

Identification of potentially favorable areas for the transformation of summer cottages into permanent residence in Raseborg municipality

GIS Method for area selection

Hanna Tsyvinskaya

Bachelor's degree of Natural Resources

Degree Programme in Sustainable Coastal Management

Ekenäs, 2021

Bachelor's thesis

Author: Hanna Tsyvinskaya

Degree Sustainable Coastal Management

Supervisor(s): Minttu Peuraniemi, Ruslan Gunko, Stefan Heinänen

Title: Identification of potentially favorable areas for the transformation of summer housing into permanent housing in Raseborg municipality

Date: 19.04.2022 Number of pages: 72 Appendices: 43

Abstract

Traditionally Finland has been home to the largest number of summer cottages in the world. In 2019, there were over half a million summer cottages in Finland. However, the purpose of summer cottages has begun to change. And many owners want to transform their summer cottage to their place of permanent residence.

The municipality of Raseborg is in its "land-use picture" considering potentially suitable locations for transforming summer cottages into permanent residences. On the one hand, this will help the municipality to attract new permanent residents and promote the development of settlements. However, this also means an increase in the pressure on urban services, given that many summer cottages are located far from inhabited agglomerations. That is why, in addition to the building condition, the remoteness of the summer cottage from the most important urban infrastructures must also be assessed.

Thus, the aim of the work was to assess the location of summer cottages in the municipality of Raseborg from main infrastructures and identify the most favorable locations for the transformation of a summer cottage into a permanent residence, using QGIS analysis.

The scattered location of summer cottages in Raseborg municipality means limited areas are available for converting SC into a permanent housing.

Language: English

Key Words: Summer cottages, permanent residence, GIS-analysis

EXAMENSARBETE

Författare: Hanna Tsyvinskaya

Utbildning och ort: Sustainable Coastal Management

Handledare: Minttu Peuraniemi, Ruslan Gunko, Stefan Heinänen

Titel: Identifiera potentiellt gynnsamma områden för omvandling av sommarbostäder till permanentboende i Raseborgs kommun

Datum: 19.04.2022 Sidantal: 72 Bilagor: 43

Abstrakt

Finland har traditionellt sett varit hem för det största antalet sommarstugor i världen. År 2019 fanns det över en halv miljon sommarstugor i Finland. På senare tid har dock syftet med sommarstugor börjat förändras. Och många ägare vill nu göra en sommarstuga till sin permanenta bostad.

Raseborgs kommun överväger i sin markanvändningsbild potentiellt lämpliga lägen för att omvandla sommarstugor till permanentboende. Å ena sidan ska detta hjälpa kommunen att attrahera nya permanenta invånare och främja utvecklingen av bebyggelse. Detta innebär dock också en ökad belastning av stadstjänster, med tanke på att många sommarstugor ligger långt från bebodda tätorter. Därför måste man förutom byggnadsskicket även bedöma sommarstugans avstånd till de viktigaste urbana infrastrukturerna.

Detta arbete är en bedömning av läge för sommarstugor i Raseborgs kommun och identifierar de mest gynnsamma lägena för omvandling av en sommarstuga till permanentbostad.

Syftet med arbetet var alltså att utifrån huvudinfrastrukturer bedöma lokaliseringen av sommarstugor i Raseborgs kommun och identifiera de mest fördelaktiga lägena för omvandling av en sommarstuga till permanentbostad, med hjälp av QGIS-analys.

Det spridda läget för sommarstugor i Raseborgs kommun gör att det finns begränsade ytor för ombyggnad av sommarstugor till permanentbostad.

Språk: Engelska

Nyckelord: Sommarstugor, permanentboende, GIS-analys

OPINNÄYTETYÖ

Tekijä:

Koulutus ja paikkakunta: Sustainable Coastal Management

Ohjaaja(t): Minttu Peuraniemi, Ruslan Gunko, Stefan Heinänen

Nimike: Identification potentially favorable areas for the transformation of summer housing into permanent housing in Raseborg municipality

Päivämäärä: 19.04.2022 Sivumäärä: 72 Liitteet: 43

Tiivistelmä

Suomessa on perinteisesti ollut eniten kesämökkejä koko maailmassa. Vuonna 2019 Suomessa oli yli puoli miljoonaa kesämökkiä. Viime aikoina kesämökkien käyttötarkoitus on kuitenkin alkanut muuttua. Ja monet omistajat haluavat tehdä kesämökistä nyt pysyvän asuinpaikan.

Raaseporin kunta harkitsee myös maankäyttökuvassaan mahdollisesti sopivia paikkoja kesämökkien muuttamiseen vakituisiksi asunnoiksi. Yhtäältä tämä auttaa kuntaa houkuttelemaan uusia vakituksia asukkaita ja edistämään asutuskehitystä. Tämä merkitsee kuitenkin myös kaupunkipalvelujen kuormituksen kasvua, koska monet kesämökit sijaitsevat kaukana asutuista taajamista. Siksi rakennuksen välittömän kunnon lisäksi on arvioitava myös kesämökin etäisyys tärkeimmistä kaupunki infrastruktuureista.

Tämä työ on arvio Raaseporin kunnan kesämökkien sijainnista ja tunnistaa suotuisimmat paikat kesämökin muuttamiselle vakituisiksi asuinpaikaksi.

Näin ollen työn tavoitteena oli arvioida Raaseporin kunnan kesämökkien sijaintia pääinfrastruktuureista ja tunnistaa suotuisimmat paikat kesämökin muuttamiselle vakituisiksi asuinpaikaksi QGIS-analyysin avulla.

Raaseporin kunnan kesämökkien hajallaan oleva sijainti tarkoittaa, että kesämökkien muuttamiseen vakituisiksi asunnoksi on rajallisesti alueita.

Kieli: Englanti

Avainsanat: Kesämökit, vakituinen asunto, paikkatietoanalyysi

Table of Contents

1	Introduction.....	1
1.1	Aim and Objectives	4
2	Methods	4
2.1	Questionnaire (for owners of summer cottages)	4
2.2	Review of the relevant literature.	5
2.3	Description of used criteria	7
2.3.1	Water services network	7
2.3.2	Road network.....	8
2.3.3	Schools	9
2.3.4	Grocery store.....	10
2.3.5	Permanent settlements.....	11
2.3.6	Elderly services	12
2.4	Data processing in GIS.....	13
3	Results.....	14
3.1	District analysis.....	14
3.2	Multi-criteria analysis	17
3.3	Survey result	19
4	Discussion.....	23
5	Conclusion	26
6	References	27
7	Appendix	29
7.1	District analysis.....	29
7.2	A list of questions that were used in the questionnaire	72

1 Introduction

The second home ownership, or having a summer cottage, is a local phenomenon in Finland related to cultural and recreational features (Pitkänen, 2011). Usually, such cottages are located outside the cities or towns, in an attractive natural area, and has characteristic of temporal usage (typically in summer). There are several options for interpreting such housing: holiday house or vacation house, since this building can be used not only in summer but also during other periods of the year. In this work, the name summer cottage (hereafter, SC) will be used for such dwellings.

SC are traditional for the countries of northern Europe (Adamiak et al., 2015, p. 7). According to the official statistics, there were over half a million summer cottages in Finland in 2019 (OSF, 2019). It is very typically to spend the summer season in a house close to nature. Finland ranks first in the world in terms of the number of SC per 1000 inhabitants (91 SC/1000) (Adamiak et al., 2015, p.8). One in five municipalities in Finland has more summer cottages than permanent houses (Vepsäläinen et al., n.d.). Moreover, 15% of Finnish residents own SC and about three million residents have access to SC by using relatives' or friends' cottages (Hiltunen et al., 2014).

The municipality of Raseborg is one of the ten municipalities in Finland with the largest number of SC. It has 6779 SC in total or 245 per 1000 inhabitants (OSF, 2019). The distribution of the cottages in Raseborg is presented in Figure 1. However, SC are distributed mainly along the coastline of the sea in such districts such as Höstnäs, Västervik, Älgö and Strömsö (Figure 2).

Distribution of summer cottages

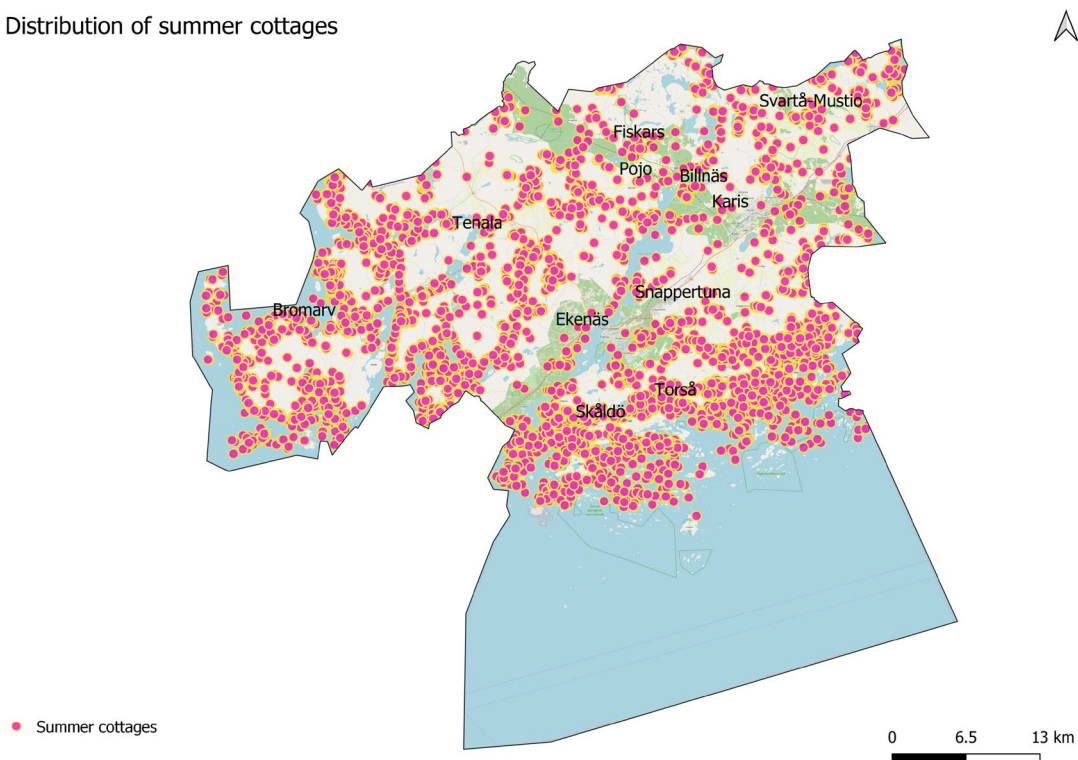


Figure 1. Distribution of summer cottages in Raseborg municipality

Density of summer cottages in Raseborg (1km*1km)

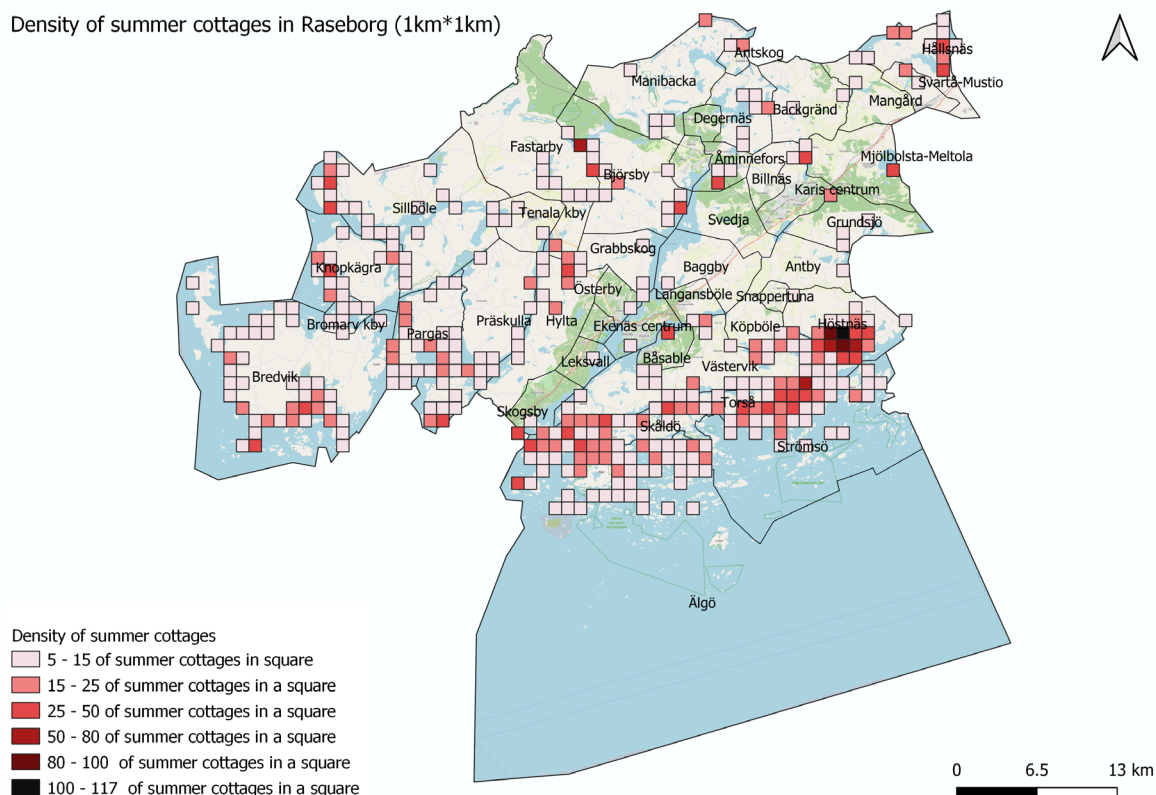


Figure 2. Density of summer cottages in Raseborg municipality

On average, Finns spend about 72 days a year in their summer cottages (OSF, 2004). Many municipalities, especially in semi-detached and sparsely populated areas (e.g. Vihtis, Korsholm), see a positive effect from the fact that many residents spend their holidays in summer cottages. During their vacation, owners/users of cottages buy food in local food stores, use local restaurants and cafes, hobby places (such as cinema, bowling hall, tennis courts, etc.), and pay for use of local infrastructure (e.g. boat parking in harbor, service, etc.). Undoubtedly this has a positive effect on the domestic economy through supporting the local business (Adamiak et al., 2015). The economic benefits of leisure in a summer cottage for Finnish municipalities, with such residences range from 4.5 to 7.4 billion euros per year, the phenomenon of seasonal living in summer cottage is equated to tourism for municipalities (Vepsäläinen et al., n.d.).

Nevertheless, recently the purpose of the summer cottage has changed and more and more people see it as a permanent residence (Adamiak et al., 2015, p.10). As a result of the legislative reform in 2011, the municipalities were given an opportunity to change the designation of a summer cottage for permanent housing (Vepsäläinen et al., n.d.). The desire of a stable economic growth of a municipality is a cause of developing incentive programs for permanent residence in a summer cottage. One illustrative example is the Kimito municipality, where a 500-euro voucher program was introduced in 2021. This program is intended for the purchase of services from a qualified building planner. The building planner indicate to the owner of the summer cottage the steps need to be taken and the costs involved in the process in order for the home to be approved by the

municipality as permanent. Thus, the owner of the summer cottage uses a 500-voucher for a professional consultation from the planner (Kimitoön, n.d.).

Raseborg municipality demonstrates interest in creation of programs and guidelines aiming to increase interest in conversion of SC into permanent residence housing. Due to its location along the coast in South-West of Finland, it has significant importance for recreational purposes. The municipality has a number of beautiful natural objects: such as the national park of the archipelago and nature protection zones (Visit Raseborg, n.d.). Raseborg has a fairly large area of 2354 km², and it includes about 1300 islands, which attracts tourists and cottage inhabitants. During the summer population in Raseborg is increasing up to 50% (Gunko et al., 2022).

The City council in Raseborg analyzed a number of applications for the transformation of the summer cottage into permanent residence in the municipality for the period of 2015-2020. During the mentioned period, in total 25 applications were received and 20 of them got permission to convert the cottage into a permanent residence place (Figure 3).

Locations of summer cottages that have been (not) converted into permanent housing

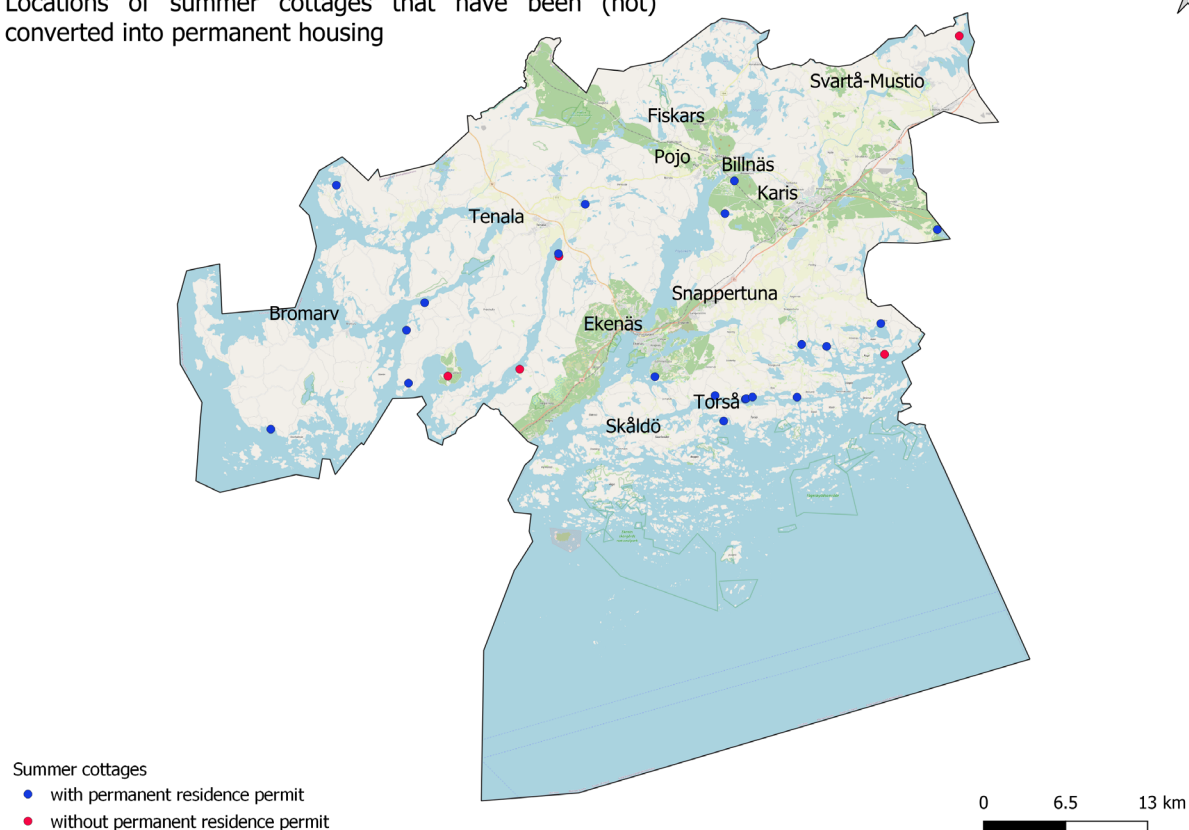


Figure 3. Location of summer cottages that have been (not) converted into permanent housing

These permits were issued on a basis of location and the condition of the building itself. At the moment there is no unified process and fixed criteria for considering an application for permanent residence in a summer cottage in Raseborg municipality. Thus, there is a need for developing guidelines for converting a cottage into a permanent house including a list of selected criteria, both for applicants and policymakers.

By the concept, summer cottages are mainly detached houses, many of which are located remotely from city services. In Finland, 81% of summer houses are on the waterfront, away from urban and rural structures (Vepsäläinen et al., n.d.). Therefore, it is important to assess not only the condition of the house and how it is equipped, but also to assess its access to the most important infra structures and services -for understanding the potential pressure on the municipality.

1.1 Aim and Objectives

The purpose of this project is:

- to determine, what criteria are most important when assessing if the location of a summer cottage is suitable for the transformation into a permanent residence place
- to identify the most suitable locations for transforming summer housing into a permanent residence place based on selected criteria
- to map the most favorable places for transforming summer housing into a permanent residence place

This work was written in cooperation with the the Municipality of Raseborg. The results of this work should serve the municipality as an auxiliary guide that can be used in writing a land-use plan, a picture of urban development, and for considering individual applications for the transformation of a summer cottage into permanent housing in Raseborg.

2 Methods

2.1 Questionnaire (for owners of summer cottages)

The survey was conducted to identify the relevance of the issue of the transformation of summer cottages into permanent housing among owners of vacation cottages in Raseborg, and to investigate how the COVID-19 pandemic affected the opportunity of moving to summer cottages for permanent housing.

I used the “Webropol” web-service for creation of the questionnaire and collection of responses (webropol, n.d.). This web service is used for surveys by the Raseborg municipality.

The questionnaire was available in three languages: Finnish, Swedish (official languages) and English. The questionnaire consisted of 16 questions. However, results of six questions are presented in work - which are most relevant to the topic of the thesis. A complete list of questions that were used in the questionnaire is given in the Appendix.

2.2 Review of the relevant literature.

Due to the absence of national-wide guidelines in the selection of a cottage suitable for transforming into a permanent residence place, the criteria were selected based on similar works done by other municipalities. However, the limiters (maximum distance from the summer cottage for selected criterion) for each criterion were adapted in accordance with the features of the Raseborg services. Some municipalities (Vihtis, Korsholm) have used two limiters for each criteria. Thus, creating a rank of summer cottages. Summer cottages that meet the criterion with the smallest limiter have a higher rank. The comparative table according to the criteria and limiters used in different municipalities is presented in Table 1.

Table 1: Analysis of the criteria used to assess location in different municipalities in Finland

Vihtis (Destia OY. 2017)	Korsholm (Sweco Ympäristö Oy. 2020)	Kangasala (Kangasala, n.d.)	Alavo (J. Paavola, 2020)	Loppis (Loppi: Tekninen ja Ympäristö, n.d.)
The location of the summer cottage in relation to				
Schools (limiter: 3 km. and 5 km.)	Schools (limiter: < 3 km. and 5 km.)			
Grocery store (limiter: 10 min. by car)	Grocery store (limiter: <2 km. and 2-3 km)			
Water supply network (limiter: 100 m.)	Water supply network (limiter: 250 m. and 500 m.)	Close to water services network	Possibility to connect to the municipal water supply	Close to water services network
Road network (limiter 100 m. and 500 m.)	Road networks (limiter: 250 m. and 250-500 m.)	Transformation isn't possible if SC located near hazardous road sections	Close to the road network	Good and well-maintained road connections lead to the property
	Close to permanent settlements (limiter: 250 m and 500 m.)	Close to municipal services: such as school, shops kindergarten and library	Close to permanent building around of	Close to permanent settlement

Vihtis (Destia OY. 2017)	Korsholm (Sweco Ympäristö Oy. 2020)	Kangasala (Kangasala, n.d.)	Alavo (J. Paavola, 2020)	Loppis (Loppi: Tekninen ja Ympäristö, n.d.)
The location of the summer cottage in relation to				
			summer cottage	
Transformation isn't possible if SC located in protected areas (Natura-2000)				
Close to waterbodies (limiter: SC located 100 m. from the water have to modernize domestic wastewater systems)				

The selection of potential criteria important for the transformation of SC to the permanent residence places is executed by reviewing the literature described above.

The main criteria that were chosen to assess the location of the summer cottage in the scope of access to the city services for Raseborg municipality were the following:

- Location concerning the road network (maximum distance for the SC available for the transformation is 100 meters from the road network)
- Location concerning the water network (maximum distance is 100 meters from the water network)
- Location concerning the school (maximum distance is 5000 meters from the school)
- Location concerning the grocery store (maximum distance is 5000 meters from grocery stores)

- Location concerning permanent settlements (SC located within borders of permanent settlements)
- Location concerning elderly services (maximum distance is 5000 meters from elderly services)

2.3 Description of used criteria

After the review of the approaches used by different municipalities and the data related to Raseborg municipality, the following approach for selecting criteria in Raseborg was build. Below the final criteria and the maximum distance from the criterion to the summer cottage that was used to analyze each district in Raseborg municipality (Table 2).

Table 2: Criteria with limiter and number of summer cottages for each criteria

Criteria	100 meters	250 meters	500 meters	5 km.	Within	Number of SC with access to a certain criteria
Water services network	×					235
Grocery store (permanent)				×		508
Grocery store (seasonal)				×		84
School				×		1765
Road network	×					1814
Permanent settlements					×	320
Elderly services				×		177

2.3.1 Water services network

The Ministry of the Environment has set standards for the quality and temperature of domestic water, and the operation of water equipment (1047/2017) (Finlex, 2019). Therefore, one of the most important factors is the possibility of connecting to the central water supply network. For the potential transformation of the summer cottage into permanent residence, there must be a sufficient amount of domestic water that meets the quality standards.

The connection fee to the Raseborg Water Network is around 8000 € (additional fee for the installation work from house to a connection point). Connection to the city water supply is possible only at a maximum distance of 20 meters to the connection point in the area where the city plan is in force and 100 meters to the connection point in the area outside the city plan. Consequently, the preferred locations for this criterion are those that are located near the water supply network (100 meters and closer). This category includes 235 summer cottages (Figure 4).

Location of summer cottages in relation to water services network

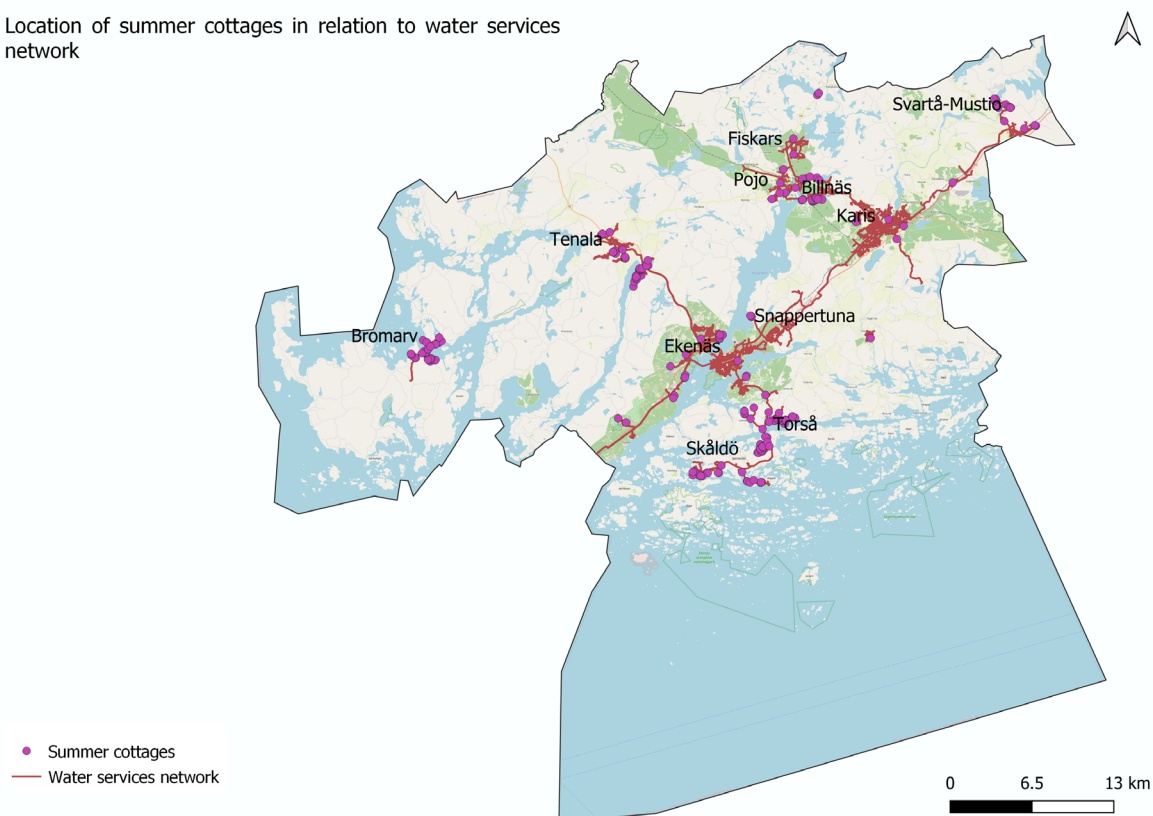


Figure 4: Placing of summer cottages that are located at distance 100 m. from the water services network in Raseborg municipality

2.3.2 Road network

One of the most important factors that determine the possibility of converting a summer cottage into a permanent place of residence is its remoteness from the road network. Very often the roads to the summer cottages are narrow and difficult to pass during the winter or harsh weather conditions, while for a permanent place of living, a summer cottage must have a year-round entrance. The road must be wide enough so that emergency vehicles and garbage collection vehicles can freely drive up to the cottage. Additionally, the road should allow for rescue operations if necessary.

Maintaining urban roads is economically costly for the municipality. Depending on the class of the road, the municipality spends for road maintenance from 340 to 615 euros per kilometer, and clearing the road from snow is about 500€/km in a season (Liljedal et al., 2006).

The preferred locations of the cottages for this criterion are those that are located near the road network (100 meters and closer). Both municipal and private roads were included in the road network. The remoteness of the summer cottage from the road network is the dominant criterion, and it is significantly important for the potential transformation of a summer cottage into permanent housing.

In Raseborg this category includes 1814 summer cottages (Figure 5).

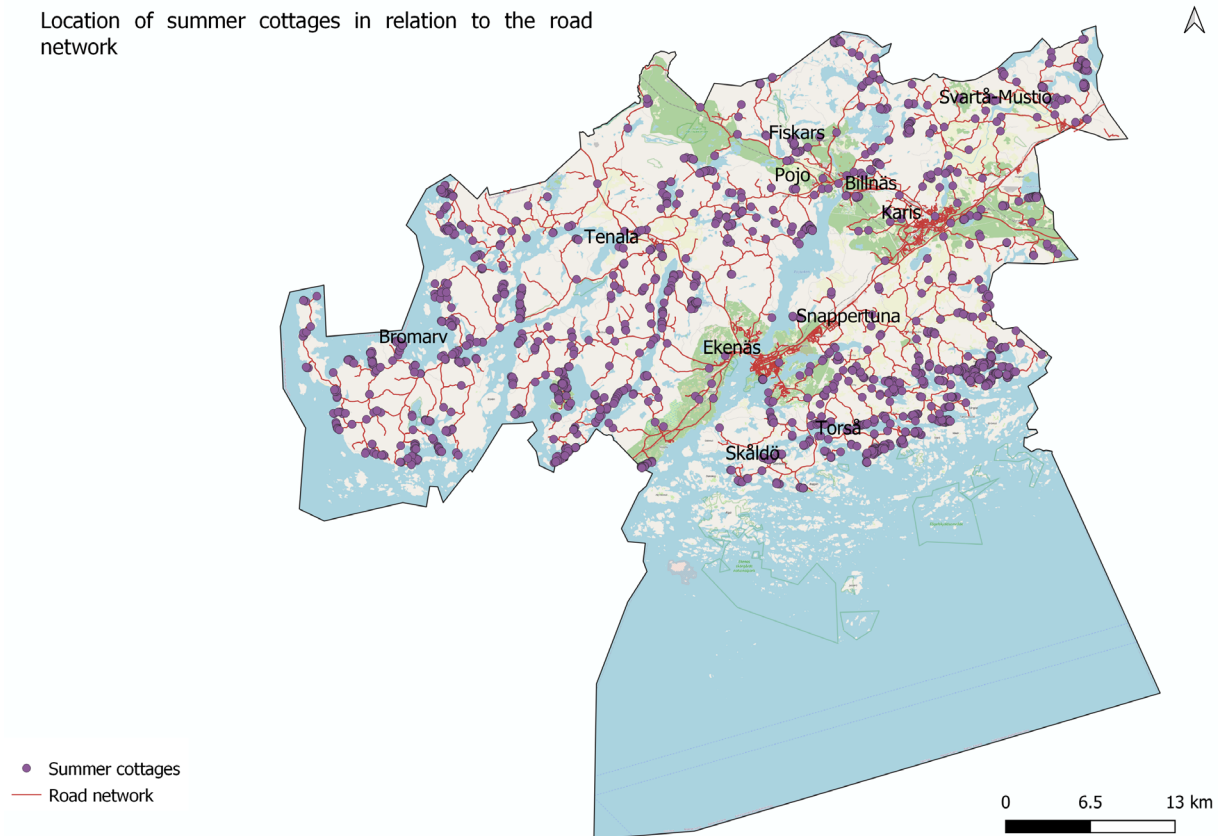


Figure 5: Placing of summer cottages that are located at distance 100 m. from the road network in Raseborg municipality

2.3.3 Schools

According to the Finnish Law, schoolchildren are entitled to have a free school trip if the one-way road exceeds 3 km. (for students of 1-2 school level) and 5 km in one direction (for students of 3-9 school level). The increase in the number of students in the municipality is leading to an increase in transport costs. The average cost of transporting school child is 2600 euro/year (FCG, 2020). Thus, it makes the remoteness of the summer cottage from the school to be the significant factor that should be taken into consideration.

Based on the data above, the limiter for this criterion is 5 km (Euclidean distance), and this category includes 1765 summer cottages in Raseborg (Figure 6).

Location of summer cottages in relation to schools

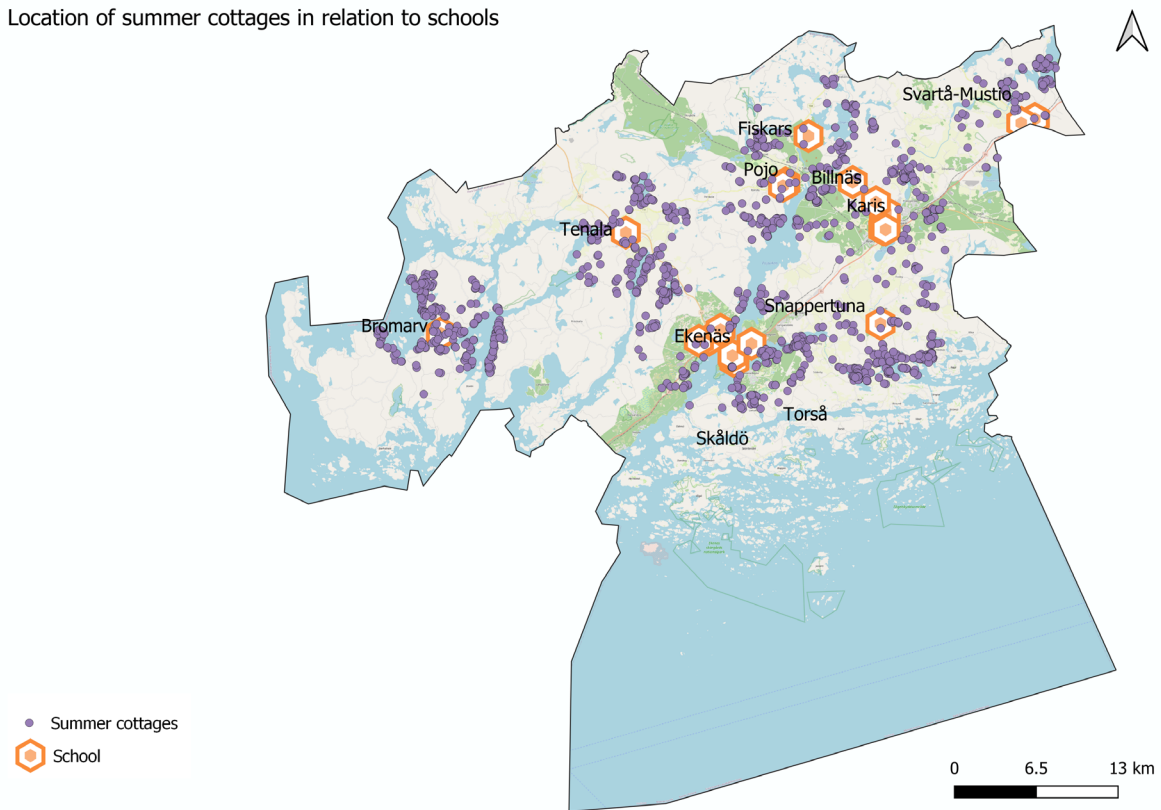


Figure 6: Location of summer cottages in relation to schools (distance ≤ 5 km.) in Raseborg municipality

2.3.4 Grocery store

A total number of grocery stores in Raseborg municipality is 16, two of which are seasonal. The seasonal stores are located in Skogby and Sandnäs. The permanent stores are located in Ekenäs, Karis, Pojo, Fiskars, Tenala, Bromarv and Svartå.

The distance to the closest grocery store criterion is considered as one of the most important and frequently used by city services in their approaches to the summer cottage transformation. According to a study in other municipalities described – the distance from permanent grocery store should preferably not exceed 5 km. However, it should be noted that if the cottage has access to the other criteria used in this analysis but the distance to the store is more than 5 km - such a cottage can also be considered for use on a permanent basis. Distance to grocery store was calculated along the road.

Total number of summer cottages which are located closer than 5 km. to permanent grocery store is 508

Total number of summer cottages which are located closer than 5 km. to seasonal grocery store is 84.

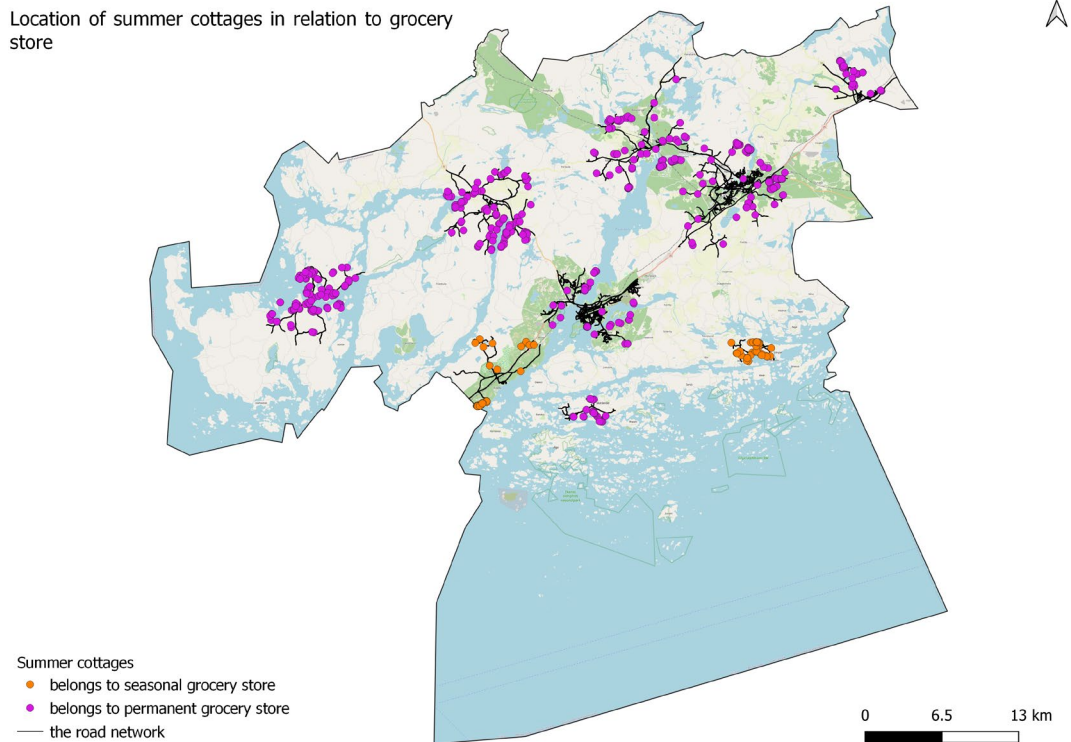


Figure 7: Location of summer cottages in relation to grocery stores (distance ≤ 5 km.) in Raseborg municipality

2.3.5 Permanent settlements

The location of summer cottages on territory of permanent settlements ensures the availability of the necessary services and infrastructure. In addition, these settlements are under the planning of the municipality, which contributes to their further development.

Permanent settlements are characterized as a set of dwellings, access to the job market, services, infrastructure, green spaces, and transport network. (Paikkatiedot ja kaukokartoitus, n.d.)

In Raseborg, the vast majority of summer cottages are located outside the permanent settlements' areas and do not form clear agglomerations and are located remotely from each other. The total number of summer cottages which are located on the territory of permanent settlements is 320 (Figure 8).

Location of summer cottages in relation to permanent settlements

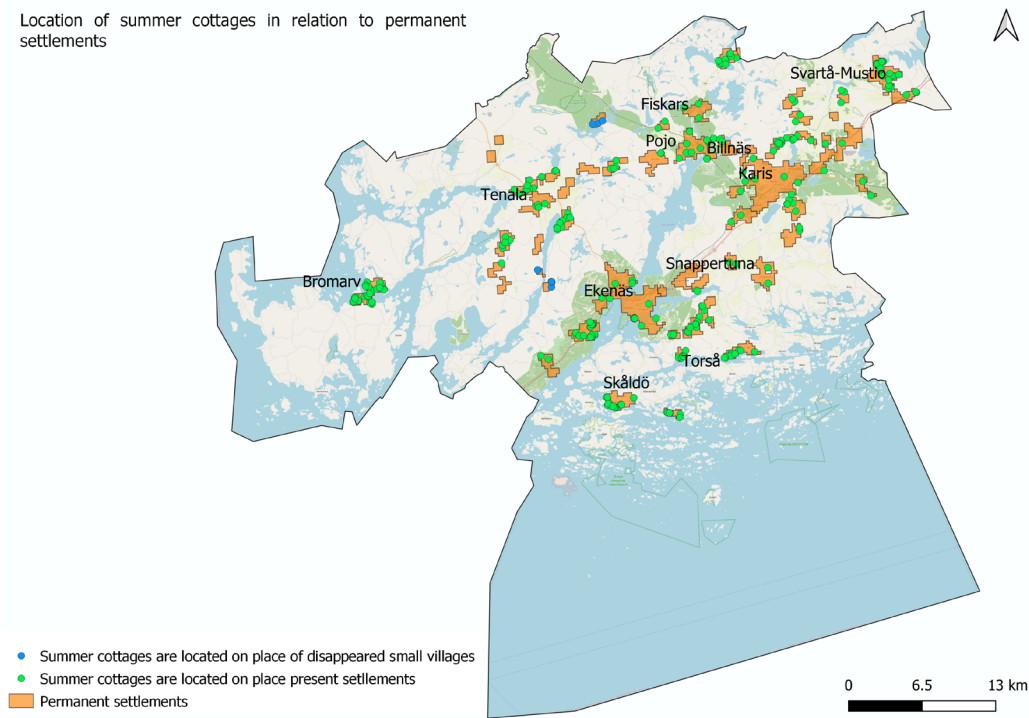


Figure 8: Placing of summer cottages that are located within permanent settlements in Raseborg municipality

2.3.6 Elderly services

Since the average age of the owner of a summer cottage is 63 years old (OSF.2019), it is important to assess the remoteness of the summer cottage from services that provide services for senior citizens (home visits to the elderly to help with daily needs and also round-the-clock care in special homes when the elderly cannot live anymore and themselves at home).

Services for the elderly are located in four agglomerations: Ekenäs, Karis, Pojo and Tenala. (Servicenätutredning., 2019). The first three of them are the most densely populated areas in Raseborg municipality.

For the analysis of the accessibility the current home care services for the elderly were mapped. It was estimated that the number of summer cottages located in the buffer zone 5 km from the center for the elderly, where a full range of services are provided. The total number of summer cottages located within 5 km is 177 (Figure 9). Such a small number of summer cottages that meet this criterion indicates that most summer cottages are located far from services for the elderly and if they are converted into permanent housing, the load on services for the elderly will increase significantly.

Location of summer cottages in relation to elderly services

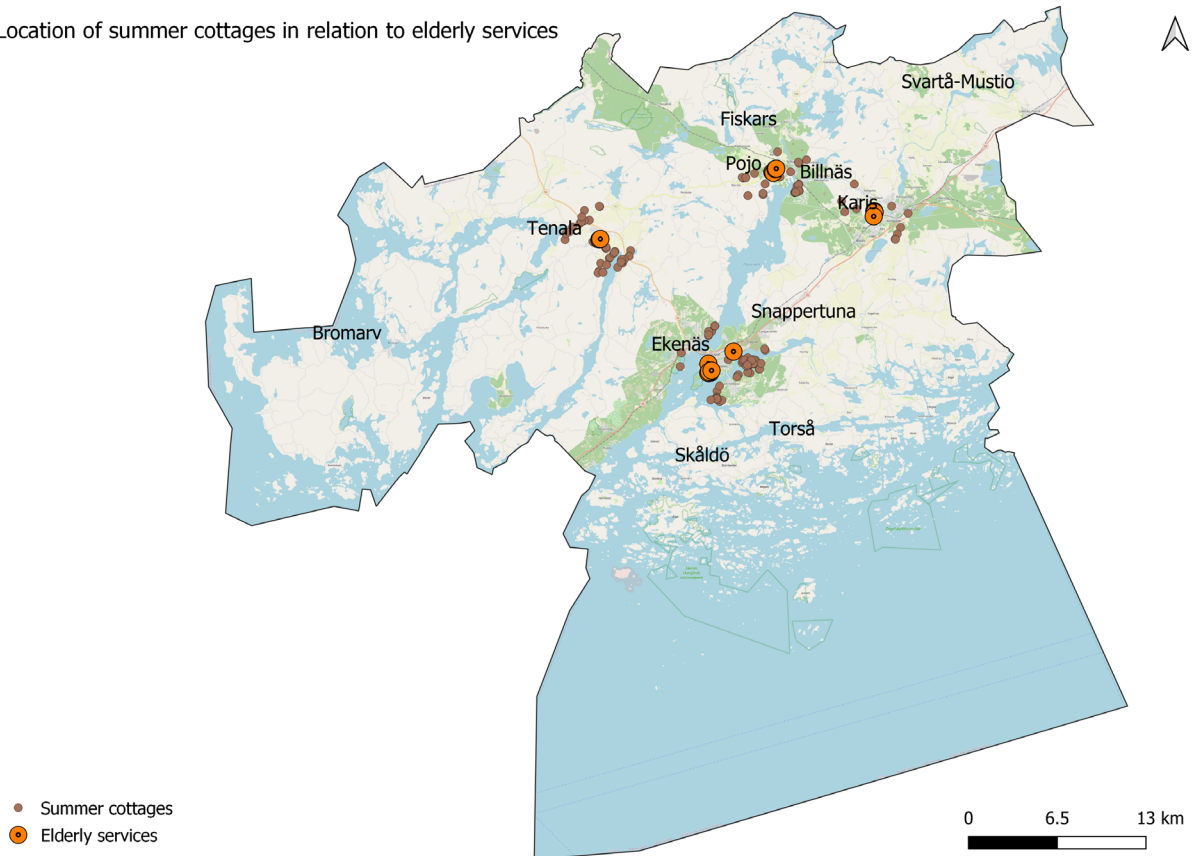


Figure 9: Placing of summer cottages that are located at a distance 5km. from elderly services in Raseborg municipality

2.4 Data processing in GIS

The data used for the spatial analysis was provided by the municipality of Raseborg (collected during the internship in the City council)

The following software was used to analyze and map the collected data: QGIS (Release 3.10, QGIS Development Team ,2022) and ArcGIS Pro (Release 2.8.0 ESRI, 2021)

Main functions used in QGIS:

- Selection function (used to view SC with specific value)
- Join function (used to connect SC with a specific district of Raseborg municipality)
- Buffering (used to make a buffer of a certain distance around a single criteria)
- Service area (used to calculate distance along of the road from grocery store)

Main functions used in ArcGIS Pro:

- Euclidean distance (used to generate a raster layer for each criterion)
- Raster calculator (used in order to set a limiter for all criteria and get areas that correspond to the specified conditions)
-

The GIS-analysis of the SC and the territory was carried out using two different approaches:

- The first approach is the “district analysis”, which analyzed the summer cottages of a particular district in Raseborg, where the number of summer cottages that met the criterion under investigation was analyzed. Summer cottages were analyzed according to the following criteria (but not in aggregate, for a single criterion): grocery (permanent, seasonal) – distance 5000 m., school – 5000 m., the road network – 100m., the water services – 100m., elderly services – 5000m., permanent settlement – within.
- The second approach was already based on the study of the area of Raseborg (not summer cottages). Where it was found out which areas of Raseborg corresponds to the given criteria (grocery (only permanent)– distance 5000 m., school – 5000 m., the road network – 100m., the water services – 100m.)

3 Results

3.1 District analysis

The selection criteria description specified in the previous section was applied to Raseborg municipality. For the detailed analysis, the municipality area was divided according to the administrative division borders (Figure 10). This approach is given an opportunity to compare and select districts most suitable for the transformation of the summer cottage into a permanent residence (see Table 3; for detailed information about each district see Appendix 1).

District of Raseborg municipality

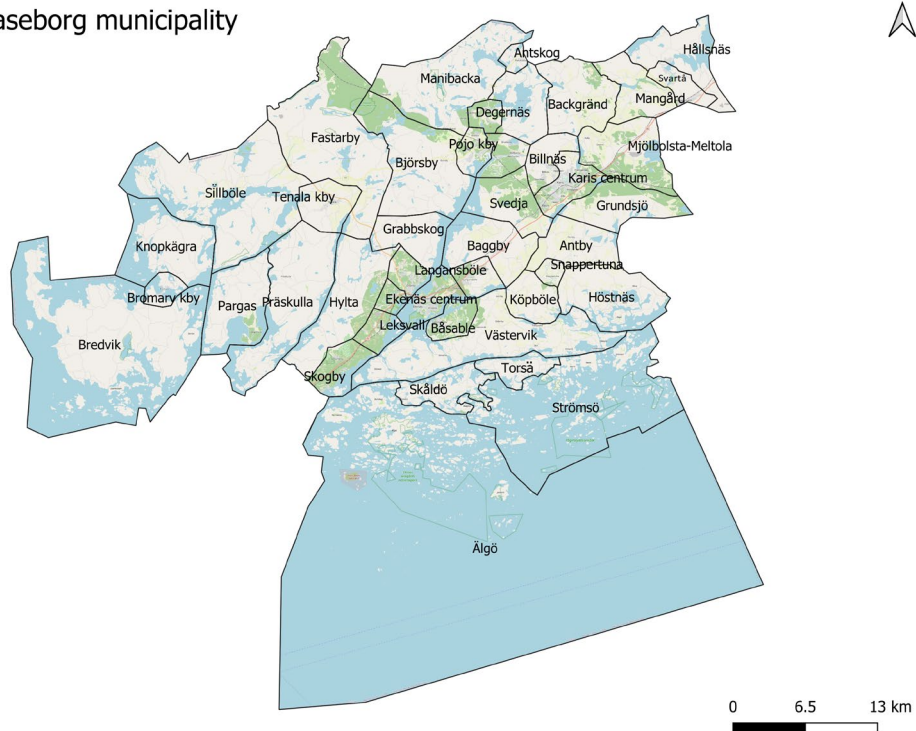


Figure 10: Districts of Raseborg municipality

Table 3: Comparative table of Raseborg districts by criteria availability (in % from total number of SC in a district)

District		Water services	Grocery store (permanent)	Grocery store (seasonal)	School	Road network	Elderly services	Permanent settlement
		limiter						
Name	Total number of cottages in the district	100 m.	5000 m.	5000 m.	5000 m.	100 m.	5000 m.	within
Antby	45	0%	20.0%	0%	48.8%	60.0%	0%	8.8%
Antskog	40	7.5%	20.0%	0%	20.0%	22.5%	0%	27.5%
Backgränd	75	0%	2.7%	0%	21,3%	45,3	0%	0%
Baggby	29	13.8%	55.2%	0%	79.3%	31.0%	0%	6.9%
Billnäs	30	3.3%	100%	0%	100%	36.7	13.3%	43.3%
Björnsby	204	0%	46.6%	0%	50.0%	37.7%	3.9%	5.4%
Bredvik	693	0%	10.5%	0%	10.5%	25.3%	0%	0%
Bromarv	56	57.1%	100%	0%	100%	46.4%	0%	62.5%
Båstable	57	7.0%	100%	0%	100%	21.0%	87.7%	8.7%
Degernäs	58	0%	98.3%	0%	98.3%	39.7%	0%	0%
Ekenäs	15	6.7%	100%	0%	100%	100%	100%	100%
Fastarby	207	10.6%	48.8%	0%	48.5%	36.3%	7.7%	9.7%
Fiskars	3	66.6%	100%	0%	100%	66.6%	0%	100%
Grabbskog	47	0%	46.8%	0%	55.3%	6.3%	0%	0%
Grundsjö	54	0%	35.2%	0%	37.0%	22.2%	5.5%	11.1%
Hylta	150	6.7%	22.0%	15.3%	56.6%	35.3%	0%	2.7%
Hållsnäs	190	0%	53.5%	0%	56.3%	38.9%	0%	0%
Höstrnäs	734	0%	0%	87.6%	21.1%	31.1%	0%	0%
Karis	26	11.5%	100%	0%	100%	53.8%	11.5%	15.4%
Knopkägra	201	0%	67.7%	0%	71.1%	22.9%	0%	0%

District		Water services	Grocery store (permanent)	Grocery store (seasonal)	School	Road network	Elderly services	Permanent settlement
		limiter						
Name	Total number of cottages in the district	100 m.	5000 m.	5000 m.	5000 m.	100 m.	5000 m.	within
Köpböle	73	0%	0%	5.5%	100%	50.7%	0%	0%
Langansböle	12	0%	91.7%	0%	100%	41.7%	16.7%	16.7%
Leksvall	24	20.8%	71.2%	20.8%	100%	20.8%	0%	83.3%
Mangård	23	0%	8.7%	0%	30.4%	39.1%	0%	13.0%
Manibacka	111	0%	31.5%	0%	31.5%	36.0%	0%	0.9%
Mjölbolsta	70	1.4%	28.6%	0%	34.3%	57.1%	0%	12.9%
Pargas	328	0%	23.5%	0%	24.4%	29.6%	0%	0%
Pojo	9	66.7%	100%	0%	100%	55.6%	100%	66.7%
Präskulla	285	0%	7.0%	0.3%	5.9%	37.2%	0%	3.2%
Sillböle	366	0%	4.6%	0%	5.5%	26.5%	0%	0%
Skogby	78	2.6%	7.7%	92.3%	0%	50.0%	0%	2.6%
Skåldö	217	22.6%	45.6%	0%	0%	25.8%	0%	11.1%
Snappertuna	2	50.0%	100%	0%	100%	100%	0%	100%
Strömsö	544	0%	0%	61.5%	0%	0%	0%	0.4%
Svartå	35	45.7%	100%	0%	100%	51.4%	0%	94.3%
Svedja	24	0%	100%	0%	100%	16.6%	0%	12.5%
Tenala	50	30.0%	100%	0%	100%	44.0%	66.0%	30.0%
Torså	201	0%	0%	12.9%	0%	52.3%	0%	0%
Trollböle	5	40.0%	100%	0%	100%	40.0%	60.0%	60.0%
Västervik	496	6.7%	26.2%	47.2%	27.2%	36.9%	0.2%	6.7%
Åminnefors	78	26.9%	100%	0%	100%	21.8%	24.4%	8.9%
Älgö	822	0.5%	60.2%	9.7%	0%	0%	0%	0.6%

District		Water services	Grocery store (permanent)	Grocery store (seasonal)	School	Road network	Elderly services	Permanent settlement
		limiter						
Name	Total number of cottages in the district	100 m.	5000 m.	5000 m.	5000 m.	100 m.	5000 m.	within
Österby	12	58.3%	100%	0%	100%	0%	91.7%	33.3%

Color definition for Table 3:

“No color” – from 0% to 19,99%

“Yellow” – from 20,00% to 39,99%

“Gray” – from 40,00% to 59,99%

“Blue” – from 60,00% to 79.99%

“Green” – from 80,00 to 100%

The districts that meet all selected criteria for the summer cottage transformation are Fiskars (3 summer cottages), Bromarv (56 summer cottages), Trollböle (5 summer cottages), Österby (12 summer cottages), Svartå (35 summer cottages), Pojo (9 summer cottages), Ekenäs (15 summer cottages). However, these districts have a small number of summer cottages.

At the same time, the districts with the most summer cottages: Älgö (822 summer cottages), Höstnäs (734 summer cottages), Västervik (496 summer cottages), Strömsö (544 summer cottages), Sillböle (366 summer cottages), Pargas (328 summer cottages) - aren't meet the selected criteria due to the remoteness from the service and infrastructure selected as criteria for selection.

3.2 Multi-criteria analysis

All the criteria were analyzed in aggregate to determine the most favorable areas for the transformation of summer cottages into permanent residence.

Due to the specific situation with the elderly services in Raseborg which forced service workers travel long distances within the municipality (e.g., Tenala service workers are responsible for Bromarv district), the distance to the elderly service criteria is removed from the multi-criteria analysis. The selected limiters for the area's evaluation are: distance

from water services (less than 100 m), distance from the road network (less than 100 m), distance from schools (less than 5000 m), distance from grocery stores less than 5000 m), and location within permanent settlements.

The map below shows the most preferred areas that meet the above criteria. The number of summer cottages that meet the multi-criteria analysis is 114. These cottages are located mostly within or near big settlements like Ekenäs, Karis, Svartå, Pojo, Tenala, and Bromarv (Figure 11).

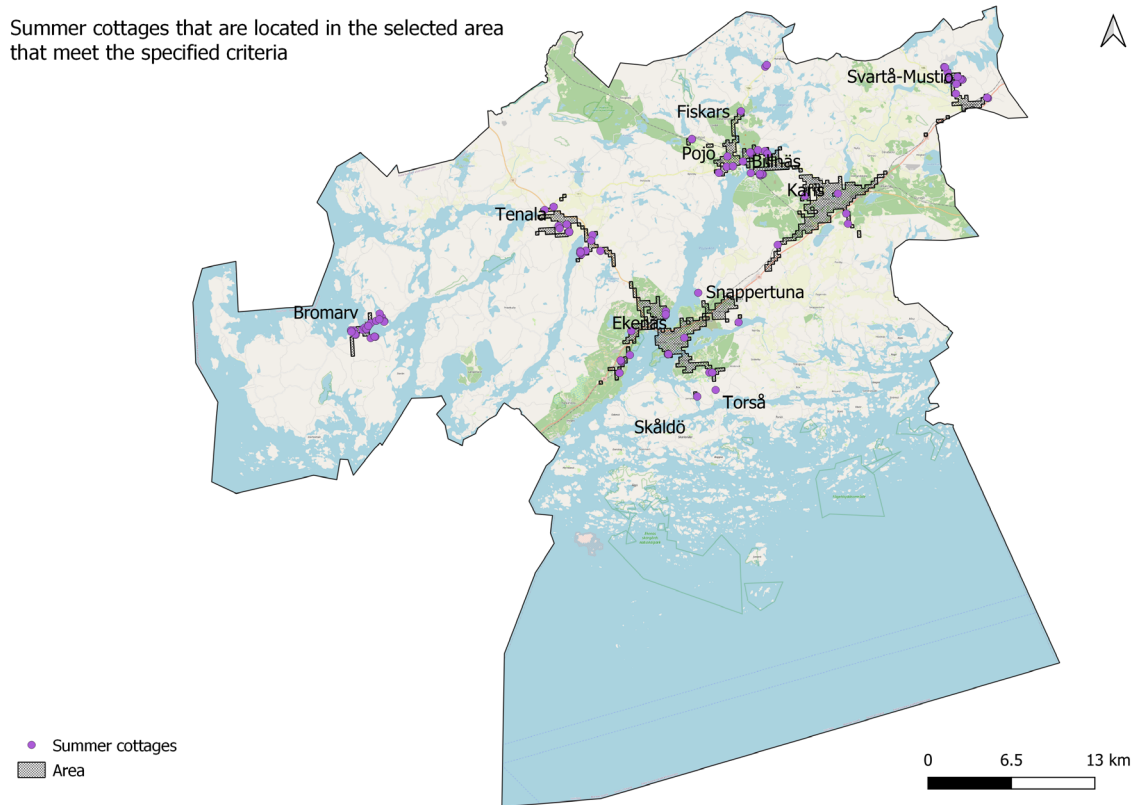


Figure 11: Areas matching the specified criteria: distance from the road network – 100 meters, distance from schools – 5000 meters, distance from grocery stores – 5000 meters. And summer cottages are located in the selected area that meet the specified criteria

Raseborg has areas that did not meet all criteria, but these areas have a big potential for transformation a summer cottage into permanent housing. This includes some areas that have access to the necessary infrastructure (road network and water supply). (Figure 12). Such areas can be favorable for the transformation of a summer cottage into permanent housing.

In addition to areas that match all specified criteria: water services network (less than 100 meters), the road network (less than meters), school (less than meters), grocery store (less than meters), was included are the following areas:

- Area has access to the water services network, the road network, school, seasonal store
- Area has access to the water services network, the road network
- Area has access to the water services network, the road network, grocery store
- Area has access to the water services network, the road network, seasonal store

Thus, the area available for the transformation of summer cottages has been expanded. Number of summer cottages located in these areas – 153.

The most favorable areas for transformation of summer cottages into permanent housing

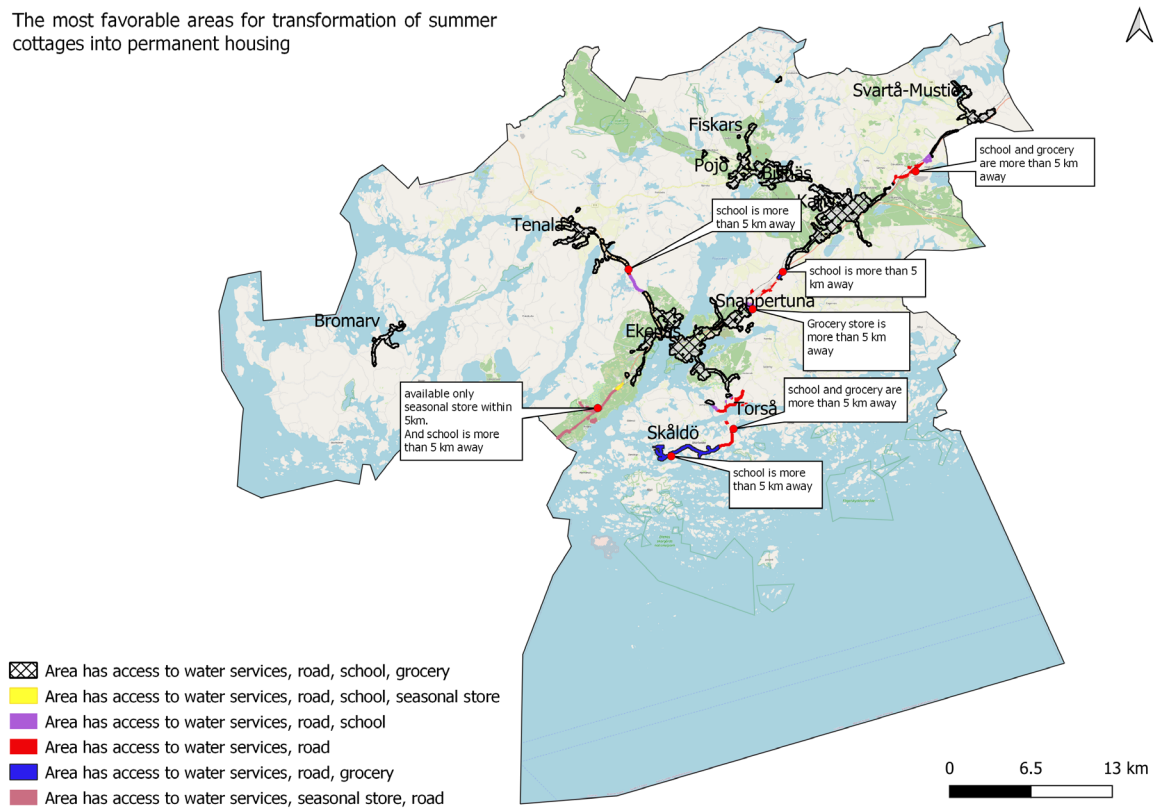


Figure 12: The most favorable areas for transformation of summer cottages into permanent housing

3.3 Survey result

The main purpose of the survey was to find out whether the issue of transforming summer cottages into permanent housing in Raseborg is relevant. The questionnaire was distributed through one channel - the official Facebook page of the Raseborg Municipality. A total of 241 responses to the questionnaire were collected. The questionnaire consisted of 16 questions. Below are the results for most relevant to the work questions. A complete list of questions can be found in the Appendix.

1. "In which district of Raseborg is your vacation home located?" question showed that most respondents have summer houses in: Tenala (28 summer cottages), Skåldö (26 summer cottages), Höstnäs (21 summer cottages), Bromarv (19 summer cottages), Snappertuna (18 summer cottages), Älgö (18 summer cottages), Ekenäs (16 summer cottages) (Figure 13). Since the questionnaire was distributed only through the official Facebook page of the Raseborg municipality, the results can be difficult to interpret - the respondents are biased to those that use Facebook.

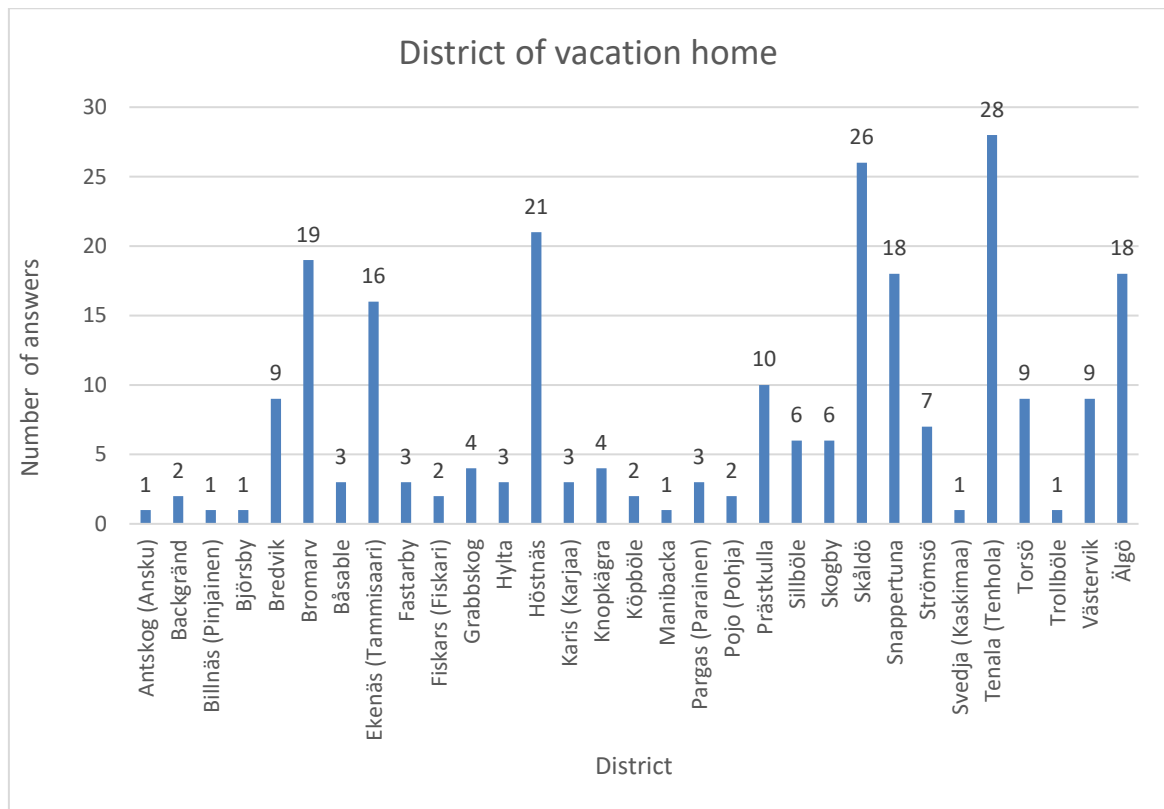


Figure 13: Distribution of vacation homes of respondents in Raseborg municipality

2. Why did you choose Raseborg as the location for your vacation home?

This question aims to identify the strengths of Raseborg as a summer cottage destination and what features should be strengthened and further developed in order to continue to attract people to have a summer cottage.

Almost half of the respondents indicated the reason for placing a holiday home in Raseborg as an inheritance. An important criterion was the proximity to permanent housing (30 responses from respondents) and beautiful nature (28 responses from respondents). The results on the graph are presented in the form of quantitative responses of respondents (Figure 14).

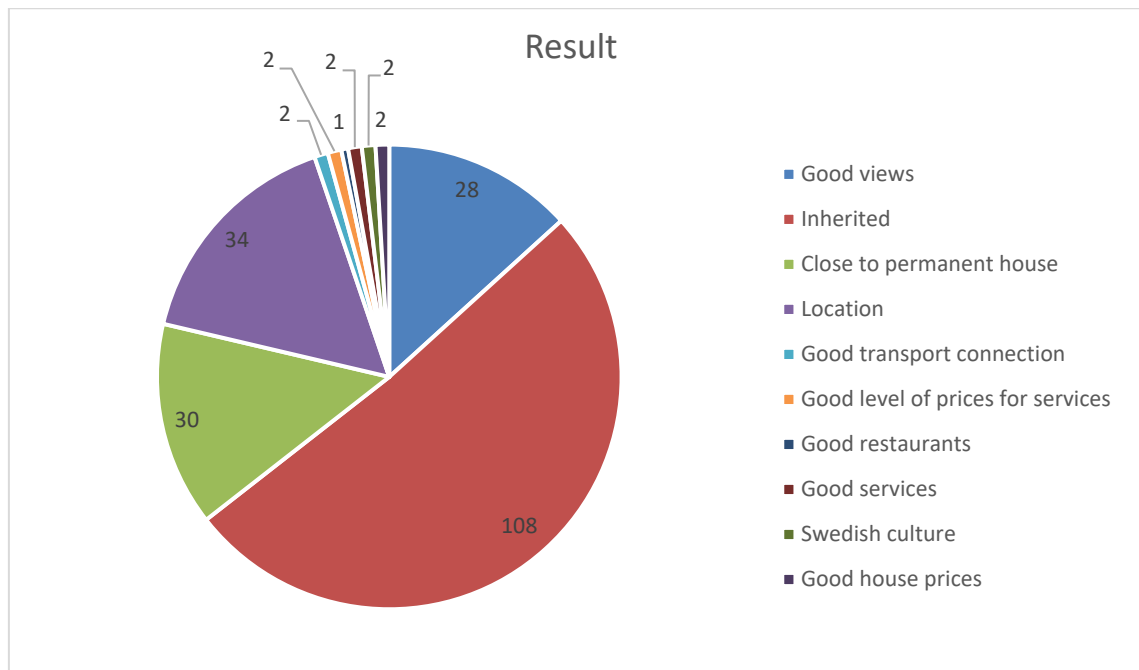


Figure 14: Distribution of respondents' answers, what is the reason for choosing a place for a vacation home

3. How much time do you spend at your vacation home?

An interesting distribution of respondents' answers - 20% of respondents (48 answers) spend more than six months in a summer cottage, and 35% of respondents (84 answers) spend from 3 to 6 months (Figure 15).

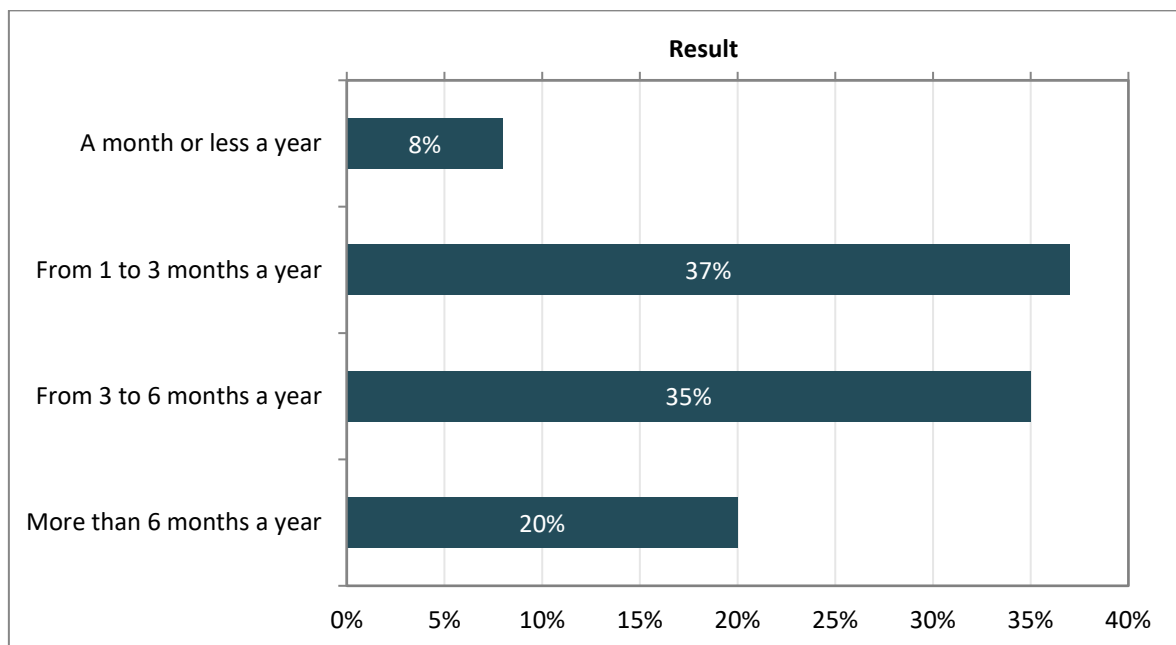


Figure 15: Distribution of respondents' answers regarding the length of time spent in a vacation home

4. Has the COVID-19 pandemic affected the length of stay in a vacation home?

53% of respondents confirmed that the covid pandemic affected the length of stay in a summer cottage (Figure 16). The most popular comments for “Yes” answers are – “the possibility of remote work”, “stayed longer - when the school was remote”, “stayed longer - because travel abroad is limited”.

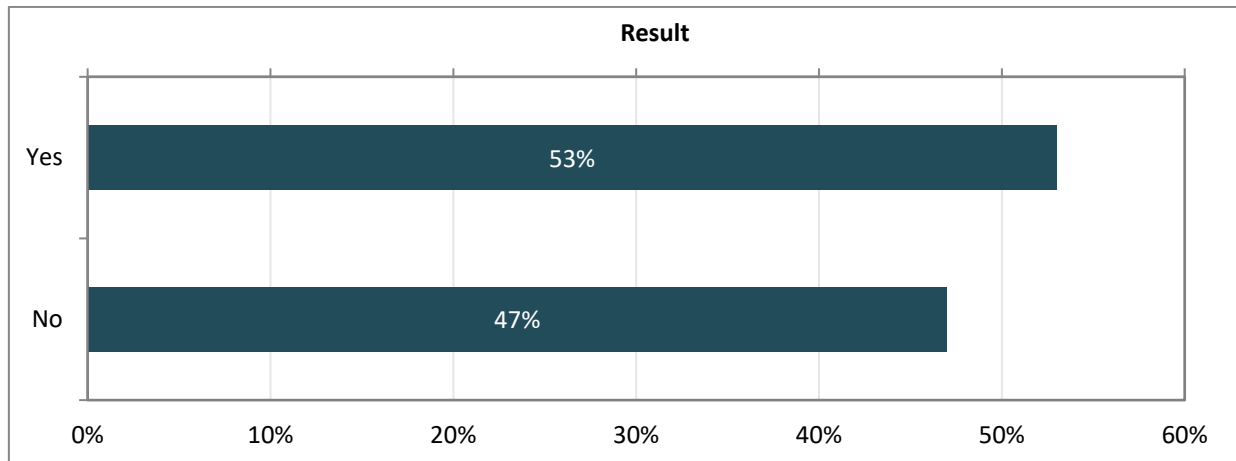


Figure 16: Distribution of respondents' answers regarding the impact of the COVID pandemic on the length of time spent in a vacation home

5. Have you considered permanent housing in your vacation home in Raseborg?

However, the majority of respondents (63% of respondents or 152 answers) do not plan to move permanently to their summer cottage, despite a long stay during holiday period (Figure 17). The most popular comments for “Yes” answers are - “will start to live permanently in a summer cottage when I retire”, “when the children grow up”. The most popular comments for “No” answers are - “the house is not suitable for winter”, “difficult transformation process of summer cottage into a permanent house”, “children are still at school”.

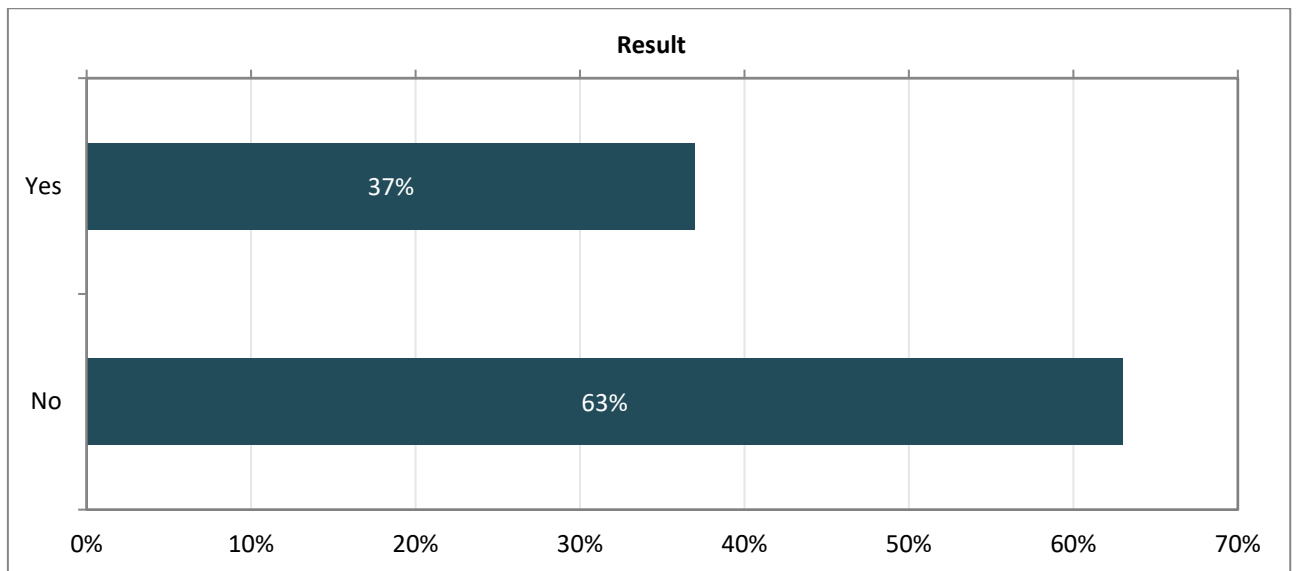


Figure 17: Distribution of respondents' answers regarding considering summer cottages as permanent residence

6. What is your age?

Half of the respondents are over 60 years (Figure 18). Which corresponds to official statistics - that the average age is 63 years (OSF, 2019).

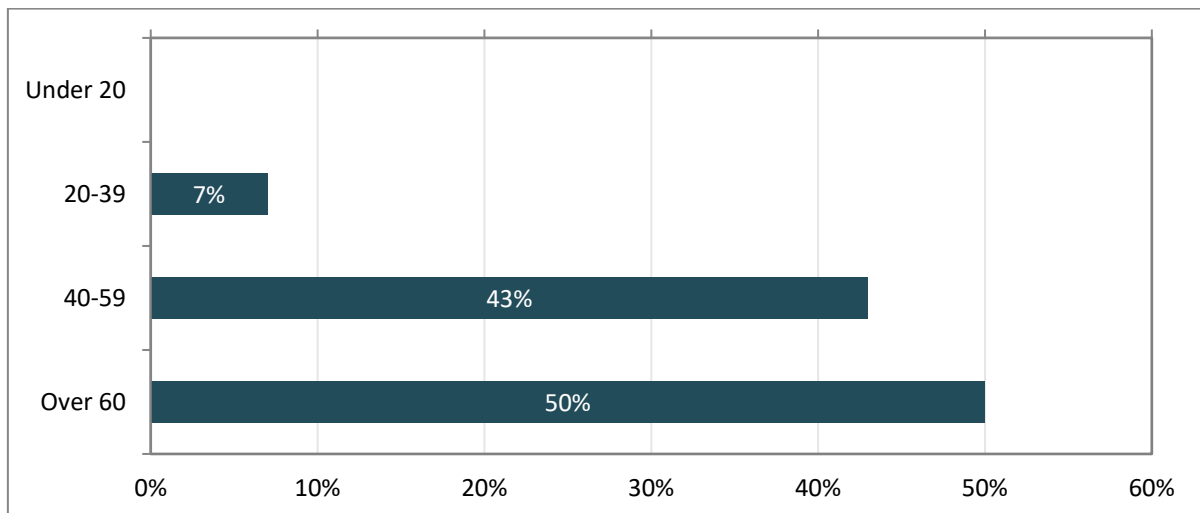


Figure 18: Distribution of respondents' answers regarding age of answers

4 Discussion

The question of transforming summer cottages into permanent housing is relevant, as the survey results show - now many people spend up to six months (35% of respondents) or even more (20% of respondents) in a summer cottage. And the COVID-19 pandemic has increased the length of stay at the holiday home (according to the survey, 53% of respondents confirmed this).

The results of the study showed that there are limited areas where the transformation of summer cottages into permanent housing is possible, based on the criteria used in this study - these areas are located near large settlements, such as Ekenäs, Karis, Bromarv, Tenala, Pojo, Svartå. However, most of the cottages are located in other districts: Älgö (822 summer cottages), Höstnäs (734 summer cottages), Västervik (496 summer cottages), Strömsö (544 summer cottages), Sillböle (366 summer cottages), Pargas (328 summer cottages) that do not have access to services.

One of the main reasons for such a limited area, where it is possible to transform a summer cottage into permanent housing is a rather large area of Raseborg municipality - 1147 square kilometers (land area), while, for example, Hangö municipality has an area – 116 square kilometers (land area) or Vichtis municipality - 218 square kilometers (land area) (National Land Survey of Finland, 2018). In municipalities with such a relatively small area, the location of services and housing is more compact to each other. While in Raseborg, the owners of summer cottages have the opportunity to live more scattered and remote from each other and from services. Population density in Raseborg municipality is 24.04 inhabitants per square kilometer (Vihtis municipality – 56.07 inhabitants per square kilometer, Hangö municipality – 68.99 per square kilometer) (OSF, 2020). Thus, the area suitable for transforming summer cottages into permanent housing is limited and concentrated only near large centers.

Due to the fact that rural areas are difficult to plan as vacation houses are widely dispersed from each other and far from essential services. Such terrains are mainly focused on constant car use. Therefore, the presence of a road that allows for emergency operations and unobstructed access to the cottage is a prerequisite. Water services network availability is also a very limiting factor. Only 235 cottages are located 100 meters from the water network. However, the transformation of the summer cottage is possible even if the summer cottage does not have access to the water system network, but in this case the owner of the summer cottage must ensure the supply of water of adequate quality to his home, which will be available all year around. And ensure the proper disposal of wastewater.

Some regions do not have a 5-kilometer accessibility to a grocery store such as Strömsö, Torså. These regions have a partial 5-kilometer access (61,5% and 12,9%) to a seasonal grocery store, however it is important that a grocery store works year-round in case of permanent residence. Although the grocery store is a very important factor, it is also a flexible factor. If a road is available that is serviced all year round, the conversion of a summer cottage into permanent housing is possible even if the distance to the store is more than 5 km., provided that other conditions are met.

A less flexible factor is distance from schools. Since the municipality is obliged to provide transport for schoolchildren, if a distance from home to school is more than 5 km. This will increase the pressure on the municipality. In this work, the distance to the grocery store was calculated along the road, while the distance to the school it is -the euclidean distance.

Euclidean distance covers a larger area than the distance along of the road. Thus, areas that can be located further than 5 km. from the school along the road, but which include school paths are also included. Availability of school transport should not increase the pressure on municipality. However, it is important to note that when using the Euclidean distance, cottages located on the islands also fall into the sample. After using the Euclidean distance, it is necessary to consider the cottages that fall under this criterion and remove the cottages that are located on the islands. The use of different approaches to determining the distance for the grocery store and the school and the errors that arise in determining the Euclidean distance are vulnerable factors in this work. One alternative is to define the distance to school along the road but increase the maximum distance. Another vulnerability of using the school factor is that families, that do not need school services, face difficulties in converting their summer cottages into permanent housing if their SC does not meet the school location requirement. This is because the assigned permanent address of the house is retained in the event of a change of ownership of the house and thus the house can later be transferred to users who need school services. This research does not include the "distance from the coast" factor, which is also an important aspect for considering the transformation of a summer cottage into permanent housing. And in some way, it is an indicator of increasing pressure on the environment, especially water bodies. Since many prefer a summer cottage located on a coast of water bodies, the use of such a SC year-round means an increase in the amount of household waste and sewage. Some municipalities (for example Vihtis) include this factor in their research and do not allow the transformation of a summer cottage into permanent housing if the summer cottage is located closer than 100 meters from the coast (Destia OY. 2017). Considering the above factors, this work cannot serve as a clear instruction for the transformation of summer cottages into permanent housing. It is a helpful guide. Each case of transformation of a SC should be considered separately.

According to statistics and survey results, the age of the owners of summer cottages is 63 years. The results of the survey confirm that, the re-equipment of the question of transformation of summer cottage into permanent residence could be relevant for respondents upon retirement. This means an increase in the load on services for the elderly, which are now already having a hard time coping with the load.

Some respondents also commented that the process of transforming summer housing into permanent housing is very difficult. Considering the novelty of the practice of transforming a summer cottage into a permanent one, there is no unified process in the municipality. Different municipalities in Finland have different practices for converting summer cottages into permanent housing. There is no standardized procedure that followed all municipalities. This results in citizens facing unequal decision-making regarding summer house transformation in different municipalities (Vepsäläinen et al., n.d.). In this regard, Raseborg municipality can consider program which was implemented in Kimitoön municipality, the owner of the summer cottage has rights to receive a voucher for the paid services of a building planner (Kimitoön, n.d.). This stimulates the owner of the summer

cottage to take the first step and get understanding what stages it will have to go through to transform their cottage into permanent housing.

Undoubtedly, even a seasonal increase in the population in the municipality has a beneficial effect on its internal politics. The economic benefits are especially significant for rural municipalities such as Raseborg compared to urban municipalities, second home owners in help maintain the economy and culture of the rural areas.

But it is also important to take into account, that the stable development of the municipality requires an influx of young people. Thus, it is not possible to consider the program of transformation of summer cottages into permanent housing as the main or, moreover, the only way to attract new residents in Raseborg municipality.

5 Conclusion

Raseborg municipality is the location for 6779 summer cottages. In this work, the following criteria were used to study the location of summer cottages:

- distance from the road network (100 meters)
- distance from the water services network (100 meters)
- distance from a grocery store (along the road, 5000 meters)
- distance from a school (5000 meters – Euclidean distance)

The study showed that there are limited areas, that are favorable for the transformation of a summer cottage into permanent housing. These areas are near large settlements such as Ekenäs, Karis, Bromarv, Tenala, Pojo, Svartå. But only 114 of SC are located in these areas. However, districts, that have the largest number of summer cottages: Älgö, Höstnäs, Västervik, Strömsö, Sillböle, Pargas have only partial access or do not have access to the studied services.

6 References

- Adamiak Cz., Vepsäläinen M., Strandell A., Hiltunen M. J., Pitkänen K., Hall C. M., Rinn J., Hannonen O., Paloniemi R., Åkerlund U. (2015). *Vapaa-ajan asuminen Suomessa*.
- Destia Oy, Asiantuntijapalvelut. (2017) *Pswecaikkatietoanalyysit ja selvitys vapaa-ajan asumisen käyttötarkoituksen muutoksen vaikutuksista Vihdissä*.
- Esri Inc. (2021). ArcGIS Desktop (Release 2.8.0). Esri Inc. <https://www.esri.com/en-us/arcgis/products/arcgis-desktop/overview>
- Finlex. (2017). Act 1047/2017. *Ympäristöministeriön asetus rakennusten vesi- ja viemärlaitteistoista*. Retrieved from <https://www.finlex.fi/fi/laki/alkup/2017/20171047>
- FCG. (2020). Hämeenlinna Ranta-asumisen selvitys
- Hiltunen, Mervi J., Rehunen A., (2014) *Second home mobility in Finland: Patterns, practices and relations of leisure oriented mobile lifestyle*.
- Gunko R., Rapeli L., Scheinin M, Vuorisalo T., Karell P. (2022). *How accurate is citizen science? Evaluating public assessments of coastal water quality*.
- Kangasala. (n.d.) *Loma-asunnosta vakituiseksi asunnoksi*. Retrieved from <https://www.kangasala.fi/asuminen-ja-ymparisto/asuminen-rakentaminen-ja-tontit/loma-asunnosta-vakituiseksi-asunnoksi/>
- Kimitoon. *Kartläggningssedel för ändring av fritidshus till fast boende*. (n.d.). Retrieved from https://www.kimitoon.fi/bo_miljo/byggande/kartlaggningssedel_for_andring_av_fritidshus_till_fast_boende
- Liljedal Bo-Erik, Svens H., Perus-Marander H., Lilla H. (2006). *Närpiön Kaupunki. Periaatteet Vapaa-ajan asuntojen muuttamisessa Pysyvään asuinkäyttöön*.
- Loppi: Tekninen ja Ympäritö. (n.d.). *Vapaa-ajan asunnon käyttötarkoituksen muutos vakituiseksi asuinrakennukseksi*. Retrieved from Microsoft Word - K\344ytt\366tarkoituksen muutos ranta-alue.doc) (loppi.fi)
- National Land Survey of Finland. (2018). *Suomen pinta-ala kunnittain*. Retrieved from https://www.maanmittauslaitos.fi/sites/maanmittauslaitos.fi/files/attachments/2018/01/Suomen_pa_2018_kunta_maakunta.pdf
- Official Statistics of Finland (OSF). (2019). StatFin. Free time residence. Retrieved from: https://www.stat.fi/til/rakke/2019/rakke_2019_2020-05-27_kat_001_en.html

Official Statistics of Finland (OSF). (2019). StatFin. Kuopio is still the municipality with the highest number of free-time residences in Finland. Retrieved from: https://www.stat.fi/til/rakke/2020/rakke_2020_2021-05-27_tie_001_en.html

Official Statistics of Finland (OSF). (2019). StatFin. Preliminary population structure by area, 2021M01*-2021M12*. Retrieved from https://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/StatFin__vrm__vamu/statfin_vamuu_pxt_11lj.px/

Official Statistics of Finland (OSF). (2020). StatFin. Population structure. Urban settlements by population and population density. Retrieved from http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/StatFin__vrm__vaerak/statfin_vaerak_pxt_11re.px/

Official Statistics of Finland (OSF). (2004) *Mökkiläisissä on ostovoimaa*. Retrieved from https://www.stat.fi/tup/tietoaika/tilaajat/ta_06_04_mokkilaiset.html

Paavola J. (2020). *Rannalla sijaitsevan vapaa-ajan asunnon käyttötarkoituksen muuttaminen pysyväksi asunnoksi*. Retrieved from Paavola_Juhana.pdf (theseus.fi)

Paikatiedot ja kaukokartoitus. (n.d.). *YKR-aluejaot*. Retrieved from YKR-aluejaot - YKR-aluejaot - Aineistot - SYKE:n metatietopalvelu (ymparisto.fi)

Pitkänen, K. (2008). *Second-home Landscape: The Meaning(s) of Landscape for Second-home Tourism in Finnish Lakeland*. *Tourism Geographies*, 10(2), 169–192. doi:10.1080/14616680802000014

QGIS Development Team. (2022). QGIS Geographic Information System. Open Source Geospatial Foundation. <http://qgis.osgeo.org>

Servicenätutredning. *Social- och hälsovårdstjänster*. (2019). Retrieved from PowerPointesitys (raseborg.fi)

Sweco Ympäristö Oy. (2020.) *Granskning av skärgårdens förmånlighetszoner revidering av björkö – replot strandgeneralplan*.

Vepsäläinen M., Strandell A., Pitkänen K. (n.d.). *Muuttuvan vapaa-ajan asumisen hallinnan haasteet kunnissa*. Retrieved from <https://www.yss.fi/journal/muuttuvan-vapaa-ajan-asumisen-hallinnan-haasteet-kunnissa/>

Visit Raseborg. (n.d.). Outdoors & Hiking. Retrieved from <https://www.visitraseborg.com/en/activities/camping-and-activities/>

Webropol. (n.d.). Webropol services. Survey and reporting tool. <https://webropol.com/>

7 Appendix

7.1 District analysis

Antby district

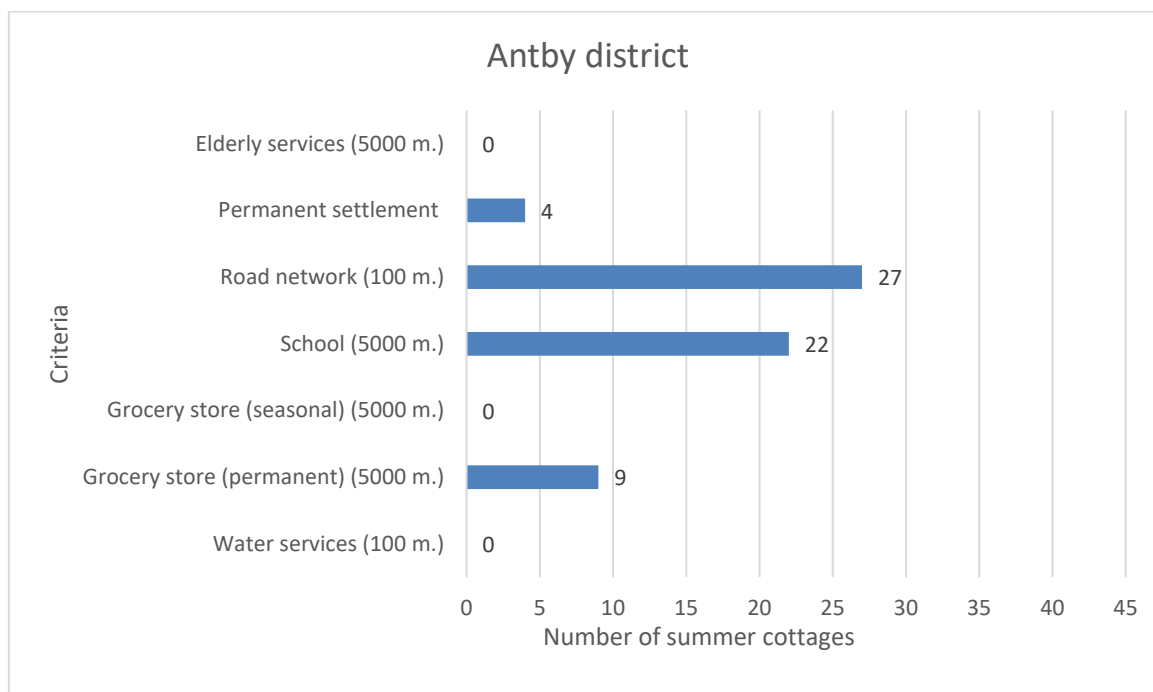


Figure 19: Analysis of available services for summer cottages in Antby district

Characteristic:

The total number of summer cottages in the district is 45:

- Advantages**
- + For most summer cottages (27 summer cottages (60%)) - the road network is in close proximity
 - + For 22 summer cottages, school are located within 5 km.

- Disadvantages**
- No access to grocery stores
 - No access to water services

Antskog district

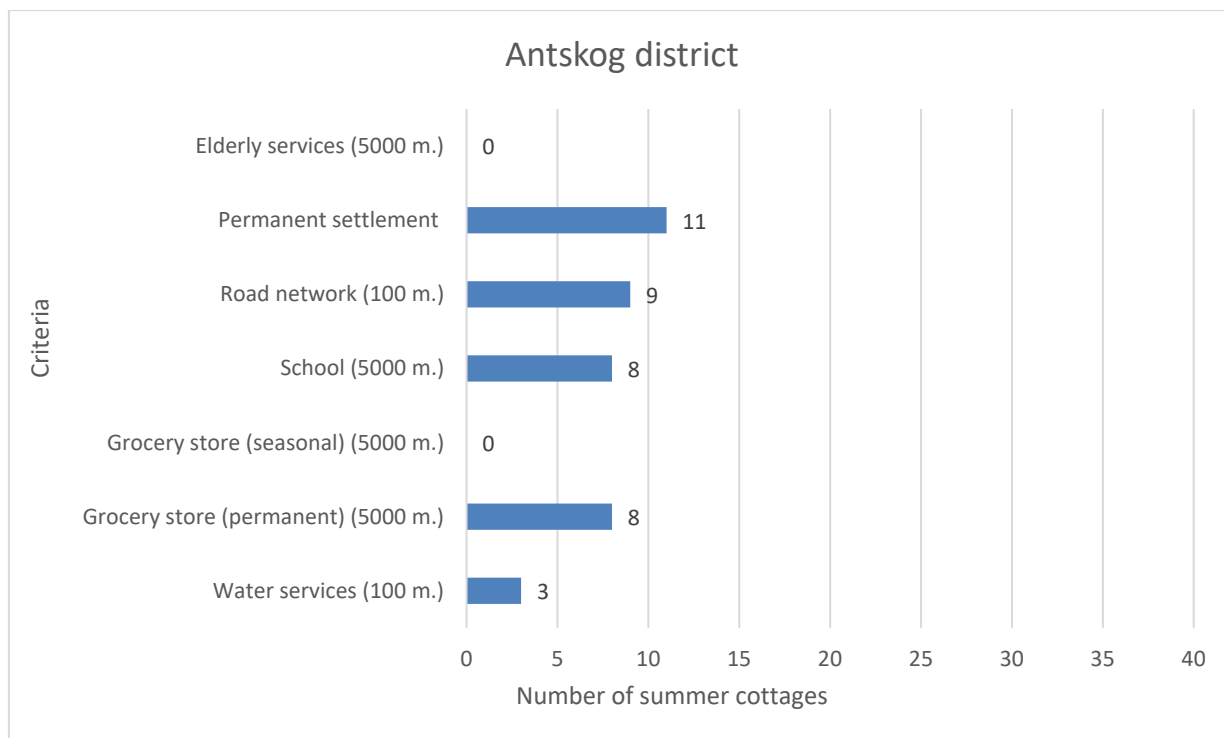


Figure 20: Analysis of available services for summer cottages in Antskog district

Characteristic:

The total number of summer cottages in the district is 40:

Advantages + Some of the summer cottages (27,5% of summer cottages) are located on the territory of permanent settlements

Disadvantages

- No access to grocery stores
- Lack of schools
- Lack of water services

Backgränd district

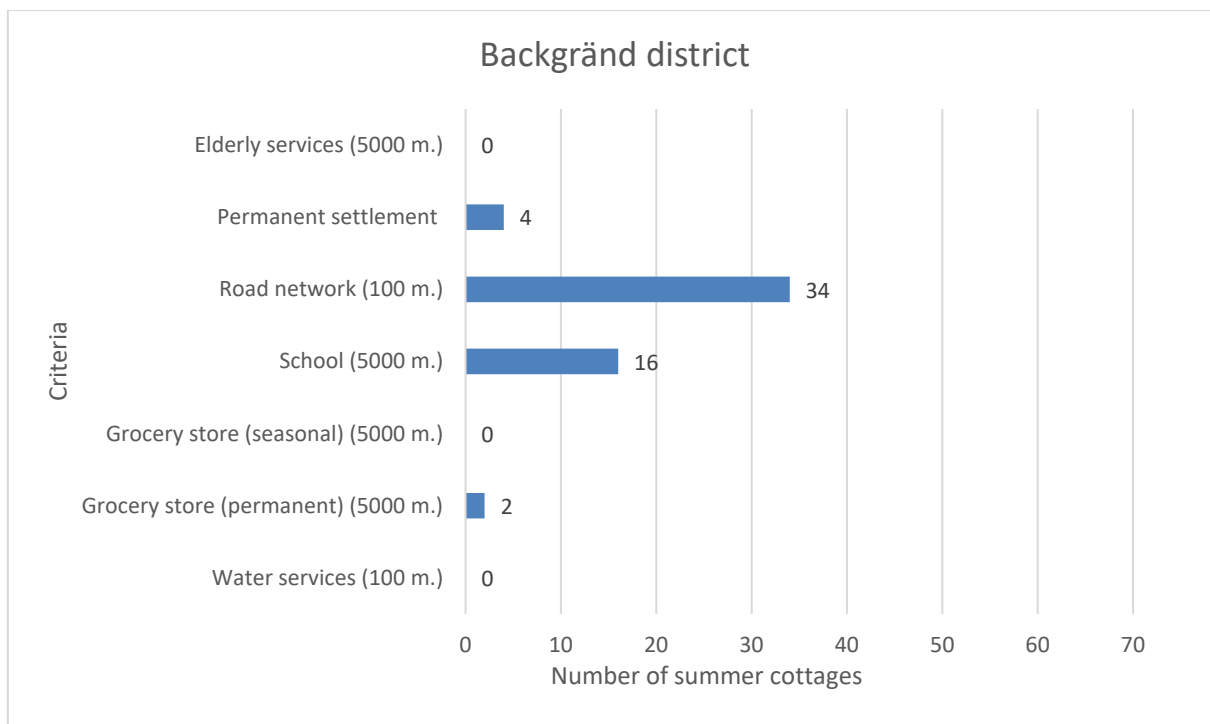


Figure 21: Analysis of available services for summer cottages in Backgränd district

Characteristic:

The total number of summer cottages in the district is 75:

Advantages + For many of summer cottages (45,3% of summer cottages) - the road network is in close proximity (100 meters and closer)

Disadvantages

- No access to grocery stores
- Lack of schools – only 16 summer cottages are located within 5 km.
- No access to water services

Baggby district

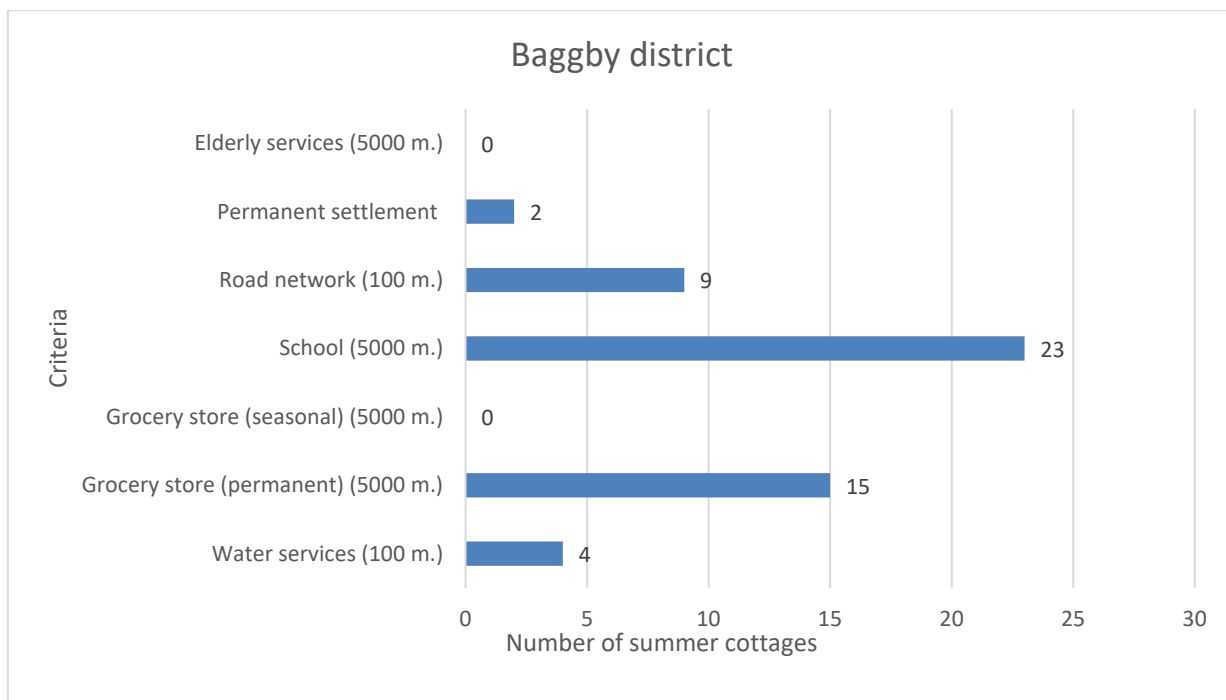


Figure 22: Analysis of available services for summer cottages in Baggby district

Characteristic:

The total number of summer cottages in the district is 29:

Advantages + School is located within 5km. for 79,3% of summer cottages

Disadvantages

- Lack of water services
- Lack access to the road network – 31.0% of summer cottages are located within 100 meters
- No access to grocery store

Billnäs district

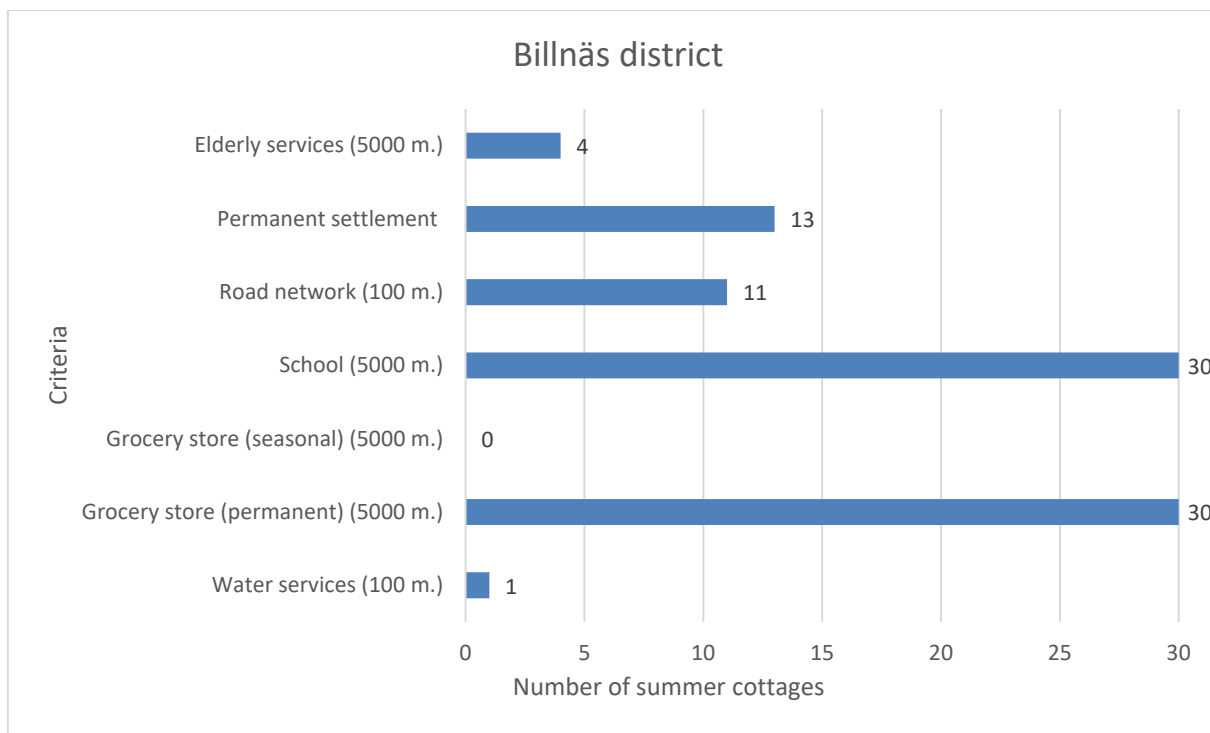


Figure 23: Analysis of available services for summer cottages in Billnäs district

Characteristic:

The total number of summer cottages in the district is 30:

- Advantages**
- + 76,7% of summer cottages are located within 5 km to grocery store
 - + All summer cottages are located within 5 km to school
 - + Some of the summer cottages (43,3 of summer cottages) are located on the territory of permanent settlements

- Disadvantages**
- No access to water services

Björnsby district

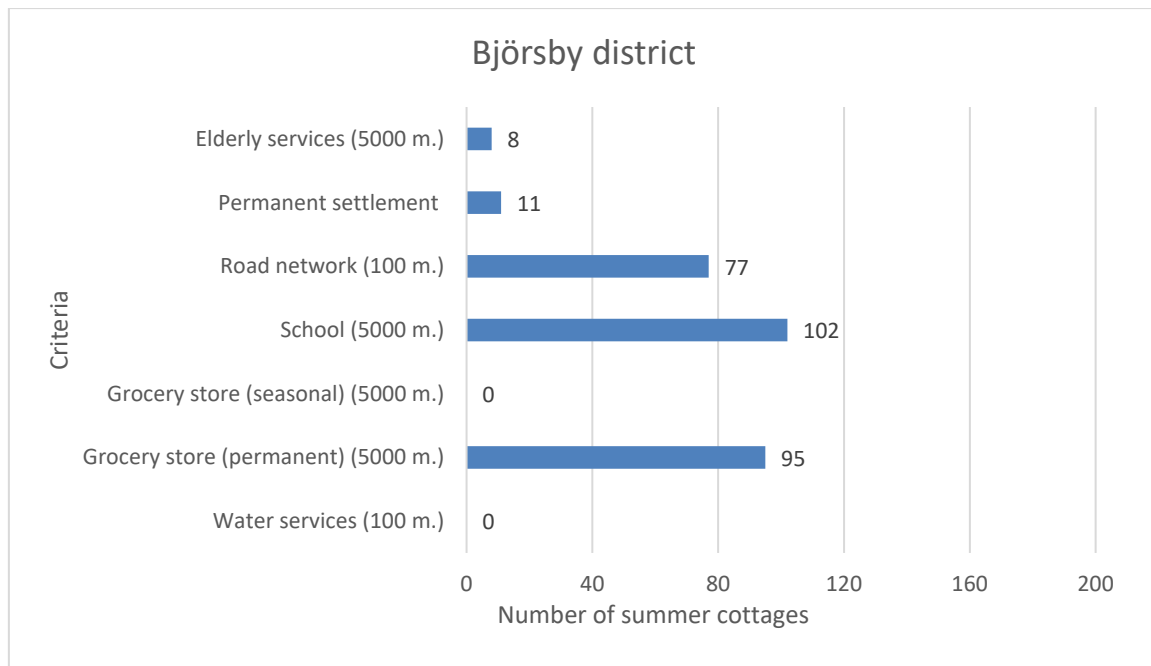


Figure 24: Analysis of available services for summer cottages in Björnsby district

Characteristic:

The total number of summer cottages in the district is 204:

Advantages + For 50,0% of summer cottages, school is located within 5 km.

Disadvantages

- No access to water services
- Lack access to the road network – 37.7% of summer cottages are located within 100 meters
- Lack access to a grocery store – only 11,3% of summer cottages are located within 5km to the grocery store

Bredvik district

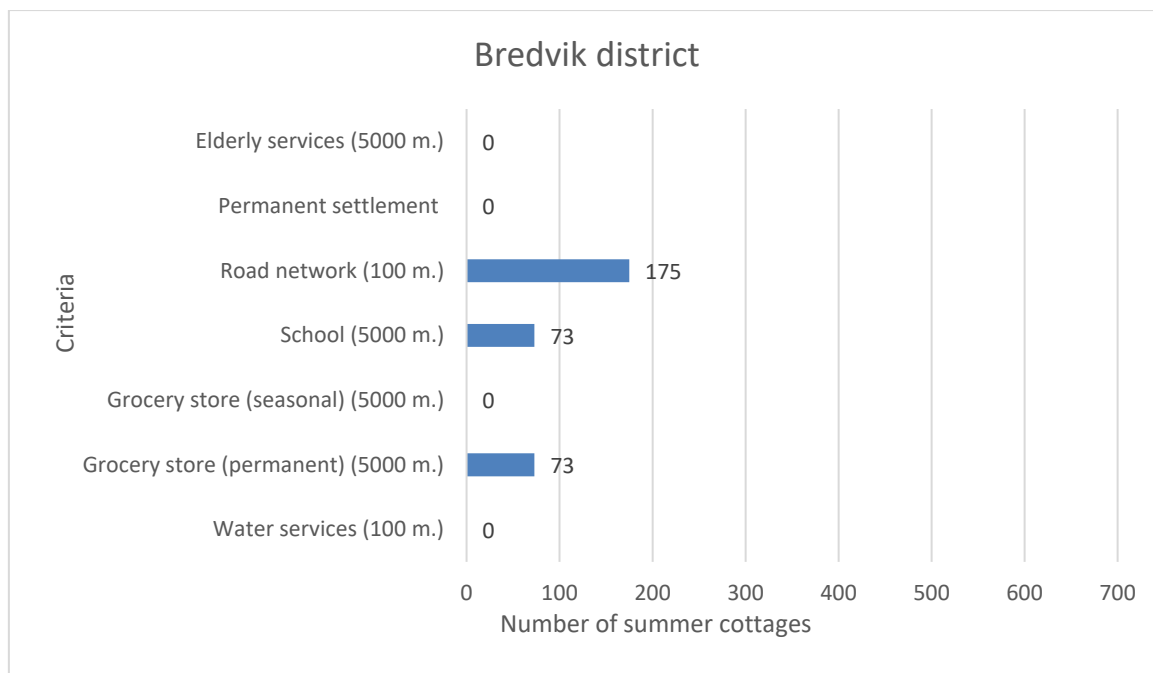


Figure 25: Analysis of available services for summer cottages in Bredvik district

Characteristic:

The total number of summer cottages in the district is 693:

Advantages

- Disadvantages**
- No access to water services
 - Lack of schools – 10,5% of summer cottages are located within 5km.
 - Lack of grocery store – 3,0% of summer cottages are located within 5km. to grocery store
 - Lack access to the road network – 25,3% of summer cottages are located within 100 m. to the road network

Bromarv district

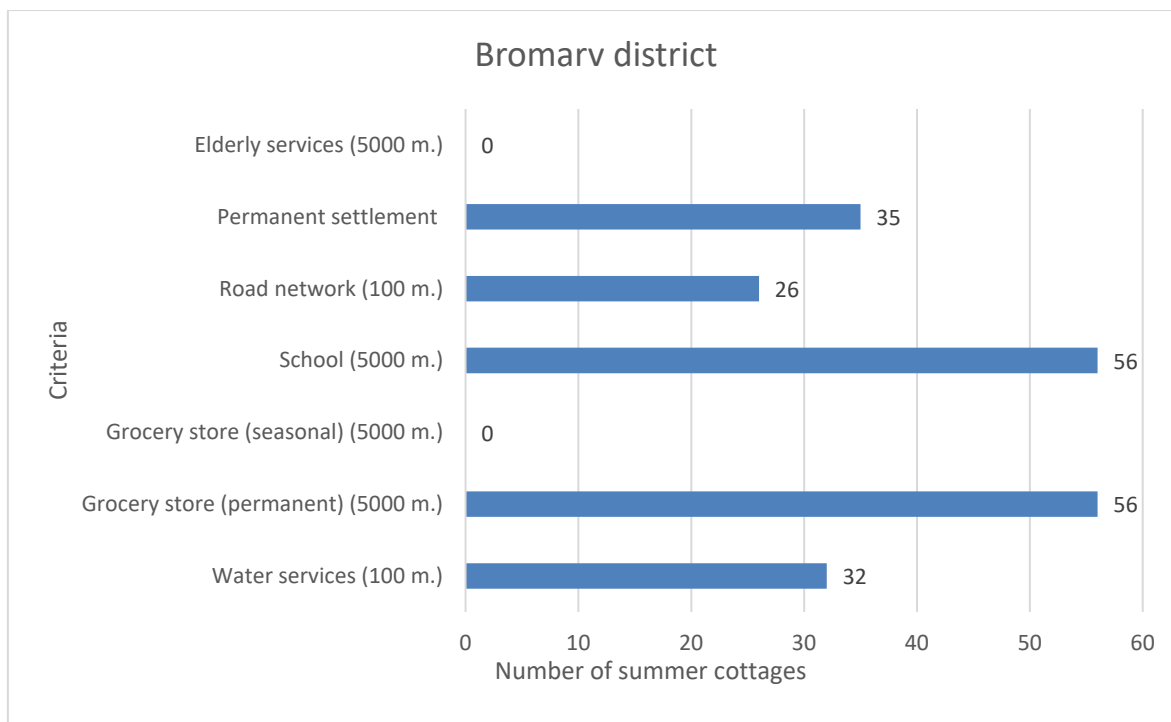


Figure 26: Analysis of available services for summer cottages in Bromarv district

Characteristic:

The total number of summer cottages in the district is 56:

- Advantages**
- + For most summer cottages (75,0%) - the road network is in close proximity (100 meters and closer)
 - + School is within 5km for all of summer cottages
 - + Grocery store is within 5km for 98,2% of summer cottages
 - + For most summer cottages (57,1%) access to water services within 100 meters
 - + 62,5% of summer cottages are located on permanent settlement area

Disadvantages

Båsable district

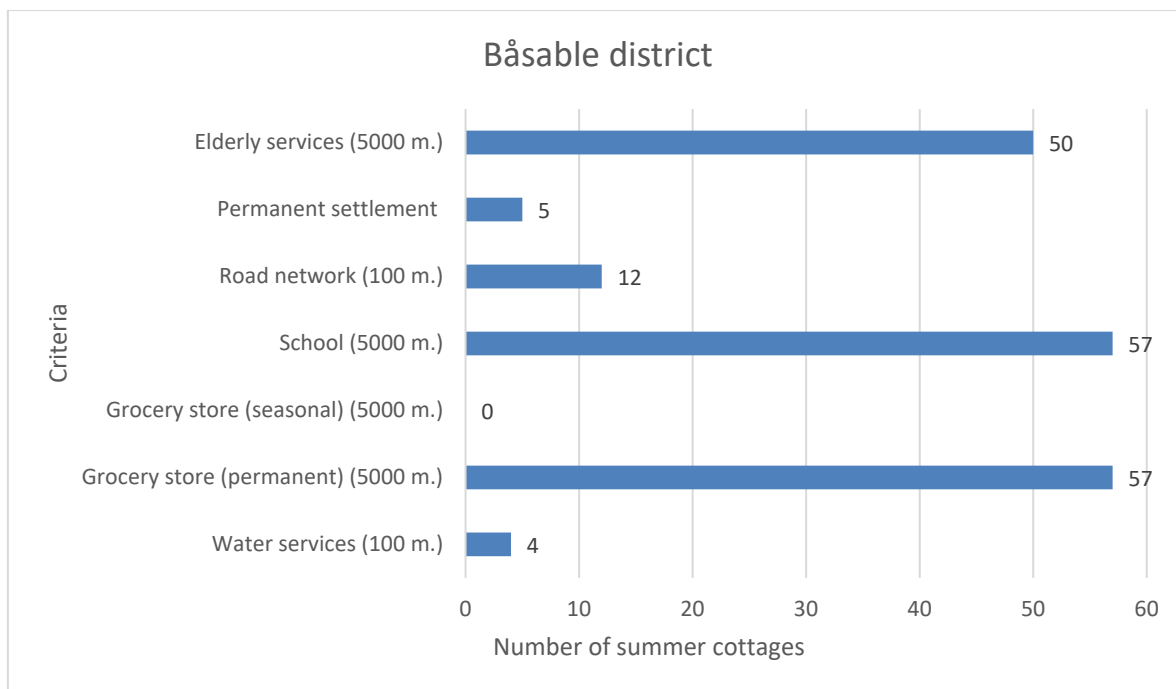


Figure 27: Analysis of available services for summer cottages in Båsable district

Characteristic:

The total number of summer cottages in the district is 57

Advantages + For all summer cottages – school is within 5 km

Disadvantages

- Lack of water services
- Road network is located within 100 meters only for 21,1 of summer cottages
- Lack of grocery store – 22,8% of summer cottages are located within grocery store

Degernäs district

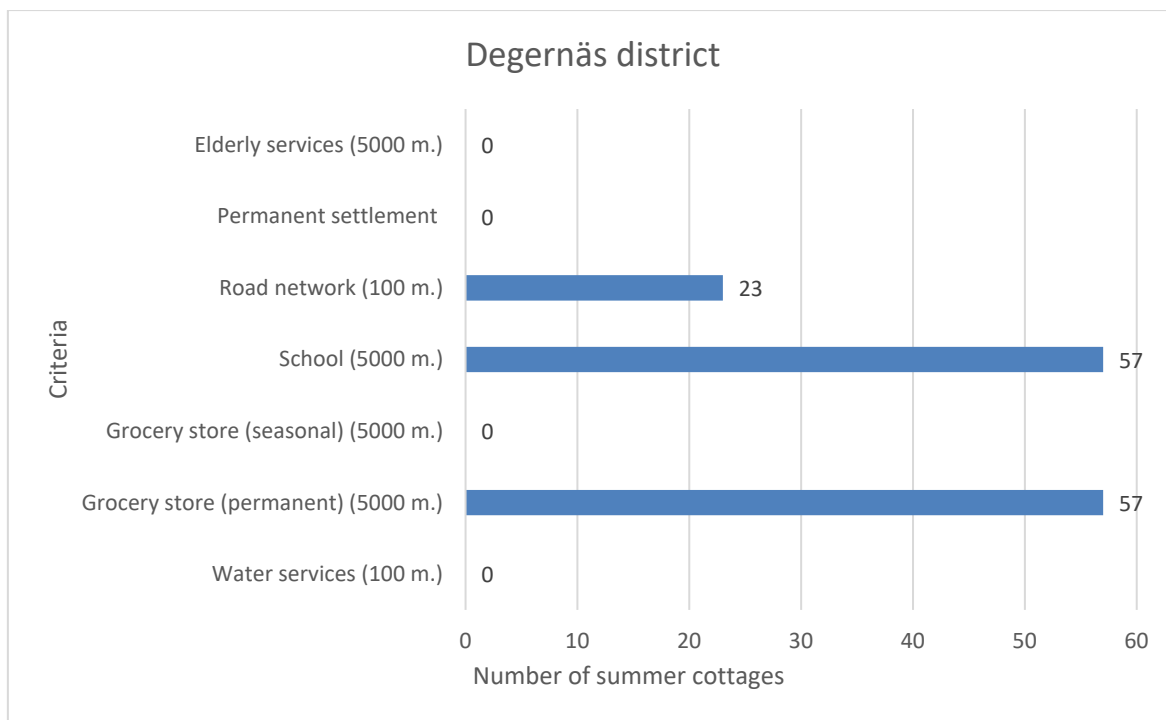


Figure 28: Analysis of available services for summer cottages in Degernäs district

Characteristic:

The total number of summer cottages in the district is 58

Advantages + For almost all of summer cottages (98,3%) – school is within 5 km

Disadvantages - No access to water services
 - The road network is located within 100 meters for 39,7% of summer cottages
 - No access to a grocery store – only 5,2% of summer cottages are located within 5km

Ekenäs district

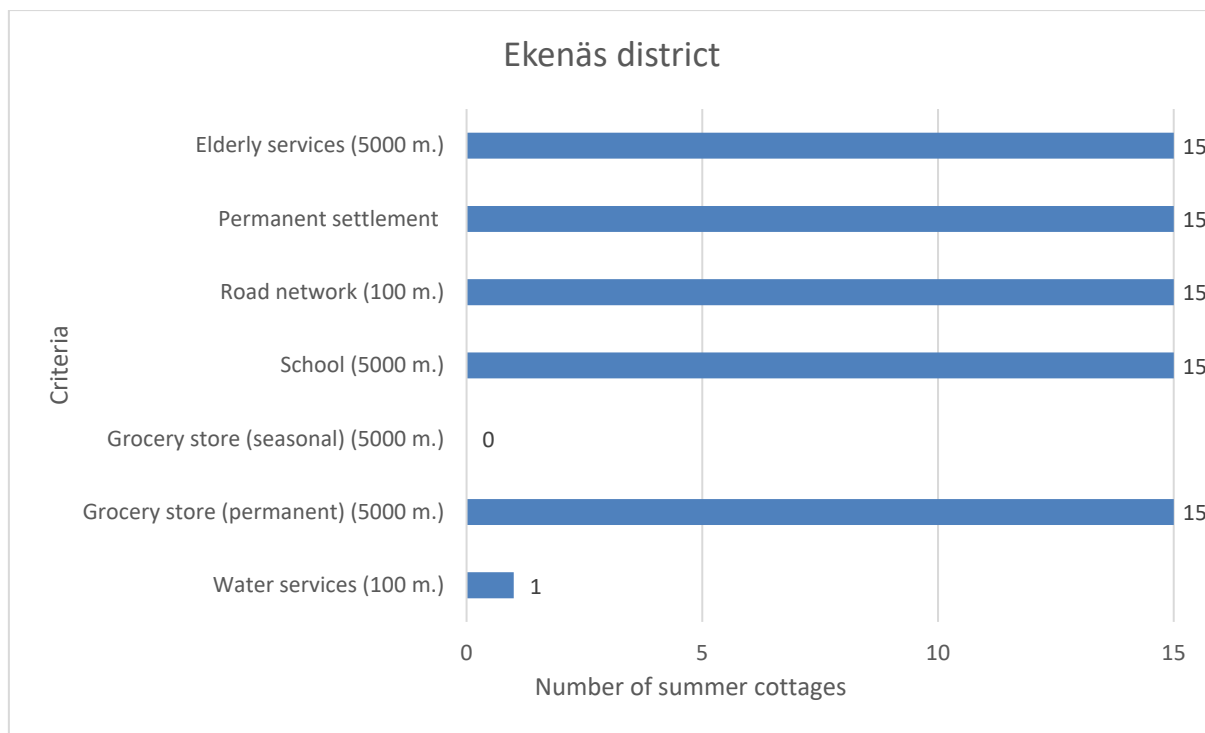


Figure 29: Analysis of available services for summer cottages in Ekenäs district

Characteristic:

The total number of summer cottages in the district is 15

Advantages

- + All summer cottages are located in zone of residential areas (YKR)
- + All summer cottages have access (100 meters and closer) to the road network
- + All summer cottages are located within 5 km. to school and grocery shop

Disadvantages - No access to water services

Fastarby district

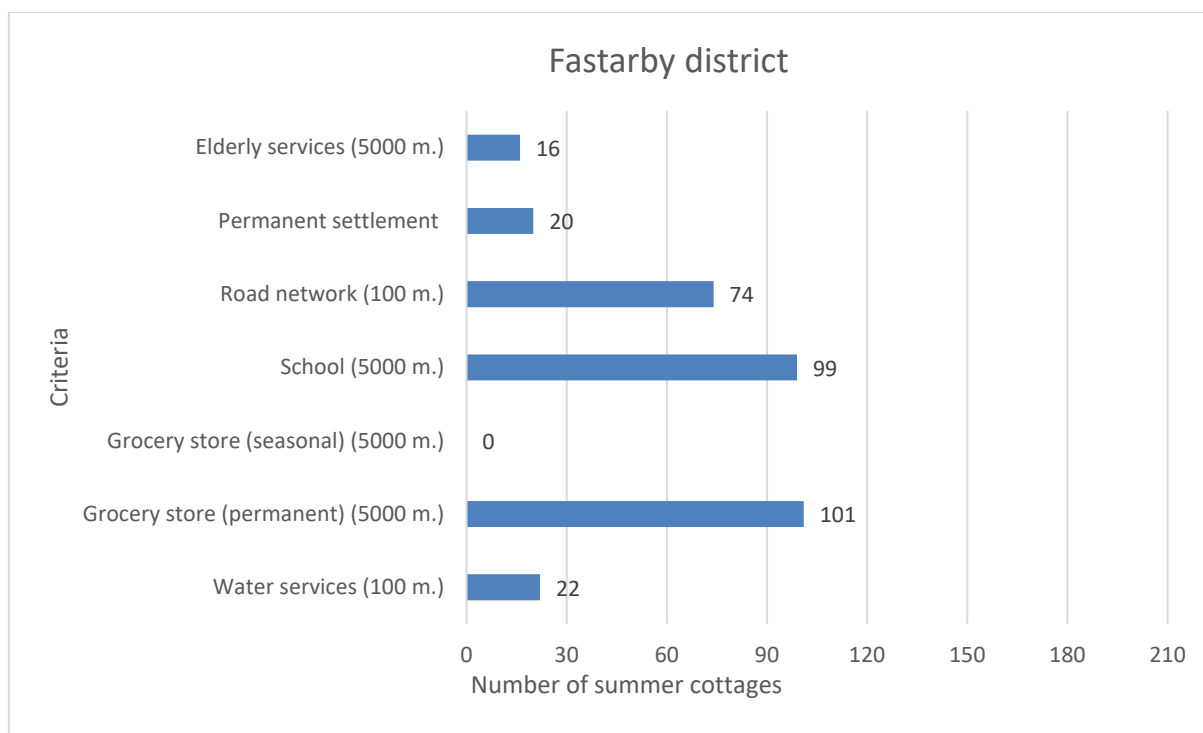


Figure 30: Analysis of available services for summer cottages in Fastarby district

Characteristic:

The total number of summer cottages in the district is 207

Advantages + 47,8% of summer cottages are located within 5 km. to school

Disadvantages

- Lack of water services
- Lack access to the road network – 35,7% of summer cottages are located within 100 meters to the road network
- Lack of grocery store – 22,7% of summer cottages are located within 5 km. to the grocery store

Fiskars district

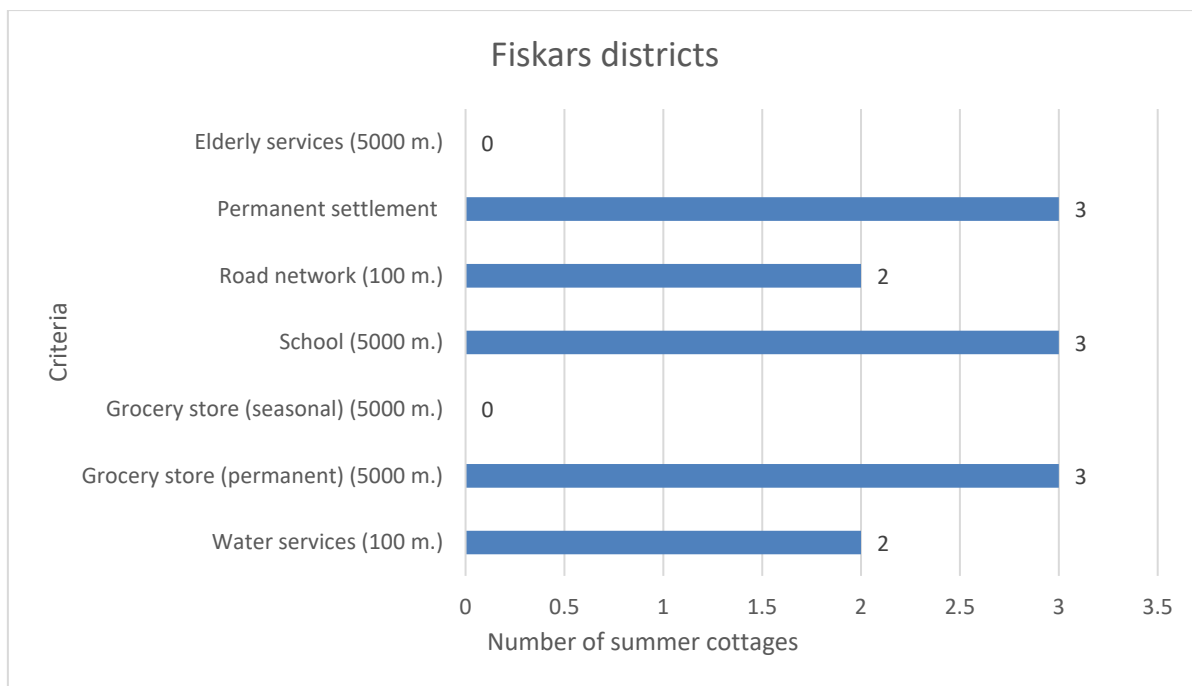


Figure 31: Analysis of available services for summer cottages in Fiskars district

Characteristic:

The total number of summer cottages in the district is 3

- Advantages**
- + All summer cottages are located on the territory of permanent settlements
 - + Most of summer are located within 100 meters to the road network
 - + All summer cottages are located within 5 km. to a school
 - + All summer cottages are located within 5 km. to a grocery store
 - + 2 summer cottages have access to water services network (within 100 m.)

Disadvantages

Grabbskog district

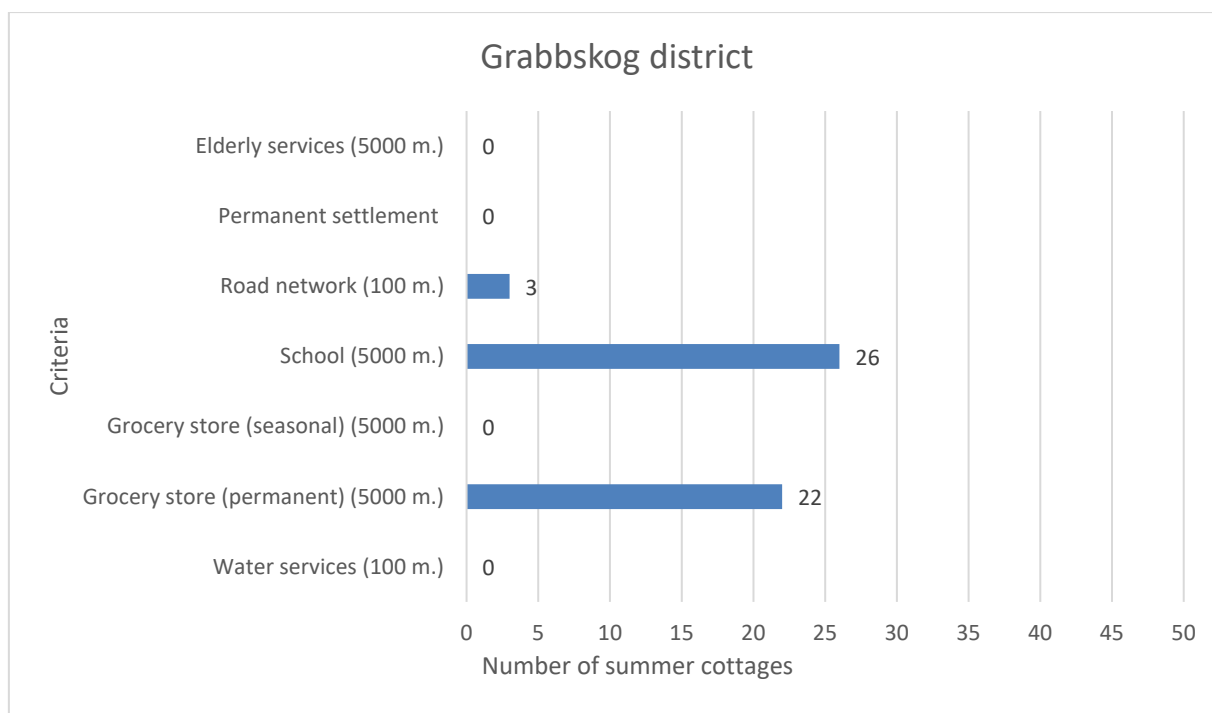


Figure 32: Analysis of available services for summer cottages in Grabbskog district

Characteristic:

The total number of summer cottages in the district is 47

Advantages

- + 55,3% of summer cottages are located within 5 km- to a school
- + Most of summer cottages have access to road network (31,91% of summer cottages are located within 250 m. to roads and 46,81% of summer cottages are located within 500 m. to roads)

Disadvantages

- No access to water services
- No access to the road network (only 3 summer cottages are located within 100 meters to the road network)
- Lack access to a grocery store – 8,5% of summer cottages are located within 5km to the grocery store

Grundsjö

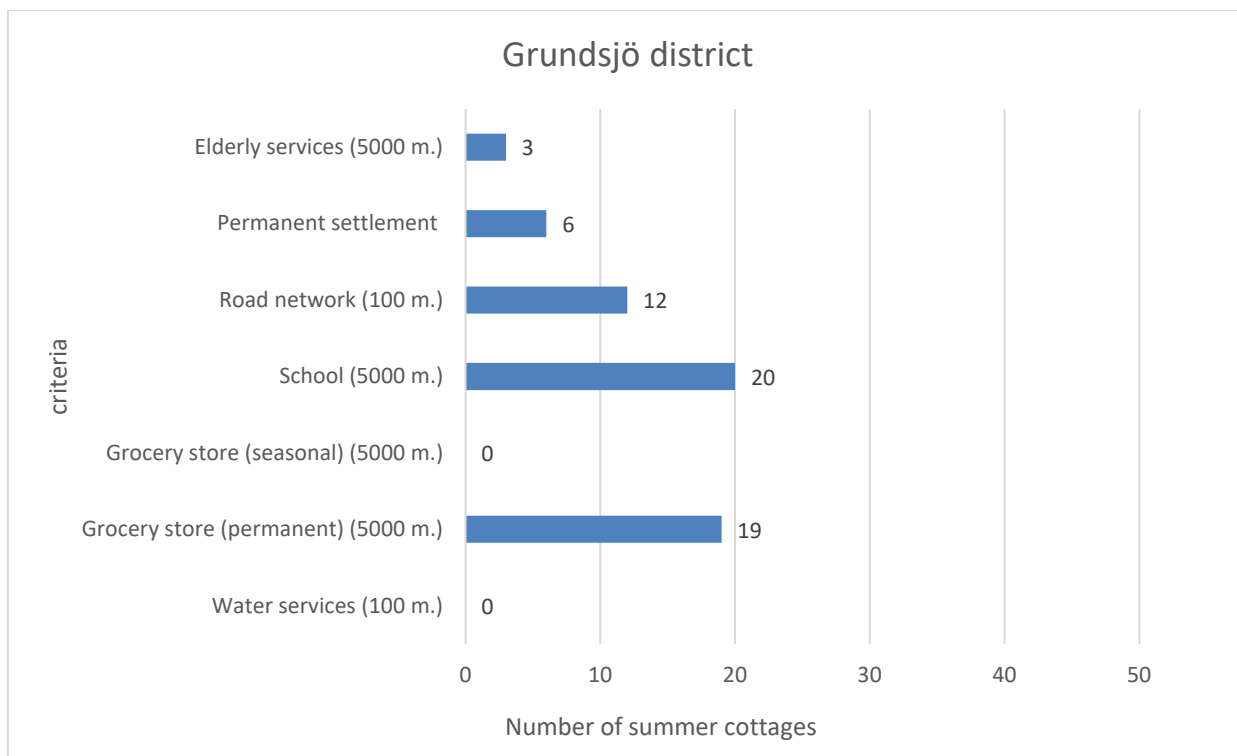


Figure 33: Analysis of available services for summer cottages in Grundsjö district

Characteristic:

The total number of summer cottages in the district is 54

Advantages

- Disadvantages**
- No access to water services
 - Lack access to the road network – 22,2% of summer cottages are located within 100 meters to the road network
 - Lack access to a school and grocery store -33,3% of summer cottages are located 5 km to the grocery store, and 37% of summer cottages are located 5 km to the school

Hylta district

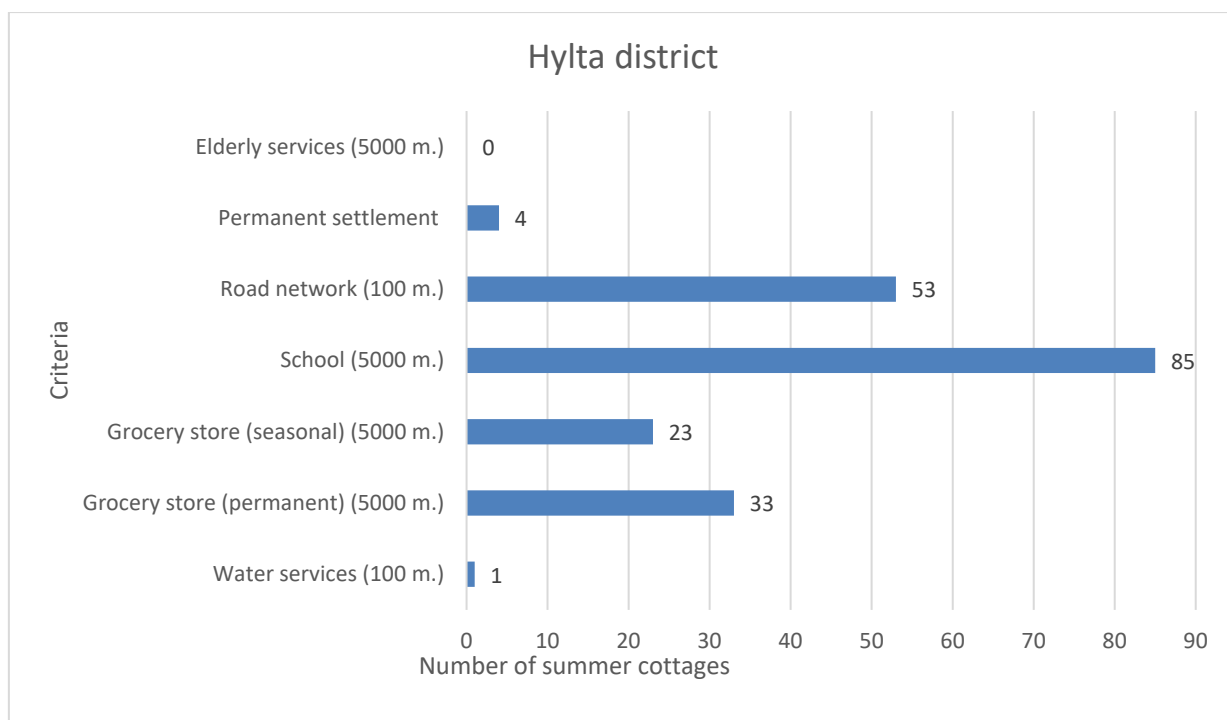


Figure 34: Analysis of available services for summer cottages in Hylta district

Characteristic:

The total number of summer cottages in the district is 150

Advantages + 56,7% of summer cottages are located within 5 km. to a school

Disadvantages

- No access to water services
- No access to a grocery
- Lack access to the road network – 35,3% of summer cottages are located within 100 meters to the road network

Hållsnäs district

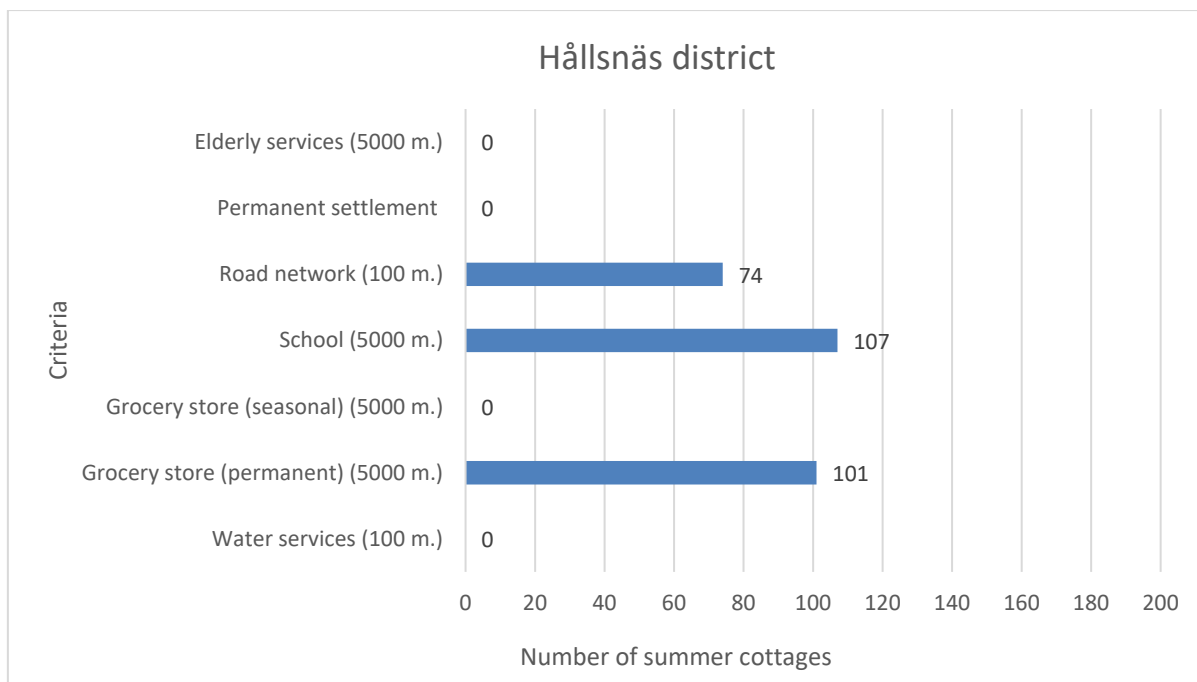


Figure 35: Analysis of available services for summer cottages in Hållsnäs district

Characteristic:

The total number of summer cottages in the district is 190

Advantages + 56,3% of summer cottages are located within 5 km. to a school

Disadvantages

- No access to water services
- Lack access to the road network – 38,9% of summer cottages are located within 100 meters to the road network
- No access to grocery store

Hötnäs district

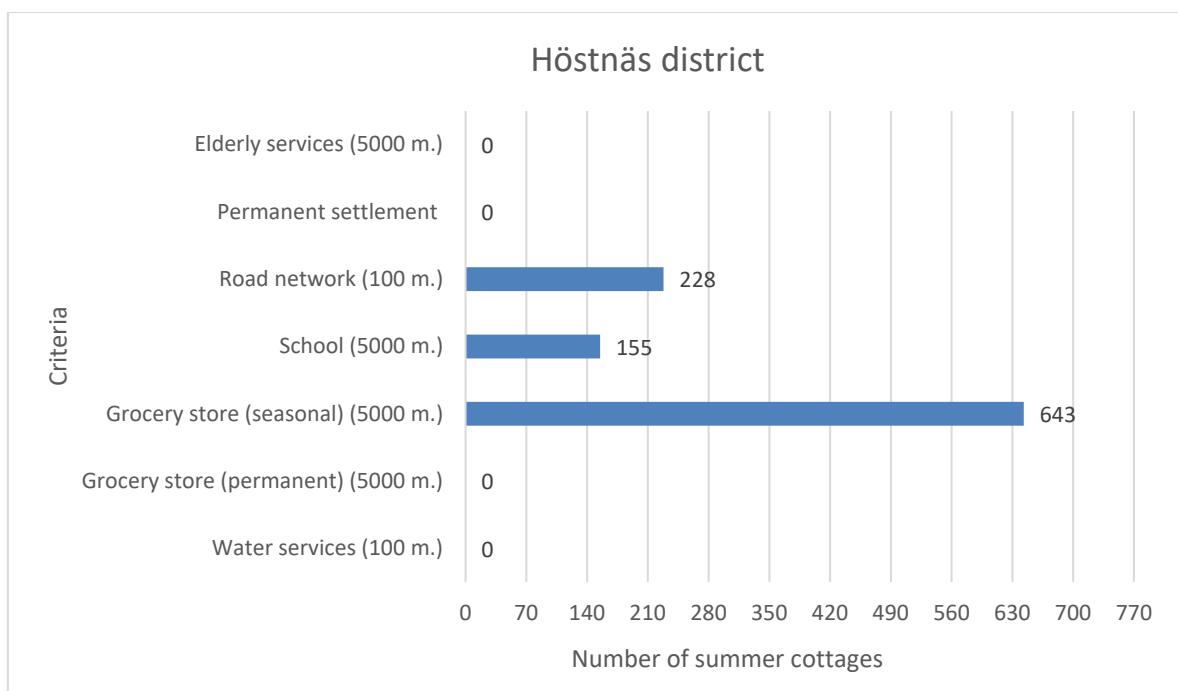


Figure 36: Analysis of available services for summer cottages in Hötnäs district

Characteristic:

The total number of summer cottages in the district is 734

Advantages

- Disadvantages**
- No access to water services
 - Lack of schools – 21,1% of summer cottages are located within 5 km. to a school
 - Lack access to the road network – 31,1% of summer cottages are located within 100 meters to the road network
 - No access to a grocery store

Karis district

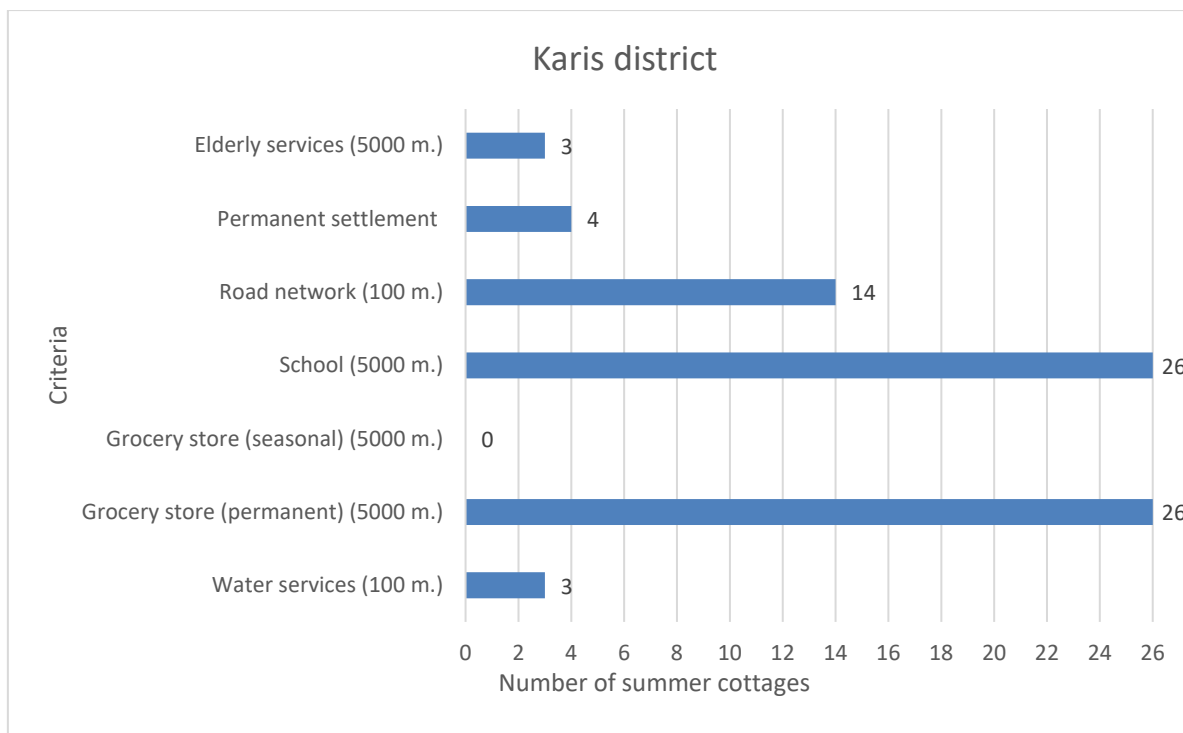


Figure 37: Analysis of available services for summer cottages in Karis district

Characteristic:

The total number of summer cottages in the district is 26

Advantages

- + All summer cottages have access to grocery store (within 5 km).
- + All summer cottages have access to school (within 5 km)
- + 53,8% of summer cottages are located within 100 meters to the road network

Disadvantages - Lack of water services

Knopkägra district

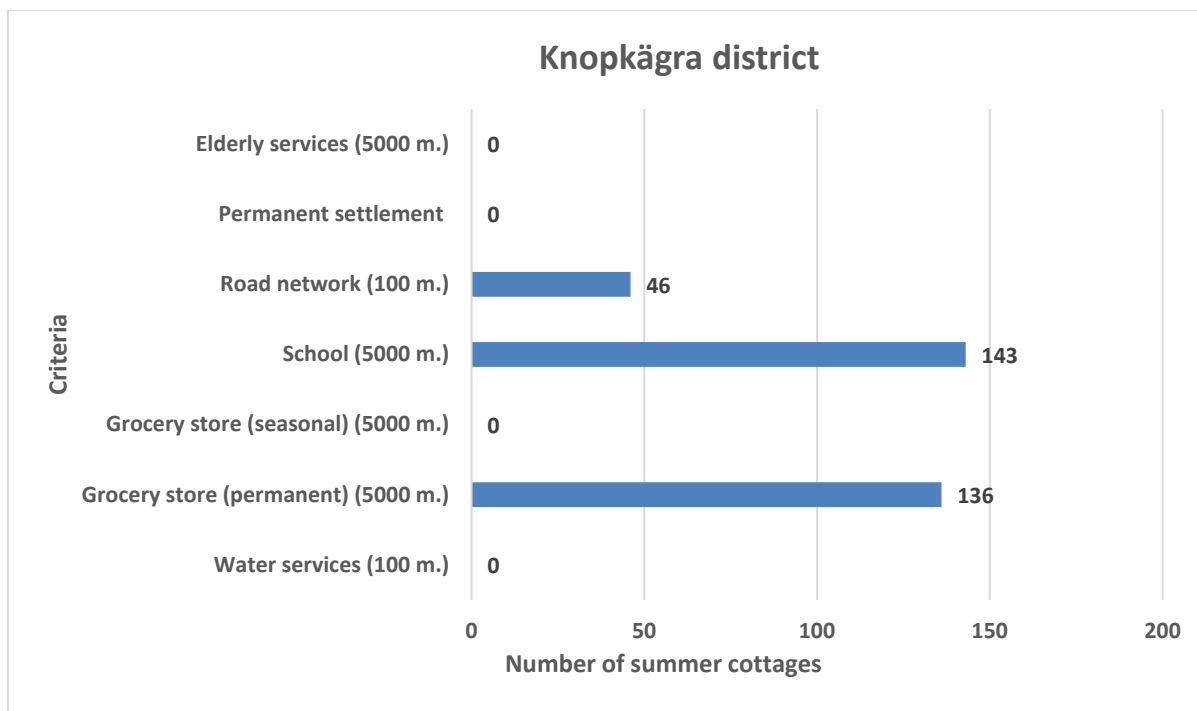


Figure 38: Analysis of available services for summer cottages in Höstnäs district

Characteristic:

The total number of summer cottages in the district is 201

Advantages + 71,1% of summer cottages are located within 5 km. to a school

Disadvantages

- No access to water services
- Lack access to the road network – 22,9% of summer cottages are located within 100 meters to the road network
- Lack access to a grocery store – 19,9% of summer cottages are located within 5km to the grocery school

Köpböle district

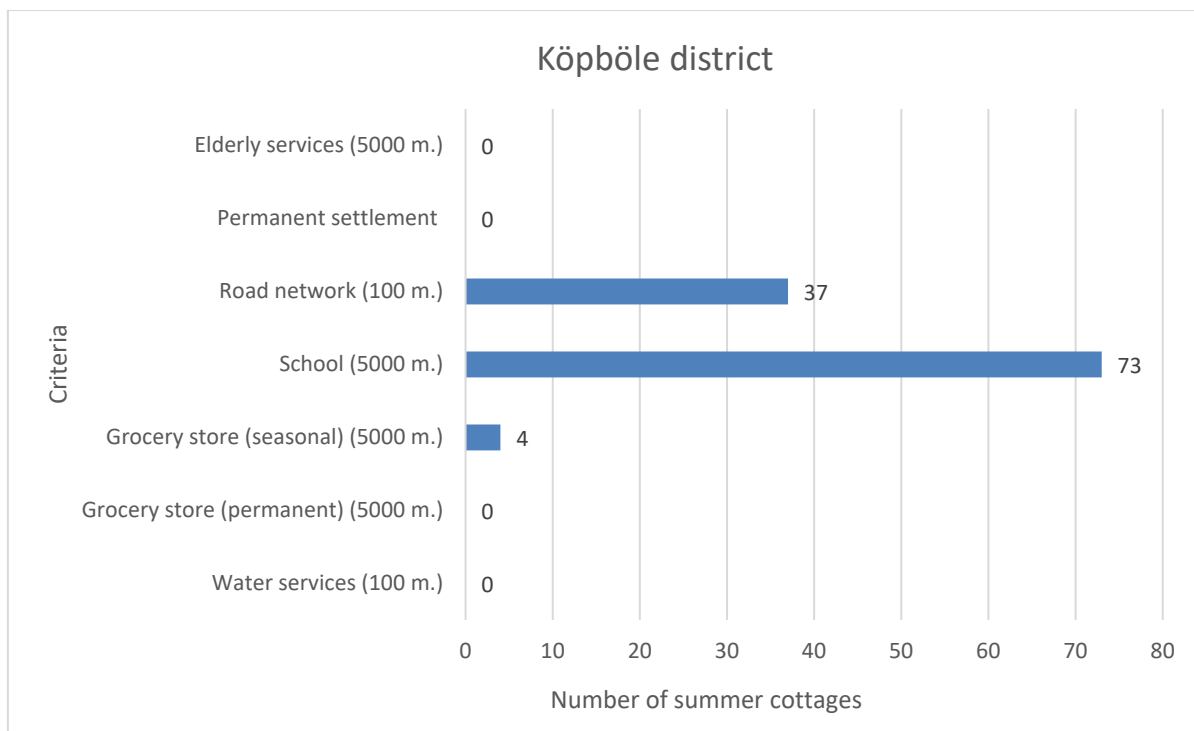


Figure 39: Analysis of available services for summer cottages in Köpböle district

Characteristic:

The total number of summer cottages in the district is 73

- Advantages**
- + 50,7% of summer cottages are located within 100 meters to the road network
 - + All summer cottages are located within 5 km. to a school

- Disadvantages**
- No access to water services
 - No access to a grocery store

Langansböle district

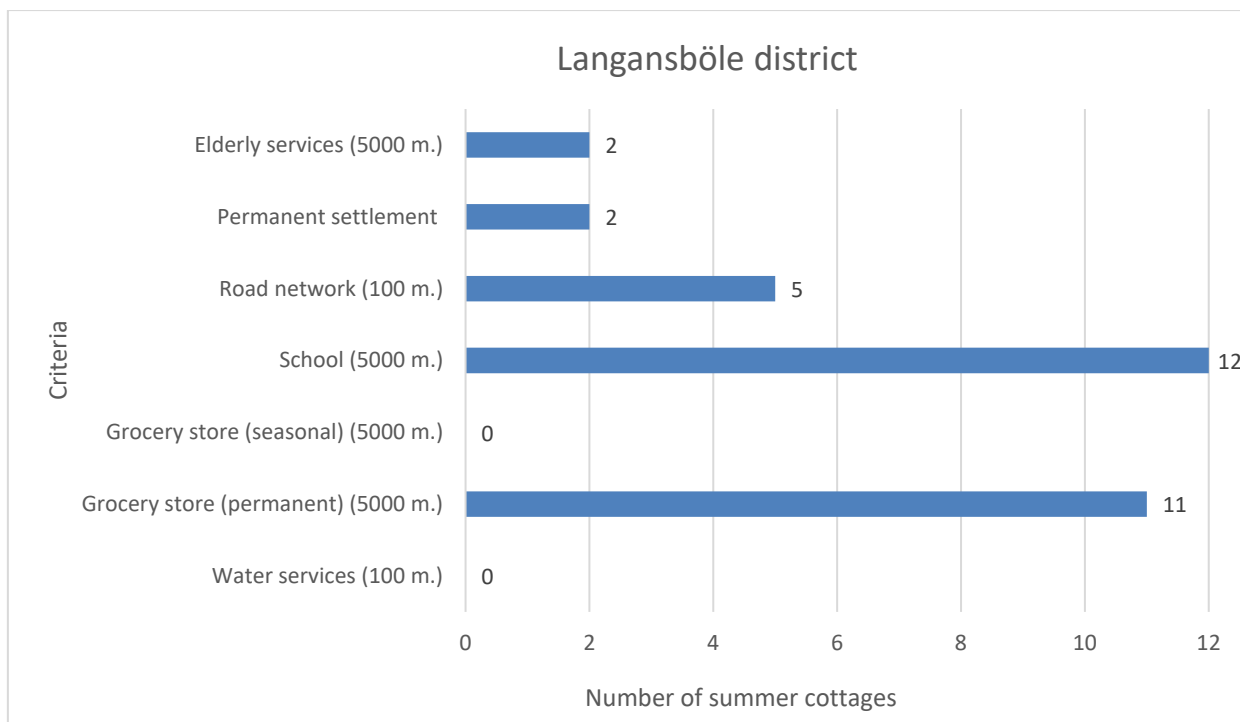


Figure 40: Analysis of available services for summer cottages in Langansböle district

Characteristic:

The total number of summer cottages in the district is 12

Advantages + All summer cottages are located within 5 km. to the school
 + 45,5% of summer cottages are located within 100 meters to the road network

Disadvantages - No access to water services
 - Lack of grocery store – 18,2% of summer cottages are located within 5 km. to the grocery store

Leksvall district

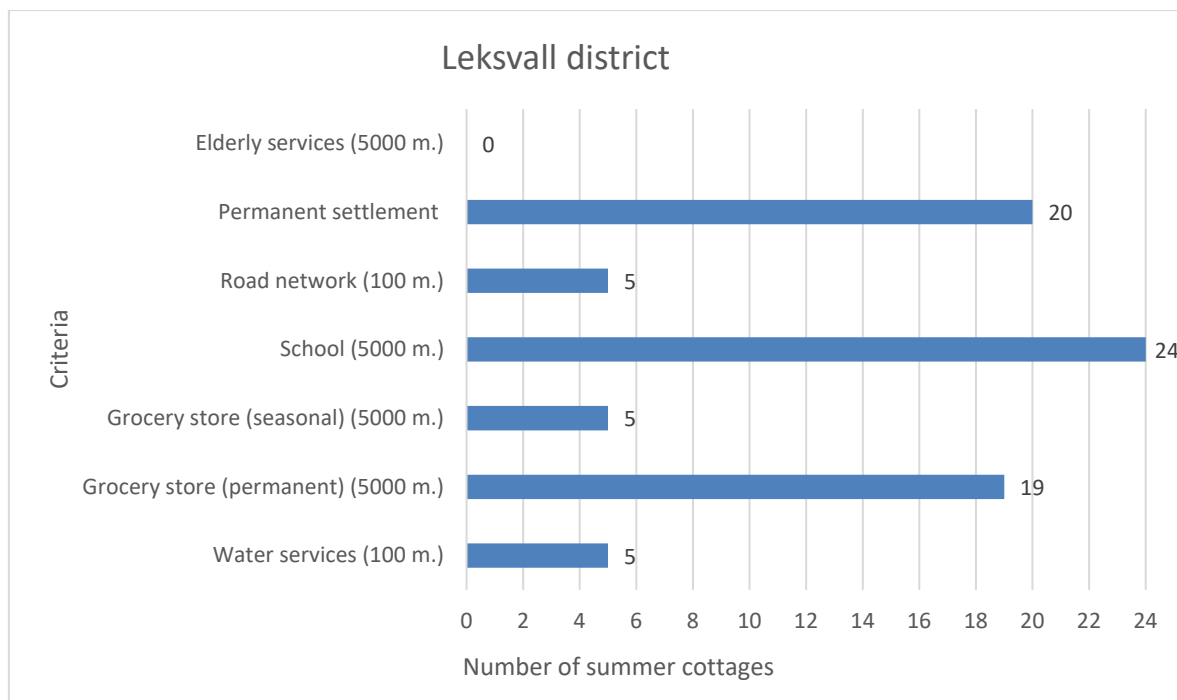


Figure 41: Analysis of available services for summer cottages in Leksvall district

Characteristic:

The total number of summer cottages in the district is 24:

Advantages

- + All of summer cottages are located within 5 km. to a school
- + Most of the summer cottages (83,3% of summer cottages) are located on the territory of permanent settlements

Disadvantages

- Lack of access to the water services network
- Lack of access to the road network
- Lack of access to a grocery store – 20,8% of summer cottages are located within 5km. to the seasonal grocery store

Mangård district

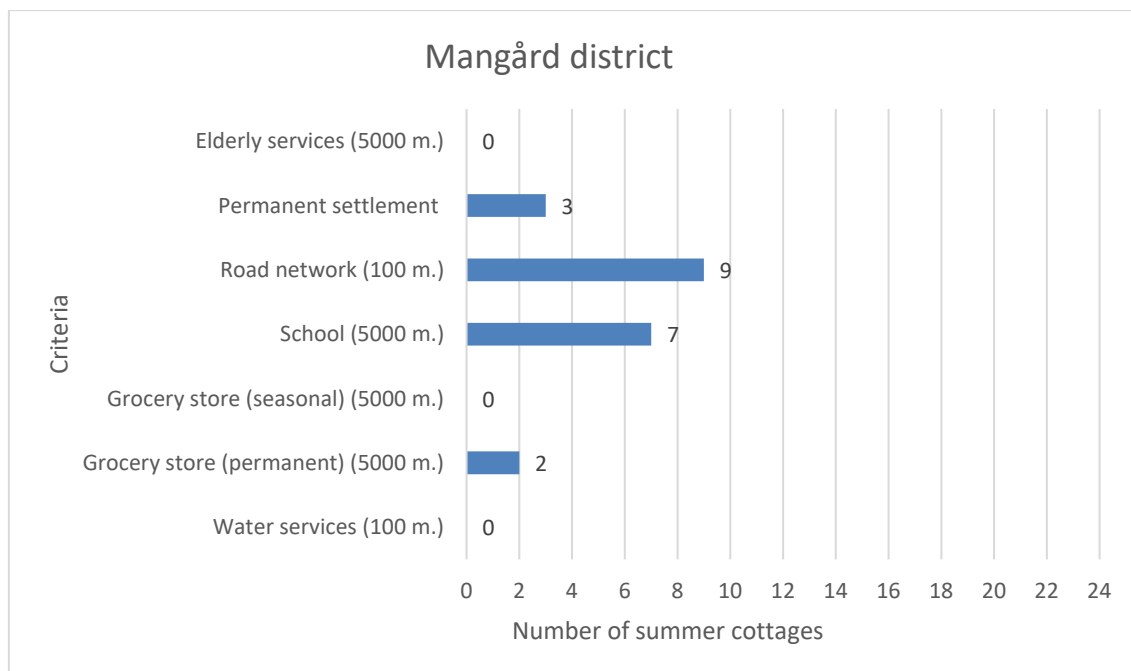


Figure 42: Analysis of available services for summer cottages in Mangård district

Characteristic:

The total number of summer cottages in the district is 23:

Advantages

- Disadvantages**
- No access to water services
 - No access to a grocery store
 - Lack of access to school – 30,4% of summer cottages are located within 5 km. to a school
 - Lack access to the road network – 39,1% of summer cottages are located within 100 meters to the road network

Manibacka district

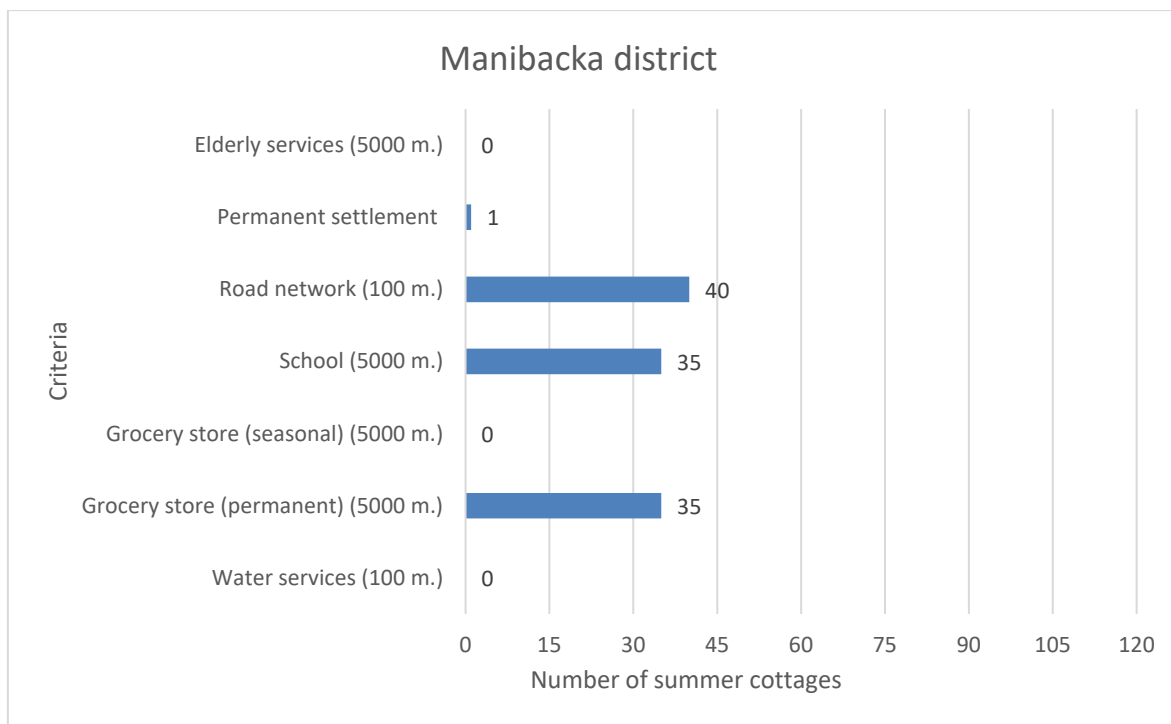


Figure 43: Analysis of available services for summer cottages in Manibacka district

Characteristic:

The total number of summer cottages in the district is 111:

Advantages

- Disadvantages**
- No access to water services
 - Lack of grocery store – 12,6% of summer cottages are located within 5 km. to the grocery store
 - Lack of schools - 31,5% of summer cottages are located within 5 km. to a school
 - Lack access to the road network – 40,0% of summer cottages are located within 100 meters to the road network

Mjölbolsta district

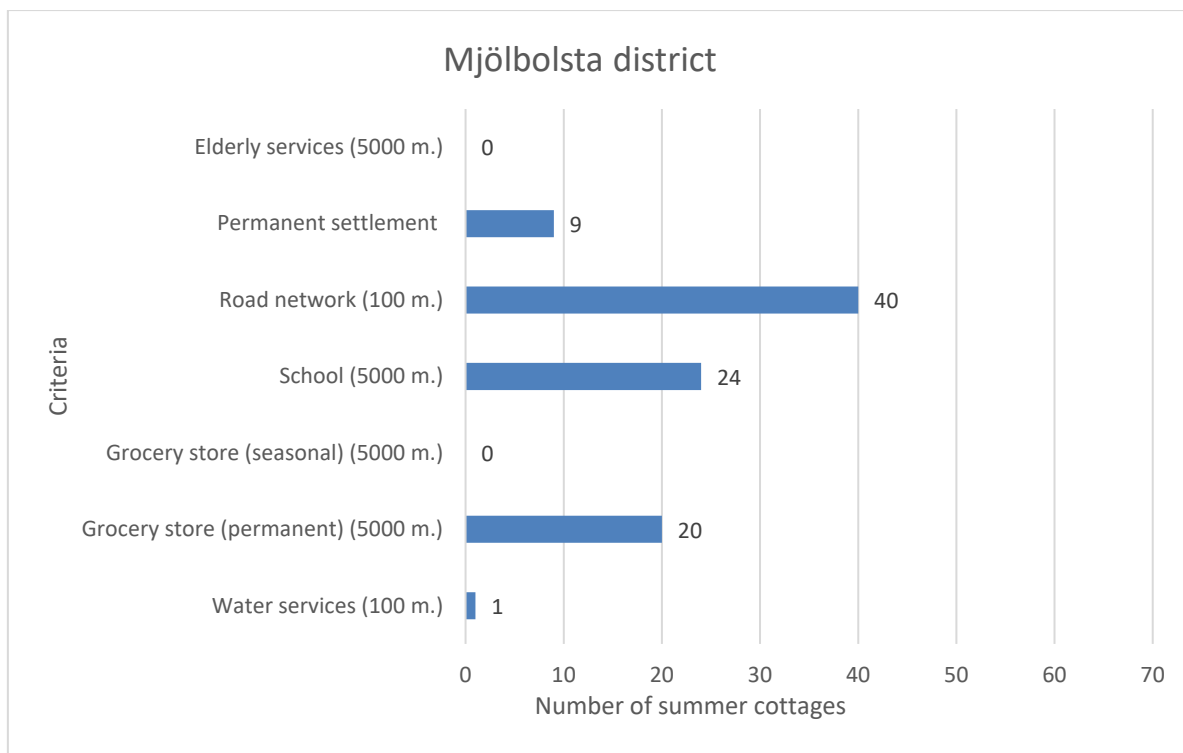


Figure 44: Analysis of available services for summer cottages in Mjölbolsta-Meltola district

Characteristic:

The total number of summer cottages in the district is 70:

Advantages + 57,1% of summer cottages are located within 100 meters to the road network

Disadvantages

- No access to water services
- Lack access to a school - 34,3% of summer cottages are located within 5 km. to a school
- No access to a grocery store – 2,9% of summer cottages are located within 5 km. to the grocery store

Pargas district

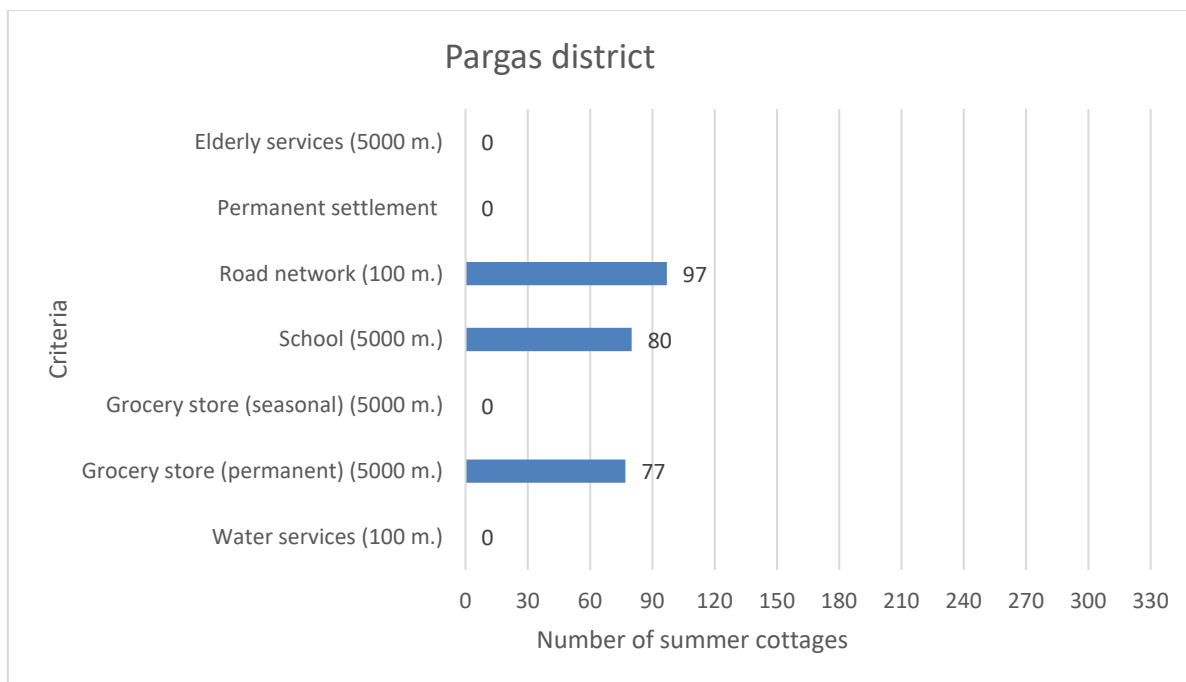


Figure 45: Analysis of available services for summer cottages in Pargas district

Characteristic:

The total number of summer cottages in the district is 328:

Advantages

- Disadvantages**
- No access to water services
 - No access to a grocery store
 - Lack of schools: 24,4% of summer cottages are located within 5km. to a school
 - Lack access to the road network – 29,6% of summer cottages are located within 100 meters to the road network

Pojo district

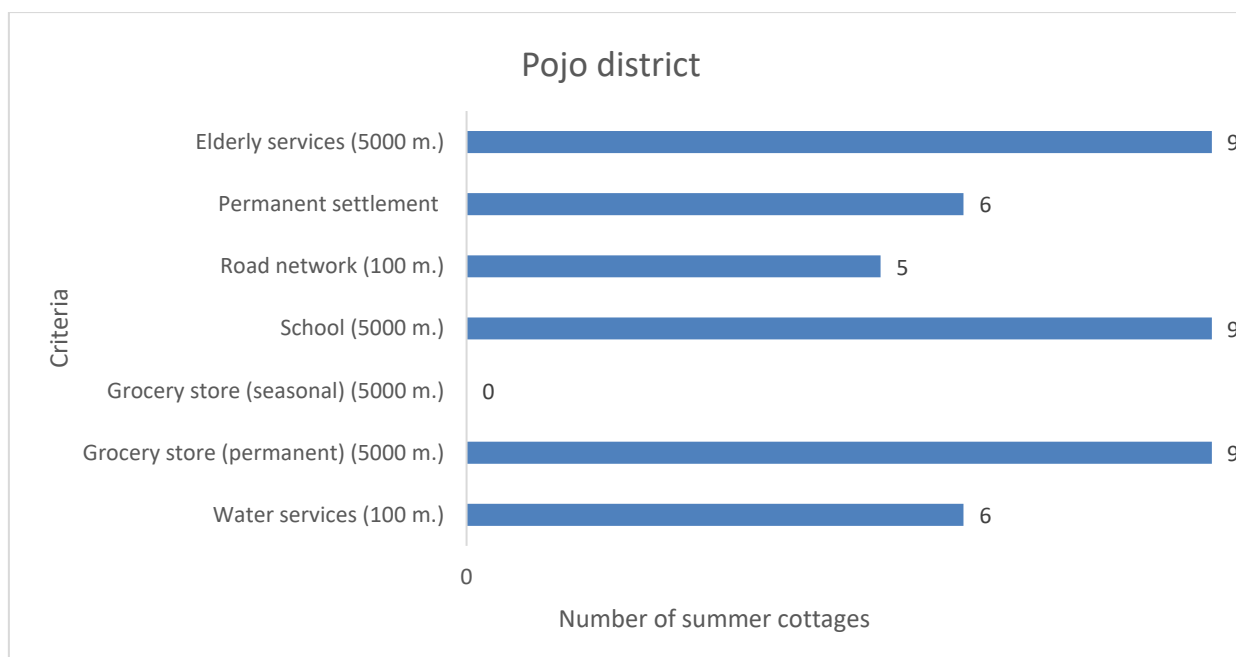


Figure 46: Analysis of available services for summer cottages in Pojo district

Characteristic:

The total number of summer cottages in the district is 9:

- Advantages**
- + All summer cottages have access to elderly services (within 5 km.)
 - + All summer cottages are located within 5 km to a grocery store and to a school
 - + Some of the summer cottages (66,7% of summer cottages) are located on the territory of permanent settlements
 - + 66,7% of summer cottages are located within 100 meters to water services
 - + 55,6% of summer cottages are located within 100 meters to a road network

Disadvantages

Präskulla district

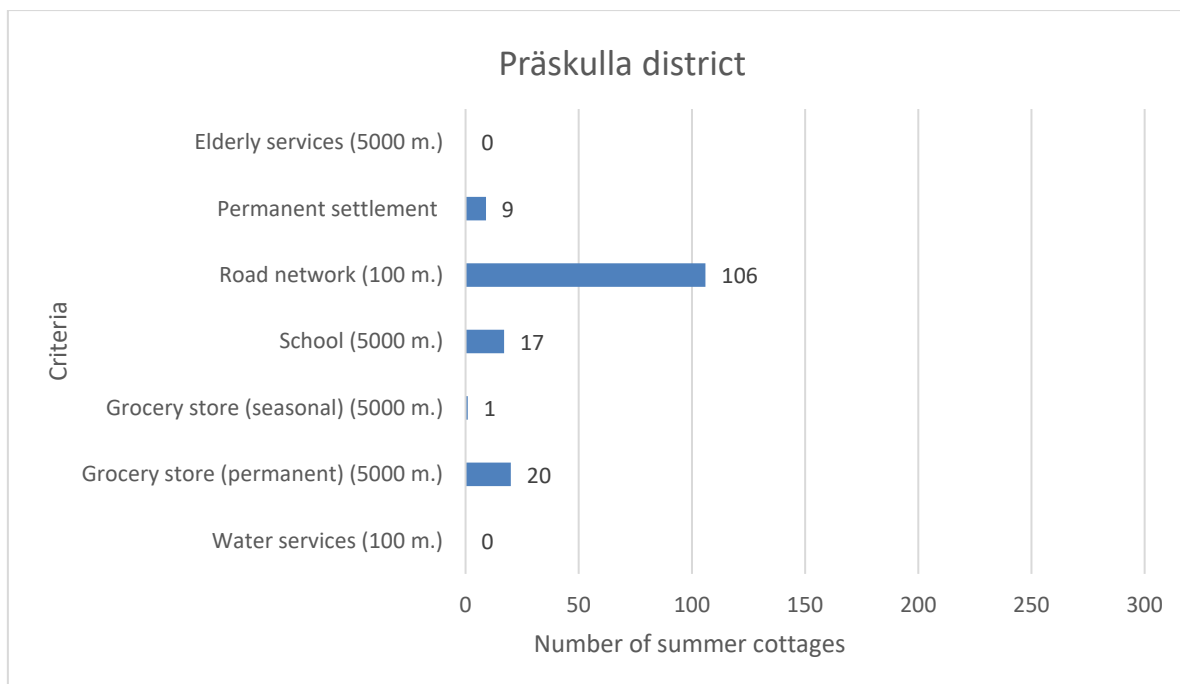


Figure 47: Analysis of available services for summer cottages in Präskulla district

Characteristic:

The total number of summer cottages in the district is 285:

Advantages

Disadvantages

- No access to water services
- Lack access to a school – 6,0% of summer cottages are located within 5 km. to a school
- No access to a grocery store – 3,2% of summer cottages are located within 5 km. to the grocery store
- Lack access to the road network – 37,2% of summer cottages are located within 100 meters to the road network

Sillböle district

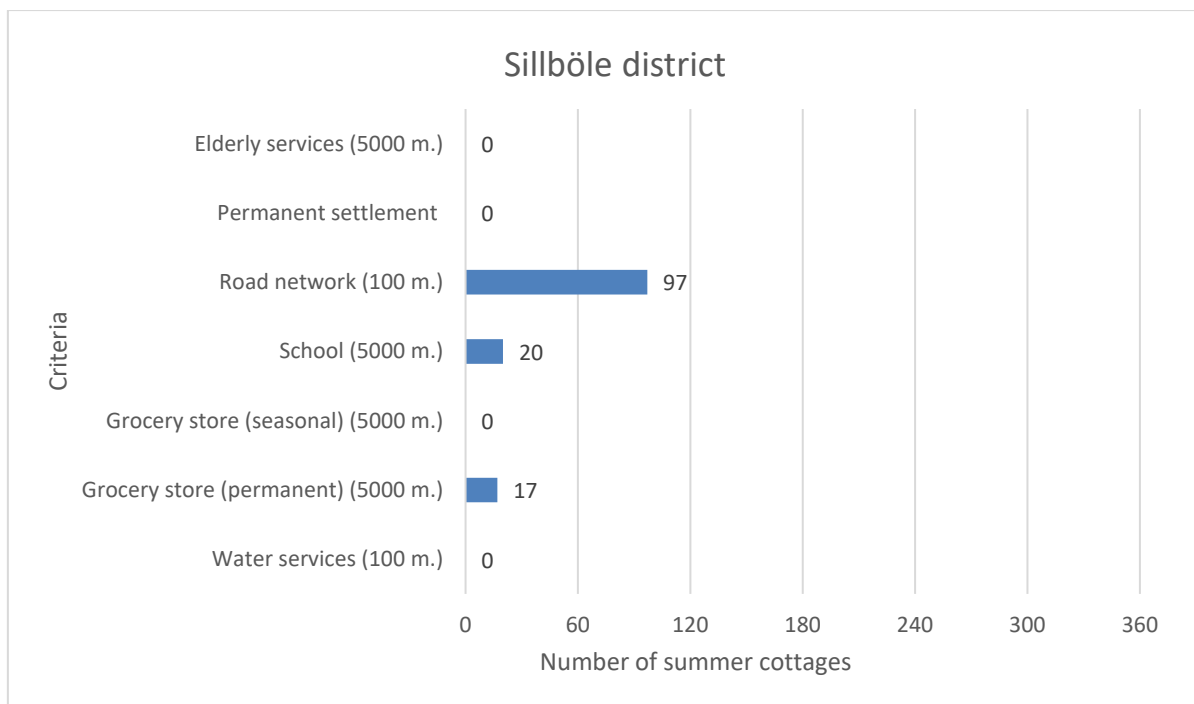


Figure 48: Analysis of available services for summer cottages in Sillböle district

Characteristic:

The total number of summer cottages in the district is 366:

Advantages

Disadvantages

- No access to water services
- Lack access to school – 5,5% of summer cottages are located within 5 km. to a school
- Lack access to a grocery store –3,3% of summer cottages are located within 5 km. to the grocery store
- Lack access to the road network – 26,5% of summer cottages are located within 100 meters to the road network

Skåldö district

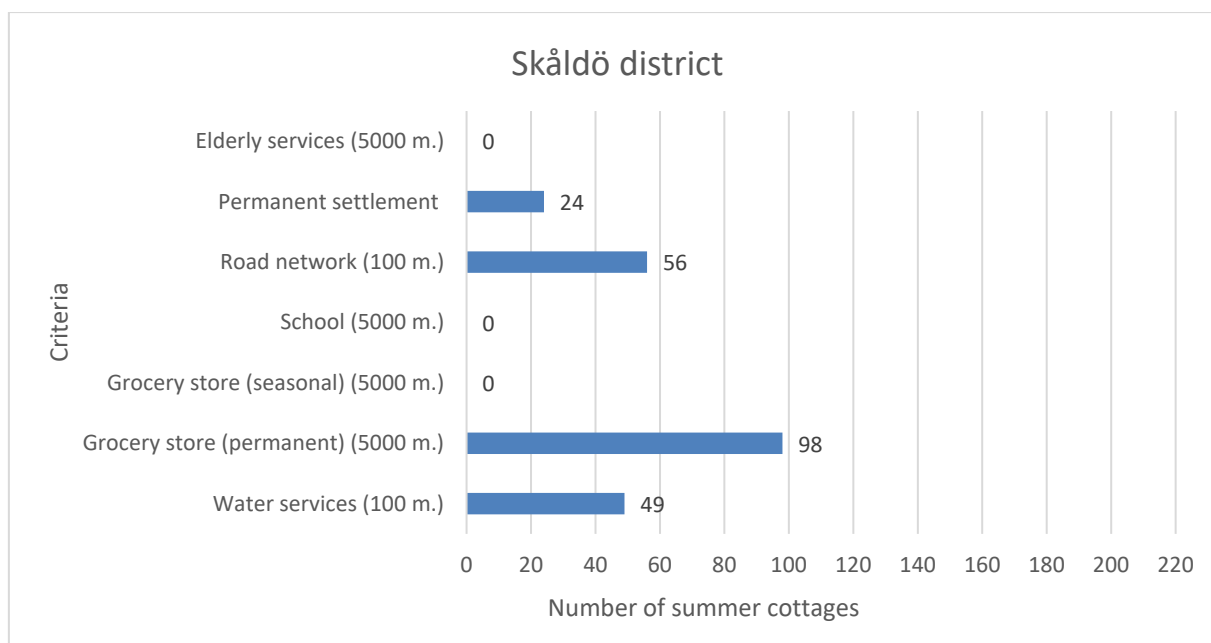


Figure 50: Analysis of available services for summer cottages in Skåldö district

Characteristic:

The total number of summer cottages in the district is 217:

Advantages

- Disadvantages**
- Lack of access to the road network - 25,8% of summer cottages are located within 100 meters to the road network
 - No access to school
 - Lack of water services – 22,6% of summer cottages are located within 100 meters to the water services
 - Lack of access to a grocery store – 11,5% of summer cottages are located within 5km. to the grocery store

Snappertuna district

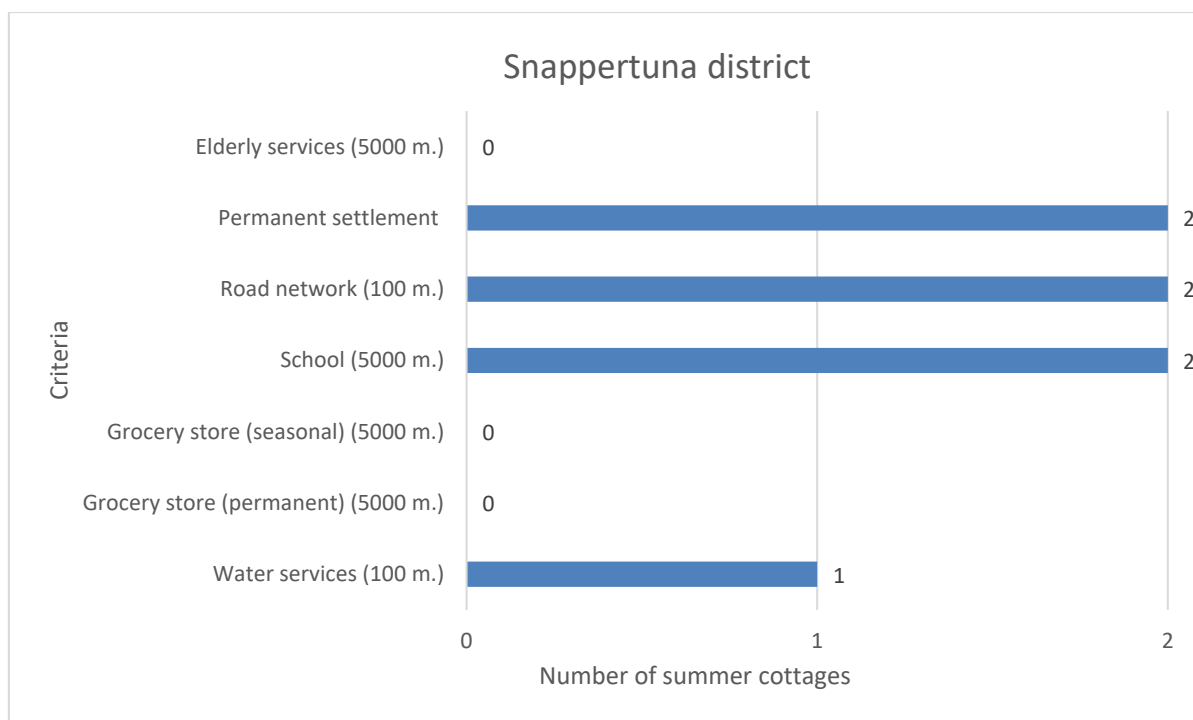


Figure 51: Analysis of available services for summer cottages in Snappertuna district

Characteristic:

The total number of summer cottages in the district is 2:

Advantages

- + All summer cottages are located within 100 meters to the road network
- + All summer cottages are located within 5 km. to schools
- + All summer cottages are located on the territory of permanent settlements

Disadvantages

- No access to a grocery store

Strömsö district

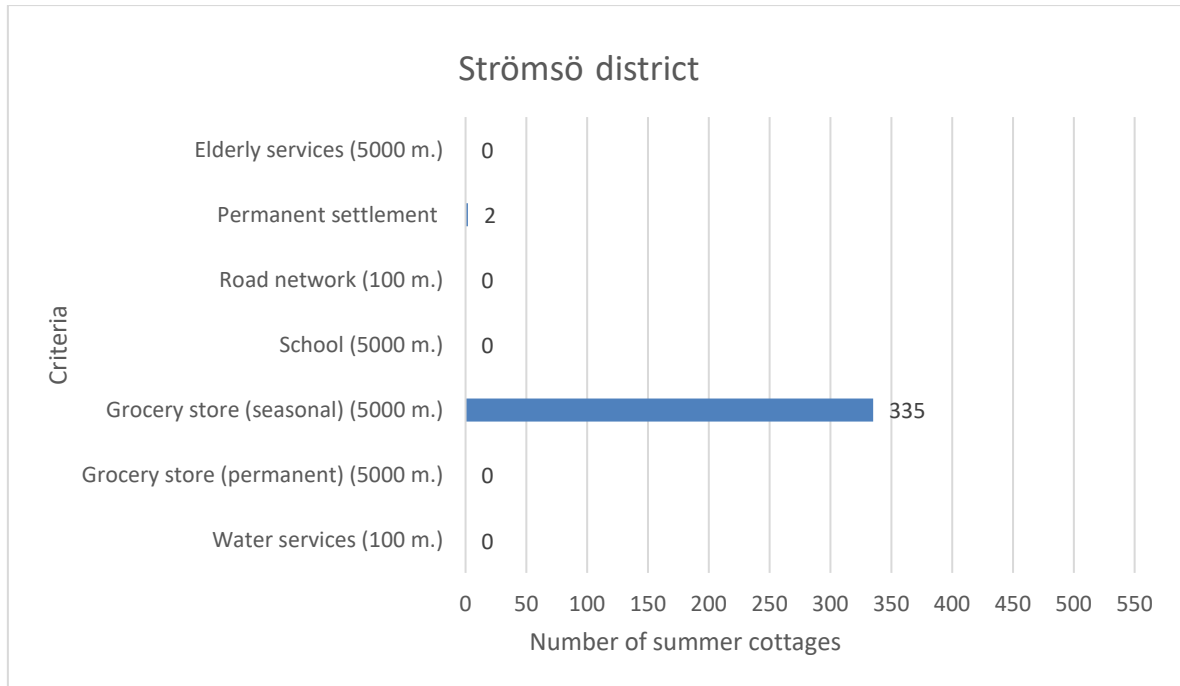


Figure 52: Analysis of available services for summer cottages in Strömsö district

Characteristic:

The total number of summer cottages in the district is 544:

Advantages

- Disadvantages
- No access to school
 - No access to a grocery store
 - No access to water services
 - No access to the road network

Svartå district

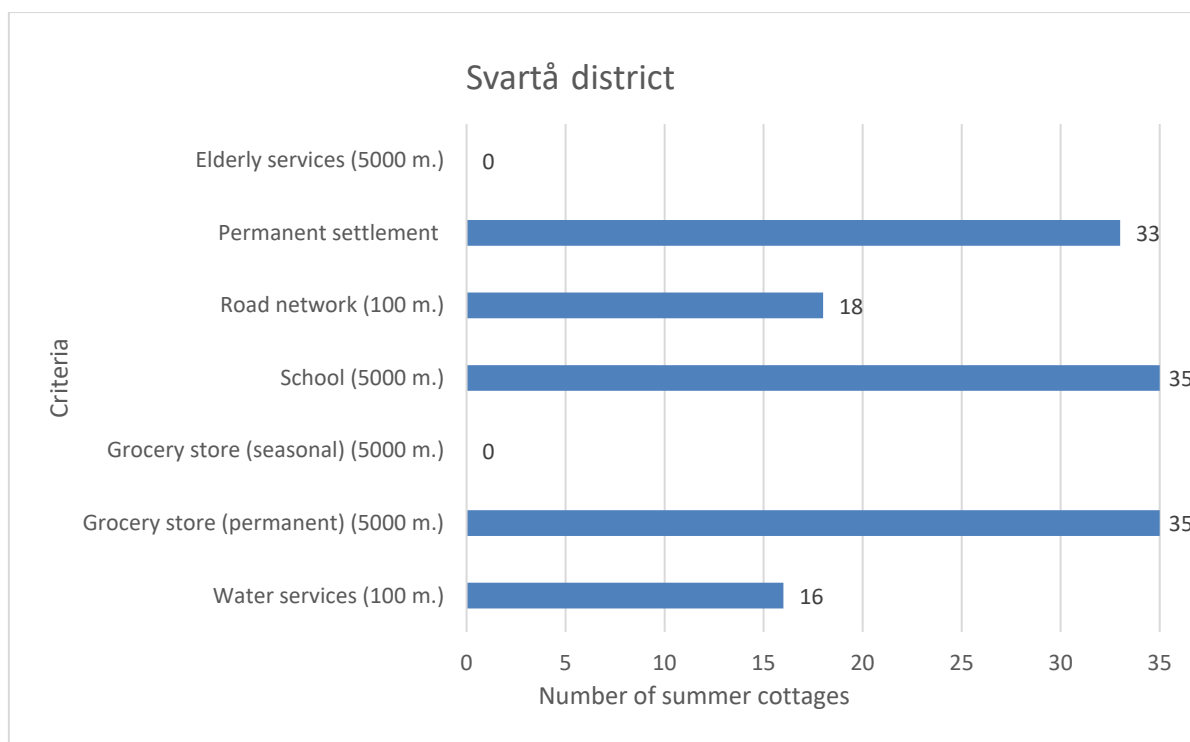


Figure 53: Analysis of available services for summer cottages in Svartå-Mustio district

Characteristic:

The total number of summer cottages in the district is 35:

Advantages

- + 80,0% of summer cottages are located within 5 km. to a permanent grocery store
- + All summer cottages are located within 5 km. to a school
- + 94,3% of summer cottages are located on the territory of permanent settlements
- + 51,4% of summer cottages are located within 100 meters to the road network

Disadvantages

- Lack of access to the road services – 45,7% are located within 100 meters to the water services

Svedja district

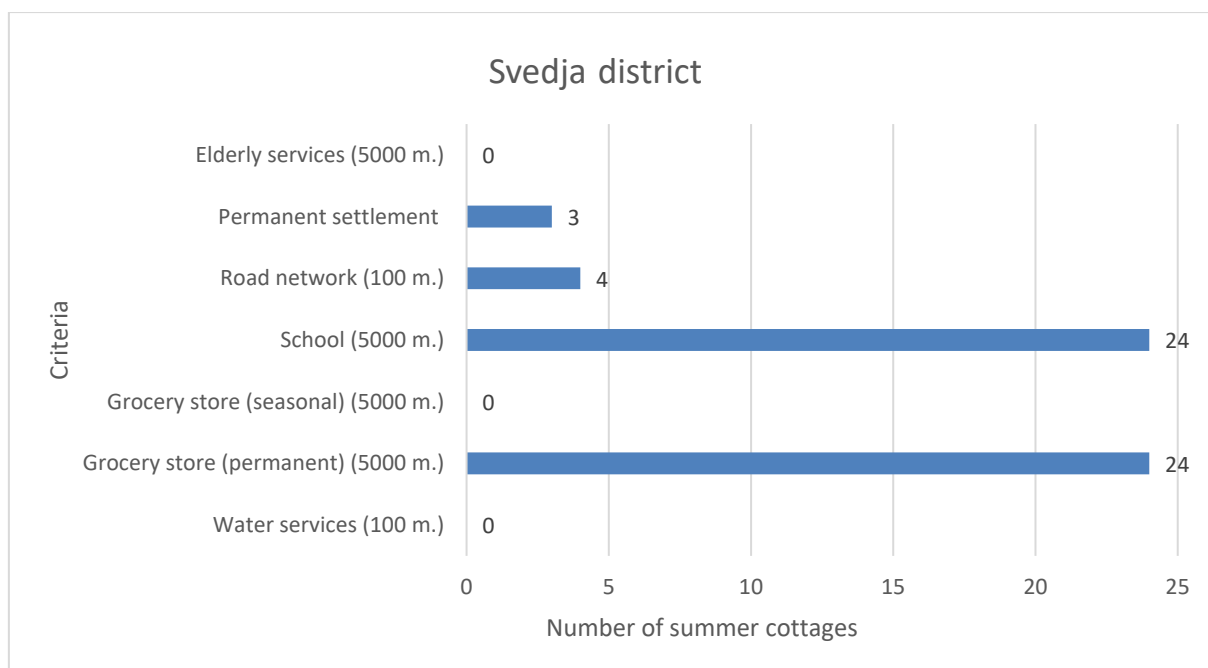


Figure 54: Analysis of available services for summer cottages in Svedja district

Characteristic:

The total number of summer cottages in the district is 24:

Advantages + All summer cottages have access to school – 79,17% of summer cottages are located within 5km. to the school and 20,83% of summer cottages – within 3km. to the school

Disadvantages

- No access to water services
- Lack of access to the road network – only 16,7% of summer cottages are located within 100m. to the road network
- Lack access to a grocery store – 20,8% of summer cottages are located within 5km to the grocery store

Tenala district

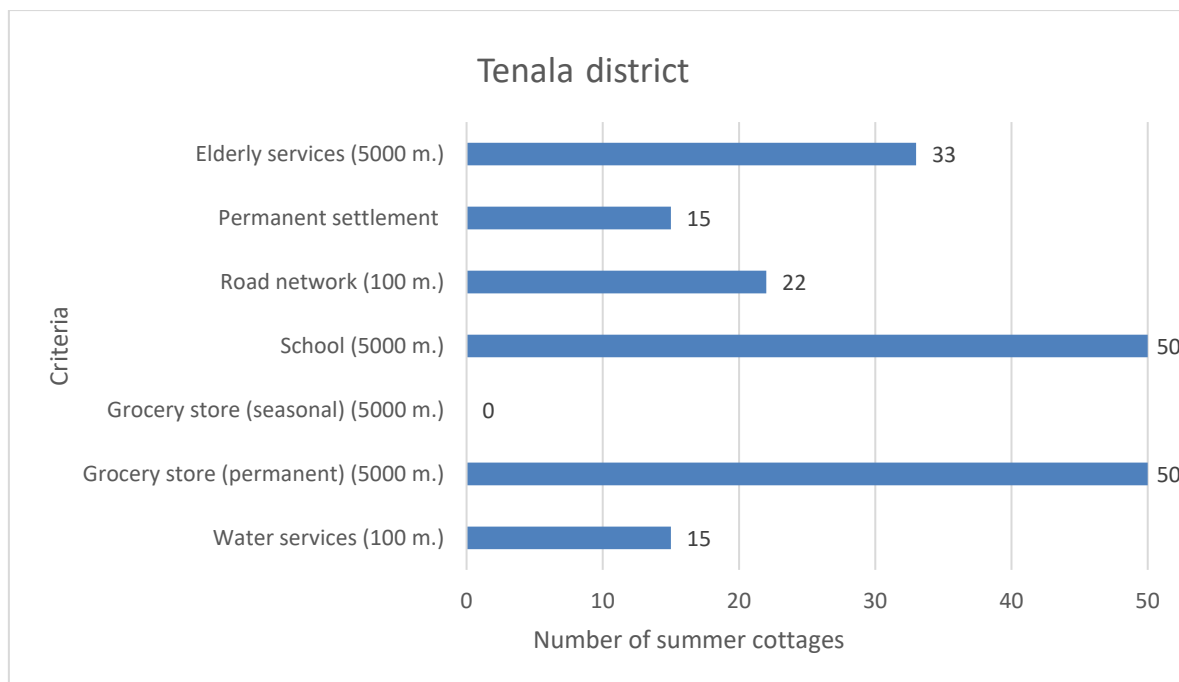


Figure 55: Analysis of available services for summer cottages in Tenala district

Characteristic:

The total number of summer cottages in the district is 50:

- | | |
|------------|--|
| Advantages | <ul style="list-style-type: none"> + All summer cottages have access to a grocery store – are located within 5 km. to a grocery store + All summer cottages have access to a school – are located within 5 km. to a school. + 66,0% of summer cottages are located within 5 km. to elderly services + 30% of summer cottages are located on the territory of permanent settlements |
|------------|--|

- | | |
|---------------|---|
| Disadvantages | <ul style="list-style-type: none"> - lack of water services – 30, 0% of summer cottages are located within 100m. to the water services network |
|---------------|---|

Trollbøle district

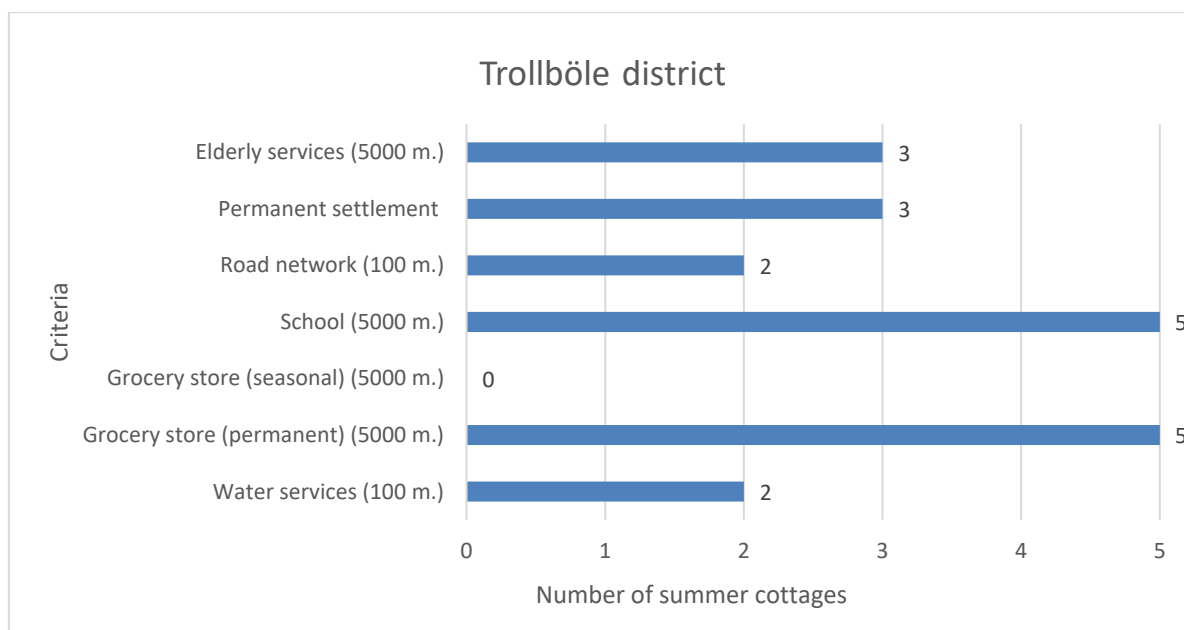


Figure 57: Analysis of available services for summer cottages in Trollbøle district

Characteristic:

The total number of summer cottages in the district is 5:

Advantages

- + 80,0% of summer cottages are located within 5km. to a grocery store
- + All summer cottages are located within 3km. to the school
- + 60,0% of summer cottages are located on the territory of permanent settlements
- + 40,0% of summer cottages are located within 100 meters to the road network

Disadvantages -

Västervik district

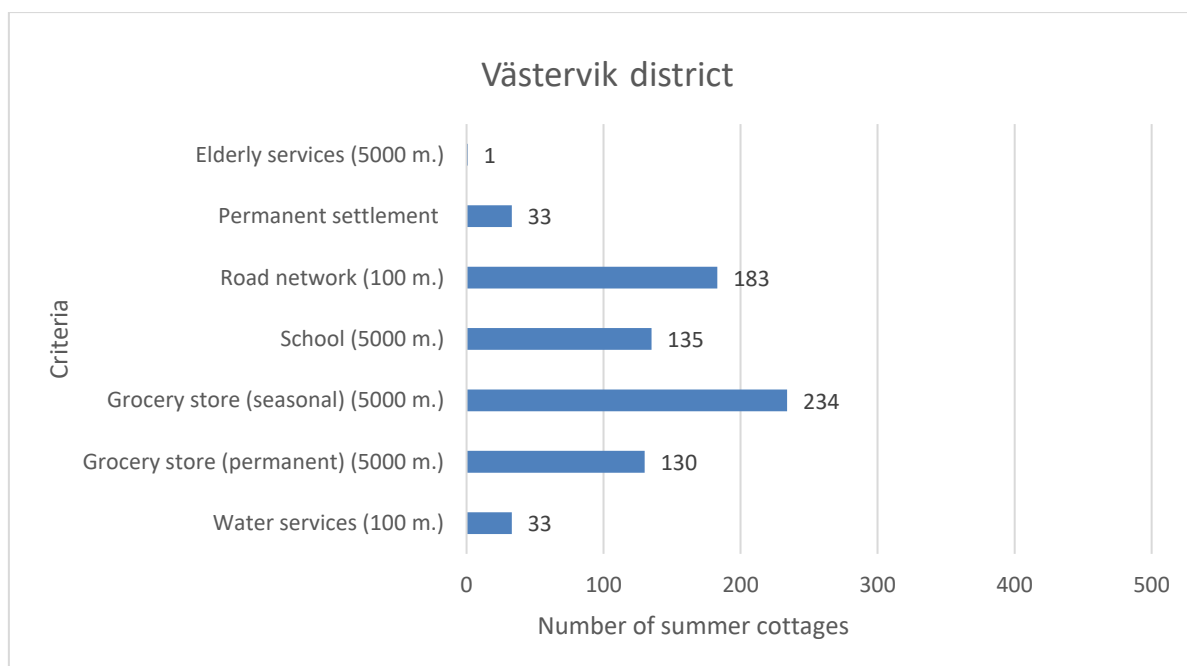


Figure 58: Analysis of available services for summer cottages in Västervik district

Characteristic:

The total number of summer cottages in the district is 496:

Advantages

- Disadvantages**
- Lack of water services – 6,7% of summer cottages are located within 100 meters to the water services
 - Lack of grocery stores – 8,1% of summer cottages have close access to seasonal grocery store
 - Lack of schools – only 27,2% of summer cottages are located within 5km. to the school
 - Lack access to the road network – 36,9% of summer cottages are located within 100 meters to the road network

Åminnefors district

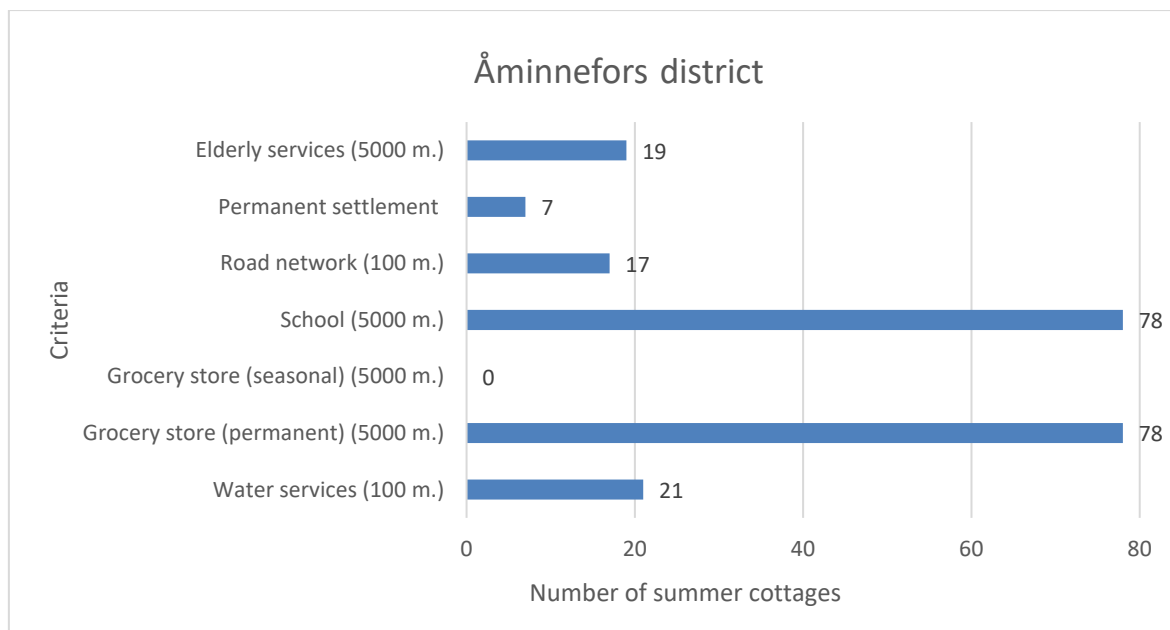


Figure 59: Analysis of available services for summer cottages in Åminnefors district

Characteristic:

The total number of summer cottages in the district is 78:

Advantages	<ul style="list-style-type: none"> + All summer cottages have access to a school –they are located within 5km. to a school + 47,4% of summer cottages are located within 5km to a grocery store
Disadvantages	<ul style="list-style-type: none"> - Lack of water services – 26,9% of summer cottages are located within 100m. to water services - Lack access to the road network – 21,8% of summer cottages are located within 100 meters to the road network

Älgö district

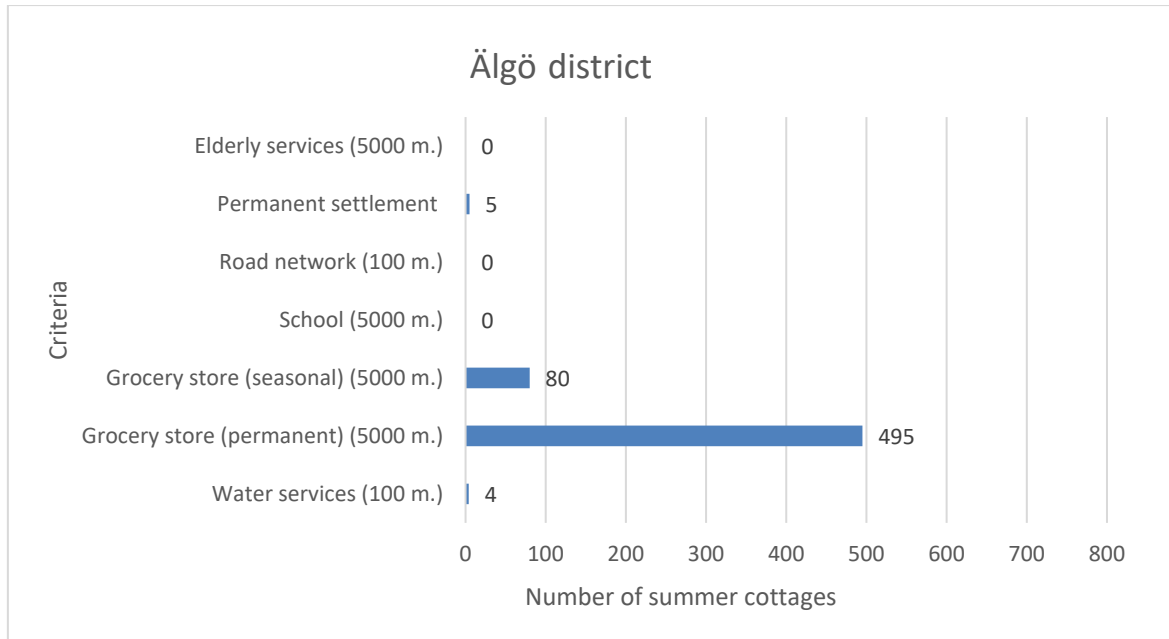


Figure 60: Analysis of available services for summer cottages in Älgö district

Characteristic:

The total number of summer cottages in the district is 822:

Advantages

- Disadvantages
- No access to water services
 - No access to schools
 - No access to the road network
 - No access to grocery store

Österby district

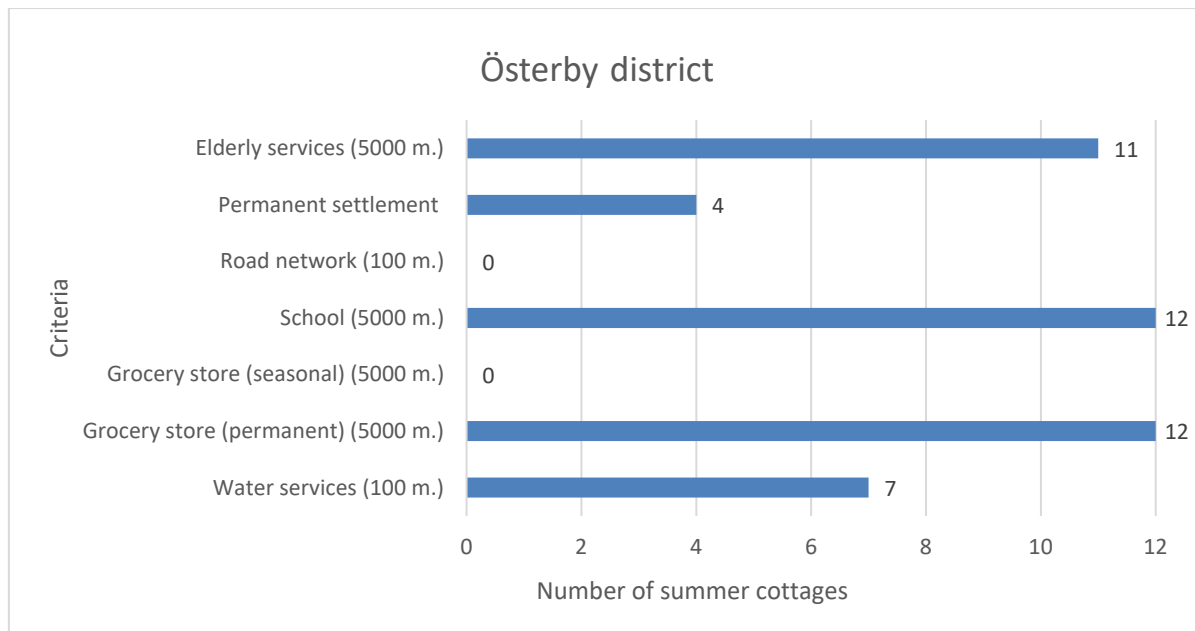


Figure 61: Analysis of available services for summer cottages in Österby district

Characteristic:

The total number of summer cottages in the district is 12:

- Advantages**
- + All summer cottages have access to a school –they are located within 5km. to the schools
 - + All summer cottages have access to a grocery store - they are located within 5km. to a grocery store
 - + 58,3% of summer cottages are located within 100 meters to the water services network
 - + 91,7% of summer cottages have access to elderly services

Disadvantages - No access to the road network

7.2 A list of questions that were used in the questionnaire

1. In which district of Raseborg is your vacation home located?
2. Why did you choose Raseborg as the location for your vacation home?
3. Where is the place of your permanent residence?
4. How much time do you spend at your vacation home?
5. Has the COVID-19 pandemic affected the length of stay in a vacation home?
6. What type of transport do you mainly use during your stay in a vacation home?
7. What services and where do you use when you live in a vacation home?
8. If you use other services in Raseborg - describe which ones and where.
9. If you use any services outside of Raseborg - please describe which services, where and why exactly in this place.
10. Have you considered permanent housing in your vacation home?
11. What services would you like to have for living permanently in a vacation home?
12. In which part of Raseborg would you like to have the services, that you listed in the previous question?
13. Has COVID-19 influenced your thoughts on where you want to live permanently?
For example, have you considered moving to your vacation home?
14. Your gender
15. What is your age?
16. Do you want to add something important - please let us know?