BEYOND THE SITE PLAN
Reflection on Mapping Techniques in Architectural Design Process

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“Mapping has emerged in the information age as a means to make the complex accessible, the hidden visible, the unmappable mappable. As we struggle to steer through the torrent of data unleashed by the Internet, and to situate ourselves in a world in which commerce and community have been redefined in terms of networks, mapping has become a way of making sense of things.”

Janet Abrams, Peter Hall, Editors
Else/Where Mapping: New Cartographies of Networks and Territories

Introduction
A map is usually defined as a representation that shows the features of an area of the earth or a portion of the heavens in their respective forms, sizes, and relationships according to some convention of representation. Mapping is the activity of making maps, also known as cartography. However, J. B. Harley, who is credited with bringing a cross-disciplinary approach to cartography, argued that maps are social constructions of the world: “Far from holding up a simple mirror of nature that is true or false, maps redescribe the world – like any other document – in terms of relations of power and of cultural practices, preferences, and priorities.” While a map is a completed document, mapping is an ongoing, incomplete and indeterminate process that, in the words of landscape architect James Corner, a “collective enabling enterprise,” a creative act that describes and constructs the space we live in, a project that “reveals and realizes hidden potential.”

In terms of mapping as an architectural design method, it links tangible sites of buildings, cities and landscapes with an intangible world of data, information, social networks and communications. The elements that are being mapped range from physical space (the site, the city, the region, etc.) to information space (data from the site) to social space (relations within and between individuals, organizations, cultural backgrounds, etc.) to communication space (conversations among participants or between the participants and the maps).

This essay is organized around these four aspects of mapping in architectural design process through case studies and summarizes some characteristics of mapping with reflective illustrations of my own studio work for each of the methods.

Mapping As a Method of Understanding the Territories of the Site
In mapping territories, we focus on the more traditional way of cartography – making a map that shows the physical terrain with certain scale, level of detail, entry criteria and symbol specification for geospatial objects, generalization, layout design etc. There are mainly two kinds of maps that show the physical conditions of the site, topographical map and topological map.

A topographic map is a type of map characterized by large-scale detail and quantitative representation of relief, usually using contour lines in modern mapping. This basically shows the geographical features, including topography, landscape, waterscape, etc. on and around the site. Also if our site sits within an urban
environment (which is most of the case), it should also include the surrounding environment of the details of buildings, streets, other structures etc. Such maps are always based on geographic studies and given or can be found from certain database thusly do not need to be redone.


A topological map, however, is one that has been simplified so that only vital information remains and unnecessary detail has been removed. These maps lack scale, and distance and direction are subject to change and variation, but the relationship between points is maintained. A good example of a topological map is Harry Beck’s London Underground system map of 1933, which was inspired by a circuit diagram. In this map, the curved rails have been simplified into straight lines and stations have become small circles, none of the geographic features but the River Thames remain on the map, for the purpose of this map is to show the relationships between different lines, stations and their locations with the river, rather than how much distance is between two stations or how long a line is.

Source: www.tfl.gov.uk
Back onto the site of a design project, usually the site contains many different features and elements that might not be needed in every step of site study, especially when studying a specific aspect of the site. For example, for the very first time our studio visited our site in Newcastle, we aimed to see what are the most prominent existing buildings on site, so everything else is irrelevant to our walking process. We marked all the buildings that have distracted us and recorded the time when we got there, and mapped them into a walking diagram which later, when we were back from the site, gives us a general idea of what are the significant buildings on site and approximately how far away these buildings are from each other.

Mapping As a Method of Revealing the Social Relations of the Site
If the use of mapping as a way to understand the territories of the site focuses on the physically existent things on the site, mapping the social networks requires to pick up the non-physical connections between different elements from the site, as in J. B. Harley’s words, “instead of picking up social messages that the map emphasizes, we must search for what it de-emphasizes; not so much what the map shows, as what it omits.”
A example would be the social relationships established by social network websites such as Facebook. Despite the fact that these online communities do not have a geographic location, mapping the relationships among them gives us a visualized idea of how these invisible networks are. In these diagrams, our focus is on the general density rather than every specific line, which only shows how highly connected the whole network is and an entity’s overall importance in the network by being linked together.
Another way of utilizing this mapping method is to map things without a physical form, such as activities, into their physical locations. In Spatial Information Design Lab’s work of Geography of Buzz, explained in the book Mapping New York, the designer mapped the frequency of film, fashion, theater, music and television industry events onto the New York landscape, providing that “event geographies appear to be closely linked to iconic symbols” and that areas such as midtown Manhattan and Chelsea were still more “buzzy” than the trendy Lower East Side or Brooklyn.

Such mapping, as I understand, give both the designer and the reader a very direct way of accessing non-physical forms that happen or exist on the site. It reveals not only the relationship within the same elements themselves, but also shows the connections to other relevant elements as well. The awareness of such visualized relationships can be quite informative in further development in the design process.

At the beginning of the studio, we did research on social capital as a group, we mapped out the different kinds of social capitals. As I developed my individual project further, same mapping method was applied to analyze the potential social
network which would become new social capitals for my project. The provisional links between different plots on site generated my proposal for activities, providing solid reasoning for developing my individual brief.

The Social Relations Map, by the author

The Activity Map, by the author

Mapping As a Method of Conveying Data of the Site
As how most architecture starts, collection of important data, such as climate information, population, historical development etc. is one of the most common way of interpreting the site. Mapping out the data collected from the site while doing research is a very important and effective way of utilizing the information from the research to inform further design.

Representing different data figures in a drawing usually comes in three ways, by the length of a line, by the area of a shape, or by different colours that indicate different levels. The following example shows the UK government’s annual expenses on each aspect of the country’s daily life, in which circles of different sizes represent the amount and lines linking them show the hierarchic relationships.
In Spatial Information Design Lab’s Understanding the Complainers NYC 311, a graph in corresponding with the contours on the computer generated map that illustrates the number of people living in the area against number of noise complaints. Brighter colour was used to indicate higher numbers in noise complaints.
By mapping certain figures into graph, the contrast between different elements becomes visible, as does the changing pattern, which clearly indicates which is the more prominent feature and which should be emphasized more in the design process.

As my project is to explore the possibility of urban food production, the weather thusly becomes an import factor. To show how the weather data varies annually, monthly and daily, I’ve produced the drawings as follows:

*The Weather Data Mapping, by the author*
This process was more than putting the data together, it helped me realize the changing pattern of some vital weather elements that would affect food growing.

**Mapping As a Method of Making Conversations about the Site**

As one significant part in architectural design, efficient communication, whether it’s between the architects and the clients, architects and other participants or among architects themselves, affects the outcome of the design and sometimes determines the design approach and thusly the whole process. Mapping has always been used to make such conversations possible.

This work, by Curious Maps, is a typographical map of London, with each area replaced with words representing a (stereo) typical dish for that area. The designer created a whole new way of looking at the city of London, and tried to make conversations about this city with the readers through the typical food of each area. Through putting words onto an abstraction of the map of London, the designer created a direct way of communicating his/her ideas to the people who are reading it.

Same method can always be applied to architectural design. Usually, in architecture, diagrams that explain the conceptual aspect of the project, formation process, structural design, or system organization etc., will be created to communicate with the clients or users, and feedback is expected from those who the architects use these mappings to have conversations with. Examples are as follows:

The conceptual diagram:
The formation diagram:

**Prototype 1 - Costanera Lyon 1**
- Maximum Extension: 13,500 m²
- Building Cut to Move 1/2 Way
- Office Penthouse

- Bracing Structure
- Perpetual Ramps
- Composite Structure

**Prototype 2 - Costanera Lyon 2**
- Maximum Extension: 12,000 m²
- Centipede Slab
- Seismic Forces
- Gravitational Forces

- Torsional Rigidity
- Perimetral Wall System
- Herendel Beams

Source: Ilma Grove / Andrew Maynard Architects

Source: Costanera Lyon / Eugenio Simonetti + Renato Stewart
The structural diagram:

Source: Infinity Loop Bridge / 10 Design + Buro Happold

As for my project, I applied the concept of time banking into the case of my urban farm, so new trading and exchanging systems are introduced. To make people understand how the system works and have conversations about my system on the site, I used mapping to present my ideas and to communicate with other people.

The Exchange System Diagram, by the author
Conclusion
To design is to invent strategies for visualizing information that make new interpretations possible. Mapping can be summed up as a significant part of the design process as well as an efficient way of understanding the territories of the site, revealing the social networks on the site, conveying data from the site and making conversations about the site. The information that mapping is supposed to pass on, whether it is geographic, analytical, numerical or abstract, is the core purpose of mapping.

Architectural design can be defined as a process where information is gathered from the site, analysis is done for the site, response is made to the site, and an outcome is produced to the site, during which not only mapping, but other techniques such as drawing, modeling, collage, etc. will all be applied to generate the optimized proposal for a project. After all, as an architectural student, whichever approach we choose to take, our aim is always “making sense of things” to the built environment.
Bibliography


Ed. Andrea Kahn and Carol Burns Site Matters, Routledge, 2005

David McCandless Information is Beautiful, Collins, 2010

Katherine A. Harmon You Are Here: Personal Geographies and Other Maps of the Imagination


Janet Abrams, Peter Hall, Editors Else/Where Mapping: New Cartographies of Networks and Territories, University of Minnesota Design Institute, 2006