



# OTANIEMI *CITY OF GROWTH*

CONCEPTUAL LANDSCAPE PLAN FOR OTANIEMI

2 MARCH 2018

**SLA**  
Urbanity | Strategy | Landscape



# KASVUVOIMAA!









“KASVUVOIMAA” MEANS POWER OF GROWTH, AND THAT IS EXACTLY WHAT WE ENVISION FOR FUTURE OTANIEMI. GROWTH POWER TO THE OTANIEMI ENVIRONMENT AND TO OTANIEMI’S SOCIAL, ECONOMIC AND SCIENTIFIC REALM.



FROM CAMPUS SITE TO A GREEN CITY OF GROWTH



# INDEX

	<b>1. INTRODUCTION</b>	<b>7</b>		<b>5. DENSIFICATION_PRINCIPLES</b>	<b>53</b>		<b>7. OTANIEMI CITY OF GROWTH_LANDSCAPE DESIGN</b>	<b>97</b>
	• OTANIEMI TODAY	8		• A COMPLEMENTARY APPROACH	54		• BIRD-EYE VIEW	99
	• PROBLEMATIC	12		• NATURE-BASED SOLUTIONS	56		• FUTURE MASTERPLAN 1:5500	100
	• VISION	14		• ADDED VALUE THROUGH NATURE	58		<i>THE URBAN SPINE</i>	102
	<b>2. THE BUILT ENVIRONMENT_ANALYSIS</b>	<b>17</b>		• PRINCIPLES FOR BIODIVERSITY	60		• SECTION AND ILLUSTRATION	104
	• THE BUILT ENVIRONMENT TODAY	19		• HOW TO OPTIMIZE SPACE	62		• MATERIALS	106
	• CHARACTERISTICS	20		• THE LAYERED CITY PRINCIPLES	66		• LIGHTING	108
	• QUALITIES	26		• A PARTICIPATORY LIVING CITY	70		• VEGETATION AND WATER	110
	• PROBLEMS	28		• EDGE ZONE PRINCIPLES	72		<i>THE OTANIEMI LOOP</i>	112
	<b>3. THE GROWN ENVIRONMENT_ANALYSIS</b>	<b>31</b>		<b>6. DENSIFICATION OF OTANIEMI_STRATEGY</b>	<b>75</b>		• ILLUSTRATION	113
	• THE GROWN ENVIRONMENT TODAY	33		• THE GREEN SPINE	76		• SECTION AND PLAN DETAIL	114
	• CHARACTERISTICS	34		• THE OTANIEMI LOOP	77		• MATERIALS	116
	• QUALITIES	38		• THE URBAN SPINE	78		• LIGHTING	118
	• PROBLEMS	40		• THE URBAN LOOP	79		• VEGETATION AND WATER	120
	<b>4. THE SOCIAL ENVIRONMENT_ANALYSIS</b>	<b>43</b>		• OTANIEMI PUBLIC TRANSPORTATION	80		<i>THE GREEN SPINE</i>	122
	• THE SOCIAL ENVIRONMENT TODAY	45		• THE VEHICULAR NETWORK	81		• SECTION AND ILLUSTRATION	124
	• CHARACTERISTICS	46		• THE BICYCLE NETWORK	82		• VEGETATION AND WATER	126
	• QUALITIES	50		• THE PEDESTRIAN NETWORK	83		<b>7. APPENDIX</b>	<b>131</b>
				• THE BLUE OTANIEMI	84		• OTANIEMI BUILDING PLOTS	132
				• OTANIEMI NEIGHBORHOODS	86		• REFERENCE PROJECTS	138
				• OTANIEMI SOCIAL NETWORK	87			
				• OTANIEMI PHASES	88			
				• OTANIEMI NEIGHBORHOOD APPROACH	90			
				• SEASONAL AND DAILY BENEFITS	92			
				• NATURE-BASED MAINTENANCE APPROACH	94			



# INTRODUCTION

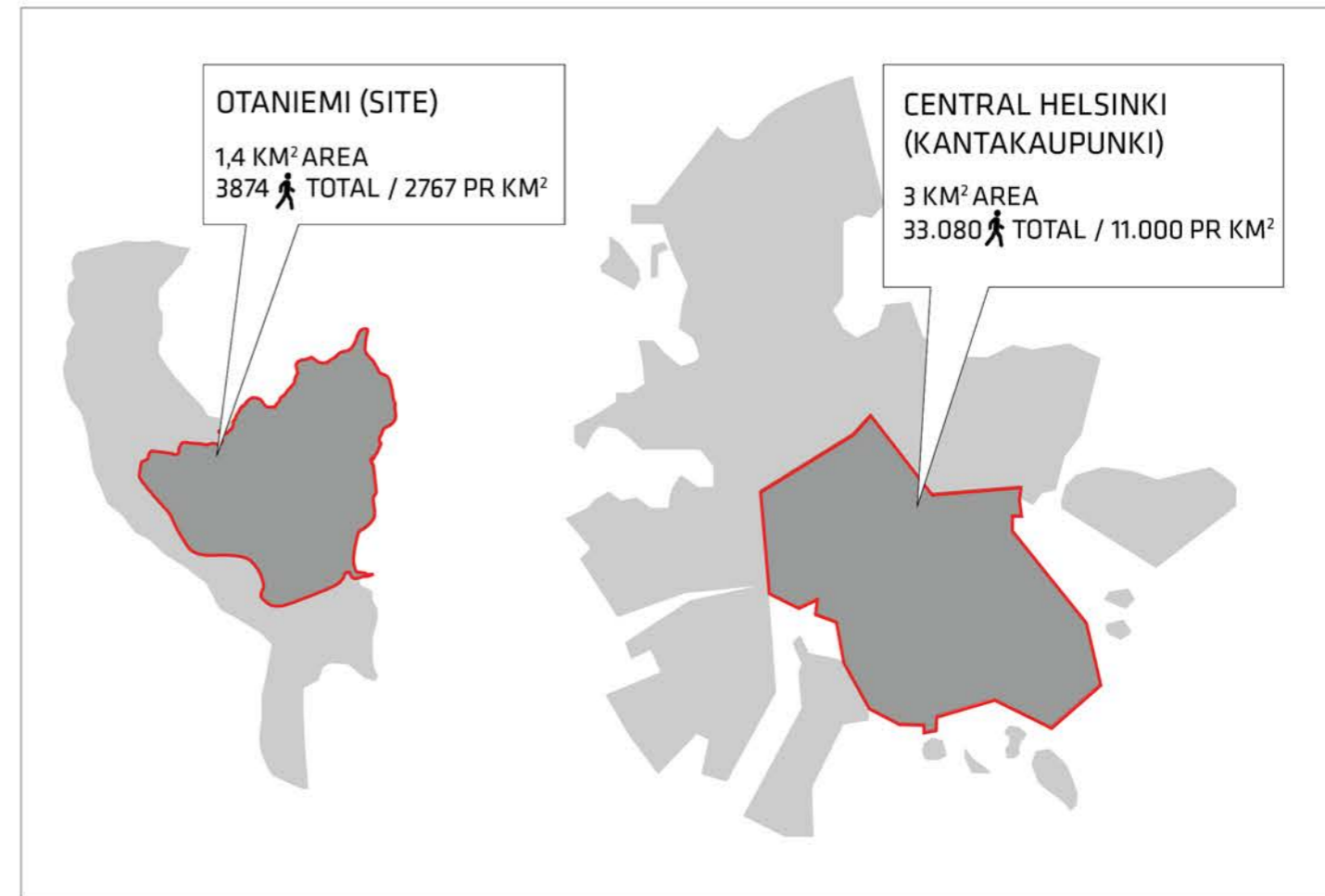
# INTRODUCTION

## OTANIEMI TODAY

Today, Otaniemi has a population of nearly 4000 inhabitants, and a density that is four times lower than the density of Helsinki. At the same time, Otaniemi has nearly twice as much green areas compared to the capital.

However, future development plans mean that the density of Otaniemi will rise to almost two thirds of the density in Helsinki. This change will signify a major shift in Otaniemi as a suburban campus, with possibilities to create a much more urban scene. But what will this change mean in terms of sustainability and the green identity that Otaniemi carries today?

With this landscape plan, we propose methods for densification without losing the existing qualities of Otaniemi. We want to see a new type of campus city that is both rich in urban life and wild nature - i.e. a city of growth in every aspect.

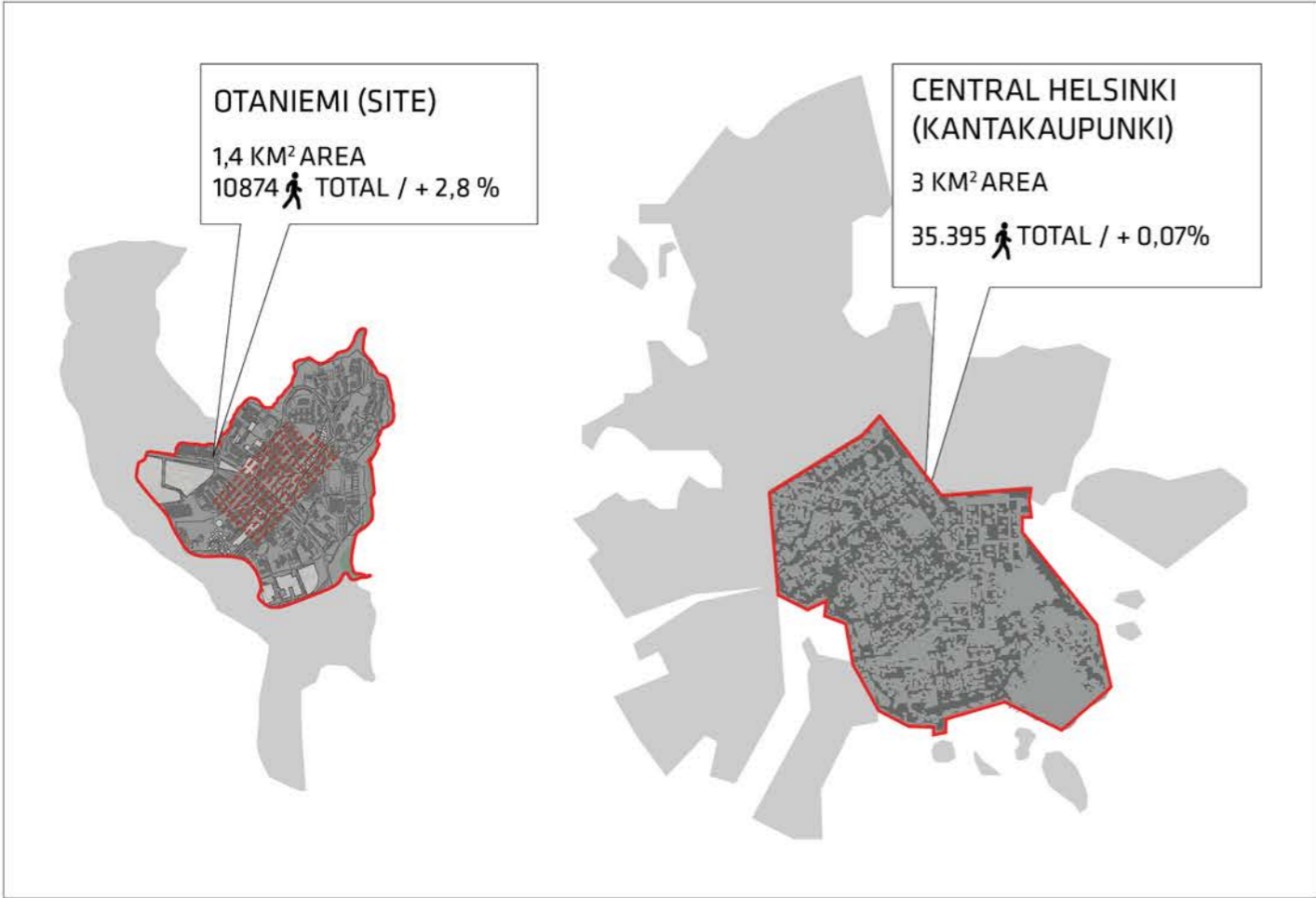


OTANIEMI TODAY\_POPULATION

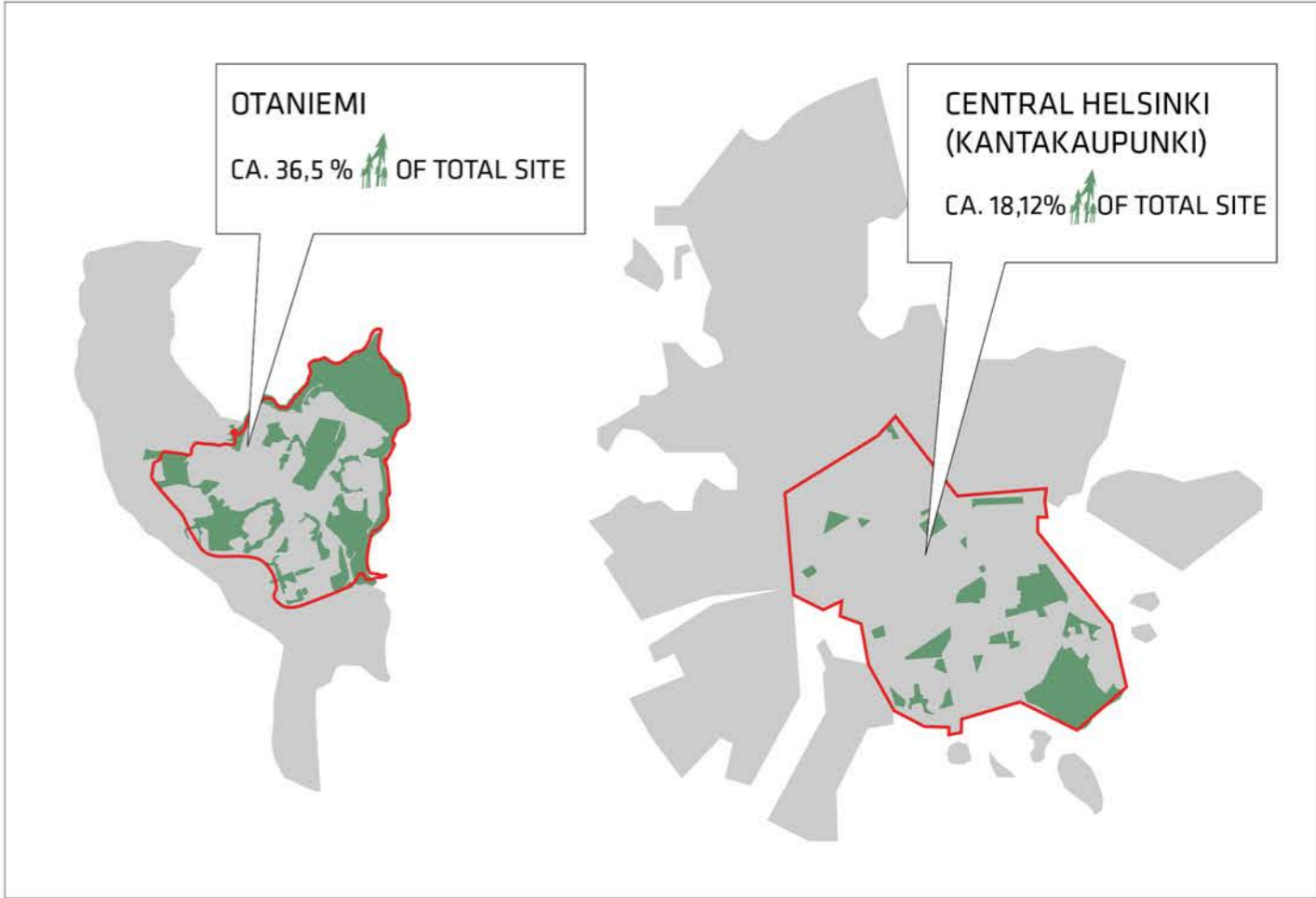


# INTRODUCTION

## OTANIEMI TODAY



OTANIEMI TOMORROW\_DENSIFICATION



OTANIEMI TODAY\_EXISTING NATURE

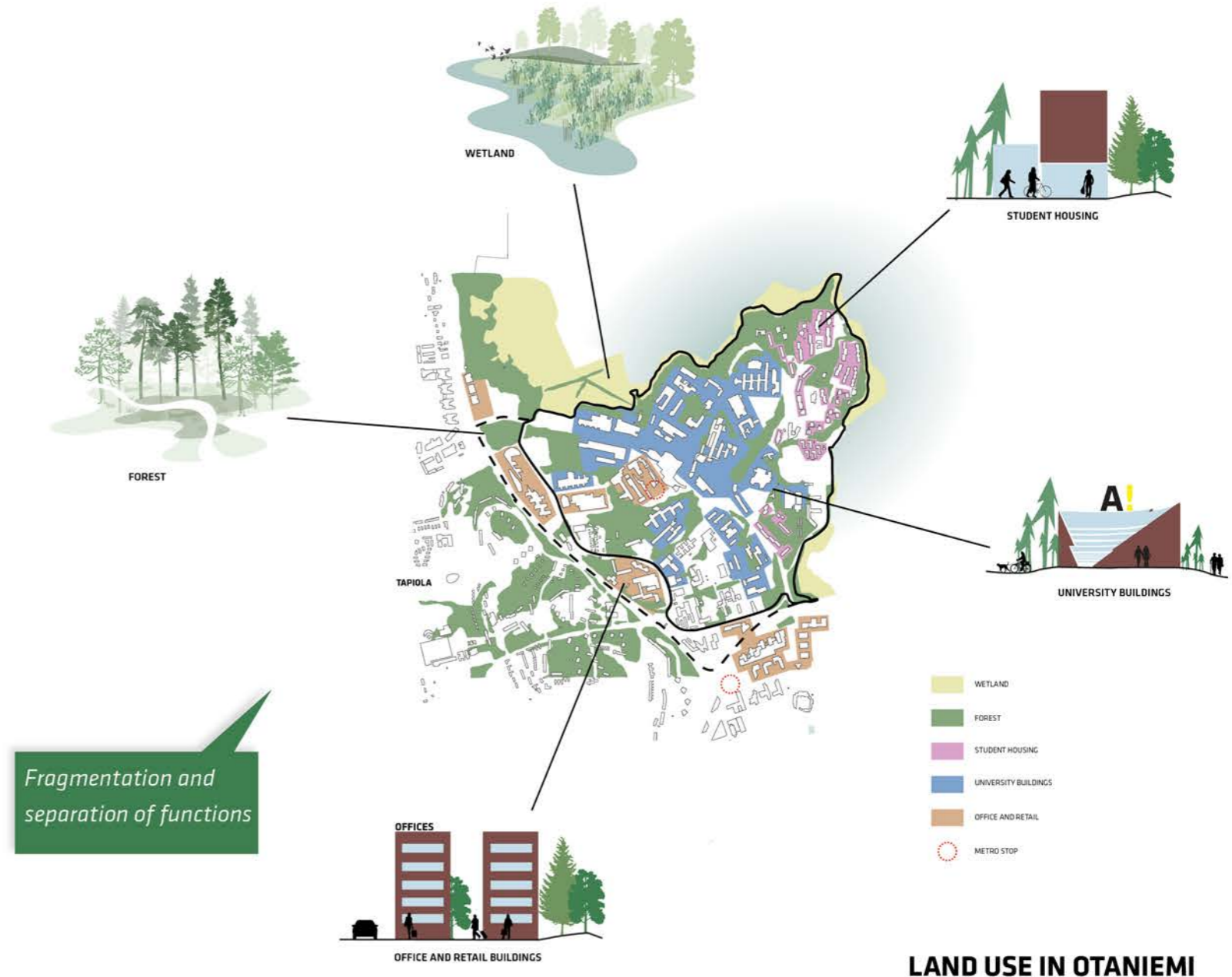
# INTRODUCTION

## OTANIEMI TODAY

Otaniemi today is characterized by its lack of hierarchy. The area seems fragmented and functions are separated, which does not support the idea of a liveable city.

When Alvar Aalto made his plan for Otaniemi, the idea was to place buildings in nature according to existing topography. However, this strategy only works with a limited number of buildings. Over the decades, Otaniemi has been densified without a new, overall strategy, and the plan is to densify even further - on a much larger scale.

What is needed is a strong natural landscape design to balance and mediate between the different building typologies and public space.

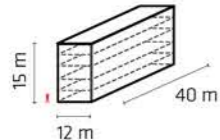


# INTRODUCTION

## OTANIEMI TODAY

280.000 M<sup>2</sup> / 7000 PEOPLE NEW INHABITANTS

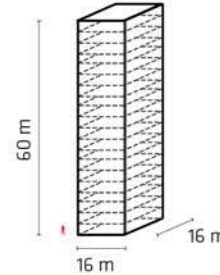
1



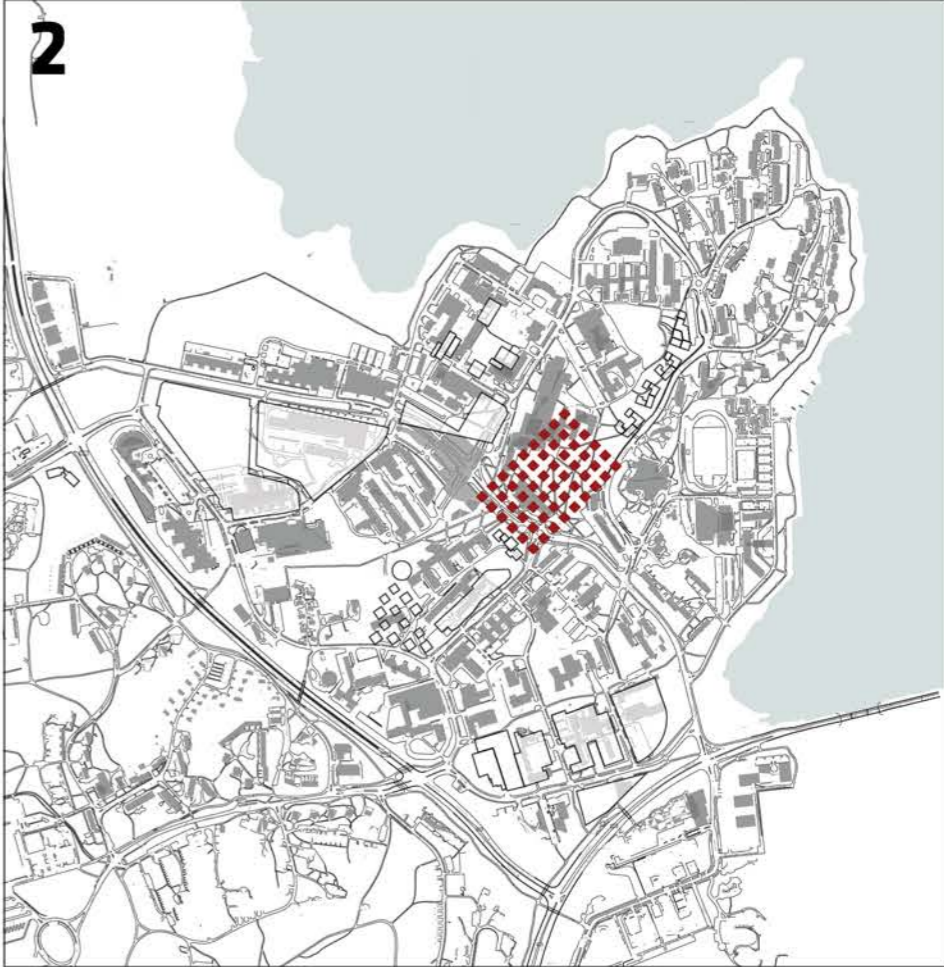
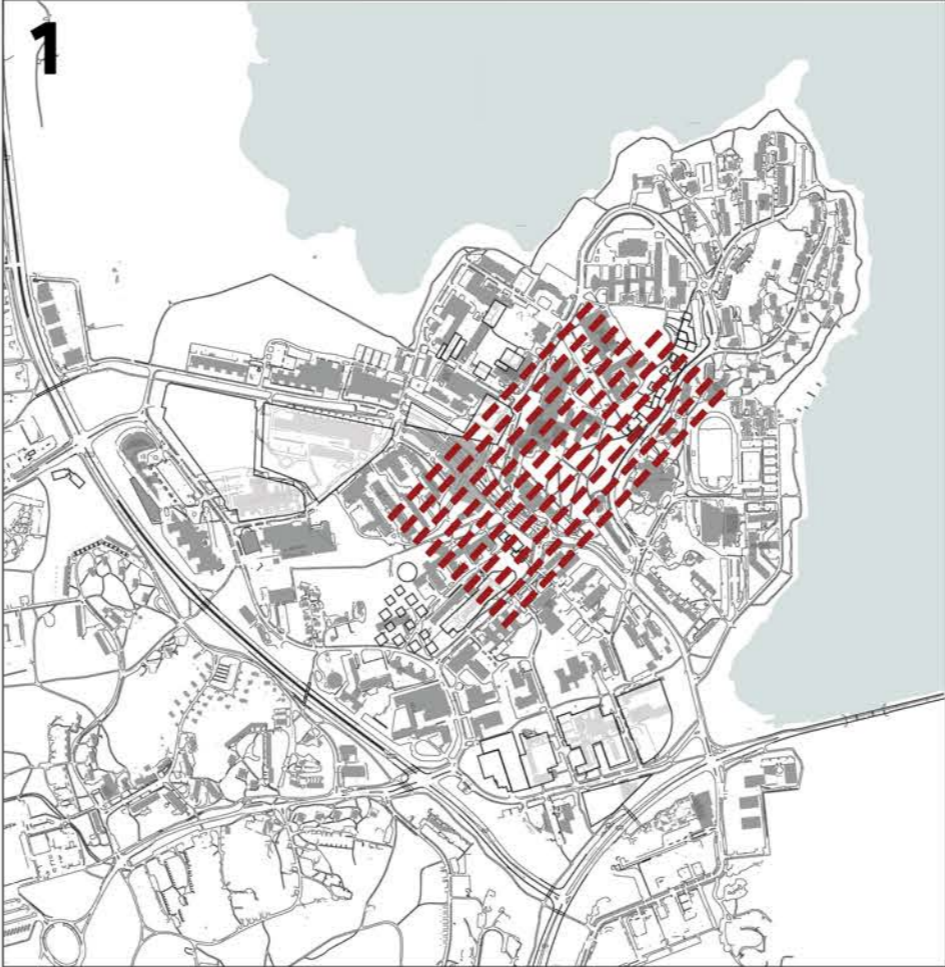
480 SQM X 5 (FLOORS) = 2400 SQM  
(1 BUILDING)  
280.000 / 2400 = **116** BUILDINGS

OR

2



256 SQM X 20 (FLOORS) = 5120 SQM  
(1 BUILDING)  
280.000 / 5120 = **54** BUILDINGS



# INTRODUCTION

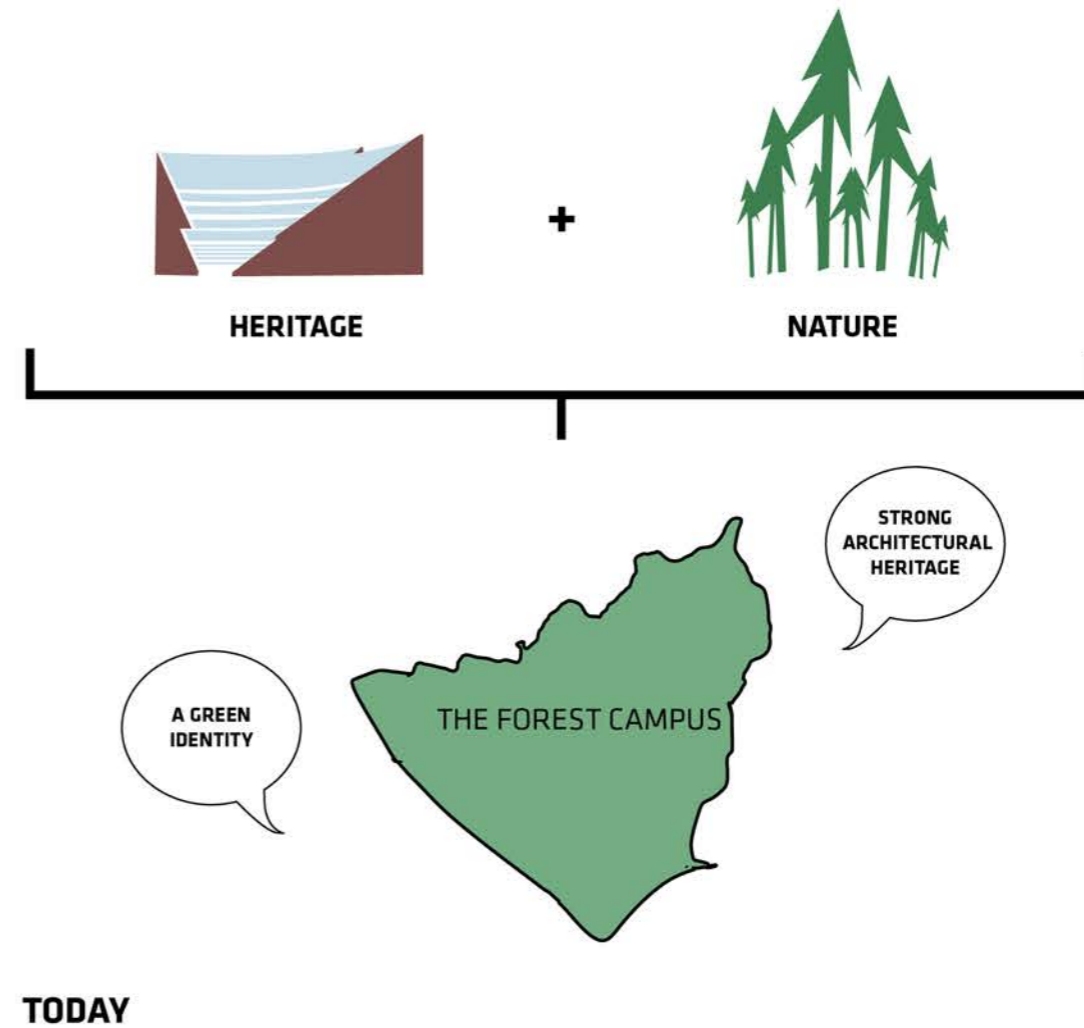
## PROBLEMATIC

The identity of Otaniemi today is a green campus, or more precisely - a *forest* campus. In this regard, it is different from other green university campuses around the world and valuable as such. Otaniemi is also characterized by building masterpieces by some of Finland's most prominent modernistic architects. However, in the coming years Otaniemi will also see the addition of several projects of new buildings.

What will happen when the future development plans for Otaniemi will be realized? Can it still be a green *forest* campus? And what about Otaniemi's strong architectural heritage? With the many future building developments under way, the architectural heritage is likely to come under pressure.

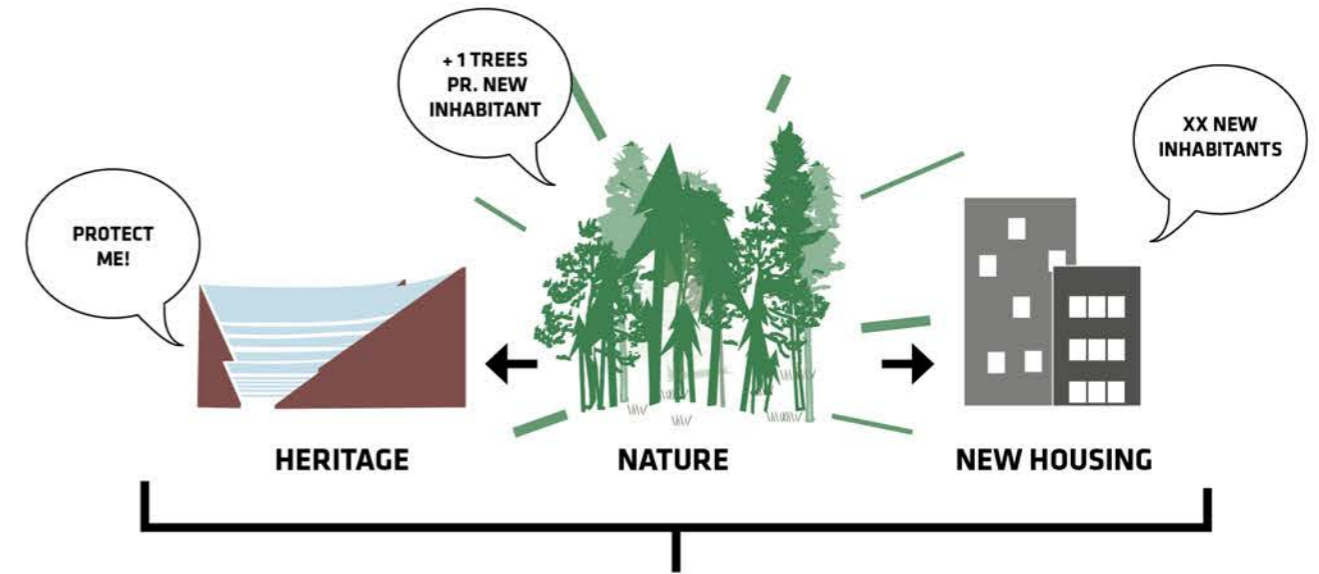
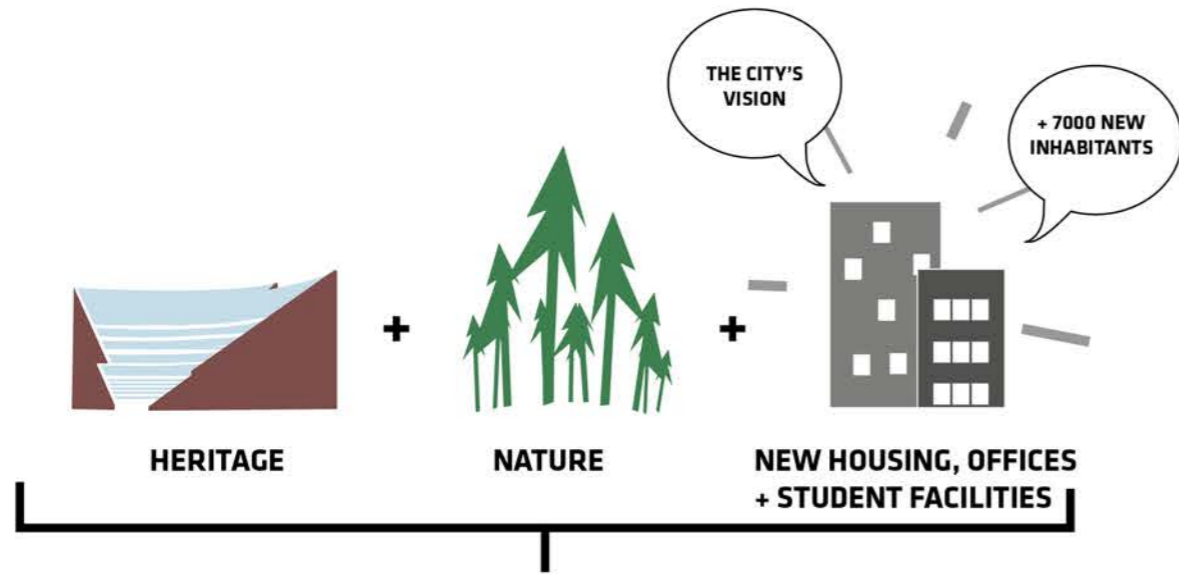
We suggest using the green as a counterpart to the densified built environment - the landscape as a mediating element between the existing architectural heritage and the new projects.

Future Otaniemi shall be a green city of growth, where the landscape plan can be used to alleviate the pressure and create synergy between the historical and the new.



# INTRODUCTION

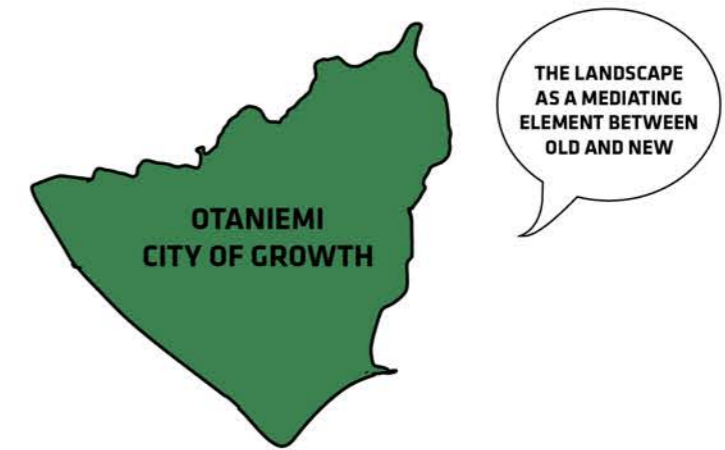
## PROBLEMATIC



## FUTURE PLANS



## SOLUTION



# INTRODUCTION

## VISION

We believe, that a green environment can ensure an innovative, sustainable and socially including future development of Otaniemi. Studies show that access to green environments improve general well-being and bring better performances. With a strong Otaniemi nature, we want to maximize nature's inherent creative, innovative and healing powers. The Otaniemi nature shall signal openness and accessibility, where urban spaces act as physical manifestations of knowledge sharing and co-operation across professions and hierarchies.

When defining the visions and goals of the Otaniemi conceptual landscape plan, we strive to merge the existing conditions and the different project visions into a coherent landscape plan, which supports the overall vision of the client.

We want to develop a landscape plan that respects the architectural heritage and supports and enhances the many existing qualities of new and existing buildings, the strong natural environment of the area and the infrastructure development, but which also enables a new form of urban learning environment to emerge.

Our design approaches is based on performative nature, good social spaces and a dynamic, varied and innovative campus life.

"...one of the things that is particularly important about the new campus is that it was designed to create or to increase the probability of chance meetings. And so those very precious collaborations are very often those ones which aren't scheduled, which aren't predictable, but they're those critical collaborations between experts of different disciplines." **Jony Ive, chief designer, Apple Headquarters**

[HTTP://WWW.DAZEDDIGITAL.COM/SCIENCE-TECH/ARTICLE/37398/1/JONY-IVE-INTERVIEWED-BY-STREET-WEAR-GOD-HIROSHI-FUJIWARA](http://www.dazeddigital.com/science-tech/article/37398/1/jony-ive-interviewed-by-street-vear-god-hiroshi-fujiwara)



NATURE MEANS...



BUSINESS

INNOVATION



STUDIES SHOW THAT NATURE ENHANCES QUALITY OF LIFE, CREATIVITY AND PRODUCTIVITY



HEALTH



LEARNING

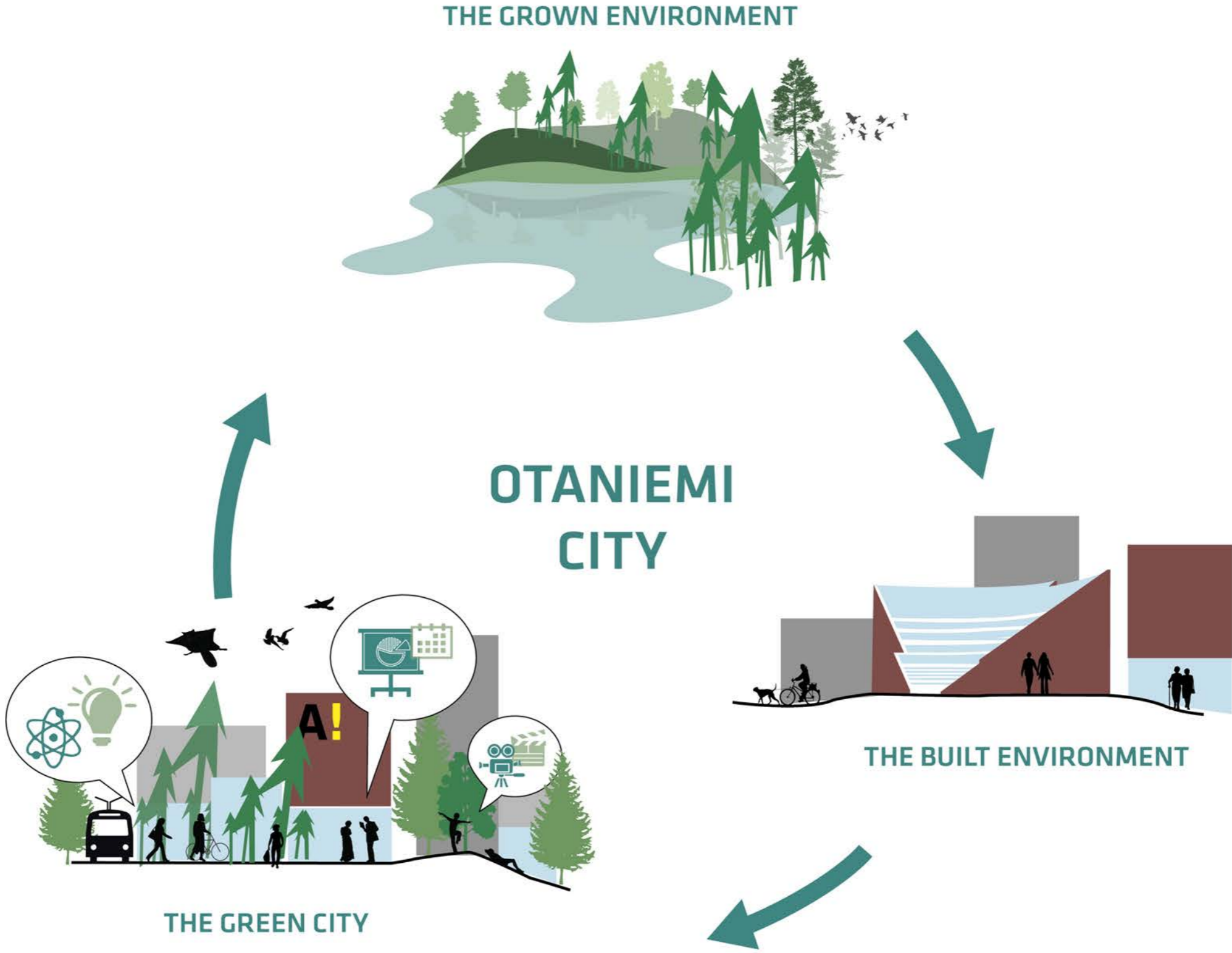


KATHLEEN L. WOLF RESEARCHING IN HUMAN PERCEPTIONS AND BEHAVIORS REGARDING NATURE IN CITIES

[HTTPS://WWW.NATUREWITHIN.INFO/POLICY/HEDONICS\\_CITATIONS.PDF](https://www.naturewithin.info/policy/hedonics_citations.pdf)

# INTRODUCTION

VISION



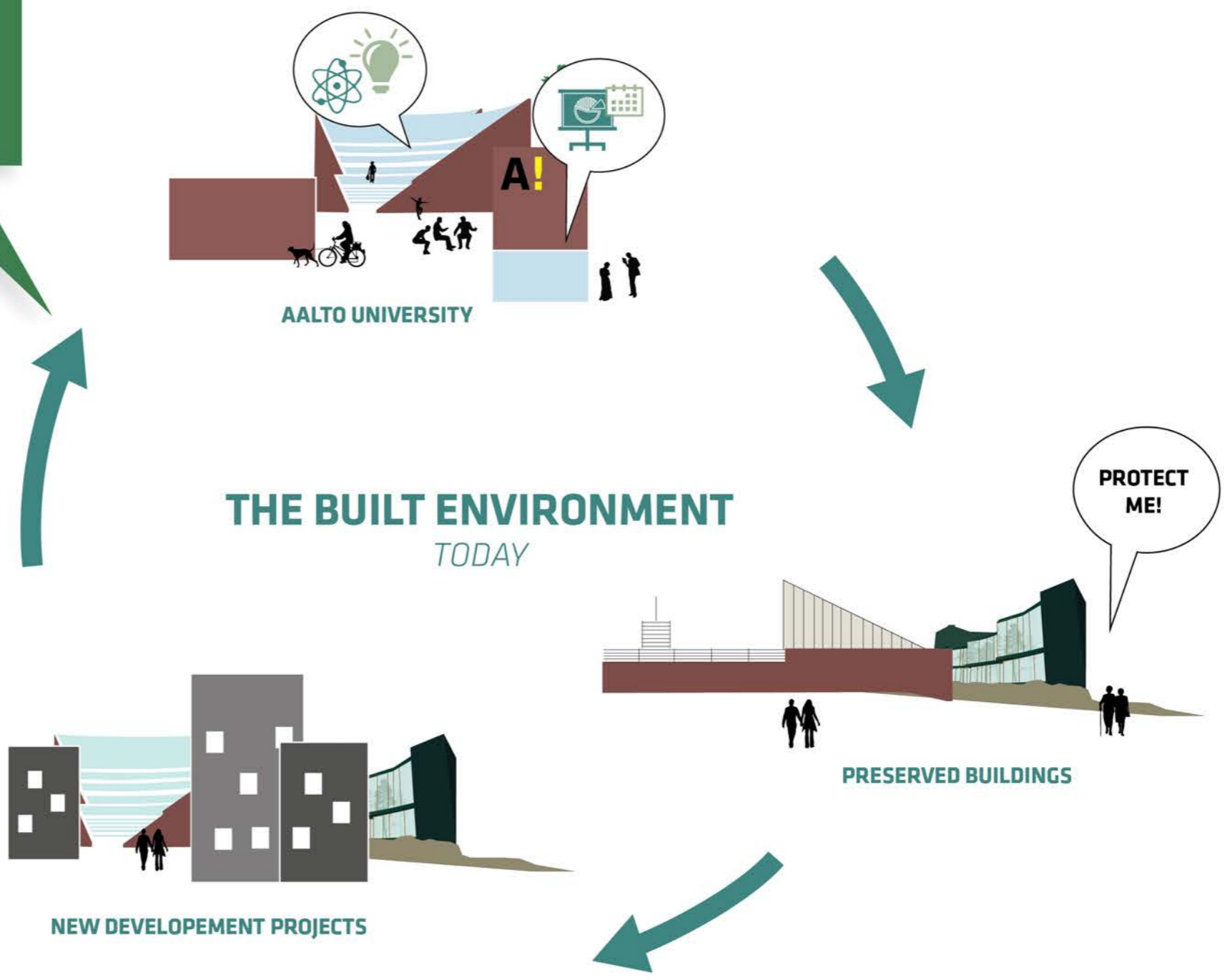




**THE BUILT ENVIRONMENT**  
*ANALYSIS*



Typical of Otaniemi's older buildings are facades lined with red brickwork and long wooden windows painted in dark tones, as well as a rational look typical of the period.



# THE BUILT ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS

Otaniemi has a strong modern architectural heritage with a culturally important built environment. The question is how to nurture this legacy while at the same time allowing Otaniemi to develop in a meaningful and beautiful way both today and in the future. Perhaps the answer does not lie in trying to stick to, for instance, the same building materials as used by Alvar Aalto, but instead to focus on creating new aesthetic and tactile experiences in the built environment.

What we also can learn from Aalto is how to build within the existing green environment, using existing terrain to place buildings and preserving existing nature next to the facades. However, this strategy needs revision, as Otaniemi will change from campus site into a denser city area.

In the future, Otaniemi will see a shift towards more sustainable modes of transportation, and the existing infrastructure will need to be revised as well. For instance, there lies a huge potential in the reprogramming of unnecessary parking areas.

# THE BUILT ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS

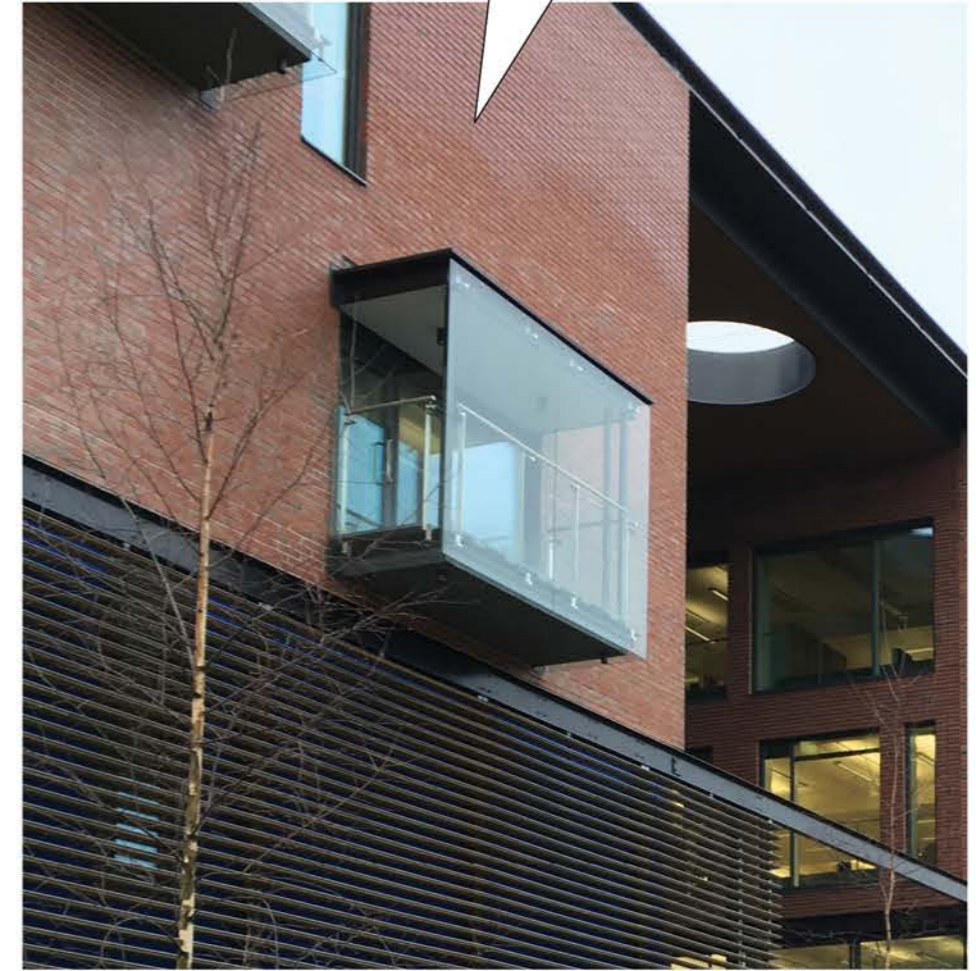
IS THE CONTINUOUS USE OF RED BRICK THE MOST IMPORTANT AALTO LEGACY?



1960'S



1970'S



2000'S

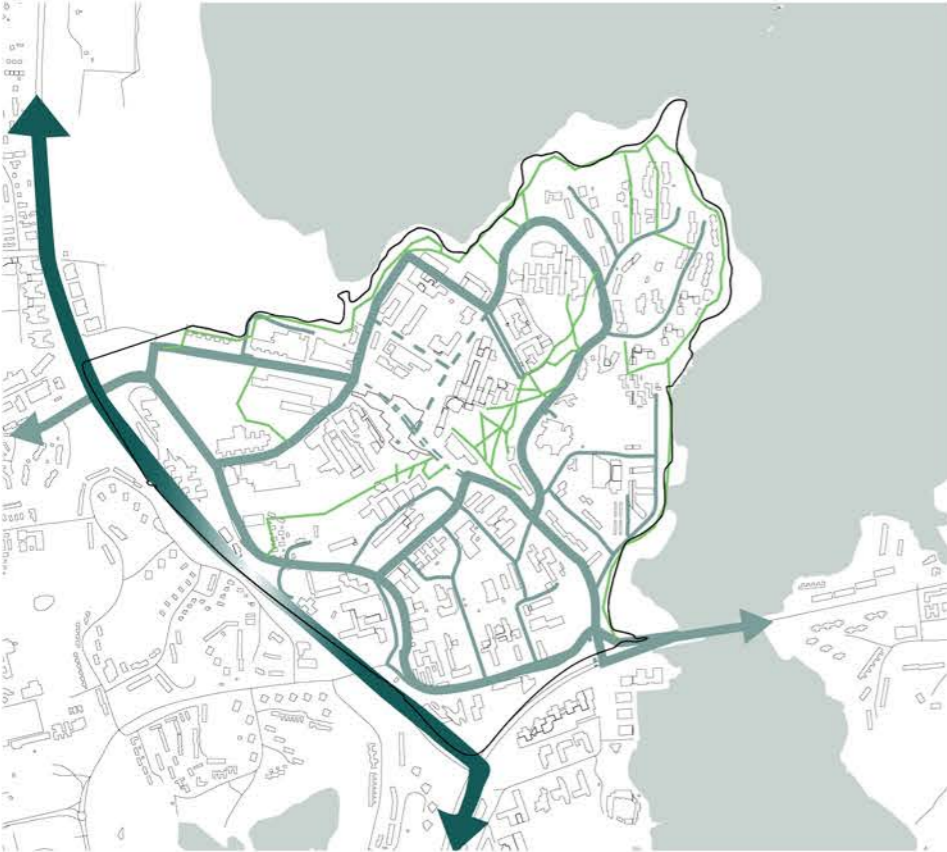
# THE BUILT ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS



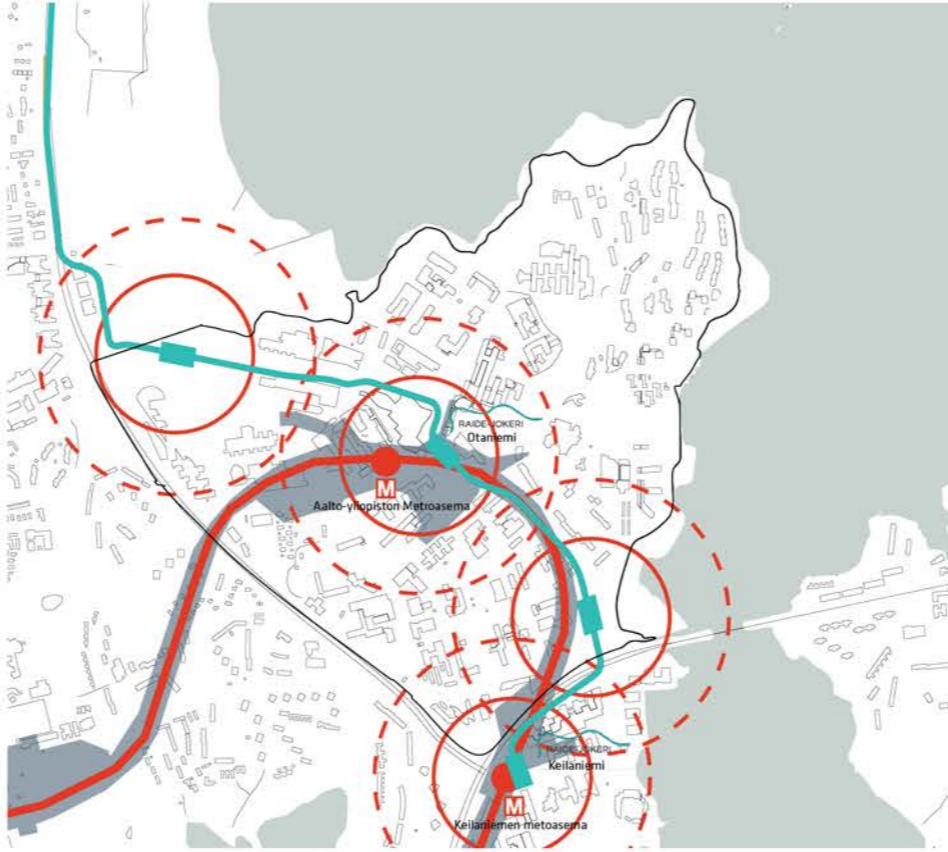
# THE BUILT ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS



- HIGHWAY
- STREETS
- PEDESTRIAN PATHS

**INFRASTRUCTURE**



- LTR LINE
- METRO LINE
- RADIUS 3 METERS
- RADIUS 6 METERS

**METRO AND LTR INFRASTRUCTURE**



- PARKING AREAS

**PARKING AREAS**

# THE BUILT ENVIRONMENT\_ANALYSIS


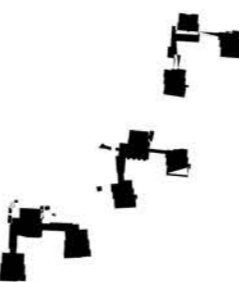
## CHARACTERISTICS

- ARCHITECTONIC MASTER PIECES
- WORK AS FIXTURES
- ORIENTATION POINTS




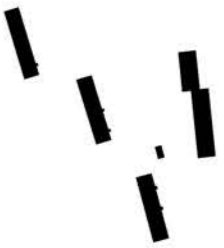
**BIG BLOCKS**

- PLACED CLOSE TO NATURE
- PLACED ACCORDING TO TOPOGRAPHY

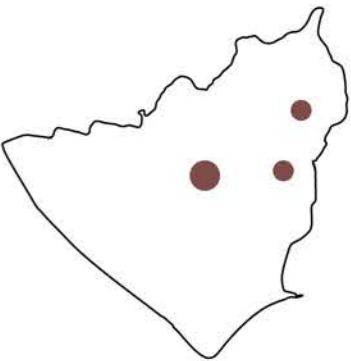


**LOW TOWER BLOCKS**

- PLACED CLOSE TO NATURE
- PLACED ACCORDING TO TOPOGRAPHY



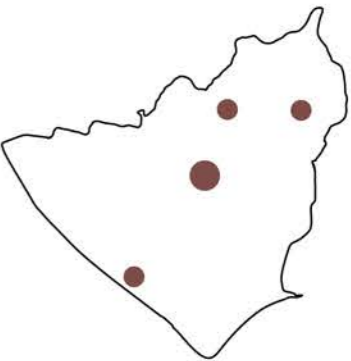
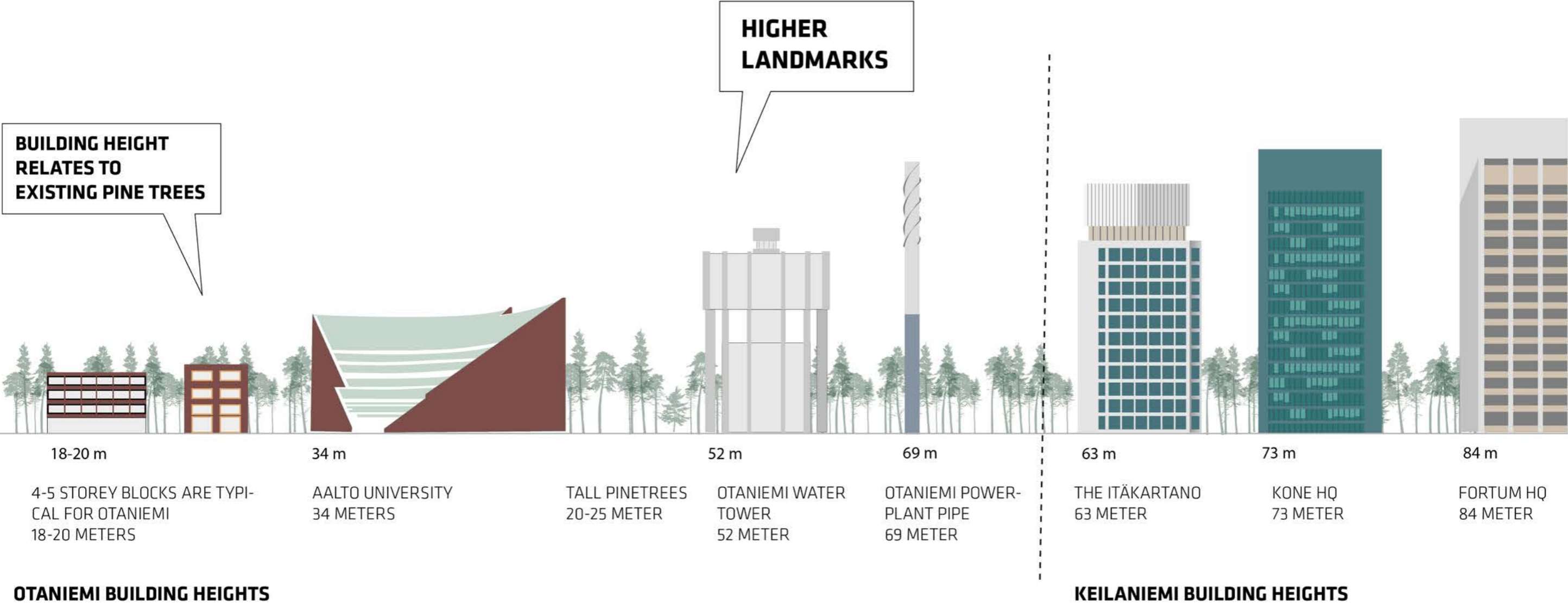
**LONG BLOCKS**





# THE BUILT ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS



# THE BUILT ENVIRONMENT\_ANALYSIS

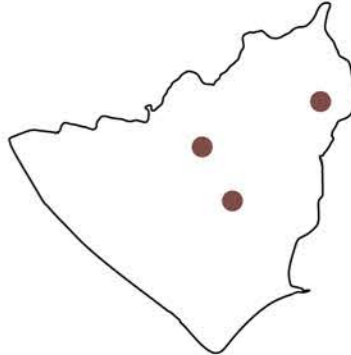
## QUALITIES

**OPEN GROUND FLOORS**

**NATURAL MATERIALS**



**ACCOMMODATING**



# THE BUILT ENVIRONMENT\_ANALYSIS

QUALITIES

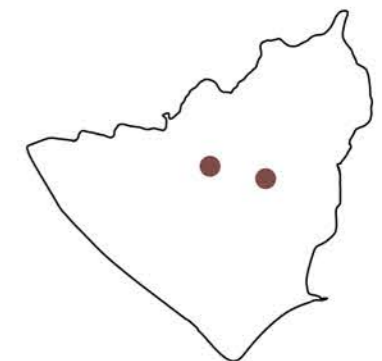
**ASPHALT AREAS  
REDUCED**



**BUILDING ON  
NATURAL TERRAIN**



**NATURE CLOSE TO  
BUILDINGS**



# THE BUILT ENVIRONMENT\_ANALYSIS

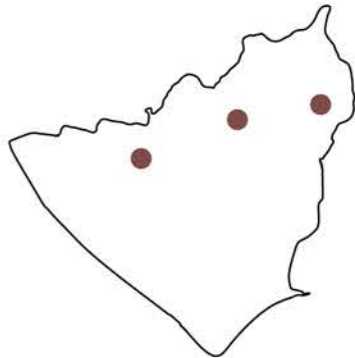
## PROBLEMS

**UNFRIENDLY  
USER EXPERIENCE**

**CLOSED FACADES**



**TO BUILD MORE DOES NOT  
NECESSARILY MEAN MORE  
URBANITY!**

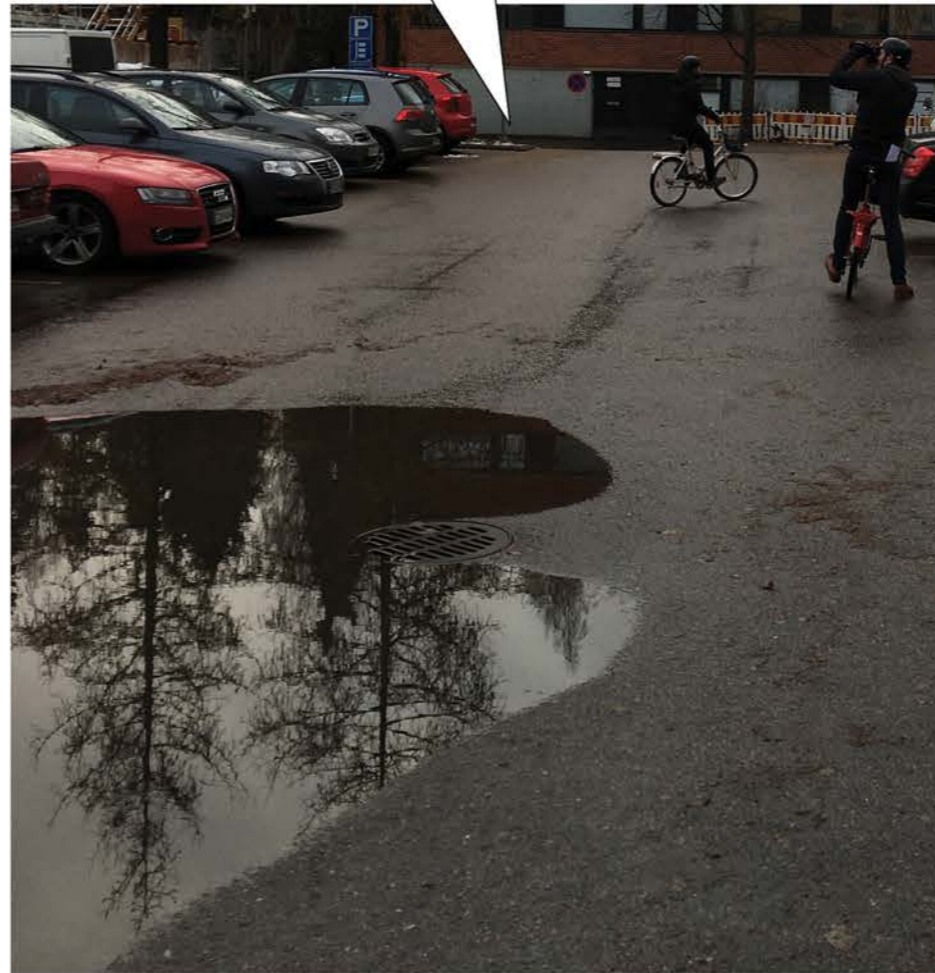


# THE BUILT ENVIRONMENT\_ANALYSIS

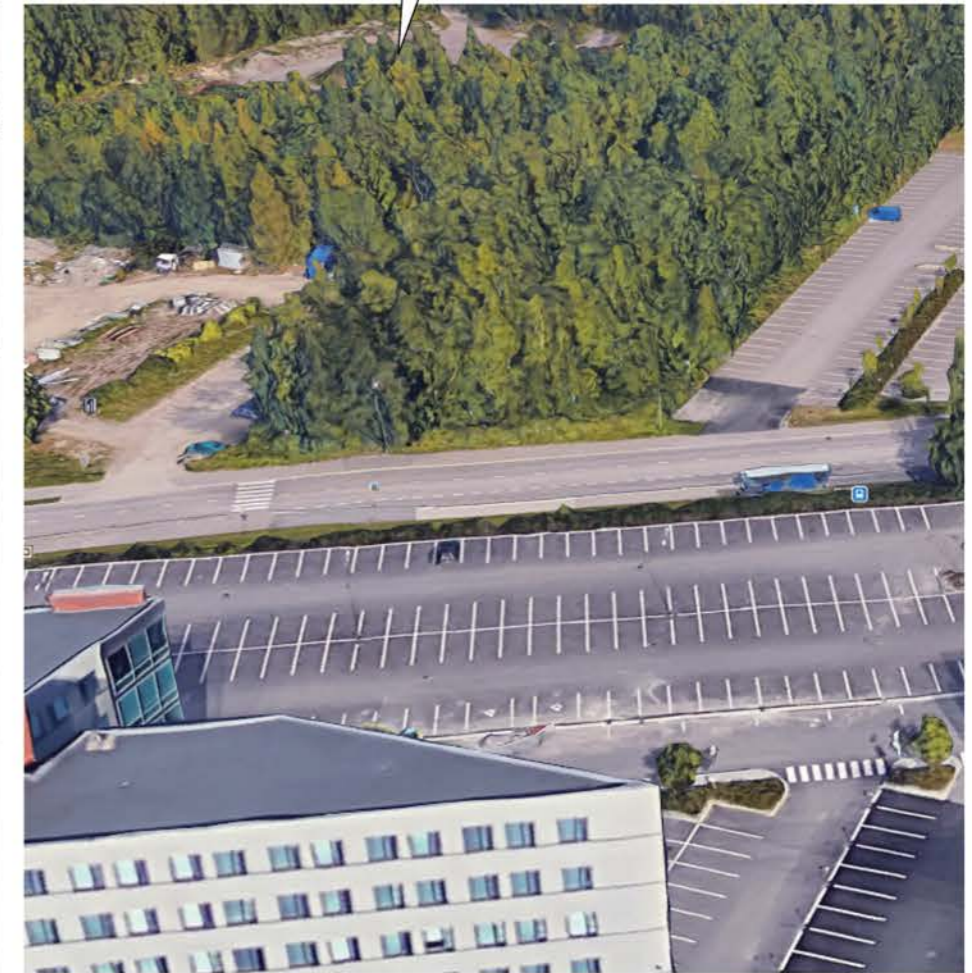
## PROBLEMS



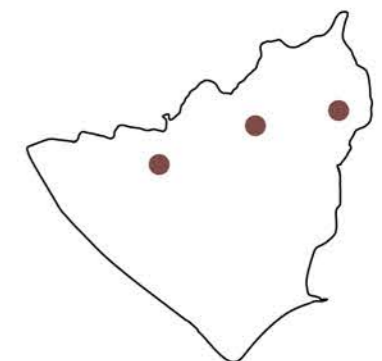
**PARKING ON TERRAIN  
TAKES VALUABLE SPACE!**



**LACK OF  
WATER MANAGEMENT**



**ASPHALT !**





# **THE GROWN ENVIRONMENT**

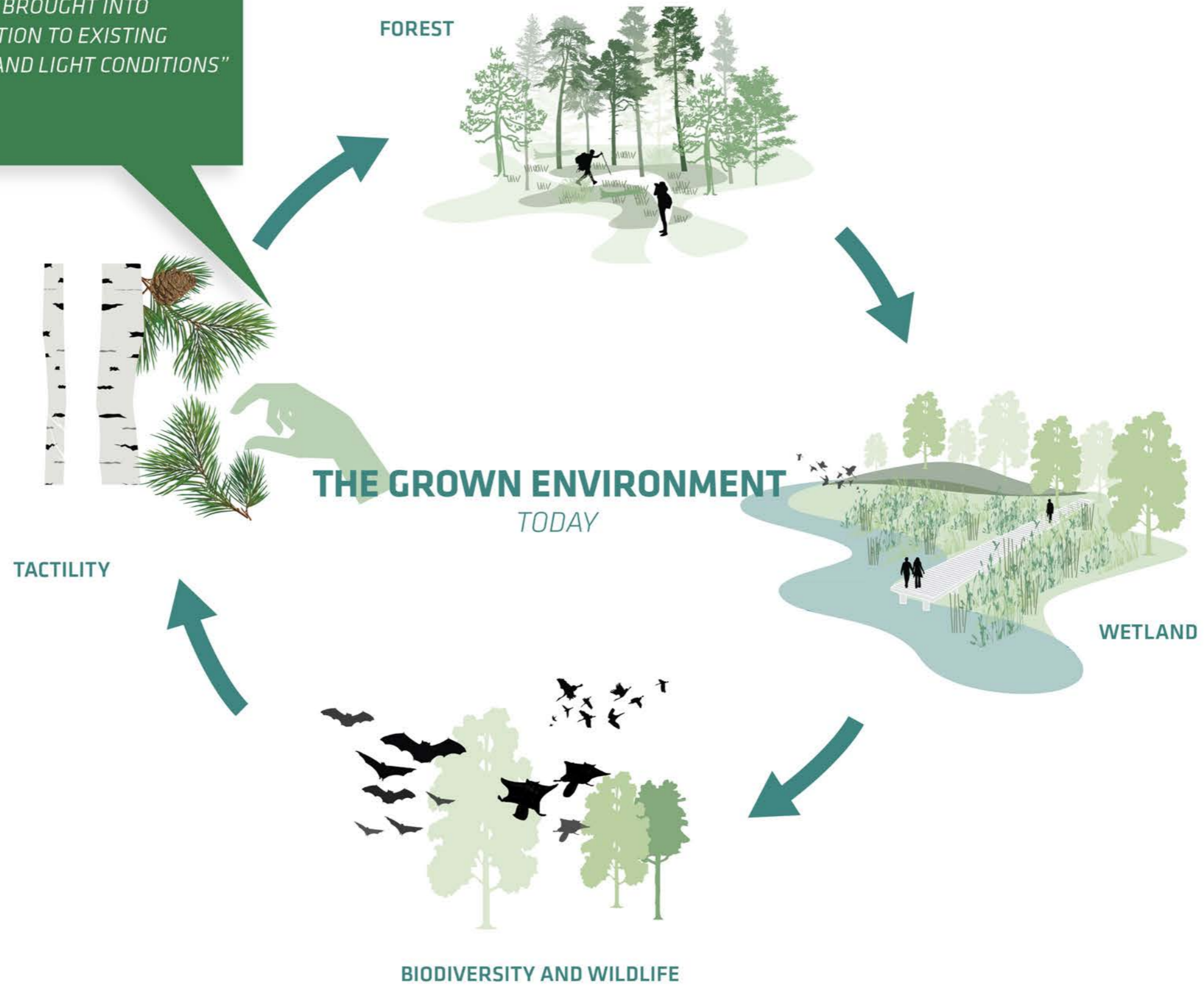
## *ANALYSIS*





"NATURE IS NOT ARTIFICIALLY CONSTRUCTED,  
BUT THE CITY SHOULD BE BROUGHT INTO  
NATURE WITH CONSIDERATION TO EXISTING  
TOPOGRAPHY, GREENERY AND LIGHT CONDITIONS"

ALVAR AALTO



# THE GROWN ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS

Otaniemi has many green and blue spaces and a big variety of vegetation types, including an exceptional Natura 2000 habitat conservation zone. However, Otaniemi's nature areas and different biotopes appear somewhat fragmented and isolated from each other. This might lead not only to a loss in biodiversity and wildlife experiences, but also to degraded ecosystems services, such as storm water management and other important future issues in our part of the world.

Loss of forest, undefined boundaries and big asphalt deserts are problems that might have much larger negative impact on the area, unless we manage to include nature in the future development of Otaniemi.

In order to preserve and enhance the existing rich Otaniemi nature and wildlife, we need to strengthen the presence of nature and create a strong network of green and blue. Otaniemi has the opportunity to actively use nature to manifest and create a new type of living lab campus - absolutely unique in the world.

# THE GROWN ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS



**CONIFERS**



**DECIDUOUS**



**ORIGINAL NATURE**



# THE GROWN ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS



- FOREST
- WETLAND
- LAWN

**FOREST AND WETLANDS**



- PINE FOREST
- MIXED FOREST
- GROVE FOREST
- ORCHARDS AND DOMESTIC GARDENS
- SPRUCE FOREST
- INCIPENT DECIDUOUS
- ROCKY OUTCROPS
- RUDERAL VEGETATION
- PARKLANDS
- WETLANDS

**BIOTOPES**



- PRIMARY MISSING CONNECTIONS
- SECONDARY MISSING CONNECTIONS

**FRAGMENTED NATURE**

# THE GROWN ENVIRONMENT\_ANALYSIS

QUALITIES

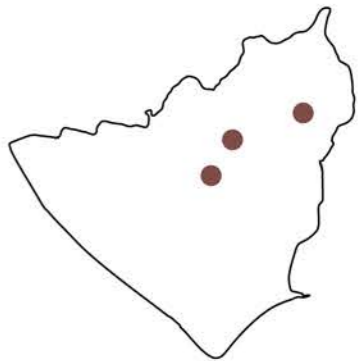
**PRESERVED NATURE**



**BIG TREES!**



**SEASONAL EXPERIENCES**



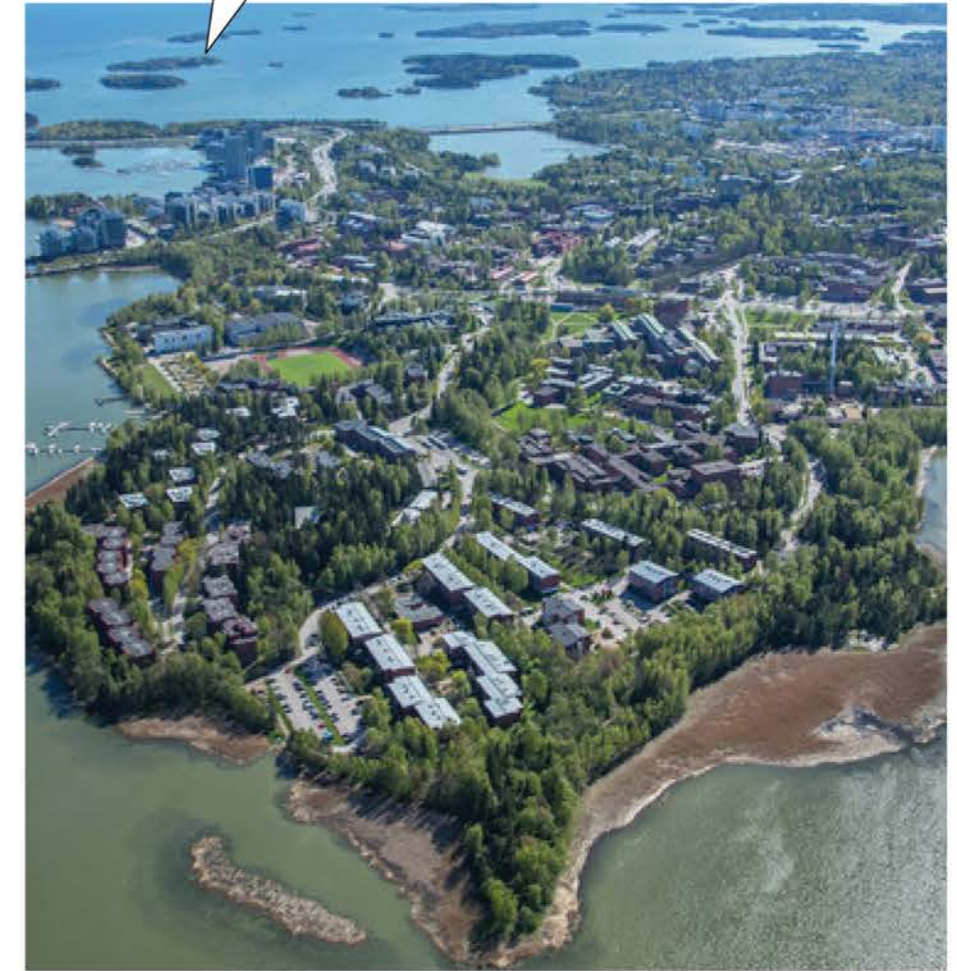
# THE GROWN ENVIRONMENT\_ANALYSIS

## QUALITIES

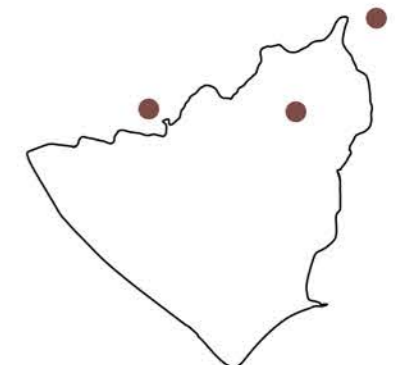
**HIGH QUALITY OF WILDLIFE**



**OTANIEMI NORTH PROVIDES A GREEN EXPERIENCE!**



**WATER AS A BORDER**



# THE GROWN ENVIRONMENT\_ANALYSIS

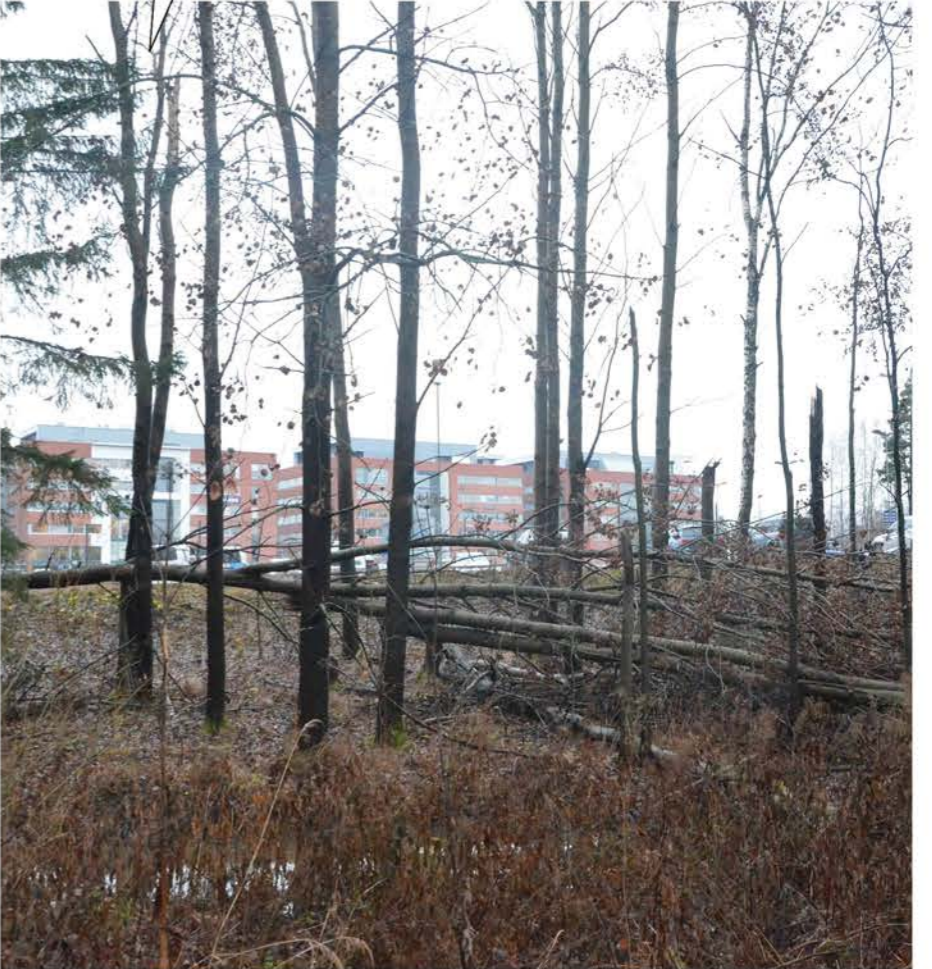
## PROBLEMS



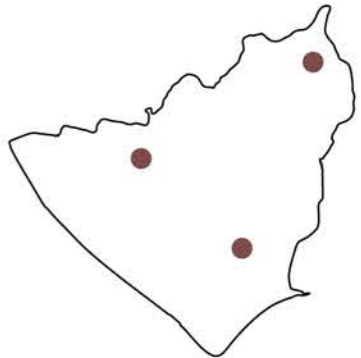
**FRAGMENTED NATURE**



**LOSS OF FOREST**



**UNDEFINED BOUNDARIES**





# THE GROWN ENVIRONMENT\_ANALYSIS

## PROBLEMS

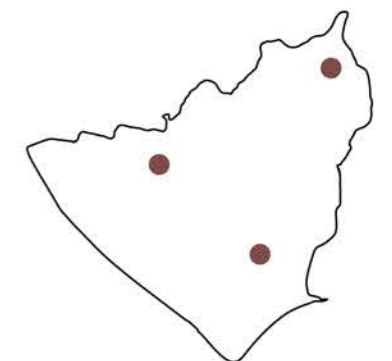
**FRAGMENTED BIOTOPES**



**ASPHALT DESERTS**



**INFRASTRUCTURE DIVIDING NATURE**





# **THE SOCIAL ENVIRONMENT**

## *ANALYSIS*



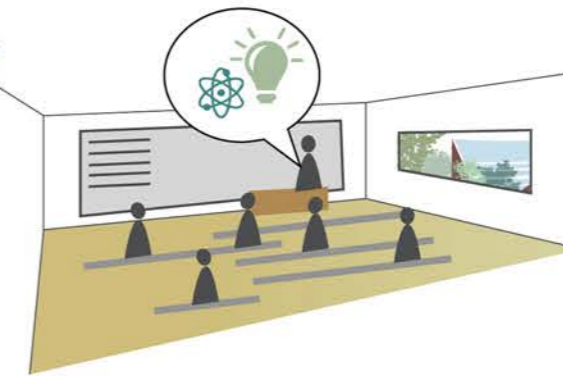
## NATURE AND RECREATIONAL ACTIVITIES



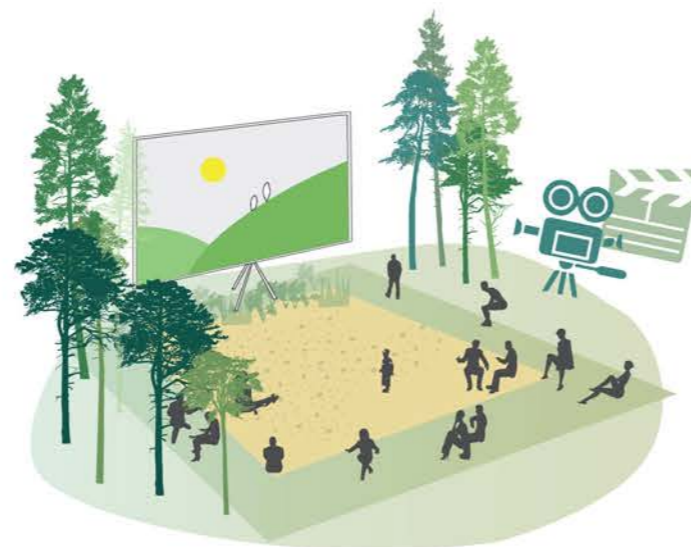
"IF YOU LIVE IN ESPOO AND HUNGER FOR CULTURE OR LOVE TO EXERCISE YOU DON'T HAVE TO GO FAR. YOU CAN INDULGE IN ANY SPORT REGARDLESS OF YOUR AGE OR WEALTH. ENJOY, REFRESH YOURSELF..."

[www.espoo.fi](http://www.espoo.fi) culture and sport

## THE SOCIAL ENVIRONMENT TODAY



## EDUCATION, RESEARCH AND BUSINESS ACTIVITIES



## EVENTS

# THE SOCIAL ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS

Otaniemi is already today a unique multidisciplinary combination of academic functions, education, research and business activities and it has the largest concentration of high-technology expertise in the Nordic region. It is an urban area in growth and transformation, based on user-oriented operation between the university, officials, politicians, and companies. However, the synergies between the different professions and disciplines are somewhat under-utilized.

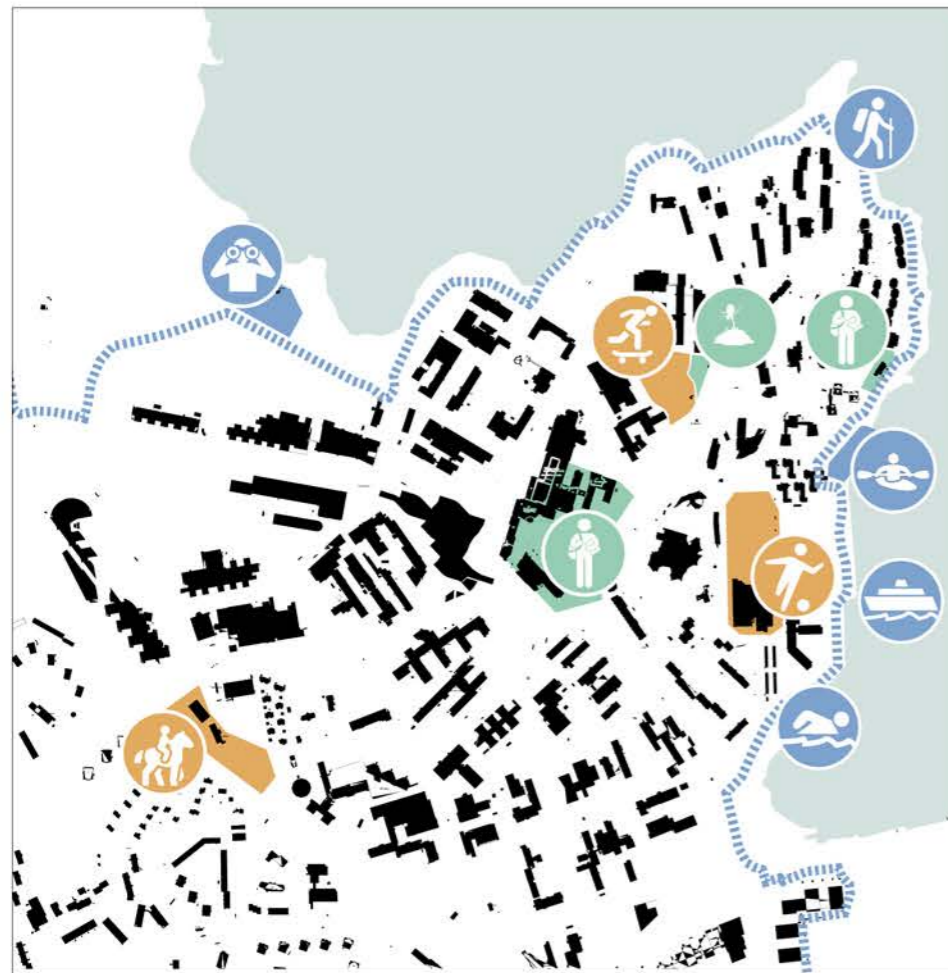
The challenge, but also big potential, is to create a solid foundation both inside and outside, in both public and private space, for further innovation and multidisciplinary collaborations. All spaces must be optimized to incorporate user-involvement, cross-sectoral collaboration and new development in a dynamic, yet coherent plan.

At the same time, Otaniemi must remain a livable city, with space enough for all sorts of other social and recreational activities. With approximately 7000 new inhabitants, one of the challenges facing Otaniemi is to ensure enough space for these activities in order to achieve a real city of growth, without losing the existing spirit and Otaniemi lifestyle.

Indeed, the Otaniemi lifestyle goes hand-in-hand with the city of Espoo's vision of an outdoor city, full of social activities and recreation close to nature.

# THE SOCIAL ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS



SPORT AND RECREATION



FOOD, BEVERAGE AND RETAIL

- Otaniemi Sports park
- Aalto Skate park
- Tapiola Horseback riding school
- Otaniemi bird tower
- Espoo waterfront walkway
- Water recreational activities
- Archipelago ferries
- Swimming
- Student recreation
- Urban gardening
- Cafes
- Restaurants / canteens
- Supermarkets

# THE SOCIAL ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS

**OTANIEMI  
INDOOR  
LIFESTYLE**

**A MULTIDISCIPLINARY HUB OF  
ACTIVITIES AND INTERNATIONAL  
ENCOUNTERS**



**27% FOREIGN STUDENTS AND  
15% RESIDENTS OF FOREIGN  
BACKGROUND**

**INNOVATIVE BUSINESS  
AND RESEARCH**



# THE SOCIAL ENVIRONMENT\_ANALYSIS

## CHARACTERISTICS

OTANIEMI  
OUTDOOR  
LIFESTYLE



CROSS-COUNTRY SKIING



BIRDWATCHING



SCENIC EVENTS



HANG OUT



MOVIE CITY ESPOO



SKATEBOARDING



AQUASPORTS



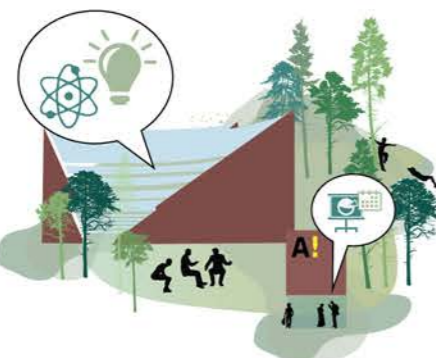
EQUESTRIAN SPORTS



ICE SKATING



SPORTS AND ACTIVITIES



STUDENT LIFE AND HANGOUT



PLAYING IN THE SNOW



CULTIVATING THE ENVIRONMENT



TRECKING



A WALK IN NATURE

# THE SOCIAL ENVIRONMENT\_ANALYSIS

## QUALITIES

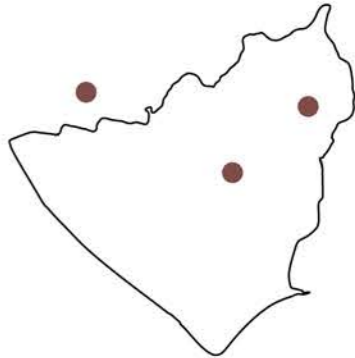
**BIRDING**



**CROSS-COUNTRY SKIING**



**HANG OUT**



# THE SOCIAL ENVIRONMENT\_ANALYSIS

QUALITIES

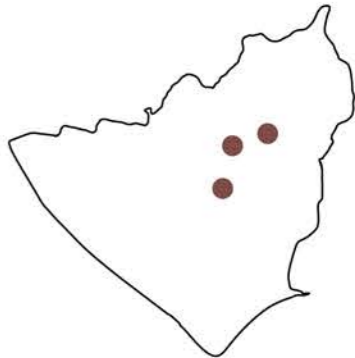
**RETAIL AND SHOPS**



**URBAN GARDENING**



**SPORT EVENTS AND MARATHONS**





# **DENSIFICATION**

## *PRINCIPLES*

# DENSIFICATION\_PRINCIPLES

## A COMPLEMENTARY APPROACH

Otaniemi needs a dynamic landscape plan that offers solutions on how to bridge the gap between buildings, infrastructure and landscape, as well as the changes these will undergo in the coming years. Therefore, we must focus on the transition, connection and interaction between the built and the grown environment.

In practice, this focus means to look at the environment as a whole each time a new development project is built in Otaniemi, but also to see the built and the grown environments as complementary to each other.

In other words, the built environment needs to be combined with the grown environment in such a way as to enhance and emphasize the qualities of both environments. As we know, qualities in the green environment can help establish a healthy and innovative city of growth, with space for the urban to emerge as well.

# DENSIFICATION\_PRINCIPLES

A COMPLEMENTARY APPROACH



THE BUILT ENVIRONMENT



THE GROWN ENVIRONMENT



OTANIEMI  
CITY OF GROWTH

A LIVEABLE CITY

# DENSIFICATION\_PRINCIPLES

## NATURE-BASED SOLUTIONS

In most cases, urban growth includes negative side effects, such as air and noise pollution, flooding due to increased hard surfaces, urban heat islands and bigger carbon footprint.

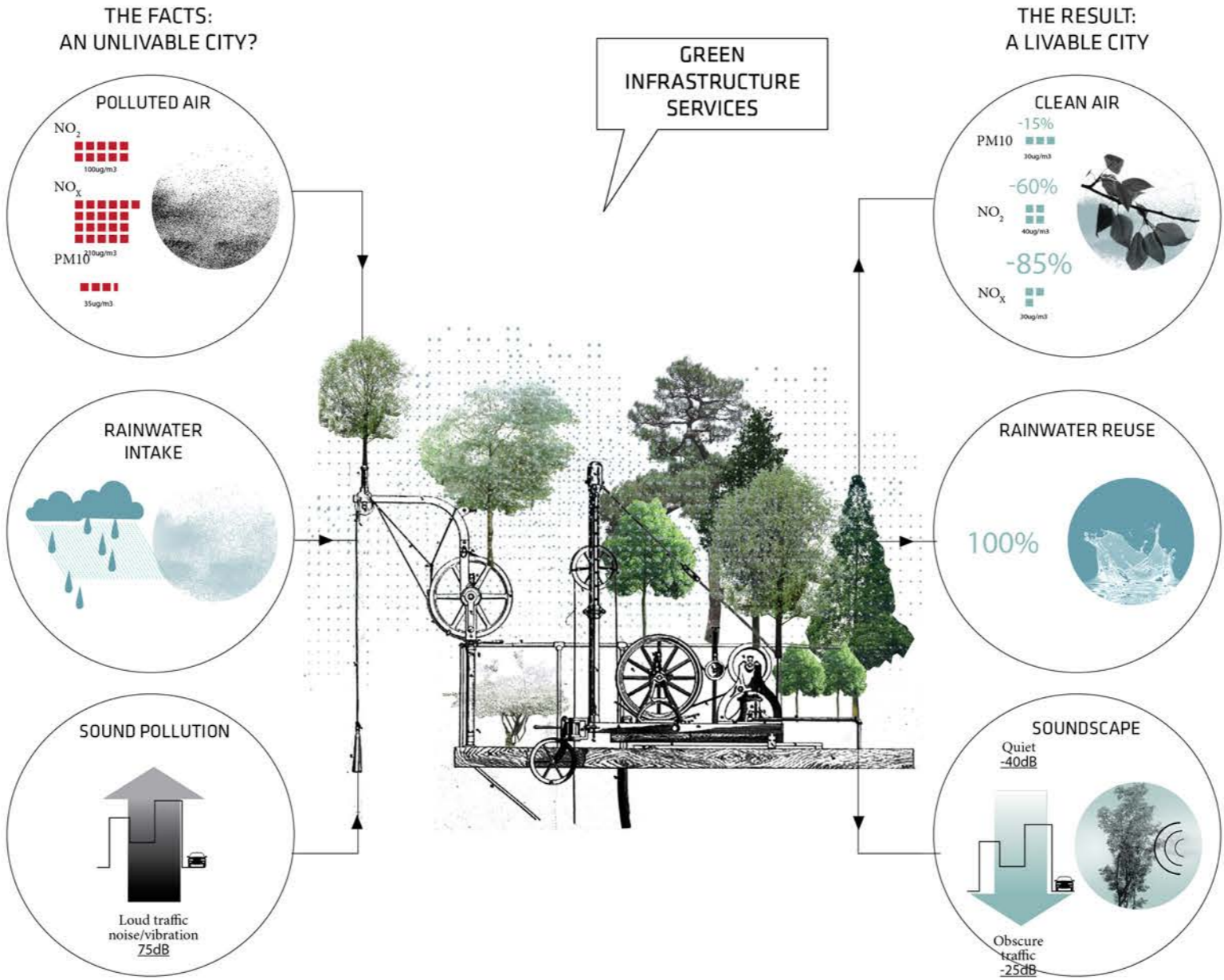
However, there is an increased global awareness of how nature-based solutions can address these critical climate changes. The principles and processes of urban nature can be used as an engine to transform the negative effects of urbanization into a positive outcome.

The new urban nature provides Otaniemi with valuable ecosystems services, but it can also provide the base for an amplified synergy between the hydrological, biological and social circuits.



# DENSIFICATION\_PRINCIPLES

## NATURE-BASED SOLUTIONS

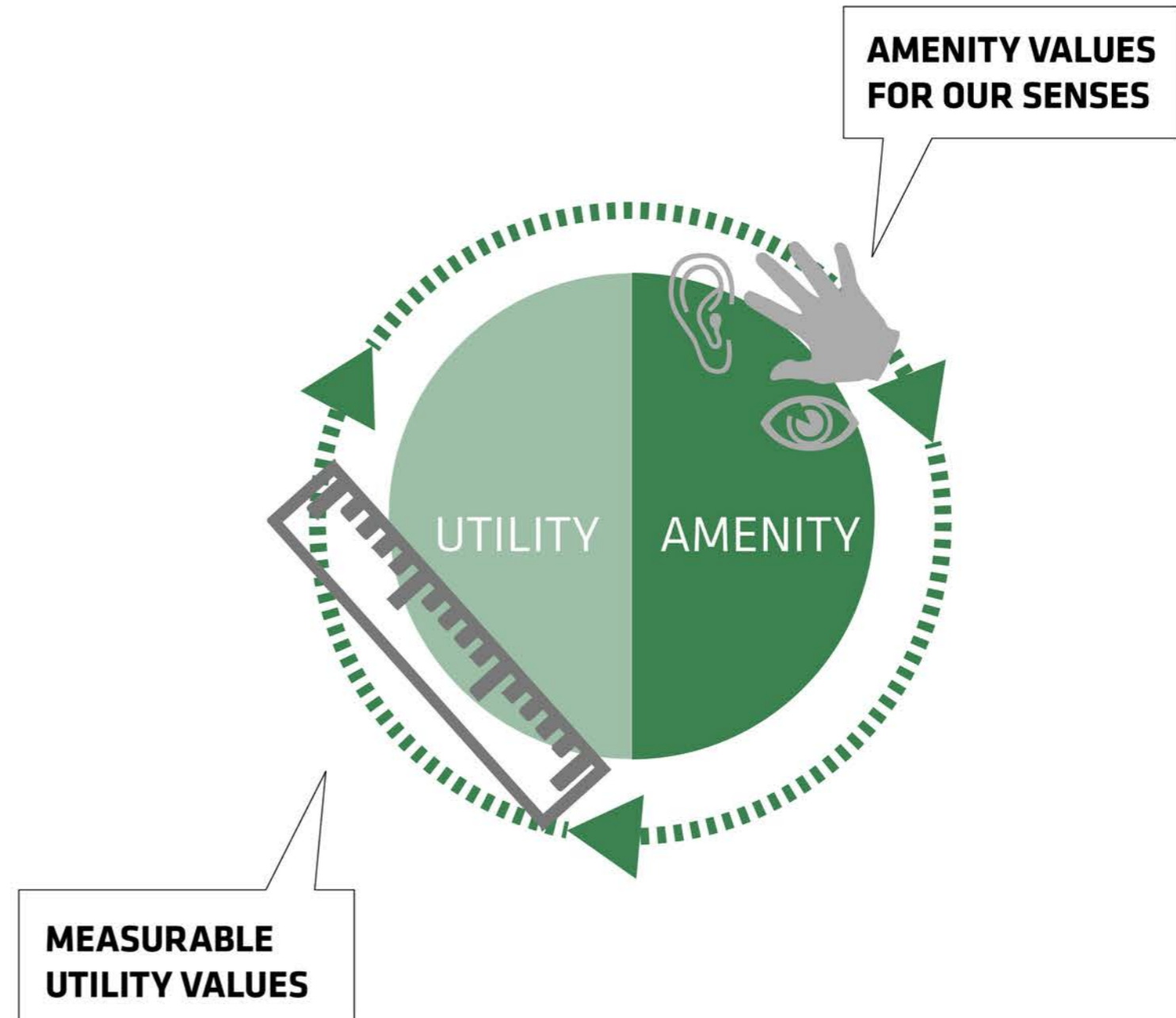


# DENSIFICATION\_PRINCIPLES

## ADDED VALUE THROUGH NATURE

In Otaniemi, particular attention shall be given to both the utility and the amenity values of nature; from ecosystem services, climate adaptation, micro-climate regulation and CO<sub>2</sub> reduction to all the aesthetic, sensuous and emotional aspects of experiencing nature and landscape.

Otaniemi needs a synergy between functional landscape and emotional nature. Only by creating this balance, we believe, it is possible to create the optimal working, learning and living conditions in Otaniemi.



# DENSIFICATION\_PRINCIPLES

## ADDED VALUE THROUGH NATURE



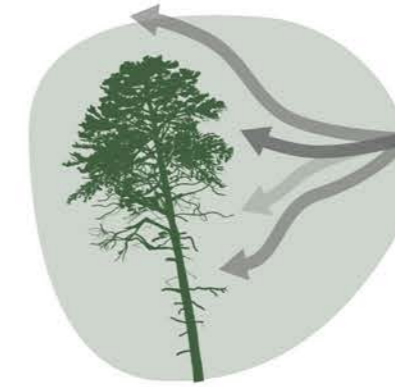
### A ROOM WITH A VIEW

- People wish to live in green surroundings so planting trees generally adds value way above the money it costs.



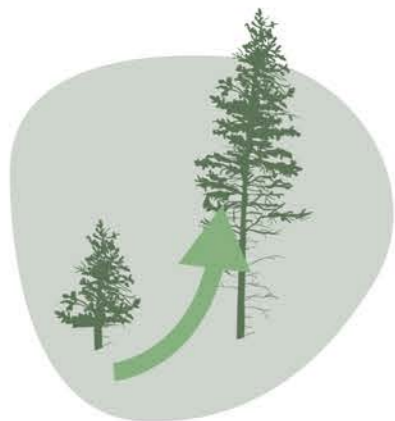
### A WALK IN THE PARK

- Forest visits have been proven to lower blood pressure, reduce levels of stress hormones, increase the ability to concentrate and reduce ADHD in children. and it has been proven that living near street trees reduces children's risk of developing asthma. Additionally, people's risk of becoming obese decreases by 40% in cities with an abundance of trees.



### WIND

- Introducing trees into big open spaces creates shelter, improving microclimates and, in turn, improving conditions for life between the buildings as the trees softly break the wind and dampen turbulence. they can save you up to 25% on your electricity bill, if you live in a windy spot and your house is poorly insulated.



### MAINTENANCE

- Many people object against trees in cities and elsewhere by reason of the expenses related to maintenance. However trees only require a lot of maintenance if you insist on pruning them. If they are left alone to grow they can, in fact, provide several benefits:
  - temperature regulation, rainwater absorption and air pollution control



### CLOUDBURST

- Trees absorb water during cloudburst's and helps the surroundings overcome the rainfall.



### BIODIVERSITY

- By planting the right combination of trees, biodiversity is increased and the ecosystem is strengthened so it can sustain itself.

# DENSIFICATION\_PRINCIPLES

## PRINCIPLES FOR BIODIVERSITY

Biodiversity is a prerequisite for a successful urban nature to grow in Otaniemi. It is important to distinguish between the different forms of biodiversity, which support different qualities in the Otaniemi nature. Robust urban nature is achieved by planning, designing and maintaining its dynamic and diverse ecosystems - it is not a fixed and controlled condition.

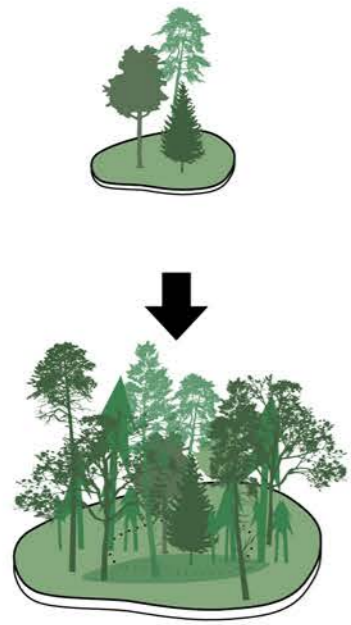
Biodiversity can support ecosystem services with both a high utility and amenity value. For instance, nature with a high biodiversity can better adjust to the city's forces such as pollution, usage and nutrient enrichment.

Urban nature also contributes to preserving and strengthening the biodiversity of rare and endangered animal and plant species in the city, such as the flying squirrel and bat.

Simultaneously, a high biodiversity with a multiplicity of life and habitats strengthens the experience of coexisting in a greater context. Varied urban nature will also be able to support Otaniemi's uniqueness and identity as a green, sustainable city.

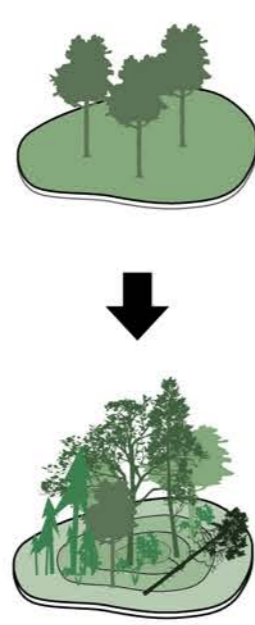
# DENSIFICATION\_PRINCIPLES

## PRINCIPLES FOR BIODIVERSITY



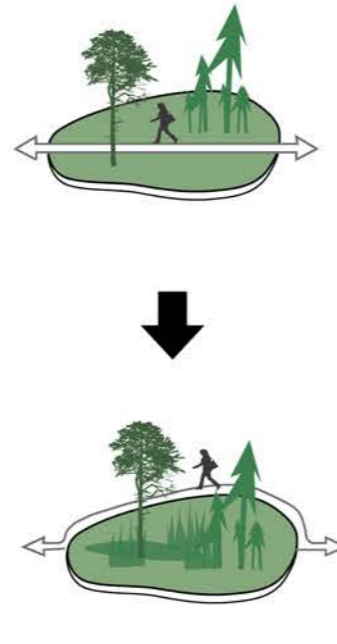
### SIZE

Larger natural areas have the potential to accommodate a more diverse biodiversity than smaller areas. The natural areas must have sizes that ensure a proliferation over time.



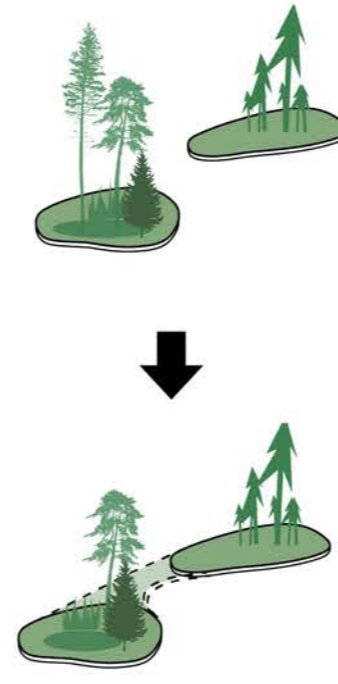
### AGE

Existing nature is a potential for further development together with the establishment of new biotopes.



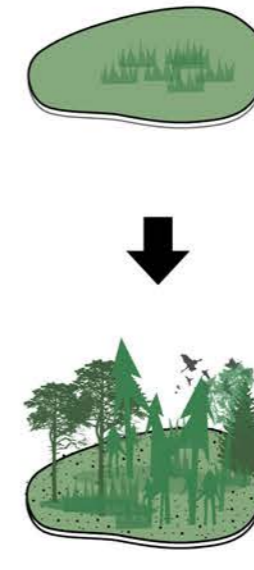
### AVOID DIVISION

Breakdown of new and existing biotopes is avoided as it will weaken livelihood. For example, it is necessary that both flora and fauna pass through infrastructure.



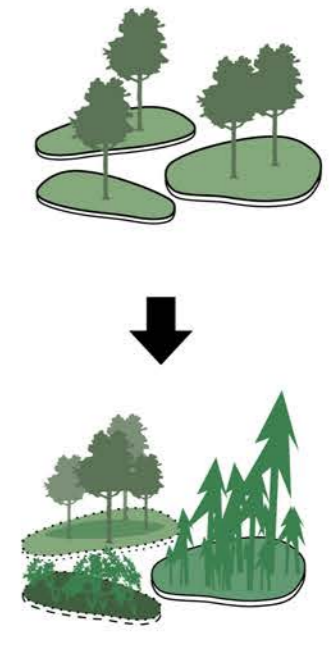
### CORRIDORS

Good connections between new and existing habitats are actively utilized. They are strategically linked to serve as a spreading corridor in the area.



### BIODIVERSITY

Large biotope variations are continuously associated with greater biodiversity. This secures a wide variety of species, types of forests, and moisture gradients.



### VARIATION

By varying the size of the habitats, the livelihood of more species is safeguarded and a more diverse habitat variation is guaranteed.

# DENSIFICATION\_PRINCIPLES

## HOW TO OPTIMIZE SPACE

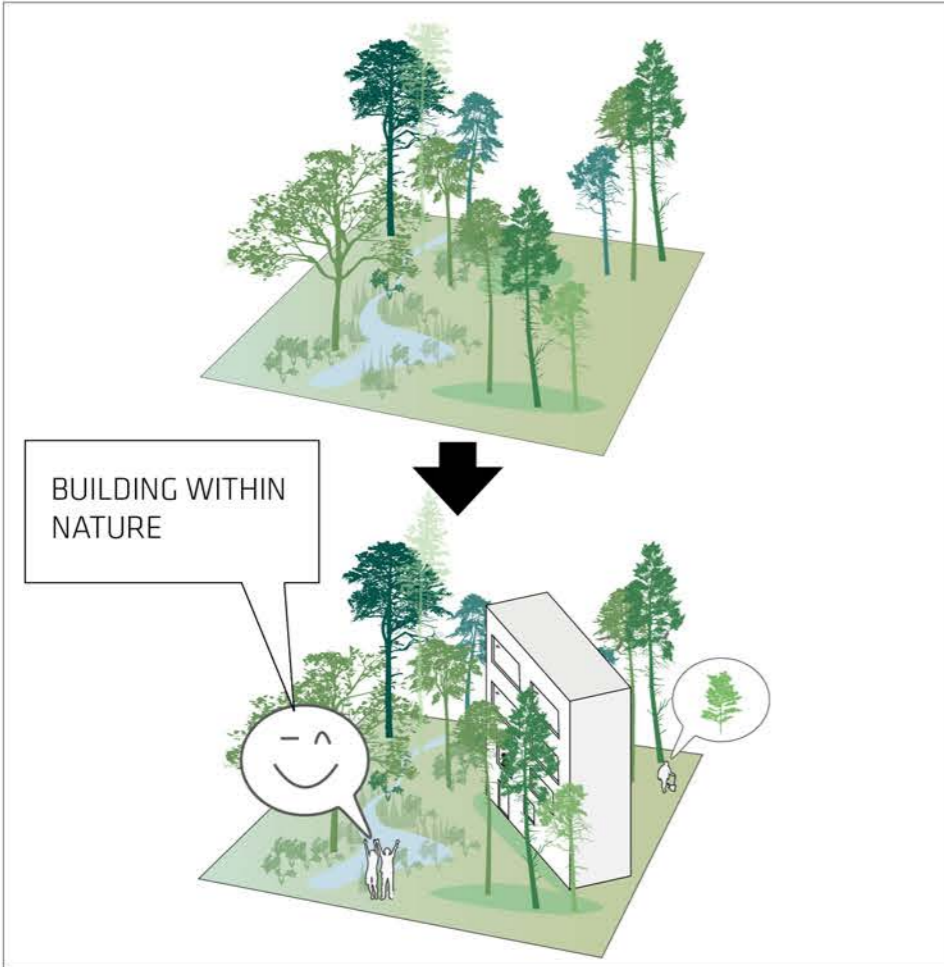
For Otaniemi to evolve from campus site into a vibrant city, without losing its green identity and outdoor lifestyle, we need to both define left-over space and optimize all urban surfaces. It is all about doing the most out of existing possibilities in the development of a city campus area, where nature, sustainability, public life, innovation and a dynamic development framework come together to create synergy.

When optimizing space, we need to take into consideration that Otaniemi needs space to grow and adapt; to conserve traditions but also develop areas in a manner that strengthens their specific characteristics and special features, and adapt to them.

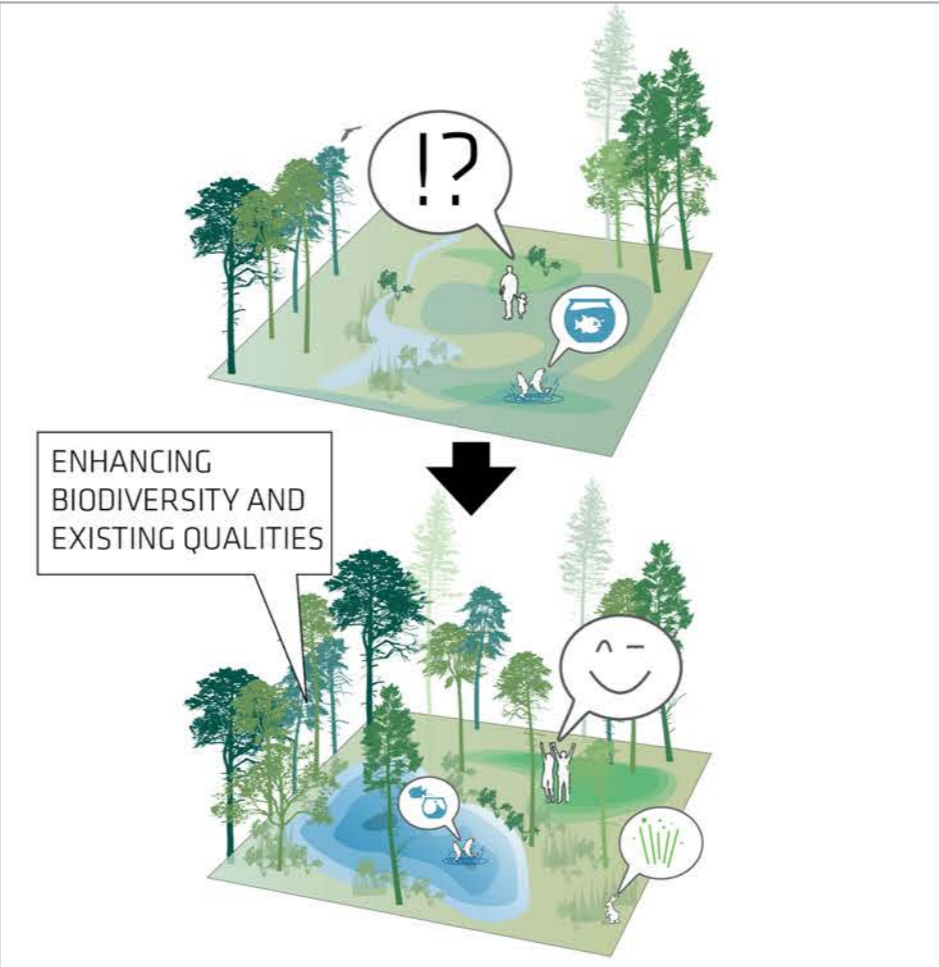
Like any other city, Otaniemi constitutes of smaller neighborhoods. When developing and optimizing space in Otaniemi, we also need to pay attention to the various identities of different areas in Otaniemi, and optimize accordingly. Next to the Kehä 1 - highway, the city can grow completely new layers, whereas towards the north of the peninsula, the interventions need to become more careful injections.

# DENSIFICATION\_PRINCIPLES

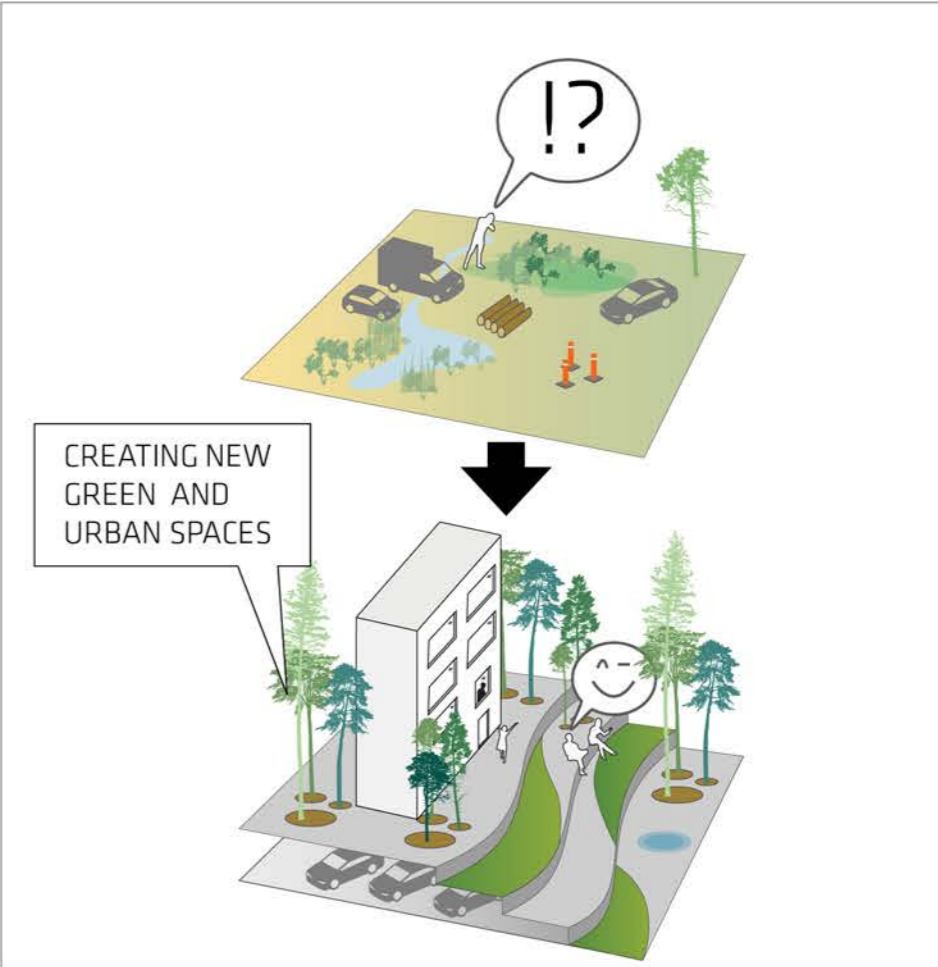
HOW TO OPTIMIZE SPACE



THE OTANIEMI WAY



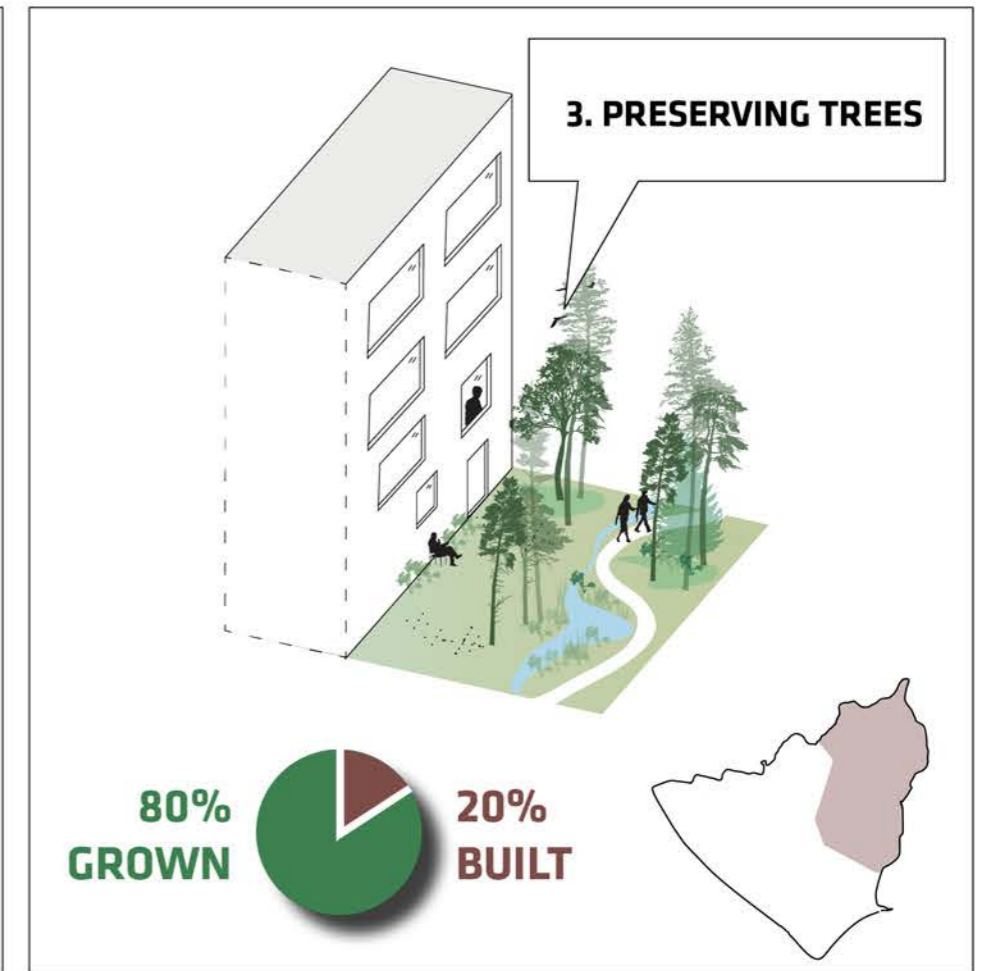
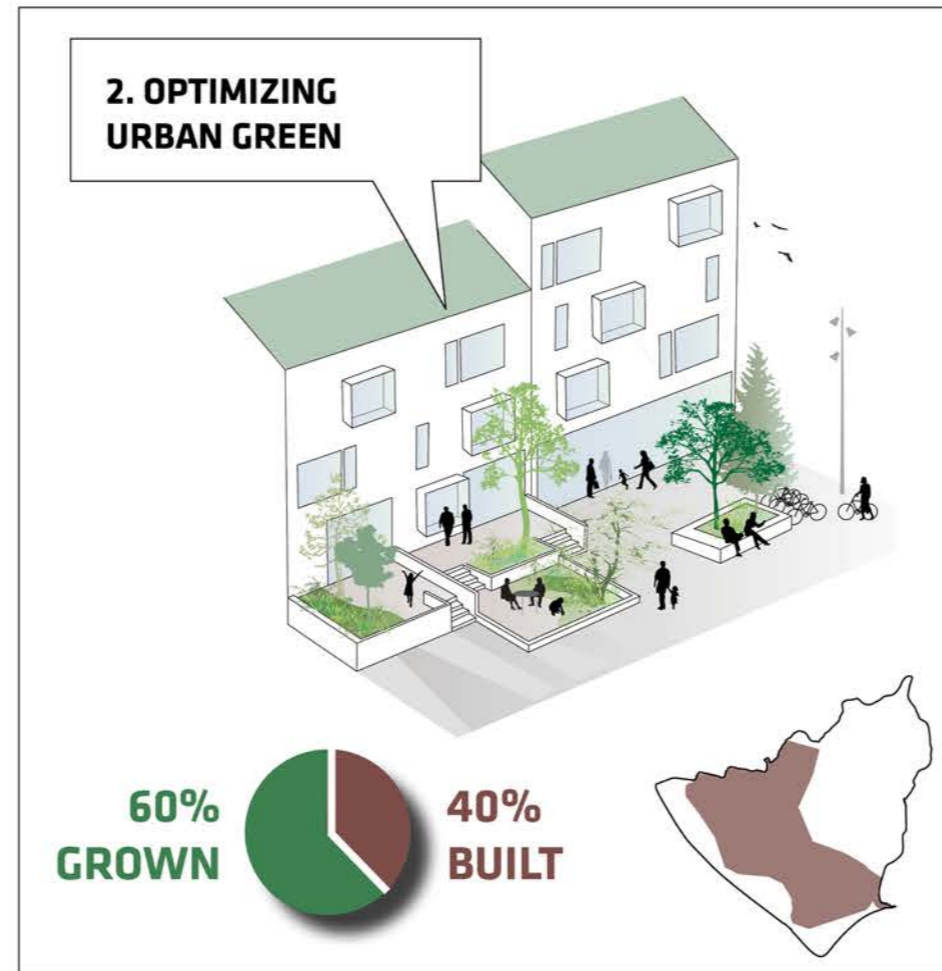
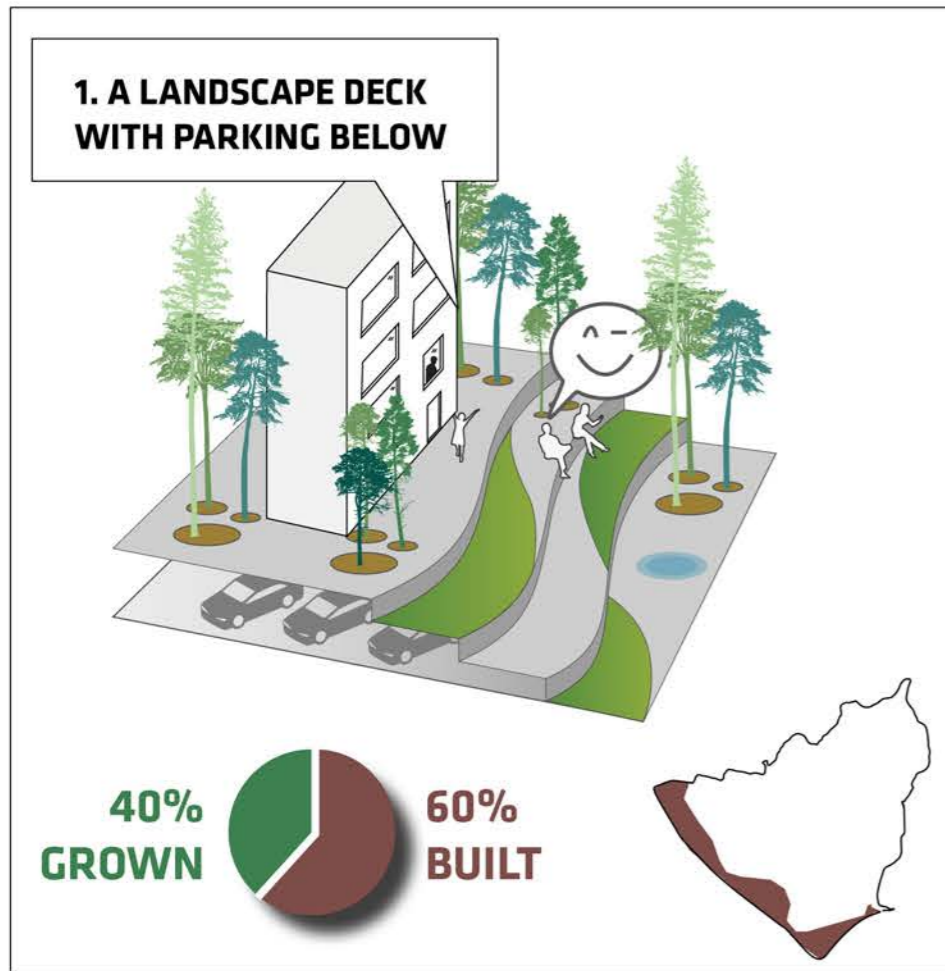
THE NATURE - INSPIRED WAY



THE LAYERED CITY WAY

# DENSIFICATION\_PRINCIPLES

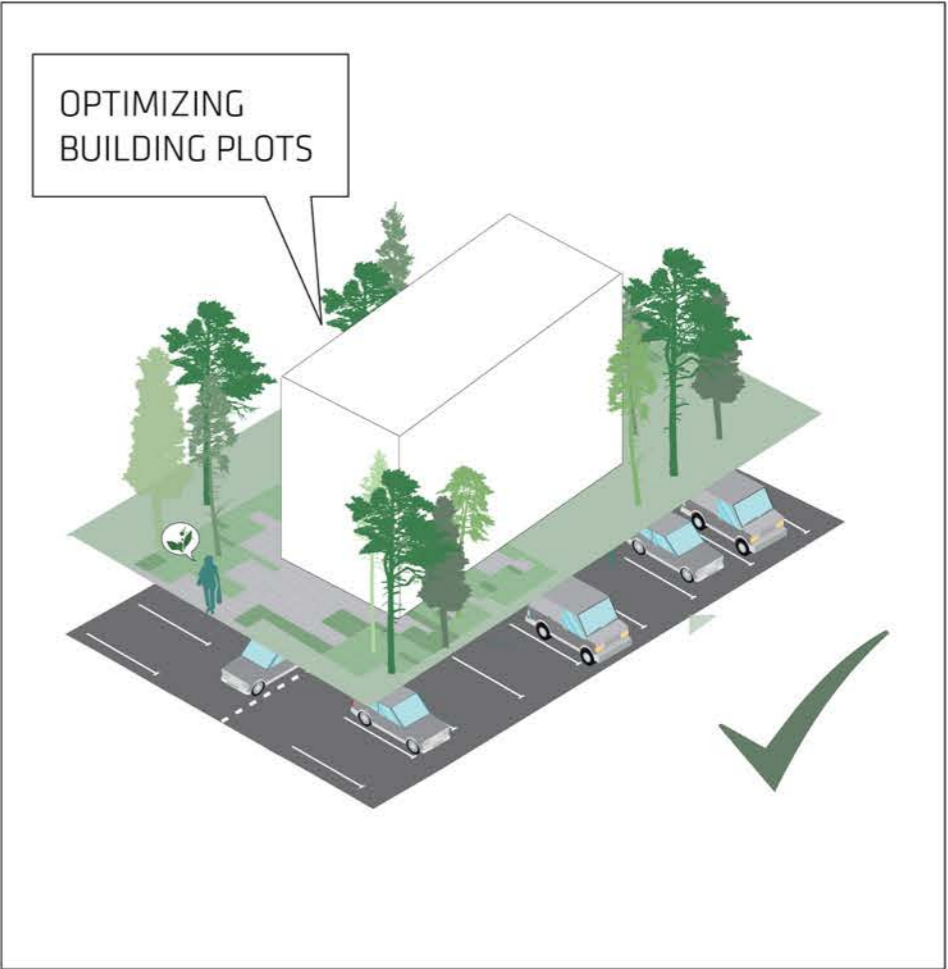
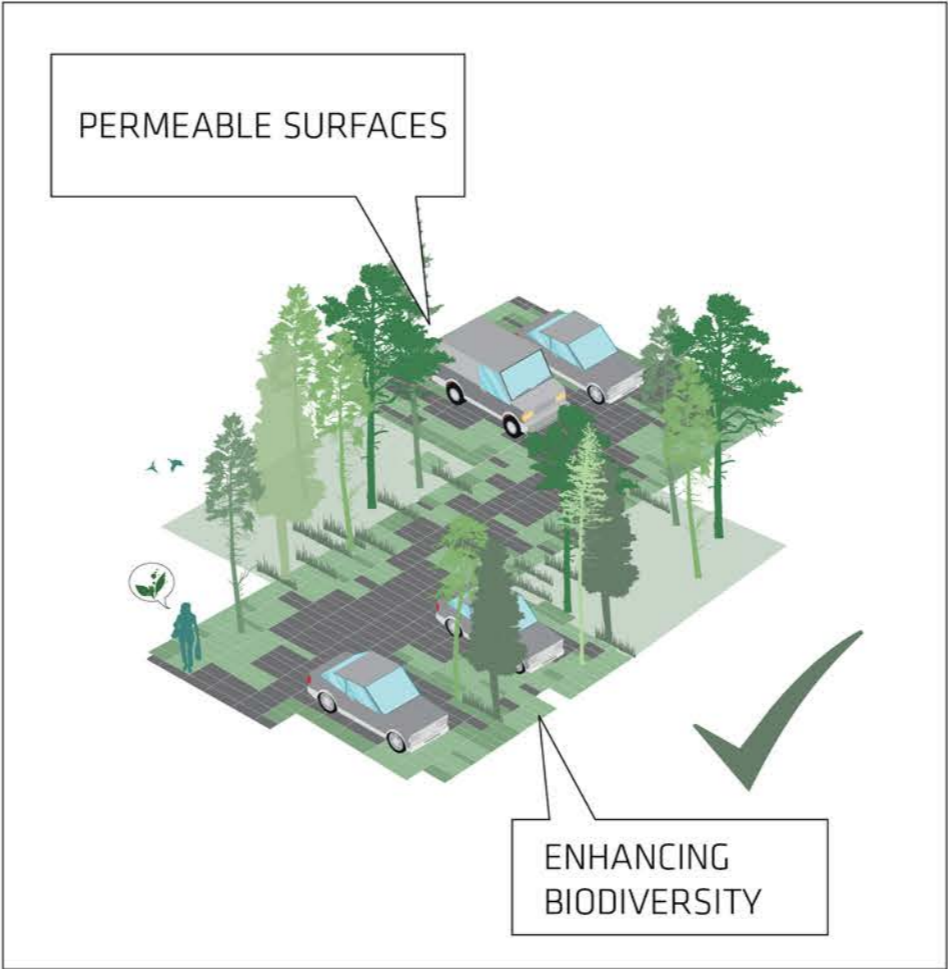
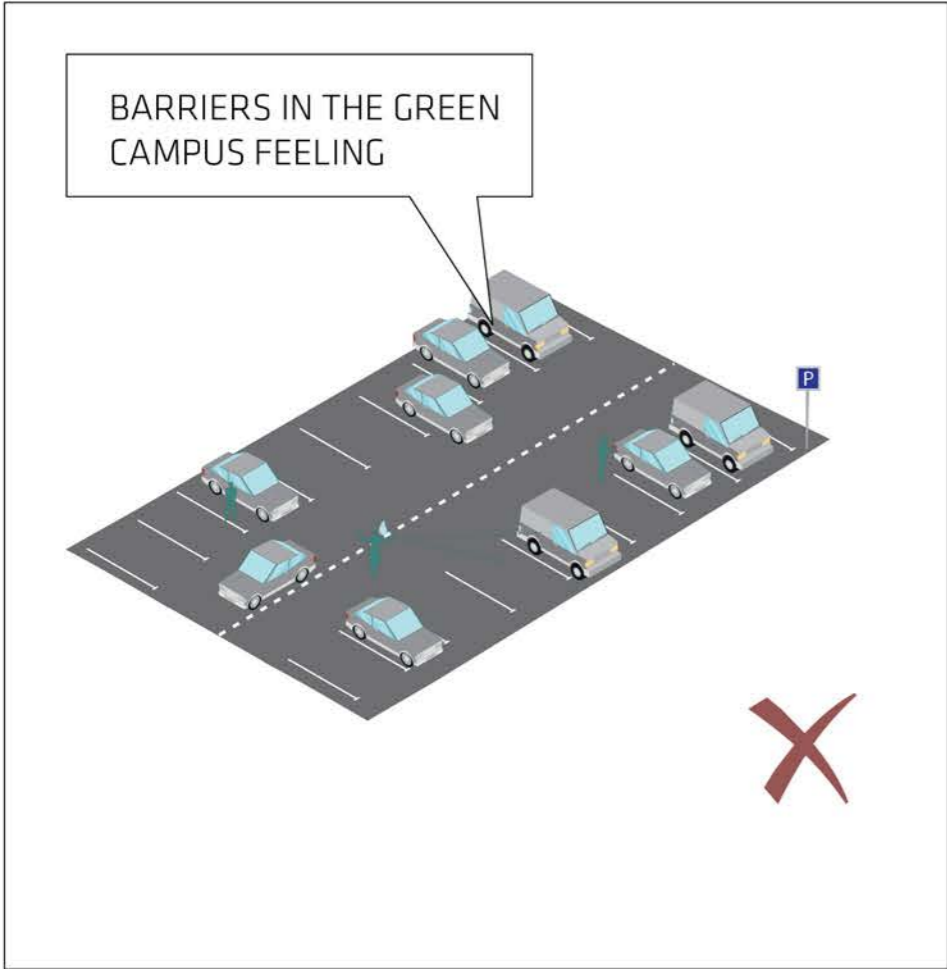
HOW TO OPTIMIZE SPACE





# DENSIFICATION\_PRINCIPLES

HOW TO OPTIMIZE SPACE



# DENSIFICATION\_PRINCIPLES

## THE LAYERED CITY PRINCIPLES

In Otaniemi, we want to work with city nature and urban life as complete ecosystems, as well as create brand new urban experiences and green contexts.

The future neighborhoods in Otaniemi need to perform like a landscape, with horizontal and vertical experiences such as roof top gardens, green facades and planted walkways. Together these spaces create a rich and diverse Otaniemi, focusing on the welfare and the health of people. Biodiversity correlated with urban agriculture, intelligent facades, phytoremediation and rainwater collection add assets to this new urban nature.

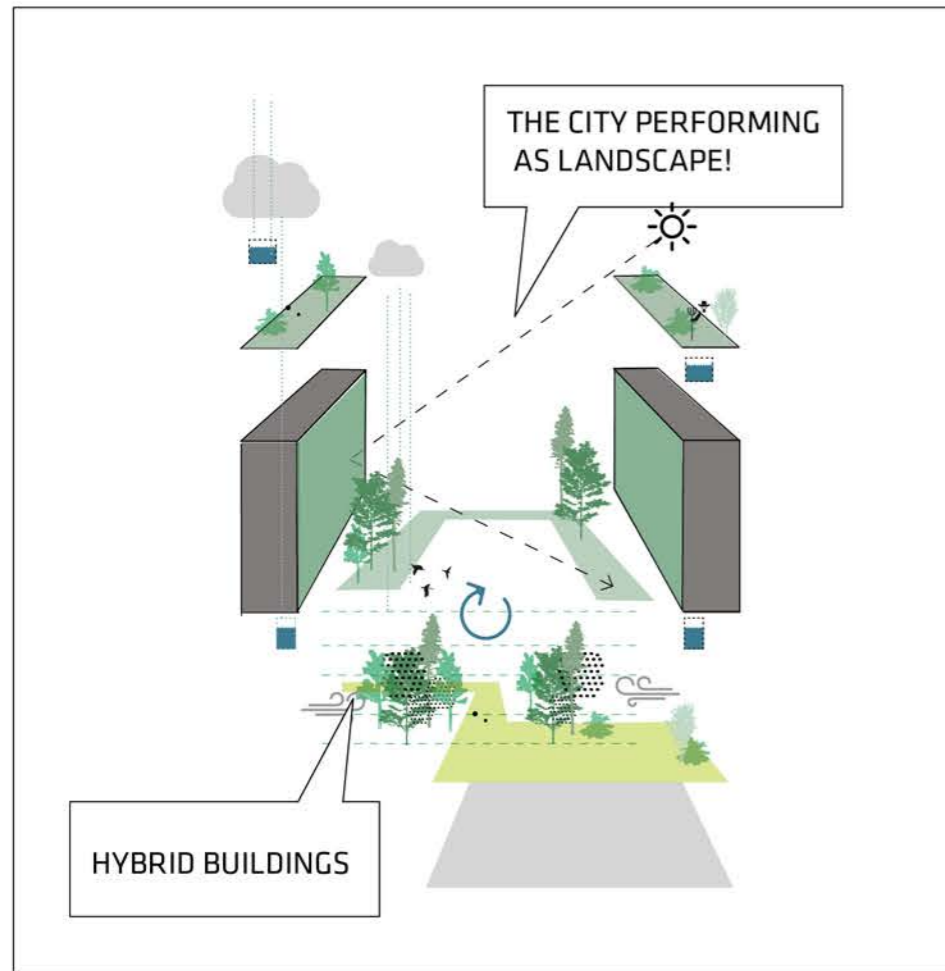
The new urban landscape encourages inquiry, discovery and serves as a valuable base in Aalto University's goal to create a living lab campus area. The spaces arise from different angles, different seasons, different uses, and are divided into a multitude of experiences.

We also know that business, start-ups, research facilities, and other stakeholders gain value from each other by the close proximity on the site, but also through the abundance of public space on all surfaces, where informal meetings can emerge on a daily basis, and ideas can be exchanged.

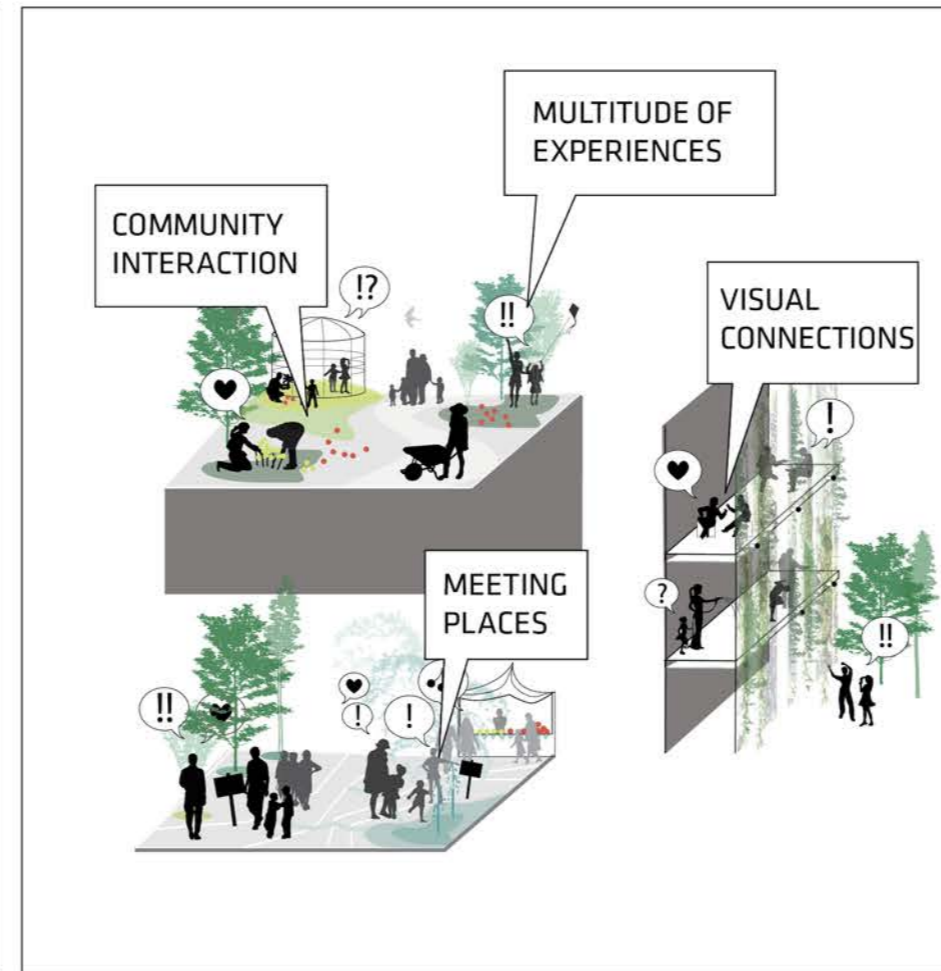
# DENSIFICATION\_PRINCIPLES

## THE LAYERED CITY PRINCIPLES

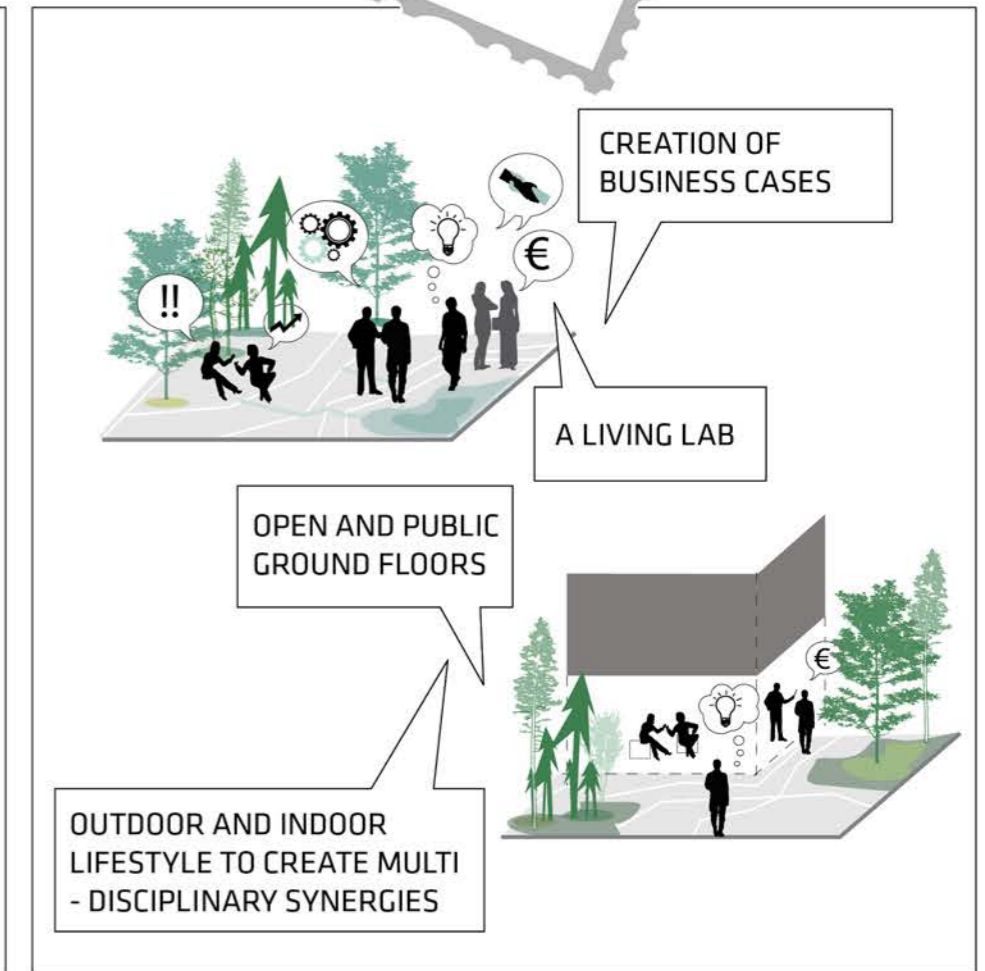
MORE BUILDINGS DO NOT NECESSARILY MEAN MORE URBANITY - AND MORE NATURE DOES NOT NECESSARILY MEAN LESS URBANITY



THE NEW URBAN NATURE



THE SOCIAL ECOSYSTEMS

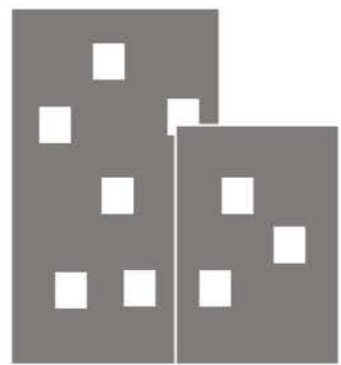


THE RESEARCH AND BUSINESS ECOSYSTEMS

# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE LAYERED CITY PRINCIPLES

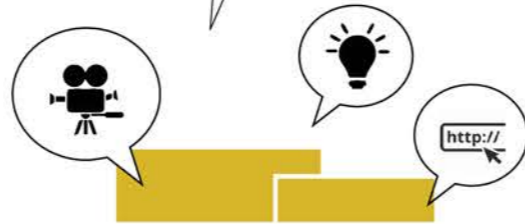
WHAT MAKES A SUCCESSFUL CITY, IS NOT ONLY TO HOUSE MORE PEOPLE...



7000 PEOPLE / 280.000M<sup>2</sup>  
100 %



... STUDIES SHOW THAT AROUND 20% OF NEWLY DEVELOPED AREAS SHOULD HAVE SOCIAL FUNCTIONS



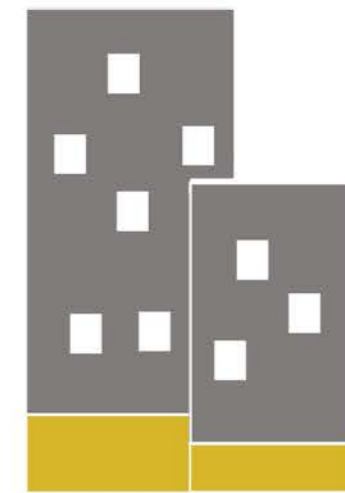
RETAIL, SPORT, EDUCATION  
20 % OF TOTAL M<sup>2</sup>



**1. SOLUTION FOR OTANIEMI**  
DECREASE THE FUTURE POPULATION OF OTANIEMI AND USE BUILDING PLOT FOR SOCIAL FUNCTIONS



1. DECREASE NUMBER OF NEW INHABITANTS



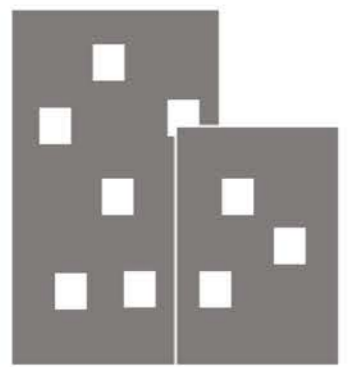
2. MAINTAIN NUMBER OF NEW INHABITANTS

**2. SOLUTION FOR OTANIEMI**  
INCREASE THE BUILDING HEIGHT AND PLACE SOCIAL FUNCTIONS (20%) ON GROUND LEVEL AND FIRST FLOOR

# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE LAYERED CITY PRINCIPLES

WHEN PEOPLE START USING A NEW AREA, IT IS NOT ONLY SPACE FOR PEOPLE THAT MUST BE TAKEN INTO CONSIDERATION...



435.000 ADDITIONAL M<sup>2</sup>  
100 %



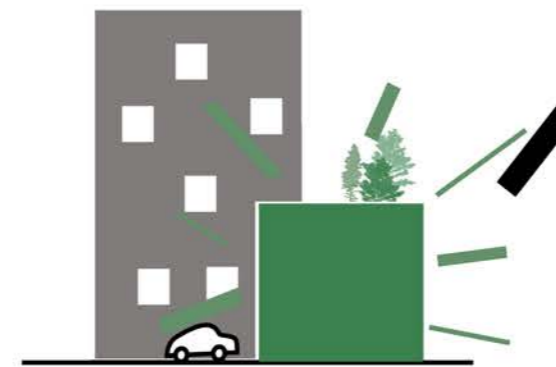
... STUDIES SHOW THAT AROUND 18% OF NEWLY DEVELOPED AREAS MUST HAVE CARPARK POSSIBILITIES



PARKING FACILITIES  
18 % OF TOTAL M<sup>2</sup>



**1. SOLUTION FOR OTANIEMI**  
ADD ADDITIONAL BUILDINGS THAT CAN WORK AS A PARKING GARAGE WITHIN A NEIGHBORHOOD



1. PARKING HOUSES



2. PARKING BELOW LIFTED TERRAIN

**2. SOLUTION FOR OTANIEMI**  
INCREASE THE BUILDING HEIGHT AND PLACE PARKING IN LEVEL +/- 0 BELOW A LIFTED TERRAIN. THIS SECURES FROM FLOODINGS SINCE INHABITED BUILDING FLOORS WILL START AT + 3 ABOVE SEA LEVEL

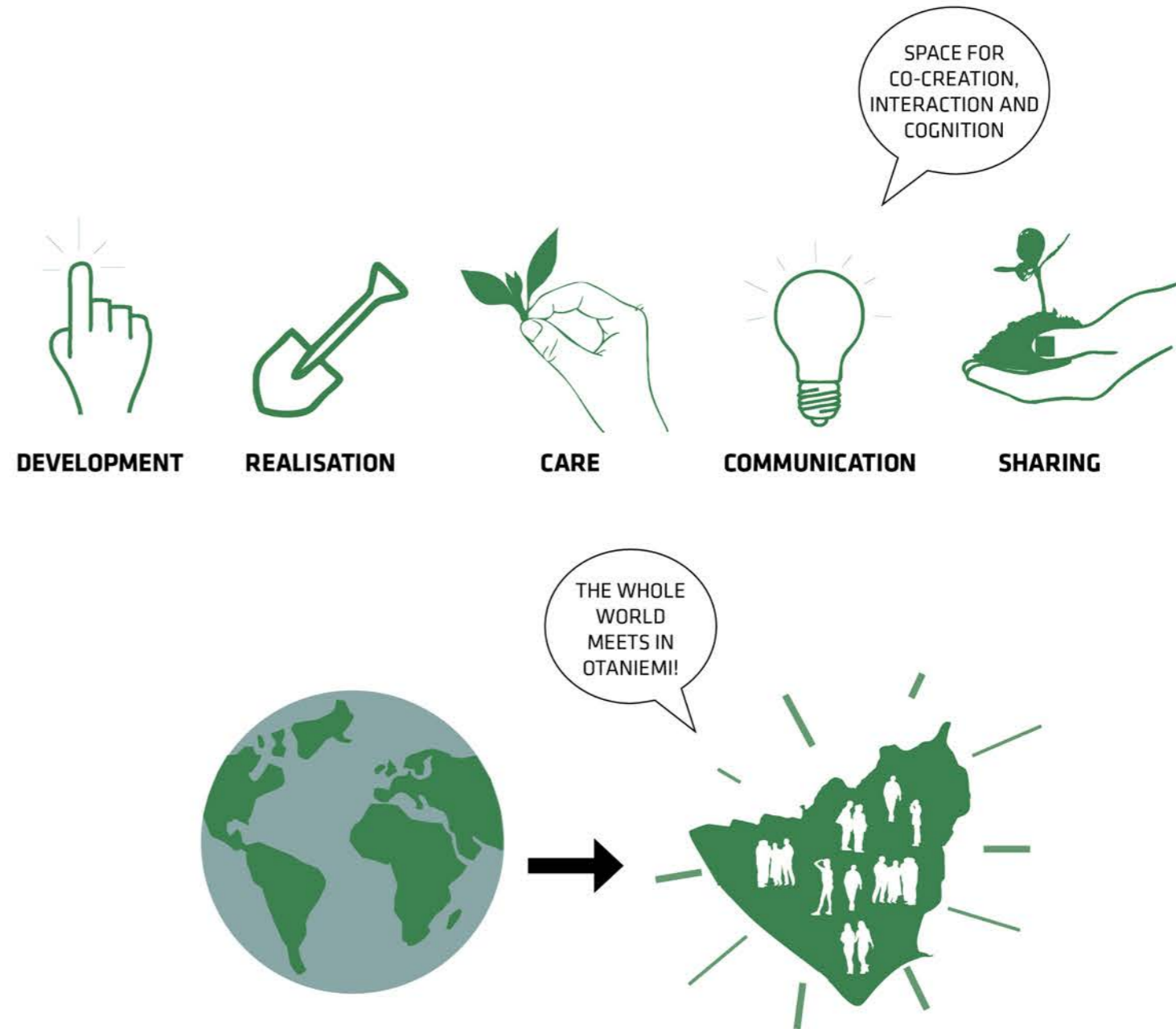
# DENSIFICATION\_PRINCIPLES

## A PARTICIPATORY CITY

As Otaniemi is an area in constant change and development, the landscape needs to be a dynamic and living framework that is flexible and resilient enough to incorporate the future changes. The framework needs to address both temporal and spatial processes.

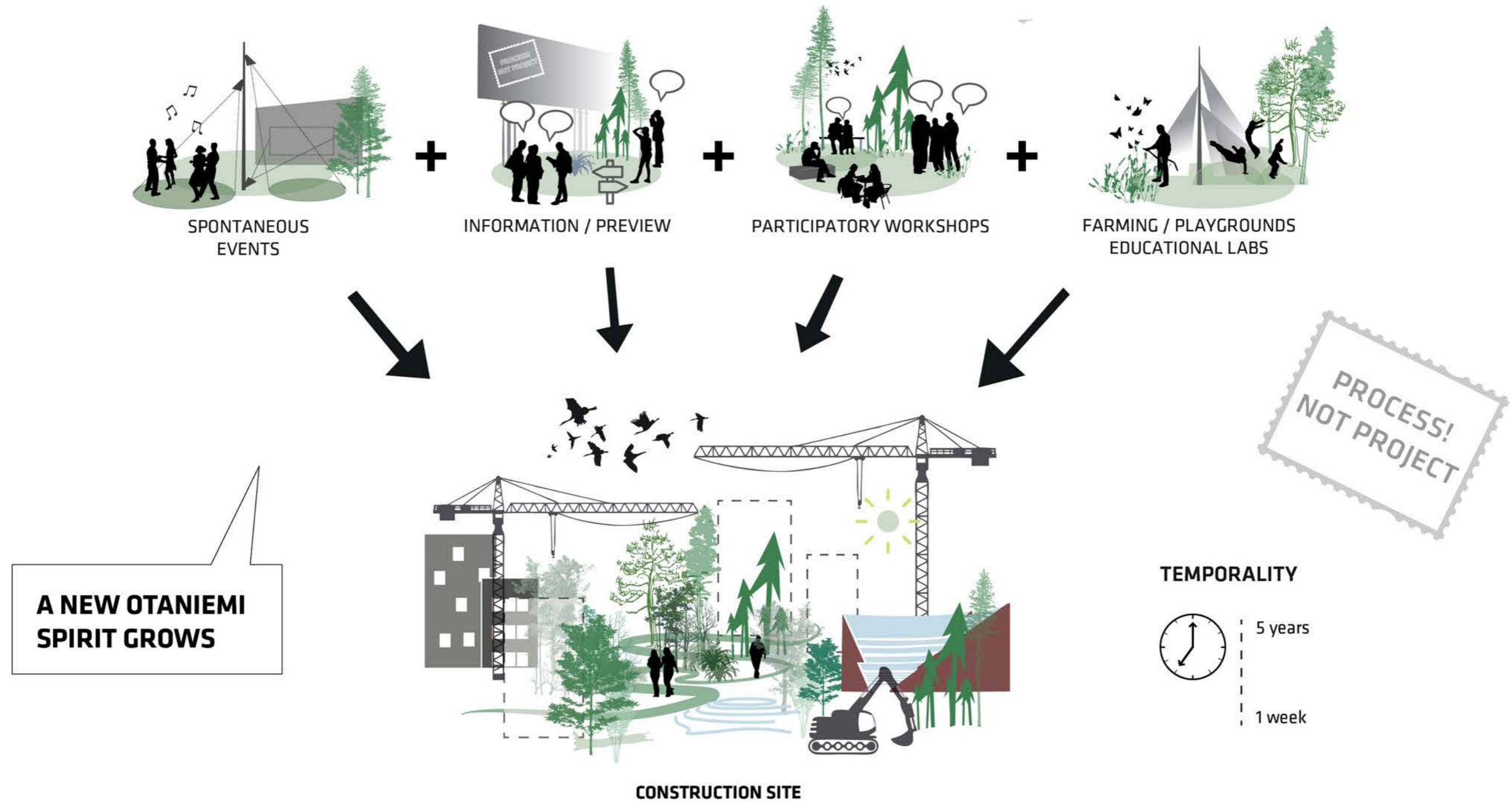
It is important for the future Otaniemi spirit that the projects will grow from bottom up and be a place for experimenting and pioneering the design and the maintenance of a more sustainable, resilient and innovative campus city.

We need local actors and stakeholders to be integrated in the implementation of the development of Otaniemi, in order to found a strong local ownership and identity that ensures a robust and long-lasting development of the neighborhoods. Through multi-disciplinary community interaction, Otaniemi's identity as a multicultural hub can also be strengthened and value-adding.



# DENSIFICATION\_PRINCIPLES

A PARTICIPATORY CITY



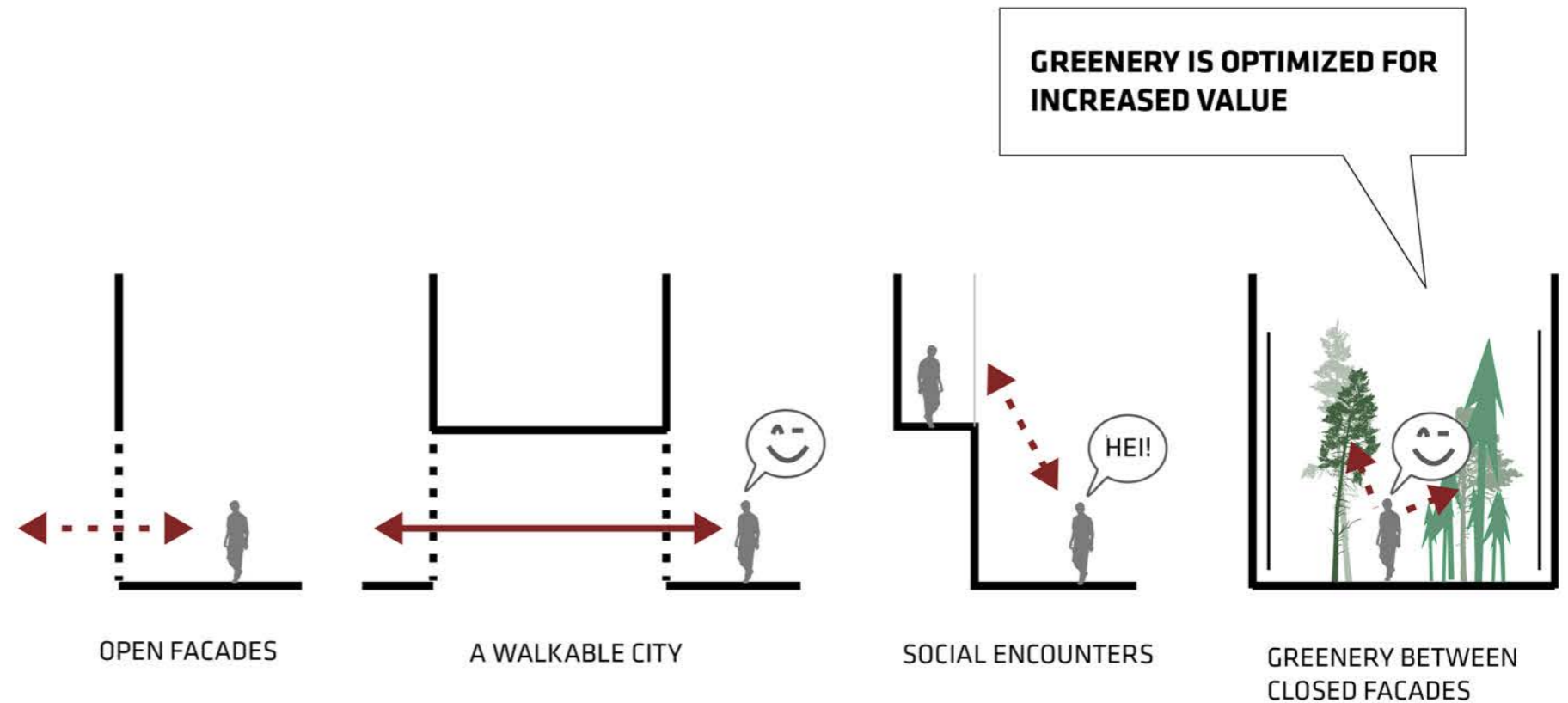
# DENSIFICATION\_PRINCIPLES

## EGDE ZONE PRINCIPLES

Today, Otaniemi is characterized by its many back sides and closed facades, as well as fragmented spaces. In order to establish a truly innovative and creative city of growth, we need to rethink the egde zones in Otaniemi.

The boundaries between work, studies, and leisure are erased when the ground floors are opened up, when nature experiences become a daily part of going to school or work, and when Otaniemi is turned into a walkable city.

Here, the built and the grown environment melt together in outdoor study places, green resting areas and plenty of opportunities for informal social gatherings.

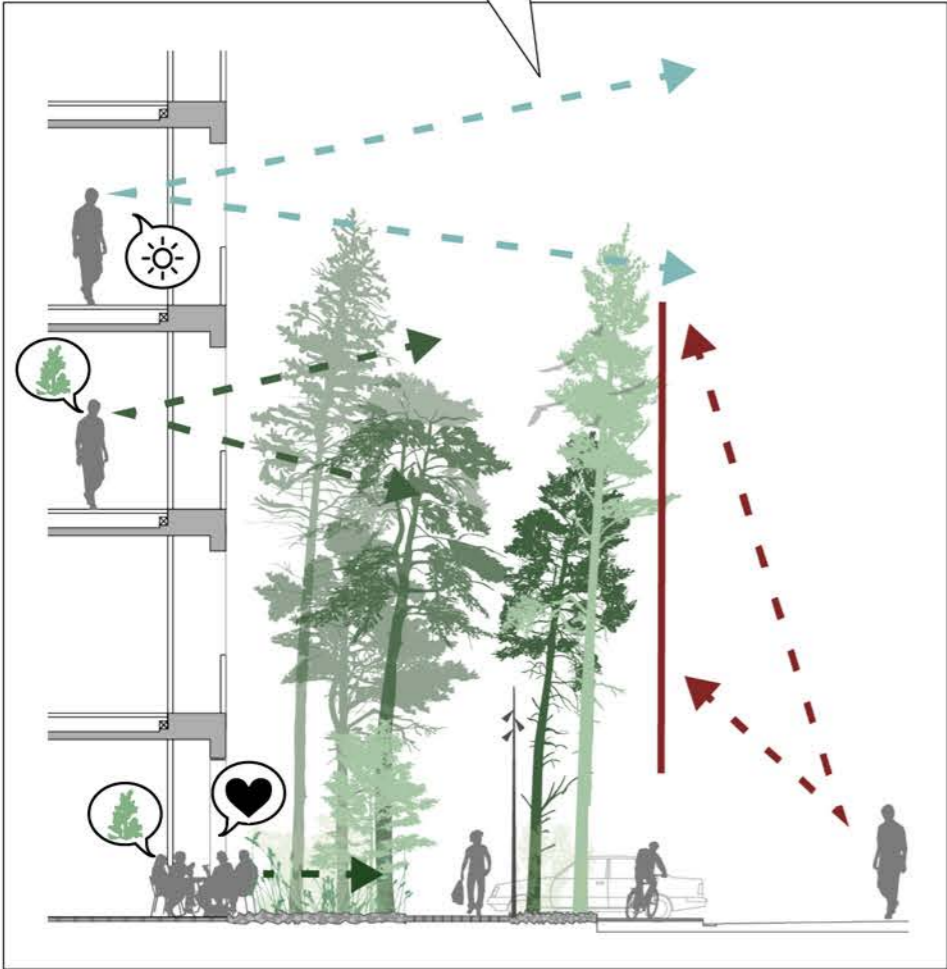




# DENSIFICATION\_PRINCIPLES

## EDGE ZONE PRINCIPLES

**NATURE CREATES PRIVACY**



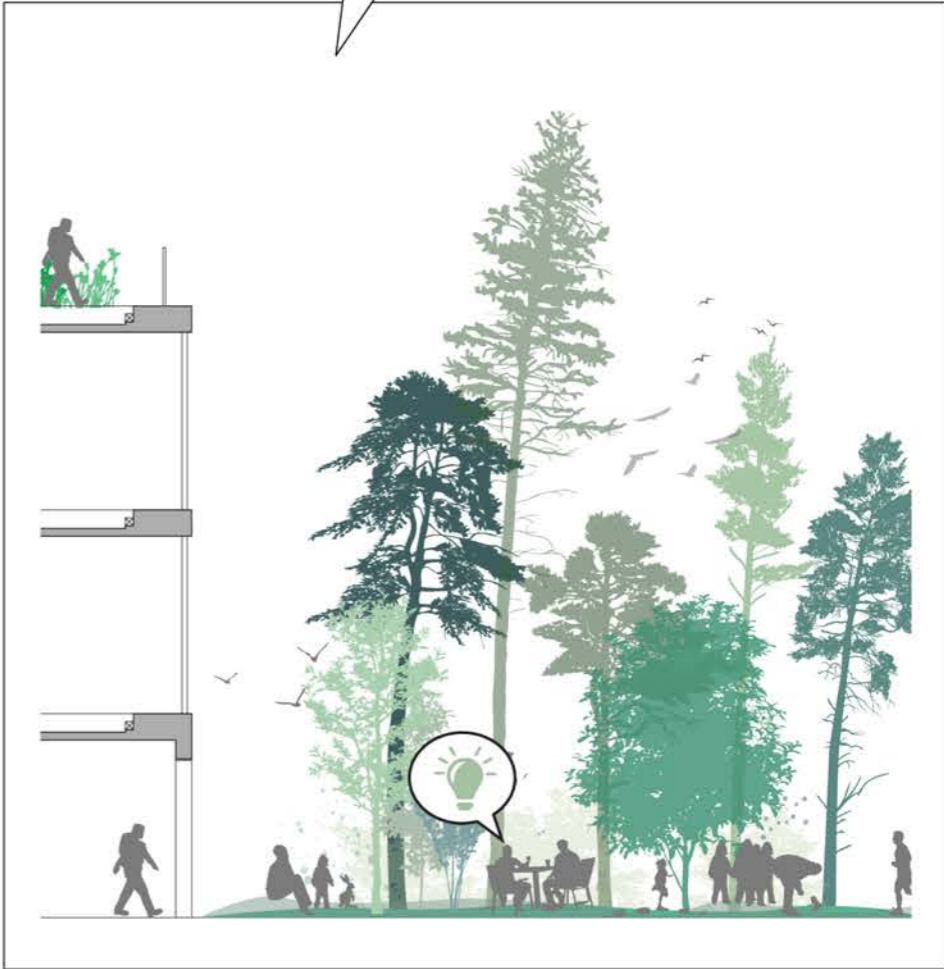
RESIDENTIAL

**NATURE INCREASES EFFICIENCY AND WELL-BEING IN OFFICE AND LEARNING ENVIRONMENTS**



RETAIL AND OFFICE

**NATURE AS A LEARNING SPACE**



LEARNING AND EDUCATION



# **DENSIFICATION OF OTANIEMI**

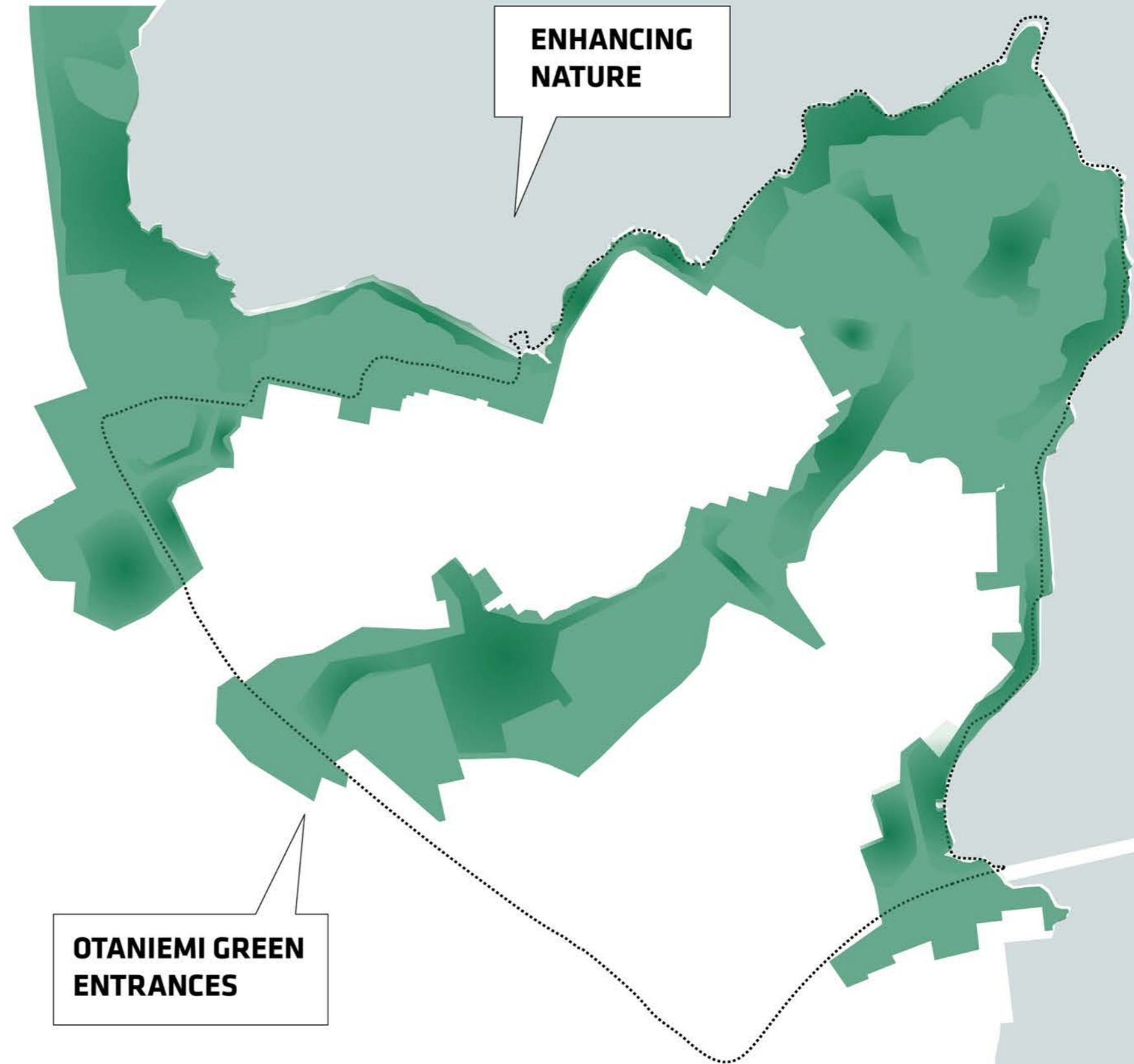
## *STRATEGY*

# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE GREEN SPINE

By focusing on a strong natural expression, all of Otaniemi's different nature types and biotopes will be tied together in a single, yet varied green identity.

These already forested areas by the coastline and in the heart of Otaniemi will be the green spine of the future city. A spine that enhances and safeguards both existing biodiversity and wildlife, as well as strengthens the green narrative about Otaniemi - a forest identity that can be sensed already when entering the area from Keilaniemi to the south, Tapiola to the west and Laajalahti to the north.



# DENSIFICATION OF OTANIEMI\_STRATEGY

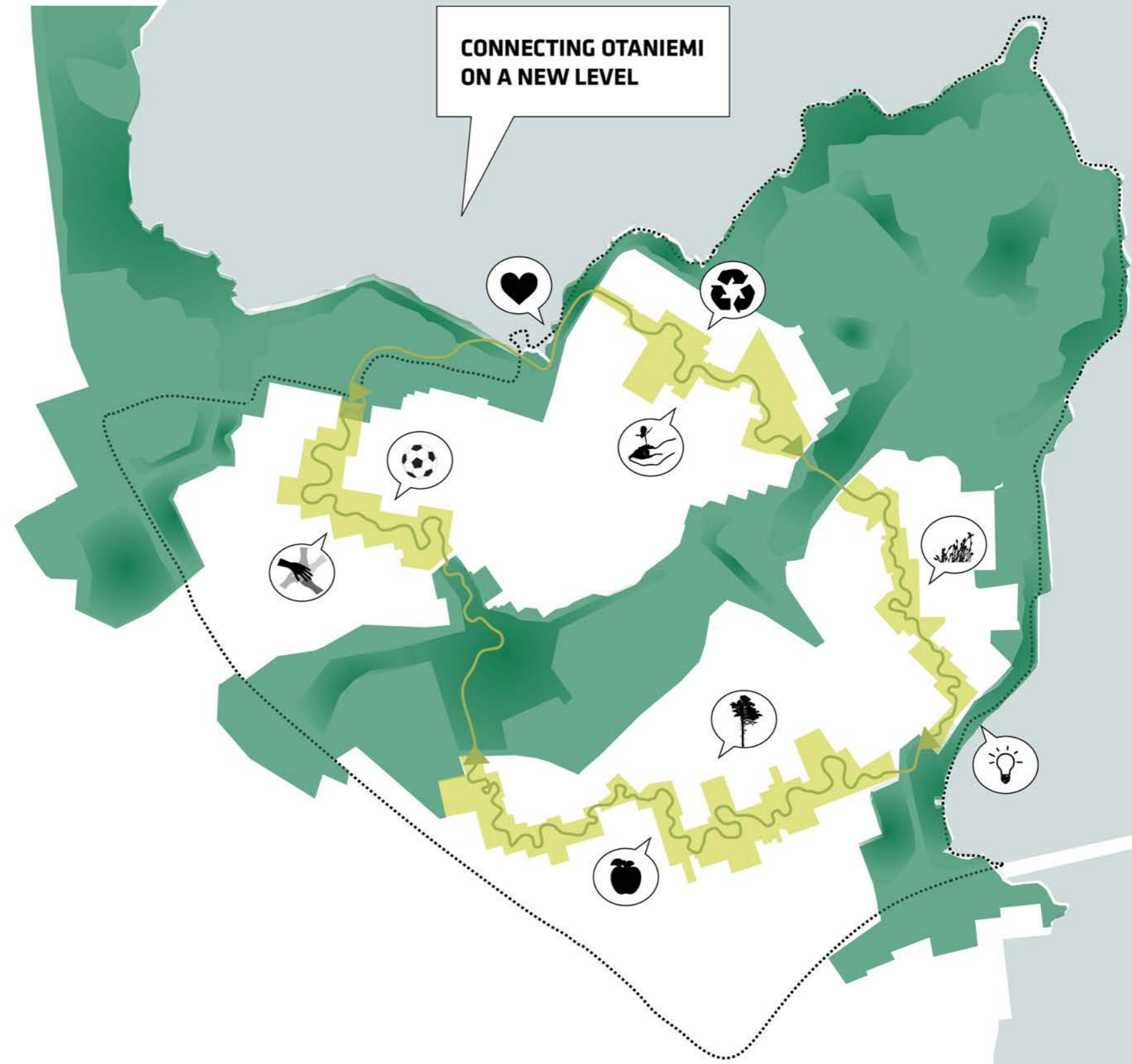
## THE OTANIEMI LOOP

The Otaniemi loop is established to connect the green spine with secondary connections both for people, biodiversity and wildlife. The loop can take some of the pressure from the existing green network, which is reaching its limits in terms of resilience and maximum levels of usage.

The Otaniemi loop is a social space connecting all neighborhood areas and different environments. It is a convenient everyday landscape that combines practical and utility with amenity and social values - a loop that provides the framework for a unique Otaniemi life.

The loop consists of various multifunctional outdoor areas, connected with a path and nature that can be used for everything - play, sports, rest, research and food cultivation! For instance, the loop can host urban farming, community gardens and self-growing communities - all parameters that create a basis for co-creation, engagement and social inclusion.

The result is a completely new type of urban park that gives Otaniemi identity and new recreational opportunities for the residents and students, while also adding a variety of aesthetic, sensual and human values.



# DENSIFICATION OF OTANIEMI\_STRATEGY

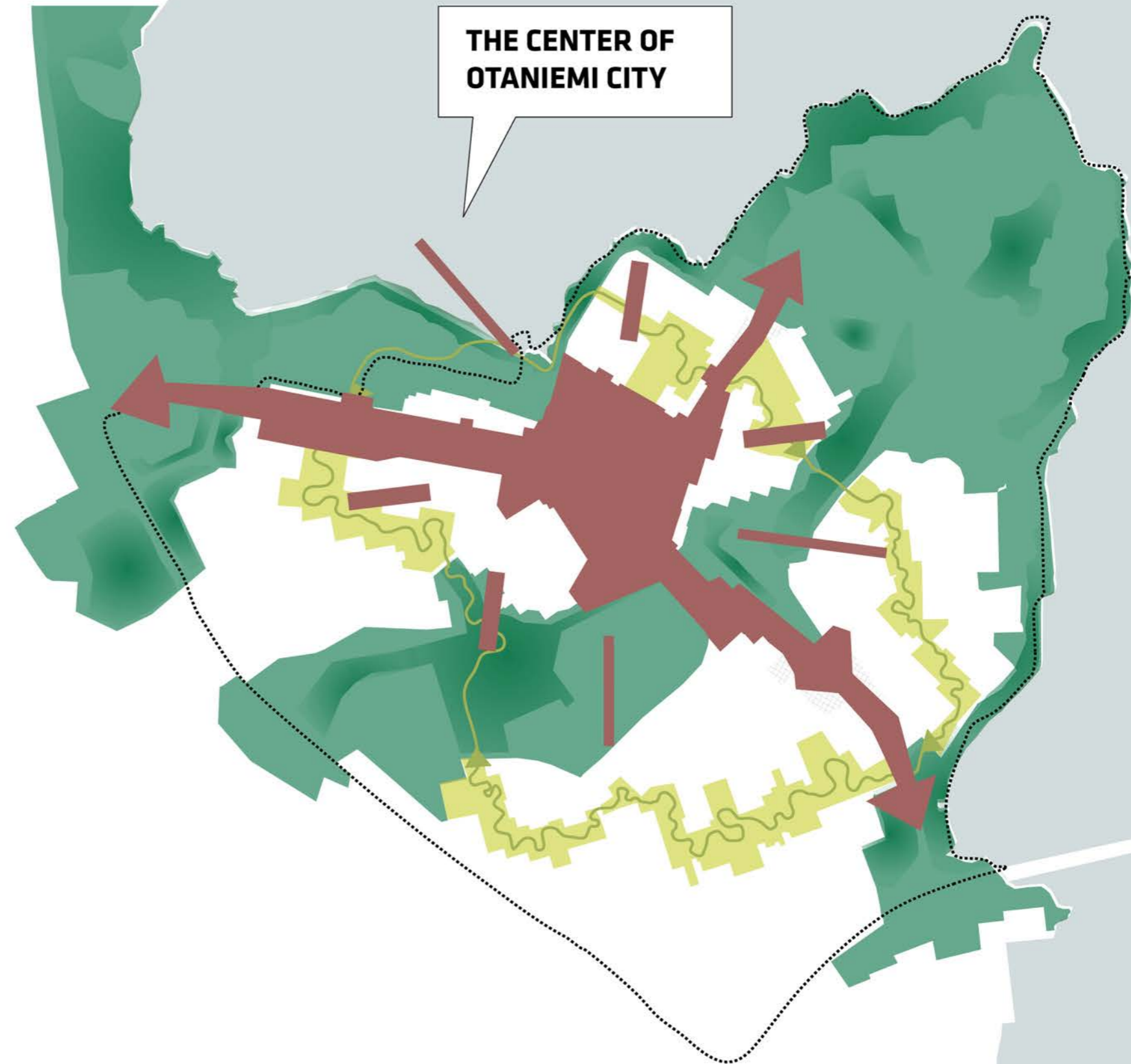
## THE URBAN SPINE

In the future, Otaniemi will have a more urban character. The urban spine in the center of Otaniemi is the main artery full of vibrant city life and different urban and academic activities.

Otaniemi's strong green brand needs its urban counterpart, where pedestrian- and bicycle-friendly public space meets the open innovation system, retail and business activities on ground floor level.

The urban spine is also connected with the green spine and the Otaniemi loop to ensure maximum added value and multiple connections.

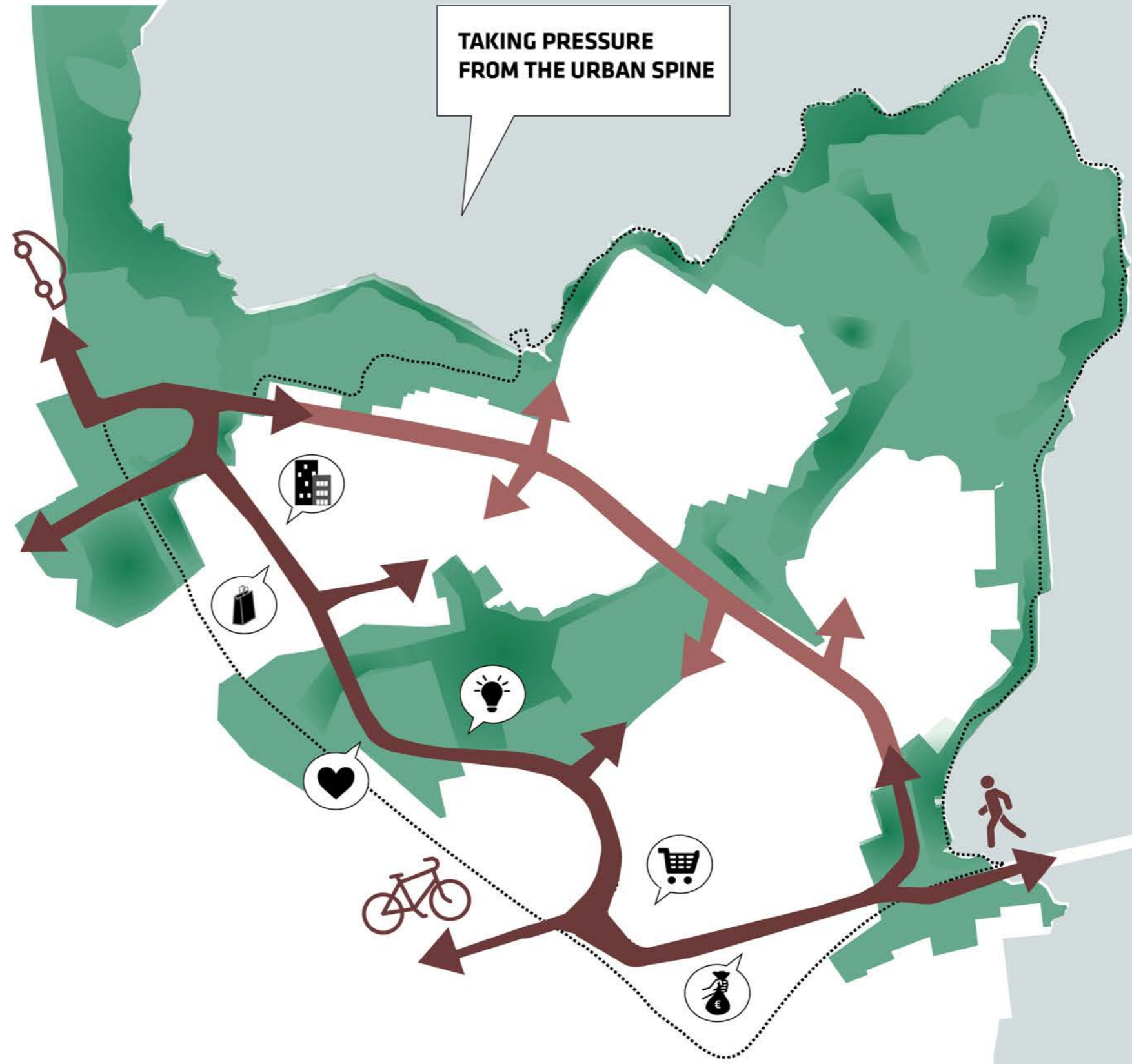
In Otaniemi, new forms of urbanity shall emerge. Our vision is to reframe the mobility network as a series of attractive urban spaces in a varied townscape.



# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE URBAN LOOP

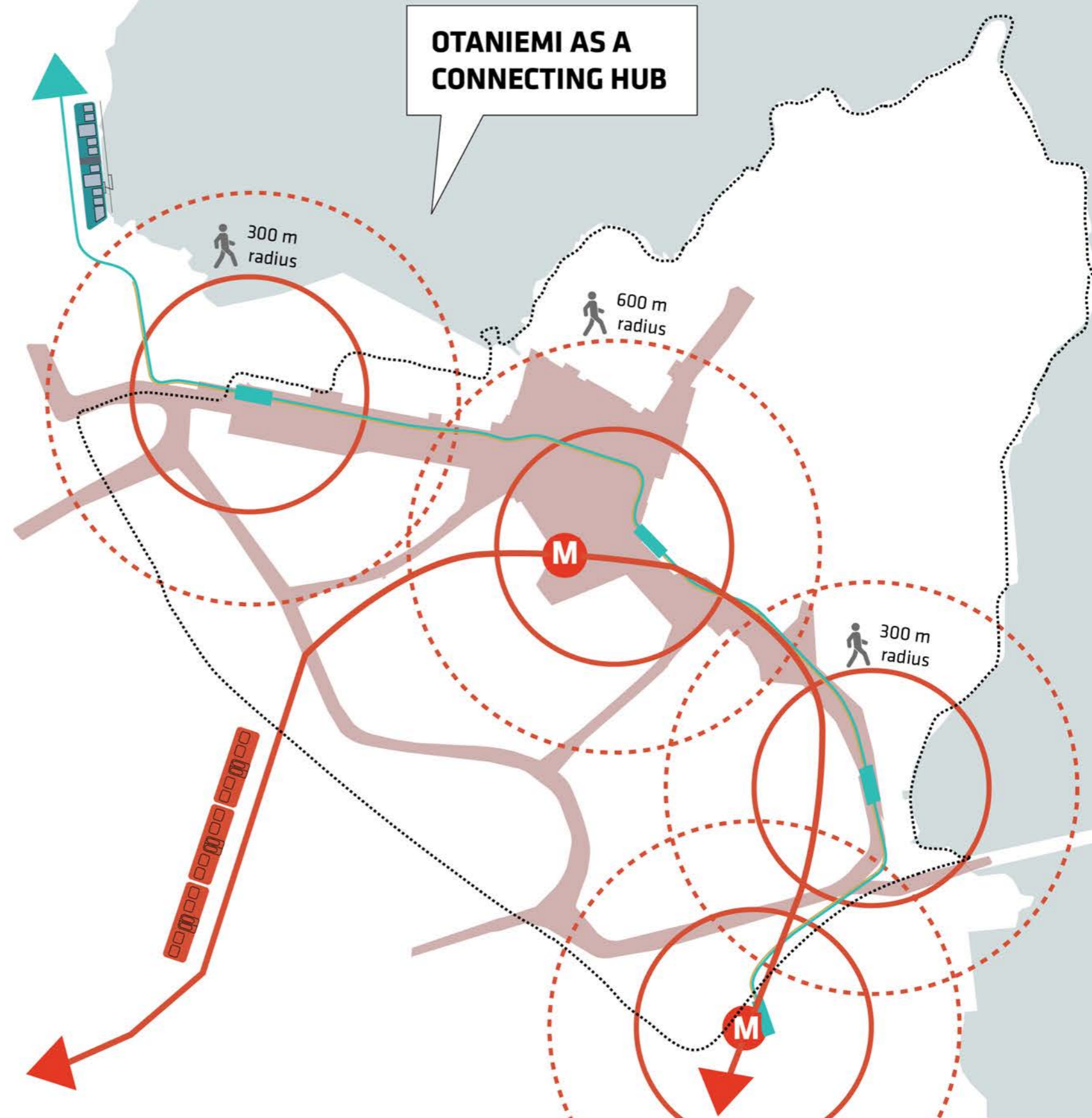
The existing Tekniikantie will have a new urban character in the future development of Otaniemi. Together with the urban spine by Maarintie and Otaniemientie, this secondary artery forms a new urban loop, where different neighborhood services and retail activities can take place - a lively location for both residents, workers, and visitors alike.



# DENSIFICATION OF OTANIEMI\_STRATEGY

## OTANIEMI PUBLIC TRANSPORTATION

The new metro and light railway lines running through Otaniemi will enable a transformation from car-oriented suburb to a walkable city, where the urban spine defines the center of the new mobility hub.





# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE VEHICULAR INFRASTRUCTURE

With the new public transportation and more attractive outdoor environment for light forms of traffic, the vehicular infrastructure in Otaniemi only provides the necessary connections, in order to minimize car traffic through the neighborhood.

In the city of Espoo, car traffic has not increased in recent years, whereas public transportation has. We are moving in the right direction!



# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE BICYCLE NETWORK

Today, about 8% of the inhabitants of Espoo are cycling as means of transportation, but the number is growing.

The city of Espoo is promoting cycling and investing in a new network of city bikes, which also will have an impact on Otaniemi, where a variety of green routes are available for cyclists. Whether or not cycling to work or in freetime, the Otaniemi network provides easy access and a multitude of both urban and green experiences along the route.



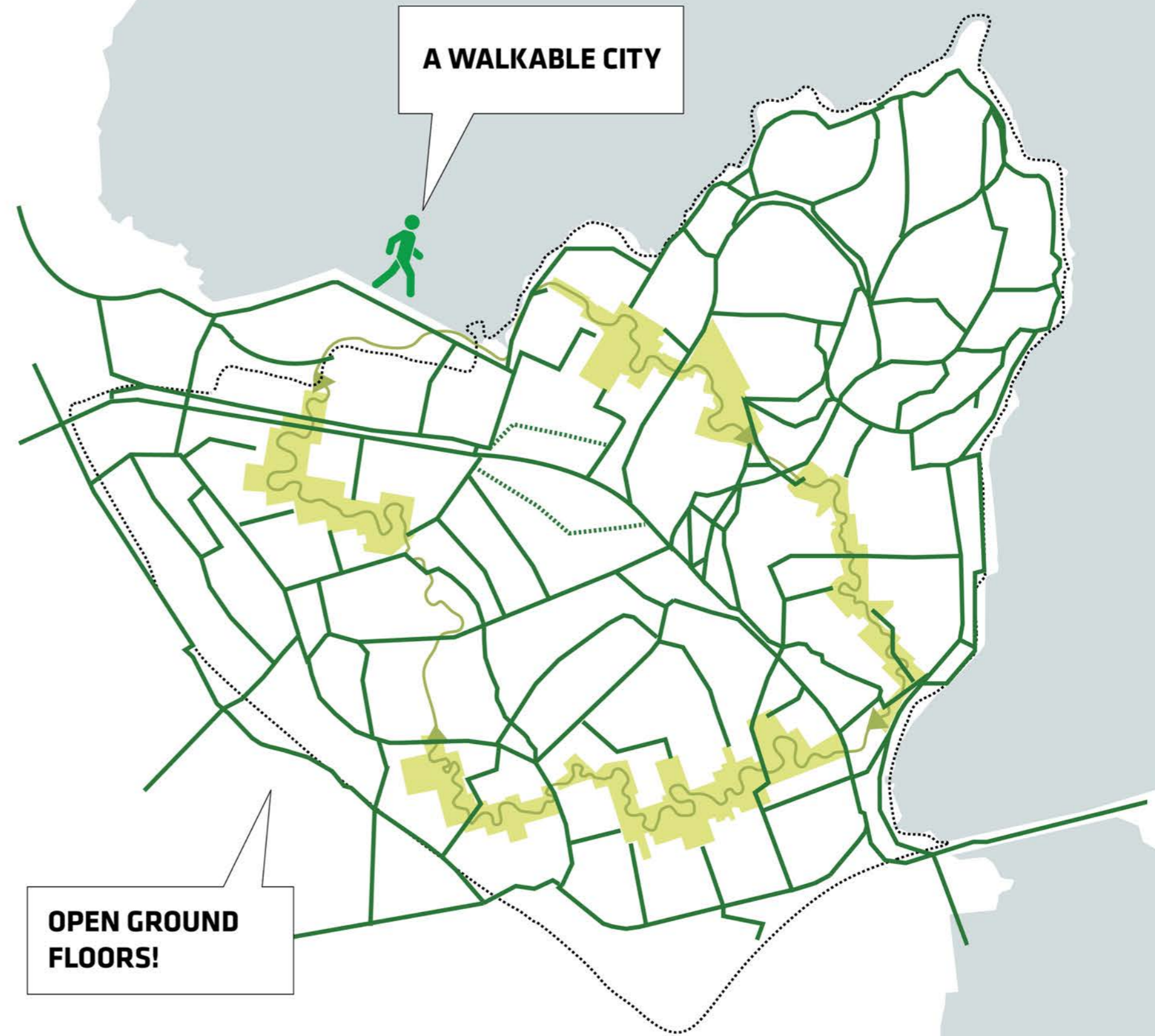
# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE PEDESTRIAN NETWORK

With a truly walkable city full of connections, multiple experiences and encounters along the way, we want to promote walking and ensure a sustainable development and long-term growth for Otaniemi.

We need to make sure that the pedestrian routes are not only well connected and safe, but also inviting and open public spaces that make people want to dwell and stay around. This applies equally to both indoor and outdoor space.

Studies show that a walkable city attracts new workers, reduces CO<sub>2</sub> emissions, revitalizes retail and the economic life as well as attracts tourism. A walkable Otaniemi ensures Aalto university's vision of a vibrant and international hub.



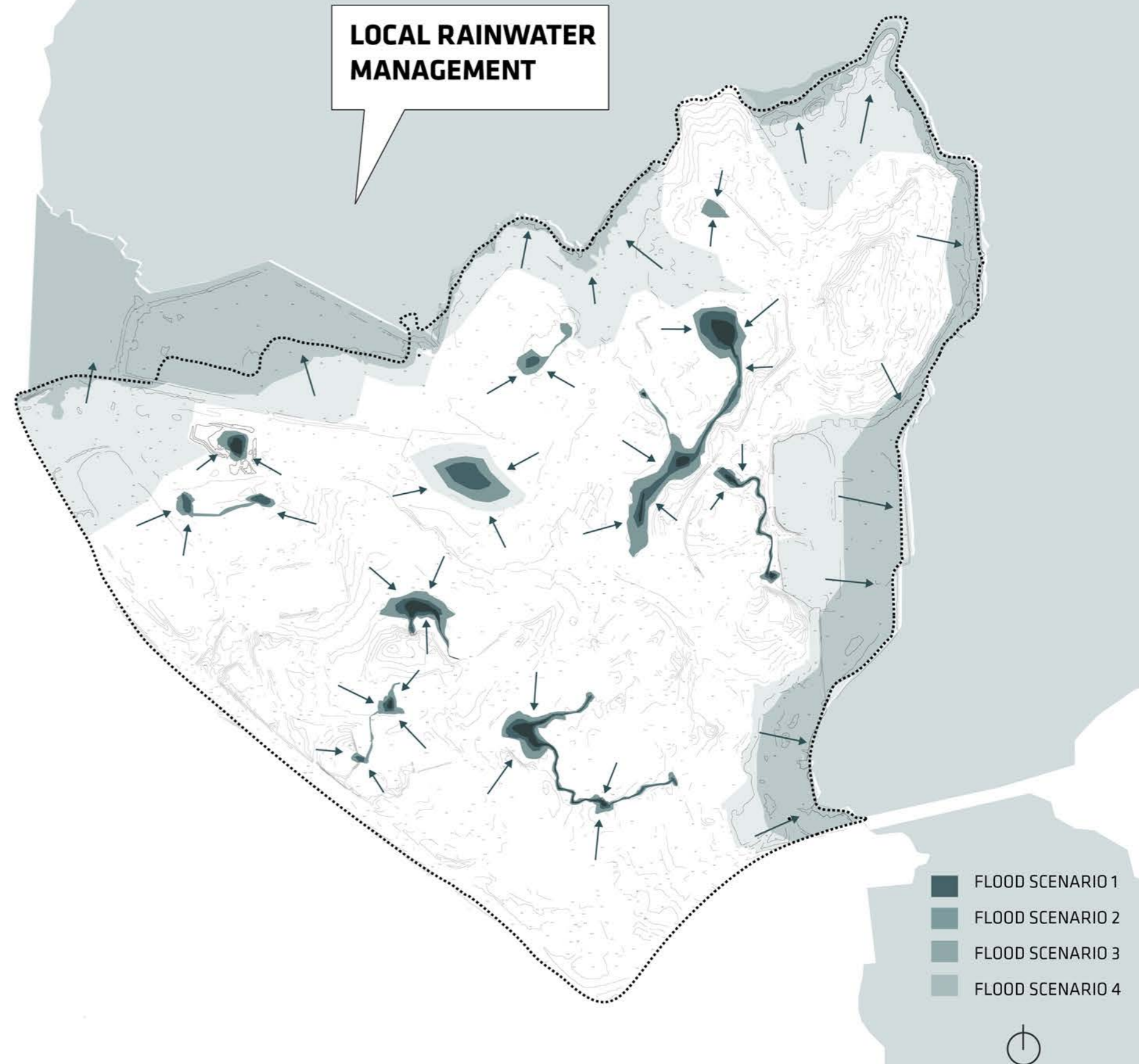
# DENSIFICATION OF OTANIEMI\_STRATEGY

## THE BLUE OTANIEMI

Cloudburst, flooding and rising water levels will be part of southern Finland's major issues in the near future. Therefore, the new development of Otaniemi should be designed to handle the extreme cloudbursts without the surrounding buildings or roads being flooded.

This means that rainwater from nature and park areas, buildings and green roofs will be collected and naturally cleansed in the vegetation as well as in the large underground reservoirs, from which it is recycled to irrigation in the Otaniemi loop or for toilet flushing in new buildings, for instance. Excess water is also led into the sea, being cleansed by nature biotopes along the way.

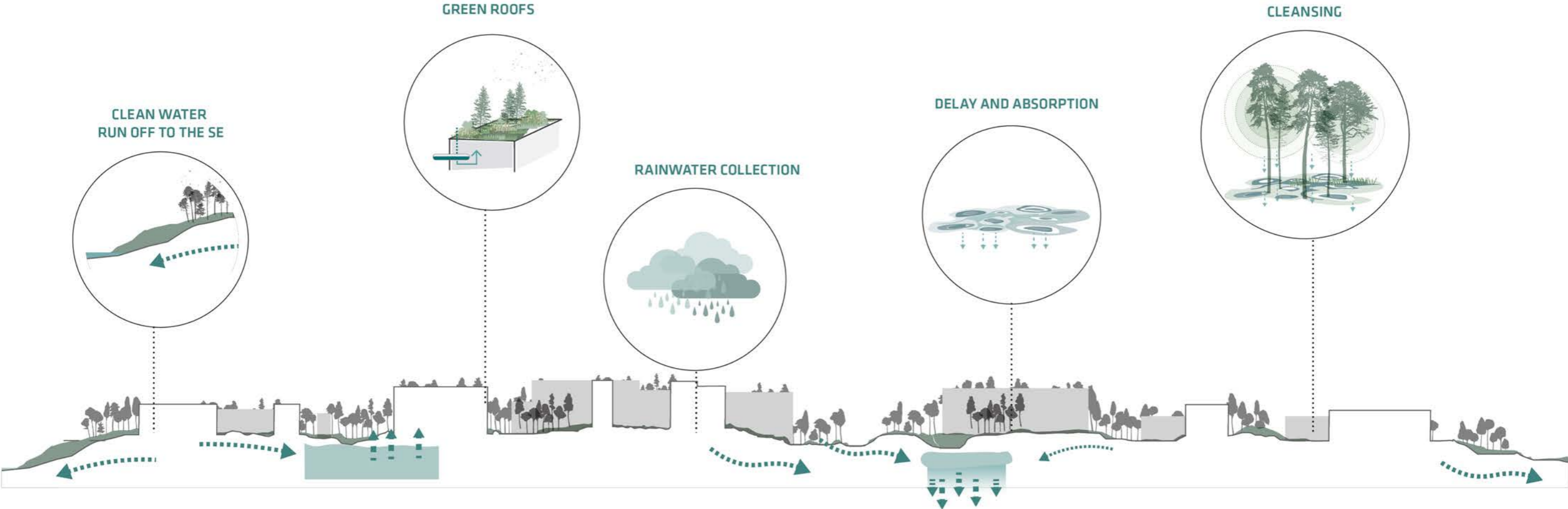
Water management in Otaniemi makes the landscape robust to climate change and provides both an ecological value and great savings.



# DENSIFICATION OF OTANIEMI\_STRATEGY

THE BLUE OTANIEMI

PRINCIPAL SECTION THROUGH OTANIEMI

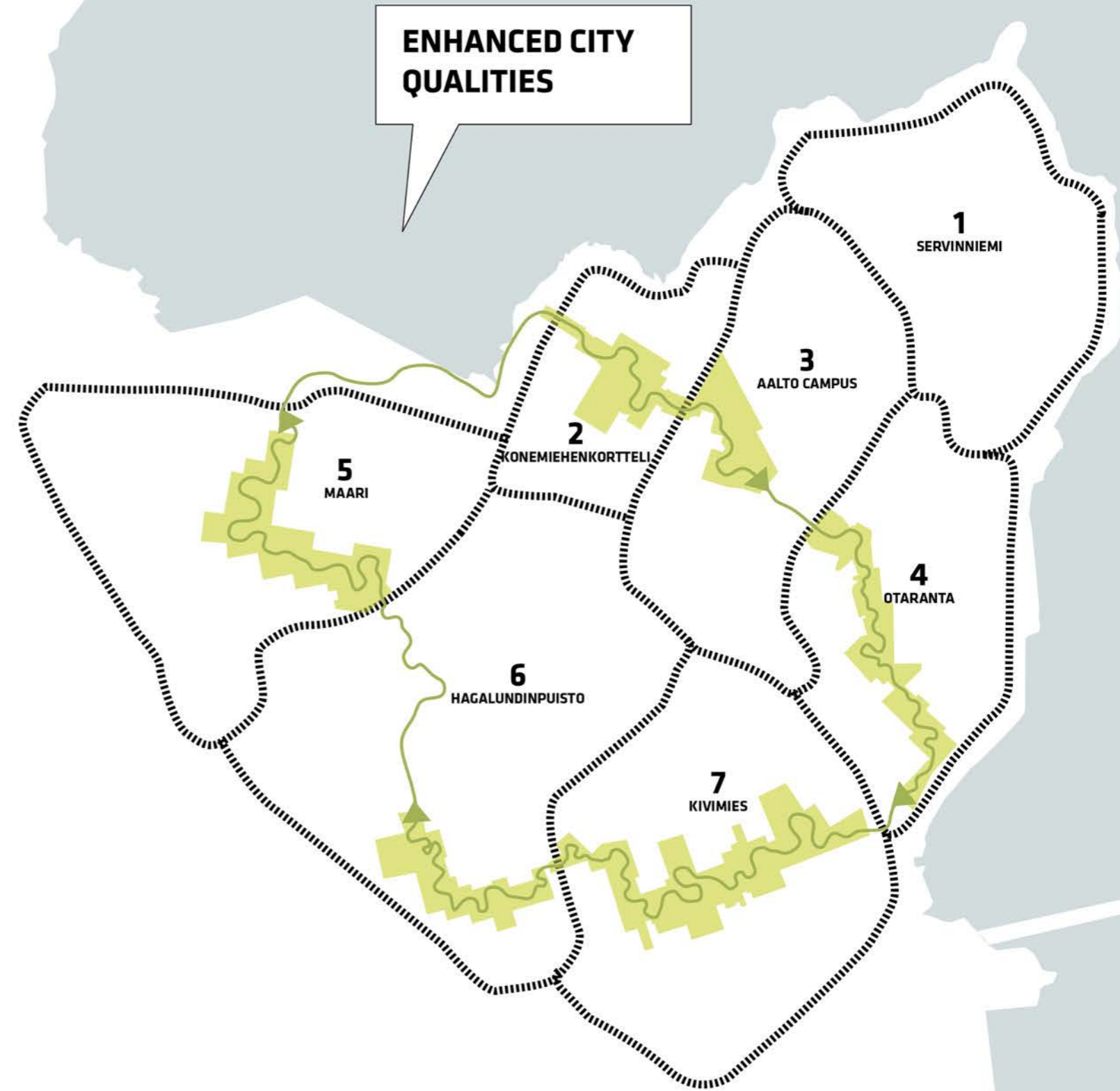


# DENSIFICATION OF OTANIEMI\_STRATEGY

## OTANIEMI NEIGHBORHOODS

Today, Otaniemi consists of many different kind of areas and land-use, but the overall impression remains somewhat fragmented and unclear. With a clear definition of seven Otaniemi neighborhoods, we wish to create a unified Otaniemi, full of different possibilities within each neighborhood.

Each neighborhood has its own history, identity and atmosphere, something that can already be sensed today. In the future, however, these identities can be further enhanced and nurtured, with the goal to create a diverse and rich Otaniemi, both spatially and emotionally. A vibrant city with its distinct neighborhoods.



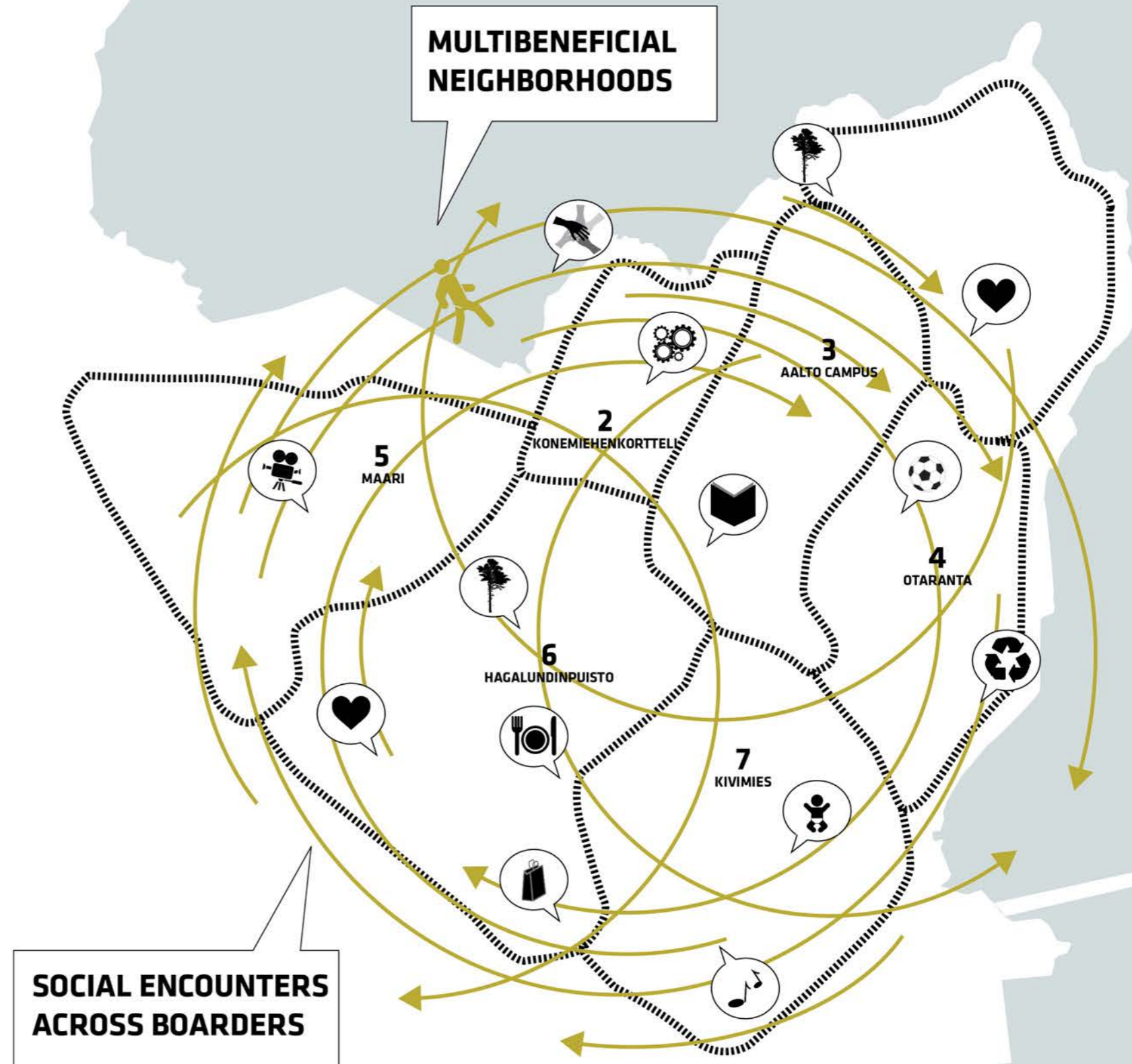
# DENSIFICATION OF OTANIEMI\_STRATEGY

## OTANIEMI SOCIAL NETWORK

Otaniemi is already today a unique multidisciplinary combination of academia, education, research and business. The new landscape plan must create the optimal foundation for further innovation and crossdisciplinary collaborations. This way, Otaniemi also has the potential to become an even more attractive place to live, work and study in.

What creates a city is the different layers and uses across borders. To reach this goal each one of the seven neighborhoods needs to be attractive and welcoming, as well as provide some sort of activity or service to residents or workers. Thus, Otaniemi will be an operational environment with increased programmatic and spatial diversity - and intensified multidisciplinary interaction.

The objective is an Otaniemi lifestyle and community spirit, spread all around its seven neighborhoods; a versatile and creative meeting place for research, arts, business and free-time services.

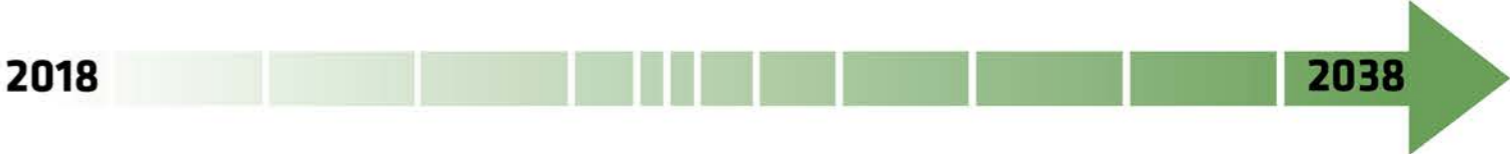


# DENSIFICATION OF OTANIEMI\_STRATEGY

## FUTURE PHASING PLAN

Otaniemi will undergo substantial change in the coming years. With the seven neighborhoods, development projects can be strategically separated and planned accordingly to these areas.

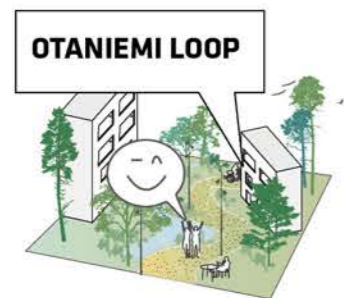
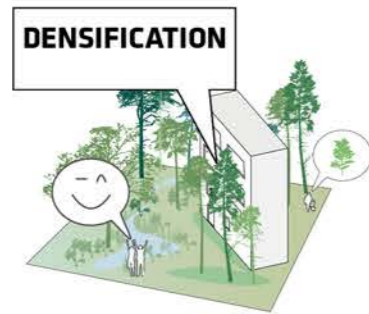
Each neighborhood can be planned according to its needs and current possibilities, and construction work and other interventions executed correspondingly.





# DENSIFICATION OF OTANIEMI\_STRATEGY

## FUTURE PHASING PLAN



# DENSIFICATION OF OTANIEMI\_STRATEGY

## OTANIEMI NEIGHBORHOOD APPROACH

Each of the seven Otaniemi neighborhoods should be looked at separately in terms of development strategy, but here we present a series of tactics that allow a flexible development over time.

First of all, the neighborhood borders are defined. Next, the existing infrastructure is adjusted as to minimize vehicular traffic inside the neighborhood. Then, the Otaniemi loop or the green spine is defined, enhancing existing nature and adding new vegetation where needed. Next to the greenery, smaller public zones can be defined and programmed. These zones can be flexible neighborhood squares hosting a wide range of social activities, e.g. a nature fitness zone, a farmer's market with produce from the urban farming project just next to it, or a playground for children.

Next to the green stretch, old parking lots and other leftover space can be used for densification with new buildings. Within each neighborhood, stormwater is managed locally and re-used for irrigation. The green stretches are connected with a path to form a loop around Otaniemi, with the goal to ensure a walkable city.

The result: a green and blue neighborhood where the landscape can be used as an outdoor innovation lab. By following these tactics, Otaniemi will not only be amongst the front runners on creative campus design, but also maximum added value will be ensured, since a good, open and accessible neighborhood landscape is open and inviting for all - from local residents to researchers, students and visitors alike.

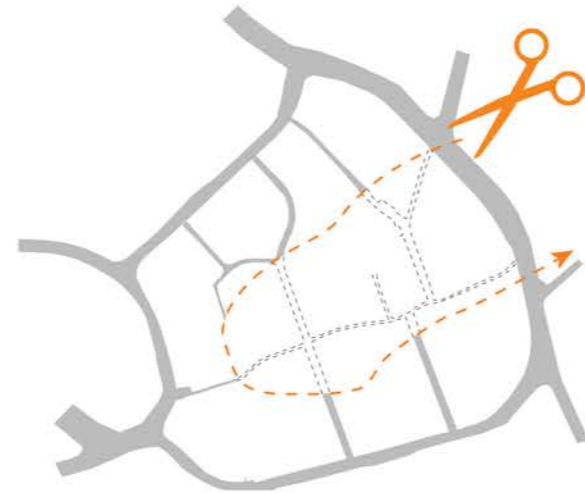
# DENSIFICATION OF OTANIEMI\_STRATEGY

## OTANIEMI NEIGHBORHOOD APPROACH

**KIVIMIES EXAMPLE**



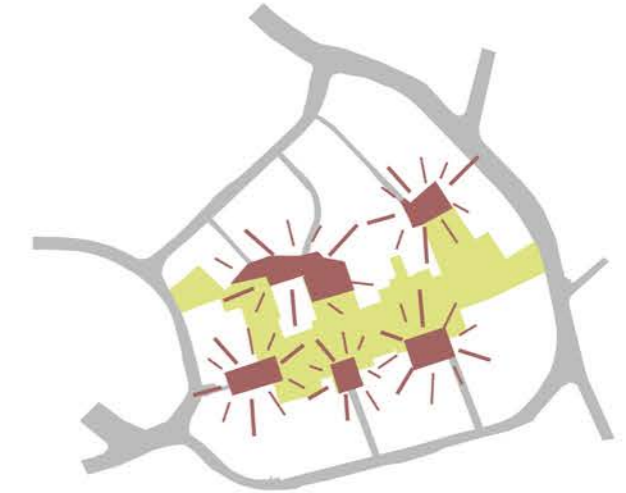
1. DEFINING THE BOARDER



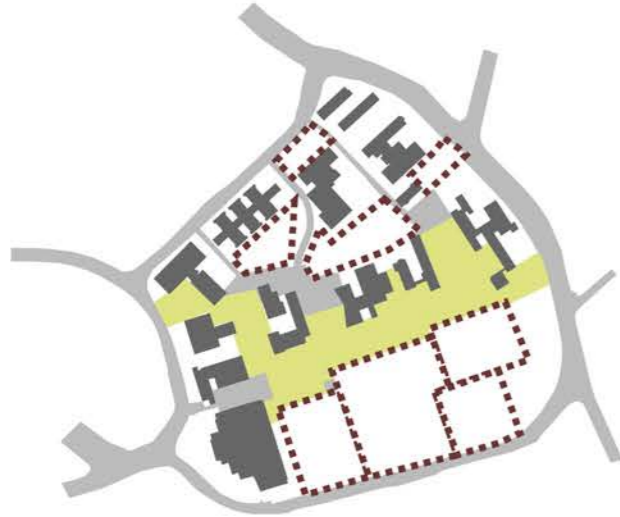
2. ADJUSTING THE EXISTING INFRASTRUCTURE



3. ENHANCING NATURE AND CONNECTING THE NEIGHBORHOOD



4. REPROGRAMMING PUBLIC ZONES NEXT TO THE GREEN STRECH



5. DENSIFICATION ON EXISTING PARKING LOTS AND LEFT-OVER SPACE



6. MANAGING STORMWATER LOCALLY



7. OPTIMIZING THE WALKABLE CITY THROUGH A GREEN LOOP



8. CREATING A GREEN AND BLUE CITY



# DENSIFICATION OF OTANIEMI\_STRATEGY

## SEASONAL AND DAILY BENEFITS

New forms of urban life shall emerge in Otaniemi. The redefined urban and green spaces create a varied townscape, with the aim to increase the use of the area outside working hours. The qualities of daily and temporal changes as well as seasonal differences are brought out to diversify the outdoor spaces, instead of restricting them.

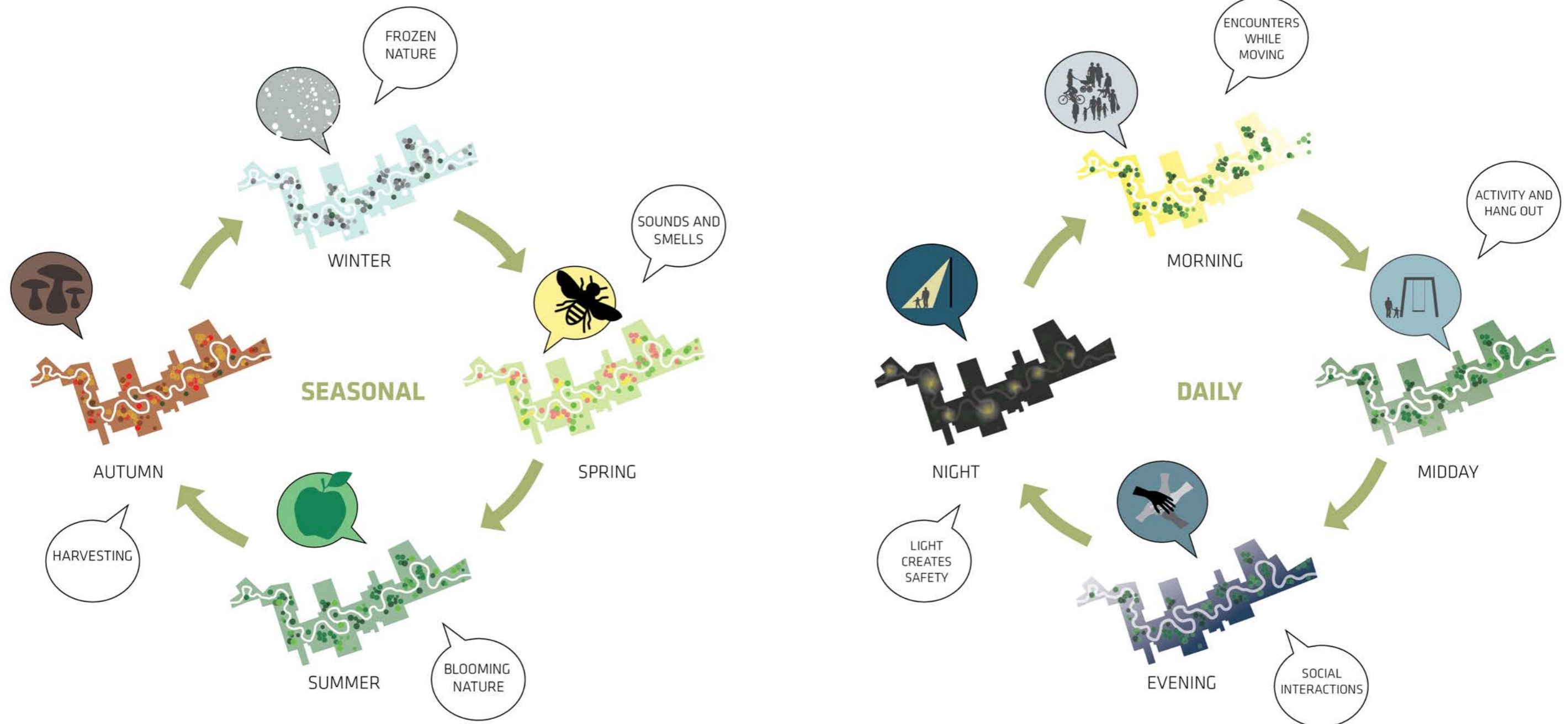
The Otaniemi loop, for example, shall be tailored to give the greatest sensuous variation of light, shadow, colour and sound - throughout all times of the day as well as the four seasons. This can be done by carefully choosing the vegetation.

Special attention shall also be given to lighting design, as a careful lighting strategy can enhance the specific temporal and seasonal atmospheres, not to mention add safety during the dark hours.



# DENSIFICATION OF OTANIEMI\_STRATEGY

## SEASONAL AND DAILY BENEFITS

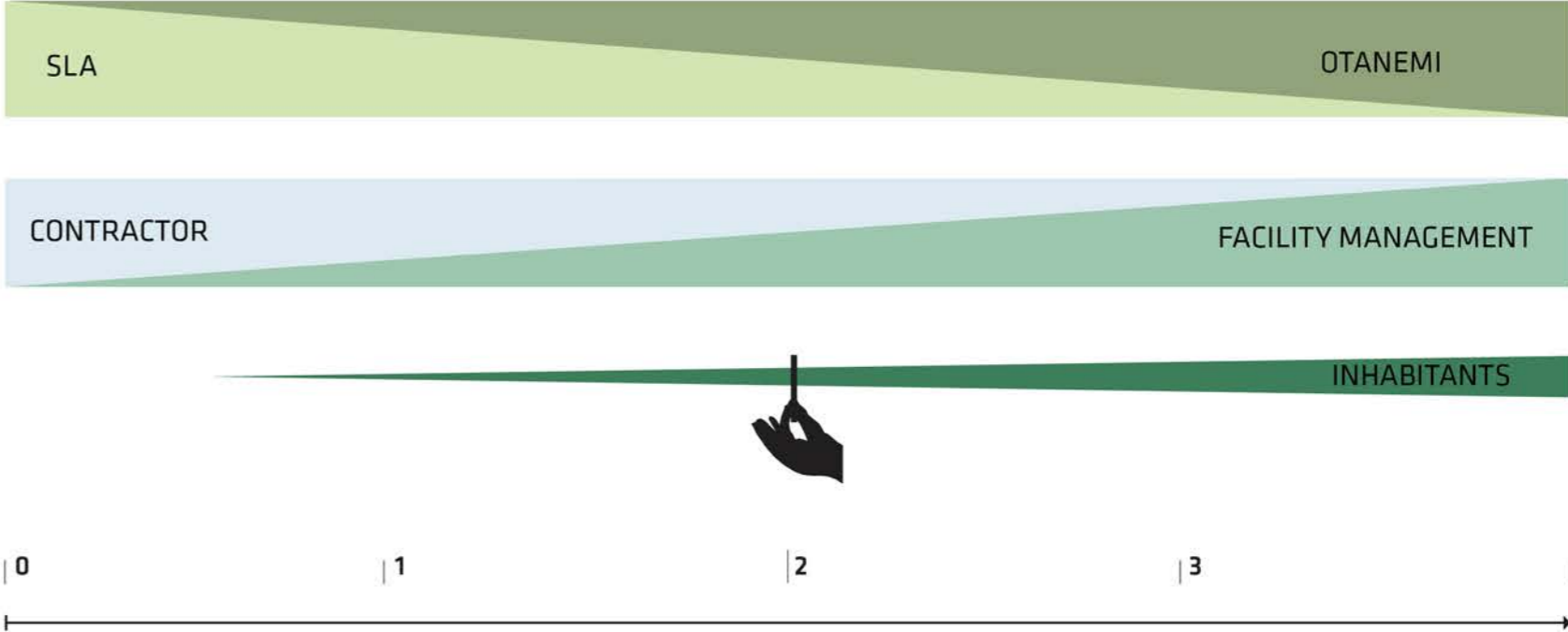


# DENSIFICATION OF OTANIEMI\_STRATEGY

## NATURE-BASED MAINTENANCE APPROACH

For Otaniemi, we envision a nature-based maintenance due to its many benefits. First of all, there are economic benefits, as it is cheaper than-conventional maintenance. It is also more time efficient. Nature-based maintenance also has social benefits - it can involve the neighborhood residents and thus create ownership and identity in the area. Involvement of SLA also ensures that nature-based maintenance is done right.

It is all about choosing the right species, designing with wild expressions, and letting the vegetation evolve with natural succession and minimal care.



# DENSIFICATION OF OTANIEMI\_STRATEGY

NATURE-BASED MAINTENANCE APPROACH



Gråbynke - *Artemisia vulgaris*

**SLA**  
Urbanity | Strategy | Landscape  
Njalsgade 17B  
Pakhus 2, 3. sal  
DK 2300 Copenhagen S  
+45 3391 1316  
landskab@sla.dk  
www.sla.dk

2+ Multiannual

Up to 70.000 seeds pr. plant

Underground stalks

Early stage

Crown plant

Blooming time

KRUDTPLAN BAC 1.0 / 02.07.2014 / 5



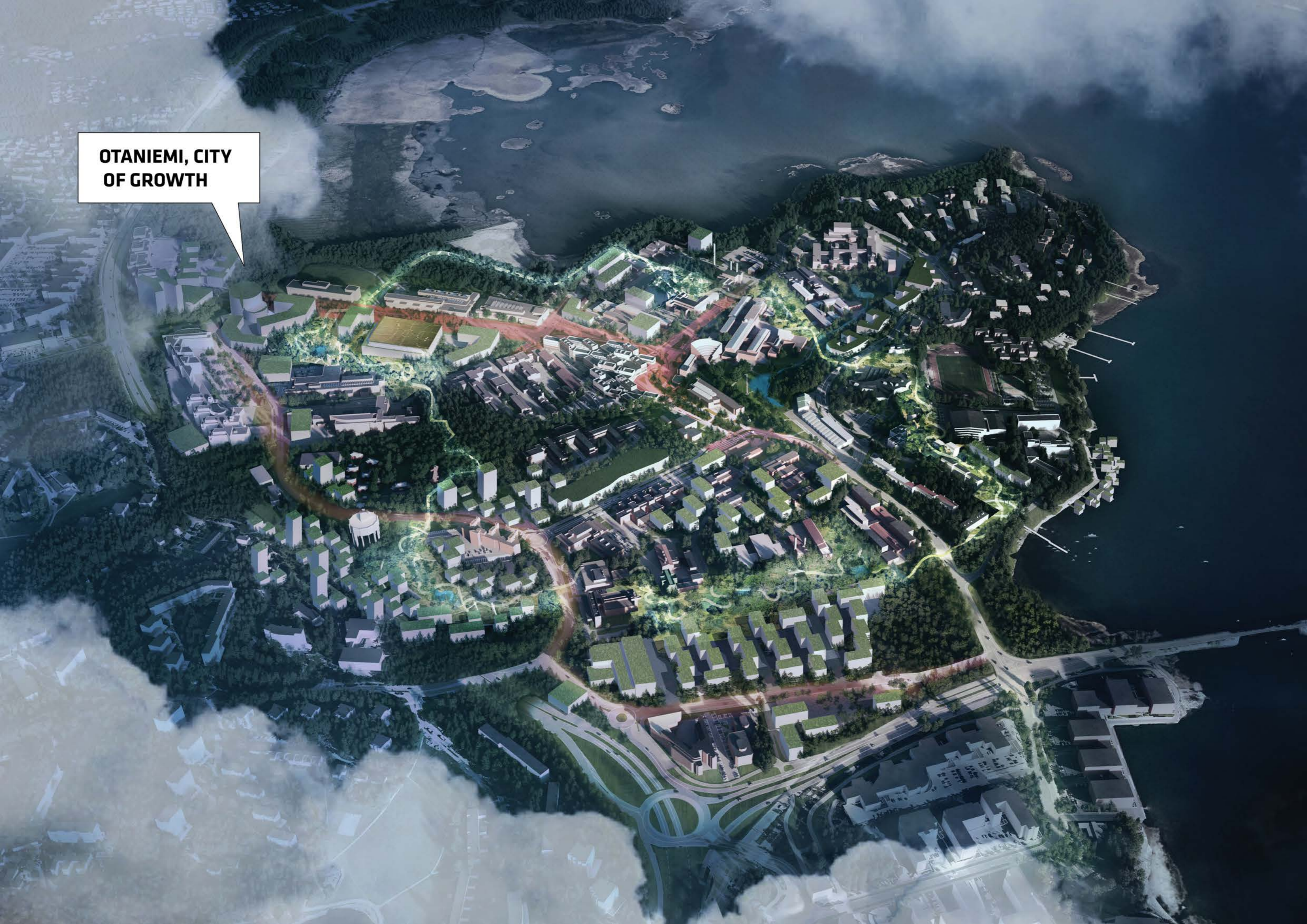


# **OTANIEMI CITY OF GROWTH**

*LANDSCAPE DESIGN*



**OTANIEMI, CITY  
OF GROWTH**



# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## LANDSCAPE PLAN 1:5500

Our landscape plan for Otaniemi envisions a new type of modern campus city that supports and strengthens the good study and research life, while providing space for both new housing, retail, offices, and service facilities, and a wide range of natural, functional and social values to the surrounding environment.

With the green Otaniemi loop as well as the urban loop, the existing infrastructure is redefined, resulting in a less fragmented city structure. By rethinking physical connections and enabling unexpected social encounters, new opportunities arise.

Otaniemi already has established numerous sustainability activities including a new sustainability hub. The new landscape plan utilizes Otaniemi's potential for an even more evolved sustainable approach through the implementation of ecosystem services, nature-based planning and circular design.

We aim for Otaniemi to be a living laboratory of scientific and artistic experimentation, where art, technology and nature are integrated into a unique type of landscape for living, learning and work.

THE GREEN SPINE	
DENSE FOREST	
THE URBAN SPINE	
THE URBAN LOOP	
THE OTANIEMI LOOP	
COLLECTED RAINWATER	
FUTURE PLANNED PROJECTS	
DENSIFICATION	
GREEN PARKINGLOTS	
INFRASTRUCTURE	



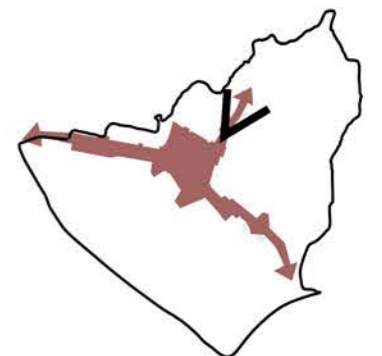
# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## THE URBAN SPINE

*A sunny autumn morning by the urban spine in Otakaari, next to the Undergraduate Center.*

*Students and teachers are moving towards their first classes of the day, but some of them are taking a break by the nearby sitting areas to breathe in the crispy, fresh air while enjoying the autumn atmosphere of Otaniemi.*

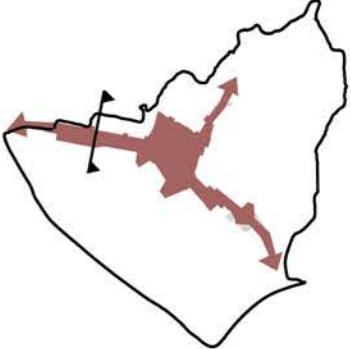
*The bright, red and yellow autumn leaves are at their most beautiful. The leaves are rustling in the wind, some of them slowly falling to the ground. The small neighborhood birds are making noise in the bushes and in the distance, the light railway tram can be heard getting closer.*





# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

THE URBAN SPINE\_SECTION 1:200







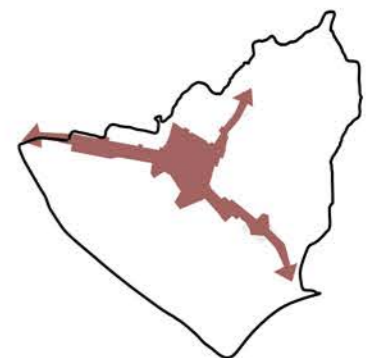
# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## THE URBAN SPINE\_MATERIALS

The material strategy for the urban spine is to create a unified and inviting space that is robust enough to handle all kinds of traffic and use, but also flexible enough in terms of different events taking place in the streetscape.

The outdoor materials should have a more formal and urban character, such as on-site casted concrete, concrete or stone slates, and why not upcycled bricks from the buildings that will be demolished.

In the urban spine, a unified and integrated material palette is important in order to gather and create calmness around the various buildings from different eras. A unifying urban floor to serve as the heart of the vibrant city!



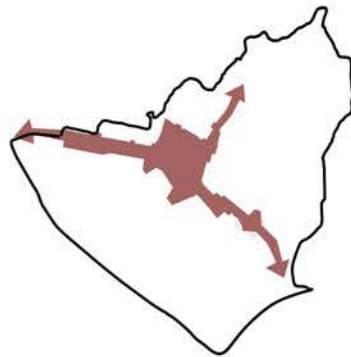
# OTANIEMI LANDSCAPE PLAN\_CONCEPT

THE URBAN SPINE\_MATERIALS

**LIGHT CONCRETE COATING  
WORKS AS A CLIMATE  
ADAPTABLE MATERIAL**



**NATURE REFLECTED IN  
GLASS FACADES**



# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## THE URBAN SPINE\_LIGHTING

The overall lighting strategy for the urban spine is to provide light that increases the feeling of a unified urban space, as well as safety, and to invite people in and encourage them to interact, socialize and make use of the architectural and landscape elements the spaces provide.

Light poles with connected spots and possibly also gobo projectors illuminate the streetscape and create a sense of safety. Following a pre-defined lighting scenario, the gobo projectors can light up only in the evenings, for instance, to attract people in the public space. Here, the lighting can be varied according to different events taking place in the streets and squares.

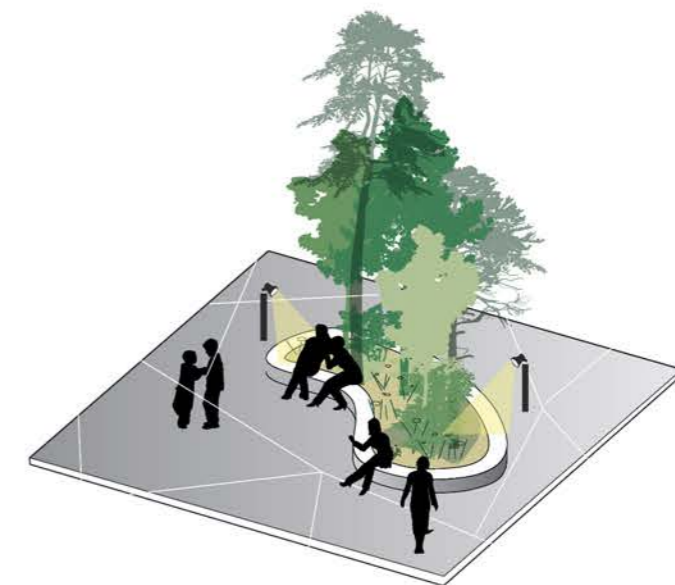
Cable lighting above the streets provide functional lighting but also add to the atmosphere and identity of Otaniemi.

Small linear lights can be placed in the paving, becoming denser as one approaches the center of the urban spine. The way-finding light elements distort and help users navigate the environment and explore the various opportunities the space provides. To highlight seating arrangements, linear up-lights can be placed at their base.

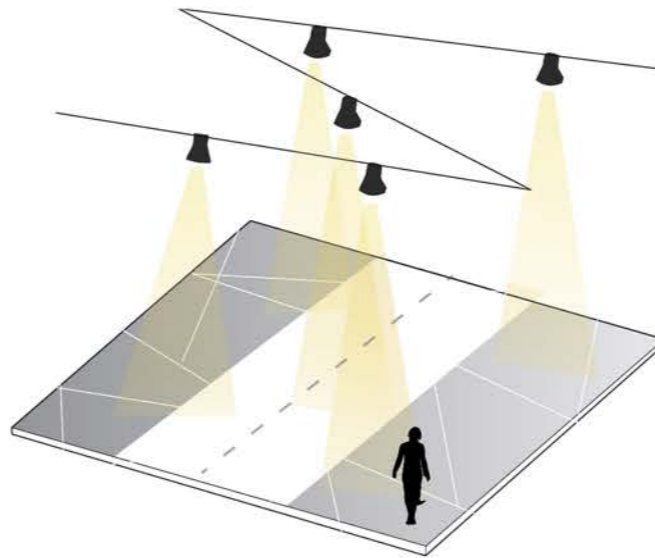
Small, directional spotlights mounted on bollards are directed towards nearby vegetation, to highlight the different types of trees and plants in the vegetation islands.



Higher lighting masts for overall good light conditions.



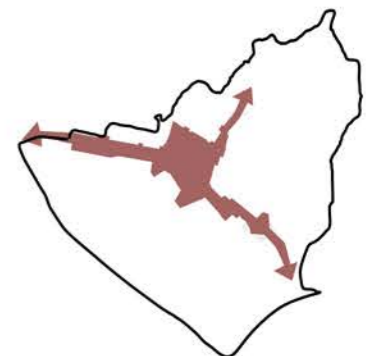
Lower spotlights on bollards to enhance vegetation islands.



Functional yet atmospheric street lighting on cables.



Uplights in the pavement for way-finding and accent.



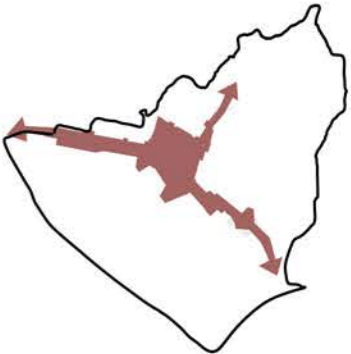
# OTANIEMI LANDSCAPE PLAN\_CONCEPT

## THE URBAN SPINE\_LIGHTING

LIGHTS INCREASE SAFETY AND ACTIVATE THE URBAN SPINE IN THE EVENING HOURS



ATMOSPHERIC LIGHTING TO ENHANCE THE VIBRANT STREETSCAPE



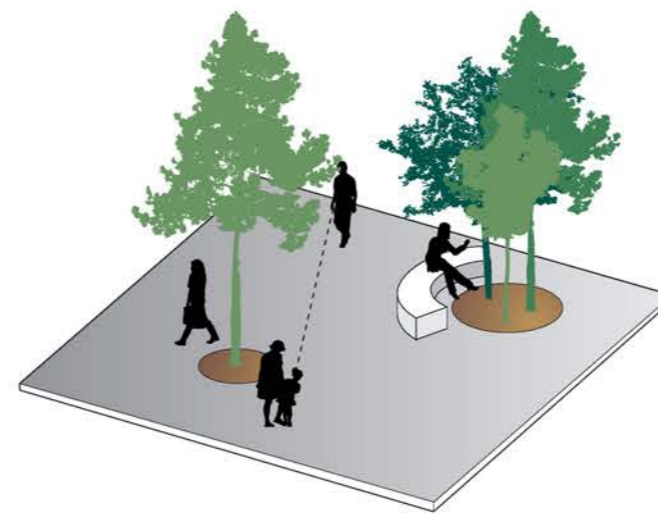
# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## THE URBAN SPINE\_VEGETATION AND WATER

Planting in the Urban Spine will consist of formal nature based planting and water typologies. Planting will be formal and defined, compared to other areas of Otaniemi. Trees will be selected according to latest climate change research and arranged to handle stormwater, urban heat island effect, air purification and CO<sub>2</sub> reduction in a densified area.

Just as urban nature can contribute to a comfortable microclimate along the urban spine, a qualified placement of vegetation optimizes the microclimate inside the buildings by providing shelter and shade. This can help reduce the buildings' energy consumption.

With everyday rain, rainwater management in the urban spine consists mainly of providing space for water in the ground, in front of rain beds that delay the flow of water. Simultaneously, water features bring aesthetic value to the urban spine.



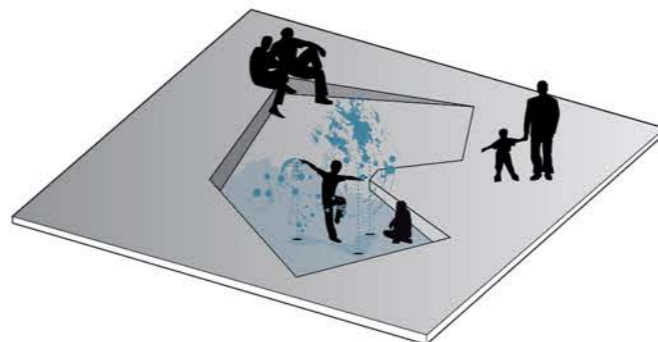
Solitary trees planted between paving with grates covering the soil. High stem trees are used to preserve visibility.



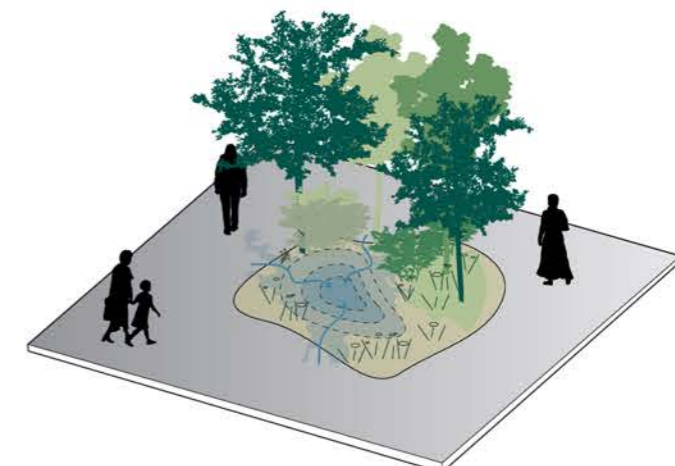
Denser vegetation islands with grasses, shrubs, bushes and trees.



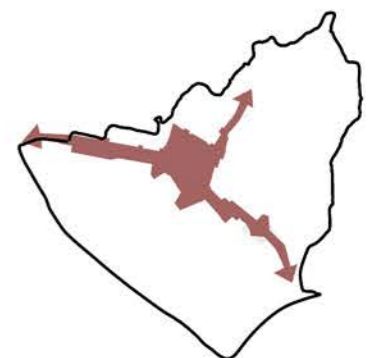
Subtle low zones in the paving, where rain water can gather.



Sunken areas in the paving can be used to retain rain water. When dry they can be used for seating and have water features.



Infiltration of rain water locally in sunken vegetation islands.



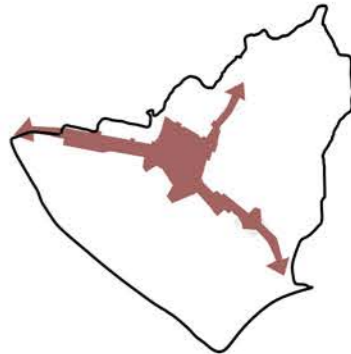
# OTANIEMI LANDSCAPE PLAN\_CONCEPT

THE URBAN SPINE\_VEGETATION AND WATER

WATER FEATURES CONTRIBUTE TO SOCIAL ACTIVITIES AS WELL AS SOLUTIONS FOR RAINWATER MANAGEMENT



BIODIVERSE VEGETATION ISLANDS WITHIN THE URBAN SPINE



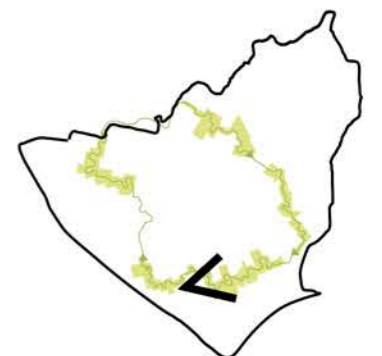
# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## THE OTANIEMI LOOP

*An early summer afternoon in the Kivimies neighborhood.*

*The Otaniemi loop, running through the neighborhood, is full of life and activity. Children are playing in the grass while parents are picking berries from the nearby bushes. A student, returning from a day at summer school, is taking a walk around the loop that is now blooming with perennials, planted by neighbors - and full of sounds and smells from the surrounding nature.*

*In the background, a farmer's market with local produce from the Kivimies community garden is taking place.*







# OTANIEMI CITY OF GROWTH\_LANDSPACE DESIGN

THE OTANIEMI LOOP\_SECTION 1:200





ROOFTOP TERRACES

PLAYGROUND

FITNESS

HANG OUT

BIKEPARKING

FARMER'S MARKET

POND

ROOFTOP TERRACES

KIVIMIES COMMUNITY GARDEN

BASKET COURT

HANG OUT

POND

BASKET COURT

ROOFTOP TERRACES

STREET

A CAFE



# OTANIEMI CITY OF GROWTH\_LANDSPACE DESIGN

## THE OTANIEMI LOOP\_MATERIALS

The material strategy for the Otaniemi loop is to create an informal yet inviting social space.

The development process and rebuilding of Otaniemi means a lot of old waste material from demolished buildings. Some of these materials could be upcycled and creatively re-used in the Otaniemi loop, to signal a truly sustainable campus city.

By invoking the principles of circular design in the material strategy, we can focus on the sustainable use of materials in the landscape with re-use and re-design in mind.

The chosen materials can range from old, upcycled bricks to natural materials such as wood or stone.



# OTANIEMI LANDSCAPE PLAN\_CONCEPT

## THE OTANIEMI LOOP\_MATERIALS

ALTERNATIVE MATERIALS TO COMPLEMENT THE EXISTING BRICK BUILDINGS

PERMEABLE PAVEMENT CAN BE USED WHERE INFILTRATION IS POSSIBLE



UPCYCLED MATERIALS FROM DEMOLISHED BUILDINGS IN THE AREA



# OTANIEMI CITY OF GROWTH\_LANDSPACE DESIGN

## THE OTANIEMI LOOP\_LIGHTING

The overall lighting strategy for the Otaniemi loop is to provide light that unites the various neighborhoods and parts of the loop, as well as to invite people in and encourage them to interact, socialize and make use of the different kind of public and green spaces.

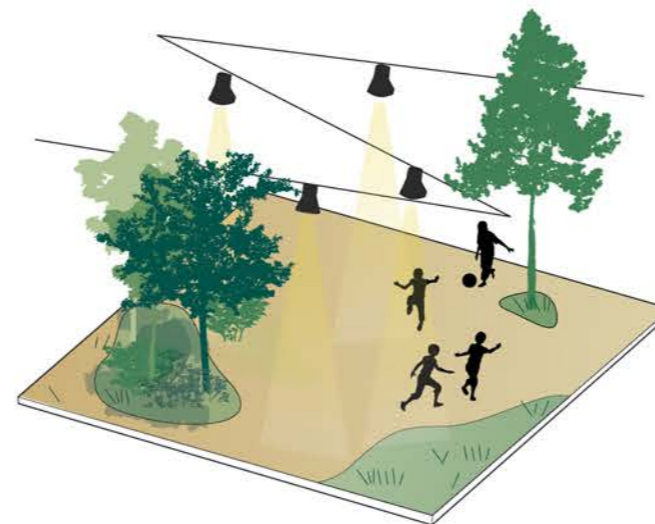
The path around the loop is illuminated by higher lighting masts, to ensure comfort and safety for the users.

Catenary cable lighting can be used above smaller community squares and gardens to invite people into a different kind of social scenario under the warm lights of hanging lanterns.

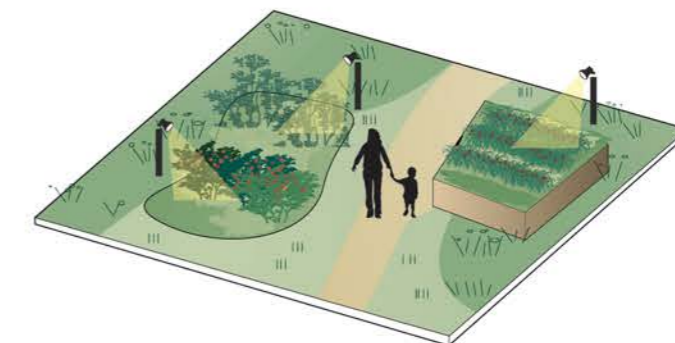
The lighting of the landscape is mostly to accent different types of trees and plants in the loop. Small, directional spotlights mounted on bollards are directed towards nearby vegetation islands. The effect is dramatic and captivating yet functional, providing good visibility between the thick vegetation patches.



Higher lighting for overall way-finding and a loop atmosphere.



Cable lighting to create atmosphere by community squares.



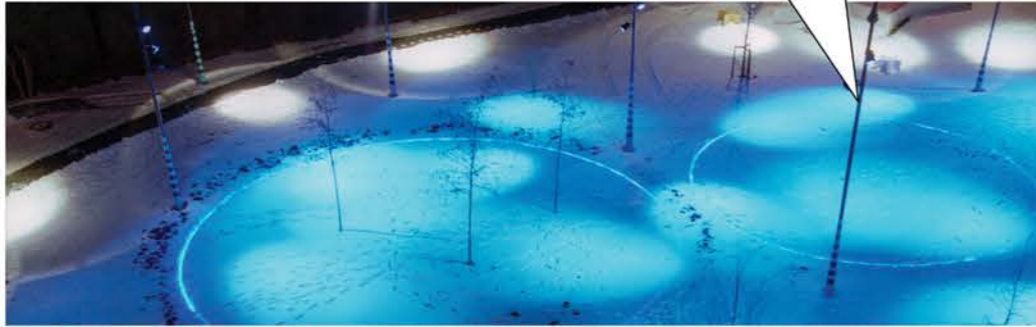
Lower spotlights to highlight vegetation zones.



# OTANIEMI LANDSCAPE PLAN\_CONCEPT

## THE OTANIEMI LOOP\_LIGHTING

**LIGHTING CAN ENHANCE EACH NEIGHBORHOOD'S IDENTITY AND CREATE VARIOUS ATMOSPHERES**



**AN ATMOSPHERIC LIGHTING THAT GIVES THE LOOP LIFE AT ALL TIMES OF THE DAY**



**WAY-FINDING AND SAFETY**



# OTANIEMI CITY OF GROWTH\_LANDSPACE DESIGN

## THE OTANIEMI LOOP\_VEGETATION AND WATER

The planting strategy in the Otaniemi loop will appear as the merge between the artificial, climate oriented plantings with exotic species in the urban spine, and the plantings in the green spine that are embracing the existing natural qualities with slender pine trees and a high degree of density. The Otaniemi loop aims to activate with a high amount of serene spots.

Vegetation in the loop consists of clearly defined vegetation islands and self-regulating biotopes, but also areas with lower grasses, perennials or lawn. Native species are mixed with exotic plants, as well as edible and usable plants. The Otaniemi loop will be a truly living campus lab!

There is also space for communal gardens and urban farming areas, where neighbors and students can get together to grow their own food. The vision is to maximize the positive impact on the Otaniemi community!

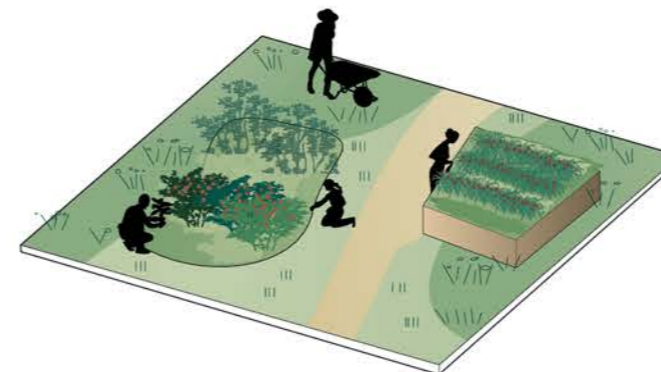
The robust urban nature in the loop can also adapt to the weather alternating between dry and wet periods. Water runoff from nearby roofs, roads, and other paved areas can be led into the loop and infiltrated in rain beds, which also increases other utility as well as amenity values.



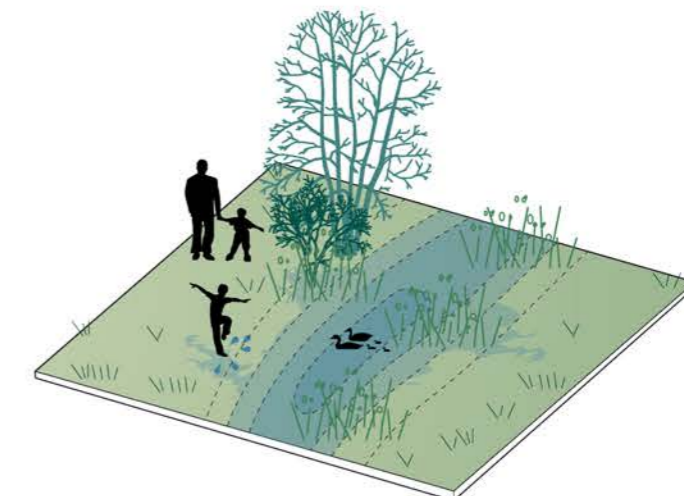
Denser vegetation or tree islands between areas of hard paving or gravel where other activities can take place.



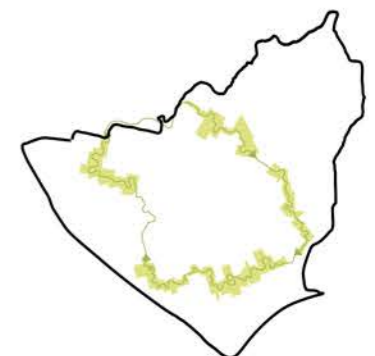
Lawns and low maintenance field grass with islands of denser vegetation and solitary trees.



Community gardens between areas of low maintenance field grass and lawn.



Local topography with lower areas for rain water to gather.





# OTANIEMI LANDSCAPE PLAN\_CONCEPT

THE OTANIEMI LOOP\_VEGETATION AND WATER

**VEGETATION THAT CONTRIBUTES TO SOCIAL EVENTS**



**URBAN FARMING AND SELF-GROWING COMMUNITY GARDENS**



**FLOWERING TREES AND EDIBLE PLANTS**



**SMALL PONDS ALONG THE LOOP TO MANAGE RAINWATER LOCALLY**



# OTANIEMI CITY OF GROWTH\_LANDSCAPE DESIGN

## THE GREEN SPINE

*Late afternoon in early September.*

*It has been raining for days and the rain water has gathered in the small pond in the park, almost turning it into a little lake.*

*A group of research students are taking water samples from the pond, while some kids from the Otaranta neighborhood are playing by the water edge. Even during rainy days, the park is well visited.*

*Different kinds of birds are also frequent visitors of the green spine that runs through Alvarinaukio. In the background, the dense forest is home to even more bird speices, not to forget the Otaniemi fox and other animals that like to hide and nest in the dense forest.*





# OTANIEMI CITY OF GROWTH\_LANDSPACE DESIGN

THE GREEN SPINE\_SECTION 1:200





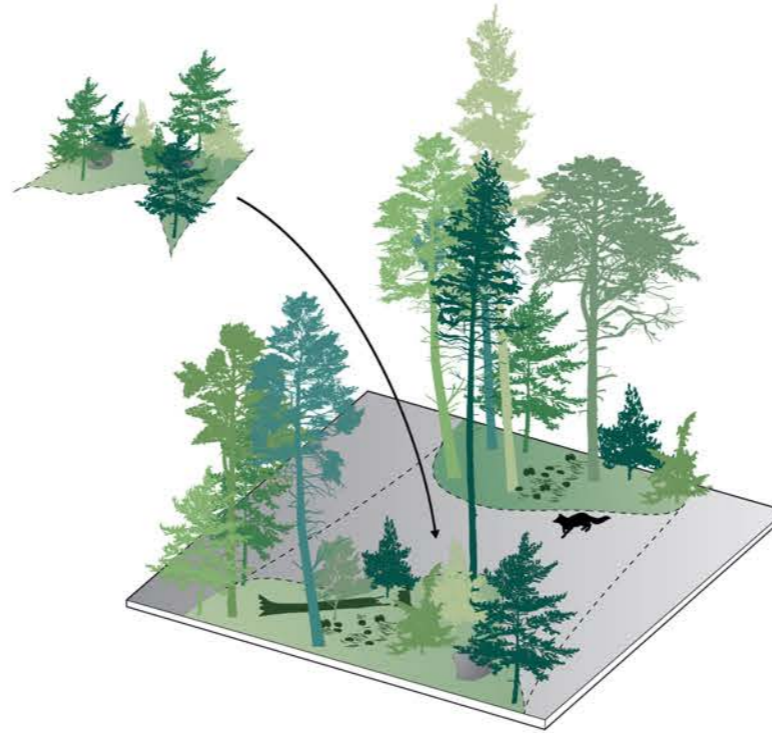
# OTANIEMI CITY OF GROWTH\_LANDSPACE DESIGN

## THE GREEN SPINE\_VEGETATION AND WATER

The vegetation strategy for the green spine consists of preserving and enhancing existing nature biotopes. Forest with wild expression, natural succession and minimal care!

Areas with lawn will be turned into low maintenance field grass and perennials, while some areas of lawn can be kept as functional zones.

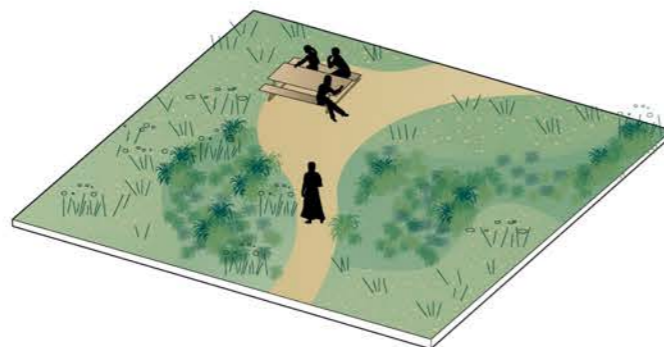
The local topography can, where needed, be remodeled so that the green areas can retain storm water in small brooks and ponds.



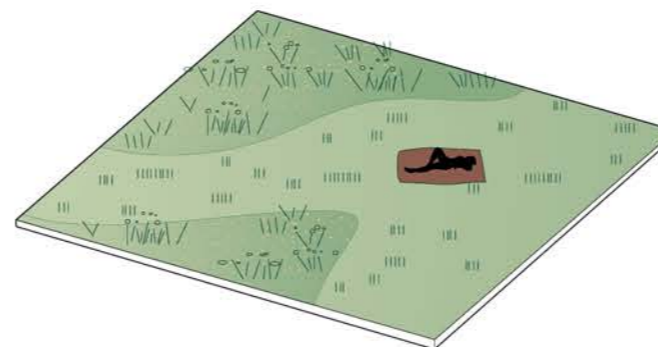
Connect existing forest areas with new forest biotope.



Preserve existing forest biotope.



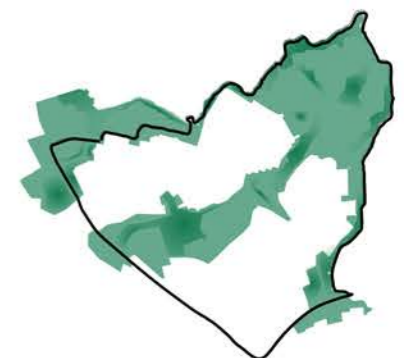
Turn existing lawn into areas of low maintenance field grass and perennials with clearly defined paths and sitting zones.



Some functional lawns are kept between field grass and perennials.



Create a local topography that allows rain water to gather into small ponds and brooks.



# OTANIEMI LANDSCAPE PLAN\_CONCEPT

THE GREEN SPINE\_VEGETATION AND WATER

**PRESERVING EXISTING FOREST FLOOR AND FALLEN TREES**



**PRESERVING EXISTING FOREST BIOTOPES AND CONNECTING WITH NEW BIOTOPES**



**USING LOCAL TYPOGRAPHY TO COLLECT AND MANAGE RAINWATER**









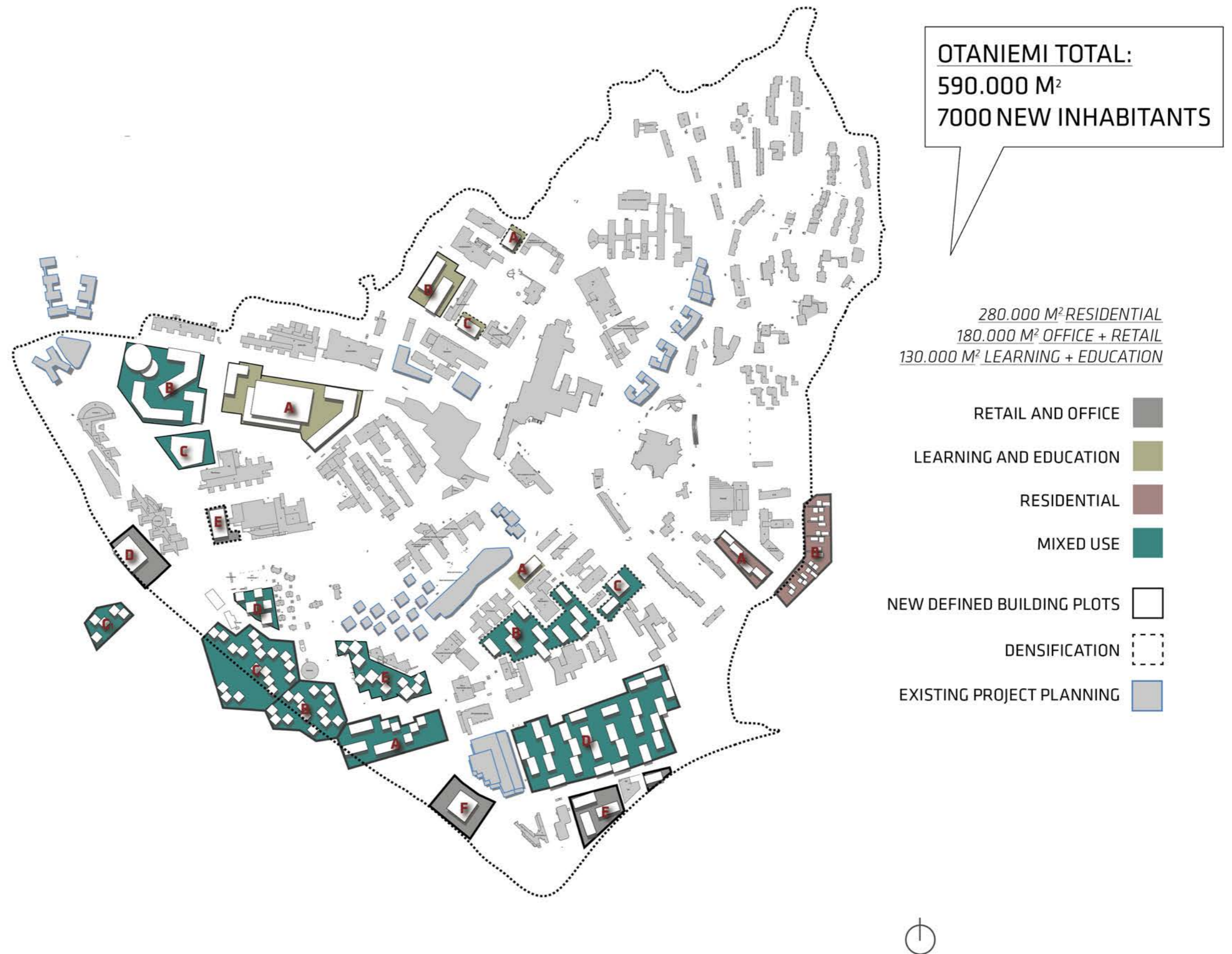


# **OTANIEMI CITY OF GROWTH**

*APPENDIX*

# DENSIFICATION OF OTANIEMI\_STRATEGY

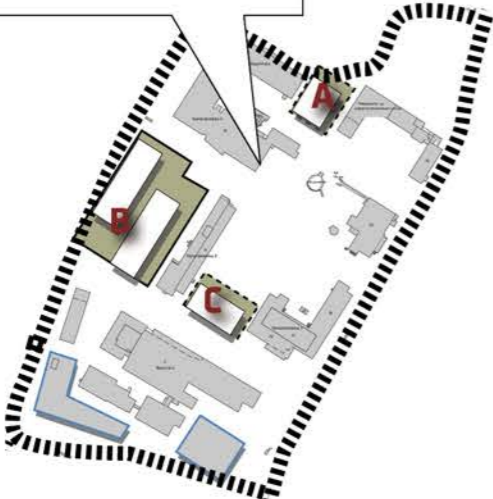
## OTANIEMI BUILDING PLOTS



# OTANIEMI CITY OF GROWTH\_APPENDIX

## OTANIEMI BUILDING PLOTS

**NEIGHBORHOOD 2  
KONEMIEHENKORTTELI  
EDUCATION AND RESEARCH**



Building plot	Plot/m2	Levels	Floor area ratio	Footprint/m2	Footprint ratio	Total building m2	Function	New Inhabitants
A	1320	8	600%	990	75%	7920	Education/research	
B	7750	4	200%	3875	50%	15500	Education/research	
C	1400	5	375%	1050	75%	5250	Studenthousing	131
In construction						10000	Education/research	

**OPTIMIZING  
URBAN GREEN**



**PRESERVING  
TREES**



# OTANIEMI CITY OF GROWTH\_APPENDIX

## OTANIEMI BUILDING PLOTS

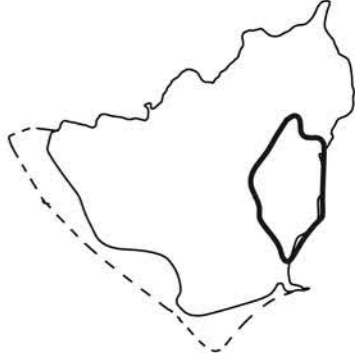
**NEIGHBORHOOD 4 OTARANTA RESIDENTIAL AREA**

Building plot	Plot/m2	Levels	Floor area ratio	Footprint/m2	Footprint ratio	Total building m2	Function	New Inhabitants
A	5000	4	100%	1250	25%	5000	Housing	125
B	11100	2	38%	2100	19%	4200	Housing(on water)	105

**OPTIMIZING URBAN GREEN**

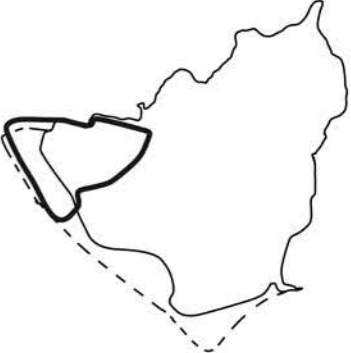
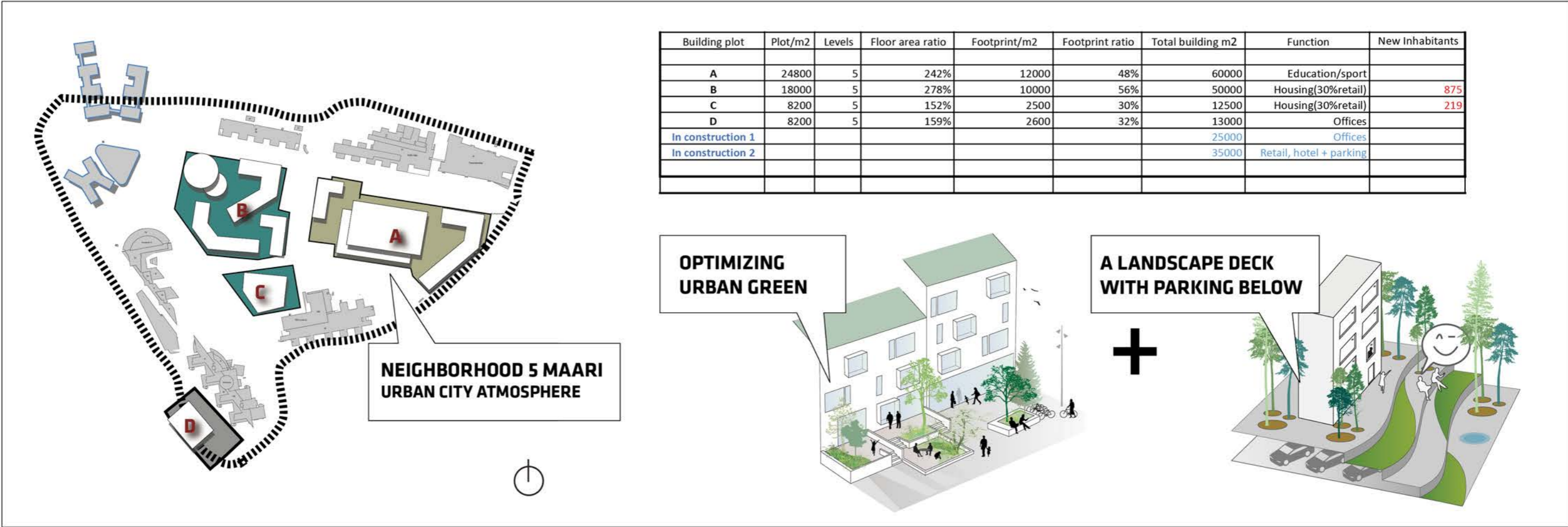
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**PRESERVING TREES**



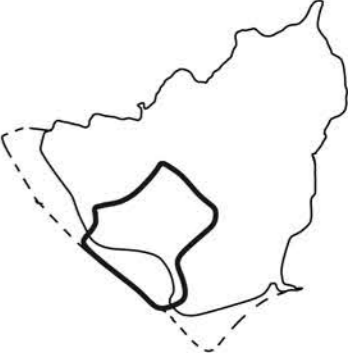
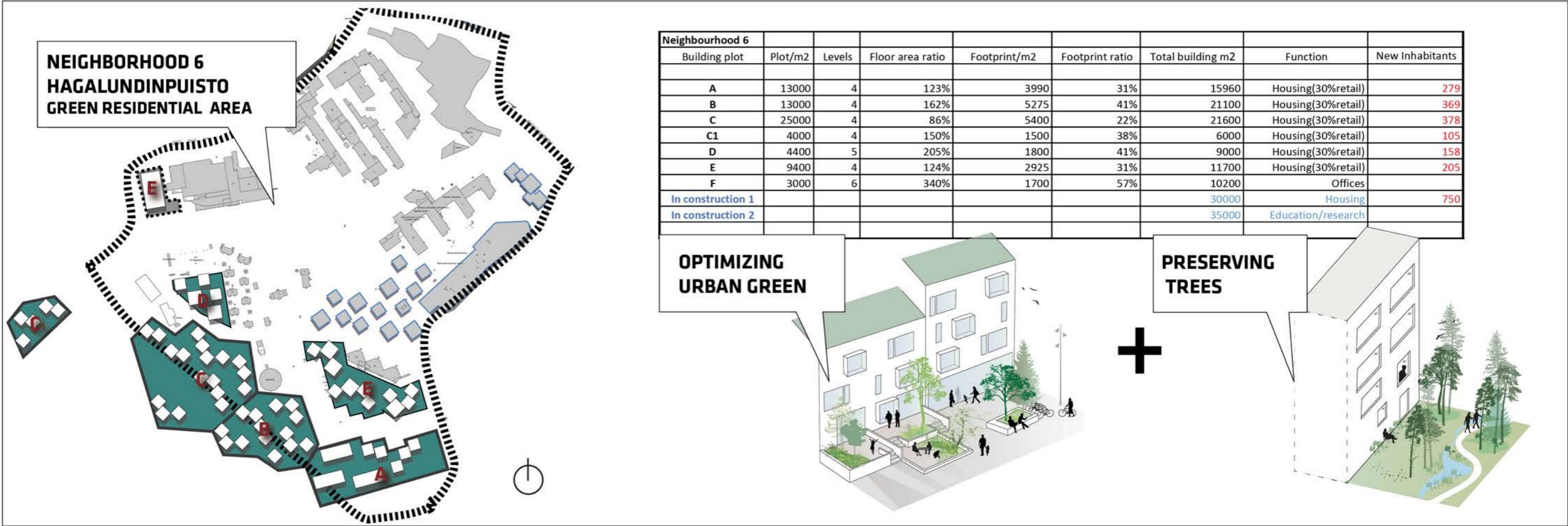
# OTANIEMI CITY OF GROWTH\_APPENDIX

## OTANIEMI BUILDING PLOTS



# OTANIEMI CITY OF GROWTH\_APPENDIX

## OTANIEMI BUILDING PLOTS





# OTANIEMI CITY OF GROWTH\_APPENDIX

## OTANIEMI BUILDING PLOTS



**NEIGHBORHOOD 7 KIVIMIES GREEN URBAN AREA**

Neighbourhood 7								
Building plot	Plot/m2	Levels	Floor area ratio	Footprint/m2	Footprint ratio	Total building m2	Function	New Inhabitants
A	2200	4	182%	1000	45%	4000	Education/research	
B	16000	4	175%	7000	44%	28000	Housing(30%retail)	490
C	4500	4	163%	1830	41%	7320	Housing(30%retail)	128
D	43000	5	183%	15750	37%	78750	Housing(30%retail)	1378
E	7700	6	217%	2790	36%	16740	Housing(30%retail)	293
F	1300	5	119%	310	24%	1550	Offices	
G	8000	4	107%	2130	27%	8520	Offices	
In construction 2						10000	Studenthousing	262

**OPTIMIZING URBAN GREEN**



**A LANDSCAPE DECK WITH PARKING BELOW**



# DENSIFICATION OF OTANIEMI\_STRATEGY

ADDED VALUE THROUGH NATURE\_EXAMPLES





SØNDER BOULEVARD BEFORE



SØNDER BOULEVARD AFTER

**INCREASED PROPERTY  
VALUE BY 43 MILL EURO**



**SØNDER BOULEVARD**

- Recreative urban space
- Optimizing the activity level
- Optimizing, enhancing and preserving nature and biodiversity
- Increased life quality

**AVOID  
OVERPROGRAMMING**

# DENSIFICATION OF OTANIEMI\_STRATEGY

ADDED VALUE THROUGH NATURE\_EXAMPLES

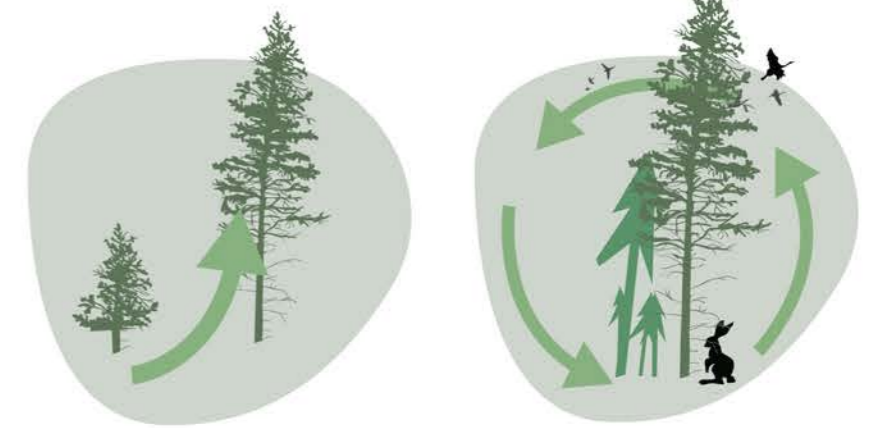


HERLEV HOSPITAL BEFORE



HERLEV HOSPITAL AFTER

**HIGH BIODIVERSITY**



## HERLEV HOSPITAL

- Green parking
- Optimizing, enhancing and preserving nature and biodiversity
- Increased wellbeing for patients, visitors and employees
- Creating a more welcoming hospital environment

**HEALING NATURE**

# DENSIFICATION OF OTANIEMI\_STRATEGY

ADDED VALUE THROUGH NATURE\_EXAMPLES

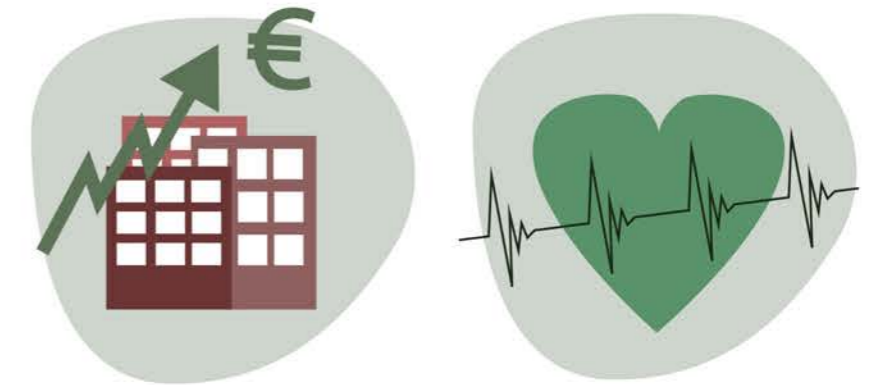
**INCREASED  
PROPERTY VALUE**



SEB BANK, COPENHAGEN



ANKARPARKEN, MALMØ



## SEB BANK

- Value through nature
- Increased communication and popularity to users of the bank
- New identity

## ANKARPARKEN

- Room with a view, increased property value
- Increased possibilities for social life

**NEW IDENTITY**

