

## **Thesis Reflection**

Yanjie Liu

4845315

Complex Project Graduation Studio

### **Introduction:**

From the perspective of mobility, the whole research focuses on the vertical and horizontal transportation system with underground space of New York City and how to make shift and spatial connection with the upper space. Depending on this research, a large-scale infrastructure design has been proposed on the most conflicting traffic node in the site with the upcoming 2nd Avenue subway. The whole project tries to seek a future-oriented mixed transport infrastructure that can not only resolve conflict in a certain context like congestion with the new integration and capacity of future transportation but also meet the needs of the public neighbourhood with the unique underground culture of New York.

### **Overview on the Research**

As one of the prosperous cities in the world, New York City has a famous label of congestion. Even having rich vertical and horizontal layers of the transportation system, with the expansion of the population, the involvement of new modes of transportation and the changes of lifestyles, the overlaps of different layers have become more complicated and massive. Nevertheless, the capacity of transportation space, even public space is limited to land scarcity. The unbalanced speed between the growth rate of volume of vehicular traffic and the capacity of the transportation system has advanced the proposal of new transit forms and explore the potential of underground space for more capacity. Although always been ignored as an important urban living space, the underground space that connects different levels of transportation should play its urban role and provide variable and fluid with different types of spaces and experience. For New York, the vertical integration on the upper ground and underground is the coordination of the multilevel city base and it is clear that the future development of underground infrastructural space is a fine prospect in the rationalization of underground space in the city. It seems that the change from certain local horizontal and vertical traffic system to a traffic loop and the development of infrastructural underground space is a possible way to solve the typical congestion in Manhattan.

Depending on this, the main research question can be put up as: What space destined for development does infrastructure provide by the underground areas of New York and how can public activities and culture in the underground infrastructural space be related to the upper ground? How to transform the underground infrastructural space into a public space that could have cultural meanings and make the most of the positive public concept of underground space, such as freedom, art, avant-garde, to transform these underground “flowing corridors” into new containers and connection for public life give a positive impression to generate positive interactions?

The research has been divided into two aspects: one is how to understand the forming of infrastructural space and future trends by rearranging the generation and operation of the transportation system in New York, basing on longitudinal time study; another part will focus on the character of underground infrastructural space based on public cognition. The aim of this research is to provide a guide of the typical transport system of Manhattan and Empire Village with the transit accessibility, density and culture from the underground to upper ground both in current and future context.

### **From research to design**

The group site, which named as Empire Village, has an obvious character of dichotomy: the commercial and residential zone coexist in a clear and balanced relationship. It is in a negative position both in transport influence and public life, for there is no powerful traffic cluster or attraction and the public green is also limited even here are lots of residents with public life. However, with the construction of the Second Avenue Subway line, there is a new possibility for re-organization the negative accessibility of transport connection of Empire Village and activate the development of this zone. What ' more, new subway line also will push the development both in building type, transport mode and land value. New transportation infrastructure will mix the commercial and residential character and renegotiate the typologies to making a balance between a dichotomy like a grand ensemble, which means the building type of transportation infrastructure will have a shift from single-function towards a more elaborated and integrated complex with bigger space both for commerce and public life with more people flows served.

There are two main characters of traffic and residence in the selected personal site. For the traffic character, as the most existing congestion place in Empire Village, it could be worse when the mass pedestrian flow brought by the upcoming Second Avenue subway is seriously conflicted with vehicle flow brought by Queen tunnel in the future. The horizontal transport system, including vehicle, subway, bicycle and pedestrian will meet here and needed to integrate efficiently in future. What' more, another serious problem is that many small chaotic and unsafe underground parking lots surrounding the site needed to be integrated and organized in other ways like vertical parking. On the other hand, for the urban public role, the selected site is surrounded by high-rising residential buildings, which could be a nice open green view instead of occupied by the tracks of tunnel and wastelands. Also, there is one small park surrounding the site while some are closed and others are open as football or playground for the children with friends after school. More green and safe playing place without the danger of car traffic are need. What's more, the possibility of the development for the underground space along Second Avenue is also an attracting point. Located in the residential zone where near the commercial zone of CBD and the UN, there could be a new commercial connection even circle in future with the developing of underground space in the site from the group vision.

As a result, depending on the research of city and site context, the project has to deal with such traffic problems and meet the demand of the residential zone. For the traffic character, the new project has to not only become the portal of Empire village where people pop up and enter the grid but also dealing with the future congestion with the separating of flow in different levels and integrating of parking. And for the public character, how to return the public space occupied by

tunnel to the citizen and make it becomes a new safe green shared hybrid centre under the demand of the neighbourhood is the key aim for the whole program.

### **Design strategy**

The ambition is to create a green portal to enter Empire Village and the key strategies are the loop from upper to the underground. The project will be a mixed using transportation infrastructural complex for future and become a public hybrid building shared from underground to upper ground, which aims at more efficient, more multifunctional, more open to the public and greener. It will redefine the form of transportation infrastructure and the use-value of derived space, and balance the dichotomy of the commercial significance and public social activities.

Taking off from climate condition and vertical traffic integration, the whole project is organized by void spaces in series. The design strategy is the mixture and balance of three void space in a mass solid. From the climate condition of the site, which is surrounded by northeast high-rising building and southwest green park, the whole building is in a good solar condition of an urban basin with southwest sunlight without shadow all year, which has the possibility to become a city landscape and public life in the lower layer. Three huge void space and green roof park will continue the nice nature condition in the interior and exterior. Not only having structure and climate meaning, but these three voids also have different characters. And around them, programs are reasonably organized and connected.

### **Methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.**

The project is based on research following this structure, including group work and individual work. All the work have been organized efficiently form research to design.

1. Initial Data Research: Hard data, mapped and diagrammed in order to get familiar with the context of New York City;
2. Visualize Model, mainly focused on one scales of 1:1000 for the whole midtown of Manhattan, as a group work;
3. One site visits in order to document basal data of own site and make a special movie for the special understanding and character of the site as a group work;
4. Individual Data Research: Hard data, mapped and diagrammed for personal fascination and research questions .
5. Individual Design: Translation from research to design; Try to use simple and powerful logic to control a large scale building with more than 100,000 square meters; from huge to fragment.

### **Design reflection with social context**

This project is exploring an experimental connecting centre for the entire neighbourhood even the whole city form underground to the upper ground with infrastructure for the future.

From the building type, it is an experiment of the potentials of mixing infrastructure with other uses. With the expansion of infrastructure, what are the new flow of people and devised space meaning, and in what form of is it most suitable for implement new hierarchies and connections within the infrastructure? Especially on a dichotomy site such as Empire Village, with the

expansion of subway line at the boundary between residential and commercial areas, new building type and spacial method will inevitably emerge for it will increasingly intertwine with public life and is necessary to explore what kind of spaces that have the potential. This project has provided a possibility: with the construction of the new subway, new traffic attraction points will be generated at the original conflict traffic nodes, where the traffic space will be vertically integrated and mixed with the public space form upper ground to the underground space, bringing a new place for commercial and social life.

Form the traffic system, it is also a small trying of vertical integration of current transportation of New York for the future and has responded to future changes in mobility. New York City needs a second integration of traffic, for example, organizing large centralized vertical parking, for the parking space is particularly chaotic with mass parking on the street and small-scale disordered underground parking; considering the diversion of pedestrian flow, bicycle flow and vehicle flow in the vertical level in some congestion street; providing sustainable development space for new modes of transportation like shared bicycle rental, shared car rental and recharge. As a result, there are three attempts for the future transportation space in this building: integration of vertical parking, vertical diversion of different transport and reserved space for new transportation modes.

#### **Relationship between the project and a wider social context**

As a master student of MSc AUBS ( tracked Architecture), my entire graduation project, the transportation complex, is more depending on comprehensive training of "research and design" and targets all scales of the architectural thinking. For New York City, the 'context' of this city is so unique that every step of research is based on this premise and from research objects to collection and observation of data are all about how to recognize this city as a whole in the vision of mobility. Then, depending on this research, the whole project is put forward and aims to tackle complex urban and architectural problems in the special and real context of the city, following the further design and discussion on building and space, and contribute to the real context in the city.

Depending on the research from urban development to architectural space, my graduation work has extended on how to deal with the new transformation of a certain area by large infrastructure for future development. The main design strategy makes sense for it has introduced fitting public functions into traffic devised space and tried to integrate vertically the original congestion horizontal transportation system and bring new capacity. Looking at New York City with its current and future traffic densification, the clashes between current infrastructure will be more drastic, and new type and hierarchy between public space and commerce with infrastructure have to be established. The context of New York could be a typical example for other similar situations. And the program, as a new public shared transportation complex with the combination of functions, could seem like an experimental connecting centre for the entire neighbourhood even for the whole city form underground to the upper ground with infrastructure.