city proposed

0 500 1000m

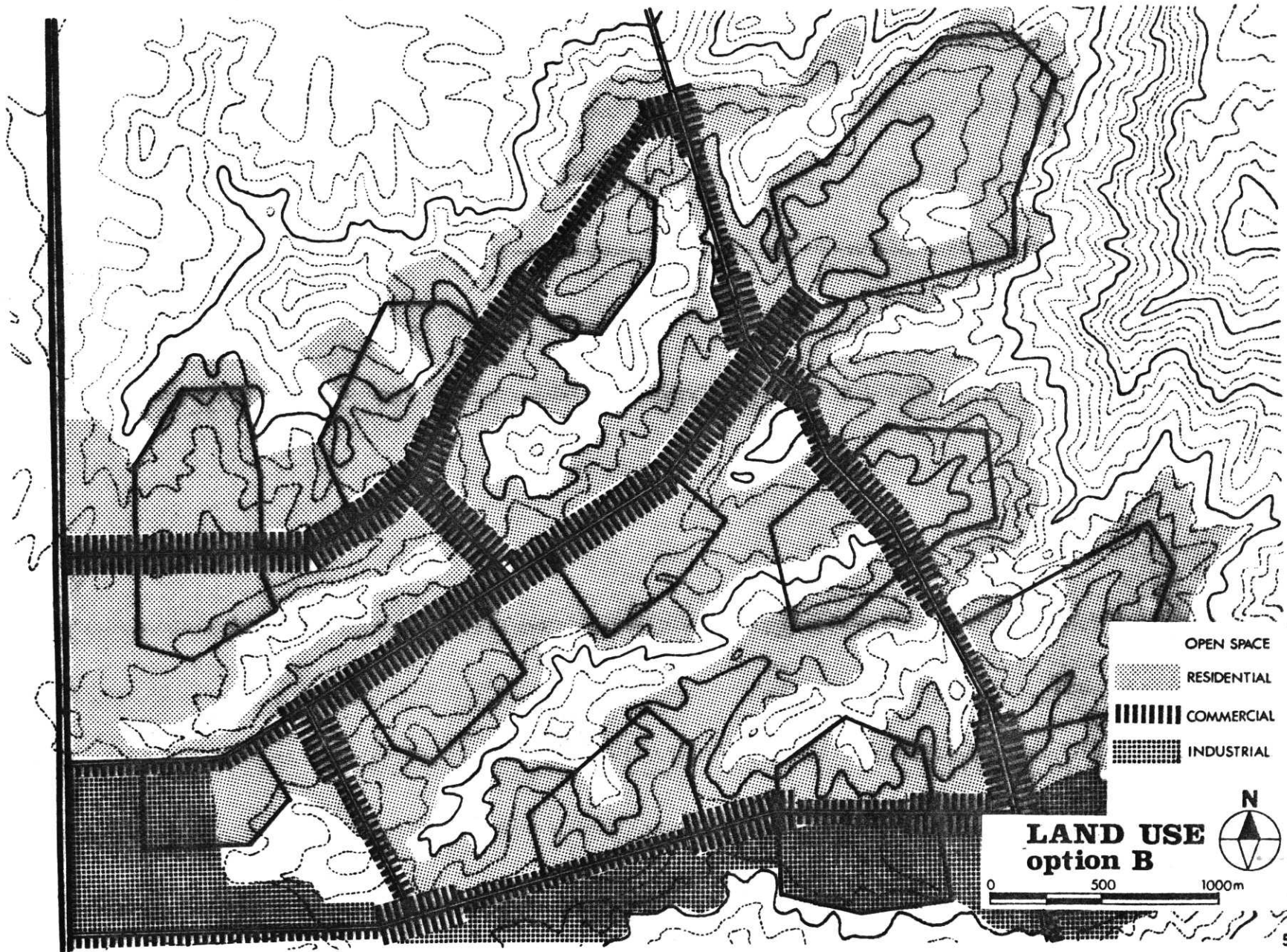


- OPEN SPACE
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL

**LAND USE
option A**



0 500 1000m



4.32 COMPARISON

<u>PROPOSAL BY CITY</u>	<u>OPTION "A"</u>	<u>OPTION "B"</u>
-Western part is emphasized as city center	-The middle of the site is emphasized as a city center.	-The center of the eastern part is emphasized as a city center.
-The main commercial areas are divided into two, west and east.	-Main commercial areas will be developed along the main circulation network following the valleys.	-Main commercial areas will be developed along the main circulation network and inter-province through street.
-Residential areas cover all the areas without open space in the eastern part.	-Residential areas are planned on medium slope preserving open space on steep slope for schools and recreations.	-Residential areas; same as Option "A".
-The open space is not continued.	-Open spaces are inter-connected for continuous pedestrian access; a large open space on eastern boundary is to be developed as a big recreation area taking advantage of the proximity to the National Park.	-Open spaces; same as option "A".
-Industrial areas occupy the center of the site.	-Industrial areas will be located in the southern part of the site.	-Industrial areas; same as option "A".

4.4 CIRCULATION

4.41 CRITERIA

- A) Exterior / interior network will be developed based on future highway systems and expectation of future needs; Scenic Drive & Inter-province Road.
- B) All the areas will benefit equally from the access road.
- C) The circulation network will be highly adapted to the topography to minimize the development cost and to preserve natural beauty.
- D) The circulation network will encourage the pedestrian walkways to be gathering place without automobile disturbing.
- E) The plan will emphasize the maximum control of automobile traffic not to destroy the sense of community.
- F) The development of sloped land will be encouraged by giving easy access.
- G) Industrial areas will have independent access from highway systems.
- H) Circulation mode;

Pedestrians only : Exclusive use of pedestrians.

Ex.: Inter-connected pedestrian walkways throughout the site.

Pedestrians & vehicles : pedestrian dominate over vehicles.

Ex.: Loop street around residential blocks.

Vehicles & pedestrians : vehicles dominate over pedestrian.

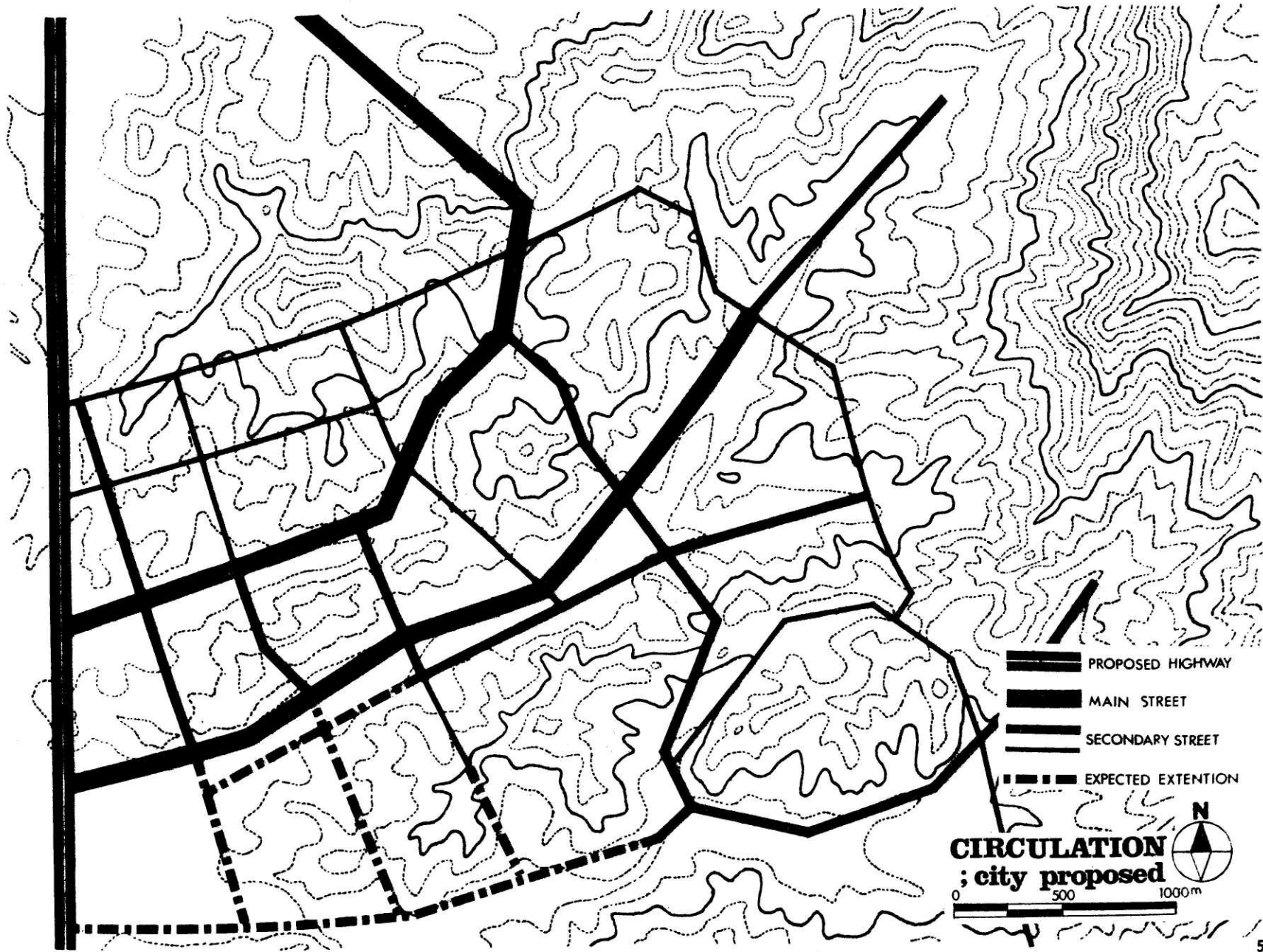
Ex.: Main circulation along the valleys & transverse connectors.





Vehicles with limited pedestrians: vehicles strongly dominate.

Ex.: "Dae-gok-no" highway & Scenic Drive.


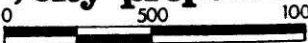
Vehicles only: Exclusive use of automobiles

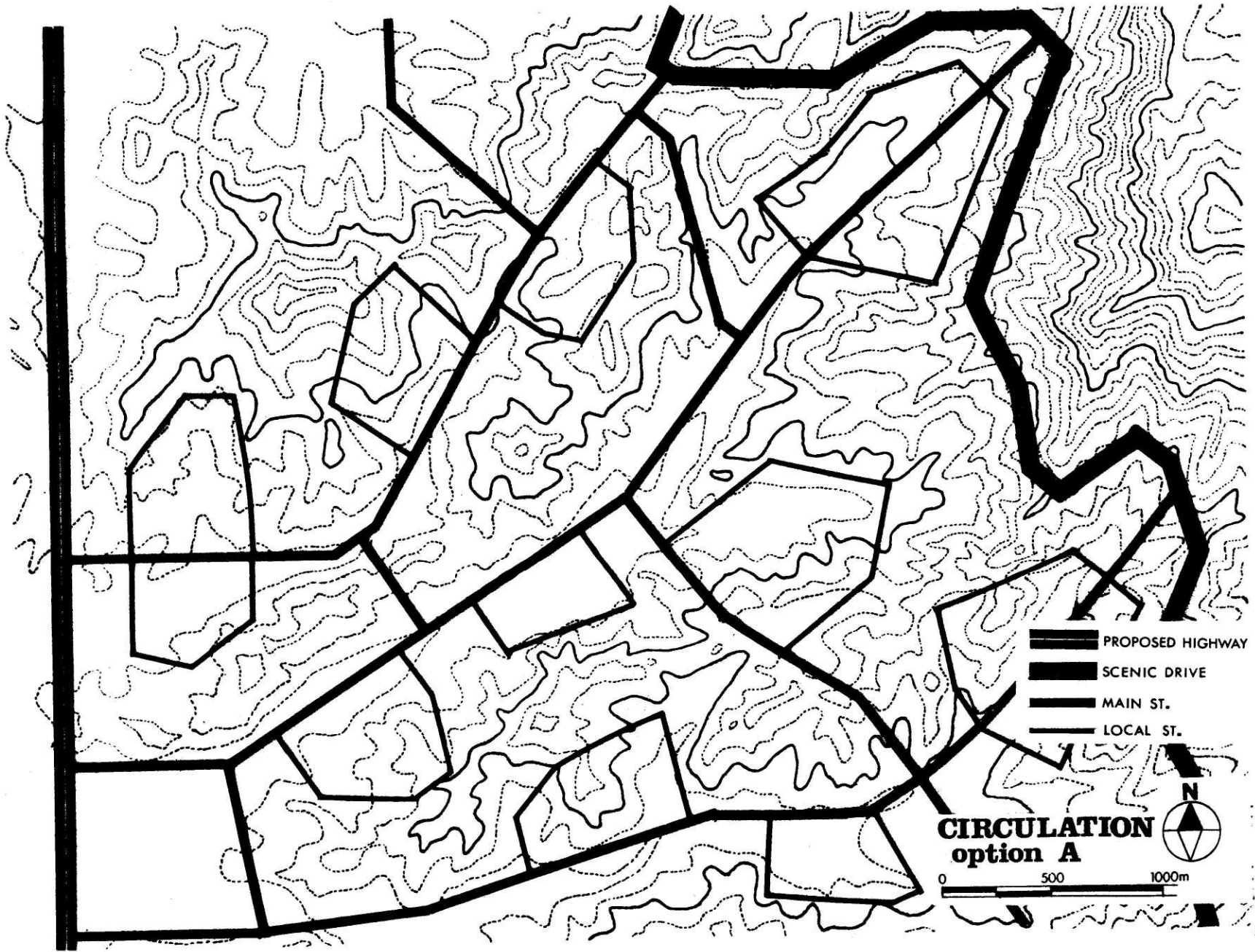
Ex.: not planned in this site.






-  PROPOSED HIGHWAY
-  MAIN STREET
-  SECONDARY STREET
-  EXPECTED EXTENSION

CIRCULATION
; city proposed

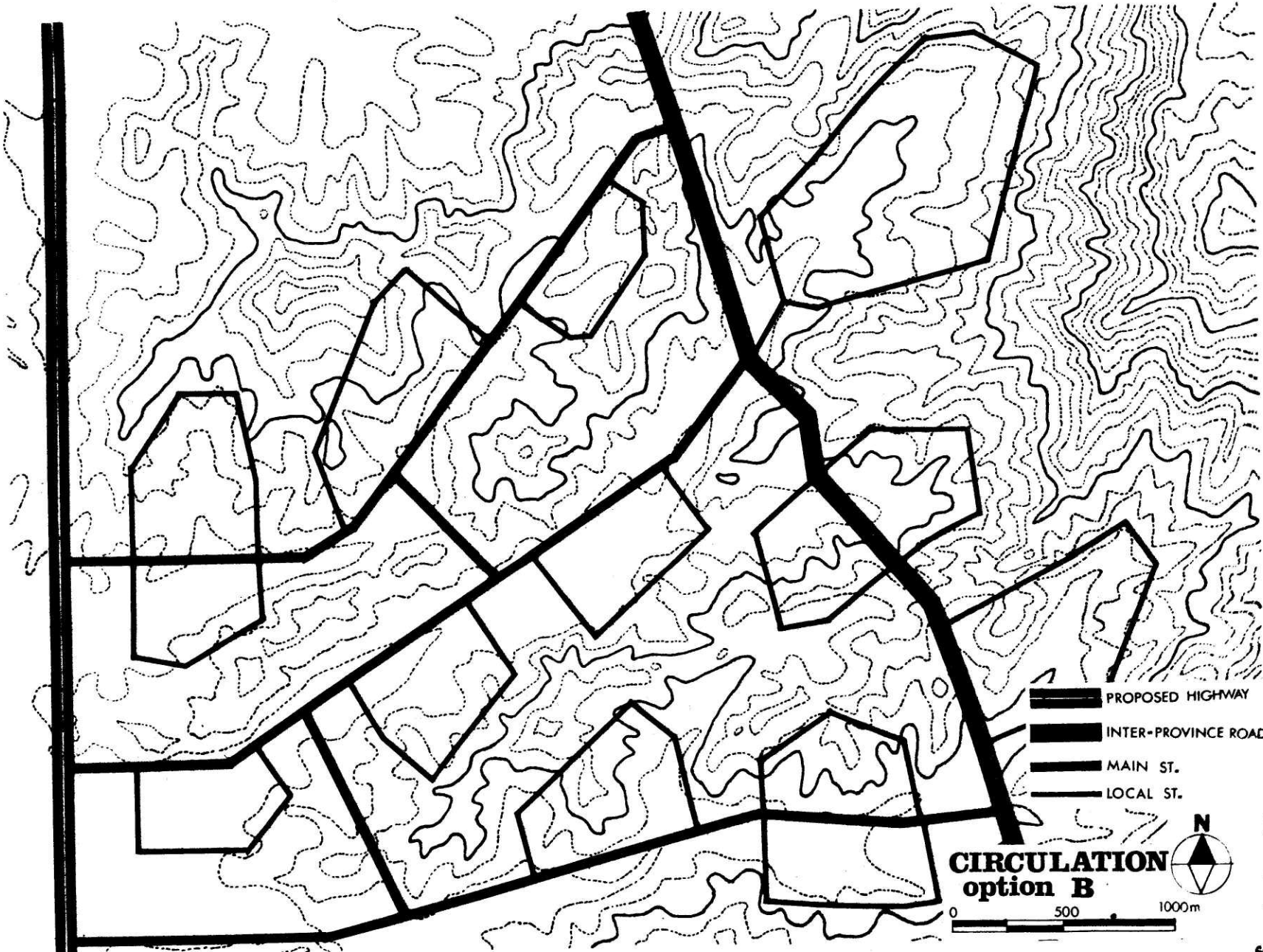


-  PROPOSED HIGHWAY
-  SCENIC DRIVE
-  MAIN ST.
-  LOCAL ST.

**CIRCULATION
option A**



0 500 1000m



PROPOSED HIGHWAY

INTER-PROVINCE ROAD

MAIN ST.

LOCAL ST.

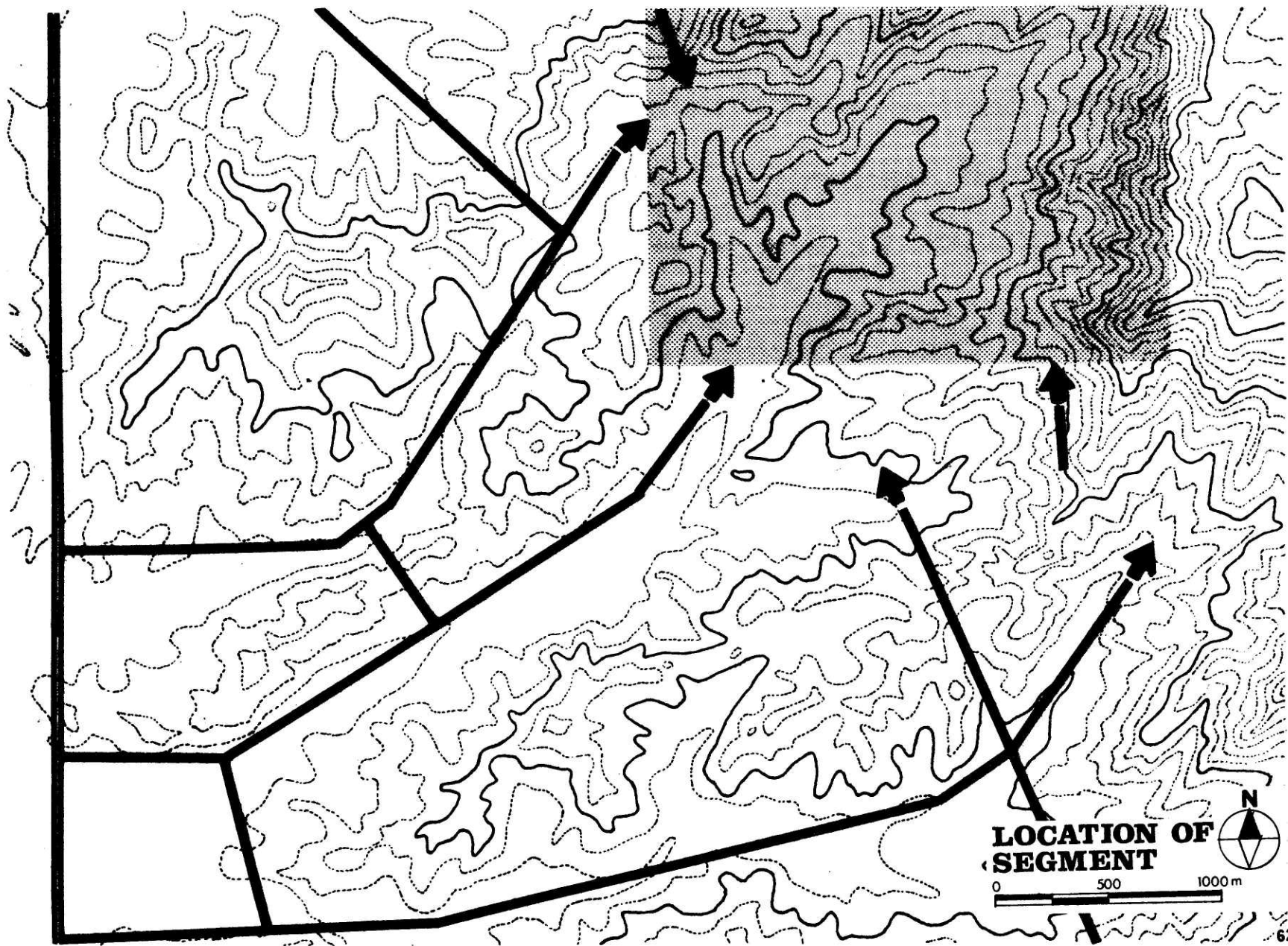
CIRCULATION option B

0 500 1000m

N

4.42 COMPARISON

<u>PROPOSAL BY CITY</u>	<u>OPTION "A"</u>	<u>OPTION "B"</u>
-Based on one access; "Dae-gok-no" highway	-Based on 2 access; "Dae-gok-no" highway & "Scenic Drive" on eastern boundary.	-Based on 2 access; "Dae-gok-no" highway & "Inter-province" road on eastern part of the site.
-Topography does not influence the circulation network.	-Topography is adapted to circulation network for maximum advantages.	-Same as Option "A".
-Functions of different types of streets are not well defined.	-Functions of the streets are defined as three types; Through street: "Dae-gok-no" highway "Scenic Drive" "Inter-province" road Commercial street: "Main street" follow- ing the valleys. Residential street: "Loop local street" connected to main streets.	-Same as Option "A".



4.5 SEGMENT PROTOTYPES

4.51 LAND USE

OPTION "A"

-Residential; Higher density is developed in the flat area with multi-story buildings such as walk-ups & row-houses, while the detached houses in lower density are developed on sloped land.

-Higher income sector will be induced to the area along the Scenic Drive taking the advantages of easy access for automobiles and the proximity to the National Park.

-Commercial; Developed in the middle of the site on flat land.

-Open space; Combined with school facilities and recreation; developed in steep sloped land.

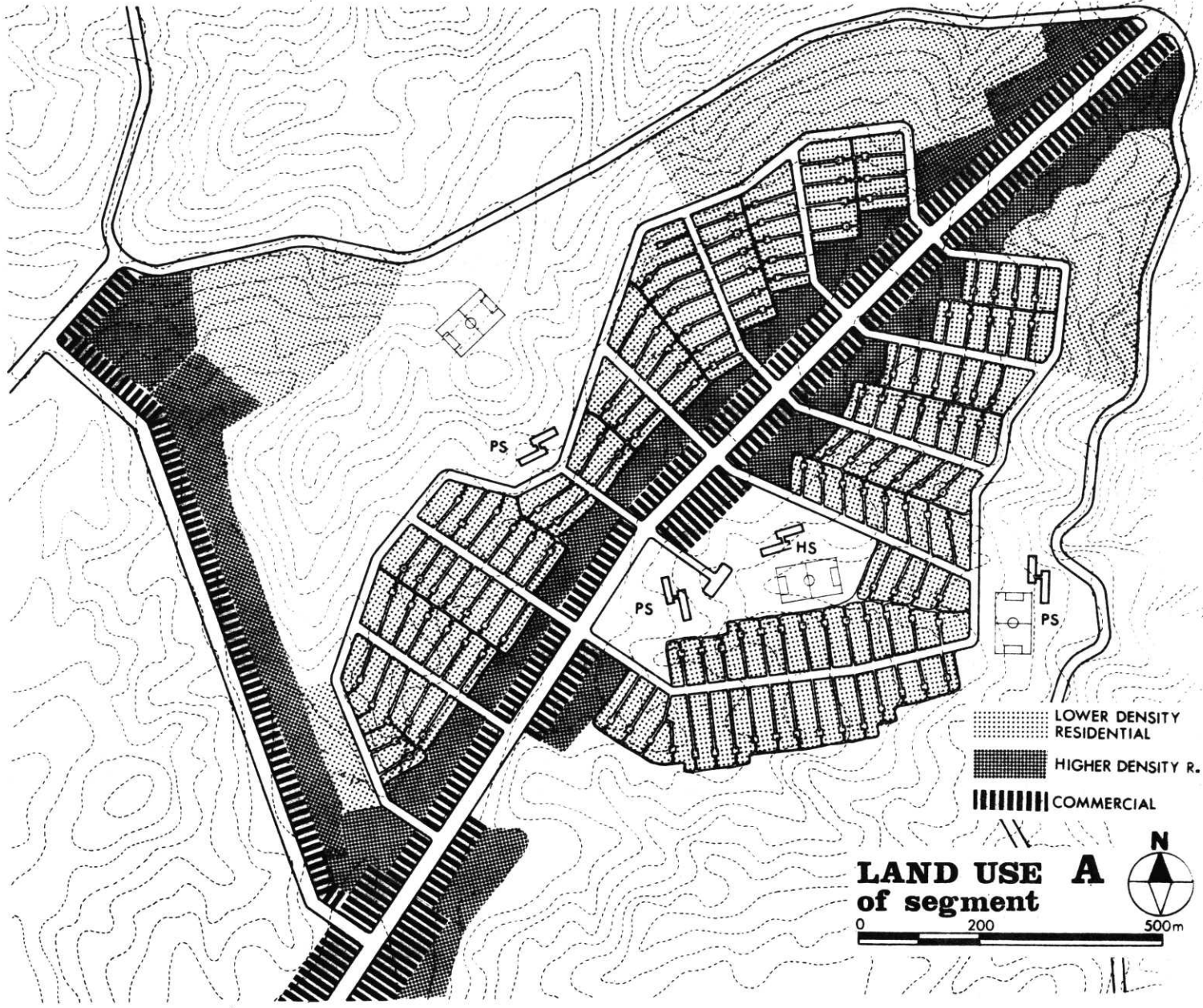
OPTION "B"

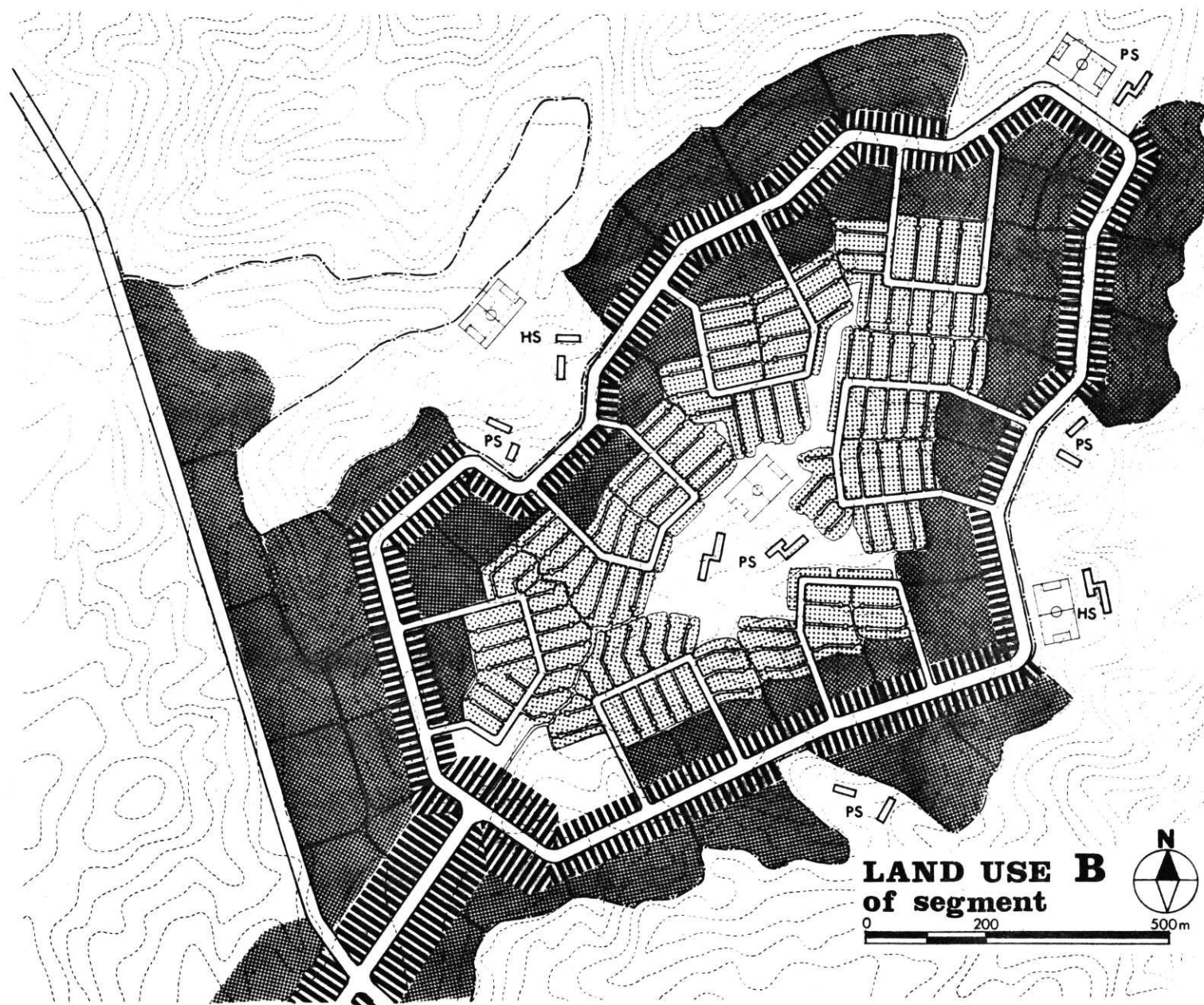
-Residential; Higher density is developed in the sloped area leaving the flat land for detached house in lower density.

-Higher income sector will be induced to the sloped areas with easy automobile access; lower income sector will be located in flat land.

-Commercial; Developed along the Ring-road on sloped areas.

-Open space; Same as option "A".





LAND USE B
of segment



4.52 CIRCULATION

OPTION "A"

-Main circulation go through the middle of the site, encouraging the flat land to be developed as commercial and higher density area.

-Secondary streets penetrate to the sloped areas to give access for the lower density detached houses;

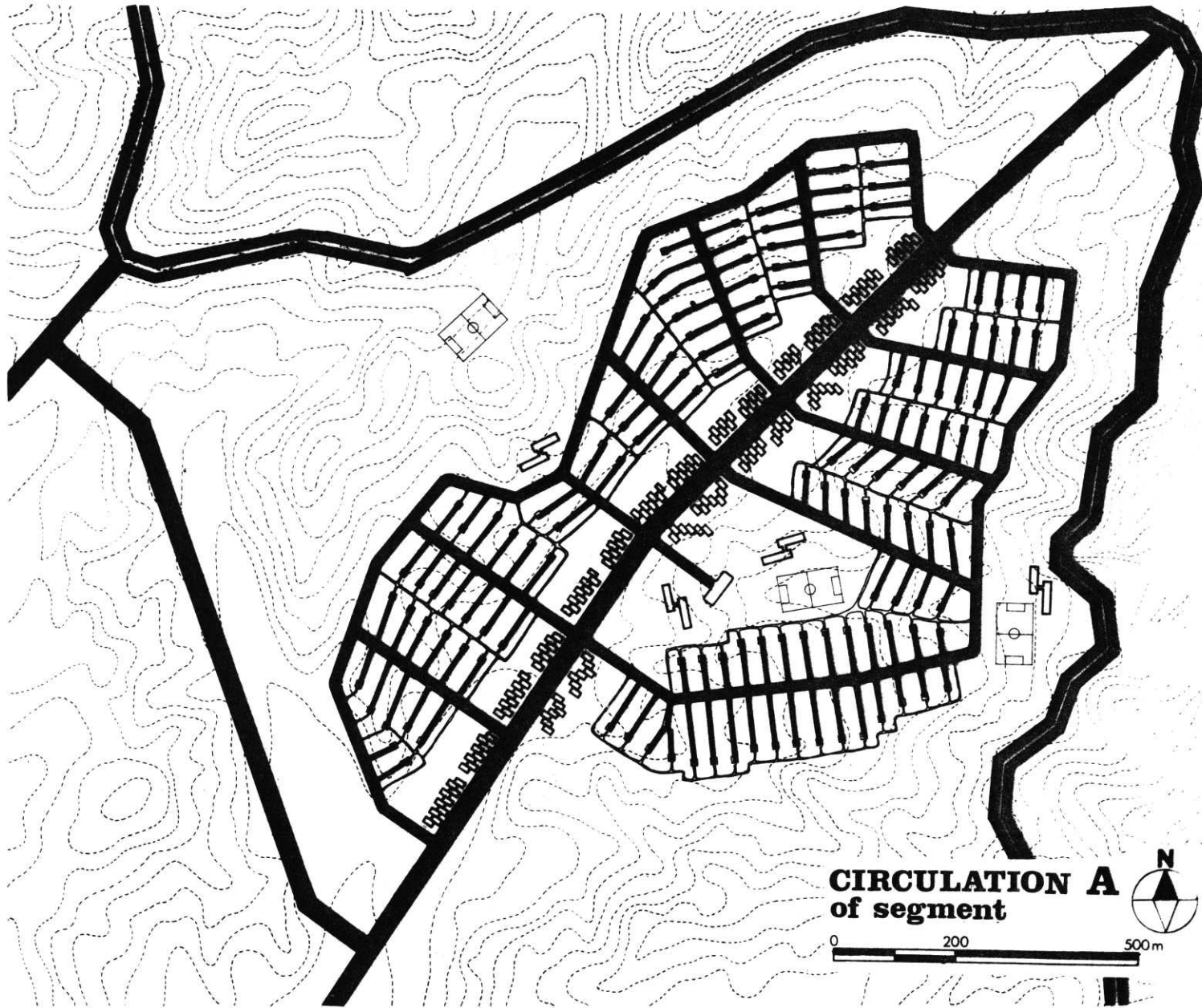
Two ring roads give access to open spaces and incentives to the steep sloped area for higher income housing development.

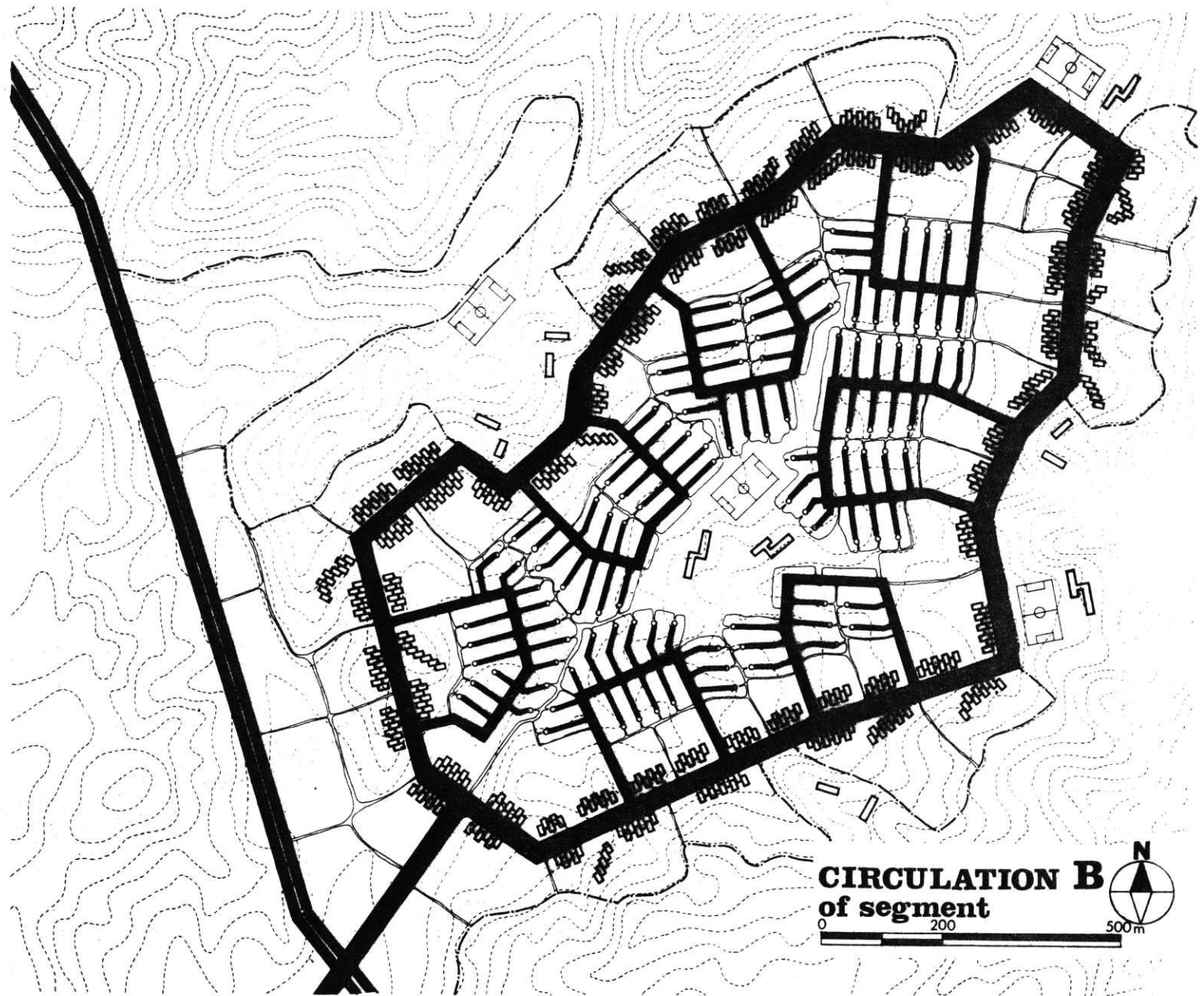
-Pedestrian walkways are provided between each residential blocks.

-Ring road serves as a main circulation inducing commercial and higher density residential development on the sloped land.

-Lower density in flat land is served by secondary streets.

-Pedestrian walkways reach throughout the site without being exposed to automobile traffic.





CIRCULATION B
of segment



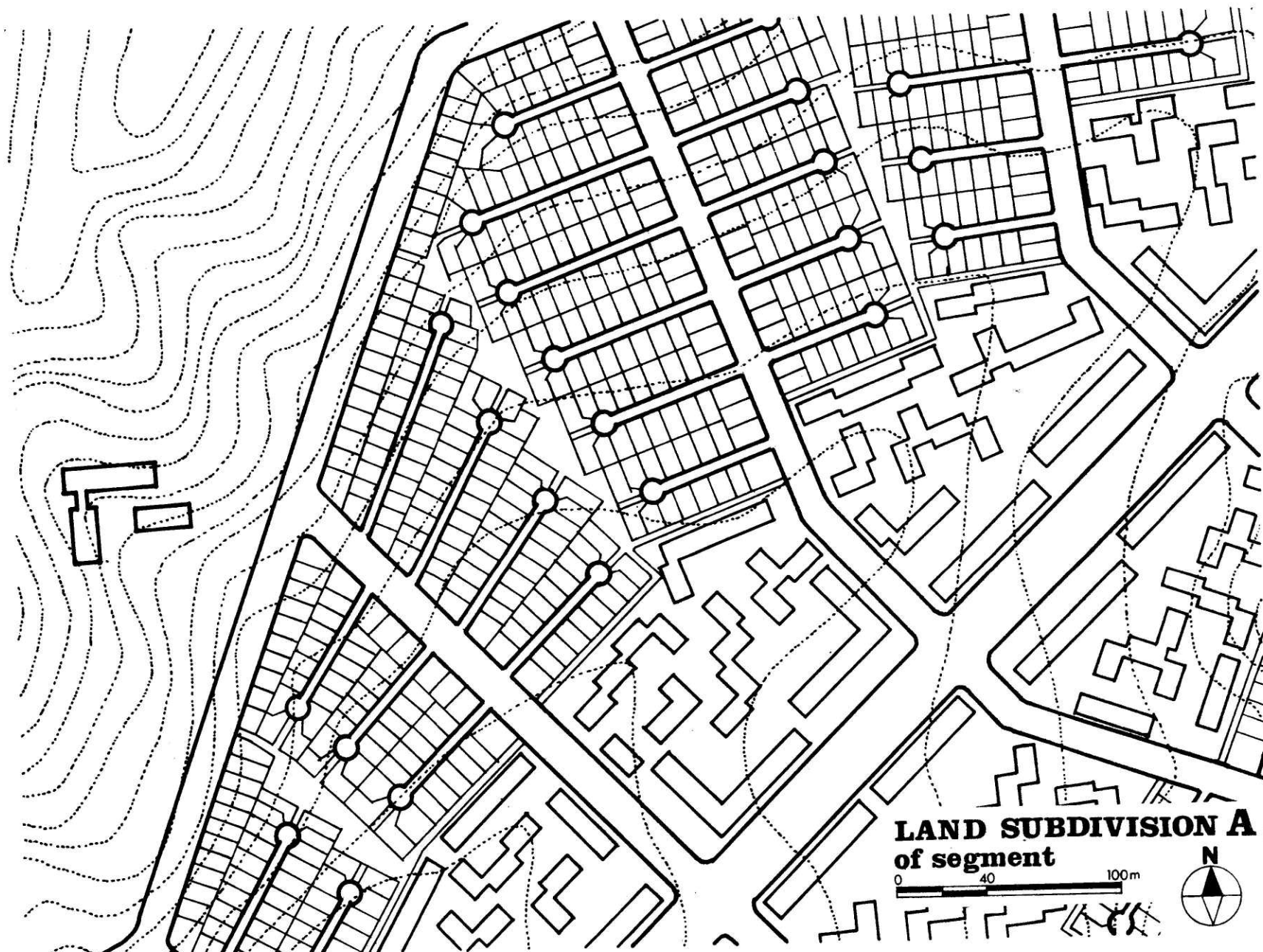
4.53 LAND SUBDIVISION

OPTION "A"

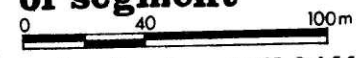
- Large lots are provided in the flat land to allow large scale developments;
- Small lots for detached houses are planned in sloped areas, parallel to the contour line.

OPTION "B"

- Large lots are provided in the sloped area along the main commercial ring road, for development of walk-ups and row-houses to allow higher density.
- Small lots for lower density detached houses are provided in the flat area.

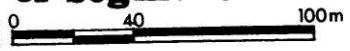


LAND SUBDIVISION A
of segment





LAND SUBDIVISION B
of segment

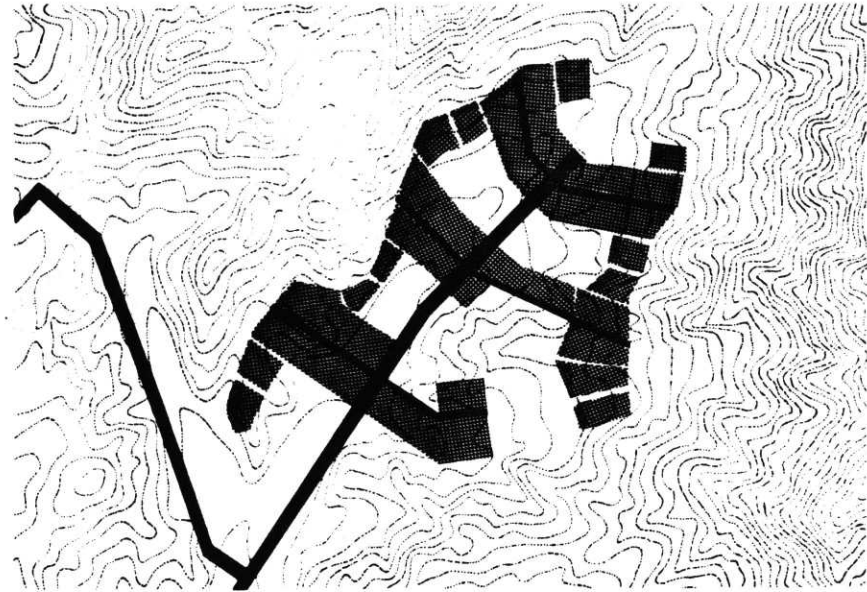


4.54 STAGING PLAN

OPTION "A"

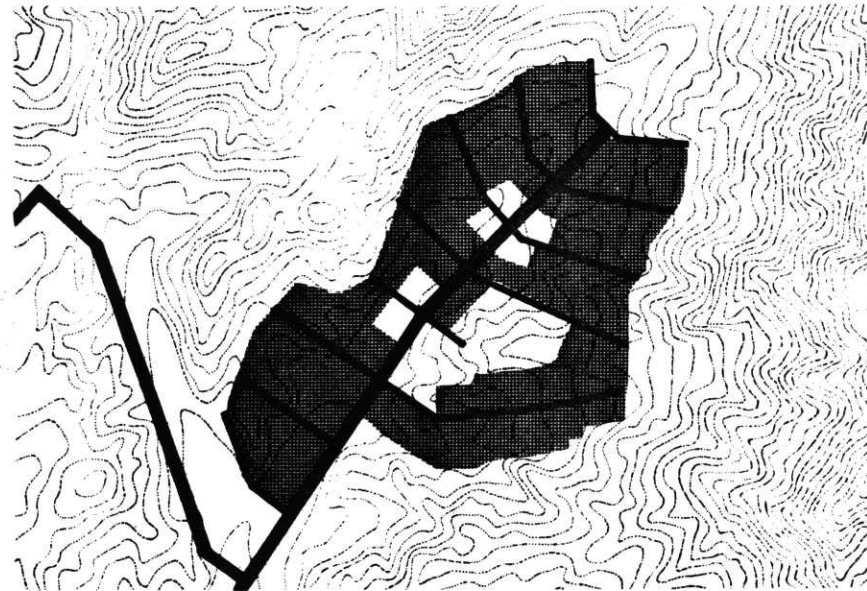
Stage I : Time 3 - 5 years

Provide minimum circulation with only pedestrian access in sloped areas to keep land value low for the low-income sector; Some strips of flat land will be developed as a commercial and higher density residential areas, while preserving the other portions for future development with expectation of a higher land value.



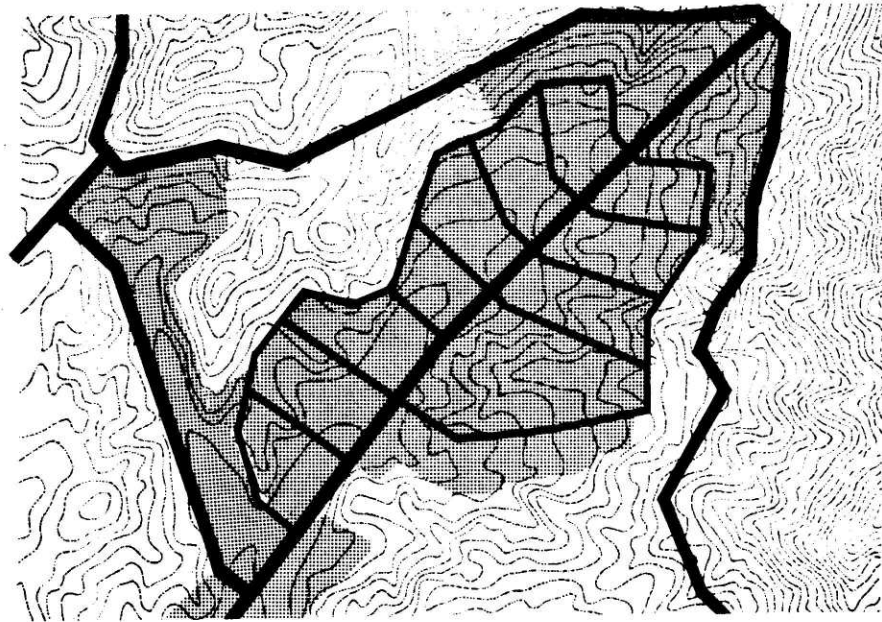
Stage II : Time 5 - 10 years

Automobile access will be extended with more services in the sloped land to induce higher income sectors; some part of reserved land will be developed as a commercial & higher density residential area.



Stage III : Time 10 - 15 years

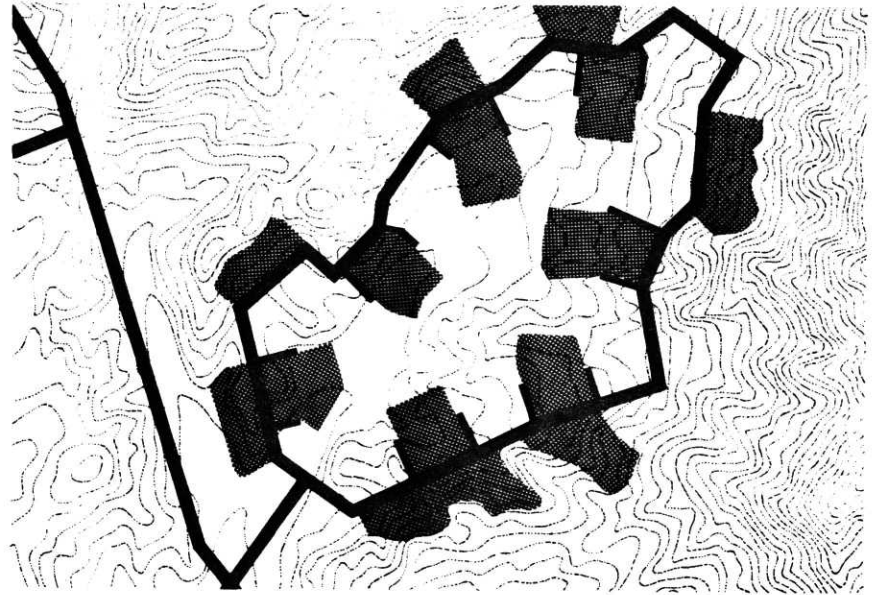
With the completion of the Scenic Drive along the National Park, the inside ring road will connect every penetrating streets to allow higher income development along the ring road;



OPTION "B"

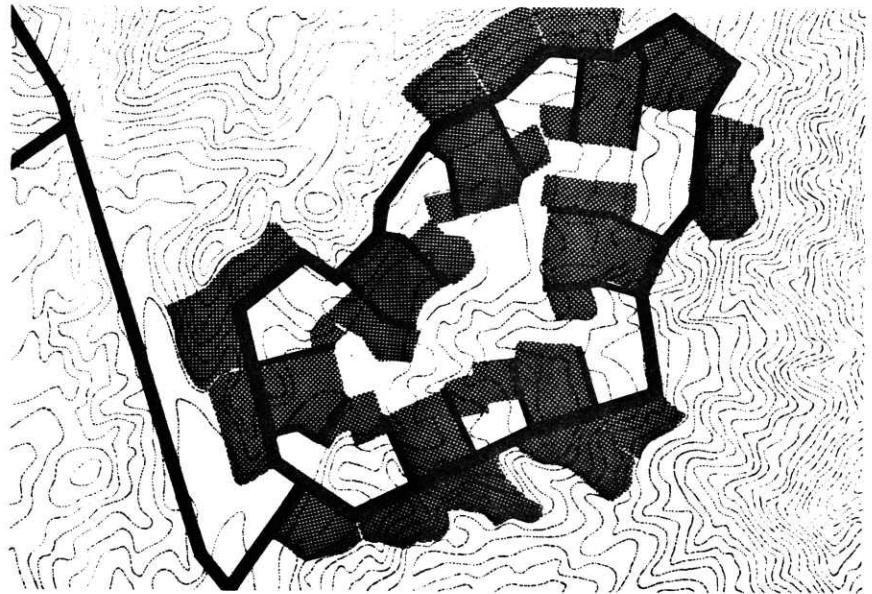
Stage I : Time 3 - 5 years

Ring road will be provided with minimum penetrating streets & services to keep the land value low in the flat areas for the low-income sector; a part of sloped area along the ring road will be developed with commercial facilities and walk-ups & row-houses.



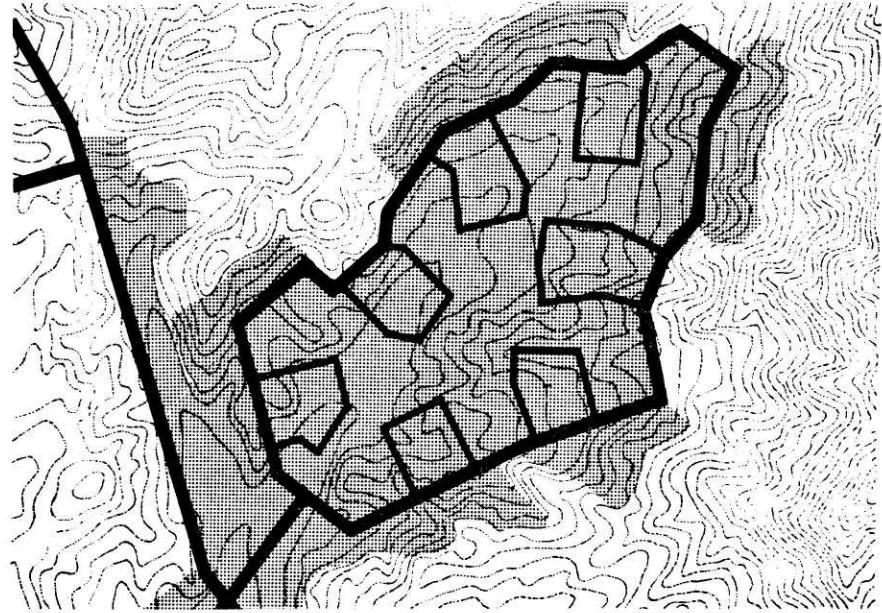
Stage II : Time 5 - 10 years

Penetrating streets will be extended to open remaining land for development; extended services will induce the higher income sectors.

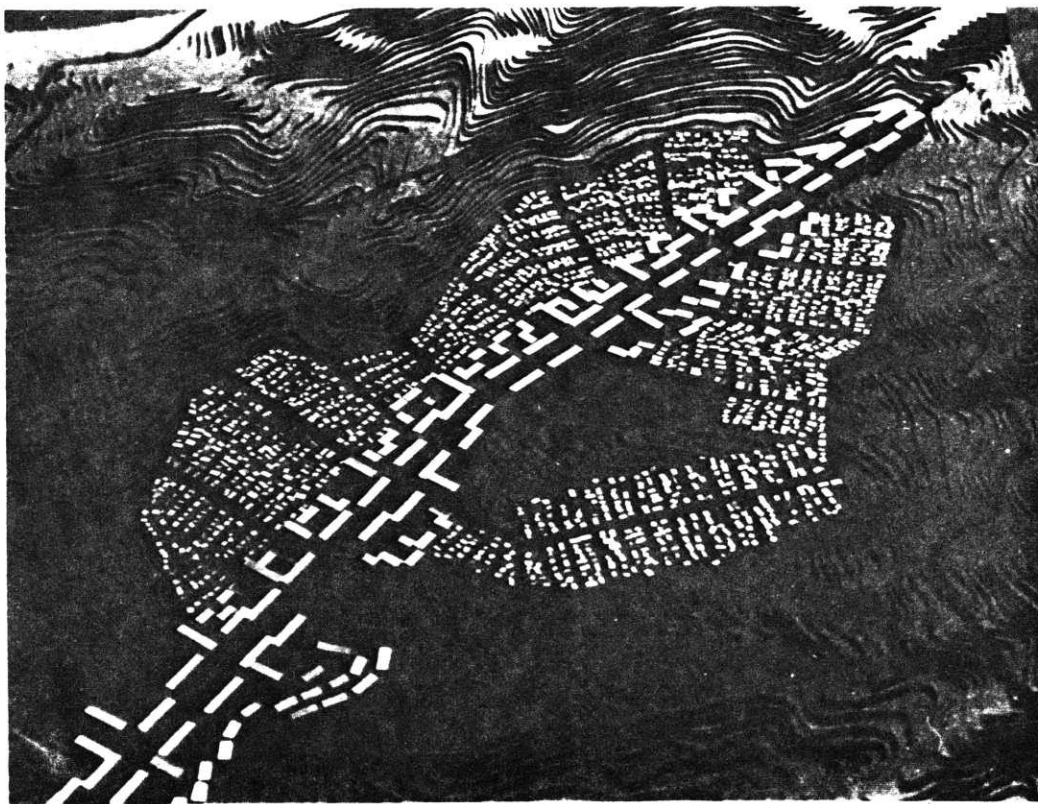


Stage III : Time 10 - 15 years

Penetrating streets will be connected and the other side of ring road will be developed for the higher income sectors with full development of commercial and public facilities as incentives.



**MODEL
OPTION A**



**MODEL
OPTION B**



Notes & References

- 1 Korea statistical yearbook (1970): Economic Planning Board, Korea
- 2 Same with 1.
- 3 Korea statistical yearbook (1970) & Statistics of Housing (1970):Korea housing corp.
- 4 Korea statistical yearbook (1970)
- 5 Housing & banking (1970);appendix to No. 15 : Korea housing bank P.150
- 6 Journal of population studies No. 11 (1970): Institute of population problems p.79
- 7 Economic statistics yearbook (1971): The bank of Korea
- 8 As of 1969. Economic statistics yearbook (1971); The bank of Korea
- 9 As of 1969. Economic statistics yearbook (1970): The bank of Korea
- 10 Same with 8.
- 11 As of 1969. Korea statistical yearbook (1970): E.P.B.
- 12 As of 1966 census. Korea Statistical yearbook (1970)
- 13 As of 1970. Economic statistics yearbook (1971) : The bank of Korea.
- 14 U. S. Army Area Handbook (1968)
- 15 Seoul statistical yearbook (1970): Seoul Metropolitan Government
- 16 View of Korea;"Han-guk-dae-gwan" Dong-A publishing company (1964) & Current maps.
- 17 Preliminary report for the second to fifth subway in Seoul (1971) K.I.S.T.
- 18 Same with 17.
- 19 Seoul statistical yearbook (1970): S.M.G.
- 20 Seoul statistical yearbook (1970): S.M.G.
- 21 & 22 Seoul statistical yearbook (1970)
- 23 Report on city family living (1968): Economic Planning Board.
- 24 U.S. Army area handbook (1968)
- 25 Statistics of Housing (1970): Korea housing corp.
- 26 Korea Statistical Yearbook (1970): E.P.B.
- 27 Seoul statistical yearbook (1970): S.M.G. p.40
- 28 Economic statistics yearbook (1970): The bank of Korea.
- 29 Housing & Banking (1970) Appendix to No. 15 : Korea housing bank p.63
- 30 Survey of tenants in metropolitan Seoul (1969): Korea housing corp.
- 31 Report on preliminary pilot program mission to Korea (1970):Patrick Crooke
- 32 Housing banking periodical No. 15 (1970): Korea housing bank
- 33 Notes for a housing policy with special reference to low-income housing systems in metropolitan Mexico (1971) : John F. C. Turner