

# CLIMARCTIC BOX

## URBAN DESIGN FRAMEWORK MACRO SCALE

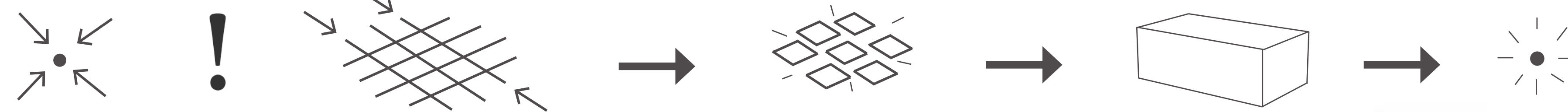
LULEÅ CITY 5°35'N 22°10'E  
The climarctic box deals with one of the very basic issues addressed in all kinds of urban design –the climate, the climatic factor. Therefore the main design intention is to deal with fundamental issues due to the historical footprints of Luleå City; the climatic issues due to the grid structure inappropriate to the site.

Creating a comfortable climatic zone within the city centre will be the fundamental design intention towards development and intensification of the city core.

Climarctic box deals with climatic issues at a macro scale, which generates a comfortable climatic zone within the city centre, at a micro scale. Macro benefits micro.

Furthermore, the climarctic box captures the charm of winter and arctic climate of Luleå.

“Addressing city edges to improve city wide microclimate”

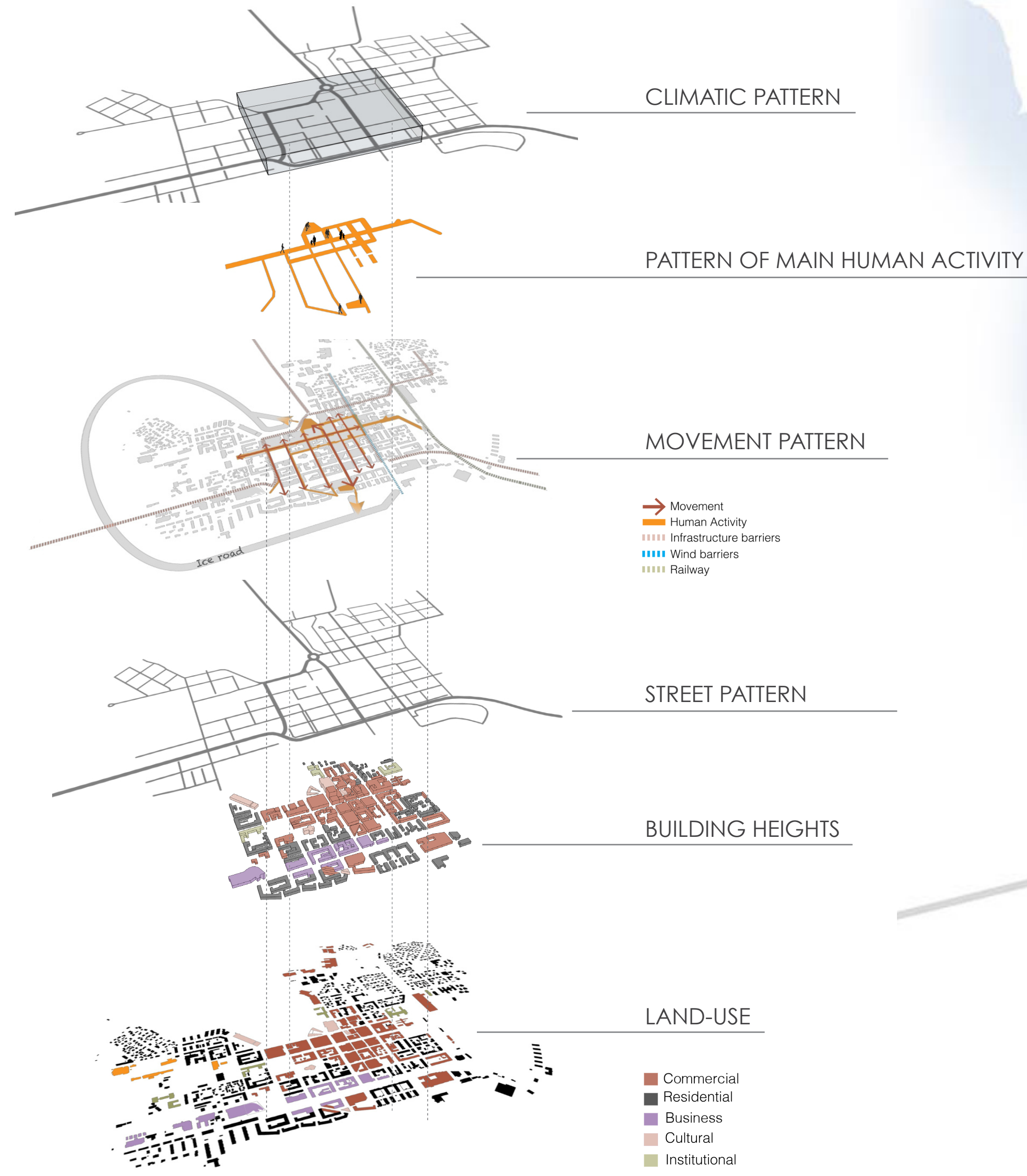
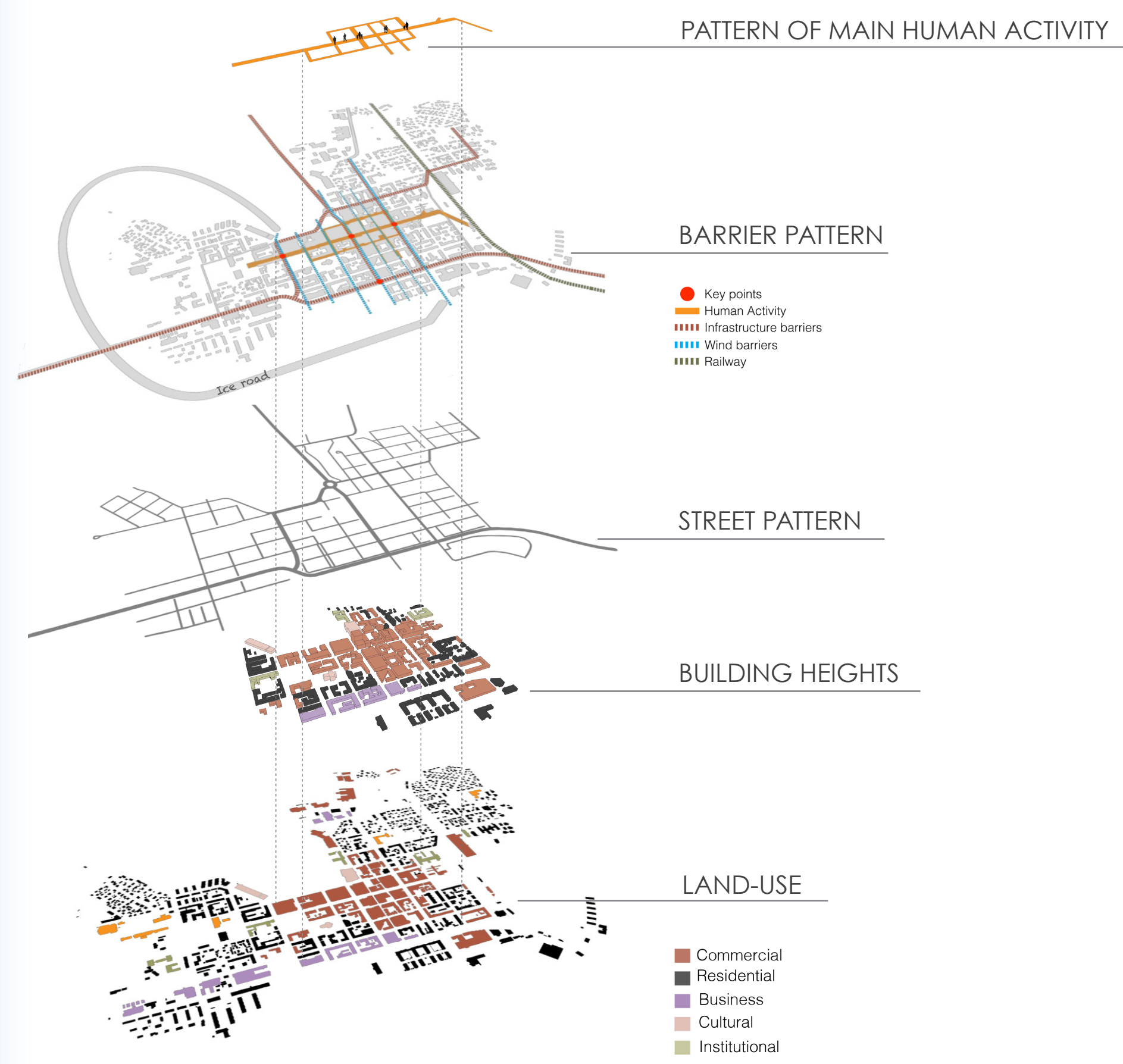


The concept sketch of the Climarctic Box illustrates the concept and its components. The suburban development of Luleå has resulted in a need for intensification and development of the city centre.

The main issue towards an intensified core is the climatic barriers due to the grid structure inappropriate to the site.

The fundamental design strategy is to break the grid and thereby eliminate wind tunnels and create a comfortable climatic zone within the city centre – a climarctic box that embraces the core.

The new climatic urban pattern, the climarctic box, creates opportunities for immediate and future development and intensification of Luleå city.



## URBAN PATTERN LAYER CAKE

Illustration of the urban morphology of Luleå city through dividing the city into its urban patterns.

## THE PROPOSED URBAN PATTERN

An illustration of the proposed urban design framework for the Climarctic Box.

## AN ARCTIC AND WINDY CLIMATE

There is an immediate need for breaking the winds in order to achieve a vibrant and lively city centre which enhances the public life. The ice-roads between the Southern and Northern harbour constitute important public spaces.

## UNDERLYING DESIGN STRATEGY

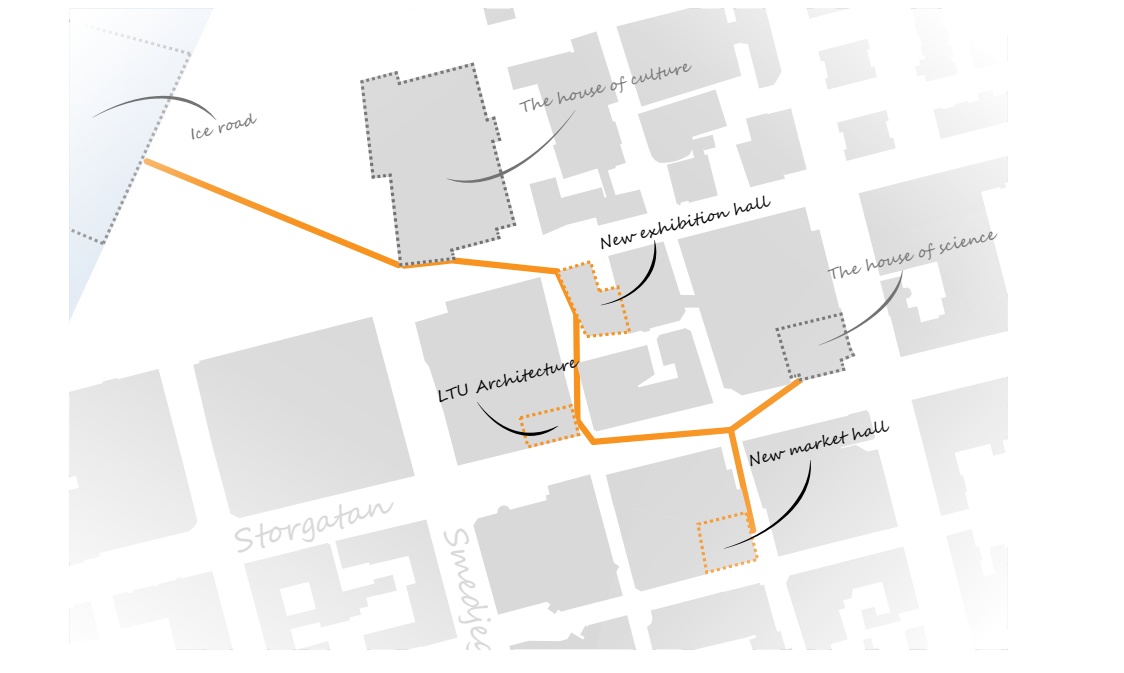
The strategy of the Climarctic Box is to break the winds mainly in the Southern Harbour and thereby generate the possibility to capture the venues in the Northern Harbour. The high-rise buildings in the Southern Harbour and their breakage of the grid enable low-rise buildings in the Northern Harbour. Development along the Southern Harbour creates a shelter that generates a better climate for the inner city, but is also a new part of the city centre that contains office, residential and commercial buildings. At a macro scale, an urban morphological scale the main design intention is to transform the bleak and windswept area of the Southern Harbour into a neighbourhood through extension of the city edge.

## MORPHOLOGICAL MODIFICATION

Changes of the urban morphology of Luleå city due to the Climarctic Box is communicated through the new layer-cake above. The Climarctic Box introduces a completely new dimension to the urban morphology of the city: the climatic pattern. The pattern clearly illustrates the idea of the concept: to break the grid and thereby break the winds which generates this new comfortable climatic box.

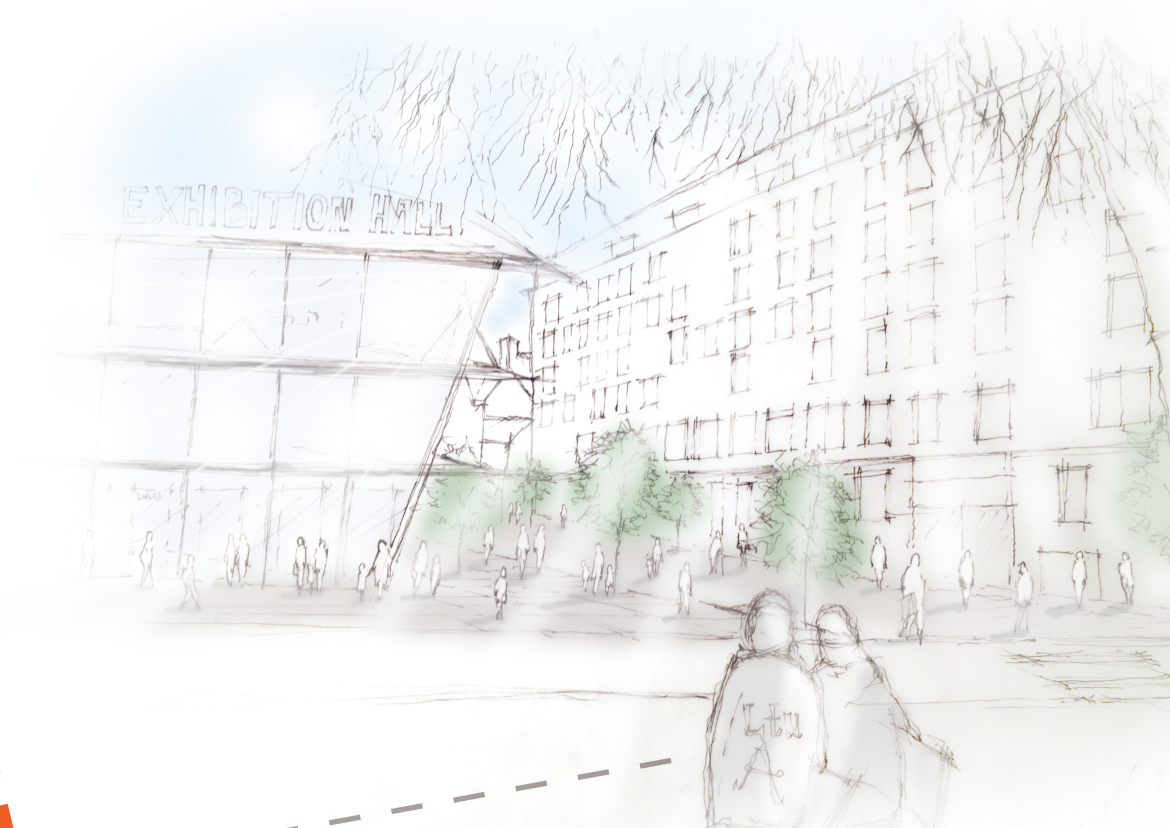
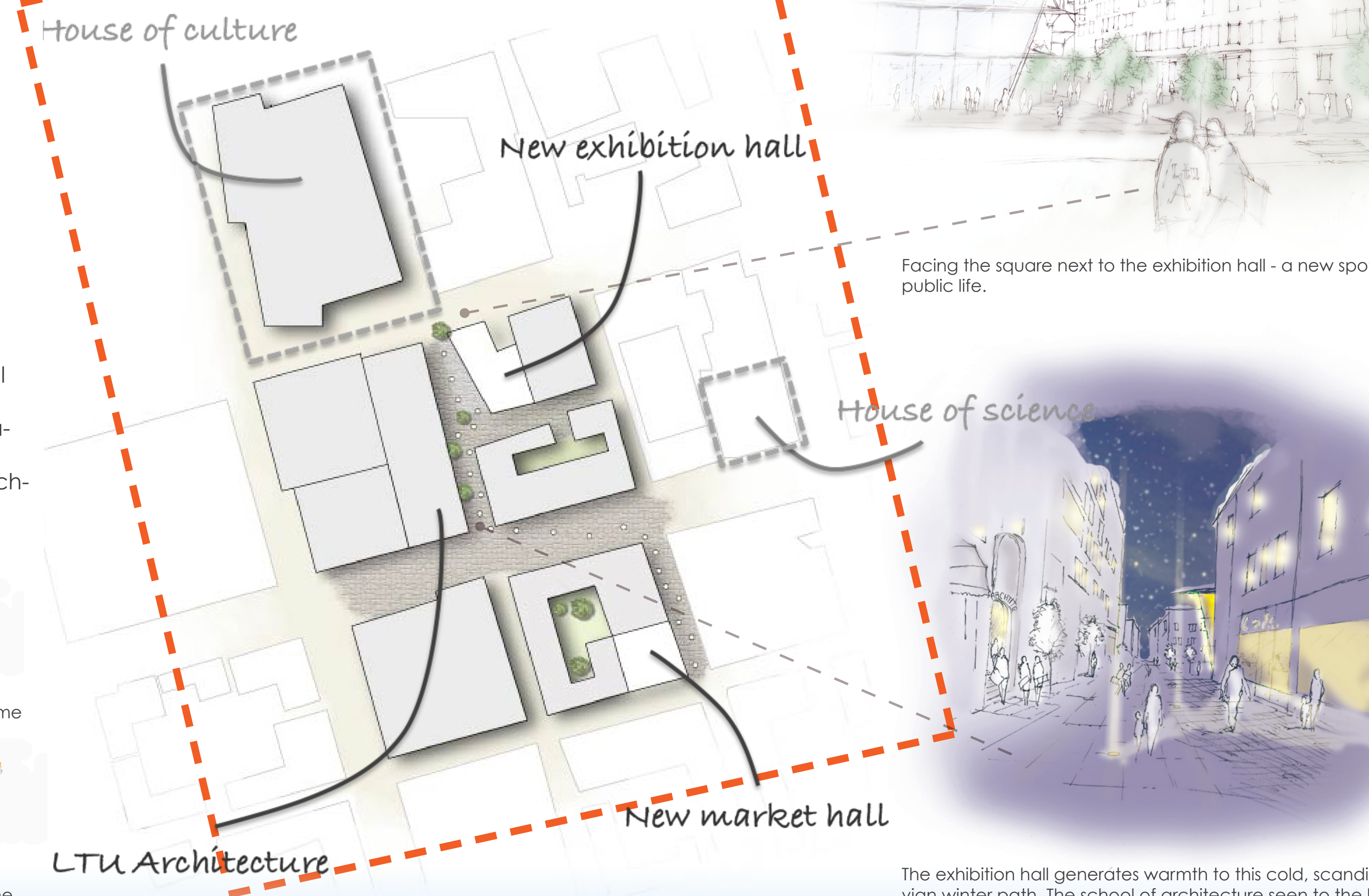
## URBAN DESIGN FRAMEWORK MICRO SCALE

The new urban design framework for the Climarctic Box at a micro scale aims to maximize the role of the heart of the city in the process of Luleå City Centre development. The main design intention is to enhance the public life by addition of missing functions as well as increasing the value of existing landmarks and functions.



## A NEW CULTURAL PATH

The new cultural path ties together the new Market Hall, The House of Science, The School of Architecture, The Exhibition Hall and The House of Culture. In order to embrace the waterfront as well as capture the charm of the arctic climate and the venues, the path stretches towards the ice-road.



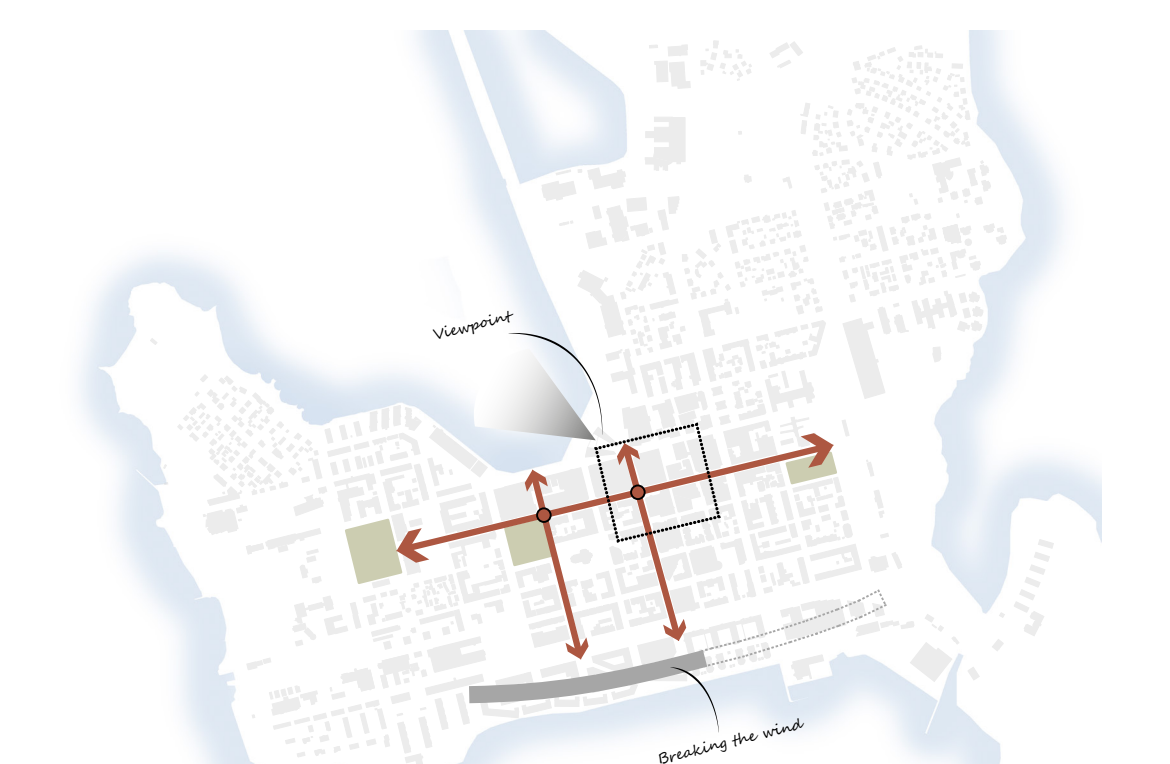
Facing the square next to the exhibition hall - a new spot for public life.



The exhibition hall generates warmth to this cold, Scandinavian winter path. The school of architecture seen to the left.



Public spaces on ice-roads



UNDERLYING DESIGN STRATEGY DIAGRAM  
Changing edges of the city at a macro scale generates climatic benefits at a microscale, within the city center.

The previous barrier pattern has now been transformed into a pattern of movement. Directly connected to the key points is the pattern of main human activity, which now have been extended.

Thanks to a the new comfortable climatic zone achieved at a macro scale it is possible to achieve a vibrant, lively and welcoming city centre for everyone. The fundamental design principles of this urban design framework at a micro scale are to extend the most active part of Storgatan in a perpendicular direction by creation of a path constituting of a new market hall, an exhibition hall and the House of Culture.

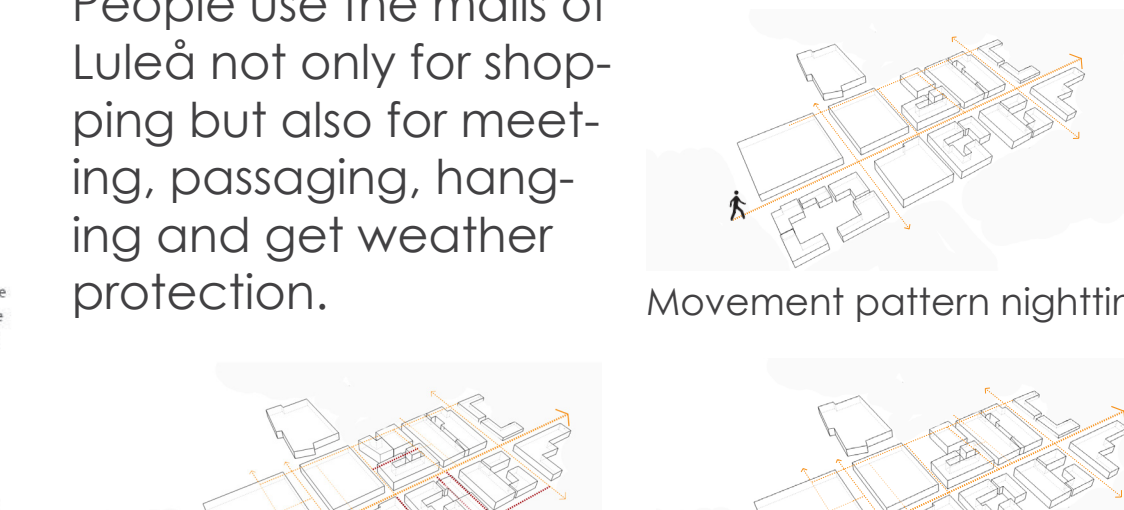
## MASTERPLAN

The proposal for the new development of the Southern Harbour is a new mix-used residential area characterized by capturing the charm of the arctic climate and at the same time function to break winds. The built structure aims to break the winds through irregular placement of tall buildings along the waterfront.

The main public spaces are located at the extension of Smedjegatan where two squares are placed. The ice-roads are redesigned and directly connected to the square to embrace the waterfront and enhance the public life at the square.



SPACE STUDY  
The diagram illustrates that the site lacks of public open spaces and civic spaces.



New movement pattern  
Movement pattern nighttime  
Movement pattern daytime



LYNCH ANALYSIS