

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Ilse van den Brink

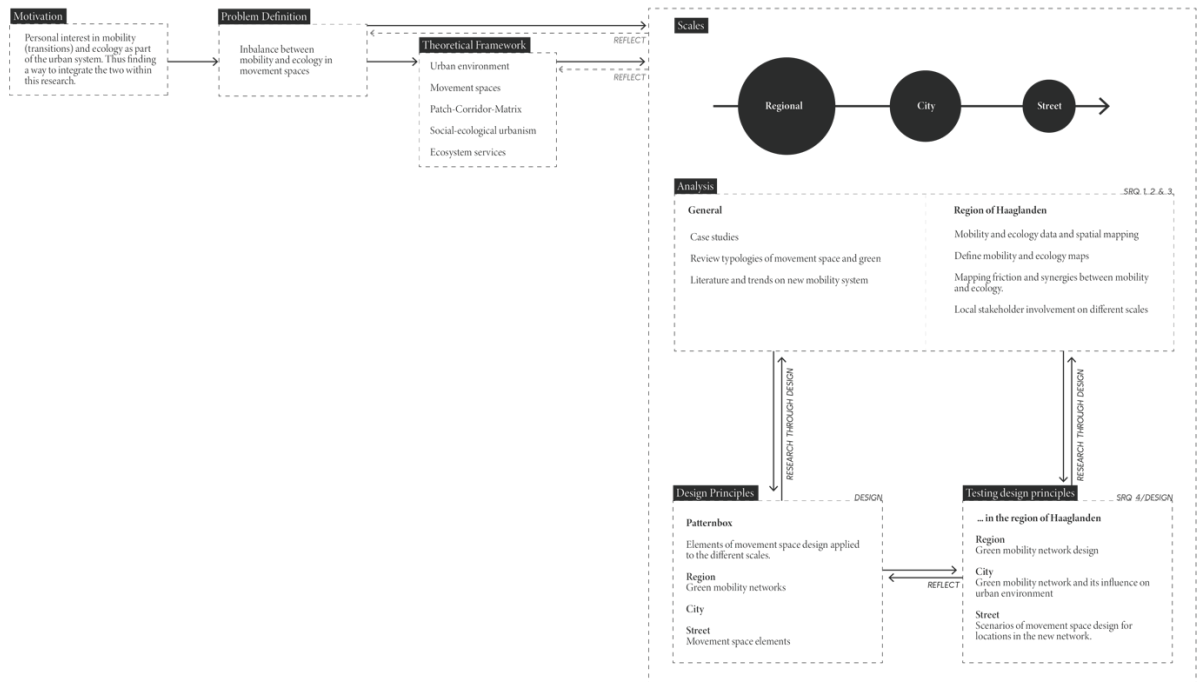
Studio		
Name / Theme	Urban fabrics	
Main mentor	Rients Dijkstra	Urban Design
Second mentor	Eric Luiten	Landscape Architecture
Argumentation of choice of the studio	<p>The process of densification is posing multiple challenges for cities to combat. The research program of Urban Fabrics lists a few: climate change, spaces for the community, giving equal access to services and amenities, promoting a healthy lifestyle and supporting urban ecology. I think the research on the combination of mobility and ecology as a transformation strategy should help mitigate these challenges. The mobility transition influences climate change, should, in my opinion, promote a healthy lifestyle and could help with creating equal access to services. Including ecology as a main factor in this transition should support the mitigation of these three challenges, as well as enhance the public spaces for the communities. Therefore, my research would contribute to this body of knowledge. The hands-on approach of the studio, using design as a starting point to understand the urban, suffices with the methods I want to be using to carry out my research.</p>	

Graduation project	
Title of the graduation project	Softening the harder ground; building balance between mobility and ecology within movement spaces.
Goal	
Location:	The design has no specific location but will be tested in the region of Haaglanden.
The posed problem,	Urban environments face the challenge of densifying and greening at the same time. Urbanisation and densification is the norm and brings with it an increase in built structures and hard surfaces. Yet on the other hand there is the need for soft surfaces and vegetation to combat the challenges posed by climate change.

	<p>The imbalance between hard and soft is clearly shown in public space, which mostly consist of hard surfaces to accommodate our current mobility system. A system dominated by personal transportation, mainly in the shape of cars. The car, as either a moving or static object, dominates the design of public space and leaving less space for green structures. It results in an imbalance in public space demand.</p> <p>But needed environmental changes are calling for a mobility shift oriented to a dominantly soft and shared mobility system. This change in systems leads to a change in public space design where there is less need for the car. Less need for the car can restore the balance of the space demand, to create more green structures in public space design.</p>
<p>research questions and</p>	<p>Main research question: How can the mobility transition respond to the ecological demand to create balance within the movement spaces using soft and shared modes of transport?</p> <p>Sub research questions:</p> <ol style="list-style-type: none"> 1. What are the different typologies of movement spaces in urban environments? 2. What are the applications of green in movement spaces? 3. What are the conflicts of interest to consider when designing a movement space? 4. How can the patternbox be applied within the region of Haaglanden to realize a balance between mobility and ecological demand in different types of movement spaces?
<p>design assignment in which these result.</p>	<p>The aim of this research is to show how the use of the mobility transition to soft and shared modes of transport can ensure the design of public space that caters to the ecological demand in urban environments. In turn, the more ecological public spaces stimulate the transition to the new mobility system.</p> <p>The main design assignment is the creation of a patternbox for movement spaces that is applicable to any location. In this patternbox, elements of mobility and ecology within public space design are defined and can be used to create numerous combinations suitable for and to create different types of movement space.</p> <p>The patternbox is tested in the region of Haaglanden. The case of Haaglanden provides a large array of different types of movement spaces due to the numerous urban environments. Different design scenarios are used to show the implementation of the patternbox in different kinds of movement spaces.</p>
<p>[This should be formulated in such a way that the graduation project can answer these questions. The definition of the problem has to be significant to a clearly defined area of research and design.]</p>	

Process

Method description



The methodological framework consists of three elements that feed into each other and form the basis for the main body of the research: motivation, problem definition and theoretical framework. The main body is shown to have four elements: scales, analysis, design principles and testing design principles.

All analysis and design work should be done by going through the different scales mentioned and might slightly touch upon the scales in between. The project itself will have design as a large part of its methodology, meaning that there will always be movement back and forth between the analysis, design principles and testing of the design principles. The research through design should create new questions from which more detailed analysis and answers will give input to the design outcome.

Literature and general practical preference

The project builds upon five main theories, which are explained in short below:

Urban Environment is the built environment shaped as such that it can facilitate the entanglement of social needs and states of nature applicable to a specific geographical location. Urban environments show an everchanging process, adapting to the people and environments needs.

Movement spaces are designed to facilitate movement through the urban network. As such, it becomes part of the public space networks located between the blocks (Carmona, et al., 2003), yet some (Harts, et al., 1990) also consider it to be an urban environment of its own.

Ecosystem services refer to the goods and services that are presented by the ecosystem functions and from which we, as the human population, can derive the benefits, both directly and indirectly (Constanza, et al., 1997).

The concept of **social-ecological integration** is defined by Forgaci (2018) as ‘the capacity of social-ecological systems to sustain synergies and to alleviate conflicts between the patterns and processes of coexisting ecological and social components.’

The Patch-Corridor Matrix concept is formed by Dramstad, Olson and Forman (1996) and describes how the earth is a compilation of a variety of land mosaics. Each mosaic consists of simple spatial language combining patches, corridors, and the matrix.

The final design of the pattern box places inspiration in the **Pattern Language** theory. A pattern language can be explained as a tool from which to combine complex socio-spatial research with design. In this the pattern is used as a design tool to answer questions to specific design problems within architecture and urbanism as well as a communication tool to in order to present the design solutions to its users (Alexander, C., Ishikawa, S., Silverstein, M., 1977).

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

This master thesis research is executed as part of the urbanism master track, within the studio of Urban Fabrics. The master programme places its focus on creating innovative and sustainable designs within the built environment. To achieve such design, this research is intended on combining the research on ecology and mobility within the urban environment, and as such, considering physical and social aspects. The research and design is done through the different scales that define the track of Urbanism, from regional scale to the scale of the street. As such the street design should also influence the networks at a regional level.

The studio of Urban Fabrics in particular places a large focus in the densifying urban fabric, which poses many challenges to the urban design field. The main point of focus for this thesis is connecting solutions to climate change challenges through green networks with the mobility transition that is sparking more interest. The studio is also a large advocate of research through design, which is to be the main part of research for this project. As the connection between ecology and mobility is not one that is frequently researched, the research for this thesis cannot just be answered through literature but has to mainly be answered through analysing existing spaces. Next to that, the design of the patternbox is used as a means to understand this connection between ecology and mobility or movement space better.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework?

Social relevance

A big part of the mobility transition and improvement of urban ecology is the need for healthy and attractive urban environments for people to live in. The possibilities and speed of these transitions is very much dependent on the acceptance and need of society to change. The research field already stated that the current trend shows that people (also in cities) are still choosing car over slow traffic, and this number is rising. A societal change is needed in order to allow for the transitions to take place.

By intertwining the mobility transition with the need for improved urban ecology this research aims at creating more attractive public space designs in which people feel safe and stimulated to use slow and shared transportation. Therefore, slowly changing the societal wants.

Scientific relevance

A lot of research, news and policies can be found on the themes of mobility and ecology separately. They can be considered as two of the main aspects used to combat the impact of environmental change. There is research on the negative impact of infrastructure on the ecological state, but in general the two themes are themes are seen as separate even though they occupy the same (public) space.

This research aims at defining a system in which the two elements can work together to create healthy public spaces. The product created at the end of the research will allow for this system to be implemented in many different cases, in different locations.

Ethical considerations

Dealing with movement of people in urban environments introduces a large range of actors that need to be considered. This is especially important in the design of the patternbox and testing scenarios. For within public space design the more vulnerable people should also be considered to make a space safe and attractive for everyone.

Since the research is dealing with a larger region, the design outcome should also consider the many different environments, neighbourhoods and the inhabitants related to these areas. The patternbox should be applicable to many different situations and the scenario building should define the specific needs and design for these needs.