

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	Haozhuo Li
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Studio	
Name / Theme	Transitional Territories
Teachers / tutors	Stefano Milani, Nicola Marzot, Sjaap Holst
Argumentation of choice of the studio	<p>First of all, as an interdisciplinary studio, Transitional Territories (TT) offers me opportunities to work with students from urbanism, from which new and professional perspectives will form during the research process: how to investigate ecological, economical, spatial and political issues that traverse territorial scales. This follows my trajectory after attending the Palermo Studio of Complex Projects in Msc2, during which I started to analyze an issue in a more holistic view, not only limited to architectural objects, the presented phenomena themselves, but also the causes, process and power (in a society and from the history) that have shaped an issue. It fulfills my personal curiosity of the world.</p> <p>Secondly, I would like to learn how to transform the research results from this systems inquiry way of working methods (on multiple topics) to an architectural design project that has a focused theme. It gives us autonomy to decide the design brief and choose the working site. The studio works with uncertainty – it focuses on the question of urbanization as the outcome of ever-changing interrelations between socio-ecological systems. I would like to research new forms of living and architecture that are brought by these interrelations.</p> <p>Furthermore, the contextualized North Sea and its surrounding terrestrial territories pose the interesting notions of connectivity, synchronization and thus contingencies during the pursuing of connectivity. My primary fascination of circulation, connectivity and flows of the society fits in the studio's theme of “infrastructural form”. Through looking into the issue of congestion as a contingency, and situating the</p>

	issue in crossing the Dover Strait (land-sea-land), my project to portray this transitional process from congested to decongested state may bring a new form of living.
Graduation project	
Title of the graduation project	From congestion to decongestion: Displacement of flows of goods in the last-mile transition from land to sea
Goal	
Location:	South-east England coast / Dover / Port of Dover buffer zones
The posed problem,	<p>Following TT studio's collective mapping, my project explores an architectural reaction to contingencies accompanying the flows of goods, particularly a contingent state of congestion as an outcome of rupture by other forces, be it severe storm surges, national strikes and others. The culture of congestion through urbanization on land is extending to the North Sea, which is brought on by multiple activities to fulfil our needs for everyday living, circulation of our societies and connections to our environment.</p> <p>Specifically, the narrow area in the North Sea called the Dover Strait is a critical site. Here, France and the United Kingdom, once connected before the Late Quaternary, are now measured thirty-eight kilometers apart. The geographical advantage for proximity of the European continent and the island state makes this area a critical piece of traffic flow. There were efforts to reconnect the two from 19th century on .</p> <p>The two countries are now connected by the Port de Calais and the Port of Dover, plus the Channel Tunnel established in 1994. All act as one of the main administrative and environmental border crossing points. For example, Port de Calais has a throughput of more than 2 million trucks and trailers in 2017. And the shuttles through Channel Tunnel carry similar amount of lorries. For daily passengers, it is a ninety-minute journey on the ferry. For freight or lorry drivers it can take hours to days patiently waiting in a lorry on the motorway, sometimes costing millions for the government for emergent supplies to drivers, and millions loss for freight company. Additionally, one may witnessed the immigration problem in Calais in 2015, where many tried to jump on the lorries to the UK side, which eventually caused the closing of ports and a 24-day-waiting for lorry drivers on the UK side.</p> <p>Under the surface of smooth transitions and logistical flows, lies the agitation which "takes command once distance has collapsed" (Lars Lerup).</p>

Once again, the Dover Strait and its terrestrial territories is a critical piece of traffic flow in the North Sea. One small change, delay or disruption can cause a negative ripple effect for different people in their daily routine.

In order to understand the phenomenon of this “stuck in non-moving” at the working site, several aspects are questioned and researched:

1. Causes of congestion in cities

Fundamental causes of congestion in cities are brought by the shift of production system: from 18th to early 19th century's cottage system to modern market system. The procedure leads to the invention of transportation and communication, then negotiation and commercialism. A brief literature review, based on tried-and-trust strategy, suggests that to relief by rapid transit actually caused induced demands: “Any extension of transit facilities permits additional congestion.” (Sidney A. Reeve, 1917)

If we want to solve the congestion problem, chasing speed and expanding roads, which means following the demands, may not solve the problem at all. There should be another way of tackling.

2. The embodiment logic of logistics and the alienation of lorry drivers

In 1977 Rem Koolhaas' “Culture of Congestion”, a coexistence of man-made nature, preventive medical care, and multiple activities were compacted to the high-rise, a vertical growing, synthetic platforms to fight the “threat of ennui”. However, an inquiry to the logic of logistics shows a “set of demands and pressures that operate against the logic of the city of congestion, encounter, and adjacency” (Jesse LeCavalier, 2016).

3. Severe weather conditions; Post-Brexit scenario of border check and waiting time; The Operation Stack/Brock and its influence for surrounding communities; The expansion of Port de Calais as well as Port of Dover

Nowadays ports are closed normally due to severe weather conditions. A scenario is drawn from post-Brexit cross border activity: longer waiting time at both side, which the Operation Stack and the future Operation Brock will happen more often.

	<p>Besides, the ongoing expansion of Port de Calais will bring even more traffic to the French side.</p> <p>4. Architectural design for different time spans</p> <p>Just like our environment continues to demonstrate being a palimpsest, fluctuating with time, the embodiment of transitional process from congestion to decongestion deals with different time spans of staying, be it hours, days, months or even years. The visual narration therefore should follow this distinction of time frames, description of activities and the spatial experience of a lorry driver in architecture.</p>
research questions and	<p>Territorial and urban scale: How to displace the stuck flows of lorry drivers and goods on the UK side (Dover)? Sub-questions: What is the spatial relation of the outcome of such a displacement to its larger territories? What is the identity of such a displacement?</p> <p>Architectural scale: How to create architectural space that combines the act of displacement and the act of conglomeration? Sub-questions: How are the flows of lorry drivers directed to the space-holder? (displacement) How to achieve spatial qualities while maintain the efficiency of a service system? (balance the two) What would be the new role of the space-holder once it lost its original functions?</p>
design assignment in which these result.	<p>Masterplan: There will be an annex island at the UK side of the Dover Strait, where flows of goods are stuck before entering the connected ferries or channel shuttles. The masterplan should depict the relation of the space-holder to its surrounding transportation system, and how they will work together.</p> <p>Architectural intervention: The space-holder contains the waiting. It is “another way of tackling congestion”. It should depict in different time spans how it will function. Besides, the space-holder should demonstrate spatial quality in terms of performance, light, usage, programme, materialization in the space while facing extreme weather (storm surges, mostly). Further, the space-holder should have a certain identity that distinguishes itself from its surroundings, which evokes reflections of its users.</p>

Process

Method description

The research process is preconditioned by the studio's general approaches of *mapping* existing North Sea in mainly four aspects using QGIS: biotope, climate, flows and geology/geomorphology; mapping projections of limits respectively to the four aspects; drawing four groups of scenarios (ecological, economic, political, spatial) that are based on scenario analysis – a Cartesian orthogonal pair of two axis – under “Crowd”, “Steam”, “Warm” and “Rest” conditions, where all are situated in unique circumstances of socio-economic and climate assumptions.

A site visit along the coast line of North Sea gave me the impression of the atmosphere of different peripheral countries. Combining with the mapping session, this helps me to distinguish my working site and I started to narrow down on the culture of congestion.

An expansive literature reading is required, to help establish the theoretical framework of my research project. It includes the perspective of viewing “stability” as a changing status, the understanding of “culture of congestion” as a process to encourage encountering, the understanding of logistics as a process to avoid chances of change, etc. This points out the analysis of the process rather than merely objects, because the study of infrastructure space implies the study of connection, system, means and ends. Thus, a morphological study of the working site is conducted, through reading historical stories, maps and paintings and watching documentaries.

To narrow down more to one side of the Dover Strait, I take the Operation Stack as an example to study its origins, progress and effects. The investigation includes mapping the surrounding communities and service stations along the M20 motorway, looking for interviews of different stakeholders and their opinions about the Operation Stack, watching films that show the process to enter the Eurotunnel terminal, watching Vlogs that show the way of life of lorry drivers, etc. A qualitative assessment can be drawn from these investigations: the purely pursue of efficiency, the alienation of lorry drivers, the danger of inductive demands that will lead to more congested situation.

What follows is a speculative design process, which is designing a poise, a space holder that brings spatial qualities to the waiting time during congestion, to tackle the aforementioned assessment. Case studies include: circulation layouts of car parks, existing master plans to tackle congestion and car garages with hybrid functions.

It is a continuous practice following approaches used in collective work of the studio, a systemic inquiry of qualitative research although make use of the outcomes of the quantitative research (for example, using statistics to define the area of the space-holder).

Overall, the research and design process can be framed as the systems inquiry that is grounded by the meta-theory as a looping process of “plan-act-observe-reflect”. The inclusivity and self-reflexivity include the process of reflecting on findings related to research questions, such as findings of “learning from logistics”, the patterns and operation of flows, the cause of congestion and existed solutions, all of which lead to the project: an architectural reaction towards contingencies. It is an awareness and an assessment of both the view and the viewpoint.

Literature and general practical preference

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Reeve, S. (1917). "Congestion in cities", in *Geographical Review*, 3(4), 278-293. doi:10.2307/207429

Reflection

Relevance

The aforementioned status of congestion and literature discourse of our society, with increasing metabolic flows and dynamics additional to a flat networked world, breaks hierarchical establishment among information processors.

It is necessary to be aware of the disconnection, the contingencies that might happen. The contingencies may lead us to reflect the problem within a fluid system, and urge us to know in what way we might change our habitat on the earth.

The project would be a speculative design by grasping this disconnection moment, to investigate by systemic inquiry in order to understand the process and the object, and to approach an authentic model.

Furthermore, besides solving a problem, the project is an attempt to reflect about our pursue of efficiency through infrastructure while ignoring the quality of spatial inhabitation of the spatial agencies, namely the lorry drivers. It is against further alienation of human beings.

Last but not least, as the project is depicted within a time span, the narration itself should consider and tackle the far future when technology advancement substitute human labors, automated-driving lorries substitute human drivers – the deprivation of original functions of the design project. What will be left? A future heritage?

Time planning

P1 (week 1-10)

- thematic research
- site analyses
- situational research – for both South-east English coast, North France coast and Dover Strait
- draft research

P2 (week 11-20)

- urban draft / master plan
- design brief and programme of requirement
- draft design (plans, sections, elevations) 1:1000 / 1:500
- urban draft / master plan (on an appropriate scale)

P3 (week 21-28)

- draft reflection
- plans, facades, cross-cuts, 1:200
- part of the building, plan and cross-cut (on an appropriate scale)
- façade fragment with hor. and vert. cross-cut (on an appropriate scale)
- set up details

P4 (week 29-38)

- theoretic and thematic support of research and design
- final reflection on architectonic and social relevance
- site 1:5000 / 1:1000
- plan ground level 1:500
- plans elevations, sections 1:200 / 1:100
- part of the building, plan and drawings 1:50
- façade fragment with hor. and vert. cross-cut (on an appropriate scale)
- details

P5 (week 39-42)

Same as for P4

- models