

# Kera Co-Op City: New Nordic Neighborhood



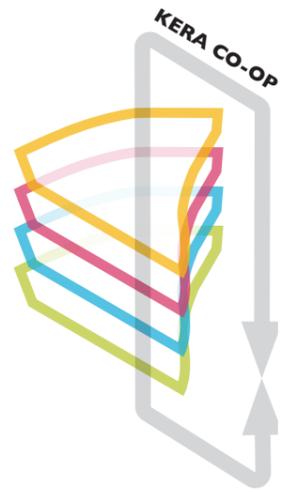
PÄIVI RAIPIO



FORUM  
VIRIUM  
HELSINKI

# Kera Co-Op City

## New Nordic Neighborhood



KERA CO-OP CITY

## **KERA = STRONGER TOGETHER**

**Community is a key component of the Co-Op City. Every element in the neighborhood has a component of communality, starting from planning and realisation process of the public space to shared economy solutions within the neighborhood and the housing blocks.**

### KERA CO-OP CITY **VISION**



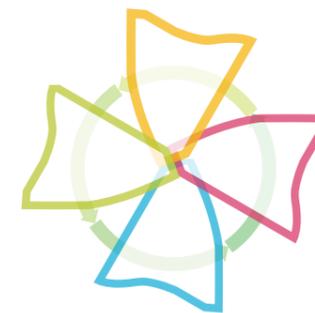
Kera Co-Op city is a 20-minute neighborhood utilizing circular economy solutions. Co-Op City takes in to account the complexity of the city,

### KERA CO-OP CITY **PROCESS**



Co-Op City presents the steps for turning an industrial site into a lively neighborhood.

### KERA CO-OP CITY **SOLUTIONS**



- SOCIAL ENVIRONMENT
- FUNCTIONS & SERVICES
- URBAN FABRIC
- GREEN STRUCTURE

A livable city consists of multiple layers. Circular Economy is considered in all of the layers of the city to enable a truly sustainable city of the future.

# Co-Op City Vision: Summary

## KERA CO-OP CITY IS A 20-MINUTE NEIGHBORHOOD OPERATED WITH CIRCULAR ECONOMY SOLUTIONS.

The Kera neighborhood, situated in Espoo, will be Finland's first urban area to be built based on a 20-minute neighborhood approach and circular economy solutions. The urban fabric of a 20-minute neighborhood is mixed-use and dense with a comfortable scale for pedestrians and good connections to surrounding areas. Circular economy is achieved through a large range of different measures, from boosting resource efficiency and creating closed loop systems to, most importantly, involving and enabling the local residents. A network of high quality urban spaces is the glue that binds the solutions together into a coherent and attractive new city neighborhood.

### SOCIAL ENVIRONMENT: Public Space as a Catalyst for Activity

Community Spirit and Social Interaction; Strong Identity;  
 Encourages People to Ecologically Sound Behavior

Kera has a well designed network of public spaces, such as squares and pocket parks, which makes it pleasant to move around by foot. A large central park forms the heart of the area. The park acts as an arena for multiple functions and brings the residents together. Micro-climate conscious design and public greenhouses enable the use of the park all around the year. Urban farming play an important role for the community spirit of the area.

A city structure based on blocks makes it easy to form different micro-neighborhoods by building consortiums. The Block as micro-neighborhood provides a sense of place. Common living rooms and sharing facilities, like laundries, saunas, workshops, etc. are the foundation for active community life and make it possible to extend your home towards the semi-public. A system based on block units enables all kinds of new business opportunities for companies.

### FUNCTIONS & SERVICES: Circular Economy Solutions

Mixed-use Neighborhood; Sustainable Transportation System;  
 Smart Use of Resources; Low Energy Consumption

The dense, mixed use, human scale urban fabric offers a good starting point for local services. A large range of actors, including cultural and sports facilities and businesses, are attracted to the area already in the first phase by offering affordable spaces in the unused industrial buildings.

Sharing economy solutions enables massive changes in people's every day routines. Shared space access makes everyday management of cars, bikes, co-working spaces and other shared areas easy and safe. Reservation and access can be handled from a mobile phone with any platform. This helps unlocking the value of unused or under-utilized assets. New mobility concepts, sharing services and exchange platforms are an important factor of connecting the neighborhood.

### URBAN FABRIC: New forms of Building and Living

Livable Already in The Early Phase; Built With Ecologically Sound  
 Construction Materials and Techniques; Different housing options

The development plan and building code of Kera entails the use of ecological and innovative building technologies and materials and different forms of governance. The former logistics hall is reused extensively. During the building construction, the halls are used as dry, weather-protected spaces for storing building materials, assembling building components and surface finishing. The halls also enable testing of new construction methods, such as pre-assembled construction and 3D-printing of whole buildings. Finally, the structures of the halls are reused or recycled in constructing new buildings, streets and outdoor spaces.

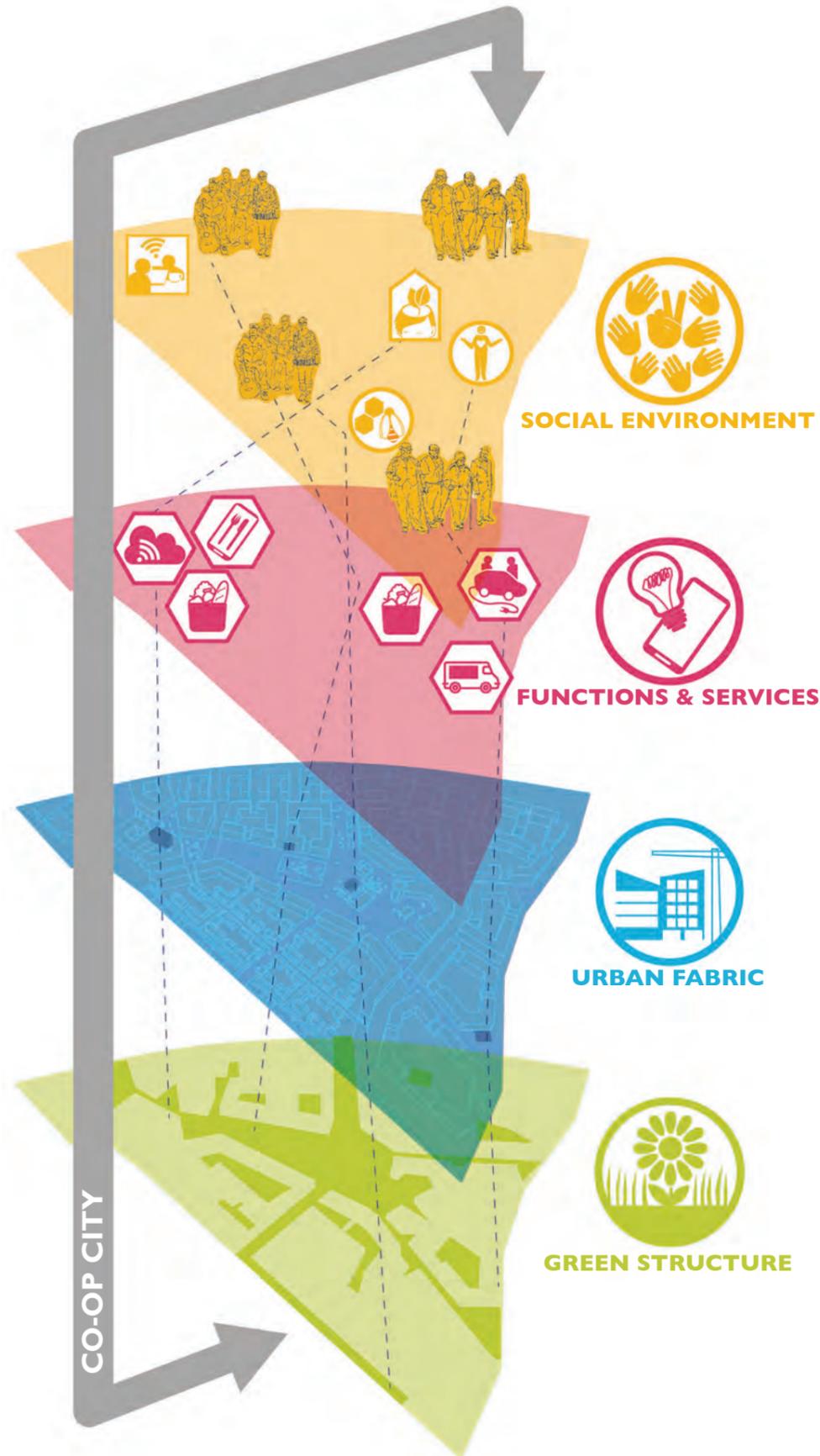
In the development plan an area is designated for joint building ventures (ryhmärakentaminen). Residents get more affordable housing, influence on the choices and can use the saved funds to get housing of better quality. S-group benefits as they get a better profit for the land they own in Kera when cutting out the middlemen.

### GREEN STRUCTURE: Microclimate-conscious Planning

Green Network That Supports Ecosystem Services;  
 Micro-Climate Conscious Planning; A green network is established

A green structure is established that connects to and support the surrounding urban ecosystems in order to help the regional system to become more resilient. By using the concept of ecosystem services the values of nature's "free" services, can be brought into the implementation of a circular economy. By clever design of multifunctional spaces, services usually provided by traditional single purpose technical solutions can instead be provided by implementing "green- and blue tools".

The transformation of Kera into a livable neighbourhood starts by establishing temporary outdoor spaces that enables different activities and events. The temporary outdoor spaces are created in strategic places already before building construction starts. They are then continuously developed and improved. Gradually the whole area grows around the park.





# Vision

## Circular Economy Solutions in Kera

Kera will be first Nordic neighborhood to be built according the Circular Economy principles. Circular Economy solutions are achieved in Kera through a large range of different measures, related to the urban fabric, passive thermal control, building techniques and material use, energy production and consumption, smart metering, waste management, stormwater management and rainwater harvesting, smart transportation solutions, biodiversity generators, and by involving and enabling the local residents.

### WHY circular economy?

The earth is a closed system that gets its only energy input from the sun. Natural processes are all cyclical: they do not create waste, everything is reused. Our current processes waste energy and resources, destroy our environment and create vast amounts of toxic waste. In order to keep the earth livable, we must adapt our processes and transform them from linear to closed loop, circular processes.

### HOW do we get there?

Changing complex processes is not going to happen overnight. So we need to phase the changes. While we are rewriting our processes from linear to closed loop, circular processes, we need to radically increase our resource efficiency by sharing, adapting, harnessing synergies and forming symbioses. We also need to produce the needed energy in solar economy using renewable sources. The most important aspect of the change is to inspire, involve and enable the people to implement the change.

### WHAT is in it for Kera?

Kera has the perfect potential of leading the way into circular economy. There are plenty of spaces and resources we can reuse. The area is going through a large regeneration process so we can implement changes that would not be possible in a normal, already built urban neighborhood. Investment in circular economy will make Kera known on a global level and attract residents and business to the area.



RETIRED BIOLOGIST,  
ACTIVE GRANDAD

"I wake up early and read the papers - if it's summer, I do that on the green roof terrace of our CO2-neutral and plus-energy house. Our house sells the plus energy to Kera-grid, which we invest in the winter maintenance of our house! My daily routine is very local - I buy my daily groceries from the local shops, which of many sell local produce. The local bakery uses bio-gas from the district's bio-waste to generate electricity."



# Co-Op City Vision: Kera as a 20-minute Neighborhood

## 20-minute neighborhood

Walkable urban development is characterized by high density and a mix of diverse real estate types, connected to surrounding areas via multiple transportation options, such as bus and rail, bike routes, and motor vehicles. For those living or visiting a walkable urban place, everyday destinations, such as home, work, school, stores, and restaurants, are within walking distance.<sup>1</sup>

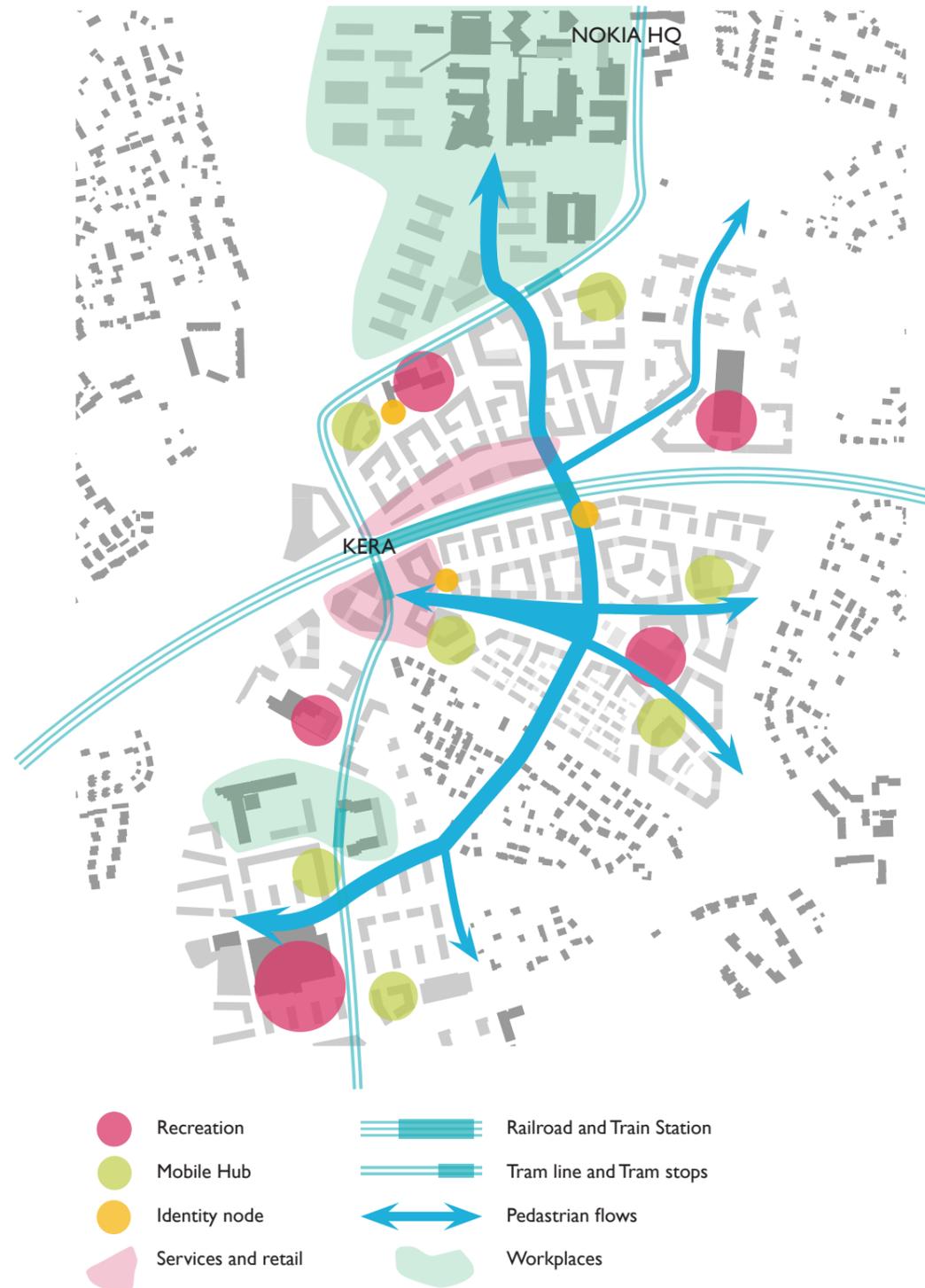
Twenty-minute cities offer direct and indirect benefits. Economic benefits include an increase in housing values, attraction of new economy workers, new business relocation opportunities, reduction of commuting costs and decrease in infrastructure investments. The positive effects on health and the following impact on costs are significant. Innovation is disproportionately driven by young, technology-intensive companies<sup>2</sup>. Over the past few years these new businesses are moving from suburban research parks to urban communities<sup>3</sup>. Talented workforce is no longer willing to commute long distances away from cities for their work.

## Location of Kera

Geographically Kera suits perfectly as a 20 minute city. It is possible to circuit the entire Kera area in 20 minutes by walking. Fast railroad connections to Helsinki city center and Leppävaara are provided and in the future, Kera will be connected to southern Espoo and western Vantaa via rail as well. There is, thus, no need for owning a private car. Currently 14 000 inhabitants and 12 000 workers are able to reach Kera station in less than 20 minutes by walking<sup>4</sup>. The amount of inhabitants will double to almost 30 000 through regeneration. It is expected that the amount of workers will also increase significantly.

## How to build a 20 minute neighborhood?

The creation of a walkable urban neighborhood is essentially about orchestrating the pedestrian flows. A network of places that acknowledges the key daily activities on a regional, local and neighborhood level is needed. Traffic journeys consisting of visits to retail and recreation spaces and workplaces generate repetitive pedestrian flows. However, by placing smaller scale functions, such as public spaces, multi-use spaces and co-working rooms along these routes, a fertile ground for a mixed use setting is created. The services placed along the "natural" pedestrian routes both benefit from the people flow and further increase the pedestrian activity.



RETIRED BIOLOGIST,  
 ACTIVE GRANDAD

"I cycle all year around. Moving in and out from Kera is easy; I cycle to the train station in five minutes and hop on the train to the centre of Helsinki. Door to door, I am there in half an hour. However, I often stay to work in Kera: there is handy co-working spaces just next to the train station."



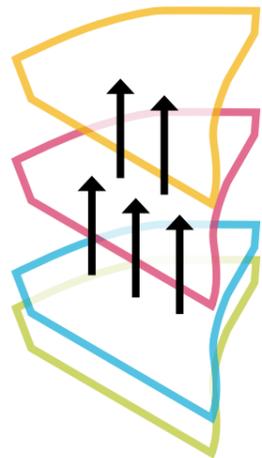
<sup>1</sup> Foot Traffic Ahead: Ranking Walkable Urbanism in America's Largest Metros © The George Washington University School of Business 2014  
<sup>2</sup> Clayton M. Christensen, The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail (Boston, MA: Harvard Business School Press, 1997); Paola Criscuolo, Nicos Nicolaou and Ammon Salter, 'The Elixir (or Burden) of Youth? Exploring differences in innovation between start-ups and established firms', Research Policy, Vol. 41, No. 2 (2012), pp. 319-33.  
<sup>3</sup> Bruce Katz and Julie Wagner, The Rise of Innovation Districts: A New Geography of Innovation in America (Metropolitan Policy Program at Brookings Institution, 2014)  
<sup>4</sup> HSL Matka-aikakartta, <http://mak.hsl.fi/>, 15.12.2015

# Co-Op City Vision: City Structure

## A Versatile Urban Fabric

A 20 minute neighbourhood should provide circumstances for realizing one's personal wellbeing in all aspects of life. This emphasizes the need for a versatile urban setting. In order to achieve diverse functional possibilities and vibrant social environment, the physical base layers should offer a fertileground for various activities and be as heterogenous as possible.

- Safety
- Love
- Solidarity
- Business blossoming
- Culture blossoming
- Excitement, entertainment, attraction
- Innovation cycles, agglomeration -> economic growth



DIVERSITY IN LIFE

DIVERSITY OF FUNCTIONS  
 Services, workplaces, friends,  
 culture, social environment

DIVERSE  
 URBAN FABRIC &  
 GREEN STRUCTURE  
 Streets, Blocks, Lots  
 Infrastructure, Parks  
 Green areas



WEB-DESIGNER,  
 ROLLER DERBY YAMMER

"I heard about Kera for the first time in 2016 when our team was looking for new premises to practice. It was great to be able to follow change taking place in the area. The old logistics hall was at the time used for all kinds of possible activities from sports to concerts and arts workshops. Many of those who used to work in the halls, for instance the theatre company and the carpenter, still run their business here. Nowadays I enjoy living in the area as the Kera Co-Op has managed to maintain much of the lively spirit in the area."



CENTRAL PARK: PUBLIC SPACE AS A CATALYST



THE HIGH LINE, NY



CENTRAL PARK, NY



SUPERKILEN, COPENHAGEN

# Co-Op City Vision: Social Concept & Identity

## The block as micro-neighborhood

A sense of place is created by planning in human-sized blocks. The block, as a unit of micro-neighborhood with shared common spaces and amenities, is the nearest extension of home. Social coordinators support the block and maintaining of community, they connect the block to the wider neighbourhood network and act as nodes for the social structure of Kera.

## Community living needs moderation and space

Social housing as well as co-housing trends include community co-ordinators. The co-ordinator or social engineer is there for the residents: guides and advises, plans various activities together with the residents, supports tenant participation and assists in property management processes. These new co-living concepts are centered around the community coordinator, the common spaces within the block buildings and the resident community itself.

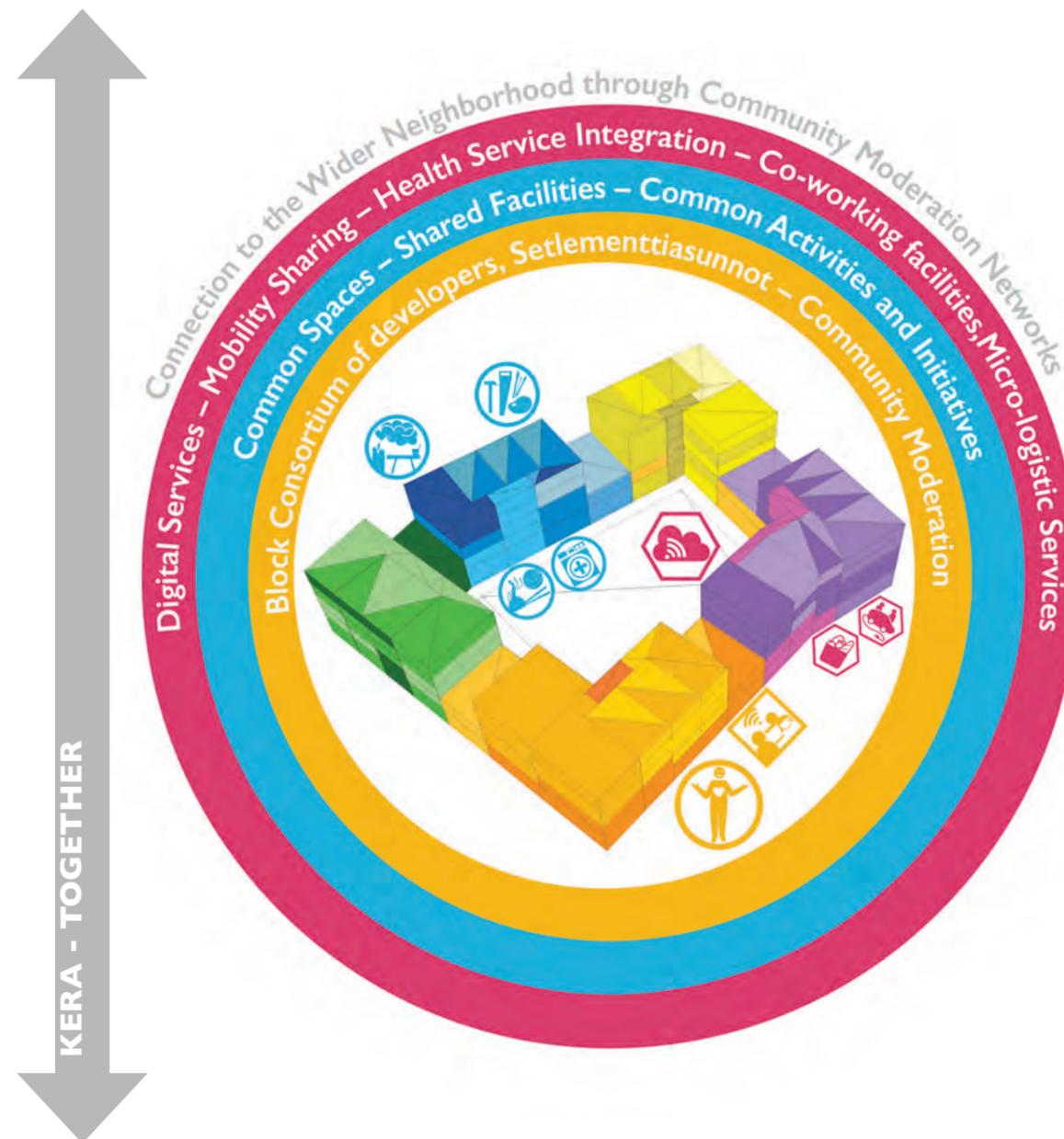
Shared common rooms act as extensions of people's homes and reduce the need for private spaces within the apartment. The residents of a block can share common spaces dedicated for sports, sauna, co-working, building and tinkering, laundry, making music etc. For example guest rooms can be shared, home offices can be part of the shared spaces system and big family events can be organized in the blocks common living room. Ideally the residents participate in planning of the use of their common areas.

## The block as a service platform

Digital services can easily find ground within a block structure, mobility services like car-, bike-, and ride-sharing systems can be integrated as well as health services or micro-logistic nodes. These shared services provide a forum for community building, caters for common needs and maintaining quality of life in the neighborhood.

## Including developers with an interest in community services

Blocks are planned by consortiums including a diverse mix of 3-6 developers. By including one social developer per a block like e.g. the NGO Federation of Settlement houses Finland, the creation of a socially sustainable micro-neighborhood is ensured. Running inclusive neighborhood centers that provide civic activity and education through communality, and the empowerment of individuals is at the core of the Settlement movement around the world.

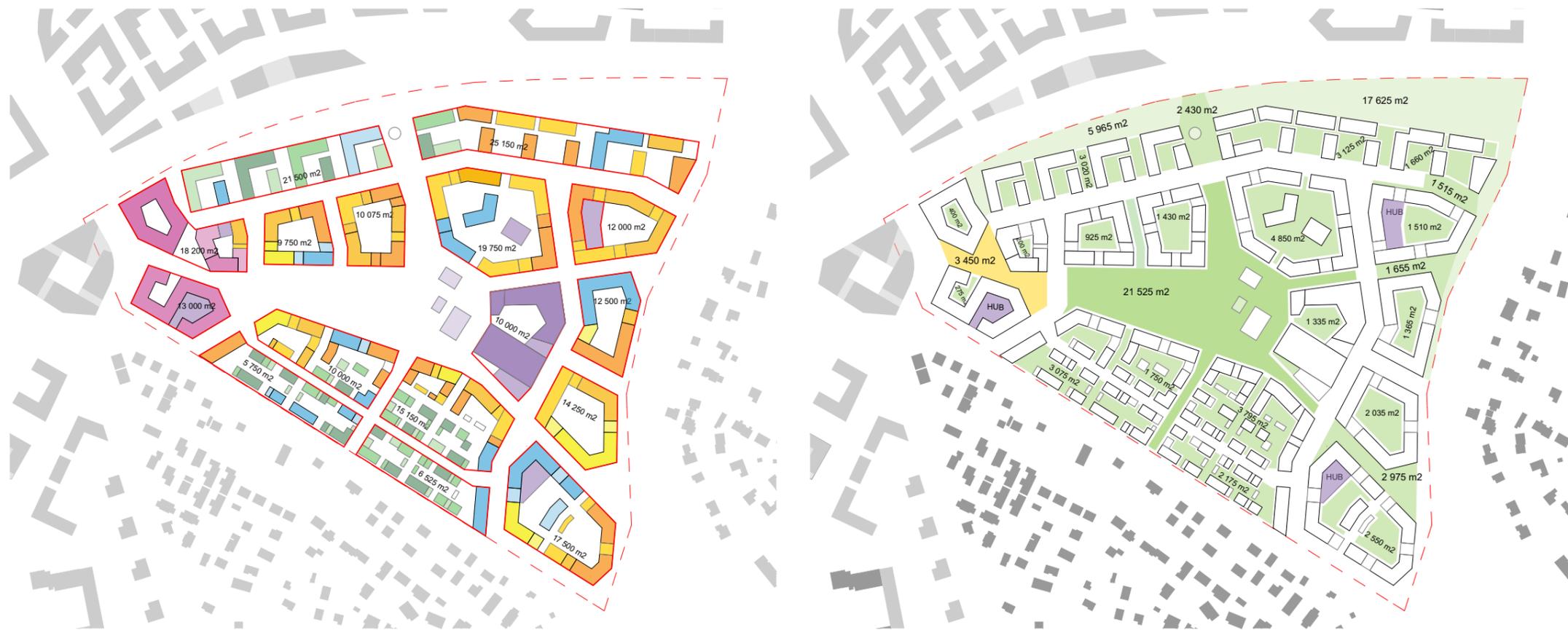


### LOCAL YOUNGSTER

"I love bmx-cycling and I do that every day after school. The streets here are safe - even my little sister can cycle easily everywhere. There's a lot of space on the streets, as nobody owns their own car anymore but takes it from the neighborhood's car share. In bad weather we spend a lot of time in the public areas of the big greenhouses. If we help the co-op farmers in their work the time bank system lets us pick more expensive fruits for snack."



# Co-Op City Vision: Residents & Economics



**RESTAURANT OWNER  
 MOTHER OF FIVE**

“We built our house as a joint-building project. Otherwise, with the current housing prices, it would have been impossible for us to buy a flat in the city with enough space for all of us. It was great to get to design the flat as we liked! We still live quite tightly concerning square meters, so the children spend a lot of time in the common areas of the building, the game room has turned into a special favourite. Me and my husband run a restaurant down the street. It really helps the everyday logistics that we work near home.



## Urban Fabric

The economic benefits of a dense, high quality urban structure include an increase in housing values, attraction of new economy workers, new business relocation opportunities, reduction of commuting costs and decrease in infrastructure investments.

According to the urban plan, there will be

Housing	160 000 m <sup>2</sup>
Hybrid	31 100 m <sup>2</sup>
Public Services	20 000 m <sup>2</sup>
Commercial Services (incl. existing halls)	10 000 m <sup>2</sup>

Altogether 221 100 m<sup>2</sup>

## Green structures

Creating a network of green areas that supports ecosystem services saves costs, since less investments are required for infrastructure, such as sewage and cooling. As the parking in the area is situated in the Mobility hubs with robot-parking, the courtyards can be used as green areas with permeable surfaces.

Green areas	85 500 m <sup>2</sup>
Central Park	21 500 m <sup>2</sup>
Courtyards	35 500 m <sup>2</sup>

## Functions & Services

A lively area provides various opportunities to small and medium enterprises.

Workplaces	2200
Visitors	60 000 / a
Co-working hubs	32

## Social environment

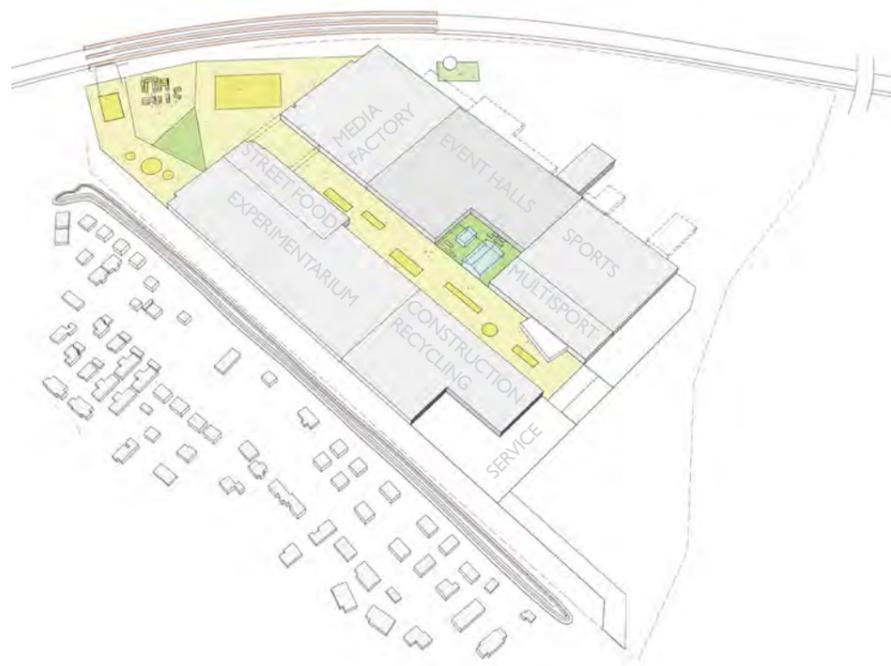
Good social services and feeling of community save costs: a recent study commissioned by Settlementti gave a significant return on investment by each euro invested in social services as smaller hospitalization costs. Loneliness is one of the biggest threats to health especially in elder age groups. In 2030 it is estimated that 25% of residents of Finland will be older than 65 years. If 10% of Kera's 1000 elderly would live at home a year longer instead of the hospital, this could save up to (100 x 50 000 €/a) **5 million euros** per year.

Residents	4 000	
Year 2030	0-14 yrs	15,3 %
	15-64 yrs	59,1 %
	65-	25,6 %

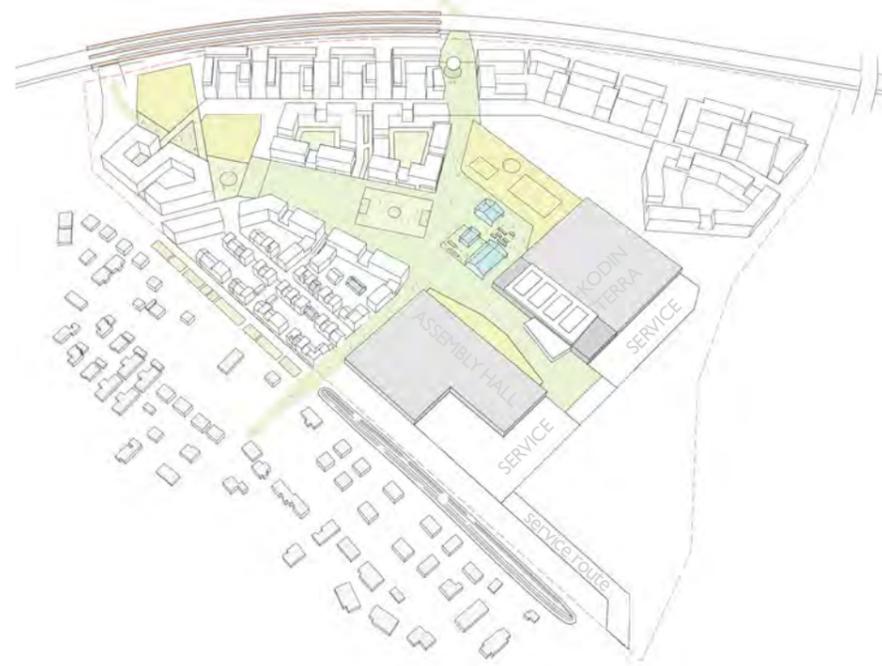


# Process

The current industrial site of Kera is turned in to a sustainable and liveable neighbourhood through a gradual development process. Both careful analysis and an experimental approach is needed to achieve a successful process. Temporary functions and events, place making and well thought phasing play a key role in the process.



2018:  
PLACEMAKING BEGINS:  
BUILDING AN IDENTITY THROUGH EVENTS AND EXPERIMENTS

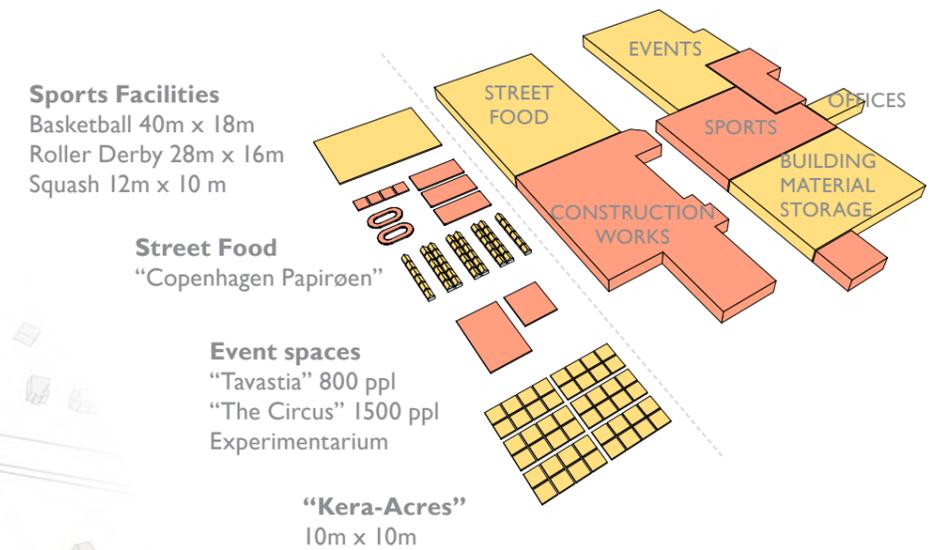
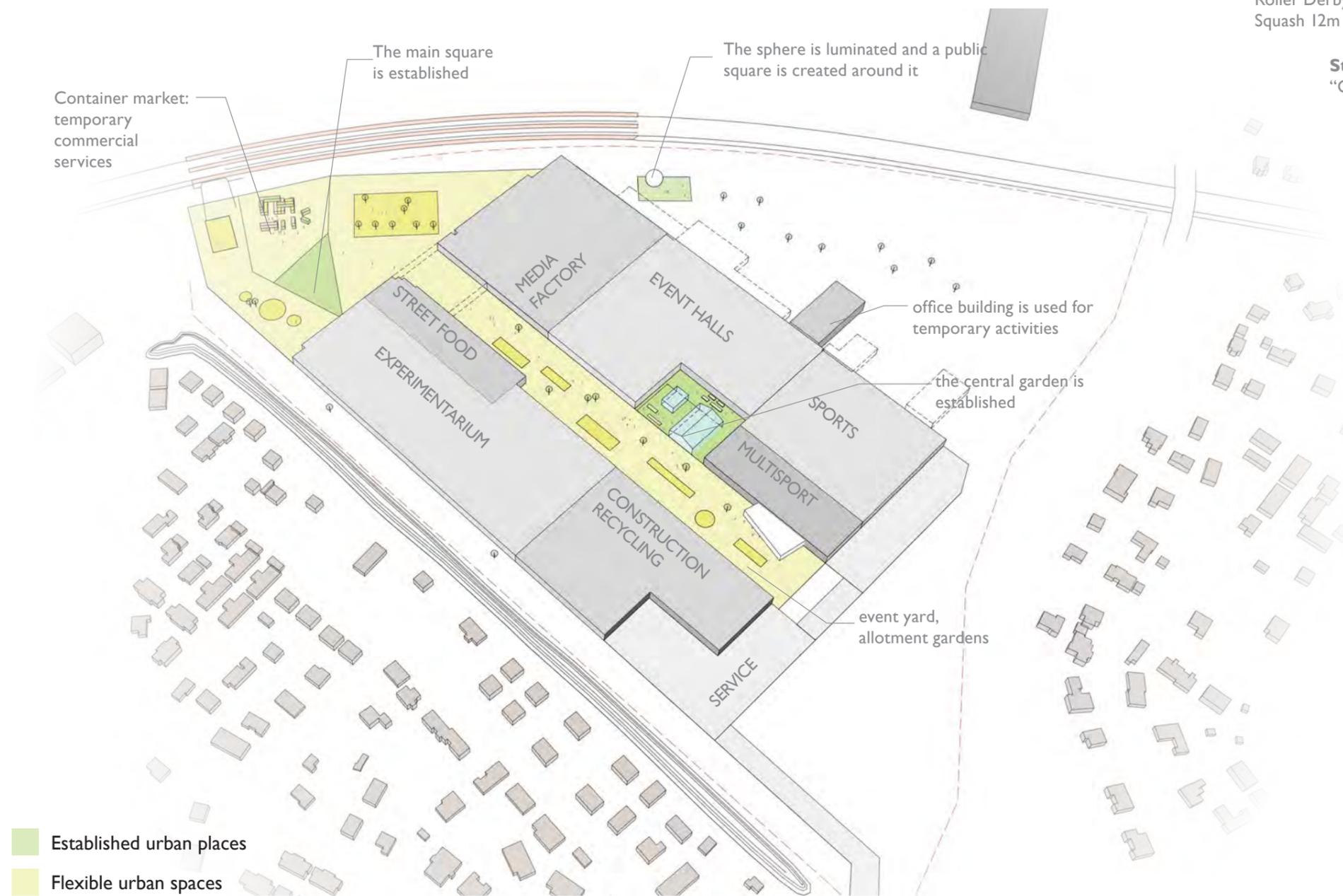


2025:  
THE OLD AND THE NEW:  
A TESTBED FOR SMART CONSTRUCTION METHODS



2030:  
THE WALKABLE CITY:  
A DENSE NETWORK OF PLACES

# Urban Regeneration Process



## 2018 Placemaking begins:

The regeneration of the site begins with a strong emphasis on placemaking. The site's most notable built landmark, "the ball" is lit and a public square is created around it. The open area close to the train station is transformed to a public space with altering public activities. The future main square is emphasized and temporary buildings e.g. made of containers are added to house various activities such as commercial services.

A central park is established in the open space between the building volumes. Events hosted in the halls can be extended out in to the open space. Allotment gardens and portable structures brings comfortable scale to the open space. A public green house forms the heart of the central park. Structures of existing building are utilised for the garden's greenhouses.

The logistics centre, twice the size of the Helsinki fair centre is repurposed as a space for large temporary events such as Slush. Different kind of actors, such as sports teams, cultural actors and businesses, are offered spaces in the halls. In order to provide on site energy for the starting regeneration process, solar panels are installed on the roofs of the buildings that are going to be preserved for temporary uses.

## TIMELINE 2018

### Urban Structure

Housing	- km <sup>2</sup>
Hybrid	5 000* m <sup>2</sup>
Services	8 000* m <sup>2</sup>
Altogether	13 000 m <sup>2</sup>

### Greenstructure

Established green areas	5 250 m <sup>2</sup>
Temporary green areas	26 000 m <sup>2</sup>

### Functions & Services

Visitors	50 000 / a
Co-working hubs	4

### Social environment

Residents	-
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# Urban Regeneration Process



## 2028 The Old and the New:

The reformed Kera is starting to take shape. Parts of the former logistics center are now being used to serve the construction processes. An assembly hall serves the experiments in new housing construction methods and another part serves as a logistics center and a hardware store for the builders. The old office building serves as a construction headquarters. Actors who in the first stage of the development were offered spaces in the logistics hall, have now relocated within the area.

The network of places is starting to take shape and urban squares and parks are upgraded to enhance the quality of life between buildings. The flexible urban spaces and parks that are used to inhabit various activities also work as a testbed for urban designs. The best solutions may later be solidified as the regeneration progresses. A new underpass is made to connect the site to the north side of the track. Green connections are established, connecting the central park to the surrounding areas and reinforcing the green structure of the surrounding areas.

Several experimental housing constructions take place on the site. The dense urban blocks along the railway are reserved especially for joint building ventures. The progressive construction technologies and architecture is highly visible to the railroad and showcase the area to future residents. The experimental small scale housing blocks next to the assembly hall are aligned to the grid of the former logistics center and some of the load bearing structures are reused in the new houses.

## TIMELINE 2025

### Urban Structure

Housing	73 875 m <sup>2</sup>
Hybrid	24 100 m <sup>2</sup>
Services	6 250 m <sup>2</sup>
Altogether	107 225 m <sup>2</sup>

### Greenstructure

Established green areas	20 000 m <sup>2</sup>
Temporary green areas	17 700 m <sup>2</sup>
Courtyards	26 000 m <sup>2</sup>

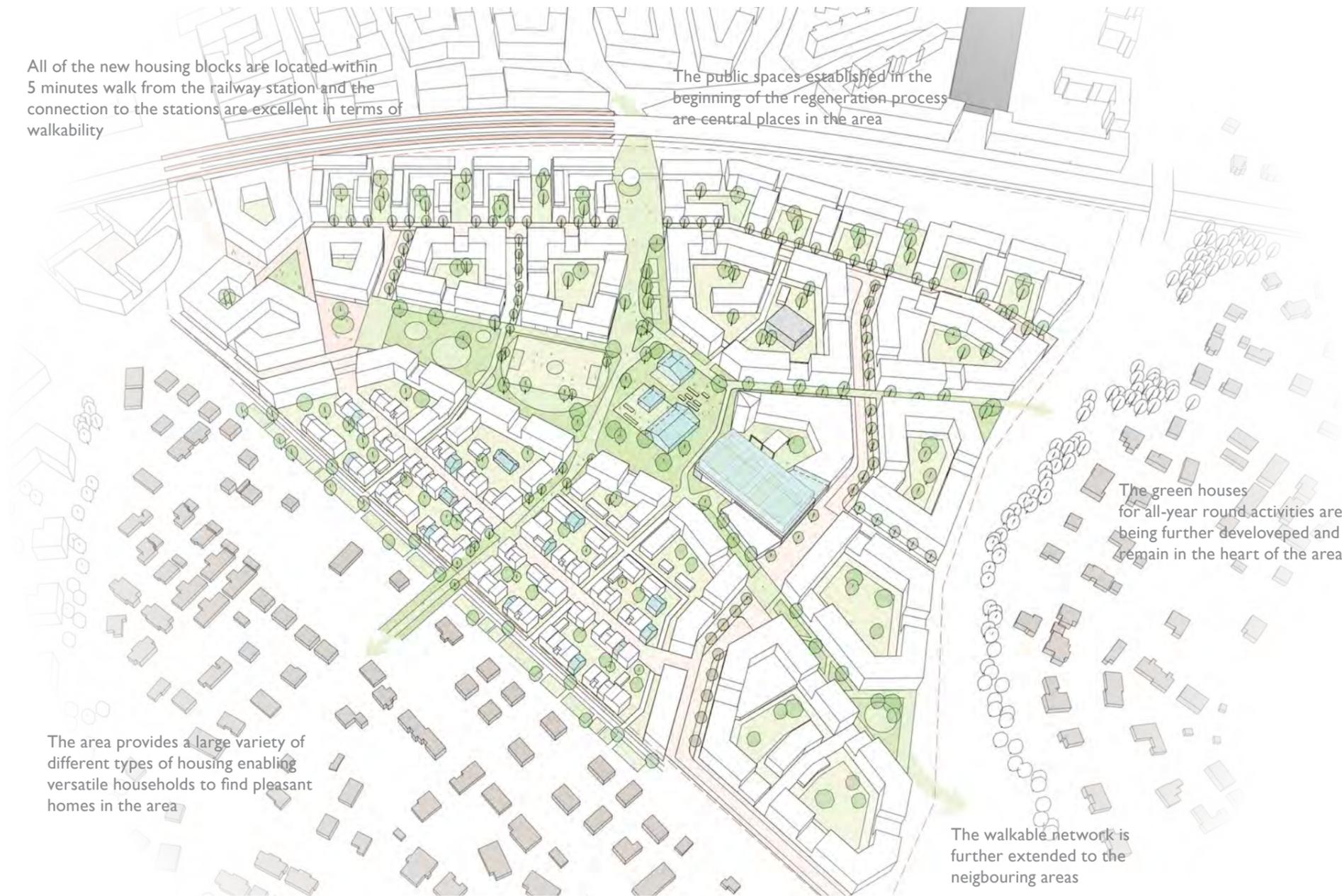
### Functions & Services

Visitors	35 000 / a
Co-working hubs	14

### Social environment

Residents	1 850
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# Urban Regeneration Process



All of the new housing blocks are located within 5 minutes walk from the railway station and the connection to the stations are excellent in terms of walkability

The public spaces established in the beginning of the regeneration process are central places in the area

The green houses for all-year round activities are being further developed and remain in the heart of the area

The area provides a large variety of different types of housing enabling versatile households to find pleasant homes in the area

The walkable network is further extended to the neighbouring areas

## 2038 The Walkable City:

Kera has transformed to a walkable urban area. A dense network of places is connected through a series of high quality urban spaces and parks. Places such as the central garden, the square around “the ball” and the main square have already a long history in the memories of the residents and have become key pieces in the identity of the area. Some of the temporary activities in the outdoor spaces have been solidified to permanent structures and large amount of the parks are still being used flexibly for temporary activities and experiments

The site is excellently connected to it’s surroundings creating a coherent urban fabric and green network. This enables people from a large area to move easily to and through the site thus enforcing the vitality of the area and enabling a large variety of services in the area.

## TIMELINE 2030

### Urban Structure

Housing	160 000 kem <sup>2</sup>
Hybrid	31 100 kem <sup>2</sup>
Services	30 000 kem <sup>2</sup>
Altogether	221 100 kem <sup>2</sup>

### Greenstructure

Established green areas	50 000 m <sup>2</sup>
Courtyards	35 500 m <sup>2</sup>

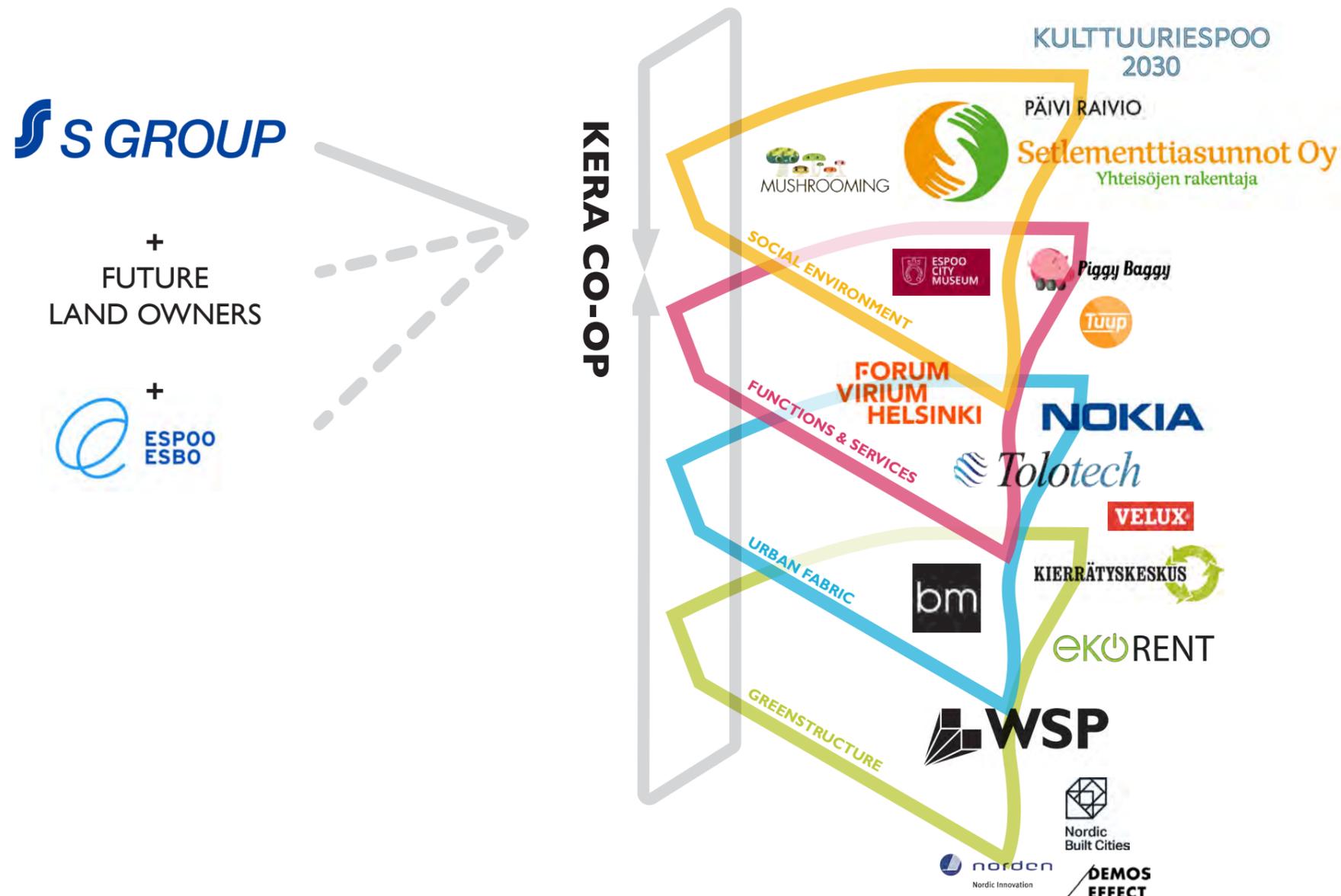
### Functions & Services

Visitors	60 000 / a
Co-working hubs	32

### Social environment

Residents 4 000

# Process: Stakeholders & Operating Model



## Kera Co-Op

### A Development Company

Kera Co-Op is a local development company, which coordinates the development of the area. The Company, which is structurally organized as a co-operative, will be owned by the future land owners in the area.

S-Group starts the Co-Op and sells part of the shares of the company as they are selling the land onwards. The Co-Op enables a quick development of the services: by collecting funds from the future owners, it will enable threshold investments, for example the Mobility Hubs and the renewable energy investments.

Kera Co-Op manages the shared services in the area, such as the Mobility Hubs. Based on the basic investments on the traffic system as the improved station area and underpasses, on-demand services can be developed and implemented by individual developers as PiggyBaggy, Tuup and Tolotech.

# Kera Identity and Community Building Process

## Placemaking as a Tool

Placemaking binds people collectively to invent and establish public spaces which respond to people's needs. The collaborative process adds an accessible hands on approach to the evolving public spaces of Kera.

Creating a network of places requires conscious effort. Best solutions come through open-minded temporary experiments - some of the best urban designs may be solidified as permanent structures. Merging the regenerated site seamlessly to its surroundings benefits the present and the coming residents.

The public outdoor spaces are connecting people: residents, visitors and people working in the area together. The public places and spaces in Kera are not only a visual experience: they work as key parts of the area's ecosystem services and infrastructure.

The urban gardening areas and greenhouses enables self-sufficiency and offer places for gathering and recreation. The key public space in Kera is the central park, which hosts many activities and functions throughout the year. The gradual creation of the central park starts in the first phase - to serve the very first residents of new Kera.

## The elements of the identity of CO-OP



## Implementation plan for building a strong identity for CO-OP

LAYERS	THE ELEMENTS OF THE IDENTITY OF CO-OP KERA:				PEOPLE AND COMMUNITIES		
 <b>Creating Place Names with Historical References</b> Intangible heritage elements are used to reinforce and complete the description of the site's history for example by using names with historical connotations for streets and quarters like Kerttu Suvannon kortteli, Tiilikatu and Eva Covanderin katu.	 <b>Redeveloping the iconic Kera Ceramics Factory</b> The main and only building left from the area's past could be restored in volume, original character and detail features. The function of the building would be developed during the area development process, reflecting the community building process.	 <b>Recycling and Restoring Industrial Architecture</b> Restoring and reusing some of the logistics halls and for example storage building complex by Kurt Simberg (1964). The characteristics of the buildings form an authentic industrial character for the area. The tangible features of these buildings help to tell and illustrate the story of industrial KERA. The reused materials are also used for landscaping public parks.	 <b>Maintaining Parts of the Industrial Place's Structure as Landmarks</b> Restoring and reusing some of the industrial elements as such: the INEX tower and fuel storage (ball) become unique KERA landmarks. Waterfront Palermo, Sicily; Slakthusområdet, Stockholm are good references. Reuse is carried out in many levels: some structures are used for landscaping, some in parts and some re-exist as buildings for new functions such as a communal greenhouse.	 <b>Leaving Open Spaces for Spontaneous Events</b> The idea is not to eliminate the industrial scale and space completely - instead to integrate it within the new concept. The open spaces function as reservoirs where the community can spontaneously create events and activities. Some of the spaces are large scale and enable unique, big events and activities that attract visitors also outside Kera. Kera's central park is designed to host many activities and connects Kera-residents.	 <b>Activating Public Participation</b> Different stages of the planning process are designed to be open for public participation and local influence. Participation will be open in many levels: active participation or reactive participation. Remote participation and influencing is realised also through an online-interface for example. Workshops are designed for different stages of the developing process, for different ages groups and interests.	 <b>Enabling Public Places as a Catalyst</b> Public space works as a focal point for interaction and spontaneous encounters. It will be designed to enable stop-overs, hanging out spots and small events. Community led action, like community gardens are strongly supported by providing facilities and design-help to set them up. Public space extends indoors to the event halls, which provide the same platform during winter months.	 <b>Exchanging Spaces for Activities</b> Third sector, creatives and small businesses play a big part forming lively mini-districts in the area: they are given free spaces in exchange for input in the identity creation. In exchange for free facilities different actors are providing a number of free or small profit events or other form of activities, open for public. The activities can be anything from sports, arts, workshops and seminars.

# Early Stages Implementation Plan

## for Kera Identity and Community Building

The City of Espoo Cultural Services' KulttuuriEspoo2030 (CultureEspoo2030) -programme works as a strategic indicator and directs the art & culture related content of the implementation plan such as the 1% art programme and other public art projects.

The implementation plan is based on three main categories:

**HIGH VISIBILITY**

MARKS AND HIGHLIGHTS THE KERA AREA

**OPEN PLANNING PROCESS & IDEA POOLING**

ENSURES ACTIVE PARTICIPATION AND INCLUSION

**PLACEMAKING, COMMUNITY BUILDING, ARTS**

CURATED PROCESSES, SHORT AND LONG TERM PROGRAMME



**1** Kera's landmarks become highly visible: train station, "the Ball" and INEX-tower.  
 Why? Creating visible landmarks highlight the location and unique features of the area and supports the identity development.  
 Who? Designers, artists.



**4** Small-scale placemaking projects situated in the public space and parks of future Kera. Why? Creating ways for instant participation, which is based on long term activation plan and the vision of Kera.  
 Who? Facilitators, residents and future-residents.



**6** Open planning office and multi-use built-in spaces (workshops, small events) in the logistics hall.  
 Why? Physical presence on site promotes interaction and makes participation visible.  
 Who? Planning group, facilitators, event organisers.



**2** Kera gets a visual identity.  
 Why? The long process, information, plans, participation processes and even events are identifiably part of Co-Op Kera.  
 Who? Graphic designers and planning group.



**5** Curated KERA 1% art programme for public art works and art projects based on co-creation.  
 Why? To support the development of Kera-identity. Participatory art works and projects evolve from Kera and engage the residents. The 1% funding is sourced from the developers.  
 Who? Curators, producers, artists and planners.



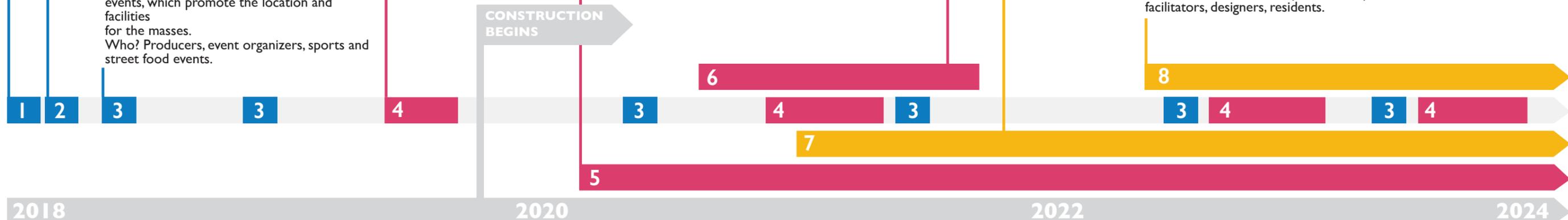
**7** Logistics hall is opened for DIY & DIT culture and sports: free space in exchange for open events.  
 Why? 3rd sector: sports, arts, small businesses contribute to the process of creating unique identity and visibility of Kera. DIY and do-it-together culture can flourish in raw, big open space.  
 Who? Producers, artists, designers, 3rd sector,



**3** Big, underground and mainstream events in the old logistics halls.  
 Why? Raw, industrial space allows unique, big events, which promote the location and facilities for the masses.  
 Who? Producers, event organizers, sports and street food events.



**8** Community green house is built in the old logistics halls. The process is planned to scale up step-by-step as more residents move to the area.  
 Why? Urban gardening is part of Kera-vision. Local food production is a big factor in the co-op model.  
 Who? Gardeners/Dodo ry, renewals specialists, facilitators, designers, residents.





# Solutions

## Nordic Solutions to support Circular Economy

### Circular Economy Solutions

Kera is turned in to a liveable, caring and ecological neighborhood through a large range of different measures, related to green areas, ecological material use, smart energy production and consumption, innovative service models, new forms of housing an by involving and enabling local residents.

In the following pages the most critical tools supporting circular economy are presented.



#### **GREEN STRUCTURE -** A network of multifunctional public places

- Ecosystem services
- Planning tools
- Planning, building and designing with ecosystem services
- Evaluate



#### **URBAN FABRIC** Sustainable Planning & Construction process

- Planning regulations that support cyclical processes
- Building Process
- Recycling of the logistic halls



#### **FUNCTION & SERVICES** Mobility Services in a 20 minute city

- Forming new partnerships
- Digital service models supporting sharing

#### **Sustainable Energy Solutions**

- Clean Energy production
- Reducing energy consumption



#### **SOCIAL ENVIRONMENT** Livability through co-creation

- Involving processes
- Sense of belonging - Networks for social support
- Affordable housing



# GREEN STRUCTURE

## A Network of Multifunctional Public Places

### SUMMARY

To fulfill the vision of a livable city and 20-minute neighborhood the proposal promotes the public space as an important catalyst for activity, community building and identity creation. Through a series of high quality urban spaces, a public realm is designed with the aim to facilitate both planned and unplanned events and activities. The creation of these spaces will be facilitated by a community driven planning process, with a high level of public participation, in order to make the public space truly public.

The public space of Kera will also play an important role in the bigger context in the region. The green structure, that will be created here, should be connected to and support the surrounding urban ecosystems in order to help the regional system to become more resilient.

By thoroughly analyzing the existing green context, valuable knowledge will be gained. Strengths and weaknesses from the regional scale can then be

addressed in the planning and design regarding the public spaces in Kera. By using the concept of ecosystem services the values of nature's "free" services, can be brought into the implementation of a circular economy. By clever design of multifunctional spaces, services usually provided by traditional single purpose technical solutions can instead be provided by implementing "green- and blue tools". Green multifunctional spaces, such as these, will not only serve to address technical issues such as storm water management, but will at the same time provide additional values such as recreation, identity and food. In the end, the public green space of Kera will become an important part of the infrastructure, both on the local and regional scale, producing value on multiple levels regarding both circular economy and ecosystem services.

### ECOSYSTEM SERVICES

#### Let Nature do the job

Humankind benefits in a multitude of ways from ecosystems. Collectively, these benefits are becoming known as ecosystem services. Ecosystem services are regularly involved in a multitude of processes in our cities such as the provisioning of clean drinking water and the decomposition of wastes. To help inform decision-makers, many ecosystem services are being assigned economic values. This allows us to more clearly visualise and implement the value of ecosystem services in the planning of our cities. However it is important to note that not all values

that are generated by ecosystems can be transferred into money.

In Keras' pursuit of a circular economy it is important to close the material flows regarding biological and technical nutrients. Our traditional technical infrastructure is ill equipped to handle more than one of these issues at the time. By looking at nature through the lens of ecosystem services it will be made clear that "green building techniques" can be a much more efficient way of addressing the problem.



#### Supporting ecosystem services

Supporting services provide everything that an individual plant or animal needs to survive: food; water; and shelter. These services are provided both by the future green structure of Kera as well as the surrounding green structures in the region. Hence the importance of connecting these two scales in order to strengthen their resilience.



#### Providing ecosystem services

Providing services are services that describe the material or energy outputs from ecosystems. They include food, water and other resources. The proposal make use of every opportunity to provide these services. Be it by providing fruit bearing trees in the park or by providing space for urban farming.



#### Cultural ecosystem services

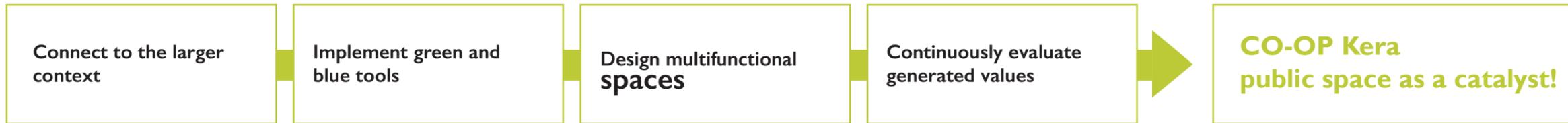
Walking and playing sports in green space is not only a good form of physical exercise but also lets people relax. The role that green space plays in maintaining mental and physical health is increasingly being recognized. The public green spaces such as the parks in Kera will be important in order to deliver these services to the residents.



#### Regulating ecosystem services

Regulating services are the services that ecosystems provide by acting as regulators eg. regulating the flow of storm water. In the proposal these services will be provided by the multifunctional spaces that will be an important part of Keras public city structure.

Process: What to do and when?

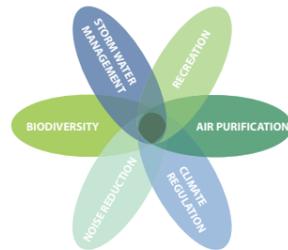


PLANNING TOOLS

Ensure that the ideas are brought in to practise

To get ideas and visions from the planning phase all the way through to implementation in the building phase is a challenge. Hence there is a need of useful planning tools. Working with planning tools based on ecosystem services will dramatically increase the chances that the final result reflects the original intentions.

Case example: Green Area Factor



The Green Area Factor is a planning tool for creating multifunctional spaces in order to strengthen urban ecosystem services. It uses simple calculations of "eco efficient" surfaces in order to steer towards a predetermined amount of green and blue structures on site in proportion to the built structures. The aim is to create resilient green and blue spaces that will e.g. increase biodiversity, reduce climate effects and create social values. The tool is used worldwide in projects with sustainability as a main goal.

PLANNING, BUILDING AND DESIGNING WITH ECOSYSTEM SERVICES

Connect to the larger context

Kera is a part of a larger context. This has to be the starting point in the planning of public space in Kera, both regarding the green structure and public space in general and the ecosystem services. It is in the analysis of this context that the arguments of what the public space in Kera should provide in order to strengthen the resilience of the regional context will be found. But it will also clarify what the larger context can provide for Kera and if there are any synergy effects to be found.

Analyse :

- Regional plan
- Regional green structure
- Recreation
- Ecosystem services

Case example: C/o City



C/O City is a research and development project that highlights the value of nature in the city. The aim is to inspire and convince, create new models and tools, and show real life examples of how to plan and build cities where people and nature can coexist. The project involves different actors and experts that represent all steps in the value chain. WSP has been one of these. The outcome is tools and methods to integrate ecosystem services and promoting these and biodiversity in the planning processes. One of the tools proposed is the Green area factor.

Implement green and blue tools

In order to design public spaces you need tools. Some of these tools can be classified into the categories of green and blue. Referring to if they are meant to deal with mainly water related or vegetation functions. Each of these tools will by itself provide ecosystem services but it is when they are put together that there will be synergies. Multifunctional spaces put together with tools such as these will not only solve one issue at a time, as most traditional technical systems do, but will provide a multitude of values simultaneously.

Example of a green & blue tool:

A green roof will often be implemented in order to deal with storm water management. However if designed in the correct way, it will also strengthen the biodiversity, provide additional public space, improve air quality, reduce noise and help reducing urban heat stress.

Case example: Västra Roslags Näsby



This project aims to create a new city block in northern Stockholm with a high sustainability profile. The public spaces will be designed with green and blue tools such as urban swales, structured soils, green roofs, carefully planned planting schemes in order to promote resilience and biodiversity and much more.

Design multifunctional



By using the knowledge of the surrounding landscape and implementing green and blue tools the design of the public spaces can begin. By participatory planning, these spaces can be made into a web of interconnected green and multifunctional hubs. They not only provide a dynamic public space but also generate ecosystem services both at a local and a regional scale.

An example of a multifunctional space:

The proposed greenhouse will provide locally produced food. At the same time it will create identity, utilize locally harvested rainwater, provide a social context for the residents and will be place for recreation. It could also be designed to let wild pollinators such as bees to enter and by that strengthen the local wildlife.

Case example: Låglandet storm water park



This park in Karlstad, Sweden, was designed as a multifunctional park. On a thin strip of land the city wanted both a new city park as well as a storm water management facility. The solution was a park which implements a wide range of multifunctional places in order to simultaneously provide ecosystem services, storm water management, recreational activities and much more.

EVALUATE

Continuously evaluate generated values



The goal in Kera is to use the public space as a catalyst for activity and development and through this constantly become more efficient and try new solutions. In order to achieve this public space have to be continuously evaluated in order to clarify if the proposed solutions generate the values intended. These evaluations should look at several aspects simultaneously in order to provide a good evaluation of which elements and processes that work the best and should be further developed. This will also provide an important base of knowledge in order to draw conclusions and develop tools and concepts that can be exported to other projects.

This includes e.g. looking at:

- Ecosystem services
- Biological- and technical nutrient flows
- Monetary values (e.g. local food production)
- Happiness index among the residents

Case example: Mensättra wetland



The project was a consultant initiative to evaluate and visualize the economic and social values of transforming an unused space into an urban wetland park. By economic and social evaluations together with visualizations, the local government was convinced to invest in a long-term project to provide a wide range of ecosystem services.

# URBAN FABRIC

## Sustainable Planning & Construction Process

Solutions:

Solutions:

### PLANNING REGULATIONS THAT SUPPORT CYCLICAL PROCESSES

#### Cyclical flexibility in buildings

The life span of all building components is evaluated systematically to maximize flexibility:

1. Long: Core structures,
2. Mid-Long: Vertical connections & building skin
3. Mid-Short: Light inner walls and installations
4. Short: Smart, agile technology.

*Effect: Flexible buildings that adapt & are easy to renovate. Circular regeneration of the built environment.*

*Deal: No extra cost, savings in adaptation & life span*

*Implementation: Life cycle assessment is required in Kera Design Manual and building permit process.*



#### Material cycles

In the Kera Design Manual, all construction materials are required to be fully biodegradable (=biological cycle) or fully recyclable (=technical cycle) to gradually phase out construction waste.

*Effect: Smarter material use, better recyclability, longer life span for products & less (toxic) waste.*

*Deal: Radical savings in waste management & improved resource efficiency*

*Implementation: Biodegradability & recyclability are required in Kera Design Manual*



#### Experiment areas

There are designated experiment areas for new innovations & technologies, e.g. local water purification. Experiment areas provide fast real world information on new technologies & processes. They also help in making Kera known as a hot spot of urban innovation.

*Effect: Faster integration of eco-tech & smart solutions, adaptation to change.*

*Deal: Experiment areas increase resilience and stability of the area. Potential for innovation funding.*

*Implementation: City and property owners designate the areas in the detail plan process.*



### SUMMARY

The logistics center is demolished in phases. The spaces are used during the construction phase and the structures and materials are recycled extensively.

*Effect:*

- *prolongs the lifespan of the material and reduces the need for producing new material*
- *reduces the amount of demolition waste*
- *reduces need for transportation, which reduces CO2 emissions*
- *reduces the need for ground construction works, since the old foundations can be reused*
- *maintains the industrial heritage of the site*
- *offers possibilities for interesting architectural and landscape architectural solutions*

*Deal: Reduces material costs and transportation costs*

*Implementation: Real Estate owners co-operate with constructors*

### BUILDING PROCESS



#### Temporary Use of the Logistics



##### Resource & Application

To get sound constructions it is essential that both the building materials and the buildings under construction are kept well protected from the weather. During the construction the existing logistics hall is used as a space for:

- storing building materials
- assembling building components
- finishing surfaces, e.g. painting
- temporary manufacturing lines for prefabrication building techniques

##### Things to take in account

- Questions about the management of the halls and the costs for the temporary use has to be solved
- The schedule for the temporary usage during the construction work has to be synchronized with the demolishing work.

### MATERIAL RECYCLING



#### Reuse & Recycling of Asphalt



##### Resource

Parts of the existing paved areas are preserved and included in the new park. Sections of asphalt are cut away to make room for plantings. Excess asphalt is used to make new asphalt.

##### Things to take in account

Suitable conditions has to be made for the plantings, considering soil and space for roots.

## The halls in numbers:

over **65 000** m<sup>2</sup> floorplan

ca. **1 500** concrete columns & beams

over **50 000** m<sup>2</sup> Siporex floor slabs

## RECYCLING OF THE LOGISTICS HALLS



### Columns & Beams Used in New Costructions



#### Resource

The logistics halls are supported by free-standing concrete column and beam structures. This makes it possible to disassemble the logistics hall in sections.

The column and beam structures can be re-used as such either on their original site or elsewhere. They can be used as:

- frames for low-rise buildings. Floor slabs can be attached to the frame.
- greenhouses and other structures for the park
- frames for taller buildings, such as multi-storey apartment buildings. This requires enhancing of the structures.

#### Things to take in account

- The urban structure has to be design according to the positioning of the hall's structures.
- The demolition of the hall has to be made in a way that doesn't damages the structures.



### Roof Slabs Turned in to Crushed



#### Resource & Application

The roof slabs of the logistics hall are made out of Siporex, which is a form of lightweight concrete with excellent thermal insulation ability.

The roof slabs can be crushed on site and the product used:

- as insulation or filling for floor constructions
- as a lightweight fill in ground construction to improve the bearing capacity of the soil. This is especially useful in Kera, where a large part of the soil consists of clay.

Ca. 19 500 m<sup>3</sup> crushed Siporex can be made out of the roof slabs

#### Things to take in account

- Because crushed Siporex is a recycled material its usage is highly regulated. Legislative matters has to be taken in to account when scheduling the construction works. The process is comparable to that of crushed concrete.



### Columns, Beams and Facade Elements Turned in to Crushed Concrete



#### Resource & Application

The load bearing structures, i.e. columns and beams, and the facade elements of the logistics hall are made out of reinforced concrete. The excessive constructions can be crushed and the steel removed.

Crushed concrete is well suited for ground construction. The material contains unreacted cement that hardens during use, and as a consequence the load-bearing capacity is twice as good as that of natural stone. There for you don't need as thick a layer of crushed concrete as is needed when using crushed stone.<sup>1</sup> Another option is to use the crushed concrete to make new concrete.

Using crushed concrete significantly reduces the material costs. In realized projects the savings have ranged from 10-40%, depending e.g. on how much material is replaced by crushed concrete.<sup>2</sup>

1. & 2. Rudus Formento ympäristörakentamisen seminaari 1.3.2016

Concrete binds CO<sub>2</sub> throughout its lifespan in a process called carbonation. When the concrete is crushed the process accelerates. Crushed concrete can bind up to 50 % of the CO<sub>2</sub> that was released when the cement was produced.<sup>3</sup>

- In Kera crushed concrete is used:
- as the base or sub-base layer when constructing streets and squares
  - to create landforms in the park

Ca. 8000 m<sup>3</sup> crushed concrete can be made out of the columns and beams.

3. Engelsen, Mehus, Pade & Sæther 2005. Carbon dioxide uptake in demolished and crushed concrete. CO<sub>2</sub> Uptake During the Concrete Life Cycle. Nordic Innovation Centre Project 03018.

#### Things to take in account

- Because crushed concrete is a recycled material its usage is highly regulated\*. Legislative matters<sup>1</sup> have to be taken in to account when scheduling the construction works.
  - Crushing concrete requires an environmental permit and a quality management system.
  - The usage of crushed concrete requires either a notification procedure\*\* (e.g. streets, bike lanes, park paths, sport field) or an environmental permit\*\*\* (e.g. parks, noise protection embankment).
  - If the crushed concrete is sold it has to be CE marked.
- The crushed concrete must be free from contamination i.e. not exceed the limits defined in the MARA decree.
- When using crushed concrete more powerful machines are required during the ground construction work than would normally be needed<sup>2</sup>.

1. Ohje: Betonimurskeen hyödyntäminen infrarakentamisessa pääkaupunkiseudulla, Helsingin, Espoon ja Vantaan kaupungit 17.3.2015

\*\*usage covered by the MARA decree

\*\*\* usage not covered by the MARA decree

\*regulative legislation include the Waste Act (646/2011), Environmental Protection Act (527/2014) and the MARA decree.

2. Rudus Formento ympäristörakentamisen seminaari 1.3.2016

# FUNCTIONS & SERVICES

## Mobility Services in a 20 minute city

### SUMMARY

From innovative technologies to business models, sharing economy is impacting cities. It enables massive changes in people's every day routines. Digital services, open data and the use of social media facilitate virtual and tangible community interaction. New mobility concepts, sharing services and exchange platforms are an important factor of connecting the neighborhood.

Sharing economy refers to business models that enable providers and consumers to share resources and services, from housing to vehicles and more. These business models typically take the form of an online and/or application-based platform for business transactions.

More than half of the world's population are living in cities - and the figure is rising precipitously in coming years. Cities, thus, offer great economical potential for new companies and business models. Cities are the places that make the sharing economy work and power its ability to grow worldwide.

### FORMING NEW PARTNERSHIPS

#### Mobile Hubs - platforms for emerging service models

Mobile Hubs gather together mobility services in order to reduce the number of private cars. Hubs include services from parking and sharing of bikes and cars to charging and pooling of electric cars, as well as carwash and spaces for DIY bike/car repair.

Mobile Hubs also host logistic solutions for groceries and other goods related to sharing or e-commerce.

Co-working spaces are an important part of Mobility Hubs. They help reducing motor traffic and enable smarter use of spaces and resources. When non-exhaust electric cars become more common, it is possible to share spaces also with cars more freely. Transferable office modules can be easily relocated.

Shared space access will make everyday management of cars, bikes, co-working spaces and other shared areas easy and safe. Reservation and access can be handled from a mobile phone with any platform. This helps unlocking the value of unused or under-utilized assets.



In the first phase Mobility Hubs are located in the existing logistics halls that offer suitable spaces. Later when the area is built, the Hubs will go digital and the location becomes irrelevant. Due to online and/or application-based platform and smart lock systems, people will be able to rent any available car or co-working space nearest to them.



#### Autonomous Vehicle Traffic

Nokia is interested in starting an autonomous vehicle traffic pilot. In the first phase the vehicles will shuttle from the train station to Nokia Headquarters and back. In the second phase the vehicle routes might expand.

Nokia Headquarters hosts, in addition to Nokia employees, Nokia Quaja Startup Space. Automated vehicles and future traffic would serve also as a platform opportunity for Innovators at Quaja.

Effect: More options for commuting for Nokia employees and people living in the Kera area.

Deal: More visibility for Nokia and a testbed for new mobility solutions.

Implementation: Public-private-partnerships, entrepreneurs, Universities.



EZIO Autonomous bus

#### Logistics Lab

Existing warehouses with cooling systems are transformed into smaller scale entities with smart access and tracking of goods. This allows small scale local ecosystem to deliver food ingredients from fields, forests and lakes close by to both residents and local restaurants. Community Supported Agriculture eg. fields owned by local co-op funded for this purpose, can provide local fresh ingredients to members.

S-Group could offer smooth logistics for delivering products from these kind of producers to homes, applying intelligent storage and last mile logistics.

Effect: Locally farmed groceries with less need for traffic.

Deal: Testbed for new service models. Possibility for S Group to prototype with relatively small costs.

Implementation: Utilizing the existing logistics halls before they are replaced with new construction.



DIGITAL SERVICE MODELS SUPPORTING SHARING



**Access & smarter use of spaces**

Shared space access will make everyday management of shared areas such as co-working spaces, laundry rooms and storages easy and safe. Smart locks can also be used enabling easy sharing of vehicles. Reservation and access can be handled from a mobile phone online and/or via application-based platform. This way people are always aware who has accessed the facilities and when.

*Effect: Smarter use of resources & spaces.*

*Deal: Some smart lock systems require replacing the entire lock system, while others only need a smart device over an existing deadbolt. Installation can cost extra, but allows savings in the long run.*

*Implementation: City and property owners can coordinate the installation of smart lock systems.*

**Case Example: Tolotech Tolotech smart lock system**



Tolotech specializes in high-quality electronic access control products and cost-effective SaaS cloud services. ToloGo is a wireless access control solution for user and vehicle management via a cloud service. Versatile parallel opening methods are available: a phone call, a PIN code, an access badge, and a remote control.



**Live & work**

The city structure of Kera has a diverse functional mix. It is possible for the majority of the residents to also work in the area. Options include home offices, workshops, commercial spaces, studios, hubs & office spaces. It is possible to efficiently take the capacity in use with the help of digital service platforms.

*Effect: Rich & lively city, plenty of customers for commercial services & less need for traffic.*

*Deal: More customers for local businesses*

*Implementation: Heterogenous functional mix is designed in the detail planning process*

**Case Example: MUSHROOMING Network of Co-Working Spaces**



Mushrooming is a network for the creative bunch working in Helsinki. On their site it is possible to list your working space and rent one. Co-working spaces boost community-building and sustainability. When working near home, the need for motor traffic decreases.



**Local services & easy sharing**

There are plenty of flexible spaces for services and sharing around the area. Local companies and workshops can produce services and products, fix products locally and rent or share needed special equipment. This is made easy through digital sharing platforms.

*Effect: Longer product life span, less need to produce & ship new products and ship products for repair.*

*Deal: Increased efficiency in materials, logistics & space usage*

*Implementation: Multi-use workshop spaces are designated in detail plan. Lockers and spaces for pick-up points are provided. Sharing app companies are*

**Case example: Piggy Baggy Case Lahti Citymarket**



PiggyBaggy is a sustainable crowdsourced delivery service designed in collaboration with retail and logistics partners, authorities and local communities. With the service, the retail customers visiting a store or pick-up point will also pick up and deliver the online orders of people in the same neighborhood or along their home route. The target is 5% of European online grocery by postal service partners paying a transaction fee of 2€ per delivery.



**Mobility as a service**

In motorized transport, mobility is seen as a service: the focus is on shared & demand based transport. Public transport stops are seamlessly connected to the network of public spaces.

*Effect: Agile, sustainable transport, less resources wasted. Less need for privately owned cars*

*Deal: Planning for demand based transport makes the area more attractive for residents and businesses.*

*Implementation: Demand based traffic companies are invited to participate in the detail plan process.*

**Case example: Tuup, Case Turku**



Tuup is a Finnish service that gives users access to all the transportation options through one mobile application. Tuup gives users information on the prices, routes and timetables of all kinds of transportation, be it public transportation, taxis, rental cars, bicycles or a combination of these. The Turku Region Traffic, also known as Föli, is the first mobility service to offer purchasing via Tuup.



**Smart parking & shared cars**

The parking structures maximize the use of automated parking systems. The area also has designated parking for shared cars. Electric cars produce no exhaust fumes so parking spaces can also be used for other purposes.

*Effect: Over 50% space savings in parking*

*Deal: Marginally higher initial investment, but saved space can be assigned for more profitable uses.*

*Implementation: Parking is designed in detail plan process & guided in Kera Design Manual.*

**Case Example: EkoRent electric car rental service**



EkoRent is a Finnish company offering affordable, easy-to-use, zero-emission car sharing solution. EkoRent electric vehicle solution includes everything from cars to charging stations all the way to induction of the service.

# FUNCTIONS & SERVICES

## Sustainable Energy Solutions

### Solutions:

#### CLEAN ENERGY PRODUCTION

##### 100% renewable & open



The whole life span of Kera is designed to use exclusively renewable energy. A portion of the energy can be produced on site. Residents & businesses of the area are invited to propose new ways of smart energy use in annual ideas competitions.

*Effect: Cyclical energy production & use*

*Deal: Eco-effectiveness attracts residents and businesses*

*Implementation: Detail plan and Kera Design Manual guide & phase the energy use shift. City and property owners co-organize ideas competitions.*

##### On site energy



On site energy production is maximised by small, de-centralized units: solar, wind, geothermal, bio heat & compost heat. A smart energy grid enables & inspires local production.

*Effect: Higher self-sufficiency with renewable energy. The solar panels and wind turbines also make energy production visible & inspire smarter energy use.*

*Deal: Possible to get clean tech pilot project funding. Large savings in energy transfer*

*Implementation: City and local energy companies cooperate with the property owners and apply for r&d funding.*

##### Case Example: Setlementti Solar Panels



In March 2016 Setlementtiasunnot started producing solar energy on the rental apartment buildings in Malmi, Helsinki. The solarpanel installation on the rooftop is so far the biggest of its kind in Finland. The solarpanels are expected to produce 36MWh

(36 000kWh) per year. With that amount of energy the residents of the Malmi Buildings could brew over 100 000 pots of coffee, watch 150 000 hours of TV or wash 30 000 loads of laundry. The produced electricity is mainly used to power all common facilities of the buildings.

#### REDUCING ENERGY CONSUMPTION

##### Adaptive systems



**Energy:** The area has smart energy grid that allows on site energy to be fed to the grid.  
**Lighting:** Public spaces are lit with smart lighting that adapts to different conditions.

*Effect: Optimized energy use.*

*Deal: Marginally higher initial cost yields savings in energy costs and maintenance*

*Implementation: Designed in detail plan process & guided in Kera Design Manual*

##### Passive energy optimization



The use of passive methods, e.g. shading structures & building orientation, for temperature control is maximized. The buildings are oriented to optimally use daylight. Reflective surfaces are used in smaller courtyards.

*Effect: Less energy wasted in heating & cooling*

*Deal: No extra cost, notable savings in energy*

*Implementation: The use of passive energy optimization is designed in detail plan process & guided in Kera Design Manual.*

##### Metering & controls



The people who live and work in the area can meter and control their energy & water use. The usage data is automatically visualized and displayed in everyday environment: in residences, offices & public spaces.

*Effect: Empowers people to make a difference, smarter energy use & less waste.*

*Deal: Savings on resources & energy. Metering & controls appeal to prospective residents & businesses*

*Implementation: Metering and unit level controls are required in Kera Design Manual.*



# SOCIAL ENVIRONMENT

## Livability through Co-creation

### Solutions:

#### INVOLVING

##### Participatory processes

Participatory design, iterative design processes with precise metering & feedback loops, open communication and collaboration are used in all phases from conceptual plans through construction to maintenance.

*Effect: A strong community that wants and is able take care of its surroundings. Tacit knowledge is utilized.*

*Deal: Savings via reduced maintenance demand & effective design & review processes.*

*Implementation: City and property owners cooperate with current & future residents & businesses of the area*

##### Case Example: Vuosaari Urban Garden



Vuosaari Urban Garden (2015) combines seating and a garden, creating a comfortable stop-over on an open square in Vuosaari, next to Vuotalo Cultural Centre. The garden was designed to respond to the content of the cultural programme of Vuotalo. Since its start, the space, in the previously empty square, has been used for lunch breaks, small meetings and small events. The garden and its elements are regularly in use by random passers-by and the plants, grown and tended by local children, have been successfully left to grow. The garden will continue to bloom in the summer 2016.

The garden elements were co-planned with Vuosaari high-school students as a part of a city planning course.

The project and the garden-installation was facilitated, designed and built by Päivi Raivio and Daniel Bumann.

#### SENSE OF BELONGING - NETWORKS FOR SOCIAL SUPPORT



##### Common Spaces

The Common Space is the shared living room of the block. Common Spaces have to be attractive, cozy, and flexible rooms with well-equipped kitchens. Preparing food and eating together is at the core of almost every community. By improving and remodelling the common kitchens of some common rooms, Setlementiasunnot was able to rise the residents activities to another level. Cooking together and for each other became a big part of the communities. From founding a weekly soup group that is cooking for the senior citizens of the neighborhood to various ethnic dinner and culture evenings, the kitchen made sharing experiences easy.

A sense of belonging in the neighbourhood grows by doing things together. Recognizing the special skills and abilities of different people and creating intergenerational solidarity in the new normal in urban living.

Common rooms act as extensions of people's homes and reduce the a real need of private spaces within homes, as for example guest rooms can be shared, work spaces can be part of the common room system, big family events can be organized easily close to home. Through joint-building ventures the future residents of Kera are more able to push for alternative concepts of urban living thus creating more diversity within bulding typologies.

*Effect: Supports the wellbeing of the residents, savings in housing costs for the residents*

*Deal: Savings in costs for the welfare system*

*Implementation: Demanded in the Kera Design Manual*



Residents of Kalasatama having a block party in the common yard

##### Social Engineers

Community living needs moderation. Social housing as well as co-housing trends include community coordinators. He or she is there for the residents; guides and advises, plans various activities together with the residents, supports tenant participation and assists in property management processes. The community living concept of Setlementiasunnot is centered around the community coordinator, the common spaces within the apartment buildings and the resident community itself.

The community coordinator service model of Setlementiasunnot has had great benefit for the residents as well as indirectly saving expenses of the welfare system. A study among senior residents of Kalasataman Setlementiasunnot in Helsinki has shown, that the raised level of neighbourly interaction improved the seniors overall health and performance, as well as it delayed some senior's move into intensive care nursing homes.

Tykkyläinen, Salla Yhteisökoordinaattorimalli ja 55 vuotta täyttäneiden asuminen, osallisuus ja yksinäisyys. Arvio mallin yhteiskunnallisista vaikutuksista, Lappeenranta University of Technology, 2015



Women of Kalasataman Setlementiasunnot found new friends and feel like teenagers again

This model is repealing the risks and side effects of living alone by increasing the residents social, mental and physical activities significantly. As a consequence this model can well lift the pressure on the public household by hundreds of thousand Euros yearly for citizens over 55 years at the studied apartment building alone. An ongoing study with focus on activity level and depression among Setlementiasunnot's young adult residents will be published in the near future.

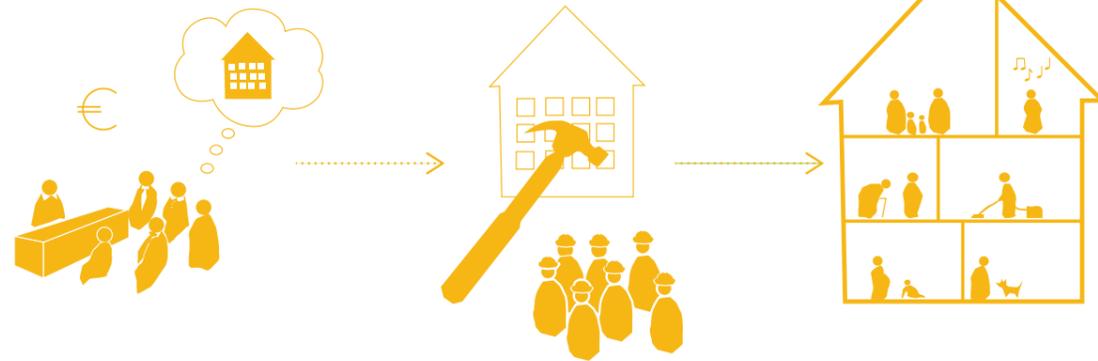
A Network of Kera's Social engineers and activists with a central node in the neighborhood center or the green houses can foster the sense of belonging and have a considerable impact on the welfare of the Kera community.

*Effect: Supports the wellbeing of the residents*

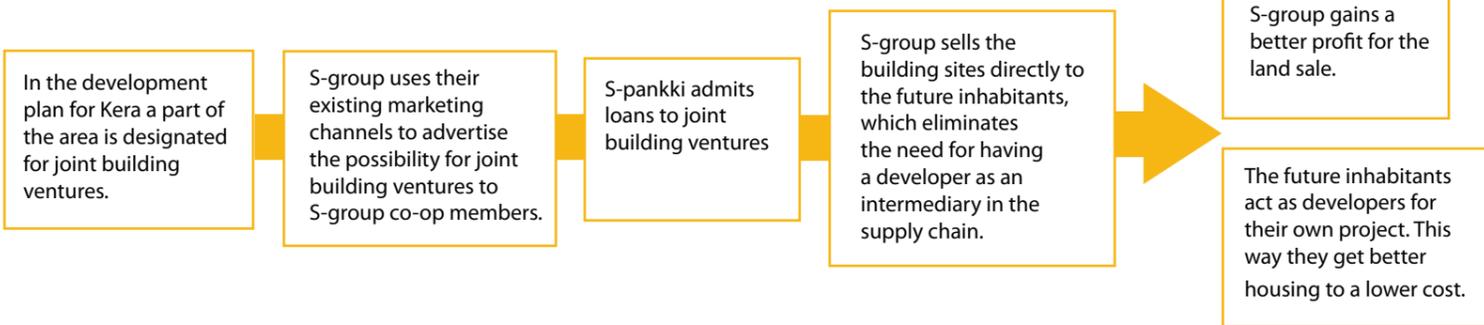
*Deal: Savings in costs for the welfare system*

*Implementation: NGO acts as constructor*

**AFFORDABLE HOUSING**



**Better Housing through Joint Building Ventures**



**Private People Combining their Resources for a Common Good**

The co-operatives were founded to get grocery shops with more affordable and better quality products.

*“The co-operative activity sprang out of consumers’ daily needs. In 1800th century Europe many private merchants strived for a maximum profit, maintained their customer relationships by keeping the clients in debt and did not care about the hygiene or quality of the products. The co-operatives were founded in response to this.”*

(source: www.s-kanava.fi, freely translated from Finnish to English)

Today we are facing the same problems in residential construction. Housing is expensive and new housing is blamed for being of poor quality and lacking innovative solutions.

**Inhabitants Gain Control of the Construction Process**

Joint building ventures (fi. ryhämärakentaminen) offers one way to promote better and more affordable housing. In a joint building venture a group of private people functions as self-organized developers. When leaving out the traditional developer the final owners only pay for the actual construction costs. With the help of the professionals they employ they make the choices about building techniques, materials and use of space. This way it is possible to achieve quality housing to a price below current market rates.

Projects realized as a joint building venture are usually relatively small in size – they tend to consist of a single multi story building, instead of a whole block. Hence they also open up possibilities for smaller construction companies to participate in the competition.

**S-Pankki Benefits from Financing Joint Building Ventures**

However, the reluctance of banks to finance joint building ventures causes difficulties for the realization of the projects. S-group can participate in promoting joint building ventures by admitting loans for projects through the group’s bank S-pankki. S-group benefits from this as they get a better profit for the land owned in Kera by cutting out the middlemen.

*Effect: Affordable high quality housing*

*Deal: Land owners make more profit by cutting out the middle men*

*Implementation: City and land owners cooperate in making the plan for the area and promoting the lots dedicated for joint building ventures*



**KERA CHALLENGE COMPETITION TEAM**

For the Kera Challenge B&M architects, WSP teams from Finland and Sweden, designer Päivi Raivo and Settlementtiasunnot teamed up to form a multi-skilled competition team. Our team has knowledge and experience of urban planning & design, construction engineering, place-making strategies and socially responsible housing production. We are familiar with the site and the related questions through several previous projects.



Kemintien bulevardisointi 2015



Kruunusilta 2015



Korkeasaaren eläintarha 2013



Sibbesborg 2013



As Oy Helsingin Victoria 2011



Isokuusi Aurinkorinne 2014



HUS Trauma Center 2015



Lost Places Project, Kankaanpää 2012



Helsinki Plant Tram



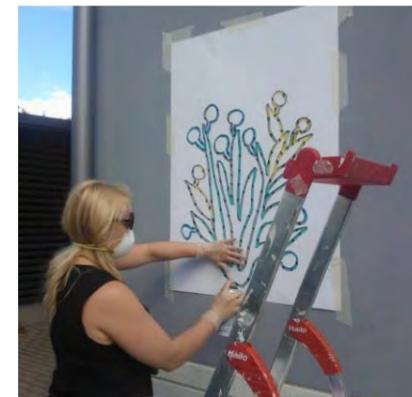
Tunne+Tila 2014-2016



26.10.2015



21.9.2015



Settlementtiasunnot 11.9.2015



**WSP FINLAND**

Tomi Jaskari, architect  
 Juho Manka, architect  
 Daniela Rosqvist, landscape architect  
 Ulla Tikkanen, architect & service designer

**WSP SWEDEN**

Daniel Larsson, landscape architect  
 Felix Brännlund, landscape architect  
 Ezequiel Pinto-Guillaume, Archaeologist

**External advisors:**

Stefan Forstén, construction engineer  
 Tuomas Santasalo, urban economy and retail

WSP provides consulting in the built and natural environment, employing 34.500 experts in over 500 offices around the world. Urban planning is one of our core competencies. As a multidisciplinary firm we combine engineering and social science with design, in order to achieve functionality, sustainability and attractiveness of the built environment.



**B&M ARCHITECTS**

Jussi Murole, CEO, Architect SAFA  
 Inari Virkkala, Architect SAFA  
 Matti Jääskö, Architect SAFA

B&M Architects Ltd is a leading Helsinki based office practising contemporary architecture, urbanism and development. Our design approach is based on cultural, social and ecological values. We believe in practical beauty, functional solutions and human scale. We want to collaborate with our clients in order to create sustainable environment for good life. B&M Architects has 17 competition wins and 40 recognitions in both Finnish and international competitions. We have completed projects both in Finland and abroad.

**PÄIVI RAIVIO**

**PÄIVI RAIVIO, Artist-designer  
 NGO Dodo's Urban Farmers**

Päivi Raivio is an artist and designer specialised in public spaces, urban culture and community art. She has a wide experience in designing and facilitating participatory art and design and placemaking processes with different age groups. Päivi is often involved in temporary use projects in disused or industrial places. Päivi was actively involved in the NGO Dodo, which started several urban gardening projects in Helsinki such as Kääntöpöytä, in old railway yard in Pasila. Her experience in urban gardening is often part of her design work and used as a tool in placemaking projects - recently for example in Vuosaari and Rauma.



**SETLEMENTTIASUNNOT OY**

Kimmo Rönkä, CEO  
 Kirsten Sainio, Designer

Settlementtiasunnot Oy builds and manages rental and right-of-occupancy apartments. There are about 1400 apartments in six different areas. Every tenement block has its own community worker. The worker has an education and knowledge in social or health services and provides support to tenants and encourages them to participate in common activities. Every tenement block has a common living room, where tenants can meet each other and spend time together.



**ADVISOR**

**PEKKA KOPONEN  
 FORUM VIRIUM HELSINKI**

Forum Virium Helsinki is an innovation unit within the Helsinki City Group. It develops new digital services and urban innovations in cooperation with companies, the City of Helsinki, other public sector organizations, and Helsinki residents. The aim is to create better services and new business, plus to open up contacts for international markets.