URBAN DWELLING ENVIRONMENTS: ANKARA, TURKEY

CASE STUDIES, MACUNKOY URBAN DEVELOPMENT

BY

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URBAN DWELLING ENVIRONMENTS: ANKARA, TURKEY
Case Studies, Macunköy Urban Development Model

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CONTENTS

PREFACE 2
INTRODUCTION 3
URBAN CONTEXT 4
CASE STUDIES
  1. Kale 8
  2. Gulveren 18
  3. Balgat 28
  4. Aktepe 38
  5. Yenimahalle 52
EVALUATIONS
  Physical Data Matrix 64
  Community Facilities; Utilities/Services Matrix 66
  Land Utilization: Patterns, Percentages, Densities 67
  Land Utilization: Optimum Ranges 68
  Layout Efficiency 69
MACUNKOY URBAN DEVELOPMENT MODEL
  Introduction 71
  Western Ankara Area 72
  Basic Project Data 74
  Planning Policies/Goals 76
  The Site: Macunkoy 78
  Circulation Plan 80
  Land Use Plan 82
  Development Plan 84
  Blocks, Lots and Clusters 86
  Evaluation 90
GLOSSARY/EXPLANATORY NOTES 92
BIBLIOGRAPHY 93
PREFACE

CONTENT: This research identifies and evaluates the existing dwelling/land situations in the metropolitan area of Ankara, Turkey, based upon the survey, evaluation and comparison of 5 selected case studies/localities.

The localities represent the range of residential developments of Ankara's popular, private, and public sectors, from lowest to the higher densities as well as from lowest to the middle income groups.

The physical environments of each of the localities are described in terms of land utilization, layout efficiency, and utilities and services. Cases are analyzed at four scales: the locality itself, a selected segment of the locality, a selected block of the segment, and a selected dwelling of the block. Availability and the level of services for each dwelling/land situation is analyzed/compared.

In order to facilitate comparative evaluation, a proposal developed for Macunkoy Area in Ankara is presented. It serves as a tentative model for optimum efficiency of residential layouts as well as an illustration of the guidelines derived in the study for physical planning of residential developments.

APPLICATION: The study provides a tool for reference and information for those concerned with the physical planning of residential developments. It offers a tentative set of guidelines for those involved in the planning of residential developments, especially for low income sectors. It serves as a source of feedback for those involved in planning of future residential developments in Ankara.

DATA: This study is derived from the field research carried on by the author during the summer of 1974; complemented by maps provided by the Ankara Metropolitan Planning Office and mentioned bibliographic material. The case study analysis is based on a methodology developed in the Urban Settlement Design Program, directed by Prof. Horacio Caminos.
Important socio-economical changes have caused a marked acceleration in the pace of urbanization all throughout the World, especially since after the Second World War. In the developed countries this acceleration has been accompanied by parallel accelerations in the rate of industrialization, organization and specialization, in the underdeveloped countries the impacts of the rural-urban flow have not been matched with appropriate changes in the social systems. Thus in the underdeveloped countries has started to sprout the phenomena of squatters.

Essentially, the unbalanced land-people relations in the rural areas of underdeveloped countries have gone through important changes with new relations rising or extend relationships being reinterpreted. Since those relationships are not parallel with structural adaptations in the overall system, tension and disturbance are created within the system. Movement to the urban areas has become the most common alternative for the disturbed elements to release the tension and re-establish the upset balance.

In the urban setting, the new elements are not structurally integrated. As a group they suffer from the unfavourable physical living conditions and the pains of a rapid social change unaccompanied by favourable economical changes and social security. The urban groups, on the other hand, are in the position to donate more and more of what is spared for a planned development, to the use of the new occupants.

Although the answers lie in the realization of structural adaptations, the role of the technician is critical within this framework. Resources are limited, urban land is scarce and the burden on the public sector is ever increasing. Hence, the technician is in the position to recognize and utilize the existing potentials/limits to ease the problems of transition.

The study aims at the investigation of existing patterns/conditions through surveys, analysis, evaluation and comparison of different settlements in an urban context in order to develop models and future policy guidelines in terms of land utilization.

The objective of the study are:
- To emphasize the correlation between the efficiency of the settlements and their physical layout.
- To illustrate the relationships of the settlements in their urban context.
- To compare, contrast and evaluate the spatial crystallization -both at micro and macro level- of various socio-economic groups within one city.
- To recognize/define the limits and potentials of existing patterns in terms of physical structure.
- To derive guidelines for more realistic and effective physical land utilization policies.

The study concentrates on the city of Ankara, Turkey as a case study. The localities chosen for survey and analysis cover a wide spectrum of existing dwelling systems in order to give an overall view.

The study consists of two sections:
1. Urban context and 5 case studies of dwelling/land systems;
2. Macunkoy Urban Development Model; a tentative model for residential layouts.
ANKARA, TURKEY

URBAN CONTEXT

1. PRIMARY INFORMATION: The city of Ankara is situated at the base of mountain ranges separating the Central Anatolian plateau from other regions of the Anatolian peninsula. These mountain ranges formed a settlement belt throughout history. The location of the city is clearly defined by the Enguru plain stretching towards the west, Kayseri mountain range on the north, Haci mountains on the south and Elmadag on the east. The city has been the junction point of many roads crossing the peninsula, the control of which has been favourable for its survival over two millennia. The city is 850-978 m. above sea level and is located at latitude 39°55' north, longitude 32°05' east. Summers are dry and warm, winters are cold with temperatures ranging between 24°C and -4°C. Precipitation is usually between October and March with average rainfall of 340 mm and snowfall of 25 cm.

2. HISTORY: The development and structure of today's Ankara has been independent of its long historical past. Although it is debated whether the city was founded by king Midas, there is evidence that Ankara was a Phrygian city in VIII Century B.C. From II Century B.C. it was the capital of Galatians till 25 B.C. when it was taken by the Romans. Originally called Ancora, later Angora and Enguru, Ankara had one of its brightest periods during the Roman Empire. It was a very important point in the Roman road system in Asia Minor, as a result of which the city became an administrative, military and a commercial centre. From 334 to 1073 Ankara was a Byzantine city until its conquest by Turks in 1073. Within the economic, social and administrative equilibrium achieved by the pre-capitalist system of the Ottoman Empire, Anatolian cities have enjoyed a certain specialization as parts of the whole system. In this totality Ankara has been an important commercial centre located on the major trade routes from XIV to XVI Centuries. In 1522 the city was estimated to have 2200 houses. Through the decline of the Empire Ankara still maintained its commercial character; one of the major products was the reputed 'Angora' wool. After the industrial revolution and due to the capitulations given to the industrializing Western nations by the Empire, the city's textile industry lost its significance. Through the second half of the XIX century Ankara started losing its population. In 1923 Ankara was established as the capital of new Republic of Turkey. The choice was a move to break up the obsolete structure of the Ottoman Empire and shift the emphasis to Anatolia which had long been neglected. After 1923 Ankara witnessed a tremendous growth. In 1965 the population was eight times as big as the population in 1935. Currently the city is the seat of a highly centralized country and basically an administrative centre.

3. ECONOMY: In 1965 the annual income per capita in the metropolitan area was estimated at U.S. $270. Based on the tax revenues the city represents 9.5 percent of the net national income compared to 50 percent for Istanbul. Economic structure of the city clearly indicates the importance of administrative function among the activities. The economically active population constitutes 12 percent of the total population. 17 percent of the labour force is directly employed by the state with the army absorbing another 16 percent. When the effect of centralization and the statist policy pursued during the first years of republic is considered, 27 percent of the economically active population work directly or indirectly for the state. Of the rest, 10 percent work in construction, 11 percent in commerce, 13 percent in industry and the remaining in transportation and in other services. The activities which are not dependent on the city's function as a capital show no particular pattern of concentration, though they involve 70 percent of the active population. Concentration occurs mainly in construction and in specialized service sectors as well as in some commercial sub-sectors.
The economic function of the city as a regional centre is very limited. 25 percent of the active population work in activities serving the national market while 75 percent work for metropolitan market. The ratio also indicates the low degree of specialization among Turkish cities as well as the insignificance of industry in Ankara.

4. GOVERNMENT: Ankara is the seat of a highly centralized government elected by the citizens of the country over 22 years of age. The province of Ankara is divided into 21 districts, 5 of which cover the metropolitan area. Provincial governments are appointed by the central government. Municipal affairs are administered by the Municipality of Ankara. The municipal government is elected by the residents of the city and its authority is limited to provision of services, issuing building licences and inspections. Authorization for subdivisions are made by the Ankara Planning Board with the approval of the Ministry of Housing and Resettlement and the Ankara Metropolitan Planning Office.

5. DEMOGRAPHY: The most important characteristic of the city's population is its sustained growth. The population doubles every ten years, most of which is due to migration. Better employment opportunities created by the administrative and the service sector and availability of better public services are the main factors for migration. 40 percent of the population growth is natural and 60 percent is due to migration. 43 percent of the migrant population is from rural areas. With its 7 percent rate of growth, Ankara is the fastest growing city in the country. In 1970, 50.8 percent of the population was under 20 years of age. Only 30 percent of the total population was born in the city. The illiteracy rate is 22 percent as opposed to 51 percent for the whole country. In 1965, 12.5 of the population above 6 years of age had completed their high school education and 4 percent had a university or a college degree which is the highest rate in the country.

6. SOCIO-CULTURAL: There are no major ethnic or cultural divisions. The population is of Turkish origin and is divided along the lines of income/profession/education/class. Income is not the most important determinant in defining the groups. Different income groups with similar educational background
can coexist in the same locality. The lowest and low income groups are scattered around the periphery. Middle and upper income sectors are concentrated around the centre and in the southern part of the city.

7. SOCIO-ECONOMIC: In 1970, approximately 45 percent of the households in the metropolitan area had incomes under U.S. $1000, 49 percent between $1000 and $2700, and the remaining 6 percent over $2700. The spatial structure of the city clearly shows the difference between various socio-economic groups. The old city centre is used by the lower income sector and the new centre by higher income groups. 40 percent of the lower income groups work in the centres. 7 percent of the active population have no definite working place.

8. HOUSING: In 1970, 60 percent of the metropolitan population were living in illegal settlements "gecekondu" and 60 percent of the dwelling stock were squatters. 29 percent of the squatters in Turkey are in Ankara. The housing need created by population growth alone has increased from 6,914 units in 1966 to 15,130 units in 1969. The large amount of this deficit belongs mainly to the low income groups who can not have an access to the existing housing market. The public sector's share in total housing investments was 2 percent for Ankara, 5 percent for the country. Consequently the housing market is dominated by the private sector. Because of the high profits involved in high income housing, private sector investments are not channeled into low cost housing construction. Speculation occurs not only in the new developments but also in renewing the existing urban fabric. Change in the densities due to political pressure results in replacing the buildings before they complete their useful life. Almost every ten to fifteen years residential areas are renewed, although useful life of a residential building in Turkey is approx. 40 years. The process makes the services obsolete and increases the burden of the municipality. The trend is reflected in the decrease in the number of houses and in the increase in the number of condominiums completed each year. Speculation also takes place in squatter areas. 36 percent of the squatters are built by squatters and 57 percent by the users.

In general, three fold economic structure in the metropolitan area as well as in the country is reflected in two fold dwelling systems; illegal settlements and luxury apartments. Big investments made on housing sector are usually channeled towards luxury dwelling construction.
9. URBAN DEVELOPMENT: Ankara has been the first Turkish city to develop with a comprehensive city plan. Although there have been plans prepared for other cities they remained mostly at sectoral level. The first plan of Ankara was made by Neuseler in 1924 and it was abandoned in 1927. A new plan was prepared by Prof. Herman Jansen in 1932 along the guidelines provided by the municipality of Ankara. The projected population in 1980 was estimated as 300,000 by the municipality and 400 ha. of land was acquired to control the development. The plan has played an important role in the formation of present city structure. The decision of locating the institutional buildings, the parliament, ministries and army headquarters on the south of the old city strengthened the north-south axis. It shifted the natural direction of city development from west to south. Important green areas such as Youth Park, Hippodrome, Ataturk Forest Farm were also implemented along the lines of Jansen plan. In the years following the late thirties the city has experienced an unprecedented growth. Public land was sold back to private sector due to political pressure. Squatter settlements first appeared around the old centre, Ulus, then in the periphery along the transportation lines. In 1955, a new plan was made to tackle the uncontrolled growth of the city. As a consequence of wrong assumptions the plan was unable to be applied. In 1969, an Ankara Metropolitan Office was established to attack the problems at the metropolitan scale. Currently a new master plan is being developed. Today, the city covers an area of 17,621 ha. excluding Ataturk Forest Farm. 31 percent of the urban land is vacant and 69 percent is developed, of which 65 percent is residential. The rate of growth is 7 percent; 60 percent of the population live in illegal/extralegal settlements. The population in the metropolitan area in 1970 was 1,208,791 with an expected population of 2,976,000 in 1985.


URBAN CONTEXT SOURCES

Land Use Pattern: (accurate) IBID.
Income Pattern: (accurate) IBID.
Climate: (accurate) TURKIYE’NIN IKLIMI, Ankara, 1968.
1 KALE, Ankara
POPULAR, LOW INCOME, TRAD. URBAN HOUSES

LOCATION: Located on a hill adjacent to the old centre, the settlement is the oldest residential part of the city. The locality is within a 15 min. walking distance of the centre and commands an overall view of the whole metropolitan area. It is 2 km. from the railway station and inter-city bus terminal. Youth Park which is a major recreational facility especially for the low income groups is within a 25 min. walking distance.

KALE, Ankara: (top) An overall view of the locality, facing towards north-west. Notice the deteriorating structures in the foreground and the squatters spread over the hills in the background (1974).

Bottom left: A view of the squatters on southern side of the hill. Narrow streets run through the dwellings parallel to the slope. Access from the street to the dwellings is through the staircases (1974).

Bottom right: A view of the city walls and the dwellings inside. Notice the fire-watch tower which commands a view of the whole metropolitan area (1974).
ORIGINS: With its buildings, socio-economic structure and pattern of life, the area still maintains its character and outlook from the turn of the century. The settlement represents a sub-system in the metropolitan area in relation to its working, living, recreational habits and its physical pattern, in which the rate of change is slower compared to the neighbouring areas. Most of the houses in the locality are 80 to 100 years old and some of them date back to the XVII Century. The city walls symbolize the city as well as the locality. The walls were built during the Byzantine Empire and later were reinforced and extended by Turks. Because of its proximity to many metropolitan functions, the area has been attracting business and commerce. Land prices are increasing in the locality and since the last 10-15 years commercial areas are expanding at the expense of residential areas. Development of Hacettepe University which started in the sixties on the south of the locality has demolished a big part of the old settlement area. The invasion of residential areas has resulted in illegal settlements occupying the northern part of the hill where land was not suitable for development. The first illegal settlements in the city appeared in this locality in the early fifties because of its favourable location. Currently the area inside the area inside the city walls is declared as a conservation area by the municipality in order to save what is left of the old city.

LAYOUT: The locality is defined by Bent Deresi Street on the north, by city prison on the east and by Talat Pasa Boulevard on the south. On the west, residential area gradually mix with commerce. The street configuration clearly reflects the pattern of pre-industrialized societies. There is no hierarchy and specialization in the layout. Streets are narrow and there are no side walks. Topography and property lines determine the irregular street pattern and haphazard occurrence of buildings.
LAND USE: The area inside the walls and the immediate outside is primarily residential. Commerce is concentrated along the main streets. A mixture of hotels, metal and wool workshops and small shops form the transitional area on the west from residential to the centre. The municipal park adjacent to the outer city walls and the Hittite Museum across the park articulate the transition.

**KEY**
- **Pk**: Parking
- **P**: Police
- **F**: Fire Department
- **S**: School
- **Mq**: Mosque
- **R**: Recreation
- **L**: Library
- **U**: University
- **H**: Health
- **PO**: Post Office
- **SS**: Social Services
- **M**: Market
- **C**: Cemetery
- **Bus**: Bus
- **Rapid Transit**: Rapid Transit

**LOCALITY LAND USE PATTERN**
CASE STUDY: KALE

CIRCULATION: Within the residential area circulation is predominantly pedestrian oriented. Streets are narrow and irregular. Parallel to the new developments surrounding streets are widened to accommodate the increasing vehicular traffic, such as Talat Pasa Boulevard and Ulucanlar. The circulation lines on the western part of the locality are used by both pedestrian and vehicular traffic. Bent Yercesi Caddesi is primarily vehicular.

KEY
- VEHICULAR
- PEDESTRIAN
POPULATION: The settlement is one of the densest parts of the city. Predominant family pattern is nuclear and 74.4 percent of the houses are single family dwellings. Only 9.5 percent of the dwellings accommodate multi families. Room occupancy in the locality is 1.89 persons/room. 56 percent of the families have 1 to 3 children and 22 percent have none. 70 percent of the household heads are over 35 years of age. The literacy rate is 76 percent in the locality. 51 percent of the population have primary school education, 7 percent have secondary and 7 percent have high school education. 27 percent of the household heads are engaged in trade, 20 percent work in unspecialized clerical works and 18 percent are skilled workers. Estimated population in 1970 was 52,000.

INCOME: The average household income in 1970 was estimated at U.S. $853. Maximum household income was U.S. $4000 and minimum $133. Dwelling ownership in the locality is 78 percent. Average rent is U.S. $10 per month.

LOCALITY ANNUAL INCOME DISTRIBUTION
CASE STUDY: KALE

LOCALITY CONSTRUCTION TYPES

<table>
<thead>
<tr>
<th>Material</th>
<th>%</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mud/Wattle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The chart shows (1) approximate percentage of each construction type within the total number of dwellings and (2) building group that generally produces each type.

Quality of information: Approximate

LOCALITY UTILITIES AND SERVICES

<table>
<thead>
<tr>
<th>Service</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td></td>
</tr>
<tr>
<td>Sewage</td>
<td></td>
</tr>
<tr>
<td>Drainage</td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
</tr>
<tr>
<td>Refuse Collection</td>
<td></td>
</tr>
<tr>
<td>Public Transportation</td>
<td></td>
</tr>
<tr>
<td>Paved Roads, Walkways</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
</tr>
<tr>
<td>Street Lighting</td>
<td></td>
</tr>
</tbody>
</table>

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: NONE, LIMITED, ADEQUATE.

Quality of information: Approximate

LOCALITY COMMUNITY FACILITIES

<table>
<thead>
<tr>
<th>Facility</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police</td>
<td></td>
</tr>
<tr>
<td>Fire Protection</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Schools, Playgrounds</td>
<td></td>
</tr>
<tr>
<td>Recreation, Open Spaces</td>
<td></td>
</tr>
</tbody>
</table>

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: NONE, LIMITED, ADEQUATE.

Quality of information: Approximate

SELECTED BLOCK

LOCALITY SEGMENT PLAN

1:2500
**/locality block plan**

---

1:1000

---

**Urban Dwelling Environments**

**Land Utilization Data**

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>0.29</td>
<td>21</td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>1.11</td>
<td>79</td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.40</td>
<td>100</td>
</tr>
</tbody>
</table>

**Density**

<table>
<thead>
<tr>
<th>DENSITIES</th>
<th>Total Number</th>
<th>Hectares</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>51</td>
<td>1.40</td>
<td>36.42</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>243</td>
<td>1.40</td>
<td>172.85</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>1166</td>
<td>1.40</td>
<td>832.85</td>
</tr>
</tbody>
</table>

**Network Efficiency**

- \( R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} \) = 260 m/ha
- \( \text{Average Lot Area} = \frac{\text{total area (circulation, lots)}}{\text{number of lots}} \) = 274 m²

---

*Defines the boundary of the block through centre line of the street. The other boundary is defined by the city walls.*
CASE STUDY: KALE

LOCALITY BLOCK LAND UTILIZATION

LAND UTILIZATION DIAGRAMS

PATTERN
Public: streets/walkways
Semi-Public: playgrounds
Semi-Private: cluster courts
Private: lots
dwellings

PERCENTAGES
- Streets/Walkways 21%
- Playgrounds
- Cluster Courts
- Dwellings/Lots 79%

DENSITY
Persons/Hectare 458

0 10 50m
1:1000
URBAN DWELLING ENVIRONMENTS

KEY

LR Living Room
D Dining/Eating Area
BR Bedroom
K Kitchen/Cooking Area
T Toilet/Bathroom
L Laundry
C Closet
S Storage
R Room (multi-use)

GROUND FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

SECTION ELEVATION

SECTION ELEVATION

SECTION ELEVATION

SECTION ELEVATION

SECTION ELEVATION

GROUND FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

GROUND FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

GROUND FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

GROUND FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

GROUND FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

TYPICAL DWELLING

1:200 10m
KALE, Ankara: (left) This photograph shows a typical courtyard around which the dwellings are clustered. These courtyards can be used by one or several dwellings (1974).

[centre] A view of the central street. Notice the pedestrian scale of the street. In the background are the city walls (1974).

[right] Entrance to a court. Although the court is shared the dwellings are single family units (1974).

**LOCALITY SOURCES**

Typical Dwelling: (accurate) 1971.
Physical Data: (accurate) 1971.
GÜLVEREN, Ankara
POPULAR, LOW INCOME, SQUATTERS

LOCATION: The area is located in the eastern part of the city, 3.5 km. to the centre. It is adjacent to one of the city cemeteries on the west and 1.5 km. from the light industries on the north.

ORIGINS: Development of Gülveren started around 1941. During the 1941-45 period 8.5 percent of the current population settled in the area. The ratio went up to 32.7 percent between 1945-50 and to 52.5 percent during 1950-55. The settlement area which was originally private property was gradually occupied by squatters. A dispute between the squatters and the original owners is still continuing. Legal procedure to give the squatters title has been in process for a long time. Several attempts of the municipality to replan the area have failed. Recently a new plan was made recognizing the existing pattern, on which the legal titles will be determined. Ownership of lots would be condominium or individual. The building height is determined to be 3 to 4 floors by the plan. After the legal problems are cleared the owners will be free to expand or to re-build if they can afford to.

GÜLVEREN, Ankara: The panorama shows the northern part of the locality. Although they are considered "gecekondu", notice the permanent, well built character of the dwellings as well as the environment (1973).
LAYOUT: Hilly site conditions and illegal ownership of land are the basic determinants of the layout. Plevne Street and Abdulhak Hamit Street crossing the locality are the major accesses. The peripheral road defines the northern boundary. The settlement pattern is homogenous except for the area to the north of Abdulhak Hamit Street where the development took place according to the subdivision plan prepared by the Municipality Planning Board. The accesses to the lots are either direct or through the cluster courts and easements. In certain cases bigger lots are subdivided by the first illegal occupant for sale or for rental purposes, which complicates the legal issues even further.
LAND USE: The settlement covers an area of approximately 200 ha. and it is primarily a residential area. Commercial facilities are scattered along the major accesses in the form of small shops for the daily domestic needs of the locality. Community facilities, available though not adequate, are spread over the site close to the major accesses. The land to the north-west of the area belongs to the army.
Circulation: Parallel to the progressive development of Gulveren no particular circulation pattern is apparent. Streets are narrow and primarily pedestrian. Most of the streets are unpaved and none have sidewalks.

Key
- Vehicular
- Pedestrian

Population: The majority of the population are migrants from the Province of Ankara and from neighbouring provinces who came to the city for employment. 80 percent of the household heads migrated with their families and another 20 percent were joined later by their families during a period of 1 to 5 years. 55 percent of the migrants came directly to the area. Consequently, Gulveren is not a transitional area for the new migrants but an established settlement. 58 percent of the total population is under 20 years of age.Illiteracy rate is 23 percent. Room occupancy in the locality is 2.9 persons/room with an average household size of 4.8 persons.
INCOME: The estimated average household income in 1970 was U.S. $700. Maximum household income was U.S. $4000 and minimum was $63. 29 percent of the household heads are craftsmen and artisans, 26 percent are workers, 10 percent are clerks and 11 percent are engaged in trade. Dwelling ownership in the locality is 67 percent. Average rent is U.S. $9 per month.
CASE STUDY: GULVEREN

LOCALITY SEGMENT PLAN

LOCALITY CONSTRUCTION TYPES

<table>
<thead>
<tr>
<th>Construction Type</th>
<th>0%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mud/Wattle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masonry Wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masonry Concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The chart shows (1) approximate percentage of each construction type within the total number of dwellings and (2) building group that generally produces each type.

Quality of information: Approximate

LOCALITY UTILITIES AND SERVICES

<table>
<thead>
<tr>
<th>Service</th>
<th>NONE</th>
<th>LIMITED</th>
<th>ADEQUATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitary Sewerage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storm Drainage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refuse Collection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paved Roads, Walkways</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street Lighting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LOCALITY COMMUNITY FACILITIES

<table>
<thead>
<tr>
<th>Facility</th>
<th>NONE</th>
<th>LIMITED</th>
<th>ADEQUATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Protection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools, Playgrounds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation, Open Spaces</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: NONE, LIMITED, ADEQUATE.

Quality of information: Approximate
## URBAN DWELLING ENVIRONMENTS

### LOCALITY BLOCK LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>DENSITIES</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Area</td>
<td>Density</td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>Hectares</td>
<td>N/Ha</td>
</tr>
<tr>
<td>LOTS</td>
<td>20</td>
<td>0.71</td>
<td>28.16</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>37</td>
<td>0.71</td>
<td>53.21</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>180</td>
<td>0.71</td>
<td>253.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAS</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hectares</td>
<td>Percentages</td>
<td></td>
</tr>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>0.145</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>0.551</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>0.014</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.71</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

### NETWORK EFFICIENCY

\[
R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}}
\]

\[
\text{AVERAGE LOT AREA} = \frac{\text{total area (circulation, lots)}}{\text{number of lots}} = 359 \text{ m}^2
\]

### LOCALITY BLOCK PLAN

1:1000
CASE STUDY: GULVEREN

LAND UTILIZATION DIAGRAMS

1 Hectare

PATTERN
Public: streets/walkways
Semi-Public: playgrounds
Semi-Private: cluster courts
Private: lots
Dwellings

1 Hectare

PERCENTAGES
Streets/Walkways 20 %
Playgrounds -
Cluster Courts 2 %
Dwellings/Lots 78 %

1 Hectare

DENSITY
Persons/Hectare 201

LOCALITY BLOCK LAND UTILIZATION
1:1000
PHYSICAL DATA
(related to dwelling and land)

DWELLING UNIT
type: HOUSE
area (sq m): 60.5

LAND/LOT
utilization: PRIVATE
area (sq m): 440

DWELLING
location: INNER RING
type: ROW/GROUPED
number of floors: 1
utilization: SINGLE FAMILY
physical state: BAD

DWELLING DEVELOPMENT
mode: INCREMENTAL
developer: POPULAR
builder: SELF-HELP
construction type: MASONRY, WOOD
year of construction: 1957

MATERIALS
foundation: STONE
floors: CONCRETE
walls: ADobe WITH TIMBER COLUMNS
roof: TILES ON TIMBER PURLINS

DWELLING FACILITIES
WC: 1
shower: 1
kitchen: 1
rooms: 2
other: -

SOCIO-ECONOMIC DATA
(related to user)

GENERAL: SOCIAL
user's ethnic origin: TURKISH
place of birth: CANKIRI
education level: PRIMARY SCHOOL

NUMBER OF USERS
married: 2
single: -
children: 4
total: 6

MIGRATION PATTERN
number of moves: 2
rural - urban: 1952
urban - urban: 1956
urban - rural: -
why came to urban area: EMPLOYMENT

GENERAL: ECONOMIC
user's income group: LOW
employment: LABOUR
distance to work: 5 KM
mode of travel: BUS

COSTS
dwelling unit: N.A.
land - market value: $11/m²

DWELLING UNIT PAYMENTS
financing: PRIVATE
rent/mortgage: N.A.
% income for rent/mortgage: N.A.
CASE STUDY: GULVEREN

GULVEREN, Ankara: (top) A typical street in the locality. There is no paving and street drainage is open (1974).

(bottom left) This photograph shows a squatter and the garden which is fenced for privacy (1974).

(bottom right) A courtyard. The containers are used to store water, since the supply is not continuous throughout the day. The faucet is connected to the city network but is kept outside of the dwelling. The floor is concrete (1974).

LOCALITY SOURCES

Land Use Pattern: (accurate) IBID.
Circulation Pattern: (accurate) IBID.
Segment Plan: (accurate) IBID.
Block Plan: (accurate) IBID.
Block Land Utilization: (approximate) IBID.
LOCATION: The area is in the south western part of Ankara, 5 km from the centre and adjacent to Ankara-Eskisehir, Ankara-Konya highways. The settlement covers an area of approximately 250 ha.

ORIGINS: Originally a traditional rural settlement, Balgat was swallowed by the urban growth in the early fifties. Agriculture had lost its importance for the livelihood of the area and the labour force was absorbed by the city’s labour market. The locality was integrated into the metropolitan municipal system in 1954. Many of the dwellings in the locality are built without any licence, although the land is held in legal ownership. Based on 1966 Gecekondu Law, the area is declared a “gecekondu” area -illegal settlement- by the municipality.

Balgat, Ankara: (top) The photograph shows the eastern part of the locality. The boundaries between the private areas, and between the public and private areas are not defined. Notice the high rise apartments for high income groups in the background (1974).

(botton) This view shows the main street. Shops are scattered along the street and pedestrians are dominant. No side walks and drainage (1974).
LAYOUT: The land ownership pattern and the existing village structures were the two factors determining the current layout of the settlement. The pattern is basically a grid with varied block and lot sizes. In certain cases, the subdivision of big pieces of agricultural land into smaller lots creates a problem of access. Under such circumstances the owner is entitled to buy the right of access by agreement or by legal procedure through one of the neighbouring lots.
LAND USE: The predominantly residential area is bordered by the Ankara-Eskisehir and Ankara-Konya highways. Community facilities as well as commercial areas are located along a central spine. The development of research, educational and other public institutions along the Ankara-Eskisehir highway increased the land prices in the locality. The land bordering the settlement on the south and on the east belongs to the army and controls the future development in these directions.

AREAS
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- OPEN SPACES

KEY
- Parking
- Police
- Fire Department
- School
- Mosque
- Recreation
- Library
- University
- Health
- Post Office
- Social Services
- Market
- Cemetery
- Bus
- Rapid Transit

LOCALITY LAND USE PATTERN

1:10000
CIRCULATION: The access to the locality is from the Ankara-Eskisehir highway. The central spine carries most of the vehicular traffic. Internal streets are mostly pedestrian although they are wide enough to permit local vehicular traffic. Many of the streets do not have sidewalks and are not paved. In certain cases it is impossible to perceive the boundary between the street and the private land due to the lack of physical controls and pavement.

KEY

VEHICULAR

PEDESTRIAN
URBAN DWELLING ENVIRONMENTS

POPULATION: The locality is one of the scarcely populated areas in metropolitan Ankara. Population distribution data in the locality is not available, but the total population in 1970 was estimated at 8,500. The illiteracy rate is 13 percent. A majority of the working population are employed by the service sector such as drivers, cooks, etc. or by the government, such as policemen, clerks, etc.

INCOME: The average household income was estimated in 1970 as U.S. $800. The maximum income registered in the locality was U.S. $2660 and the minimum $355. The average rent in the area is U.S. $12 per month. Dwelling ownership is 52 percent.
CASE STUDY: BALGAT (33)

40M LOCALITY CONSTRUCTION TYPES

- Shack
- Mud/Wattle
- Masonry
- Concrete

The chart shows (1) approximate percentage of each construction type within the total number of dwellings and (2) building group that generally produced each type.

Quality of information: Approximate

LOCALITY UTILITIES AND SERVICES

- Water Supply
- Sanitary Sewerage
- Storm Drainage
- Electricity
- Gas
- Refuse Collection
- Public Transportation
- Paved Roads, Walkways
- Telephone
- Street Lighting

LOCALITY COMMUNITY FACILITIES

- Police
- Fire Protection
- Health
- Schools, Playgrounds
- Recreation, Open Spaces

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: None, Limited, Adequate.

Quality of information: Approximate
URBAN DWELLING ENVIRONMENTS

LOCALITY BLOCK PLAN

LOCALITY BLOCK LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>DENSITIES</th>
<th>Total Number</th>
<th>Area (Nectares)</th>
<th>Density (N/Ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>13</td>
<td>2.45</td>
<td>5.36</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>62</td>
<td>2.45</td>
<td>25.30</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>310</td>
<td>2.45</td>
<td>126.53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Area (Nectares)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>0.32</td>
<td>13</td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>2.13</td>
<td>87</td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2.45</td>
<td>100</td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

\[ R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} \]

\[ R = \frac{181 \text{ m/ha}}{181 \text{ m/ha}} = 1 \text{ m/ha} \]

AVERAGE LOT AREA

\[ \frac{\text{total area (circulation, lots)}}{\text{number of lots}} = 1888 \text{ m}^2 \]
CASE STUDY: BALGAT

LOCALITY BLOCK LAND UTILIZATION

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>streets/walkways</td>
</tr>
<tr>
<td>Semi-Public</td>
<td>playgrounds</td>
</tr>
<tr>
<td>Semi-Private</td>
<td>cluster courts</td>
</tr>
<tr>
<td>Private</td>
<td>lots</td>
</tr>
<tr>
<td></td>
<td>dwellings</td>
</tr>
</tbody>
</table>

PERCENTAGES
- Streets/Walkways: 13%
- Playgrounds
- Cluster Courts
- Dwellings/Lots: 87%

DENSITY
- Persons/Hectare: 31
- 20 Persons
TYPICAL DWELLING

KEY
LR Living Room  D Dining/Eating Area  BR Bedroom  K Kitchen/Cooking Area  T Toilet/Bathroom  L Laundry  C Closet  S Storage  N Room (multi-use)

GARDEN

PLAN

SECTION

STREET

ELEVATION

0 1 5 10m 1:200

URBAN DWELLING ENVIRONMENTS

PHYSICAL DATA
(category to dwelling and land)

DWELLING UNIT
- type: HOUSE
- area (sq m): 66
- tenure: RENTAL

LAND/LOT
- utilization: PRIVATE
- area (sq m): 315
- tenure: LEGAL OWNERSHIP

DWELLING
- location: PERIPHERY
- type: DETACHED
- number of floors: 1
- utilization: SINGLE FAMILY
- physical state: FAIR

DWELLING DEVELOPMENT
- mode: INCREMENTAL
- developer: POPULAR
- builder: ARTISAN
- construction type: MASONRY, WOOD
- year of construction: 1958

MATERIALS
- foundation: STONE
- floors: CONCRETE
- walls: ADobe WITH TIMBER COLUMNS
- roof: TILES ON TIMBER FURRING

DWELLING FACILITIES
- wc: 1
- shower: 1
- kitchen: 1
- rooms: 3
- other: -

SOCIO-ECONOMIC DATA
(category to user)

GENERAL: SOCIAL
- user's ethnic origin: TURKISH
- place of birth: KASTAMONU
- education level: ARMY TRAINING SCHOOL

NUMBER OF USERS
- married: 2
- single: -
- children: 3
- total: 5

MIGRATION PATTERN
- number of moves: 4
- rural - urban: -
- urban - rural: -
- why came to urban area: APPOINTMENT

GENERAL: ECONOMIC
- user's income group: LOWER MIDDLE
- employment: NONCOMMISSIONED OFFICER
- distance to work: 3.5 KM
- mode of travel: BUS

COSTS
- dwelling unit: N.A.
- land - market value: $12/m²

DWELLING UNIT PAYMENTS
- financing: PRIVATE
- rent/mortgage: N.A.
- % income for rent/mortgage: 11%
BALGAT, Ankara: The photographs show three different dwelling units. The land tenure is legal but many of the dwellings are built without a licence. All the dwellings are built with permanent materials and are structurally sound. Notice the garbage bin in the top photograph (1974).

LOCALITY SOURCES

- Land Use Pattern: (accurate) IBID.
- Circulation Pattern: (accurate) IBID.
- Segment Plan: (approximate) IBID.
- Block Plan: (approximate) IBID.
- Block Land Utilisation: (approximate) IBID.
- Physical Data: (approximate) IBID.
4 AKTEPE, Ankara
PUBLIC, LOW INCOME, HOUSES/WALK-UPS

LOCATION: The site is situated 7.5 km from the city centre, in the north periphery. The settlement covers an area of approximately 100 hectares.

ORIGINS: Aktepe is one of the few government attempts directed towards the low cost housing problem in Ankara. The project started in the late sixties and was intended to house low income people with subsidized loans from the government. Four different options were provided in the development: 2200 lots, 600 core house units, 120 prefabricated houses and 740 apartments in 4 to 5 storey condominiums. Prefabricated units, core houses and condominiums were developed by the government. Lots were to be developed progressively and currently 40 percent of the lots are at the stage of development. Technical assistance was provided by the government for the development of lots. The income ceiling was U.S. $710 for a household of two members for application to the project. The income ceiling increased by U.S. $177 for every additional member of the family. The different

AKTEPE, Ankara: The photograph shows an overall view of the locality. Notice the interesting configuration of dwellings created by different housing options. The streets are paved but many of them have no sidewalks (1974).
CASE STUDY: AKTEPE

Subsidy options were as follows: U.S. $740 for core houses for which the total cost was $962, U.S. $2200 for condominium apartments where the total cost was $2709, and $370-$740 for self-help developments. Cost estimates determining the subsidies excluded the land costs.

Many of the services were provided at the initial stage and communal facilities such as post office, schools, etc. are being provided over time. Some of the owners in condominiums who had limited capacity to meet the monthly mortgage payments have moved out with the new dwellers being predominantly lower-middle income groups.

LAYOUT: The site is a conglomeration of different housing types. The pattern is basically a grid-iron. Communal and commercial facilities are centrally located. In certain blocks lots are clustered around a public access way.
LAND USE: Private dwelling lots occupy 63 percent of the area. Communal facilities and an open air vegetable market are located in the centre forming a big open space around which the settlement has developed. Recreational facilities and playgrounds are scattered throughout the site. The area to the north-west of the site is designated as a squatter prevention area by the municipality. Private properties determine the boundaries on the other sides.
CIRCULATION: A major vehicular road loops around the communal facilities and connects the locality to the city. All streets are used both by pedestrian and vehicular traffic.

KEY
- VEHICULAR
- - - - - - PEDESTRIAN
POPULATION: No data is available for the population distribution of the locality. Total population of the settlement is estimated around 20,400 based on the number of dwelling options and family sizes. According to the data available in the district of Kecioren, the illiteracy rate is 2 percent.

INCOME: The average household income for the locality in 1979 was estimated at U.S. $670. 44 percent of the households had an income of U.S. $400 or under, 47 percent between $400 to $900 and 9 percent above $900.
CASE STUDY: AKTEPE

LOCALITY CONSTRUCTION TYPES

The chart shows the approximate percentage of each construction type within the total number of dwellings and the building group that generally produces each type.

LOCALITY UTILITIES AND SERVICES

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: NONE, LIMITED, ADEQUATE.

LOCALITY COMMUNITY FACILITIES

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: NONE, LIMITED, ADEQUATE.

QUALITY OF INFORMATION: Approximate
**URBAN DWELLING ENVIRONMENTS**

**LOCALITY BLOCK PLAN**

**WALK-UPS, ROW HOUSES**

**LOCALITY BLOCK LAND UTILIZATION DATA**

<table>
<thead>
<tr>
<th>DENSITIES</th>
<th>Total Number</th>
<th>Area Hectares</th>
<th>Density N/Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>42</td>
<td>1.80</td>
<td>23.33</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>114</td>
<td>1.80</td>
<td>63.33</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>730</td>
<td>1.80</td>
<td>405.55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>0.44</td>
<td>24</td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>0.45</td>
<td>36</td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>0.71</td>
<td>40</td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.80</td>
<td>100</td>
</tr>
</tbody>
</table>

**NETWORK EFFICIENCY**

\[
R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} = 261 \text{ m/ha}
\]

\[
AVERAGE \text{ LOT AREA} = \frac{\text{total area (circulation, lots)}}{\text{number of lots}} = 274 \text{ m}^2 \text{ (houses)}
\]

\[
1086 \text{ m}^2 \text{ (walk ups)}
\]
**LOCALITY BLOCK PLAN**

** DETACHED HOUSES  

---

**LOCALITY BLOCK LAND UTILIZATION DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Area</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>85</td>
<td>2.33</td>
<td>36.48</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>85</td>
<td>2.33</td>
<td>36.48</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>425</td>
<td>2.33</td>
<td>182.40</td>
</tr>
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</table>

**AREAS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>0.66</td>
<td>28</td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>1.67</td>
<td>72</td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2.33</td>
<td>100</td>
</tr>
</tbody>
</table>

**NETWORK EFFICIENCY**

- Network length (circulation) = 336 m/km
- Averaged lot area = 314 m²
- Number of lots
LOCALITY BLOCK LAND UTILIZATION

LAND UTILIZATION DIAGRAMS

PATTERN
Public: streets/walkways
Semi-Public: playgrounds
Semi-Private: cluster courts
Private: lots
dwellings

PERCENTAGES
- Streets/Walkways 28%
- Playgrounds
- Cluster Courts
- Dwellings/Lots 72%

DENSITY
- Persons/Hectare 200
- 20 Persons
URBAN DWELLING ENVIRONMENTS

SECTION

ELEVATION

KEY

LR Living Room
D Dining/Eating Area
BR Bedroom
K Kitchen/Cooking Area
T Toilet/Bathroom
L Laundry
C Closet
S Storage
R Room (multi-use)

1:200
AKTEPE, Ankara: (top) The photograph shows the open-air vegetable market and the walk-ups in the background (1974).

(bottom) One of the typical 5-storey walk-ups built by the government. Notice the enclosure built around the balcony on the first floor for security (1974).
**URBAN DWELLING ENVIRONMENTS**

**Section**

**Elevation**

**Plan**

**Typical Dwelling**

**Physical Data**

(related to dwelling and land)

** Dwelling Unit**
- type: CORE HOUSE
- area (sq m): 47.5
- tenure: LEGAL OWNERSHIP

** Land/Lot**
- utilization: PRIVATE
- area (sq m): 263
- tenure: LEGAL OWNERSHIP

** Dwelling Development**
- mode: INSTANT
- developer: PUBLIC
- builder: LARGE CONTRACTOR
- construction type: MASONARY, CONCRETE
- year of construction: 1968

** Materials**
- foundation: STONE
- floors: REINFORCED CONCRETE SLAB
- walls: BRICK
- roof: TILES ON TIMBER PURLINS

** Dwelling Facilities**
- wc: 1
- shower: 1
- kitchen: 1
- rooms: 2
- other: -

** Socio-Economic Data**

(related to user)

** General: Social**
- user's ethnic origin: TURKISH
- place of birth: KARS
- education level: PRIMARY SCHOOL

** Number of Users**
- married: 2
- single: -
- children: 3
- total: 5

** Migration Pattern**
- number of moves: 2
- rural - urban: 1964
- urban - urban: 1968
- urban - rural: -
- why came to urban area: EMPLOYMENT

** General: Economic**
- user's income group: LOW
- employment: COOK
- distance to work: 6 KM
- mode of travel: BUS

** Costs**
- dwelling unit: $962
- land - market value: -

** Dwelling Unit Payments**
- financing: PUBLIC SUBSIDIZED
- rent/mortgage: $81/YEAR
- % income for rent/mortgage: 14%
AKTEPE, Ankara: The photographs show different types of dwellings in the locality: two core houses (top and bottom left), and a prefabricated unit (bottom right). Notice the contrast of the garden wall next to the prefabricated unit (1974).

LOCALITY SOURCES

Land Use Pattern: (approximate) ZIBD.
Circulation Pattern: (accurate) ZIBD.
Segment Plan: (approximate) ZIBD.
Block Plan: (approximate) ZIBD.
Block Land Utilization: (approximate) ZIBD.
Physical Data: (accurate) ZIBD.
LOCATION: The locality is 7 km from the city centre and located in the north western part of the city. The settlement covers an area of 150 hectares and it is adjacent to several government research institutions located along the Ankara-Istanbul highway. One of the major recreational areas, Ataturk Forest Farm is 3 km from the locality to the south.

ORIGINS: The site was developed in 1948 by the Municipality of Ankara to meet the increasing demand for housing. The subdivision and land development was undertaken by the municipality and the dwellings were developed by the popular and private sectors. The lots were sold by the municipality to be repaid in ten equal installments over a period of 10 years with no interest. Credits with long term, low interest rates were made available for dwelling construction and the lot owners were compelled to start construction within a limited period of time. The project was a successful experiment especially in terms of administration of the planning and implementation of the development. The settlement is governed by the Yenimahalle District Government and is a part of the Municipality of Ankara.
The layout which was the result of a competition, is a grid-iron. The size and the shape of the blocks are determined by the building code and by topography. The settlement is a mixture of 2 to 4 storey houses and condominiums. The lot sizes are varied dependent on topographical conditions and their location in the block.
LAND USE: Primarily a residential area, Yenimahalle is a typical lower-middle and middle-income settlement. Commercial and communal facilities are located along Ragip Tuzun Street which divides the locality and serves as a central spine. Four primary schools and three mosques are spread over the locality. A primary school, a high school and two vocational schools are situated across Yedik street. The immediate area to the west of the locality is developing rapidly as an extralegal settlement area. The condominiums adjacent to the locality on the east were developed later by cooperatives and banks. On the south, the area is bordered by public research institutions. On the north and east, the settlement area is defined by private and public property lines.

LOCALITY LAND USE PATTERN
CASE STUDY: YENIMAHALLE

CIRCULATION: The major approach to the locality is from Hippodrome Street and the access from Ivedik Street. All streets are used by both vehicular and pedestrian traffic. Major vehicular streets are Ivedik, Ragip Tunus and Carsi Streets along which the commercial and communal facilities are located.
POPULATION: No data is available for the population distribution of the locality. The estimated total population in 1970 was 35,000. 28 percent of the household heads are government employees, 18 percent professionals and 18 percent are engaged in trade. The illiteracy rate is 0. 51 percent of the working population commute to the city centre and 19 percent work in the locality.

INCOME: The average annual household income in 1970 was estimated at U.S. $1300. 24 percent of the households had an income of U.S. $1155 or under, 59 percent between $1155 and $1420 and the remaining 17 percent $1420 or above. 87 percent of the households own their dwellings. Average rent is U.S. $30 per month in the locality.
LOCALITY CONSTRUCTION TYPES

<table>
<thead>
<tr>
<th>%</th>
<th>SELF-HELP</th>
<th>ARTISAN</th>
<th>CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHACK</td>
<td>0</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>MUD/WATTLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOOD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MASONRY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MASONRY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONCRETE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONCRETE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The chart shows (1) approximate percentage of each construction type within the total number of dwellings and (2) building group that generally produces each type.
Quality of information: Approximate

LOCALITY UTILITIES AND SERVICES

<table>
<thead>
<tr>
<th>WATER SUPPLY</th>
<th>SANITARY SEWERAGE</th>
<th>STORM DRAINAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELECTRICITY</td>
<td>GAS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REFUSE COLLECTION</td>
<td></td>
</tr>
<tr>
<td>PUBLIC TRANSPORTATION</td>
<td>PAVED ROADS, WALKWAYS</td>
<td>TELEPHONE</td>
</tr>
<tr>
<td>STREET LIGHTING</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LOCALITY COMMUNITY FACILITIES

<table>
<thead>
<tr>
<th>POLICE</th>
<th>FIRE PROTECTION</th>
<th>HEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SCHOOLS, PLAYGROUNDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RECREATION, OPEN SPACES</td>
</tr>
</tbody>
</table>

The chart illustrates the approximate availability of utilities, services, and community facilities at three levels: NONE, LIMITED, ADEQUATE.
Quality of information: Approximate
LOCALITY BLOCK PLAN

LOCALITY BLOCK LAND UTILIZATION DATA

DENSITIES

<table>
<thead>
<tr>
<th></th>
<th>Total Number</th>
<th>Area Hectares</th>
<th>Density N/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>44</td>
<td>1.38</td>
<td>31.88</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>145</td>
<td>1.38</td>
<td>105.07</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>652</td>
<td>1.38</td>
<td>472.46</td>
</tr>
</tbody>
</table>

AREAS

<table>
<thead>
<tr>
<th></th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>0.28</td>
<td>20</td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>1.10</td>
<td>80</td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.38</td>
<td>100</td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

R - network length (circulation) = 208 m/ha
areas served (circulation, lots) = -
AVERAGE LOT AREA

total area (circulation, lots) / number of lots = 314 m²
LOCALITY BLOCK LAND UTILIZATION

LAND UTILIZATION DIAGRAMS

PERCENTAGES
- Streets/Walkways 20%
- Playgrounds -
- Cluster Courts -
- Dwellings/Lots 80%

DENSITY
- Persons/Hectare 241
- 20 Persons

PATTERN
- Public: streets/walkways
- Semi-Public: playgrounds
- Semi-Private: cluster courts
- Private: lots
- Dwellings
URBAN DWELLING ENVIRONMENTS

SECTION

GARDEN

ELEVATION

KEY
LR Living Room
D Dining/Eating Area
BR Bedroom
K Kitchen/Cooking Area
T Toilet/Bathroom
L Laundry
C Closet
S Storage
R Room (multi-use)

TYPICAL DWELLING

1:200
YENIMAHALLE, Ankara: (top) This photograph shows a typical residential street in the locality. Notice the vendor in the foreground selling water containers to store water and the one in the background selling drinking water, since city water is highly chlorinated for drinking (1974).

(bottom) A typical detached walk-up. These walk-ups are either owned in condominium or individually, in which case the apartments except the owner's are rented (1974).
CASE STUDY: YENİMAHALLE

YENİMAHALLE, Ankara: Row walk-ups. Each unit can be identified by the gutter lines in the photograph. Ownership pattern is similar to the previous case. Notice the garbage bin on the sidewalk. Garbage is collected every second day (1974).

LOCALITY SOURCES

Land Use Pattern: (accurate) IIBD.
Circulation Pattern: (accurate) IIBD.
Segment Plan: (accurate) IIBD.
Block Plan: (accurate) IIBD.
Block Land Utilisation: (accurate) IIBD.
Physical Data: (approximate) IIBD.

PHYSICAL DATA

(referenced to dwelling and land)

DWELLING UNIT

<table>
<thead>
<tr>
<th>type</th>
<th>APARTMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>area (sq m)</td>
<td>96</td>
</tr>
<tr>
<td>tenure</td>
<td>LEGAL RENTAL/OWNERSHIP</td>
</tr>
</tbody>
</table>

LAND/LOT

<table>
<thead>
<tr>
<th>utilization</th>
<th>PRIVATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>area (sq m)</td>
<td>176</td>
</tr>
<tr>
<td>tenure</td>
<td>LEGAL OWNERSHIP</td>
</tr>
</tbody>
</table>

DWELLING

<table>
<thead>
<tr>
<th>location</th>
<th>PERIPHERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>NON/GROUPED</td>
</tr>
<tr>
<td>number of floors</td>
<td>3</td>
</tr>
<tr>
<td>utilization</td>
<td>MULTIPLE, FAMILY</td>
</tr>
<tr>
<td>physical state</td>
<td>FAIR</td>
</tr>
</tbody>
</table>

DWELLING DEVELOPMENT

<table>
<thead>
<tr>
<th>mode</th>
<th>INSTANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>developer</td>
<td>PRIVATE</td>
</tr>
<tr>
<td>builder</td>
<td>SMALL CONTRACTOR</td>
</tr>
<tr>
<td>construction type</td>
<td>MASONARY, CONCRETE</td>
</tr>
<tr>
<td>year of construction</td>
<td>1957</td>
</tr>
</tbody>
</table>

MATERIALS

<table>
<thead>
<tr>
<th>foundation</th>
<th>STONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>floors</td>
<td>REINFORCED CONCRETE SLAB</td>
</tr>
<tr>
<td>walls</td>
<td>BRICK, CONCRETE COLUMNS</td>
</tr>
<tr>
<td>roof</td>
<td>TILES ON TIMBER FURLINS</td>
</tr>
</tbody>
</table>

DWELLING FACILITIES

| wc     | 1                         |
| shower | 1                         |
| kitchen| 1                         |
| room   | 3                         |
| other  | -                         |

SOCIO-ECONOMIC DATA

(referenced to user)

GENERAL: SOCIAL

| user's ethnic origin | TURKISH              |
| place of birth       | ISPARTA              |
| education level      | HIGH SCHOOL          |

NUMBER OF USERS

| married | 2               |
| single  | -               |
| children| 2               |
| total   | 4               |

MIGRATION PATTERN

| number of moves | rural - urban: - | urban - rural: 1959, 1962 |
|                |                  |                             |
| why came to urban area | APPOINTMENT       |

GENERAL: ECONOMIC

| user's income group   | MIDDLE             |
| employment            | GOVERNMENT CLERK   |
| distance to work       | 7 KM               |
| mode of travel         | BUS, SERVICE TAXI  |

COSTS

| dwelling unit: | N.A.               |
| land - market value: | $25/m²   |

DWELLING UNIT PAYMENTS

| financing | N.A.               |
| rent/mortgage: | $25/MONTH |
| % income for rent/mortgage: | 20%    |
The physical data of the 5 case studies of dwelling environments existing in the Metropolitan Area is summarized in the physical data matrix and in the following comments. The matrix permits: (1) a comprehensive view of the spectrum of dwelling types; (2) a comparison and determination of trends and patterns.

The three categories shown were identified as follows:

- **Category A**: Very Low Income Housing system, dwelling units usually consist of one or two rooms with the option of expansion. It is observed that in the squatter settlements the room areas range from 9m² to 16m². In the middle and upper income sectors, the dwelling unit areas range from 80m² to 120m².
- **Category B**: Low Public Housing. Squatter dwellings are often one or two rooms with limited facilities. The majority of the population is in this category.
- **Category C**: Middle Private Housing. This includes middle income groups and represents 16% of the population. The difference between middle and higher income groups is reflected in the availability and maintenance of services, location in the city and in the dwellings; settlement pattern of middle and higher income groups is basically the same.

(3) **User Income Group**: The income level is taken as an indicator in the analysis of systems, although other factors such as profession/education play important roles. The higher the income, the higher is the indicator. The process of housing for the low income groups is a matter of survival and security whereas in the upper income groups it is a service or a commodity.

(4) **Dwelling Unit Type**: A pattern is defined in terms of income groups. House: very low and low income groups; apartments: middle and upper income groups.

(7) **Dwelling Unit Area**: In the lower income groups, the dwelling usually consists of one or two rooms with the option of expansion. It is observed that in the squatter settlements the room areas range from 9m² to 16m². In the middle and upper income sectors, the dwelling unit areas range from 80m² to 120m².

(8) **Dwelling Unit Tenure**: In the low income groups, four situations can be described: legal ownership of dwelling on occupied land (See GULVEREN); ownership of dwelling and the purchase of the right to construction from the first occupant; room rentals; legal ownership of both dwelling and land (See AKTEPE, BALGAT).

(9) **Dwelling Unit Percent Income for Rent**: A clear trend is observed in the case studies: Low income sectors do not and cannot pay more than 20% of their income for rent or...
Room rentals can be found in some of the low income settlements.

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Room rentals can be found in some of the low income settlements.
## Community Facilities, Utilities/Services Matrix

### Community Facilities

<table>
<thead>
<tr>
<th>Category</th>
<th>Population per Category</th>
<th>% of Total Population</th>
<th>Localities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1. KALE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. GULVEREN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. BALGAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. AKTEPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. YENIMAHALLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

### Utilities and Services

- **Pollution Protection**: Limited or occasional
- **Refuse Collection**: Adequate or normal
- **Water**: Adequate or normal
- **Electricity**: Adequate or normal
- **Gas**: Adequate or normal
- **Public Transportation**: Adequate or normal
- **Roads**: Adequate or normal
- **Street Lighting**: Adequate or normal

### Notes

The matrix illustrates the approximate availability of community facilities, utilities, and services in the 5 dwelling environments. Three levels are indicated as follows:

- **No provision at all**
- **Limited or occasional**
- **Adequate or normal**

The matrix clearly indicates the correlation between the level of services and the level of income as well as the dwelling location.

**Case 1** is a typical example of the direct relation between the level of services and the level of income. Although the availability of services is adequate because of its location, the use of some of the community services is limited due to the income level.

The following comments were withdrawn from the case studies and are arranged in terms of income groups and housing systems.

**Very Low/Low Income**: All the cases within this income bracket rate "none" or limited. Although electricity and water are available all cases, their use is limited by income level. Another major problem is the requirement of a legal title of land to be entitled for service connections which limits the use of services in many squatter areas. Due to their locations in the inner ring and in the periphery, low income groups have no or limited access to community facilities such as schools, health, and recreational facilities. The conflict between provision of services to low income settlement areas (most of which are squatters); thus encouraging further developments and the legal situation of these areas complicates the problems for the public agencies. The public housing projects (see AKTEPE) are instantly built as packages; therefore, most of the services, utilities and facilities are provided along with the dwelling unit. However, location affects the level of some services such as fire protection.

**Upper Middle High Income**: In almost all the middle and higher income areas the services are adequate with the exception of telephone, the level of which is limited for all sectors. Although infrastructure is adequate for water in most of the low/middle/high income spectrum, the scarcity of resources limits the level of the service depending on the climatic conditions. Under such circumstances higher income groups enjoy a longer period of supply.
**EVALUATIONS: PATTERNS, PERCENTAGES, DENSITIES**

1 **KALE**
Popular Low Income Trad.Urban Houses
Low percentage of land for streets and walkways; high percentage of land for lots. High population density; deteriorating environment. Lack of adequate spaces aggravates the poor living conditions. Kale will be an optimum settlement in terms of land utilization if adequate public open spaces are provided nearby.

2 **GÜLVEREN**
Popular Low Income Slum
Low percentage of land for streets and walkways; no land for public open spaces; high percentage of land for lots. Medium population density. Ad-hoc layout increases the burden of the municipality.

3 **BALGAT**
Popular Low Income Trad.Rural Houses
Low percentage of land for streets and walkways; high percentage of land for lots. Despite these percentages, BALGAT is burden to the municipality because of low population density.

4 **AKTEPE**
Public Low Income Houses/Walk-Ups
Medium percentage of land for streets, walkways, open spaces; medium percentage of land for lots. Medium density. Poor layout with undefined open spaces results in excessive public land. These factors make AKTEPE a burden to the municipality.

5 **YENİMAHALLE**
Private Middle Income Walk-Ups
Low percentage of streets and walkways, high percentage of land for lots. Most of the land with private utilization is sheltered area; medium/high population density.

**PERCENTAGES**

- Streets/Walkways: 30%
- Public Open Spaces: 5%
- Dwellings/Lots: 75%

**DENSITIES**

- Persons/Hectare: 458
- Persons/Hectare: 291
- Persons/Hectare: 31
- Persons/Hectare: 200
- Persons/Hectare: 241
LAND UTILIZATION:
OPTIMUM RANGES

The three graphs shown are used to evaluate and to compare the case studies in terms of LAND UTILIZATION PERCENTAGES and RESIDENTIAL POPULATION DENSITY.

Land utilization percentages are computed for the following areas:

a) PUBLIC: streets, walkways, open spaces;

b) SEMI-PUBLIC: open spaces;

c) PRIVATE: dwellings, lots.

Residential population density is the total number of persons per unit hectare. The range of desired/acceptable densities is 300 persons per Ha to 600 persons per Ha, based upon case studies and accepted zoning standards in different urban contexts in developing countries. This range can be achieved assuming that the dwelling development is of 1-3 stories, with an average built-up area of 10-20 m² per person and 30-35 percent of land/lot coverage.

KEY

VERTICAL SCALE: Land utilization percentages (0 to 100%).

HORIZONTAL SCALE: Residential population density (0 to 2,000 persons per Ha shown on logarithmic scale).

CURVE: Range of optimum land utilization percentages (optimum values vary for different densities based upon case studies and accepted zoning standards in different contexts).

SHAPED AREA: Desired/optimum efficiency of land utilization (the intersection of desired/accepted residential population densities and desired/accepted land utilization percentages).

NUMBERED DOTS: the Ankara case studies.

- **PUBLIC**: streets, walkways, open spaces. Areas within an urban layout used for pedestrian and vehicular circulation. The land has minimum physical controls and maximum public responsibility in initial purchase, development and maintenance. The CURVE shows: optimum area percentages for streets, walkways, and open spaces. (20-30%, based upon case studies in Latin America and in the U.S.A.) The percentage of street and walkway areas varies slightly with density.

- **SEMI-PUBLIC**: open spaces. Areas within an urban layout used for supporting facilities and services. (Open spaces-playgrounds are the only supporting areas considered since the land utilization percentages are only based upon a small sector area) The land has partial or complete physical controls and public/user responsibility in development and maintenance. The CURVE shows: optimum area percentages for open spaces. (3-31%, based upon case studies in Latin America and in U.S.A.) The percentage of open spaces varies considerably with density.

- **PRIVATE**: dwellings, lots. Areas within an urban layout used for residential and commercial use. The land has maximum physical controls and owner/tenant/user responsibility in development and maintenance. The CURVE shows: optimum area percentages for dwellings and lots. (The range of optimum percentages of land for Public areas is 20-30%, with 3-31% for Semi-Public areas; therefore, the remaining 77-39% of land is for private use.)
The comments below relate to the land utilization percentages of the Ankara case studies. It may be observed from the graphs that only a limited number of cases are within reasonable density ranges. However, these cases do not satisfy all three optimum land utilization requirements (public, semi-public, private) but are only optimum in one or two of the categories.

**PUBLIC**: Cases above the curve (1, 4) have a high percentage of land devoted to streets and walkways; therefore, these cases constitute a great burden to the municipal government in terms of land, construction, maintenance, and operation. Cases below the curve (none) have a smaller percentage of land devoted to streets and walkways. These cases are still a burden to the municipal government because they serve areas sparsely populated. Cases near and on the curve (1, 2, 5) have a reasonable percentage of land devoted to streets and walkways.

**SEMI-PUBLIC**: Only one case (4) provide a small percentage of semi-public land. The rest of the cases do not provide semi-public land at all.

**PRIVATE**: Cases above and below the curve (3) are sparsely populated areas and, therefore, a burden to the municipal government in the provision, maintenance, and operation of utilities and services. Cases above and on the curve (1, 2, 5) have acceptable density, but a higher percentage of land devoted to lots.

**EFFICIENCY OF NETWORK**

The urban layout is the physical configuration determined by the combination of networks of circulation and areas served. Networks of circulation (highways, streets, walkways) define the lines of distribution/collection of the utilities and services, and are publicly owned land. Areas served (lots, blocks) are usually privately owned land. The urban layout is a major economic determinant in the provision of utilities and services and their maintenance and operation.

The efficiency/effectiveness of a network is the ratio of the length of the network to the area(s) served:

\[
\text{EFFICIENCY OF NETWORK} = \frac{\text{network length}}{\text{area(s) served}} = \text{R-VALUE}
\]

The R-Value varies inversely to the network efficiency; a smaller R indicates a higher efficiency and vice versa. The layouts of the case studies have been evaluated in terms of network efficiency and are shown in the graph below. For further information on the R-Value see: "A Method for the Evaluation of Urban Layouts", INDUSTRIAL FORUM, Volume 3, Number 2, Montreal, December, 1971.

**R-VALUE SUMMARY**

<table>
<thead>
<tr>
<th>Cases</th>
<th>Degree of Efficiency</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inefficient</td>
<td>Good density</td>
</tr>
<tr>
<td>2</td>
<td>Inefficient</td>
<td>Good density</td>
</tr>
<tr>
<td>3</td>
<td>Inefficient</td>
<td>Very low population density</td>
</tr>
<tr>
<td>4</td>
<td>Inefficient</td>
<td>Acceptable density</td>
</tr>
<tr>
<td>5</td>
<td>Efficient</td>
<td>Acceptable density</td>
</tr>
</tbody>
</table>

**KEY**

- **VERTICAL SCALE**: R-Value (efficiency values on logarithmic scale).
- **HORIZONTAL SCALE**: Lot areas (m²).
- **CURVE**: Optimum R-Value (the optimum values are derived from lots of different areas having a width to depth ratio of 1:4, a public street serving only the short dimension of the lot, and transverse streets at intervals of 150 meters).
- **NUMBER CODE**: the R-Values of the Ankara case studies.
Macunköy Urban Development Model
INTRODUCTION

Ankara is a typical example of the urbanization phenomenon facing many Turkish cities: it has a seven percent rate of growth and sixty percent of the population living in squatter settlements without adequate services, without secure employment opportunities, and with different socio-economic values. The rate of industrialization is slow and unable to match the rate of urbanization. The inability of the industrial sector to absorb the rural-urban inflow pushes the service sector to exaggerated dimensions and affects the formation of the political/class consciousness of the low income groups. Thus, the integration of new groups into the urban environment both physically and socio-economically is slackened.

Security is the basic problem facing the new rural-urban migrant. Security of a shelter and land becomes crucial in the face of the insecure employment opportunities. The competition between high and low income groups results in the high income settling close to the center and the low income occupying the periphery.

Metropolitan Ankara covers an area of 17,620 Ha., 30 percent of which is vacant. The shortage of land, particularly for the low income groups, is exacerbated by land speculation. The inability of low income groups to have access to urban land aggravates the urban sprawl. Provision of adequate services and maintenance is beyond the means of the public sector with its limited resources. Without solving the problem of speculation, it is impossible to talk of "who controls the land" and of effective land policies in Ankara.

The model is an attempt to develop/define an approach to the problems of urban residential development by recognizing the potentials/limits of low income groups as well as those of public sector. The project is undertaken with the agreement of the Municipality of Ankara on a site which was already chosen by the municipality. The viability of the location will not be discussed in this study.

The model focuses specifically on physical layout and land subdivision. These fundamental aspects are not only critical from an efficiency and amenity standpoint but also because they tend to be the most permanent feature of the city. The layout is a determinant of efficiency in terms of cost and functional viability of development and the primary determinant of subsequent municipal commitments: administration, maintenance, etc.

The study is based on the assumption that problems of urbanization and of low income settlements must be addressed at the national level. Before socio-economic conditions are improved and necessary administrative measures are taken, physical alternatives cannot be effective. Social as well as economic integration of different urban groups can be effected yet cannot be initiated by physical planning.
WESTERN ANKARA AREA

To define specifically the site for development a larger area was selected for study (Western Ankara Area). The following existing and projected constraints in the area were recognized:

LAND FEATURES:
The ridges of the mountains on the north descent towards the Ankara Creek Valley in the form of irregular fingers. The total area is undulated.

LAND USE:
Existing
- Residential: Scattered developments on the north of the Istanbul Highway; Macunkoy rural settlement.
- Industrial: Scattered small industries along the highway.
- Public: Ataturk Forest Farm and other institutional uses cover the southern part of the Istanbul Highway. Some industries are located within the Forest Farm boundaries, along the railway.

Projected
- Industrial: A site is planned for light industries on the north and further industrial developments are encouraged along the highway.

CIRCULATION:
Major Roads:
Existing: Istanbul-Ankara Highway.
Proposed in this study: Main access road connecting the area to Yenimahalle and Karsiyaka settlements on the north of the highway.

Commercial:
Proposed in this study: Roads On the ridges.
WESTERN ANKARA AREA - LAND USE
BASIC PROJECT DATA

Project: MACUNKOY URBAN DEVELOPMENT,
Ankara Metropolitan Area

The project presented here is more properly a study for the development of Macunkoy Area, Ankara. Although the area has strong topographical features, the site lacks geographical and topographical definition.

The Site: LOCATION
- Western part of Ankara Metropolitan Area.
- Approximately 11 km west of the city centre, adjacent to the Ataturk Forest Farm, Yenimahalle and Karsiyaka residential areas.
- Within the area of proposed intensive development along the Istanbul-Ankara Highway.

ACCESS
- Istanbul-Ankara Highway.

AREA
- Approximately 1,500 Hectares. The land is in the process of being acquired by public agencies.

MAIN CHARACTERISTICS
- The site is composed of three ridges running along the north-south direction. Small, dry valleys in between the ridges.
- The land is predominantly used for agricultural purposes, yet the production has no significance for the city.
- There are no structures on the site.

The Plan: INTENDED USE
- Primarily residential with supporting commercial and community services.

POPULATION
- 270,000 to 540,000 people at saturation.

INCOME GROUP
- Low, moderately low with incorporation of middle income groups.

LAND USE
- Private, residential: 55% to 65%
- Public facilities: 20% to 25%
- Circulation Network: up to 20%

PLANNING ELEMENTS
- The physical plan provides flexibility to be developed in stages without affecting the general layout.
- The physical plan provides for maximum private responsibility in the development and maintenance of the project, thus lowering the burden on the public agencies.
- Horizontal condominiums (clusters) will provide the main residential components.
- Schools are combined with community parks to act as a community focus.
WESTERN ANKARA AREA - CIRCULATION
PLANNING POLICIES / GOALS

The policies/goals developed for the proposal are defined as follows:

PRIMARY USE: RESIDENTIAL COMMUNITY
- The primary use of the site is residential.
- The supporting land uses are included: schools, clinics, parks and playgrounds, commercial facilities and markets.
- The area on the north of the Istanbul-Ankara Highway is for light industries, as proposed by the Ankara Metropolitan Planning Office.
- Reserve area will provide the necessary buffer along the northern access road to discourage future developments further to the north.
- The character of the Istanbul-Ankara Highway will be protected/maintained.

TARGET INCOME GROUPS: PREDOMINANTLY LOWER INCOME
- The development is aimed at a community with predominantly low and moderately low income sectors with the combination of middle income sectors:
  Lower Middle : U.S. $100-75 per month
  Moderately Low : U.S. $75-55 per month
  Low : Below U.S. $55 per month

INTENSITIES OF LAND USE: MEDIUM/HIGH DENSITIES
- Range of gross densities planned for: 200 to 400 p/Ha.
- At the saturation stage densities will be at least 100% higher as result of expansion to 2 to 5 stories, higher room occupancies.

LAND TENURE: PRIVATE OWNERSHIP, CONDOMINIUM OWNERSHIP, LONG TERM LEASE AND RENTAL
- The development will offer a great variety of tenure options emphasizing rental and long term lease.

FINANCING: PUBLIC, PRIVATE
- The magnitude of the development is beyond the means of any single source or agency. Both public and private funds should be used in the development.
- Cooperatives should be given priority.
- Small savings should be utilized through alternative credit mechanisms.
- Public subsidies should be kept at a minimum level and the role of the public sector should be confined more to govern/control the development and to provide services.
- The commercial lots are considered to be self financed.

CIRCULATION: INTERNAL/EXTERNAL COORDINATION
- Internal and external circulation networks will provide the primary framework of the development of the site.
- The internal network will be connected to the external network by:
  - Connecting the central spines to the Istanbul-Ankara Highway and to the main access road on the north.
  - Providing a meshing access to Karsiyaka and Yenimahalle on the east.
  - Connecting the main access to the Istanbul-Ankara Highway and completing a loop road access.

UTILITIES:
- All utility systems: water, sewer, storm drainage and electricity, will be interconnected into the existing/planned city networks and will be developed considering the natural slope of the land to minimize operating cost.
DEVELOPMENT MODE: INCREMENTAL GROWTH

- The site will be developed incrementally.
- Two periods are considered:
  I PRELIMINARY: Initial studies and promotion. Time frame is estimated as 1 to 2 years.
  II IMPLEMENTATION: Construction, habitation, evaluation and revision. The stages of the implementation should follow the cycle:
    1 Planning design
    2 Construction, allocation of lots
    3 Habitation
    4 Evaluation
    5 Revision of policies
The cycle should be repeated till the saturation of the site is reached. Initial steps of planning/development should include:
- Initial study of the development: detailed physical and financial planning.
- Initial project development: development of the site and dwelling unit; services; initial development of the first central spine and the main access road.
- Intermediate development: development of the sloped zones; progressive improvement of the site and services areas.
THE SITE: MACUNKÖY

AREA:

Gross area of the site: 1580 Ha.
Reserve land 225 Ha.
Land for development 1355 Ha.

LOCATION:

The site is approximately 11 km from the city centre and adjacent to the Ataturk Forest Farm, and Etimesgut military area. Forest Farm is a recreational facility for the metropolitan area.

BOUNDARIES:

North: Property lines; meshing boundary.
East: Macun Village; property lines; meshing boundary
South: Property lines; meshing boundary with the scattered light industries along the highway.
West: Ataturk Forest Farm; strict control of the boundaries.

ACCESSSES:

Existing Istanbul-Ankara Highway; Proposed extension of Macun Village road.

TRANSPORTATION:

Existing municipal bus service line ends 3 km before the site and service is limited. There is also limited train service to/from the station in the Ataturk Forest Farm.

TOPOGRAPHY:

The site has difficult topographical conditions. The major characteristics are the ridges and the small valleys in between. The slope varies from 10 to 15 percent over a major portion of the site.

LAND OWNERSHIP:

The land is originally owned by the private sector and is in the process of being acquired by the Municipality of Ankara and the Land Office of Ministry of Housing and Resettlement.

LAND COSTS:

Land values in the area are based on a rural land value scale. Costs can be considered compatible for low cost residential development.

UTILITIES:

Connections are feasible for sewer and electricity to existing/planned networks. The existing water supply is already scarce for the metropolitan area. New sources of water should be considered for the development.

EXISTING STRUCTURES, EASEMENTS, RIGHTS OF WAY:

There are no structures on the site. The land is used for agriculture.

OTHER FACTORS:

Views: Site enjoys commanding view of the Ankara Creek valley and the Ataturk Forest
Smoke, Odours: None at the moment. Although the development of industrial area adjacent to the site might be considered problematic, due to the nature of the light industries the effect will be negligible.
Dust, Hazards: None.
Flooding: Site is well drained.
Airports: Proximity to the military airport may be a source of nuisance.
The circulation network forms the necessary framework around which the site is developed. The network also provides utility lines throughout the site by providing continuous access for maintenance and control, and is considered to be under public ownership.

The circulation layout is based upon:
- Recognition of topographical conditions to minimize the development cost as well as the cost of infrastructure, its operation and its maintenance.
- Recognition that the ridges determined the lines of major through streets.
- Lines of access and lines of circulation are considered separately.
- The accesses are from the Istanbul-Ankara Highway as well as from the main access loop which forms the northern boundary of the development.

The following circulation modes are considered in the network:
MODE I: Main access loop and the Istanbul-Ankara Highway. Exclusive use by vehicles, relatively high speed with large volume of traffic flow.
MODE II: Main commercial arteries. Vehicles and pedestrians mixed; vehicles dominate but do not control circulation.
MODE III: Local residential streets. Pedestrians and vehicles mixed; pedestrians dominate over vehicles.
MODE IV: Pedestrian walkways and cluster courts. Exclusive use by pedestrians.
LAND USE PLAN

The Land Use Plan (opposite page) shows:

- OPEN AREAS, PARKS, SCHOOLS: Located in the valleys where land is suitably flat for big open spaces and playgrounds. Communal spaces are also considered to provide transition/integration between the localities.

- PUBLIC FACILITIES: Along the central spines and main access road.

- RESIDENTIAL AREAS: Located on the slopes of the ridges.

- RESERVED LAND: Provided on one side of the main access road to control the immediate northern part of the site.

Gross area within boundaries of the site

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (Ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve land</td>
<td>225</td>
</tr>
<tr>
<td>AVAILABLE LAND FOR DEVELOPMENT</td>
<td>1355 100%</td>
</tr>
<tr>
<td>PUBLIC LAND</td>
<td></td>
</tr>
<tr>
<td>Circulation</td>
<td>203 15%</td>
</tr>
<tr>
<td>Schools, playgrounds, open areas, parks, recreation, hospital</td>
<td>305 22%</td>
</tr>
<tr>
<td>PRIVATE LAND</td>
<td></td>
</tr>
<tr>
<td>Residential, commercial</td>
<td>847 63%</td>
</tr>
</tbody>
</table>

The site is composed of three distinct ridges and valleys, and therefore is considered to consist of three localities forming a whole. It has a potential population of 270,000 to 540,000 people at the saturation stage. This represents 1/6 to 1/3 of the present population of Ankara. The development will be medium sized town and should be planned accordingly; not only in terms of community services but also in terms of the following options:
- Different income groups
- Diversity of choice in land tenure
- Diversity in housing programs
- Public and private developers and funding
THE SITE: MACUNKOY

AREAS

RESIDENTIAL

COMMERCIAL, LIGHT INDUSTRIES

OPEN SPACES

KEY

S School
H Health
S Social Services

Site
LAND USE

ISTANBUL-ANKARA HIGHWAY

TO CITY CENTRE

1:25,000
DEVELOPMENT PLAN

A Development Plan in terms of social, physical, demographic programs, staging and timing is beyond the scope of this study. However, only guidelines for development are implicit in the different sections of the proposal.

- Land use, circulation, development are inseparable/interacting systems.
- Maximum flexibility should be provided to facilitate the continuous process of construction, habitation, evaluation and revision.

INITIAL DEVELOPMENT
The factors affecting the location of initial development:
- Distance to the city centre; easiest/direct access to different metropolitan functions.
- Convenient pedestrian access to existing public transportation or extension of public transportation.
- Immediate utilization of existing/available infrastructure and services. Costs will be minimized and resources will be focused on higher priorities.

In order to maintain a totality in the community the initial development should include:
- Land uses; residential, commercial, public facilities, open areas.
- Circulation; pedestrian walkways, local streets, main commercial streets.
- Infrastructure; primary networks.

DEVELOPMENT PROCESS
It is difficult to forecast the magnitude and the speed of the growth of the site. Yet the direction of the growth can be anticipated and is shown in the plan. It should be noted that future growth will be incremental in the anticipated directions.

It is implicit in the proposal that any stage of the development the plan:
- maintains the consistency between land use/densities/commercial potential and intensity of circulation/activities.
- permits a natural growth of different circulation, land uses and infrastructure.
SITE: MACUNKOY

AREAS
- RESIDENTIAL
- COMMERCIAL, LIGHT INDUSTRIES
- OPEN SPACES

KEY
- S School
- H Health
- SS Social Services

Site
INITIAL DEVELOPMENT
BLOCKS, LOTS AND LOT CLUSTERS

BLOCK is a portion of land bounded and served by lines of public streets,
LOT is a measured parcel of land having fixed boundaries and access to public circulation,
LOT CLUSTER is a group of lots (owned individually) around a semi-private common court (owned in condominium),
CONDOMINIUM is system of direct ownership of a single unit in a multi-unit structure. The individual owns the unit in much the same manner as if it were a single family dwelling; he holds direct legal title to the unit and joint interest in common areas and the underlying ground (as the case of walk-up apartments).

The block layout proposed is based upon the following policy:

MINIMIZATION OF: public ownership of land, lengths of infrastructure per area served, government burdens, responsibilities and services.

MAXIMIZATION OF: private responsibility, private long lease/ownership of land.

The above policy leads to a type of land subdivision called "horizontal condominiums" or "lot clusters", where lots are grouped around a common court that serves as an access space as well as a semi-private open space and the occupants share the use of, and share responsibility for the maintenance of the court.

Three types of lots are contained within such blocks:

INTERIOR LOTS: Those having access only to the semi-private court of the cluster.
EXTERIOR LOTS: Those having access only to public streets.

LOCALITY BLOCK LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>DENSITIES</th>
<th>Total Number</th>
<th>Area Hectares</th>
<th>Density N/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>309</td>
<td>9.67</td>
<td>31.9</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>1061</td>
<td>9.67</td>
<td>109.7</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>5900</td>
<td>9.67</td>
<td>61.0</td>
</tr>
</tbody>
</table>

AREAS

PUBLIC (streets, walkways, open spaces) 2.00 20%
SEMI-PUBLIC (open spaces, schools, community centers) - -
PRIVATE (dwellings, shops, factories, lots) 1.57 16%
SEMI-PRIVATE (cluster courts) 6.10 64%

TOTAL 9.67 100%

NETWORK EFFICIENCY

R = network length(circulation) / areas served(circulation, lots) = 163 m/ha
AVERAGE LOT AREA

total area (circulation, lots) / number of lots = 312 m²

LAND UTILIZATION DIAGRAMS

PATTERN

Public: streets/walkways
Semi-Public: playgrounds
Semi-Private: cluster courts
Private: lots
Dwellings

PERCENTAGES

Streets/Walkways 20%
Playgrounds -
Cluster Courts 16%
Dwellings/Lots 64%

DENSITY

20 Persons/ha
BLOCK LAND SUBDIVISION / UTILIZATION

LOTS (private)

WALKWAYS (public)

STREETS (public)

COURTS (semi-private)
INTERIOR-EXTERIOR Lots: Those having access to both; the public street and the semi-private court.

The proposed layout permits:

FLEXIBILITY IN LAND USES
Blocks permit the accommodation of different land uses; residential, residential/commercial, light industries.

FLEXIBILITY IN RESIDENTIAL DENSITIES AND HOUSING OPTIONS
Lot clusters are of minimum optimum dimensions to permit flexibility while complying with the Building Code for the City of Ankara; progressive development units, core/shell units; row, grouped, walk-up combinations; medium, high densities.

DIFFERENT TYPES OF LAND TENURE
Lot clusters are minimum optimum dimensions to allow different types of land tenure without legal/administrative complications; ownership, lease.

EXPANSION AND TRANSFORMATION OF HOUSING SYSTEMS
Lot clusters facilitate expansion and transformation of buildings; horizontal and vertical expansion without changing lot cluster configuration, control of minimum spaces in lot cluster courts.

The following are some of the criteria which should be considered for block development:
- Central spine will be zoned for apartment development.
- In the interior of the block building height will be restricted to 2 to 3 floors; the periphery will allow a greater height (up to 5 floors).
- Lot clusters should retain a sewage easement for future installations.
- Density of the block is between 250 p/Ha to 400 p/Ha at saturation.
BLOCK DEVELOPMENT
EVALUATION

CRITERIA FOR EVALUATION OF PHYSICAL LAYOUT

The criteria used in the evaluations of efficiency of physical layouts in the survey are:

- LAND UTILIZATION DISTRIBUTION
  Proportions of public, private and circulation areas within the layout. This determines maintenance, responsibility, user control and functional efficiency. E.g. A high percentage of circulation means higher cost per person, and therefore indicates an inefficient layout.

- LAYOUT
  Lot configuration, blocks and circulation. This determines the infrastructure network. E.g. Certain layouts result in complicated infrastructure networks requiring excessive lengths of networks and therefore higher cost per person.

- DENSITY
  Number of persons and dwelling units per hectare. This determines the intensity of use. E.g. Low density means a higher cost of development per person.

- OTHER RELATED PHYSICAL DETERMINANTS.

LAYOUTS: The proposed layout is compared with the case studies surveyed.

Characteristics of the proposed layout:
- Minimization of public land for circulation; electricity, water, sewage networks, street lights, police protection, garbage collection.
- Savings in the construction, maintenance and operation.
- Lots are grouped around a common court that serves as access as well as a semi-private open space. The court is owned/used in condominium by the lot occupants who control, share the use of, and share the responsibility for the maintenance of the court.

Opposite page shows the comparison of the model with the case studies.
LAND UTILIZATION: PATTERNS, PERCENTAGES, DENSITIES

1 KALE
Popular Low Income Trad. Urban Houses
Low percentage of land for streets and walkways; high percentage of land for lots. High population density; deteriorating environment. Lack of adequate spaces aggravates the poor living conditions. KALE will be an optimum settlement in terms of land utilization if adequate public open spaces are provided nearby.

2 GÜLVEREN
Popular Low Income Squatters
Low percentage of land for streets and walkways; no land for public open spaces; high percentage of land for lots; medium population density. Ad-hoc layout increases the burden of the municipality.

3 BALGAT
Popular Low Income Trad. Rural Houses
Low percentage of land for streets and walkways; high percentage of land for lots. Despite these percentages, BALGAT is a burden to the municipality because of low population density.

4 AKTEPE
Public Low Income Houses/Walk-Ups
Medium percentage of land for streets, walkways, open spaces; medium percentage of land for lots; medium density. Poor layout with undefined open spaces results in excessive public land. These factors make AKTEPE a burden to the municipality.

5 YENİMAHALLE
Private Middle Income Walk-Ups
Low percentage of streets and walkways, high percentage of land for lots. Most of the land with private utilization is sheltered area; medium/high population density.

MODEL
Optimum percentage of land for streets and walkways, defined open spaces; good percentage of land for private use; medium/high population density. Model provides optimum land utilization.
GLOSSARY

Definition of terms which are generally understood/accepted and not essential to the presentation/understanding of the text are included in the Glossary.

The definitions are taken from the files of Urban Settlement Design in Developing Countries.

COMMUNITY: the people living in a particular place and usually linked by common interests; the region itself, any population cluster.

DEVELOPMENT: gradual advance or growth through progressive changes; a developed tract of land.

DWELLING: The general, global designation of a building/shelter in which people live. A dwelling contains one or more 'dwelling units'.

DWELLING CONSTRUCTION TYPES: Primary dwelling construction types and materials are grouped in the following categories:

- Shack
- Mud and Wattle
- Masonry

DWELLING DENSITY: The number of dwellings, dwelling units, people or families per unit hectare. Gross Density is the density of an overall area (ex. including lots, streets). Net Density is the density of all buildings and inhabited regions of an area (ex. including only lots).

DWELLING DEVELOPER: Three sectors are considered in the supply of dwellings; the commercial sector with limited or no access to the formal financial, administrative, legal, technical, institutional resources involved in the provision of dwellings. The housing process (acquisition, financing, construction, operation) is carried out by the Popular sector generally for self-use and sometimes for profit.

DWELLING DURABILITY: The number of dwellings, dwelling units, people or families per unit hectare. Gross Density is the density of an overall area (ex. including lots, streets). Net Density is the density of all buildings and inhabited regions of an area (ex. including only lots).

DWELLING FLOOR: The context of the dwelling in its immediate surroundings.

DWELLING GROUP: Three sectors of the urban area considered:
- City center: the area located within a walking distance (2.5 km radius) of the commercial center of a city, relatively high residential densities.
- Periphery: the area located between the urban core (city center) (2.5 to 5 km radius); relatively lower residential densities.
- Artisan Built: where the dwelling unit is totally built by a small organisation hired by the user, occupant, or developer; 'barely organized', based on the scale of operations, financially and materialistically: the scale reflects a less comprehensive and larger site of operations encompassing the building of large quantities of similar units, or a singularly large complex.

DWELLING PHYSICAL STATE: A qualitative evaluation of the physical condition of the dwelling types: room, apartment, house, unit (in the condition it is not evaluated):
- Bad: generally poor state of structural stability, weather protection and maintenance.
- Fair: generally acceptable state of structural stability, weather protection and maintenance.
- Good: generally acceptable state of structural stability, weather protection and maintenance without deviation.

DWELLING TYPE: The physical arrangement of the dwelling unit Detached: individual dwelling unit, separated from others.

DWELLING UTILIZATION: The utilization indicates the type of use with respect to the number of inhabitants/families.
- Single: an individual or a family inhabiting a dwelling.
- Multiple: a group of individuals or families inhabiting a dwelling.

LAND UTILIZATION: A qualification of the land around a dwelling in relation to user, physical controls, and responsibility.
- Public: user or tenant or squatter (shacks, physical control: complete or no control, walkways, responsibility: public sector or owner/user)
- Semi-Public: user limited group of people (open spaces, physical control: partial or complete, schools: responsibility: public sector or user/owner)
- Private: user or owner or tenant (dwellings, physical control: complete or no control, lots: responsibility: user/owner)

LAND UTILIZATION: PHYSICAL CONTROLS: The physical/legal means or methods of directing, regulating and coordinating the use and maintenance of land by the owner/user.

LAND UTILIZATION: RESPONSIBILITY: The quality/state of being morally/legally responsible for the use and maintenance of land by the owner/user.

TOURISM: Two situations of tenure of the dwelling units and/or the lot/land and/or structures are considered:
- Extra-Legal: not regulated or controlled by law.
- Semi-Legal: having formal status derived from law. Extra-Legal: not regulated or controlled by law.
LEASE: where the users pay a fee for long-term use (generally for a year) for a dwelling unit and/or the lot/land from the owner (an individual, a public agency, or a private organization). No cases of lease are shown in Typology.

OWNERSHIP: where the users hold in freehold the unit and/or the lot/land from the owner (an individual, a public agency, or a private organization). No cases of lease are shown in Typology.

EMPLOYER-PROVIDED: where the users are provided a dwelling unit by an employer in exchange for services; i.e., domestic live-in servant.

LAND TENURE: The act, right, manner or term of holding land property. Types are categorized by how land is held and for what period of time. Legal definitions are established to determine the division of property among various owners, or the relationship between owner or occupier, or between creditor and owner; and between private owners and the public, and includes the assessment of taxes on private land rights and the regulation of land use through government control. There are two basic forms of land tenure:

- Land Ownership: where the exclusive right of control and possession of a parcel of land is held in freehold.
- Land Tenancy: where the temporary holding of mode or holding a parcel of land is of another.

### EQUIVALENTS

**QUALITY OF INFORMATION**

The quality of information given in the drawings, charts, and descriptions have been qualified in the following manner:

- Approximate: when deducted from different and/or not completely reliable sources.
- Accurate: when taken from reliable or actual sources.
- Tentative: when based upon rough estimations of limited sources.

**QUALITY OF SERVICES, FACILITIES AND UTILITIES**

- None: when the existence of services, facilities and utilities are unavailable to a locality.
- Limited: when the existence of services, facilities and utilities are available to a locality in a limited manner.
- Adequate: when the existence of services, facilities and utilities are available in/to a locality.

### METRIC SYSTEM EQUIVALENTS

**Linear Measures**

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<th>Equivalent</th>
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<tbody>
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<tr>
<td>1 meter</td>
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<tr>
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<tr>
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<tr>
<td>1 mile</td>
<td>1,60934 kilometers</td>
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**Square Measures**

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<tr>
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<td>1 square foot</td>
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<tr>
<td>1 acre</td>
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### DOLLAR EQUIVALENTS

All income, cost and rent/mortgage data have been expressed in terms of the U.S. equivalent:

1 U.S. dollar = 13.50 Turkish Liras (July 1974).

### BIBLIOGRAPHY