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Creating zoning plans with pass theory approach, example of 1/5000 zoning plan

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Abstract

Zoning plans express the process of arrangement and taxonomy in areas where people live together as a community. They occur in a region on a different scale from general to specific. Master and implementation zoning plans are plans made especially in this sense. In these plans, areas such as housing, and commercial and social equipment needed by the people living in the relevant region are created. These are the zoning plans that show the general lines of the plans before the implementation in the 5000 plans called development. From this point of view, we can evaluate the question of how the zoning plan will be formed with different approaches. One of these approaches is pass theory. Pass theory refers to the brain's process of perceiving different functional elements. In other words, it emerges in the form of attention, knowledge, simultaneous and sequential cognitive processes, planning and results while planning. In our study, a city-based study was carried out on a scale of 5000 in Turkey. In the revised zoning plan of the city of Elazığ, the formation of areas open to development and the planning process that can meet the needs of the increasing population was examined with the pass theory.

1. Introduction

Zoning plans are generally the arrangements that enable the functional use of certain land, make evaluations in terms of population, and help to take steps for regular and healthy urbanization in the future. Although the zoning plans are made specifically for a certain land a model is drawn from the land for the whole city to be healthy and prosperous (Aslan, 2019; Yayla, 1975). The basis of the zoning activities carried out within the framework of the Zoning Law is the preparation of the zoning plan and the implementation of this plan within a specific program. Regular urbanization of a region, benefiting from infrastructure and superstructure services healthily, bringing it to livable standards by contemporary needs, first of all, make it necessary to prepare, put into effect, and implement a zoning plan and program for the region (Kulaklı, 2014). In settlement areas, the behavior of the people living there, and the relations of people with these areas should be regulated and controlled. It is like a man settling in a place and owning an immovable one in that place. The issues mentioned here are also human rights. The right to life comes first among the rights related to settling in a place (Terzioğlu, 2015). In addition to the right to live, in the inhabited area of the person; use and move freely, acquire, make changes and save (Kalabalık, 2002; Terzioğlu, 2015). The implementation of the zoning plan is the whole of the methods that ensure that the property texture, for which new usage decisions are made with the zoning plan, is adapted to the zoning plan and all kinds of urbanization activities are carried out. However, zoning practices are the basic implementation tools in terms of ensuring the formation of modern and livable healthy cities, and they are processes that are carried out based on the methods whose boundaries are specified by the laws and regulations (Terzioğlu, 2015).

Urban Transformation is conceptually defined as the demolition of unlicensed buildings that do not comply with the city's zoning plan, and the creation of collective settlement areas by the plans (Koçak, 2014; Terzioğlu, 2015). It has been defined as all the actions taken to create housing, trade, culture, tourism, and social reinforcement areas, to take precautions against natural disaster risks, to renew and preserve the historical and cultural texture of the city, and to use it by keeping it alive (Erzene, 2013; Terzioğlu, 2015). Zoning regulations have been established for the development of constructed buildings within the framework of certain legal rules and plans. The zoning regulations and the hierarchy of plans related to it have directly or indirectly affected the zoning movements (Tanrivermis et al., 2016; Yavuz, 2017). Although the concept of planning can be evaluated with different approaches, its general meaning is; It refers to a goal to be reached at the last stage and the process to be followed for this purpose (Yavuz, 2017). Investment concerns in the construction and real estate sectors, which are in direct interaction with the economic structure of the country, are directly related to the spatial plans and the rent areas revealed by these plans. While determining investment areas in business development processes, each investor tries to develop land with some concerns such as how feasible the investment will be and how suitable the market is for this investment (Sarı, 2003; Yavuz, 2017). Plan revision and change both apply to plan types at all scales. Many planning works that should be handled within the scope of plan revision are implemented as plan changes (Babacan Tekinbaş, 2008; Tatlı, 2017). According to the planning hierarchy, revisions and changes may come to the fore for the spatial strategy plan, environmental plan, master zoning plan, and implementation zoning plans. The most frequent plan changes are on the implementation of zoning plans. While the area measurement and proportions of the 5000 plan were created from the table in the findings section, planned areas were tried to be determined in line with the planned areas type zoning regulation, which entered into force as the latest form on October 1, 2017. In addition, since the Ministry of Environment, Urbanization and Climate Change create the master development plans within the ministry, the directions of the zoning and adjacent areas were determined with the regulation on unplanned areas. With the transition between the old planned type and the changed regulation, new ratios were created in the existing areas in the zoned areas. In the table, it has been determined that there are no big differences between the two regulations. However, it is noteworthy that the phrase "obligatory by the public interest" in the definitions section of the zoning plan change in the Regulation on the Principles of Plan Making has been changed to the phrase "for public benefit" in the Spatial Plans Construction Regulation. It can be said that this change of expression will cause an increase in the number of changes in the zoning plan (Tatlı, 2017).

When plan-making regulations and plan-making techniques are examined, the techniques, display languages, levels of detail, etc. used within the framework of comprehensive planning understanding while preparing the upper-scale plans and lower-scale plans prepared in our country. It is seen that they are made as physical plan documents that are identical to their features (Ercan, 2007; Kayahan, 2019). Pedestrianization applications have been made in metropolitan centers. With the construction activities in the city centers, historical and cultural values were destroyed and as a result of the increase in density, green and social infrastructures were also insufficient. Buildings in housing areas have started to be built by cooperatives and have been realized. Social housing policies were developed, but the problems in fund transfers were not sufficient to meet the continuity and demand. As a solution, mass housing production has been included in development plans (Bilgin, 2002; Karadeniz, 2020). Despite the participation of the state (initiative), mass housing practices were generally carried out by the private sector and local governments (Karadeniz, 2020; Tekeli, 2013). Zoning plans are the most important tools that organize urbanization. The functions determined by the zoning plans are to ensure that the citizens of the city have a more organized living space and to control the future growth and development of the city with a certain mechanism. According to the planning hierarchy, 1/100,000 scaled Environmental Plan, 1/5000 scale master plan, and 1/1000 scale implementation development plans

are made and decisions are made on how and for what purpose the lands will be used, and areas such as housing, commerce, industry, agriculture, and forest are determined. The legal and constitutional basis of zoning plans is the concept of superior public interest. They are documents that balance individual interests with the general interests of the people, hence individual interests. It is a social consensus document that balances short-term common benefits and long-term goals, prevents injustices, foresees the problems that may arise, puts physical, geographical, cultural, and economic orientations, and prohibitions, and determines possibilities (Ebevi, 2021). Urban planning, on the other hand, is a public service that prioritizes the benefit of society to provide a safe and sustainable living space to the society it hosts, takes a role in the physical development of cities by considering all needs, is interested in directing the formation of the city, and seeks solutions to problems (Höçük, 2021).

While creating zoning plans with a scale of 5000 or 1000, a series of embroideries should be created by considering all the elements of the area where the living population is located. In our study, the equipment that can meet the needs of approximately 600 thousand people in a certain area from housing, education, health, and social needs, taking into account both the conditions of the day and the average increase in population density, for 30-40 years, without the need for constant changes afterward. It has been to follow a way about which methods can be done.

2. Theoretical Framework and Scope

Planning, with a general definition, includes producing the land use decisions made to determine the usage patterns, capacities, and location choices of the functions in the space. Here, planning is defined as the preparation of systematic programs for the future to achieve the desired goals (Kiper, 2013; Topal, 2019). These are the applications made to ensure that the immovable properties of the immovable owners are made by the zoning plan without waiting for the actions to be taken by the relevant administrations if the implementing administrations are late in making the lands of the immovable owners comply with the usage decisions specified in the zoning plan. However, in case of different usage decisions with the new zoning plan in the previous subdivision plans, or in cases where the immovables in the subdivision plan need to be divided into smaller pieces and the parcels in small pieces should be combined, applications are made upon the request of the immovable owners (Terzioğlu, 2015). border correction; In case there is a border between two parcels that affects the use of the parcel, it is the correction process carried out with the consent of the parcel owners, provided that the parcel areas do not change. For example, in cases such as the presence of a parcel boundary that makes it difficult to place a building on a parcel with an unfavorable border, or the building appearing as encroaching on the application sketch, the parcel boundaries can be resolved by mutual agreement of the immovable owners. In parcels that need border correction, the parcel areas mustn't change after the correction process (Kağızmanlı, 2009; Terzioğlu, 2015). The allotment process, after the real estate is registered on a separate page of the land registry, is divided into two or more parts, upon the request of the relevant person, by Articles 15 and 16 of the Zoning Law No. recording it on a separate log page under a separate parcel number (Çelik, 2006; Terzioğlu, 2015).

Expropriation is one of the tools used in the implementation of zoning plans (Terzioğlu, 2015; Yaşar, 2008). Road, park, playground, school, hospital, etc. shown in the zoning plan. The ownership of the lands on which the public use or facilities to serve the public will be built may be in the hands of private individuals. To perform public services in these places, the ownership of these places must first be transferred to the relevant public institutions. The process of transferring the right of use of the property to the public without seeking the consent of the owners is called expropriation (Terzioğlu, 2015; Tüdeş, 1997). During the preparation of the plans, some ordinary or extraordinary factors such as unpredictable population movements, socioeconomic changes, and increasing social needs may require changing the zoning plans (Şen, 2000; Yavuz, 2017). The definition of the master zoning plan, the general principles of the regional plans, if any, and the environmental plans, if any, on the existing maps, again with the cadastral status of the plots, if any; It is a plan that is a whole with the plan provisions and the report, which is prepared to show the general usage patterns, the development, direction and size of the settlement areas, population densities and thresholds, transportation systems and to prepare the application development plans (Aslan, 2019). However, each city has its own economic and political history, in which it forms unique administrative arrangements among its political forces. It is an important mechanism of change in the city in the local governments involved in the implementation process, as well as the planning policies followed (Palamutoğlu, 2019; Reichl, 1997). Apart from the elements we mentioned while making master or implementation zoning plans, problems arise based on planning during the formation. This causes an increase in time and costs in terms of planning as a process in the formation of master plans. On the islands located in the old settlement area, it used to be an open development road but turned into a closed road, when the zoning islands get smaller or larger based on area, abandonment of the road, and the formation of the road, the city centers on the relevant zoning island during the transition from the adjacent building order to the split or block building order. The planning process should be carried out by taking into account factors such as keeping the living population in the middle, questioning whether it is possible for infrastructure and superstructure systems by making all kinds of feasibility at the points to be designated as new settlement areas, ensuring the green area ratio based on parcels within the island. . In the zoning plans, it should be created in a way to answer the questions about how many floors the island and the parcel on the island will be built, how the precedent distribution will be made when it is commercial and

residential, and how the road route lines can be in a systematic residential or commercial zone (Kaya, 2020). In the mentioned short time, daily interventions such as holistic and repetitive plans or partial plan amendments and local precedent changes could not solve the structural problems in both master and application zoning planning systems in general spatial planning. In this process, both the number of upper-scale plans and their relations were redefined. However, the interaction structure required by strategic approach, coordination, continuity, and planning has not yet been established in planning practice at the current stage. (Onur, 2020). The preparation and creation of real project data in distribution and parcellation problems in zoning applications is a very complex process that takes a very long time. It is very difficult to prepare the actual project data as the creation of cadastral islands, parcels, and zoning islands, obtaining the location and area data of all the islands and parcels, and generating the land owner data are performed manually by an expert. Because all these data must be fully compatible in terms of area, location, and owner. In addition, in a real project area, irregularly shaped islands and parcels can often be found, and cadastral and zoning islands can be in very different regions. In other words, cadastral and zoning areas generally do not overlap. In addition, the areas of the owners can often be very different from each other. While one owner can have a very small area, the other can have a very large area (Koç, 2020). In urban renewal practices, unlike urban renewal, the participation of the public in the changes to be made in the city and the transformation of the urban space is considered, and it is planned to restructure the region by the lifestyle of the users living in the renewal region (Demirkıran, 2008; Yıldız, 2021). In the project-based system, plans are developed as a political but fair and non-binding public strategy. Plans determine some framework rules in public and private project implementations to realize public and private projects that will contribute to government strategies (Booth, 2003; Kılınç, 2021). The hierarchy principle, which is the basis of the regulatory planning system, is overcome by the horizontal and vertical appropriateness principle in the project-based system (Kılınç, 2021; Rivolin, 2017).

In summary, within the scope of the theoretical framework, while creating all the equipment that will make an unzoned area be opened for a new development zone, when it is desired to transform a zoned area from one that cannot meet the needs to one that can meet the needs, in the creation of the most suitable zoning plans for the transformation of these areas before disasters such as earthquakes, floods, and landslides. Transition theory can be used according to the correlation of all elements in urbanism and planning, which can respond to all kinds of needs in the long term, such as the formation of a local zoning plan, in the creation of zoning plans in the region announced in the zoned areas that have completed the building stock life.

In terms of urbanization, the purpose of arranging and making zoning plans is to create cities based entirely on information systems. Thus, it ensures that all social and human reinforcement areas are formed in a city model that is compatible with each other. When the zoning plans are viewed in CAD environments, it instantly transfers the data from the field to the computer environment.

3. Material and Method

Pass Theory is a theory that consists of cognitive processes that form the basis of planning, attention, and simultaneous and successive information and is based on Luria's neuropsychological research (Das et al., 1994; Gürbüz, 2018; Naglieri and Kaufman, 2001). Planning, on the other hand, is the mental process in which the individual chooses and applies solutions to his problems and evaluates the results (Naglieri & Das, 1997; Gürbüz, 2018). The PASS theory put forward a view that conceptualizes intelligence as cognitive operations. According to this theory, human cognitive activities consist of 4 parts: planning, attention, and successive and simultaneous cognitive processes (Gürbüz, 2018; Naglieri & Das, 1997).

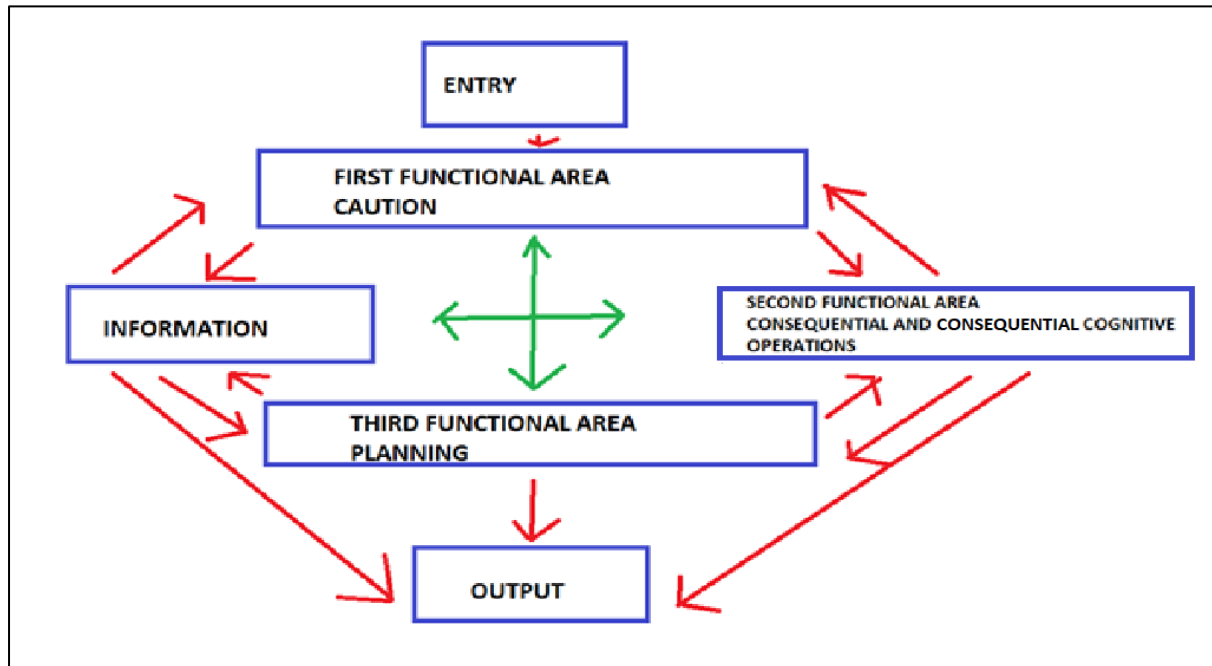


Figure 1. Scheme of Planning, Attention, Simultaneous and Successive Cognitive Processing Model (Gürbüz, 2018; Naglieri, 1989).

The planning process interacts with the other cognitive processes that make up the PASS model, attention, simultaneous and successive processes. The planning process and other cognitive processes cannot be considered separate processes and all processes are based on information. Only two points can be characterized as separate and selectable from the planning process. The first is the deterioration of planned behavior in case of damage to the anterior parts of the brain, and the second is the role of planning in high-level cognitive activities such as problem-solving (Das, Naglieri, & Kirby, 1994; Gürbüz, 2018). The planning process is very important when deciding how to solve a complex problem. Representing future events in memory, making sense of an event, and organizing actions to provide possible results are related to the planning function (Gürbüz, 2018; Korkmaz, 2000).

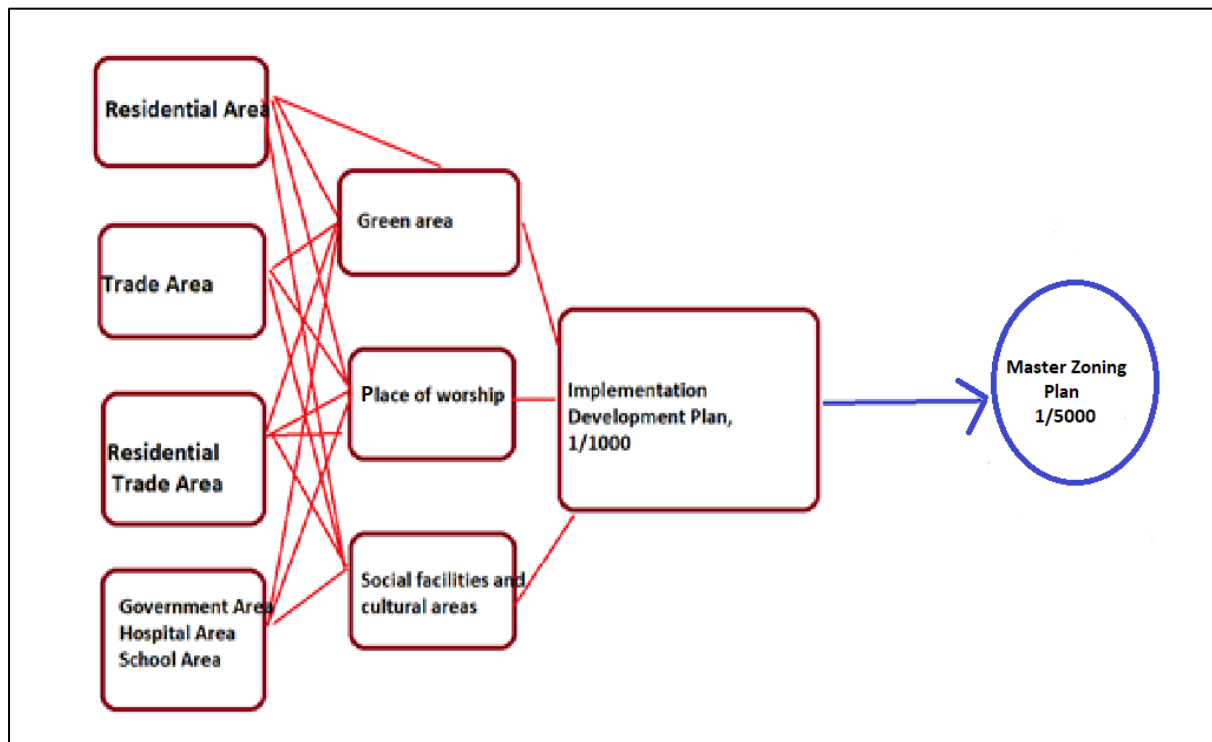


Figure 2. Hierarchy between zoning plan elements

It is a zoning plan to determine a certain border according to the density of people living in a certain area on the basis of urbanism, and to create equipment that will meet the needs of people within that border. Residential, commercial and all other areas are rebuilt or rebuilt depending on the area capacity and human growth rate of the region for at least thirty or forty years.

$$\Sigma_x + \Sigma_y + \Sigma_z = \Sigma_{(x+y+z)} \quad (1)$$

$$Ax - L = [a_{qn}E] \begin{bmatrix} h \\ l \\ l \end{bmatrix} - [q_{an}] \quad (2)$$

Parcels with all zoning island characteristics and the relationship of these parcels with each other are placed within the borders by making $v=Ax-L$ corrections on the basis of correlation.

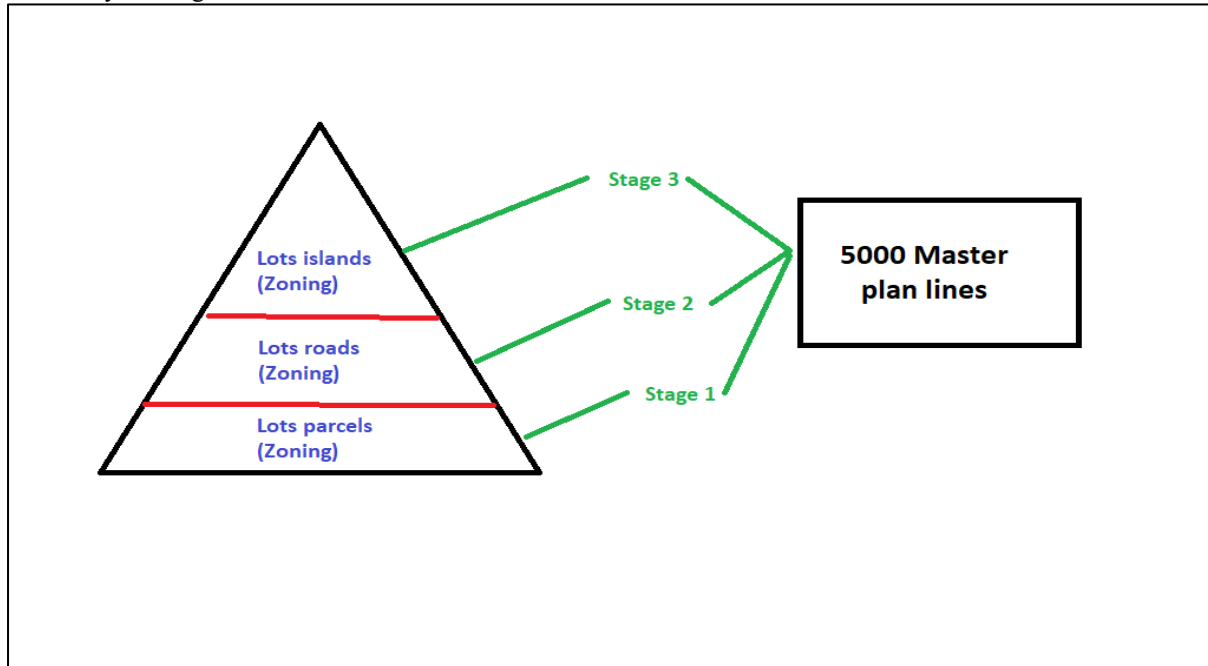


Figure 3. The main parameters that make up a zoning plan (Bender, 2011)

The simultaneous cognitive processing, which is a mental process in which the plan brings together the separate stimuli as a whole or by grouping them, affects the performance of the formation of the plan. Making inferences from the field, establishing relationships between events, bringing together correlations, creating holism, and designing and visualizing the islands are related to simultaneous cognitive processing (Yıllar, 2021). Cognitive assessment, which was developed according to the PASS theory, was analyzed through themes created based on cognitive functions measured by planning and synchronicity subtests. A content analysis strategy was adopted in the analysis of the data. In this direction, to reach the concepts and relationships that can explain the collected data, the themes explaining the data were determined and the facts about cognitive functions were organized and made understandable thanks to these themes (Turku, 2021; Yıldırım & Şimşek, 2016). According to PASS theory, students' performance differences in planning, attention, simultaneous and successive cognitive processing areas; As their academic self-perceptions and behavioral characteristics in the learning environment, affect their academic performance and accordingly their success. Performance differences in cognitive processing areas are called uncoordination (Görünmek, 2021).

Pass theory, when viewed as a cross-section from a different area mentioned above, is the job of determining the content in the best way based on urbanism and planning and ensuring that all elements are synchronized with each other in terms of order and relationship. In the upper scale to lower scale planning step, first of all, the country development plan, environmental order, region, master, and implementation development plans should be the way to show intricate transitivity with each other in the light of basic parameters such as living population and topography.

4. Findings and Discussion

Elazığ Province is located in the Upper Euphrates Section, in the southwest of the Eastern Anatolia Region. The province area, which has a total area of 9153 km² and covers 0.12% of Turkey's land with this area, lies between 40° 21' and 38° 30' east longitudes, 38° 17' and 39° 11' north latitudes.

It stays in the working area of the 8th Regional Directorate affiliated with the General Directorate of Highways in

Elazığ. The region includes all of the provinces of Elazığ, Malatya, Adıyaman, Bingöl, and Tunceli, as well as some of the provinces of Diyarbakır and Muş.

According to the Address Based Population Registration System made by the Turkish Statistical Institute in 2020, the population of Turkey is 83,614,362 people. The 2018 population of the Middle East Anatolia region, where Elazığ is located, is 3,951,294 people. The population of Elazığ in 2020 is 587,960.

The total population of Elazığ Central district, Elazığ province, is 440,513 according to the Address Based Population Registration System for the year 2020. It is stated that the population of the planning area is 361,416 people.

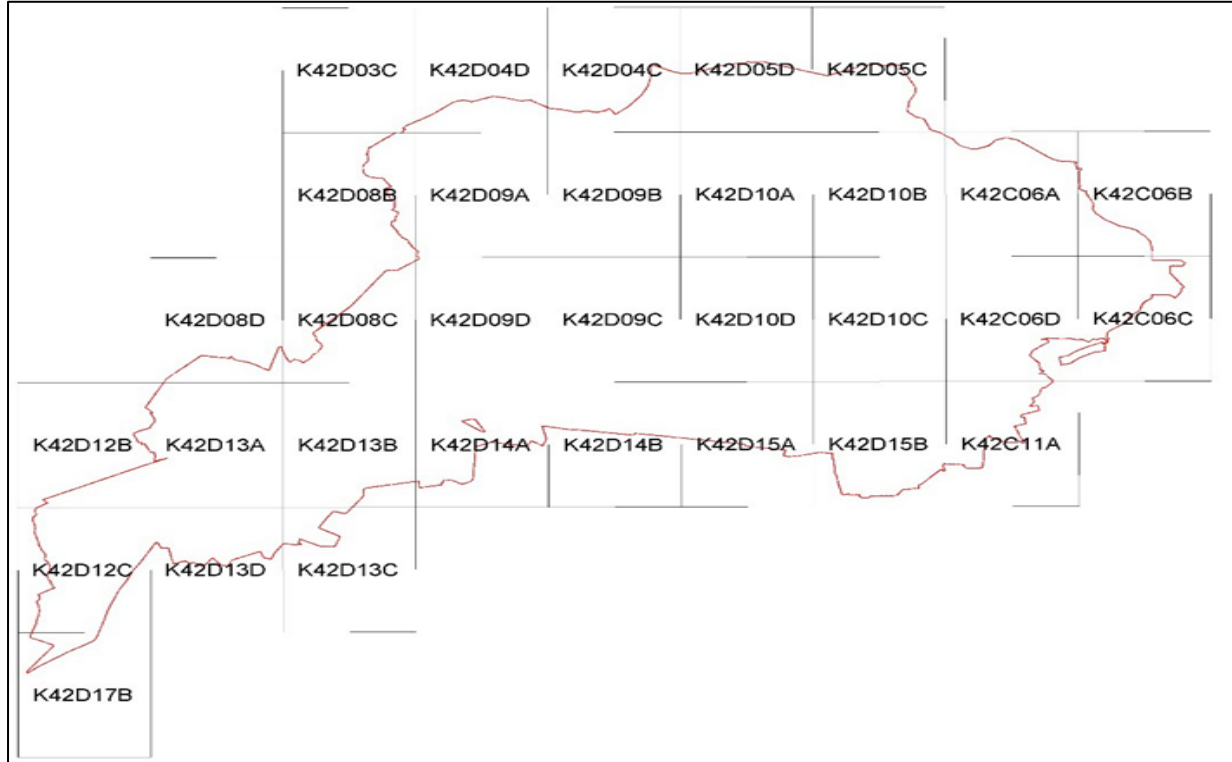


Figure 4. 1/5000 Scale Layout Index (Url 1, 2022)

Due to the problems and deadlocks that arose due to the implementation zoning plan during the period until April 2020, it was decided by the relevant administration, which is the plan implementer, to carry out some updating and rehabilitation processes on the plan, mostly in the plan notes, without changing the main scenario of the plan.

The justification for the zoning plan change was stated in the Zoning Plan Change disclosure report, which was approved in 2020, the need for regulation as a result of the experience and consultations gained during the 4 year implementation period, without changing the scenario and general setup of the revision zoning plan made in 2016, and the consequences of the earthquake that took place in Elazığ on January 24, 2020. As a result of the evaluation, the necessary arrangements in the zoning plan and plan notes; updating the zoning plan, explanation report, and plan notes within the scope of the revised zoning plan.

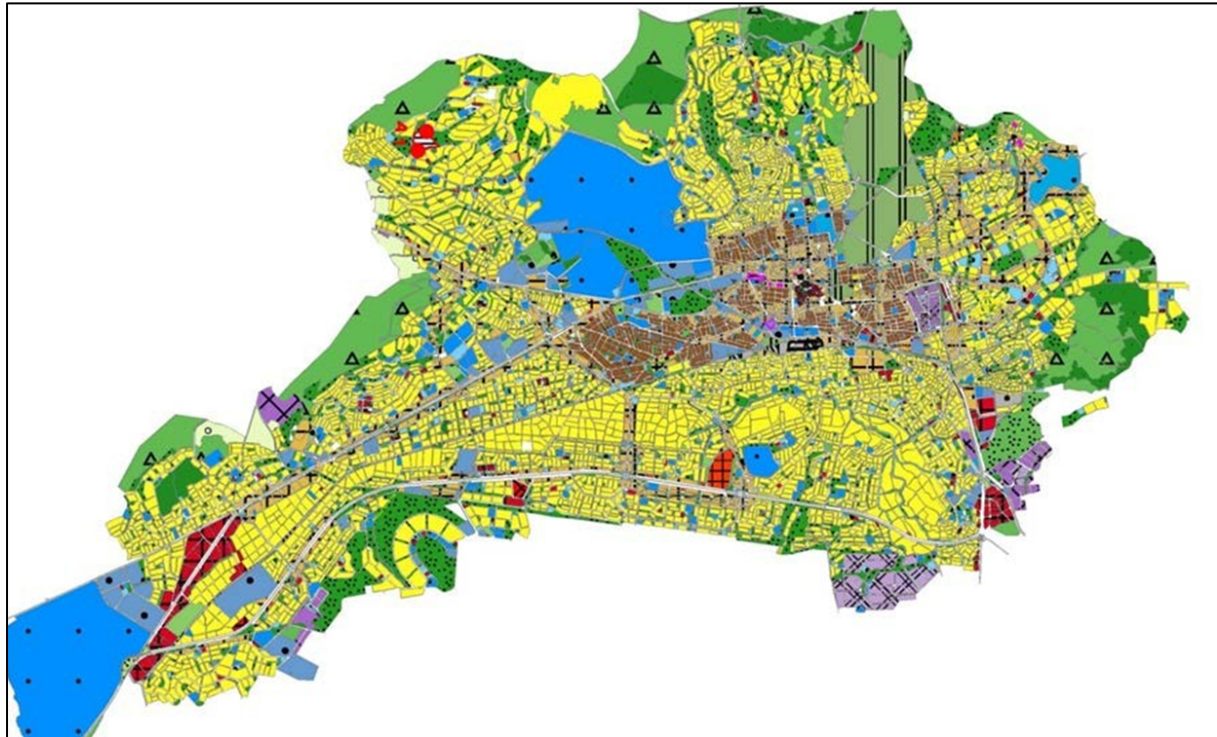


Figure 5. Elazığ City Central Revision Zoning Plan (Url 1, 2022).

- Development Trends of Elazığ City
- Institutional Opinions Received
- Geological Studies
- Site Selection Requests for Urban Functions
- Tendency to Avoid Inconsistencies in Zoning Plans from a Technical Perspective

In this respect, before the 1/5000 Scale Master Zoning Plan was prepared, the existing zoning plan was examined and the applied/non-applied areas of this plan and the existing structures were determined.

While the 1/5000 Scale Master Development Plan was being prepared, planning studies were carried out in line with the opinions of the institution, and the urban functions in the study area were arranged by considering the needs of the city.

Planning decisions were examined under the following sub-headings and the results were evaluated under these headings.

- Housing Settlement Areas and Population
- Urban Workspaces
- Protected Areas
- Open and Green Spaces
- Urban Social Infrastructure Areas
- Urban Technical Infrastructure

Table 1. 1/5000 master development plan usage area (Former)

ELAZIĞ (Center) 1/5000 Scale Master Zoning Plan Land Use (Former)				
Domain Name	Area (m ²)	Area (Ha)	Ratio (%)	
Residential Areas				
Available Residential Area (Gross Density High By 301-600 People/Ha)	1876840.45	208.32	1.84	
Available Residential Area (Gross Density Medium 151-300 People/Ha)	1443405.12	144.03	1.15	
Existing Residential Area (Low By Gross Density 150-51 People/Ha)	5462342.44	686.93	5.41	
Existing Housing Area (Rare 50 People/Ha By Gross Density)	580916.85	58.75	0.93	

Development Housing Area (401 People/Ha Too High For Gross Density)	1685356.08	114.53	1.03
Development Housing Area (Gross Density High By 251-400 People/Ha)	1987254.11	198.69	1.48
Development Housing Area (Gross Density Medium 121-250 People/Ha)	10214564.82	1050.70	7.19
Development Housing Area (Low By Gross Density 51-120 People/Ha)	3482412.53	219.23	2.42
Development Housing Area (Rare 50 People/Ha By Gross Density)	5424515.73	423.89	4.08
Urban Work Areas			
Trading Area	1214789.54	141.75	1.30
Commerce-Housing Area (Tick)	4213597.45	514.73	4.83
Trade-Tourism Area (Tict)	14826.55	1.45	0.42
Municipal Service Area	405653.87	48.33	0.85
Public Service Area	2528577.32	252.81	2.25
Storage Area	425255.84	4.62	0.17
Military Area	2780381.87	255.56	2.52
Marketplace	112438.77	18.43	0.08
Industrial Area	248398.68	25.67	0.23
Small Industrial Area	237647.56	24.65	0.20
Logistics Facility Area	575783.44	67.87	0.46
Fuel Delivery Service Station Area	147350.52	14.44	0.65
Areas To Be Protected By Continuing Today's Land Use			
Agricultural Area	3116252.97	231.53	2.87
Forest Area	2301851.91	240.54	1.88
Areas To Be Protected			
1st Grade Archaeological Site	31154.33	3.12	0.03
Health Protection Tape	35882.87	3.59	0.03
Tourism Areas			
Tourism Facility Area	7829.81	1.84	0.85
Education Facilities Area			
Training Facility Area	2059355.55	454.91	3.29
Field Of Higher Education	8840863.07	884.09	7.84
Health Facilities Area			
Health Facility Area	1754837.68	162.58	1.07
Worship Area			
Worship Area	756646.36	77.53	0.54
Social and Cultural Facility Area			
Social-Cultural Facility Area	1035703.08	103.68	0.93
Sports Facility Area	513585.68	83.56	0.82
Open and Green Areas			
Garden	8418332.82	953.82	6.87
Passive Green Area	2877.58	0.41	0.014
Kids Garden and Playground	7152.55	0.62	0.18
Property Place	203842.65	25.10	0.18
Area To Be Aforered	4512597.07	461.37	4.01
Recreation Area	802803.14	75.83	0.53
Fair, Fair and Festival Area	63214.15	5.01	0.04
Cemetery Area	811023.51	78.60	0.52
National Garden	215804.8	15.63	0.08
Square	44001.38	4.20	0.11
Disaster Dangerous Areas			
Building Prohibited Area	2246.65	0.18	0.001
Water, Waste Water and Waste Plants			
Water Surface	447631.67	44.75	0.39
Wastewater Facility Area	72859.21	8.23	0.08
Technical Infrastructure Area	122426.41	12.27	0.11

Transportation			
General Parking Area	7736.67	0.72	0.001
Terminal (Master Gar)	177145.73	16.83	0.16
Intermediate Station	576373.55	51.75	0.42
Roads	18719676.83	1758.97	14.64
Total	107186457.82	10021.58	100.00

Table 1 is the area that will meet the needs of Elazığ City when its population is between 200 thousand and 350 thousand, considering the area and the ratio of the area per person. It has been predicted as a result of the correlation of the components of a future planning pass method for 30-40 years depending on the average population increase of 400 thousand to 1 million in all reinforcement areas opened to new settlements or in the city center because they cannot meet the needs with the increasing population.

Table 2. 1/5000 master development plan usage area (Current)

ELAZIĞ (Center) 1/5000 Scale Master Zoning Plan Land Use (Current)			
Domain Name	Area (m ²)	Area (Ha)	Ratio (%)
HOUSING AREAS			
Available Residential Area (Gross Density High By 301-600 People/Ha)	2996830.34	299.68	2.66
Available Residential Area (Gross Density Medium 151-300 People/Ha)	1896609.35	189.66	1.68
Existing Residential Area (Low By Gross Density 150-51 People/Ha)	7178351.21	717.84	6.36
Existing Housing Area (Rare 50 People/Ha By Gross Density)	630720.65	63.07	0.56
Development Housing Area (401 People/Ha Too High For Gross Density)	1238260.06	123.83	1.10
Development Housing Area (Gross Density High By 251-400 People/Ha)	2008953.87	200.89	1.78
Development Housing Area (Gross Density Medium 121-250 People/Ha)	10819351.74	1081.94	9.59
Development Housing Area (Low By Gross Density 51-120 People/Ha)	3290446.81	329.04	2.92
Development Housing Area (Rare 50 PEOPLE/HA By Gross Density)	6834915.43	683.49	6.06
Urban Work Areas			
Trading Area	1919489.89	191.95	1.70
Commerce-Housing Area (Tick)	6213887.55	621.39	5.51
Trade-Tourism Area (Tict)	13524.05	1.35	0.01
Municipal Service Area	502853.72	50.29	0.45
Public Service Area	3026074.12	302.61	2.68
Storage Area	55245.74	5.52	0.05
Military Area	2950371.27	295.04	2.62
Marketplace	122337.73	12.23	0.11
Industrial Area	347354.57	34.74	0.31
Small Industrial Area	337529.85	33.75	0.30
Logistics Facility Area	775743.94	77.57	0.69
Fuel Delivery Service Station Area	168360.52	16.84	0.15
Areas To Be Protected By Continuing Today's Land Use			
Agricultural Area	2115252.97	211.53	1.87
Forest Area	1901351.21	190.14	1.69
Areas To Be Protected			
1st Grade Archaeological Site	31154.33	3.12	0.03
Health Protection Tape	35882.87	3.59	0.03
Tourism Areas			
Tourism Facility Area	8419.01	0.84	0.01
Education Facilities Area			

Training Facility Area	4049065.15	404.91	3.59
Field Of Higher Education	8840863.07	884.09	7.84
Health Facilities Area			
Health Facility Area	2024937.48	202.49	1.79
Worship Area			
Worship Area	876247.62	87.62	0.78
Social and Cultural Facility Area			
Social-Cultural Facility Area	1135793.06	113.58	1.01
Sports Facility Area	613375.58	61.34	0.54
Open and Green Areas			
Garden	10417382.92	1,041.74	9.23
Passive Green Area	2567.44	0.26	0.002
Kids Garden and Playground	8052.62	0.81	0.01
Property Place	309833.72	30.98	0.27
Area To Be Aforered	4812687.87	481.27	4.27
Recreation Area	877813.51	87.78	0.78
Fair, Fair and Festival Area	62916.74	6.29	0.06
Cemetery Area	814973.9	81.50	0.72
National Garden	217824.8	21.78	0.19
Square	46011.38	4.60	0.04
Disaster Dangerous Areas			
Building Prohibited Area	2646.45	0.26	0.002
Water, Waste Water and Waste Plants			
Water Surface	547531.27	54.75	0.49
Wastewater Facility Area	82869.2	8.29	0.07
Technical Infrastructure Area	132726.41	13.27	0.12
Transportation			
General Parking Area	8036.57	0.80	0.01
Terminal (Master Gar)	187117.73	18.71	0.17
Intermediate Station	554973.75	55.50	0.49
Roads	18771676.29	1877.17	16.64
Total	112817197.33	11281.72	100.00

In the field of planning; There are residential areas of different heights and precedents, ranging from 2-story residential areas to 10-story residential areas.

In Existing Housing Areas; Sparse Density Residential Areas (50 - person/ha), Low-Density Residential Areas (150-51 Person/ha), Medium Density Residential Areas (151-300 Person/ha), and High-Density Residential Areas (301-600 Person/ha.) in the Development Housing Areas; Sparse Density Residential Area (50 - person/ha), Low-Density Residential Area (51-120 Person/ha), Medium Density Residential Area (121-250 Person/ha), High-Density Residential Area (251-400 Person/ha.) and Very High-Density Residential Area (401+ Person/ha) density decisions are envisaged. Within the planning boundaries, there is a total of 12,702,511.55 m² of Existing Housing Area, and a total of 24,191,927.91 m² of Development Housing Area.

Within the Urban Study Areas in the Planning Area; There are Public Service Areas, Trade Areas, Trade Housing Areas, Trade Tourism Areas, Market Areas, Industrial Areas, Small Industry Areas, Storage Areas, Logistics Facility Areas, Military Areas, and Municipal Service Areas.

Planning was made in line with the current development trends and the practices suggested in the previous plans. It has a total area of 3,026,074.12 m² within the planning boundaries. Regional commercial activities, business centers, banks, shopping centers, structures with daily commercial functions, etc. can take place in the Trade Areas. Commercial areas are generally located in the city center, and different precedents and floor heights are planned in line with the development trends of the city. There is a total commercial area of 1,919,489.89 m² within the planning boundaries.

Commercial-Residential Areas are mixed-use areas where residential and commercial uses come together. The housing ratio in the mixed-use area can be as much as specified in the plan notes. The area of social equipment and technical infrastructure required by the rate of residential use has been calculated in the plan. There is a total of 6,213,887.55 m² Commercial-Housing areas within the planning boundaries. Trade-Tourism Areas are mixed-use areas where tourism and commercial uses come together. There is a total of 13,524.05 m² Trade-Tourism area within the planning boundaries. Market Areas have been determined in the areas needed by the city and in line with the development trends. There is a total of 122,337.73 m² Market Area within the planning boundaries.

Industrial Areas are located in the southeast of the city, and there are also Specialized Organized Industrial Plant Areas

Based on Animal Products and Agriculture in this area. There are 347,354.57 m² Industrial Areas in total. Small Industrial Areas; These are the areas where the daily maintenance-repair, repair, and small-scale production needs can be met, where there are structures such as workshops and workshops that do not contain explosive, flammable, and flammable materials and do not pose a danger to environmental health.

There are 337,529.85 m² Small Industrial Areas in total within the planning boundaries. Storage Areas are the areas planned in line with the needs of these facilities in the region where the Industrial Areas are located. There are 55,245.74 m² Storage Areas in total within the planning boundaries. The Logistics Facility Area is located in the south of the city and is planned as the area where all storage, distribution, and support services for transportation activities by land, rail, and air are carried out. There are a total of 775,743.94 m² Logistics Facility Areas within the boundaries of the planning. These are the areas where the structures of the Land, Naval, or Air Force Commands that make up the Turkish Armed Forces for defense, operations, borders, and national security, barracks, headquarters, military branch, and other social facilities such as administrative, education, health, housing, army house for the needs of the Turkish Armed Forces. . There are 2,950,371.27 m² Military Areas in total within the planning boundaries. Municipal Service Areas; These are the areas where facilities are established to meet the local common needs such as fire brigade, emergency aid and rescue, vehicle machinery park, maintenance supply station, warehouses, waste processing facility, municipal police units, bread production facility, necessary for the delivery of services within the scope of the duties and responsibilities of the municipalities. There is a total of 502,853.72 m² Municipal Service Area within the planning boundaries. In the Fuel and Service Station Areas, provided that the legislation regarding the distance between stations and other criteria is complied with; fuel and service stations, CNG autogas stations, hydrogen production, and filling stations will be possible. In addition, these are the areas where the auto market, tea shop, toilet, prayer room, buffet, auto electricity, tire shop, and washing functions can take place, which will meet the minimum needs. There are a total of 168,360.52 m² of Fuel and Service Station areas within the planning boundaries.

Areas to be Continued to Use Today's Area; These are the areas defined as Forest Areas and Areas to be Protected Agricultural Quality. These areas are not suitable for construction.

Forest Areas; Although they remain within the city limits, they are areas whose forest quality is protected. Ecologically important areas and nature protection areas, special environmental protection zones, national parks, nature protection areas, and wildlife protection areas are evaluated within the scope of this area. There is a total forest area of 1,901,351.21 m² within the planning boundaries.

Areas to be Protected Agricultural Characteristics; According to Article 13 of the Soil Conservation and Utilization Law No. 5403, Absolute agricultural lands include Special croplands, Dikili agricultural lands, and Irrigated agricultural lands. Appropriate opinion of the Provincial Directorate will be sought for the changes in the zoning plan for non-agricultural use in these areas. There is a total of 2,115,252.97 m² of Agricultural Quality Protected Area within the planning boundaries.

Accommodation facilities such as Hotels, Motels, and Pensions can be built in areas defined as Tourism Areas. There is a total of 8,419.01 m² Tourism Area within the planning boundaries. Training Facility Areas; Kindergarten, Primary and Secondary Education, High School, Special Education Area, Public Education Area, Vocational and Technical Education Center, and Higher Education (University) belonging to public or legal persons, education campus, school and school related to general, vocational and educational functions. These are the areas reserved for facilities such as dormitories, dining halls, and gyms. There is a total of 12,889,928.22 m² of Education Facilities Area within the boundaries of the planning.

Health Facility Areas; These are the areas reserved for facilities such as Hospitals, Health Centers, Family Health Centers, Maternity hospitals, Dispensaries and Polyclinic, Oral and Dental Health centers, and Physical Therapy and Rehabilitation Centers. There is a total of 2,024,937.48 m² Health Facilities Area within the planning boundaries.

Social and Cultural Facility Areas; Facilities for the cultural needs of the society such as Cinema, Theatre, Museum, Library, Congress Center, and Indoor Sports Facilities, and social needs of the society such as crèches, courses, dormitories, kindergartens, orphanages, nursing homes for the elderly and disabled, rehabilitation centers, community centers, and homes of compassion. The facilities for the purpose are the areas reserved for indoor use. There is a total of 1,749,168.64 m² Social and Cultural Facility Area within the boundaries of the planning.

Worship Areas; The facilities where it gathers to worship and benefit from religious services and the complex of these facilities provided that they are compatible with the architecture of the religious facility, the accommodation, library, soup kitchen, rest room, condolence place, dormitory and course structure, gasoline, fountain, and toilet, etc., or underground parking areas. There are 197 Worship Areas with a total of 876,247.62 m² within the boundaries of the planning. Open and Green Spaces; These are areas that define usage functions such as Parks, Children's Playgrounds, Recreation Areas, squares, Recreation areas, Fair Areas, Areas to be Afforestation, Public Gardens, and Cemeteries. There is a total of 17,570,064.90 m² Open and Green Areas within the planning boundaries.

Urban Technical Infrastructure areas; These are the areas where facilities built for the provision of services such as Electricity, Petroleum, and Natural Gas transmission lines, Transformers, all kinds of energy, transportation, and communication can be built. There is a total of 132,726.41 m² Urban Technical Infrastructure area within the planning boundaries. Water, Waste Water, and Waste Facilities are areas where facilities such as potable and utility water and all kinds of underground and surface treatment, sewage, and waste processing can be built. There is a total of 630,400.47 m² Water, Waste Water, and Waste Facility Area within the planning boundaries. Transportation Areas;

These are areas of usage such as highways, railways, Main transportation axes, Urban carrier roads, Pedestrian roads, Parking Lots, Bus stations, and Intermediate Stations. There is a total of 750,128.05 m² Transportation Area and 18,771,676.29 m² Road Area within the planning boundaries.

Above, the amount per capita planned to meet the population need between 400 thousand and 1 million is determined by the master plans. After determining the form of the work with the master, these rates are determined by the application development plan, such as the population more or less, residential or commercial, park or official institution such as school, proximity, distance, timing, possibility to take the infrastructure, creation of a transportation network, square, place of worship, police station, etc. The relationship between non-residential service areas and the creation of industrial areas is associated with the transition method.

Table 3. Need Ratios of All Elements Related to Population/Area Ratio of Master Zoning Plan According to Current and Former Plan

Master Plan Elements	€c-€f	Direction
Available Residential Area (Gross Density High By 301-600 People/Ha)	2.66-1.84	+
Available Residential Area (Gross Density Medium 151-300 People/Ha)	1.68-1.15	+
Existing Residential Area (Low By Gross Density 150-51 People/Ha)	6.36-5.41	+
Existing Housing Area (Rare 50 People/Ha By Gross Density)	0.56-0.93	-
Development Housing Area (401 People/Ha Too High For Gross Density)	1.10-1.03	+
Development Housing Area (Gross Density High By 251-400 People/Ha)	1.78-1.48	+
Development Housing Area (Gross Density Medium 121-250 People/Ha)	9.59-7.19	+
Development Housing Area (Low By Gross Density 51-120 People/Ha)	2.92-2.42	+
Development Housing Area (Rare 50 People/Ha By Gross Density)	6.06-4.08	+
Trading Area	1.70-1.30	+
Commerce-Housing Area (Tick)	5.51-4.83	+
Trade-Tourism Area (Tict)	0.01-0.42	-
Municipal Service Area	0.45-0.85	-
Public Service Area	2.68-2.25	+
Storage Area	0.05-0.17	-
Military Area	2.62-2.52	+
Marketplace	0.11-0.08	+
Industrial Area	0.31-0.23	+
Small Industrial Area	0.30-0.20	+
Logistics Facility Area	0.69-0.46	+
Fuel Delivery Service Station Area	0.15-0.65	-
Agricultural Area	1.87-2.87	-
Forest Area	1.69-1.88	-
1st Grade Archaeological Site	0.03-0.03	0
Health Protection Tape	0.03-0.03	0
Tourism Facility Area	0.01-0.85	-
Training Facility Area	3.59-3.29	+
Field Of Higher Education	7.84-7.84	0

Health Facility Area	1.79-1.07	+
Worship Area	0.78-0.54	+
Social-Cultural Facility Area	1.01-0.93	+
Sports Facility Area	0.54-0.82	-
Garden	9.23-6.87	+
Passive Green Area	0.002-0.014	+
Kids Garden and Playground	0.01-0.18	-
Property Place	0.27-0.18	+
Area To Be Aforered	4.27-4.01	+
Recreation Area	0.78-0.53	+
Fair, Fair and Festival Area	0.06-0.04	+
Cemetery Area	0.72-0.52	+
National Garden	0.19-0.08	+
Square	0.04-0.11	-
Building Prohibited Area	0.002-0.001	+
Water Surface	0.49-0.39	+
Wastewater Facility Area	0.07-0.08	-
Technical Infrastructure Area	0.12-0.11	+
General Parking Area	0.01-0.001	+
Terminal (Master Gar)	0.17-0.16	+
Intermediate Station	0.49-0.42	+
Roads	16.64-14.64	+

In Table 3, the elements required while preparing a master development plan that will meet the needs of 400 thousand to 1 million people and the proportions of the master plan elements made according to 200 thousand and 350 thousand people will be revealed with the ratio given by the population and the amount of the determined area. From here, when the difference between ratios is positive and negative, how will the need aspect of which of these parameters develop? It is seen that the transition theory is based on two basic elements while creating the master development plan. Population and the designated area is the main element of pass theory in planning.

5. Conclusion and Recommendation

Master zoning plans are the plans covering the next scale of additional, revised and local zoning plans, which are implementation zoning plans, determined in 5000 and 2000 scales in Turkey. These are the plans that should be arranged over a long period to meet all the human and social needs of the human population, which is administratively divided into provinces, districts, and towns. What distinguishes master development plans from implementation is that they do not go into too much detail. It determines the main axes of the plan to be created. It tries to determine the density of urban regulation zoning blocks, such as housing, commerce, official institutions, schools, mosques, police stations, parks, squares, and green areas, called the regulation partnership share. This determination can be made in different ways. One of them is the pass theory. While using the pass theory in a sociological analysis of people, it can be used in urbanization and planning as a demographic and social concept intertwined with the facts. It is to determine the elements of the pass.

Conflicts of Interest

The author declared that there is no conflict of interest.

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