MSc4 Hybrid Buildings Graduation Studio
Hybrid Buildings as Catalysts of Urban Transformations

Transportation Nodes and Interventions in Complex Urban Environments

From Transport Infrastructure to Urban Infrastructure

REFLECTION

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“If there is to be a “new urbanism” it will not be based on the twin fantasies of order and omnipotence; it will be the staging of uncertainty; it will no longer be concerned with the arrangement of more or less permanent objects, but with the irrigation of territories with potential; it will no longer aim for stable configurations but for the creation of enabling fields… it will no longer be about meticulous definition, the imposition of limits, but about expanding notions, denying boundaries… it will no longer be obsessed with the city but with the manipulation of infrastructure for endless intensifications and diversifications, shortcuts and redistributions — the reinvention of psychological space.”

The relationship between research and design

Contemporary metropolitan conditions are characterized by enormous complexity and multiplicity of relations, sprawl and decentralization. This is partly a consequence of the development of various urban and virtual infrastructures that compress time/distance relation. As the result, the intensification of all kinds of material and immaterial flows define the constitution of the city. In order to support these flows infrastructures got the top priority in urban development which also triggered growing interest to this topic among architects and urbanists.

Without a doubt the development of various means of communication, digital networks and transport contributed to emergence of a specific urban form which is characterized by decentralization, dynamic networks and flows. Infrastructure that supports this type of urban model plays an integral role in urban development. However, the conflict between heavy infrastructures and urban fabric hasn’t been resolved yet. The time has come to rethink the position of infrastructure in relation to the urban fabric and their own role and capacity to design infrastructures for the city. Architecture developed a rich vocabulary of tactics and strategies that might help to integrate infrastructure into urban fabric not only spatially but programmatically shifting its common role as merely a connector to a new type of collective place. Not only architecture can contribute to infrastructure but also infrastructure may suggest certain strategies of how to design in the city ruled by flows. Infrastructure creates potential and anticipates future development, it is able to manage unstable flows. All these features are relevant for architecture that has an ambition to be performative in the age of uncertainty. Expanded notion of infrastructure seems to become the domain where architecture, urbanism, urban design, landscape design and engineering intersect promising the emergence of a new urban types and configurations.

The success of the project of reconstruction of the contemporary metropolis lies in the reunification of material and immaterial, flows with built matter. “Media destroys traditional forms of urban and architectural organizations, and traditional distinctions between public and private. However, these observations might contain clues about new, higher order of the organization of the city.”¹ This might be the sign of increased demand for connectivity and continuity. Contemporary obsession with the flows and infrastructures to support them indicates not only increased mobility but also significant changes in the constitution of the city, shows its tendency for instability and mutation. The annual ISOCARP congress in 2001 was dedicated to Planning in the Information Age. There was suggested a conceptual model for the city of information age – tele-citta. This model is characterized by dynamic networks and nodes, cyberspace and loss of concentration. It is dispersed and concentrated at the same time. Relations between centre and periphery or sub-centers are not binary anymore. Everything is equally important; everything is connected and autonomous at the same time. Therefore, planners and designers should learn to work with multiplicities, recognizing rhizomatic and hybrid character of contemporary metropolis.

Transport infrastructure is the main accelerator of urban development and as the result the main urban shaper. Infrastructural steroids intensify urban metabolism and entail urban growth. However, at the places where it meets the city the fragmentation of urban fabric occurs. Contemporary city resembles a patchwork of various urban patterns connected/separated by the transport networks. The situation is slowly turning into opposite - from infra-structure to dominant structure. It seems that infra-structure is not something in-between anymore. Its growing dominance over urban landscape alters the situation in a way that urban fabric and landscape is in

¹ Bart Lootsma, "The New Landscape," in Mutations, Rem Koolhaas et al. (Arc en rêve centre d’architecture, Bordeaux, 2001), 462.
between the lines of transportation networks. This relationship is too complex to reduce it to simplistic opposition. In the end metropolis and infrastructure are mutually dependent on each other. Maybe, it is more productive instead of generating another binary opposition city versus infrastructure to think of possible ways to reunite them into one project.

The relationship between the theme of the studio and the subject/case study chosen by the student within this framework (location/object)

Urbanism and architecture of today are indissolubly connected to infrastructure both physically and programmatically. However, infrastructure which is called to support flows is responsible for fragmentation of urban fabric. There is need to regain control over material environment and to resolve the conflict of two main functions of the city – inhabiting and moving. If physical aspect of these relations was always there since infrastructure was always the main enabler of urbanization, programmatic re-conceptualization of public infrastructure is rather a new task for architects they have to approach with new tools and new visions.

Zuidas as the CBD which is located in the southern part of Amsterdam plays an important role on the global and regional scales mostly because of its economic activity. It is also incredibily well connected area that benefits from the proximity to the global hub Schiphol airport. Zuidas is an integral part of the polycentric metropolitan region Randstad which in itself is a unique geographical, economic and political entity Connectivity or accessibility are imperative to polycentric regions. Therefore, Randstad heavily relies on railway system that facilitates movement of thousands of commuters. With the growing importance of Zuidas on the regional scale changes on the local scale are also expected.

Infrastructure is one of the key elements of the success of Zuidas. With the arrival of the high-speed train line Amsterdam Zuid will become the second most important station in the Netherlands. Due to these forecasts city authorities are planning to expand the existing station. Amsterdam Zuid is currently is suppressed by the A10 ringroad which is critical factor that restraints development of Zuidas as the main source of pollution. The pre-crisis solution to hide heavy infrastructure underground and thus liberate ground for future development was cancelled due to the lack of funds. Instead only the part of A10 ring road will be put into the tunnel to permit the expansion of the station and facilitate development of the adjacent plots.

While benefitting from high connectivity on the local, regional and global scales the site of Zuidas suffers from the spatial condition caused by the presence of heavy infrastructure which is often a threat to the livability of the city. At the very point where the interaction between the city and infrastructure is taking place, the city is divided.

How to integrate new station into urban fabric? How use specific location and configuration of the plot to respond to the issue of separation?

The starting point of the project is a very basic condition generated by the space liberated from tunneling the highway. This space is represented by the two linear stripes almost half-kilometer long that are in between the railway dyke and two tunnels on the northern and southern sides of the area. This availability of free space triggers the question if it is possible to achieve something more than well functioning train station and reveal hidden potentials of the area. The railway dyke and the tunnel impose certain spatial restrictions that are strong determinates for the future project.
Beyond these pragmatic considerations there are larger goals and questions around the issue of rethinking relations between transportation nodes and the city.

**Goal**

Creation of urban infrastructure that is able to resolve the conflict between increasing transportation flows and urban fabric in case of the station Amsterdam Zuid. The goal lies not only in rethinking and repositioning infrastructure by means of architecture but also in exploration of the possibilities of urban architecture that acquires qualities of infrastructure and not only acts like a buffer between different environments but also supports, facilitates or even generates urbanity.

From transport infrastructure to urban infrastructure.

*Urban infrastructure - elements of built environment that supports, stimulates or generates urbanity.*

Rethinking infrastructure by means of architecture:
- spatial integration into urban fabric;
- reprogramming.

**Spatial Integration**

The configuration and position of the plot triggers the questions about edges. Two narrow stripes of land are situated between the railway dyke and public space of the CBD Zuidas. Obviously, future structure has to mediate between different environments; therefore, it has the potential to improve both of them.

**Reprogramming**

In order to become a place of publicness and urbanity mobility environments have to contain programs not only for travellers but also for those who stay.

**The relationship between the methodical line of approach of the studio and the method chosen by the student in this framework**

Today with the rise of the flows transport infrastructure received the highest priority in urban development as the main shaper of the landscape and the city. Contemporary urbanism is infrastructural urbanism. Infrastructures charge urban territories with potential and therefore, become the primary tool for organization, establishing limits and possibilities. It seems that architects have to deal with the same issues again but with a new mindset, skills and tools. Today designers are not interested in establishing new totalizing order but rather in development of a new instrumentality in order to operate within environment of new urban complexity. In order to deal with old infrastructure as well as to create new types new strategies have to be developed. Previously infrastructure was pure engineering project driven by the strict logic of pragmatism and efficiency. However, efficiency of old infrastructures proved to be short term while the problem of integration with the city and nature remained. Infrastructure is often in the conflicting relationship with the context it is embedded in. Prioritization of flows leads to the situations when infrastructure is imposed on the urban fabric in a quite violent and brutal way creating undesirable conditions for inhabitants. There is need to reconsider the way infrastructure is positioned in relation to the urban environment. We have to shift the way we understand infrastructure and its presence in urban space. Instead of marginalization of territory infrastructure has to mitigate the conflict and to become open inclusive system that mediate between natural ecologies, environment of flows and urban fabric. One of the most obvious strategies to resolve the conflict between different environments is the creation of interface which basically acts like a separation device. Is it possible
to go beyond interface approach and to achieve integration that leads to the emergence of new type of mobility environment? Architecture has rather rich repertoire of strategies of integration on spatial and programmatic levels. Therefore, we need to go further than just beautification of traditional infrastructural objects and to rethink them from the programmatic point of view. There is an obvious demand for this as transport infrastructure creates a new collective experience for new extremely mobile society. As the result of reprogramming of the infrastructure we might receive totally new urban types on the intersection of architecture, infrastructure and landscape.

The concept of infrastructure has to be reviewed in order to address not only old, inefficient and obsolete infrastructures but how to position new types of infrastructure within the current issues of urban development. This crosspollination between architecture and infrastructure may contribute to the emergence of the new urban types and configurations.

Objectification is the most obvious way of how architects may rethink infrastructure. However, this approach doesn’t provide solution that goes beyond interface and very often tends to beautify instead of enhancing performance. Maybe, understanding of the environment of flows as a field rather than network of objects could be more productive as it gives more options for the organization of flows.

Towards architectural infrastructure and infrastructural architecture.

Since architecture is incredibly slow comparing to other products of human activity it may become a sort of a framework that is able to accommodate various programs. Once again we may trace the roots of this concept to the not very remote past. In the 60th members of Team 10 developed an idea of total infrastructure. This was one of the first attempts to dissolve architecture in the vast fields of infrastructure and to deconstruct architecture’s “objecthood”. This approach often resulted in generic, anonymous structures with the ambition to systematize the city. Generic is often seen as flexible and adaptable for transformations but in a way it is suitable for all activities it is not adjusted any of them properly. Specificity could be achieved through careful adaptation to existing local relations, the “logistics of the context”. A certain level of indeterminacy is a benefit in the time of uncertainty; however, initial conditions have to be carefully thought off in order to understand capacities and potentialities created by the new intervention. The tendency of some recent built structures to connect to the ground, activate roofs and upper levels thus, give back the occupied site to the city is a remarkable gesture to integrate buildings into surrounding. In this view, buildings appropriate some infrastructural features as they not only exploit the site but also generate potential. The process of exchange between architecture and infrastructure is happening already. The task of the designers is to realize the potential of these mutations and to develop a new architectural instrumentality and to rediscover architecture’s capacity to structure the city.

It is questionable if flows that are instable and have constantly varying trajectory can shape solid and stable structures. In his essay “Liquid Architecture” Manuel de Sola-Morales defined three states of architecture (solid, viscous and fluid) based on three material conditions (firmness, ductility, fluidity) that produce three dominant categories (space, process, time) respectively. The last liquid state with its priority of time over space seems to be rather a challenge for the future then achievable reality today. There is need to develop a model that could response to the contemporary conditions of change and instability.

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Although designers are looking for inclusive infrastructures, it is important to understand that while mediating between different environments and flows we still have operate with separation and allocation. Nevertheless, operating strategically with these tools it is possible to create new environments of flows integrated into urban fabric, a new type of urban infrastructure that, unlike traditional linear paths that intersect at certain nodal points, organizes connections through surfaces. It means that, in addition to the conduit as traditionally the main infrastructural type, surface becomes a new device for the organization of flows. Alex Wall names some surface strategies like thickening, folding, use of new materials, nonprogrammed use and impermanence to deal with issues of connectivity, separation and program. It is clear that surface oriented towards performance and not purely formal expression, equipped with the landscape strategies of mediation, separation and adaptation may become a new type of infrastructure capable to reunite projects for movement and inhabiting in the contemporary urban environment.

**The relationship between the project and the wider social context**

The decline of the public space and the priority for public infrastructures over any other types of urban development signifies crucial shifts in societal paradigm that entailed mutations of urban organization and the overall urban order. Old categories became obsolete in describing new metropolitan conditions. Acceleration of various urban processes and various human activities partly catalyzed by the quantum leap in the development of the new means of communication and improvements in mobility prioritized time over distance. The speed became luxury. One of the key questions of the contemporary metropolis is how to resolve the conflict of inhabiting and moving.

The desire towards integration is a general attitude of the design culture as a response to certain societal demands caused by the extreme acceleration and intensification of urban life. Everything has to be accessible within the shortest distance or what is even more important shortest period of time. The desire for connectivity is constantly increasing. Connectivity is the main characteristic of infrastructure. Proliferation of networks and resultant multiplicity of connections and modes mutates traditional hierarchical tree-like network of infrastructural objects into field of flows with multiple loose relations. How should infrastructure act in this new situation? It could be seen as a support, scaffold for these flows and as an interface between the environment of mobility and urban landscape. This understanding of infrastructure may transform its role as a boundary to more porous and mediating position in the metropolis. Theorists (Smets, Donini) define some mediating and interface strategies for infrastructure that change its position in relation to urban

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5 “Conceived as design strategy, the Infrastructural Architecture aims to create relationships, by putting a focus on limits, boundaries, margins, areas of tension, interstices, areas of pause, rather than to concentrate on the design of objects”. Sanja Cvetko Jerkovic. Mobility and Territory, in *Landscape – Great Idea! X-LArch III* (Conference Proceedings. April 29th - May 1st, 2009), 160.

“In contemporary urban design and architectural theory it is fashionable to talk about blurring boundaries, but in reality blurring can serve to maintain a polarity along with its power relations by making it hard to see. Another kind of blurring allows a continual slippage back to an essential notion of urbanism. In challenging the way binaries operate to obscure understanding through different kinds of blurring and conflation, it is critical to see the edges as opposed to naturalizing them. Rather than blurring, it is possible to inhabit a gap between terms, redefining boundary as a field in itself. We see this practice as the mapping of gaps, showing that the territory of the gap is not “no wo/man’s land” but a place of positive building. The notions of ‘merging’ and of ‘reweaving’ that I use to redefine the boundary as a field in itself are the means to positively transform the relationship among the traditionally opposed professional fields engaged in designing the city and theorizing its possible and desirable futures”. Maria Calabrese, Reweaving Urbanism Mobility Architecture (Optima Grafische Communicatie, Rotterdam, 2004). 83.

“Unlike architecture, which consumes the potential of a site in order to project, urban infrastructure sows the seeds of future possibility, staging the ground for both uncertainty and promise”. James Corner, “Terra Fluxus”, in *The Landscape Urbanism Reader* (New York, NY: Princeton Architectural Press, 2006), 31.
The most promising strategies are related to the processes like “fusion” or “hybridization” as they imply new urban configurations. Contemporary urbanism and architecture has to engage with infrastructure again not only because it plays major role in the process of urbanization but also because it may contain some strategies for built environment in the age of flows and unpredictability.

6 “Smets (2010) describes the five most common strategies of mediation: hiding, camouflage, assimilation, detachment and fusion, pointing out the last one as the most promising and interesting. Likewise, Donini (2008) also lists some interface strategies: overlapping, accumulation, hybridization and encapsulation. These processes of interface and mediation are important not just for the attempt to bridge the gap between engineering, architecture and urbanism but also because they raise new kinds of relationship and dialogue between the urban context and the infrastructures, or the life-support system in the words of Varnelis (2009), so they can assume again a key role in the agenda of planning and urban design, since they are perhaps one of the only instruments available for the government agencies with sufficient potential to structure in a wider scale a territory increasingly large and fragmented”. Heraldo Fereira Borges, Connecting Infrastructure and Urbanism (2009).