The Assessment of the Criteria of Social Infrastructure within the Scope of Women-Friendly City Planning Approach: The Example of Çiğli

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Abstract

There is a close parallel between the freedom, equality and socialization that the residents in a social settıng are enjoying and the openness and equal availability of the social infrastructure in this setting. When these points are taken into consideration, it is possible to get the idea that social infrastructure areas should be planned as woman-friendly city criteria. So long as the urban planning fails to accomplish this task of creating a due process and language for gender equality, the social infrastructure areas in the cities will continue to pose a serious problem to the gender equality. In this article, an attempt has been made to articulate some suggestions for evaluating the social infrastructure areas in the light of woman-friendly city planning. This article offers some guıdelines for deciding which data should be taken into consideration and how the social infrastructure areas should be examined. The study analyzes social infrastructure areas following four categories: adequacy, accessibility, safety and usability. The findings revealed that no social infrasurcture areas met these criteria, especially in the densely used areas. The lack of face-to-face interviews with women is the shortcoming of the study. The study is one of the first studies on the subject, but it is thought that it will contribute to the field literature with its review and recommendation codes.

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INTRODUCTION

Urban space consists of private spaces that serve individuals or limited communities and public spaces that provide unity and serve everyone, where socialization processes take place (Çubuk, 1991; Hénaff and Strong, 2001). As an urban space, public space is freely accessible to everyone; It is a democratic place where a wide variety of different political and cultural activities can be expressed (Habermas, 1991; Varna and Tiesdell, 2010). In this state, public spaces are the areas of freedom where the social structure of the city is produced (Arendt,1994; Gökgür, 2008; Habermas, 1991; Thomas, 1991). Public spaces can be grouped under three headings (Akkar, 2006) those that do not belong to a private person or institution (park, street, square etc.), those who belong to institutions and organizations and do not have user restrictions (public education center, religious facility, health facility, etc.) and are legally owned by a private person or institution, but open to public (shopping malls, cinemas, commercial areas etc.). As can be seen, public spaces as a living space are important as a place where social symbols and patterns are exhibited, as well as being a meeting and communication place for social groups (Thomas, 1991).

Social infrastructure areas, which have almost all the characteristics of public spaces, are also the areas to meet the daily needs of the citizens. Urban social infrastructure areas, which are defined as all of the public uses required for a settlement to fulfill its functions, are both a means and a goal to provide the rights of the citizens (Keleş, 1990). Facilities for administrative services in which participation and management processes in the city are developed, open green spaces and sports facilities where the citizens recreate themselves, education facility areas that meet educational needs, health facility areas where health problems are resolved, open, closed, public and semi-public spaces where social and cultural activities take place are social infrastructure areas. In other words, social infrastructure areas are the functions that determine the livability level of the city.

Communication, socialization and interaction is an important need for everyone. However, public spaces are not places where every citizen can benefit equally and/or have the same meaning for every citizen. Due to the gender inequality and the social roles emanating from it, women have always been finding themselves in a disadvantaged position. This disadvantaged position deprives women from as much benefiting from the social infrastructure as men do. This means that the right to use the city equally and fairly, which is one of the rights of citizens, cannot be ensured. The solution to this problem is to consider social infrastructure areas, which are public spaces, within the scope of a woman-friendly urban planning approach. In other words, it is the creation of the planning process and principles that will solve the problem.

Women-friendly cities, support the participation of local governments in planning and decision-making processes, as a problem-solving tool. Additionally, they provide women with access to health, education, and social services as well as employment opportunities (Kaypak, 2014, 2016; Tekinbaş, 2015). Furthermore, they support equal participation of women in all aspects of urban life (Sewell, 2011; Spain, 2014; Tekinbaş, 2015; Yon and Nadimpalli, 2017).

A women-friendly city means a city for everyone (children, old women, disabled, etc.). As it stands today in Türkiye, men and women

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experience the urban life in different ways because of their distinctive social gender roles. This distinction has reflected upon planning practices because men are assumed as "responsible for out-of-home activities"—in other words. "free"—whereas women are supposed to be "responsible for housework, entrapped at home or confined to home" (Bourdieu, 2014; UN, 2012; UN-Habitat, 2013; Buckingham, 2010; Fenster, 1999). The solution to this difference depends on the application of a woman-friendly urban planning approach. The profession of city planning propagates this erroneous attitude by forming gender and intersectionality blind, insecure areas that do not provide the feeling of belongingness in Türkiye (Efe Güney et al., 2020).

Gender equality requires women and men to have equal rights, to have the same visibility and power in all areas of public life, to have the same responsibility and participation, and to have equal access and distribution of resources between women and men. In this context, by the definition of public space, it is a matter of freedom and democracy to eliminate the discriminatory nature of the gender phenomenon in social infrastructure areas (Alkan, 2012).

In countries such as Türkiye, where gender inequality is seen, the male population has a privileged status and has given priority in public life as well in private life. This situation appears in the legal processes, the distribution of public services, and therefore in the urban space shaped by social infrastructure areas. In other words, when the data of the Turkish Statistical Institute (TUIK) are examined, it is revealed that women come behind men in access to education and health. When the issue of participation in politics at the central and local government level is examined, it is observed that the number of women is much less than men in matters such as the number of mayors, the number of deputies and the number of governors. The cause of the situation is gender inequality (Eveline and Bacchi, 2010; KSGM, 2008). City planning profession should combat gender aquality like other professions to eliminate the intersectionality blindness and gender blindness of planning (Efe Güney et al., 2020). This is a necessity because this structure keeps women at home and determines the woman's living space as the house and its surroundings (Şenol Cantek et al. 2014). In this state, women, who have to act according to their gender roles (doing housework, meeting the needs of dependents etc.), cannot spare time or get permission to use the social facilities. Moreover, this situation continues to renew itself (Demirbaş, 2012; Kaypak, 2014).

Spatial standards for social facilities in Türkiye are limited only by the size and distance per person. As an important part of urban life, social infrastructure areas should be designed in a way that is suitable for everyone's use by examining in detail not only in terms of spatial size and walking distance, but also in terms of service quality, ease of access and comfort. In this context, this study strives to be a model for eliminating gender inequality in social infrastructure areas, which are public spaces, and designing these spaces for everyone

The study states that the presence of social facilities providing access to urban services does not mean that they are used; the argues that these areas should be handled with a content that gives importance to much more than the square meter ratios per person. Consequently, this article tries to develop proposals on how to analyze and evaluate within the scope of women-friendly city, which is a way of ensuring gender equality in social infrastructure areas as public spaces. As a result, the study

provides a model that can be improved by proposing a dataset on how to examine social infrastructure areas for a women-friendly city.

WOMEN-FRIENDLY CITY AND SOCIAL INFRASTRUCTURE

Urban space consists of private spaces that serve certain communities or individuals on the basis of ownership, and public spaces where the socialization process takes place (Çubuk, 1991; Hénaff and Strong, 2001). The public space is a democratic space where both individuals and societies enrich themselves and meet their needs such as health education equally, create the spirit of the city and provide an opportunity for individuals to participate in society (Arendt, 1994; Gökgür, 2008; Habermas, 1991; Thomas, 1991; Varna and Tiesdell, 2010).

Interaction in public spaces is a basic requirement for everyone. Nevertheless, public spaces cannot serve equally and fairly to women who are one of the disadvantaged groups (Fox and Schuhmann, 2001; Yon and Nadimpalli, 2017) of the city as opposed to the men who have been positioned differently in society based on biological features and expectations built upon social gender. Women are disadvantaged when it comes to using social infrastructure area: they have more responsibilities due to gendered roles assigned to them (Bialeschki and Michener, 1994; Deem, 1986; Firestone and Shelton, 1988; Hutchison, 2009; Kaczynski and Henderson, 2008; Silver, 2000; Wearing and Wearing, 1988). There are also important considerations that other public spaces and social infrastructure areas are dangerous for women (Bowman, 1993; Gardner, 1995; Valentine, 1990), which limits them. In other words, it reiterates the impact of gender inequality on women (Letherby, 2003; McDowell, 1999). Therefore, the right to use the city, which is one of the urban rights, cannot be offered to everyone. For this reason, a women-friendly city-based planning language and process should be created in accordance with the meaning and content of social infrastructure areas, which have an important role in public spaces.

The provisions regarding social infrastructure areas in Türkiye are defined in the Zoning Law No. 3194 (3194 sayılı İmar Kanunu) and the Spatial Plans Designing Regulation (Mekansal Planlar Yapım Yönetmeliği) related to it.

In Article 5-i of the Regulation, social infrastructure areas are given as "educational, health, religious, social and cultural facilities, outdoor and indoor sports facilities, outdoor and green areas such as parks, children's playgrounds, playgrounds, squares, recreation areas". Article 11 of the same regulation Minimum standards and area sizes in Article 12. In the article, walking distances are presented for plans as a quantitative value (for details, see Appendix Table-2 of the Spatial Plans Designing Regulation).

When these values are examined, it is seen that the regulation does not take into account the design criteria of social infrastructure areas for everyone and only offers standards related to the size and walking distances of social infrastructure areas per capita. Therefore, this study will contribute to this deficiency defined in the regulation.

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In addition to the binding provisions of the City Planning legislation, the Turkish Standards Institute also has some standard recommendations. These are "Urban roads - Structural preventive and sign design criteria on accessibility in sidewalks and pedestrian crossings" numbered TS 12576 and "Urban roads - Design criteria on sidewalks and pedestrian areas" numbered TS 12174. One of them is the design standards produced by the Turkish Statistical Institute (Türk Standartları Enstitüsü). TS 12174 pedestrian zones have developed technical standards such as width, height and material for pedestrian areas and sidewalks. The TS 12576 standard proposes standards for landscaping applications, lighting elements, information communication boards and traffic signs for public spaces. In addition to trying to eliminate the deficiencies of the regulation as defined above, this study also tried to use the standards of these two standard documents.

In addition to the regulations and standards given for Türkiye in general, there are guidelines created by municipalities for themself. A good example of these guides is the " Barrier-Free Public Buildings Design Guide" prepared by Izmir Metropolitan Municipality. This guide also focuses on technical aspects in terms of accessibility, such as TSE standards and regulations. These elements consist of pedestrian lanes, parking lots and lighting, stairs at and inside the building entrances, ramps, toilets in public areas and surface markings in access to the building. The study also benefited from this guideline of Izmir Metropolitan Municipality. However, in all the documents it examined, the study did not reach the defined set of criteria for a women-friendly city, which means city for everyone. Because the spatial standards for social infrastructure areas in Türkiye are limited only to square meters and distance per person.

As an important part of urban life, social infrastructure areas should be designed for everyone's use by examining them in detail not only with their spatial size and walking distance, but also in terms of service quality, ease of access and comfort. This design is possible with the approach that started with the understanding of barrier-free design and is today called universal design principles. (Andanwerti, 2005; Steinfield, 2001; Story, 2001; Connell et al., 1997; Mace, 1997). The Universal Design Center defines the principles of universal design as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design". Universal Design Principles and their descriptions are given in the Table below (Table 1).

Table 1: Universal Design Principles (Connell et al., 1997)

Principle	Meaning
Equitable Use Principle	The design is useful and marketable to people with diverse abilities.
Flexibility in Use Principle	The design accommodates a wide range of individual preferences and abilities.
Simple and Intuitive Use Principle	Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

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Perceptible Information Principle	The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
Tolerance for Error Principle	The design minimizes hazards and the adverse consequences of accidental or unintended actions.
Low Physical Effort Principle	The design can be used efficiently and comfortably and with a minimum of fatigue.
Size and Space for Approach and Use	Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

Universal design principles are a guide that can be applied to design at any scale. In this context, the quality deficiencies in the laws and regulations of Türkiye can be eliminated with "universal design principles". This also contributes to the establishment of the criteria for a women-friendly city approach. In other words, universal design principles are a tool in creating social infrastructure spaces that allow everyone to use them. Because one of the important determinants that show the quality of social infrastructure areas as a public space is the level of publicity of that space.

The level of publicity can be defined as the analysis of the observed quality of space and its resilience to social interactions, the limitation of human rights and the inclusion of a particular group (Benn and Gaus, 1983; Carmona, 2010; Kohn, 2004; Madanipour, 1999; Schmidt and Nemeth, 2012; Young, 1990). Therefore, the level of publicity is such that everyone can freely carry out their political and democratic actions in that space; physical and psychological opportunities (Schmidt and Nemeth, 2012; Varna and Tiesdell, 2010) and ensure social quality. The most important areas where the level of publicity can be measured in Türkiye are the social infrastructure areas. In this study, social infrastructure areas that should have a high level of publicity are designed on the basis that they should be accessible, safe and usable. Because a social infrastructure area;

- is the socialization area of all age and income groups. For example, children and young people can socialize and engage in various activities with their peers, and socializing with different genders is important in the formation of their social identities and values (Glass and Balfour, 2003; Glendinning et al., 2003; Larson and Verma, 1999). In addition, seniors socialize in social infrastructure facilities, avoid isolation, and have a positive health impact (Kelly and Ross, 1989; Tinsley et al. 2002; Glass and Balfour, 2003).

- open to all men and women. Women use social infrastructure spaces to take their children to these areas more as part of childcare, and children meet their recreational needs.

Empirical studies on social infrastructure areas are mostly based on discussions about women (e.g. Henderson et al., 2002; Hutchison, 2009); this appears to be due to gender roles, responsibilities, and women's ability to take time and time off (e.g., Bialeschki and Michener, 1994; Hutchinson, 2009; Kaczynski et al., 2008; Silver, 2000). In addition, since women cannot be in decision-making processes, their demands cannot be met and as a result, the usage rates decrease because the social

infrastructure areas are not aimed at them (Bernard, 1981; Hutchison, 1994; Woodward, D., Green and Hebron, 1988). In order to increase these rates, in addition to the elements given above, social infrastructure areas according to the main principles adopted by the Council of Europe and defined to achieve success in public spaces (Gülen, 2006),

• give messages that it is available and/or open for use.
• must be aesthetically appealing.
• provide a transition between indoor and outdoor spaces.
• be equipped with desired and feasible activities?
• provide a safe and protected environment.
• provide natural environments for the urban dweller to reproduce himself.
• be accessible and usable for children, the disabled, the elderly and women.
• choose suitable materials for their use
• should be designed as a social environment.

Today, the limited number of social infrastructure areas in urban space and the fact that this limited number is not distributed evenly spatially, as well as being accessible and usable for all groups of society, causes the aggregation feature of social infrastructure areas to be lost. For example, women and the elderly withdraw from urban public space because they fear crime (Day, 2001; Gordon and Riger, 1991; Markson, E., and Hess, B., 1980). In addition, many studies have shown that women, the elderly, children, the disabled, and some ethnic groups experience inequality in using social infrastructure spaces (Adler and Brenner, 1992; Byrne and Wolch, 2009; Hahn, 1986; Jackson, 1987; Kennedyl and Silverman, 1985; Özdemir, 2009). For example, since the elderly cannot walk for a long time, social infrastructure areas should be close to seating areas and pedestrian access should be strong (Clarke et al., 2009; Glass and Balfour, 2003). Women feel safer and stronger because they relate to family, friends, neighbors and strangers in social infrastructure areas (Krenichyn, 2003). For this reason, gathering areas should be created in social infrastructure areas. Playgrounds are very important for children. That's why playgrounds in social infrastructure facilities should be like kids won't have as much fun as nowhere else is there, and therefore want to go there. Accessibility is very important for people with disabilities. Social infrastructure spaces should be open, inclusive and pluralistic, and value differences such as disability. Access means not only getting there physically, but also being able to enjoy all the activities there (Young, 2000).

As a result, in addition to the physical features such as walking distance or per person size, surface materials, availability of seating elements, steps and access routes, lighting elements, street layout and signs are important in reaching the desired level of publicity of social infrastructure areas (Valdemarsson et al., 2005; Burton and Mitchell, 2006). Because these features, which increase the use of social infrastructure space, provide services such as the realization of

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recreational activities, the utilization of health and education services, and even the creation of pedestrian-friendly walking areas (Booth et al., 2000; Föbker and Grotz, 2006; Michael et al., 2006; Patterson and Chapman, 2004; Varna and Tiesdell, 2010). In addition, regular maintenance in social infrastructure areas prevents these areas from being perceived as dangerous and unwanted areas (Low et al., 2005; Sister et al., 2010).

This study, which was conducted to examine the social infrastructure areas and to evaluate the results of the examination and to present a model proposal in order to develop solutions to the problems, evaluated the social infrastructure areas under the basic headings of competence, accessibility, safety and usability.

The principle of adequacy is determined according to the 7th article of the spatial plans designing code and universal design principles. The principle of accessibility has been determined according to the standards set by TSE, the spatial plans designing regulation, and the İzmir Metropolitan Municipality Barrier-Free Public Buildings Design Guide.
The principle of safety has been determined in accordance with the 1st, 5th and 7th articles of universal design principles and literature adopted in the study. Many elements have been defined in the literature to ensure safety in a city; priority among these elements is to provide "eye on the street" (Jacobs, 1961) and "natural surveillance" (Newman, 1996) in that area. Thanks to the eye on the street and natural surveillance, one feels safe thinking that there is always someone there to call for help. Other factors are related to the physical characteristics of the place, such as traffic regulation, street illuminations, sidewalks, misplaced warning signs (Baxi, 2003). Although the technical proposals brought to the characteristics of that place contribute, they are not sufficient to provide a sense of safety. In this context, city planning should consider adequate illumination, public telephone systems, internal public transport, safe walkways and toilets. In addition to them, rape crisis centers and counseling centers (Moser, 2012, pp. 445-447) should be established and security cameras installed (Raoul Wallenberg Institute, 2021). For the safety of users, social infrastructure areas should incorporate these necessary elements.

The principle of usability has been determined in accordance with the recommendations include qualitative studies that support the use of urban space by all individuals; good illumination of public spaces, side streets, squares, bus stops, underpasses and overpasses; installation of emergency buttons and introductory, direction signs in public spaces; creation of gathering spaces; supporting the market etc. association areas with public transportation and positioning these areas on pedestrian axes; avoidance of the formation of dead-end street, winding roads and blind walls; streets, roads and sidewalks should be designed by considering all individuals such as the elderly, children, women, disabled and bicycle users (Kadıoğlu and Toy, 2021; Baykan, 2015; Park and Garcia, 2020; Hale, 1996; Painter, 1996; Fisher and Nasar, 1992;

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Appleton, 1975). These recommendations were evaluated together with the 1st of universal design principles.

The principles adopted regarding the successful Social Infrastructure Areas to be located in a Women-Friendly City in this study, indicators and bases are shown in Table 2.

Table 2: Principles, meanings, assesments and references determined within the scope of the study

Principles	Meaning	Assesments	Referances
Adequacy	Ensuring the space is large enough and accessible to all	Adequacy in terms of spatial dimension (population and square meters)	Zoning Law 3194 and Spatial Plans Designing Regulation and Universal Design Principle 7
		Adequacy in terms of accessibility (location and transport links)	
Accessibility	Ensuring that the place is safe and accessible, creating diversity in transportation	Sidewalk related problems (width and height)	Universal Design Principle 1, 3, 4, 5, 7 and TSE standarts TS 12174 and TS 12576
		Available (Useful) ramps (slope and position)	Universal Design Principle 1, 3, 4, 5, 7 and TSE standarts TS 12174 and TS 12576 and İzmir Metropolitan Municipality's Barrier-Free Public Buildings Design Guide
		Continuity in pedestrian mobility (Sidewalk or pedestrian lane discontinuity)	The Literature of the Women-Friendly City used in the study
		Facilities for public transportation such as Taxi or Bus (Taxi Rank / Bus Stop)	The Literature of the Women-Friendly City used in the study
Safety	Creation of safe social facilities and surveillance for all users	Street illumination (illumination elements)	Universal Design Principle 1, 7 and TSE standart TS 12174 and TS 12576 and he Literature of the Women-Friendly City used in the study
		Dead-end street existence	The Literature of the Women-Friendly City used in the study
		Vandalism and the blind wall	The Literature of the Women-Friendly City used in the study
		Empty parcels	The Literature of the Women-Friendly City used in the study
		Areas such as ruins or construction	The Literature of the Women-Friendly City used in the study
		Security cameras	Universal Design Principle 5 and the Literature of the Women-Friendly City used in the study
Usability	Ensuring the realization of the design suitable for all user profiles in the space	No commercial areas nearby	Universal Design Principle 1 and the Literature of the Women-Friendly City used in the study
		No active green areas nearby	Universal Design Principle 1 and the Literature of the Women-Friendly City used in the study
		No urban furniture nearby	Universal Design Principle 1, 4, 5 and the Literature of the Women-Friendly City used in the study
		No garbage bin / container nearby	Universal Design Principle 1, 4, 5 and the Literature of the Women-Friendly City used in the study

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The study provides a model that can be improved by proposing a dataset on how to examine social infrastructure areas for a women-friendly city.

THE METHOD

In order to develop a model for a woman-friendly urban planning approach, firstly, the Current-Ready maps for 2019, taken from Çiğli Municipality between September 24, 2021 and October 01, 2021, were updated using USGS Landsat 8 satellite images Band 10 and 11, as well as on-site inspections and observations. Then, current social infrastructure areas analysis has been prepared with on-site studies on updated and ready-made maps. The classification used here is as defined by the Spatial Plans Designing Regulation (Mekansal Planlar Yapım Yönetmeliği). In the study, social infrastructure areas were evaluated according to service qualifications and service radius (network analysis) within the scope of the legislation as existing ones and those recommended in the zoning plans. The current zoning plan has been examined in terms of service and access adequacy, under the sub-headings of adequacy depending on the area size and adequacy depending on the service radius.

For this study, TSE standards (Table 3) and Spatial Plans Designing Regulation's walking distances (Table 4) are taken.

Table 3: Pedestrian codes, pedestrian groups and Speeds (TSE TS 12174)

Pedestrian Codes		Pedestrian Groups	Pedestrian Speeds (m/s)
A	a1	Women with Children	0.7
	a2	Women over 50	1.3
	a3	Women up to age 50	1.4
B	b1	Men over 55	1.4
	b2	Men 40-55 years old	1.6
	b3	Men up to age 40	1.7
C	c1	Children 6-10 years old	1.1
	c2	Youth	1.8

Table 4: Social infrastructure areas and walking distance (Spatial Plans Designing Regulation)

Social Infrastructure Areas	Walking Distance (m)
Mosques	400
Health Facilities	500
Kindergarten	500
Primary School	500
Middle School	1000
High School	2500

Then, in order to form a model for the research and assessment of the women-friendly city on public spaces, the study area was evaluated for the social facilities and their surroundings under the headings of the quality of use, accessibility and safety of the social facilities for pedestrians. At the last stage, problems were identified in the areas of social facilities, which were examined in detail in terms of accessibility, safety and usability criteria, and solution proposals were developed in the context of a woman-friendly city.

THE STUDY AREA AND ITS SOCIAL INFRASTRUCTURE ANALYSIS

Regarding the women friendly city approach, a 52-acre area of Köyiçi neighbourhood of Çiğli county of İzmir province, which is one of 26 districts of the county, has been studied (Figure 1). The field of study has been chosen because it has a central location. The area covers a significant part of Anadolu Street where governing units (Çiğli Municipality and the office of the District Governor) and lots of businesses are located. There is also an IZBAN station (The suburban train system of İzmir) which causes heavy vehicle and pedestrian traffic in the area (Figure 2).
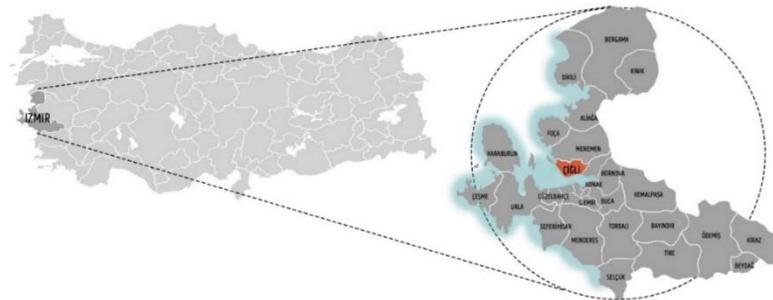
Figure 1. The location of İzmir in Türkiye and the location of Çiğli in İzmir

Çiğli hosts 4.7 % of the population of İzmir. The field of study (Figure 2.) Köyiçi neighbourhood similarly hosts approximately 4% of the population of Çiğli. Both in İzmir and in Çiğli women consist of nearly 50% of the total population.

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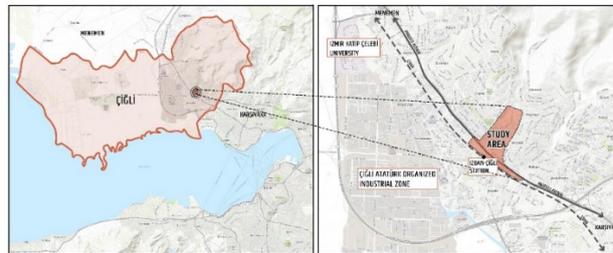
Figure 2. The field of study and its immediate surroundings
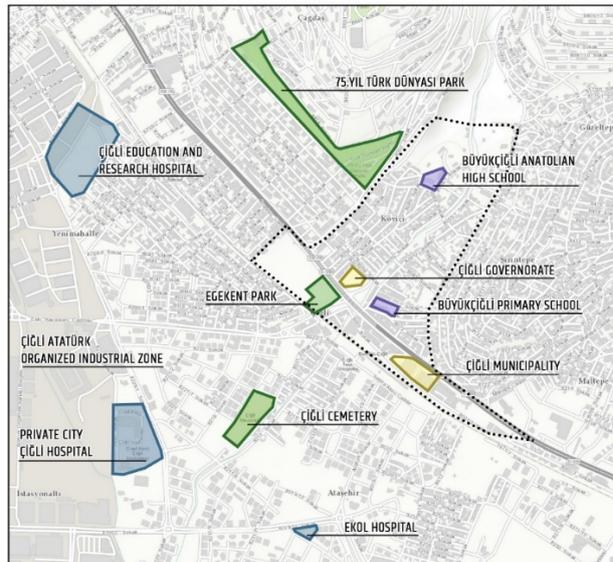
Figure 3. Second floor space relations diagram (Drawings by the Authors).

Social Infrastructure Areas in the Existing and Implementary Zoning Plan (Uygulama İmar Planı) in the Study Area

Social infrastructure areas in the study area; It consists of educational facilities (primary school, middle school-high school and public education center), administrative facilities (municipality etc.), religious facilities, social and cultural facilities (library and dormitory area) and open green areas. As public spaces, open green spaces from social infrastructure areas are separated from other facilities in terms of ownership, and they are excluded from the scope of the study as they need to be handled in a wide variety of contexts in the production of a woman-friendly urban planning approach. In this context, within the scope of the assessment of social infrastructure areas, the primary school, middle school-high school, public education center, governorate, headman's office, municipality, mosque, library and dormitory area are coded for examination and shown together with their transportation connections (Figure 3).

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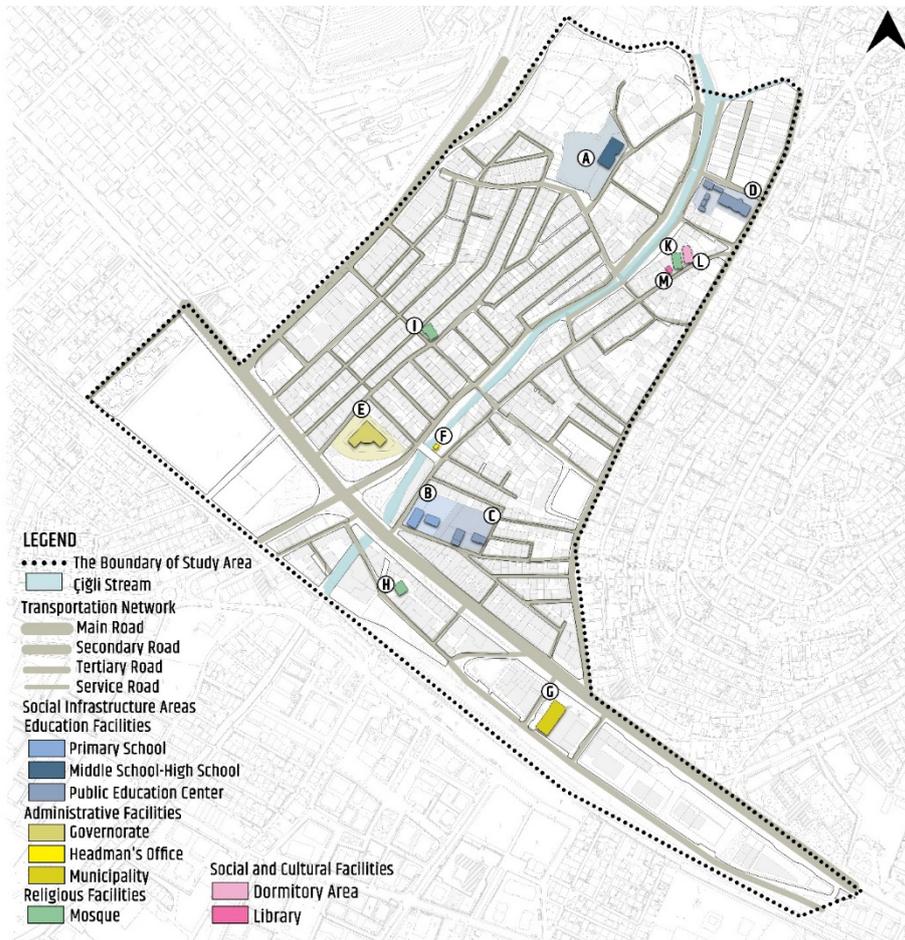
Figure 3. Social Infrastructure Areas in the Study Area

There are currently 12 social infrastructure areas in the area. One of these social infrastructure areas is middle school-high school (A), 1 is primary school (B), 2 is public education center (C, D), 1 is governorate (E), 1 is headman's office (F), 1 is municipality (G), 3 of them are mosques (H, I, K), 1 is dormitory area (L), and 1 is library (M).

Since service radius and building sizes are in question while examining the zoning plan, the study area has been considered together with its surroundings (Figure 4).
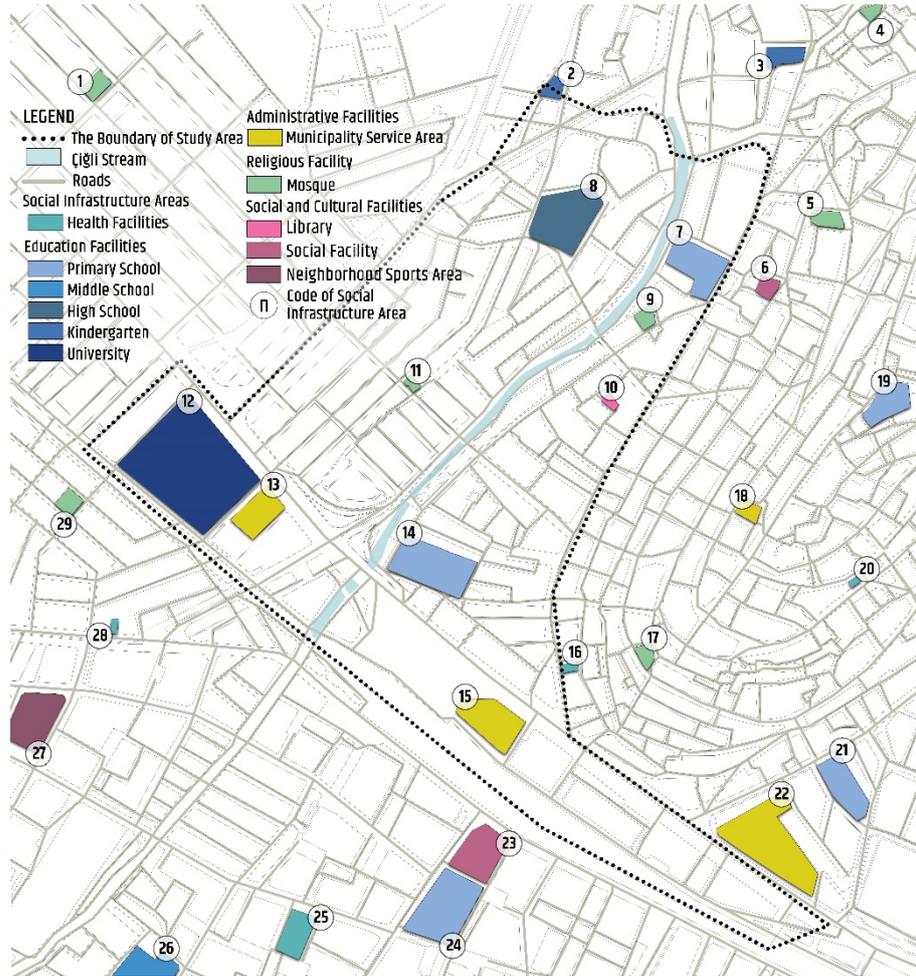
Figure 4. Social Infrastructure Areas in the Implementary Zoning Plan

In the plan, 10 of the 29 social infrastructure areas in total are within the working area and 19 are in the vicinity. Out of 29 social infrastructure areas, 5 primary schools, 3 health facilities, 1 middle school, 1 high school, 1 university, 2 kindergartens, 4 municipality service areas, 7 mosques, 1 library, 2 social facilities and 1 district sports area.

Adequacy Analysis of Social Equipment Areas According to National Legislation and Standards

In order to evaluate the social infrastructure area decisions developed in the 1/1000 Implementary Zoning Plan approved by the Izmir Metropolitan Municipality in 1984, it was necessary to calculate the population. In this context, taking into account the Zoning Law No. 3194, precedent values have been accepted according to the order forms given in the zoning plan (Adjacent Ordinance is 1.44 for 2-storey buildings, Block Ordinance 3-storey structures are 1.09 for structures with front garden, 1.20 for structures without front garden). Then, the population was calculated as 4611 by including the precedent values, parcel sizes and the average number of independent units on one floor of the residential buildings in the study area. When the total size of the social

infrastructure areas in the study area and the population are examined (Table 5), it is seen that the Plan has decided on sufficient social infrastructure areas to serve the population within the boundaries of the study area.

The current population of the study area was determined according to the survey conducted by Çiğli Municipality in 2021 and the data of TUIK 2020. Accordingly, the current population of the study area was accepted as 4084 people. When the total size of the various social infrastructure areas in the study area and the population are compared, it has been determined that most of the existing social infrastructure areas are insufficient according to the legislation. There is no health facility in the study area, including the Family Health Center, which is the primary health service where health needs are met, both in the current and in the zoning plan. In addition, there is no middle school area in the plan and there is no nursery, which is very important for working parents as well as education.

Table 5: Social Infrastructure Areas Per Capita in the Current Situation and Zoning Plan

Social Infrastructure Areas		Area (m^2)	Population	Area Per Capita (m^2)
High school	Current	7196.89	4084	0.57
	Implementary Zoning Plan	6958.68	4612	0.66
Middle School	Current	794.13	4084	5.14
	Implementary Zoning Plan	-	4612	-
Primary school	Current	3064.66	4084	1.33
	Implementary Zoning Plan	4474.61	4612	1.03
Kindergarten	Current	-	4084	-
	Implementary Zoning Plan	790.11	4612	5.84
Mosque	Current	797.54	4084	5.12
	Implementary Zoning Plan	1050.13	4612	4.39

The size of the social infrastructure areas is not an indicator that can be evaluated alone. It is important that the social equipment areas that are open to everyone's use are located within walking distance that everyone can access, as well as their spatial size. In this context, the service radius of the social infrastructure areas has been evaluated by considering the walking distances of the Spatial Plans Designing Regulation and the pedestrian speeds in the TSE's "TS 12174 Design Rules for Urban Roads - Pedestrian Roads and Pedestrian Areas" standard and the walking time during which the pedestrian can maintain the pace.

Network analysis service impact radius of the social infrastructure areas in the current and in the plan, as the distance as specified in the Spatial Plans Designing Regulation and as specified in the TS 12174 standard, women with children (a1), children aged 6-10 years (c1), 50 years old It was made under 9 different headings: women over the age of 50 (a2), women up to the age of 50 (a3), men over the age of 55 (b1), men

between the ages of 40-55 (b2), men up to the age of 40 (b3) and young people (c2). . The walking time of the groups examined under each heading is based on the 7-minute walking distance (m/s) as specified in the standard TS 12174 (Table 3).

Field studies and data obtained from OpenStreetMap, an open source data provider, were transferred to the computer environment by using "ArcMap 10.3 and ArcMap 10.5" from ArcGIS Desktop Applications, one of the geographic information system software. Numerical data in vector format were used in the study. The extent to which a pedestrian or vehicle, which is also expressed as the service radius, can reach the environment from the social infrastructure areas and from the environment to these areas has been examined. Service radius assessment is examined in two different ways in the literature. The first method is called "Buffer Zone". This method is the study of Euclidean equidistants from a point placed in the geometric middle of social infrastructure areas. The other method is the "Service Area" method. In this method, pedestrian or vehicle mobility is evaluated over the roads that provide the mobility of pedestrians and vehicles, instead of the Euclidean distance, unlike the "buffer zone" method. In the study, it was seen that the pedestrian could not follow a Euclidean route due to buildings and closed areas, and the "Service Area" method was used in order to obtain more realistic results in evaluating the access to social facilities at the distances or times available in the legislation. At this point, the network analysis tool "Service Area", which is a tool of ArcMap 10.3 application, is placed on the right topography of the vehicle and pedestrian roads in the study area and in the context of the distances and times valid in the legislation and standards.

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The service impact radius of the social infrastructure areas in the current and plan has been examined in detail, specific to the facilities.

Network Analysis of Health Facilities

When the 500-meter service radius of the health facilities in the current and plan is examined; With the suggestions in the plan, it is seen that a certain part of the study area can receive service, but it is still not sufficient (Figure 5).
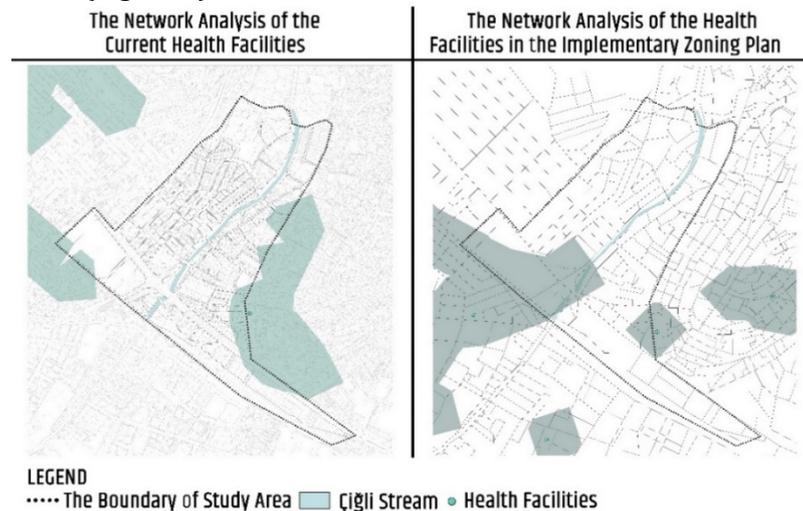
Figure 5. Network Analysis of Health Facilities with 500 Meter Radius
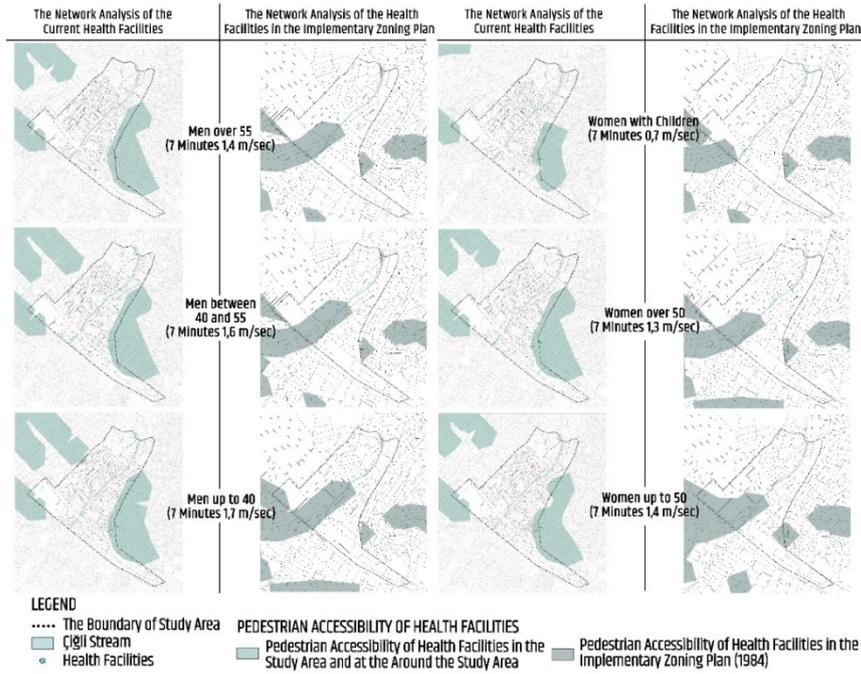
Figure 6. Network Analysis of Health Facilities for A and B
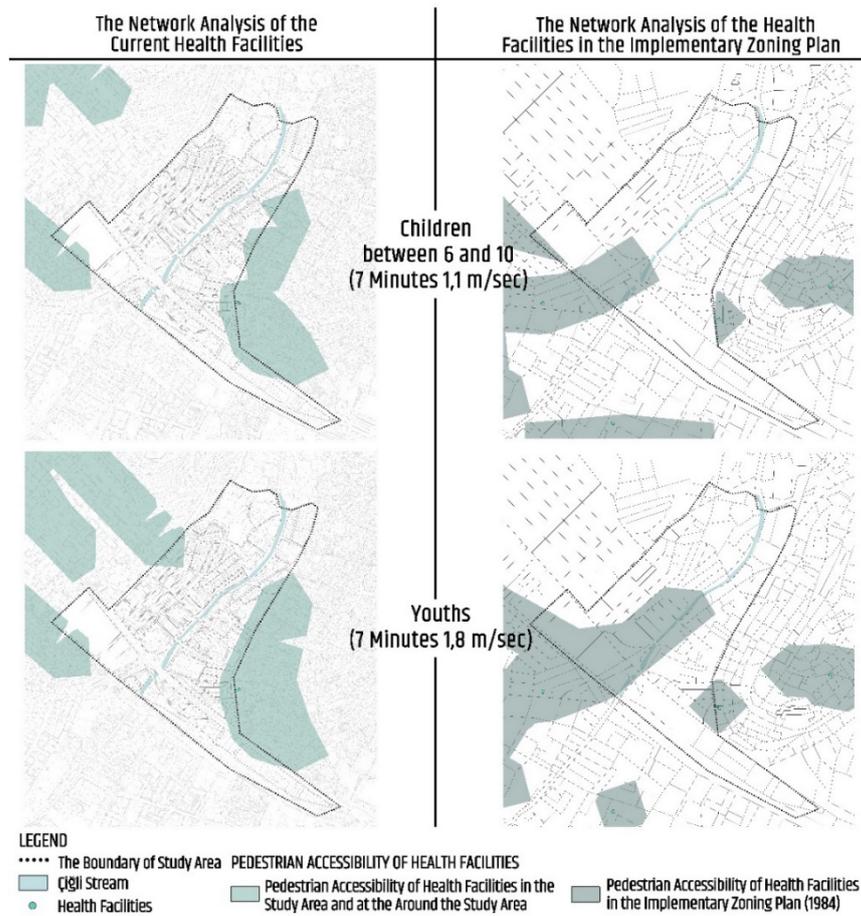
Figure 7. Network Analysis of Health Facilities for C

The service impact radius of health facilities was analyzed within the 7-minute walking distance for all categories (Figure 6).

When the current situation is examined, it is seen that A and B group pedestrians do not receive service from health facilities. With the suggestions in the plan, it is seen that all A and B group pedestrians, except for the a1 pedestrian group, serve a certain part of the study area, but this is still not sufficient (Figure 6).

In the current and plan of the health facilities, the service impact radius of the C group pedestrians in line with the 7-minute walking distances has been examined (Figure 7).

When the current situation is examined, it is seen that C group pedestrians do not receive service from health facilities. With the recommendations in the plan, it was determined that the c2 pedestrian group received more service from the health facilities than the c1 pedestrian group, but both categories did not receive adequate service (Figure 7).

Network Analysis of High Schools

Proposal in the plan, it is seen that only the north of the study area can receive service and this is not sufficient (Figure 8).
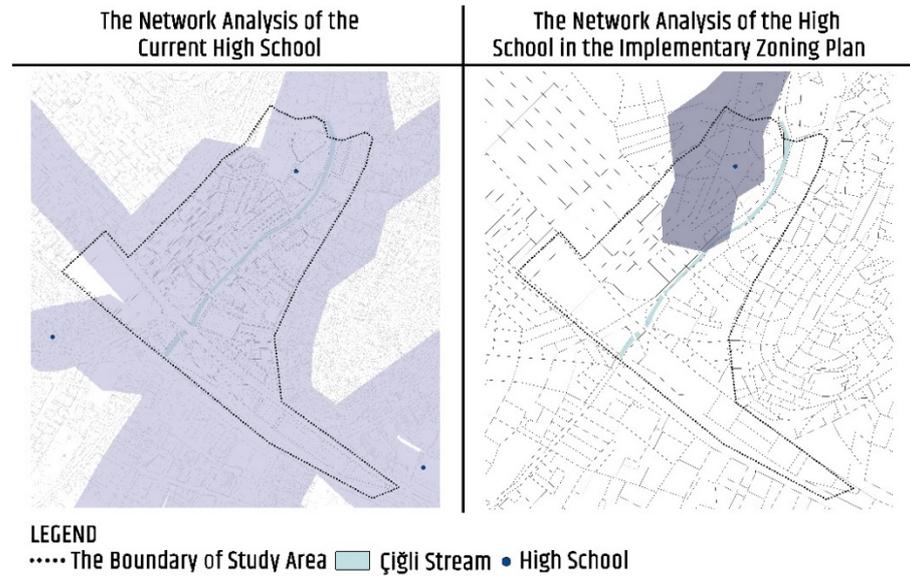
Figure 8. Network Analysis of High Schools with a Radius of 2500 Meters

The service impact radius of high schools has been examined within the scope of 7-minute walking distance in all categories determined for the existing and plan (Figure 9).

When the current situation is examined, it is seen that A and B group pedestrians receive service from high schools in the north of the study area. With the recommendations in the plan, it is seen that the a1 group pedestrians receive the least service, and all categories receive less service than high schools compared to the current situation, and this is not sufficient (Figure 9).

The service radius of the high schools within the scope of the 7-minute walking distance of the young people in the existing and plan has been examined (Figure 10).
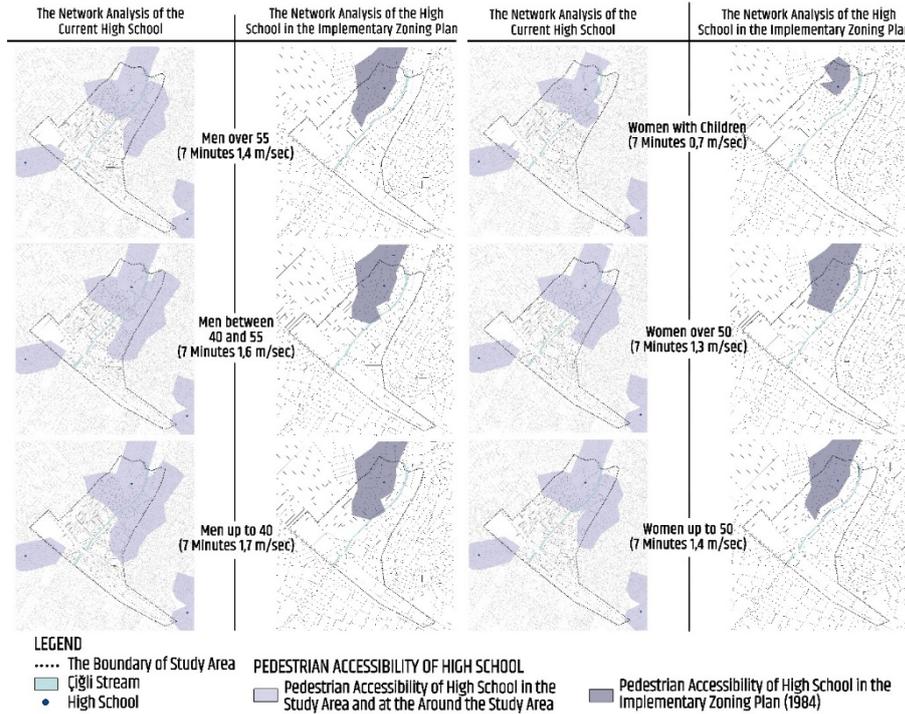
Figure 9. Network Analysis of High Schools for A and B
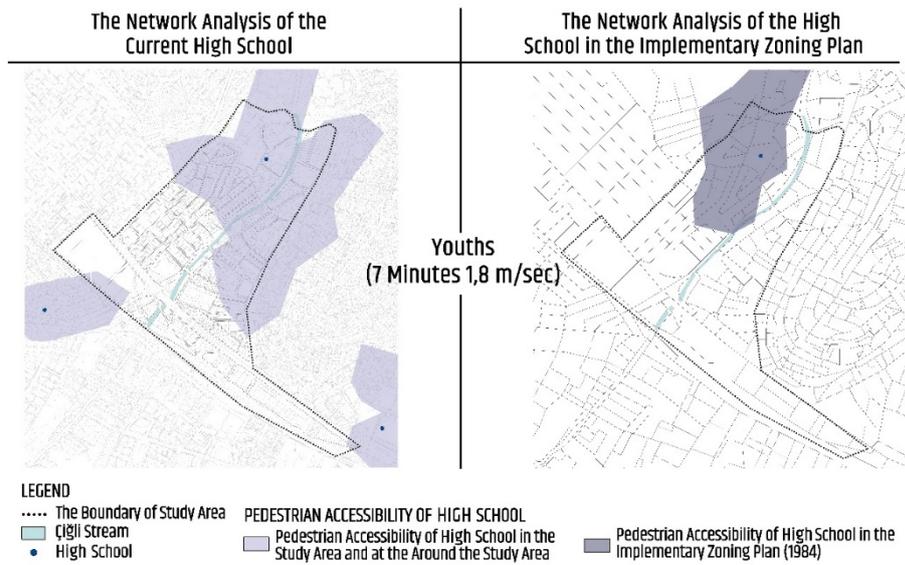
Figure 10. Network Analysis of High Schools for c2

When the current situation is examined, it has been observed that generally in the north of the study area, C2 group pedestrians receive service from high schools. With the suggestions in the plan, it is seen that the c2 pedestrian group receives less service than high schools compared to the current situation and this is not sufficient (Figure 10).

Network Analysis of Middle Schools

When the current 1000-meter service radius of middle schools is examined, it is seen that a large part of the study area receives service (Figure 11).
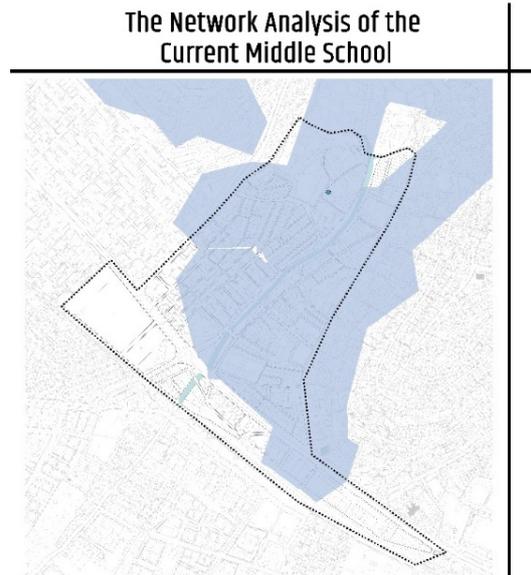
Figure 11. Middle School 1000
Meter Radius Network Analysis
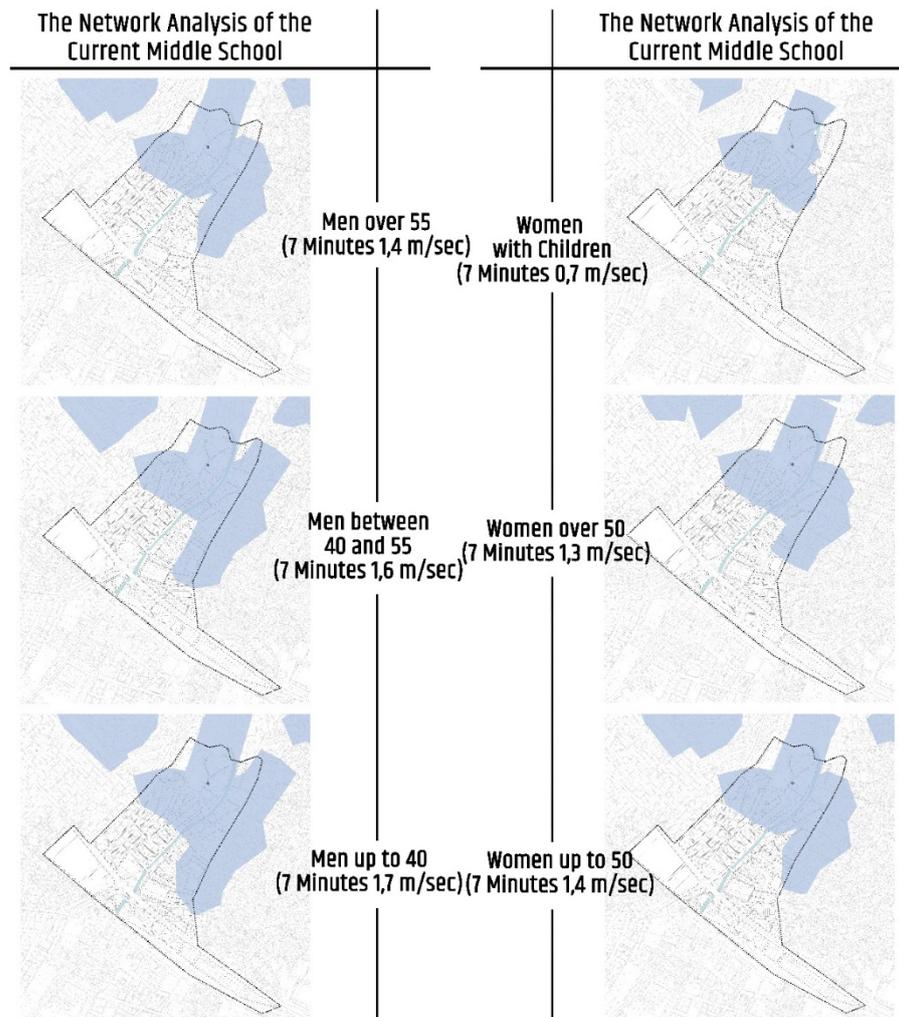
Figure 12. Network Analysis of
Middle Schools for A and B

The service impact radius of middle schools has already been examined in line with the 7-minute walking distances of groups A and B (Figure 12).

When the current situation is examined, it is seen that A and B group pedestrians receive service from middle schools in the north of the study area. According to the current situation, it is seen that the a1 group pedestrians receive the least service, and the group A generally receives less service than the B group from middle schools and it is not sufficient (Figure 12).

The service impact radius of middle schools in line with the 7-minute walking distance of C2 group pedestrians was examined (Figure 13).
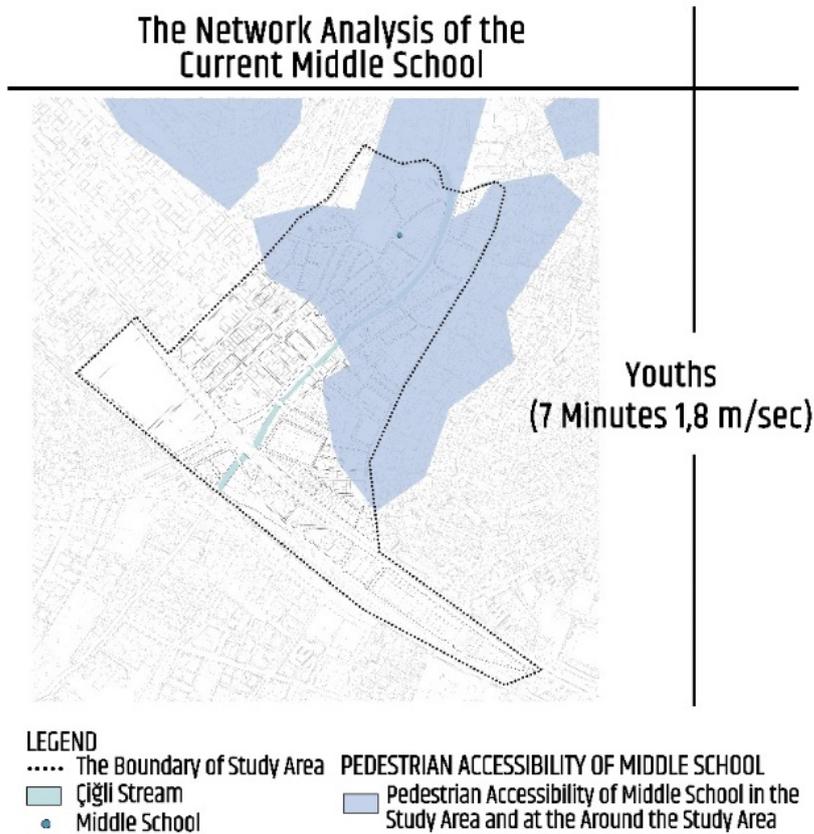
Figure 13. Network Analysis of Middle Schools for c2

The service impact radius of middle schools in line with the 7-minute walking distance of C2 group pedestrians was examined (Figure 13).

Network Analysis of Primary Schools

When the 500-meter service radius of the primary schools in the current and plan is examined, it is seen that the south of the study area is currently serving; With the proposal in the plan, it is seen that only a small area to the north of the study area can receive service and is not sufficient (Figure 14).

The service impact radius of primary schools was analyzed within the 7-minute walking distance for all categories (Figure 15).
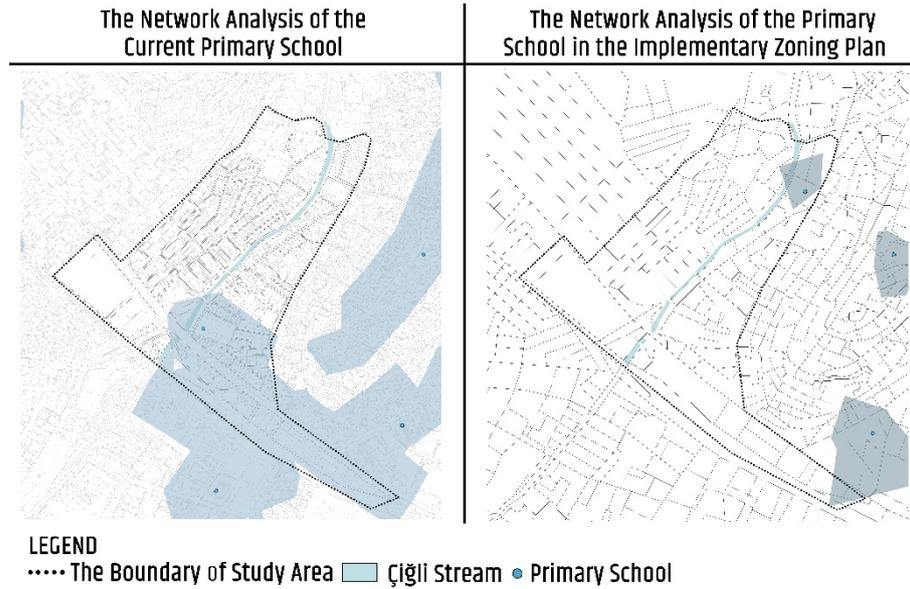
Figure 14. Network Analysis of Primary Schools with 500 Meter Radius
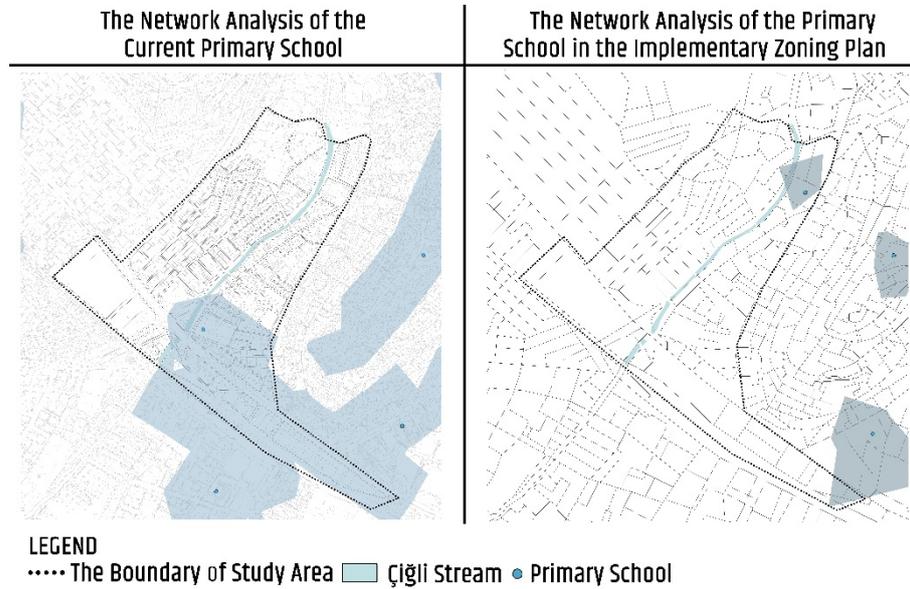
Figure 15. Network Analysis of Primary Schools for A and B

When the current situation is examined, it is seen that the A and B group pedestrians of the study area receive service from primary schools. However, currently, pedestrians in the a1 group receive less service from primary schools compared to all other categories. With the suggestions in the plan, it is seen that the a1 group pedestrians receive the least service and all categories receive less service from primary schools compared to the current situation and they are not sufficient (Figure 15). In the existing and plan of primary schools, the service radius of the c1 group pedestrians in line with their 7-minute walking distances has been examined (Figure 16).
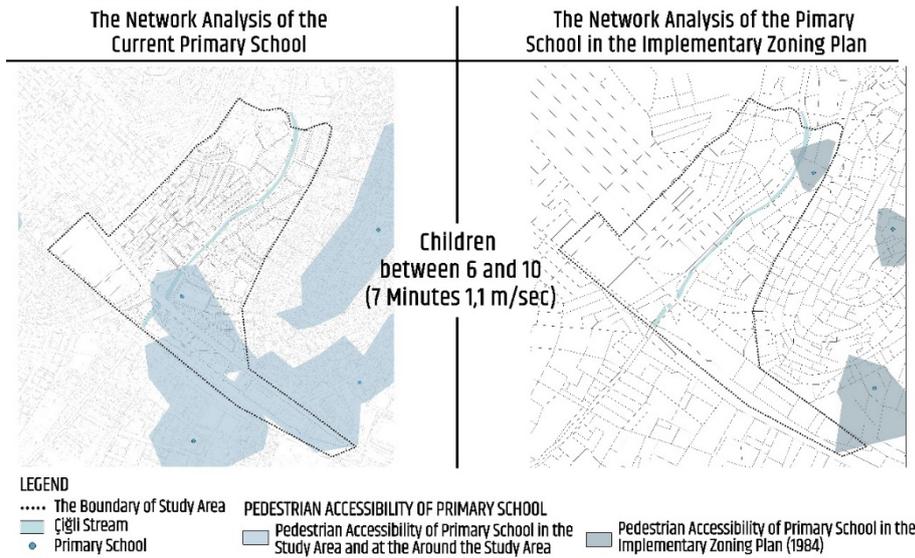
Figure 16. Network Analysis of Primary Schools for c1

When the current situation is examined, it is seen that the c1 group pedestrians receive service from primary schools in the south of the study area. With the suggestions in the plan, it is seen that the c1 group pedestrians receive less service from primary schools compared to the current situation and they are not sufficient (Figure 16).

Network Analysis of Kindergartens

There is no nursery area available in the study area and its immediate surroundings. When the 500-meter service impact radius of the kindergartens in the plan is examined, it is seen that the study area does not receive service (Figure 17).
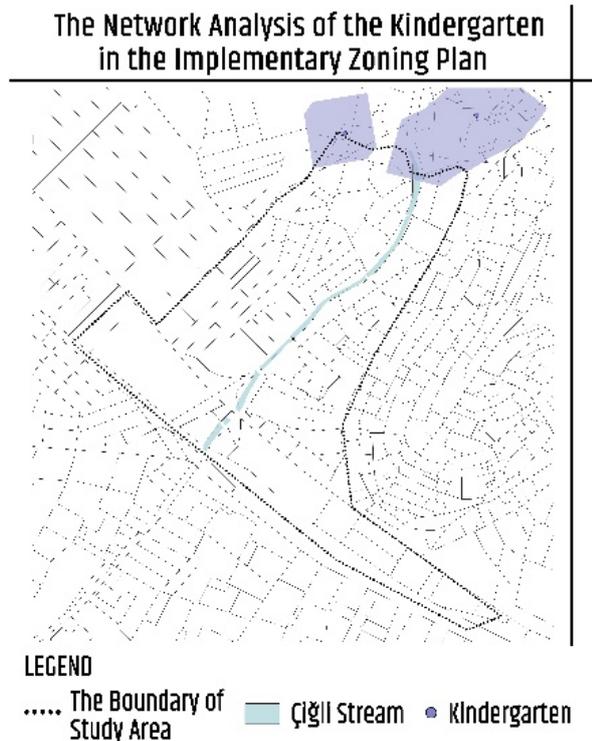
Figure 17. Network Analysis of Kindergartens with 500 Meter Impact Radius

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The service radius of the kindergartens has been examined in the plan in line with the 7-minute walking distance of group A and B pedestrians (Figure 18).

When the plan was examined, it was seen that the A and B group pedestrians did not receive service from the nurseries (Figure 18).

Network Analysis of Mosques

When the 400-meter service radius of the mosques in the current and plan is examined; With the proposal in the plan, it is seen that only a certain area in the middle of the study area can receive service and is not sufficient (Figure 19).

The service radius of the mosques has been examined in the existing and plan in line with the 7-minute walking distances of the A and B group pedestrians (Figure 20).
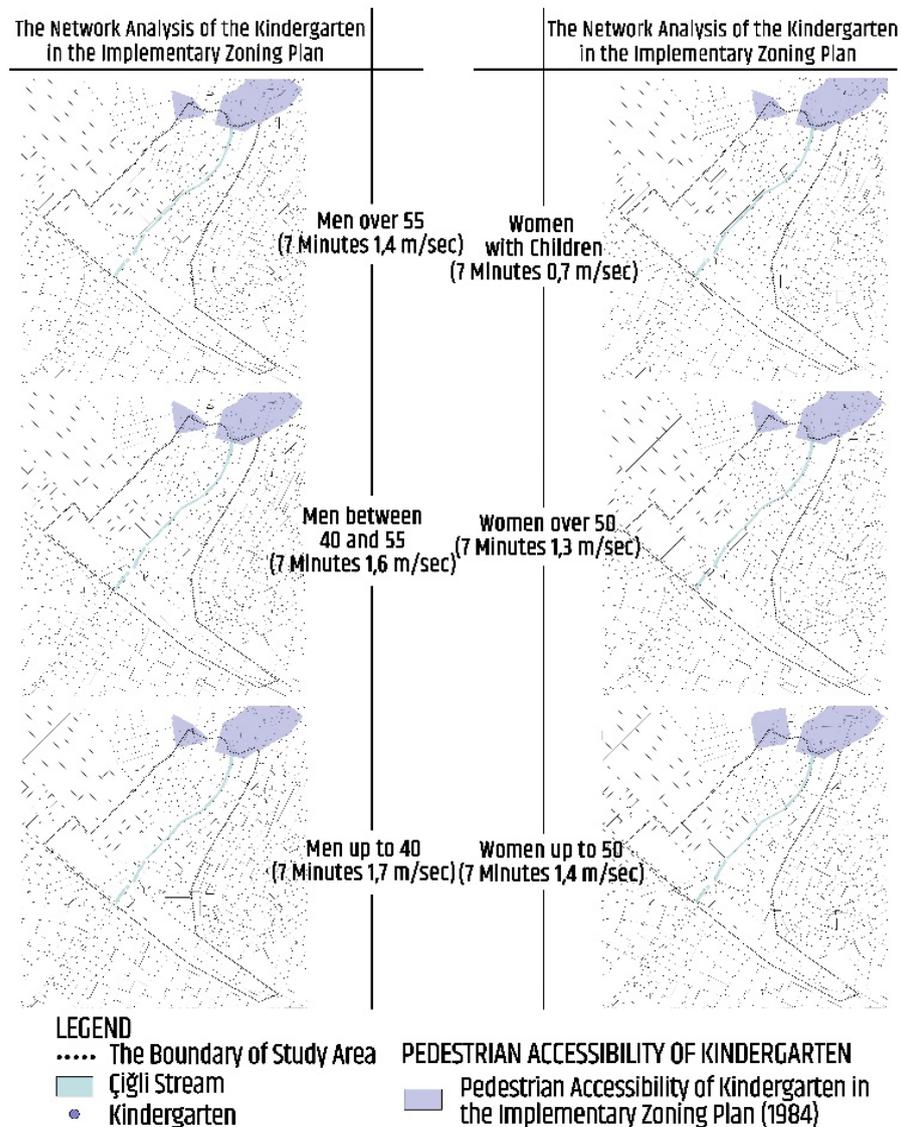
Figure 18. Network Analysis of Kindergartens for A and B
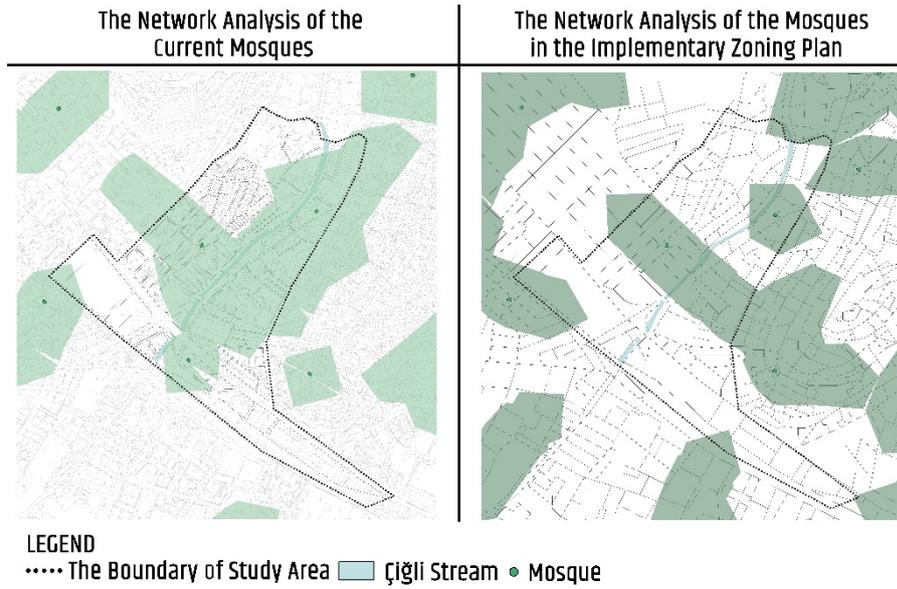
Figure 19. Network Analysis of Mosques with 400 Meter Impact Radius

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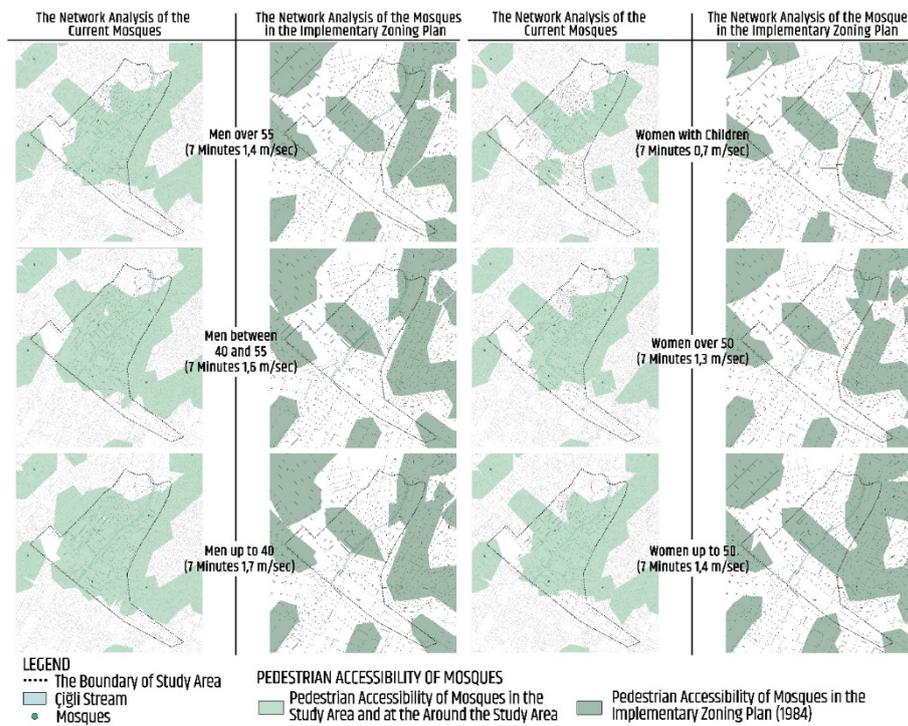
Figure 20. Network Analysis of Mosques for A and B

When the current situation is examined, it is seen that A and B group pedestrians receive service from mosques in most of the study area, except for the A1 group. However, currently, group A receives less service from mosques than group B, and group a1 compared to all other categories. With the suggestions in the plan, it is seen that the a1 group pedestrians receive the least service, while all categories receive less service than the mosques compared to the current situation and it is not sufficient (Figure 20).

The service radius of the mosques in line with the 7-minute walking distances of the C group pedestrians in the existing and plan has been examined (Figure 21).
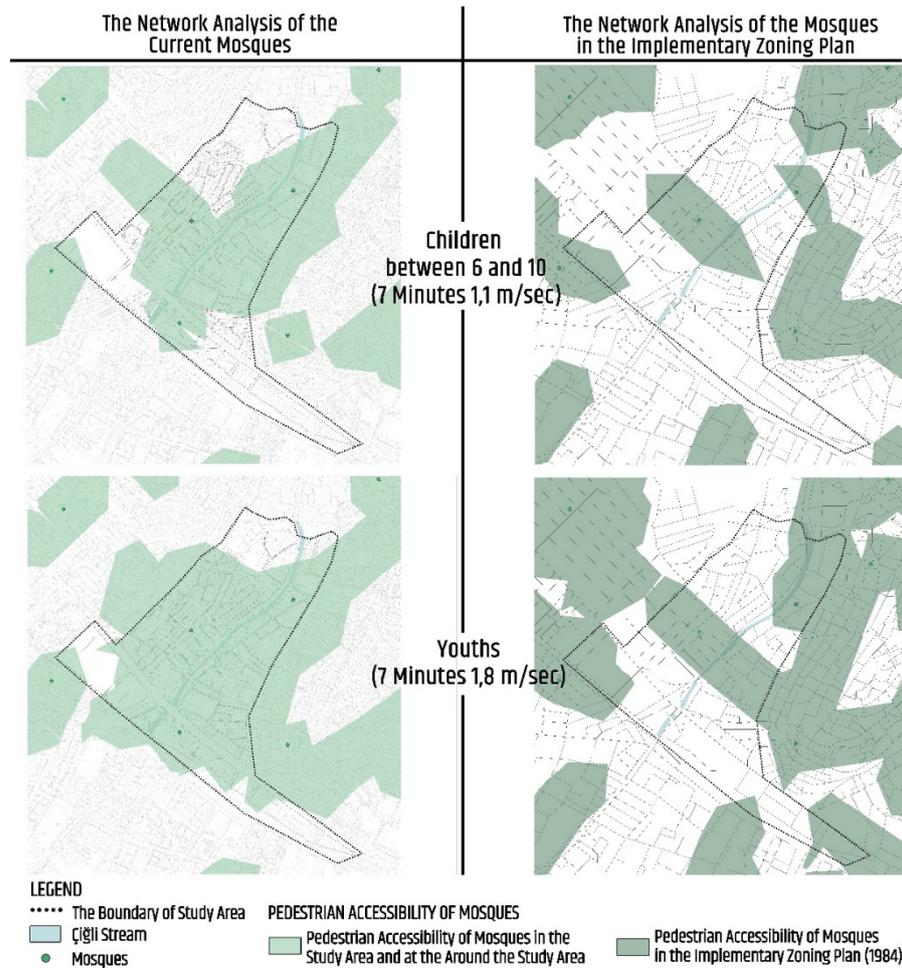
Figure 20. Network Analysis of Mosques for C

When the current situation is examined, it is seen that the c1 group receives less service from mosques than the c2 group pedestrians. With the suggestions in the plan, it is seen that the c1 group pedestrians receive the least service, while all categories receive less service than the mosques compared to the current situation and it is not sufficient (Figure 21).

SOCIAL INFRASTRUCTURE AREAS ASSESMENT WITHIN THE SCOPE OF A WOMEN-FRIENDLY CITY

The study, which was prepared to be a model for analyzing and evaluating social infrastructure areas within the scope of a woman-friendly city, developed three main titles: accessibility, safety and usability. These three main titles and sub-criteria were determined primarily according to the universal design principles and legislation (see Table 2). In addition, the physical characteristics of the area were also taken into account. The sub-analysis groups discussed under these headings are given in Figure 22.

In the study, the classification for the ramp was accepted as 6% as stated in the 1st Part A of the Design Guide for Barrier-Free Public Buildings prepared by the Izmir Metropolitan Municipality, and the ramps were handled in 2 categories as those with a slope lower than 6%

BASIC FACTORS AND CRITERIA

ACCESSIBILITY
- Sidewalk Width
- Sidewalk Height
- Pedestrian Lane
- Ramp
- Taxi Rank-Bus Stop

SAFETY
- Illumination Element
- Dead-End Streets
- Vandalism/Blind Walls
- Empty Parcel
- Ruins/Construction
- Security Cam

USABILITY
- Commercial Area
- Active Gren Area
- Direction Signs
- Warning Signs
- Info Boards
- Emergency Button
- Garbage Bin/Container
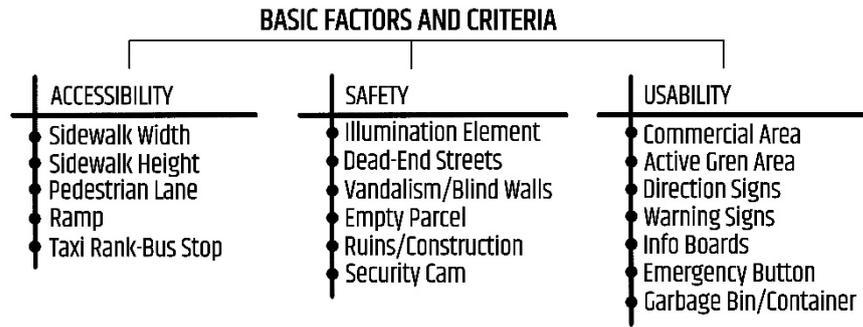
Figure 22. Social Infrastructure Areas Assessment Criteria

and higher than 6%. The basic standard for the width of the sidewalk has been determined as 150 cm, as stated in the article 5.1.1 Width of the Pedestrian Sidewalks of the Turkish Standards Institute's standard TS 12576. As a result of the field study, the current situation was evaluated in 4 categories as 0-50 cm, 51-149 cm, 150 cm (standard) and over 150 cm. The sidewalk heights are in the 5.1.2. of the Turkish Standards Institute's standard TS 12576. It is accepted as being between 3 cm and 15 cm as stated in the Height of Pedestrian Sidewalk article and the current situation is given in 3 categories as 0-2 cm, 3-15 cm (standard) and over 15 cm. Buildings commercial, construction and ruin; social infrastructure areas, educational facilities, administrative facilities, religious facilities, social and cultural facilities and open green spaces; urban furniture illumination element type1/type2, garbage bin/container, direction sign, info board and bus stop; roads and their elements pedestrian lane, roadway and dead-end street; others are classified as blind wall/vandalism, empty parcel and taxi rank.

Assessment of social infrastructure areas in the examination,
• Social infrastructure areas are scattered in the area;
• Of the social infrastructure areas, administrative facilities (E, F, G) are located in the south, social and cultural facilities (L, M) are located in the north, while educational facilities (A, B, C, D) and religious facilities (H, I, K) are located in the area. positioned in such a way;
• When the accessibility to social infrastructure areas is examined, 10 of them (A, B, C, D, E, F, I, K, L, M) in terms of sidewalk width, 7 of them (A, B, C, D, E, F, I) there is a problem in terms of sidewalk height; The discontinuity of the pavements surrounding the 9 social infrastructure areas (A, B, C, D, F, I, K, L, M);
• Ramps are missing in 4 of the social infrastructure areas (B, I, K, M);
• There are no taxi and bus stops in the immediate vicinity of 6 social infrastructure areas (A, B, I, K, L, M);
• Looking at the lighting elements, 7 of the social infrastructure areas (B, C, E, F, G, H, I) have type1 illumination elements, and 5 of them (A, D, K, L, M) have type2;
• There is a dead end in the immediate vicinity of one of the social infrastructure areas (A);

• While there are empty parcels in the immediate vicinity of 4 of the social infrastructure areas (A, C, D, I), blind wall and vandalism in the immediate vicinity of 8 (A, C, D, E, F, I, K, M) and 4 (A), D, E, I) near ruins/construction;

• There are no security cameras in 9 of the social infrastructure areas (A, B, C, D, F, H, I, K, M);

• There are no commercial areas near 4 of the social infrastructure areas (D, K, L, M), and there is no open green area near 7 of them (A, D, G, I, K, L, M);

• Considering the urban furniture, there are no emergency buttons and info boards in the social infrastructure areas; in 7 of the social infrastructure areas of the warning sign (A, B, E, F, G, H, I); the guiding plate has 1 (I);

• It is seen that garbage containers and garbage bin are not found in 3 of the social infrastructure areas (C, H, I).

The map created within the scope of social infrastructure areas according to the assessments is given below (Figure 23).
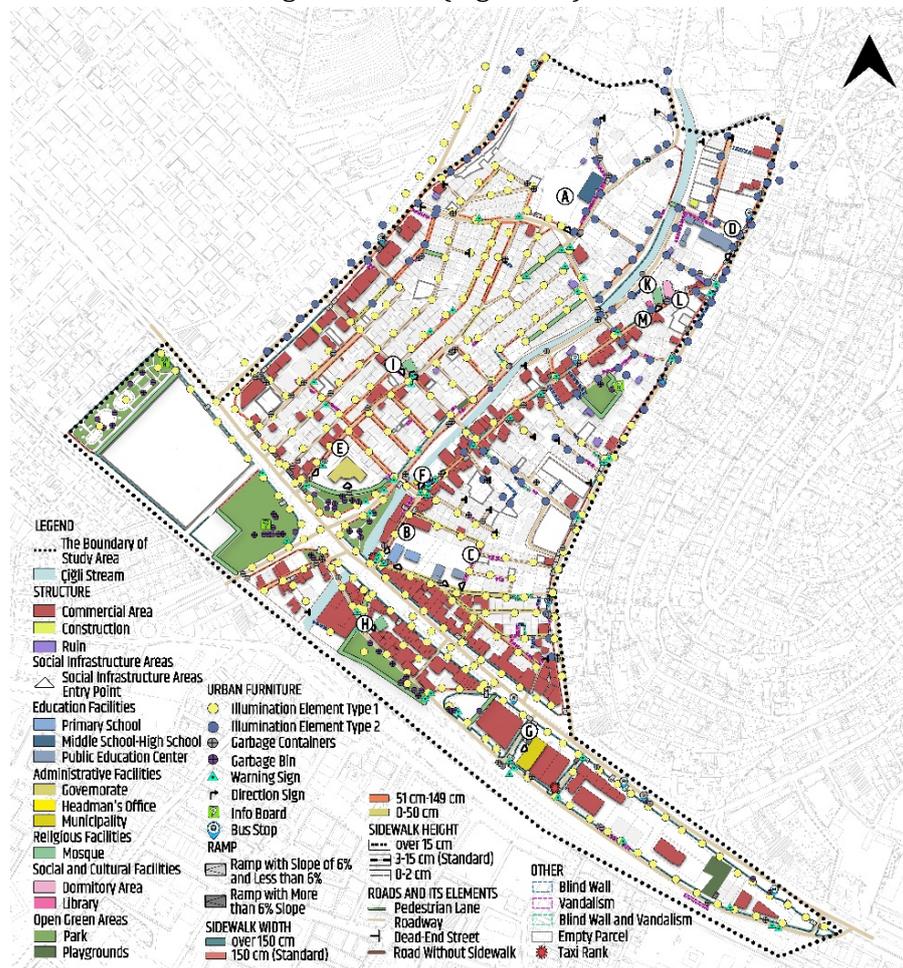
Figure 23. Social Infrastructure Areas Analysis

One of the most important criteria in evaluating the accessibility of social infrastructure areas is transportation relations. There are 11 bus stops in the study area. 21 of 32 bus lines passing through Çiğli district borders serve in the study area and buses pass through Anadolu Avenue, Köyiçi Avenue, Dere Avenue, 8050 street and 8055 street. Among the 12 social infrastructure areas in the study area, the public transport relation

of the A coded middle school-high school I coded mosque, K coded mosque, L coded dormitory and M coded library is weak compared to other social infrastructure areas (See Figure 24).
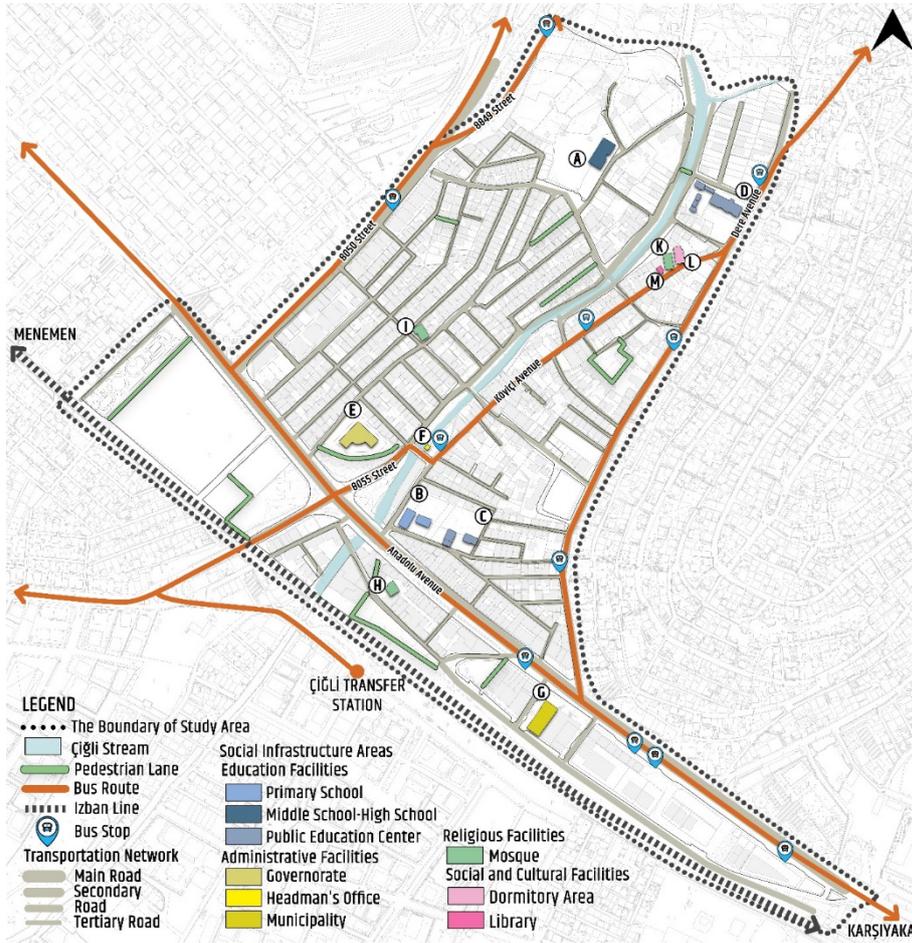
Figure 24. Transportation Relations of Social Infrastructure Areas in the Study Area

Illumination elements are an important element within the scope of the security of social infrastructure areas. There are 408 illumination elements in two different types (Type1, Type2) in the area (Figure 25). While 296 of them are Type1, 112 of them are Type2. According to the types of these illumination elements, their length and Lux values also change (LUX: Average illuminance level). The data on the illumination elements were taken by Gediz Elektrik, which provides service in the field, in the form of brand, model, feature and spatial distribution, and the maximum lux and radius values that can be provided by the brand and model obtained as a result of the sector research were used to determine the light and dark areas.

Illumination element Type1 has 4 different lux radius (5-10-15-20 meters). Illumination element Type2 has 13 different lux diameters (1.5-2-2.5-3-4-5-6-8-10-14-30 meters). In addition, 22 illumination elements do not have a lux effect diameter and therefore cannot illuminate its surroundings.

As a result of the examination, there are problems in terms of lighting in 7 of the social infrastructure areas in the area (A, D, H, G, K, L, M).
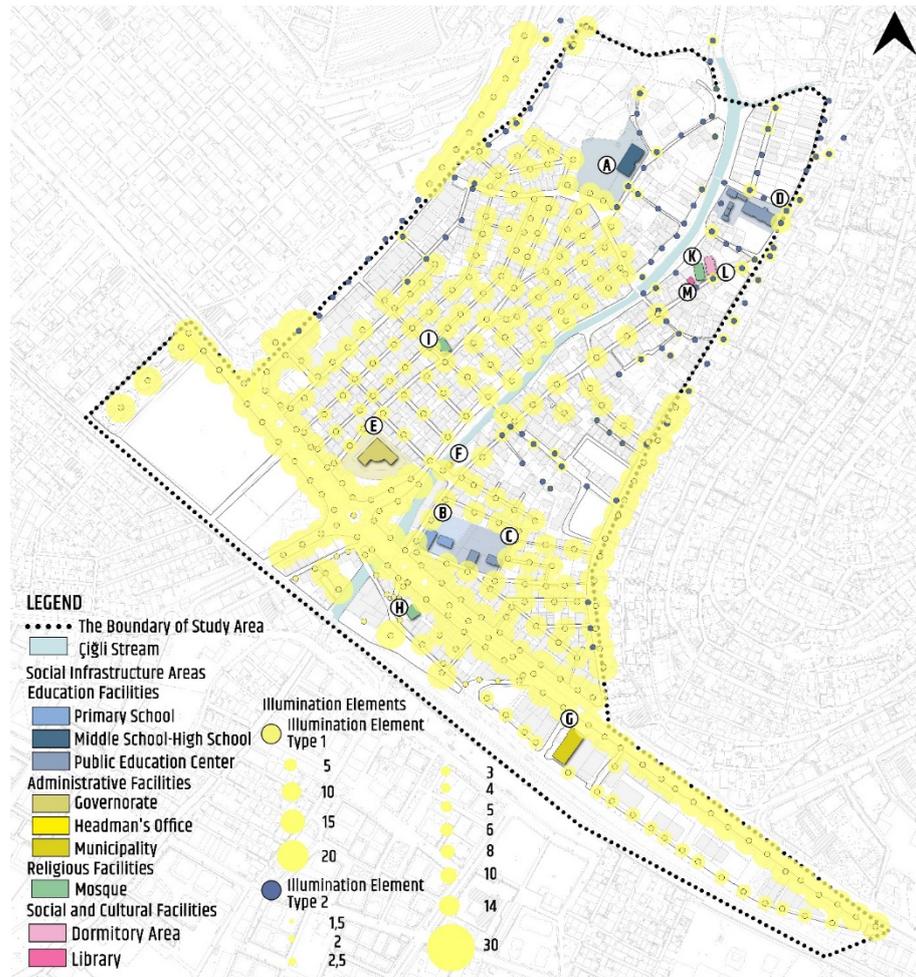
Figure 25. Existing Social Infrastructure Areas and Illumination Elements

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In line with the analysis of social infrastructure areas and the assessment criteria of social infrastructure areas, the problems were identified under 3 headings: accessibility, security and usability. There are 5 problems under the title of accessibility, 6 problems under the title of security, and 4 problems under the title of usability (Figure 26).

Figure 26. Classification of Problems of Social Infrastructure Areas

These identified problems were evaluated in detail for 12 social infrastructure areas in the study area and presented in a table (Figure 26). Although 15 problems were identified, as a result of the assessment, it was observed that there were at most 12 problems from the social infrastructure areas in the study area. As can be seen in the table, the problem of not having urban furniture nearby (problem 14) is seen most

in social infrastructure areas, while the problem of having a dead-end street nearby (problem 7) is seen at least. The problems of social infrastructure areas were determined by looking at their ratios in the category (accessibility, security and usability) and which problem title was prioritized (Figure 26). There is no emergency button in any of the social infrastructure areas. Since this problem is valid for all social infrastructure areas, it was not presented as a separate problem, but was presented as a suggestion to all social infrastructure areas (Figure 27).

Figure 27. Problems of Social Infrastructure Areas in the Study Area
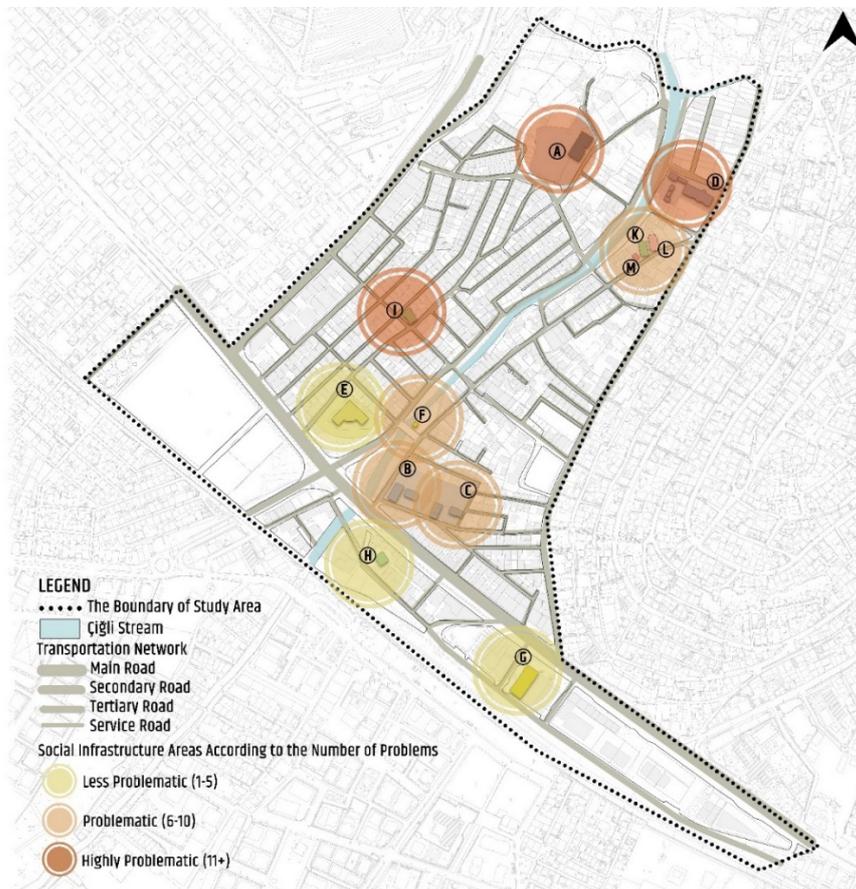
Figure 28. Social Infrastructure Areas by Number of Problems

When the priority problems were examined, 8 (B, C, E, F, I, K, L, M) accessibility problems, 2 (A, D) security, 2 (G, H) usability problems were detected.

Assessment of Social Infrastructure Areas According to the Number of Problems: The social infrastructure areas in the study area were examined in 3 categories as very problematic (11 or more), problematic (6-10) and less problematic (1-5) in terms of 15 problems. In this context, out of 12 social infrastructure areas, 3 are very problematic (A, D, I), 6 are problematic (B, C, F, K, L, M) and 3 are less problematic (M, G, H).

The social infrastructure area in each category has been examined in detail one by one by associating it with the land use status.

Assessment of the Highly Problematic Social Infrastructure Area:

Figure 29. Assessment of "Code A" Social Infrastructure Area

When the A-coded social infrastructure area, which has the characteristics of middle school and high school, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4), the fact that its width and height do not comply with the standards (problem 1 and problem 2) limit the accessibility of this education area. The absence of taxi and bus stops in the immediate vicinity (problem 5) makes it difficult to access this middle school-high school area. Since the illumination elements in the streets surrounding the middle school-high school are insufficient (problem 6) the feeling of insecurity increases. The presence of a dead end (problem 7), vandalism/blind wall (problem 8), empty parcel (problem 9) and ruins/construction (problem 10) nearby creates a feeling of insecurity. There are no security cameras (problem 11). The absence of active green space (problem 13) and urban furniture (problem 14) nearby affects the usability of this area.

There are housing areas, commercial areas (C1), orchards, ruins, annex, buffet-market-grocer, empty shops and transformers around this middle school-high school, which has many problems.

Figure 30. Assessment of "Code D" Social Infrastructure Area

When the D-coded social infrastructure area, which is a public education center, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4), the fact that its width and height do not meet the standards (problem 1 and problem 2) limit the accessibility of this education area. The absence of taxi rank and bus stops in the vicinity (problem 5) makes it difficult to access this public education

centre. Since the illumination elements in the streets surrounding the public education center are insufficient (problem 6) the feeling of insecurity increases. The presence of vandalism/blind wall (problem 8), empty parcel (problem 9) and ruins/construction (problem 10) nearby creates a feeling of insecurity. There are no security cameras (problem11). The absence of a commercial area (problem 12), active green space (problem 13) and urban furniture (problem 14) nearby affects the usability of this area.

There is housing area, ruins, construction and annex uses around this public education center, which has many problems.

Figure 31. Assessment of "Code I" Social Infrastructure Area

When the social infrastructure area I code, which is a mosque, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4), the fact that its width and height do not meet the standards (problem 1 and problem 2) limit the accessibility to this religious facility. The inadequacy of ramps at the entrance points of this religious facility (problem 3) is a deterrent, especially for individuals using disabled vehicles and strollers. The absence of taxi rank and bus stops in the immediate vicinity (problem 5) makes it difficult to access this mosque. The presence of vandalism/blind wall (problem 8), empty parcel (problem 9) and ruins/construction (problem 10) nearby creates a feeling of insecurity. There are no security cameras (problem 11). The absence of active green space (problem 13), urban furniture (problem 14) and garbage bin/container (problem 15) nearby affects the usability of this area.

There is housing area, commercial area (C1), barber, ruins and annex around this mosque, which has many problems.

Assessment of Problematic Social Infrastructure Area:

Figure 32. Assessment of "Code B" Social Infrastructure Area

When the B-coded social infrastructure area, which is a primary school, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4), the fact that its width and height do not meet the standards (problem 1 and problem 2) limit the accessibility of this education area. The inadequacy of ramps at the entry points of this training facility (problem 3) is a deterrent especially for individuals using disabled vehicles and strollers. There are no security cameras (problem 11). The absence of urban furniture (problem 14) nearby affects the usability of this area.

There are commercial area (C1), transformer, tailor, restaurant-cafe, public education center, buffet-market-grocer uses around this problematic primary school. Since this primary school is located on Köyiçi Avenue, which is connected to Anadolu Avenue and at an important intersection, it is used extensively.

Figure 33. Assessment of "Code C" Social Infrastructure Area

When the C-coded social infrastructure area, which is a public education center, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4), the fact that its width and height do not meet the standards (problem 1 and problem 2) limit the accessibility of this education area. The presence of vandalism/blind wall (problem 8) and empty lot (problem 9) nearby creates a feeling of insecurity. There are no security cameras (problem 11). The absence of street furniture (problem 14) and trash/container (problem 15) nearby affects the usability of this area.

There is housing area, primary school, commercial area (C1 and C2), passage-office building, restaurant-cafe, hairdresser and tailor uses around this problematic public education center.

Figure 34. Assessment of "Code F" Social Infrastructure Area

When the F-coded social infrastructure area, which is a headman, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4), the fact that its width and height do not comply with the standards (problem 1 and problem 2) limit the accessibility of this administrative facility. The presence of vandalism/blind wall (problem 8) nearby creates a feeling of insecurity. There are no security cameras (problem 11). The absence of urban furniture (problem 14) nearby affects the usability of this area.

There are parking lots, buffet-market-grocer, commercial area (C1), barber, tailor and plumbing shop in this problematic headman's office.

Figure 35. Assessment of "Code K" Social Infrastructure Area

When the K-coded social infrastructure area, which is a mosque, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4) and its width not meeting the standards (problem 1) limit

the accessibility to this religious facility. The inadequacy of ramps at the entrance points of this religious facility (problem 3) is a deterrent, especially for individuals using disabled vehicles and strollers. The absence of taxi and bus stops in the immediate vicinity (problem 5) makes it difficult to access this mosque. Since the illumination elements in the streets surrounding the mosque are insufficient (problem 6) the feeling of insecurity increases. The presence of vandalism/deaf front (problem 8) nearby creates a feeling of insecurity. There are no security cameras (problem 11). The absence of a commercial area (problem 12), active green space (problem 13) and urban furniture (problem 14) nearby affects the usability of this area.

There is housing area, dormitory area, association, library and commercial area (C2) uses around this problematic mosque.
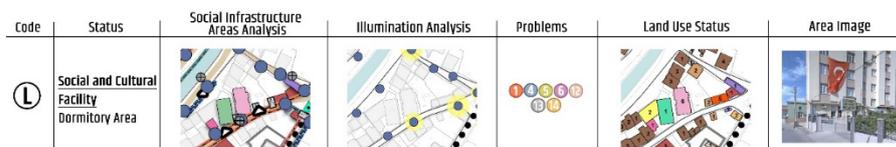
Figure 36. Assessment of "Code L" Social Infrastructure Area

When the L-coded social infrastructure area, which is a dormitory, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4) and its width not meeting the standards (problem 1) limits the accessibility to this social and cultural facility. The absence of taxi rank and bus stops in the immediate vicinity (problem 5) makes it difficult to access this dormitory area. Since the illumination elements in the streets surrounding the dormitory area are insufficient (problem 6) the feeling of insecurity increases. The absence of a commercial area (problem 12), active green space (problem 13) and urban furniture (problem 14) nearby affects the usability of this area.

There are housing area, mosques, associations, library, warehouse, hairdressers and commercial area (C2) uses around this problematic dormitory area.
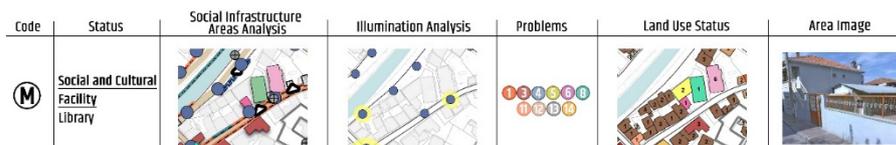
Figure 37. Assessment of "Code M" Social Infrastructure Area

When the M-coded social infrastructure area, which is a library, is examined, the lack of continuity of the sidewalk surrounding this area (problem 4) and its width not meeting the standards (problem 1) limits the accessibility to this social and cultural facility. The inadequacy of the ramps at the entrance points of this social and cultural facility (problem 3) is a deterrent especially for the access of individuals using disabled vehicles and baby carriages. The lack of taxi rank and bus stops nearby (problem 5) makes it difficult to access this library. Since the illumination elements in the streets surrounding the library are insufficient (problem 6) the feeling of insecurity increases. The presence of vandalism/blind wall (problem 8) nearby creates a feeling of insecurity. There are no security cameras (problem 11). The absence of a commercial area

(problem 12), active green space (problem 13) and urban furniture (problem 14) nearby affects the usability of this area.

There is housing area, dormitory area, associations, mosques and commercial area (C2) uses around this problematic library.

Assessment of the Social Infrastructure Area with Less Problematic:

Figure 38. Assessment of "Code E" Social Infrastructure Area

When the E-coded social infrastructure area, which is the district governor's office, is examined, the fact that the width and height of the sidewalk surrounding this area do not comply with the standards (problem 1 and problem 2) limits the accessibility of this administrative facility. The presence of vandalism/blind wall (problem 8) and ruins/construction (problem 10) nearby creates a feeling of insecurity. The absence of urban furniture (problem 14) nearby affects the usability of this area.

There is housing area, commercial area (C2), ruins, parks, transformers, coffee shops, barbers, buffet-markets-grocer, repair shop and annex in this area, which has few problems. Since this governorate is located on Anadolu Avenue and at the crossroads, it is used extensively.

Figure 39. Assessment of "Code G" Social Infrastructure Area

When the G-coded social infrastructure area, which is a municipality, is examined, the feeling of insecurity increases as the lighting elements in the streets surrounding this area are insufficient (problem 6). The absence of active green space (problem 13) and urban furniture (problem 14) nearby affects the usability of this area.

There is commercial area (C1 and C2), restaurant-cafe, square and passage-office building uses around this municipality, which has little problems. The fact that Çiğli İzban Station is close to the municipality, that it is located on Anadolu Avenue, and that it has land uses such as commercial areas with many and various user profiles increases the importance of this administrative facility.

Figure 40. Assessment of "Code H" Social Infrastructure Area

When the H-coded social infrastructure area, which is a mosque, is examined, the feeling of insecurity increases as the lighting elements in the streets surrounding this area are insufficient (problem 6). There are no security cameras (problem 11). The absence of urban furniture (problem 14) and garbage bin/container (problem 15) nearby affects the usability of this area.

There is commercial area (C1 and C2), park and restaurant-cafe uses around this mosque, which has few problems. The fact that it contains many and various user profiles such as commercial areas near the mosque and Çiğli İzban Station makes this area important.

CONCLUSION AND ASSESMENT

Assessment of 12 social infrastructure areas in the study area has been discussed under 3 headings as accessibility, safety and usability (Figure 26). Priority problems of social infrastructure areas were determined according to the 3 titles determined within the scope of the assessment. At the same time, the land use status is zoned on an island basis depending on which use is intense. In this direction, the social infrastructure areas, whose priority problems were determined, were evaluated together with the land use areas (Figure 41).

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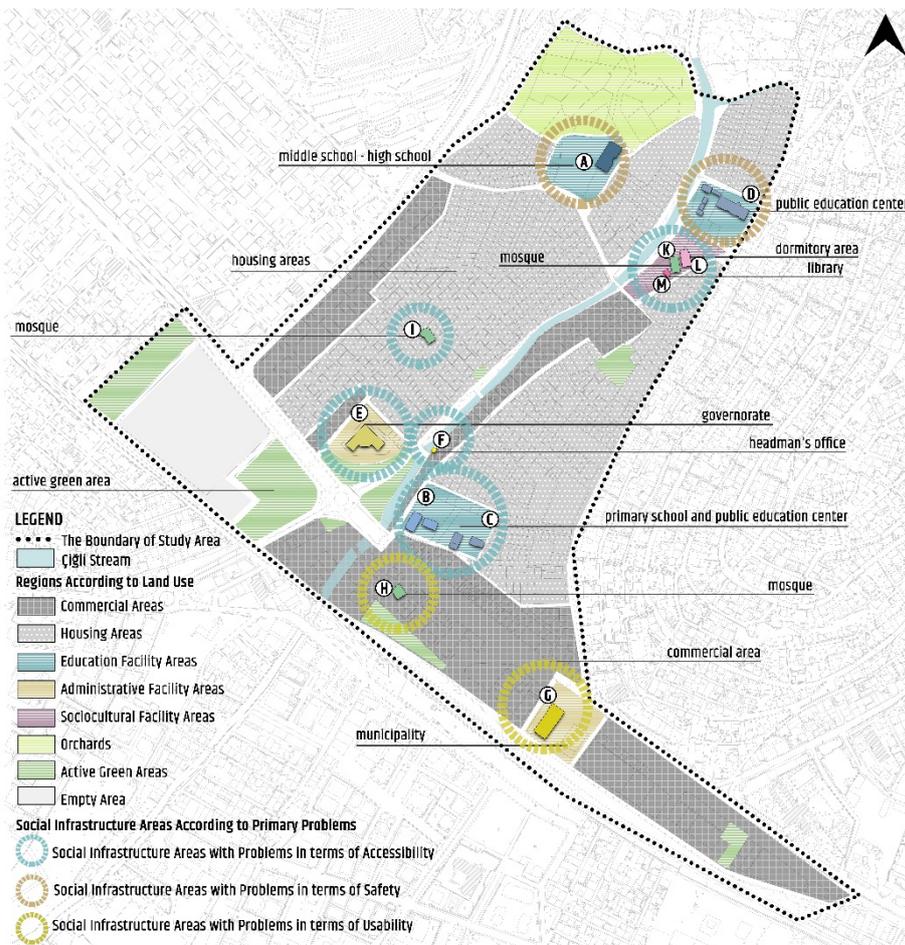
Figure 41. Priority Problems of Social Infrastructure Areas and Their Relationship with Land Use

According to the review;

• A-code middle school-high school: It is close to the fruit and vegetable garden and the residential area, and it is an educational facility area that has problems in terms of security.

• B coded primary school: Being connected to Anadolu Avenue causes intensive use of this area. This primary school, which has educational facilities, residential and commercial areas around it, is problematic in terms of accessibility.

• C-coded public education center: It is close to the education and housing area and is a problematic education facility area in terms of accessibility.

• D-coded public education center: It is close to the socio-cultural facility and housing area, and it is an educational facility area that has problems in terms of security.

• E-coded governorate: It is an administrative facility on Anadolu Avenue, close to residential, commercial and green areas, and has problems in terms of accessibility.

• F-coded headman's office: It is an administrative facility area that is close to residential and commercial areas and has problems in terms of accessibility.

• Municipality with G code: It is heavily used by various user profiles since it is located near Çiğli İzban Station and Anadolu Avenue. This administrative facility, surrounded by a commercial area, is problematic in terms of usability.

• Mosque with code H: Çiğli İzban Station is close to commercial and active green areas and is a problematic religious facility in terms of usability.

• Mosque with code I: It is near the residential area and is a problematic religious facility in terms of accessibility.

• K-coded mosque: It is close to the socio-cultural facility and residential area, and it is a religious facility area with problems in terms of accessibility.

• L-coded dormitory area: It is close to the socio-cultural facility and housing area and is a problematic social and cultural facility area in terms of accessibility.

• L-coded library: It is close to the socio-cultural facility and housing area and is a problematic social and cultural facility area in terms of accessibility.

After the examinations and assessments, suggestions were made within the scope of the problems identified under the headings of accessibility, security and usability for 12 social infrastructure areas in the study area. 5 suggestions were made under the heading of accessibility, 5 under the heading of security, and 6 under the heading of usability (Figure 42).

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Figure 42. Suggestions for Social Infrastructure Areas

Suggestions covered under 3 headings:

In terms of accessibility;

• Regulation of sidewalk widths according to standards (150 cm and above) (SW)

• Regulation of sidewalk heights (3-15 cm) according to standards (SH)

• Useful ramp (6% or less slope) recommendation at park entrance points (R)

• Ensuring the continuity of pedestrian lanes and sidewalks (PS)

• Taxi call button and/or bus stop suggestion (S)

In terms of safety;

• Illumination element recommendation (IE)

• Placing warning signs on the streets that have the character of a dead end, in order to inform the passengers who do not know this street in advance (WS)

• Maintenance/repair on blind wall such as vandalism (F)

• Maintenance/repair of ruined structures (RS)

• Security camera recommendation (SC)

In terms of usability;

• Suggestion for a commercial area to meet the needs of his/her relatives (C)

• Green area proposal (GA) in order to increase the usability near it

• Emergency button suggestion (EB)

• Info board recommendation (IB)

• Direction sign recommendation (DS)

• Garbage bin/container recommendation (GB)

Suggestions developed for each social infrastructure are given in Figure 43.

Although 16 suggestions have been determined, since the suggestions developed for each social infrastructure area are different, it is seen that there are 13 social infrastructure areas at most. As can be seen in the table, the most emergency button (EB) and info board (IB) suggestions were made to the social infrastructure areas, and the least warning sign (WS) was recommended.

A city's being friendly to women depends on women being able to use that city as much as men. Social infrastructure areas, which are one of the most important areas of urbanity, should also be women-friendly and should be used by women. This text presented a model that is open to development on how social infrastructure areas should be examined and

how their problems should be evaluated in the creation of a woman-friendly city.

Figure 43. Suggestions for Social Infrastructure Areas in the Study Area

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CONFLICT OF INTEREST

No conflict of interest was declared by the authors.

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In this research, the necessary permissions were obtained from the relevant participants (individuals, institutions, and organizations) during the survey and in-depth interviews.

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