URBAN DWELLING ENVIRONMENTS: ISTANBUL, TURKEY

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URBAN DWELLING ENVIRONMENTS: ISTANBUL, TURKEY
Six Case Studies, Urbanization Model

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Cover Photograph: View of downtown Istanbul (1971).
By John Scott

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ABSTRACT

The research identifies and evaluates a representative cross-section of low income dwelling environments in the metropolitan area of Istanbul, Turkey. The study focuses on six selected case studies/localities.

An Urbanization Model is proposed to demonstrate an alternative method of low income urban residential development. The Model optimizes land utilization and infrastructure networks through efficient layout design.

The study is intended to provide a reference in the formulation of housing policies and to provide a comparative framework for the analysis and evaluation of existing and proposed low income housing developments. The research is based on a methodology developed in the Urban Settlement Design in Developing Countries Program.

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CONTENTS: This research identifies and evaluates existing low income dwelling environments in the metropolitan area of Istanbul, Turkey. The study focuses on six selected case studies/localities. The localities are representative of very low to moderately low income, low to high density residential areas in Istanbul.

The physical environment of each locality is described in terms of land utilization, layout efficiency, utilities, and services. The cases are analyzed at four scales: the locality; a selected segment of the locality; a selected block of the segment; selected dwelling(s). Availability and level of services for each dwelling environment is analyzed and evaluated.

For the purpose of further comparative evaluation an Urbanization Model is proposed. The model demonstrates an alternative method of urban residential development which optimizes land utilization and infrastructure networks through efficient layout design. The model is an illustration of the guidelines developed in the Urban Settlement Design Program for physical planning of residential areas.

PURPOSE: The study attempts: a) to identify and describe a representative cross-section of low income housing in the metropolitan area of Istanbul illustrating their physical environments; b) to organize case studies into a framework to facilitate analysis/evaluation; c) to relate the housing process to issues of land utilization.

The research is intended to serve as a reference in the formulation of housing policies and to provide a comparative framework for the analysis and evaluation of existing and proposed low income housing developments.

APPLICATION: The study provides: a) a reference for the understanding of urban dwelling environments, particularly Istanbul, Turkey; b) a model for the identification of dwelling environments in any urban context; c) a reference and tentative set of guidelines for those involved in the planning of residential developments.

DATA: This study is derived from field research carried out by the authors during the summers of 1974 and 1975; complemented by maps provided by Buyuk Nazim Plan Burosu (Greater Istanbul Master Plan Office) and mentioned reference material. The analysis, evaluation, and design work was carried out during the academic years 1974-75 and 1975-76. The case study analysis is based on a methodology developed in the Urban Settlement Design in Developing Countries Program directed by Professor Horacio Caminos.
INTRODUCTION

Urbanization is occurring in developing countries at a rate far beyond that which the limited resources and abilities of cities can cope. These new populations, consisting primarily of unskilled, uneducated, and extremely poor people migrating from rural areas in search of employment, are in the midst of a fierce struggle for shelter and security. This struggle is creating an urban crisis all over the world. Until the cities are able to respond to the needs of these new populations, spontaneous urbanization (squatter settlements) and general discontent will continue to intensify the struggle. Resources are limited, urban land is scarce, and the burden on the public sector is becoming more unmanageable.

Istanbul is a city in the midst of this struggle. The largest urban and industrial area in Turkey, it began to experience the phenomenon of squatter settlements (gecekondu) in the mid 1940's. The term "gecekondu" literally means built-over-night. These dwellings, illegally located or built without construction permits are so named because until occupied, they are liable for demolition. Therefore, the buildings are constructed quickly and once occupied, require a court order and a decision of the municipal council to be demolished. Presently three decades after their appearance, over 45% of Istanbul's population live in gecekondu settlement areas.

The gecekondu phenomenon has heavily influenced Turkish urban dwelling environments. Compared to counterparts in most other developing nations, the gecekondu is more substantial, constantly improving, and more adaptable to change and development. Squatter dwellers are generally satisfied and proud of their shelters; therefore the environments are very well maintained. The fact that they own their shelter gives the users a feeling of responsibility and a desire for self-improvement.

The Squatter Law of 1966 defines three concurrent policies for the resolution of the squatter problem:
- Elimination; removal of squatter settlements from valuable land/locations and of squatter settlements constructed after 1966.
- Improvement; legalization and rehabilitation of squatter settlements developed prior to 1966.
- Prevention; planning of areas and/or provision of housing options for low income groups and resettlement of squatter dwellers who are affected by the Elimination Policy.

The improvement of existing squatter settlements, although very necessary, is costly because of inefficient layouts. It is in the Prevention Policy that new models for low income urban development should be established. This is the focus of our study.
1. PRIMARY INFORMATION

Country: The Republic of Turkey

Capital: Ankara


Population growth: 2.7% per year

Area: 779,452 square kilometers

Language: Turkish

Currency (1975): Turkish Lira (14.5TL=$1)

Per capita income: 5000TL per year (1972)

Religion: Moslem

Government: Democracy

Major cities:

- Istanbul 2,247,630*
- Ankara 1,208,791
- Izmir 520,686
- Adana 361,655
- Bursa 275,917
- Gaziantep 225,881
- Eskişehir 216,330
- Konya 200,760
- Kayseri 187,696
- Diyarbakir 138,657
- Erzurum 334,655
- Samsun 334,272
- SiVAS 332,527

*Inside municipality boundaries

2. GEOGRAPHY

Turkey is situated in the temperate middle latitudes, between 36 and 42 degrees of the Northern hemisphere. European Turkey, the Thracean peninsula with an area of 23,764 square kilometers, and Asian Turkey, the Anatolian peninsula with an area of 755,688 square kilometers together has approximately the same area as France and West Germany combined. The country is rectangular in shape: 1600 kilometers from East to West and 650 kilometers from North to South. The sea coast runs 8,172 kilometers along the Mediterranean, the Aegean and the Black Sea. The country is part of the Great Alpine-Himalayan Mountain belt. It is located in a major earthquake region. The Mediterranean and Black Sea coasts are lined with steep mountains. Mountain ranges run perpendicular to the Aegean Sea coast. Most of Eastern Turkey is mountainous. The average altitude is 1,615 meters above sea level. The highest peak, at 5,165 meters, is Mount Ararat. There are numerous rivers of varying lengths and characteristics distributed throughout the country. 65 lakes cover approximately 9,000 square kilometers. Lake Van (3,738 km²) and Salt Lake (1,642 km²) are the most important.

Contrasting climates define the different regions of Turkey. The southern coasts have mild winters and hot summers with temperatures often exceeding 32° C. Rainfall averages range from 500 to 750 mm per year. The Black Sea coast has mild winters and moderately hot summers with temperatures averaging 22° C during August. With 2500 mm of average annual rainfall, it is the only region in Turkey with a moisture surplus throughout the year. The interior plateau has a wide range of temperature averaging from −1° C in winter to 22° C during summer. Annual rainfall averages between 250 and 430 mm. Eastern Turkey has extremely cold winters with hot and dry summers.
NATIONAL CONTEXT: TURKEY

3. POPULATION
The ethnic-religious composition of the population is heavily Turkish (90%) and Moslem (99%). Moslem ethnic groups; Kurdish (7%), Arabic, Circassian and Lazi, live in rural areas of Eastern Turkey. Non-Moslem ethnic groups; Greek, Armenian and Jewish, live in urban areas, the largest groups being in Istanbul (1965 Census). The extended family is still the basis of social life in Turkey. 80% of rural and 40% of urban households include relatives. Family loyalty overrides other obligations in tradition-oriented areas. One's honor and dignity are tied to the repute of the kin group and especially to that of its women.

The single most significant distinction in Turkish society remains the separation of the educated from the uneducated. In Turkey, more than in most Middle Eastern countries, an understanding of the social structure requires an understanding of the social and cultural position of the elite.

4. HISTORY
Between 6500-5700 B.C. a prosperous Stone Age commercial center developed in central Anatolia. The Hittite and Greek civilizations followed. In 330 A.D. Constantineople (Istanbul) was inaugurated as the capital of the Eastern Roman Empire. The victory of Malsagli in 1071 marked the first penetration of Turks into Anatolia. In 1453 Otto- man Turks conquered Byzantium (Istanbul) and established it as the capital of the Ottoman Empire. In 1918, at the end of World War I, the Allied Forces dissolved the Ottoman Empire.

On October 29, 1923, the Republic of Turkey was established under the leadership of Mustafa Kemal Ataturk who instituted reforms to westernize Turkey. In 1934 the First Five Year Plan for the Development of Industry was announced. Turkey stayed neutral during World War II, signed the United Nations Charter in 1945, and in 1947 joined the International Bank for Reconstruction and Development and the International Monetary Fund. In 1952, along with Greece, Turkey became a full-fledged member of NATO and in 1959 applied for associate membership in the European Common Market.

5. GOVERNMENT
The first attempt to establish a parliamentary system of government along western lines was made in 1876 during the Ottoman Empire. The Turkish Grand National Assembly was first formed on April 23, 1920. In 1924 the Atatürk Government drafted and the assembly adopted a new constitution which remained in effect until 1961. The 1961 Constitution was amended in 1971 to give government more control of education, communications and other institutions.

The National Government is comprised of the legislative, executive and the judicial branches. The President (Chief of State), at least 40 years old and a university graduate, is elected by the Grand National Assembly with at least a two-thirds majority, to a non-consecutive seven year term. The President acts as Commander in Chief of the Armed Forces, presides over the Council of Ministers, appoints and receives diplomatic representatives, and is authorized to ratify and promulgate international agreements. Most importantly, he appoints the Prime Minister and the Council of Ministers. These appointments, to form the government, must be approved by an absolute majority of the National Assembly. The 1961 Constitution established a bicameral Grand National Assembly. Senate members are either popularly elected or appointed by the President or chosen for life. The 450 members of the National Assembly are popularly elected.

The administration consists of central and local organs. The central government is comprised of provinces, districts and subdistricts established in accordance with geographic, economic and public service requirements. Each of the 67 provinces is under the supervision of a governor. At the local level each provincial and district capital, regardless of size, and each town of more than 2,000 people, is organized as a municipality administered by a mayor. The smallest unit is the village which is virtually a self-governing body. All Turkish citizens over 21 years of age, who have not been legally deprived of the right to vote because of criminal activity or failure to fulfill military service requirements, are eligible to vote.

The Constitutional Court and subordinate civil, criminal and appeals courts exercise judicial power in Turkey. The judicial system is headed by the High Council of Judges which rules on all matters relating to the careers of judges. The Council consists of eleven regular and three reserve members chosen by an absolute majority of the Court of Appeals from among its own membership. A member of the Council serves a four year term and is eligible for re-election. Only the Constitutional Court is empowered to bring a member of the High Council of Judges to trial.

The national policies and goals of the Third Plan Development Strategy for 1995 are:
1. Raise the standard of living to four times the present income level.
2. Accelerate industrialization in a mixed economy.
3. Decrease dependence on foreign resources.
4. Solve unemployment and improve the income distribution pattern.

The programs are outlined as follows:
Economy:
- increase production of industrial materials and industrial exports
- increase savings (private and public)
- change investment allocation patterns and tax system
- redistribute investment and income regionally

Health:
- increase the number of health centers

Education:
- raise the enrollment ratios in education at all levels
- train qualified manpower

Housing:
- supply adequate housing facilities for an urban population expected to reach 70% of the total national population
- introduce land reform and provide village water supply.
6. ECONOMY
Turkey has a mixed economy. The National Product is shared between the public and private sectors. Most heavy industry and utilities are concentrated in the public sector. The economy, although still heavily agricultural, maintaining two-thirds of the population, is moving toward the status of an industrialized nation. Turkey has an excess labor supply which is compounded by a lack of skilled manpower. The educational system is just beginning to produce the skilled personnel necessary to operate an industrialized economy. Skilled manpower is also being imported into the economy as Turkish workers return from jobs in Europe. The country is rich in natural resources. Exploration is expanding the inventory of mineral resources substantially. Unfortunately, known petroleum reserves are limited. Approximately two-thirds of the petroleum consumed in 1972 was imported. The annual growth of the Gross Domestic Product from 1963 to 1971 averaged 6.5% at constant prices. During the same period, per capita income rose 4% despite a population growth of 2.5%.

7. EDUCATION
When the Turkish Republic was formed in 1923, only 10% of the population over the age of five was literate. By 1973, the literacy rate was 57%. The State provides tuition free but limited educational opportunities at all levels: primary, secondary, higher and adult education. In addition, private schools, both Turkish and foreign, offer educational opportunities. Primary education is compulsory for five years (the 6-14 year old age bracket). General secondary education consists of three years in middle school followed by an additional three years in high school. Vocational and technical secondary schools are being established to create a skilled labor force. Universities and other institutions of higher education, being independent in teaching and research, have complete scholastic autonomy. In 1973
a bill was proposed for the official take-over of universities whenever violence threatened the educational process. Provision has been made for the education of adults who have not completed their normal schooling or who seek training in new skills.

8. STANDARD OF LIVING
Between 1969 and early 1972 the cost-of-living index in Ankara rose from 132.7 to 201.4 and in Istanbul from 144.2 to 208. Food prices alone increased by nearly 40% in both cities. The cost of recreational and cultural services, followed by health and personal services increased sharply. Inflationary pressures were less immediately felt in the countryside but the rural population still lacked the basic amenities and services available to city dwellers. In 1972 only 10% of the villages had electricity. Water shortages were common especially in Southeastern Anatolia. Of the 1970 urban housing stock, 26% had no electricity, 45% no running water, 49% no bathing facilities, 7% no toilet and 27% no kitchen. 41% of the urban dwelling stock was considered good, 33% fair and 26% poor. The improvement of dwelling conditions is largely dependent on expansion of the infrastructure in urban areas. In 1960 the ratios of those living in rental housing was 42% for Turkey, 67% for Istanbul and 62% for Ankara. On the average over 13% of the total family income is spent for rent.

Health threats continue due to substandard housing, inadequate sewer systems in urban areas and inadequate water supplies in villages. Major infectious diseases are under control. Diarrhea and enteritis are endemic and major causes of debility and death among infants and small children. In 1970 the country had approximately 15,800 registered physicians (one physician per 2,200 people) and 72,000 hospital beds (one bed per 500 persons). Most of the physicians practice in the major cities with only 15% in rural areas. In 1972 30% of all licensed Turkish physicians were practicing outside Turkey.
1. PRIMARY INFORMATION: Divided by the Bosphorus which links the Sea of Marmara to the Black Sea, Istanbul, the Country's largest city, principal port and tourism center, is a city belonging to both Europe and Asia. A bridge across the Bosphorus, the fourth longest suspension bridge in the world, was completed in 1973. A narrow inlet, known as the Golden Horn (Maltepe), divides the European side of Istanbul. The first bridge on the Golden Horn was built in 1845 between Eminonu, the historic peninsula and old city, and Galata, the modern section of the city. The Bosphorus is over 25 km in length and averages 1.5 km in width. Both banks rise steeply from the water forming a succession of cliffs, coves and nearly land locked bays. At the present time, the metropolitan area of Istanbul lies between Kucuk Cekmece Lake on the West and to the provincial boundary near Tuzla on the East. The urbanization sector, which is expanding rapidly, presently covers an area of 40,000 hectares. Istanbul is located at latitude 41° North, longitude 29° East. Summers are moderately hot, winters are mild with average temperatures ranging from 27 to −5 degrees Centigrade. Winters are generally the wettest months. 10 to 18 rainy days per month occur from October through May. Total annual rainfall is 666 mm. Snowy days average 9 per year.

2. HISTORY: The origins of Istanbul date back to 650 B.C. when Greek colonists and Corinthians established Byzantium on the peninsula bordered by the Marmara Sea, the Bosphorus and the Golden Horn. In 330 A.D. Roman Emperor Constantine shifted his capital to Byzantium and thus named it Constantinople. The Byzantine Empire (East Roman Empire) continued until 1453 when the city was conquered by Ottoman Emperor Sultan Mehmet I and named Ismailb (plenty of Moslems) which later became Istanbul. Istanbul was the capital of the Ottoman Empire until 1921, when Ankara was designated the capital of the new Republic of Turkey. The City's population was 60,000 in 1453, 500,000 in the 1800's and 480,000 in 1940. The population and area has doubled since the 1950's, but in the early 1970's more than 70% of the population lived in the Istanbul municipality. A cosmopolitan, multi-ethnic city with a population in 1972 of 3.8 million, Istanbul has lost the political importance it had during the Ottoman Empire, but it has maintained a major role in the Nation's commercial and cultural life.

3. ECONOMY: Istanbul is an important industrial, commercial, transactional center and a major transshipping and railroad point handling 75% of the national imports and 50% of the national exports. Istanbul represents 35 to 40% of the nation's organized industrial labor force. 50% of the total income tax revenues and 50% of total private sector investments. The private sector makes up 80 to 90% of the total investments in industry and housing. In 1964, Istanbul contributed 18.3% of the total Gross National Product. Per capita annual GNP was $416 in Istanbul versus $157 for the Country. In 1972 Istanbul, which accounted for 8% of the total national population, produced 22% of the total GNP. GNP per capita (at current prices) was $1065 for Istanbul and $364 for Turkey. The economic growth rate was 11% for Istanbul and 7% for Turkey. In 1970, 83% of Istanbul's organized industrial labor force was employed on the European side, 17% on the Asian side. Small area consumption industries such as food canning, bottling, printing, textiles, chemistry, metal, furniture, take place on the European side to the north and west. Large area capital industries such as oil refineries, car and home appliance factories, machinery, stone and soil products industries are concentrated along the Istanbul-Izmit Highway on the Asian side.
4. GOVERNMENT: Since the beginning of the Ottoman Empire, the administrative organization of Istanbul has gone through many changes. The combined provincial and municipal government which was established in 1930 was separated in 1953 for purposes of efficiency. The chief provincial official is the governor who is appointed by the President on the recommendation of the Minister of Interior. There are 19 districts in the Province of Istanbul and 15 within the Istanbul metropolitan area. The Province is divided into municipalities. According to the Lausanne Treaty of 1923, the borders of the Istanbul municipality, established in 1853, cannot be changed. There are 32 other smaller municipalities located within the Province, 18 of which are in the Istanbul metropolitan area. The Municipal Administration consists of an assembly, a council and a mayor. The assembly is elected by popular vote. The organization and functions of municipal governments are prescribed in detail by national law. All Municipalities are required to draw up development plans and submit them for approval to the governor, or in the case of larger cities such as Istanbul, to the Ministry of Interior. Upon approval, the municipalities are required to conform to that plan. In 1965 the Greater Istanbul Master Plan Office was established to prepare the master plan of Istanbul to be approved by the Ministry of Reconstruction and Resettlement. The municipalities must prepare their plans according to the planning offices' goals.

5. DEMOGRAPHY: Metropolitan Istanbul represents 8% of the total national population and 30% of the urban population of Turkey. Istanbul metropolitan population has more than doubled since 1955. In 1970, 2,247,630 of the 2,995,191 metropolitan population lived within the Istanbul Municipality; the growth rates are 5.2% and 3.5% respectively, 2.7% for Turkey and 7% for Ankara. 36.6% of the population growth was inborn and 63.4% was due to migration. In 1955, 45.5% of the population was born in Istanbul. The illiteracy rate above six years of age was 19.2% compared to a national figure of 45.2%. In 1970 in a ratio of 1 to 3 between males and females. 46.4% of Istanbul's population was female. 10% of the population above six
6. SOCIO-CULTURAL: Despite the continued dominance of the educated elite, changing circumstances such as economic growth and diversification have substantially altered the composition and therefore the interests of the powerful national elite. Since World War II, increased economic opportunities have greatly expanded the size and power of the middle class based in commerce, industry, technocracy, education, and private practice of the learned professions. However, wealth, occupation, family heritage and place of residence still distinguish the different social classes. The social hierarchy moves upward from unskilled workers to industrial workers and service employees to salaried people and small businessmen to the middle class and finally to the traditional elite. Istanbul's population is the most heterogeneous in Turkey. In 1965 28.4% of Turkey's minority population accounted for 5.1% of the population of Metropolitan Istanbul.

7. SOCIO-ECONOMIC: According to the 1966 Survey of Consumer Expenditures in Istanbul 51.1% of the population had annual incomes under $850, 21.7% between $850-$1285, 19.8% between $1285-$2571 and 7.3% above $2571. In the last two decades Istanbul's industries have tripled and the urbanized area doubled. In 1965 3% of the population was employed. Low income settlements are scattered around the periphery of Istanbul and in pockets of the city's historical core. The middle income areas are concentrated in the historic peninsula. The remaining middle and high income areas are spread along the shores of the Sea of Marmara, the Bosphorus and to the northeast of the historical core.

8. HOUSING: In 1963, 660,000 people were living in 120,000 squatter dwellings (geceknodu - literally built at night) which made up 40% of the dwelling stock and 45% of the population in the metropolitan area. 3% of the squatters in Turkey lived in Istanbul. By 1972 there were 200,000 squatter dwellings housing 30-40% of the population in 50% of the built-up area. 30,000 housing units are needed each year in Istanbul. 17,000 are provided by the private sector, 3,000 by the public sector and 10,000 by squatter settlers. In 1972 there were an estimated...
80,000 registered squatter dwellings. 10,000 unregistered squatter dwellings were being built every year at a rate of 20 to 30 per day. Of the total housing investments only 5.1% is from the public sector. 51% of public sector housing investments are allocated for squatter settlement improvements. Construction tax laws discourage construction of dwelling units in excess of 100 m². According to No. 1138 Financing Law, dwellings not exceeding 100 m² are exempt from building construction taxes. By public housing standards, 30.5 to 63 m² is minimum and 40 to 100 m² is the average dwelling size, range being relative to family size. Urban dwelling stock statistics show a decrease from 2.17 persons per room in 1955 to 1.87 persons per room and 2.7 rooms per household in 1972. In 1970 41% of the urban dwelling stock was in good condition, 33% in fair and 26% in poor condition. The percentages for squatter dwellings were 30%, 40% and 30% respectively. The average dwelling areas for high income families is 24.3 m² per person as opposed to 7.2 m² per person for squatter families. The densities average 250 persons per hectare in high income areas and 320 persons per hectare in squatter settlements.

ISTANBUL: (top left) View of Suleymaniye Mosque on the historic peninsula from Galata Bridge which crosses the Golden Horn.
(top right) View of center city from a minaret of Fatih Mosque. The foreground shows typical high density middle income housing. Suleymaniye Mosque is to the right, Ataturk bridge is on the left and Galata bridge is in the distance.
(bottom left) Passenger ferries, car ferries and small cargo boats link the European and Asian sections of the city.
(bottom right) Looking south along the Bosphorus toward downtown Istanbul. The bridge, the world's third longest span suspension bridge, opened in 1973.

URBAN CONTEXT SOURCES
Land Use Patterns: (accurate) IDEB.
Income Patterns: (accurate) IDEB.
Growth Patterns: (accurate) IDEB.
1 ZEYREK, İstanbul

PRIVATE, LOW INCOME, TRADITIONAL URBAN HOUSES (ROOMS/APARTMENTS)

LOCATION: Located on the historic peninsula of the old city, the site is in the hub of the city. Atatürk Boulevard, an important traffic artery defines the eastern boundary of the site. The Golden Horn provides the northern boundary. The eastern and southern boundaries are defined by high density medium income residential development.

ZEYREK, İstanbul: (top) View from the Zeyrek Mosque looking toward the Golden Horn, The locality developed in the 1600's. (bottom) Old and deteriorating wooden houses along narrow streets are characteristic of the locality.
ORIGINS: The historic peninsula between the Sea of Marmara, the Golden Horn and the old city walls is the oldest part of Istanbul. It is rich in ancient ruins, land marks and old wooden houses. The old quarter of Zeyrek, with three and four storey mansions in large gardens integrated with smaller one and two story row houses with small gardens, was one of the wealthiest neighborhoods of Ottoman Istanbul. The character of the neighborhood started changing in the 1930's. The established family heirs started moving away to new middle and high income areas, renting their Zeyrek properties to newcomers. The one-family mansions became multi-family dwellings. Later, due to building deterioration and the high cost of maintenance, landlords began building new masonry and concrete apartment buildings in place of the old wooden houses. Because of this rapid loss, historical societies and restorationists have begun to designate a large number of the old wooden structures as historic. Therefore, by law these buildings cannot be torn down. Thus, many landlords have either allowed their buildings to deteriorate further and/or found it advantageous to charge low rents but further increase the number of tenants in their structures. Today old residential quarters similar to Zeyrek remain as pockets throughout the center city.

LAYOUT: The locality exemplifies the traditional organic residential development of Istanbul. Lot size and configuration is totally independent of the circulation network. The daily activities of the house are focused to the interior. The layout is primarily oriented to the pedestrian. Many lots are developed into clusters. Streets and walkways wind through the area interconnecting one neighborhood to another by following topography. The streets lead to nodes typically formed by a small mosque, primary school, religious meeting places, a library, fountain, shops and a coffee house. In contrast the strong automobile oriented gridiron pattern of the adjacent areas exemplifies the more recent residential developments in Istanbul.
LAND USE: An unrestored church, mausoleum and other historic structures are dispersed throughout this residential community. Small nodes of neighborhood oriented commercial establishments exist within the locality with open markets occurring on the streets of the different neighborhoods during the week. Linear commercial activity along Kara Deniz Street forms the western boundary of Zeyrek. Toward the Golden Horn land use shifts from residential to light industrial and commercial activity with small workshops and stores lining the narrow streets. Factory and warehouse facilities are located between the Golden Horn and Abdulaziz Pasa Street, the northern boundary of the locality. A strip of steeply sloping open land, with an historic ruin and further south a large health clinic, separates Zeyrek from Ataturk Boulevard. Schools, mosques and other community facilities are scattered through the site.

AREAS

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- OPEN SPACES

KEY

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

LOCALITY LAND USE PATTERN

1:20000
CIRCULATION: A network of pedestrian dominated narrow streets and walkways wind through the locality. With only few exceptions, all streets are paved, most having curbs and extremely narrow sidewalks. Streets rather than sidewalks are used by pedestrians. Also, the lack of open space within the locality encourages children to play in the streets. Walkways are narrow and often include steps as they follow the topography. No through vehicular traffic penetrates the locality. Heavy vehicular traffic does travel along the narrow streets parallel to the Golden Horn.
POPULATION: No formal statistical data is available. The locality consists of five neighborhoods with populations ranging from 3,056 to 10,967 persons. Each neighborhood represents the smallest unit of local government headed by a "muhtar" (neighborhood mayor). There are 31 additional such neighborhoods in the administrative district of Fatih, bringing the total population to 417,662 persons. The locality has a population of 29,727 persons.

INCOME: No formal statistical data is available. 30% of the working population are government employees, 40% are in trade and the remaining 30% are self-employed or are laborers. Approximately one-third of the population is classified in very low and low income groups. The remaining two-thirds are primarily from the middle income groups. All low income persons live in rental units. The old traditional structures housing the low income groups are being replaced by the new row apartment buildings for the middle income groups.

ZEYREK, Istanbul: Old houses are being replaced by new walk-up apartment buildings. Many buildings are now classified as historic and therefore cannot be destroyed. Once a prominent mansion, the large wooden building is now a tenement.
CASE STUDY: ZEYREK

LOCALITY CONSTRUCTION TYPES

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

- Water Supply
- Sanitary Sewage
- 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

LOCALITY SEGMENT PLAN

1:2500
LAND UTILIZATION DIAGRAMS

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

PERCENTAGES
Streets/Walkways 20%
Playgrounds 9%
Cluster Courts 1%
Dwellings/Lots 70%

DENSITY
Persons/Hectare 680
20 persons

LOCALITY SEGMENT LAND UTILIZATION
1:2500
### LOCALITY SEGMENT 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>750</td>
<td>14.3</td>
<td>50</td>
</tr>
<tr>
<td>Dwelling Units</td>
<td>2500</td>
<td>14.3</td>
<td>175</td>
</tr>
<tr>
<td>People</td>
<td>9725</td>
<td>14.3</td>
<td>680</td>
</tr>
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</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>2.9</td>
<td>20</td>
</tr>
<tr>
<td>Semi-Public (open spaces, schools, community centers)</td>
<td>1.2</td>
<td>9</td>
</tr>
<tr>
<td>Private (dwellings, shops, factories, lots)</td>
<td>10.0</td>
<td>70</td>
</tr>
<tr>
<td>Semi-Private (cluster courts)</td>
<td>0.2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th></th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.3</td>
<td>100</td>
</tr>
</tbody>
</table>

**Network Efficiency**

\[
R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} = 310 \text{ m/Ha}
\]

**Average Lot Area**

\[
A = 133 \text{ m}^2
\]

*Note: Density figures are tentative.*

---

### 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>45</td>
<td>1.24</td>
<td>36</td>
</tr>
<tr>
<td>Dwelling Units</td>
<td>231</td>
<td>1.24</td>
<td>186</td>
</tr>
<tr>
<td>People</td>
<td>1109</td>
<td>1.24</td>
<td>894</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>.15</td>
<td>12</td>
</tr>
<tr>
<td>Semi-Public (open spaces, schools, community centers)</td>
<td>.16</td>
<td>13</td>
</tr>
<tr>
<td>Private (dwellings, shops, factories, lots)</td>
<td>.90</td>
<td>73</td>
</tr>
<tr>
<td>Semi-Private (cluster courts)</td>
<td>.03</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total**

<table>
<thead>
<tr>
<th></th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.24</td>
<td>100</td>
</tr>
</tbody>
</table>

**Network Efficiency**

\[
R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} = 392 \text{ m/Ha}
\]

**Average Lot Area**

\[
A = 200 \text{ m}^2
\]
### Physical Data

**Wool Unit**
- **Type:** Apartment
- **Area (sq m):** 57
- **Tenure:** Legal Rental

**Land/Lot**
- **Utilization:** Private
- **Area (sq m):** 800
- **Tenure:** Legal Ownership

**Dwelling Location**
- **Type:** City Center
- **Number of Floors:** 3
- **Utilization:** Multiple Family
- **Physical State:** Bad

**Dwelling Development**
- **Mode:** Incremental
- **Developer:** Private
- **Builder:** Artisan
- **Construction Type:** Wood
- **Year of Construction:** XIII and XVI Century

**Materials**
- **Foundation:** Stone
- **Floors:** Wood
- **Walls:** Wood
- **Roof:** Wood/Tile

**Dwelling Facilities**
- **WC:** 1
- **Shower:** -
- **Kitchen:** 1
- **Rooms:** 3
- **Other:** -

### Socio-Economic Data

**General:**
- **Social User's Ethnic Origin:** Turkish
- **Place of Birth:** KONSTANTINOS, GREECE
- **Education Level:** Elementary

**Number of Users**
- **Married:** 2
- **Single:** -
- **Children:** 4
- **Total:** 6

**Migration Pattern**
- **Number of Moves:** 4
- **Rural - Urban:** 1932, 1933, 1935, 1941
- **Urban - Rural:** -
- **Why came to urban area:** Immigration/Work

**General:**
- **Economic User's Income Group:** Low
- **Employment:** Vegetable Vendor
- **Distance to Work:** 5 - 3 KM.
- **Mode of Travel:** Truck, Shared Taxi

**Costs**
- **Dwelling Unit Payments:** N/A
- **Financing:** Self-Financed
- **Rent/Mortgage:** $17 Per Month
- **% Income for Rent/Mortgage:** N/A

### Locality Sources

- **Land Use Pattern:** (approximate) 1960; Field Survey, M. and N. Butler, 1975.
- **Segment Plan:** (accurate) Middle Eastern University, Department of Architecture, 1974.
- **Segment Land Utilization:** (accurate) 1970.
- **Block Plan:** (approximate) 1970; Field Survey, M. and N. Butler, 1975.
- **Physical Data:** (accurate) Field Survey, M. and N. Butler, 1975.
- **Socio-Economic Data:** (accurate) Middle Eastern University, Department of Architecture, 1975; Neighborhood Mayor, 1975.
RUMELİ-HİSAR ÜSTÜ, İstanbul

POPULAR, VERY LOW INCOME, SQUATTER HOUSES

LOCATION: Located on the secondary interior hills on the European side of the Bosphorus, the settlement is approximately 10 km. from the city center. The locality is surrounded by open land both publicly and privately owned. Public bus service and gypsy-cabs provide the only transportation to the site from the city. Buses run every hour from Eminonu to Rumelihisar Ustü.

RUMELİHİSAR ÜSTÜ, İstanbul: (top) The locality has developed from the ridge of the hill. The layout is determined primarily by topography. Upper income apartment buildings are in the distance. A small section of the Bosphorus is visible in the background.

(bottom) The squatter dwellings are built against the hill. Construction materials are very substantial. Services have been installed by the residents. Sewage runs to the creek at the lower right. Trees and other vegetation are planted by the residents. The newer sections of the locality have only limited vegetation. Undeveloped land on the right is privately owned.
ORIGINS: The interior hills of the Bosphorus are zoned as open-green areas. People living in very poor rental situations moved onto the hill of Rumelihisar Ustu between 1962 and 1965 building detached one or two room houses. As the families enlarged and relatives and friends from rural areas arrived, additional housing was built. The squatters began planting fruit trees on the hill surrounding their homes. According to the Squatter Law of 1966 all squatter dwellings built before 1966 were to be legalized and given land titles. Since then water and electricity have been provided by the city. Roads are being built by the community using material supplied by the city and the Department of Roads. The sewer system, which is only 50% complete was financed and installed by the community itself.

LAYOUT: The settlement is a recent example of squatter development which occurs spontaneously. The layout is heavily influenced by topography. From Nisbetiye Street, the main access, roads and walkways wind through the site either perpendicular or parallel to the changing slopes. The squatters have created their own groupings and blocks. Lots are either undefined or irregular in shape. Many lots have access only by walkways which in many cases are steep. One story masonry and concrete detached dwellings predominate. The area has been heavily planted with trees and gardens by the squatters. The city is developing rehabilitation plans for the area to improve and incorporate infrastructure and community facilities.
LAND USE: Except for an old Armenian cemetery and very limited commercial facilities along Nisbetiye Street, the site is almost exclusively residential and rural in character. The commercial facilities consist of small shops, a construction materials store, a restaurant, and a coffee house. One mosque and school are located at the southern edge of the site. Within the site defined open space is non-existent but the surrounding area is undeveloped, boundaries being defined only by adjacent property lines. No industry exists on or near the locality.
CIRCULATION: Because of the relatively steep and undeveloped slopes within the locality, vehicular traffic stays primarily on the ridge along Nisbetiye Street. The predominately pedestrian circulation within the site consists of a network of streets and walkways running perpendicular or parallel to the topography. Most walkways are hard-packed earth which erodes easily with heavy rain. Streets are either hard-packed earth or earth and stone. Dwellings either have access directly to streets or in many cases only to walkways.

KEY

- [ ] VEHICULAR
- [ ] PEDESTRIAN

LOCALITY CIRCULATION PATTERN

1:10000
POPULATION: Formal population statistics are unavailable for the locality. As of 1975, the locality has a population of approximately 7,250 persons. On average, there are 4.67 persons per household. 76% of the population migrated from the Black Sea Region and 17% from Central Anatolia. 1000 students are enrolled in three elementary schools. Between 400 and 500 students are enrolled in middle and high schools. 20 students attend universities. Only one elementary school is in the locality. The other schools are located in nearby middle and high-income areas. 80% of the population is illiterate.

INCOME: Statistical data is not available. In 1975, the average annual family income is an estimated $1050, ranging from $500 to $2100. 90% of the working males are manual laborers. The remaining 10% are government employees or are self-employed. Work places generally require a minimum of one to two hours travel time every day. 70% of the female working age population are domestic workers in nearby upper-middle and high-income areas.

RUMELIHISAR OSMI, Istanbul: (top left) Walkway running perpendicular to the slope of the hill. Erosion is a major problem. The old Armenian cemetery wall can be seen in the background.

(top right) Unprotected retaining walls along underdeveloped streets and walkways are common. Water supply network was put in during 1974. About half of the population still carry water to their homes from three communal water taps.

(bottom left) The main street, which existed prior to the development of the locality, runs along the ridge of the hill. New and used building materials for sale and other small commercial activity occurs along the street.

(bottom right) Circulation consists of walkways, stairs, and underdeveloped streets. Electricity network was installed in 1969.
CASE STUDY: RUMELIHISAR USTU

LOCALITY CONSTRUCTION TYPES

- 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

- 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

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

LOCALITY SEGMENT PLAN

1:2500
LAND UTILIZATION DIAGRAM:

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

PERCENTAGES
- Streets/Walkways: 21%
- Playgrounds: 1%
- Cluster Courts: --
- Dwellings/Lots: 78%

DENSITY
- Persons/Hectare: 209
- 20 persons

LOCALITY SEGMENT LAND UTILIZATION 1:2500
### Locality Segment 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>500</td>
<td>13.9</td>
<td>35</td>
</tr>
<tr>
<td>Dwelling Units</td>
<td>500</td>
<td>13.9</td>
<td>36</td>
</tr>
<tr>
<td>People</td>
<td>2900</td>
<td>13.9</td>
<td>209</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>2.9</td>
<td>21</td>
</tr>
<tr>
<td>Semi-Public (open spaces, schools, community centers)</td>
<td>.2</td>
<td>1</td>
</tr>
<tr>
<td>Private (dwellings, shops, factories, lots)</td>
<td>10.8</td>
<td>78</td>
</tr>
<tr>
<td>Semi-Private (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13.9</td>
<td>100</td>
</tr>
</tbody>
</table>

**Network Efficiency**

\[ R = \frac{\text{Network Length (circulation)}}{\text{Areas Served (circulation, lots)}} = \frac{350}{100} \]

\[ \text{Average Lot Area} = 216 \, \text{m}^2 \]

### 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>28</td>
<td>.61</td>
<td>46</td>
</tr>
<tr>
<td>Dwelling Units</td>
<td>28</td>
<td>.61</td>
<td>46</td>
</tr>
<tr>
<td>People</td>
<td>162</td>
<td>.61</td>
<td>246</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>.11</td>
<td>18</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>.50</td>
<td>82</td>
</tr>
<tr>
<td>Semi-Private (cluster courts)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>.61</td>
<td>100</td>
</tr>
</tbody>
</table>

**Network Efficiency**

\[ R = \frac{\text{Network Length (circulation)}}{\text{Areas Served (circulation, lots)}} = \frac{275}{100} \]

\[ \text{Average Lot Area} = 179 \, \text{m}^2 \]
**CASE STUDY: RUMELIHISAR USTU**

**PHYSICAL DATA**  
(referred to dwelling and land)

<table>
<thead>
<tr>
<th>DWELLING UNIT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>HOUSE</td>
</tr>
<tr>
<td>area (sq m)</td>
<td>47</td>
</tr>
<tr>
<td>tenure</td>
<td>LEGAL OWNERSHIP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LAND/LOT UTILIZATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>area (sq m)</td>
<td>218</td>
</tr>
<tr>
<td>tenure</td>
<td>EXTRALEGAL OWNERSHIP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING LOCATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>PERIPHERY</td>
</tr>
<tr>
<td>number of floors</td>
<td>1</td>
</tr>
<tr>
<td>utilisation</td>
<td>SINGLE FAMILY</td>
</tr>
<tr>
<td>physical state</td>
<td>FAIR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING DEVELOPMENT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>mode</td>
<td>INCREMENTAL</td>
</tr>
<tr>
<td>developer</td>
<td>POPULAR</td>
</tr>
<tr>
<td>builder</td>
<td>ARTISAN</td>
</tr>
<tr>
<td>construction type</td>
<td>MASONRY/WOOD</td>
</tr>
<tr>
<td>year of construction</td>
<td>1963</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>foundation</td>
<td>STONE</td>
</tr>
<tr>
<td>floors</td>
<td>CONCRETE</td>
</tr>
<tr>
<td>walls</td>
<td>CONCRETE BLOCK</td>
</tr>
<tr>
<td>roof</td>
<td>WOOD/TILE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING FACILITIES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>wc</td>
<td>1</td>
</tr>
<tr>
<td>shower</td>
<td>-</td>
</tr>
<tr>
<td>kitchen</td>
<td>2</td>
</tr>
<tr>
<td>rooms</td>
<td>3</td>
</tr>
<tr>
<td>other</td>
<td>WASH AREA WITH LAVATORY</td>
</tr>
</tbody>
</table>

**SOCIO-ECONOMIC DATA**  
(referred to user)

<table>
<thead>
<tr>
<th>GENERAL: SOCIAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>user's ethnic origin</td>
<td>TURKISH</td>
</tr>
<tr>
<td>place of birth</td>
<td>BOLU</td>
</tr>
<tr>
<td>education level</td>
<td>ELEMENTARY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NUMBER OF USERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>married</td>
<td>2</td>
</tr>
<tr>
<td>single</td>
<td>-</td>
</tr>
<tr>
<td>children</td>
<td>3</td>
</tr>
<tr>
<td>total</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MIGRATION PATTERN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>number of moves</td>
<td>3</td>
</tr>
<tr>
<td>rural - urban</td>
<td>1948</td>
</tr>
<tr>
<td>urban - urban</td>
<td>1955, 1964</td>
</tr>
<tr>
<td>urban - rural</td>
<td>-</td>
</tr>
<tr>
<td>why came to urban area</td>
<td>RELATIVES/WORK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENERAL: ECONOMIC</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>user's income group</td>
<td>VERY LOW</td>
</tr>
<tr>
<td>employment</td>
<td>SELF-EMPLOYED COOK</td>
</tr>
<tr>
<td>distance to work</td>
<td>-</td>
</tr>
<tr>
<td>mode of travel</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COSTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>dwelling unit</td>
<td>$340</td>
</tr>
<tr>
<td>land - market value</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING UNIT PAYMENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>financing</td>
<td>SELF-FINANCED</td>
</tr>
<tr>
<td>rent/mortgage</td>
<td>N.A.</td>
</tr>
<tr>
<td>¼ income for rent/mortgage</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

**LOCALITY SOURCES**

ZEYTINBURNU, İstanbul

POPULAR, LOW/MODERATELY LOW INCOME, SQUATTER HOUSES/WALK-UP APARTMENTS

LOCATION: Located on the Sea of Marmara, outside the old city walls, the settlement is approximately 7 km. from the city center. The district of Zeytinburnu covers an area of 40 km². The locality boundaries are defined by: the London Highway on the north, to the south the transcontinental railroad-rapid transit line and adjacent industry, institutional and industrial development on the east, and Veli Efendi Hippodrome to the west.

ORIGINS: In 1880 the Zeytinburnu region, part of two large vakif (religious) foundations, was donated by the Sultan as a favor to the Armenian community. Political influence prevented the area from being developed. Between 1911 and 1914 Priest Agop, under whose name Zeytinburnu was registered,
CASE STUDY: ZEYTINBURNU

Sold parts of the land to private individuals. After his death the remaining land returned back to the Vakiflar Administration. The first squatter constructions occurred in 1945 and continued until 1948. After being saved from destruction by the authorities in 1948 more rapid development took place. By 1962 the older neighborhoods were almost saturated. From 1954 to 1959 the Vakiflar Administration sold parts of the land to squatters in accordance with Legislation No. 6188. Because of political problems not all squatter owners on Vakif land received their land titles. Realizing the expense of retaining their land, private landowners began selling land to squatters. Instead of parceling their land, some large landowners sold "shares" in their land. Thus 40 to 50 squatters "share" one parcel of land. In some cases a piece of land has three different parties claiming ownership: the private owner, the Vakiflar Administration, and the Municipality. In 1957 Zeytincurnu became a district. Thus for the first time a squatter area became an administrative unit within the boundaries of the Municipality of Istanbul.

LAYOUT: The layout is typical of squatter settlements that develop on flat land. Social factors rather than physical forces determine layout. The squatters create their own cluster groupings and blocks. The blocks are large enough to allow lots of varied sizes and configurations to occur independent of the circulation network. A combination of row, semi-detached and detached one story masonry and concrete dwellings predominate. With the implementation of the Squatter Law of 1966, Zeytincurnu was designated as a rehabilitative squatter area. A plan of lot subdivision was made saving most of the existing conditions. Since then many residents have received land titles. Concurrently, planning for the improvement of streets and infrastructure networks was initiated. Land values have begun to increase to the point where substantial investment is being made in the development of three to five story walk-up apartment buildings typical of those found throughout middle income areas of Istanbul.
LAND USE: Formerly an agricultural area, Zeytinburnu has become primarily residential. Mosques, schools, and limited community facilities are scattered throughout the locality. A large complex of schools and a farm are located on the eastern edge of the site. Commercial and limited light industrial activity is concentrated along major circulation routes. The major commercial activity originates at the railroad-rapid transit station and extends north through the community. Increasing land values have encouraged redevelopment of land from single to multi-story construction as well as changing land use from residential to commercial. A strip of heavy industry is located between the locality and the Sea of Marmara.
CIRCULATION: Heavy vehicular circulation cuts through the locality from the southwest to the northeast on a paved road which follows the original irregular circulation grid. Because of the many turns, narrow streets, commercial activity, and high traffic volume of buses and private mini-buses, this major circulation path is congested. Heavy pedestrian and vehicular traffic exists along 5th Street, a boulevarded route through commercial development to the rapid transit-railroad station. Most residential streets are paved or are in the process of being paved. Where building and garden walls used to define the street, new construction is incorporating curbs and sidewalks. Although most movement within the locality is pedestrian, streets are usually wide enough to accommodate limited vehicular traffic and parking.
POPULATION: According to the 1970 Census the locality had a population of 117,200 persons. In 1960, 59% of the population of 80,078 were between 13 and 65 years of age. 52% were foreign born immigrants most coming from Yugoslavia, Bulgaria, Greece and Romania. 25% migrated from the Black Sea Region of Turkey. 65% of the males migrated to the area directly from their villages. 5% of the families were homeowners. 77% of these families did not have land titles. On the average there were 4.71 persons per household and 2.92 persons per room. 56.7% of the population was illiterate.

INCOME: Available statistical data dates back to 1962-63. The 6793 annual median family income of 1964 has doubled or tripled by 1975. More than half of the working population are laborers. The rest are tradesmen, artisans, or government employees. The majority work within walking distance of the industrial areas of Bakirkoy, Zeytinburnu and Kaslicesme. About one fourth of the labor force work in the historic peninsula. At least one half of the people live in rental units. One room squatter dwellings rent for a minimum of $15 per month.

ZEYTINBURNU, Istanbul: (top left and right) Views of cluster courts which in many instances are created as dwellings expand for multi-family use. Access into clusters is usually undeveloped. Notice the television antennas. (bottom left) Walkways are defined by property walls and dwellings. Walk-up apartment in background is recent. A small store is incorporated in the first floor. (bottom right) Undeveloped residential street. Construction at left without a tile roof is unusual. Even though this building is only for storage/animals, almost all buildings have tile roofs.
CASE STUDY: ZEYTINBURNU

LOCALITY SEGMENT PLAN 1:2500

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

- Water Supply
- Sanitary Sewerage
- Storm Drainage
- Electricity
- Gas
- Refuse Collection
- Public Transportation
- Paved Roads, sidewalks
- 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

SELECTED BLOCK

LOCALITY CONSTRUCTION TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>%</th>
<th>High Help</th>
<th>Medium Help</th>
<th>Small Help</th>
<th>Total</th>
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<td>0</td>
</tr>
<tr>
<td>Masonry Wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Masonry Concrete</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
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<td>Concrete</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</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 SEGMENT PLAN
LAND UTILIZATION DIAGRAMS

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

PERCENTAGES
Streets/Walkways 22%
Playgrounds 3%
Cluster Courts 2%
Dwellings/Lots 73%

DENSITY
Persons/Hectare 420
20 persons
CASE STUDY: ZEYTINBURNU

LOCALITY SEGMENT LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>DENSITIES</th>
<th>Total Number</th>
<th>Number</th>
<th>Area</th>
<th>Density</th>
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<tr>
<td>PUBLIC (streets, walkways,</td>
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<tr>
<td>open spaces)</td>
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</tr>
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<td>SEMI-PUBLIC (open spaces,</td>
<td>.5</td>
<td>3</td>
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<tr>
<td>schools, community centers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops,</td>
<td>11.7</td>
<td>73</td>
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<tr>
<td>factories, lots)</td>
<td></td>
<td></td>
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<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>.3</td>
<td>2</td>
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</tbody>
</table>

TOTAL AREAS: 16.0 100

NETWORK EFFICIENCY

R = network length (circulation) / areas served (circulation, lots) = 315 m/ha

AVERAGE LOT AREA = 167 m²

LOCALITY BLOCK LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>DENSITIES</th>
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<th>Area</th>
<th>Density</th>
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</thead>
<tbody>
<tr>
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<td>.57</td>
<td>56</td>
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<tr>
<td>DWELLING UNITS</td>
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<td>113</td>
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<tr>
<td>PEOPLE</td>
<td>263</td>
<td>.57</td>
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<th>Percentages</th>
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<td>PUBLIC (streets, walkways,</td>
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<td>16</td>
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<tr>
<td>open spaces)</td>
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<tr>
<td>schools, community centers)</td>
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<td></td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops,</td>
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<td>81</td>
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<tr>
<td>factories, lots)</td>
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<td></td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
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</tbody>
</table>

TOTAL AREAS: .57 100

NETWORK EFFICIENCY

R = network length (circulation) / areas served (circulation, lots) = 272 m/ha

AVERAGE LOT AREA = 147 m²
CASE STUDY: ZEYTINBURNU

PHYSICAL DATA

(type related to dwelling and land)

DWELLING UNIT

- type: HOUSE
- area (sq m): 62
- tenure: LEGAL OWNERSHIP

LAND/LOT

- utilization: SEMI-PRIVATE
- area (sq m): 400
- tenure: LEGAL OWNERSHIP

DWELLING

- location: INNER RING
- type: ROW/GROUPED
- number of floors: 1
- utilization: MULTIPLE FAMILY
- physical state: FAIR

DWELLING DEVELOPMENT

- mode: INCREMENTAL
- developer: POPULAR
- construction type: MASONRY/WOOD
- year of construction: 1956

MATERIALS

- foundation: STONE/CONCRETE
- floors: CONCRETE
- walls: CONCRETE BLOCK
- roof: WOOD/TILE

DWELLING FACILITIES

- wc: 1
- shower: 1
- kitchen: 1
- room: 3
- other: CENTRAL SPACE

SOCIO-ECONOMIC DATA

(type related to user)

GENERAL:

- ethnic origin: TURKISH
- gender: MALE

EDUCATION LEVEL:

- number of users: 2
  - married: 4
  - single: 1
  - children: 4
- total: 9

MIGRATION PATTERN:

- number of moves: 1
- rural - urban: 1957
- urban - rural: -
- why came to urban area: FAMIL//WORK

TOTAL INCOME:

- government employee: LOW
- income level: SELF-FINANCE
- employment: N.A.
- distance to work: 3 KM.
- mode of travel: TRAIN

COSTS:

- dwelling unit:
  - rent/mortgage: N.A.
  - % income for rent/mortgage: N.A.
- land:
  - market value: N.A.

SEGMENT PLAN:

- Land Use Pattern:
- Circulation Pattern:
- Segment Plan:
- Land Utilization:
  - (accurate) IBID.
- Block Plan:
  - (accurate) 1964.
- Typical Dwelling:
- Physical Data:
  - (accurate) IBID.
- Socio-Economic Data:
  - (accurate) IBID.
- General Information:

ZEYTINBURNU, Istanbul: (left) View of row dwellings along a street. Construction is simple but substantial. (right) Section of private open court. Residents create very pleasing living environments for themselves. Exterior as well as interior spaces are always well maintained.
GÜLTEPE, İstanbul

PUBLIC/POPULAR, LOW/MODERATELY LOW INCOME, ROW APARTMENTS/SQUATTER HOUSES

LOCATION: This linear and hilly site lies 7.5 km northeast of the city center. The main access to the site is from Buyukdere-Sisli Highway running south to the Bosporus. The site is bounded on the east by an industrial area running parallel to the highway, to the west by the Kagithane River and industry, and on the north and south by a series of residential developments similar in character to that of the locality.
ORIGINS: In 1957, when road construction activity began in Istanbul, the authorities had to relocate or pay those people whose houses were removed. In cases where the affected dwellings were squatter houses, only new land would be supplied. This obligation led the Municipality of Istanbul to sign a contract with the Municipality of Kagithane to administer a long narrow piece of village land located within that municipality. The Istanbul Municipality then subdivided the land into 62.5 m² parcels and offered these parcels for one story dwellings to those families whose houses were taken by the road construction activity. The new occupants were given "parcel papers" but no land titles since the land still belonged to the Municipality of Kagithane. Meanwhile the parties who had been renting the adjacent village land for economic activities, began to divide the rented land into parcels and sell the parcels to squatters. These squatters eventually occupied the land around the parcelized area. Presently the locality is highly developed with row houses and apartment buildings and squatter dwellings.

LAYOUT: The locality is situated along the ridge of a long hill. The layout is a combination of legally parceled land, occurring on relatively flat land, and squatter development on the less desirable steeply sloping land along both sides of the hill. Streets serving the parceled land are narrow, running perpendicular to the circulation spine. Because of long uninterrupted blocks movement between neighborhoods is difficult. Squatter lots of various sizes follow the topography of the site. Undeveloped roads and walkways follow the same pattern with only limited and indirect access to the upper part of the hill and the primary circulation spine. All construction is predominantly masonry and concrete. Squatter development consists of detached, semi-detached and some apartment dwellings. Most of the parceled land is comprised of walk-up row apartments on small lots with extremely limited or no open space.
LAND USE: This primarily residential community is developed along a major commercial spine of two to five story row buildings having shops on the ground floor and apartments above. Religious, educational and other community facilities are dispersed along the length of the spine. A large vocational school complex is located in the eastern end of the locality. Very limited open land still exists in areas where slopes are steep. Industry occurs adjacent to the locality at both ends of the spine. The northern and southern boundaries, defined by valleys, mesh with similar residential development on the neighboring hills.
CIRCULATION: Major vehicular and pedestrian circulation as well as parking crowd Talat Pasa Street, the commercial spine of the locality. Throughout the grid system of the parceled development streets defined only by buildings or narrow sidewalks become easily congested by vehicular movement and parking. Access to the sloping sections of the hill is achieved by the use of steps or steeply sloping roads. In most cases hard-packed earth roads running parallel to the topography provide limited and indirect vehicular access to dwellings. Primary access is by pedestrian paths, walkways and steps.

**KEY**

- **VEHICULAR**
- **PEDESTRIAN**
POPULATION: According to the 1975 Census, the locality has an estimated population of 55,879 persons. In 1963, 39% of the population of 25,028 were living in rental housing. 83% of the homeowners were relocated from other sections of Istanbul. 50% of the residents were originally from the Black Sea Region and 30% from East Anatolia. 54.2% of the population was illiterate.

INCOME: Statistical data is not presently available. In 1975 the estimated minimum annual income is $275 and maximum $550 per capita. The majority of working males are manual laborers. The nearby industrial areas supply jobs for most of the working people. 30% of the population live in their own dwellings. The rest live in rental units. Minimum monthly rent in apartments is $35. A two room dwelling unit rents for $60 to $85 per month.

GULTEPE, Istanbul: (top) New apartment buildings frequently use entire lot for construction creating a lack of open space. Original houses usually incorporate garden area at the front or back of lots. Notice the stairway for a new row apartment building being built in the open lot in the left foreground across from area where wood for fuel is sold.
(Bottom) Typical squatere development on the steeper slopes. Access to dwellings is often by undeveloped walkways. The land is very susceptible to erosion.
LOCALITY SEGMENT PLAN

CASE STUDY: GULTEPE

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/VATTLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MASONRY MUD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MASONRY CONCRETE</td>
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<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

- 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, ABUNDANT.

Quality of information: Approximate
LAND UTILIZATION DIAGRAMS

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

Dwellings

PERCENTAGES
Streets/Walkways: 32%
Playgrounds: 6%
Cluster Courts: 6%
Dwellings/Lots: 62%

DENSITY
Persons/Hectare: 440

LOCALITY SEGMENT LAND UTILIZATION

1:2500
LOCALITY SEGMENT LAND UTILIZATION DATA

DENSITIES

<table>
<thead>
<tr>
<th>Density</th>
<th>Total Number</th>
<th>Area Hectares</th>
<th>Density N/Ha</th>
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<tbody>
<tr>
<td>LOTS</td>
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<td>DWELLING UNITS</td>
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<td>PEOPLE</td>
<td>7037</td>
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AREAS

<table>
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<tr>
<th>Area Type</th>
<th>Hectares</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>5.0</td>
<td>32</td>
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<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>.9</td>
<td>6</td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>10.0</td>
<td>62</td>
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<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>.1</td>
<td>-</td>
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<tr>
<td>TOTAL</td>
<td>16.0</td>
<td>100</td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

\[ R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} \] = 366 m/ha

AVERAGE LOT AREA

= 105 m²

LOCALITY BLOCK LAND UTILIZATION DATA

DENSITIES

<table>
<thead>
<tr>
<th>Density</th>
<th>Total Number</th>
<th>Area Hectares</th>
<th>Density N/Ha</th>
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<tr>
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<td>PEOPLE</td>
<td>359</td>
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AREAS

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<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>-</td>
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<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>.34</td>
<td>72</td>
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<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
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<tr>
<td>TOTAL</td>
<td>.47</td>
<td>100</td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

\[ R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} \] = 268 m/ha

AVERAGE LOT AREA

= 61 m²
CASE STUDY: GULTEPE

Istanbul: (top left) Block of row apartment buildings. Most apartments have small private balconies.

(right) A new row apartment building with adjacent low rise construction. Top floor apartments often have large terraces.

(bottom left) The row house in the center is an example of initial residential development. Adjacent buildings show how most lots are eventually developed.
**Physical Data**

- Dwelling unit type: House
- Area (sq m): 27
- Tenure: Legal Ownership

- Land/Lot
  - Utilization: Private
  - Area (sq m): 215
  - Tenure: Extralegal Ownership

- Dwelling
  - Location: Inner Ring
  - Type: Semi-Detached
  - Number of floors: 1
  - Utilization: Multiple Family
  - Physical state: Fair

- Dwelling Development
  - Mode: Incremental
  - Developer: Popular
  - Construction type: Masonry/Wood
  - Year of construction: 1958-59, 1943

- Materials
  - Foundations: Concrete/Stone
  - Floors: Concrete/Wood
  - Walls: Concrete Block
  - Roof: Wood/Tile

- Dwelling Facilities
  - WC: 1
  - Shower: -
  - Kitchen: -
  - Rooms: 2
  - Other: Cooking Area/Circulation

**Socio-Economic Data**

- General: Social
  - User's ethnic origin: Turkish
  - Place of birth: Erzincan
  - Education level: Third Grade

- Number of Users
  - Married: 2
  - Single: -
  - Children: 4
  - Total: 6

- Migration Pattern
  - Number of Moves:
    - Rural - Urban: 1944, 1960
    - Urban - Rural: 1960, 1963
  - Why Came to Urban Area: RELATIVES/WORK

- General: Economic
  - User's income group: Low
  - Employment: Disabled
  - Distance to work: -
  - Mode of travel: -

- Costs
  - Dwelling unit: $400
  - Land - Market Value: N.A.

- Dwelling Unit Payments
  - Financing: Self-Financed
  - Rent/Mortgage: N.A.
  - % Income for Rent/Mortgage: N.A.

Gultepe, Istanbul: (left) Combination corridor and kitchen of squatter house. The stove uses butane gas. A small cold water faucet and sink are in the background.

(right) Squatter houses many times offer living environments which far surpass those enjoyed by the more affluent. The back part of the lot contains a highly developed fruit and vegetable garden and an outdoor sitting area sheltered by peach trees and grapevines.

**Locality Sources**

- Land Use Patterns: (approximate) IBID.
- Circulation Patterns: (approximate) IBID.
- Segment Land Utilization: (accurate) IBID.
LOCATION: The site is located approximately 7 km. west of the city center. The site is bounded on the south by the London Highway and adjacent industry, on the north by the Old London Highway and the Davutpasa Military Base, to the east by the Mihatpasa Industrial Park, and on the west by a combination of land presently being developed for residential and light industrial use plus Merter Sitesi, a middle income housing development.

OSMANİYE, İstanbul: (top) View of locality looking toward the London Highway showing block apartment building development. Roofs of core housing units are visible in the foreground.

(bottom) Streets are highly developed. The main street is cobblestone. To create a feeling of having gardens, residents grow ivy up the sides of the buildings. Many balconies are enclosed for extra living space or used for storage and clothes hanging.
ORIGINS: The locality is one of the squat-ter prevention areas designated by the Ministry of Reconstruction and Resettlement. Construction began in 1963 and units were occupied in 1967. The first 1000 units of the 3000 walk-up apartment units were given to families relocated by the clearing of old buildings from around the city walls and other historic sites in Istanbul such as St. Sophia and the Blue Mosque. Families being relocated by the clearing of land around Merkez Efendi Cemetery were moved into the core housing located at the northwestern corner of the site. The southwestern part of the site remains undeveloped.

LAYOUT: The public housing project, which was designed by the Ministry of Reconstruction and Resettlement, consists of a variety of five story walk-up apartment buildings and a small neighborhood of core dwellings. The buildings are scattered on a system of loops and cul-de-sacs linked to a major circulation spine which traverses the site. The southwestern part of the site contains a loop system but is otherwise undeveloped.
LAND USE: The site is divided into four residential neighborhoods grouped around an open area containing commercial facilities. Except for a small development of core housing lots at the northeastern corner of the site all land was designed as semi-public or public. Land immediately adjacent to apartment buildings has in some cases been developed into small private gardens by individual apartment dwellers. Community facilities include three schools, a mosque, a small health clinic and police station. A coffee house and small shops are located adjacent to the mosque. Space for an open market and outdoor movie theater is provided at the northern edge of the site. Open land to the west and south remains available for development.
CASE STUDY: OSMANİYE

CIRCULATION: All streets are fully developed vehicular oriented accessways. Pedestrian movement is unrestricted throughout the site. Major vehicular access is from the London Highway on the south and the Old London Highway on the north bringing buses from the city center and private mini-buses from the city walls to the site.

KEY

- VEHICULAR
- PEDESTRIAN

LOCALITY CIRCULATION PATTERN

POPULATION: As of June 1975, 17,850 people are living in the locality. 40.3%, mostly children, are Istanbul born and 52.3% are originally from the Black Sea, Central, Southeast and Eastern Anatolia. 47.6% of the population are between 16 and 45 years of age. 24.1% are less than 12 years old. On the average there are 6.08 persons per household and 3.7 persons per room. 38.4% of the families have more than seven persons versus 16% of the families in the Istanbul metropolitan area. 51% of the population are elementary and 3.5% high school graduates. 25.1% of the population is illiterate.
INCOME: In 1975 the average annual family income is $1840. Annual food expenses average approximately $870 per family. 50.4% of the working population are laborers, 19.2% professional workers, 12% government employees and 12.8% artisans. 96% of the laborers have annual incomes of $1655 or less. 60.8% are one-person, 24% are two-person and 10.8% are three-person working families. 58.4% work in the historic peninsula and 24% in Bakirkoy and Seytinburnu industrial areas. Even though the dwellings are given for ownership, those who find units too small or who improve their income move out and rent their units. 20.5% of the units are being rented. Average monthly rent is $22 ranging from $7 to $35.
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, ADENGT.

Quality of information: Approximate

LOCALITY CONSTRUCTION TYPES

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

OSMANİYE, Istanbul: (top) View across open land toward segment area. Commercial activity occurs on the right. Excessive public open space is neither maintained nor used fully. Roaming animals and horse-carts pass through these areas.

(bottom) Electricity is supplied to buildings by underground cable. High tension lines run above ground through the locality. Residents create private/semi-private open space adjacent to first floor dwellings.
LOCALITY SEGMENT LAND UTILIZATION

DENSITY Persons/Hectare 333

PERCENTAGES Streets/Walkways 99%
Playgrounds 2%
Cluster Courts
Dwellings/Lots 9%

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

LAND UTILIZATION DATA:

- Streets/Walkways: 99%
- Playgrounds: 2%
- Cluster Courts: -
- Dwellings/Lots: 9%

DENSITY: 20 persons/hec
### Casestudy: Osmamite

#### Locality Segment 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>15.0</td>
<td>15.0</td>
<td>-</td>
</tr>
<tr>
<td>Dwelling Units</td>
<td>830</td>
<td>15.0</td>
<td>55</td>
</tr>
<tr>
<td>People</td>
<td>5000</td>
<td>15.0</td>
<td>333</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Areas</th>
<th>Hectares Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public (streets, walkways, open spaces)</td>
<td>13.3 89</td>
</tr>
<tr>
<td>Semi-Public (open spaces, schools, community centers)</td>
<td>.4 2</td>
</tr>
<tr>
<td>Private (dwellings, shops, factories, lots)</td>
<td>1.3 9</td>
</tr>
<tr>
<td>Semi-Private (cluster courts)</td>
<td>- -</td>
</tr>
<tr>
<td>Total</td>
<td>15.0 100</td>
</tr>
</tbody>
</table>

#### Network Efficiency

- **R** = network length (circulation) = 200 m/Ha
- Areas served (circulation, lots) = 200 m/Ha
- Average Lot Area

#### 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>1.39</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dwelling Units</td>
<td>90</td>
<td>1.39</td>
<td>65</td>
</tr>
<tr>
<td>People</td>
<td>547</td>
<td>1.39</td>
<td>194</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Areas</th>
<th>Hectares Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public (streets, walkways, open spaces)</td>
<td>1.27 91</td>
</tr>
<tr>
<td>Semi-Public (open spaces, schools, community centers)</td>
<td>-</td>
</tr>
<tr>
<td>Private (dwellings, shops, factories, lots)</td>
<td>.12 9</td>
</tr>
<tr>
<td>Semi-Private (cluster courts)</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1.39 100</td>
</tr>
</tbody>
</table>

#### Local Plan Block

- **R** = network length (circulation) = 200 m/Ha
- Areas served (circulation, lots) = 200 m/Ha
- Average Lot Area

---

**Locality Block Plan**

1:1000
## CASE STUDY: OSMANİYE

### PHYSICAL DATA
(related to dwelling and land)

<table>
<thead>
<tr>
<th>DWELLING UNIT</th>
<th>area (sq m): 45</th>
</tr>
</thead>
<tbody>
<tr>
<td>tenure:</td>
<td>LEGAL RENTAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LAND/LOT</th>
<th>utilization: PUBLIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>tenure:</td>
<td>LEGAL OWNERSHIP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING DEVELOPMENT</th>
<th>INN河边-ring</th>
</tr>
</thead>
<tbody>
<tr>
<td>type:</td>
<td>WALK-UP</td>
</tr>
<tr>
<td>number of floors:</td>
<td>5</td>
</tr>
<tr>
<td>utilization:</td>
<td>MULTIPLE FAMILY</td>
</tr>
<tr>
<td>physical state:</td>
<td>FAIR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING FACILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>wc: 1</td>
</tr>
<tr>
<td>shower: 1</td>
</tr>
<tr>
<td>kitchen: 1</td>
</tr>
<tr>
<td>rooms: 2</td>
</tr>
<tr>
<td>other: -</td>
</tr>
</tbody>
</table>

### SOCIO-ECONOMIC DATA
(related to user)

| GENERAL: SOCIAL | user's ethnic origin: TURKISH |
|-----------------| place of birth: ADANA |
| education level:| ELEMENTARY             |

<table>
<thead>
<tr>
<th>NUMBER OF USERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>married: 2</td>
</tr>
<tr>
<td>single: -</td>
</tr>
<tr>
<td>children: 3</td>
</tr>
<tr>
<td>total: 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MIGRATION PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>rural - urban: 1970</td>
</tr>
<tr>
<td>urban - urban: -</td>
</tr>
<tr>
<td>urban - rural: -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHY CAME TO URBAN AREA:</th>
<th>EMPLOYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GOVERNMENT EMPLOYEE</td>
</tr>
<tr>
<td></td>
<td>6 EN. GOVERNMENT VEHICLE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>foundation: CONCRETE/STONE</td>
</tr>
<tr>
<td>floors: CONCRETE</td>
</tr>
<tr>
<td>walls: TIE MASONRY WITH COLUMNS</td>
</tr>
<tr>
<td>roof: WOOD/TILE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>dwelling unit: N.A.</td>
</tr>
<tr>
<td>land - market value: N.A.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DWELLING UNIT PAYMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>financing: PUBLIC SUBSIDIZED</td>
</tr>
<tr>
<td>rent/mortgage: N.A.</td>
</tr>
</tbody>
</table>

| % income for rent/mortgage: | N.A. |

---

**OSMANİYE, Istanbul**: (left) Typical block apartment buildings and surrounding public land. (right) The small and open balconies are generally used for drying vegetables, potted plants, and some storage. The block apartments provide a variety of plan layouts.
URBAN DWELLING ENVIRONMENTS

SECTION

ELEVATION

EXPANSION

CORE

EXPANSION

PLAN

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
OSMANIYE, Istanbul: (top) View of core dwellings. Major complaint of residents is that structurally the core houses cannot support a second floor.
(bottom) The core houses contain highly developed front gardens opening out to the street. Although lots are small, the living environment is very pleasant.

LOCALITY SOURCES

Land Use Pattern: (accurate) IBID.
Circulation Pattern: (accurate) IBID.
Segment Plan: (accurate) IBID.
Block Plan: (accurate) IBID.
Typical Dwelling: (accurate) IBID.
Socio-Economic Data: (accurate) IBID.
Photographs: (accurate) IBID.
ÜMRANIYE, İstanbul
PRIVATE, MODERATELY LOW INCOME, GARDEN APARTMENTS/HOUSES

LOCATION: 6 km. west of the Bosphorus, the locality is situated in a formerly rural agricultural area approximately 9 km. from the city center. An industrial park is being developed on the eastern edge of the site. The Istanbul Radio transmitting station is located in the northern part of the residential area.

ORIGINS: The village of Umraniye dates back to the Ottoman Empire. After the Istanbul Radio transmitter station was built in the village, the population started to increase. From a population of less than 1,000 in 1950 the village enlarged to 7,582 in 1960, 23,046 in 1970, to an estimated 37,560 in 1975. The locality demonstrates an example of land speculation. Large land owners motivated by profit have parcelled existing agricultural land for residential development. The locality was established as a municipality of the Istanbul metropolitan area in 1961.

UMRANIYE, Istanbul: (top) View from a minaret of the parcelled land development.
(Bottom) The main street is highly developed. Buses and private mini-buses provide transportation into Istanbul. Notice the contrast between the urban environment and the village man with his donkeys.
CASE STUDY: UMRANIYE

LAYOUT: The original village of Umraniye consists of a small, organic pedestrian-oriented grouping of buildings in the center of the locality along Alemag Street, the major circulation spine. Development of the surrounding area is occurring as large pieces of land employed in agriculture are being divided into small parcels and sold for residential development. The different subdivisions, which are interconnected by existing farm roads, are parceled in different configurations of gridiron systems independent of one another. In contrast to the original village, the scale of the new subdivisions is oriented to the automobile which at this time is generally unavailable to this income sector of the population. Construction is predominately masonry and concrete detached or semi-detached dwellings and apartment buildings.
URBAN DWELLING ENVIRONMENTS

Land Use: Formerly a small rural agricultural village, Umraniye has developed into a sprawling residential area. Commercial and light industrial activity is concentrated along Alemdag Street, the primary circulation route through the locality. Residential development is interrupted on the north by the Istanbul Radio transmitting station. A large electrical transformer station serving a network of high tension cables from the north and southeast is located in the western part of the site. Open land adjacent to the locality is agricultural. The western edge of the development is used as an industrial park. Limited community facilities are located close to the central spine.

Locality Land Use Pattern

<table>
<thead>
<tr>
<th>AREAS</th>
<th>RESIDENTIAL</th>
<th>COMMERCIAL</th>
<th>INDUSTRIAL</th>
<th>OPEN SPACES</th>
</tr>
</thead>
</table>

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

1:10000

0 100 500m

TO CITY CENTER
CIRCULATION: Major vehicular and pedestrian traffic moves along Alandag Street, the commercial spine of the locality as well as a major artery to the east from Istanbul. Residential streets are usually defined by buildings or property line walls rather than sidewalks. Streets are either paved or hard-packed earth and stone. Circulation in parcelled areas often cuts across undeveloped private land due to the lack of physical controls. Access to the city center is by bus and private mini-bus.

KEY

- VEHICULAR
- PEDESTRIAN
URBAN DWELLING ENVIRONMENTS

POPULATION: Formal population statistics are unavailable for the locality. As of 1975, the locality has a population of approximately 37,500 persons. Approximately 25% of the population are immigrants from Bulgaria and Yugoslavia. The majority, an estimated 75% of the population, are from the Black Sea Region of Turkey with nearly one half this number originating from Sile, a popular resort village on the Black Sea 60 km. northeast of Istanbul.

INCOME: Statistical data is not available. Approximately 50% of the working population are laborers, 25% are government employees and 25% are tradesmen or are self-employed. Construction workers make $7 per day or average $210 per month working every day. 75% unemployment is possible during winter months. Factory workers earn a minimum of $1,655 annually. Minimum annual starting salary for government workers is $890. More than half of the working population work outside of Umraniye. Apartment rents range from $17 to $68 per month.

IMAGES: Istanbul. [top] Row and garden apartment buildings on long/narrow lots. Open space through the center of the block is wasted.
[bottom left] Typical street development. Circulation is usually defined only by garden walls or buildings.
[bottom right] Commercial activity is mixed within residential development. Notice incremental development of building on the right.
CASE STUDY: ÜMRANIYE

LOCALITY

CONSTRUCTION TYPES

<table>
<thead>
<tr>
<th>SNACK</th>
<th>MID/WATTLE</th>
<th>WOOD</th>
<th>BRICK</th>
<th>CONCRETE</th>
</tr>
</thead>
</table>

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.

Quality of information: Approximate

LOCALITY UTILITIES AND SERVICES

<table>
<thead>
<tr>
<th>WATER SUPPLY</th>
<th>SANITARY SEWERAGE</th>
<th>STORM DRAINAGE</th>
<th>ELECTRICITY</th>
<th>GAS</th>
<th>REFUSE COLLECTION</th>
<th>PUBLIC TRANSPORTATION</th>
<th>PAVED ROADS, WALKWAYS</th>
<th>TELEPHONE</th>
<th>STREET LIGHTING</th>
</tr>
</thead>
</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>POLICE</th>
<th>FIRE PROTECTION</th>
<th>HEALTH</th>
<th>SCHOOLS, PLAYGROUNDS</th>
<th>RECREATION, OPEN SPACES</th>
</tr>
</thead>
</table>

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

Quality of information: Approximate
LAND UTILIZATION DIAGRAMS

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

PERCENTAGES
- Streets/Walkways: 17%
- Playgrounds: 5%
- Cluster Courts: 18%
- Dwellings/Lots: 78%

DENSITY
Persons/Hectare: 278
20 persons
CASE STUDY: UNRANİYE

LOCALITY SEGMENT 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>400</td>
<td>16.0</td>
<td>25</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>1000</td>
<td>16.0</td>
<td>63</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>4450</td>
<td>16.0</td>
<td>278</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAS</th>
<th>Hectares Percentages</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC (streets, walkways, open spaces)</td>
<td>2.7 17</td>
<td></td>
</tr>
<tr>
<td>SEMI-PUBLIC (open spaces, schools, community centers)</td>
<td>.8 5</td>
<td></td>
</tr>
<tr>
<td>PRIVATE (dwellings, shops, factories, lots)</td>
<td>12.5 78</td>
<td></td>
</tr>
<tr>
<td>SEMI-PRIVATE (cluster courts)</td>
<td>- -</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>16.0 100</td>
<td></td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

\[
R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} = 235 \text{ m/Ha}
\]

AVERAGE LOT AREA

\[
= 312 \text{ m}^2
\]
### Physical Data

- **Dwelling Unit**
  - Type: Apartment
  - Area (sq m): 66
  - Tenure: Legal Rental
- **Land/Lot**
  - Utilization: Private
  - Area (sq m): 312
  - Tenure: Legal Ownership

### Dwelling Development

- **Location:** Periphery
- **Type:** Walk-Up
- **Number of Floors:** 1
- **Utilization:** Multiple Family
- **Physical State:** Good

### Dwelling Facilities

- **WC:** 1
- **Shower:** 1
- **Kitchen:** 1
- **Rooms:** 2
- **Other:** Central Space

### Socio-Economic Data

- **General:**
  - Social User’s Ethnic Origin: Turkish
  - Place of Birth: Sivas
  - Education Level: Elementary
- **Number of Users:**
  - Married: 2
  - Single: 1
  - Children: 1
  - Total: 3
- **Migration Pattern:**
  - Number of Moves:
    - Rural - Urban: 1960
    - Urban - Rural: 1972, 1974
  - Why Came to Urban Area: Relatives/Personal

- **General: Economic**
  - User’s Income Group: Moderately Low
  - Employment: Telephone Factory
  - Distance to Work: 1.5 KM
  - Mode of Travel: Walking
- **Costs:**
  - Dwelling Unit: N.A.
  - Land - Market Value: N.A.
- **Dwelling Unit Payments:**
  - Financing: Private
  - Rent/Mortgage: 524 Per Month
- **% Income for Rent/Mortgage:** 14%

---

**Locality Sources**

- **Segment Plan:** (Accurate) Greater Istanbul Master Plan Office, 1965.
- **Segment Land Utilization:** (Accurate) 1965.
- **Physical Data:** (Approximate) 1965.
- **Socio-Economic Data:** (Approximate) 1965.
- **Photographs:** (Accurate) M. and N. Butler, 1975.
EVALUATIONS

DWELLINGS TIME/PROCESS PERSPECTIVE

TRADITIONAL HOUSE

Rooms grouped around a large central hall. One to three stories, single family use.

Population Density
Low/medium density.

Land/Landscape
Organic clusters/groups or rows.

Users
Low/middle/high income groups.

PRESENT MODEL

Dwellings of this type are no longer being built. Depending on the users' income group, this model is either renovated, replaced, or left to deteriorate. Single or multiple family use.

Users
Low/middle/high income groups.

Case Studies
ZEYREK (low income)

LAND ISSUES
OTTOMAN-TURKISH CULTURE
Permits low/medium densities. Accessible to middle/high income groups. Land utilization provides maximization of private ownership and responsibility of land.

Perspective
Stationary, disappearing.

Comments
Not feasible for low income groups.

EUROPEAN HOUSE

One to three stories, single family use.

Low density.

Gridiron or organic.

Middle/high income groups.

Model was imported in the late 19th Century. Used on a large scale it replaced the traditional house but construction of this type is now very limited. Single family use.

Middle/high income groups.

Not covered. Concentrated in the suburbs and along the Bosphorus.

WESTERN CULTURE
Permits low densities. Accessible to high income groups. Land utilization provides maximization of private ownership and responsibility of land.

Stationary, disappearing.

Not feasible for low income groups.

SQUATTER HOUSE

Basically a core house, wet and dry functions are separated. One story, single family use.

Low/medium density.

Organic clusters/groups or rows on public or private land. Very low income groups.

The model was imported with some adaptations to urban context from Anatolia in the 1940's as squatter settlements began to develop in Istanbul. Single or multiple family use.

Very low/low income groups.

UNIVERSAL-TURKISH CULTURE
Permits medium density. Accessible to very low/low income groups. Potentially efficient land utilization provides maximization of private ownership and responsibility of land.

Continuing and expanding.

Presently a model for illegal urban settlement areas, it is applicable to future public sector site and service projects.
EVALUATIONS: DWELLING TIME/PROCESS PERSPECTIVE

GARDEN APARTMENT

One to four dwelling units per floor, one to six stories, garden all around, multiple family use.

Medium density.

Gridiron.

Low/middle/high income groups.

Model was imported in the XX Century. Used on a large scale, it replaces the European house when densities, housing needs and land values increase. Multiple family use.

Low/middle/high income groups.

WESTERN CULTURE

Permits medium densities. Accessible to low/middle/high income groups. Lot and dwelling unit sizes are dependent on income level. Land utilization provides maximization of private ownership and responsibility of land.

Continuing.

Block layout needs improvement to minimize infrastructure investment and maintenance/operation cost.

ROW APARTMENT

One or more dwelling units per floor, one to six stories, multiple family use.

High density.

Gridiron.

Low/middle/high income groups.

The model was imported in the XX Century. Now the major type of residential construction in the center city, the row apartment is being used increasingly throughout the metropolitan area. Multiple family use.

Low/middle/high income groups.

GULTEPE (low income)

UNIVERSAL

Permits high density. Accessible to low/middle/high income groups. Lot and dwelling unit sizes are dependent on income level. Land utilization provides maximization of private ownership and responsibility of land.

Continuing.

Block layout needs improvement to minimize infrastructure investment and maintenance/operation cost.

BLOCK APARTMENT

Two or more dwelling units per floor, five or more stories, multiple family use.

Medium/high density.

Varied groupings in commonly shared public/semi-public land.

Low/middle/high income groups.

OSMANIYE (low income)

UNIVERSAL

Permits medium/high density. Accessible to low/middle/high income groups. Dwelling unit size is dependent on income level. Land utilization provides maximization of private ownership and responsibility of land. Efficient infrastructure network.

Continuing.

Model requires substantial change to maximize private ownership and responsibility of land.
The physical data of the six case studies of dwelling environments existing in the Istanbul Metropolitan Area is summarized in the physical data matrix and in the following comments. The matrix permits:

- A comprehensive view of the spectrum of low income dwelling types.
- A comparison and determination of trends and patterns.

The six case studies are grouped in four categories identifying different low income groups, housing systems and selected physical characteristics. The four categories are identified as follows:

- Category A: Very Low/Low Income—Traditional Urban Room/Apartment
- Category B: Very Low/Low Income—Squatters House
- Category C: Low Income—Public Housing House/Apartment
- Category D: Mod. Low Income—Private Parcel House/Apartment

Categories A-D represent 69% of the total population. Middle and high income groups make up the remaining 31%. Category B with 45% is the largest category. Settlement patterns of middle and high income groups are similar to localities 1, 4, 5, and 6 with larger lots and dwelling units. Category A indicates a departure from the general pattern. The category represents development that originally housed middle and high income groups but is now serving the low income sectors. All other categories described here represent areas originally developed by the low income sector.

(1) CATEGORY; (2) POPULATION PER CATEGORY: Number of people; (3) PERCENT OF TOTAL POPULATION; (4) NAME OF LOCALITY. The six case studies are grouped in four categories identifying different low income groups, housing systems and selected physical characteristics. The four categories are identified as follows:

- Cat./Income: Housing System: Dwelling: Room/Apt.
  - B. V. Low/Low: Squatters: House

(5) USER INCOME GROUP: The income level is taken as an indicator in the analysis of housing systems, although other factors such as profession/education play important roles. Differences exist between income groups, in the socio-cultural backgrounds, in the availability and maintenance of services, and dwelling location within the city. The process of housing for the low income groups is a matter of survival and security whereas in the middle and high income groups it is a service or a commodity.

(6) DWELLING UNIT TYPE: A pattern is defined in terms of income groups; ROOM: very
low income group; HOUSE: very low, low and very high income groups; APARTMENT: low, moderately low, middle and high income groups.

(7) DWELLING UNIT AREA: The tax exemption laws encourage smaller dwelling units; maximum 100 m² in squatter dwellings, whereas in high income dwellings the average area is 240 m² per person. Urban dwellings are constantly being improved, expanded and adapted as incomes and densities increase.

(8) DWELLING UNIT TENURE: In the low income groups, four situations are described: legal ownership of dwelling on occupied land, ownership through purchase from first occupant (see Category B); room and apartment rentals (see Category A and D); legal ownership of both dwelling and land (see Category C and D).

(9) DWELLING UNIT PERCENT INCOME FOR RENT/MORTGAGE: The rent-income ratio moves rapidly upward as the area develops, its land values increasing and its location becoming more important within the expanding metropolitan boundaries.

(10) LAND/LOT UTILIZATION: For the very low and low income groups the land around the dwelling unit becomes essential as a living area and for future expansion. The immediate use of land is inversely related to the number of floors and the area of the dwelling. In all cases control is evidenced by the use of gardens or cluster courts. In the apartments provided by the public sector (OSMANİYE), the lack of immediate access to the land as well as the lack of physical controls over adjacent public space becomes crucial. Here dwellers try to enclose spaces in front of their units and create gardens or put fences along streets to provide privacy.

(11) LAND/LOT AREA: In most planned areas lot sizes stay constant. In new squatter areas the lot sizes are usually large and varied. During rehabilitation processes the lots become more or less uniform in size. In all cases dwellers define lot boundaries.

(12) LAND/LOT TENURE: Extra-legal tenure is common in very low and low income groups (see Category B). Land titles providing construction rights were distributed to squatter dwellers settled previous to 1966. The titles account for the rapid development of these areas. Legal tenure is characteristic of moderately low/middle/high income areas. Traditional middle/high income settlements (ZEYREK) now house low income groups in a rental situation. The owners of these dwellings have remained as landlords on legally tenured land.

(11) DWELLING LOCATION: The city center is occupied primarily by middle and high income groups except for scattered pockets of low income groups (ZEYREK). The inner ring of the city is occupied almost equally by all income groups. Low income groups settle predominately on the periphery close to industrial areas.

(14) DWELLING TYPES: Very low and very high income groups live in detached houses situated in private gardens. Semi-detached, row/grouped and walk-up dwelling types are found throughout the remaining income groups.

(15) DWELLING FLOORS: Most dwellings in the low income sector are single story units. With the exception of walk-up apartment buildings (OSMANİYE), traditional old houses (ZEYREK) and garden apartments (UMANİYE), multi-story construction is most frequently associated with middle and high income residential construction.

(16) DWELLING UTILIZATION: Single occupancy of the dwelling is a predominant form of utilization of the very low, very low and very high income groups. The remaining income groups have multiple utilization of dwellings.

(17) DWELLING PHYSICAL STATE: A bad state is usually found in the traditional houses left to deteriorate. In most of the squatter areas constant upgrading, maintenance and expansion reflect the dynamic character of the housing process of this type of settlement. A good physical state is typical of moderately low, middle and high income dwellings.

(18) DWELLING DEVELOPMENT MODE: The incremental mode is used by very low and low income groups, particularly by squatter dwellers. Instant development is typical of housing built by the public and private sectors.

(19) DWELLING DEVELOPER: The popular developer is generally found in the low income groups and particularly in squatter areas since the financial resources are very limited and there is no access to private, commercial or public credit institutions. The private sector is oriented towards middle and high income groups. The public sector's role is confined mainly to provision of services for all income sectors.

(20) DWELLING BUILDER: The very low and low income groups build their own houses sometimes with the assistance of an artisan. Artisans and small contractors are employed widely by the remaining income groups. Large contractors are generally used by the public sector and by the private sector for large scale developments.

(21) DWELLING CONSTRUCTION TYPES: No longer allowed by the Istanbul Building Code, wood construction exists only in old traditional houses. Masonry-wood is the typical construction type of very low and low income groups. The higher income groups use masonry-concrete construction. Concrete construction is rarely used in residential buildings.

(22) DWELLING DEVELOPMENT-YEAR OF CONSTRUCTION: The oldest case studied is the traditional development ZEYREK located inside the old city walls in the center city. Squatter settlements began to develop in the 1940's. SETTIMBURU is the oldest and HUMEDÜZ is one of the newer squatter settlements. GÜMÜŞTEPE began as a public sector parcelled land development. Originally UMANİYE was an Ottoman village which has now become a parcelled land suburb of Istanbul.

(23) DWELLING DEVELOPMENT DENSITY: Population densities are intended as indicators for each dwelling group. Samples were taken from selected, small, homogeneous areas that include land of groups of dwellings and their circulation access. Low densities are typical of low income settlements located on the periphery of the city. In addition, low densities correspond to areas containing detached dwellings versus high densities found in areas of predominately row/grouped dwellings. The highest densities are achieved in the center city, which, with the exception of low income areas such as ZEYREK, is characterized by predominately middle and limited high income development.
The matrix illustrates the approximate availability of community facilities, utilities and services in the six low income dwelling environments. Three levels are indicated as follows:

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

The matrix includes columns for various facilities and services, with ratings indicating availability. Below is a partial transcription of the table:

<table>
<thead>
<tr>
<th>Category</th>
<th>Population of Individual Poverty Group</th>
<th>A of Total Population</th>
<th>LOCALITIES (representative of different categories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>140,000</td>
<td>8</td>
<td>1. ZEYREK</td>
</tr>
<tr>
<td>B</td>
<td>2,350,000</td>
<td>45</td>
<td>2. RUMELIHISAR USTU</td>
</tr>
<tr>
<td>C</td>
<td>67,000</td>
<td>2</td>
<td>3. SEYITINGURU</td>
</tr>
<tr>
<td>D</td>
<td>220,000</td>
<td>7</td>
<td>4. GULLUPE</td>
</tr>
<tr>
<td>E</td>
<td>1,140,000</td>
<td>38</td>
<td>5. OSMANITE</td>
</tr>
<tr>
<td>F</td>
<td>3,000,000</td>
<td>100</td>
<td>6. UMRANIYE</td>
</tr>
</tbody>
</table>

Within the low income sector there are three basic groupings identified. ZEYREK is an example of low income areas that evolve from once wealthy residential areas left to deteriorate. Services, utilities and community facilities already exist but many are in need of repair or renewal.

RUMELIHISAR USTU and SEYITINGURU are examples of squatter settlements in initial and saturated stages of development respectively. In the initial stages of development residents of these areas collectively begin to provide their own infrastructure networks. Water may be available from wells. Sewerage systems, when constructed, usually feed into rivers or streams. Formal approval for rehabilitation of an area must be granted in order for the city to supply utilities and services. Depending on the size, density and location of a new settlement relative to existing urban development and associated services, community facilities begin to develop. Location within the metropolitan area is the main factor in the availability of fire protection and health facilities.

OSMANITE and UMRANIYE, public housing and parcelled land settlements respectively, are examples of legal/planned developments which are built instantly and incrementally. Most of the services, utilities are initially provided. Community facilities provision is a function of location within the metropolitan area.

With the exception of telephone and gas utilities, services to middle and high income areas are generally adequate.

COMMUNITY FACILITIES
- Police: Generally available throughout
the metropolitan area.
- Fire Protection: Proximity to the center city affects the level of service.
- Health: Large hospitals are located in the center city. Developed sections of the metropolitan area usually are provided with smaller health units such as clinics and dispensaries.
- Schools, Playgrounds: Elementary and secondary schools and playgrounds are generally located within residential communities. High schools are concentrated throughout the center city and in large residential communities.
- Recreation: Proximity to the center city and more developed sections of the metropolitan area affect availability and type of recreation facilities.

UTILITIES AND SERVICES
- Water: Due to a municipal water supply shortage the metropolitan water networks provide only limited service to the city, usually every other day or fractional daily service.
- Sewerage: Networks are generally adequate. Sewage treatment is available only on a limited basis.
- Storm Drainage: Network provision is a direct function of street development.
- Electricity: Networks are generally adequate. Limited illegal connections occur in squatter areas.
- Gas: Network exists in the center city but pressure is variable. Bottled gas is commonly used.
- Refuse Collection: Generally adequate throughout the metropolitan area. Some squatter areas have no formal refuse collection system. Refuse is transported by the residents to adjacent refuse collection points.
- Public Transportation: Except for the more isolated settlements which have limited service, public bus, private mini-bus and shared-taxi (dolmus) service is readily available.
- Paved Roads, Walkways: In the majority of the squatter settlements the residents, with the cooperation of the public sector, improve their circulation networks incrementally to the standard level.
- Telephone: Service is an extremely expensive luxury predominantly enjoyed only by the high income group. Public telephones are available throughout the city.
- Street Lighting: Networks are generally adequate throughout the city.
Urbanization Model

Istanbul, as most cities in developing countries, has a critical housing shortage. The typologies illustrate typical low income housing situations in Istanbul. The city has had only marginal success in dealing with this problem. The metropolitan area of Istanbul has an increase in population of over 5% annually. Each year 33% of the new housing starts are squatter dwellings (gecekondu) being built in existing and new squatter settlements.

The purpose of the Urbanization Model, which focuses specifically on physical layout and land subdivision, is to propose an alternative method of residential development reinforcing the positive and solving the negative aspects of low income housing as it exists in Istanbul.

Although some of the dwelling environments illustrated in the typologies are lacking in certain amenities, the major problem of Istanbul's low income housing is not the dwelling as much as it is the framework in which they exist. Because of their illegal status squatter areas develop spontaneously without formal planning. This necessarily means that during the rehabilitation process when infrastructure is incorporated into these areas it becomes unnecessarily expensive for both the user and the public sector. In many cases it even precludes the availability of certain services to the areas. The lack of planning for the future growth and needs of a community only increases the burden of both the public sector and the user. The public sector will substantially minimize its capital investment and continuing maintenance/operation costs and at the same time improve upon the potential amenity of developing urban areas by initially providing an efficient framework within which urbanization can occur.

The Urbanization Model incorporates the following distinct characteristics:
- In INFRASTRUCTURE: Provision of an efficient layout that minimizes public sector costs in implementation, maintenance, and operation of services and provides maximum amenity to the user.
- In LAND SUBDIVISION: Provision of "condominium" or "cluster" ownership, with relatively large plots to maximize private/collective initiative, responsibility, participation and to minimize public sector cost in implementation, maintenance and operation.
- In HOUSING: Provision of dwellings and lots that can be easily expanded or modified to permit flexibility in their use, to absorb growth of the family needs and to minimize initial investment cost by the user and the public sector.

For the purpose of demonstration the undeveloped squatter prevention area and additional open land immediately to the west of the Osmaniye Public Housing Project was selected as the site for the Urbanization Model. The physical inputs for this study are based on the situation of the site as it existed in 1970.
DEVELOPMENT PLAN

The proposal is based on the potential development of two adjacent parcels of land. The First Stage, a publicly owned parcel of 15 hectares, would be initially developed. The Second Stage, a privately owned parcel of 40 hectares, would be developed either by the private sector or, after acquisition, by the public sector.

A development plan in terms of time, population to be settled, social and economic programs is beyond the scope of this preliminary model. Only guidelines for development are implicit in the different sections of this proposal.
- Land use, circulation and development are inseparable/interacting systems.
- Maximum flexibility should be provided to facilitate the continuous process of construction, habitation, evaluation and revision.

INITIAL DEVELOPMENT
Initial development should provide:
- Convenient pedestrian access to public transportation or extension of public transportation.
- Immediate utilization of existing/available infrastructure and services, streets, adjacent community facilities, commercial areas and markets, small industries and schools.

Initial development should include:
- Land uses; residential, commercial, small industries, public facilities and open spaces.
- Circulation; pedestrian walkways, local streets and main commercial streets.
- Infrastructure; primary networks.

SUBSEQUENT DEVELOPMENT
It is implicit in the proposal that the plan:
- Permits a natural development of different land uses, circulation and infrastructures.
- Reinforces and encourages a compact versus a scattered development.
- Maintains the consistency between land use/densities/commercial potential and intensity of circulation/activities.

DEVELOPMENT MODE: INSTANT/INCREMENTAL
- The primary infrastructure networks (water, sewer, electricity, street lighting, streets) will be instantly developed by the public sector.
- Walk-up apartment buildings and core houses will be instantly developed by the public sector.
- Open lots, community and commercial facilities, and secondary infrastructure serving semi-private/private areas will be incrementally developed by the popular, private, and public sectors.
THE SITE

LOCATION
- The site is located in the municipality of Istanbul approximately 7 km. west of the city center and the centers of employment.
- The site is located within 2 km. of the Zeytinburnu and Topkapi industrial areas.
- The site lies in a residential and industrial area.

APPROACHES/ACCESS
- The primary route of approach is from the Old London Highway which forms the northern boundary of the site. This highway leads east through industrial areas to the city walls and west to other residential and industrial developments.
- The secondary route of approach is from the London Highway located south of the site. This highway leads east to the city center and west to the airport and Europe. There is a point access to the highway 500 meters from the site.

TRANSPORTATION
- Public bus service is provided to the site from the city along the Old London Highway. Private mini-buses offer frequent service to the city walls along the same route. Both public and private bus service is available along the London Highway.

SIZE/SHAPE
- The First Stage contains approximately 15 hectares. The site is in the form of a triangle.
- The Second Stage contains approximately 40 hectares. The site is in the form of a rectangle.

TOPOGRAPHY/NATURAL FEATURES/SOIL
- From an altitude of 60 meters the site overlooks residential and industrial areas to the south toward the Marmara Sea and to the southeast toward the city walls.
- The topography of the site is regular with slopes varying from 5 to 10% with an average slope of 7%.
- The soil has poor characteristics for vegetation but is suitable for construction.

BOUNDARIES
- North: The Old London Highway and Davutpasa Military Base.
- East: The Osmaniye Public Housing Project.
- South: Agricultural land and Merter Sitesi, a privately developed middle income residential area.
- West: Assumed development of a private middle income residential and light industrial area.

EXISTING STRUCTURES:
- A water tower and reservoir are located on the northeastern part of the First Stage site.
- A small neighborhood of 93 squatter dwellings housing approximately 500 persons is located on the southern edge of the Second Stage site.

OTHER FACTORS
- The site is dusty.
- The site is well drained
- High tension electric lines run along the eastern edge of the First Stage but present no specific hazards.

LAND TENURE
- First Stage: Public sector ownership.
- Second Stage: Private ownership.

INFRASTRUCTURE/COMMUNITY FACILITIES
- All utilities are available from the surrounding area.
- Limited commercial facilities exist in the Osmaniye Public Housing Project to the east and in Merter Sitesi to the south.
THE PROJECT/ POLICIES/ GOALS

PRIMARY USE: RESIDENTIAL COMMUNITY
- The primary use of the site will be residential with supporting commercial and community facilities serving a population at full development of 24,000 people (First Stage - 6,000 people, Second Stage - 18,000 people).
- Four neighborhoods of approximately 6,000 persons each will be created having their own elementary school, kindergarten and open play area.
- The Second Stage will provide a middle school that will serve both stages.
- The Second Stage will provide a high school that will serve both stages plus the existing Osmaniye Public Housing Project.
- A community center, administration facilities, health clinic and local park will be provided to serve the new development as well as the existing Osmaniye development.
- Facilities developed by the private sector will include mosques, shopping streets, artisan shops, and accompanying housing.
- The public sector will build core houses for ownership.
- The public sector will build apartments for condominium ownership.
- The public sector will also provide large and small lots for ownership.

TARGET INCOME GROUPS
- Development will aim at a community consisting of very low to moderately low income groups.

FINANCING GROUPS: PUBLIC, POPULAR, LIMITED PRIVATE
- Public and popular financing for apartments, core housing and small lot acquisition.
- Popular and private financing for large lot acquisition and commercial development.
- Public, popular and private financing for residential construction and improvement.

CIRCULATION: PREDOMINANTLY PEDESTRIAN
- Pedestrians and vehicles will share public streets, but pedestrians will dominate over vehicles.
- Control of traffic frequency, character and speed are mainly established by the street layout and use.

UTILITIES: CONNECTION TO EXISTING SYSTEMS
- All utility systems will be interconnected into the existing Istanbul Urban Area networks.
- Water will connect to the water main which runs along the Old London Highway.
- Sewerage/storm drainage systems will connect into the existing sewerage network adjacent to the London Highway.
- Electricity will connect into the Istanbul Urban Area network.

INTENSITIES OF LAND USE: MEDIUM DENSITY
- The densities planned for the site range from 300 to 600 persons per hectare (gross).
URBANIZATION MODEL

SITE LAND USE

AREAS
- RESIDENTIAL
- COMMERCIAL/LIGHT INDUSTRIAL
- INDUSTRIAL
- OPEN SPACES

ADJACENT DEVELOPMENT
A OSMANYE PUBLIC HOUSING PROJECT (existing)
B MERTER SITESI (existing)
C RESIDENTIAL/LIGHT INDUSTRIAL DEVELOPMENT (assumed)

KEY
- P Police
- F Fire Department
- PS Primary School/Kindergarten
- MS Middle School
- HS High School
- Mq Mosque
- R Recreation
- H Health
- PO Post Office
- SS Social Services
- M Market

SCALE: 1:10000

100 500m
CIRCULATION PLAN

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. It is considered to be under public control.

The circulation layout is based upon:
- Minimization of infrastructure investment for the public sector.
- Maximizing use of existing circulation.
- Integration of the First Stage with the adjacent Osmaniye Public Housing Project.

The following circulation modes are considered in the network:

MODE I: Pedestrian walkways and cluster courts. Exclusive use by pedestrians.
MODE II: Residential streets. Pedestrians and vehicles mixed, pedestrians dominate over vehicles.
MODE III: Main arteries. Vehicles and pedestrians mixed, vehicles dominate but do not control circulation.
MODE IV: Main access highways. Exclusive use by vehicles, relatively high speed with large volume of traffic flow.
SITE CIRCULATION

PUBLIC CIRCULATION WIDTHS

MODE I: 9 meters
MODE II: 12 meters
MODE III: 22 meters
MODE IV: Unlimited

FIRST STAGE
BLOCKS, LOTS AND CLUSTER COURTS

DEFINITIONS
- BLOCK is a portion of land bounded and served by lines of public streets and walkways.
- LOT is a measured parcel of land having fixed boundaries and access to public streets, walkways or cluster courts.
- CLUSTER COURT is a group of lots owned individually or in condominium around a semi-private common area.
- CONDOMINIUM is a group of dwelling units (owned individually) in a multi-unit structure around a semi-private common area.

The block layout proposed is based upon the following policy:
- MINIMIZATION OF: public ownership of land, lengths of infrastructure per area served, public sector burdens, responsibilities and services.
- MAXIMIZATION OF: private responsibility and private ownership of land.

The above policy is demonstrated in the First Stage plan. The blocks contain "cluster courts" where lots are grouped around a common area that provides access as well as a semi-private open space. The occupants share the use and the responsibility for the maintenance of the court. The cluster court is initially one large parcel of land which can be subdivided publicly or privately.

Three types of lots are contained within these blocks:
- INTERIOR LOTS: have access only to the semi-private cluster court.
- EXTERIOR LOTS: have access only to public streets or walkways.
- EXTERIOR-INTERIOR LOTS: have access to public streets and to semi-private cluster courts.

---

FIRST STAGE LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total Number</th>
<th>Area (Hectares)</th>
<th>Density (N/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTS</td>
<td>467</td>
<td>13.9</td>
<td>34</td>
</tr>
<tr>
<td>DWELLING UNITS</td>
<td>1150</td>
<td>13.9</td>
<td>83</td>
</tr>
<tr>
<td>PEOPLE</td>
<td>6950</td>
<td>13.9</td>
<td>500</td>
</tr>
<tr>
<td>AREAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUBLIC</td>
<td>2.9</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>SEMI-PUBLIC</td>
<td>1.5</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>PRIVATE</td>
<td>7.2</td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>SEMI-PRIVATE</td>
<td>2.3</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13.9</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

\[ R = \frac{\text{network length (circulation, lots)}}{\text{areas served (circulation, lots)}} = 148 \text{ m/ha} \]

AVERAGE LOT AREA

\[ = 154 \text{ m}^2 \]

---

URBANIZATION MODEL LAND UTILIZATION DATA

<table>
<thead>
<tr>
<th>Categories</th>
<th>Area (Hectares)</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC</td>
<td>11.0</td>
<td>19</td>
</tr>
<tr>
<td>SEMI-PUBLIC</td>
<td>12.7</td>
<td>22</td>
</tr>
<tr>
<td>PRIVATE/SEMI-PRIVATE</td>
<td>34.2</td>
<td>59</td>
</tr>
<tr>
<td>TOTAL</td>
<td>57.9</td>
<td>100</td>
</tr>
</tbody>
</table>

NETWORK EFFICIENCY

\[ R = \frac{\text{network length (circulation)}}{\text{areas served (circulation, lots)}} = 138 \text{ m/ha} \]
FIRST STAGE LAND SUBDIVISION/UTILIZATION

- Large Lots
- Core Houses
- Walk-Up Apartments
- Small Lots
- Streets (public)
- Courts (semi-private)
- Lots (private)
- Walkways (public)
The proposed layout permits:
- **FLEXIBILITY IN LAND USES**: Blocks permit the accommodation of different land uses; residential/commercial, light industries.
- **FLEXIBILITY IN RESIDENTIAL DENSITIES AND HOUSING OPTIONS**: Progressive development units, core houses, row and grouped walk-up apartments of low, medium and high densities.
- **DIFFERENT TYPES OF LAND TENURE**: Ownership, rental and lease.
- **EXPANSION AND TRANSFORMATION OF HOUSING SYSTEM**: 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 general criteria by which the blocks are developed:
- Six meter minimum lot width dimension is required by the Istanbul Building Code.
- The density of the block is between 300 and 600 persons per hectare at saturation depending on the location of the lots.
- Maximum building height of four stories along circulation modes III and IV.
- Maximum building height of three stories along circulation mode II.
- Maximum building height of two stories along circulation mode I.
- Maximum building height of two stories within cluster courts.
- Lot clusters should retain an infrastructure easement for future installations.
## HOUSING OPTIONS

<table>
<thead>
<tr>
<th>PROGRAM/PRODUCT</th>
<th>SMALL LOTS</th>
<th>CORE HOUSES</th>
<th>APARTMENTS</th>
<th>LARGE LOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT CONFIGURATION</td>
<td>Individual lots with direct access to public streets or walkways and some to cluster courts.</td>
<td>Individual lots grouped in cluster courts.</td>
<td>Condominium lots with direct access to public streets and a cluster court.</td>
<td>Individual lots with direct access to public streets and a cluster court.</td>
</tr>
<tr>
<td>UNIT COMPONENTS</td>
<td>Includes the lot for the dwelling. They are provided with water, sewer, circulation, storm drainage and electricity.</td>
<td>Includes the lot with a fence, floor slab and a shelter containing a w.c., bath area, washing sink and kitchen. They share in the cluster: semi-private area; circulation: access to public street; electricity: service drops.</td>
<td>Includes the dwelling unit containing a w.c., bath, lavatory, kitchen and room(s).</td>
<td>Same as SMALL LOTS. They share in the cluster: semi-private area.</td>
</tr>
<tr>
<td>UNIT TENURE</td>
<td>Ownership or lease.</td>
<td>Ownership or lease.</td>
<td>Ownership or rental.</td>
<td>Ownership, lease or rental.</td>
</tr>
<tr>
<td>USER UTILIZATION</td>
<td>Family living, rental of units or rooms for living or shops.</td>
<td>Family living.</td>
<td>Family living, shops on ground floor facing public streets.</td>
<td>Family living, rental units, shops on ground floor facing public streets.</td>
</tr>
<tr>
<td>LOT SIZE</td>
<td>$6m \times 18m = 108m^2$</td>
<td>$6m \times 18m = 108m^2$</td>
<td>$12m \times 19m = 218m^2$</td>
<td>$200m^2$ to $600m^2$</td>
</tr>
</tbody>
</table>
The row apartment buildings proposed for the Urbanisation Model have the following characteristics:

- The dwelling units are basic shells designed to be internally completed and/or expanded. The advantage of this system is the provision of maximum flexibility of space and the minimisation of initial investment by the user as well as the total investment by the public sector.
- The layout of the service core (kitchen, w.c., bath, lavatory) in each apartment is designed to provide efficiency by allowing simultaneous use.
- The ground floor of the apartment buildings fronting onto public streets may be used either as dwellings or shops.
- The apartment buildings offer a variety of dwelling unit sizes to accommodate two to eight plus person households.
- All apartment buildings have direct access to public streets as well as to a semi-private cluster court.
- Apartments are designed to take maximum advantage of cross ventilation and views and at the same time provide maximum privacy.
URBANIZATION MODEL

ENTRANCE ELEVATION

COURT ELEVATION

1:200

SA Sleeping Area
MA Multi-Use Area
K Kitchen/Cooking Area
T Toilet/Bath/Wash Area
B Balcony
S Storage

SECOND/THIRD FLOOR PLAN

FOURTH FLOOR PLAN

80 m²
44 m²
98 m² SHELL APARTMENT

44 m²
67 m² SHELL APARTMENT
TYPE B

SECTION

ENTRANCE ELEVATION

COURT ELEVATION

FIRST FLOOR PLAN

SECOND/THIRD FLOOR PLAN

60 m² SHELL APARTMENT

44 m² SHELL APARTMENT
EVALUATION

LAND UTILIZATION: PATTERNS, PERCENTAGES, DENSITIES

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.

- R-VALUE (NETWORK EFFICIENCY)
  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.

  $$\text{EFFICIENCY OF NETWORK} = \frac{\text{network length}}{\text{area(s) served}}$$

  The R-Value varies inversely to the network efficiency; a smaller R-Value indicates a higher efficiency and vice versa.

- OTHER RELATED PHYSICAL DETERMINANTS.

LAYOUTS

The Urbanisation Model is compared with the case studies surveyed. Characteristics of the proposed layout:

- Minimization of public land for circulation; electricity, water, sewage networks, street lighting, 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.

### 1 ZEYREK
Private, Low Income, Traditional Urban Houses (Rooms/Apartments)

- Low percentage of land for streets and walkways; high percentage of land for dwellings/lots; medium percentage of land for semi-public open space; high population density. Historical area in deteriorating condition.

### 2 RUMELIHİSAR ÜSTÜ
Popular, Very Low Income, Squatter Houses

- Low percentage of land for streets and walkways; high percentage of land for dwellings/lots; low percentage of land for semi-public open space; low population density. Development potential/provision of services restricted by topography.
3 ZEYTINBURNU
Popular, Low/Moderately Low Income, Squatter Houses/Walk-up Apartments
Low percentage of land for streets and walkways; high percentage of land for dwellings/lots; low percentage of land for semi-public open space; medium population density. Organic layout allows flexibility in development.

4 GÜLTEPE
Public/Popular, Low/Moderately Low Income, Row Apartments/Squatter Houses
Medium percentage of land for streets and walkways; medium percentage of land for dwellings/lots; medium percentage of land for semi-public open space; low/high population density. Insufficient open private/semi-private area adjacent to row apartments. Development potential/provision of services restricted by topography.

5 OSMANIYE
Public, Low Income, Block Apartments/Core Houses
High percentage of land for streets, walkways, and public open spaces; low percentage of land for dwellings/lots; low percentage of land for semi-public open space; medium population density. Excessive public space does not recognize user needs for private/semi-private open area; layout discourages development.

6 ÜMRANIYE
Private, Moderately Low Income, Garden Apartments/Houses
Low percentage of land for streets and walkways; high percentage of land for dwellings/cluster courts; medium percentage of land for semi-public open space; low population density. Lack of control and coordination of land parcelation causes urban sprawl.

URBANIZATION MODEL
Public/Popular/Private, Low Income, Apartments/Core Houses/Lots
Low percentage of land for streets and walkways; high percentage of land for dwellings/cluster courts; medium percentage of land for semi-public open space; low population density. Provides optimum land utilization, maximum user responsibility, and flexibility in development.
GLOSSARY
The criteria for the preparation of the definitions have been as follows:

SECOND PREFERENCE: Definitions from technical dictionaries and encyclopedias. See "References".
THIRD PREFERENCE: Definitions from the Urban Dwelling Environment (U.S.D.P.) files. If they are used when existing sources were not quite appropriate/satisfactory.

Words included for specificity and to focus on a particular context are indicated in parenthesis. Sources of definitions are indicated in parenthesis. (See also: References).

ACCESSIES. The pedestrian/vehicle linkages from (or to) the site to/from existing or planned approaches (urban streets, limited access highways, public transportation systems, and other systems such as: waterfront, airlines, etc.) (U.S.D.P.)

ACTUAL LAND COST. "(The cost of land is)... set north of the city at 3 cents. The price of land is not a function of any cost condition; it is set by the users themselves in competition." (Turner, 1971)

ACTUAL VALUE (TAX). A tax based on a property's value; the valuation by local government is not always or even usually the market value, but only a valuation made for tax purposes. (U.S.D.P.)

AIRPORT DISTURBANCE. The act or process of destroying the rest, tranquility, or settled state of (the user or occupant; pay) the value taxed (Mercam-Webster, 1971)

AIRPORT ZONING RESTRICTIONS. The regulation of the height or type of structures in the path of moving aircraft. (Abren, 1971)

ALTERNATING CURRENT (A.C.) (an electric current) which reverses its direction of flow at regular intervals. (U.S. T. 45-7, 1953)

AMENITY. Something that conduces to physical or material comfort or convenience, which contributes satisfaction rather than money income to its owner. (Mercam-Webster, 1971)

ANEUSES. Aspects (aspects) of: a measure of the rate of flow of electricity. It is somewhat comparable to the rate of flow of water (quantity/time). A steady current is created by one volt applied across a resistance of one ohm. (ROTC ST 45-7, 1953)

APPRaisal. An estimate and opinion of value, especially by one fitted to judge. (Mercam-Webster, 1971)

APPROACHES. The main route external to the site (pedestrian/vehicle) by which the site can be reached from other parts of the urban context. (U.S.D.P.)

ASSESSED VALUE. A valuation placed upon property by a public officer or board as a basis for taxation. (Keyses, 1971)

ASSESSMENT. The evaluation of property for the purpose of levying a tax or the amount of the tax levied. (Keyses, 1971)

BACKFILL. Earth or other material used to replace materials used in existing construction, such as culvert, sewer, and pipeline trenches and behind bridge abutments and retaining walls to return an old structure and a new lining. (DePina, 1972)

BARRIER. A boundary as a topographic feature or a physical or psychological quality that tends to separate their usage (to and from the site). (Merriam-Webster, 1971)

BETTERMENT (TAX). A tax on the increment in value attributable to development and improvements work carried out by local authorities. (U.S.D.P.)

BINDER COURSE. A transitional layer of bituminous paving between the crushed stone base and the surface course. (DePina, 1971)

BITUMINOUS. A coating of or containing bitumin; as asphalt or tar. (DePina, 1972)

BLOCK. A block is a portion of land bounded and served by lines of public streets. (U.S.D.P.)

BOUNDARY. Something (a line or area) that fixes or indicates a limit or extent (of the site). (Merriam-Webster, 1971)

BUILDING CODE. "A body of legislative regulations or by-laws that provide minimum standards to safeguard life, health, and property from public utility facilities, regulating and controlling the design, construction, installation, maintenance, and operation of all facilities, installations and maintenance of all buildings and structures within the city and equipment specifically regulated therein." (BOCA, 1947)

BUILDING DEPARTMENT (TAX). A unit established for the purpose of approving plans and specifications of all buildings proposed to be erected and exempt from taxation. (DePina, 1971)

BUILDING, DRAIN. The lowest horizontal piping of the building drainage system receiving discharge from all water-bearing areas and connecting to the building sewer. (ROTC ST 45-7, 1953)

BUILDING MAIN. Water-supply pipe and fittings from the external main or other source of supply to the first branch of the water-distribution system of a building. (U.S. T. 45-7, 1953)

CEM POOL. An underground catch basin that is used where there is no sewer and into which household sewage or other liquid waste is drained to permit the flow of liquid into the surrounding soil. (Merriam-Webster, 1971)

CIRCUIT. System(s) of movement/passage of people, goods from place to place; streets, walkways, parking areas. (U.S.D.P.)

CLAY. A lusterless colloidal substance, plastic when moist (crystalline grains less than 0.002mm in diameter). (U.S.D.P.)

CLEANOUT. A plug or similar fitting to permit access to traps or sewer lines. Cleanouts are usually used at turns and other points of collection. (ROTC ST 45-7)

CLIMATE. The average condition of the weather at a particular place over a period of years as exhibited by temperature, wind, humidity, etc. (Merriam-Webster, 1971)

COLLECTION SYSTEM. The system of pipes in a sewage network, comprised of house service, collection lines, manholes, laterals. (U.S.D.P.)

CONE OF SEWER. A sewer that carries both storm water and sanitary or industrial waste. (DePina, 1972)

COMMUNITY. The people living in a particular place or region and usually linked by common interests: the region itself; any population cluster. (U.S.D.P.)

COMMUNITY FACILITIES/SERVICES. Facilities/services used in common. It may include: schools, health, recreation, police, fire, public transportation, community center, etc. (U.S.D.P.)

COMMUNITY IMPROVEMENT FACILITIES. Facilities for activities which are desirable in a community, but which for planning, relaxation, exercise, self-expression, or release from worry, or tension. (DePina, 1971)

COMPONENT. A constituent part of the utility network. (U.S.D.P.)

CONDENSATION. Condensation is a system of direct ownership of a single unit in a multi-unit building. The individual(s) who owns the unit in the same manner as if it were a single family dwelling: he holds direct title to his unit and a proportionate interest in the common land and areas. Two types of condominiums are recognized: GROUND, detached, semi-detached, row/grouped dwelling types: VERTICAL: walk-up, high-use dwelling types. (U.S.D.P.)

CONDUCTORS. Materials which allow current to flow such as aluminum, copper, iron. (ROTC ST 45-7, 1953)

CONSIDERATION. An agreement by the party in interest (a vendor or lessee) to pay the consideration (a consideration of money) for the purchase agreement. (Abrams, 1971)

CONSERVATION EASEMENT. An easement acquired by the public for public and private uses, for which there is no current financial compensation. (U.S.D.P.)

CONSTRUCTION WORK. A barrier preventing the flow of water; a barrier is defined as an electric current that passes under the earth, through the load, and is followed by a magnetic field, or of chemical transformation. (Merriam-Webster, 1971)

CONVEYANCE. The transfer of ownership (of land). (Mercam-Webster, 1971)
Glossary

device to measure flow of water.

SINGLE-PHASE: wire carrying voltage between itself and a ground outside of the circuit (for heavy equipment, large electrical devices). A single-phase circuit (for small electrical devices) or a three-phase circuit (for heavy equipment. large electrical devices) in single-phase only one current is flowing through the circuit with the voltage dropping to zero twice in one cycle of current flow through the circuit with the power never dropping to zero.

ELECTRICAL POWER. The source or means of supplying power. The source or means of supplying power to the individuals, groups or societies, who have access to such power and who use it to manipulate power into useful energy levels. (DePina, 1971)

ELECTRICAL WIRING SYSTEMS. May either be single-phase or three-phase. SINGLE-PHASE: 2 hot wires with 1 neutral. THREE-PHASE: 3 hot wires with 1 neutral. (U.S.D.P. 45-7, 1953)

ELECTRICITY: the production of power (for supplying the site) with electric power. (Merriam-Webster, 1971)

ENCUMBRANCE. A right or interest in property belonging to one person and used by another person or for the benefit of another person. (U.S.D.P.)

EXCRETA. Indicates the number of persons in the project who are subject to specified use or enjoyment by another person for the benefit of another thing. (Merriam-Webster, 1971)

FIRE FLOW. The quantity (in time) of water available for fire-protection purposes in excess of that required for purposes other than fire protection. (Merriam-Webster, 1971)

FLOW Meter. A device to measure flow of water. (Merriam-Webster, 1971)

FLOW TANK TOILET. Toilet with storage tank of water used for flushing bowl. (U.S.D.P.)

FLOW VALUE TOILET. Toilet with self-closing valve which supplies water directly from pipe. It requires adequate pressure for proper function. (U.S.D.P.)

FOOT CANDLE. A unit of illumination on a surface that is everywhere one foot from a uniform point source of light of one candlepower, producing one lumen per square foot. (Merriam-Webster, 1971)

FUMES. Gas or chemical emissions that are usually odorous and sometimes noxious. (Merriam-Webster, 1971)

GA. A system for supplying natural gas, manufactured gas, gas, or liquefied petroleum gas to the site and individual users. (U.S.D.P.)

GRADE. Profile of the center of a roadway, or the invert of a culvert or sewer. (DePina, 1972)

GRID BLOCKS. The blocks determined by a conventional public circulation and not by dimensions of lots. In grid blocks some lots have indirect access to public streets. (U.S.D.P.)

GRID LAYOUTS. The urban layout with grid blocks. (U.S.D.P.)

GRID LAYOUTS. The urban layout with grid blocks. (U.S.D.P.)

GOVERNMENT/MUNICIPAL REGULATIONS. In urban areas, the development of the physical environment is a process usually regulated through laws that are mandated through all or some of the following regulations: Master Plan, Zoning Ordinance, Subdivision Regulations, Building Code. (U.S.D.P.)

HEADING. (Static). The height of water above any plane or point of reference. Head in feet = (lb/sq. in. x 840) / Density in lb/gal. (DePina, 1972)

HIGH-RISE. Dwelling units grouped in five or more stories with multi-lifts for vertical circulation. (U.S.D.P.)

HOT WIRE. Wire carrying voltage between itself and a ground. (Merriam-Webster, 1971)

HYDRAULIC. That branch of mathematics that deals with the science and engineering that deals with water or other fluid in motion. (DePina, 1972)

INDEMNITY. A fund or money to pay for loss or injury. (Merriam-Webster, 1971)

INCOME. The amount (measured in money) of funds from capital or labor. The amount of such gain received by a family per year may be used as an indicator of income groups. (U.S.D.P.)

INCOME GROUPS. A group of people or families within the same range of incomes. (U.S.D.P.)

INCREMENT (TAX). A special tax on the increased value of property which will be collected by the owner, but rather to natural causes such as the increase of population, general progress of society, etc. (U.S.D.P.)

INFRASTRUCTURE. The underlying foundation or basic framework for utilities and services: sewers, water network; storm drainages, electrical network;
URBAN DWELLING ENVIRONMENTS

Dwellings: The human-made structures in which people live or spend a significant amount of time, typically within homes, apartments, or other residential buildings.

Urban (104) Webster, translation of a given area and the area. It is expressed in people per hectare. It can be:

GROSS DENSITY: in-

The plan or design or arrangement of some-

zation, land subdivision, and utility network of a

thing that is laid out. (Merriam-Webster, specific layout and lot.

1971)

levels are considered:

OWNERSHIP. Private land ownership shared

by

public agencies

(PRIMER.

A small introductory book on a specific sub-

ject. (U.S.D.P.)

PRIVY.

A facility for cleaning, maintenance and inspection.

(LATRINE.

A receptacle as a pit in the earth or a water closet) for use in defecation and urination, or a room (in a barracks or hospital) or enclosure (in a camp) containing such a receptacle.

(Merriam-Webster, 1972)

LAYOUT. The plan or design or arrangement of some-

thing that is laid out. (Merriam-Webster, 1971)

LEVELS OF SERVICES. Two levels are considered: MIN-

WATER, are admissible or possible levels below the standard. STANDARD, are levels or standards established by authority, custom of general consent, as a model, example, or rule for the measure of quantity, weight extent, value or quality. (U.S.D.P.)

LIFT PUMP. A collection system component that forces sewage to a higher elevation to avoid deep pipe net-

works. (U.S.D.P.)

LOCALITY. A relatively self-contained residential

community/neighborhood/settlement within an

urban area which may contain one or more dwelling/land

systems. (U.S.D.P.)

LOCALITY SEGMENT. A 40 x 400m area taken from and

representing the residential character and layout of a

locality. (U.S.D.P.)

LOCATION. The site or area in which something (the

site) is placed in relation to its surroundings (the urban context). (Merriam-Webster, 1971)

LOT. A measured parcel of land having fixed bounda-

ries and access to public circulation. (U.S.D.P.)

LOT CLUSTER. A group of lots (owned individually)

around a common right-of-way or common

right-of-way in the community. (U.S.D.P.)

LOT COVERAGE. The ratio of building area to the total

lot area. (U.S.D.P.)

LOT PROPORTION. The ratio of lot width to lot depth.

(U.S.D.P.)

LUMINAIRE. In highway lighting, a complete lighting

device consisting of a light source, plus a glass,

reflector, reflector housing and support as an integral with the housing. (DePina, 1972)

MANSOLE. An access hole sized for a man to enter,

to be used for cleaning, maintenance and inspection. (U.S.D.P.)

MATERIAL (OF BASIC REFERENCES MODELS). A set of models of urban layouts arranged in rows and columns.

(U.S.D.P.)

MASTER PLAN. A comprehensive, long range plan intended to guide the growth of a city, town or region, expressing official conceptions on the course its transportation, housing and community faci-

lities should take, and making proposals for indus-

trial settlement, commerce, population distribution

and other aspects of growth and development. (Abram, 1972)

MEANING. The distance between the farthest points on a given area. (DePina, 1972)

MEDIAN BARRIER. A double-faced guard rail in the

median or island dividing two adjacent roadway.

(DePina, 1972)

MEMBER (OF PROFESSION). A professional person.

(U.S.D.P.)

MERCERIZATION. The process of making a fabric

more durable by increasing the twist in the yarn and increasing the strength of the yarn. (U.S.D.P.)

MICROCIRCLE. The local climate of a given site or

habitat, excluding features that are purely a function of a large land area, but being usually characterized by

considerable uniformity of climate. (Merriam-Webster, 1971)

MODE OF TRAVEL. Manner of moving from one place (the

site) to another (other parts of the urban context). (U.S.D.P.)

MODEL (OF URBAN LAYOUT). A representation of an urban residential area illustrating circulation, land utili-

zation, community facilities (such as that produced by: traffic, airports, industry, etc.) (Merriam-Webster, 1971)

MODE OF TRAVEL. Manner of moving from one place (the

site) to another (other parts of the urban context). (Merriam-Webster, 1971)

MUTUAL OWNERSHIP. Private land ownership shared by two or more owners and their heir mutual agree-

ment. (U.S.D.P.)

MATERIAL FEATURES. Prominent objects in or produced by nature.

(U.S.D.P.)

NATURAL UNDISTURBED SOIL. Soils that have not been

disturbed by artificial or natural, they depend greatly on local conditions, environment, and past geological history of the formations. (U.S.D.P.)

NEIGHBORHOOD. A section lived in by neighbors and

having distinguishing characteristics. (U.S.D.P.)

NETWORK EFFICIENCY (LAYOUT EFFICIENCY). The ratio of the

length of the network to the area contained within or tangented to it. (U.S.D.P.)

NEUTRAL WIRE. Wire carrying no voltage between itself

and a ground. (ROTC STANDARD, 1971)

POND (LAGOON). A simple hole in the ground,

subjected to a person and his heirs without restriction of time. (U.S.D.P.)

PRIVATE SEWER. A small and his heirs without restriction of time. (U.S.D.P.)

PRIVATE LAND OWNERSHIP. Absolute tenure of land to

price: the amount of money given or set as

value of the land. (U.S.D.P.)

PUBLIC CIRCULATION. The circulation network which is

owned, controlled, and maintained by public agencies and is accessible to all members of a community. (U.S.D.P.)

PUBLIC FACILITIES. Facilities such as schools, playgrounds, parks, other facilities accessible to all members of a community which are owned, controlled, and maintained by a governmental authority. (U.S.D.P.)

PUBLIC OWNERSHIP. The absolute tenure of land to

price: the amount of money given or set as

value of the land. (U.S.D.P.)

PUBLIC SERVICES AND COMMUNITY FACILITIES. Includes:

water supply, sanitation sewerage, storm drainage, electricity, street lights,

and transportation, police protection, fire protec-

tion, water supply, sanitation sewerage, storm drainage, electricity, street lights,

and transportation, police protection, fire protec-

tion, public transportation, public circulation, public facilities, etc. (Merriam-Webster, 1971)

PUBLIC SEWER. A sewerage system designed to carry

water away from houses, the greater the resistance. When resistance is constant, flow and pipe size are in direct proportion to the velocity. Resistance varies inversely with the cross-

sectional area of the pipe (always expressed in feet/square feet/

which a potential difference of one volt produces a current of one ampere or to the resistance in which one watt of power is dissipated when one ampere flows through it and that is taken as standard in the U.S. (U.S.D.P.; IEC ST 45-7, 1957); Merriam-Webster, 1971)

PUMP. A device or machine that raises, transfers, or circulates a fluid or gases through a system by suction or pressure or both. (Merriam-Webster, 1971)

PUMPAGE. The volume of water delivered to the consumer or used in the system. (U.S.D.P.)

REFUSE COLLECTION. The service for collection and

disposal of all the solid wastes from a community. (U.S.D.P.)

RESERVOIR. Large-scale storage of water; also func-

ions to control fluctuations in supply and pressure. (U.S.D.P.)

RESIDUAL AREA. An area containing the basic natural

features of an area such as color, topography, etc. which may be defaced or altered or used for urban purposes. (U.S.D.P.)

RESISTANCE. The opposition to electrical flow. (Resis-

tance increases as the length of wires increases and decreases as the cross-sectional area of wires is increased). (ROTC ST 45-7, 1957)

RIGHT-OF-WAY. A legal right of passage over another person's ground (land), the area or way over which one may lawfully use, a strip of land devoted to or over which is built a public road, the land...
occupied by a railroad, the land used by a public utility, rights-of-way may be shared (as streets; power transmission lines; rapid transit routes; subways, railways, etc.) (Merriam-Webster, 1971; G.S.D.P.)

HIGHWAY (OCCUPIED). Portion of the highway included between the outside lines of gutter or side ditches, including all slopes, ditches, channels, and appurtenances necessary to proper drainage, protection, and use. (DeFina, 1971)

ROW/DROPPED HOUSING. Dwelling units grouped together linearly or in clusters. (G.S.D.P.)

SUBDIVISION. The subdivision of urban land and the provision of services for residential use and complementary land uses. Site and services projects are aimed to improve the housing conditions for the low income groups in New York City. (Merriam-Webster, 1971; G.S.D.P.)

SUBDIVISION REGULATIONS. Regulations governing the subdivision of urban land and the provision to the income group with no household income available (as for a community) usually involving residence or colony. (Merriam-Webster, 1971)

SITE. 1) The gaseous products of burning carbonaceous materials made visible by the presence of carbon particles (U.S.D.P.)

SITE.笤 (also PAINT). A fixture for defecation and urination, esp. a water closet. (7th Collegiate Webster, 1971)

SITE.笤 (also PAINT). The gaseous products of burning carbonaceous materials made visible by the presence of carbon particles (U.S.D.P.)

SITE.笤 (also PAINT). The gaseous products of burning carbonaceous materials made visible by the presence of carbon particles (U.S.D.P.)
QUALITY OF INFORMATION: The quality of information given in the drawings, charts, and descriptions has been qualified in the following manner.

- Approximate: when deducted from different and/or not completely reliable sources.
- Tentative: when based upon rough estimations of limited sources.
- Limited: when the existence of services, facilities and utilities are available to a locality.
- Adequate: when the existence of services, facilities and utilities are available in/to a locality.

METRIC SYSTEM EQUIVALENTS

- Linear Measures
  - 1 centimeter = 0.3937 inches
  - 1 meter (100 centimeters) = 39.37 inches or 3.28 feet
  - 1 kilometer (1,000 meters) = 3.2808 feet or 0.6213 miles
  - 1 inch = 2.54 centimeters
  - 1 foot (12 inches) = 0.3048 meters
  - 1 mile (5,280 feet) = 1.60935 kilometers

- Square Measures
  - 1 square meter = 1.550 square inches or 10.764 square feet
  - 1 hectare (10,000 sq. meters) = 0.2471 acres
  - 1 square foot = 0.0929 square meters
  - 1 acre (43,560 sq. feet) = 0.4047 hectares

- Dollar Equivalents
  - All income, cost and rent/mortgage data have been expressed in terms of the U.S. equivalent.
  - 1 U.S. dollar = 14.5 Turkish Lira (August 1975).

REFERENCES

- Caminos, H., Turner, J., University of California, Los Angeles, 1975.