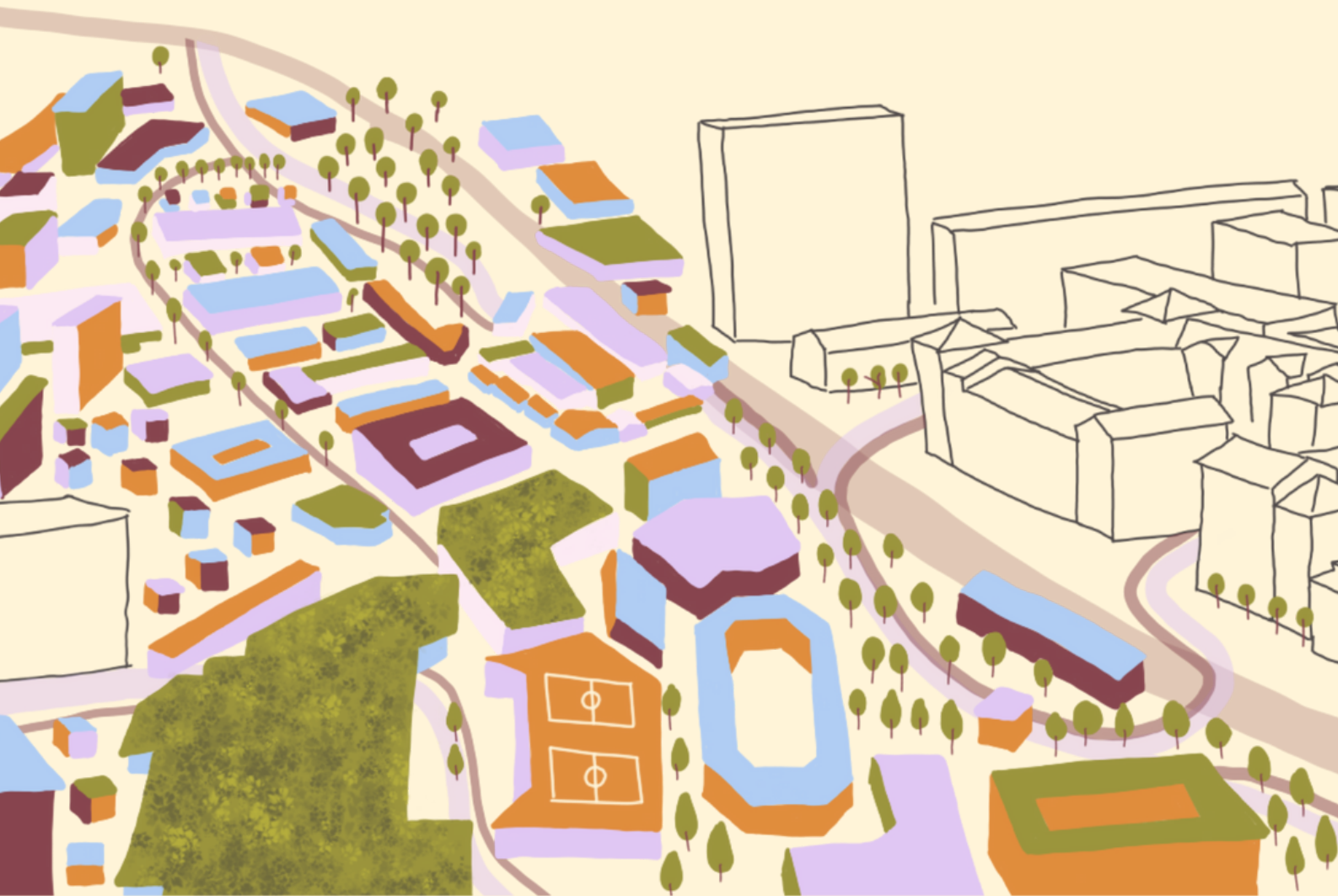
BARKARBY NEXUS

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1.INTRODUCTION

1.1 VISION

In 2050, what was once Barkarby's commercial area is now known as Barkarby Nexus. The term "Nexus'' finds its roots in the Latin word "nectere," meaning "bound," which later evolved into "nexus," signifying "a binding together." In contemporary usage, it refers to "a connection or series of connections linking two or more things'' and/or "a central or focal point," as defined by the Oxford Dictionary.

This new name captures the essence of the neighborhood, which has transformed into a pivotal link connecting Jakobsberg and Barkarbystaden, shaping a unified regional city center for Järfälla. Barkarby Nexus not only facilitates a seamless transportation network between these areas but also serves as a central hub for social interactions, creating a cohesive focal point for Järfälla residents.

While strolling through the area, vestiges of its commercial past remain visible. The once-prominent box houses of commercial chains now blend with a more human-scale built environment and housing. These large structures have undergone a metamorphosis, finding new purpose as indoor growing facilities for urban gardening, communal gathering spaces, workshops, and co-housing residential units. The vast parking lots that once dominated the landscape have given way to additional housing for Järfälla's growing population and open public spaces like squares and gardens. The neighborhood has its own place identity and is safe to live and be in all hours of the day.

During the area's redevelopment, the municipality adhered to a carbon-positive goal by utilizing existing infrastructure and materials. This sustainable approach not only preserves the area's character but also contributes to the overall environmental well-being of Barkarby Nexus.

The neighborhood's significance as a connector between Jakobsberg and Barkarbystaden emphasizes its role in fostering social unity. The establishment of a comprehensive transportation network underscores the importance of accessibility and fluid movement for residents who now find it easy to abandon their cars. The central gathering point further enhances community cohesion, fostering a shared identity among the people of Järfälla. By fostering this, Barkarby Nexus will bridge the barrier that it poses to be today. It will strengthen the physical network both within the area itself but also to neighborhoods in proximity.

1.2 CURRENT STATUS OF JÄRFÄLLA AND BARKARBY

As a growing municipality in the expansive Stockholm Region, Järfälla is facing both challenges and opportunities in future development of the municipality. When working on the new comprehensive plan for 2050, Järfälla municipality has identified five challenges that are particularly important for the development of the physical environment in the future (Järfälla, 2023a).

The five challenges are:

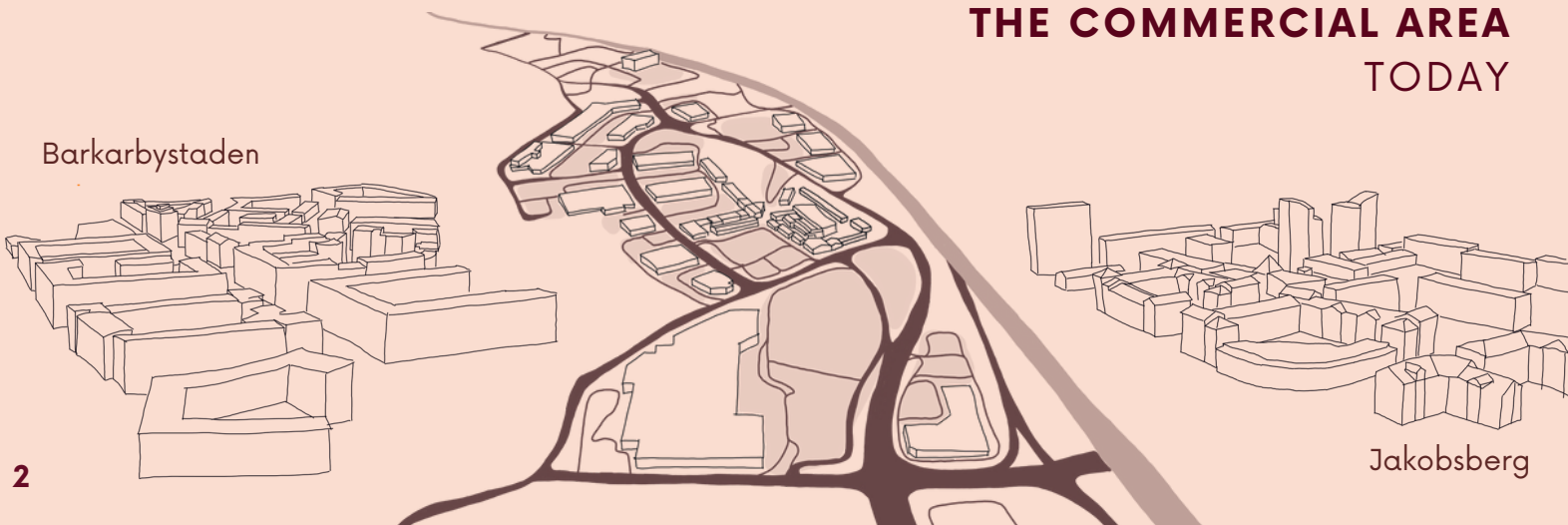
1. Housing for everyone and lively local communities.
2. Creating an attractive regional city center for both citizens and businesses.
3. Being a resilient and robust municipality in regards to a quickly changing world.
4. To become climate neutral while simultaneously growing and developing expansively.
5. Being efficient with land use in order to handle the challenges of the future.

The five challenges are all related and intertwined. When working with urban planning, this almost infinite loop of challenges and goal conflicts need to be concretized in the plans and later in the built environment. For this project, we wanted to find an area which allowed for discussion and reflection of these challenges and an attempt to work with them on a specific site in Järfälla. After conducting an inventory and going on site visits to different parts of the municipality, Barkarby commercial area stood out to us as an area where this type of discussion and reflection could be useful.

The commercial area is located in the eastern part of Järfälla municipality, directly east of the highway E18 between Trafikplats Barkarby and Trafikplats Jakobsberg. It is renowned as one of Sweden's largest commercial zones. The location is situated in an expansive area of the municipality with neighboring Barkarbystaden being constructed as a dense mixed use residential area with 14 000 housing units by 2035. The area of Barkarby will also be the first in Järfälla to be connected to the Stockholm metro network through an extension of the blue metro line that opens in 2026 (Järfälla 2023b).

Despite seemingly good connections to public transport in the neighboring areas in the future, the commercial area today is primarily connected through the road network which is mainly accessible by car. The extensive hard surfaces that make up the area today present a sharp contrast to the vision of Barkarby Nexus presented above. This car-centric structure constitutes an area which can be seen as a barrier that disrupts flow between different parts of Järfälla for any other mode of transportation. In regards to this, Barkarby commercial area today can be illustrated as follows:

THE COMMERCIAL AREA
TODAY



Despite the contrast between the commercial and residential area, Barkarby commercial area is not included in current plans and visions of the new city district in Järfälla, but is rather shown as a neighboring area in the outskirts of the planned area. In a document called Program för Barkarbystaden it is mentioned that a new plan, that focuses on how the commercial area could be densified and developed, could be necessary in the future. Something worth mentioning is that the municipality does not own the land in the commercial area, beyond public roads. Multiple stakeholders play a central role in shaping the area (Järfälla 2016). In this report, we aim to investigate how the area could be developed in order to meet the five challenges identified by the municipality.

1.3 METHODS AND PROCESSES BEHIND THE REPORT

Once grouped, our discussions centered on identifying the issues and challenges confronting the area, some of which were highlighted by the municipality, while others were specific to the Barkarby commercial area. The identified issues include:

1. Inefficient land-use practices
2. Pervasive car dependence within the area
3. Unsustainable consumption patterns, particularly concerning non-essential consumer products
4. Land ownership complexities
5. Conflicting interests at the national, regional, and local levels
6. Adverse weather events triggered by the built environment, such as extreme heat and flood risks. Due partly to the abundance of hard surfaces and a noticeable absence of greenery in the area

Site visit

To acquire firsthand insights into the challenges of the area, we conducted a site visit, a practice described by Lawrenz, Keiser, & Lavoie (2003) as an occasion where individuals with specific expertise and preparation visit a location for a limited period to gather information about an evaluation object through their own experiences (p. 341). Depending on the underlying system of belief, a site visit can provide the examiner with a glimpse into the relative and situated knowledge of the subject under examination (Stake, 1995). Moreover, a site visit has the potential to yield generalizable insights (Yin, 1994), and it aids the examiner in uncovering knowledge claims that emerge from actions, situations, and their consequences (Creswell, 2003).

On site we followed a pre-planned route and stopped at randomly selected check-in points (see figure 2). The journey commenced at the Jakobsberg commuter train station and concluded at the Barkarby commuter train station, encompassing the entire Barkarby commercial area and including a detour through parts of Barkarbystaden. At each check-in point, we paused for discussions, addressing specific questions to guide our observations:

1. What is visible in your surroundings?
2. What sounds do you hear?
3. What other sensations do you experience, and do you feel safe?
4. Take note of any green structures or the presence of green areas.
5. How navigable is the area for pedestrians? Are there clearly defined sidewalks? What about cyclists? And public transport?
6. Consider the experience for drivers. Is it favorable?
7. Any additional observations or insights?

These questions guided our examination of the area's dynamics, fostering a comprehensive understanding of the challenges faced by pedestrians, cyclists, drivers, and overall urban infrastructure.

The walk from Jakobsberg to Barkarby commercial area along Folkungavägen initially provided a pleasant boulevard experience, featuring tree-lined roads and ample space for pedestrians, cyclists, and cars, with clear bike lanes on both sides. However, upon entering the underpassage beneath E18, the atmosphere changed significantly. The addition of multiple car lanes made it evident that driving was more convenient than walking, as the area lacked proper pedestrian infrastructure (see figure 1). The presence of barriers forced pedestrians and cyclists to navigate a convoluted route, prolonging the walking distance. Traffic lights heavily favored cars, making pedestrians wait for extended periods and providing minimal time to cross multiple lanes. The vast, often empty parking lots stood out, highlighting the mismatch between maximum capacity planning and actual usage. The site visit revealed that the area fails to cater effectively to either pedestrians or cars. Inadequate bus stop placement, noisy surroundings, and a lack of greenery further detract from the overall experience. The transition between Barkarbystaden and Barkarby commercial area is abrupt, emphasizing the shopping area's exclusivity to car owners. Our primary conclusion from the visit was that the commercial area itself posed a much greater barrier between the central neighborhoods of Järfälla than the E18 highway ever did.

Figure 1. Folkungavägen (Boulevard). Seen from both sides of the E18. (Google Maps, 2023)

Site visit route

Figure 2. Route of site visit in Barkarby Commercial Area.

Literature review

We conducted a literature review and document analysis to fill knowledge gaps, utilizing insights from our individual assignments and additional research where needed.

Workshops

Two workshops were then conducted to guide our collaborative efforts in shaping the vision for the future of the area and structuring our accumulated knowledge into the report. The first workshop aimed to align the group's collective vision with the insights derived from individual research and our firsthand experiences during the site visit. This session served to consolidate our understanding and ensure a unified perspective.

The second workshop focused on organizing our vision and the knowledge acquired into a coherent and comprehensive report. During this session, we delineated the structure of the report, ensuring that the gathered information was logically presented and effectively communicated. The workshop led us to divide the report into two distinct parts: "Barkarby Today", focusing on the present state of affairs and consolidating our current knowledge, and "Barkarby Nexus 2050", envisioning the future and proposing recommendations. Each part comprises three sections, each dedicated to exploring three overarching themes: consumption, the built environment, and transport. By structuring the report in this manner, we aimed to comprehensively address the diverse challenges we encountered, providing a nuanced understanding of the current situation while also presenting a forward-looking perspective with actionable suggestions for the future.

Workshop 1: Vision of Barkarby 2050

Examples of some of the questions asked in workshop 1:

1. How does the future consumption look in the area? In Stockholm? In Sweden?
   a. What businesses are there?
   b. What businesses are not there?
2. What does future mobility/ transport look like?
3. Who lives there?
4. What assumptions of the future are we making?

As previously mentioned this report is structured into two parts, firstly Barkarby Today, that consists of three chapters:

- **Barkarby as a Commercial Area**
- **Barkarby as a Built and Lived Environment**
- **Barkarby as a Car-Dependent Area**

These three chapters **explore** and **map** out the current state of the area and argue for **why** a transformation in the area is needed. In the second half of the report the **solutions** are presented in three chapters that mirror the first three, delving deeper into the **9 strategies** presented above:

- **Barkarby as a Non-Commercial Area**
- **Barkarby as a Vibrant and Livable Environment**
- **Barkarby as a Transport and Mobility Network**

2.BARKARBY TODAY

Barkarby commercial area faces several pressing issues that warrant immediate attention. The area perpetuates unsustainable travel habits and consumer practices which directly contradicts sustainability goals, such as achieving a carbon-neutral Järfälla by 2050. Additionally, the area's land use can be seen as non-efficient, as it fails to address issues such as the growing housing shortage but also, to co-exist with its growing surroundings such as Barkarbystaden, and might fail to fulfill the needs for its future inhabitants. The issues in the current state are the starting point for this project and are going to be examined from different perspectives. The perspectives have arised from inventory, site visits, research, and expressed notions from Järfälla municipality and the following three chapters represent each perspective Barkarby commercial area is viewed upon:

- **Barkarby as a Commercial Area**
- **Barkarby as a Built and Lived Environment**
- **Barkarby as a Car-Dependent Area**

2.1 BARKARBY AS A COMMERCIAL AREA

The encouragement of high-consumption patterns hinder fulfillment of the sustainability goals by Järfälla municipality. The emergence of e-commerce has also altered the commerce landscape, accompanied by the necessitating shift toward more sustainable consumption practices. This change poses a challenge to traditional brick-and-mortar businesses in Barkarby. With the construction of neighboring Barkarbystaden, the commercial area needs to adapt to its new role as a local market, requiring innovative solutions to cater to evolving consumer wants and needs. When addressing these issues, the Barkarby commercial area has the potential to contribute positively to both the local community and broader sustainability objectives.

Window into the future

In 2050, Barkarby Nexus has transformed into a non-commercial area that embodies principles of sustainable living and communal harmony. The non-commercial hub called "Stockholm Quality-Time Outlet" is located where the old Stockholm Quality Outlet once stood and thrives as a vibrant center of experiences and shared moments, fostering a robust sense of community identity. Prosumption practices have woven a tapestry of resilience, with residents actively contributing to the production of goods, cultivating urban farms, and participating in communal workshops. Barkarby Nexus is a mixed-use and residential area where collaborative housing initiatives, from cohousing to self-build projects, have redefined ownership structures in the area, promoting wealth redistribution and fostering equity. Barkarby stands as a testament to a post-growth future, where the balance between human well-being and environmental stewardship takes precedence, shaping a thriving and interconnected community.

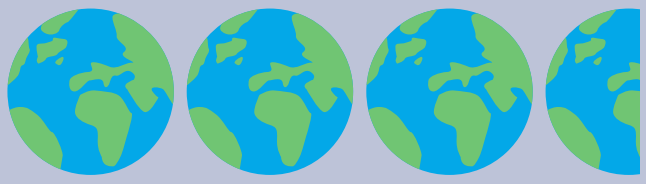
Buisness as usual?

In the 20th century, as suburban development in Stockholm gained momentum, it gave rise to new transportation routes, providing access to extensive, cost-effective land. Concurrently, the popularity of the private car surged, resulting in urban sprawl and significantly reducing travel times over longer distances. This transformation laid the groundwork for the establishment of large-scale commercial complexes.

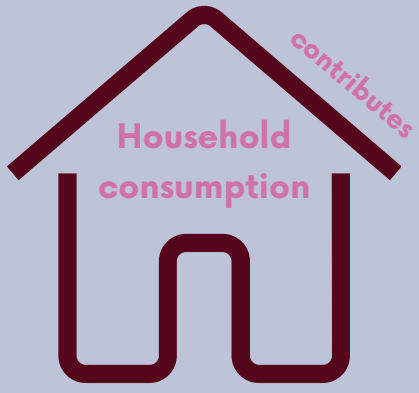
A significant factor disrupting the growth of external shopping centers is their incongruence with sustainability goals, as "business as usual" scenarios in the future are unlikely to meet these ambitious objectives. One contributing factor lies in how its function as an external shopping area reinforces unsustainable consumption behaviors. The vast majority, if not all, of the stores in the Barkarby commercial area cater to the needs of households. Research shows that households play a pivotal role in worsening environmental degradation (see figure 3).

That being said, the primary issue with household consumption is not only related to necessities like food and shelter but rather to the escalating demand for non-essential consumer items, which is of the most concern. These non-essential consumer items make up most of the consumer goods sold in Barkarby. As shown by the Global Footprint Network (2019) Sweden's consumption patterns would require the resources equivalent to 3.58 Earths to sustain itself.

Sweden's ecological footprint is **3.58**



Another contributing factor is that journeys to external shopping centers result in significantly higher carbon dioxide emissions compared to trips to central shopping centers. Opting for central shopping locations can reduce carbon dioxide emissions by as much as 60% (Rudholm & Hansen, 2014).



65% of global **GHG emissions**

70% of global **land use**

51% of global **material demand**

81% of global **water usage**

Figure 3. (Ivanova et al., 2016)

The Era of E-Commerce

More recently, the trajectory of external retail development was disrupted with the emergence of e-commerce. This has brought about a transformative and innovative change in the retail industry. For example, replacing large stores and warehouses to smaller showrooms for customers where they can place orders for products that will be subsequently delivered to their homes. This can be seen in IKEA City, situated in downtown Stockholm, offering customers an alternative to driving to the city outskirts for shopping (Kocan & Snæbjörnsson, 2019). Major retail players have recognized the evolving dynamics and pressures impacting external shopping areas, leading to a transformation of their development strategies.

Barkarby Commercial Area under the Microscope

The physical structure of Barkarby commercial area can be understood by reflecting on different planning ideals and how they affected the built environment in the area over time. Modern plans for urban development in Sweden are often focused around the term TOD (Transit Oriented Development). These are development projects located in close proximity to tram- or train stations, often designed to be dense urban areas with housing and active ground floors (Urban Futures, 2022).

In contrast to TOD principles, Barkarby is predominantly accessible by car and lacks direct connections to railway stations. The area's substantial allocation for car parkings and other vehicular infrastructure further underscores this departure from TOD ideals.

Simultaneously, the planning proportions of Barkarby commercial area became even more noticeable when the development of the directly neighboring Barkarbystaden began. A new metro station and the development of Barkarbystaden also puts Barkarby commercial area in a new regional context. The current structures might have to change to be able to support the new function and context of the area.

Example

Wholesale company ICA

ICA's innovative strategy involves repurposing oversized parking areas in external shopping zones into vibrant mixed-use developments. Prioritizing sustainability and community engagement, ICA aims to optimize pedestrian access and create lively urban environments by strategically positioning entrances toward central squares designed for various activities (Boberg et al. 2016).

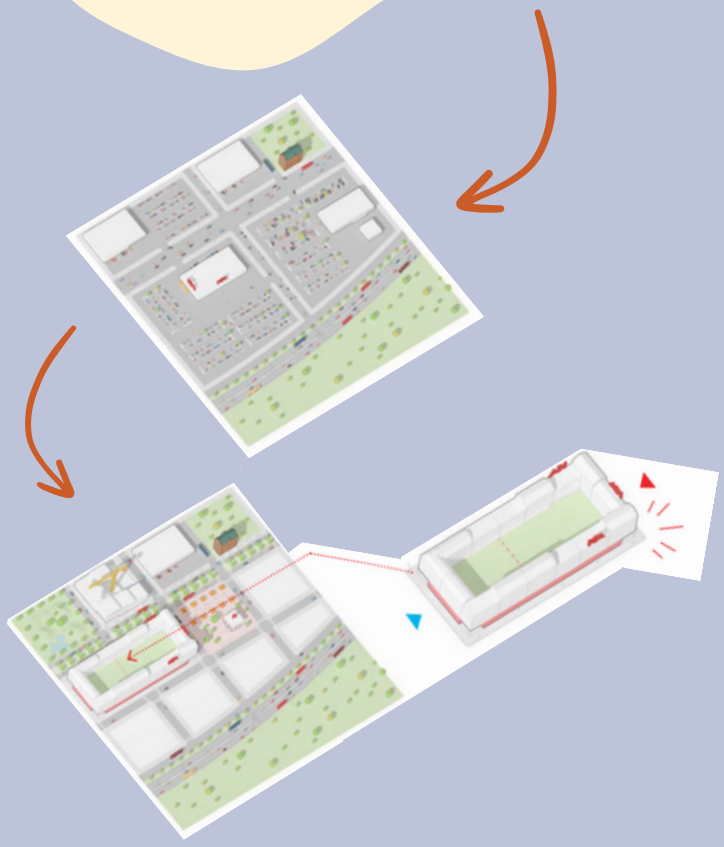
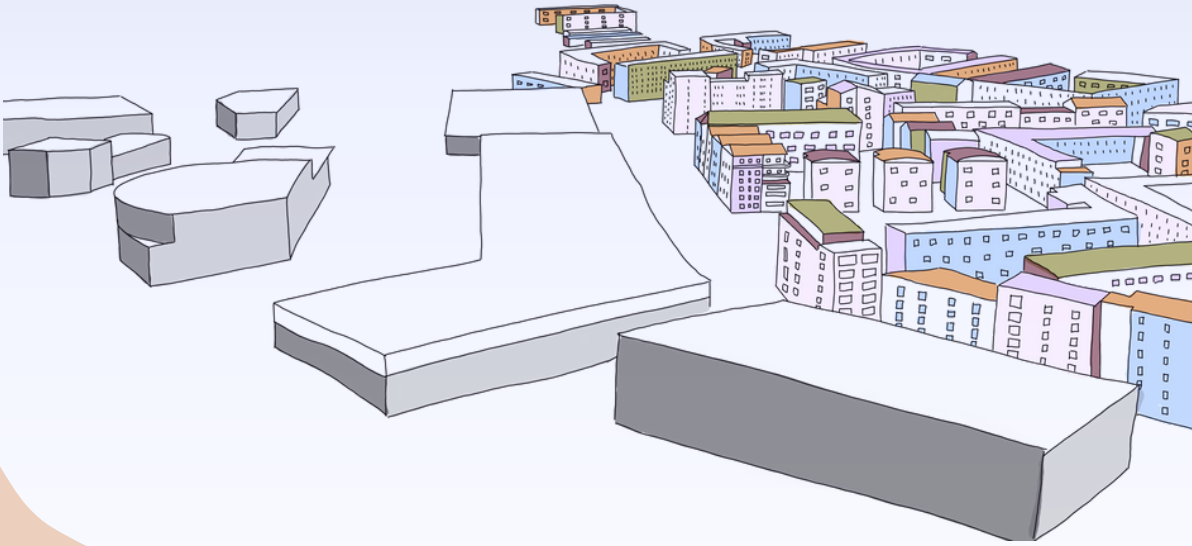


Figure 4. Part of ICA's Urban Planning Strategy.

This figure is an illustration made to visualize the different characteristics of the built environment of Barkarby commercial area (to the left) and Barkarbystaden (to the right). The two areas show drastic differences in planning ideals and functions with Barkarbystaden being a modern TOD project with a large focus on land-use efficiency while Barkarby commercial area is a clear example of an external shopping area with large retail units.



CONCLUSION

A transformation of Barkarby Commercial Area is needed because of:

- Non-effective land use of Barkarby Commercial Area accompanied with the housing shortage in the Stockholm region.
- Barkarby commercial area reinforces unsustainable consumption practices and therefore works against sustainability goals (carbon-neutral Järfälla 2050).
- The change in the landscape of commerce with the surgance of e-commerce and the need for more sustainable consumption practices.

The construction of neighboring Barkarbystaden puts the commercial area in a new context as a local market which creates new needs.

2.2 BARKARBY AS A BUILT AND LIVED ENVIRONMENT

The constructed and inhabited surroundings in the Barkarby commercial area underscores the necessity for a significant transformation to cultivate a more robust sense of place and identity in the region. The prevailing physical environment is predominantlydefinedby parking lots, retail, and roadways for cars and notably absent are elements such as green spaces, 'communitarian third places,' bicycle and pedestrian paths, as well as public transportation infrastructure.

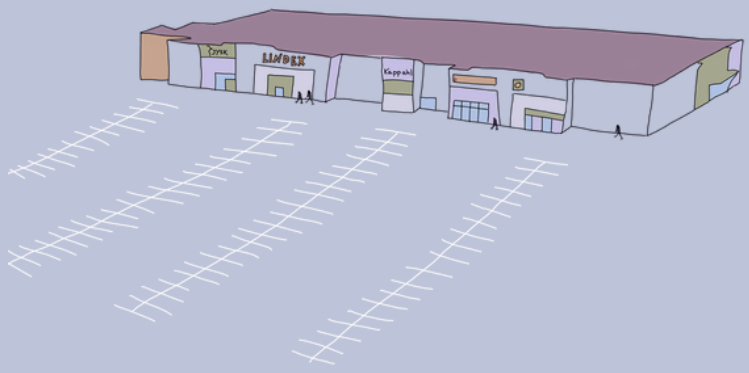


Figure 6. Immense parking lots and big shopping buildings - not in a human scale.

A Sense of Place

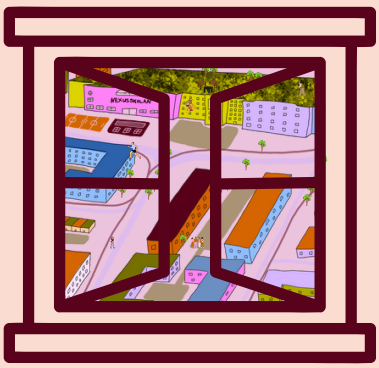
In the built environment, considering the scale for its users is crucial. Human presence is influenced by urban scale, with people favoring places where they feel a connection and unity with the physical space at a human level (Sinou & Gail Kenton, 2013). Within the human scale, enhancing public spaces is essential. This is particularly important when avoidance of a public space is a response to discomfort or fear, often experienced in dark and unutilized spaces.

Figure 5. Underutilized spaces become unsafe during evening hours.

A thriving public realm should cater to both individual and group interests, fostering desirable communities and transforming once-troubled areas (Carmona et al., 2012).

The visualization above illustrates the current state of the Barkarby commercial area. Presently, the area lacks a human scale, making alternative modes of transportation challenging aside from using a car. The dominance of expansive car parks and prominent shop buildings contributes to this issue. The pedestrian and cycle paths suffer from an inadequately smooth and safe design. This is important to improve as people tend to walk more if there is variation in the immediate environment, for example through different doors, entrances, parks, activity sites, etc.

Window into the future



In Barkarby Nexus 2050, the area no longer constitutes a landscape of asphalt and vast parking lots. Instead, it's an environment imbued with greenery, vibrant squares and pathways that welcome pedestrians and cyclists. The built environment is human-centered, with a diversity of public spaces inviting interaction and a sense of community. This is a place where opportunities to meet and collaborate to address common challenges are prioritized and encouraged. It is a future where streets and spaces don't just connect buildings but people, creating a lively and enticing environment to live and thrive in.

Third Places

A general definition of 'third places' is a place where people want to spend time, in addition to their home or workplace. Commercial third places are characterized by profit-driven motives, serving as spaces where people gather to socialize and typically attracting a paying clientele. An example in Barkarby could be IKEA, the Quality outlet, or other shopping centers as quintessential commercial third places. What is lacking in Barkarby is the range of non-consumption-based third spaces (see figure 7). In contrast to commercial spaces, communitarian third places rely on a sense of collective belonging, where people genuinely care for one another and collaboratively work towards solving local issues, benefiting the social fabric. It is in these spaces that non-profit organizations and other socially responsible businesses should take the lead in establishing and maintaining communicative third places to promote social and cultural objectives.

Figure 7. Vast parking lots and extensive shopping buildings.

CONCLUSION

A transformation of the Barkarby commercial area is needed because of:

- The commercial area is bustling during the day, but its decline in activity during late evening and night underscores issues of insecurity and unattractiveness.
- Today's solely commercial purpose, which requires consumption to be present, can exclude people who cannot or do not want to consume. It can also reduce the accessibility of non-commercial activities and public spaces, limiting the overall accessibility and diversity of the area's use.
- The built environment is exposing limitations in terms of human-scale accessibility, consequently making individuals face challenges navigating the area without relying on cars.

To make the commercial area more appealing for extended periods, it is imperative to reconfigure the physical space and introduce additional 'communitarian third spaces' where people can and desire to spend time.

2.3 BARKARBY AS A CAR-DEPENDENT AREA

Breaking the trend of car dependency demands a comprehensive approach, encompassing not only physical infrastructure improvements but also addressing individual attitudes and perceptions towards it. The travel habits in Järfälla show in short that public transport is often used when leaving the municipality but when traveling within Järfälla the car is the first travel mode choice (Region Stockholm, 2019). Barkarby commercial area is a core part of Järfälla that can affect travel habits in the municipality, but also be affected by its changes. As the area enters a developing phase with rapid residential development, population growth, and increasing public transport connections, there could be excellent prospects for advancing sustainable mobility and tackling car dependency - if the challenges Barkarby commercial area is facing today are to be improved.

"Whithout the car, Sweden stops"

In the early 1980s, a prominent marketing campaign from the car industry popularized the slogan 'Without the car, Sweden stops.' Nearly five decades later, this slogan still resonates, shaping our societal perception of mobility. This has also shaped our planning practices and cities have for many years been designed with the car as the principal and ideal mode of transportation. However, a shift is underway, particularly in metropolitan areas, where it has become both less expensive and more convenient to leave the car at home to avoid congestion and expenses linked to the car. The Stockholm metropolitan region boasts a well-established public transport infrastructure but despite this, car ownership remains the norm in suburban households.

Window into the future

In 2050, Barkarby Nexus has evolved into a dynamic node for versatile mobility. Once predominantly focused on cars, the area has shifted into an epicenter for sustainable transportation alternatives. Bike lanes and bus networks have been replaced by a seamless and diverse transport system, where both cycling and public transit are now seen as natural and convenient alternatives to cars. This transformation isn't merely physical but also signifies a paradigm shift in how people approach perceive mobility.

Travel Habits

Every day approximately 46,000 people commute to or from Järfälla, while only 11,000 work and live within the municipality (SCB, 2021). The public transport options to commute vary and the commuters can travel either by regional trains or by Stockholm public transport system (SL) with three commuter train stations (Barkarby, Jakobsberg, and Kallhäll) accompanied by a bus network.

The statistics in Järfälla show that public transportation is commonly used for commuting outside the municipal borders. In contrast, the individual car is mostly used for trips made during leisure time within Järfälla. It seems that the opportunities available to travel outside the municipality borders with public transport (mainly to the Stockholm area) have better conditions than the trips that can be made within these borders.

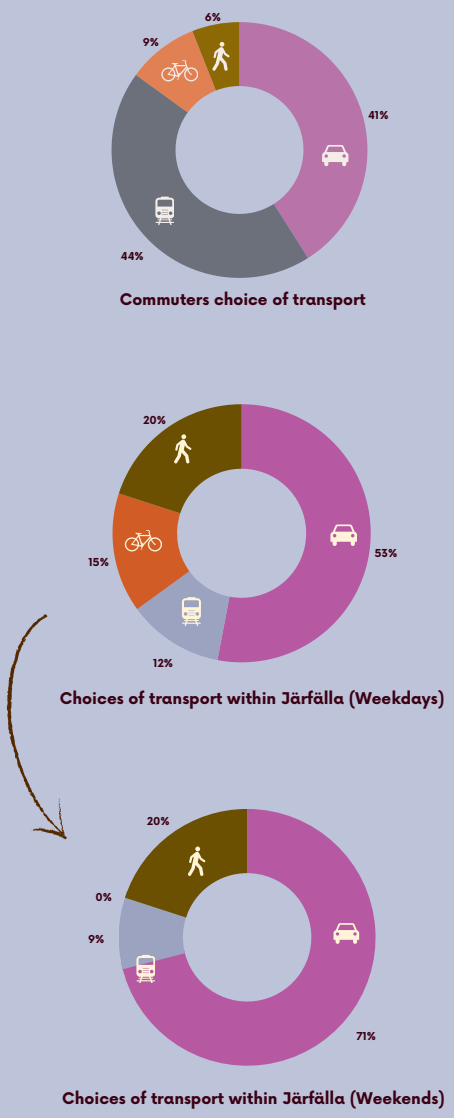


Figure 8. Travel Habits

Why These Travel Habits?

Decreasing car dependency in suburban areas is just as connected to behavior and habits as the technical and physical environment itself (Urban Agenda, 2019; Wefering et al., 2013; SWECO, n.d.). The processes of behavioral adaptation, or 'change in travel habits', are complex since some people are more susceptible to changing their behavior than others. The willingness can be related to subjective factors such as attitudes and perceptions, but also more objective factors, such as:

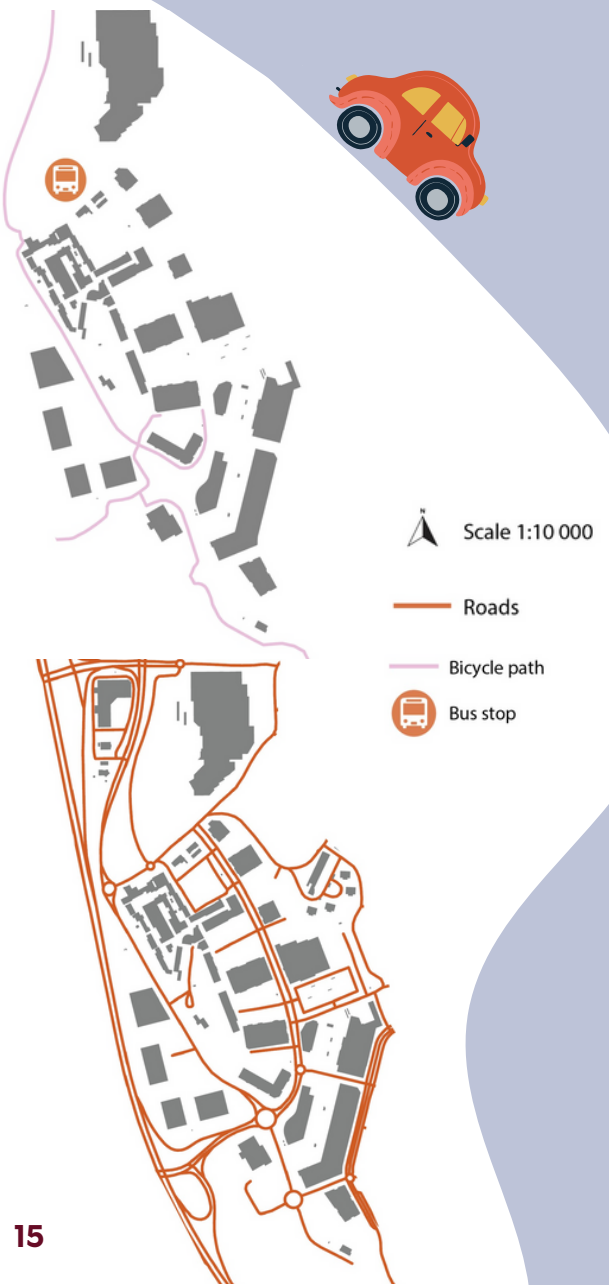
- Accessibility, options to use public transport services operating on the route for the planned journey.
- Proximity, the distance from a person's home to the nearest public transport option.
- System complexity, e.g. change of modes or hectic transitions
- Time efficiency, waiting time, stops on the route, or lack of options that take the traveler to the destination on time.

(Urban Agenda, 2019; Wefering et al., 2013; SWECO, n.d.)

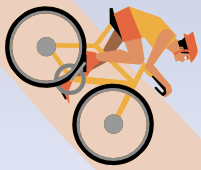
As previously discussed, public transport is used frequently in Järfälla, but for specific purposes during specific hours. One thing that stands out is the decrease in public transportation usage and the entire unwillingness to go by bike during weekends - which seems like a rather behavioral obstacle since it is utilized during other occasions. When it comes to attitudes and perceptions, there are several reasons why people opt out of the bike - with many similarities to why people opt out of using public transport.

Example

When the bicycle does not have a clear place as a distinct mode of transportation it creates a sense of insecurity for cyclists - which is linked to deficiencies in today's cycling infrastructure. The bicycle is often abandoned if there is not a clear, accessible, safe, and continuous route to the final destination. Another crucial aspect is that the bicycle is seldom integrated into the overall travel experience. For longer journeys, the bicycle alone cannot suffice, and additional modes of transportation are required. However, this is not always possible, as several public transportation modes do not allow bicycles on board. This, in turn, relates to the availability of secure bicycle parking facilities. The bicycle is frequently disregarded if there are no high-quality bicycle parking options near the destination. A final important aspect is the climate in Sweden. Many more people cycle during the summer months but put their bikes away during the winter when it's slippery, dark, and there is an increased risk of accidents (Cykelfrämjandet, 2022).



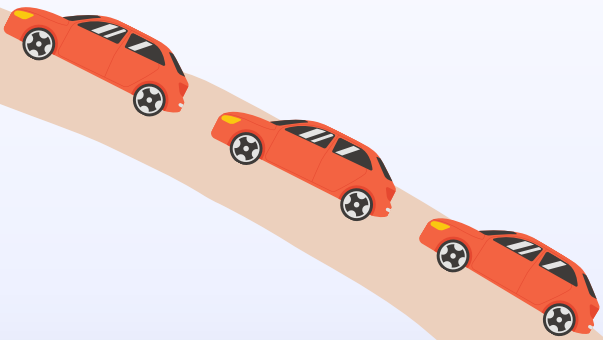
The maps to the left indicate that there is a clear lack of available bicycle lanes and bus stops in proximity to the Barkarby commercial area, and instead, it's the car that is being favored. Limited access to bike lanes and bus stops diminishes the incentives for residents to choose public transportation or cycling as an alternative to the car. As it appears now, the car is the most convenient and efficient means of transportation to and within the area.



CONCLUSION

A transformation of Barkarby commercial area is needed because of:

- The low incidence of cycling and walking that may be attributed to a sense of insecurity and inconsistency experienced by both pedestrians and cyclists, whether they are dwelling in the area or passing through.
- The seamless navigation convenience for car users currently favors the automobile as the optimal choice. Various factors reinforce this preference, making it challenging to alter attitudes toward alternative modes of transportation.
- The disparity in the usage of local public transport compared to cars indicates deficiencies related to accessibility, proximity, system complexity, or time efficiency. These drawbacks impact the overall inclination towards using public transport and need to be addressed to encourage its uptake.



2.4 BARKARBY TODAY - CONCLUSION

Barkarby as a Commercial Area

- Non-effective land use of Barkarby commercial area accompanied with the housing shortage in the Stockholm region.
- Barkarby commercial Area reinforces unsustainable consumption practices and therefore works against sustainability goals (carbon-neutral Järfälla 2050).
- The change in the landscape of commerce with the surgance of e-commerce and the need for more sustainable consumption practices.
- The construction of neighboring Barkarbystaden puts the commercial area in a new context as a local market which creates new needs.

Barkarby as a Built and Lived Environment

- The trading place is bustling during the day, but its decline in activity during the late evening and night underscores issues of insecurity and unattractiveness.
- The built environment is primarily tailored for car usage, exposing limitations in terms of human-scale accessibility. Consequently, individuals face challenges navigating the area without relying on cars.
- To make the commercial area more appealing for extended periods, it is imperative to reconfigure the physical space and introduce additional 'third spaces' where people can and desire to spend time.

Barkarby as a Car-Dependent Area

- The low incidence of cycling and walking that may be attributed to a sense of insecurity and inconsistency experienced by both pedestrians and cyclists, whether they are dwelling in the area or passing through.
- The seamless navigation convenience for car users currently favors the cas as the optimal choice. Various factors reinforce this preference, making it challenging to alter attitudes toward alternative modes of transportation.
- The disparity in the usage of local public transport compared to cars indicates deficiencies related to accessibility, proximity, system complexity, or time efficiency. These drawbacks impact the overall inclination towards using public transport and need to be addressed to encourage its uptake.

3. BARKARBY NEXUS

In order to reach the vision of Barkarby Nexus there are several aspects that need to change in Barkarby commercial area as it is today. The strategies for this development will be presented in the following three sub chapters that mirror the chapters of the first part of this report and provide a solution to their corresponding challenges of Barkarby commercial area:

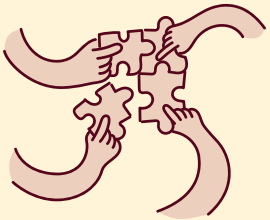
- **Barkarby as a Non-Commercial Area**
- **Barkarby as a Vibrant and Livable Environment**
- **Barkarby as a Sustainable Mobility Network**

The different land- and property owners in the commercial area today make up a complex structure of stakeholders in the area which all need to be included in order to reach the vision of Barkarby Nexus 2050. Since the municipality does not own any land themselves, they are directly dependent on the stakeholders wanting to take action and work towards developing the area in line with the vision. Coordination and cooperation between the public and the private is also important in order to secure funding for different projects so that the municipality is not the sole investor in Barkarby Nexus. A responsible economic strategy that allows for further development in the area is important for both Barkarby, Järfälla and the Stockholm Region.

Collaboration between public and private actors in urban development is often referred to as Public Private Partnership (PPP). The concept of PPP is defined as follows; PPP is defined as a voluntary, stable collaborative effort between two or more public and private autonomous organisations to jointly develop products and services, sharing risks, expenses and benefits (Ysa, 2007).

In urban planning, the product and/or service can for example be represented by the development of an urban area. The idea is that a PPP benefits the public by spreading investment costs on different actors, and private actors by the opportunity to be involved in the planning and development of the area.

There are several examples of individual projects which have been successfully completed through a Public Private Partnership. However, there are a few general approaches that should be considered in the early stage of planning. Some of these can be explained through the so-called Södertörnsmodellen. This is a tool developed in collaboration between public, private and academic actors. One of three cornerstones in the strategy is called "value-making urban development" and refers to the public-private collaboration in the early stages of a project.



According to the Södertörnsmodellen, value-making urban development consists of six sub-strategies. These are:

1. **The early stage matters** - it is here the project can still be subject to changes in order to better fit the goals of the development project.
2. **Ongoing dialogue with developers** - important throughout the entire planning process. One way to spark dialogue is common financing of a middle part, or through a "samverkansavtal."
3. **Come prepared!** - all actors involved should know what they want before entering the collaboration.
4. **Dialogue with residents** - the aspect of democracy needs to be considered in the early stages since this is when the project is most open for changes.
5. **A common vision** - a common vision for all actors will decrease the uncertainty for all parties, create trust and speed up the planning process.
6. **The municipal selection process** - reflect on which/how many actors should be involved in the process.

(Södertörnsmodellen, 2018)

Example

One example of a successful PPP project can be found in New York City, where the private sector has been engaged in the development of public space through density bonuses, amongst other initiatives. The deal is that the developers agree to finance and execute the development and maintenance of a public space, and in return they are allowed to build more floors or exploit more square meters of the lot (Schmidt et al., 2011).

3.1 BARKARBY

AS A NON-CONSUMPTION AREA

Barkarby commercial area finds itself at a pivotal point in time, due to shifting consumption trends, including the rise of e-commerce, and the growing necessity for more efficient land utilization within the municipality, which must accommodate a proposed influx of thousands of new housing units.

Adding to the complexity is Järfälla municipality's ambitious commitment to achieve carbon positivity by 2050 while simultaneously striving to create the "best possible conditions for businesses" and aligning with RUFS 2050 (Region Stockholm, 2018) to become "a leading region in growth." These dual ambitions create a conundrum, prompting the need to refocus on the growth perspective. There is a growing consensus, both in literature and within the framework of post-growth perspectives, that calls for a shift beyond conventional growth paradigms, redirecting our attention toward the well-being and harmony of both humans and the environment.

The strategies proposed to tackle these issues within Barkarby commercial area aim for a transition from a consumption hub to a place of community and connection, where the focus has been removed from commercial activities. These strategies are:

STRATEGIES

Repurposing Existing Resources

Integration of Pro-sumption Practises

Housing initiatives and redistribution of land use

Repurposing Existing Resources

In line with the insights from Lamker and Dieckhoff (2022), emphasizing the importance of acting within available resources, such as land, and respecting planetary boundaries is crucial for the post-growth planning. This principle is highly relevant to the Barkarby case, guiding efforts towards achieving carbon positivity in the area while utilizing existing resources, buildings, and materials for redevelopment.

Showing a commitment to planetary boundaries and post-growth planning, a tangible step is the creation of a non-commercial hub within existing housing. In this envisioned hub, there would be an intentional exclusion of any commercial activities. The primary focus would be on providing a space dedicated to experiences, entertainment, borrowing amenities, and simply serving as a place to be — whether alone or with friends and family.

As an illustrative example, we suggest considering integrating the Stockholm Quality Outlet into this hub. Recognized as a significant pedestrian area, it currently offers attractive indoor and outdoor spaces, making it a fitting component for such a non-commercial setting. This strategy aligns with the overarching goal of utilizing existing resources while fostering a community-centric space in line with the principles of post-growth planning.

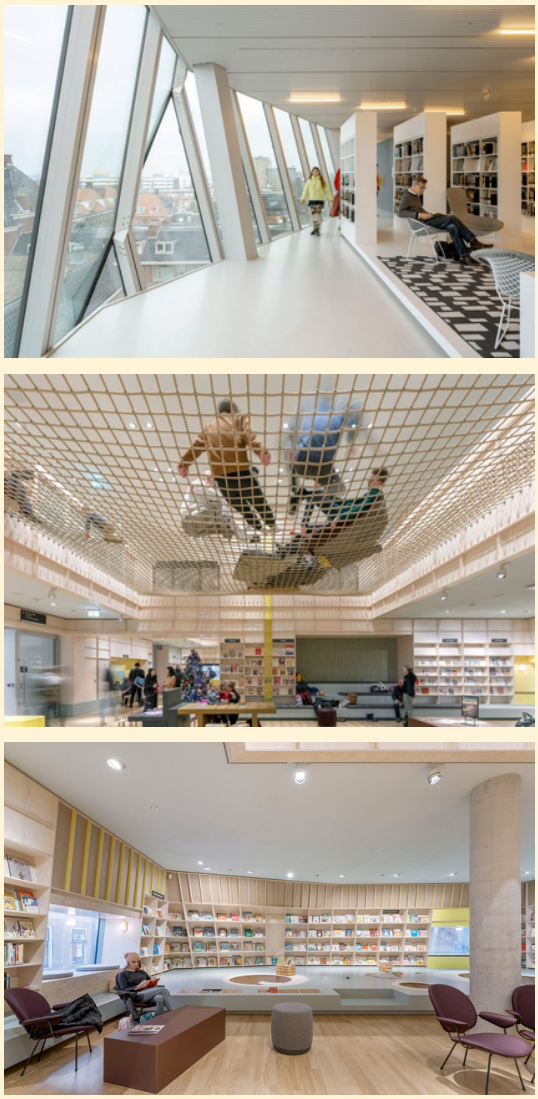


Figure 9. Spaces in Forum Groningen. (Frearson, 2020)

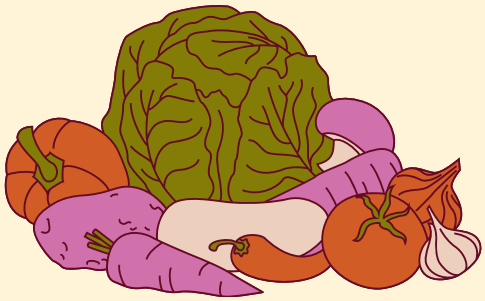
Example

This example draws inspiration from the Forum in Groningen, which envisions a distinctive shopping center characterized by the absence of traditional retail (Balch, 2020). While keeping to the familiar structure of a shopping center, complete with escalators and expansive indoor pathways, Forum stands out for its focus on experiences, entertainment, and the opportunity to borrow rather than purchase (see figure X). Within this center, there is a library, a science museum, recreational spaces, and numerous meeting points. The primary objective is to nurture the community by fostering essential building blocks such as social capital, civic culture, and place identity (Balch, 2020). This innovative response addresses the diminishing presence of non-consumption based third spaces in cities.

Integration of Prosumption Practices

The concept of "prosumption" (**pro**duction + con**sumption** = prosumption) is a shift from passive consumption to active consumption in the production of various goods, primarily in the realm of food but also extending to other consumer products (Revilla & Essbai 2022). By integrating prosumption practices in Barkarby, consumers will be able to part-take in the production of their consumed goods. Examples of this in practice would be urban farming practices within Barkarby Nexus, workshops for all different needs of the community e.g. textile and furniture workshops, woodworking and different types of repair shops. In order to stay within the post-growth framework it is important to work exclusively with available land within the neighborhood to expand green areas for urban agricultural practices, e.g. on top of huge buildings such as IKEA or use methods such as vertical gardening. This practice does not have to be established on an individual scale, it could be a community project where those who are interested in growing vegetables can do that for the community for example.

Prosumption not only provides the community with fulfillment by offering its residents a grounded purpose, but it also strengthens the bonds within the community and enhances overall wellness, encompassing both mental and physical aspects. This is achieved through the introduction of a more physically active lifestyle and increased time spent with the community. Additionally, prosumption boosts the neighborhood's general resilience, addressing crucial issues such as food security, resource efficiency, and the well-being of its residents. As a result, residents become more prepared to tackle the challenges of the future.

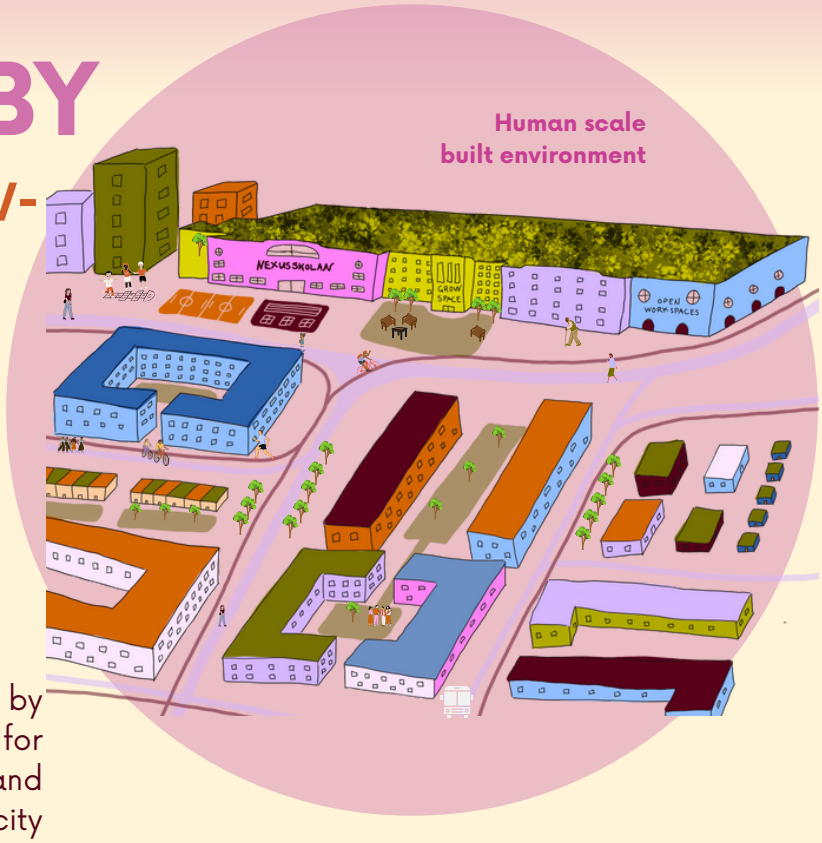


Housing Initiatives and Redistribution of Land Use

The vision of Barkarby Nexus as a non-commercial area also allows for the current land use to be re-prioritized in order to make room for new housing projects that fit within the post-growth concept. In Barkarby, this could include initiatives for shared space such as collaborative housing. Various types of collaborative housing exist, such as cohousing, land trusts, self-build projects, housing cooperatives, ecovillages, shared households and co-working spaces. Collective housing in Barkarby Nexus also opens the opportunity for a regime shift in the ownership of residential housing, which could help with redistribution of wealth and create a more equitable future for the residents of Järfälla. When planning for these types of housing structures within a post-growth framework it is important to try to keep as much of the existing materials and buildings of the neighborhood as possible. It is also important to build and retrofit the new housing in a low-carbon and environmentally sustainable manner. This way of planning also opens up for more possibilities with mixed-use within blocks and buildings for example.

3.2 BARKARBY

AS A VIBRANT AND LIVABLE ENVIRONMENT



In the vision for Barkarby Nexus 2050, the area that is now Barkarby commercial area has been transformed to a vibrant and livable environment. This development requires significant changes in the built environment and how it is perceived by both residents and visitors. These types of changes also respond to two of the future challenges identified by Järfälla municipality; 1) Housing for everyone and lively local communities, and 2) Creating an attractive regional city center for both citizens and businesses. The strategies proposed aim to tackle issues with the lack of a human scale in the built environment, and the lack of space for activities not related to consumerism. The general idea is that Barkarby Nexus as a lively local community also has the potential to be an attractive regional center by bridging the barriers within Järfälla and creating access to not only the Nexus but to the neighboring areas and the qualities they hold.

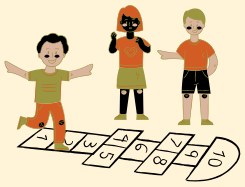
At the core of creating a vibrant and livable environment is to facilitate a shift in old-land-use patterns in the area, where the general theme is to encompass and create a mix of multifunctionality. To make this achievable in the future Barkarby Nexus, actions such as mixed land use, improved lighting, enhanced active transport accessibility, and more meeting places without a focus on consumption, contribute to the foundation of a sustainable regional center. The strategies in the work towards this future are:

STRATEGIES

A Human-Scale Built Environment

Activate Urban Pockets

From “Commercial Third Places” to “Communitarian Third Places”



Built Environment in a Human Scale

Address the parking challenges by implementing multifunctional parking solutions, and anticipate advancements in technology that may reduce the demand for traditional parking spaces. Integration with pedestrian networks, public transport, and bike parking, along with accommodation for shared mobility and autonomous vehicles, can enhance the area's functionality and make it become more human-scale space. Designing through a human scale makes the environment more user-friendly by adapting elements and spaces to human proportions and avoiding unrealistically large dimensions and distances. Structures should engage and cater to people at this level, utilizing elements like lighting, facade components, signs, and various features along the sidewalks.

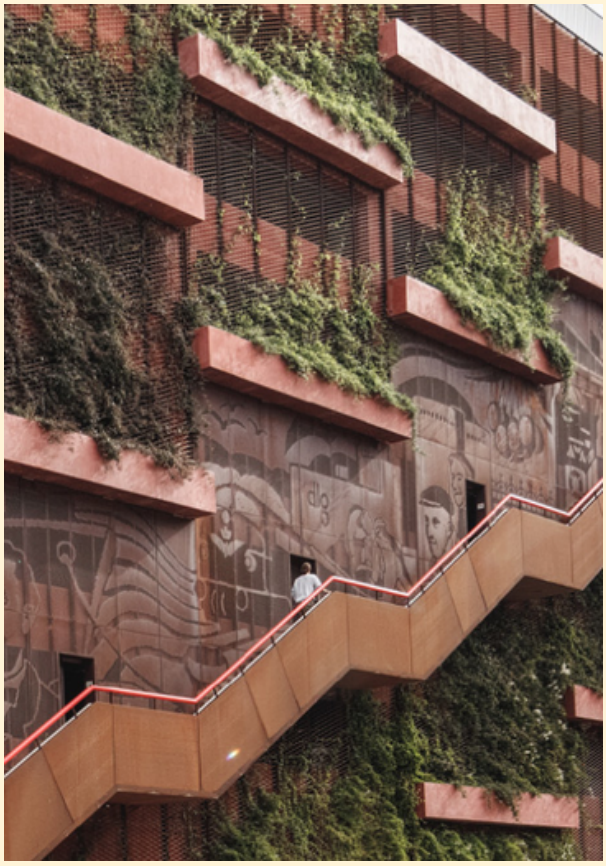


Figure 10. Multifunctioncal parking solution in Copenhagen. (JAJA Architects, n.d.)

Figure 11. Playground on the rooftop.

From 'Commercial Third Places' to 'Communitarian Third Spaces'

The project with creating the new Barkarby Nexus includes different interventions with the purpose to transform the area from a commercial to a communitarian setting. This can partially be done by replacing commercial functions with more circular ones, but it is also important to create public areas where residents and visitors can spend time without spending money. These so-called 'third places' can be created by prioritizing mixed land use, improving lighting, enhancing public transport accessibility, and creating better walking and biking lanes. In this strategy, it is important to aim for a multifunctional approach that can incorporate functions such as outdoor gyms, parks, social spaces, charitable initiatives, and local production. Shift the focus from commercial third places to those that encourage social interactions, community well-being, and sustainable, non-consumption-driven activities.

Activate Urban Pockets

Barkarby commercial area today has a challenge with a decline of activity during late evening and night, revealing issues of insecurity and unattractiveness within the area. By activating so-called 'urban pockets', meaning the empty spaces in urban areas, spaces that lack function and identity today can be transformed into meaningful spaces where residents and visitors can spend time. For example, this could be done by introducing small exercise spaces that can encourage community engagement and altering daily routines. By strategically enhancing and repurposing urban pockets, the area can gain more communitarian third places and become more vibrant and inviting, reducing feelings of uncertainty and insecurity and strengthening the around-the-clock attractiveness.

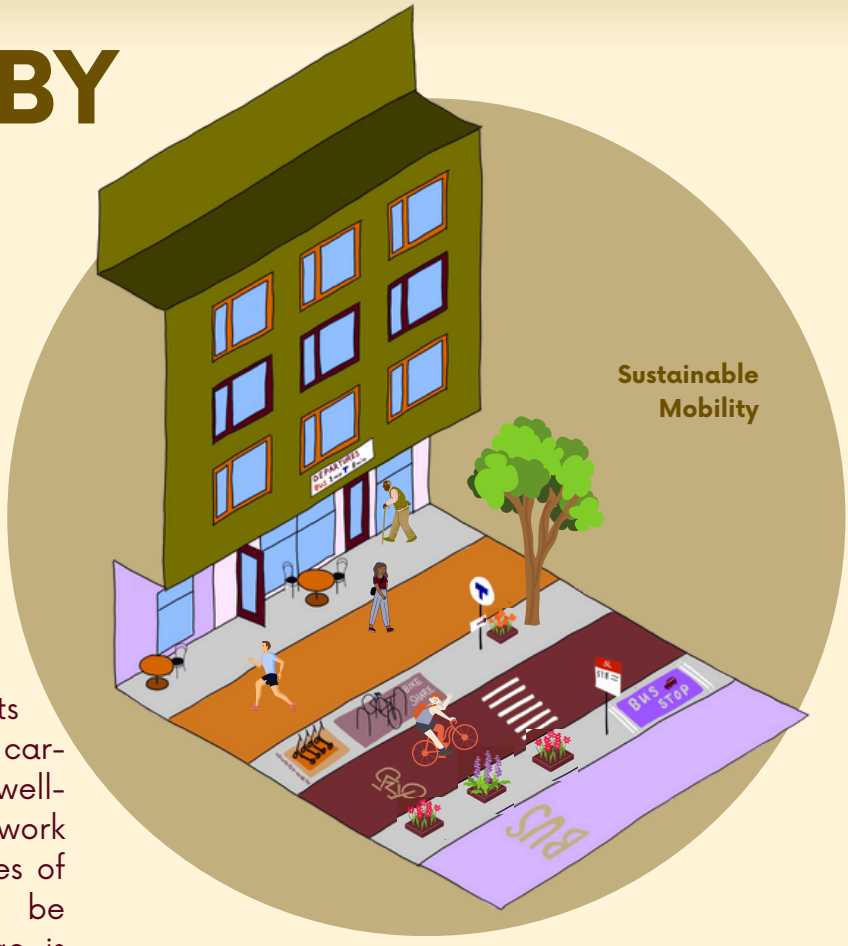
In spaces identified as potentially unsafe, enhancing the perception of a sense of place may not always be beneficial. Such an approach could result in different groups laying claim to these spaces, inadvertently creating undesirable gathering spots that contribute to heightened insecurity for both residents and visitors. To address this, the application of Crime Prevention Through Environmental Design (CPTED)(Boverket, 2023) principles becomes crucial. These principles involve strategies like reinforcing territorial boundaries, implementing access control measures, enhancing surveillance, employing deterrent features, activating the space, and ensuring cleanliness (Boverket, 2023).

Handelsurbanitetsskalan

The Handelsurbanitetsskalan, a 10-level scale tool, evaluates the integration of urban qualities with commerce logistics to guide consensus on desired urban development. It encourages mixed-use areas by increasing commercial density, reducing parking, enhancing pedestrian and cyclist access, and incorporating public spaces and efficient transport (Huddinge kommun, 2017). This approach, exemplified in areas like Barkarby commercial area, addresses car-centric challenges and fosters collaboration among stakeholders for appropriate development levels. Densification reduces cars, minimizes traffic congestion, and promotes environmental and social benefits through accessible pathways and sustainable transport. In the context of Barkarby commercial area, improvements like sidewalks, bike lanes, and densification can enhance the area. While complete parking removal isn't the goal, gradual reduction through options like parking garages is suggested. The project seeks a balanced approach, maintaining open spaces for greenery and public areas while addressing economic, social, and resistance challenges and promoting long-term shifts in travel behavior and consumer patterns.

3.3 BARKARBY

AS A SUSTAINABLE MOBILITY NETWORK



The Barkarby area is entering an active phase with rapid residential development and high occupancy rates for the following ten years. For the Barkarby commercial area, this will mean more people circulating and generally increased activity in the area. In the Barkarby Nexus 2050 vision the residents of Barkarby have changed their car-dependent habits and utilizes the well-established sustainable mobility network offered. But to get there the challenges of car-dependency today needs to be tackled. What is important to manage is how the travel habits of the new residents can develop. When individuals undergo a residential relocation, it disrupts established habits and opens a window of opportunity for them to pay more attention to new travel options. This is called habit discontinuity (Semenscu et al., 2020) and could be crucial in the development of the Barkarby commercial area since thousands of new residents in Barkarbystaden will have the opportunity to establish new sustainable travel habits.

The strategies proposed to tackle car-dependency within Barkarby commercial area aim for a transition from a car-dependent area to a place of sustainable transportation, where the currently unsustainable mobility habits are going to change to sustainable modes as the primary choice. These strategies are:

STRATEGIES

Develop and Integrate ICT Solutions

Incorporate Holistic Mobility Management

Avoid - Shift - Improve

Develop and Integrate ICT Solutions

ICT enhances traffic management, optimizes road space, and provides extensive travel information, empowering individuals to make diverse and optimal choices. The seamless integration of ICT can simplify complex mobility systems, addressing challenges associated with mental skills and adaptability. In Barkarby, embracing these advancements holds the potential for a more efficient, inclusive, and user-centric mobility experience:

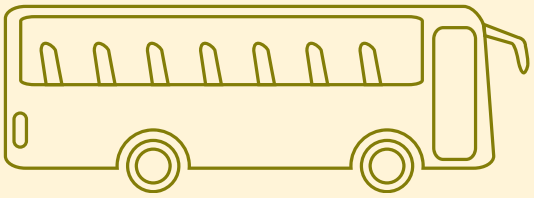
→ If the dwellers feel holistically more informed - they feel more prepared

→ If the dwellers feel that they have more choices - they feel they have more opportunities

→ If the system gets more complex - it should not get more complicated

(Snellen & Hollander, 2017)

To achieve this, fostering an environment of openness and adaptability in planning processes is crucial, requiring collaborative efforts and engagement with research insights and partners from various sectors.



Incorporate Holistic Mobility Management

A holistic approach to mobility management recognizes that transportation is not just about moving people from one point to another but is deeply connected to the overall livability, sustainability, and functionality of a city or region. By considering the various elements involved in mobility and addressing them collectively, this approach aims to create more efficient, equitable, and sustainable transportation systems.

In Barkarby, this strategy includes implementing a mobility management strategy that takes into consideration both "soft" and "hard" measures in order to shift and reduce today's car-centric travel behavior in Barkarby. "Soft" measures include interventions such as marketing alternative transportation methods and collaborating with local businesses within Barkarby commercial area for sustainable commuting options. This should then be combined with so-called "hard" practical measures which aim to implement physical elements, e.g. improved infrastructure for cyclists, pedestrians, public transport and shared mobility solutions such as mobility hubs but also establish pricing: getting rid of free parking and minimi norms. "Soft" measures may not solve immediate issues independently, but their integration with more restrictive measures can effectively reduce carbon emissions, alleviate traffic congestion and enhance urban life quality (Nocera & Attard, 2021).

Approach: Avoid - Shift - Improve

The A-S-I approach is a strategy which prioritizes people-centric mobility over car-centric infrastructure. The three pillars — Avoid/Reduce, Shift/Maintain, Improve — comprise a comprehensive strategy for a more sustainable and livable transport infrastructure. "Avoid/Reduce" focuses on overall transport system efficiency through compact city development and reduced motorized travel. "Shift/Maintain" advocates for a modal shift to eco-friendly modes like walking, cycling, and public transport. The "Improve" pillar centers on enhancing vehicle and fuel efficiency, optimizing public transport operations, and integrating renewable energy sources (GIZ, 2019).

Implementing A-S-I in Barkarby commercial area:

- Avoid - Reducing or eliminating the need for car travel within Barkarby. This involves creating compact urban spaces that prioritize transport alternatives, reducing reliance on cars, and connecting residential, work, and leisure zones.
- Shift - Enhancing travel efficiency by promoting sustainable transportation. Accessible alternative modes like walking, cycling, or public transit can cover short distances easily. By improving public transit and active transport infrastructure, safety, and design, people might find these options more convenient for their daily shopping in Barkarby, reducing car reliance.
- Improve - Focusing on selecting transportation methods fitting specific trip needs. Long-term strategies could involve downsizing cars or opting for energy-efficient vehicles. Upgrades in transportation systems, prioritizing public transit, introducing electric bikes, and car-sharing will elevate the transport sector. An example of an "improve" intervention is an implementation of bicycle tilts on bicycle paths (as shown in figure X). Placed at stopping points like intersections, these tilts allow cyclists to halt comfortably by tilting their foot, eliminating the need to dismount. This not only enhances convenience but also positively reinforces the desired behavior.

Figure 12. Bicycle tilts in Reykjavík. (Böðvardóttir, 2020)

4. EXECUTIVE SUMMARY

4.1 IDENTIFIED PROBLEMS AND CHALLENGES IN BARKARBY COMMERCIAL AREA

Järfälla municipality aims to address key challenges, including the need for inclusive housing, vibrant local communities, an attractive regional city center, resilience to societal changes, climate neutrality, and efficient land use for future challenges. Simultaneously, Barkarby commercial area faces challenges connected to non-effective land use, reinforcing unsustainable travel habits and consumption practices and hindering sustainability goals. The current changes in commerce and consumption driven by e-commerce, and the development of neighboring Barkarbystaden, introduce new needs to the commercial area part of a growing municipality.

Barkarby as a built and lived environment experiences daytime vibrancy but declines in activity during late evenings, revealing issues of unsafety. The car-centric design limits human-scale accessibility, necessitating a reconfiguration for extended appeal, introducing additional spaces for community engagement. The car-dependent nature also results in low cycling and walking rates. The current preference for cars poses challenges in altering transportation attitudes. Limited use of public transport highlights issues of accessibility, proximity, complexity, and time efficiency, impacting overall public transport usage attitudes.

4.2 PROPOSED STRATEGIES

Non-Commercial

- Repurposing Existing Resources
- Integration of Pro-sumption Practises
- Housing initiatives and redistribution of land use

Vibrant & Livable

- A Human-Scale Built Environment
- Activate Urban Pockets
- From “Commercial Third Places” to “Communitarian Third Places”

Mobility Network

- Develop and Integrate ICT Solutions
- Incorporate Holistic Mobility Management
- Avoid - Shift - Improve

5. CONCLUSION

When staking out the course for Barkarby Nexus 2050, we recognize the challenges posed by the diverse businesses and operations in the existing commercial area today. Collaboration and a common vision for the future is crucial for realizing this ambitious vision, given the municipality's lack of direct land ownership. According to the Södertörnsmodellen, the role of the municipality in a project like this should be to set the framework and provide an arena for collaboration and discussions. This way of navigating Public-Private Partnerships in urban development projects is essential for aligning conflicting objectives and ensuring project success within all of the three themes; Barkarby as a Non-Commercial Area, Barkarby as a Vibrant and Livable Environment, and Barkarby as a Sustainable Mobility Network.

By sharing risks, expenses, and benefits through a Public-Private Partnership, this project has the opportunity to overcome complexities posed in an area with multiple private landowners. Within the scope of Barkarby Nexus, this type of partnership can be useful on several different scales. For example, it will be important to initiate a collaborative partnership in the early stages of planning for development in the commercial area so that all affected parties are on board the process from the beginning. Once the vision is established and the project comes to the phase of implementation, the framework of Public-Private Partnerships can provide ideas of how to finance and collaborate on specific details of the plan.

The example of privately funded and managed public spaces is one, another could be a new form of partnership for converting unutilized commercial buildings for non-commercial activities to ensure a vibrant and livable environment in the area. Another avenue worth exploring aligns with post-growth thinking — residentially funded initiatives. An example of this concept involves the community self-funding prosumption practices, such as urban farming and workshops. Additionally, the community could establish coffee shops, restaurants, or any desired ventures run as non-profits. The advantages of this approach include complete control over production, as everyone has a stake in their own community and, consequently, a vested interest in its well-being. As we embark on realizing Barkarby Nexus, phased implementation of these different interventions becomes imperative, respecting the ecological and social fabric of the area.

In this vision, Barkarby Nexus is not just a regional city center; it becomes a binding link connecting Jakobsberg, Barkarbystaden and other areas in proximity. "Nexus" embodies the central role, linking physical spaces and fostering social connections. The metamorphosis showcases a commitment to sustainability through adaptive reuse, and creating a safe, inviting environment that contributes to a carbon-positive urban environment.

Thriving as a focal point for social unity, Barkarby Nexus's comprehensive transportation network promotes accessibility and a shift away from car dependency. The central gathering point serves as a catalyst for community cohesion, breaking down barriers and strengthening connections within the area and to neighboring communities.

In conclusion, Barkarby Nexus is more than a project; it's a visionary transformation realized through strategic collaborations and phased implementation. The strong commitment to sustainable development, implemented through robust collaborative processes, propels Barkarby Nexus toward becoming a resilient and vibrant urban community. Together, we are crafting a nexus of possibilities for Järfälla.

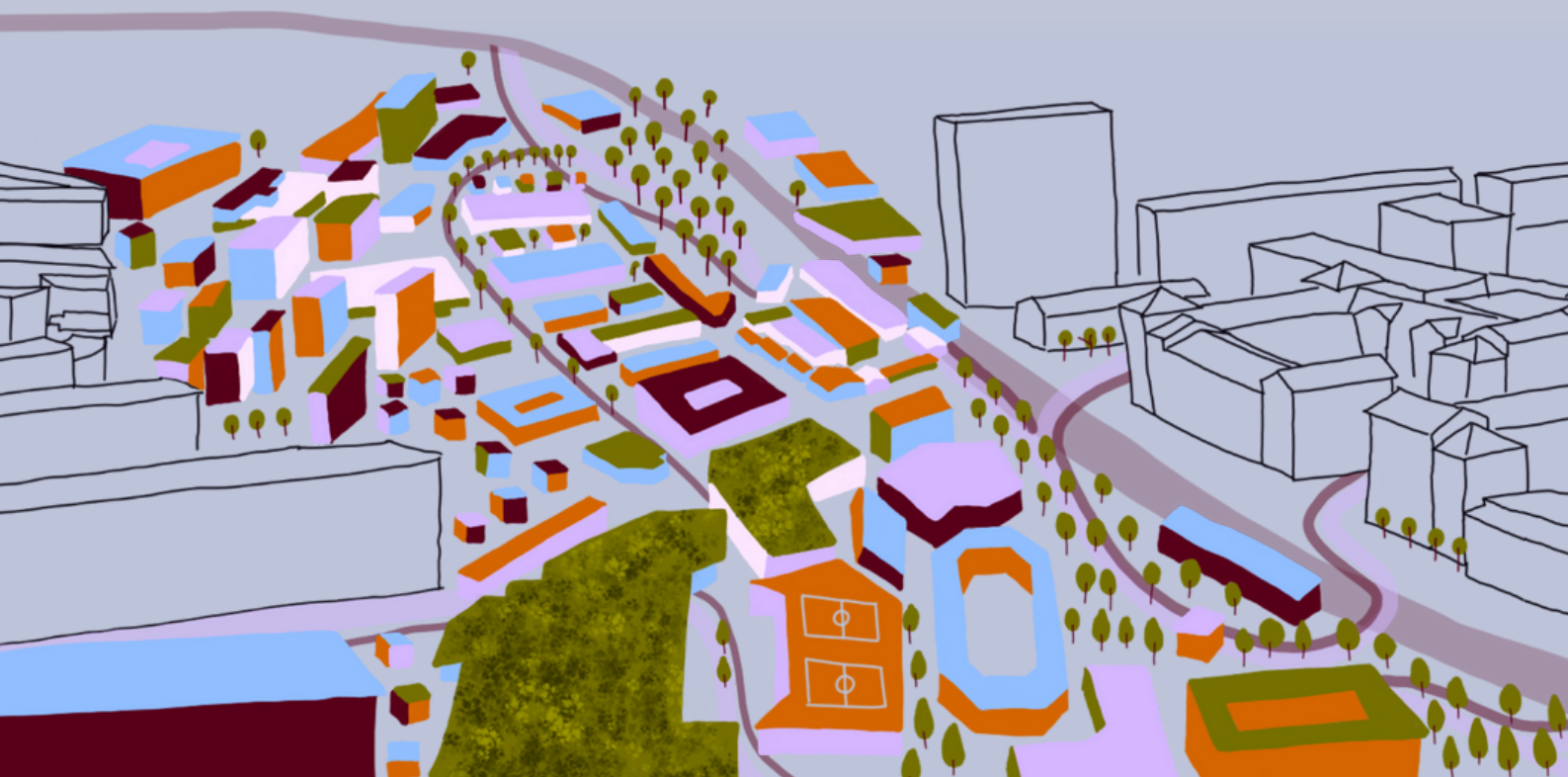


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Figure 2. *Route of site visit in Barkarby Commercial Area* [Map].

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