

## **Reflection Paper**

### **Design of the Urban Fabric Studio 2019**

Faculty of Architecture and the Built Environment  
Msc Architecture, Urbanism and Building Sciences

#### **Project:**

People-oriented street design

--Transform street from spaces into places with Automated Vehicle as a trigger

#### **Tutors:**

**First mentor** (Urban Design): Prof. ir. R. J. Dijkstra

**Second mentor** (Spatial Planning and Strategy): Akkelies van Nesdate

### **The relation between studio and graduation project**

The topic of Automated Mobility in Urban fabric studio mainly explores the possible impact of technological and societal innovations on the built environment within different scenario, there is no doubt that Automated Mobility is one of the big triggers leading us to new lifestyle. The high technology will redefine the way of commuting even how we live in the city. My project is to transform street from existing traffic corridor into social places with Automated Vehicle as a trigger, thus to make streets more people-oriented not car-oriented. The topic closely links to the theme of the studio- explore the possibilities of AVs and rethink urban context and lifestyle in terms of street space.

Improving the quality of urban spaces has always been the central concern for the urban designers. Street as the typical type of public spaces comprises more than 80% of public space in cities, but they often fail to provide a space where people can safely walk, bicycle and socialize, this mainly because cars dramatically occupies most street spaces, street is no longer a social space but just traffic corridor. Automated mobility really gives us the great opportunity to change the situation, save the street space and create diverse urban function.

I choose Amsterdam-zuidoost, a typical area with low quality of street as my design target, trying to be an eye-opener to show how streets will be like when AVs are fully used, the project tries to explore how technology can change urban life and environment, how us urban designers can try to put it into a right direction in our own perspective.

### **The relation between Research and Design**

Design of urban fabric studio is a design-oriented studio, while it should be based on solid evidence-based research, especially when AVs are not widely used. This kind of predictable design requires much more theoretical research on technology, predictions and pilots. My whole project is a research by design process. It can be divided into two main parts. I keep adjusting my design and making new research during the project.

The first part is about understanding street and AVs, it not only requires urban design knowledge but also transport research. Existing mobility policy also indicate the future actions we should do. These three aspects help me build my scenarios and street prototypes; The second part is about site analysis and street design. Research in exact urban context, social environment helps me to test and evaluate prototypes according to local identity. Sometimes when different solutions all works, deeper research in local scale let me start from local people and culture, figure out what is better for their life. These tight combinations between research and design help me find

problems and corresponding way to solve them. This kind of process in the end can make my project more logical and convincing.

## **Methodic Frame and Personal Approach**

My research starts from general situation and theory of street and AVs, then I build prototypes and scenarios, after figuring out problems regarding specific streets in Amsterdam-zuidoost, I explore how they can be changed with the evaluation of scenarios and prototypes. Accordingly, mixed methods are used to underpin different aspects of the research.

Firstly, I settle down the design aim and **assessment-social sustainability** by literature review. After this, by studying street space from different perspectives-street aesthetics, spatial cognition, behavioral activities and social significance, I define my design indicators. For automated vehicle, it affects street design in technology and policy perspectives. Literatures and concepts mainly from authorities can show how AVs could allow organizing transport supply in a radically different way. Based on all these researches, I build my two extreme scenarios, also street prototypes under these two scenarios.

Then the main approach is site analysis, by space syntax, mapping, data analysis through scales, I get information about design indicators I built before, these indicate the requirements of future street environments. At last I evaluate my prototypes according to local problems and needs, then assess them by social sustainability to choose my desirable scenario and streets. All these steps make sure that my design has logical relationship and solid foundation.

## **Social and scientific relevance**

My final aim is to strengthen social sustainability, setting out a framework for future street principle and governance arrangements to help local communities to: 1) Explore more inclusive public spaces in the future street for citizens to tackle with social segregation; 2) Provide the possibility for urbanists to consider more about the quality life of citizens with the development of technology, use them as service not let them dominate people's life; 3) Design products can be used to study the possible change of the form of neighborhood, and how does commuting ways and street spaces effect land use and city growth.

The combination of traditional street design concepts and automated vehicles is the knowledge gap tackled in the research. Automated vehicle is now seen as the most uncertain technology, as urbanists, traditional way of spatial design is not enough to tackle this problem, VR, GIS, space syntax can help test design product and make design more accurate.

## **Ethical issues and dilemmas**

Apart from the project itself, ethical issues about AVs have been widely discussed, for example, personal information leaking, equity to service, new jobs for drivers and so on. These should all be considered in the project: can we provide new jobs in new urban projects? Or can we try to make services more equal to be accessed by everyone in city? These will be answered by spatial planning and strategy.

As for the project itself, the first dilemma is time. I am investigating the 100% application of AVs before it happens, there are many uncertainties, existing literatures are mainly based on qualitative research or pilot's data, thus the project mainly aims to explore the essential thinking of what do streets should be, and experimental design, which could be used as a reference in the future. Secondly, as streets are much related to local culture in terms of social function, data collection, observation and information of local people's needs are very important. While seasons can affect people's activity, sample size and types of different target groups are random, therefore, the results of the needs and guidelines may not take all the actual requirements into consideration. It should be an open process that can be adjusted through time. Lastly, street still needs to be designed by transport planners, the products will mainly organize its social and traffic function in urban designer's point of view. It actually aims

to make people rethink how should transport planners, urban designers and citizens redesign and reuse street spaces in a reasonable way.