



Urban Fringe: Exploring the expansion of city, challenges on agriculture lands and food production in context of Northern Lund

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SUSTAINABLE URBAN DESIGN
ASBM 01 DEGREE PROJECT 2021

Master Thesis Booklet

May 2021

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All artwork and photographs presented in this book are done by the author unless noted otherwise

ACKNOWLEDGEMENT

First and foremost, I would like to thank my Supervisor, **Daniel Wasden** for guiding me in the right direction and taking time out from his busy schedule to assist me with timely inputs & suggestions throughout in this thesis.

I would also like to thank specially my another supervisor **Louise Lövenstierne** (Course Leader, Board member of SUDes Urban Lab, Architect MSA) for supporting me not only during thesis but also since my Master's journey at SUDes. I would like to acknowledge other faculties that I met during different courses and provoked me to think more deeply about urban and social issues and how to response as an urban designer as well as human. The list is quite long but i am putting remarkable figures from SUDes department, that is the least I can do!

1.Lars-Henrik Ståhl, Director of SUDes, PhD, Professor

2.Peter Siöström, Assoc. Professor. Architect SAR/MSA

3.Andreas Olsson, SUDes Programme Assistant, , Architect SAR/MSA

4.Ida Sandström, Department of Architecture and Built Environment

5.Benjamin Dohrmann, Urban Designer / Urban Planner, SUDes alumni

6.Teresa Arana Aristi, Architect / Urban Designer, SUDes alumni

7.Misagh Mottaghi, Water Resource Management, LTH

8.Erik Johansson, Associate Professor, Department of Architecture and Built Environment

I would like to show my gratitude to **Swedish Institute** for granting me Swedish Institute Scholarships for Global Professionals 2019/21 and provide me such opportunity to continue my journey to enhance my technical skills to meet the challenges of Sustainable world.

In particular, I am deeply thankful to my family, Pushpita, Music of great artists while working for the project, my friends for their unconditional love and thoughts, my classmates for giving their inputs on different relevant subjects, facilities from Lund University and God for making all of this possible.

PROJECT SUMMARY

World population is increasing rapidly and cities are growing constantly outwards, in most cases taking over the agricultural lands. Besides Sweden imports 65% of agricultural products and if some situation like pandemic happens and neighbouring countries close the border completely the fresh vegetables will only last for 14 days! Responsible authority for this is the municipalities who have almost no control in food production. Lund is a city of education, research and innovation nowadays. When the city of Lund was born, it was surrounded by farmland. Then, with the Lund University in particular, city's development became noticeable, as well as attracting creative people around the world. To cope up with its outstanding potential the geographical perimeter of the city has grown exponentially to accommodate this growing population. Even if the current population growth is taken in count, the population of Lund will be 3 times after 100 years. Besides, the way Lund is occupying the surrounding agricultural land and building, one day it will be difficult to find agricultural land to grow food! So I think it is high time to rethink the way we live and grow food! The project explores the challenges and opportunities within and beyond to make a resilient city that can accommodate more people in limited space by densifying and using different hierarchical approach of food production considering different groups. The project seeks to integrate densifying living, food production, strengthen green blue connection for greater biodiversity and enhance the relationship of residents with nature, using clean energy and sustainable mobility options for a better sustainable world.

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“Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning.”
– Albert Einstein



RESEARCH QUESTION

It is predicted [1] that human population will increase more than 35% by 2050 and to feed this number we need to increase the production by 100%. What is scarier in this perspective is continuous losing of agricultural land and percentage of people involved in this profession. So it is high time we need to explore more into the way we live and how we produce food. In my degree project I will investigate the challenges and opportunities of city growth, densification and food production in context of urban fringe of northern part of Lund, Nöbbelöv.



POPULATION/2050

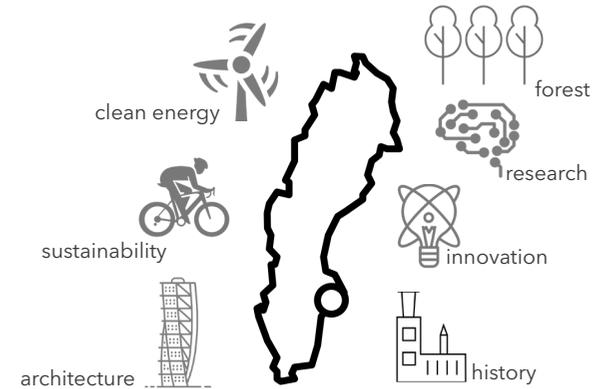
35% ▲



FOOD TO FEED/2050

100% ▲

PART 01 : CONTEXT OF SWEDEN

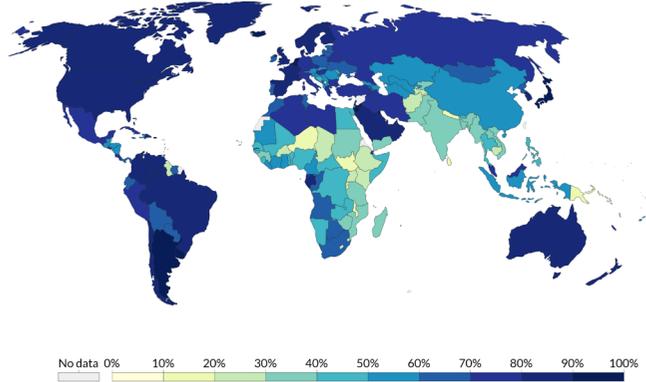


URBANIZATION IN SWEDEN

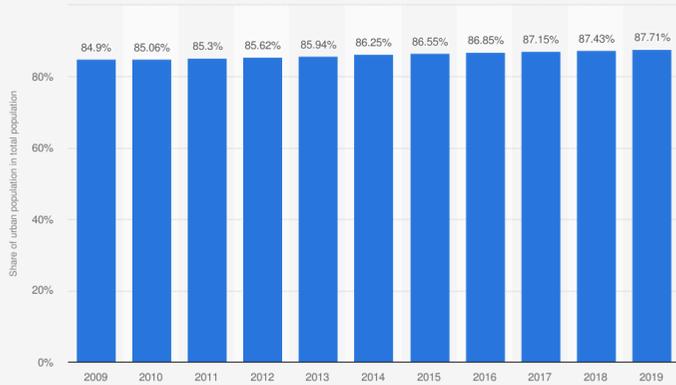
Sweden is one of the most urbanized countries in the world with around 87.71% live in urban areas in 2019 [2]. Even in 1960s more than 70% lived in urban areas. According to Swedish-national-report-habitat-iii [3] in 2010 there were 1,956 urban areas in Sweden. Their total area corresponded to 1.3 % of the country's land area. In 2010 lived 8.016 million people in urban areas, representing 85 % of the country's total population. Percentage of population in urban areas 1960 was 72 % and 2015 86 % with this definition of an urban area with at least 200 inhabitants. During the last 40 years the suburban municipalities has had the largest population growth, 70 %. The pressure on the suburbs have led to increased construction of housing and spread of new housing in the hinterland of the cities. During

the last years the discussion of densification instead of sprawl have become more present in order to decrease the strain on more hinterland and instead make the use of the already utilized land and existing infrastructure more effective.

In Sweden, the 290 municipalities have a major responsibility for the planning of land and water areas. The Planning and Building Act states that the municipalities must take into account and coordinate the comprehensive plan with relevant national and regional objectives, plans and programs relevant to create a sustainable development. So it is important to understand the regional and national vision and strategies while designing municipalities plan.



Sweden: Urbanization from 2009 to 2019



Source: World Bank © Statista 2021

Additional Information: Sweden: World Bank

NATIONAL STRATEGY:

To concretize the national targets the “Vision for Sweden 2025” has been developed. The vision aims to show where Sweden needs to be in year 2025 to meet the national targets until year 2050. The National Board of Housing, Building and Planning (Boverkett) emphasized four factors as mega-trends while rendering VISION FOR SWEDEN 2025 [4]. They are a climate change, globalisation, urbanization and digitization. It is predicted to increase in earth’s temperature by up to 6 degree during the 21st century. As foreign trade is key factor in Swedish growth and it is expected to expand in growing countries. Manufacturing of advance technology can play vital role in this sector. With growing population Sweden is going to experience denser city center with vision for polycentric development. With access to first-class internet links Sweden is more likely to exploit the digitisation opportunities.

According to Boverket, in 2025 three metropolitan regions of Sweden will accommodate about 6 million people out of 10million. To manage this growing metropolitan Sweden is looking into four approaches.

- Towards multi-core metropolitan regions
- Cores linked together
- Regionally coherent approach
- Living commuting towns

To create a more sustainable environment in and around the city and enhance biological diversity Sweden approach for

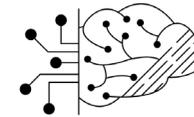
- Places fit for people
- Cars are left at home
- Closed by and accessible
- More and more people choose a resource-saving lifestyle
- The suburbs are integrated



climate adaptive



desne urbanization



digitalisation opportunities



global expansion



AGRICULTURE IN SWEDEN:

Agriculture played key a role in developing human settlements in the beginning of civilisation. Sweden is no different in this context. In global context, arable land in sweden stands in one of the lowest arable land countries with only about 6.2% in 2018. According to Swedish Board of Agriculture, JORDBRUKSVERKET, [6], about half the area is covered by forest. Mountains, marshes and lakes together cover approximately one third. The cultivated area is somme 2.7 million hectares. This is about 6.5% of sweden's total land. The southern part of sweden which is most warm and lands are more fertile because of its geographical history plays very vital role in agricultural landscape of sweden. In particularly the region of skåne near to sea bed including Lund are classified as Quality of Agricultural land 8-10.

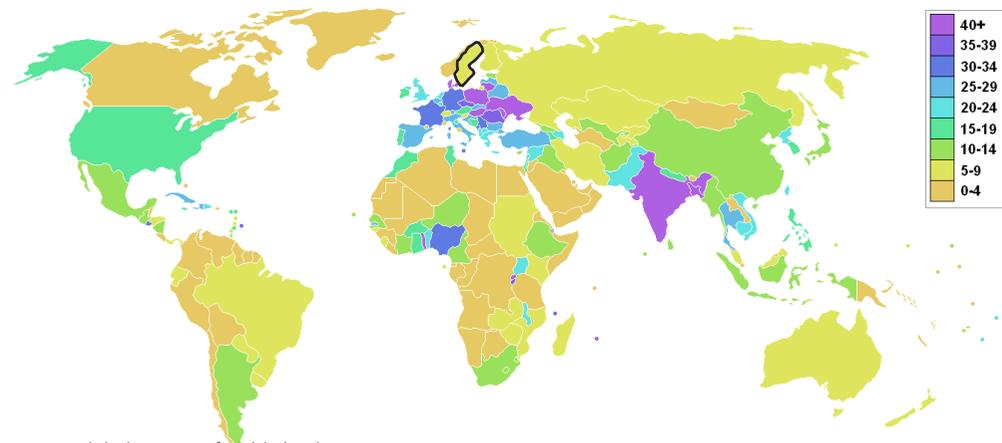


image: global context of arable land as per country

WHY LOSING AGRICULTURAL LAND: Structural change in agriculture has in the last 50 years resulted in a sharp decline in the number of farms and at the same time farms have grown larger. With technological advancement and economic transition the large estates around the Skåne fell apart and it has affected the small household productions as well. Later on corporate privatization of food industry also worsened the family farmers' situation. This ends in most cases by selling the land either to big corporate companies or housing companies specially if the land is in the fringe. Arable land in sweden has reduced from 8,6% to 6,2% 1961. In Skåne declining of arable is the fastest in sweden. Fast growth of the cities in skåne also influenced the fringe lands to sell in higher profitable prices.

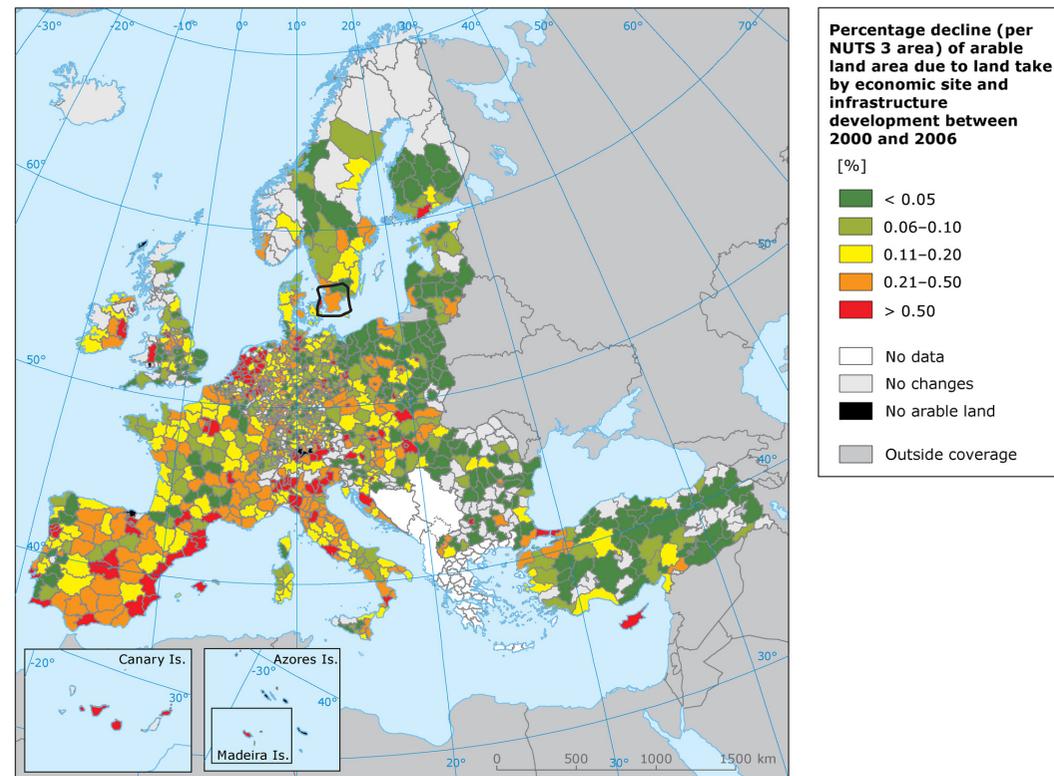


image: global context of declining arable land as per country, Skåne stands in orange zone that states percentage of declining arable land area (0,21-0,50) taken by economic site and infrastructure development between 2000-06

ARABLE LAND (% OF LAND AREA) SWEDEN

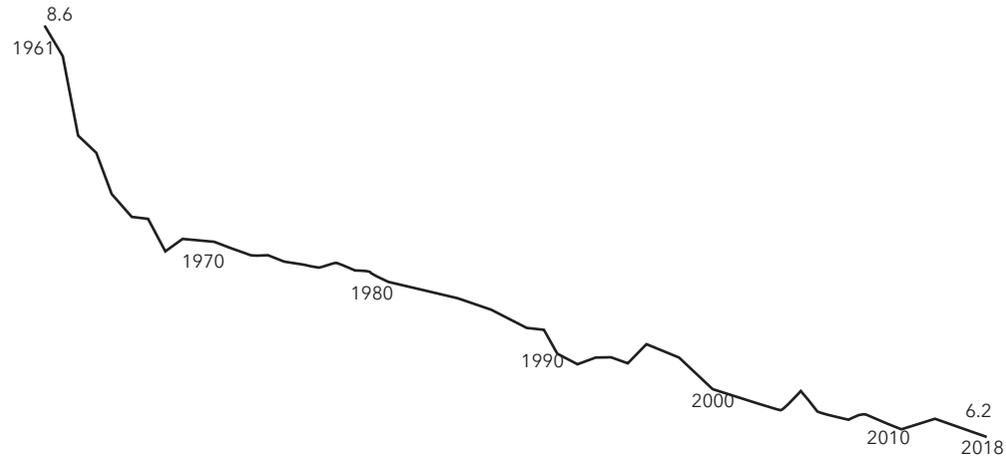
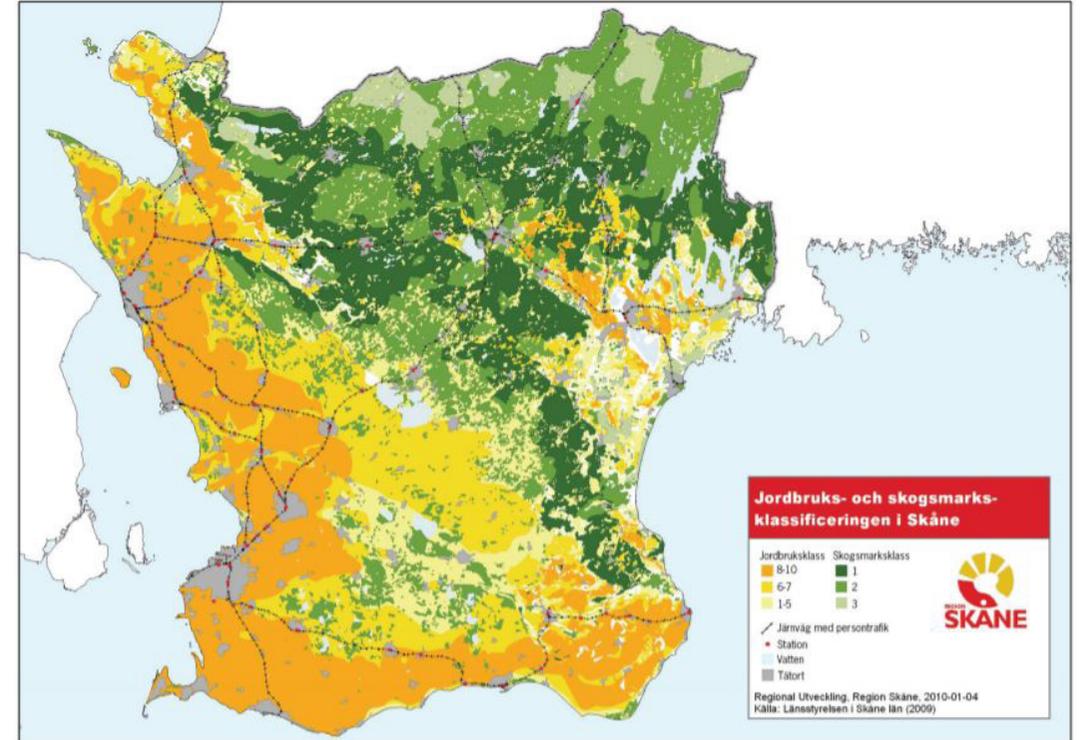


image: decline of arable land (% of land area) from 1961 - 2018, a percentage of 8.6% to 6.2%



Klassificeringsskalan från 1970-talet. Källa: Strukturbild Skåne (2010), Region Skåne.

image: Classification of agricultural lands and forest area in skåne. Lund stands in higher soil classed region

EMPLOYMENT IN AGRICULTURE: According to Jordbruksverket [6] in 2007, agriculture employed 177 600 people, both full time and part time. In 2020 which even came down to 171 418 [7], this includes both agriculture and horticulture, as well as maintenance of farm buildings, machinery and other assets. According to Worldbank [8], people involved in agriculture is only 1,6% in 2020. But it was about 20% in 1950 more than 50% at the beginning of the 20th century.

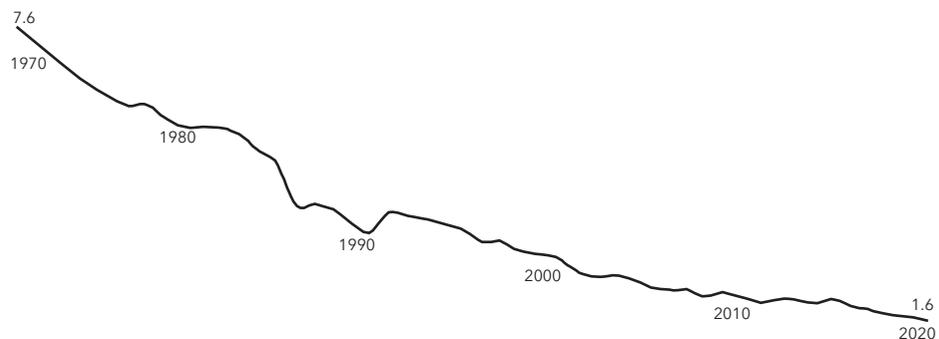


image: decline of percentage of people active in agricultural employment in last 50 years, it shows that it declined from near about 8% to 1.6% in 2020

CLIMATE CHANGE IS A BLESSING: As reported in climatechangepost on March 27, 2021, "By 2050, it is assumed that the increase in productivity will deliver greatly increased harvests per hectare, in the region of 85-160%. In the longer term, the increase will be even greater. The need for agricultural land will therefore reduce, despite the increase in the population. Increased temperatures will lead to increased growth, particularly in the spring, when growth is currently severely restricted by temperature. In 2100 the number of days by which the start of the growing season is brought forward, for instance, may be up to 100 in the south compared with the period 1961-1990. For Sweden, the change of crop yield in 2080 referred to 1990 has been estimated based on several combinations of models and scenarios; the outcomes show an increase ranging from 20.4% - 36.4%."

FOOD PRODUCTION IN SWEDEN: According to National Board of Trade Sweden, Komerskollegium [9] "Sweden imports fresh fruit and vegetables to a value of 10 billion SEK (Swedish krona)/926 million EUR. This share is much larger than the Swedish production, meaning Sweden relies heavily on imports of fresh fruit and vegetables." And Jordbruksverket stated [6], "Approximately 65 per cent of Swedish agro-food imports come from EU Member States. Denmark, the Netherlands and Germany are the countries we import the most from. Among non-EU countries, Norway is the main source of our imports. From 1999 to 2007, value of imports increased the most for fish and fish products, fruit and vegetables, and meat and meat products. Swedish crop production is dominated by cereals, mostly barley, oats and wheat, as well as by grassland. Some 40 per cent of arable land is sown to cereals." What is striking is that the most popular imported vegetables in Sweden are tomatoes (89,135 tons), potatoes (52,846 tons) and carrots (with an import increase of 24%).

HORTICULTURE: According to Jordbruksverket [6] "Fruit, vegetables, berries and decorative plants are cultivated professionally both outdoors and in greenhouses, mostly in the south of Sweden. In 2005 horticultural production took place at 2 600 enterprises in Sweden. Three quarters of those enterprises had open air cultivation on 12 560 hectares. 1 000 enterprises had greenhouse cultivation on a total area of 300 hectares. Carrots and iceberg lettuce are the most important vegetables, as regards cultivated area. Spinach and parsnip increased the most, by area, from 2002 to 2005."

HARVESTED QUANTITIES OF CERTAIN **OPEN AIR PRODUCTS**, TONNES

	2002	2007
Cauliflower	4900	3100
Cucumber	12300	7000
Iceberg Lettuce	23400	26600
Onion	23200	34900
Carrot	84800	89400
Cabbage	13400	15200
Leek	2600	3100
Apple	18000	21000
Strawberry	9800	13300

HARVESTED QUANTITIES OF CERTAIN **GREENHOUSE PRODUCTS**, TONNES

	2002	2007
Tomatoes	22800	16400
Cucumber	22900	31300
Herbs	22600	22900
Potted Lettuce	15000	14200

Areas of greenhouses and outdoor cultivation and number of holdings, 2017, jordbruksverket [11]

area	GREENHOUSE		OUTDOOR		total number of company
	Area sqm 1000	number of company	area hectar	number of company	
Skåne	1528	187	7901	539	698
stockholms	228	52	75	63	88
hallands	180	46	519	84	125
västra gotalands	151	85	563	162	215
blekige	140	19	457	73	92
östergötlands	95	49	501	76	107
västerbottens	76	21	37	30	44
södermanlands	60	24	53	36	50
gävleborgs	41	18	28	21	34
västernorrlands	40	13	51	20	30
dalarna	35	29	194	38	50
gotlands	33	16	840	72	77

Figures refer to horticultural holdings with at least 200 square metres greenhouse area or 2 500 square metres outdoor horticultural cultivation

ORGANIC PRODUCTION: Organic farming is getting very popular in Sweden and has seen a steady increase for last decade in production. According to Jordbruksverket [6] "organic production is a means used in our efforts to reach some of the national environmental objectives, and is also a step towards sustainable development of agriculture. The Government's aim is that certified organic production is to comprise at least 20 percent of Sweden's arable land in 2010. The government also wants certified organic production of milk, eggs and meat from ruminants to increase significantly and certified organic production of pig and poultry meat to increase strongly. In 2006 the organic arable area was 180 000 hectares; five years earlier it was 154 600 hectares. This is an increase from 5.7% -6.8% of total arable area."

AREA OF ORGANIC CULTIVATION OF CERTAIN HORTICULTURAL PRODUCTS

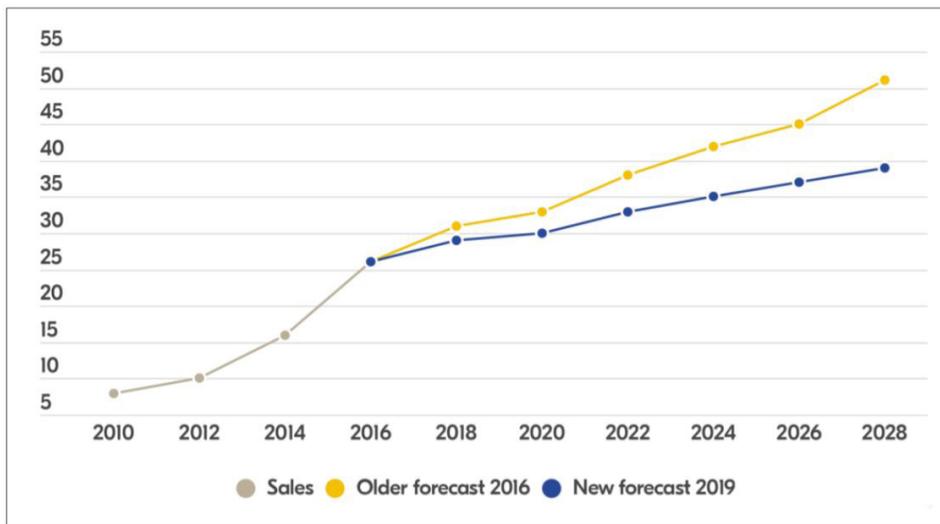
	2001	2006
Onion	38	39
Carrot	178	155
Beet	41	25
Cabbage	18	33
Berries	154	199
Fruit	51	88

Fully converted area, area under conversion and total organic area

	Hektar	Part of total area agricultural land,%
2019	614 280	20.4
2018	609 104	20.2
2017	577 189	19.1
2015	519 204	17.1
2010	438 878	14.2
2005	222 738	6.9

The demand for organic products are constantly growing in swedish market. Skåne leading the market with fastest growing organic region. It is compartaively slow growth but in coming days the market is surely be a big factor. According to National board of trade, "Fruit has the highest share of organic products on the Swedish market, followed by fish, coffee and vegetables."

Figure 4: Organic sales in billion SEK (1 SEK = 0.09 EUR), with adjusted forecast in 2019



Source: [Ekoweb](#)

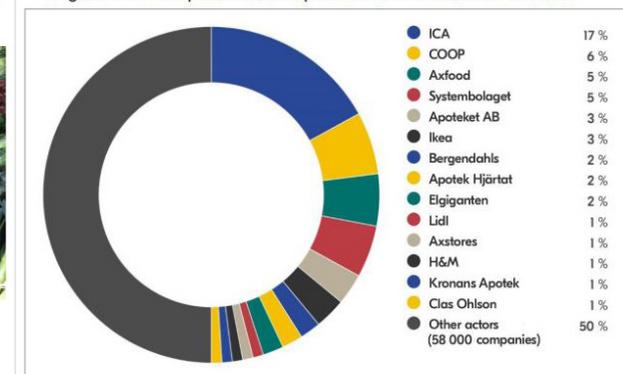
image: organic sales prediction

FOOD CRISIS IN SWEDEN: As sweden heavily dependent on neighboring countries for fresh vegetables and fruits, "in a crisis, where transport is cut off and imports cease, it is considered that Sweden would only be able to supply food for three days, after two weeks, half of the food in the store is finished." said Sven Lindgren, Union chairman of the Household Association's union and former chairman of the Civil Defense Association on 9th November 2017 [12]. Besides there is no food warehouses in sweden. What is most striking is responsible authorities for this crisis are the municipalities who has no overall responsibilities in food production or distribution. Rather the market is totally dependant on private sectors. According to NAtional board of trade [9], "Among these, ICA holds half of the market share, followed by Axfood (including supermarkets Willys and Hemköp), COOP and Bergendahls (with among other brands, supermarket City Gross)."



image: THE LOCAL news about food crisis

Figure 2: 14 companies make up half of the Swedish retail market



Source: Svensk handel 2018

image: market share of groceries by private sector

PART 02 : CONTEXT OF LUND

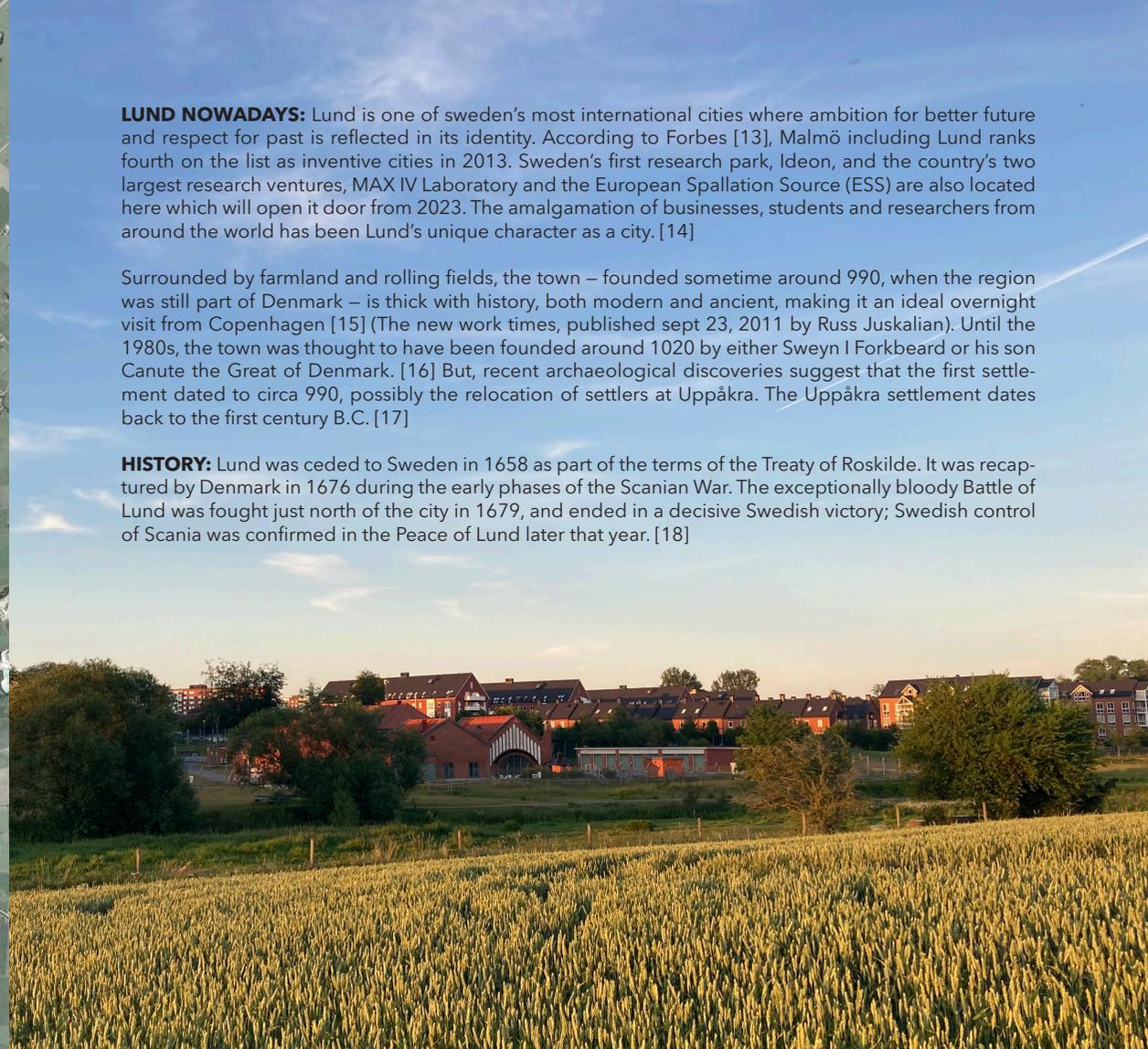


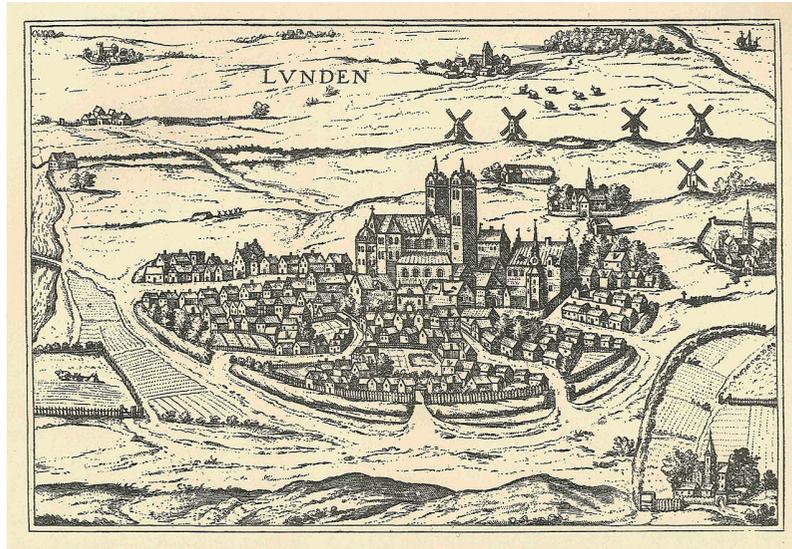


LUND NOWADAYS: Lund is one of Sweden's most international cities where ambition for better future and respect for past is reflected in its identity. According to Forbes [13], Malmö including Lund ranks fourth on the list as inventive cities in 2013. Sweden's first research park, Ideon, and the country's two largest research ventures, MAX IV Laboratory and the European Spallation Source (ESS) are also located here which will open its door from 2023. The amalgamation of businesses, students and researchers from around the world has been Lund's unique character as a city. [14]

Surrounded by farmland and rolling fields, the town – founded sometime around 990, when the region was still part of Denmark – is thick with history, both modern and ancient, making it an ideal overnight visit from Copenhagen [15] (The new work times, published sept 23, 2011 by Russ Juskalian). Until the 1980s, the town was thought to have been founded around 1020 by either Sweyn I Forkbeard or his son Canute the Great of Denmark. [16] But, recent archaeological discoveries suggest that the first settlement dated to circa 990, possibly the relocation of settlers at Uppåkra. The Uppåkra settlement dates back to the first century B.C. [17]

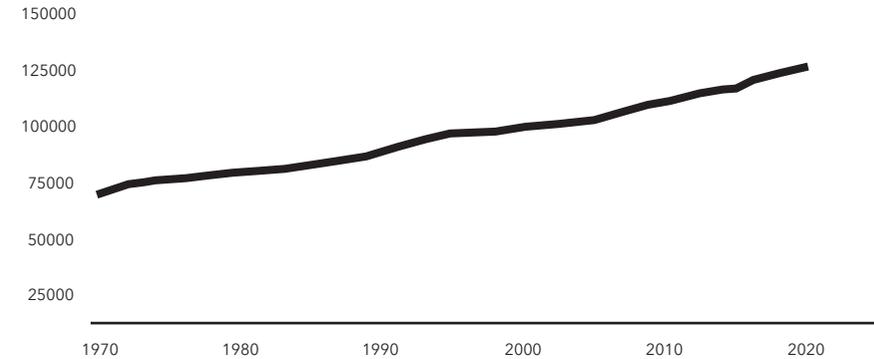
HISTORY: Lund was ceded to Sweden in 1658 as part of the terms of the Treaty of Roskilde. It was recaptured by Denmark in 1676 during the early phases of the Scanian War. The exceptionally bloody Battle of Lund was fought just north of the city in 1679, and ended in a decisive Swedish victory; Swedish control of Scania was confirmed in the Peace of Lund later that year. [18]





An engraving of Lund in or around 1588.
 By Frans Hogenbergs in the pictorial work Civitates orbis terrarum (the cities of the world) [19]

DEMOGRAPHY: According to Statistics Sweden (Statistiska centralbyrån, SCB) at the end of 2020 Lund's population was 125 941. [20] Compare to sweden's 87.4 percent people living in urban areas Lund has comparatively higher 95.4 percent people living in urban settlement, i.e. about 91 940 people in 2018. Lund has seen steady population growth since last 50 years.



Gender distribution is also very balanced with 50.6% women and 49.4% men. Lund has comparatively more abroad born 22,5% compare to sweden's 19.7%. In Lund, 40.9 percent live together (with or without children). 51.7 percent single (with or without children). 7.4 percent belong to another type of household (2020). 68.7 percent of those aged 20-64 have a job which is comparatively less than country's standard of 78.1 percent. [20]



PROJECTED POPULATION IN 2121: Lund has a steady population growth for last 50 years and annual average for last 5 years is about 1.69. The way it is increasing it will be interesting to look what will be the projected population after 100 years, in 2121.

To calculate the future population I am using Extrapolating technique. [21]

Extrapolation is a projection technique that uses aggregated data from the past to project into the future. In population projections, past and current census information is used to project future population size. In most cases, extrapolation methods are used for projecting the total population size for a future date in time. However, these tools can also be used to project the size of population segments, provided that both past and current census data are available.

Basic Assumption:

The characteristics of the more recent periods of development for the locale are expected to continue into the future.

The Linear Model :When best to use:

Use when the pattern of growth is similar to a straight line. This tool is especially useful when projecting areas experiencing slow growth.

$$P_{t+n} = P_t + b(n)$$

where,

P_{t+n} = population at a future date in time = P_{2121} = Population of year 2121

P_t = population at last census taking = P_{2020} = Population of year 2020

P_{t-1} = prior census taking

n = number of units of time for the projection

b = average growth increment per unit of time

$$b = \frac{\sum_t^d (P_t - P_{t-1})}{m}$$

where

d = data of last census

m = number of historical intervals

t = a time index (year or decade)

year	1970	1980	1990	2000	2010	2020
Lund	69073	78487	87681	98948	110488	125941

here,

P_{t+n} = population at a future date in time = P_{2121} = Population of year 2121

P_t = population at last census taking = P_{2020} = Population of year 2020

P_{t-1} = prior census taking = P_{2020} , P_{2010} , P_{2000} , P_{1990} , P_{1980} , P_{1970}

n = number of units of time for the projection = 100 years

$$b = \frac{(P_{2020} - P_{2010}) + (P_{2010} - P_{2000}) + (P_{2000} - P_{1990}) + (P_{1990} - P_{1980}) + (P_{1980} - P_{1970})}{5}$$

$$= \frac{(125941 - 110488) + (110488 - 98948) + (98948 - 87681) + (87681 - 78487) + (78487 - 69073)}{5}$$

$$= 1882,8$$

$n = 100$

$P_{2020} = 125941$

$$P_{2120} = P_{2020} + b(n)$$

$$= 125941 + 1882,8(100)$$

$$= 314221$$

so in year 2021 the population of Lund can be about 314 221 which is about 2.5 times than today's population.

GEOGRAPHICAL EXPANSION OF LUND OVER YEARS: Lund started growing centering Lund cathedral which is known as the most powerful representative of Romanesque architecture in nordic countries. After the establishment of Lunds Universitet the city another new identity and very soon it has become the center of education, research and innovation not only for Skåne but its contribution made Lund renowned worldwide. From a small farming town it has been recognized as tremendous potential for future innovation city. The reflection of growth has expanded the city from city center to outwards. Nöbbelöv, Ännehem, Klostergarden, Roby lund, Östra torn, Kobjär, Vallkära all these isolated small neighborhoods became connected to city center.

From a small farming town it has been recognized as tremendous potential for future innovation city. The reflection of growth has expanded the city from city center to outwards. Nöbbelöv, Ännehem, Klostergarden, Roby lund, Östra torn, Kobjär, Vallkära all these isolated small neighborhoods became connected to city center.

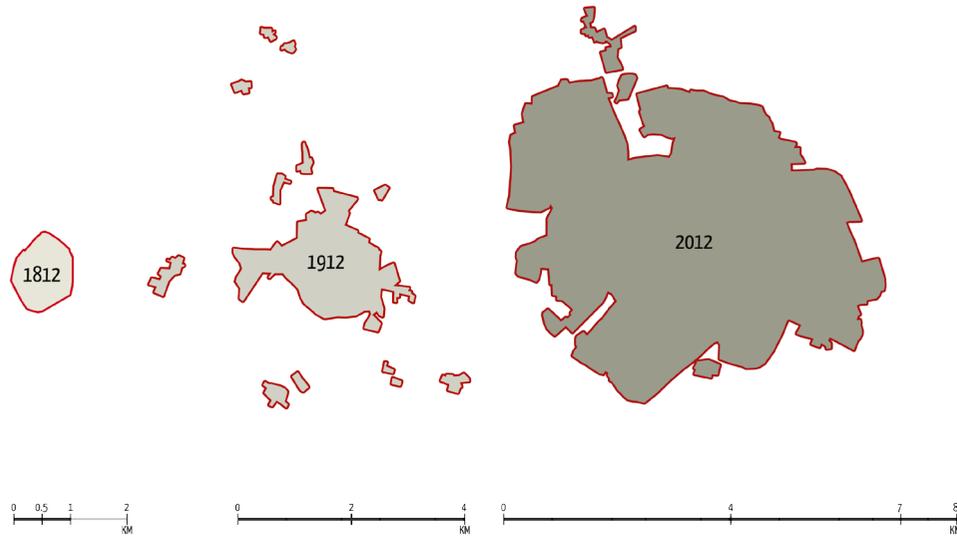
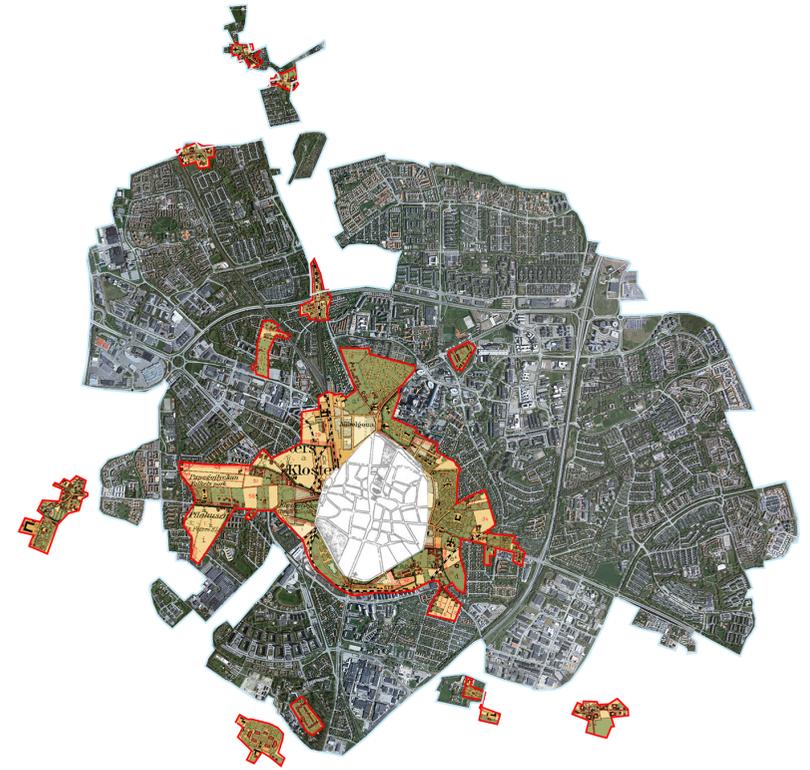
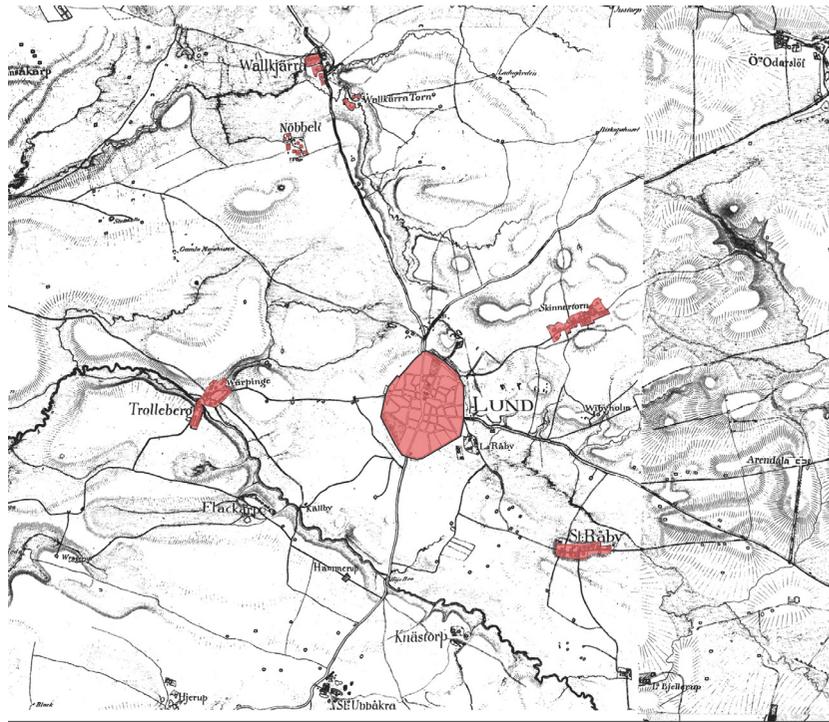
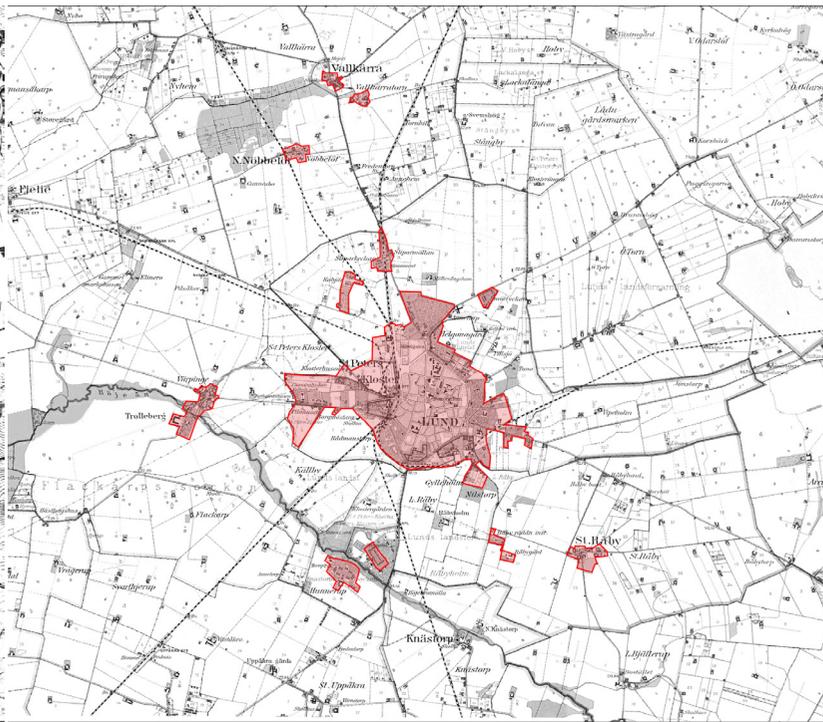
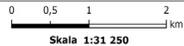


diagram: physical growth of city over every 100 years, from 1812 > 1912 > 2012





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LUND MUNICIPALITY'S VISION: Lund is one of the cities that Region Skåne points out as the region's growth engine. In order for the region to be able to compete with the outside world, strong cooperation and a clear identity are needed. As part of an expansive region, Lund has the opportunity to take one of the leading roles in the region's development. The municipality of Lund must meet the growing population's need for housing and jobs and take responsibility for ensuring that growth is balanced and sustainable with a varied housing supply and even better development conditions for the business community. In the municipality of Lund, urban areas will primarily grow through densification in locations close to public transport to ensure accessibility and sustainable development. Lund should be the growing Lund.

In the last ten years, Lund has grown by 14,000 inhabitants and it is believed that the population will continue to increase. [22]

OVERVIEW PLAN - 2018:

- Lund Municipality will grow by 26,000 homes by 2040 and space will be created for a multifaceted business community.

- More homes will be built through *densification* than through new development on arable land.

- In the municipality of Lund, urban areas will primarily grow through densification in locations *close to public transport*. This is how we ensure accessibility and sustainable development. [22]

The overall focus of the master plan is presented with goals and strategies in three target areas, **The Growing Lund, The Green Lund and The Close and Living Lund**. [23]

Provide housing for everyone: In the last ten years, Lund municipality has grown by about 14,000 inhabitants and during the same period, approximately 6,000 homes have been built in the municipality. The municipality's population is expected to continue to increase and the latest population forecast from 2016 points to an annual increase of an average of 1.5 percent from the current approximately 120,000 to almost 145,000 people in 2029. Against this background, the goal in the Development and Housing Strategy is to increase housing construction against 1,200 new homes per year. The master plan will provide opportunities for the same growth in the municipality until 2040. [23]

PLANSTRATEGI

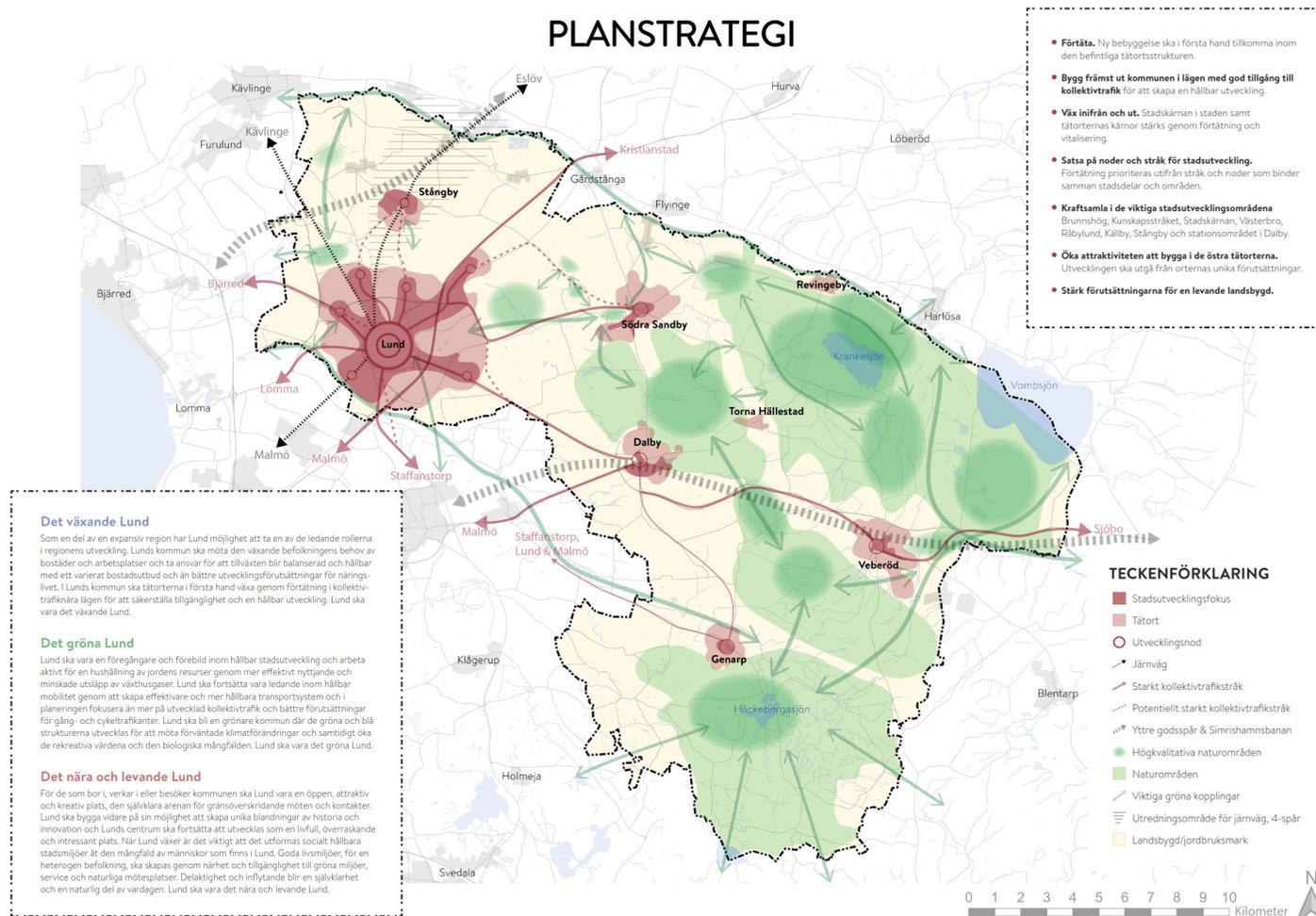




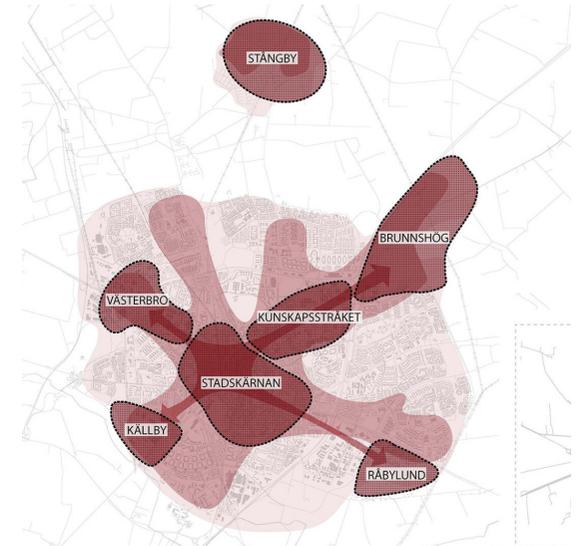
image from Strategies for Structural Plan MalmöLund region 2035

Gather strength in important urban development areas

Brunnshög, Kunskapsstråket, Stadskärnan, Västerbro, Råbylund, Källby, Stångby and the station area in Dalby are the municipality's larger areas for sustainable and attractive urban development until 2040.

In these areas we meet a large part of the new housing and business establishments that will be added during the next 20-year period. By focusing on the expansion and building completed areas, an attractiveness and sustainability can be strengthened while the municipalities' investments in both physical and social infrastructure can be utilized effectively. This focus is described in the Development and Housing Strategy 2025, adopted by the City Council in September 2016. [23]

The strong urbanization has meant a great focus on cities and urban development issues at the expense of the countryside. In fact, there is an interdependence between city and country, linked to social, ecological and economic aspects. A vibrant countryside is therefore an important societal development issue in order to create an attractive, sustainable and competitive region. As more and more people gather in the cities, the countryside plays an important role in outdoor life, recreation, culture and tourism. Therefore, there must be opportunities for the tourism and tourism industry in the country to develop. Living socially sustainable villages require that certain housing supplementation can take place, without the housing spreading out in the landscape. Housing construction is also required to ensure the generational change in agriculture. Agricultural land and the agricultural industry are important for the food supply, but also meet the increased need for locally grown and locally produced food. This increased interest and an increased hospitality industry can also give the agricultural industry more legs to stand on. [23]



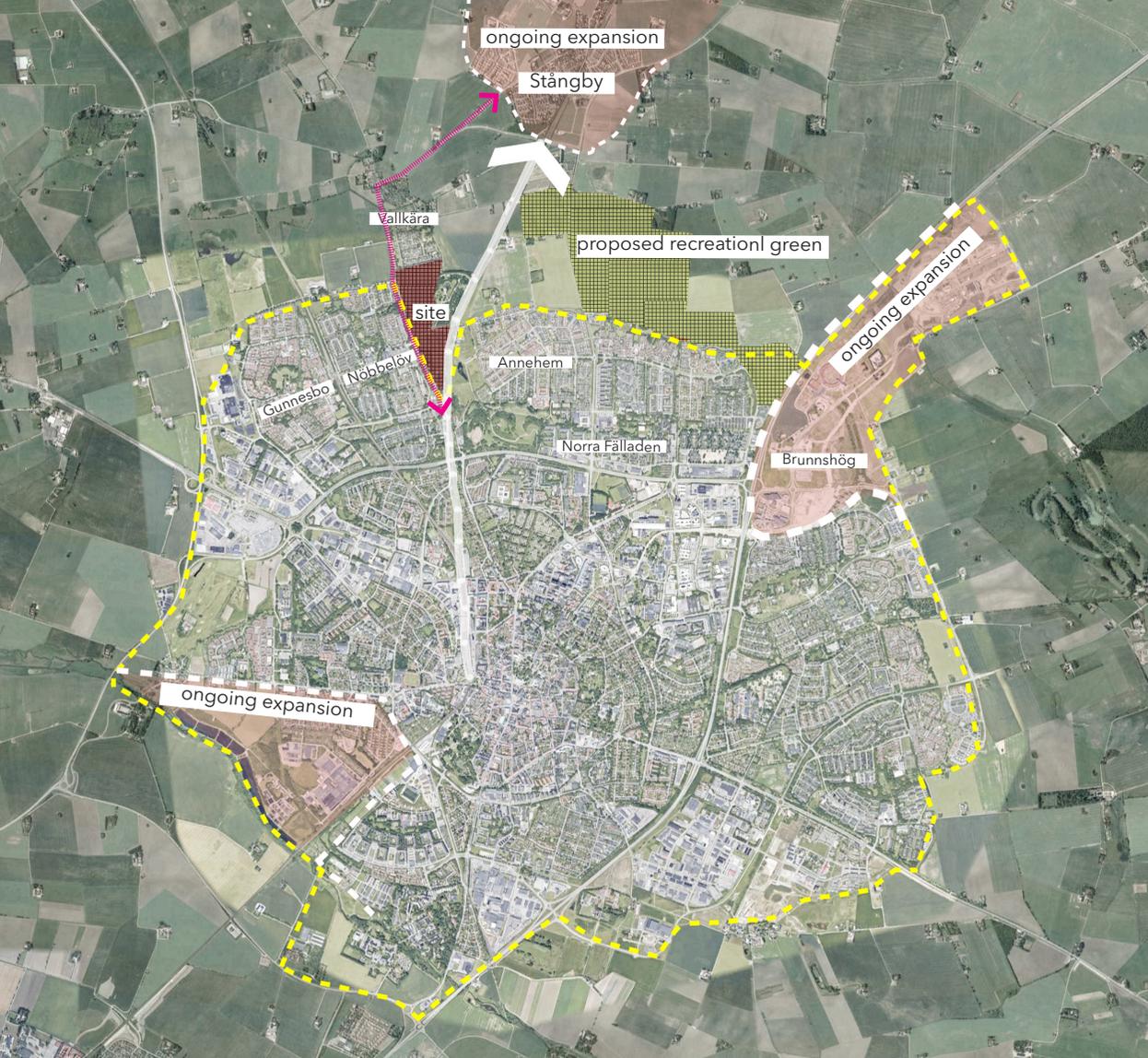
Strengthen identity, attractiveness and housing palette

Densification creates the opportunity to revitalize areas and broaden the housing palette so that no groups are excluded from the new housing market. Densification should always help to revitalize areas and not result in a certain type of housing or activities not being accommodated.

PART 03 : THE SITE







SITE SELECTION: As per strategic plan for Lund, municipality has expansion plan on the northern side, Nöbbelöv. This site is at the edge of town and can be recognized as urban fringe of Lund. The location of the site is also significant considering the future plan of Stångby. Lund municipality has already started developing a part of it. The site has potential to explore the idea of densification along with increase food production strategies. The agricultural land close to the site adds more to its character.

THE SITE: The location of site is in between Nöbbelöv and Annehem. The active rail track that connects Lund regional scale works as barrier in neighborhood scale. Currently the site is used as agriculture land and some residential houses, few of them with significant historical significance. Context of Stångby, Nöbbelöv and Annehem neighborhoods has notable influence on the site and future plan for Nöbbelöv and Stångby should be analyzed properly to build a sustainable and connected neighborhood. A future connection to Brunnhög is also important to realized in city scale.

MUNICIPALITY'S PLAN:

NÖBBELÖV UTVECKLAS/ DEVELOPMENTS :The municipality of Lund has developed a planning program that shows how Nöbbelöv can get several hundred new homes in the long term, among other things by collecting parking in a more efficient way and structuring the greenery differently. Together, it can develop Nöbbelöv into a district with more character and service. [25]

On March 11, 2021, the building committee decided on the planning program that was out for consultation about a year ago.

The decision involves some adjustments, a fundamentally important issue is that for the eastern part of the area, one must wait for the Swedish Transport Administration's information on how they intend the development of the railway. In addition, a larger preschool and LSS housing have been given space, a mobility building (parking garage with service) has been given a more central location and the general green space has thus been able to have more space. [25]

The idea is that Kävlingevägen and Nöbbelövsvägen will become city streets so that the speed will be lower and the streets will be safer even for those who walk and cycle. [25]

The decided plan program also shows how two or three so-called mobility houses can be built in strategic places in the area, in the proposal there were more. In the mobility houses, there must be space for regular car parking, but also other services such as car pools and bicycle service. [25]

The planning program is a first step in what will then be several new detailed plans for the area, these plans are estimated to be relevant for consultation at the earliest in 2022. The planning work in the southern part of the planning area is first in a preliminary stage division. [25]



The upper right image (2) shows a perspective of the proposed area with building height but does not indicate any architectural character of the buildings. [26]



the lower right image (3) shows different hierarchy of connections in the area

- city street
- center passage
- green lanes
- internal walkway
- culturally significant

The image is taken from the Lund Municipality's website.

The left image (1) shows masterplan of Nöbbelov Development. [26]

- existing building
- new building
- mobility house
- pre school
- new walk-cycle way

- Stadsgator
- Centrumstråk
- Gröna stråk/platsbildningar
- Inre gångförtstråk
- Kulturmiljö

DEVELOPMENT OF STÅNGBY :

Stångby is one of the places in Lund municipality that, next to the city, is planned to grow the most. The municipality works for sustainable development and Stångby has high potential with its location and environmentally friendly communication opportunities.

According to the municipality's general plan, Stångby will grow by approximately 3,000 homes within the next 20 years. Stångby is one of the places that grows the most in the municipality. The development is linked to the strategic location, 5 km north of Lund, and at a train station. The town has the character of the small town and the garden town as its target image. Today, single-family housing dominates, in the future it will be supplemented with multi-family houses, everyday service and trade. The highest density and most urban will be in the center. Communications to Lund are strengthened with new cycle paths. [27]



THE DETAILED PLAN STÅNGBY WEST II

The detailed plan enables new housing development. It is also planned for middle and high school, preschool, a large park, community service and stormwater facility that is intended to serve the entire population of Stångby. The detailed plan for Stångby gained legal force in the summer of 2017 and has now reached the execution stage. [27]

The expansion takes place in stages. Most of the land is sold to developers and some of the land is reserved for freehold plots. The freehold plots will not be released for sale until the end of the construction period. [27]

Stångby EAST II

The planning area for the detailed plan is located east of the railway track and also affects the station area. The municipality has chosen to pause the work on the detailed plan until we know how the Swedish Transport Administration chooses to build the high-speed railway. If the Swedish Transport Administration opts out of corridors that affect the plan, it is possible to adopt it in 2022. [27]

The detailed plan includes a square with a grocery store and other premises. It is also planned for a district nursing clinic, an elementary school, preschool, park and almost 900 new homes, both apartment buildings and single-family homes. [27]

Stångby SOUTH

The planning area for the detailed plan is located south of Örtoftavägen and touches, among other things, the former Stångbyanstaltens site. The municipality has chosen to pause the work on the detailed plan until we know how the Swedish Transport Administration chooses to build the high-speed railway. If the Swedish Transport Administration opts out of corridors that affect the plan, it is possible to adopt it in 2022. [27]

CULTURAL environment in Stångby

Stångby has been inventoried and a cultural environment data has been produced. The result of the inventory is part of the planning basis for the development of Stångby. The cultural environment data summarizes and clarifies the cultural environmental values in Stångby station community and surrounding landscapes.

The purpose of the cultural environment data will also be to increase knowledge about the cultural environment in Stångby station community prior to the planned expansion and provide knowledge about the town's history and how this is expressed in the physical environment. [27]



the site



korsäkersvägen

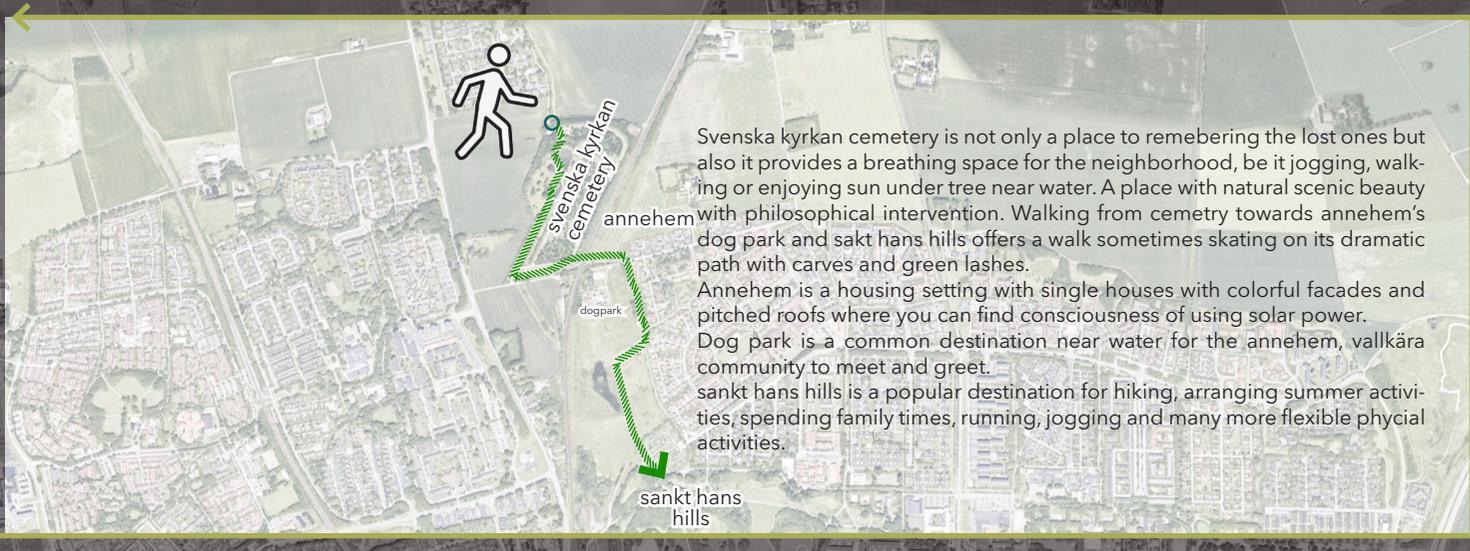
kävlingevägen

svenska kyrkan cemetery

Kävlingevägen is the main street of the site and it connects Valkära and Stångby with Lund. The existing road is 7m width. The busstops are open and no protection from rough weather. The cycle path and walkway is newly developed. The green buffer space between main road and cycle path wal as biotope that helps to pass stormwater during rain and offers flower during spring.

There are few culturally significant houses on one side of the road and this are supposed to preserve.

There are agricultural land within and north-west, north-east side of the site. The walk from Valkära towards the cemety along the narrow waterbody create an opportunity for the residents a spaceto relax and casual cozy walk with sound of coarse material on ground, chirping of birds, sound of wind in leaves and flowing water.



SITE ANALYSIS

The project site is located in the fringe area of the city expansion of northern Lund. A transition space awaiting to meet future housing needs with farmlands around it.

The Neighborhood map shows the important neighborhoods - Nöbbelöv and Gunnesbo on west side, Vallkära and Stångby on northern side, Annehem on east and Möllevången on southern side towards Lund central.

Surrounding Map shows context of surrounding agriculture land and position of railway tracks in between neighborhoods. The train station at Gunnesbo can connect the community with Helsingborg region and Stångby can connect to the Eslov region. It is just 10 min bike distance from the site.

Figure ground map shows the existing built environment and land coverage. It shows small building footprints of residential housing units and big footprint of industrial park near Nova and Ideon Park. The map also shows the higher footprint near the center and less on the urban fringe of Lund.

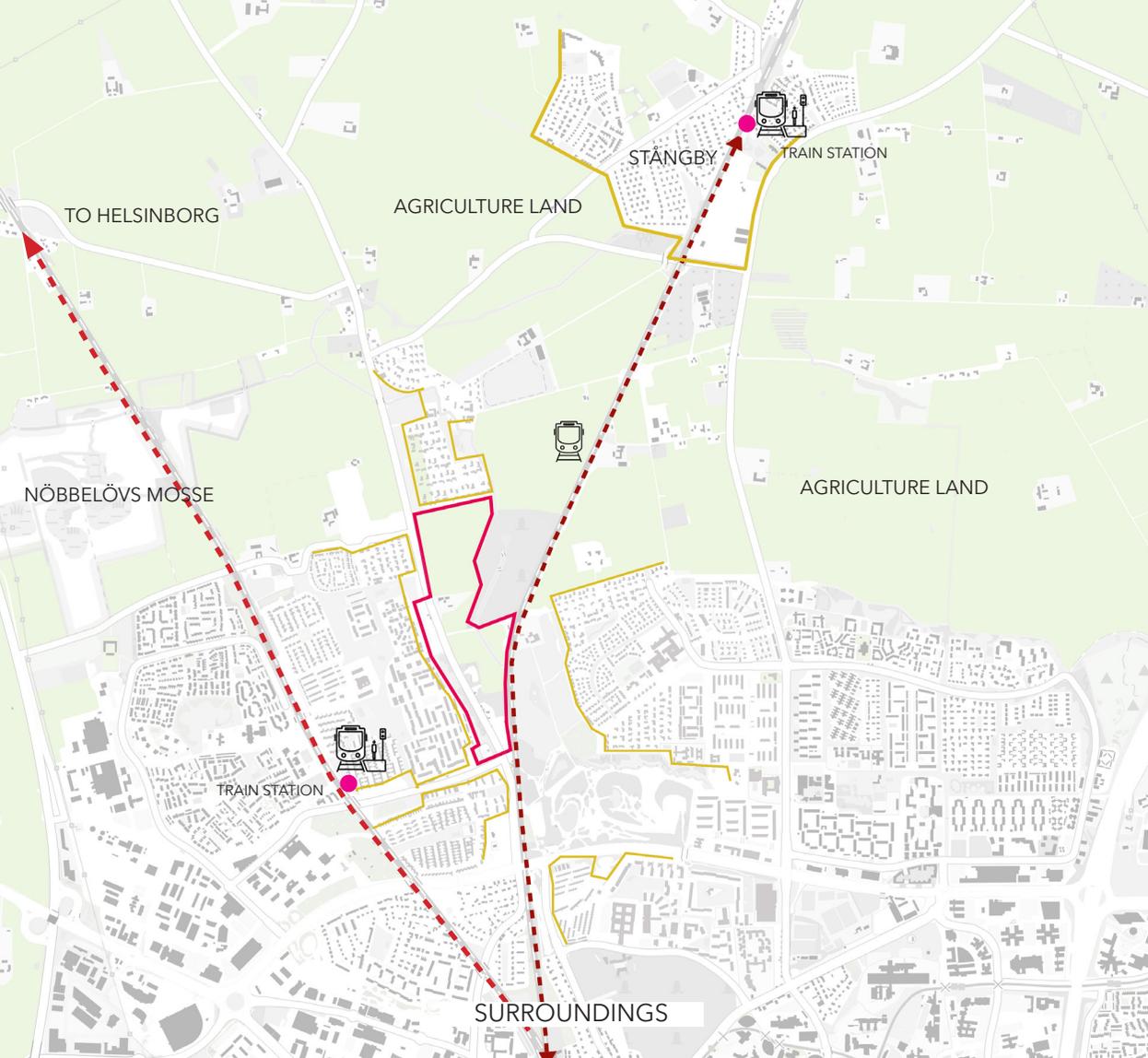
Building height map shows there are only few buildings that are above G+4. The area is dominated with low-rise buildings of 1 to 2 storey buildings. The high-storey buildings are mainly developed by Municipality's construction company Lunds Kommuns Fastighets AB (LKF). Student housing is also in great demand in Lund and mostly higher density accommodations. Single houses are also built with private car garage facilities and less interested in using public transport facilities.

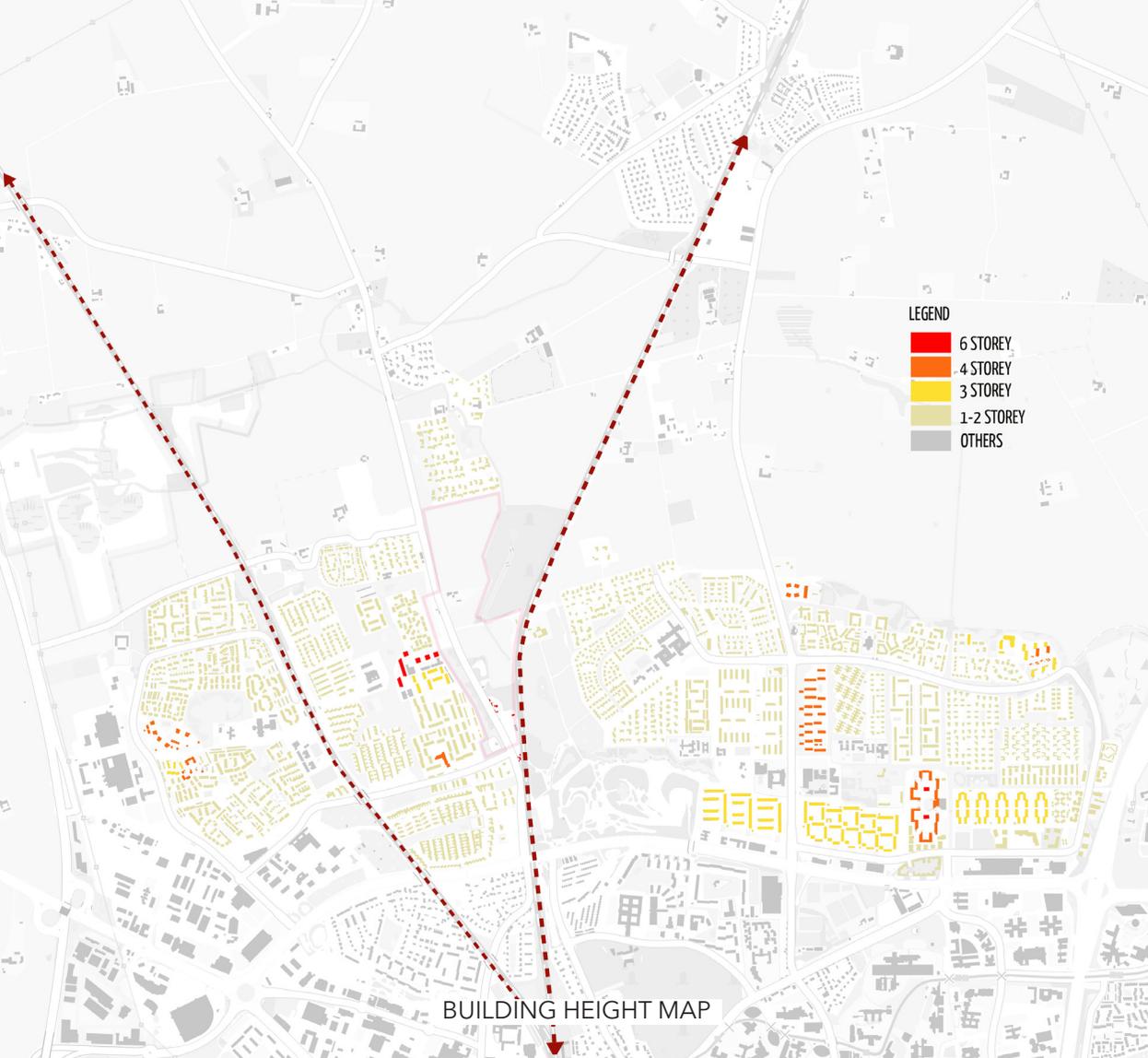
Green Blue map of the site shows its potential but also indicates the broken and not much curated connections in the area. With improved blue-green connections the area can offer better biodiversity, recreational green, productive green and water management system.

Activity map shows all the available facilities that are offered in the area within a 30-minute walk distance. Nöbbelöv Mosse (marshland), Svenska kyrkan cemetery, Sankt Hans Hills, dog park are major natural open spaces for different activities all around the year. Position of grocery shops are also important to understand the need for personal cars for daily or weekly shopping. Gunnesbo 4H Gård is also another popular destination for horse riding and celebrate parties. There are many parks in different scales in the neighborhood. Nöbbelöv and Vallkära area has a church in the community. The location of Stångby Plantskola AB can be very significant in the site for future food production purposes and increasing interest in gardening among the locale.

The connectivity map shows different paths - bus, walkway, cycle ways to reach different activities and it is interrupted at different points. This also indicates the existing barrier of the site.



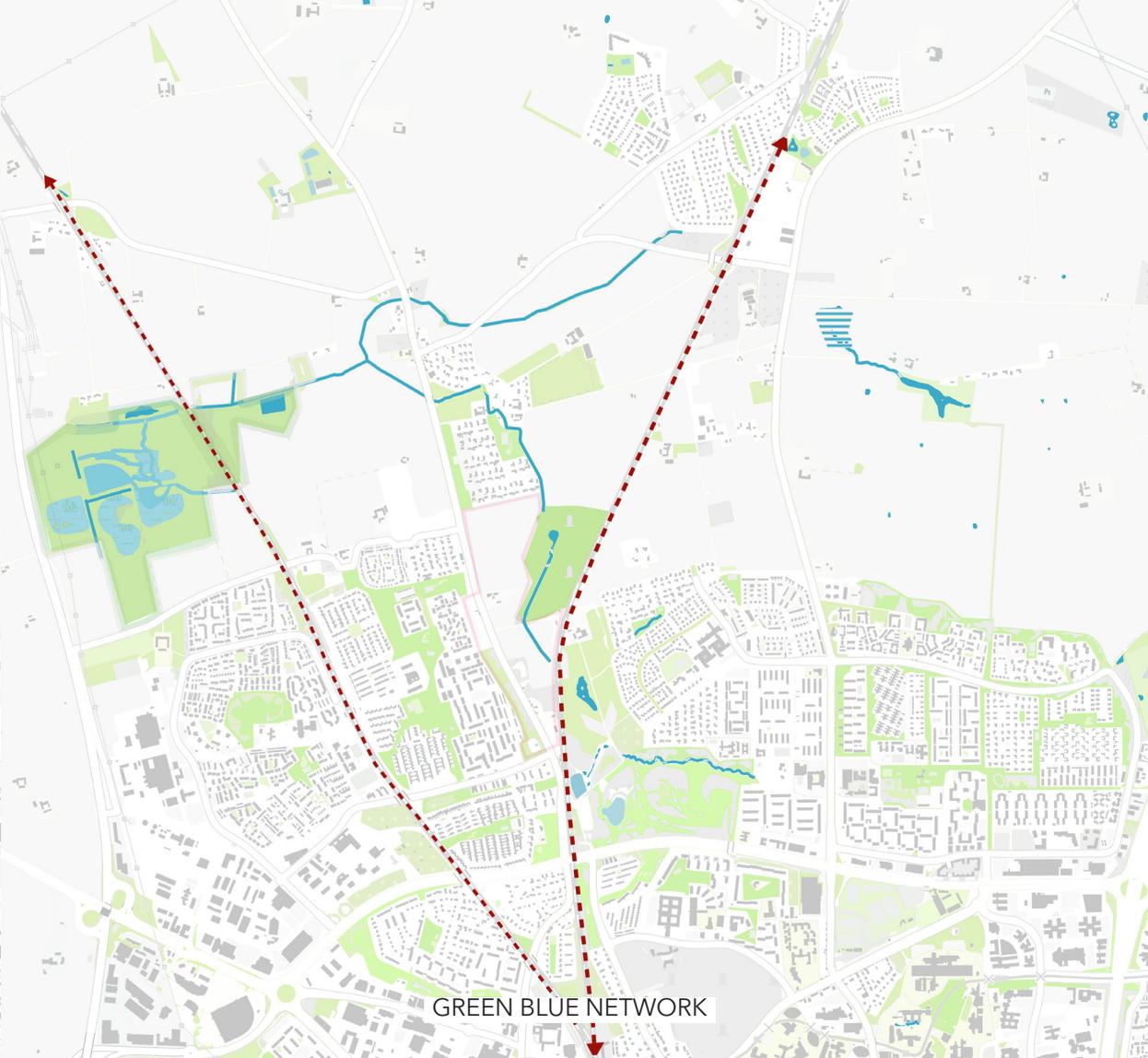




BUILDING HEIGHT MAP

LEGEND

- 6 STOREY
- 4 STOREY
- 3 STOREY
- 1-2 STOREY
- OTHERS



GREEN BLUE NETWORK

PART 04 : DESIGN

WHAT: The proposal is about finding ways to make a sustainable community that lives closely, become part of food production and a lifestyle that complement living in harmony with nature. The design also explores the rural-urban fringe as an opportunity space based on local assessments, improve site forces to strengthen different scale connections within the neighborhoods. It aims meeting the needs of both the present and helping to change the way we live in the future.



densified living



food production



integrated sustainability

The urban edge is always tricky to design, an area that keeps expanding because of city growth, seeks to adapt contemporary trends, lack of far futuristic vision and own identity because of high demand, political policies and other socio economical complexities. Expansion of Gunnesbo, Annehem and other developments in northern side shows this character very well. The design tries to consider the present and future crisis in mind and seeks to set strategies and phasing that way.

Lund municipality has already showed some balance between present crisis, futuristic approaches and sustainable goals in recent masterplan for Brunnshög (new urban rural district of lund). A comparatively higher educated community lives in Lund which is also a great strength for the city for such approaches to adapt.

The design approaches expect lund to grow in future and believe the curious and innovative residents will be asset to create a sustainable future where key components will be community, cooperation and food production.



VISION

VISION

A higher densed place that offers different housing choices based on affordability regardless their age, sex and race, encourages its community to take part in different food production activities based on choices, public space that binds people together and build trust through transparent interactive public spaces and cater people of all ages, accessible landscape that enhances the biodiversity in the locale and improve human's interrelation with nature sharing mental and physical benefits of coexisting, in-spires its residents to be energy efficient while moving and adapt with increase digitization tendencies to be more efficient for future.

DESIGN PRINCIPLE

1. RESOURCEFUL:

living in a respectful harmony within the interconnected web of all life and simultaneously economically sustainable community

2. ACCESSIBLE:

Affordable housing for all people regardless their age and race. Foster diversity, equality and inclusion.

3. SENSE OF COMMUNITY

Promote sense of community and build trust though series of transparent interactive public spaces, shared transportation technologies. Using social connection for meaningful belongingness.

4. DESIRABLE PUBLIC SPACE

a vibrant public life, with access to culture, art, and activities, and appealing public spaces for relaxation, wellbeing, and learning

5. HEALTHY

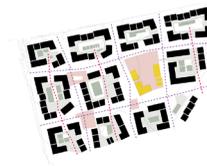
fosters physical and mental wellbeing through access to green spaces and cooperation

DESIGN STRATEGIES

Densify the area to meet the future population and save more agricultural land



Create an internal network of streets to encourage community participation



Involve residents in food production with hierarchy of choices



Prioritize pedestrian and bicycles to promote healthy living and sustainable mobility



Connect green blue network to increase biodiversity and improve choices for accessible recreational activities



Strengthen community sense



PROGRAM

	KITCHEN GARDEN	SOLAR GREEN HOUSE	AQUAPHONIC FARM	ROOFTOP GARDEN	SEASONAL GARDEN	
FOOD						
	HOUSING	WORK	LEISURE	COMMUNITY	SPORTS	COMMUNICATION
LIFESTYLE						
	ENERGY	STORM WATER RETENTION	WATER RECYCLING	BIODIVERSITY	PUBLIC/RECREATIONAL GREEN	
GREEN						

PROGRAM INTEGRATION



Housing block: The housing blocks will facilitate food production facilities at different hierarchy of choices from small kitchen garden in front of apartment at ground floor, rooftop and at balcony. The community garden at inner courtyard space (living area for community). At rooftop there will be provision for solar green houses to ensure food production regardless of weather. The seasonal garden will be at courtyard space. Rain water management system will be facilitated as well.

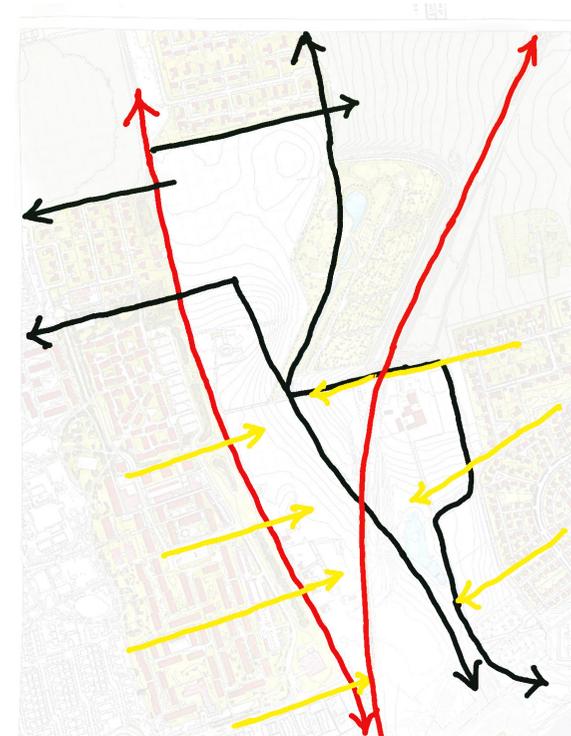
Social center: Social center will be the largest public space in the community that will offer space for work (remote working facilities), aquaponic farm, Restaurant (where foods from the community will be used to sell and cooked). This place will serve as gathering space for the community where they will work, meet, greet and learn and appreciate food production system and celebrate life at indoor.

Outdoor community space: This places belong to public for different types of physical activities, recreational green facilities. A place to enjoy sun and rain, cater lazy and active moments for mundane life.

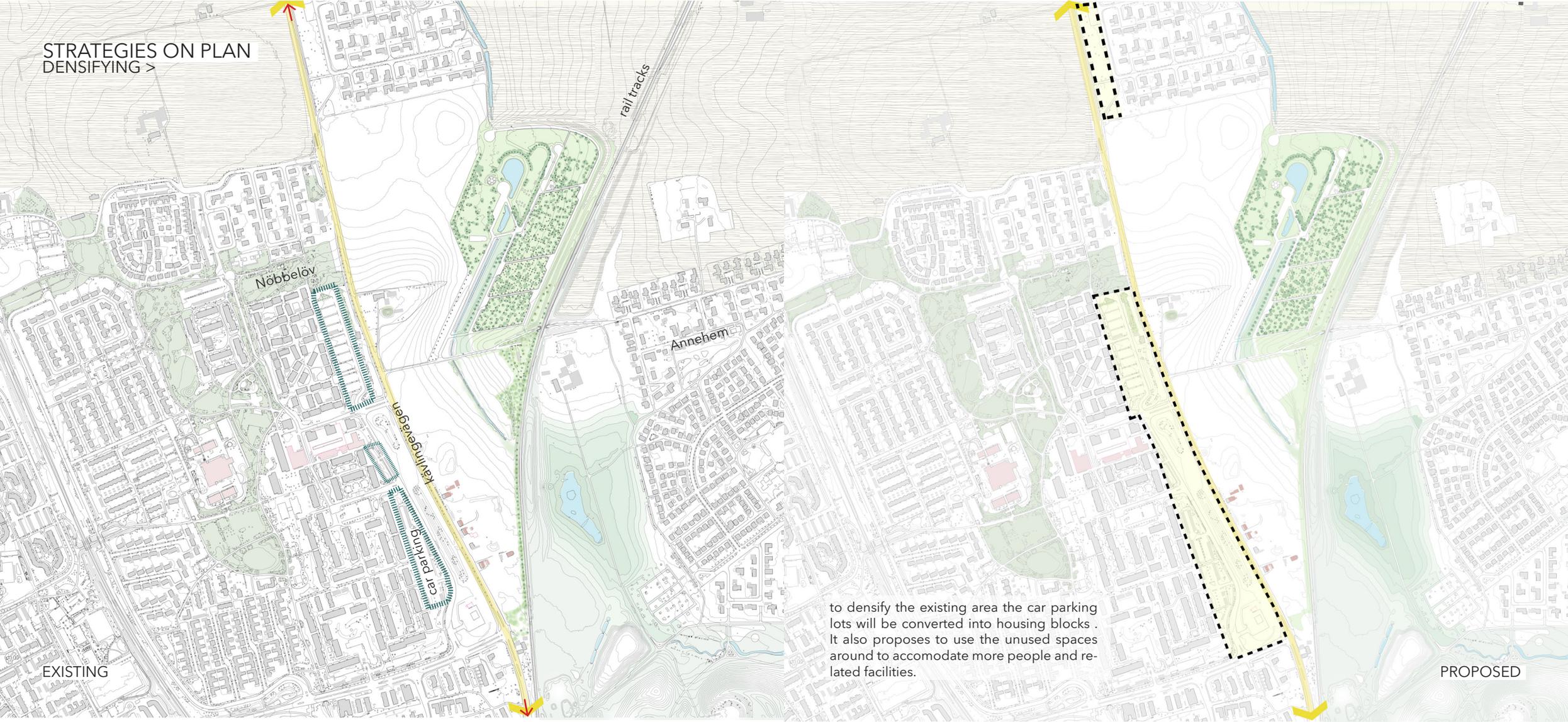
Landscape: Landscape design will facilitate stormwater catching in biotopes which will offer seasonal flowers and plants, enhance our sensory experience with material, texture, color, fragrance and sound of the built environment. With green blue connection it intends to increase biodiversity in the locality.

Mobility: Bicycles and pedestrians will be prioritized over personal car use. Bus stops are considered near to the communities with comfortable design to encourage the people to use public transport more often. To make the bus time faster road width is proposed to increase to 3 lanes (existing 2lane) where the public buses can bus it as rapid transit considering the demand (like towards lund central at morning and opposite at afternoon).

PART 04 : DESIGN PROPOSALS



STRATEGIES ON PLAN
DENSIFYING >



Nöbelöv

Annhem

rail tracks

Kärlinge
Lj 19
ca 1 pc

to densify the existing area the car parking
lots will be converted into housing blocks .
It also proposes to use the unused spaces
around to accomodate more people and re-
lated facilities.

EXISTING

PROPOSED

CONNECTING THE GREEN BLUE NETWORK



EXISTING

existing green network will be connected to have more green choices for the people and also enhance the existing biodiversity. The proposed green network aims to connect the neighborhoods of Nöbbelöv, Annehem, Gunnesbo, Vallkära and Stångby with more choices and accesses. The cemetery park will also be more permeable to the public and new proposed housings to be part of daily celebration.

PROPOSED

STRENGTHENING WHAT IS STRONG

Prioritize pedestrian and bicycles to promote healthy living and sustainable mobility

the map shows existing connections that indicates the possibilities for connected fabric. Nöbbelövs torg is the most happening place in nöbbelev area and Kävlingsvägen is currently used as connector for Vallkära and Stångby. An underpass connects two neighborhood of Annhem and Nöbbelöv.

EXISTING

the proposed design respects the existing forces and use that to give an edge to the kävlingsvägen street. The design tries to strengthen the neighborhood and its activity destinations. This connections along with contour of existing land shapes the proposed design road network. And choices for that designed to encourage pedestrian and bike network.

PROPOSED



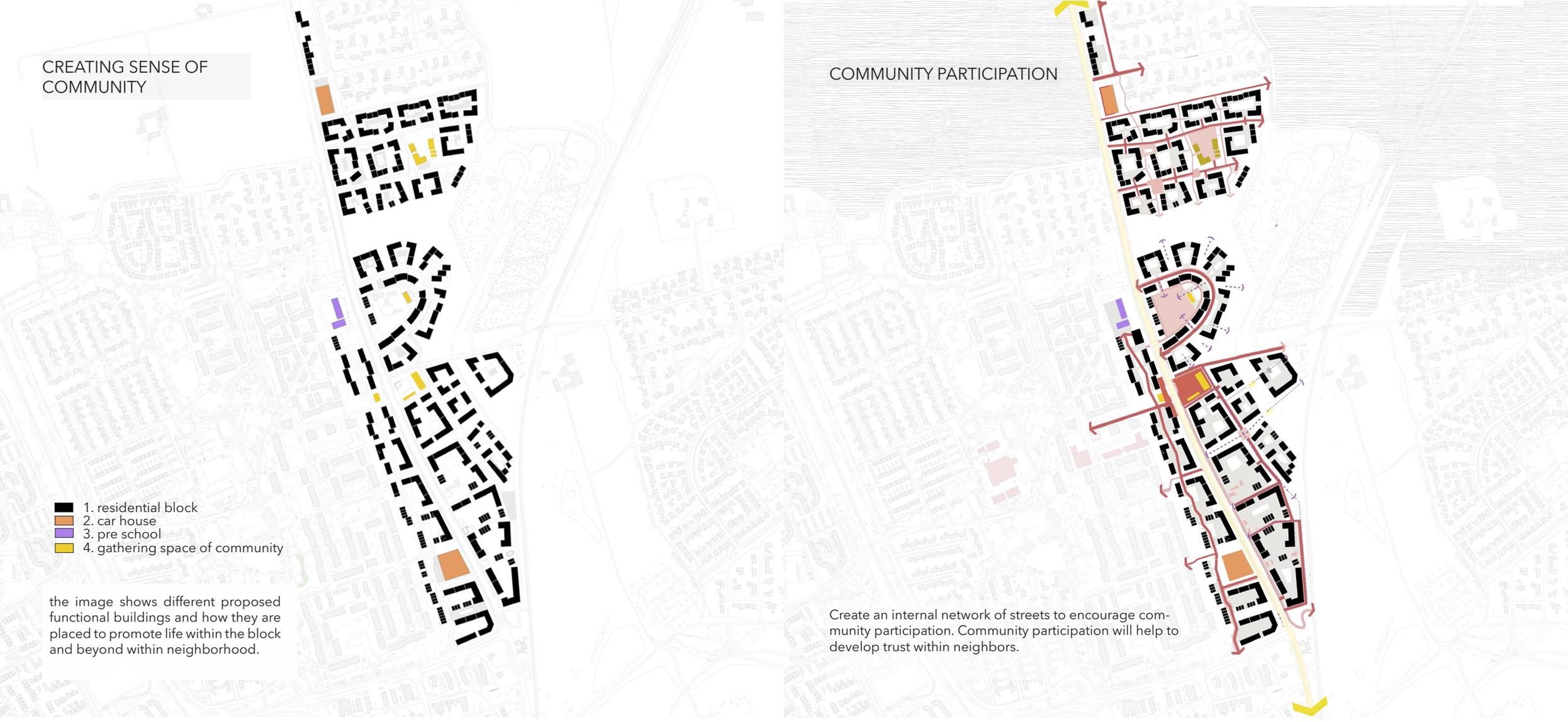
CREATING SENSE OF COMMUNITY

- 1. residential block
- 2. car house
- 3. pre school
- 4. gathering space of community

the image shows different proposed functional buildings and how they are placed to promote life within the block and beyond within neighborhood.

COMMUNITY PARTICIPATION

Create an internal network of streets to encourage community participation. Community participation will help to develop trust within neighbors.



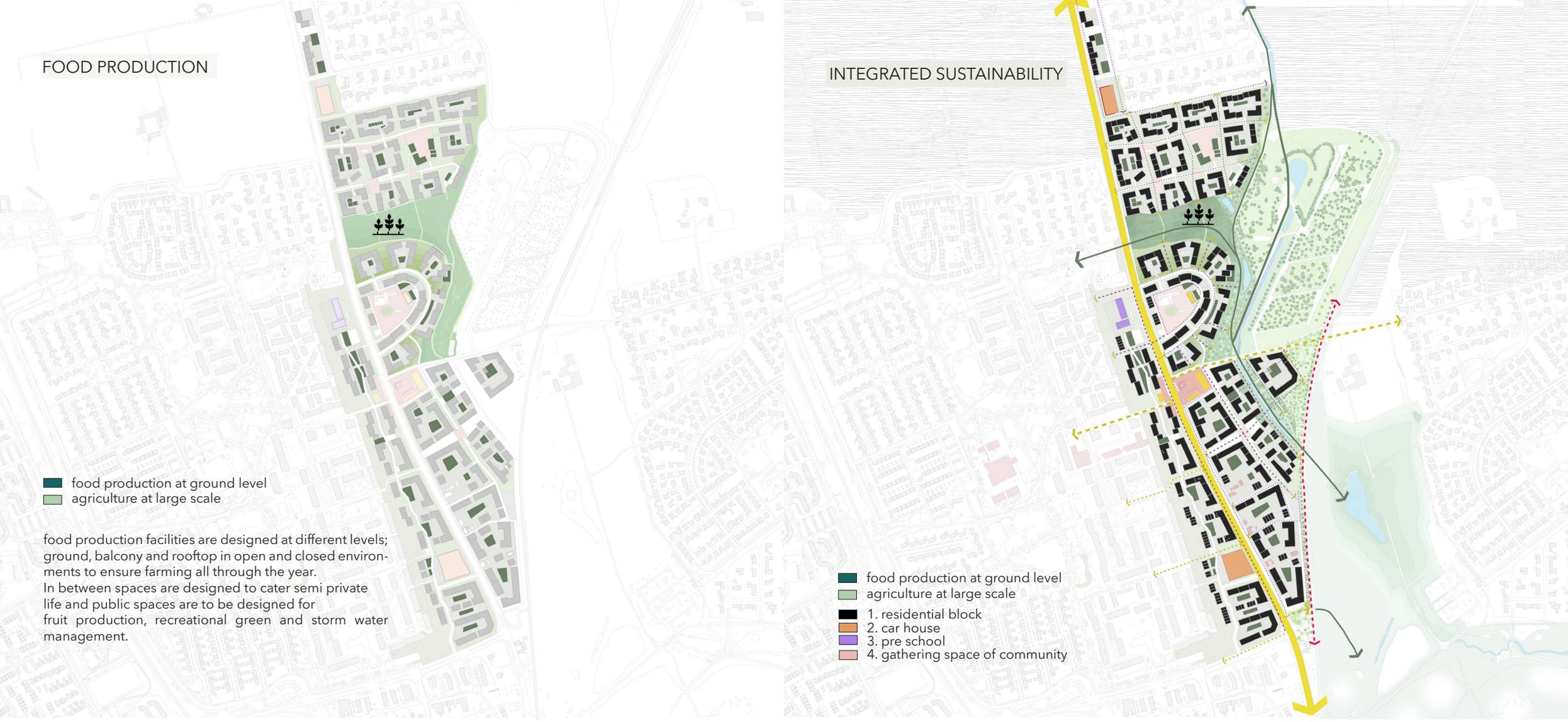
FOOD PRODUCTION

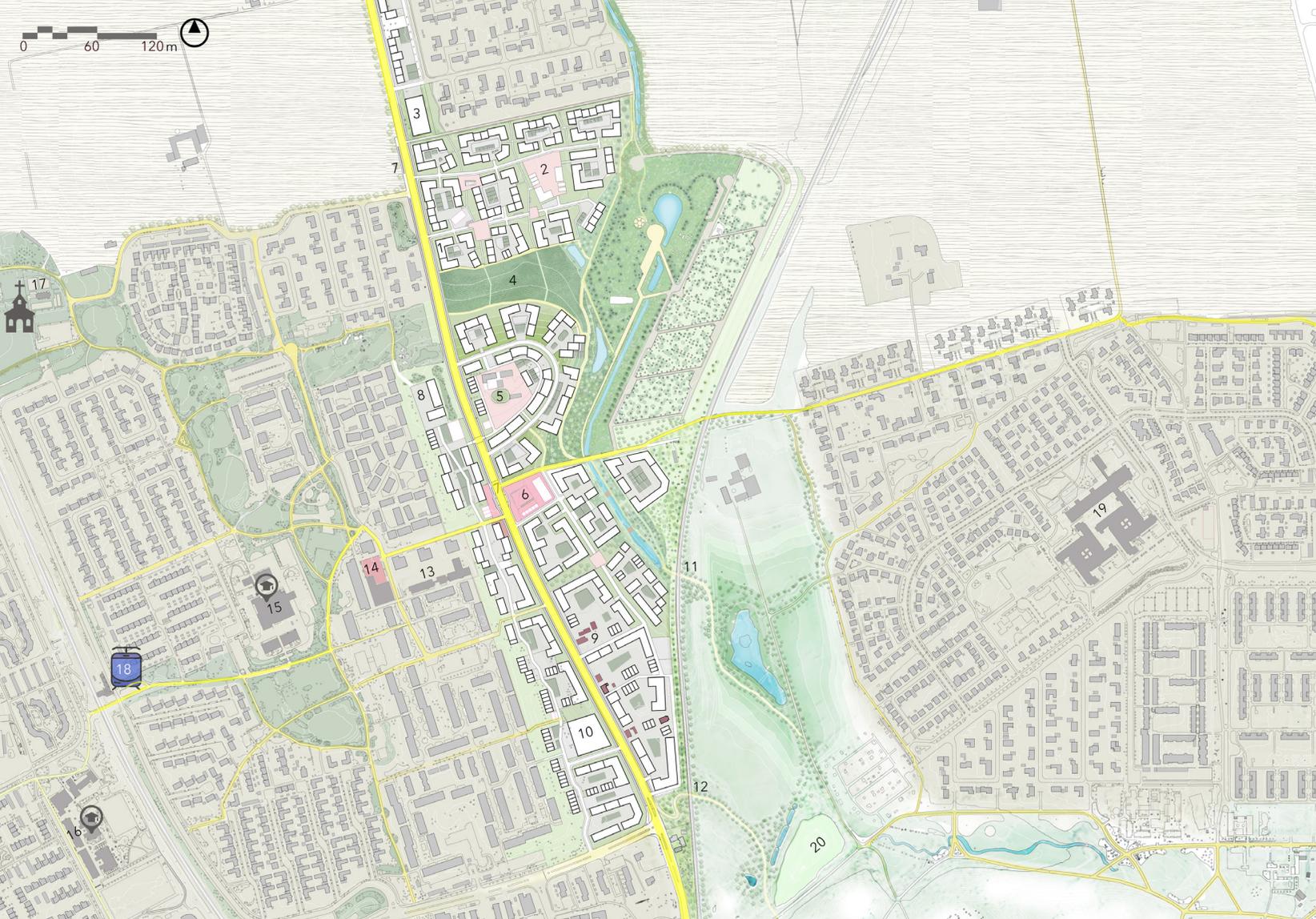
- food production at ground level
- agriculture at large scale

food production facilities are designed at different levels; ground, balcony and rooftop in open and closed environments to ensure farming all through the year. In between spaces are designed to cater semi private life and public spaces are to be designed for fruit production, recreational green and storm water management.

INTEGRATED SUSTAINABILITY

- food production at ground level
- agriculture at large scale
- 1. residential block
- 2. car house
- 3. pre school
- 4. gathering space of community





PROPOSED SITE PLAN

The proposed design grows by two sides of Kävlingevägen (7). This has the potential to be new city street for the proposed site. The buildings are designed to give an edge to this streetscape. Existing contour also plays strong force for formulating the footprint of the housing communities. Culturally significant buildings (9) are kept and the proposed housing on the right side of southern part evolved with a courtyard environment around these. The existing car parking lots are converted to new housing blocks and new car house (10) is provided to accommodate the cars. New housings are designed to encourage the use of public transport system thus the location of new bus stops (7) are kept near to housing community.

The design respects the existing road connections and build new ones accordingly to add seamless and efficient character to it so that it becomes part of existing fabric. The housing blocks are interconnected with choice of experiences one takes, be it cycle road, walking along the city street or through the natural environment.

The design strengthen what is already strong in the neighborhood. With ICA supermarket (15) and Vardcentralen (14) at Nöbbelövs Torg, the new square (6) will be the new meeting place for the neighborhood.

To break the railway as barrier two new underpasses (11 and 12) are proposed along the existing one that connects the neighborhoods. The underpass A (11) connects the existing green destinations, sankt hans hills (20), with the proposed green which is created to enhance existing green blue network for better biodiversity and manage stormwater. The underpass B (12) is proposed to strengthen site's connection to the south, monument's park and lund central, with bike and walk way.

- | | |
|--------------------------------------|----------------------------|
| 1. housing block | 11. underpass A |
| 2. social gathering space | 12. underpass B |
| 3. car parking house | 13. existing building |
| 4. agriculture land | 14. vardcentral |
| 5. historical significance landscape | 15. ICA supermarket |
| 6. new square | 16. primary school |
| 7. bus stop / Kävlingevägen road | 17. church |
| 8. pre school | 18. gunnesbo train station |
| 9. culturally significant building | 19. old home |
| 10. car house | 20. sankt hans hills |

existing
 proposed

EXISTING FABRIC



- 1. the site
- 2. nöbbelev
- 3. annehem
- 4. vallkära
- 5. gunnesbo train station
- 6. stångby
- 7. dog park
- 8. sankt hans hills
- 9. monument's park
- 10. mollevågen cemetery
- 11. stångby plant skolan
- 12. proposed future recreational green
- 13. Klosterängshöjden
- 14. max iv laboratory
- 15. brunshög
- 16. nova industrial area
- 17. nöbbelevs mosse



PROPOSED MASTER PLAN

The masterplan proposes densified and productive community that is linked to local context. The communities are interdependent and interconnected, binds together by public spaces and landscape connections within and seeks to be a connector (missing piece of puzzle) in neighborhood scale. In city scale the proposal connects the neighborhood of Nöbbelöv, Annehem, Vallkära and Stångby. The proposed routes strengthen its connection to Gunnesbo, Max IV Laboratory, Brunnsbög and Nova with the site considering their context and future work opportunities. The propose green network will offer more seamless choices for the locale to be in nature and take benefits from it. The rail tracks works currently as a barrier for the neighborhood and propose masterplan tries to see this as opportunity to connect regionally thus strengthen uninterrupted bike connections to the station. It also proposes to weave the existing isolated green features to achieve greater sustainable fabric for the area. This also shows opportunities of using this green fabric to use it more for productive landscape. The project also intends to create more job opportunities in the agriculture sector for students and volunteers in the city and strengthen municipality's position to secure food production.

- | | |
|---------------------------|--|
| 1. the site | 10. mollevågen cemetery |
| 2. nöbbelöv | 11. stångby plant skolan |
| 3. annehem | 12. proposed future recreational green |
| 4. vallkära | 13. Klosterängshöjden |
| 5. gunnesbo train station | 14. max iv laboratory |
| 6. stångby | 15. brunnsbög |
| 7. dog park | 16. nova industrial area |
| 8. sankt hans hills | 17. nöbbelövs mosse |
| 9. monument's park | |



DETAILED AREA PLAN 01

- 1. FARMING AT GROUND FLOOR
- 2. FARMING AR ROOF LEVEL
- 3. SOLAR POWERED GREEN HOUSE
- 4. SEMI PUBLIC SPACE
- 5. PUBLIC SPACE
- 6. SHARING FACILITIES
- 7. RESTAURENT
- 8. AQUAFARMING
- 9. WORK STATION
- 10. SOCIAL CENTER
- 11. ROAD
- 12. BIOTOPE
- 13. KÄVLINGEVÄGEN
- 14. CAR HOUSE
- 15. EXISTING RESIDENCES
- 16. LARGE SCALE FARMING
- 17. SVENSKA KYRKAN CEMETRY PARK



aquaponics farm



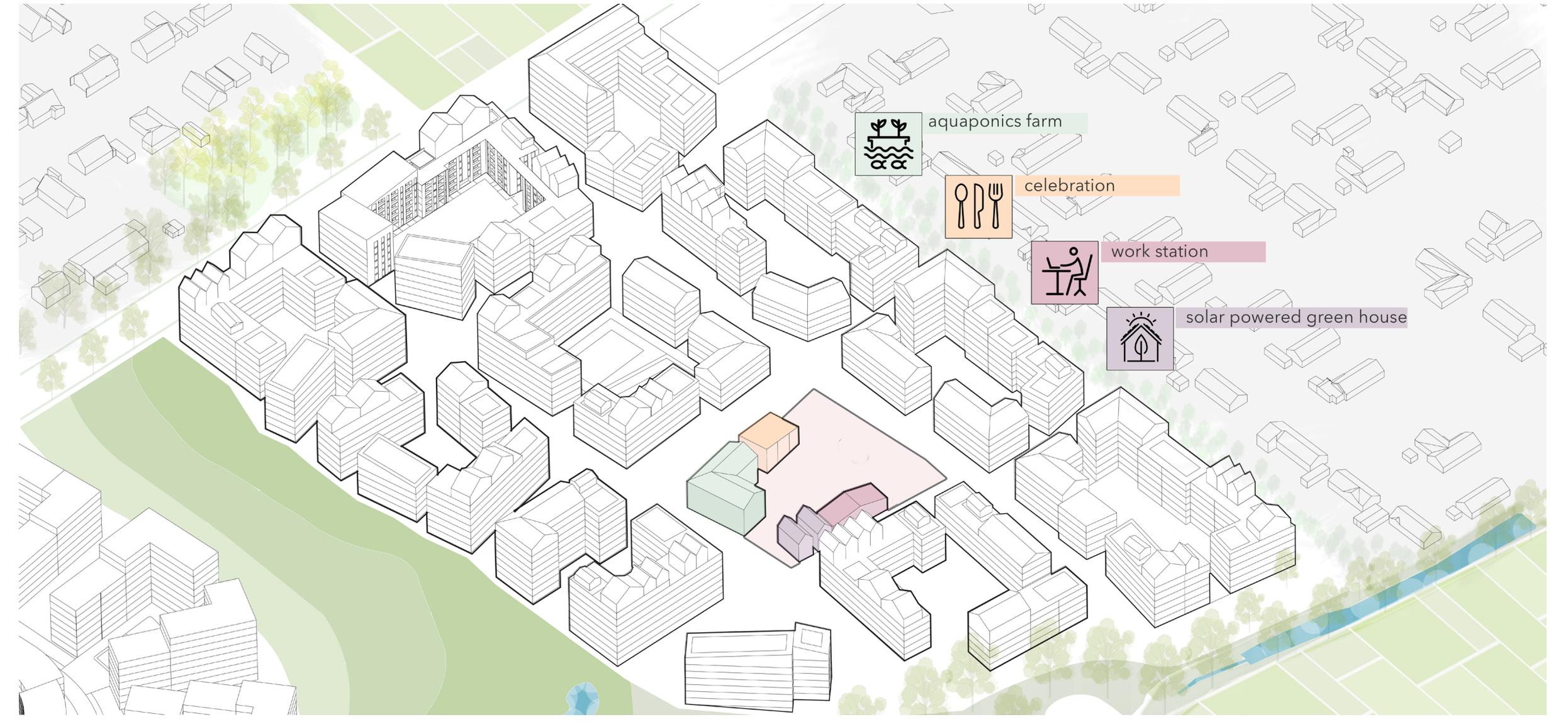
celebration



work station

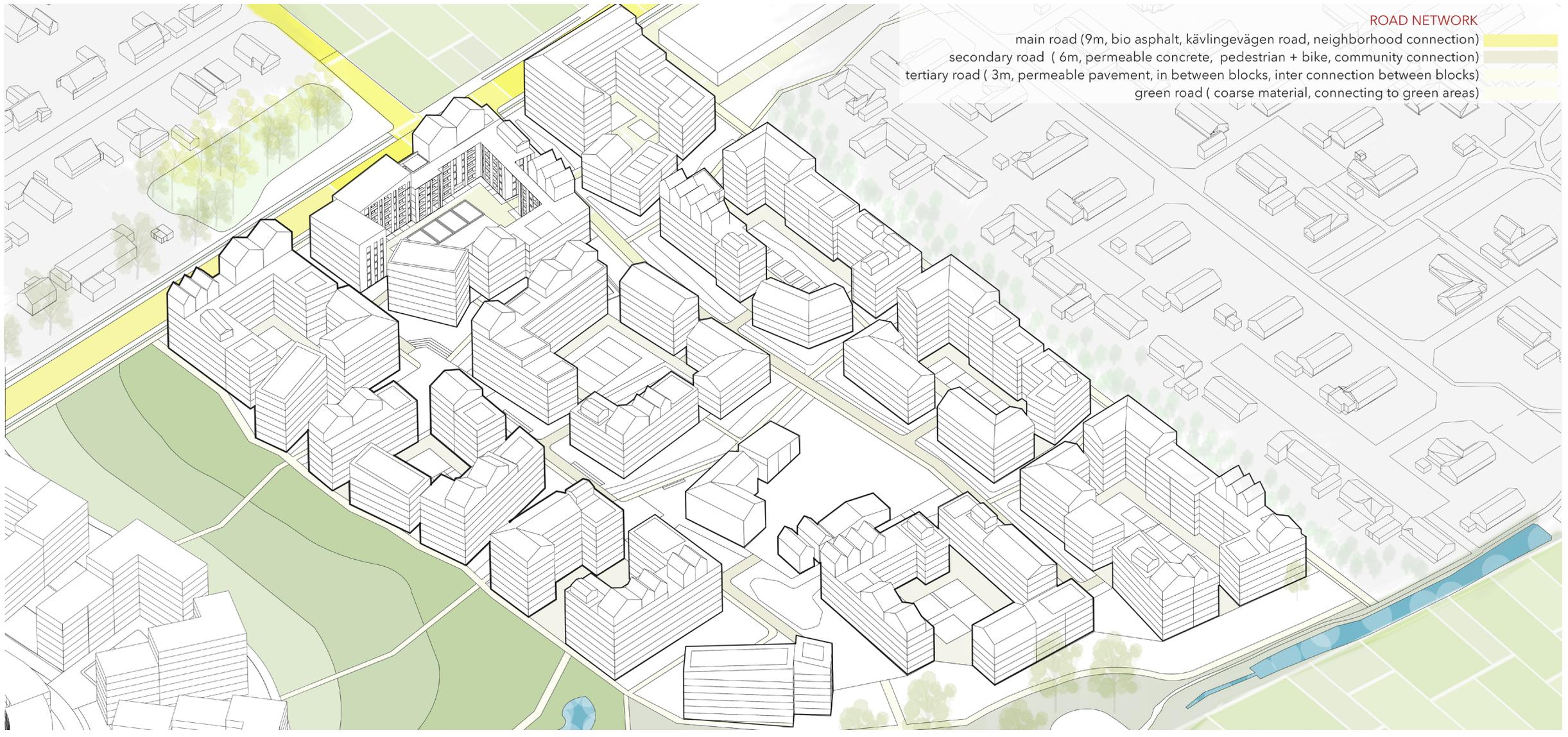


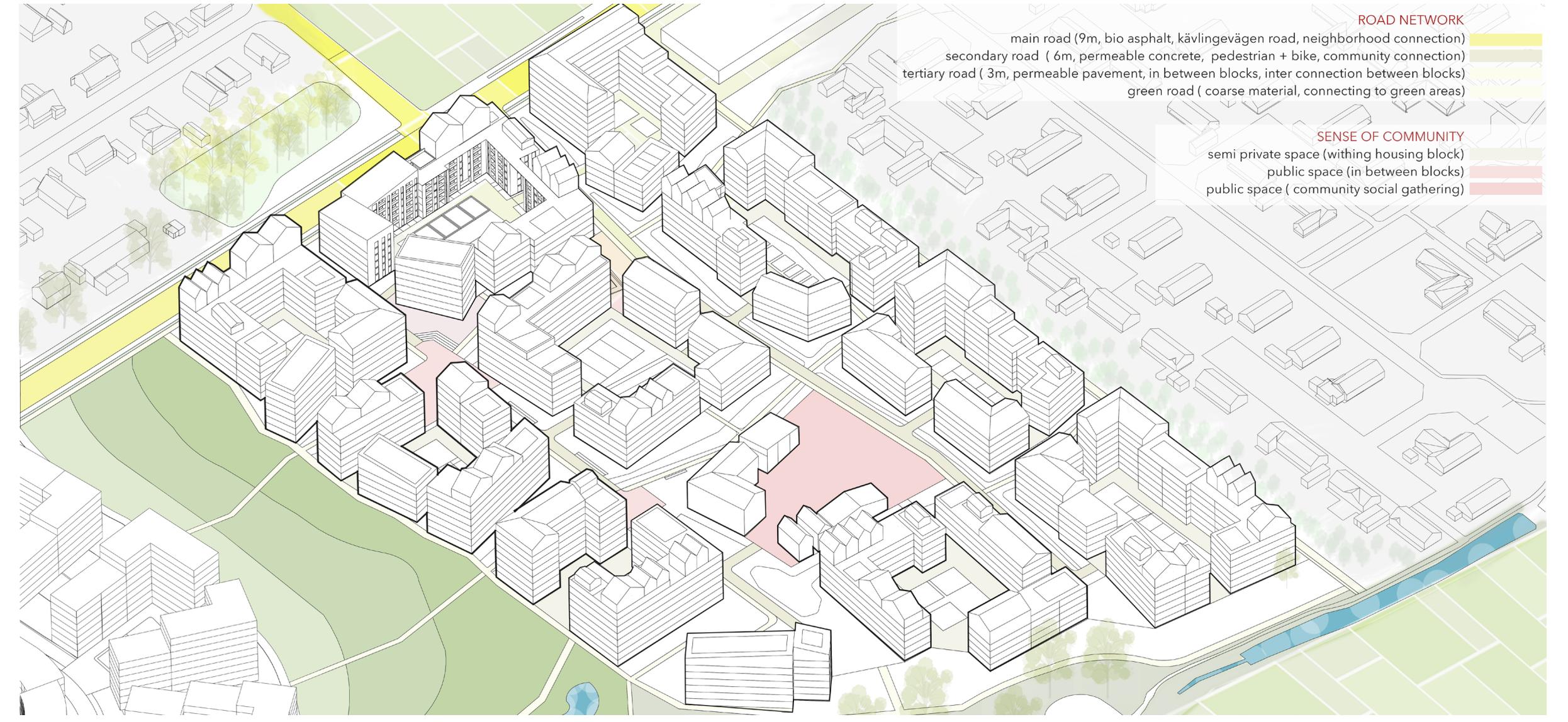
solar powered green house



ROAD NETWORK

- main road (9m, bio asphalt, kävlingevägen road, neighborhood connection)
- secondary road (6m, permeable concrete, pedestrian + bike, community connection)
- tertiary road (3m, permeable pavement, in between blocks, inter connection between blocks)
- green road (coarse material, connecting to green areas)



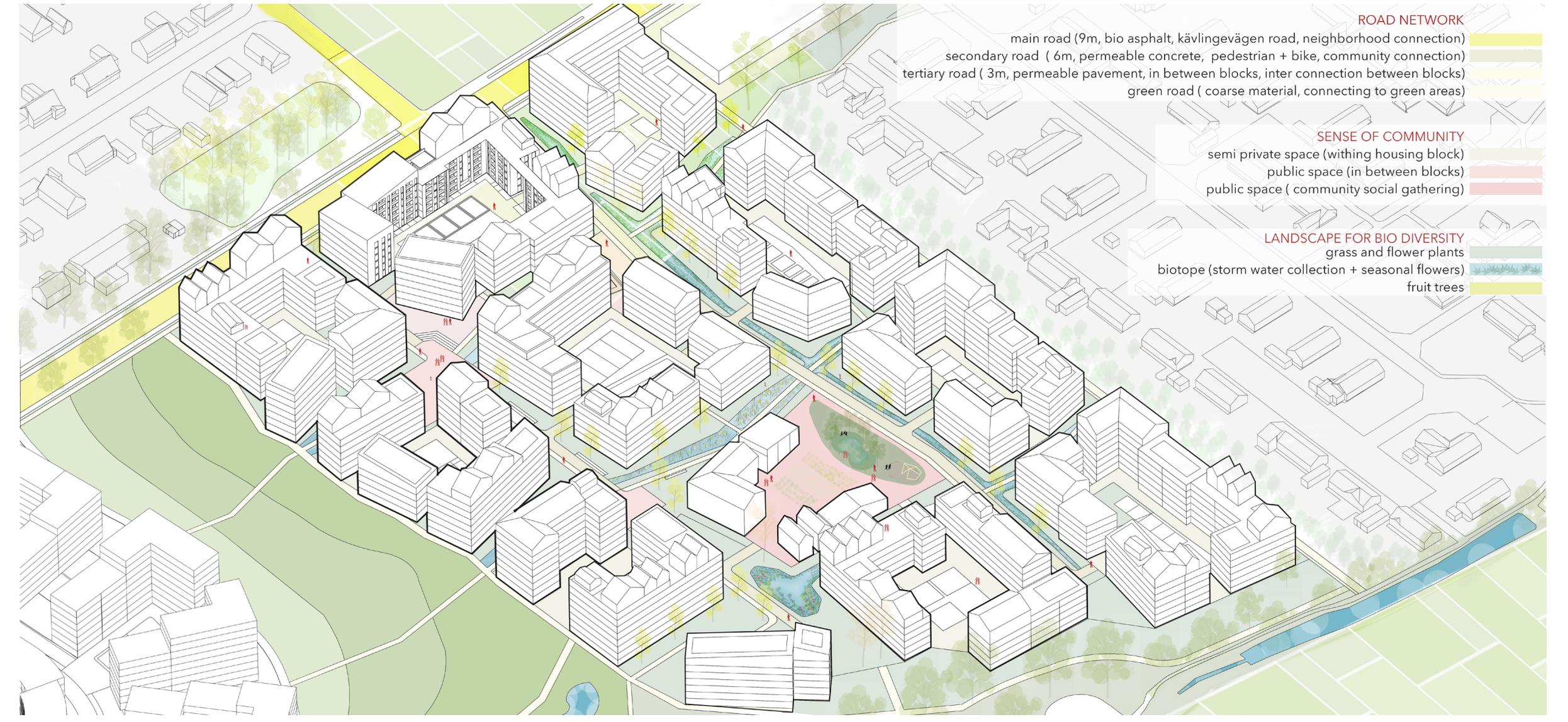


ROAD NETWORK

- main road (9m, bio asphalt, kävlingevägen road, neighborhood connection)
- secondary road (6m, permeable concrete, pedestrian + bike, community connection)
- tertiary road (3m, permeable pavement, in between blocks, inter connection between blocks)
- green road (coarse material, connecting to green areas)

SENSE OF COMMUNITY

- semi private space (withing housing block)
- public space (in between blocks)
- public space (community social gathering)



ROAD NETWORK

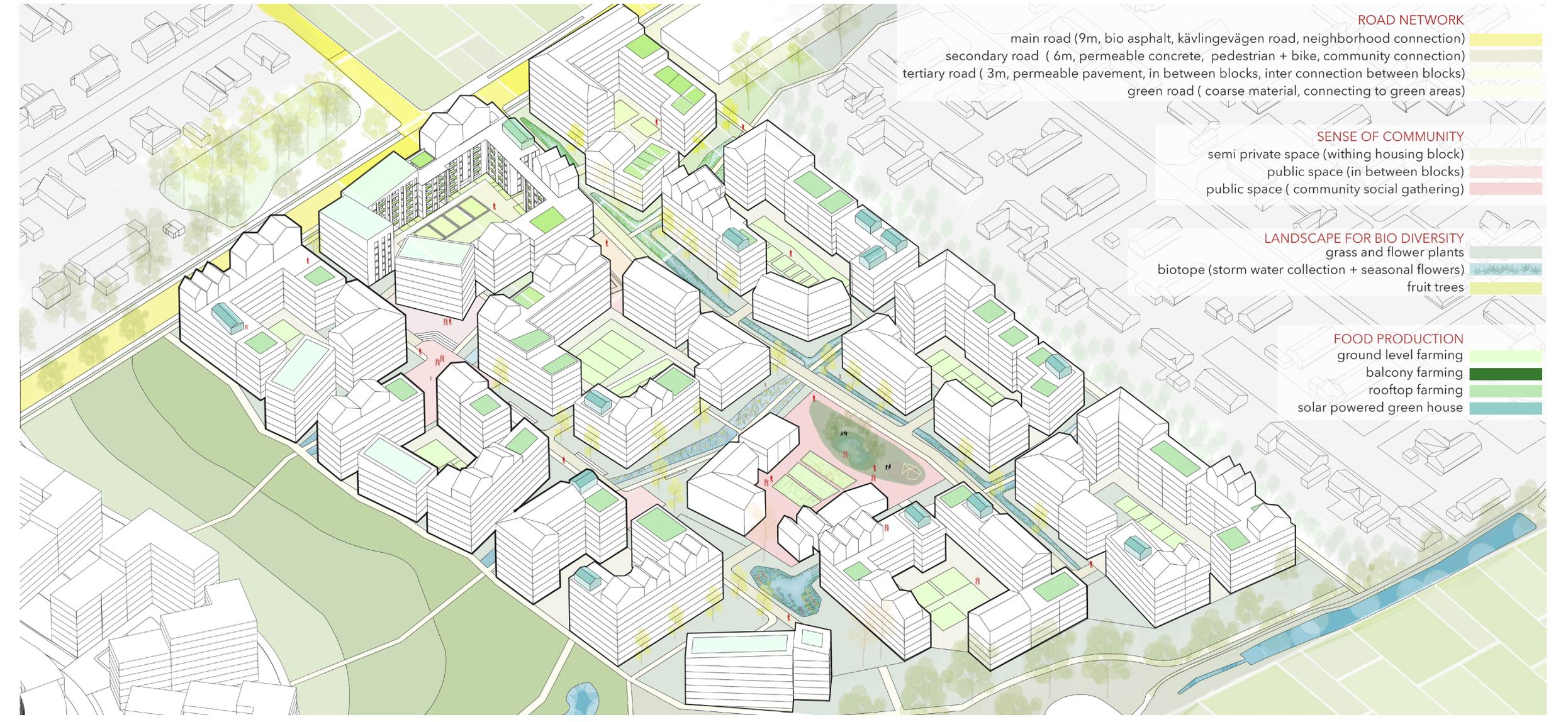
- main road (9m, bio asphalt, kävlingevägen road, neighborhood connection)
- secondary road (6m, permeable concrete, pedestrian + bike, community connection)
- tertiary road (3m, permeable pavement, in between blocks, inter connection between blocks)
- green road (coarse material, connecting to green areas)

SENSE OF COMMUNITY

- semi private space (withing housing block)
- public space (in between blocks)
- public space (community social gathering)

LANDSCAPE FOR BIO DIVERSITY

- grass and flower plants
- biotope (storm water collection + seasonal flowers)
- fruit trees



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FOOD PRODUCTION

- ground level farming
- balcony farming
- rooftop farming
- solar powered green house

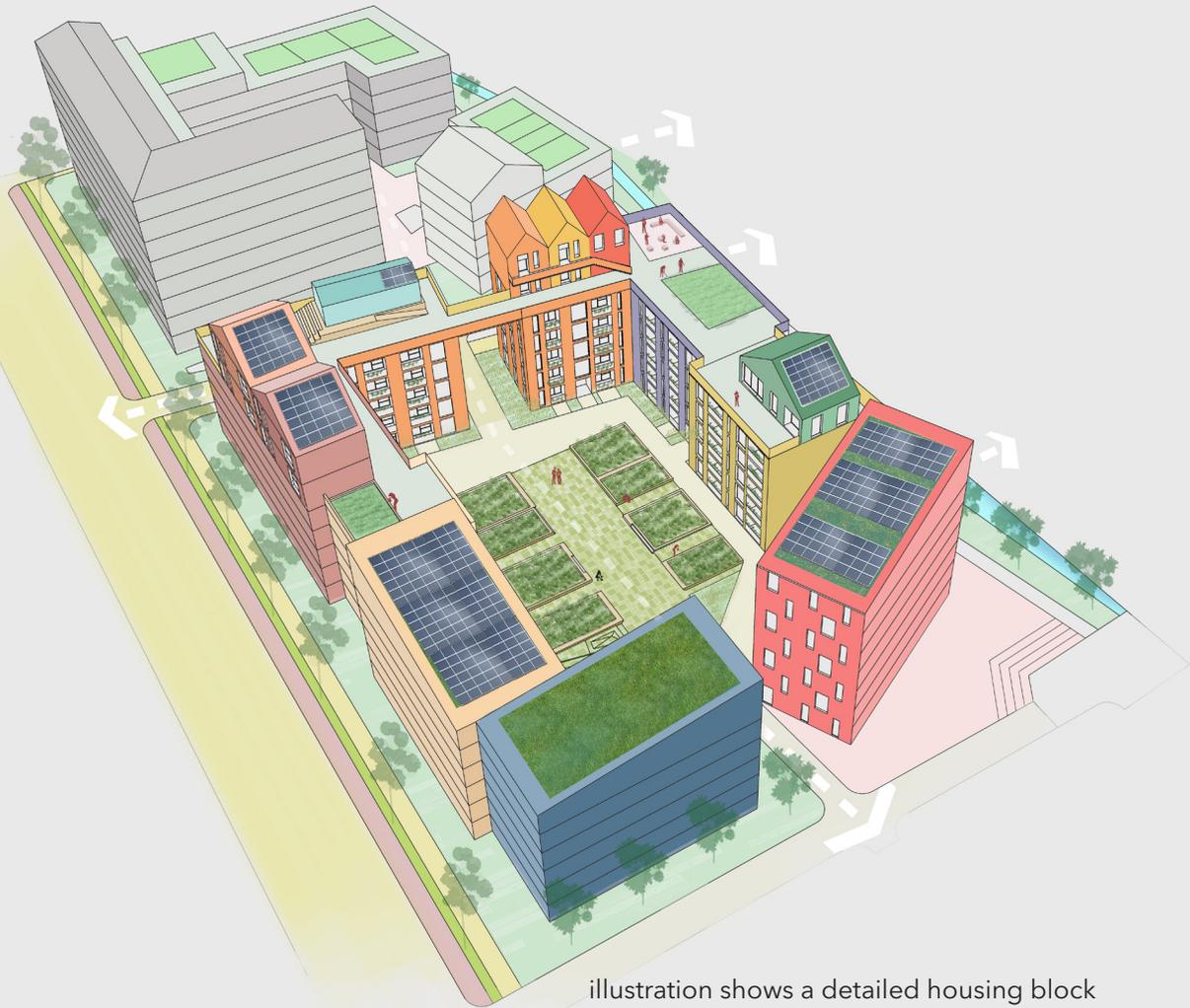
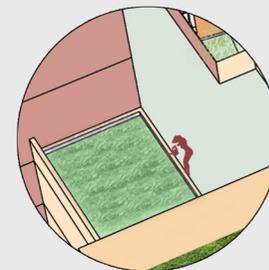


illustration shows a detailed housing block



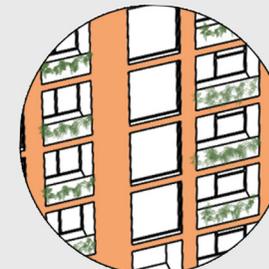
villament



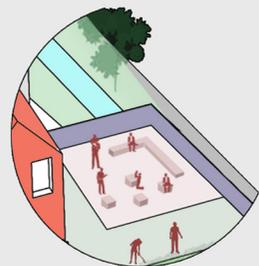
farming at open roof



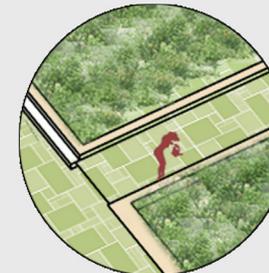
solar powered green house



farming at balcony



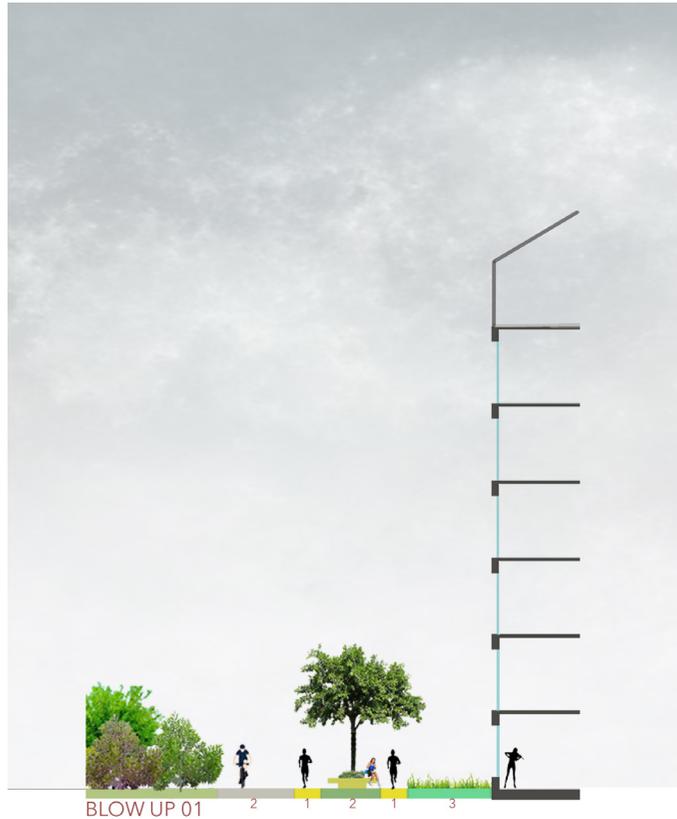
social space at roof level



farming at ground level



the image shows how the inner courtyard of a housing block can be experienced. A place to grow food and where people of all age meet and celebrate life at different levels.



the section portrays the edge of housing community and how it tries to blend with the existing villa housings providing a natural buffer space that can be a place of meet with jogging and walking facilities.



BLOW UP 02 shows how the life is experienced between two housing blocks, a public space that encourages people to meet and greet. Transparency in public space will help to develop trust between the locales that is much needed for urban farming food production. Also landscape and streetscape aims to accomodate stormwater management and enhanced biodiversity.



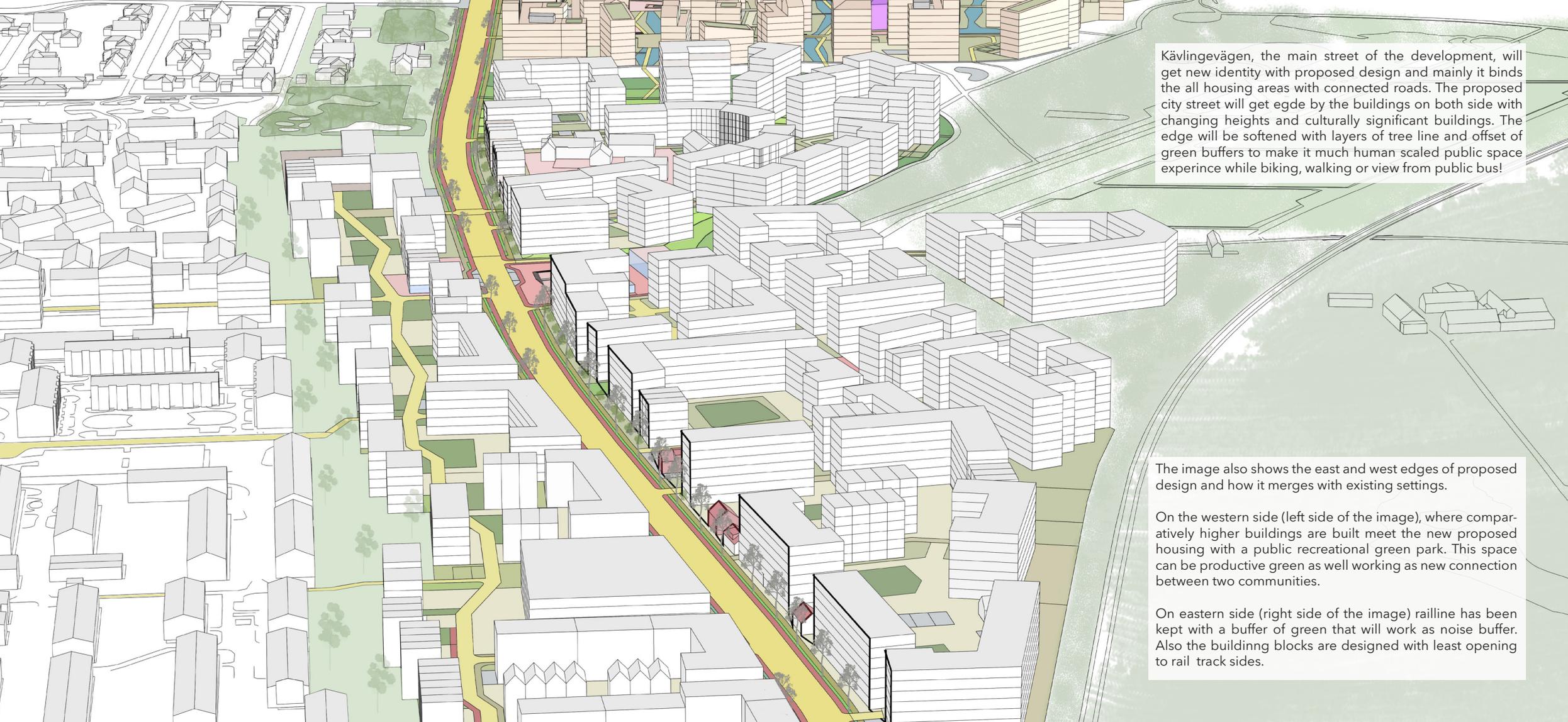
This community at the center of the development is called as **GROWERS**. They will take farming mainly as profession and more skilled labor for production. They also live closely to big farming area of the project and also grown in between spaces of the housing block. The housing blocks are developed with existing houses and historically significant landscape in center . The inner courtyard is connected with permeable semi public spaces to encourage people to meet in semi public spaces.

The tertiary roads around the housing also encourages to take a walk in between agricultural lands and take mental and healthy benefits.

Shared vehicle system is proposed to have shared private vehicles instead of having private vehicles for everyone. They can be rented with an app and use for emergency and in case of necessity.

DETAILED AREA PLAN 02

1. Historical significant landscape
2. Shared vehicle system
3. Residence building
4. Social center
5. Existing residence
6. Shared community facilities
7. Farming
8. Pre school
9. Shared vehicle system
10. Existing neighborhood

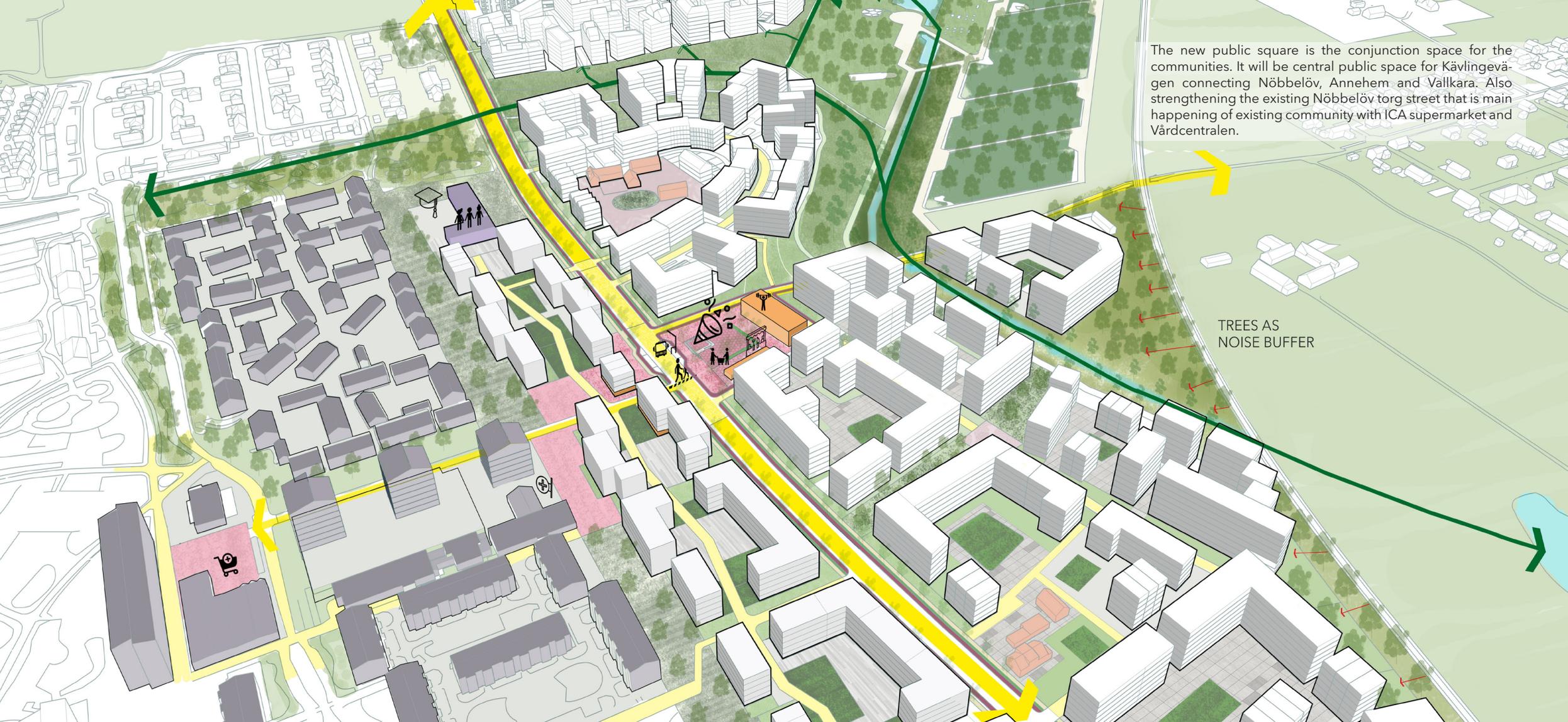


Kävlingevägen, the main street of the development, will get new identity with proposed design and mainly it binds the all housing areas with connected roads. The proposed city street will get edge by the buildings on both side with changing heights and culturally significant buildings. The edge will be softened with layers of tree line and offset of green buffers to make it much human scaled public space experience while biking, walking or view from public bus!

The image also shows the east and west edges of proposed design and how it merges with existing settings.

On the western side (left side of the image), where comparatively higher buildings are built meet the new proposed housing with a public recreational green park. This space can be productive green as well working as new connection between two communities.

On eastern side (right side of the image) railline has been kept with a buffer of green that will work as noise buffer. Also the building blocks are designed with least opening to rail track sides.



The new public square is the conjunction space for the communities. It will be central public space for Kävlingsvägen connecting Nöbbelöv, Annehem and Vällkara. Also strengthening the existing Nöbbelöv torg street that is main happening of existing community with ICA supermarket and Vårdcentralen.

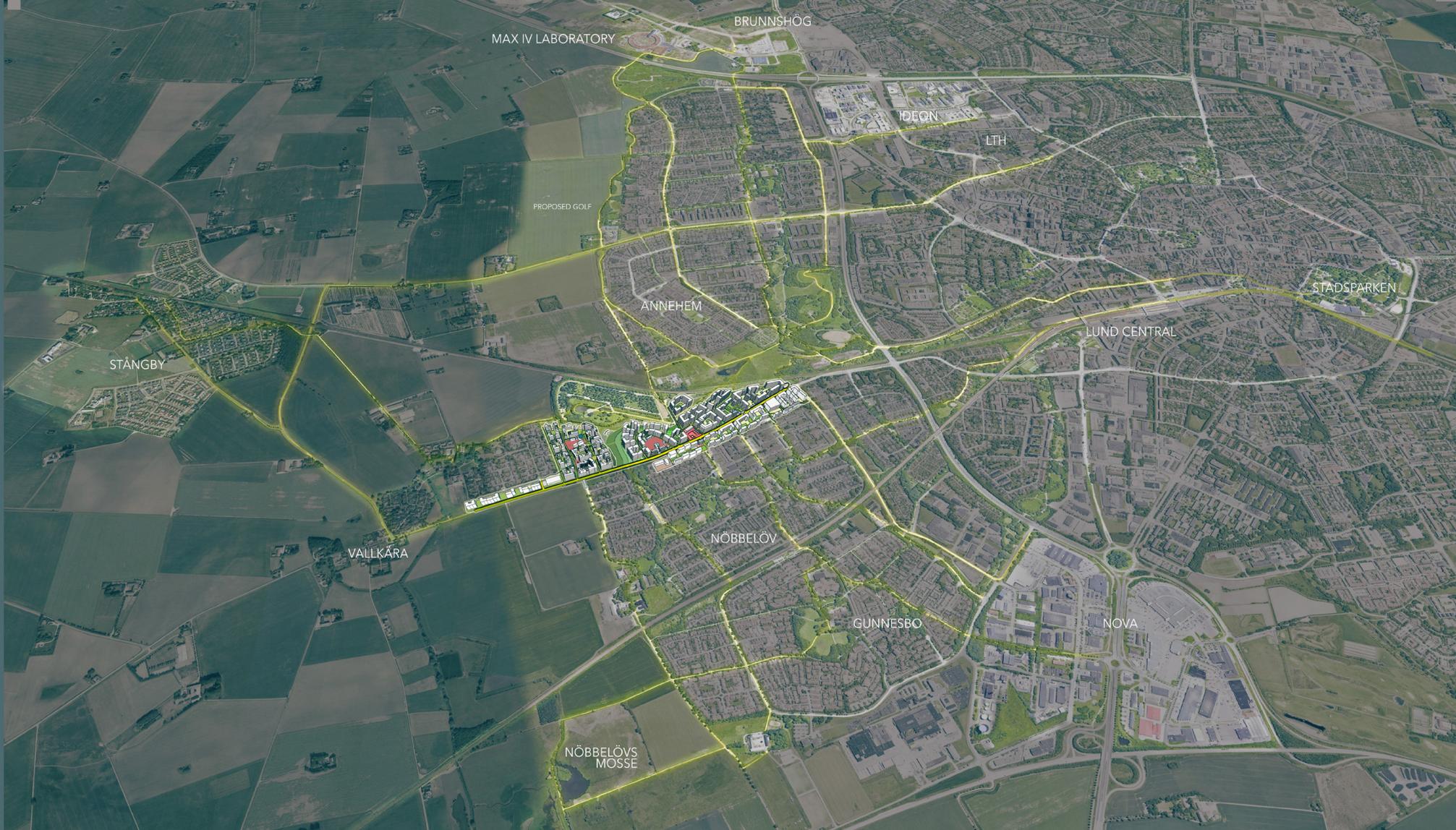
TREES AS NOISE BUFFER



The section of the Kävlingevägen street (9-meter width) at New public Square (NYTORGET) shows how the city street has been treated with edges of buildings and green lines. Near the new public square it offers more public amenities and gathering spaces with active both sides. The new bus stop is designed with bus bay and solar panels on top of the bus shade. The material of road at junction will be cobble stones to define the seamless public qualities. This also will carry a mental cognition with central lund old streets!







CITY SCALE DEVELOPMENT PLAN

The image shows how the project aims to be in the future context- connected with neighborhoods , more accessible and permeable.

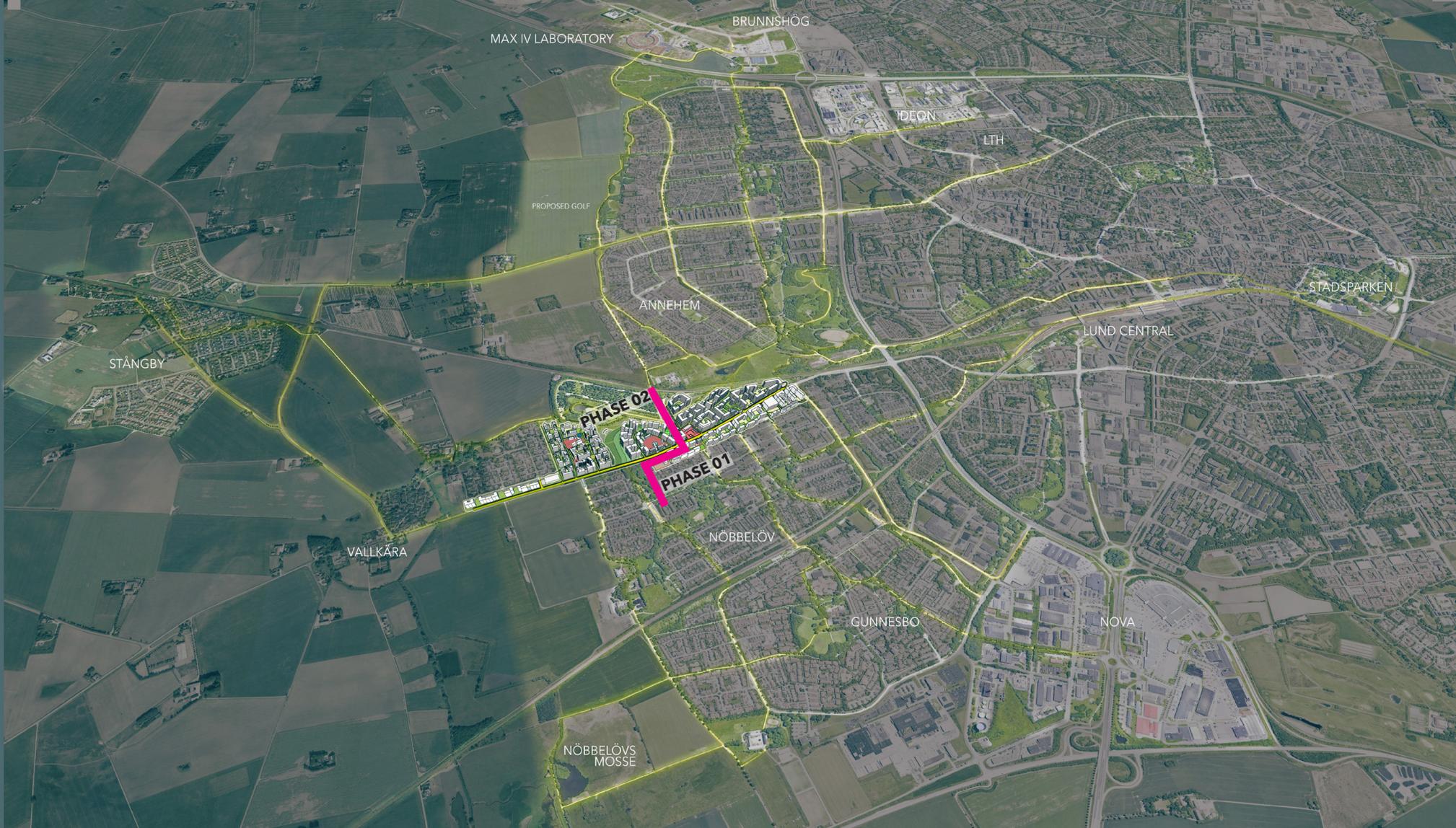
With more sustainable choices of living and move it will promote Lund Kommun's vision **The Growing Lund, The Green Lund and The Close and Living Lund.**

We expect a community that will contribute to food production for the city, meet necessary living amenities within 15-30minute walk, work places are well connected by sustainable movement choices and also promote work from home culture. Green blue network will encourage a lifestyle that promotes co-existence and enhance biodiversity of the locality.

Recreational and activity destination places are connected through seamless and prioritized walking and bike lanes.

In city scale the new development with proposed development strategies will be a connector to weave Stångby and Vallkära in north, Nöbbelöv, Gunnesbo, Nova at West, Annehem, Max IV Laboratory, Brunns hög, Ideon, LTH on the East and Lund Centralen, Stadsparken on South.

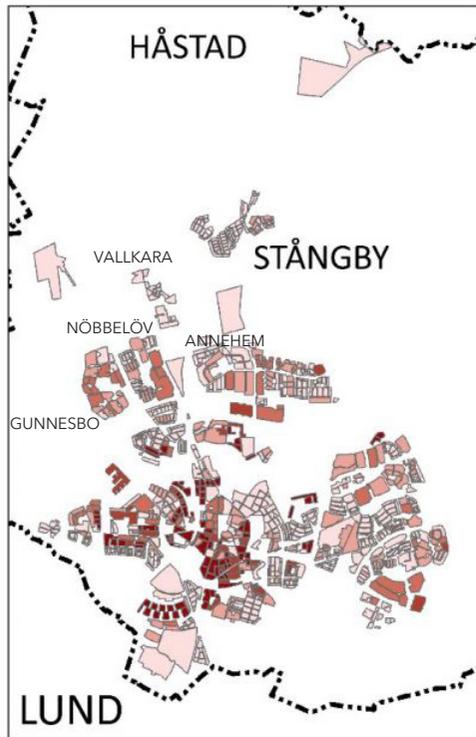
PHASING



PHASE 01
The first phase will start from the starting point of Kävlingevägen converting the existing car parking and nearby areas.
Expected timeline for this is 2021-2030.

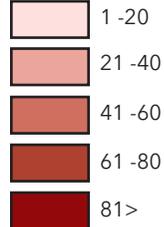
PHASE 02
The second phase will be large scale development that will promote new lifestyle to the maximum. Also this will integrate design strategies to connect all major destinations.
Expected timeline for this is 2030-2040.

so by 2040 this project will contribute to meet the need of Lund municipality's aim to provide 26000 new homes.



EXISTING

Number of dwellings per hecter



PROPOSED DENSIFICATION

Total land area (with road) = 329019 sqm
 = 0.329019 sqkm = 32.9 hecter

Expected population = 3800 ~ 4200

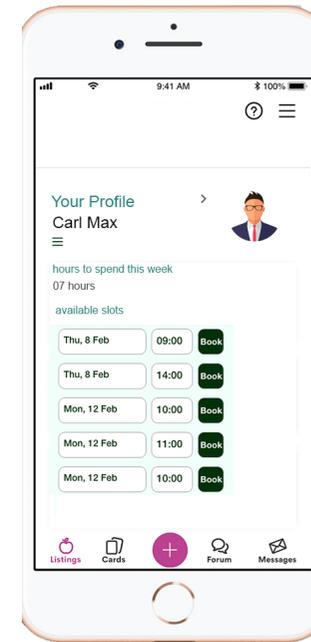
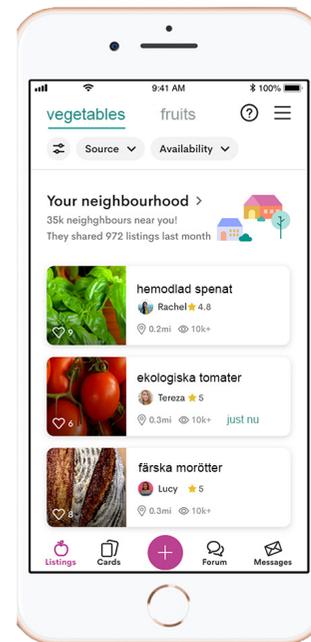
Density= 12500 per sqkm = 121 per hecter

Bebyggelsestäthet, antal bostäder per hektar, ortsvi

BUY AND SELL APP FOR VEGETABLES AND FRUITS

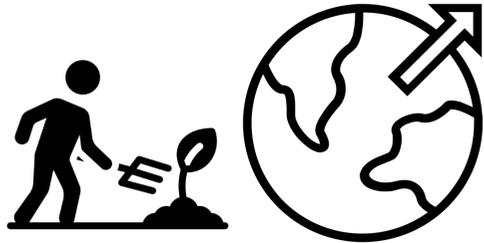
VäXA GRÖNT

People from Lund can buy and sell their grown vegetables and fruits among themselves



Under Lund Kommun there are possibilities to create more Part time Job opportunities for students. Part time jobs in Lund is not very easy to find for international students and many students choose Malmö to live for that. This new job opportunities can open new door to many students and also help municipality to find more work force into agricultural sector.

PLANT SKOLAN at Stångby can play a vital role in educating and arranging workshops for the people of Lund and Stångby to learn more about urban farming. Students can get short time diploma to be eligible to be hired by municipality for farming jobs. As they say you meet world in Lund, so students from around the world can learn urban farming and the practice and this lifestyle can be spread all over the world.



PART 06 : CONCLUDING REMARKS

Food, people and place are connected. The relationship between these are getting very complex and in coming future this will be serious challenge to meet. Human growth is natural so does the growth of cities are expected. But what matters is how do we approach that challenge! The project questions short term vision from policy makers and explores the challenges in more futuristic vision.

One of the main challenges for food production based housing culture is ownership of the properties and trust in sharing responsibilities. This problems can be shortened by giving extra benefits from the municipalities initially (tax reduction, extra points if meet food production targets, buying locally produced foods even if the price is higher or may be some more creative and feasible strategies to encourage people into farming) and by educating its citizen. Transparent public space can play an important role in trust gain. In Sweden small scale organic farming is getting popular, arranging workshops arranged by municipality for the citizens can accelerate the process. Once peoplle realized the physical and mental benefits of food gowing i believe there is no stopping back.

The project has a vision for a community where people will grow food for themselves, live closely to each other, be responsible in choosing their steps towards sustainable world. In city scale the food grown in the community can be shared with other food growing communities. A mobile app can be handy in knowing and calculating which foods and what amounts should be target for growing. This will make a city self sustianed. Japan's approach in agriculture (subsidizing farmers for food production, buying products from local farmers in high rate in spite of cheaper global market rate, strict food import policy) can be an example to understand this model and how they have become sustainable in food production. Otherwise cities will be vulnerable during serious crisis like what pandemic already showed us! The world is changing rapidly and enough damage has been done to mother earth, it is our time to leave our EGO and coexist with nature! First step for that we need to change our approach in what way we live and grow food!

DISCUSSION during JURY

It was interesting and thought provoking discussion after the degree project presentation. Björn initiated the discussion with treatment of EDGE in urban fringe design . That leads our discussion into what should be your considerations and how do we know the effectiveness and sensitivity of fringe specially when it meets to different edges: existing housing system, agricultural landscape and also mentalscape of the neighborhood! Peter discussed also about the importance of considering micro scale interventions and how the edges blend in all sides can be portrayed in illustrations! And also the limitation of the project as academic work was also acknowledged as in real time scale there are many other issues specially land ownership should be considered which is most critical to deal. Also densifying the existing areas which is much needed for context of Lund is discussed. Tommy as student opponent asked about the use of existing contour and how it takes benefit from that. Lars Henrik mentioned may be densification can be reduced a bit in real application while Daniel thinks exploring higher densification is the strength of the thesis project.

Overall it was good discussion and also summarizes with three significant questions from jury discussions -

1. For how long a fringe is a fringe? when it is not a fringe and inside a city!
2. What is the future of food production? When the large scale is becoming smaller scale and smaller scales becoming larger scale? when do they meet and how do you draw them together?
3. Edges, not only the urban edges towards the outsides but also towards other surrounding urban elements like housings, people, park, street etc.

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Urban Fringe: Exploring the expansion of city, challenges on agriculture lands and food production
in context of Northern Lund, SWEDEN

Master Thesis Booklet
MAY 2021

Faculty of Engineering, LTH
School of Architecture
Master's Programme of Architecture
with specialization in Sustainable Urban Design
Lund University, Sweden

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