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Determination and Evaluation of Alternatives for Post-Earthquake Temporary Sheltering Area

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Abstract After natural disasters like earthquakes, identifying the locations of disaster victims and establishing temporary shelter areas are essential for their mental and physical well-being. Evaluating and determining such areas has been a key focus for researchers to provide decision-makers with data to create suitable solutions. Türkiye, located in a disaster-prone region, experienced two major earthquakes centered in Kahramanmaraş in February 2023. This study focuses on determining the temporary shelter areas in Hatay, a severely affected province. The research consists of two main parts: (i) The suitability of neighborhoods and districts for post-disaster settlement is evaluated based on logistics, transportation, and infrastructure. Additionally, seismicity and liquefaction safety coefficients were used to calculate the suitability values. Findings show that the neighborhoods in the Reyhanlı district align well with the determined criteria. (ii) Temporary shelter areas are selected using the p-median model, which is applied to solve the location selection problems. Results indicate that if five shelter sites are to be established, one should be located in Kumlu, while the remaining four should be in the Erzin district. These findings aim to provide a systematic approach for planning post-disaster temporary shelters in earthquake-affected regions.

Keywords Temporary Shelter Areas · Site Selection · p-Median · Multi-Criteria Decision Making · Mathematical Modeling

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Determination and Evaluation of Alternatives for Post-Earthquake Temporary Sheltering Area

After natural disasters such as earthquakes, determining the areas where disaster victims will be located and establishing sheltered areas are of great importance for the mental and physical health of disaster victims. It is essential to provide suitable temporary sheltered areas for people evacuated from disasters. A suitable temporary sheltered area provides emergency and short-term accommodation while reducing the social impact of the disaster. This accelerates disaster victims' mental and physical recovery processes (Hosseini et al., 2022). For this reason, determining the temporary shelter areas and settlement areas where disaster victims will stay has been critical to researchers from the past to the present.

Türkiye lies within a seismic zone, and the region's recent history includes two major seismic events centered on Kahramanmaraş. The 7.7 and 7.6 magnitude earthquakes that struck on 6 February 2023, with the epicenter in Kahramanmaraş, resulted in the collapse of numerous buildings, injuries to many people, and left most of the earthquake victims homeless. Local authorities and researchers are working swiftly to identify suitable locations for these individuals. This study aims to determine suitable settlement areas for earthquake victims by evaluating the logistics, transport, and infrastructure facilities in Hatay province, which was affected by two major earthquakes in Kahramanmaraş. This study discusses two main topics. The former determines the criteria for identifying settlements, especially in the earthquake zone. Later, it determines post-earthquake settlement areas by evaluating settlements based on these criteria. The study has two phases within this framework.

- First, using "Logistics, Transportation, Infrastructure", "Seismicity", and "Liquefaction Values", the neighborhoods and districts of Hatay province are evaluated, and the areas where life can continue after the earthquake are examined. The weights of these criteria "Logistics, Transportation, Infrastructure", "Seismicity", and "Liquefaction Values" are calculated by using Multi-Criteria Decision Making (MCDM) method. The alternative areas are then evaluated based on the calculated weights. Although the February 2023 earthquakes have already led to the establishment of temporary and permanent settlements in the affected regions, the primary objective of this study is not to intervene in existing site selections. Instead, the study proposes a systematic and generalizable methodology to guide decision-makers in future disaster scenarios. This study aims to improve preparedness and resilience planning for future earthquakes or similar disasters by offering a replicable framework based on multi-criteria decision-making and location optimization.
- Second, the p-median model, which is used to solve location selection problems, determines the temporary shelter areas where earthquake victims can stay after the earthquake.

The reason for using MCDM methods in this study, as in similar studies, is that, unlike optimization techniques, it allows the use of qualitative and quantitative parameters. The subjective behavior of the experts in evaluating the qualitative parameters is considered using the Analytic Hierarchy Process (AHP). For the determination of the temporary shelter areas, the p-median method was selected.

The remaining sections of the study are organized as follows. In the second section, a literature review of previous studies on the evaluation and identification of temporary shelter areas is addressed. In the third section, the methods used in the study are explained in detail, whereas in the fourth section, the studies conducted for the Hatay province and the results obtained are presented. The last section provides the evaluation of the information.

Literature Review

After the disaster, the victims must be sheltered in suitable places and reach healthy shelter facilities as quickly as possible. Therefore, several studies have been conducted in different regions of the world to determine which areas should be used after a disaster. Several studies (Saadatseresht et al., 2009; Widener & Horner, 2011; Li et al., 2012; Bayram et al., 2015; Aydın & Seker, 2021) are presented in the literature on the effective positioning of temporary shelter areas. The primary purpose of such models is to identify where temporary shelters can be built and how they can be allocated to meet the needs of evacuees.

The location and allocation models are classified as *single-objective* and *multi-objective* (Ma et al., 2019). The literature study on temporary sheltering in post-disaster by Felix et al. (2013) also emphasizes the importance of this issue. In the literature, MCDM methods have been effectively used to explain multiple factors in location selection problems (Liu, 2022). In their literature review, Perucci and Baroud (2020) emphasized the methods for determining temporary shelter areas as optimization models and decision-making methods. They presented an analysis of the trends in these areas. Within the framework of this information, the studies to be presented for determining temporary shelter areas after disasters are examined in terms of decision-making and methods using mathematical models.

Since it can also include qualitative criteria, the MCDM methods can be applied to real-life problems. Since qualitative criteria are critical for location decisions, emergency medical service facilities and temporary shelter areas should be considered for the location selection problem. Since the location selection of temporary and emergency shelters involves various criteria (Omidvar et al., 2013) and different actors, decision-makers need the help of all relevant actors in selecting the most appropriate options by considering multiple-criteria according to requirements and characteristics. For the reasons, the problem of location selection of temporary shelters and emergency medical service facilities involves multiple criteria and objectives (Trivedi & Singh, 2017). Since they can address these factors comprehensively, MCDM methods are also used in this study.

Various decision-making approaches have been used in literature, each with applicability and relevance based on different contexts. For example, Chu and Su (2012) determined the stationary settlements to be used post-disaster by using impact factors consisting of three main criteria and nine sub-criteria. They used the AHP and entropy methods to identify and evaluate the criteria. The technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method is applied to the selection of shelter areas. Givechi et al. (2013) showed how temporary shelter areas in the sixth district of Shiraz City can be identified by the AHP model due to high potential seismic activities in the near future. As a result of this study, it is determined that disaster victims tended to prefer temporary shelters close to their destroyed houses. This means that they prefer to be close to their homes. Hosseini et al. (2016) presented a new MCDM model to support decision-makers in selecting site locations for temporary shelters. In their study, they stated that the model they presented can determine the most suitable site location based on the integration of these locations' economic, social, and environmental characteristics over the whole life cycle. In this study's application part, six different temporary shelter alternatives, including 23 different sites in Tehran, are evaluated. Celik (2017) proposed a proactive decision-making tool by integrating the Decision-Making Trail and Evaluation Laboratory (DEMATEL) method with interval type-2 fuzzy sets (IT2FSs) to determine temporary shelter locations in disaster operations management. In the study, nine disaster operation managers evaluated 14 different criteria for the location of temporary shelters in terms of cause-effect factors. In addition to the theoretical contribution of this proposed method, it is stated that it will provide practical benefits for disaster operation managers to perceive the cause-and-effect relationship on the location of temporary shelters. Junian and Azizifar (2018) applied the AHP method to identify shelter areas for disaster potential

in northern Iran. Nappi et al. (2019) identified post-earthquake temporary shelter areas for Brazil using multi-objective decision-making (MODM) methods using nine main criteria and 28 sub-criteria. Liu (2022) developed a new geographical information systems (GIS)-based MCDM approach integrating interval AHP for post-earthquake emergency medical service facility location selection and TOPSIS for multi-hazard assessment. Their study states that existing regulations are used to determine alternative facilities, but their proposed model offers better alternatives than the regulations. Baharmand and Comes (2015) conducted a study to determine the location of shelter areas using the ant colony optimization method. Afterward, they used this model to decide on the shelter areas in Kerman, Iran. Boonmee et al. (2016) suggest four different mathematical models for evacuation planning, with site selection for shelter areas in a study for Thailand. Boostani et al. (2018) studied the determining and prioritizing factors affecting the optimal placement of temporary shelters. First, three main criteria, namely infrastructure, access, and sustainability, and 11 sub-criteria are identified using the Fuzzy Delphi method with expert opinions. Then, the fuzzy DEMATEL-based analytic network process (FDANP) method is used to determine the weight of the criteria. Dabiri et al. (2022) determined and prioritized critical risks for temporary accommodation after earthquakes using Intuitionistic Fuzzy Sets and Risk Failure Mode and Effects Analysis (IF-RFMEA). Using IF-RFMEA, 20 critical risks were assessed using three criteria: (i) probability of earthquake occurrence, (ii) impact level, and (iii) detection value. In this study, infectious diseases, mental and psychological disorders in survivors, unemployment, and business closures were determined as the most critical risks after the earthquakes in the region. Junian and Azizifar (2018) used the AHP method to determine the post-earthquake shelter areas in Iran. The model they have strengthened using GIS has three stages: (i) selecting candidate regions, (ii) analyzing the geographical coverage of shelter areas, and (iii) deciding on shelter areas. In Geng et al. (2021) conducted in Cehngdu, Sichuan, China, a bi-objective hierarchical model was established. The objectives consist of two phases: determining temporary and short-term shelter areas. In this study, the fuzzy Vise Kriterijumska Optimizacija I Kompromisno Resenje (VIKOR) method was used to determine the shelters' performance. Sabzevari et al. (2022) combined the fuzzy AHP method with GIS to determine the temporary shelter areas of disaster victims after the earthquake in the Isfahan province of Iran.

Countries in different parts of the world suffer severe damage from various disasters. In the aftermath of these damages, survivors must return to their daily lives and reach shelter as soon as possible. In this context, studies conducted worldwide are presented above, followed by studies related to Türkiye. First, studies on post-disaster temporary shelter areas were analyzed. In Dayanır et al. (2022), the criteria for selecting, planning, and designing post-disaster temporary shelter areas are grouped. Then, suitable locations for post-disaster temporary shelter areas are determined for the Izmir province using the Delphi method with the determined criteria. They emphasize that it is not enough to select the regions; plans should be created for the selected regions, and if Delphi and an MCDM model are used in integration, they will give better results. Güler et al. (2022) published a similar study in the literature. In this study, the DEMATEL and SWARA methods, which are MCDM methods, are used. DEMATEL is used to determine the impact aspects, important rankings, and weights of the evaluation criteria, and SWARA is applied to determine the weights of the evaluation criteria. According to the results of both methods, land slope is the most important criterion. Çınar et al. (2018), Doğruyol and Taktak (2022), Erdin et al. (2023), and Arca and Çıtıroğlu (2023) have carried out similar studies and focused on the criteria for determining post-disaster shelter areas. In the study presented by Partigöç (2023), the adequacy of capacities for post-disaster gathering areas for the Denizli province is examined. In this study, 48 gathering areas were evaluated in terms of capacity using a three-stage method. Kalkan (2022) prepared a similar study for the Uşak province, examining the competencies of emergency centers. Examples of studies evaluating post-disaster emergency gathering areas for other

provinces are as follows: Kocaeli (Gerdan & Alper, 2020), Burdur (Aşıkkutlu et al., 2021), and Konya (Güngör & Dikgöz, 2023).

The following studies contain the literature on the selection of post-disaster shelter areas. In this respect, the studies in the literature are ranked according to their use of mathematical models, GIS, and MCDM methods. Then, studies involving a hybrid method are presented.

Kılcı et al. (2015) proposed a mixed integer mathematical model for determining temporary shelter areas to be used after an earthquake in the Kartal district of Istanbul province. The model identifies shelter locations considering shelter land uses and matches districts with the nearest open shelter. The validity of the model is established with the data they used for Kartal, and they also run the model using data from the Van earthquake in 2011. Bayram et al. (2015) also considered evacuation traffic to determine shelter locations using second-order conic programming. They also present sensitivity analyses for shelter areas, taking into consideration capacity. Şahin and Altın (2016) use the p-median model to determine the location of tent cities designed to provide temporary shelter for victims after a disaster. In this study, a constraint considering the capacity of alternative locations is added to the p-median model to increase the accuracy of the model. It is concluded that four of the six alternative areas determined as temporary settlement areas after the earthquake would be suitable for use. The study prepared by Ozbay et al. (2019) aims to determine the temporary shelter areas required to settle disaster victims after secondary disasters that may occur after major disasters such as earthquakes. In this context, they proposed a three-stage stochastic model and apply for Istanbul.

Işık et al. (2019) studied the determination of avalanche risk areas using GIS tools according to the score criteria determined by AFAD. Because of the study, it is concluded that some settlements, such as Köknar and Seyrantepe, are on the avalanche path. Therefore, the settlements located here should be moved to different places. Similarly, Çınar et al. (2018), Zengin Çelik et al. (2018), and Şentürk and Erener (2017) used GIS to determine alternative locations for emergency assembly areas.

Sayar (2018), similar to Şahin and Altın (2016), also works on determining tent city areas. In this context, the AHP method determines one of the five alternatives as a tent city area in the Suruç district of Şanlıurfa. In their study, Ömürgönülşen and Menten (2021) evaluated five different areas in Ankara with the Fuzzy TOPSIS method using 10 different criteria determined in accordance with national and international standards and determined the temporary shelter areas after the disaster. Şekkeli (2020) prepared a study to select an emergency gathering center. In this study, AHP, one of the MCDM methods, is preferred for the application in the Onikişubat district of Kahramanmaraş province. Erişkin and Karataş (2022) proposed a mixed integer mathematical model for determining the shelter areas needed after a possible Istanbul earthquake.

Şentürk and Erener (2017) determined temporary shelter areas for the Kocaeli Gölcük region. In this context, they first determined the criteria weights using AHP. Afterward, by analyzing with GIS, they determined a total area of 243.900 m2 as a temporary shelter area. In their study, Şahin and Hazırcı (2019) determined the temporary shelter areas where disaster victims can stay after a possible post-earthquake in Burdur and which districts will be assigned to them. Their work consists of two phases. In the first stage, the suitability values of the alternative shelter areas were defined using the AHP method. In the second stage, the districts assigned to each area were determined using the p-median model, using the values obtained in the first stage as input. According to their results, six of the nine alternatives could be used post-disaster. Aşıkkutlu et al. (2021) used the AHP method and GIS together to determine temporary shelter locations in Burdur province after the earthquake.

A summary of the post-disaster site selection studies on Türkiye is given in Table 1. When the table is examined, it is seen that although the studies are concentrated in Istanbul, they are widespread throughout the country. It is also concluded that different regions in Türkiye face different types of disasters.

Table 1
Post-Disaster Site Selection Studies in Türkiye

Author(s)	Methods	Type of Disaster	Location	Scope of the Study
Karaman and Erden (2014)	AHP + GIS	Earthquake	İstanbul	Determination of the temporary shelter areas
Kılcı et al. (2015)	Mixed Integer Mathematical Model	Earthquake	İstanbul (Kartal) Van	Determination of the temporary shelter areas
Bayram et al. (2015)	Second-order cone programming	General	İstanbul	Determination of the post-disaster shelter areas
Şahin and Altın (2016)	AHP + p-median	Earthquake	Isparta	Tent city location selection
Şentürk and Erener (2017)	AHP + GIS	Earthquake	Kocaeli (Gölcük)	Determination of the temporary shelter areas
Bayram and Yaman (2018)	Stochastic programming	Earthquake	İstanbul	Shelter location and evacuation planning
Sayar (2018)	AHP	Earthquake	Şanlıurfa (Suruç)	Determination of tent city locations after the earthquake
Kınay et al. (2018)	Probabilistic programming	General	İstanbul	Shelter site location problem
Şahin and Hazırcı (2019)	AHP + p-median	Earthquake	Burdur	Selection of the temporary settlement areas
Işık et al. (2019)	GIS	Avalanche	Trabzon	Determination of the potential avalanche zones
Ozbay et al. (2019)	Three-stage stochastic model	General	İstanbul	Determination of the temporary shelter areas
Şekkeli (2020)	AHP	Earthquake	Kahramanmaraş	Emergency gathering area selection
Gerdan and Şen (2020)	AHP	General	Kocaeli (Başiskele)	Evaluation of the emergency gathering areas
Öztürk and Kaya (2020)	PROMETHEE	General	İstanbul	Evaluation of the emergency gathering areas
Aşıkkutlu et al. (2021)	AHP + GIS	Earthquake	Burdur	Determination of the temporary shelter areas
Ömürgönülşen and Menten (2021)	Fuzzy TOPSIS	General	Ankara	Determination of the temporary shelter areas
Erişkin and Karataş (2022)	Robust Optimization	Earthquake	İstanbul	Determination of temporary shelter areas and assignment of disaster victims to these areas
Kaya vd. (2022)	Fuzzy AHP + GIS	Erosion	Sinop	Selecting a location for post-disaster resettlement
Aman and Aytac (2022)	AHP	Earthquake	İstanbul	Evaluation of post-earthquake gathering areas
Arca and Keskin Çıtıroğlu (2023)	Fuzzy AHP + GIS	General	Karabük	Evaluation of the emergency gathering areas

The studies in Table 1 show that mathematical models and MCDM methods are preferred in post-disaster site selection problems.

Methodology

In this section of the study, the AHP method used for the analyses will be presented first. Then, the p-median model, the mathematical model to determine the shelter areas, will be described.

Analytical Hierarchy Process (AHP)

Choosing one or more of the alternatives that individuals or organizations face for a specific objective is defined as decision-making. Decision-making has become very complex today. Decision-makers have to consider all kinds of criteria that may affect the problem when determining the most appropriate option for their purposes. MCDM is a method for selecting the best alternative based on multiple and jointly evaluated criteria (Ersöz & Kabak, 2010).

MCDM methods are analytical methods that evaluate the advantages and disadvantages of alternatives according to many criteria. MCDM methods are used to support the decision-making process and to select one or more alternatives from a set of alternatives with different features according to often competing criteria or to rank these alternatives. The steps to be followed in the MCDM methods can be listed as follows (Liou et al., 2019).

- Determination of related criteria and alternatives
- Determination of the relative importance of the criteria
- Evaluation of each alternative according to all criteria and ranking of alternatives.

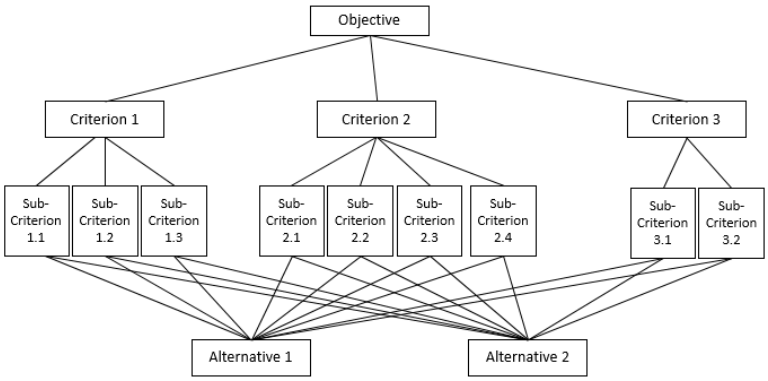
The concepts in the MCDM process can be summarized as follows (Taherdoost & Madanchian, 2023):

- ***Objectives*** are to form criteria guided by the desires of decision-makers.
- ***Criteria*** are defined as the main characteristics, qualities, or efficiency parameters of alternatives and are defined and measured based on the value judgments of decision-makers.
- ***Alternatives*** are the choice options in a problem. Among these alternatives, the most suitable one(s) for the objective is selected at the end of the application.

The AHP, which Thomas L. Saaty, developed in the mid-1970s, is used for measurement and decision-making problems (Karaman & Çerçioğlu, 2015). This method is one of the most well-known and widely used MCDM methods. Decision-making problems faced in daily life consist not only of quantitative factors but also qualitative factors. When concepts such as image, experience, and intuition, which cannot be quantified although they affect the decision, are not considered in decision processes, the accuracy of the models designed for the solution and the accuracy of the results decrease (Zimmermann & Zysno, 1985). AHP is an MCDM technique that considers these qualitative factors when evaluating the criteria.

The AHP uses a multi-level hierarchical structure consisting of objectives, criteria, sub-criteria, and alternatives. Through these pairwise comparisons, the importance weight of each decision criterion is obtained, and the performance of each alternative against each criterion can be evaluated (Trianantaphyllou ve Mann, 1995). Decision makers must make $n(n-1)/2$ pairwise comparisons for n criteria at each level. The hierarchy structure of the problem is shown in Figure 1.

Figure 1
Hierarchy Structure of AHP



The application steps of the AHP method are as follows.

Step 1: Creating the Comparison Matrix

The comparison matrix for the criteria is formed as a square matrix in which the value of the matrix elements on its diagonal is 1. The structure of the matrix is as shown in equation 1.

$$A = \begin{bmatrix} 1 & a_{12}... & a_{1n} \\ a_{21} = \frac{1}{a_{12}} & 1..... & a_{2n} \\ \vdots & \vdots & \vdots \\ a_{n1} = \frac{1}{a_{1n}} & a_{n2} = \frac{1}{a_{2n}} & 1 \end{bmatrix} \quad (1)$$

The Saaty scale (Saaty, 1988), which is widely used in the literature when creating the comparison matrix, is shown in Table 2.

Table 2
The Saaty Scale

Numerical Value	Definition	Interpretation
1	Equal importance	The two activities contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favor one activity over another
5	Strong importance	Experience and judgment strongly favor one activity over another
7	Demonstrated importance	An activity is favored very strongly over another
9	Absolute importance	The evidence-favoring one activity over another is of the highest possible order of affirmation.
2, 4, 6, 8	Intermediate values	Intermediate values between the two adjacent judgments

Pairwise comparisons can be made for the part of the comparison matrix above or below the diagonal with all values 1. Symmetric cells are written as their inverses according to the multiplication operation. For example, if cell 1×3 has a value of 5, cell 3×1 must have a value of 1/5.

Step 2: The value in each cell of the comparison matrix is divided by its column sum to calculate (equation 2) the Normalized Comparison Matrix (a_{ij}^{l}).

$$a_{ij}^{l} = \frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}} \quad (2)$$

Step 3: By calculating (equation 3), mean of each row of the normalized comparison matrix, the relative values of the criteria (w_j) are obtained.

$$w_j = \frac{1}{n}\sum_{i=1}^{n} a_{ij}^{l} \tag{3}$$

Step 4: Compute (equation 4) the average of this value to obtain $(\lambda_{\max})$.

$$\lambda_{\max} = \frac{1}{n}\sum_{j=1}^{n} \frac{\sum_{i=1}^{n} a_{ij} w_j}{w_j} \tag{4}$$

Step 5: Find the Consistency Index (CI) as (equation 5):

$$CI = \frac{\lambda_{\max} - n}{n-1} \tag{5}$$

Step 6: Based on the size of the comparison matrix (N), the Random Consistency (RI) is determined. Table 3 is used to determine the RI.

Table 3

Random Consistency

N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.59

Step 7: Based on the CI and RI values, the Consistency Ratio (CR) is calculated using equation 6.

$$CR = CI \,/\, RI \tag{6}$$

A CR equal to 0 indicates that an entirely consistent matrix has been obtained. In the applications, however, it is impossible to achieve this exactly. Therefore, if the CR is below 0.1, the comparison matrices are considered to be consistent.

This study uses the AHP method and the p-median model as complementary tools to address different aspects of the post-disaster site selection problem. AHP is employed to evaluate the general settlement suitability of neighborhoods by considering multiple criteria such as logistics, transportation, infrastructure, seismicity, and liquefaction risk. These evaluations comprehensively understand the potential settlement areas' readiness after a disaster. Meanwhile, the p-median model is applied independently to optimize the location of the temporary shelter sites based on minimizing the total distance between the demand points (neighborhoods) and the supply points (candidate shelter locations). Although the AHP results are not directly used as input parameters for the p-median model in this study, the two approaches offer a broader and systematic evaluation of the temporary shelter site selection process. The combination of MCDM and mathematical optimization provides a dual perspective, balancing settlement suitability with operational efficiency.

Mathematical Model: p-median

This section introduces the p-median model used to solve site selection problems and determine temporary shelter areas after disasters. In this scope, first, the parameter and variable definitions of the proposed mathematical model are presented; then, the details of the mathematical model created using the given parameters and variables are given.

The parameters and variables used to form the mathematical model are given in Table 4.

Table 4

Parameters and Variables of the Mathematical Model

Parameter	**Explanation**
i, I	Index and set of demand points
j, J	Index and set of supply points

Parameter	Explanation
T_i	Demand values for demand point *i*
M_{ij}	Distance between demand point *i* and supply point *j*
p	Number of facilities to be established
Variable	**Explanation**
X_{ij}	1 if demand point *i* serves the demand from supply point *j*, 0 otherwise
Y_j	1 if supply point *j* is selected as the service point, 0 otherwise

$$\max \sum_{i \in I} \sum_{j \in J} \left(\frac{T_i}{M_{ij}} \right) \times X_{ij} \tag{7}$$

Subject to;

$$\sum_{j \in J} Y_j = p \tag{8}$$

$$\sum_{j \in J} X_{ij} = 1 \qquad i \in I \tag{9}$$

$$X_{ij} \leq Y_j \qquad i \in I, \ \ j \in J \tag{10}$$

$$X_{ij} \in \{0,1\} \qquad i \in I, \ \ j \in J \tag{11}$$

$$Y_j \in \{0,1\} \tag{12}$$

The mathematical model above refers to the classic p-median model presented by Current et al. (2002), with modifications to the objective function. Equation (7) in the model shows the objective function. The objective function obtained by minimizing the demand-weighted distances in the classic p-median model is defined as the maximization problem in the proposed model. In the objective function, it is provided that the demands reach the supply points with less distance. The constraint in equation (8) identifies the number of supply points to be established. The constraint in Equation (9) allows each demand point to receive service from only one supply point. Equation (10) is the relationship constraint explaining the relationship between variables X_{ij} and Y_j. Equation (11) and equation (12), show the non-negativity constraints for X_{ij} and Y_j.

In this study, the p-median model is selected for its fundamental objective of minimizing the total distance between the demand points and the selected facility locations, a critical factor for ensuring efficient access to temporary shelters in post-disaster scenarios. Minimizing travel distances can significantly enhance the responsiveness and effectiveness of disaster management efforts by facilitating quicker access for affected populations. Furthermore, the p-median model provides a computationally efficient and scalable framework, which is particularly advantageous for large-scale applications where rapid decision-making is essential. Although equity considerations are recognized as important in site selection problems, the primary focus of this study is on minimizing aggregate travel distances to optimize accessibility in emergency conditions. Future studies could consider integrating equity-based constraints further to enhance the social sustainability of the site selection models.

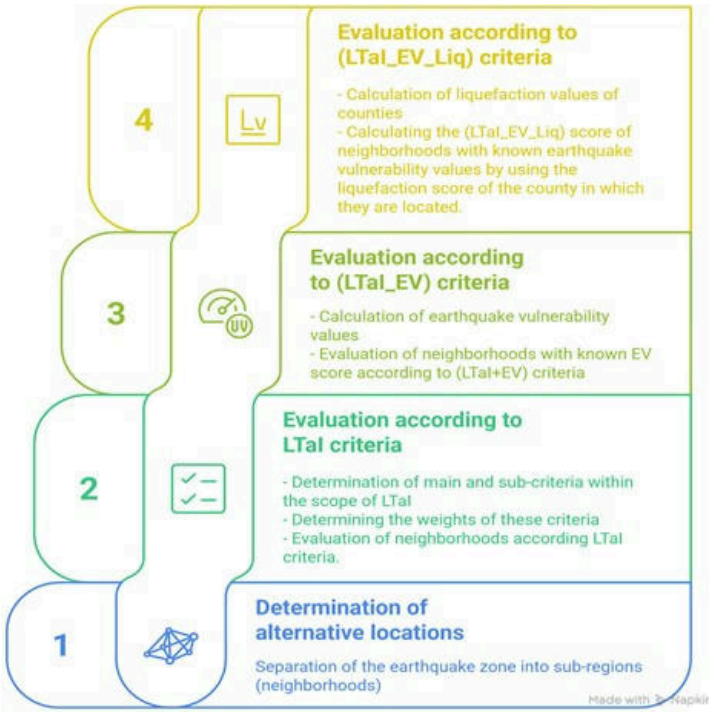
Application

In this study, alternative settlement locations were first identified, and then the importance weights of these alternative locations were determined. Then, temporary shelters are identified in each neighborhood to host the disaster victims.

Neighborhoods are considered alternative settlements for Hatay province. The main criteria and sub-criteria for evaluating alternative settlements in terms of Logistics, Transportation, and Infrastructure (LTaI) are determined by a literature review and experts. Twenty-three experts were consulted for the AHP analysis, and their evaluations were received. Note that expert opinions were collected from 23 professionals with at least five years of experience to determine the criteria weights using the AHP. The expert group consisted of civil engineers, architectural specialists, city planners, technical personnel working in municipal institutions such as Hatay Metropolitan Municipality, and academic staff, including professors, associate professors, and research assistants from Yildiz Technical University. The diversity of expert backgrounds ensured that practical field experience and academic knowledge were incorporated into the evaluation process.

The LTaI fitness score of each neighborhood was calculated. Considering the earthquake vulnerability (EV) scores (for the neighborhoods obtained within the scope of Yüzer, (2024)), the (LTaI_EV) scores of the neighborhoods are calculated. In addition, the liquefaction (Liq) scores of the count consideration and (LTaI_EV_Liq) scores are obtained for the neighborhoods. The steps to be applied in this context are shown in Figure 2.

Figure 2
Application Steps



Evaluation of the criteria

Hatay is a province consisting of 15 counties and 593 neighborhoods. After February 6, 2023 earthquakes, neighborhoods were evaluated using *LTaI*, *LTaI_EV*, and *LTaI_EV_Liq* factors to determine appropriate settlements.

In order to evaluate the neighborhoods in terms of LTaI, 23 sub-criteria were determined based on five main criteria (Table 5).

Table 5
Main and Sub-Criteria for LTaI

Main Criteria	Sub-Criteria
Distance to the Transportation, Logistics, and Communication Facilities	Distance to the Transportation Service Providers
	Distance to the Airport
	Distance to the Telecommunication Points
Distance to the Green Areas	Distance to the Forested Areas
	Distance to the Parks
	Distance to Fields
Distance to the Industrial and Trade Areas	Distance to the Industrial Production Areas
	Distance to the Treatment Plants
	Distance to the Excavation Dumps
Distance to Socio-Cultural Activity Areas	Distance to Financial Institutions
	Distance to Historical-Touristic Sites
	Distance to Sports Sites
	Distance to the Cultural Sites
	Distance to the Stadium
	Distance to Hospitals
	Distance to Religious Sites
	Distance to the Official Institutions
	Distance to Restaurants
Distance to Educational Institutions	Distance to Universities
	Distance to Kindergartens
	Distance to Primary Schools
	Distance to Secondary Schools
	Distance to High Schools

The weights of the main criteria in Table 5 were calculated using the fuzzy AHP method, and the results are presented in Table 6.

Table 6
Main Criteria Weights

Main Criteria (k)	Weights (mc_k)
Distance to the Transportation, Logistics, and Communication Facilities	0.3989
Distance to the Green Areas	0.2493
Distance to the Industrial and Trade Areas	0.1413
Distance to Socio-Cultural Activity Areas	0.1197
Distance to Educational Institutions	0.0908

When the weight values in Table 6 are examined, it is seen that in terms of LTaI, “Distance to Transportation, Logistics and Communication Facilities” is the most important main criterion. In contrast, “Distance to Educational Institutions” is the least important criterion. After the weights for the main criteria were determined by AHP, the importance of the sub-criteria was evaluated by the experts on the Saaty scale to determine the weights for the sub-criteria. The sub-criteria weights were obtained by averaging the experts’ evaluations, as shown in Table 7.

Table 7
Sub-Criteria Weights

Main Criteria	Weights (mc_k)	Sub-Criteria	Weights (sc_{kj})	Global Weights
Distance to Transportation. Logistics and Communication Facilities	0.3989	Distance to the Transportation Service Providers	0.3420	0.1364
		Distance to the Airport	0.3333	0.1330
		Distance to the Telecommunication Points	0.3247	0.1295
Distance to the Green Areas	0.2493	Distance to the Forested Areas	0.3163	0.0789
		Distance to the Parks	0.4605	0.1148
		Distance to Fields	0.2233	0.0557
Distance to the Industrial and Trade Areas	0.1413	Distance to the Industrial Production Areas	0.2603	0.0368
		Distance to the Treatment Plants	0.1826	0.0258
		Distance to the Excavation Dumps	0.1872	0.0265
Distance to Socio-Cultural Activity Areas	0.1197	Distance to Financial Institutions	0.3699	0.0523
		Distance to Historical-Touristic Sites	0.1164	0.0139
		Distance to Sports Sites	0.1332	0.0159
		Distance to the Cultural Sites	0.1360	0.0163
		Distance to the Stadium	0.0954	0.0114
		Distance to Hospitals	0.1487	0.0178
		Distance to Religious Sites	0.0968	0.0116
		Distance to the Official Institutions	0.1332	0.0159
		Distance to Restaurants	0.1403	0.0168
Distance to Educational Institutions	0.0908	Distance to Universities	0.1756	0.0159
		Distance to Kindergartens	0.2022	0.0184
		Distance to Primary Schools	0.2222	0.0202
		Distance to Secondary Schools	0.1978	0.0180
		Distance to High Schools	0.2022	0.0184

According to Table 7, the sub-criterion "*Distance to Transportation Service Providers*" for the main criterion "*Distance to Transportation, Logistics and Communication Facilities*", sub-criterion "*Distance to Parks*" for the main criterion "*Distance to Green Areas*", sub-criterion "*Distance to Financial Institutions*" for the main criterion "*Distance to Industrial and Trade Areas*", sub-criterion "*Distance to Hospitals*" for the main criterion "*Distance to Socio-Cultural Activity Areas*" and sub-criterion "*Distance to Primary Schools*" for the main criterion "*Distance to Educational Institutions*" were determined as the most important criteria. According to Table 7, the sub-criterion "*Distance to Telecommunication Points*" for the main criterion "*Distance to Transportation, Logistics and Communication Facilities*", sub-criterion "*Distance to Fields*" for the main criterion "*Distance to Green Areas*", sub-criterion "*Distance to Treatment Plants*" for the main criterion "*Distance to Industrial and Trade Areas*", sub-criterion "*Distance to Stadium*" for the main criterion "*Distance to Socio-Cultural Activity Areas*" and sub-criterion "*Distance to Universities*" for the main criterion "*Distance to Educational Institutions*" were determined as the least important criteria.

Once the weights are obtained, the LTaI scores are calculated for 593 neighborhoods. The LTaI scores are calculated as in equation (13).

$$LTaI_i = \sum_{k=1}^{5} \sum_{j=1}^{sc_k} mc_k \times sc_{kj} \times LAM_{ikj} \tag{13}$$

mc_k : Weight of the k^{th} main criterion

sc_{kj} : Global weight of the j^{th} sub-criteria of the k^{th} main criterion

LAM_{ikj} : Distance of neighborhood i to the j^{th} sub-criterion of the k^{th} main criterion

$LTaI_i$: Logistics, Transportation, and Infrastructure (LTaI) score of the county i^{th}

The obtained LTaI scores are normalized in the range [0 1]. The five neighborhoods with the highest normalized LTaI scores are Kuşaklı-Reyhanlı (1.0), Bükülmez-Reyhanlı (0.9324), Oğulpınar-Reyhanlı (0.9291), Alakuzu-Reyhanlı (0.9231), and Cilvegözü-Reyhanlı (0.9174). The five neighborhoods with the lowest normalized LTaI scores are Haraparası-Antakya (0.0), Kuyulu-Antakya (0.0016), Zenginler (0.018), Kantara-Antakya (0.0020), and General Şükrü Kanatlı-Antakya (0.0021). The normalized LTaI scores for all neighborhoods are presented in Appendix 1.

Then, the counties' EV scores are calculated. In order to calculate the EV scores of the counties, the average spatial fragility and damage status values were taken. Spatial fragility values of the districts are determined by Yüzer et al. (2024) using 17 criteria. The damage status values of the counties were calculated by Yüzer et al. (2024) by proportioning the 'Number of Middle and Highly Damaged Buildings' to the 'Number of Undamaged and Less Damaged Buildings'. The normalized EV scores of the counties are presented in Table 8.

Table 8

The Normalized EV scores of the Counties

District ID	County	Normalized EV scores
1	ERZİN	1
2	PAYAS	0.9630
3	REYHANLI	0.7778
4	BELEN	0.7778
5	DÖRTYOL	0.7407
6	KUMLU	0.6667
7	YAYLADAĞI	0.6296
8	ARSUZ	0.5926
9	İSKENDERUN	0.4815
10	HASSA	0.3704
11	ALTINÖZÜ	0.3333
12	KIRIKHAN	0.2222
13	SAMANDAĞ	0.1111
14	DEFNE	0.1111
15	ANTAKYA	0

The EV value for neighborhoods in a county is assumed to be equal. In order to integrate LTaI and EE values, the normalized values of both are used. The LTaI_EV scores of the neighborhoods are calculated by averaging the LTaI and EV values. The five neighborhoods with the highest normalized LTaI_EV scores are Kuşaklı-Reyhanlı (0.8889), Turunçlu-Erzin (0.8784), Bükülmez-Reyhanlı (0.8551), Oğulpınar-Reyhanlı (0.8534), and Alakuzu-Reyhanlı (0.8504). The five neighborhoods with the lowest normalized LTaI_EV scores are Haraparası-Antakya (0.0), Kuyulu-Antakya (0.0008), Zenginler-Antakya (0.0009), Kantara-Antakya (0.0010), and General Şükrü Kanatlı-Antakya (0.0010). The normalized LTaI_EV scores for all neighborhoods are presented in Appendix 1. By integrating the EE effect into the LTaI score, the suitability of the neighborhoods for settlement is determined.

In addition to these analyses, the Liq risk values calculated for 59 neighborhoods from Yüzer et al. (2024) were used, and the analyses for these neighborhoods are detailed. Similar to the calculations of the LTaI and EV scores, the Liq score is also normalized.

The five neighborhoods with the highest normalized LTaI_EV_Liq scores were Yenişehir-Payas (0.7721), Karşı-Payas (0.7721), Aşağıburnaz-Erzin (0.7276), Özerli-Dörtyol (0.6759), and Alakuzu-Erzin (0.8504). The five neighborhoods with the lowest normalized LTaI_EV-Liq scores were Küçükdalyan-Antakya (0.0401), Çekmece-Defne (0.0468), Serinyol-Antakya (0.0998), Karaali-Antakya (0.1081), and Yeşilada-Samandağ (0.1244). The normalized LTaI_EV_Liq scores for all neighborhoods are presented in Appendix 1. Note that the LTaI_EV_Liq scores are available in 59 of 593 neighborhoods.

Scenario analysis

This section presents the results of different scenarios using the normalized scores obtained for LTaI, EV, and Liq. In this scope, three scenarios are developed to cover all neighborhoods in Hatay province using LTaI and EV values. Four more scenarios were then developed using the LTaI and EV values, and the Liq values were obtained for 59 neighborhoods. The results according to these seven scenarios (Table 9) are presented in Appendix 1. The scenarios are given in Table 9.

Table 9
Scenarios

Scenario ID	Explanation	Calculation
S1	The scenario where LTaI and EV have equal impact	$S1 = LTaI + EV$
S2	The scenario where LTaI is more important than EV	$S2 = 2 \times LTaI + EV$
S3	The scenario where EV is more important than LTaI	$S3 = LTaI + 2 \times EV$
S4	Scenario where LTaI, EV, and Liq have equal impact ratios	$S4 = LTaI + EV + Liq$
S5	The scenario where LTaI is more important than EV and Liq	$S5 = 2 \times LTaI + EV + Liq$
S6	The scenario where EV is more important than LTaI and Liq	$S5 = LTaI + 2 \times EV + Liq$
S7	The scenario where Liq is more important than LTaI and EV	$S5 = LTaI + EV + 2 \times Liq$

In Scenario S1, where LTaI and EE values are equally important, the neighborhood with the highest value is the Kuşaklı neighborhood in Reyhanlı county. These four neighbourhoods with the highest scores are Turunçlu, Bükülmez, Oğulpınar, and Alakuzu, respectively. When these neighborhoods are examined, it is seen that four of the five neighborhoods are located in Reyhanlı County. Likewise, all five neighborhoods with the lowest score are in Antakya County. Scenario S2 shows that all of the neighborhoods with the five highest scores are located in Reyhanlı County, and these neighborhoods are Kuşaklı, Bükülmez, Oğulpınar, Alakuzu and Cilvegözü, respectively. In Scenario S2, as in Scenario 1, the five neighborhoods with the lowest scores are in Antakya County. Scenario S3 shows that the neighborhoods with the five highest scores have changed, all located in Erzin County.

On the other hand, in Scenario S3, as in Scenario S1 and Scenario S2, the neighborhoods with the lowest scores are located in Antakya County. Analyzing these results, it is seen that Reyhanlı County is in the foreground in LTaI, and Erzin County is in the foreground in EV. The fact that the neighborhoods with the lowest scores in all three scenarios are located in Antakya County shows that this county's planning should be considered in the future.

Liq values were obtained for 59 of 593 neighborhoods in Hatay province. Four different scenarios (S4, S5, S6, and S7) were developed using this value. In Scenario S4, scores are calculated for the neighborhoods, assuming that all values are equally important. As a result of this analysis, it is seen that the five neighborhoods with the highest scores among the neighborhoods included in the analysis are Yenişehir, Karşı, Aşağıburnaz,

Özerli, and Hürriyet neighborhoods. Two of these neighborhoods are in Payas, 2 in Erzin country, and 1 in Dörtyol country. It is seen that four of the neighborhoods in the last five are in Antakya, and the other one is in Defne. In Scenario S5, the LTaI value is twice as important as the other two values, and according to this scenario, the first five neighborhoods are listed as Aşağıburnaz, Yenişehir, Karşı, Hürriyet, and Özerli. A comparison of the results of Scenarios 4 and 5 shows that the neighborhoods in the top five are the same, but their rankings have changed. According to the results of Scenario 6, the five neighborhoods with the highest scores are Yenişehir, Karşı, Aşağıburnaz, Hürriyet, and Özerli. The five neighborhoods with the lowest scores in this scenario are in Antakya and Defne counties. In Scenario S7, the first five neighborhoods with the highest values are Yenişehir, Karşı, Özerli, Karayılan, and Tülek; the last five neighborhoods are Karaali, Yeşilada, Serinyol, Küçükdalyan in Antakya County, and Çekmece in Defne County. Examining the scenarios including the Liq values (S4, S5, S6, and S7), it is seen that Yenişehir, Karşı, and Özerli neighborhoods are in the first five, and the last neighborhoods are located in Antakya and Defne counties.

Analyzing the results of the scenario, it is seen that the counties and neighborhoods at the first and the last of the lists have remained in their respective ranks to a great extent. EV and Liq values can change the ranking. After analyzing the results, it is important to consider the effects of EV and Liq in addition to LTaI to determine post-disaster settlements.

Determination of the Settlement Areas

This section determines the post-disaster temporary shelter areas using the p-median model. The Python programming language and the commercial optimization solver Gurobi Optimizer were used for the model formulation and solution. The optimization processes were executed on a laptop computer with the following specifications: Intel(R) Core(TM) i5-10210U CPU @ 1.60GHz, 8 GB RAM, and a 64-bit operating system.

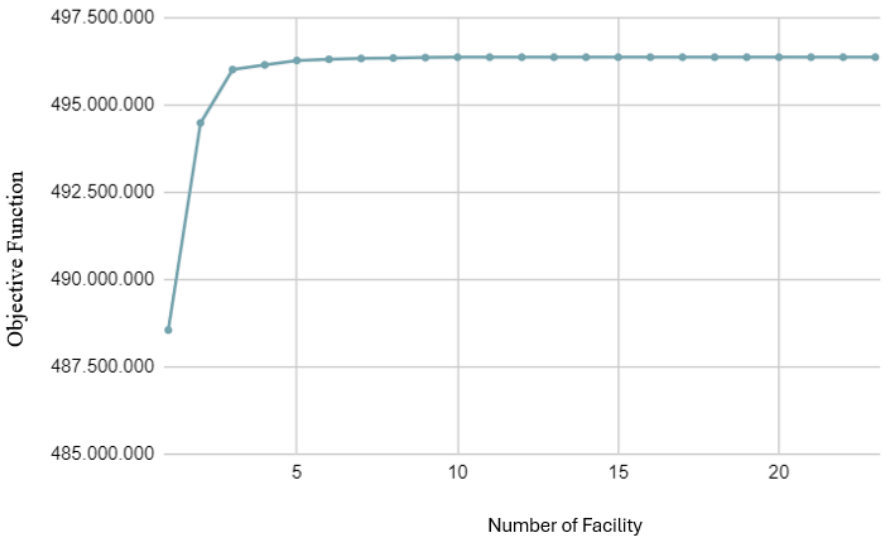
In the model, 593 neighborhoods in Hatay province are considered as demand points, and the population of each neighborhood is taken as its demand value. Potential regions that can serve as temporary shelter areas, referred to as supply points in the model, are numbered from 1 to 23. The distances between the neighborhoods and potential temporary accommodation areas were measured and compiled into a distance matrix in kilometers.

The p-median model was solved using the Gurobi Optimizer, and an optimal solution was obtained. The optimization process for all tested scenarios was completed in less than 60 seconds, indicating that the computational effort is manageable and feasible for practical disaster planning.

In addition to the parameter definitions given above, another parameter required in the model is the parameter p, which indicates how many regions are required for temporary shelters. In order to determine the parameter value p, the model is run for all values of p, starting from one to the total number of available potential locations (23). The objective function values obtained for each p value are presented in Figure 3.

Figure 3

Values of the Objective Function Calculated for P Values



Examining the values of the objective function in Figure 3, it is seen that the change in the objective function is minimal after the value of five. Therefore, the results obtained for $p = 5$ are analyzed. Running the model for $p = 5$, locations 10, 16, 17, 18, and 19 were identified as potential temporary shelter areas. The number of neighborhoods to be provided by each potential temporary shelter area is given in Table 10, and the neighborhoods to which potential temporary shelter areas are assigned are given in Appendix 2.

Table 10

Number of Neighborhoods to be Provided with Service by the Potential Locations

Location	Number of neighborhoods
10	2
16	54
17	22
18	24
19	491

We compared the proposed temporary shelter locations with the settlement areas established in Hatay after the February 2023 earthquakes to further validate our model results. The actual settlements, such as those around Antakya Millet Bahçesi, Vali Ürgen Parkı, and the Yeni Hatay Stadium, show a reasonable degree of consistency with the areas identified by our site selection criteria, particularly in terms of accessibility, infrastructure availability, and safety considerations (AA, 2023). However, in some cases, the actual settlement locations appear to have been influenced by the immediate availability of open space rather than by the optimization of multi-criteria factors. This comparison highlights the potential value of systematic, criteria-based location models in improving the efficiency and equity of post-disaster shelter planning.

Conclusion

After natural disasters such as earthquakes and floods, the establishment of sheltered areas that can be served to the disaster victims whose living spaces have been damaged and the determination of the areas where they will be sheltered are of great importance in terms of their mental and physical health. For this reason, evaluating temporary shelter areas after disasters and determining whether these areas

remain important for researchers from the past to the present. However, the regions where disasters occur may have structural differences. This causes the analyses to be region-specific and provides a source for decision-makers to determine the conditions correctly. This study aims to determine the temporary shelter areas that can be used after the earthquake in Hatay province, one of the most affected cities after the Kahramanmaraş-centered earthquakes in February 2023.

The study is based on two main concepts:

(i) First, the post-disaster settlement suitability of the neighborhoods and counties is evaluated. For this purpose, the neighborhoods were first evaluated in terms of LTaI. Following the post-disaster settlement, the neighborhoods' suitability values were obtained using the EV and Liq values of the neighborhoods. Different scenarios were developed using three evaluation criteria (LTaI, EV, and Liq). Examining these scenarios, it is seen that the districts and neighborhoods at the top and bottom of the lists have generally maintained their positions. It is of great importance to consider the effects of EV and Liq in addition to LTaI when determining post-disaster settlements.

(ii) In the second section, temporary shelter areas are obtained from alternative locations using the p-median model to solve site selection problems. As a result of the analyses, in which five points are determined as temporary shelter areas, it is found that three neighborhoods of Reyhanlı county and one neighborhood each of Kumlu and Erzin counties should be settled.

This study presents analyses for the Hatay province, which was affected by the major earthquakes in February 2023. Similar analyses can be used to develop protective plans for regions where large-scale disasters, especially earthquakes, are expected. Thus, helpful evaluations can be made for decision-makers in terms of providing quick responses to the problems encountered in possible disaster situations. While this study is conducted in the context of the February 2023 earthquakes, its main contribution is to propose a systematic site selection methodology that can be adapted and applied to future disaster scenarios, thereby supporting disaster preparedness and planning efforts.

The measures used in this study (LTaI, EV, and Liq) can be increased, and various analyses can be carried out to include all neighborhoods. Moreover, the scenario analyses can be diversified, and different situations can be integrated into the evaluations. Moreover, while the primary objective of this study is to minimize the total distance between demand points and selected shelter locations, it is acknowledged that equity considerations, such as ensuring fair service distribution among all affected neighborhoods, are important. Future research may consider integrating equity-based constraints or models to enhance social fairness in temporary shelter site selection after disasters.

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Appendix

Appendix 1

Results of the Scenarios Using LTaI, EV, and Liq Values

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
0	ÇAKALLI (BELEN)	0.2977	0.7778		0.5378	0.4578	0.6178				
1	HATAYHAMAMI (KUMLU)	0.736	0.6667		0.7013	0.7129	0.6898				
2	HAMAM (KUMLU)	0.6371	0.6667		0.6519	0.647	0.6568				
3	AKPINAR (KUMLU)	0.5853	0.6667		0.626	0.6124	0.6395				
4	MUHARREM (KUMLU)	0.5724	0.6667		0.6195	0.6038	0.6352				
5	AKKUYU (KUMLU)	0.5394	0.6667		0.603	0.5818	0.6242				
6	GÜLOVA (KUMLU)	0.3053	0.6667		0.486	0.4257	0.5462				
7	AKTAŞ (KUMLU)	0.347	0.6667		0.5068	0.4536	0.5601				
8	AKKERPİÇ (KUMLU)	0.4887	0.6667		0.5777	0.548	0.6073				
9	FEVZİ ÇAKMAK (KUMLU)	0.556	0.6667		0.6113	0.5929	0.6298				
10	CUMHURİYET (KUMLU)	0.5394	0.6667		0.603	0.5818	0.6242				
11	GÖKÇEOĞLU (KUMLU)	0.5357	0.6667		0.6012	0.5794	0.623				
12	KALETEPE (KUMLU)	0.6048	0.6667		0.6357	0.6254	0.646				
13	KELİ (KUMLU)	0.697	0.6667		0.6818	0.6869	0.6768				
14	KIRCAOĞLU (KUMLU)	0.6589	0.6667		0.6628	0.6615	0.6641				
15	BATIAYRANCI (KUMLU)	0.6876	0.6667		0.6771	0.6806	0.6736				
16	DOĞUAYRANCI (KUMLU)	0.7144	0.6667	0.5350	0.6905	0.6985	0.6826	0.6757	0.6299	0.7568	0.6406
17	HÜRRİYET (ERZİN)	0.4922	1		0.7461	0.6615	0.8307				
18	YONCADÜZÜ (ERZİN)	0.5154	1		0.7577	0.6769	0.8385				
19	YUKARIBURNAZ (ERZİN)	0.6771	1		0.8385	0.7847	0.8924				
20	İSTİKLAL (ERZİN)	0.487	1		0.7435	0.658	0.829				
21	GÖKDERE (ERZİN)	0.554	1		0.777	0.7027	0.8513				
22	GÖKGÖL (ERZİN)	0.4939	1		0.7469	0.6626	0.8313				
23	BAŞLAMIŞ (ERZİN)	0.4769	1		0.7384	0.6512	0.8256				
24	MAHMUTLU (ERZİN)	0.4875	1		0.7438	0.6583	0.8292				
25	KARAMUSTAFALI (ERZİN)	0.4772	1		0.7386	0.6515	0.8257				
26	CUMHURİYET (ERZİN)	0.4818	1		0.7409	0.6546	0.8273				
27	KUYULUK (ERZİN)	0.4771	1		0.7386	0.6514	0.8257				
28	MUSTAFALI (ERZİN)	0.4891	1		0.7445	0.6594	0.8297				
29	YEŞİLTEPE (ERZİN)	0.5591	1		0.7795	0.706	0.853				
30	BAHÇELİEVLER (ERZİN)	0.4751	1		0.7375	0.65	0.825				
31	AŞAĞIBURNAZ (ERZİN)	0.6708	1	0.5119	0.8354	0.7805	0.8903	0.7276	0.7134	0.7957	0.6737
32	ŞÜKRÜ PAŞA (ERZİN)	0.4766	1		0.7383	0.651	0.8255				
33	İSALİ (ERZİN)	0.4866	1		0.7433	0.6577	0.8289				
34	YENİ (ERZİN)	0.4758	1		0.7379	0.6505	0.8253				
35	KIZLARÇAYI (ERZİN)	0.5948	1		0.7974	0.7298	0.8649				
36	TURUNÇLU (ERZİN)	0.7569	1		0.8784	0.8379	0.919				
37	YILDIRIMTEPE (İSKENDERUN)	0.1831	0.4815		0.3323	0.2826	0.382				
38	BARIŞTEPE (İSKENDERUN)	0.1747	0.4815		0.3281	0.277	0.3792				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
39	KURTULUŞ (İSKENDERUN)	0.1832	0.4815		0.3323	0.2826	0.382				
40	ÇINARLI (İSKENDERUN)	0.2959	0.4815		0.3887	0.3578	0.4196				
41	KALEDİBİ (İSKENDERUN)	0.3464	0.4815		0.4139	0.3914	0.4364				
42	AŞKARBEYLİ (İSKENDERUN)	0.2195	0.4815		0.3505	0.3068	0.3941				
43	GÜRSEL (İSKENDERUN)	0.1656	0.4815		0.3235	0.2709	0.3762				
44	PİRİREİS (İSKENDERUN)	0.1859	0.4815		0.3337	0.2844	0.3829				
45	AKARCA (İSKENDERUN)	0.3498	0.4815		0.4156	0.3937	0.4376				
46	BÜYÜKDERE (İSKENDERUN)	0.2111	0.4815		0.3463	0.3013	0.3914				
47	SAVAŞ (İSKENDERUN)	0.2005	0.4815		0.341	0.2942	0.3878				
48	MURADİYE (İSKENDERUN)	0.1799	0.4815		0.3307	0.2804	0.3809				
49	HÜRRİYET (İSKENDERUN)	0.1945	0.4815		0.338	0.2902	0.3858				
50	PINARBAŞI (İSKENDERUN)	0.1746	0.4815		0.328	0.2769	0.3792				
51	YENİŞEHİR (İSKENDERUN)	0.2021	0.4815		0.3418	0.2952	0.3883				
52	KAVAKLIOLUK (İSKENDERUN)	0.3355	0.4815		0.4085	0.3842	0.4328				
53	İSMET İNÖNÜ (İSKENDERUN)	0.1513	0.4815		0.3164	0.2614	0.3714				
54	CIRTIMAN (İSKENDERUN)	0.1693	0.4815		0.3254	0.2734	0.3774				
55	DUMLUPINAR (İSKENDERUN)	0.1889	0.4815		0.3352	0.2864	0.384				
56	SÜLEYMANİYE (İSKENDERUN)	0.2029	0.4815		0.3422	0.2957	0.3886				
57	M. KEMAL (İSKENDERUN)	0.1605	0.4815		0.321	0.2675	0.3745				
58	F. S. MEHMET (İSKENDERUN)	0.2798	0.4815		0.3806	0.347	0.4143				
59	AKÇAY (İSKENDERUN)	0.2644	0.4815		0.3729	0.3367	0.4091				
60	BİTİŞİK (İSKENDERUN)	0.3155	0.4815		0.3985	0.3708	0.4262				
61	MEYDAN (İSKENDERUN)	0.1937	0.4815		0.3376	0.2896	0.3855				
62	ORHANGAZİ (İSKENDERUN)	0.2932	0.4815		0.3873	0.356	0.4187				
63	BEKBELE (İSKENDERUN)	0.3121	0.4815		0.3968	0.3685	0.425				
64	YUNUS EMRE (İSKENDERUN)	0.2068	0.4815		0.3442	0.2984	0.3899				
65	ESENTEPE (İSKENDERUN)	0.1683	0.4815		0.3249	0.2727	0.3771				
66	CEBİKE (İSKENDERUN)	0.1728	0.4815		0.3271	0.2757	0.3786				
67	SUÇIKAĞI (İSKENDERUN)	0.2168	0.4815		0.3492	0.305	0.3933				
68	DENİZCİLER (İSKENDERUN)	0.3129	0.4815		0.3972	0.3691	0.4253				
69	GÜZELÇAY (İSKENDERUN)	0.2629	0.4815		0.3722	0.3358	0.4086				
70	KOCATEPE (İSKENDERUN)	0.1746	0.4815		0.3281	0.2769	0.3792				
71	ÇAY (İSKENDERUN)	0.209	0.4815		0.3452	0.2998	0.3907				
72	BULUTTEPE (İSKENDERUN)	0.1827	0.4815		0.3321	0.2823	0.3819				
73	NUMUNE (İSKENDERUN)	0.1705	0.4815		0.326	0.2742	0.3778				
74	MODERNEVLER (İSKENDERUN)	0.2137	0.4815		0.3476	0.3029	0.3922				
75	SAKARYA (İSKENDERUN)	0.1969	0.4815		0.3392	0.2918	0.3866				
76	BARBAROS (İSKENDERUN)	0.1806	0.4815		0.331	0.2809	0.3812				
77	CUMHURİYET (İSKENDERUN)	0.1872	0.4815		0.3343	0.2853	0.3834				
78	GÜLTEPE (İSKENDERUN)	0.1918	0.4815		0.3366	0.2884	0.3849				
79	AZGANLIK (İSKENDERUN)	0.3527	0.4815	0.0300	0.4171	0.3956	0.4386	0.2881	0.3042	0.3364	0.2235
80	SARISEKİ (İSKENDERUN)	0.3607	0.4815	0.0433	0.4211	0.401	0.4412	0.2952	0.3116	0.3418	0.2322

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
81	CUMHURİYET (PAYAS)	0.3413	0.963		0.6521	0.5485	0.7557				
82	İSTİKLAL (PAYAS)	0.341	0.963		0.652	0.5483	0.7556				
83	ÇAĞLALIK (PAYAS)	0.3557	0.963		0.6593	0.5581	0.7605				
84	YILDIRIM BEYAZIT (PAYAS)	0.3467	0.963		0.6548	0.5521	0.7575				
85	SİNCAN (PAYAS)	0.3535	0.963		0.6582	0.5566	0.7598				
86	FATİH (PAYAS)	0.341	0.963		0.652	0.5483	0.7557				
87	KARBEYAZ (PAYAS)	0.3425	0.963		0.6527	0.5493	0.7561				
88	KÜRTÜL (PAYAS)	0.3425	0.963		0.6527	0.5493	0.7561				
89	KOZLUDERE (PAYAS)	0.3497	0.963		0.6563	0.5541	0.7585				
90	KARACAMİ (PAYAS)	0.3462	0.963		0.6546	0.5518	0.7574				
91	YENİŞEHİR (PAYAS)	0.3534	0.963	10000	0.6582	0.5566	0.7598	0.7721	0.6675	0.8198	0.8291
92	KARBEYAZ (ALTINÖZÜ)	0.456	0.3333		0.3947	0.4151	0.3742				
93	AKDARI (ALTINÖZÜ)	0.257	0.3333		0.2952	0.2825	0.3079				
94	TÜRKMENMEZRASI (ALTINÖZÜ)	0.2658	0.3333		0.2996	0.2883	0.3108				
95	YUNUSHANI (ALTINÖZÜ)	0.2983	0.3333		0.3158	0.31	0.3217				
96	AKAMBER (ALTINÖZÜ)	0.1976	0.3333		0.2655	0.2428	0.2881				
97	SEFERLİ (ALTINÖZÜ)	0.3953	0.3333		0.3643	0.3746	0.354				
98	TOKAÇLI (ALTINÖZÜ)	0.2237	0.3333		0.2785	0.2602	0.2968				
99	OYMAKLI (ALTINÖZÜ)	0.2759	0.3333		0.3046	0.2951	0.3142				
100	ALAKENT (ALTINÖZÜ)	0.2275	0.3333		0.2804	0.2628	0.298				
101	TOPRAKHİSAR (ALTINÖZÜ)	0.261	0.3333		0.2972	0.2851	0.3092				
102	ÇETENLİ (ALTINÖZÜ)	0.2415	0.3333		0.2874	0.2721	0.3027				
103	YENİHİSAR (ALTINÖZÜ)	0.2076	0.3333		0.2705	0.2495	0.2914				
104	GÜNVURAN (ALTINÖZÜ)	0.4284	0.3333		0.3809	0.3967	0.365				
105	YENİŞEHİR (ALTINÖZÜ)	0.165	0.3333		0.2492	0.2211	0.2772				
106	SARILAR (ALTINÖZÜ)	0.1633	0.3333		0.2483	0.22	0.2766				
107	KARSU (ALTINÖZÜ)	0.1971	0.3333		0.2652	0.2425	0.2879				
108	KILIÇTUTAN (ALTINÖZÜ)	0.5297	0.3333		0.4315	0.4642	0.3988				
109	DOKUZDAL (ALTINÖZÜ)	0.3873	0.3333		0.3603	0.3693	0.3513				
110	SARIBÜK (ALTINÖZÜ)	0.4641	0.3333		0.3987	0.4205	0.3769				
111	MAYADALI (ALTINÖZÜ)	0.3264	0.3333		0.3299	0.3287	0.331				
112	SOFULAR (ALTINÖZÜ)	0.1941	0.3333		0.2637	0.2405	0.2869				
113	KURTMEZRAASI (ALTINÖZÜ)	0.2236	0.3333		0.2785	0.2602	0.2967				
114	ZİYARET (ALTINÖZÜ)	0.3063	0.3333		0.3198	0.3153	0.3243				
115	KIYIGÖREN (ALTINÖZÜ)	0.3272	0.3333		0.3303	0.3293	0.3313				
116	KOZKALESİ (ALTINÖZÜ)	0.1986	0.3333		0.2659	0.2435	0.2884				
117	ALTINKAYA (ALTINÖZÜ)	0.1613	0.3333		0.2473	0.2186	0.276				
118	TOKDEMİR (ALTINÖZÜ)	0.2967	0.3333		0.315	0.3089	0.3211				
119	BABATORUN (ALTINÖZÜ)	0.2883	0.3333		0.3108	0.3033	0.3183				
120	YOLAĞZI (ALTINÖZÜ)	0.3626	0.3333		0.348	0.3528	0.3431				
121	KAZANCIK (ALTINÖZÜ)	0.1451	0.3333		0.2392	0.2079	0.2706				
122	BOYNUYOĞUN (ALTINÖZÜ)	0.2841	0.3333		0.3087	0.3005	0.3169				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
123	ATAYURDU (ALTINÖZÜ)	0.2164	0.3333		0.2749	0.2554	0.2944				
124	HANYOLU (ALTINÖZÜ)	0.3664	0.3333		0.3498	0.3554	0.3443				
125	KAMBERLİ (ALTINÖZÜ)	0.146	0.3333		0.2397	0.2085	0.2709				
126	ENEK (ALTINÖZÜ)	0.0956	0.3333		0.2145	0.1748	0.2541				
127	KOLCULAR (ALTINÖZÜ)	0.5824	0.3333		0.4579	0.4994	0.4164				
128	GÖZECİK (ALTINÖZÜ)	0.4406	0.3333		0.387	0.4049	0.3691				
129	BÜYÜKBURÇ (ALTINÖZÜ)	0.1971	0.3333		0.2652	0.2425	0.2879				
130	TEPEHAN (ALTINÖZÜ)	0.1245	0.3333		0.2289	0.1941	0.2637				
131	HACIPAŞA (ALTINÖZÜ)	0.4276	0.3333		0.3805	0.3962	0.3648				
132	KESKİNCİK (ALTINÖZÜ)	0.3326	0.3333		0.333	0.3328	0.3331				
133	YANIKPINAR (ALTINÖZÜ)	0.3585	0.3333		0.3459	0.3501	0.3417				
134	FATİKLİ (ALTINÖZÜ)	0.1484	0.3333		0.2408	0.21	0.2717				
135	AVUTTEPE (ALTINÖZÜ)	0.334	0.3333		0.3337	0.3338	0.3336				
136	ERBAŞI (ALTINÖZÜ)	0.5364	0.3333		0.4349	0.4687	0.401				
137	SİVRİKAVAK (ALTINÖZÜ)	0.3966	0.3333		0.365	0.3755	0.3544				
138	KANSU (ALTINÖZÜ)	0.3589	0.3333		0.3461	0.3504	0.3419				
139	YARSELİ (ALTINÖZÜ)	0.2864	0.3333		0.3098	0.302	0.3177				
140	LEYLEKLİ (YAYLADAĞI)	0.5029	0.6296		0.5663	0.5452	0.5874				
141	YENİCE (YAYLADAĞI)	0.5209	0.6296		0.5753	0.5571	0.5934				
142	YALAZ (YAYLADAĞI)	0.6061	0.6296		0.6178	0.6139	0.6218				
143	GÖRENTAŞ (YAYLADAĞI)	0.6785	0.6296		0.654	0.6622	0.6459				
144	AYDINBAHÇE (YAYLADAĞI)	0.4032	0.6296		0.5164	0.4787	0.5541				
145	KURTULUŞ (YAYLADAĞI)	0.6393	0.6296		0.6345	0.6361	0.6328				
146	ÇABALA (YAYLADAĞI)	0.6658	0.6296		0.6477	0.6537	0.6417				
147	GÜZELYURT (YAYLADAĞI)	0.5666	0.6296		0.5981	0.5876	0.6086				
148	ULUYOL (YAYLADAĞI)	0.6459	0.6296		0.6377	0.6404	0.635				
149	ARSLANYAZI (YAYLADAĞI)	0.5753	0.6296		0.6025	0.5934	0.6115				
150	ŞAKŞAK (YAYLADAĞI)	0.5202	0.6296		0.5749	0.5567	0.5932				
151	ÇAMALTI (YAYLADAĞI)	0.6536	0.6296		0.6416	0.6456	0.6376				
152	YAYIKDAMLAR (YAYLADAĞI)	0.433	0.6296		0.5313	0.4986	0.5641				
153	KULAÇ (YAYLADAĞI)	0.7011	0.6296		0.6654	0.6773	0.6535				
154	OLGUNLAR (YAYLADAĞI)	0.4769	0.6296		0.5533	0.5278	0.5787				
155	KARACURUN (YAYLADAĞI)	0.3642	0.6296		0.4969	0.4527	0.5412				
156	SUNGUR (YAYLADAĞI)	0.4512	0.6296		0.5404	0.5107	0.5702				
157	KIZILÇAT (YAYLADAĞI)	0.755	0.6296		0.6923	0.7132	0.6714				
158	ÇAKSINA (YAYLADAĞI)	0.3049	0.6296		0.4672	0.4131	0.5214				
159	BEZGE (YAYLADAĞI)	0.469	0.6296		0.5493	0.5225	0.5761				
160	YUKARIPULLUYAZI (YAYLADAĞI)	0.7613	0.6296		0.6955	0.7174	0.6735				
161	EĞERCİ (YAYLADAĞI)	0.5548	0.6296		0.5922	0.5797	0.6047				
162	SÜRÜTME (YAYLADAĞI)	0.4384	0.6296		0.534	0.5022	0.5659				
163	YEŞİLTEPE (YAYLADAĞI)	0.4269	0.6296		0.5283	0.4945	0.562				
164	KÖSRELİK (YAYLADAĞI)	0.539	0.6296		0.5843	0.5692	0.5994				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
165	GÜRIŞIK (YAYLADAĞI)	0.6078	0.6296		0.6187	0.615	0.6223				
166	HİSARCIK (YAYLADAĞI)	0.5422	0.6296		0.5859	0.5714	0.6005				
167	SEBENOBA (YAYLADAĞI)	0.272	0.6296		0.4508	0.3912	0.5104				
168	AŞAĞIPULLUYAZI (YAYLADAĞI)	0.7968	0.6296		0.7132	0.7411	0.6854				
169	YUKARIOKÇULAR (YAYLADAĞI)	0.2779	0.6296		0.4538	0.3951	0.5124				
170	AYIŞIĞI (YAYLADAĞI)	0.4747	0.6296		0.5522	0.5263	0.578				
171	ÇANDIR (YAYLADAĞI)	0.5163	0.6296		0.5729	0.554	0.5918				
172	DUSDURU (YAYLADAĞI)	0.5357	0.6296		0.5827	0.567	0.5983				
173	GÜVEÇÇİ (YAYLADAĞI)	0.7202	0.6296		0.6749	0.69	0.6598				
174	TUTLUBAHÇE (YAYLADAĞI)	0.6286	0.6296		0.6291	0.6289	0.6293				
175	ÇAYIR (YAYLADAĞI)	0.282	0.6296		0.4558	0.3978	0.5137				
176	YONCAKAYA (YAYLADAĞI)	0.448	0.6296		0.5388	0.5085	0.5691				
177	GÖZLÜCE (YAYLADAĞI)	0.3623	0.6296		0.496	0.4514	0.5405				
178	DENİZGÖREN (YAYLADAĞI)	0.5565	0.6296		0.5931	0.5809	0.6053				
179	ÇAKI (YAYLADAĞI)	0.3262	0.6296		0.4779	0.4273	0.5285				
180	ÜÇIRMAK (YAYLADAĞI)	0.4883	0.6296		0.559	0.5354	0.5825				
181	KARAKÖSE (YAYLADAĞI)	0.3141	0.6296		0.4719	0.4193	0.5245				
182	KIŞLAK (YAYLADAĞI)	0.5224	0.6296		0.576	0.5581	0.5939				
183	TURFANDA (YAYLADAĞI)	0.3923	0.6296		0.511	0.4714	0.5505				
184	ÇATBAŞI (YAYLADAĞI)	0.3891	0.6296		0.5094	0.4693	0.5495				
185	BOZLU (YAYLADAĞI)	0.1925	0.6296		0.411	0.3382	0.4839				
186	ŞENKÖY (YAYLADAĞI)	0.3546	0.6296		0.4921	0.4463	0.538				
187	ÇINARBAŞI (HASSA)	0.3552	0.3704		0.3628	0.3603	0.3653				
188	BİNTAŞ (HASSA)	0.3037	0.3704		0.337	0.3259	0.3481				
189	SAPANÖZÜ (HASSA)	0.3735	0.3704		0.3719	0.3724	0.3714				
190	KORUHÜYÜK (HASSA)	0.3345	0.3704		0.3524	0.3464	0.3584				
191	ARDIÇLI (HASSA)	0.1964	0.3704		0.2834	0.2544	0.3124				
192	AŞAĞIKARAFAKILI (HASSA)	0.2673	0.3704		0.3188	0.3017	0.336				
193	SUGEDİĞİ (HASSA)	0.3987	0.3704		0.3845	0.3893	0.3798				
194	AKBEZ (HASSA)	0.3123	0.3704		0.3414	0.3317	0.351				
195	MAZMANLI (HASSA)	0.2097	0.3704		0.29	0.2632	0.3168				
196	HAYDARLAR (HASSA)	0.2663	0.3704		0.3183	0.301	0.3357				
197	GİRNE (HASSA)	0.2409	0.3704		0.3056	0.2841	0.3272				
198	AKKÜLEK (HASSA)	0.2827	0.3704		0.3265	0.3119	0.3411				
199	YENİ (HASSA)	0.2528	0.3704		0.3116	0.292	0.3312				
200	HACILAR (HASSA)	0.2539	0.3704		0.3121	0.2927	0.3315				
201	45611 (HASSA)	0.2415	0.3704		0.3059	0.2845	0.3274				
202	BUHARA (HASSA)	0.1942	0.3704		0.2823	0.253	0.3117				
203	SÖĞÜT (HASSA)	0.2765	0.3704		0.3234	0.3078	0.3391				
204	ÇAY (HASSA)	0.2428	0.3704		0.3066	0.2853	0.3279				
205	YENİYAPAN (HASSA)	0.3484	0.3704		0.3594	0.3557	0.3631				
206	AKTEPE (HASSA)	0.1555	0.3704		0.2629	0.2271	0.2987				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
207	EĞRİBUCAK (HASSA)	0.2492	0.3704		0.3098	0.2896	0.33				
208	TEPEBAŞI (HASSA)	0.2439	0.3704		0.3071	0.286	0.3282				
209	GÜLKENT (HASSA)	0.1881	0.3704		0.2792	0.2489	0.3096				
210	GAZELUŞAĞI (HASSA)	0.3663	0.3704		0.3684	0.3677	0.369				
211	GÜLPINAR (HASSA)	0.2303	0.3704		0.3003	0.277	0.3237				
212	KÜRECİ (HASSA)	0.1605	0.3704		0.2654	0.2304	0.3004				
213	YUKARIKARAFAKILI (HASSA)	0.3042	0.3704		0.3373	0.3262	0.3483				
214	DEDEMLİ (HASSA)	0.477	0.3704		0.4237	0.4415	0.4059				
215	YUVALI (HASSA)	0.1983	0.3704		0.2843	0.2556	0.313				
216	KATRANLIK (HASSA)	0.2349	0.3704		0.3027	0.2801	0.3252				
217	DEMREK (HASSA)	0.2401	0.3704		0.3053	0.2836	0.327				
218	GÜVENÇ (HASSA)	0.2126	0.3704		0.2915	0.2652	0.3178				
219	YOLUKLAR (HASSA)	0.3147	0.3704		0.3425	0.3332	0.3518				
220	ARPALIUŞAĞI (HASSA)	0.2968	0.3704		0.3336	0.3213	0.3458				
221	BADEMLİ (HASSA)	0.2804	0.3704		0.3254	0.3104	0.3404				
222	YUKARIBUCAK (HASSA)	0.2658	0.3704		0.3181	0.3007	0.3355				
223	ZEYTİNOBA (HASSA)	0.2336	0.3704		0.302	0.2792	0.3248				
224	TİYEK (HASSA)	0.2885	0.3704		0.3295	0.3158	0.3431				
225	DERVİŞ PAŞA (HASSA)	0.2417	0.3704		0.3061	0.2846	0.3275				
226	KICI (BELEN)	0.2983	0.7778		0.538	0.4581	0.618				
227	ÖTENÇAY (BELEN)	0.3035	0.7778		0.5406	0.4616	0.6197				
228	ŞENBÜK (BELEN)	0.2946	0.7778		0.5362	0.4557	0.6167				
229	ATİK (BELEN)	0.2188	0.7778		0.4983	0.4051	0.5915				
230	HALİLBEY (BELEN)	0.2283	0.7778		0.503	0.4115	0.5946				
231	BENLİDERE (BELEN)	0.2138	0.7778		0.4958	0.4018	0.5898				
232	ŞEKERE (BELEN)	0.153	0.7778		0.4654	0.3613	0.5695				
233	MUHLİSALİ (BELEN)	0.1973	0.7778		0.4876	0.3908	0.5843				
234	CUMHURİYET (BELEN)	0.2092	0.7778		0.4935	0.3987	0.5883				
235	BAKRAS (BELEN)	0.1952	0.7778		0.4865	0.3894	0.5836				
236	DEREBAHÇE (BELEN)	0.1746	0.7778		0.4762	0.3757	0.5767				
237	SARIMAZI (BELEN)	0.1722	0.7778		0.475	0.374	0.5759				
238	SOĞUKOLUK (BELEN)	0.1755	0.7778		0.4767	0.3763	0.577				
239	KÖMÜRÇUKURU (BELEN)	0.248	0.7778		0.5129	0.4246	0.6012				
240	MÜFTÜLER (BELEN)	0.151	0.7778		0.4644	0.3599	0.5689				
241	İSSUME (BELEN)	0.1485	0.7778		0.4632	0.3583	0.568				
242	ÇERÇİKAYA (BELEN)	0.2721	0.7778		0.525	0.4407	0.6092				
243	FATİH (BELEN)	0.1384	0.7778		0.4581	0.3515	0.5646				
244	NUMUNE EVLER (DÖRTYOL)	0.3932	0.7407	0.6935	0.567	0.5091	0.6249	0.6091	0.5552	0.642	0.6302
245	SANAYİ (DÖRTYOL)	0.4231	0.7407		0.5819	0.529	0.6349				
246	OCAKLI (DÖRTYOL)	0.4392	0.7407		0.59	0.5397	0.6402				
247	KIŞLALAR (DÖRTYOL)	0.421	0.7407		0.5809	0.5276	0.6342				
248	KAPILI (DÖRTYOL)	0.4875	0.7407		0.6141	0.5719	0.6563				

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249	YEŞİL (DÖRTYOL)	0.4221	0.7407		0.5814	0.5283	0.6345				
250	ÖZERLİ (DÖRTYOL)	0.3973	0.7407	0.8896	0.569	0.5118	0.6263	0.6759	0.6063	0.6921	0.7293
251	YENİYURT (DÖRTYOL)	0.5145	0.7407	0.4614	0.6276	0.5899	0.6653	0.5722	0.5578	0.6143	0.5445
252	ÇAYLI (DÖRTYOL)	0.4015	0.7407	0.6849	0.5711	0.5146	0.6277	0.6091	0.5572	0.642	0.628
253	ALTINÇAĞ (DÖRTYOL)	0.4694	0.7407		0.6051	0.5599	0.6503				
254	KONAKLI (DÖRTYOL)	0.3825	0.7407		0.5616	0.5019	0.6213				
255	YEŞİLKÖY (DÖRTYOL)	0.4742	0.7407	0.6518	0.6075	0.5631	0.6519	0.6223	0.5853	0.6519	0.6297
256	KUZUCULU (DÖRTYOL)	0.4423	0.7407		0.5915	0.5418	0.6412				
257	ÇATKÖY (DÖRTYOL)	0.6141	0.7407		0.6774	0.6563	0.6985				
258	KARAKESE (DÖRTYOL)	0.4104	0.7407		0.5756	0.5205	0.6306				
259	HUZURLU (SAMANDAĞ)	0.2152	0.1111		0.1632	0.1805	0.1458				
260	YEŞİLKÖY (SAMANDAĞ)	0.2204	0.1111		0.1657	0.1839	0.1475				
261	ÇÖĞÜRLÜ (SAMANDAĞ)	0.2316	0.1111		0.1714	0.1914	0.1513				
262	BATIAYAZ (SAMANDAĞ)	0.2201	0.1111		0.1656	0.1838	0.1474				
263	BÜYÜKOBA (SAMANDAĞ)	0.3018	0.1111		0.2065	0.2382	0.1747				
264	KARAÇAY (SAMANDAĞ)	0.2125	0.1111		0.1618	0.1787	0.1449				
265	UZUNBAĞ (SAMANDAĞ)	0.2341	0.1111		0.1726	0.1931	0.1521				
266	KUŞALANI (SAMANDAĞ)	0.2207	0.1111		0.1659	0.1842	0.1477				
267	SELDİREN (SAMANDAĞ)	0.3009	0.1111		0.206	0.2377	0.1744				
268	MAĞARACIK (SAMANDAĞ)	0.1906	0.1111	0.3401	0.1508	0.1641	0.1376	0.2139	0.2081	0.1882	0.2455
269	KURTDERESİ (SAMANDAĞ)	0.2	0.1111		0.1556	0.1704	0.1408				
270	ÇANAKOLUK (SAMANDAĞ)	0.203	0.1111		0.157	0.1723	0.1417				
271	YEŞİLYAZI (SAMANDAĞ)	0.2676	0.1111		0.1893	0.2154	0.1633				
272	MIZRAKLI (SAMANDAĞ)	0.2041	0.1111		0.1576	0.1731	0.1421				
273	CEYLANDERE (SAMANDAĞ)	0.3334	0.1111		0.2222	0.2593	0.1852				
274	CUMHURİYET (SAMANDAĞ)	0.1979	0.1111		0.1545	0.169	0.14				
275	ÇAMLIYAYLA (SAMANDAĞ)	0.2917	0.1111		0.2014	0.2315	0.1713				
276	YAYLICA (SAMANDAĞ)	0.2365	0.1111		0.1738	0.1947	0.1529				
277	ATAKÖY (SAMANDAĞ)	0.2095	0.1111		0.1603	0.1767	0.1439				
278	KOYUNOĞLU (SAMANDAĞ)	0.2199	0.1111		0.1655	0.1837	0.1474				
279	GÖZENE (SAMANDAĞ)	0.2565	0.1111		0.1838	0.208	0.1596				
280	ATATÜRK (SAMANDAĞ)	0.2107	0.1111	0.7966	0.1609	0.1775	0.1443	0.3728	0.3323	0.3074	0.4787
281	HIDIRBEY (SAMANDAĞ)	0.1886	0.1111		0.1499	0.1628	0.1369				
282	YENİ (SAMANDAĞ)	0.2053	0.1111	0.4242	0.1582	0.1739	0.1425	0.2469	0.2365	0.2129	0.2912
283	ÇİĞDEDE (SAMANDAĞ)	0.2084	0.1111	0.6382	0.1598	0.176	0.1435	0.3192	0.2915	0.2672	0.399
284	DENİZ (SAMANDAĞ)	0.2131	0.1111		0.1621	0.1791	0.1451				
285	DEĞİRMENBAŞI (SAMANDAĞ)	0.2332	0.1111		0.1721	0.1925	0.1518				
286	FİDANLI (SAMANDAĞ)	0.2257	0.1111		0.1684	0.1875	0.1493				
287	YENİKÖY (SAMANDAĞ)	0.2954	0.1111		0.2033	0.234	0.1725				
288	MEYDAN (SAMANDAĞ)	0.3129	0.1111	0.5224	0.212	0.2457	0.1784	0.3155	0.3148	0.2644	0.3672
289	VAKIFKÖY (SAMANDAĞ)	0.1962	0.1111		0.1537	0.1678	0.1395				
290	TOMRUKSUYU (SAMANDAĞ)	0.2274	0.1111		0.1692	0.1886	0.1499				

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291	GENERAL ŞÜKRÜ KANADLI (SAMANDAĞ)	0.1993	0.1111		0.1552	0.1699	0.1405				
292	CEMAL GÜRSEL (SAMANDAĞ)	0.1973	0.1111		0.1542	0.1686	0.1398				
293	YEŞİLADA (SAMANDAĞ)	0.2225	0.1111	0.0394	0.1668	0.1854	0.1483	0.1244	0.1489	0.1211	0.1031
294	TEKEBAŞI (SAMANDAĞ)	0.2339	0.1111	0.4263	0.1725	0.193	0.152	0.2571	0.2513	0.2206	0.2994
295	AVCILAR (SAMANDAĞ)	0.2014	0.1111		0.1563	0.1713	0.1412				
296	ÇUBUKLU (SAMANDAĞ)	0.2192	0.1111		0.1651	0.1832	0.1471				
297	SUTAŞI (SAMANDAĞ)	0.2224	0.1111	0.6630	0.1668	0.1853	0.1482	0.3322	0.3047	0.2769	0.4149
298	ERİKLİKUYU (SAMANDAĞ)	0.223	0.1111		0.1671	0.1857	0.1484				
299	YOĞUNOLUK (SAMANDAĞ)	0.197	0.1111		0.154	0.1684	0.1397				
300	KAPISUYU (SAMANDAĞ)	0.1879	0.1111	0.5830	0.1495	0.1623	0.1367	0.2940	0.2675	0.2483	0.3662
301	DEMİRKONAK (KIRIKHAN)	0.3619	0.2222		0.2921	0.3153	0.2688				
302	İNCİRLİ (KIRIKHAN)	0.4754	0.2222		0.3488	0.391	0.3066				
303	KALETEPE (KIRIKHAN)	0.3084	0.2222		0.2653	0.2797	0.2509				
304	CAMUZKIŞLASI (KIRIKHAN)	0.3126	0.2222		0.2674	0.2825	0.2524				
305	BAŞPINAR (KIRIKHAN)	0.5048	0.2222		0.3635	0.4106	0.3164				
306	SUCUKÖY (KIRIKHAN)	0.4841	0.2222		0.3532	0.3968	0.3095				
307	GÜLTEPE (KIRIKHAN)	0.358	0.2222		0.2901	0.3127	0.2675				
308	YALANGOZ (KIRIKHAN)	0.3493	0.2222		0.2858	0.3069	0.2646				
309	KAMBERLİKAYA (KIRIKHAN)	0.417	0.2222		0.3196	0.3521	0.2872				
310	ADALAR (KIRIKHAN)	0.4527	0.2222		0.3375	0.3759	0.2991				
311	ÖZKIZILKAYA (KIRIKHAN)	0.5187	0.2222		0.3705	0.4199	0.321				
312	KIZILKAYA (KIRIKHAN)	0.4964	0.2222		0.3593	0.405	0.3136				
313	AYGIRGÖLÜ (KIRIKHAN)	0.3441	0.2222		0.2832	0.3035	0.2629				
314	NARLIHOPUR (KIRIKHAN)	0.2368	0.2222		0.2295	0.2319	0.2271				
315	MURATPAŞA (KIRIKHAN)	0.4378	0.2222		0.33	0.3659	0.2941				
316	GÖLBAŞI (KIRIKHAN)	0.4133	0.2222		0.3178	0.3496	0.2859				
317	ÇİLOĞLANHÜYÜĞÜ (KIRIKHAN)	0.4293	0.2222		0.3258	0.3603	0.2913				
318	ÇAMSARI (KIRIKHAN)	0.2995	0.2222		0.2609	0.2737	0.248				
319	BALDIRAN (KIRIKHAN)	0.4498	0.2222		0.336	0.3739	0.2981				
320	SÖĞÜTLÜÖZ (KIRIKHAN)	0.2546	0.2222		0.2384	0.2438	0.233				
321	ABALAKLI (KIRIKHAN)	0.3448	0.2222		0.2835	0.3039	0.2631				
322	KAMIŞLAR (KIRIKHAN)	0.2606	0.2222		0.2414	0.2478	0.235				
323	ÇATALTEPE (KIRIKHAN)	0.3627	0.2222		0.2925	0.3159	0.269				
324	KARAMANKAŞI (KIRIKHAN)	0.2569	0.2222		0.2396	0.2453	0.2338				
325	BEKTAŞLI (KIRIKHAN)	0.2369	0.2222		0.2296	0.232	0.2271				
326	DANAAHMETLİ (KIRIKHAN)	0.33	0.2222		0.2761	0.2941	0.2581				
327	KANGALLAR (KIRIKHAN)	0.4804	0.2222		0.3513	0.3943	0.3083				
328	TORUN (KIRIKHAN)	0.368	0.2222		0.2951	0.3194	0.2708				
329	SAYLAK (KIRIKHAN)	0.2554	0.2222		0.2388	0.2444	0.2333				
330	GÜZELCE (KIRIKHAN)	0.2732	0.2222		0.2477	0.2562	0.2392				
331	KODALLI (KIRIKHAN)	0.3136	0.2222		0.2679	0.2831	0.2527				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
332	İÇADA (KIRIKHAN)	0.3988	0.2222		0.3105	0.34	0.2811				
333	ALİBEYÇAĞILLI (KIRIKHAN)	0.2637	0.2222		0.243	0.2499	0.2361				
334	MAHMUTLU (KIRIKHAN)	0.3763	0.2222		0.2993	0.325	0.2736				
335	ILIKPINAR (KIRIKHAN)	0.3119	0.2222		0.2671	0.282	0.2521				
336	KARADURMUŞLU (KIRIKHAN)	0.3712	0.2222		0.2967	0.3215	0.2719				
337	KARAELMASLI (KIRIKHAN)	0.2674	0.2222		0.2448	0.2523	0.2373				
338	KARAMAĞARA (KIRIKHAN)	0.3012	0.2222		0.2617	0.2749	0.2486				
339	CUMHURİYET (KIRIKHAN)	0.3567	0.2222		0.2894	0.3119	0.267				
340	ALAYBEYLİ (KIRIKHAN)	0.3441	0.2222		0.2831	0.3035	0.2628				
341	REŞATLI (KIRIKHAN)	0.3969	0.2222		0.3096	0.3387	0.2804				
342	MENDERES (KIRIKHAN)	0.3407	0.2222		0.2815	0.3012	0.2617				
343	GAZİ (KIRIKHAN)	0.3557	0.2222		0.2889	0.3112	0.2667				
344	ALPARSLAN (KIRIKHAN)	0.3484	0.2222		0.2853	0.3064	0.2643				
345	ATTUTAN (KIRIKHAN)	0.3567	0.2222		0.2894	0.3119	0.267				
346	ALSANCAK (KIRIKHAN)	0.356	0.2222		0.2891	0.3114	0.2668				
347	408 EVLER (KIRIKHAN)	0.3407	0.2222		0.2815	0.3012	0.2617				
348	FATİH (KIRIKHAN)	0.3304	0.2222		0.2763	0.2943	0.2583				
349	BARBAROS (KIRIKHAN)	0.3427	0.2222		0.2825	0.3025	0.2624				
350	YENİ (KIRIKHAN)	0.3395	0.2222		0.2809	0.3004	0.2613				
351	ÖZSOĞUKSU (KIRIKHAN)	0.3243	0.2222		0.2733	0.2903	0.2562				
352	KURTULUŞ (KIRIKHAN)	0.3283	0.2222		0.2753	0.293	0.2576				
353	ÇANKAYA (KIRIKHAN)	0.339	0.2222		0.2806	0.3001	0.2612				
354	GÜNDÜZ (KIRIKHAN)	0.332	0.2222		0.2771	0.2954	0.2588				
355	AYDINLI (KIRIKHAN)	0.3264	0.2222		0.2743	0.2916	0.2569				
356	BAHÇELİEVLER (KIRIKHAN)	0.324	0.2222		0.2731	0.2901	0.2562				
357	MİMAR SİNAN (KIRIKHAN)	0.3255	0.2222		0.2739	0.2911	0.2567				
358	KARATAŞ (KIRIKHAN)	0.328	0.2222		0.2751	0.2927	0.2575				
359	ÖZYÖRÜK (KIRIKHAN)	0.3301	0.2222		0.2762	0.2941	0.2582				
360	DELİBEKİRLİ (KIRIKHAN)	0.3134	0.2222		0.2678	0.283	0.2526				
361	KURTLUSOĞUKSU (KIRIKHAN)	0.3053	0.2222		0.2638	0.2776	0.2499				
362	ARKITÇA (KIRIKHAN)	0.3036	0.2222		0.2629	0.2765	0.2493				
363	TOPBOĞAZI (KIRIKHAN)	0.3203	0.2222		0.2713	0.2876	0.2549				
364	YILANLI (KIRIKHAN)	0.3298	0.2222		0.276	0.2939	0.2581				
365	KAZKELİ (KIRIKHAN)	0.4279	0.2222		0.325	0.3593	0.2908				
366	GÜVENTAŞI (KIRIKHAN)	0.4814	0.2222		0.3518	0.395	0.3086				
367	BALARMUDU (KIRIKHAN)	0.245	0.2222		0.2336	0.2374	0.2298				
368	TAŞOLUK (KIRIKHAN)	0.2568	0.2222		0.2395	0.2453	0.2338				
369	ÇAMSEKİ (KIRIKHAN)	0.3054	0.2222		0.2638	0.2777	0.25				
370	KURTLUSARIMAZI (KIRIKHAN)	0.2963	0.2222		0.2593	0.2716	0.2469				
371	DEDEÇINAR (KIRIKHAN)	0.2483	0.2222		0.2353	0.2396	0.2309				
372	CİLVEGÖZÜ (REYHANLI)	0.9174	0.7778		0.8476	0.8709	0.8243				
373	DAVUTPAŞA (REYHANLI)	0.8871	0.7778		0.8324	0.8506	0.8142				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
374	AKYAYLA (REYHANLI)	0.875	0.7778		0.8264	0.8426	0.8102				
375	HARRAN (REYHANLI)	0.8449	0.7778		0.8113	0.8225	0.8001				
376	MEHMETBEYLİ (REYHANLI)	0.8069	0.7778		0.7923	0.7972	0.7875				
377	YENİŞEHİR (REYHANLI)	0.755	0.7778		0.7664	0.7626	0.7702				
378	BAĞLAR (REYHANLI)	0.7625	0.7778		0.7701	0.7676	0.7727				
379	ESENTEPE (REYHANLI)	0.779	0.7778		0.7784	0.7786	0.7782				
380	PINARBAŞI (REYHANLI)	0.7737	0.7778		0.7758	0.7751	0.7764				
381	YENİ (REYHANLI)	0.7413	0.7778		0.7595	0.7534	0.7656				
382	CUMHURİYET (REYHANLI)	0.7623	0.7778		0.7701	0.7675	0.7726				
383	FİDANLIK (REYHANLI)	0.7573	0.7778		0.7676	0.7642	0.771				
384	KURTULUŞ (REYHANLI)	0.749	0.7778		0.7634	0.7586	0.7682				
385	BAYIR (REYHANLI)	0.7438	0.7778		0.7608	0.7551	0.7664				
386	YEŞİLOVA (REYHANLI)	0.7356	0.7778		0.7567	0.7496	0.7637				
387	ÜÇTEPE (REYHANLI)	0.7265	0.7778		0.7521	0.7436	0.7607				
388	BEŞASLAN (REYHANLI)	0.5812	0.7778		0.6795	0.6467	0.7122				
389	AHMETBEYLİ (REYHANLI)	0.6706	0.7778		0.7242	0.7063	0.742				
390	PAŞAHÜYÜK (REYHANLI)	0.5913	0.7778		0.6846	0.6535	0.7156				
391	KARAHÜYÜK (REYHANLI)	0.5481	0.7778		0.6629	0.6246	0.7012				
392	KULETEPE (REYHANLI)	0.5429	0.7778		0.6603	0.6212	0.6995				
393	UZUNKAVAK (REYHANLI)	0.5539	0.7778		0.6659	0.6286	0.7032				
394	KARASÜLEYMANLI (REYHANLI)	0.4577	0.7778		0.6177	0.5644	0.6711				
395	TERZİHÜYÜK (REYHANLI)	0.4606	0.7778		0.6192	0.5664	0.6721				
396	KARACANLIK (REYHANLI)	0.3911	0.7778		0.5844	0.52	0.6489				
397	BÜKÜLMEZ (REYHANLI)	0.9324	0.7778		0.8551	0.8809	0.8293				
398	ALAKUZU (REYHANLI)	0.9231	0.7778		0.8504	0.8746	0.8262				
399	KUŞAKLI (REYHANLI)	1	0.7778		0.8889	0.9259	0.8519				
400	OĞULPINAR (REYHANLI)	0.9291	0.7778		0.8534	0.8786	0.8282				
401	FEVZİPAŞA (REYHANLI)	0.8749	0.7778		0.8263	0.8425	0.8101				
402	ÇAKIRYİĞİT (REYHANLI)	0.8552	0.7778		0.8165	0.8294	0.8036				
403	BAHÇELİEVLER (REYHANLI)	0.7718	0.7778		0.7748	0.7738	0.7758				
404	GÜLTEPE (REYHANLI)	0.7657	0.7778		0.7717	0.7697	0.7737				
405	ADABUCAK (REYHANLI)	0.757	0.7778		0.7674	0.7639	0.7709				
406	MUSTAFA KEMAL (REYHANLI)	0.7434	0.7778		0.7606	0.7548	0.7663				
407	GAZİMÜRSELTEPESİ (REYHANLI)	0.7154	0.7778		0.7466	0.7362	0.757				
408	NERGİZLİ (REYHANLI)	0.4786	0.7778		0.6282	0.5783	0.678				
409	KUMTEPE (REYHANLI)	0.3151	0.7778		0.5465	0.4693	0.6236				
410	TAYFURSÖKMEN (REYHANLI)	0.4285	0.7778		0.6031	0.5449	0.6613				
411	VARIŞLI (REYHANLI)	0.4094	0.7778		0.5936	0.5322	0.655				
412	ÖZ KURTULUŞ (REYHANLI)	0.3607	0.7778		0.5693	0.4998	0.6388				
413	GÖKTEPE (REYHANLI)	0.5921	0.7778		0.6849	0.654	0.7159				
414	PAŞAKÖY (REYHANLI)	0.594	0.7778		0.6859	0.6552	0.7165				

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415	CÜDEYDE (REYHANLI)	0.8008	0.7778		0.7893	0.7931	0.7854				
416	SULUKÖY (REYHANLI)	0.4863	0.7778		0.632	0.5834	0.6806				
417	DEĞİRMENKAŞI (REYHANLI)	0.765	0.7778		0.7714	0.7693	0.7735				
418	KONUK (REYHANLI)	0.4498	0.7778		0.6138	0.5591	0.6685				
419	AŞAĞIOKÇULAR (DEFNE)	0.0552	0.1111		0.0832	0.0738	0.0925				
420	TURUNÇLU (DEFNE)	0.0315	0.1111		0.0713	0.058	0.0846				
421	KOÇÖREN (DEFNE)	0.1482	0.1111		0.1297	0.1358	0.1235				
422	YEŞİLPINAR (DEFNE)	0.1737	0.1111		0.1424	0.1528	0.132				
423	BALIKLIDERE (DEFNE)	0.211	0.1111		0.1611	0.1777	0.1444				
424	MEYDANCIK (DEFNE)	0.1232	0.1111		0.1171	0.1192	0.1151				
425	ORHANLI (DEFNE)	0.1005	0.1111		0.1058	0.104	0.1076				
426	AKDENİZ (DEFNE)	0.0161	0.1111		0.0636	0.0478	0.0794				
427	SAMANKAYA (DEFNE)	0.1547	0.1111		0.1329	0.1402	0.1256				
428	ÇÖKEK (DEFNE)	0.1598	0.1111		0.1355	0.1436	0.1274				
429	BAHÇEKÖY (DEFNE)	0.1915	0.1111		0.1513	0.1647	0.1379				
430	GÜNEYSÖĞÜT (DEFNE)	0.1039	0.1111		0.1075	0.1063	0.1087				
431	BÜYÜKÇAT (DEFNE)	0.2245	0.1111		0.1678	0.1867	0.1489				
432	DEĞİRMENYOLU (DEFNE)	0.1798	0.1111		0.1455	0.1569	0.134				
433	ÖZBEK (DEFNE)	0.2281	0.1111		0.1696	0.1891	0.1501				
434	SUBAŞI (DEFNE)	0.0667	0.1111		0.0889	0.0815	0.0963				
435	ÜZENGİLİ (DEFNE)	0.1995	0.1111		0.1553	0.1701	0.1406				
436	KARŞIYAKA (DEFNE)	0.2725	0.1111		0.1918	0.2187	0.1649				
437	SİNANLI (DEFNE)	0.2561	0.1111		0.1836	0.2078	0.1594				
438	BALLIÖZ (DEFNE)	0.0977	0.1111		0.1044	0.1022	0.1066				
439	TOYGARLI (DEFNE)	0.1449	0.1111		0.128	0.1336	0.1224				
440	GÜMÜŞGÖZE (DEFNE)	0.126	0.1111		0.1186	0.121	0.1161				
441	ARMUTLU (DEFNE)	0.0101	0.1111		0.0606	0.0438	0.0774				
442	BOSTANCIK (DEFNE)	0.1036	0.1111		0.1073	0.1061	0.1086				
443	ÇARDAKLI (DEFNE)	0.1353	0.1111		0.1232	0.1272	0.1192				
444	HARBİYE (DEFNE)	0.1224	0.1111		0.1167	0.1186	0.1149				
445	DÖVER (DEFNE)	0.1999	0.1111		0.1555	0.1703	0.1407				
446	TAVLA (DEFNE)	0.1659	0.1111		0.1385	0.1476	0.1294				
447	HANCAĞIZ (DEFNE)	0.1751	0.1111		0.1431	0.1537	0.1324				
448	HÜSEYİNLİ (DEFNE)	0.1589	0.1111		0.135	0.143	0.1271				
449	AKNEHİR (DEFNE)	0.2576	0.1111		0.1844	0.2088	0.1599				
450	ÇINARLI (DEFNE)	0.1472	0.1111		0.1292	0.1352	0.1231				
451	YENİÇAĞ (DEFNE)	0.2028	0.1111		0.1569	0.1722	0.1417				
452	ÇEKMECE (DEFNE)	0.0294	0.1111	0	0.0702	0.0566	0.0839	0.0468	0.0425	0.0629	0.0351
453	DURSUNLU (DEFNE)	0.0305	0.1111		0.0708	0.0574	0.0842				
454	SÜMERLER (DEFNE)	0.0143	0.1111		0.0627	0.0466	0.0788				
455	ELEKTRİK (DEFNE)	0.0154	0.1111		0.0633	0.0473	0.0792				
456	BOHŞİN (ANTAKYA)	0.3321	0	0.6316	0.166	0.2214	0.1107	0.3212	0.3239	0.2409	0.3988

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457	MELEKLİ (ANTAKYA)	0.3417	0		0.1709	0.2278	0.1139				
458	APAYDIN (ANTAKYA)	0.3298	0	0.3757	0.1649	0.2199	0.1099	0.2352	0.2588	0.1764	0.2703
459	SAÇAKLI (ANTAKYA)	0.2677	0		0.1339	0.1785	0.0892				
460	DEMİRKÖPRÜ (ANTAKYA)	0.266	0	0.8963	0.133	0.1773	0.0887	0.3874	0.3571	0.2906	0.5146
461	MADENBOYU (ANTAKYA)	0.2604	0		0.1302	0.1736	0.0868				
462	AVSUYU (ANTAKYA)	0.2322	0	0.4601	0.1161	0.1548	0.0774	0.2308	0.2311	0.1731	0.2881
463	TANIŞMA (ANTAKYA)	0.181	0		0.0905	0.1207	0.0603				
464	SUVATLI (ANTAKYA)	0.2307	0		0.1154	0.1538	0.0769				
465	BOZHÖYÜK (ANTAKYA)	0.2033	0		0.1017	0.1355	0.0678				
466	ÜZÜMDALI (ANTAKYA)	0.1747	0	0.6304	0.0874	0.1165	0.0582	0.2684	0.245	0.2013	0.3589
467	PAŞAKÖY (ANTAKYA)	0.2788	0		0.1394	0.1859	0.0929				
468	BİTİREN (ANTAKYA)	0.1704	0		0.0852	0.1136	0.0568				
469	MARAŞBOĞAZI (ANTAKYA)	0.2715	0		0.1357	0.181	0.0905				
470	AKCURUN (ANTAKYA)	0.1443	0		0.0722	0.0962	0.0481				
471	AÇIKDERE (ANTAKYA)	0.1386	0		0.0693	0.0924	0.0462				
472	YEŞİLOVA (ANTAKYA)	0.1529	0		0.0765	0.1019	0.051				
473	ZÜLÜFLÜHAN (ANTAKYA)	0.1509	0	0.3129	0.0755	0.1006	0.0503	0.1546	0.1537	0.1159	0.1942
474	NARLICA (ANTAKYA)	0.0561	0	0.4349	0.028	0.0374	0.0187	0.1637	0.1368	0.1227	0.2315
475	ARPAHAN (ANTAKYA)	0.1936	0	0.5001	0.0968	0.1291	0.0645	0.2312	0.2218	0.1734	0.2985
476	ALAATTİN (ANTAKYA)	0.1285	0		0.0642	0.0857	0.0428				
477	GÖKÇEGÖZ (ANTAKYA)	0.126	0		0.063	0.084	0.042				
478	MANSURLU (ANTAKYA)	0.072	0		0.036	0.048	0.024				
479	AKÇAOVA (ANTAKYA)	0.1414	0		0.0707	0.0943	0.0471				
480	OVAKENT (ANTAKYA)	0.2592	0		0.1296	0.1728	0.0864				
481	GÜZELBURÇ (ANTAKYA)	0.0386	0	0.5640	0.0193	0.0257	0.0129	0.2009	0.1603	0.1506	0.2916
482	SERİNYOL (ANTAKYA)	0.2087	0	0.0908	0.1043	0.1391	0.0696	0.0998	0.1270	0.0749	0.0976
483	HASANLI (ANTAKYA)	0.1341	0		0.0671	0.0894	0.0447				
484	ANAYAZI (ANTAKYA)	0.1413	0		0.0706	0.0942	0.0471				
485	UZUNALİÇ (ANTAKYA)	0.26	0		0.13	0.1734	0.0867				
486	KURUYER (ANTAKYA)	0.0918	0		0.0459	0.0612	0.0306				
487	BÜYÜKDALYAN (ANTAKYA)	0.1066	0		0.0533	0.0711	0.0355				
488	MAŞUKLU (ANTAKYA)	0.0462	0	0.4613	0.0231	0.0308	0.0154	0.1692	0.1384	0.1269	0.2422
489	ALAHAN (ANTAKYA)	0.1551	0		0.0775	0.1034	0.0517				
490	TAHTAKÖPRÜ (ANTAKYA)	0.2263	0		0.1132	0.1509	0.0754				
491	AKHİSAR (ANTAKYA)	0.1267	0		0.0633	0.0844	0.0422				
492	KARAALİ (ANTAKYA)	0.1066	0	0.2177	0.0533	0.0711	0.0355	0.1081	0.1077	0.0811	0.1355
493	DİKMECE (ANTAKYA)	0.0862	0		0.0431	0.0575	0.0287				
494	ÜÇGEDİK (ANTAKYA)	0.1338	0		0.0669	0.0892	0.0446				
495	KÜÇÜKDALYAN (ANTAKYA)	0.0029	0	0.1175	0.0015	0.002	0.001	0.0401	0.0308	0.0301	0.0595
496	AYDINLIKEVLER (ANTAKYA)	0.0095	0		0.0047	0.0063	0.0032				
497	HAVUZLAR (ANTAKYA)	0.0089	0		0.0044	0.0059	0.003				
498	KUZEYTEPE (ANTAKYA)	0.0566	0		0.0283	0.0377	0.0189				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
499	H. ÖMER ALPAGOT (ANTAKYA)	0.0085	0		0.0043	0.0057	0.0028				
500	ODABAŞI (ANTAKYA)	0.0180	0	0.6304	0.009	0.012	0.0060	0.2161	0.1666	0.1621	0.3197
501	HARAPARASI (ANTAKYA)	0	0		0	0	0				
502	KARDEŞLER (ANTAKYA)	0.006	0		0.003	0.004	0.002				
503	ORHANLI (ANTAKYA)	0.0056	0		0.0028	0.0037	0.0019				
504	SOFULAR (ANTAKYA)	0.0052	0		0.0026	0.0035	0.0017				
505	KARAALİ BÖLÜĞÜ (ANTAKYA)	0.0045	0		0.0022	0.003	0.0015				
506	ŞİRİNCE (ANTAKYA)	0.0029	0		0.0014	0.0019	0.001				
507	BAĞRIYANIK (ANTAKYA)	0.0098	0		0.0049	0.0065	0.0033				
508	BARBAROS (ANTAKYA)	0.0044	0		0.0022	0.0029	0.0015				
509	İPLİK PAZARI (ANTAKYA)	0.0036	0		0.0018	0.0024	0.0012				
510	DUTDİBİ (ANTAKYA)	0.0029	0		0.0015	0.0019	0.001				
511	ŞEYHALİ (ANTAKYA)	0.004	0		0.002	0.0027	0.0013				
512	MEYDAN (ANTAKYA)	0.0034	0		0.0017	0.0023	0.0011				
513	BİNİCİLER (ANTAKYA)	0.0027	0		0.0014	0.0018	0.0009				
514	KANTARA (ANTAKYA)	0.002	0		0.001	0.0013	0.0007				
515	KUYULU (ANTAKYA)	0.0016	0		0.0008	0.001	0.0005				
516	KOCAABDİ (ANTAKYA)	0.0029	0		0.0015	0.0019	0.001				
517	HABİB-İ NECCAR (ANTAKYA)	0.0037	0		0.0018	0.0024	0.0012				
518	ŞEHİTLER (ANTAKYA)	0.0025	0		0.0012	0.0016	0.0008				
519	YENİ CAMİİ (ANTAKYA)	0.0026	0		0.0013	0.0017	0.0009				
520	FEVZİ ÇAKMAK (ANTAKYA)	0.0027	0		0.0013	0.0018	0.0009				
521	ULUCAMİİ (ANTAKYA)	0.0023	0		0.0011	0.0015	0.0008				
522	GAZİ PAŞA (ANTAKYA)	0.0025	0		0.0012	0.0017	0.0008				
523	KIŞLA SARAY (ANTAKYA)	0.0058	0		0.0029	0.0039	0.0019				
524	ZENGİNLER (ANTAKYA)	0.0018	0		0.0009	0.0012	0.0006				
525	GÜLLÜ BAHÇE (ANTAKYA)	0.0022	0		0.0011	0.0014	0.0007				
526	GENERAL ŞÜKRÜ KANATLI (ANTAKYA)	0.0021	0		0.001	0.0014	0.0007				
527	ÜRGEN PAŞA (ANTAKYA)	0.0096	0		0.0048	0.0064	0.0032				
528	CUMHURİYET (ANTAKYA)	0.0058	0		0.0029	0.0039	0.0019				
529	CEBRAİL (ANTAKYA)	0.0063	0		0.0031	0.0042	0.0021				
530	AKEVLER (ANTAKYA)	0.0139	0		0.007	0.0093	0.0046				
531	GAZİ (ANTAKYA)	0.0113	0		0.0057	0.0075	0.0038				
532	EMEK (ANTAKYA)	0.0107	0		0.0053	0.0071	0.0036				
533	SARAYKENT (ANTAKYA)	0.0223	0		0.0112	0.0149	0.0074				
534	ALTINÇAY (ANTAKYA)	0.0441	0		0.022	0.0294	0.0147				
535	ESENLİK (ANTAKYA)	0.02	0		0.01	0.0134	0.0067				
536	OĞLAKÖREN (ANTAKYA)	0.1033	0		0.0516	0.0688	0.0344				
537	AKSARAY (ANTAKYA)	0.0282	0		0.0141	0.0188	0.0094				
538	AKASYA (ANTAKYA)	0.0407	0		0.0203	0.0271	0.0136				
539	ESENTEPE (ANTAKYA)	0.0346	0		0.0173	0.023	0.0115				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
540	SARAYCIK (ANTAKYA)	0.059	0		0.0295	0.0394	0.0197				
541	KARLISU (ANTAKYA)	0.1349	0		0.0674	0.0899	0.045				
542	GÜNYAZI (ANTAKYA)	0.0766	0		0.0383	0.0511	0.0255				
543	DOĞANKÖY (ANTAKYA)	0.0859	0		0.0429	0.0573	0.0286				
544	KİSECİK (ANTAKYA)	0.0943	0		0.0471	0.0628	0.0314				
545	YAYLACIK (ANTAKYA)	0.2036	0		0.1018	0.1358	0.0679				
546	EKİNCİ (ANTAKYA)	0.0289	0		0.0144	0.0192	0.0096				
547	GÜLDEREN (ANTAKYA)	0.1152	0		0.0576	0.0768	0.0384				
548	DERİNCE (ANTAKYA)	0.1302	0		0.0651	0.0868	0.0434				
549	ALAZI (ANTAKYA)	0.1223	0		0.0612	0.0815	0.0408				
550	AŞAĞIOBA (ANTAKYA)	0.2739	0	0.6018	0.1369	0.1826	0.0913	0.2919	0.2874	0.2189	0.3694
551	KIŞLA (ARSUZ)	0.1232	0.5926		0.3579	0.2796	0.4361				
552	NERGİZLİK (ARSUZ)	0.144	0.5926		0.3683	0.2935	0.4431				
553	PİRİNÇLİK (ARSUZ)	0.2241	0.5926		0.4084	0.347	0.4698				
554	KARAGÖZ (ARSUZ)	0.2976	0.5926		0.4451	0.3959	0.4943				
555	KURTBAĞI (ARSUZ)	0.2138	0.5926		0.4032	0.3400	0.4663				
556	AŞAĞI KEPİRCE (ARSUZ)	0.2849	0.5926		0.4387	0.3874	0.4900				
557	ÜÇGÜLLÜK (ARSUZ)	0.2172	0.5926	0.6706	0.4049	0.3423	0.4675	0.4935	0.4244	0.5182	0.5377
558	BEYKÖYÜ (ARSUZ)	0.1618	0.5926		0.3772	0.3054	0.449				
559	HACIAHMETLİ (ARSUZ)	0.1398	0.5926	0.2450	0.3662	0.2907	0.4417	0.3258	0.2793	0.3925	0.3056
560	GÜLCİHAN (ARSUZ)	0.227	0.5926	0.9092	0.4098	0.3489	0.4707	0.5763	0.4889	0.5803	0.6595
561	GÖKMEYDAN (ARSUZ)	0.1772	0.5926	0.5880	0.3849	0.3157	0.4541	0.4526	0.3837	0.4876	0.4865
562	HAYMASEKİ (ARSUZ)	0.2114	0.5926	10000	0.402	0.3385	0.4655	0.6013	0.5039	0.5992	0.7010
563	ÇETİLLİK (ARSUZ)	0.1633	0.5926	0.7519	0.378	0.3064	0.4495	0.5026	0.4178	0.5251	0.5649
564	AKÇALI (ARSUZ)	0.1977	0.5926	0.6961	0.3952	0.3293	0.4610	0.4955	0.4210	0.5197	0.5456
565	DEREKUYU (ARSUZ)	0.2354	0.5926		0.414	0.3545	0.4735				
566	YUKARIKEPİRCE (ARSUZ)	0.2713	0.5926		0.4319	0.3784	0.4855				
567	MADENLİ (ARSUZ)	0.2196	0.5926	0.7761	0.4061	0.3439	0.4683	0.5294	0.452	0.5452	0.5911
568	AVCILARSUYU (ARSUZ)	0.2465	0.5926	0.325	0.4196	0.3619	0.4772	0.388	0.3527	0.4392	0.3723
569	HÜYÜK (ARSUZ)	0.162	0.5926	0.6962	0.3773	0.3055	0.4491	0.4836	0.4032	0.5109	0.5368
570	ARPAGEDİK (ARSUZ)	0.1821	0.5926	0.865	0.3873	0.3189	0.4558	0.5466	0.4554	0.5581	0.6262
571	GÖZCÜLER (ARSUZ)	0.1861	0.5926	0.6863	0.3894	0.3216	0.4571	0.4883	0.4128	0.5144	0.5378
572	ARPAÇİFTLİK (ARSUZ)	0.1569	0.5926	0.6897	0.3748	0.3022	0.4474	0.4797	0.399	0.508	0.5322
573	ULUÇINAR (ARSUZ)	0.2204	0.5926	0.8181	0.4065	0.3445	0.4685	0.5437	0.4629	0.5559	0.6123
574	KALE (ARSUZ)	0.3655	0.5926		0.479	0.4412	0.5169				
575	IŞIKLI (ARSUZ)	0.2529	0.5926		0.4227	0.3661	0.4793				
576	KONACIK (ARSUZ)	0.2291	0.5926		0.4108	0.3502	0.4714				
577	TÜLEK (ARSUZ)	0.2174	0.5926	10000	0.405	0.3424	0.4675	0.6033	0.5068	0.6006	0.7025
578	TATARLI (ARSUZ)	0.2476	0.5926		0.4201	0.3626	0.4776				
579	KOZAKLI (ARSUZ)	0.1805	0.5926		0.3865	0.3178	0.4552				
580	HELVALI (ARSUZ)	0.2367	0.5926		0.4147	0.3554	0.474				
581	HARLISU (ARSUZ)	0.1777	0.5926		0.3852	0.316	0.4543				

ID	Neighborhood (County)	LTaI	EV	Liq	S1	S2	S3	S4	S5	S6	S7
582	KARAHÜSEYİNLİ (ARSUZ)	0.1283	0.5926	0.4916	0.3604	0.283	0.4378	0.4042	0.3352	0.4513	0.426
583	ARPADERESİ (ARSUZ)	0.1618	0.5926	0.3207	0.3772	0.3054	0.449	0.3583	0.3092	0.4169	0.3489
584	KARAAĞAÇ CUMHURİYET (ARSUZ)	0.1123	0.5926	0.7588	0.3524	0.2724	0.4325	0.4879	0.394	0.5141	0.5556
585	NARDÜZÜ (ARSUZ)	0.1247	0.5926	0.7931	0.3587	0.2807	0.4366	0.5035	0.4088	0.5258	0.5759
586	KARAAĞAÇ ŞARKONAK (ARSUZ)	0.1332	0.5926	0.6968	0.3629	0.2863	0.4395	0.4742	0.3889	0.5038	0.5298
587	KARAAĞAÇ ÖVÜNDÜK (ARSUZ)	0.1537	0.5926	0.5089	0.3732	0.3	0.4463	0.4184	0.3522	0.462	0.441
588	KARAAĞAÇ KONARLI (ARSUZ)	0.1668	0.5926	0.6048	0.3797	0.3087	0.4507	0.4547	0.3827	0.4892	0.4922
589	KARAÇAĞIL (KIRIKHAN)	0.2804	0.2222		0.2513	0.261	0.2416				
590	CEYLANLI (KIRIKHAN)	0.3057	0.2222		0.264	0.2779	0.2501				
591	KARŞI (PAYAS)	0.3532	0.963	10000	0.6581	0.5565	0.7597	0.7721	0.6674	0.8198	0.8291
592	KARAYILAN (İSKENDERUN)	0.3544	0.4815	10000	0.4179	0.3968	0.4391	0.612	0.5476	0.5793	0.709

Appendix 2

Locations where neighborhoods can be used as temporary shelter areas

Locations	Neighborhoods-County			
10	CUMHURİYET-SAMANDAĞ	YENİ CAMİİ-ANTAKYA		
16	AKTAŞ-KUMLU	YUKARIBURNAZ-ERZİN	İSTİKLAL-ERZİN	KARAMUSTAFALI-ERZİN
	CUMHURİYET-ERZİN	MUSTAFALI-ERZİN	YEŞİLTEPE-ERZİN	BAHÇELİEVLER-ERZİN
	AŞAĞIBURNAZ-ERZİN	ŞÜKRÜ PAŞA-ERZİN	TURUNÇLU-ERZİN	SAVAŞ-İSKENDERUN
	HÜRRİYET-İSKENDERUN	YENİŞEHİR-İSKENDERUN	SÜLEYMANİYE-İSKENDERUN	MODERNEVLER-İSKENDERUN
	FATİH-PAYAS	YENİŞEHİR-ALTINÖZÜ	KAZANCIK-ALTINÖZÜ	FATİKLİ-ALTINÖZÜ
	AYIŞIĞI-YAYLADAĞI	AKBEZ-HASSA	GÜLKENT-HASSA	DERVİŞ PAŞA-HASSA
	ATİK-BELEN	HALİLBEY-BELEN	BENLİDERE-BELEN	MUHLİSALİ-BELEN
	CUMHURİYET-BELEN	BAKRAS-BELEN	DEREBAHÇE-BELEN	SANAYİ-DÖRTYOL
	YEŞİL-DÖRTYOL	MAĞARACIK-SAMANDAĞ	MAHMUTLU-KIRIKHAN	KARADURMUŞLU-KIRIKHAN
	CUMHURİYET-KIRIKHAN	408 EVLER-KIRIKHAN	BARBAROS-KIRIKHAN	YENİ-KIRIKHAN
	GÜNDÜZ-KIRIKHAN	MİMAR SİNAN-KIRIKHAN	ÖZYÖRÜK-KIRIKHAN	BAĞLAR-REYHANLI
	NARLICA-ANTAKYA	ORHANLI-ANTAKYA	HABİB-İ NECCAR-ANTAKYA	GÜLLÜ BAHÇE-ANTAKYA
	ALTINÇAY-ANTAKYA	ESENLİK-ANTAKYA	ESENTEPE-ANTAKYA	SARAYCIK-ANTAKYA
	AŞAĞI KEPİRCE-ARSUZ	YUKARIKEPİRCE-ARSUZ		
17	HÜRRİYET-ERZİN	İSALİ-ERZİN	YENİ-ERZİN	ÇAY-HASSA
	AKTEPE-HASSA	ÇÖĞÜRLÜ-SAMANDAĞ	GÜZELBURÇ-ANTAKYA	HACI ÖMER ALPAGOT-ANTAKYA
	HARAPARASI-ANTAKYA	SOFULAR-ANTAKYA	BAĞRIYANIK-ANTAKYA	BARBAROS-ANTAKYA
	İPLİK PAZARI-ANTAKYA	DUTDİBİ-ANTAKYA	ŞEYHALİ-ANTAKYA	BİNİCİLER-ANTAKYA
	KANTARA-ANTAKYA	KOCAABDİ-ANTAKYA	ŞEHİTLER-ANTAKYA	ULUCAMİİ-ANTAKYA
	GAZİ PAŞA-ANTAKYA	ZENGİNLER-ANTAKYA		
18	KIZLARÇAYI-ERZİN	AZGANLIK-İSKENDERUN	SİNCAN-PAYAS	GÖZLÜCE-YAYLADAĞI
	TEPEBAŞI-HASSA	KATRANLIK-HASSA	YOLUKLAR-HASSA	ARPALIUŞAĞI-HASSA
	YUKARIBUCAK-HASSA	SOĞUKOLUK-BELEN	ÇATKÖY-DÖRTYOL	BÜYÜKOBA-SAMANDAĞ
	SELDİREN-SAMANDAĞ	CEYLANDERE-SAMANDAĞ	ÇAMLIYAYLA-SAMANDAĞ	YENİKÖY-SAMANDAĞ

Locations	Neighborhoods-County			
	KARAMAĞARA-KIRIKHAN	YILANLI-KIRIKHAN	ÇAMSEKİ-KIRIKHAN	DEDEÇINAR-KIRIKHAN
	NERGİZLİK-ARSUZ	KARAGÖZ-ARSUZ	CEYLANLI-KIRIKHAN	KARAYILAN-İSKENDERUN
	ÇAKALLI-BELEN	HATAYHAMAMI-KUMLU	HAMAM-KUMLU	AKPINAR-KUMLU
	MUHARREM-KUMLU	AKKUYU-KUMLU	GÜLOVA-KUMLU	AKKERPİÇ-KUMLU
	FEVZİ ÇAKMAK-KUMLU	CUMHURİYET-KUMLU	GÖKÇEOĞLU-KUMLU	KALETEPE-KUMLU
	KELİ-KUMLU	KIRCAOĞLU-KUMLU	BATIAYRANCI-KUMLU	DOĞUAYRANCI-KUMLU
	YONCADÜZÜ-ERZİN	GÖKDERE-ERZİN	GÖKGÖL-ERZİN	BAŞLAMIŞ-ERZİN
	MAHMUTLU-ERZİN	KUYULUK-ERZİN	YILDIRIMTEPE-İSKENDERUN	BARIŞTEPE-İSKENDERUN
	KURTULUŞ-İSKENDERUN	ÇINARLI-İSKENDERUN	KALEDİBİ-İSKENDERUN	AŞKARBEYLİ-İSKENDERUN
	GÜRSEL-İSKENDERUN	PİRİREİS-İSKENDERUN	AKARCA-İSKENDERUN	BÜYÜKDERE-İSKENDERUN
	MURADİYE-İSKENDERUN	PINARBAŞI-İSKENDERUN	KAVAKLIOLUK-İSKENDERUN	İSMET İNÖNÜ-İSKENDERUN
	CIRTIMAN-İSKENDERUN	DUMLUPINAR-İSKENDERUN	MUSTAFA KEMAL-İSKENDERUN	FATİH SULTAN MEHMET-İSKENDERUN
	AKÇAY-İSKENDERUN	BİTİŞİK-İSKENDERUN	MEYDAN-İSKENDERUN	ORHANGAZİ-İSKENDERUN
	BEKBELE-İSKENDERUN	YUNUS EMRE-İSKENDERUN	ESENTEPE-İSKENDERUN	CEBİKE-İSKENDERUN
	SUÇIKAĞI-İSKENDERUN	DENİZCİLER-İSKENDERUN	GÜZELÇAY-İSKENDERUN	KOCATEPE-İSKENDERUN
	ÇAY-İSKENDERUN	BULUTTEPE-İSKENDERUN	NUMUNE-İSKENDERUN	SAKARYA-İSKENDERUN
	BARBAROS-İSKENDERUN	CUMHURİYET-İSKENDERUN	GÜLTEPE-İSKENDERUN	SARISEKİ-İSKENDERUN
	CUMHURİYET-PAYAS	İSTİKLAL-PAYAS	ÇAĞLALIK-PAYAS	YILDIRIM BEYAZIT-PAYAS
	KARBEYAZ-PAYAS	KÜRTÜL-PAYAS	KOZLUDERE-PAYAS	KARACAMİ-PAYAS
	YENİŞEHİR-PAYAS	KARBEYAZ-ALTINÖZÜ	AKDARI-ALTINÖZÜ	TÜRKMENMEZRAASI-ALTINÖZÜ
19	YUNUSHANI-ALTINÖZÜ	AKAMBER-ALTINÖZÜ	SEFERLİ-ALTINÖZÜ	TOKAÇLI-ALTINÖZÜ
	OYMAKLI-ALTINÖZÜ	ALAKENT-ALTINÖZÜ	TOPRAKHİSAR-ALTINÖZÜ	ÇETENLİ-ALTINÖZÜ
	YENİHİSAR-ALTINÖZÜ	GÜNVURAN-ALTINÖZÜ	SARILAR-ALTINÖZÜ	KARSU-ALTINÖZÜ
	KILIÇTUTAN-ALTINÖZÜ	DOKUZDAL-ALTINÖZÜ	SARIBÜK-ALTINÖZÜ	MAYADALI-ALTINÖZÜ
	SOFULAR-ALTINÖZÜ	KURTMEZRAASI-ALTINÖZÜ	ZİYARET-ALTINÖZÜ	KIYIGÖREN-ALTINÖZÜ
	KOZKALESİ-ALTINÖZÜ	ALTINKAYA-ALTINÖZÜ	TOKDEMİR-ALTINÖZÜ	BABATORUN-ALTINÖZÜ
	YOLAĞZI-ALTINÖZÜ	BOYNUYOĞUN-ALTINÖZÜ	ATAYURDU-ALTINÖZÜ	HANYOLU-ALTINÖZÜ
	KAMBERLİ-ALTINÖZÜ	ENEK-ALTINÖZÜ	KOLCULAR-ALTINÖZÜ	GÖZECİK-ALTINÖZÜ
	BÜYÜKBURÇ-ALTINÖZÜ	TEPEHAN-ALTINÖZÜ	HACIPAŞA-ALTINÖZÜ	KESKİNCİK-ALTINÖZÜ
	YANIKPINAR-ALTINÖZÜ	AVUTTEPE-ALTINÖZÜ	ERBAŞI-ALTINÖZÜ	SİVRİKAVAK-ALTINÖZÜ
	KANSU-ALTINÖZÜ	YARSELİ-ALTINÖZÜ	LEYLEKLİ-YAYLADAĞI	YENİCE-YAYLADAĞI
	YALAZ-YAYLADAĞI	GÖRENTAŞ-YAYLADAĞI	AYDINBAHÇE-YAYLADAĞI	KURTULUŞ-YAYLADAĞI
	ÇABALA-YAYLADAĞI	GÜZELYURT-YAYLADAĞI	ULUYOL-YAYLADAĞI	ARSLANYAZI-YAYLADAĞI
	ŞAKŞAK-YAYLADAĞI	ÇAMALTI-YAYLADAĞI	YAYIKDAMLAR-YAYLADAĞI	KULAÇ-YAYLADAĞI
	OLGUNLAR-YAYLADAĞI	KARACURUN-YAYLADAĞI	SUNGUR-YAYLADAĞI	KIZILÇAT-YAYLADAĞI
	ÇAKSINA-YAYLADAĞI	BEZGE-YAYLADAĞI	YUKARIPULLUYAZI-YAYLADAĞI	EĞERCİ-YAYLADAĞI
	SÜRÜTME-YAYLADAĞI	YEŞİLTEPE-YAYLADAĞI	KÖSRELİK-YAYLADAĞI	GÜRIŞIK-YAYLADAĞI
	HİSARCIK-YAYLADAĞI	SEBENOBA-YAYLADAĞI	AŞAĞIPULLUYAZI-YAYLADAĞI	YUKARIOKÇULAR-YAYLADAĞI
	ÇANDIR-YAYLADAĞI	DUSDURU-YAYLADAĞI	GÜVEÇÇİ-YAYLADAĞI	TUTLUBAHÇE-YAYLADAĞI
	ÇAYIR-YAYLADAĞI	YONCAKAYA-YAYLADAĞI	DENİZGÖREN-YAYLADAĞI	ÇAKI-YAYLADAĞI

Locations	Neighborhoods-County			
	ÜÇIRMAK-YAYLADAĞI	KARAKÖSE-YAYLADAĞI	KIŞLAK-YAYLADAĞI	TURFANDA-YAYLADAĞI
	ÇATBAŞI-YAYLADAĞI	BOZLU-YAYLADAĞI	ŞENKÖY-YAYLADAĞI	ÇINARBAŞI-HASSA
	BİNTAŞ-HASSA	SAPANÖZÜ-HASSA	KORUHÜYÜK-HASSA	ARDIÇLI-HASSA
	AŞAĞIKARAFAKILI-HASSA	SUGEDİĞİ-HASSA	MAZMANLI-HASSA	HAYDARLAR-HASSA
	GİRNE-HASSA	AKKÜLEK-HASSA	YENİ-HASSA	HACILAR-HASSA
	45611-HASSA	BUHARA-HASSA	SÖĞÜT-HASSA	YENİYAPAN-HASSA
	EĞRİBUCAK-HASSA	GAZELUŞAĞI-HASSA	GÜLPINAR-HASSA	KÜRECİ-HASSA
	YUKARIKARAFAKILI-HASSA	DEDEMLİ-HASSA	YUVALI-HASSA	DEMREK-HASSA
	GÜVENÇ-HASSA	BADEMLİ-HASSA	ZEYTİNOBA-HASSA	TİYEK-HASSA
	KICI-BELEN	ÖTENÇAY-BELEN	ŞENBÜK-BELEN	ŞEKERE-BELEN
	SARIMAZI-BELEN	KÖMÜRÇUKURU-BELEN	MÜFTÜLER-BELEN	İSSUME-BELEN
	ÇERÇİKAYA-BELEN	FATİH-BELEN	NUMUNE EVLER-DÖRTYOL	OCAKLI-DÖRTYOL
	KIŞLALAR-DÖRTYOL	KAPILI-DÖRTYOL	ÖZERLİ-DÖRTYOL	YENİYURT-DÖRTYOL
	ÇAYLI-DÖRTYOL	ALTINÇAĞ-DÖRTYOL	KONAKLI-DÖRTYOL	YEŞİLKÖY-DÖRTYOL
	KUZUCULU-DÖRTYOL	KARAKESE-DÖRTYOL	HUZURLU-SAMANDAĞ	YEŞİLKÖY-SAMANDAĞ
	BATIAYAZ-SAMANDAĞ	KARAÇAY-SAMANDAĞ	UZUNBAĞ-SAMANDAĞ	KUŞALANI-SAMANDAĞ
	KURTDERESİ-SAMANDAĞ	ÇANAKOLUK-SAMANDAĞ	YEŞİLYAZI-SAMANDAĞ	MIZRAKLI-SAMANDAĞ
	YAYLICA-SAMANDAĞ	ATAKÖY-SAMANDAĞ	KOYUNOĞLU-SAMANDAĞ	GÖZENE-SAMANDAĞ
	ATATÜRK-SAMANDAĞ	HIDIRBEY-SAMANDAĞ	YENİ-SAMANDAĞ	ÇİĞDEDE-SAMANDAĞ
	DENİZ-SAMANDAĞ	DEĞİRMENBAŞI-SAMANDAĞ	FİDANLI-SAMANDAĞ	MEYDAN-SAMANDAĞ
19	VAKIFKÖY-SAMANDAĞ	TOMRUKSUYU-SAMANDAĞ	GENERAL ŞÜKRÜ KANADLI-SAMANDAĞ	CEMAL GÜRSEL-SAMANDAĞ
	YEŞİLADA-SAMANDAĞ	TEKEBAŞI-SAMANDAĞ	AVCILAR-SAMANDAĞ	ÇUBUKLU-SAMANDAĞ
	SUTAŞI-SAMANDAĞ	ERİKLİKUYU-SAMANDAĞ	YOĞUNOLUK-SAMANDAĞ	KAPISUYU-SAMANDAĞ
	DEMİRKONAK-KIRIKHAN	İNCİRLİ-KIRIKHAN	KALETEPE-KIRIKHAN	CAMUZKIŞLASI-KIRIKHAN
	BAŞPINAR-KIRIKHAN	SUCUKÖY-KIRIKHAN	GÜLTEPE-KIRIKHAN	YALANGOZ-KIRIKHAN
	KAMBERLİKAYA-KIRIKHAN	ADALAR-KIRIKHAN	ÖZKIZILKAYA-KIRIKHAN	KIZILKAYA-KIRIKHAN
	AYGIRGÖLÜ-KIRIKHAN	NARLIHOPUR-KIRIKHAN	MURATPAŞA-KIRIKHAN	GÖLBAŞI-KIRIKHAN
	ÇİLOĞLANHÜYÜĞÜ-KIRIKHAN	ÇAMSARI-KIRIKHAN	BALDIRAN-KIRIKHAN	SÖĞÜTLÜÖZ-KIRIKHAN
	ABALAKLI-KIRIKHAN	KAMIŞLAR-KIRIKHAN	ÇATALTEPE-KIRIKHAN	KARAMANKAŞI-KIRIKHAN
	BEKTAŞLI-KIRIKHAN	DANAAHMETLİ-KIRIKHAN	KANGALLAR-KIRIKHAN	TORUN-KIRIKHAN
	SAYLAK-KIRIKHAN	GÜZELCE-KIRIKHAN	KODALLI-KIRIKHAN	İÇADA-KIRIKHAN
	ALİBEYÇAĞILLI-KIRIKHAN	ILIKPINAR-KIRIKHAN	KARAELMASLI-KIRIKHAN	ALAYBEYLİ-KIRIKHAN
	REŞATLI-KIRIKHAN	MENDERES-KIRIKHAN	GAZİ-KIRIKHAN	ALPARSLAN-KIRIKHAN
	ATTUTAN-KIRIKHAN	ALSANCAK-KIRIKHAN	FATİH-KIRIKHAN	ÖZSOĞUKSU-KIRIKHAN
	KURTULUŞ-KIRIKHAN	ÇANKAYA-KIRIKHAN	AYDINLI-KIRIKHAN	BAHÇELİEVLER-KIRIKHAN
	KARATAŞ-KIRIKHAN	DELİBEKİRLİ-KIRIKHAN	KURTLUSOĞUKSU-KIRIKHAN	ARKITÇA-KIRIKHAN
	TOPBOĞAZI-KIRIKHAN	KAZKELİ-KIRIKHAN	GÜVENTAŞI-KIRIKHAN	BALARMUDU-KIRIKHAN
	TAŞOLUK-KIRIKHAN	KURTLUSARIMAZI-KIRIKHAN	CİLVEGÖZÜ-REYHANLI	DAVUTPAŞA-REYHANLI
	AKYAYLA-REYHANLI	HARRAN-REYHANLI	MEHMETBEYLİ-REYHANLI	YENİŞEHİR-REYHANLI
	ESENTEPE-REYHANLI	PINARBAŞI-REYHANLI	YENİ-REYHANLI	CUMHURİYET-REYHANLI

Locations	Neighborhoods-County			
19	FİDANLIK-REYHANLI	KURTULUŞ-REYHANLI	BAYIR-REYHANLI	YEŞİLOVA-REYHANLI
	ÜÇTEPE-REYHANLI	BEŞASLAN-REYHANLI	AHMETBEYLİ-REYHANLI	PAŞAHÜYÜK-REYHANLI
	KARAHÜYÜK-REYHANLI	KULETEPE-REYHANLI	UZUNKAVAK-REYHANLI	KARASÜLEYMANLI-REYHANLI
	TERZİHÜYÜK-REYHANLI	KARACANLIK-REYHANLI	BÜKÜLMEZ-REYHANLI	ALAKUZU-REYHANLI
	KUŞAKLI-REYHANLI	OĞULPINAR-REYHANLI	FEVZİPAŞA-REYHANLI	ÇAKIRYİĞİT-REYHANLI
	BAHÇELİEVLER-REYHANLI	GÜLTEPE-REYHANLI	ADABUCAK-REYHANLI	MUSTAFA KEMAL-REYHANLI
	GAZİMÜRSELTEPESİ-REYHANLI	NERGİZLİ-REYHANLI	KUMTEPE-REYHANLI	TAYFURSÖKMEN-REYHANLI
	VARIŞLI-REYHANLI	ÖZ KURTULUŞ-REYHANLI	GÖKTEPE-REYHANLI	PAŞAKÖY-REYHANLI
	CÜDEYDE-REYHANLI	SULUKÖY-REYHANLI	DEĞİRMENKAŞI-REYHANLI	KONUK-REYHANLI
	AŞAĞIOKÇULAR-DEFNE	TURUNÇLU-DEFNE	KOÇÖREN-DEFNE	YEŞİLPINAR-DEFNE
	BALIKLIDERE-DEFNE	MEYDANCIK-DEFNE	ORHANLI-DEFNE	AKDENİZ-DEFNE
	SAMANKAYA-DEFNE	ÇÖKEK-DEFNE	BAHÇEKÖY-DEFNE	GÜNEYSÖĞÜT-DEFNE
	BÜYÜKÇAT-DEFNE	DEĞİRMENYOLU-DEFNE	ÖZBEK-DEFNE	SUBAŞI-DEFNE
	ÜZENGİLİ-DEFNE	KARŞIYAKA-DEFNE	SİNANLI-DEFNE	BALLIÖZ-DEFNE
	TOYGARLI-DEFNE	GÜMÜŞGÖZE-DEFNE	ARMUTLU-DEFNE	BOSTANCIK-DEFNE
	ÇARDAKLI-DEFNE	HARBİYE-DEFNE	DÖVER-DEFNE	TAVLA-DEFNE
	HANCAĞIZ-DEFNE	HÜSEYİNLİ-DEFNE	AKNEHİR-DEFNE	ÇINARLI-DEFNE
	YENİÇAĞ-DEFNE	ÇEKMECE-DEFNE	DURSUNLU-DEFNE	SÜMERLER-DEFNE
	ELEKTRİK-DEFNE	BOHŞİN-ANTAKYA	MELEKLİ-ANTAKYA	APAYDIN-ANTAKYA
	SAÇAKLI-ANTAKYA	DEMİRKÖPRÜ-ANTAKYA	MADENBOYU-ANTAKYA	AVSUYU-ANTAKYA
	TANIŞMA-ANTAKYA	SUVATLI-ANTAKYA	BOZHÖYÜK-ANTAKYA	ÜZÜMDALI-ANTAKYA
	PAŞAKÖY-ANTAKYA	BİTİREN-ANTAKYA	MARAŞBOĞAZI-ANTAKYA	AKCURUN-ANTAKYA
	AÇIKDERE-ANTAKYA	YEŞİLOVA-ANTAKYA	ZÜLÜFLÜHAN-ANTAKYA	ARPAHAN-ANTAKYA
	ALAATTİN-ANTAKYA	GÖKÇEGÖZ-ANTAKYA	MANSURLU-ANTAKYA	AKÇAOVA-ANTAKYA
	OVAKENT-ANTAKYA	SERİNYOL-ANTAKYA	HASANLI-ANTAKYA	ANAYAZI-ANTAKYA
	UZUNALİÇ-ANTAKYA	KURUYER-ANTAKYA	BÜYÜKDALYAN-ANTAKYA	MAŞUKLU-ANTAKYA
	ALAHAN-ANTAKYA	TAHTAKÖPRÜ-ANTAKYA	AKHİSAR-ANTAKYA	KARAALİ-ANTAKYA
	DİKMECE-ANTAKYA	ÜÇGEDİK-ANTAKYA	KÜÇÜKDALYAN-ANTAKYA	AYDINLIKEVLER-ANTAKYA
	HAVUZLAR-ANTAKYA	KUZEYTEPE-ANTAKYA	ODABAŞI-ANTAKYA	KARDEŞLER-ANTAKYA
	KARAALİ BÖLÜĞÜ-ANTAKYA	ŞİRİNCE-ANTAKYA	MEYDAN-ANTAKYA	KUYULU-ANTAKYA
	FEVZİ ÇAKMAK-ANTAKYA	KIŞLA SARAY-ANTAKYA	GENERAL ŞÜKRÜ KANATLI-ANTAKYA	ÜRGEN PAŞA-ANTAKYA
	CUMHURİYET-ANTAKYA	CEBRAİL-ANTAKYA	AKEVLER-ANTAKYA	GAZİ-ANTAKYA
	EMEK-ANTAKYA	SARAYKENT-ANTAKYA	OĞLAKÖREN-ANTAKYA	AKSARAY-ANTAKYA
	AKASYA-ANTAKYA	KARLISU-ANTAKYA	GÜNYAZI-ANTAKYA	DOĞANKÖY-ANTAKYA
	KİSECİK-ANTAKYA	YAYLACIK-ANTAKYA	EKİNCİ-ANTAKYA	GÜLDEREN-ANTAKYA
	DERİNCE-ANTAKYA	ALAZI-ANTAKYA	AŞAĞIOBA-ANTAKYA	KIŞLA-ARSUZ
	PİRİNÇLİK-ARSUZ	KURTBAĞI-ARSUZ	ÜÇGÜLLÜK-ARSUZ	BEYKÖYÜ-ARSUZ
	HACIAHMETLİ-ARSUZ	GÜLCİHAN-ARSUZ	GÖKMEYDAN-ARSUZ	HAYMASEKİ-ARSUZ
	ÇETİLLİK-ARSUZ	AKÇALI-ARSUZ	DEREKUYU-ARSUZ	MADENLİ-ARSUZ
	AKÇALI-ARSUZ	DEREKUYU-ARSUZ	MADENLİ-ARSUZ	AVCILARSUYU-ARSUZ

Locations	Neighborhoods-County			
	HÜYÜK-ARSUZ	ARPAGEDİK-ARSUZ	GÖZCÜLER-ARSUZ	ARPAÇİFTLİK-ARSUZ
	ULUÇINAR-ARSUZ	KALE-ARSUZ	IŞIKLI-ARSUZ	KONACIK-ARSUZ
	TÜLEK-ARSUZ	TATARLI-ARSUZ	KOZAKLI-ARSUZ	HELVALI-ARSUZ
19	HARLISU-ARSUZ	KARAHÜSEYİNLİ-ARSUZ	ARPADERESİ-ARSUZ	KARAAĞAÇ CUMHURİYET-ARSUZ
	NARDÜZÜ-ARSUZ	KARAAĞAÇ ŞARKONAK-ARSUZ	KARAAĞAÇ ÖVÜNDÜK-ARSUZ	KARAAĞAÇ KONARLI-ARSUZ
	KARAÇAĞIL-KIRIKHAN	KARŞI-PAYAS		