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ID 1549 | SUPERBLOCK VS. TRADITIONAL GRID IN URBAN DESIGN IN BARCELONA: INTEGRATING SUPERBLOCKS WITH EACH OTHER THROUGH WALKABLE PUBLIC GREEN AXIS

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1 INTRODUCTION

One of the most effectively working urban patterns is grid layout which has been worldwide accepted since the ancient settlements in history. Barcelona represents one of the most spectecular strict grid pattern since 1850s as a result of new demands in urban development in the city. This research will handle the grid pattern from a different perspective focusing on a transition from grid to Superblock and a simultaneous transformation in urban transport memory. Therefore, research question is to reveal what Superblock proposes in Barcelona as a change in urban transport memory. In this context, firstly, grid urban layout will be defined with its advantages and drawbacks in general. Afterwards, the historical being of Barcelona's grid structure and Superblock idea will be presented. Here the significant point will be touching upon basically the change in grid pattern and its prospective contributions on new urban transport memory. Finally, transition from grid to Superblock will be critically discussed by considering the aspect of expected transport memory reformation.

2 GRID PATTERN AND HISTORY OF GRID URBAN LAYOUT IN BARCELONA

In grid urban layout, roads create a rectangular network which creates identical building blocks having the opportunity to extend in any direction. This structure has been criticized due to its prodigality in terms of having all the streets with the same standard, excessive use of land, aesthetical monotony and lack of focus. However, creating hierarchical grid by diagonal arterials and minor grid streets seems to be solution for this critique (Lynch, 1985). This urban form does not have any definite edges or does not need to have nodes regarding its phyical structure.

Grid pattern can be defined as a net of roads or diagonals without having a major spine in urban design of a city and without a certain boundary. The focal attraction points can be anywhere in the layout, which means the pattern does not imply the nodes or intersections. In this pattern, urban growth can occur towards antwhere inside or by extension to outside. The main advantage of grid is having high adaptability to growth and change, that makes the pattern flexible. Main disadvantages of grid also are lack of focus -in non-hierarchical grids-, waste of land and confusion of road network (Ceylan, 2003).

In Barcelona, Catalan civil engineer, Illdefons Cerda, prepared the first plan for the urban extension, which was considered as a revolution regarding its emphasis on hygiene, easy mobility and transportation on a modern grid-iron urban pattern. Living standards were optimized by creating 6m2 volume of air per person within the structure of orthogonal city blocks with 113.3 m by 113 m (Figure 1). The pattern was supported with 35m large streets and big avenues. Cerda plan also proposed to increase green spaces and gardens in each block (Wynn, 1979).

Figure 1. The Cerda Plan, 1859 (Source: Barcelona Municipality History Archieve)

The Cerda grid plan basically depends on continuity of infrastructures and productive and residential forms. The main goal of this idea was taken as a new modern concept of the combination of multitude of movements between inhabitants and the elements of the contemporary city, which was thought to strengthen the relationship between human, economic growth and public space. In addition, within this grid layout local streets constitute the orthogonal grid layout and diagonal avenues create territories. The streets also create built and unbuilt spaces. Big building blocks between streets were assigned as industrial or non-residential, and other square small ones were as residential functions (Busquets et al, 2009). In Figure 2, the residential uses in plan can obviously be seen as mostly square blocks. Besides, main arterial diagonals and minor cross roads create variety in urban layout in Barcelona by the formation of different-size building blocks for today's current situation. However, some serious problems have started to emerge within this strict grid Cerda plan making policy makers take new precautions on urban transport design.

Figure 2. Solid-Void Relationship between Built and Unbuilt Spaces of Cerda Grid in Barcelona (Source: http://tr.depositphotos.com/12853525/stock-photo-barcelona-plan.html)

3 BARCELONA GRID WITH ITS PROBLEMS AND SEEKING A SOLUTION

Cerda grid plan emphasized mainly the fact that Barcelona city needed to breathe ideologically and physically, and to distribute the population in the area evenly together with enabling green areas within each building block. However, almost all the grid lines were dominated by cars which also triggered pollution and increase in noise levels. In short, the reasoning that made policy makers think about the solutions against the problems of greening and health in 1850s has emerged again as a tough problem in contemporary grid of Barcelona (Bausells, 2016).

According to a research carried out by Environmental Epidemiology Agency in 2015, if Barcelona performed the air quality standards of EU, it was seen that almost 1200 deaths could have been prevented in the city. The study also notes how the number of hospital cases increased in recent years in Barcelona due to air quality problems. Moreover, noise levels in the city become 61% higher because of city traffic and congestion levels (Trentini, 2016). In addition, air pollution in Barcelona itself has resulted in 3500 premature deaths in a year and also in detrimental effects on agriculture and ecosystems. Furthermore, some of the main reasons to generate a new Superblock grid pattern idea are excessive road accidents -9,095 occurred in 2015-, sedentary lifestyles mostly effecting the future of kids who have not been got used to walking and sport, and scarcity of green areas in the city –particularly open public parks and green spaces-. According to World Health Organization cities need to own at least 9m2 per inhabitant; however, the whole Barcelona city only has 6.6 m2 green-spaces per capita -moreover, the pioneer implementation territory of Superblock project namely Eixample Neighborhood has only 1.85 m2 per inhabitants (Bausells, 2016). As a result of environmental and health problems among inhabitants, policy makers of local government in Barcelona has decided to implement a new Superblock idea to decrease the occupancy of cars on urban space, increase the percentage of green areas and green streets and eliminate air pollution in the city. The specific project area in Eixample Neighborhood within one of the newly created Superblock basically focusses on formation of a continuous public interior connecting three Superblocks on one single green spine.

4 SOLUTION: ‘SUPERBLOCK’ RATHER THAN TRADITIONAL GRID

According to ‘Agencia de Ecología Urbana de Barcelona’ (2015), Superblock definition designed for Barcelona city as a new urban layout reforming the existing grid is mentioned as:

“The superblock (in physical terms) is composed of a set of basic roads forming a polygon or inner area (called intervía) that contains within it several blocks of the current urban fabric. This new urban cell has both an interior and exterior component. The interior (intervía) is closed to through vehicles and open to residents, primarily. The exterior forms the basic road network on the periphery, and is approximately 400 metres wide for use by motorized vehicles”.

Superblock consists of several building blocks in which traffic flow is reorganized around the outside of main roads. The priority inside part of a superblock belongs to pedestrians and bicycle users (Figure 3). Exceptionally, inhabitants in Superblock can drive inner streets with a low speed of 10km/h. those inner streets are also projected to fill with parks and recreational gardens. In addition, the new inner grid streets, left by cars, will become spaces of citizens for them to have new rights and functions such as commercial, culture and knowledge, participation and leisure time activity spaces in addition to use of inner streets as passageways (Peters, 2016).

Figure 3. Entire Superblock Design Layout for Barcelona (http://www.barcelona.cat/ca/)

The new Superblock renovation on Barcelona's grid will regain almost 60% of road space from car occupancy to citizens for different functions. Existing building blocks of the neighborhoods will be turned to Superblock which means joining almost nine building blocks into one continuing the orthogonality (Figure 4). The Eixample Neighborhood will be the first area selected for implementation. Main principles of Superblock design are humanizing public space, livability, sustainable mobility, green areas, biodiversity and local participation (Barcelona Architecture Walks, 2016).

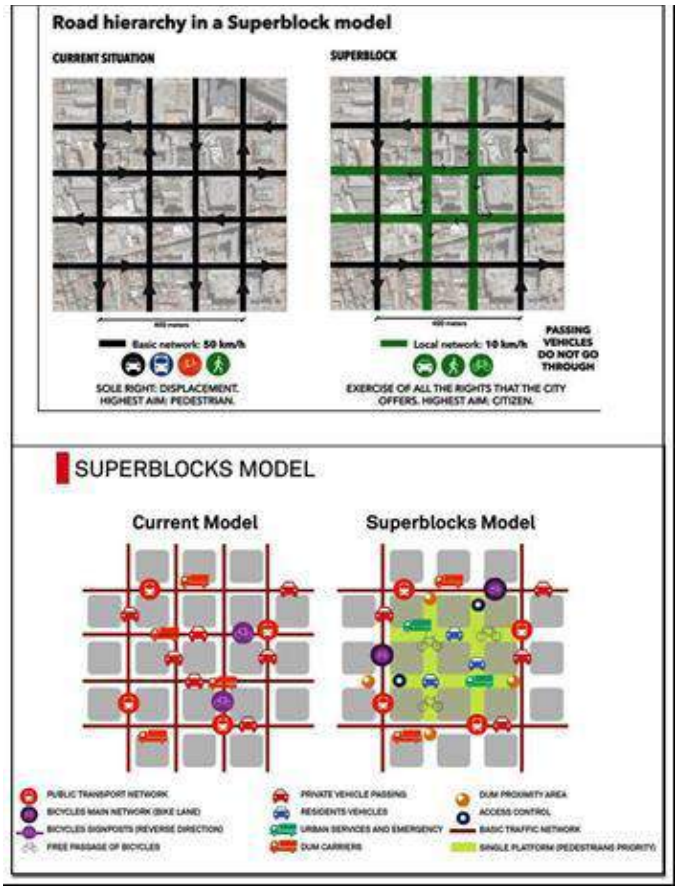

Figure 4. Functioning of Superblock Idea in Comparison with Current and New Situations (http://www.barcelona.cat/ca/)

5 WALKABLE PUBLIC GREEN AXIS TO INTEGRATE SUPERBLOCKS THROUGH DIAGONALS

The significant point in this research is to investigate ways to integrate these newly proposed Superblocks.the reason why there exists such a concern is that when new superblock structure is generated and applied to Barcelona streets and Avenues, there might be a concern also for disconnectedness between Superblocks in terms of social and accessibility aspects. Therefore, it is obvious that diagonals would be effective ties between Superblocks since they passes through the city as creating accessible central axes. ın this research, an example diagonal green corridor will be investigated between “Parc De La Ciutadella” and the coast of Barcelona. The research interest of the research is formulated as: “How an old diagonal can behave in new Superblock structure of Barcelona as an integrative green spine of three different Superblocks” (Figure 5).

Figure 5. The Idea of Public Interior within Superblock Structure in Eixample (Source: Personal Drawing)

6 PROJECT AREA SELECTION, PRINCIPLES AND RESEARCH QUESTION

The Eixample Neighborhood is selected as the pioneer implementation of Superblock idea. The main research interest for the project area is derived from the issue of how an old diagonal can behave in new Superblock structure of Barcelona as an integrative green spine of three different Superblocks. The specific project area is called as a public interior (positioned in one of the Superblock) between two welcoming entries (positioned in two separate Superblocks) on an old historical canal, namely Av. De Bogatell Street today. Consequently, problems and potentials in the area, aim, vision, and finally design principles are noted as follows:

Problems

- The diagonal (old canal) has been used just as a passage and fragmented pedestrian way interrupted by many streets
- Entries into today's area are not clearly defined
- Problems in the organization of unbuilt spaces existing within the area to attract citizens into it

Potentials

- The area has a strategic position within Cerda Grid located as a diagonal
- It has the potential to integrate three different newly proposed Superblocks on a single green line
- The diagonal is an old canal which can be revealed as an historical attraction point
- Existing public programs in the area create potentials to enrich newly projected public interior (library, schools, and sport areas).
- Proposed Superblock urban layout perfectly fits into the strategy of creating public interior and its two welcoming entries

Aim

- Designing the area as an integrative green spine destination itself; not just a passageway together with the aims which are creating a public interior within Superblock structure and integration of public programs with public interior. In Figure 6, it is seen that existing situation contains fragmented grid streets on diagonal and strict property boundaries shown with red line. In design case, existing public program potential is used to create a linear pedestrian public interior inserting more public programs and open spaces. In prospective design aim, urban functions are flourished by the uses of residential, commercial, urban parks, school and library.

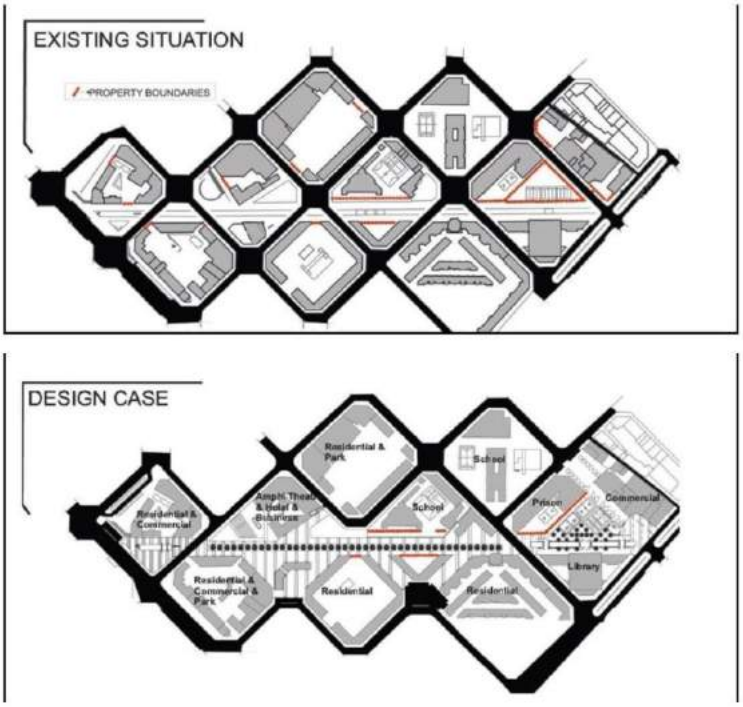

Figure 5. Design Aims for Public Interior Formation within Proposed Superblock Structure (Source: Personal Drawing)

Vision

- Design of a public interior together with two welcoming entries to make the diagonal a destination itself

The specific questioning which was asked to the project before design process is;

- What to keep, what to change?
- What kind of a public interior?
- How to use unbuilt spaces? How to organize them?
- How can it become a destination?
- What kind of activities will bring special qualities to urban space?

Design principles

Diagonal is planned as a destination itself; so the principles are;

- Creating a public interior and two welcoming entries
- Revealing old historical canal on the diagonal as a value
- Accessibility: parking (park-and-ride & kiss-and-ride), cycling, public transport stops
- New public private space hierarchy
- Social inclusiveness
- More public programs
- More commercial activities

Research question: 'How can a public interior be created on a historical canal in relation with new Superblock structure?'

7 FINDINGS AND DESIGN SOLUTIONS

The line was old canal carrying water to old city. In 1861, a new plan was prepared for Barcelona applying a new grid pattern. This plan kept the line as an underground canal. In 1958, the line lost its canal activity; it owned being a vehicular road diagonal. Today, the line is used as not a canal or vehicular road; but as a

pedestrian line. The diagonal does not even work as an efficient, continuous pedestrian line. It is fragmented by streets of Cerda Plan and only small public spaces remained. Today, despite the existing public programs in the area, the diagonal cannot be counted as a destination itself; it is used just as a passage from one place to another. In the new design, east and west blocks of the project are kept as welcoming entries on different Superblocks, and in the middle, a public interior is created with new commercial activities, cultural uses, sport areas and green spaces to create a linear continuous spine on an historical old canal (Figure 6).

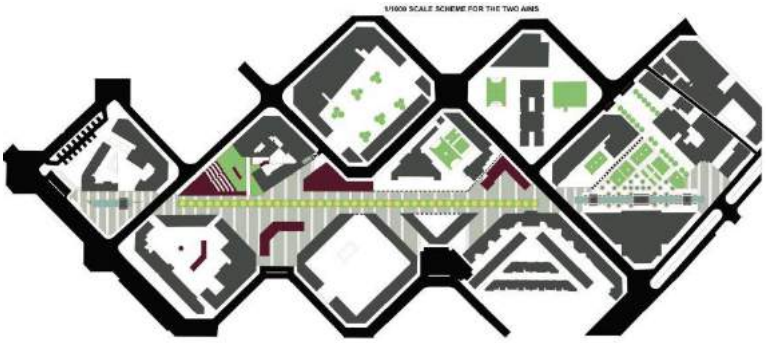

Figure 6. Proposed Design for Public Interior and Welcoming Entries as Conceptual Scheme
(Source: Personal Drawing)

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IMAGES

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