



## The examination of Diyarbakir urban morphology after 1950 with conzen method: Yenisehir sample

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### Keywords

Urban morphology, conzen method, urban plans, morphological analysis.

### Abstract

Cities have changes in their social, economic, cultural and physical features depending on the population increase. Requests and problems related to urbanization alter the urban morphology in time. The studies have been started to be done on planning containing the Diyarbakir province Yenisehir district in parallel with the developments in our country which has entered the planned era with the proclamation of the republic. Yenisehir has become one of the first regions most preferred for settlement after 1950 when going out of wall started. The city blocks consisting of garden houses of officers and realized via cooperatives at this era in the study area have turned into multi-storey buildings after 1955. With having apartments, housing decisions including housing+trade function have been brought instead of two-storey housings; road width and parcel sizes have changed. The buildings have been constructed in similar materials and appearance. Yenisehir started to be filled with people in 1970s and the density has increased day by day. Yenisehir has been built appropriately to the decisions of housing plan and urban morphology has been changing as planned. The subject of the study is the analysis and evaluation of morphological changes in the area of study. In the study, plans belonging to the area of investigation and plan decisions have been evaluated and in situ observation and determination have been done. The physical, functional and socio-cultural changes in the region have been presented depending on the increase in density.

### Article History

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## 1. Introduction

Cities show change and development in years. Depending on the population increase, density and structuring increases in certain areas and new social reinforcement areas are done. On the other hand, the proportion of green areas generally decreases. The factors such as especially climate and topography become effective in the form of the city. New structures are added to the city or the existent ones change in accordance with the needs of the citizens and the change of the people using the city.

Fundamental components of the city are structured forms and open spaces. Urban open spaces constitutes of roads, squares and green areas. Relations between structures

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forms and open areas create the urban texture and urban texture expands from neighborhood, district, street scales to city block scale (Altaban, 2013).

The change in the physical texture of the city and the investigation of the processes with the factors causing this change has been defined as the urban morphology. Urban morphology which has become a study area in England, Italy and France since the midst of 20th century has been an area accepted by researchers in many countries nowadays (Ünlü, 2013). Therefore, the study aims at the examination of urban morphology by investigating the changes of the parcel and buildings, roads and squares belonging to the parcel in city blocks situated in the South and east of governor's office on the Hintli Baba Street of Yenisehir district, which is a sample of urban changes emerging after 1950 in Diyarbakir.

## **2. Material**

The first settlement in Diyarbakir, which has done the honors of many civilizations, has started inside the wall and the population going out of wall due to the population increase has first started to settle in Yenisehir, which is located in the North of the historical core. The spread of the city out of the wall has first become through the Elazığ street and Hintli Baba Street. Natural and artificial thresholds with the planning studies have become effective in the development of the city in this side. The housing demand increasing depending on the population increase throughout Diyarbakir and forced migration after 1990 has ended in the increase in structuring density in Yenisehir. Province districts having our office and study area in Yenisehir district are places having population density and mobility. According to TSI data, the population of Yenisehir has increased from 191.908 in 2008 to 206.534 in 2014. The developments and changes in social and economic structure have affected the type of housing and the transition from single-storey or duplex structures to apartments has taken place. Accordingly, the relation of street and structure has changed and multi-storey city blocks similar to each other have emerged.

Mutual interactions in the cities, change, transformation and developments have been explained by the processes related to land use and structured forms (Altaban et al., 2013). Urban technical and social infrastructure, transportation network and the structure and distribution of open areas and the use of urban land, parcel and city blocks are the indicators of these changes (Altaban et al., 2013). The fundamental areas of urban morphology consist of spatial relationships of physical components, mutual relations of individuals and the space and the changes in processes and space (Kropf, 2009).

Morphological analysis used in urban morphology is defined as the identification of the physical development process with the help of structural characteristics such as buildings, gardens, streets, parks and monuments (Kubat and Topçu, 2009).

According to the three principles of morphological analysis given below, urban form (Gözek, 2012);

- is defined by three basic physical elements as buildings and open areas, parcels and streets.
- is understood by different segregation levels such as building/parcel, street/block, city and region.

- is understood by presenting the historical change of the elements creating it in time.

Morphological studies focus on pattern analysis which named as “tessuto” by Italians and “plan unit” by Conzen. These patterns include building groups, open areas, parcels and streets (Gözek et al., 2012). Urban morphology is the study of physical elements that the city contains in it such as street patterns, building forms and scales, settlement pattern, trade, industry and other usages (Özbek, 2010). In this context, the related city blocks examined in the study are handled by Conzen method.

### **2.1. Conzen approach**

Conzen Method has been put forward in the scope of British School. It is the exact, detailed and systematic typomorphological method between three schools (England, Italy and France) working on this approach (Gözek et al., 2012). Having done studies in England after 1933, Conzen has grounded on systematic typological analysis of urban settlements and developed a method examining the spatial developments. He has put the emphasis on the three dimensional form of urban space and constituted the cityscape analysis in three layers as (Özbek et al., 2010);

- The use of ground floor,
- Development of the environment
- The use of the space

Based on the empirical study of Conzen, the method focuses on reading of urban plan and has three features (Gözek et al., 2012):

- Urban plan ( two dimensional cartographic representation showing the physical structure of the city),
- Building pattern (includes buildings and open areas),
- Land pattern and building use (detailed land use).

Conzen handles three fundamental elements of the urban plan as streets, parcels and buildings in the approach he named as the analysis of urban plan (Gözek et al., 2012). As the basic unit of the analysis is individual parcel, it is the fundamental element of parcel land fragment and provides an organizational infrastructure for the urban form (Gözek et al., 2012). According to Conzen, Composite urban plan consists of different units named as “unit plan” and these units are observed in the variations in street, parcel, the size of the building and forms (Gözek et al., 2012). Conzen has done great contributions to the examination of urban development with “morphogenetic method”. The transformation/change in urban space has been investigated in this approach which can also be named “historico-geographical approach” based on the change of street system, parcel and structure patterns in the historical continuity (Ünlü et al., 2013).

Any type of changes in different areas with economic, social and cultural dimensions is realized depending on the time in cities in physical terms and experienced spaces (Dikici Köseoğlu and Aydın, 2009). Natural increase of population and migration form the basis for this change in the cities. As a result of the studies to meet especially the need of sheltering and employment of the increasing population, urban morphology changes and the socio-cultural and spatial features that it had in the past vary.

Conzen has investigated the urban pattern of the regions with the process of historical development in his studies. Structures and the use of land they are located in are the elements showing the least change. Even though the street-parcel pattern is permanent, the change of parcels could be mentioned in time. These parcels might merge or separate in time. The street pattern is liable to become the most permanent element (Ağırbaş, 2012).

### 3. Method

In this context, the city blocks covering 45 ha area in the region where Hintli Baba Street and Ali Emiri Street cross in Yenişehir district have been examined with Conzen method in the study.

**Figure 1.** The location of study area



Source: Google Earth

In the study, the study area has been examined within the scope of the following titles based on the layers and methods determined in Conzen approach;

- Urban plan and the development of environment
- Building pattern
- Land pattern and Ground floor use.

In accordance with these titles, it is aimed at revealing;

- The relation between the urban plan and the development of study area and whether the environment has developed as planned,
- Changes in terms of the floor number of the structures in years, the construction material, construction practice and facework,
- Changes such as the facework material, the size of the window, etc. depending on the functions of the structure.

Besides, first general information about settlement is given in the scope of the study in accordance with the determined aim. Comparisons have been done by examining the photographs, housing plans and city maps of different periods taken from the

Metropolitan Municipality of Diyarbakır and present use of building has been found out with in situ determination.

#### **4. Findings**

Yenişehir district seat, which became a district in 2008, consists of 30 sub districts and there are 11 villages and 19 hamlets of the district. There is located Sur in the South of Yenişehir district, Bağlar in the North, kayapınar counties in the northwest and Ergani and Eğil districts through Dicle river in the east. A harsh continental climate is dominant in the region and summers are too hot and winters are too cold. The average relative humidity is in December and January the most and is about 77%. According to information taken by District Governorship of Yenişehir, the relative humidity values decrease to 20% in July and August. Natural vegetation is constituted by steppe plants, mostly herbaceous plants.

##### **4.1. Urban Plan and the Development of the Environment**

The reference named “Diyarbakır During 15<sup>th</sup> years of Republic” stated that the aim of the construction activities in Diyarbakır after the Republic is to get the city which is squeezed inside the wall out of it and establish a new city. The establishment of The First General Inspector in 1928 has become the milestone of the urban development in Diyarbakır (Dalkılıç and Halifeoğlu, 2011). In this period taking example of Ankara, Diyarbakır has been tried to be restructured as a sociopolitical settlement going from the old city life to modern city life (Arslan, 1991). In the early Republican era, the roads in the city were expanded and the doors were opened for the requirement of the modernization (Çatalbaş, 2011). In 1930, the walls surrounding the city were decided to be destroyed for the purpose of providing the air flow to the walled city, enabling the development of the city outside the walls and passing of the transportation vehicles of the period more easily; the destruction stopped because of the reactions after some of the constellations (Değertekin, 1999).

According to the development plan in 1932, it was aimed at establishing a city between Dağkapı and Station near the old Diyarbakır city with squares, streets, parks and all the modern needs (Kejanlı, 2010). The reasons of choosing this area for the newly established city is that the land is flat and located in a suitable place for the drinking water coming to the city to reach easily with its proximity to the railway (Arhan, 1962). Besides, “Yenişehir district” has started to develop starting with the inside of the walls and limited by the railway in the west and covering Yenişehir, Kooperatif and Şehitlik neighborhoods (Kejanlı et al., 2010). Housing pattern with gardens and low density, local structures and urban reinforcement areas take place in the areas where development plan has been done (Kejanlı et al., 2010).

As seen in Figure 2, it can be understood that structuring had not started outside of the walls in 1939 and the development plan done in 1932 was started to be applied after 1940s.

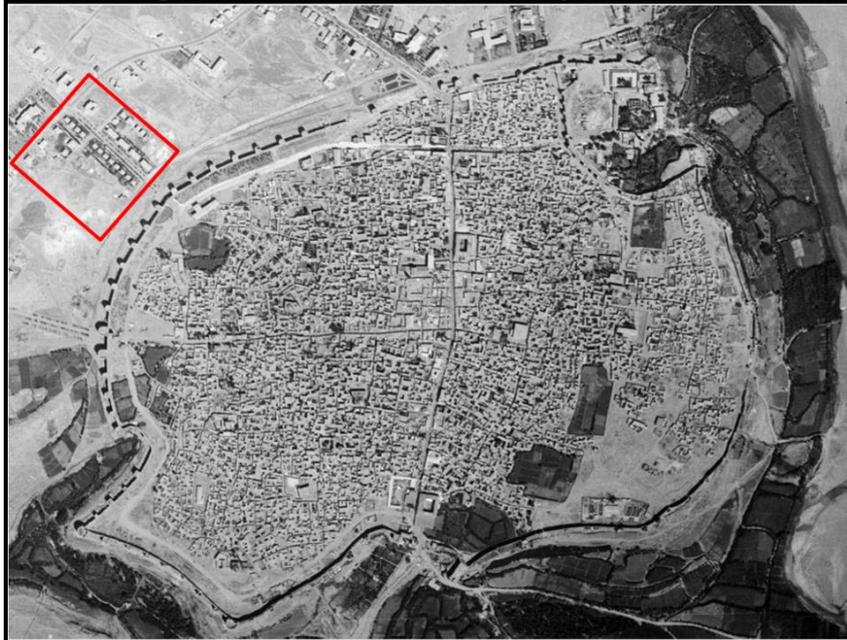
**Figure 2.** The situation of the study area in 1939



Source: Archive of Diyarbakır Metropolitan Municipality

That urbanization has accelerated in Turkey after the Second World War has increased the structuring in the cities. Whereas the population of villages increased in 17,58% rate between 1940-60, the urban population increased in 82,42% rate (Çiftçi, 2010) (Figure 3). Property ownership became legalized with number 634 Law of Property Ownership enacted in 1955 and the construction of multi storey buildings accelerated. Yenişehir outside of the walls had continued its planned development till 1960s and it has turned into a region developing commercial and central functions (Diyarbakır During 15th of Republic, 1938). The study area was planned to be the housing zone and administrative facility in the land use plan of 1959.

**Figure 3.** The situation of the study area in 1952



Source: Archive of Diyarbakır Metropolitan Municipality

As a result of the studies of the central administration towards planning all the cities in a healthy way in these years, 1/1000 scaled development plans covering Diyarbakır inside and outside of the walls have been done as in many cities (Kejanlı, 2004). While the plan has the decisions in generalizing living in apartments outside of the walls, it has also formed the legal basis of constructing multi storey reinforced concrete buildings (Kejanlı et al.,2010). Report of Development Plan of Diyarbakır stated that the city showing tendency to expand as oil stain and not planned after 1950 has shown development through the existent roads and newly opened highway connections. It has been seen in Figure 4 that Yenişehir started to be filled with people and the density increased gradually. The houses of officers in the study preserved in these years but new structures have been built in the surrounding area.

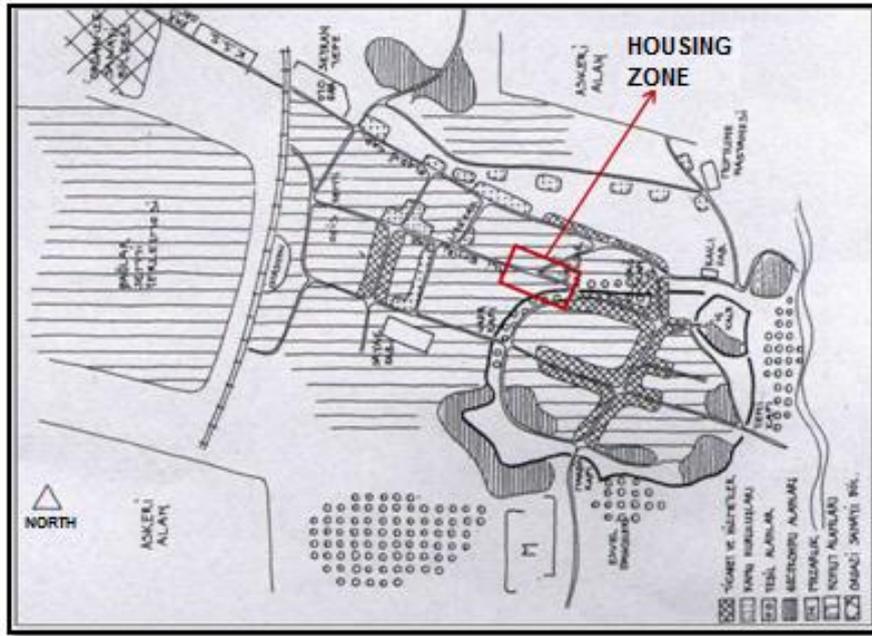
**Figure 4.** The situation of the study area in 1970



Source: Archive of Diyarbakır Metropolitan Municipality

In 1980s, the city of Diyarbakır continued growing and Yenişehir became the district being affected by the growing intensively. According to the map of land use map of 1980, housing function continued in the study area (Figure 5). For the purpose of providing the planning of the urban area developing outside the walls in 1985, 1/1000 scaled application development plans were prepared covering the inside and outside the walls. The basic aim of this planning is to provide the control of structuring outside the walls (Çatalbaş et al., 2011).

**Figure 5.** 1980 Diyarbakır land use



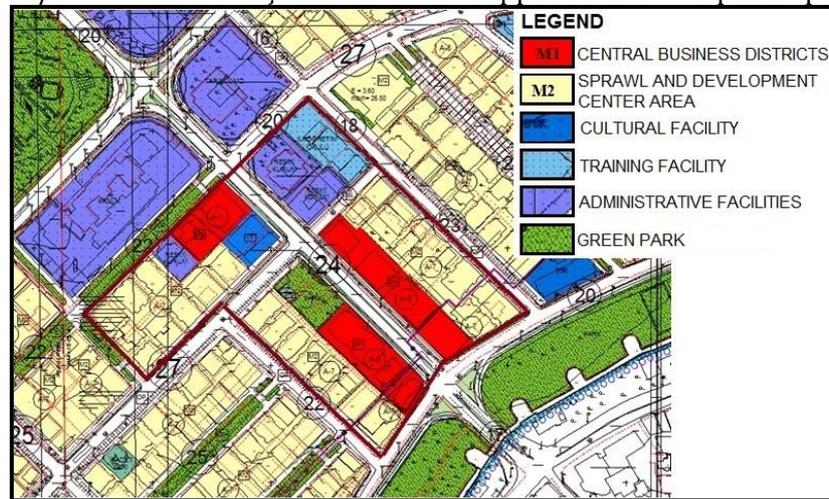
Source: Research report of conservation plan of walled city (Suriçi/ Diyarbakır), 2011

Even though the search of planning and inspection was brought in Diyarbakır in 1985 and 1994, these efforts were not sufficient and nonfoundational and unplanned development continued with a rise of density (Kejanlı, 2010; Report of Development Plan of Diyarbakır, 2005). There has been an increase of housing and population densities with vertical growing in Yenişehir. As different from the previous plans, there have been given place for trade areas through main axles in the 1/5000 scaled Yenişehir Land Use Plan of 1992 and it has been determined as differential configuration and 8 floors in the trade areas seeing the Hintli Baba Street and differential configuration and 7 floors in trade areas seeing Ali Emiri Street. Housing zones are again differential configuration and 5 floors. There are administrative facility (local authority) and government agency areas, educational facility and park areas within the boundaries of the study area.

In the 1/1000 scaled Yenişehir Centre Area Application development plan of 1994 (Figure 6), there are central business areas with M1, M2 legend, cultural facility area, education facility area, administrative facility area and park area within the boundaries of the study area. When it is compared with the plan of 1992, it is seen that the housing zones turned into trade areas and there are central business areas with M1 legend and cultural facility area in the place of local authority area. Besides, Hintli Baba Street, which was in 22 m width in the plan of 1992, was expanded to 24 m with the plan of 1994 and other roads surrounding the city block were expanded. According to the decisions of the plan of 1994, structures and facilities with administrative, social, cultural and commercial purposes could be done in the areas showed with M1 legend. Moreover, facilities related to administration, social and cultural facilities such as office, office building, casino, restaurant, downtown, multi storey shops, bank, hotel, cinema and theatre might be done in this region. Housing cannot be done in the buildings to get the new planning permission in this region. In the condition that the whole parcel is done with commercial purpose and the sample stays the same, TAKS (ratio for floor area) could be used as 0.40. structures and facilities with administrative, social, cultural and commercial purposes, social and cultural facilities such as office, hotel, cinema and

theatre and facilities related to administration could be done in the areas showed with M2 legend. Provided that the ground floors are commerce in the buildings to get new planning permission, the other floors could be done housing, office or with commercial purpose. Provided that the whole parcel is done with commercial purpose, TAKS could be used as 0.40.

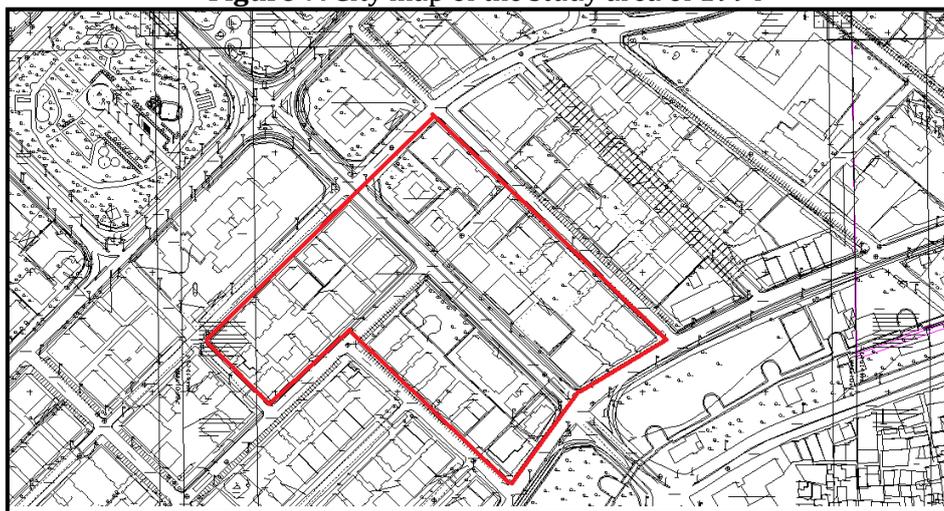
**Figure 6.** 1/1000 scaled Yenişehir centre area application development plan of 1994



Source: Directorate of Urban Affairs in Diyarbakır Metropolitan Municipality

The location of the existent structures in 1994 and their relations with each other are shown in Figure 7. It has been understood that the study of planning enabling the function variety in the built-up area was done with the plan of 1994. It has been seen that the structures were in differential configuration as proposed by the plan of 1992; however, structures were built bigger, which is different from the city map used in the bedplate of the plan of 1992. Also, the structuring within the boundaries of the study area in the city map of 1999 stayed the same as that of 1994.

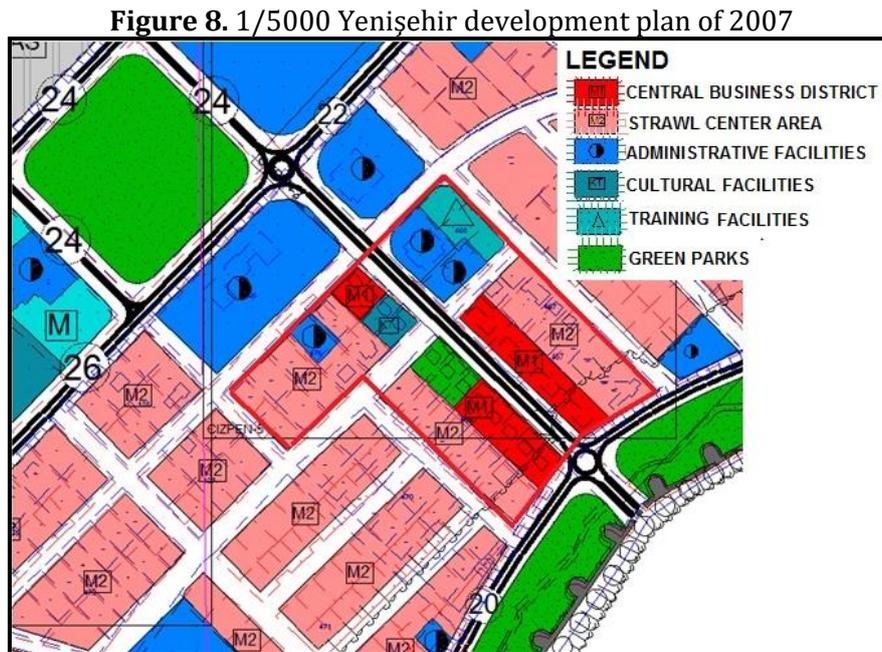
**Figure 7.** City map of the study area of 1994



Source: Directorate of Urban Affairs in Diyarbakır Metropolitan Municipality

The change in the 1/5000 scaled Yenişehir Development Plan of 2007 (Figure 8) is that a part of the area showed with M1 legend in 1994 and as local authority area in 1992 was included in M2 legend. According to the decisions of 2007 plan, structures and facilities with administrative, social, cultural and commercial purposes could be done in the areas

showed with M1 legend. Besides, social and cultural facilities such as office, office building, restaurant, downtown, multi storey shop, bank, hotel, cinema and theatre, facilities related to administration and private education and private health facilities provided could be done in this region provided that it is planned separately in the application development plan. As different from the plan of 1994 and 2007, the scope of M1 legend has been expanded and private education and private health facilities have been added. The uses to take place in the central business areas are allowed in the areas with M2 legend and provided that ground floors are commerce, above floors could be done as housing or with commercial purpose.



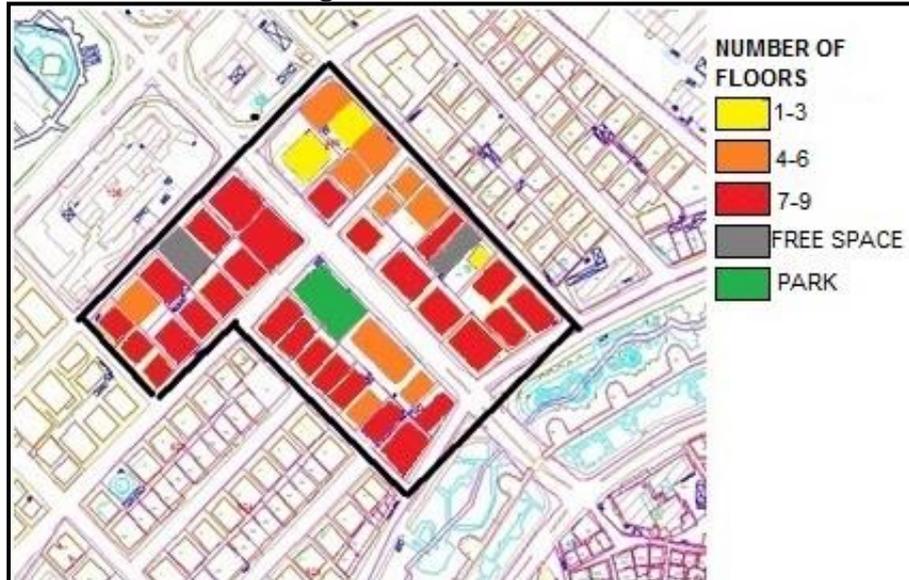
Source: Directorate of Urban Affairs in Diyarbakır Metropolitan Municipality

When we look at the study area within the upper scale plans, it is seen to have been planned as built-up housing zone. In the city map used nowadays the structuring within the boundaries of the study area stayed the same as the city map of the previous period.

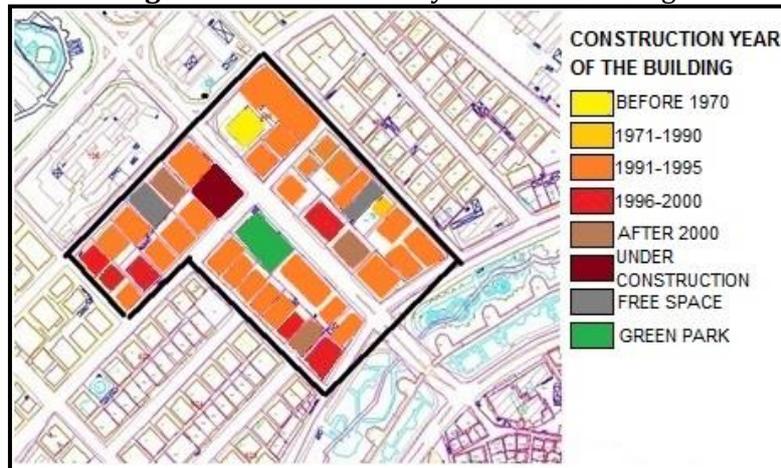
#### 4.2. Building Pattern

In the examination of the study area, it has been seen that the structure density is high and structures over 7th floors are dominant (Figure 9), There is a direct relationship between the material used with the construction period of the buildings and the construction technique of floor numbers. Whereas the number of floors was low in the structures before 1990, the number of floors has been increased in the structures after 1990s (Figure 10).

**Figure 9. Number of floors**

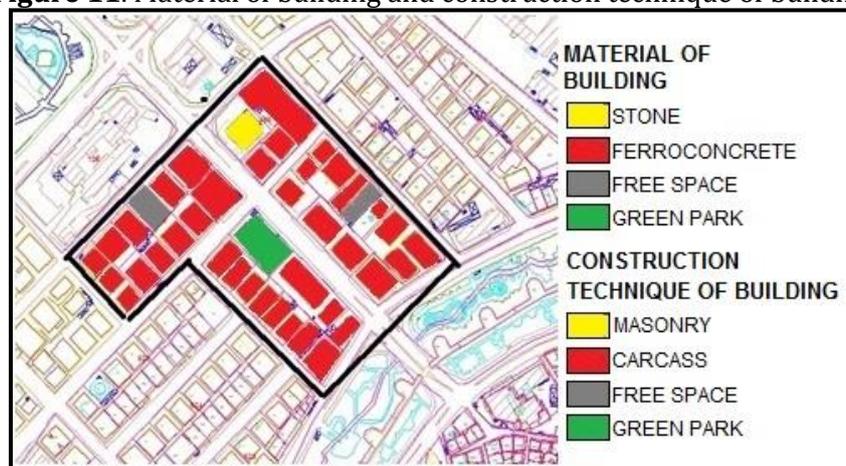


**Figure 10. Construction year of the building**



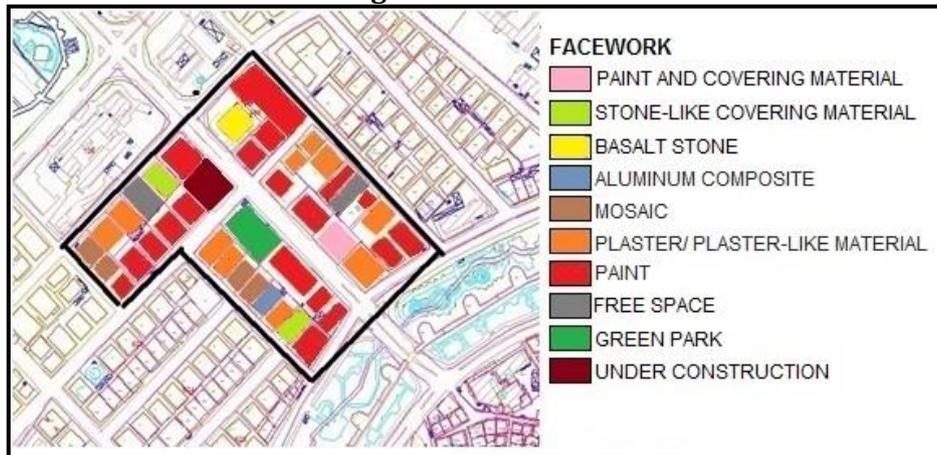
In the area, one basalt material has been used and other structures are reinforced concrete (Figure 11). The construction technique of this rock building used as Youth Center nowadays is masonry. The construction technique of other reinforced concrete buildings has been determined as carcass.

**Figure 11. Material of building and construction technique of building**



The type of the material used in the front sides of the structures have been examined in the study. Coating material with btb, paint and rock-looking has been preferred as facework in the buildings constructed in 1996-2000 periods. The use of paint, plaster and plaster-looking material is common in the buildings of 1991-1995 period (Figure 12).

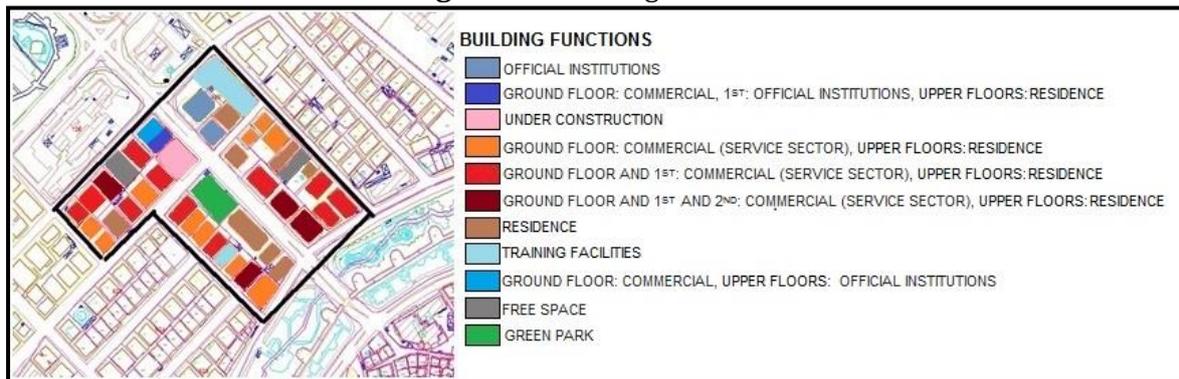
**Figure 12. Facework**



#### 4.3. Land Pattern and the Use of Ground Floor

As population increases, the density of structures, number of floors and TAKS (ratio for floor area) rates has risen. It has been observed that housing and commerce use were allowed by the plan of 1992 in the areas having housings before 1990 in the examinations done in the area. Despite of the increase in structure density, that structures in row housing were not built shows that differential configuration is preserved. The use of commerce and housing together is dominant in the area and there are commerce (service) functions up to 3rd floors in some structures (Figure 13). Space parcels have been used as car park.

**Figure 13. Building functions**



Structure intended purposes have been shaped in accordance with the legends determined in the plan. Since commercial function is common in ground floor, the use of show case has been seen in the front sides. In ground floors, there are uses such as restaurant, bakery, pharmacy, textile, hair dresser, bank, dry-cleaning, market and stationery. In the above floors, there are uses such as office of lawyers, engineers and driving courses (Figure 14).

**Figure 14.** The use of ground floor



It gives rise to thought that the plan has shaped in accordance with the desires of the landholders since private education and private health facilities are included in the plan of 2007. For example, the education institution on the Ali Emiri Street has the characteristics of training center.

## **5. Results**

The study area located in Yenişehir has started to develop in a planned way within the scope of settlement policies for the population not fitting in the walls through outside of the walls in parallel with the modernization movements coming with the Republic. As a result of the forced migration in 1990s, settlements started to expand to outside of the walls, which firstly brings about the increase in structuring and density on the important transportation axles of Yenişehir. In time, structure densities and number of floors have increased rapidly and different new construction areas have been made out of the traditional housing pattern.

This process has changed the socio-cultural features of the people living there and people have become estranged to each other. The concept of neighborhood has changed with the structure densities increasing vertically and horizontally and people have become distant from the streets and the relations of street-structure has been affected negatively. These changes and transformations have affected the family structure. Socio-cultural needs of the society have been tried to be met with social reinforcement areas in limited sizes in the places determined by plans. With the separation of housing+commerce areas in the plans, both employment areas have emerged and the needs of the living population have been satisfied in a certain way.

In the study, the factors affecting the urban morphology change have been tried to be detected. The changes and transformations have taken place in a similar process as across the country and social, political and economic developments have affected this process. Spatial structure of today have resembled each other with the effect of legal regulations. Even though the historical backgrounds, socio-cultural, ecological and economic features of the cities are different, city blocks, parcel sizes and structures have become the same as a result of the city's growing rapidly. As in countrywide, it has been seen that multi storey structures have increased on square parcels in the study area after 1955, the scars have lost and the area has shaped more with the desires of the population.

It has been observed that road widths and the size of the structure in parcel have increased appropriately for the plans in years in the study area examined by Conzen method. In accordance with both legal process and development plans, single-floor or duplex and garden houses have turned into apartment houses. Conzen approach is an important method for the studies of urban morphology revealing the relation of building, street and parcel and also it gives the opportunity to make comparison of different cities in a systematic way. The data obtained as a result of this method giving information about housing morphology shaping the urban environment are very significant in that guiding the use of the city in the future, determination of the structures having historical value, integrating them with the city and providing its use by preserving. It is important to know the structure of the city in the past to shape its future.

As a study for Diyarbakır Castle and Hevsel gardens to be in the Unesco's world heritage list, Diyarbakır Castle and Hevsel gardens Cultural Landscape Field Management Plan has been prepared in 2015 by Diyarbakır Metropolitan Municipality and Field Management Department. According to the management plan, the area of examination is located near the buffer zone. In this context, the bearing capacity of Yenişehir and the conformity of the inside and outside of the walls should be considered in the applications to be done or possible studies to renew. Accordingly, it is significant to improve suggestions for the structuring conditions and suitable functions for the use in the past in the area of examination within the integrative protection understanding.

Besides, the region has been experiencing unanticipated changes depending on the migration due to terror. There are problems of forced migration and internal displacement in unexpected times. In the chaos in the recent period, there have been problems such as having no place for the people getting out of the walls to settle, their sheltering near the relatives and their desires to be close to the walled city and also social, economic and psychological problems. In this context, planning studies considering the population changes are significant.

Consequently, knowing the changes in Yenişehir which is one of the regions having a population over its bearing capacity is important to lead the planning studies. This study which is based on the urban morphology with Conzen method is expected to be an example to expand it across the country. It is obvious that decisions will be more clear and correct in the planning studies handling this method.

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