ITU A|Z • Vol 21 No 2 • July 2024 • 319-337

Evaluations on the current and future of housing renewal areas: A design studio simulation

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Received: January 2023 • Final Acceptance: February 2024

Abstract
This research simulates the potential evolution of the physical development of a specific region in the Kağıthane district of Istanbul based on current zoning plans and regulations. It further delves into how specific urban life quality criteria might correlate with potential spatial configurations using the space syntax method, providing foresight into future developments. The primary goal of this research is to determine how urban housing patterns might evolve and to promote greater awareness for future research endeavors.
The study is carried out in two phases. The first step involves data collection through observations and simulation within the studio's framework. The second phase focuses on the processing and analysis of the collected data, focusing on the quantifiable aspects of urban quality. The simulations were analyzed using the Space Syntax method and the depthMapX program, an application tool designed for this method.
The analysis revealed that the city block scale simulation exhibited the lowest integration values for the street networks. This is perceived as a reduction in the likelihood of residents encountering or interacting with each other, a factor deemed crucial in fostering and sustaining neighborly relations. Additionally, the city block scale spatial formations indicated an increase in all-line analysis values. This suggests a decrease in spatial closedness-definitionality in city block-scale form. Consequently, there is an anticipation of an outdoor formation that may lack a strong definition, have a hierarchical structure, and present a particular spatial perception.

Keywords
Design studio, Urban life, Residential areas, Simulation, Space syntax.

doi: 10.58278/0.2024.46

1. Introduction

In general, urban renewal in Turkey in particular, within the scope of various transformation interventions for improvement and protection, although there are transformation applications for improvement purposes mostly for slums and unlicensed housing areas, it is seen that it is done with the aim of making the existing texture more stable especially with the 1999 Marmara Earthquake. In the process that accelerated after the Marmara earthquake, the main factor was the demolition of the buildings in the existing built environments due to natural disasters and the construction of new structures in accordance with the Earthquake Regulation.

Areas where non-earthquake-resistant building stock are located generally overlap with unplanned, distorted urbanization areas. For this reason, the renewal works carried out in these areas in parallel with the construction of earthquake-resistant structures are expected to improve the existing social reinforcement facilities (such as education, health, culture etc.) of the region, to increase the public areas that enrich urban life, to increase the quality of the places belonging to the city and to develop an urban integrity. In this case, in the regions where urban renewal works are concentrated where existing structures are rebuilt to be earthquake resistant, an important question arises as to what direction urban development is and how the future urban texture will develop in line with the zoning plans and building codes in force.

With the idea of finding an answer to this question and contributing to education in this way, the idea of considering and working on the subject as a term project within the scope of the architectural project studio of the faculty of architecture emerged and important findings were reached as a result of the studies carried out. "Housing" has been determined as the subject of study of the architectural project studio. In the determined area, physical and socio-economic data were collected in the context of the existing housing texture and analyses were made. In order to project how the region will develop in the near future, a simulation study was carried out with the designs made by the students according to the zoning plan and building codes in force.

However, planning decisions that need to be addressed within this framework are difficult to put forward the necessary solutions with the effect of various dynamics and cannot develop appropriate suggestions. In this context, it seems unlikely that the renewal activities carried out in line with the current regulations, zoning plans and notes regulating the future of our cities will carry our cities to the desired points. In this article, the aim is to provide a comparative evaluation of the analyses performed for the neighborhood relationship, commercial vitality and spatial perception criteria, which are the crucial components of the urban quality of life applied to the existing texture of the region and the possible textures formed as a result of simulations carried out at the lot and block-scale within the scope of the current zoning regulations. With this study, it is assumed that an awareness step (by all parties) will be created that will allow the existing regulations to be reviewed and reconsidered in order to handle such environments to be handled within the framework of urban renewal with a more holistic perspective.

The study consists of two steps. The first step consists of the data collection step based on observations and simulation work within the scope of the studio, and the second step consists of the processing and analysis studies by evaluating the obtained data over the measurable values of urban quality. Within the scope of the project studio, various data were obtained by focusing on the existing physical environment and the renewals realized with the existing physical environment and by observing the quality of the space in these areas and examining the zoning plans and regulations in force. The simulation studies carried out in the light of the data obtained in the project studio were analyzed with the space syntax method, which is a space reading method that can allow to compare the quality of urban life within the scope of the article with measurable values, and the depthMapX program, which is the application tool of the method. With-

in the scope of the article, the issue discussed at the intersection of Ortabayır and Telsizler neighborhoods of Kağıthane district is thought to be important in terms of shedding light on the regions of Istanbul where similar renewal studies are being implemented or will be implemented.

2. Conceptual framework

The phenomenon of urban regeneration as a planning tool in cities that are developed and transformed by industry began for the first time in the form of interventions aimed at revitalizing areas of social and economic collapse in the cities of western countries. In this context, Roberts et al. (2000) describe the factors that require urban renewal; as physical obsolescence and new spatial requirements, economic changes and change of employment, social and societal problems, environmental quality and sustainable development. Thomas (2003), on the other hand, explained urban renewal as the redevelopment and revitalization of a lost economic activity; the operationalization of a dysfunctional social function; ensuring social integration in areas of social exclusion; in areas where environmental quality or environmental balance is lost, restoring the deteriorated balance.

At this point, the concept of urban renewal emerges as a form of application aimed at increasing the quality of urban life in line with the provision of contemporary urban and environmental standards and the production of safe, physically and socially strong urban areas and to ensure that all segments of society can benefit equally from these rights (Akkar, 2006; Lichfield, 1992). In this direction, it is defined by Roberts et al. (2000) as a comprehensive and integrated action that seeks to improve economic, physical, social and environmental conditions. According to Roberts et al. (2000), while putting forward an economic, social and environmental development approach that increases urban welfare and quality of life is one of the most important goals of urban renewal; urban renewal aims to develop strategies that will revitalize the region in order to improve the quality of life in the city, plans and projects in which the needed housing and social facilities will be produced.

"Urban quality of life", which is one of the urban renewal targets, is defined as the interaction of social, health, economic and physical environmental conditions that affect the development of the individual and the society. Perloff (1969), on the other hand, touches on the spatial dimension of quality of life in his work titled "The Quality of the Urban Environment"; emphasizes that the quality of life in the urban area is determined by the interaction of natural and built environment. Kamp et al. (2003) consider the concept of quality of life with an approach that considers the measurable spatial, physical and social components of the environment and the ways in which these components are perceived together and accordingly evaluates not only the objective characteristics of the perception patterns of individuals but also individual effects.

According to Baycan and Nijkamp (2006), urban quality of life is a sub definition of the concept of quality and is used to express the performance levels of urban spaces in providing the needs of users. This concept includes many social, economic and physical parameters. The concept of quality of life examines people's well-being, community characteristics, and the relationship between people and the everyday urban environment (Pacione, 1982).

While the first studies on urban quality of life focused on the definition of the concept, the issues of determining the measurement indicators within the scope of the measurement level of urban quality of life over time were focused. As a method in the researches carried out; analysis of the relationships between variables according to social indicators, creation of economic indices that allow comparison of spaces with each other, or studies based on perception of the space where people live are frequently encountered (Dissart & Deller, 2000; Diener & Suh, 1997; Evans, 1994; Marans &; Moller, 2001; Senlier et al., 2009; Stimson, 2011; Türkoğlu et al., 2011).

As the scale shrinks from the city to the residential environment, it is

seen that research on urban quality of life begins to focus on the quality of experience in the living environment and is mostly designed to measure the perception and satisfaction of the residents. Dunstan et al. (2005) investigated the effects of the built environment in residential areas on the quality of life and measured the various characteristics of residential areas at the neighborhood unit scale with a method called the residential environment assessment method.

While Hur et al. (2010) explores life satisfaction in the neighborhood in relation to open spaces and natural spaces, Smith (2011) focused on the relationship of satisfaction with residential space with the feeling of neighborliness, sense of belonging and sense of place. Howley et al. (2009) used a combination of quantitative and qualitative data and focused on the relationship between high density in the city center and satisfaction with the neighborhood area. Greenberg (1999) focused on the relationship between the neighborhood unit and the various characteristics of the inhabitants and showed that in settlements where livability is at a low level, crime, vandalism, physical obsolescence and distrust of management are at high levels. Greenberg and Crossney (2007) in their work focusing on the perception of livability, they found that there was a strong relationship between the quality of life and the quality of the neighborhood area, socio-economic status and the time spent in the neighborhood unit. Considering that satisfaction with housing areas is an important indicator of urban quality of life, Marans (2003) has published the "Satisfaction with Neighborhood Area" model. This model includes objective conditions and subjective perceptions that affect satisfaction in the neighborhood area, which is one of the areas in Campbell et al. (1976)'s model (Marans & Stimson, 2011).

In the researches, it has been seen that the studies carried out to measure the quality of life are carried out in two ways. These methods are an objective approach based on observable and measurable indicators, and a quantitative approach that measures residents' perceptions of their own lives (Pissourios, 2013). In this direction, the parameters examined with the support of on-site observation and survey studies allow the evaluation of space quality on a micro scale, while the space syntax method allows the preliminary evaluation of urban open space analysis on mobility and walkability and accessibility at macro scale.

Space syntax method; is the name given to the set of techniques supported by theoretical approaches, used to define the spatial models of regions at different scales, cities, built environments, building groups, organization of the interior space and to search their interactions with the social structure. The theorem put forward by Hillier and Hanson's research group in the late 1980s is aimed at revealing the relationship between the physical structure and the social structure of the city. Hillier, in his book Social Logic of Space, talks about the existence of a "common language" in the explanation of space syntax analysis techniques and the patterning relationships of spaces (Hillier & Hanson, 1984). The primary goal of these techniques is to examine the relationship of spatial organization with human movement and field of view objectively and to reveal the potential of "spaces" to bring people together.

In the literature, human cognition suggests that the configurational aspects of the environment over physical perception have important implications for the way it forms and behaves a mental representation of space. Studies in the field of space syntax suggest that (Hillier & Vaughan, 2007) certain configuration aspects of space, both of buildings and urban forms, influences human activity. Some studies have focused on putting together the relationship between the syntactic configuration of space and people's spatial cognitions, albeit from different angles. For example, Kim and Penn (2004), investigated the effects of the spatial configuration of the local environment on residents' spatial cognition of their built environment. Haq and Zimring (2003), investigated whether people's topological knowledge changes as they become familiar with an environment Abrams (2006) examined the relation-

ship between environmental configuration and spatial cognition. In the studies conducted, an important correlation was found between the two subjects. All of these studies have come to a common idea that accepts the configuration of space as fundamental to the cognitive mapping process of humans.

3. Method

The article was carried out based on a two-stage setup based on the acquisition of data from the project studio studies and the analysis and evaluation of these data. The project studio works were formed with a program consisting of preliminary and main working sections. The studies that produced data for the article were included in the preliminary project carried out in the first four weeks of the term.

The preparatory study process was carried out with the idea of better interpretation of today's residential textures in our cities by the students. The research consists of observation and simulation studies. The aim of this study is to understand the housing in the present, to comprehend the conditions of realization and the reasons, before the students think about the housing and housing environment for the future. Thus, this framework will highlight the need to identify the factors that cause the current problems and enable them to imagine new living conditions, urban and architectural living environments of the future, more positive in every aspect thanks to these inferences. It is also to confront the reality of considering the phenomenon of housing together with quantitative and legal values as well as qualitative values. The studies have been developed in the form of investigating the past and present situations of the determined region and the steps planned to be taken in the future.

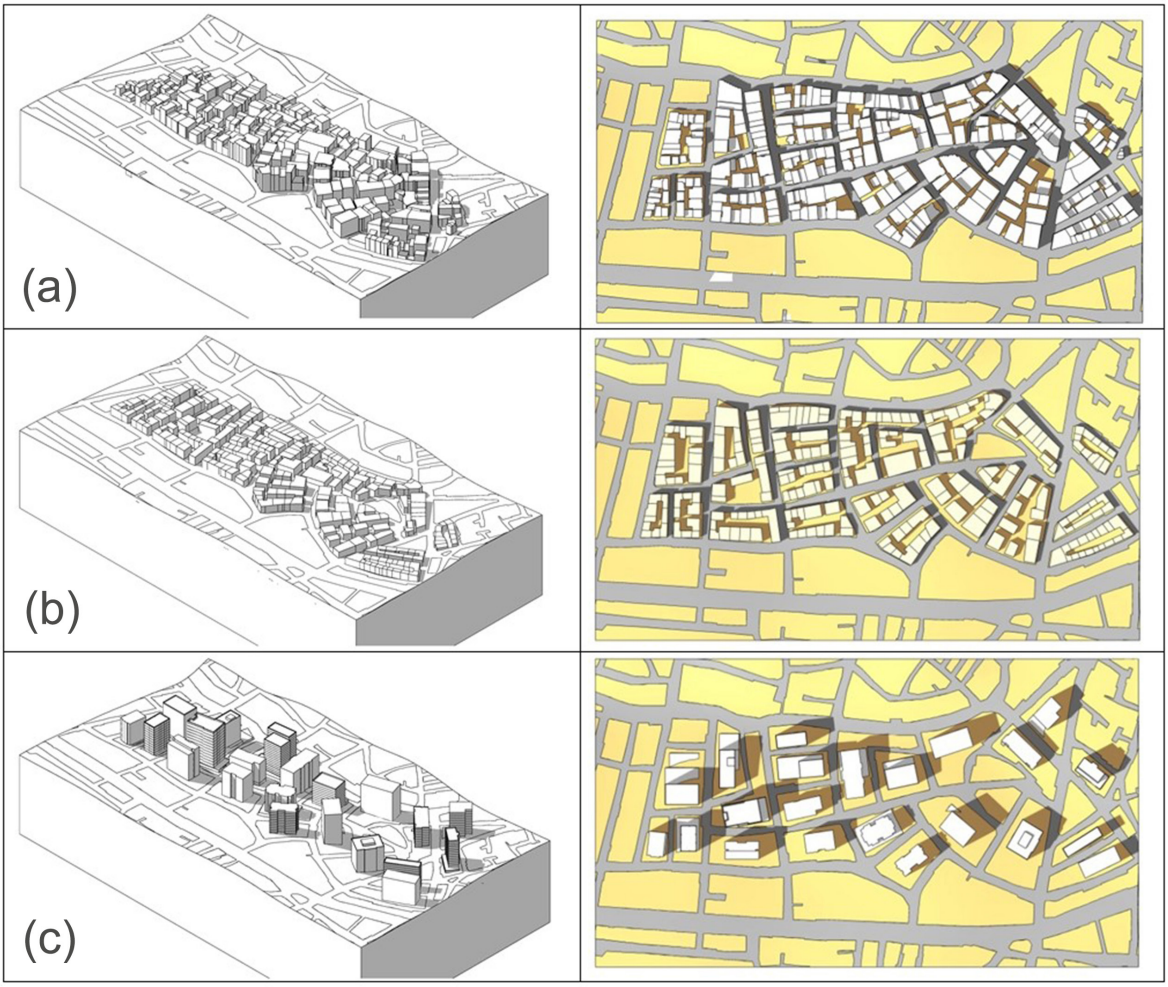


Figure 1. *Digital model-based axonometric perspectives and plans of current texture (a) and possible textures formed by lot-scale (b), city block-scale (c) simulations of the study area.*

In this context, examinations and observations of social and physical structures were carried out. Demographic, socio-economic and cultural characteristics of the study area, and natural man-made environment analyzes were determined. According to the zoning plan, regulations and plan notes in force, the buildings for the lot and city block scale were designed separately and the urban textures that are likely to be shaped by these buildings were created. Three-dimensional digital modeling of the topography of the region and the textures shaped by the current situation and zoning plan on it were carried out (Figure 1).

In the first work of the studio on design, a city block was given to each student and three-dimensional digital modeling was made by creating building masses on a lot basis according to the current zoning plan for all lots of this city block. Residential building floor plans were designed by creating architectural studies for one of the lots. Following this study, the students carried out another study with the assumption that the lots of the city block they chose were integrated according to the current zoning plan and notes, and according to these city block scale architectural solutions a three-dimensional digital modeling were created.

The second step of the study carried out within the scope of the article is the processing and analysis of the data and simulation studies obtained in the preliminary project of the studio study over the measurable values of urban quality. The comparative evaluation and analysis of the renewal simulation studies on the basis of the current situation, lot and city block were carried out through the three values that can be considered within the framework of measuring the quality of urban life, namely:

- 1. Neighborly relationship in the context of the possibility of encounter
- 2. Commercial vitality and
- 3. Spatial perception.

In the future simulations created by considering the renewal works carried out in the area, the Space Syntax analysis method, which is accepted as the space reading method, was used in the analysis of the region change over these three values. Within the scope of the neighborhood relationship, axial map technique was applied in depthmapX software program as an analysis technique to evaluate the chance encounter potential in the streets determined in the study area. In the evaluations within the scope of commercial vitality, considering that the variety of functions and the number of commercial units increase the interest and vitality in the streets, street textures were compared over three situations through the integration values of the streets in depthmapX application. By comparison; the elements of integration, commercial space demand and density, and the mutual interactions between these elements, provided an evaluation environment within the framework of social interaction and safe environments in understanding urban vitality. In order to evaluate the spatial perception created by physical formation, some vantage points were identified within the study area. By keeping the locations of the determined points constant, all-line analysis and isovist analysis were performed in depthmapX software according to three different situations. The analyses provided the opportunity to compare the existing street texture and the situations revealed by city-block and lot scale simulations in the context of continuity, form and perception.

4. Introduction of the study area

Kağıthane district of Istanbul, which is thought to reflect the development processes of today's big cities in the best way, has been determined as a study area. The region covered by Ortabayır, Telsizler, Gültepe, Harmantepe neighborhoods is the region selected as a study area projected with the feature of being a settlement that fully reflects the change that urban textures have undergone in the process of industrialization and rural-to-urban migration in our cities. An area of approximately 63 acres remaining in the intermediate zone of Ortabayır and Telsizler neighborhoods was determined as a working area (Figure 2).

The area shows an "urban housing texture" feature with a weak identity urban pattern that forms the building base of an unplanned settlement order

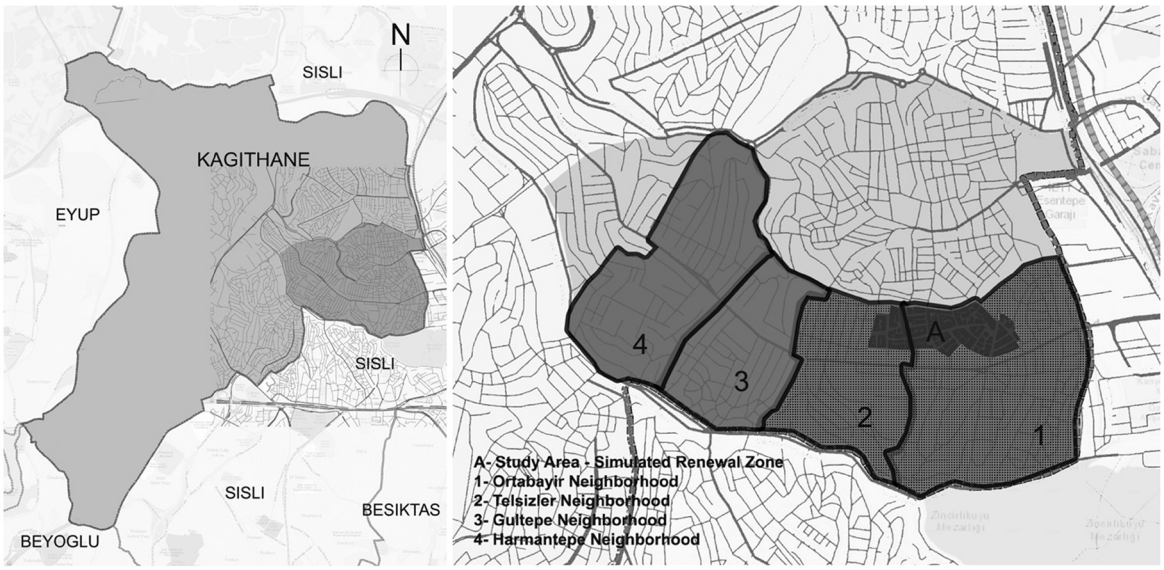


Figure 2. *Ortabayır(1), Telsizler(2), Gültepe(3), Harmantepe(4) neighborhoods of Kağıthane district where simulation studies were carried out and the location of the study area (A).*

and develops by maintaining its first lines on this base. The area generally consists of attached (residential) buildings of 4 to 5 stories on the blocks.The buildings are generally built before the 1999 Marmara earthquake, have not received adequate engineering services and are the subject of urban renewal within the framework of the Law No. 6306 namely "The law on the Transformation of Areas Under Disaster Risk". Although lot-scale renewal activities are frequently seen in the region, there are also examples of block-scale renewals (mostly gated communities), which is carried out by ensuring the integrity of the lots on the city blocks according to the zoning plan notes of the region.

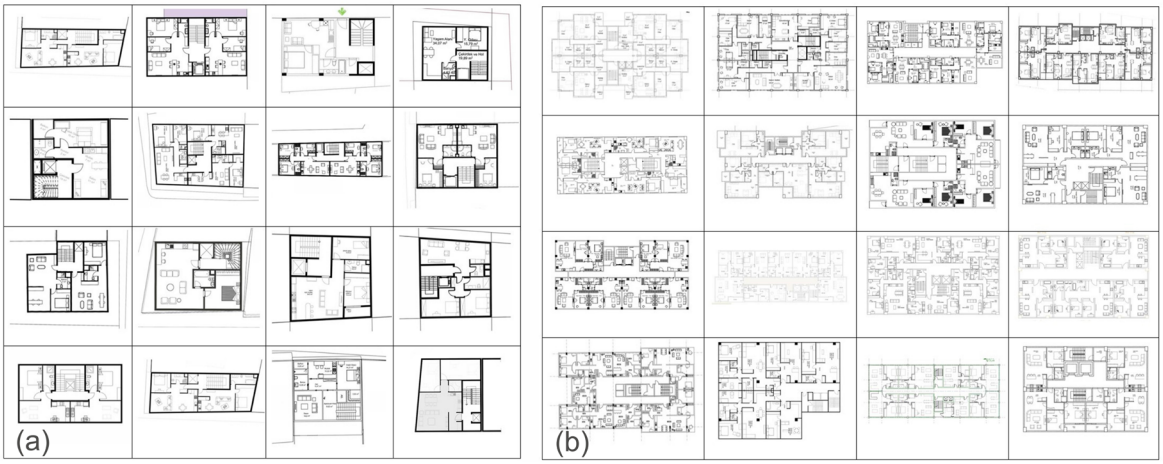
5. Analysis and evaluation of research, observations and simulations

The study area and its surroundings are shaped within the framework of the rules set forth by the zoning plans, plan notes and regulations in force (Kagithane 6th Stage 1/1000 Scale Application Zoning Plan and Plan Notes dated 7/21/2008). In the light of these rules, simulation studies to create future projection were carried out based on two different design approaches based on preference. Thus, with the current situation, a tripartite evaluation ground has been established. This tripartite situation, consisting of simulations of the current situation, lot and city block-based renewal, makes it possible to make a comparative assessment. On the other hand, comparative evaluations can be considered in two levels as architectural and urban. It has been possible to realize the evaluations made on the architectural level based on quantitative features. The evaluations discussed at the urban level consisted of comparative evaluations under the headings of neighborly relations (encounter-contact opportunities), commercial vitality and space perception that can be handled within the scope of urban quality of life.

5.1. Evaluation of renewal simulation studies in architectural level

Within the scope of the study, the students first created three-dimensional models of the city blocks they chose in accordance with the current zoning plans of the region. Each student has designed a residential building in the context of lot-based urban renewal on a lot of his choice on his own city block. Thus, in line with design limitations such as ownership, zoning plans and regulations, a design experience was obtained in today's conditions and at the same time, it was investigated how the texture of the region would take shape in the future, under the direction of the current zoning plan (Figure 3).

Based on the proposed designs for the selected lots, spatial analyzes such as lot areas, areas of building coverage



(c)

	City Block Number	Lot Number	Lot Area (m²)	Lot Coverage Area (LCA)	Circulation Core Area	Total Area of Units (∑AU)	Num.of Units per Core	Num. of Rooms per Unit	∑AU/LCA
1	6050	6	82	75	12	63	1	1+1	0,84
2	6051	15	273	149	24	125	2	1+1	0,84
3	6052	17	351	235	32	206	3	1+1, 2+1	0,88
4	6056	20	203	145	28	117	2	1+1	0,80
5	6059	8	167	132	20	112	2	1+1	0,84
6	6060	4	132	85	20	65	1	1+1	0,76
7	6061	7	172	110	28	82	1	2+1	0,75
8	6062	4	134	128	19	96	2	1+1	0,75
9	6065	8	199	104	21	83	1	2+1	0,79
10	6066	12	154	99	16	75	1	2+1	0,76
11	6069	1	286	170	30	140	2	2+1	0,82
12	6075	5	82	71	17	53	1	1+1	0,75
13	6100	13	194	194	15	160	2	3+1	0,82
14	6101	14	98	58	14	44	1	1+1	0,75
15	8781	8	227	73	20	57	1	1+1	0,78

Figure 3. *Some examples of student designs handled according to the current zoning plan for lot (a) and city block (b) scale housing renewal simulation and dwelling unit-to-ZBFA (zoning block floor area) area ratios for lot-scale simulation (c).*

on the lots, area of the cores to be considered without loss of space and total housing unit areas on the floor were carried out. In the study, which was considered as lot-scale renewal, it was determined that the lot sizes varied between 82 and 351 m², the area of building coverage for each lot determined by zoning plan were between 58 and 235 m², and the majority of them (80%) were gross floor area below 150 m².

On the 22 city blocks where the study was carried out, there are a total of 251 lots. It was determined that 52 (20.7%) of these lots had a lot area below 100 m² and 132 (52.6%) were between 101 and 200 m². The total number of lots with a lot area below 200 m² is 184 (73.3%) and according to the block dimensions defined by the zoning plan, the building floor area allowed in these lots is well below the lot area in question according to the side and back garden situations. The small area property structure owned by the city blocks necessitates architectural solutions where the beneficial area rates are low in the majority of the lots.

In the studies carried out on the lot scale, different land usage suggestions from the existing use that will increase the possibilities of social reinforcement areas such as parks, children's playgrounds and green areas within the boundaries of the study area could not be developed (because of not strained of the instruments). It has been seen that the zoning plan proposals in force do not show great differences from the existing texture and cannot go beyond the arrangements that align the block depths with an understanding that protects the existing building and property boundaries at the maximum level.

In the context of block-scale renewal works, the fact that the designs offer many advantageous offers such as satisfying the parking needs in itself, creating solutions with more number and size of housing units than lot-scale solutions, increasing the economic value of the final product to higher levels,

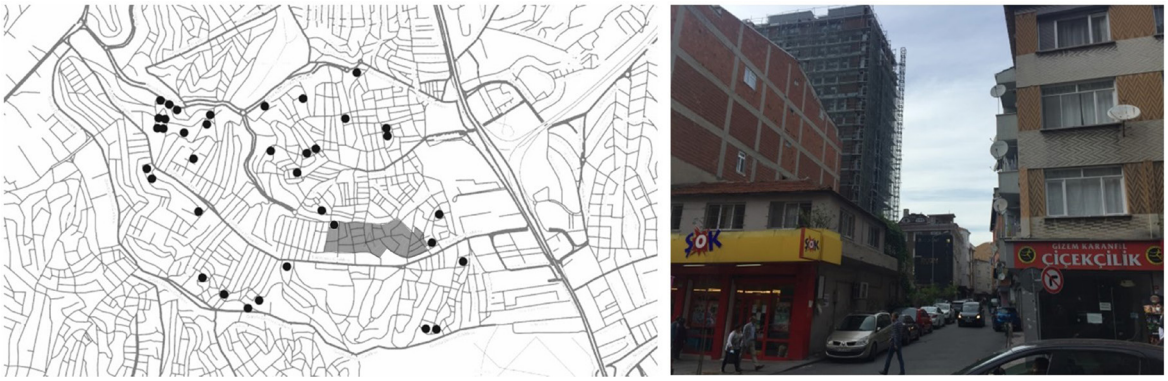


Figure 4. *Completed and ongoing city block-scale housing renewal projects in the immediate vicinity of the study area.*

makes this method more attractive to the right owners. This method, which has higher financial returns, is more adopted and preferred by all parties and the number of housing projects produced with this approach is increasing rapidly. There are current housing projects in the region that have been implemented within this scope, are still being projected and are under construction (Figure 4). Within the texture of Ortabayır, Telsizler, Gültepe, Harmantepe, Yahya Kemal and Çeliktepe neighborhoods of Kağıthane district (due to emphasizing the prevalence of renewals taking place), there are 37 city block-scale housing projects (mostly gated communities) that have been implemented in this context.

According to the Kağithane 6th stage, 1/1000 scale application zoning plan and the articles 41, 45 and 46 of the plan notes, and in case of providing the lots within the city block are integrated or if there is a lot larger than 5000 m² and if being (R) code in the city block, lot or lots with the on the zoning plan, the construction right can be increased by 30% to facilitate and ensure urban renewal. Within the scope of the simulation study, all the city blocks in the designated area are coded with the symbol (R) in the zoning plan and thus the construction right in question has been recognized. In case of the occurrence of conditions, it was assumed that the integration of the lots would be carried out in all the city blocks in the study area and so each student realized architectural designs in this direction on the city blocks he / she chose (Figure 3).

When the architectural designs are examined, it is seen that all the solutions are designed in the form of high-altitude single mono blocks without formal flexibility in order to ensure the full use of the calculated construction rights and to increase the possibilities of the landscape. It was evaluated that the position, form and directions of these point blocks developed in the direction forced by the formal characteristics of the lot in which they were located and that they were disconnected from the environmental context. On the other hand, each design is formally consistent with itself. In the design of floor areas, it was determined that the total area of the housing units and the other service areas had a balanced proportional relationship. In contrast to the designs that are condemned to the lot form on the lot-scale, the fact that there is more free formation and more dimensional possibilities within the city block has increased the chances of this balanced development. In the lot-scale renewal method, it was seen that the lot coverage area of the lot with a large proportion, this ratio was much lower in the block-scale renewal method.

5.2. Evaluation of renewal simulation studies at urban level

The evaluation of renewal simulation studies in the urban dimension is handled within the framework of the concept of "urban quality of life", which is defined as the interaction of social, health, economic and physical environmental conditions that affect the development of the individual and the society (Roberts et.al., 2000). The evaluations were limited by the factors of encounter in the context of neighborhood (contact), commercial vitality and space identification

capacity, which are considered to be one of the basic factors affecting the quality of life, and based on the analyzes of the spatial structure of the area, where the physical characteristics of the study area come to the forefront.

5.2.1. Neighborhood; interaction opportunities, encounter possibilities, contact

Being a neighbor is the result of living in a house close to someone else's house. This closeness allows people to have visual and auditory relationships with each other. Physical proximity is necessary for the establishment of a neighborly relationship. Since the relationship extends into the daily life of the families, the neighbors must live in close proximity to each other. Passive encounters are initiating in the establishment of neighborly relations. The streets are a shell of sovereignty. Especially in low-income groups, the streets are a force field and are conceptually binding elements of ownership. The existence of the street is a great factor in the establishment of the neighborly relationship. People prefer neighbors who live on the same street to those who live on other streets. This situation arises from physical proximity and the functional nature of the street (Cengizhan, 1980).

With the idea that there will be a strong indicator of the existence and intensity of neighborly relations in the study area, the possibility of spontaneous encounters in the streets outside the buildings was handled. In order to determine the potential for chance encounters on the streets, the number of apartment doors opening to the streets and the determination of their proximity gain importance. It is evaluated that the analysis of the potential that the identified physical structure will bring to the streets will be an important indicator in order to have an idea about the neighborly relations. As Jacobs points out, the peculiarity of social life on the street sidewalks of cities is that they are literally open to the public. They bring together people who don't know each other in a friendly, intimate sociality, and in many cases allow people to get to know each other in this way (Jacobs, 1961).

In this direction, space syntax axial map technique was applied as an analysis technique to evaluate the potential for chance encounters in the streets in the study area (Figure 5). The building entrances to the streets were associated with the representative streets on the axial map. By associating the entrance doors with other entrance doors located in the immediate vicinity opposite the street, the opportunity of the building users to transfer the potential for chance encounters to the streets was provided. This method was applied for all three cases of the study area. It is seen that the comparison of the integration values of the streets obtained by this method according to all three situations reveals meaningful relations in the context of the neighborhood potentials of the streets. The integration values of almost all the streets in the current situation are far above the values of the streets in both situations simulated. The street integration values in the lot-scale simulation, where the street structure does not vary greatly from the current situation, are above the values in the city block scale simulation (e.g. Ceylin Street, lot-scale 291.9, city block-scale 106.8). It was determined that the integration values of the streets in the city block-scale simulation, where the street traces did not change but the street-building relationship underwent a great change, had the lowest values (Table 1). This is in line with the idea put forward by Caplow and Forman (1950) that people prefer neighbors who live on the same street to those who live on other streets.

City block-scale urban renewal proposals are in the form of gated communities with controlled access from a single gate and a single street connection. In current and lot-scale simulation situations, the entrances spread over the four streets surrounding the city-block fall into a controlled entrance through a single street in the city block-scale simulation. This significantly reduces the likelihood of accidental encounters for people who share the same street and weakens the possibility of initiating and establishing neighborly relations.

Figure 5. *Top row, Distribution of global (radius = n) integration values in the whole streets of the study area in three cases. Existing situation (a), simulated renewals- lot scale (b) and city block scale (c). Bottom row, Global (radius = n) integration value diagrams in existing situation (a), existing commercial units (b) and superposition of the two variables (c).*

5.2.2. Street commercial vitality

With regard to the theory of the natural movement of economic processes, the configuration of the street texture affects the rates of movement through an urban street network and directs the place where economic activities take place. Attractions, such as shops, cafes, restaurants, retail centers, tend to position themselves along the most integrated streets (Hillier, 1996). The more people who use a street, the more likely it is that the stores will attract attention, whereas the more shops along a street, the more people will be attracted to that street. This confirms Lynch's idea of tractors in 1960 (Lynch, 2011). Thus, they create a process of multiple interactions.

Within the boundaries of the study area, the streets where the shop units with daily trade functions are concen-

trated are determined as Ulu Street, Dutluk Street, Sarıgöl Street and Birben Street. It is seen that these streets are mostly streets with high integration values. While the arithmetic average of the integration values of the streets within the study area is 528.1, this value is 585.5 in Ulu Street, 653.9 in Dutluk Street, 626.0 in Sarıgöl Street and 609.9 in Birben Street (Figure 5). The ground floors of the buildings on these streets often have commercial functions. These more integrated routes are preferred by commercial enterprises. The presence of trading functions increases the interest in these streets and the density of users. The number and variety of commercial units that meet daily needs, such as shops, cafes and restaurants, are key components in creating the conditions to attract a population that uses the space continuously throughout the day. As Jacobs (1961) and Maas (1984) put it, density is a prerequisite for vitality. Elements of integration, commercial space demand and density and the mutual interactions between these elements create urban vitality, increase social interaction and provide safer environments.

Within the scope of the lot and city block-scale urban renewal studies simulated in the study area, it was evaluated that a commercial use distribution similar to the current situation may occur in lot-scale renewals and that a radical change will be experienced in city block-scale renewals. It is thought that if the integration values of city block-scale renewals are on high routes, the tendency to use the ground floors as commercial functions will not change. Commercial activities by their nature accept environmental density, while gated communities accept a limited density consisting only of their own users. The limited intensity of small-scale renewals on a city block-scale is not sufficient for the efficiency of possible inward commercial activities. The existence of outward-facing commercial units in gated communities also requires the abandonment of some areas associated with these units to public use on the ground.

Table 1. *Streets in the study area and their integration values in three cases. Existing situation and simulated renewals- lot and city block scale.*

indexes	Streets names	Integration values of existing situations	Integration values of simulated renewals		Number of existing commercial units
			lot scale	city block scale	
1	Ceylin st.	438.5	291.9	106.8	0
2	Hora st.	444.5	294.6	114.5	0
3	Ikizler st.	575.4	378.9	148.3	4
4	Ates st.	479.5	305.1	112.4	0
5	Asil st.	439.5	283.5	108.0	0
6	Birben st.	609.9	385.5	146.2	8
7	Beller St.	528.7	311.4	105.6	16
8	Topel st.	518.8	330.2	120.2	1
9	Erler st.	521.6	326.5	120.2	1
10	Erkilic st.	624.2	394.0	143.3	8
11	Gulbas st.	569.6	379.1	141.0	10
12	Yeni st.	441.9	284.6	97.5	2
13	Meydan st.	569.4	374.1	139.9	8
14	Zamir st.	564.9	362.5	130.1	4
15	Zigana st.	465.5	247.0	81.5	5
16	Cay st.	552.5	293.5	105.5	2
17	Kirlangic st.	387.5	251.4	86.7	0
18	Sarigol st.	626.0	404.0	174.4	18
19	Cakmak st.	567.7	363.6	154.6	15
20	Ahenk st.	491.7	313.0	128.8	2
21	Merih st.	489.9	317.3	126.8	2
22	Dutluk st.	653.9	410.7	162.1	21
23	Ulu st.	585.5	391.2	152.2	13

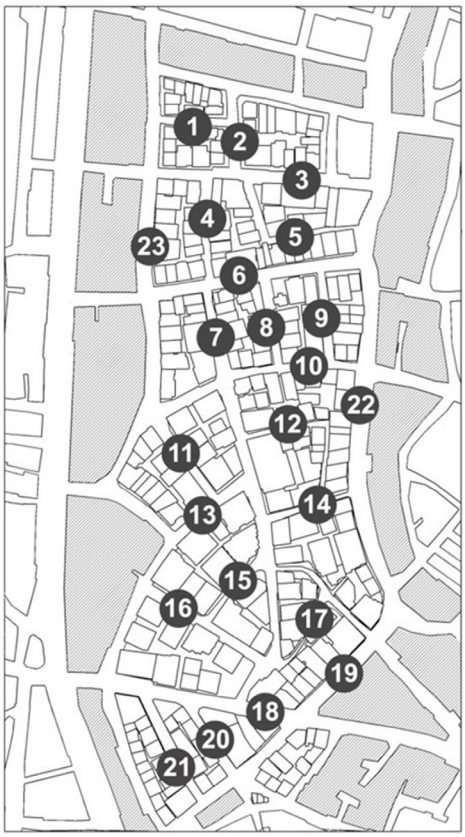


Figure 6. *Newly built "gated communities" in the immediate vicinity of the study area.*

For these reasons, the majority of the city block-scale renewals constructed in the region so far are gated community applications and commercial activities are not included (Figure 6). In regions where integration values are low and commercial vitality is weak, it was evaluated that the expectation of maximum commercial gain to be created by the gated community application will prevent the preference for commercial function and will completely eliminate the weak commercial activity in these regions and produce areas with weak social interaction and solidarity.

5.2.3. Capacity to create urban public space definition and perception

Public spaces can be understood at different scales and levels, from small-scale streets and squares to cities and countries. Urban planners, designers, and architects primarily view public spaces as physical spaces (Carmona, 2010). Sociologists discuss urban public spaces in the context of social dynamics and pay attention to users and their perceptions of public spaces (Dines and Cattell, 2006). Political philosophy scholars focus on public spaces in the context of civil society and are concerned about the rights of individuals and groups (Mehta, 2014). Different definitions of public spaces can be distinguished in terms of spatial form, ownership, control, access, and use.

In perspective of physical spaces, the two basic elements that make up urban space are streets and squares (Krier, 1979). Urban spaces and their form are determined by the positions and qualities of the buildings surrounding them. The terms 'closed' and 'open' (i.e. spaces completely or partially surrounded by buildings) can be found in all spatial forms that are streets, squares and variations thereof. In the perception and readability of these urban space textures, closedness and definition are important concepts. While explaining the qualities of urban form, Lynch states that in the category of "continuity", which he considers as one of the categories that directly concern design, qualities such as the continuation of a boundary or surface, the proximity of buildings, the repetition of rhythmic intervals, and similarity facilitate the perception of complex physical reality as a whole or in relation to each other (Lynch, 2011).

Özdeş (1974), while explaining the effect of square formation in public spaces in cities, states that these areas should be closed spaces. He considers that the spaces between the surrounding buildings should be small for an "effect formation" that will create a perception of closed space by defining streets, courtyards and squares that make up the urban public spaces. The fact that all of these buildings are in different dimensions, at different heights and in completely separate characters weakens the spatial effect.

In the study area, paralel with the conceptual background, in order to question the visual perceptions of urban public spaces and their capacity to create a spatial effect, some strategic/

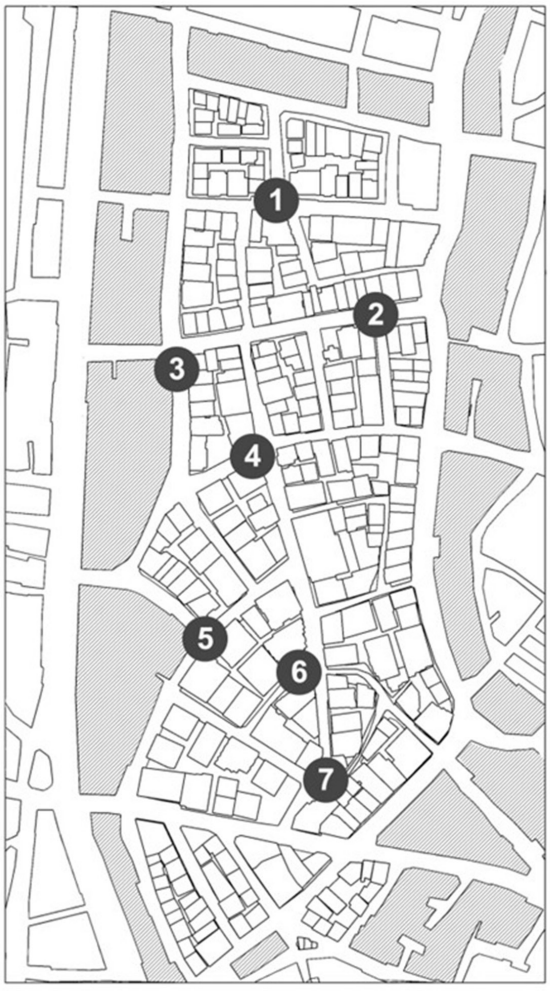
vantage points have been determined (Table 2).The locations of this vantage points were kept constant. Analyzes were carried out according to three different situations. These three situations consist of the current situation today and the other two situations that are simulated according to the zoning plan and notes in the future. The mixed phases of the renewal process have been excluded in order to make clearer evaluations in the comparison of the analyzes to be made. The other two situations are lot and city block-scale urban renewal simulation situations.

Space syntax method was used to analyze spatial form and visual perceptions that vary depending on all three situations. The value ranges for all-line analysis, which are more meaningful in the urban design scale, and the VGA values of the vantage points were calculated. It was determined that the all-line value ranges in the city block scale were considerably higher than the value ranges in the lot scale, and that the VGA values on the city block scale were approximately 4-5 times higher than the lot scale values. The value ranges calculated in the All-line analysis reflect the density of the number of bonds that the vantage points form with the corners around them. In the city block-scale spatial form, it is seen that these values, that is, the density, increase even more. This increasing density situation is interpreted as a decrease in spatial closure or definitiveness in city block-scale formation (Figure 7).

A similar finding is also seen as a result of the Isovist analysis applied. As is known, Isovist analysis offers a way of geometrically describing the spaces and forms of a building /outer spaces which can be seen from a particular

Table 2. *All-line and VGA values of the three cases (Existing situation, simulated renewals-lot and city block scale) depending on designated vantage points.*

indexes	All-line values of existing situation	All-line values of simulated renewals	
		lot scale	City block scale
1	235 - 860	165 - 375	150 - 500
2	123 - 413	120 - 310	235 - 570
3	390 - 1058	154 - 325	260 - 998
4	253 - 540	178 - 343	240 - 795
5	200 - 445	96 - 240	246 - 680
6	140 - 375	140 - 200	300 - 710
7	167 - 422	121 - 519	375 - 998
indexes	VGA values of existing situation	VGA values of simulated renewals	
		lot scale	City block scale
1	1560	1440	4547
2	1156	1095	5603
3	1398	1141	5561
4	721	1588	4950
5	849	1369	4764
6	539	874	7123
7	720	1194	3998
n	Vantage points in the study area		



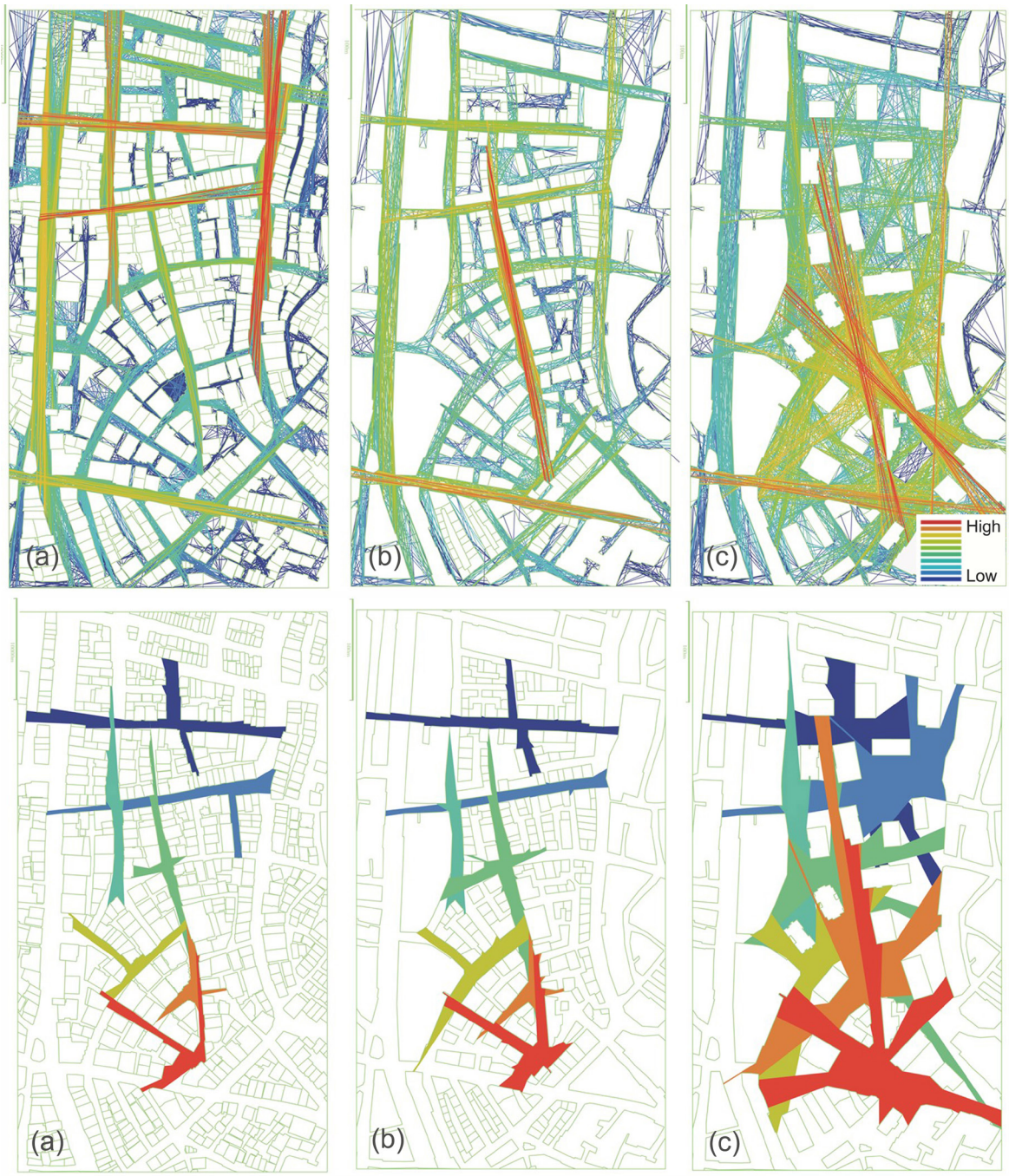


Figure 7. *Top row, All-line analysis of the three cases. Existing situation (a), simulated renewals- lot scale (b) and city block scale (c). Bottom row, Isovist analysis of the three cases. Existing situation (a), simulated renewals- lot scale (b) and city block scale (c).*

position (Ostwald & Dawes, 2018). In the isovist analysis, which is based on the same vantage points, the current situation and the findings of the urban renewal study simulated at the lot scale are in parallel, and the urban renewal study simulated on the city block scale makes a big difference. In the first two cases, it is observed that the existing street texture form and perception are preserved, while in the city block-scale situation, the continuity of the current situation, the street texture and perception are almost destroyed. The spatial perceptions of the streets that exist at these points turn into a cluster of small squares that cannot have meaningful relations with each other and do not have a spatial syntax and form. The perception of the square for each point cannot be strong because visual closeness cannot be achieved (Figure 7).

On the city block scale, public spaces formed by the coming together of point residential blocks disconnected from the environmental context

are undefined negative spaces. Lynch (2011) states that "if the environment is visually arranged and sharply defined, the urban gives shape to the city with its own meanings and contexts. Only then can the city become a real place that is remarkable and easy to describe" emphasizes the conscious definition of urban negative spaces.

Venturi (1991), points to the importance of Gestalt psychology by saying that an architecture based on complexity and reconciliation cannot give up the whole. The "shape-ground" mapping method that Giambattista Nolli applied in his Roman map published in 1748, which accurately depicts the form and system of public space in the city and has become a powerful tool for urban space research, is an important instrument in reading urban textures in the context of positive and negative spaces. In the analysis studies of the study area carried out using this method, the space definition capacities and changes of public spaces are clearly revealed (Figure 8). According to the comparison made between the current situation shape-ground analysis and the shape-ground analysis obtained from the urban renewal simulation based on the lot-scale, no significant change is observed. However, it is seen that the shape-ground analysis obtained from the city-block-scale simulation proposes a very different spatial structure, form and perception from the current situation analysis. Similar determinations were made in the evaluations of the three-dimensional model of city-block-scale simulation, all-line and isovist analyses.

It is determined that a chaotic spatial formation will emerge in the future. The accidental formation of planned urban development is manifested in all its nakedness. It is seen that all spatial traces of the existing urban texture are disappearing, urban memory is being completely erased, the descriptive walls of urban space, the residential texture, which are the barriers that channel pedestrian movements in Krier's (1979) words, are being removed and a whole new texture consisting of point blocks that do not have this capacity is being introduced.

6. Conclusion

In addition to making the buildings earthquake resistant with the renewal activities carried out in the existing urban housing textures, it is also expected to develop the social reinforcement facilities of these textures, to increase the public spaces that enrich life, to increase the quality of the space and to create an

Figure 8. *Application of the figure-ground mapping analysis method to the study area in three cases. Existing situation (a), simulated renewals- lot scale (b) and city block scale (c).*

urban integrity. And how the renewal activities will develop in line with the zoning plans and regulations in force and whether they can respond to these expectations is an important question that we faced.

In this context, within the scope of the architectural project studio, the urban textures subject to urban renewal were discussed and renewal simulations were made according to the zoning plans and notes in force. The data obtained from these simulations were analyzed using the space syntax method in the context of neighborhood relationship, commercial vitality and spatial perception phenomena, which are important components of urban life quality. Analyses based on measurable values have made it possible to make a comparative evaluation. As a result of these analyzes and evaluations, important determinations were made.

In the architectural dimension, it has been determined that the opportunities to produce efficient architectural solutions within the scope of lot-scale renewal works are almost limited and the architectural scale does not have the instruments to overcome these problems. Observations, analyzes and evaluations made in the planning dimension show that there are some difficulties in taking decisions that can produce solutions to the current problems of the region. It was determined that the plan decisions were insufficient in the functional change of certain zones that will improve social facilities and life for the use of public benefit, urban space quality and urban integrity. Within the scope of city-block-scale renewal simulations, according to space syntax analysis, it was determined that neighborhood relations and commercial vitality would weaken, neighborhood life would disappear and residential city-blocks would turn into gated communities. Negative areas in the context of the shape-ground relationship between the housing buildings appear randomly without any concern for design thinking. All these findings show that the urban form is turning into masses of individual building clusters that do not support social interaction.

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