

**PROJECT CIRCVOL:  
HELSINKI AS A HOME TO CIRCULAR  
ECONOMY BUSINESSES**

**SUMMARY**

GAIA CONSULTING & ETHICA

2020



## **BACKGROUND AND IMPLEMENTATION**

The purpose of the project was to gain information about circular economy for land use, to identify the location and space requirements of circular economy businesses operating in Helsinki, and to scout for potential locations for circular economy activities. This is a summary of the assessments' main findings.

Ten circular economy businesses were interviewed in order to identify the sector's location and space requirements. These ten companies were selected together with the City of Helsinki's business services, and Gaia Consulting carried out the interviews remotely as semi-structured theme interviews. In addition to this, information gathered previously as part of the project was also utilised.

The aim of the section assessing potential areas was to analyse the type of circular economy activities suitable for Helsinki's industrial estates. The area profiles were mainly created by experts at Ethica. The material used in the CircVol project included assessments regarding companies' location needs and bio-based materials, as well as other assessments connected to the theme. Furthermore, interviews were also carried out with the City of Helsinki's project teams working on each target area's development and key people from the University of Helsinki and HSY. More generally, the text describes the role of industrial estates in circular economy and highlights urban planning practices that require improvement, with a special focus on bulk materials, such as different types of bio-based waste, construction waste and demolition waste.

## **THE CIRCVOL PROJECT**

With the CircVol project (2019–2020), Helsinki aims to develop services for bioeconomy and circular economy businesses and to promote the creation of suitable development platforms and operating locations in Helsinki through the means of urban planning. The goal is to facilitate industrial and urban symbioses, in which one operator's waste is another one's raw material and where the operators generate added value for each other by efficiently utilising the available raw materials, technology, services and energy.



## Observations about Helsinki's special features as an operating environment for circular economy

**Circular economy is a response to the scarcity of natural resources and adaptation to climate change** through the creation of new business opportunities.

**Circular economy also involves cities and it cannot be outsourced to someone else somewhere else.** Circular economy must be promoted across all the City's operations, including zoning and land use.

**Because Helsinki is densely built, special attention must be paid to harmonising different elements,** such as when using an area simultaneously for both residential and industrial purposes or combining heavy logistics with cycling and walking.

One of Helsinki's special features is **that there is both a demand for and supply of** construction materials and bio-based materials generated by businesses, among other things, which creates business opportunities. **However, demand and supply do not yet meet in all cases. Therefore, new ideas and solutions are needed to raise the current level of circular economy in a tangible way.**

**The City's implementation tools include zoning and setting the direction of travel through public procurement, to name a few,** which allow for the promotion of construction with recycled materials, waste-free construction sites and similar objectives, in accordance with the City's carbon neutrality goals.

**Helsinki should facilitate bold pilots.** Skilled labour force and research capacity can be found locally. Potential pilot projects proposed by the interviewed companies included the re-use of materials resulting from demolition in new buildings (in particular, a demo building from a recycled product made from demolished concrete) and utilisation of old buildings or structures instead of their demolition.

## Recommendations for Helsinki on how to promote circular economy

**Helsinki should allocate land and business facilities for large quantities of soil and other circulating materials near their points of origin**, taking advantage of decentralised and network-like approaches.

**Long-term thinking and flexibility in rental arrangements** are important, in particular if the lease terms are not conducive to circular economy activities. The City and the business sector must establish a dialogue in order to achieve a balance between attractiveness and appropriateness, a key request made to the City by the companies.

By expanding its role as a landlord and material coordinator, **the City could also coordinate the creation of other synergies**. The operating model used to coordinate large quantities of soil could be utilised in coordinating logistics synergies and the circulation of demolition materials as well, for example.

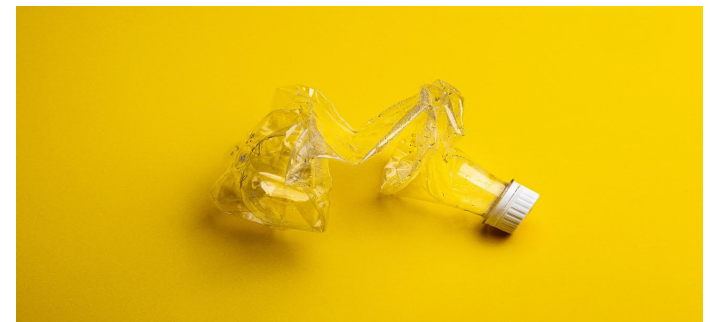
**The City should actively and systematically promote the creation of circular economy business ecosystem symbioses and industrial symbioses** in semi-urban areas and, more generally, in order to promote circular economy and efficient use of space. Both large enterprises with HQs in Helsinki as well as local small-scale industry should be taken into account.

## Recommendations for Helsinki on how to promote circular economy

Urban planning should favour and promote **operations that aim to prevent the creation of waste**. Such operations might include re-using buildings instead of demolishing them and developing ecosystems for circulating materials locally.

**Decentralised material processing and network-like recycling solutions and services** provide realistic alternatives in a densely built city such as Helsinki. Finding and promoting decentralised solutions is key for the circular economy of both green bio-based materials and building demolition materials (e.g. leaves, crushed concrete).

Space allocation should favour operations that **maintain or increase the value of a material**.



**ethica**

# **INDUSTRIAL ESTATE PROFILES AND LOCATIONS FOR CIRCULAR ECONOMY ACTIVITIES**

LILLI LINKOLA, ETHICA OY

2020



Image: Pexels

# Summary: Circular economy operations in the City, zones

ethica

	Zone description	Purpose	Operating models	Infrastructure and technology	Products
<b>1. Urban</b>	<p><b>Accessibility:</b> Without a car, public transport</p> <p><b>Urban structure:</b> Urban area with mixed operations</p>	Operations aimed at extending product lifecycles; clients include residents and services/high street businesses	Repairs and maintenance, sales of used goods, sorting services accessible without a car, fast onward dispatch of materials	Shop and café facilities, workshops, City Sortti Stations, facilities for sorting high-value goods, pop-up handling points	Goods suitable for re-use by consumers, recycled products
<b>2. Logistics</b>	<p><b>Accessibility:</b> Private vehicles, lorry traffic</p> <p><b>Urban structure:</b> Semi-urban area, near a residential area</p>	Operations that aim to extend product lifecycles, professional use, clients	Sorting used goods and materials, quality control, storage and sales, materials are promptly channelled onwards	A showroom and shop facilities, paved yards (sorting, processing and storage), waste transfer stations	Products and materials suitable for re-use by professional users
<b>3. Industrial</b>	<p><b>Accessibility:</b> Heavy transport, main roads</p> <p><b>Urban structure:</b> Industrial area, not in the immediate vicinity of a residential area</p>	Operations aiming to return raw materials back to circulation	Processing bulk materials and transforming them into raw materials	Larger scale industrial facilities, eco-industrial parks	Recycled materials and products

The population density increases and the environment becomes more urban



The amount of materials processed at a time and the need for space increase





# Koskela depot

*A service centre promoting re-use and recycling that blends in perfectly with the busy inner-city area*



Centre of action

Maintenance and repair services



# Koskela depot's circular economy profile

## How does it promote circular economy in the City?

A service centre promoting re-use and recycling that blends in perfectly with the busy inner-city area. The centre's operations, which aim to extend product lifecycles, serve the entire inner city. The centre can be easily accessed without a car and has various types of shops and services. These services are intended for the area's residents, service providers and small businesses. The centre provides work space for repair and maintenance operations, as well as used materials for artisans for turning them into something new. The arched hall or the depot roof can serve as a logistics hub (a potential waste transfer station) for companies recycling bulk material, suitable for pre-processing pallets picked up from the inner city area.

## Advantages

- The ease of delivering and picking up material. Thanks to the efficient transport connections (Viima tram), the centre is able to serve the entire inner city area. Also easily accessible by vehicles.
- The arched halls (former bus depot) 11,000 m<sup>2</sup>; the existing space is suitable for recycling companies and organisations (too much renovation must be avoided to keep the costs reasonable).

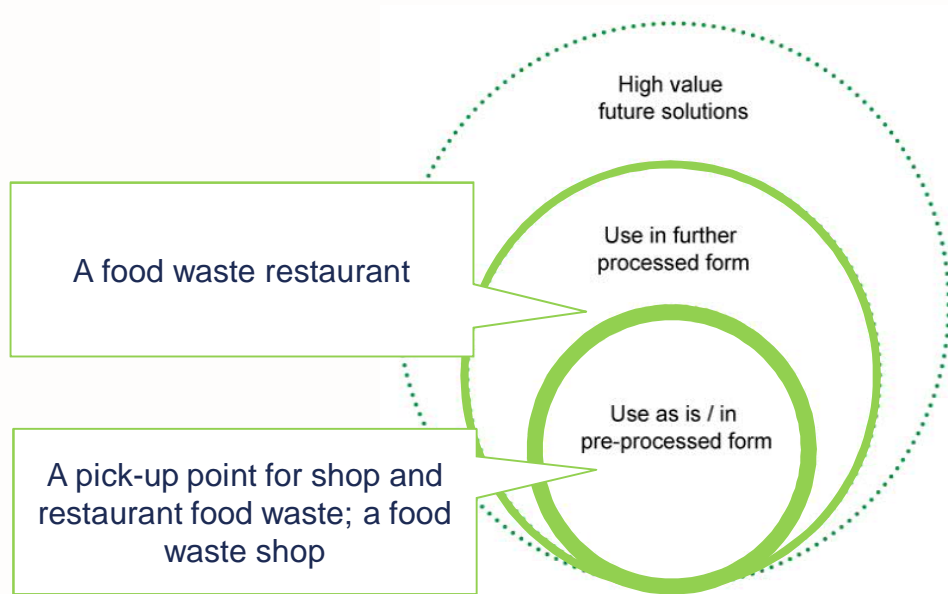
## Circular economy activities suitable for the location

- All operations must take place indoors.
- Reuse Centre Kyläsaari and its operations to take place in the arched hall. Currently houses the reuse centre's own maintenance and repair services and the Uusix workshops.
- Operations that benefit from or promote the reuse centre's work to be placed near it.
- Sorting and sales of small building materials, a sales showroom and order pick up point for larger construction materials/parts.
- A City Sortti Station to increase the number of sorting services available for clients without cars. (Note! Outdoor space required)
- Operations connected to food waste, e.g. a food waste café/restaurant.
- Small businesses that serve direct clients or customer service desks of larger companies.
- The need for a mini waste transfer station (e.g. indoors) and possibility of establishing one will be assessed in order to serve companies that recycle/process bulk materials. Would it promote cost-effective recycling logistics?

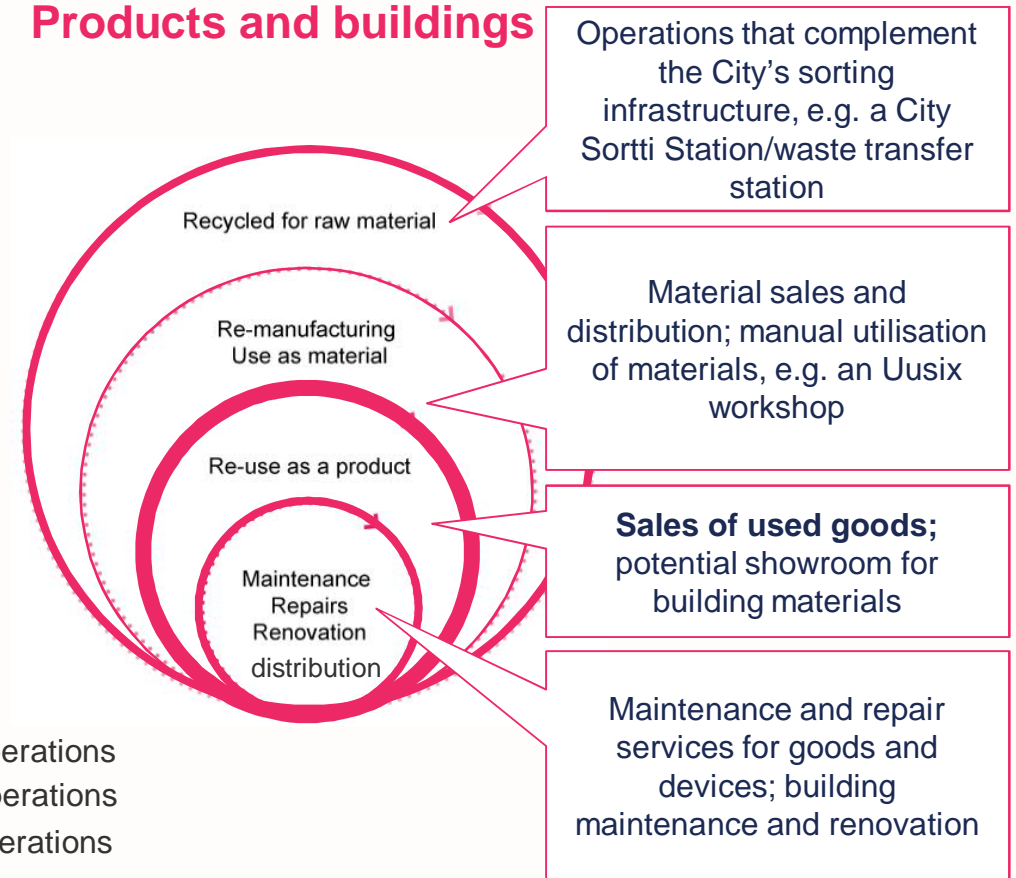
# Koskela depot

## Circular economy focal points

### Bio-based materials



### Products and buildings



- Minor operations
- Some operations
- Major operations

# Viikki & Viikinranta

*An experimental conglomeration of urban living  
and bio-based material cycles*





# Viikki & Viikinranta's circular economy profile

## How does it promote circular economy in the City?

An experimental conglomeration of urban living and bio-based material cycles, in which innovations linked to climate-neutral food value chains and bio-based circular economy are made. The area serves the whole City in improving skills connected to biological cycles. Viikinranta's bio-based circular economy profile will be enhanced and synergies will be created with Viikki's operations. The area has inexpensive (laboratory) facilities for students and start-ups. A variety of bio-based by-products is generated in the area and will be further developed into products with high added value by small operators or larger research teams through practical experiments. The role of a trailblazer will continue in construction. Bold pilots will be carried out in new construction, demonstrating how housing construction can support closed nutrient cycles in the area and be connected to natural biochemical cycles (e.g. water and carbon cycle). Renewable building materials will be favoured in new construction.

## Advantages

- A high-level centre of excellence and research infrastructure connected to bio-based economy in various ways. Circular economy of the food value chain as its special strength.
- The area has diverse existing bio-based resources and processes, such as a university research farm.

## Circular economy activities suitable for the location

- A showroom for carbon-neutral bio-based circular economy with a focus on the food value chain. Demonstrations by companies, e.g. operation of a carbon-neutral dairy chain.
- Research spin-offs, start-ups and small innovative operators attracted to the area by its biocluster in some other way.
- Commercial operations that focus on lifecycle innovation and returning biological resources back into the biosphere.
- A biogas plant that processes animal manure and also utilises the brewery's by-products near the research farm. Other industrial symbioses created around the brewery are also possible.
- Operations that support and benefit from the research fields and biogas plants (incl. HSY) to be placed near them, e.g. start-ups linked to the development of fields as carbon sinks.
- Companies that provide new types of ecological living services, e.g. urban composting services, local agriculture.
- New urban food production solutions in addition to traditional urban agriculture.
- If stabilising berms are used in the preconstruction, the options for their temporary use will be assessed. Inexpensive space must be created for small innovative operators.

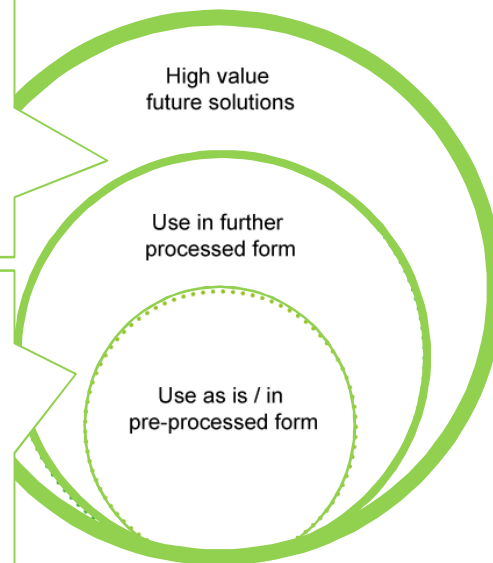
# Viikki & Viikinranta

## Circular economy focal points

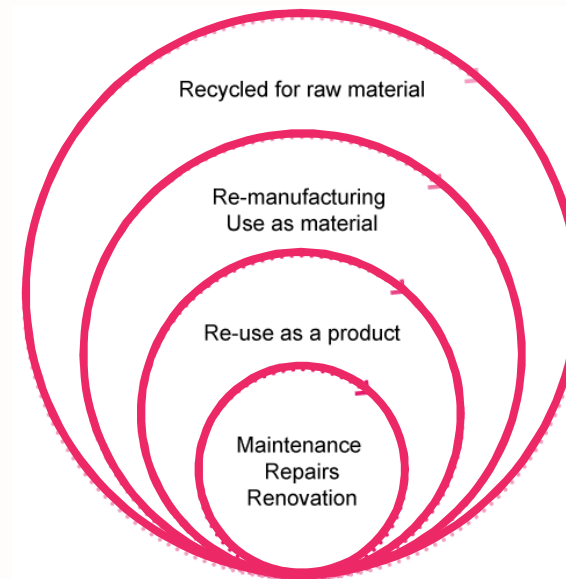
### Bio-based materials

Business operations created through interdisciplinary innovation that turns the area's bio-based resources into products and materials with high added value; R&D, prototyping, test labs, small-scale manufacturing

Biogas production; decentralised, small-scale composting, green material processing and return to nature; experiments linked to buildings' bio-based material cycles; food innovations aimed at reducing or utilising food waste



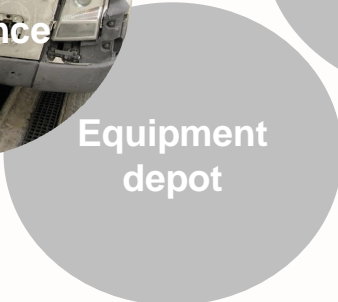
### Products and buildings



- Minor operations
- Some operations
- Major operations

# Tattarisuo, Tattariharju, Kivikko & Malmi

*A developing hub for construction sector circular economy and sorting operators, and a centre of small-scale industry enriched by industrial symbioses.*



# Circular economy profile of Tattarisuo, Tattariharju, Kivikko & Malmi

## How does it promote circular economy in the City?

A developing hub for construction sector circular economy and sorting operators, and a centre of small-scale industry enriched by industrial symbioses. A diverse mixture of industrial estates with unique features that forms a key logistics hub for the recycling of the City's bulk materials. The area bolsters the city-wide utilisation of construction waste material. Small (industrial) operators can specialise in processing various materials and retaining their value thanks to their location near the materials, which guarantees cost-effective logistics. Due to the nearby residential area, certain operational limitations do apply, but new construction is not always required. Operations may also take place outdoors, and protective structures (fences/other visual barriers) may be required.

## Advantages

- Good transport connections for vehicles (main road and ring road) and existing maintenance services for heavy goods vehicles.
- Opportunities from temporary use of new construction in Malmi and a need for circular economy solutions in the construction industry.

## Circular economy activities suitable for the location

- Efficient processing of recyclable bulk materials in terms of time and space.
- Sorting and transfer of materials intended for re-use and recycling.
- Equipment depots for companies processing/recycling bulk materials.
- Small-scale industry that focuses on re-manufacturing and selling building products and other products. Tattariharju can also handle operations requiring a bit more space.
- Storage and sales of material suitable for re-use (clean timber, in particular).
- Founding a circular industry park for construction in the meadows allocated for temporary use at Malmi Airport. Would serve Malmi's construction sites and materials generated through renovation and demolition work in other districts.
- Operations that benefit from or promote the Sortti Station's work to be placed near it.
- Operators that utilise food industry by-products.



# Malmi, Tattarisuo, Tattariharju & Kivikko

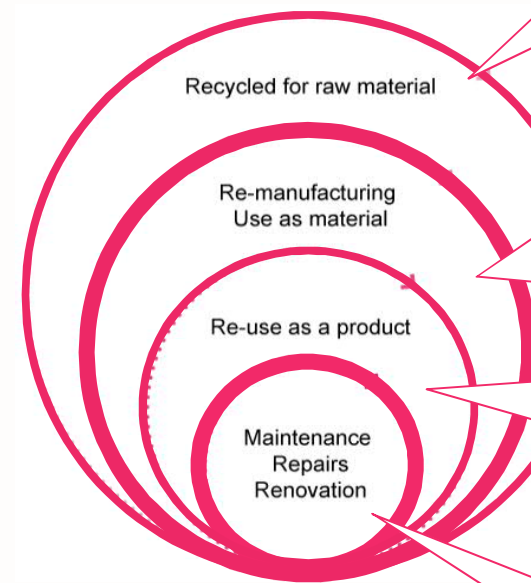
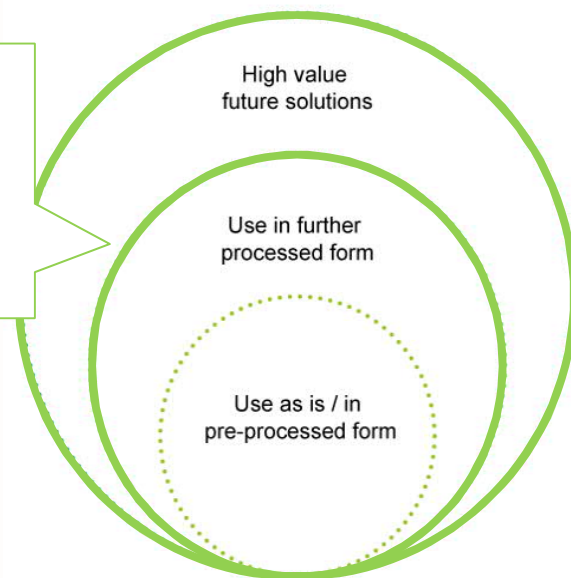
## *Circular economy focal points*

ethica

### Bio-based materials

### Products and buildings

Industrial symbioses that utilise food industry by-products



Sortti station and waste transfer stations; scrapyards, scrap collectors

Advanced sorting, manufacturing and storage of wood-based construction materials in particular

Quality control and storage of parts/elements suitable for construction

Depot operations (pallets, vehicles, other equipment), vehicle maintenance

- Minor operations
- Some operations
- Major operations