Housing Needs Assessment in Parakan Urban Area of Temanggung Regency

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ABSTRACT

Development in urban areas is indicated by the existence of infrastructure and facilities that support the lives of its people. This encourages urban areas to develop into centers of community activities and influences the use of space in the area (Bai et al., 2021). Based on Temanggung Regency Regional Regulation Number 1 of 2024 concerning the Temanggung Regency Spatial Planning Plan (RTRW) for 2024-2044, the Parakan urban area is designated as one of the urban areas in Temanggung Regency which is a strategic node for the development of the Magelang-Temanggung corridor area. This is one of the factors that influences development and encourages population growth in the area. This population growth increases the need for housing as one of the basic human needs. The analysis method used in this study is quantitative analysis. The analysis carried out includes calculating population projections, calculating the backlog of housing needs, analyzing land availability, and spatial analysis in determining the location for housing needed in the planning year. The final results of the study show that the population will increase in 2043 with a total land area needed for settlements reaching 35,13 ha, while land availability until 2043 is 243,97 ha. This study contributes to spatial planning by integrating housing demand projections and land availability mapping, this approach is still rarely applied in spatial planning studies in an area.
Keywords: housing needs, land availability, urban area

ABSTRAK

Perkembangan pada kawasan perkotaan diindikasikan dengan keberadaan prasarana dan sarana yang menunjang kehidupan masyarakatnya. Hal ini mendorong kawasan perkotaan berkembang menjadi pusat kegiatan masyarakat dan mempengaruhi pemanfaatan ruang kawasannya (Bai et al., 2021). Berdasarkan pada Peraturan Daerah Kabupaten Temanggung Nomor 1 Tahun 2024 tentang Rencana Tata Ruang Wilayah (RTRW) Kabupaten Temanggung Tahun 2024-2044, kawasan perkotaan parakan ditetapkan sebagai salah satu wilayah perkotaan di Kabupaten Temanggung yang menjadi simpul strategis pengembangan Wilayah koridor Magelang-Temanggung. Hal ini menjadi salah satu faktor yang mempengaruhi terjadinya perkembangan dan mendorong pertumbuhan penduduk di kawasan. Pertumbuhan penduduk tersebut meningkatkan kebutuhan hunian sebagai salah satu kebutuhan dasar manusia. Metode analisis yang digunakan dalam penelitian ini adalah analisis kuantitatif. Analisis yang dilakukan meliputi perhitungan proyeksi penduduk, perhitungan backlog kebutuhan rumah, analisis ketersediaan lahan, dan analisis spasial dalam menentukan lokasi untuk hunian yang dibutuhkan pada tahun perencanaan. Hasil akhir penelitian menunjukkan bahwa populasi meningkat pada tahun 2043 dengan total luas lahan yang dibutuhkan untuk permukiman mencapai 35,13 ha, sementara ketersediaan lahan hingga tahun 2043 sebesar 243,97 ha. Penelitian ini berkontribusi pada perencanaan tata ruang dengan mengintegrasikan proyeksi kebutuhan rumah dan pemetaan ketersediaan lahan, pendekatan ini masih jarang diterapkan dalam studi perencanaan tata ruang di suatu kawasan.
Kata Kunci: kebutuhan rumah, ketersediaan lahan, kawasan perkotaan

1. INTRODUCTION

The development of housing and residential areas has an important role in the development and development of human resources (Zhu et al., 2023). Based on Law No. 1/2011 on housing and residential areas, a house is a building that serves as a place of residence or shelter for humans, as well as a means to foster family life. Based on its function, a house is a shelter that provides proper protection, access to resources, and a sense of security for its occupants (Kusumawati, 2018). Fulfillment of housing will continue to grow as an individual or family need along with the development of the area and its population (Li et al., 2018).

Land availability is also an important factor when the population continues to grow, because the higher the need and demand for housing, the need for land for housing development is also increasing (Musyafa, 2023). The development of housing and settlements, especially in urban areas, occurs due to the development of community activities that can attract migrants from rural areas, known as urbanization (Karyana & Rusliana, 2021). The motivating factors for moving to urban areas are adequate health facilities, high standard of living, high standard of education, recreational facilities, better job opportunities, better security of life and property ownership, and a more conducive social environment (Susiati, 2022)

Parakan Urban Area located in Parakan District of Temanggung Regency in 2020 has a population of 53,322 people, or about 7% of the total population of Temanggung Regency. Based on Regional Regulation Number 1 of 2024 concerning the Regional Spatial Plan of Temanggung Regency for 2024-2044, the Parakan Urban Area is one of the Local Activity Center (PKL) areas to serve district-scale activities or several sub-districts. In the economic sector, the Parakan Urban Area is the center of economic activity marked by the presence of Pasar Legi, which is the main market that has existed since 1925 with a range of service areas covering Temanggung Regency to Wonosobo Regency. Health facilities in the Parakan Urban Area are Ngesti Waluyo Hospital in Wanutengah Village and Muhammadiyah Hospital in Campursari Village which are able to support the health needs of the Parakan Urban Area community and the surrounding area. In the aspect of education, the Parakan Urban Area has STIKES Ngesti Waluyo as a means of supporting education that serves one Temanggung Regency. As well as the existence of national roads that can increase the possibility of interaction between the activities of the population of the Parakan Urban Area with Temanggung Regency and the surrounding districts.

Limitations in meeting housing needs by looking at the availability of land and the number of residents who are increasing every year in the Parakan Urban Area, so it is important to

calculate the backlog of housing needs, housing and land needs based on the class of houses (Novitawaty, 2017). Several previous studies have been conducted to estimate long-term housing needs, tha approaches and analytical scopes employed in these studies differ significantly from the present research. The study by (Fahmi & Widyawati, 2020) focused on the quantitative projection of housing needs without incorporating spatial aspects. In contrast, this study integrates spatial analysis to identify priority areas for housing development, thereby providing more contextual and applicable planning recommendations. Similarly, the study by (Fasola et al., 2022) accounted for housing classification and land requirements for infrastructure and public facilities, as well as housing demand driven by internal migration. Nevertheless, the present study advances further by aligning projected housing needs with spatial land availability and considering the existing conditions of the study area, in order to support efficiency and sustainability in residential area development in the Parakan Urban Area of Temanggung Regency.

The existence of various activity centers and economic potential in the Parakan Urban Area makes people come and immigrate to the Parakan Urban Area. This has an impact on the increasing need for housing land to live in. Therefore, this study aims to determine housing needs in the planning year and the availability of land that can be developed for housing in the Parakan Urban Area. Based on the description above, this study was conducted to answer the research question, "How do projected housing needs align with land supply in the Parakan urban area until 2043?"

2. METHODS

The focus of this research is the Parakan Urban Area with an area of 1,433.93 hectares or 1.65% of the total area of Temanggung Regency. The Parakan Urban Area is divided into 2 (two) urban villages and 11 (eleven) villages. Parakan Urban Area in Temanggung Regency functions as a center of socio-economic, commercial, and service activities. Spatially, the area has developed linearly along major road corridors. Land use is dominated by residential areas, trade, and public facilities, with high intensiy in the center and decreasing toward the periphery. Parakan has high accessibility due to its location on the inter-district connectivity route (Temanggung-Wonosobo-Magelang), reinforcing its role as a secondary growth center.

The research method used in the study of housing needs in the Parakan Urban Area uses a quantitative approach (Sofwatillah et al., 2024). This approach is to perform calculations, formulas and numerical certainty using secondary data obtained from the data of the Central Bureau of Statistics of Parakan Subdistrict in figures for 2010-2022 in the form of population

data and primary data, namely the number of house points. Meanwhile, the spatial data used are shapefile maps of built-up land (roads and settlements), conservation land (LSD, spring boundaries, and river boundaries), and green open spaces (parks, cemeteries, and fields) which are processed using a geographic information system, namely Arcgis (Roziqin & Kusumawati, 2017). This study uses spatial analysis overlay with Arcgis 10.8 to identify areas that can be developed and those that cannot, in order to support evidence-based planning aligned with the spasial structure of the urban areas (Adininggar et al., 2016)

1. Population Projection

   Population projection is the calculation of the estimated population in the future (Chen et al., 2016). The method used to calculate the population growth rate is:

   $$r = \frac{(current\ population - population\ last\ year)}{population\ last\ year} \times 100\%$$

   Calculation of population projections using the geometric method by assuming that the population will increase geometrically based on the calculation of compound interest (Karyana & Rusliana, 2021).

   Geometric Method

   $$Pn = (Po \times (1 + r)^n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2.1)$$

   Description:

   Pn   = Total population in year n

   Po   = Total population in the initial year of planning

   n   = Planning time period (Year)

   r   = Population growth rate

2. Projected Number of Family Heads

   Determination of the number of houses, requires data on the number of residents in the projection year and assumes that 1 housing unit per 1 KK (Family Card) of 4 people (Badan Standardisasi Nasional, 2004).

   $$Number\ of\ households\ Projection\ Year = \frac{Populations\ projections\ (2.1)}{4} \ldots\ldots (2.2)$$

3. Backlog Analysis of Housing Needs

   The calculation of the housing backlog is used to identify housing needs, so that it can be known that there is no availability of houses or a shortage of houses (backlog) (Marjorie Tindas et al., 2023). The following is the housing backlog calculation formula:

   $$Kro = Io\ (2.4) - Ro \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2.3)$$

   Description:

   Kro   = Housing shortage or lack of housing availability (Backlog)

Io   = Number of families in the year of count

Ro   = Number of houses in the year of count

4. Analysis of House Needs Based on House Class

The calculation of housing needs based on the classification of housing classes is obtained from Law Number 1 Year 2011 concerning Housing and Settlement Areas which classifies houses in settlements into three (3) types, namely big house, medium house, and small house.

New House Land Requirement = (Kro (2.5) $\times$ 70m^2) + (Kro (2.5) $\times$ 120m^2) + (Kro (2.5) $\times$ 200m^2) …………………………………………………………….(2.4)

Description:

Kro   = Housing shortage or lack of housing availability (Backlog)

- Big house= 200m^2
- Medium house = 120 m^2
- Small house = 70 m^2

5. Land Availability Analysis

The analysis method used is spatial analysis by overlaying each SHP data. Overlay is done to unite/combine information from several different layers/maps to get new, more complex information (Roziqin & Kusumawati, 2017). The data processing process using Arcgis 10.8 is as follows.

a) Prepare the entire SHP of materials that include built-up land (roads and settlements), conservation land (LSD, spring boundaries, and river boundaries), and green open spaces (parks, cemeteries, and fields) and the SHP of Parakan Urban Area.

b) Ensure that all SHP materials have been annotated with "not expandable"

c) Open Arctoolbox, then to Analysis Tools select overlay, after that do overlapping (overlay) SHP material with SHP Parakan Urban Area.

d) The overlay results will show there are two classifications of land availability, namely:

- cannot be developed, which are built-up land, Protected/Conservation Land, and Green Spaces

- can be developed, which are areas that do not include built-up land, Protected/Conservation Land, and Green Spaces

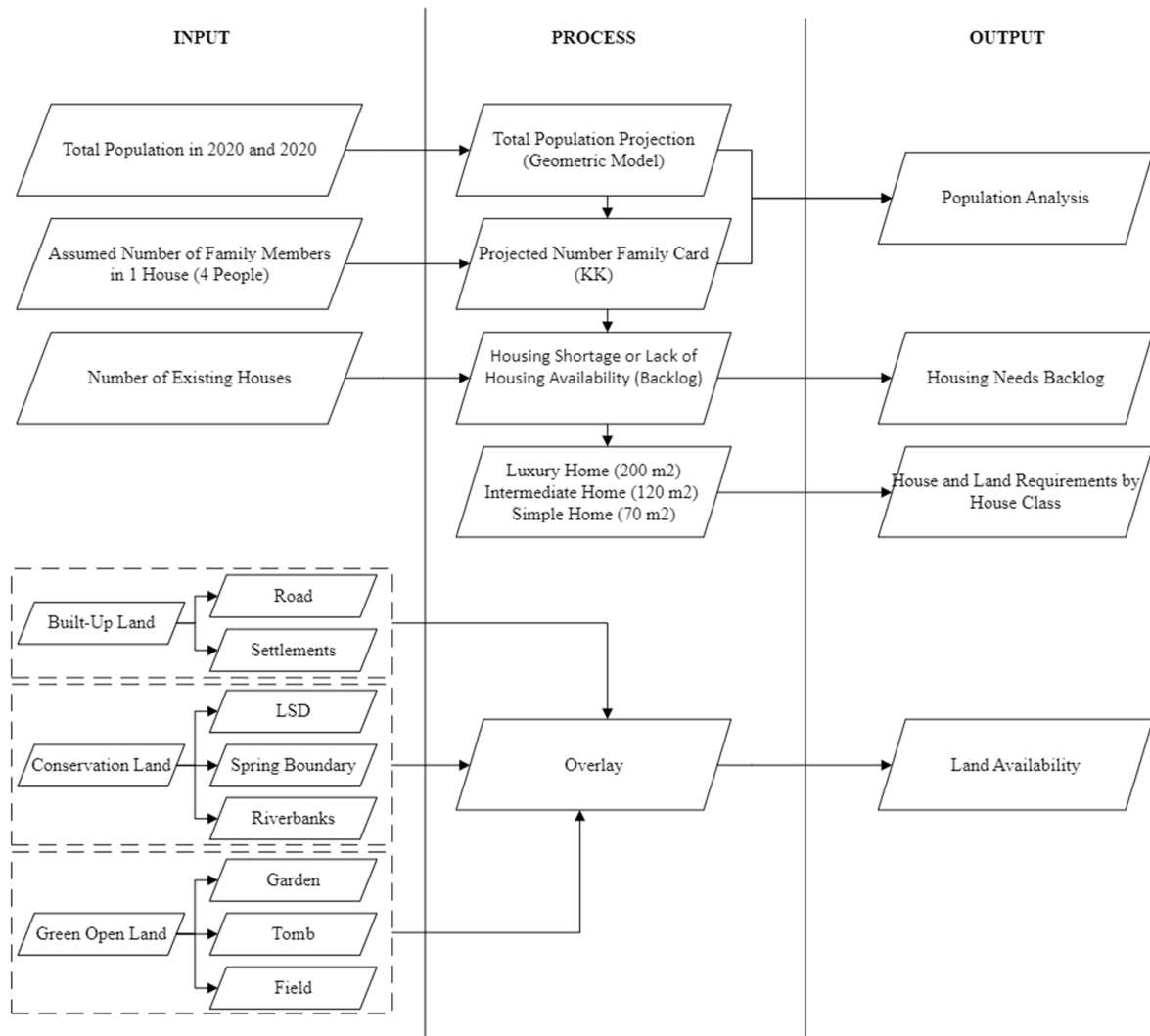e) Land availability is land that can be developed, because there are no restrictions on the development of the land

Figure 1. Stages of Home Needs Assessment
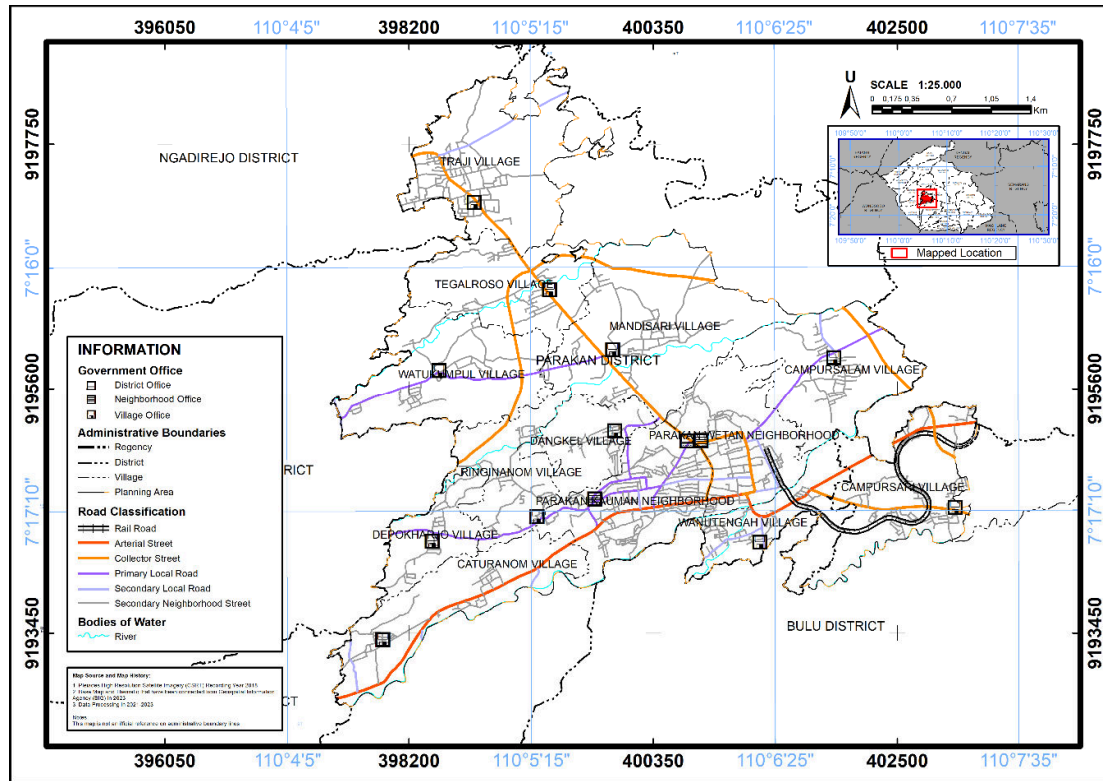*Source : 2024 Compiler*

Figure 2. Administrative Map of Parakan Urban Area
Source : 2024 Compiler

3.   RESULTS AND DISCUSSION

3.1.   Populations

Population projections are used to estimate the future population of an area by considering the projection results that are closest to the actual conditions in the field and choosing the correlation factor that is closest to 1 (Talanipa et al., 2022). The population projection data will then be divided by the average number of household members in the Parakan Urban Area. The average number of household members is assumed to be 4 family members per family card, this figure is quite stable and represents the general condition in Indonesia (Nasution, 2017). The following is the calculation of population projections in the Parakan Urban Area.

Table 1. Number of Parakan Urban Area Projections for 2028-2043

Village/ Neighborhood	Projected Population (Population)				Number of Projected Households			
	2028	2033	2038	2043	2028	2033	2038	2043
Parakan Kauman Neighborhood	12.166	12.500	12.844	13.197	3.041	3.125	3.211	3.299
Parakan Wetan Neighborhood	7.009	7.070	7.130	7.192	1.752	1.767	1.783	1.798
Traji Village	3.955	4.129	4.311	4.501	989	1.032	1.078	1.125
Wanutengah Village	4.328	4.856	5.448	6.112	1.082	1.214	1.362	1.528
Caturanom Village	2.786	2.983	3.195	3.421	697	746	799	855
Mandisari Village	5.836	6.288	6.774	7.298	1.459	1.572	1.693	1.824
Campursari Village	2.659	2.678	4.703	2.716	665	670	1.176	679

Village/ Neighborhood	Projected Population (Population)				Number of Projected Households			
	2028	2033	2038	2043	2028	2033	2038	2043
Tegalroso Village	2.525	2.748	2.990	3.253	631	687	747	813
Depokharjo Village	925	978	1.034	1.094	231	244	259	273
Dangkel Village	2.999	3.158	3.325	3.502	750	789	831	875
Campursalam Village	4.074	4.378	4.703	5.054	1.019	1.094	1.176	1.263
Ringinanom Village	2.337	2.453	2.576	2.704	584	613	644	676
Watukumpul Village	3.064	4.856	3.459	3.675	766	1.214	865	919
Amount	**54.663**	**57.474**	**60.486**	**63.718**	**13.666**	**14.368**	**15.122**	**15.930**

Source : 2024 Compiler

Population projections used with the geometric method is because the results of the projection of existing calculations with the plan have the least difference of 64,920 people compared to the arithmetic model which has a difference of 65,031 people and exponential has a difference of 64,957 people. The projected population in the Parakan Urban Area in 2043 experienced a significant increase of 63,718 people. Kelurahan Parakan Kauman is the kelurahan with the highest population, which is 13,197 people. This is due to the center of trade, services, and the government of Parakan Subdistrict, which provides various state administration and licensing services for the community. In addition, there are several other areas around Parakan, namely Parakan Wetan Neighborhood, Wanutengah Village, and Mandisari Village, which have industrial locations.

This potential is likely to cause population growth in these areas to increase rapidly, which can be an attraction for people to live and work in these areas. The village with the highest number of families is Kelurahan Parakan Kauman. These findings are consistent with urban growth models such as central place theory oleh Walter Christaller, where housing expansion pressure is concentrated near service zones. Unlike the case Tanggamus (Fasola et al., 2022), where demand is driven by internal migration, Parakan's growth is related to its role as a regional service center. Meanwhile, the lowest number of families is in Depokharjo Village. Determining the number of families to see the need for houses / the number of dwellings that will come so that the new land area can be known (Musyafa, 2023).

3.2. Housing Needs Backlog

The housing backlog is a condition of the gap between the availability and the need for housing. If not handled properly, this gap will get bigger and bigger (Nadella et al., 2025). In addition, proper planning of housing locations can reduce the gap in housing needs in the Parakan Urban Area. The calculation of the backlog of housing needs in the Parakan Urban Area uses a variable number of projected households and data on the number of existing houses

based on the planning year. The following is the calculation of the backlog of housing needs in the Parakan Urban Area.

Table 2. Backlog in Parakan Urban Area

Village/ Neighborhood	Number of Existing Houses (Unit)	Housing Needs/ Backlog (Unit)			
		2028	2033	2038	2043
Parakan Kauman Neighborhood	3.175	0	11	36	124
Parakan Wetan Neighborhood	2.256	0	0	0	0
Traji Village	1.177	0	0	0	0
Wanutengah Village	689	393	525	673	839
Caturanom Village	735	0	11	64	120
Mandisari Village	1.331	128	241	362	493
Campursari Village	1.164	0	0	0	0
Tegalroso Village	631	0	56	116	182
Depokharjo Village	293	0	0	0	0
Dangkel Village	778	0	11	53	97
Campursalam Village	1.053	0	41	123	210
Ringinanom Village	617	0	0	27	59
Watukumpul Village	808	0	525	57	111
Amount	**14.707**	**521**	**891**	**1.511**	**2.237**

Source : 2024 Compiler

The backlog of housing needs in the Parakan Urban Area each year has a different amount, a gap that occurs when the number of houses built does not match the number of houses that people need. Wanutengah Village is one of the villages that has the highest gap, seeing from the condition of the Wanutengah Village area that has health facilities, trade and service activities, industry and is traversed by provincial and national roads. The provision of facilities and smooth accessibility of residents can increase urbanization with the aim of finding work and settling as residents of Wanutengah Village.

3.3. House and Land Requirements by House Class

The construction of houses refers to Government Regulation Number 12 of 2021 concerning the Implementation of Housing and Settlement Areas which states that the ratio of housing development construction is at least 1 big house compared to at least 2 medium houses and compared to at least 3 small houses (Peraturan Pemerintah RI No 12, 2021). Land requirements are the most important thing in the construction of new houses, which have their respective areas based on the class of houses to be built, including the big house class having an area of 200m^2, for the middle house having an area of 120m^2, and small house having an area of 70 m^2. The following is the calculation of land requirements in the Parakan Urban Area

Table 3. Backlog in Parakan Urban Area in 2028

Village/Neighborhood	Big House		Medium House		Small House	
	Number of Houses (Unit)	Area ($200m^2$/ unit)	Number of Houses (Unit)	Area ($120m^2$/ unit)	Number of Houses (Unit)	Area ($70m^2$/ unit)
Parakan Kauman Neighborhood	0	0	0	0	0	0
Parakan Wetan Neighborhood	0	0	0	0	0	0
Traji Village	0	0	0	0	0	0
Wanutengah Village	65	13.099	131	15.719	196	13.754
Caturanom Village	0	0	0	0	0	0
Mandisari Village	21	4.267	43	5.120	64	4.480
Campursari Village	0	0	0	0	0	0
Tegalroso Village	0	0	0	0	0	0
Depokharjo Village	0	0	0	0	0	0
Dangkel Village	0	0	0	0	0	0
Campursalam Village	0	0	0	0	0	0
Ringinanom Village	0	0	0	0	0	0
Watukumpul Village	0	0	0	0	0	0
Amount	**87**	**17.366**	**174**	**20.839**	**260**	**18.234**

Source : 2024 Compiler

Table 4. Backlog in Parakan Urban Area in 2033

Village/ Neighborhood	Big House		Medium House		Small House	
	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)
Parakan Kauman Neighborhood	0	0	0	0	0	0
Parakan Wetan Neighborhood	0	0	0	0	0	0
Traji Village	0	0	0	0	0	0
Wanutengah Village	88	17.500	175	21.000	263	18.375
Caturanom Village	2	367	4	440	6	385
Mandisari Village	40	8.033	80	9.640	121	8.435
Campursari Village	0	0	0	0	0	0
Tegalroso Village	9	1.867	19	2.240	28	1.960
Depokharjo Village	0	0	0	0	0	0
Dangkel Village	2	367	4	440	6	385
Campursalam Village	7	1.367	14	1.640	21	1.435
Ringinanom Village	0	0	0	0	0	0
Watukumpul Village	1	200	2	240	3	210
Amount	**149**	**29.700**	**297**	**35.640**	**446**	**31.185**

Source : 2024 Compiler

Table 5. Backlog in Parakan Urban Area in 2038

Village/ Neighborhood	Big House		Medium House		Small House	
	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)
Parakan Kauman Neighborhood	6	1.198	12	1.438	18	1.258
Parakan Wetan Neighborhood	0	0	0	0	0	0
Traji Village	0	0	0	0	0	0
Wanutengah Village	112	22.431	224	26.917	336	23.552
Caturanom Village	11	2.123	21	2.547	32	2.229
Mandisari Village	60	12.082	121	14.498	181	12.686
Campursari Village	0	0	0	0	0	0
Tegalroso Village	19	3.882	39	4.658	58	4.076
Depokharjo Village	0	0	0	0	0	0
Dangkel Village	9	1.779	18	2.134	27	1.868
Campursalam Village	20	4.096	41	4.915	61	4.300
Ringinanom Village	4	899	9	1.079	13	944
Watukumpul Village	9	1.889	19	2.267	28	1.983
Amount	252	50.378	504	60.453	756	52.896

Source : 2024 Compiler

Table 6. Backlog in Parakan Urban Area in 2043

Village/ Neighborhood	Big House		Medium House		Small House	
	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)	Number of Houses (Unit)
Parakan Kauman Neighborhood	21	4.133	41	4.960	62	4.340
Parakan Wetan Neighborhood	0	0	0	0	0	0
Traji Village	0	0	0	0	0	0
Wanutengah Village	140	27.967	280	33.560	420	29.365
Caturanom Village	20	4.008	40	4.810	60	4.209
Mandisari Village	82	16.446	164	19.735	247	17.268
Campursari Village	0	0	0	0	0	0
Tegalroso Village	30	6.079	61	7.294	91	6.383
Depokharjo Village	0	0	0	0	0	0
Dangkel Village	16	3.250	32	3.899	49	3.412
Campursalam Village	35	7.013	70	8.416	105	7.364
Ringinanom Village	10	1.970	20	2.364	30	2.068
Watukumpul Village	18	3.690	37	4.429	55	3.875
Amount	373	74.556	746	89.467	1.118	78.284

Source : 2024 Compiler

Based on the Regulation of the Minister of Public Housing Number 11/PERMEN/M/2008 concerning Guidelines for the Harmony of Housing and Settlement Areas, a maximum utility infrastructure area of 30% is required and a minimum facility area of 15% of the planning area which has an area of > 100 ha so that in the Parakan Urban Area, an area is needed to support

housing needs as follows. This finding is in accordance with the rational-Comprehensive Planning theory, which emphasizes a systematic and data-based planning process by calculating population and family projections.

Table 7. Total Area of Housing Needs in Parakan Urban Area in 2043

Area (Ha)	1.433,93
Estimated House Addition in 2043 (Unit)	2.237
Total Housing Needs in 2043 (Ha)	24,23
Infrastructure and Utilities Provision Needs (30%) (Ha)	7,26
Facility Requirement Area (15%) (Ha)	3,63
Total Area Requirement (Ha)	35,13

Source : 2024 Compiler

The calculation results state that 35,13 hectares of land is needed to meet housing needs supported by adequate utilities and facilities in the Parakan Urban Area.

3.4. Land Availability

Land availability analysis was conducted to determine the availability of land in the Parakan Urban Area WP so that it can function as a residential area. This analysis was conducted with data including built-up land (roads and settlements), conservation land (LSD, spring boundaries, and river boundaries), and green open space (parks, cemeteries, and fields). (Kaunang et al., 2024). Variables that are overlaid or overlapped using the Arcgis 10.8 application are protected function areas that can prevent damage to environmental functions and continue to preserve the functions of soil, water, climate, animal and vegetable. (Zhang & Li, 2022). The following table shows the land area that can be developed and cannot be developed.

Table 8. Developable and Undevelopable Land Area

No	Description	Area (Ha)
1	Land can be developed	243,97
2	Land cannot be developed	1.189,97

Source : 2024 Compiler

Land that cannot be developed is larger than land that can still be developed. Where the area of land that cannot be developed has an area of 1,189.97 ha. While land that can still be developed is 243.97 ha. The land area is obtained from the results of overlays that have been carried out.
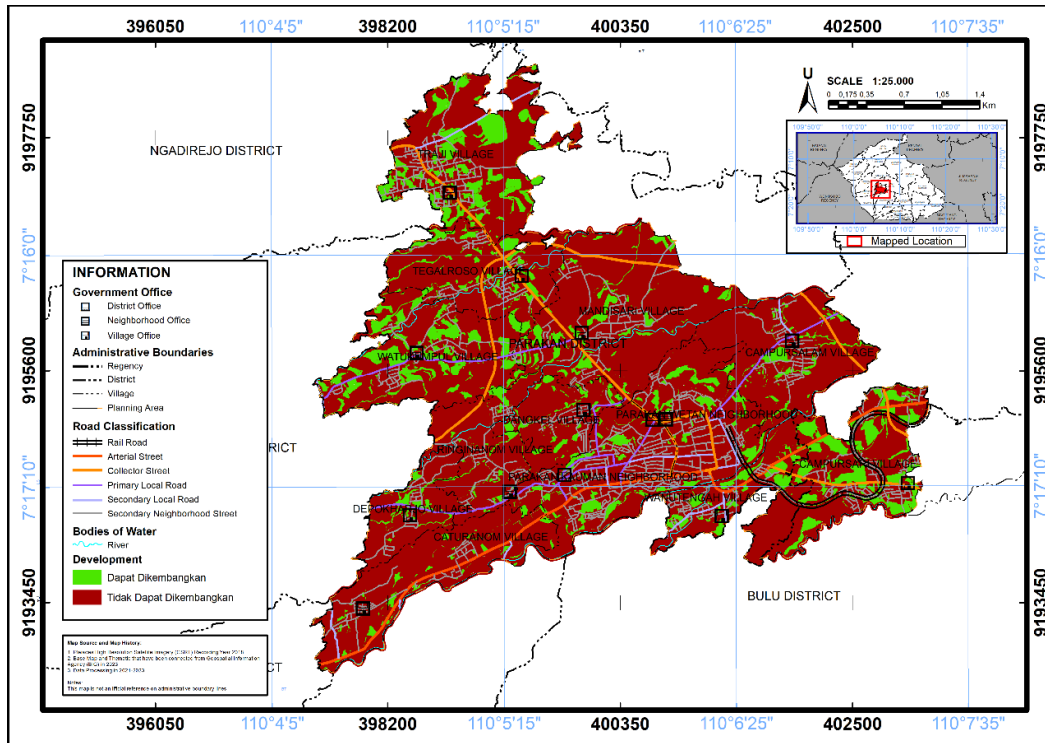
Figure 3. Map of Land Availability in Parakan Urban Area
Source : 2024 Compiler

4. CONCLUSIONS

Based on the results of the housing demand projection analysis in the Parakan Urban Area of Temanggung Regency, the population is estimated 63,718 people by 2043 with a projected number of families of 15,930. Ongoing urbanization has driven an increase in the demand for adequate housing, making housing provision a strategic issue in the spatial planning of this area. Areas with increasing population growth due to urbanization so that the provision of housing is the main concern of spatial planning. Backlog of housing needs in 2043 there are 2,237 units with land requirements based on the class of the house with details of the number of big house needs in the Parakan Urban Area as many as 373 units with an area ($200 m^2$) of 74.555,73 m^2; medium house ($120\ m^2$) of 89,466.88 m^2 with a total of 746 units; small house of 78,283.52 m^2 with a total of 1,118 units. Overall the area of housing needs with facilities (15%), infrastructure and utilities (30%) amounted to 35,13 ha. In 2043, Parakan Urban Area has 243,97 ha of land that can be developed as housing land, while projected housing need in 2043 are only 35,13 ha.

The calculation results indicate that the available land for residential development in this area can still adequately accommodates. This underscores the importance of integrating the results of this assessment of land needs and availability into the update of the Parakan Detailed

Spatial Plan (RDTR) as a basis for more accurate and adaptive policy-making in response to regional growth dynamics. Practically, local governments and stakeholders need to align housing development with land use planning instruments to ensure efficient use of space and accessibility to basic service in the Parakan growth zone.

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