THE REHABILITATION OF THE PEDESTRIAN CITY

HOW THE URBAN PLANS BY HAUSSMANN AND CERDA CAN ADAPT TO THE IDEAS OF URBAN SUSTAINABILITY

by Evita Ratniece

ABSTRACT

This thesis deals with two urban plans as part of the in-depth study module on the overarching semester theme of "Living in the Dense City: the Barcelona Riddle". The primary analytical tool for this comparison is the the city traffic network. In this framework two cities were taken for the comparison of their developments starting from 19th century until nowadays. Both plans were executed over just a couple of decades to expand and improve the living conditions in cities. Although the starting ground was the same, they evolved differently.

Following substantial changes brought about by the advance of automobiles in the late 19th century, both cities are now set for another transformation toward sustainable urbanism. This study analyses the transformations undergone by both cities and derives a set of criteria that define a resilient urban grid. The findings contribute to the broader discourse on urban resilience and sustainable urban planning.

Vertiefungsarbeit
In-depth Study

The rehabilitation of the pedestrian city

How the urban plans by Haussmann and Cerda can adapt to the ideas of urban sustainability

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INHALT
CONTENT

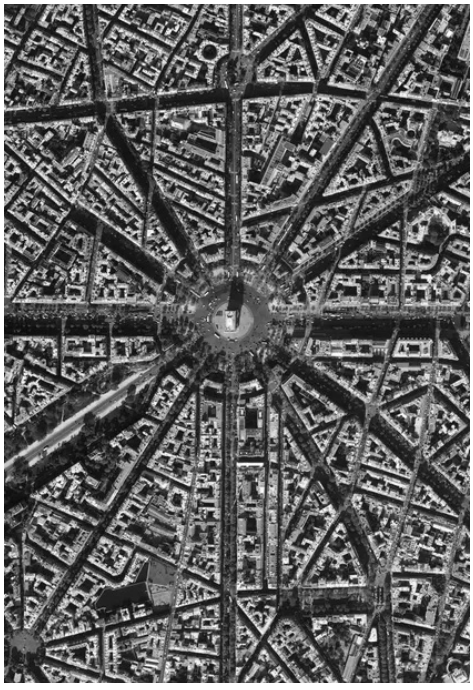
1 INTRODUCTION

From the 19th century until nowadays most European cities have experienced multiple waves of transformation - revolutions, wars, and expansions. This work will analyse the transformations of two cities - Barcelona and Paris. Starting from the historic background and the factors that influenced their urban planning approaches in the 19th century, and moving on to the current discussions about urban planning. In the centre of the current discourse is the integration of sustainable urbanism principles on the existing grids of the cities.

> *"The reality before our eyes today tells us that the problem lies not with the quality of each individual architecture, rather in the lack of a vision of the whole"* [1]

In the framework of this work, the traffic network was taken as the main tool in analysing the adaptability of urban planning concepts. The transformation of urban network was a radical change in the 19th century in both cases as it was a city wide project done in just a couple of decades. A transformation of such a scale would not be possible nowadays.

The aim of this work is to compare the transformation of the urban traffic network in both cities through historical and current developments. From this comparison the common criteria will be derived to determine the more resilient urban approach. The more resilient plan would have undergone less changes from the initial plan of the 19th century to adapt to the modern sustainable urbanism ideas.



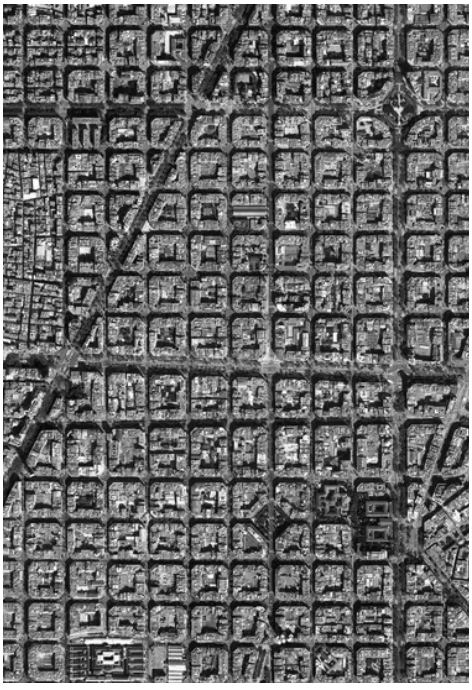


Fig. 1. Areal view of the Haussmann grid in Paris nowadays
Fig. 2. Areal view of the Cerda grid in Barcelona nowadays.

1 Boutte and Napolitano, Haussmann Paris, 10.

2 19TH CENTURY URBAN PLANNING CONDITIONS

In the 19th century most of the cities in Europe experienced similar issues due to the rising population of city dwellers, who were seeking employment opportunities in new factories. This led to overcrowded living conditions, many people residing in cramped houses and slums with increasing rate of criminal activities and illnesses. The infrastructure in cities could not support such amount of people and the lack of proper sewage systems led to contaminated water sources, further contributing to the spread of diseases. Not only bad sanitation but also the air and water pollution were the contributors to health problems of the city dwellers. In addition to the sewage system, infrastructure, such as roads and public transport, could not keep up. The rapid growth of cities widened the gap between the wealthy elite and the urban poor, economic disparities were stark, leading to social unrest and tensions between different socioeconomic classes.

Although most European cities experienced similar issues, in the framework of this work the two of them - Barcelona and Paris - were looked at as examples of adaptations, where the traffic network was the main catalysator of urban change.

2.1 PARIS BOULEVARD GRID OF HAUSSMANN

The 19th century Paris was dark and plagued by illness. A new urban approach was required as the solution for the growing city population. “The population of Paris had exploded from 759,000 in 1831 to more than a million in 1846 – despite regular outbreaks of cholera and typhoid that killed tens of thousands”.[2] Urban transformation at that time was seen as one of the most radical steps that had to be taken for the improvement of these conditions.

Fig. 3. Paris at the end of the 19th century - factories along the river.

Under Napoleon III, Georges-Eugène Haussmann implemented a radical urban renewal plan, executed between 1853 and 1870. Just in 20 years he completely re-shaped the city, by modernizing the networks of traffic, improving public health and sanitation, enhancing transportation, and reinforcing the authority of the central government.[3]

Fig. 4. One of the first boulevards in Paris - Rue de Rivoil in 1860. Opening the city up for pedestrians and traffic.

The primary aim of Haussmann was the improvement of different flows in the city - pedestrian, traffic, air, and military. “By creating new mayor axes that would break up the neighbourhoods, a geometric framework of triangulation was created, which was based on movement and borrowed the layout of certain hunting estates.” [4] The main approach of Haussmann was the reorganisation of the urban network by creating a distinction between the primary and the secondary streets, creating junctions of different scales in the city. Haussmann grid is characterised by great flexibility, although designed based on one type of building, one size and one local material it remains highly unique, giving Paris its identity.[5] The new Paris, that he envisioned was based on the modernisation and expansion of the current networks of the city. The construction of wide boulevards required more open space, therefore Haussmann planned extensive demolitions throughout the city, particularly the medieval neighbourhoods of Paris. “Hauss-

2 Willsher, ‘Story of Cities #12: Haussmann Rips up Paris – and Divides France to This Day’.
3 Boutte and Napolitano, Haussmann Paris, 11.
4 Boutte and Napolitano, 17.
5 Boutte and Napolitano, 12.

mann cut a swathe through the cramped and chaotic labyrinth of slum streets in the city centre, knocked down 12,000 buildings, cleared space for the Palais Garnier, home of the Opéra National de Paris, and Les Halles marketplace, and linked the new train terminals with his long, wide and straight avenues".[6] These broad avenues not only facilitated traffic flow but also allowed for better circulation of air and light, reducing diseases and congestion in the city.

Fig. 5. Buildings constructed in Paris between 1840 and 1910
Fig. 6. Roadways built in Paris betewwn 1852 and 1914.

In addition to the design of the new street grid in Paris, Haussmann also redesigned the building blocks themselves. "Baron Haussmann's large blocks in Paris were the result of massive interventions; expropriation and large-scale demolition gave the city a new layout with lush plots of land, thus replacing the finely meshed street network from the Middle Ages " [7]. He saw the block as "a unique building within which courtyards were hollowed out. […] The sharing of these empty spaces and the subordination of the parcel structure to the buildings confirm that Haussmann used the block as his main tool for designing the city" [8] Although not identical throughout, the blocks were subject to rules that allowed for a uniform image of the city to be created. The primary features of the Haussmann block were the diversity of apartment units in one block, continuous façade from the outside, adaptability and even distribution of empty space. This combination of these features allowed for versatile forms and adaptability to every location in the city.

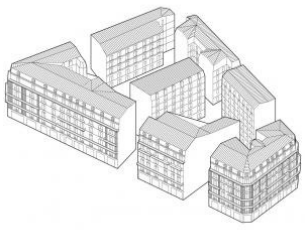


Fig. 7. An example of the triangular Haussmann block.

These improvements aimed to enhance public health, sanitation, and safety in the rapidly growing city, addressing the social situation, as well as the overall control over it - the wide boulevards made it easier for the military to move troops through the city, while the demolition of overcrowded neighbourhoods reduced the risk of social unrest and facilitated surveillance by authorities. Haussmann demolished nearly 20 000 buildings, containing 120 000 apartments, while later planning 34 000 new buildings.[9] This approach was not received well within the Parisians at that time, but the rapid action allowed for quick results and improved living condi-

6 Willsher, 'Story of Cities #12: Haussmann Rips up Paris – and Divides France to This Day'.
7 Kostof, Das Gesicht der Stadt. Geschichte städtischer Vielfalt, 150. Translated by deepl.com
8 Boutte and Napolitano, Haussmann Paris, 28.
9 Boutte and Napolitano, 12.

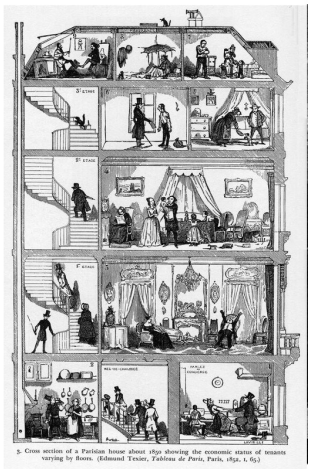


Fig. 8. The vertical stacking of social classes in a single Parisian home before Haussmann

tions for all. His intention was not to divide the city socially, but to ride the city of Paris of the vertical stacking of social classes (see Fig. 8) and provide better living conditions for everybody. The grid was designed to be capable to absorb changes while preserving its structure throughout time.

2.2 THE REGULAR GRID FOR THE EXPANSION OF BARCELONA BY CERDA

Similarly as Paris, Barcelona had a medieval layout before new planning, which was also linked to the social unrest, disease and inefficient movement, resulting in a need for urban transformation. Ildefons Cerdà was commissioned for a topographic plan of the area outside of Barcelona's medieval walls.[10] Cerda drew inspiration for his urban planning from other cities in Europe, especially Haussmann's radical approach to transforming Paris. Although appreciative of the courage to tackle such a radical reform in the existing fabric of the city, Cerda criticised the lack of systematic approach in his planning. [11] "He [Cerda] never even mentioned Haussmann, perhaps in the belief that he was no more than the effective executor of the Emperor's will."[12] Cerda was convinced of the need for radical reforms, but he still voiced his disagreements with Napoleon III, especially lack of general preliminary planning principles and the brutality of the evictions.[13] Cerda thought that it was "an age in which movement prevails in everything in which humanity is ceaselessly and feverishly agitated" and the urban planning should follow that.[14]

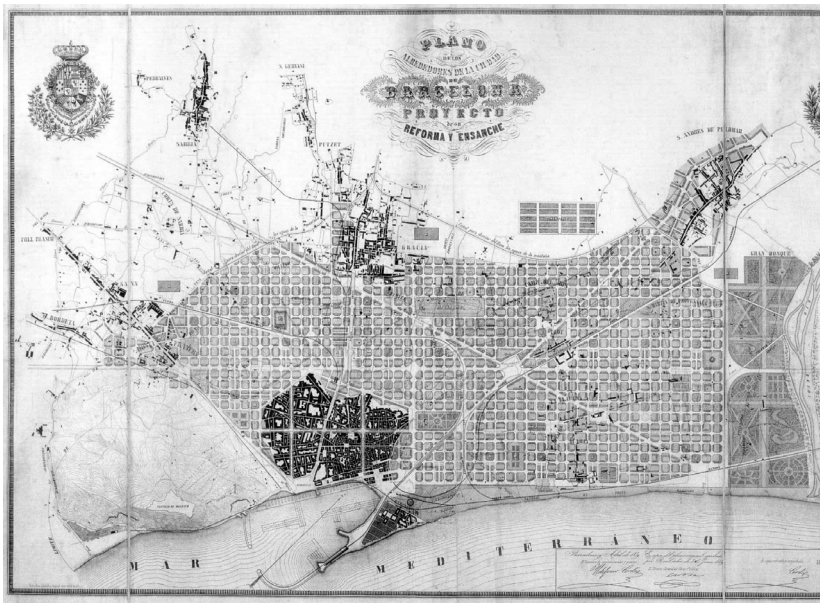


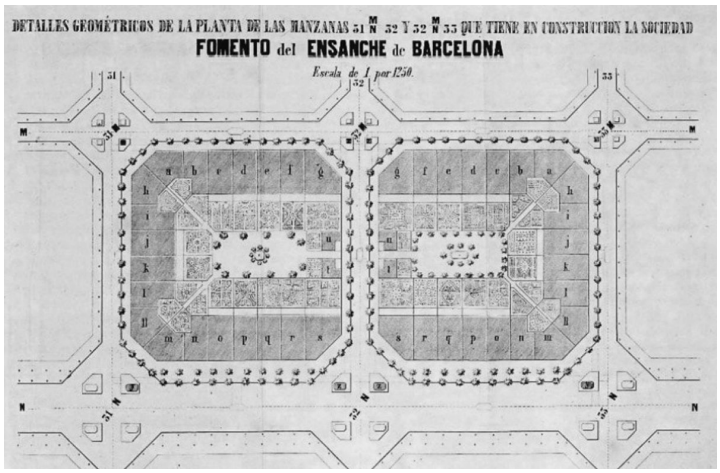
Fig. 9. Cerda plan wrapping around the existing walls of the old town.

The core ideas behind Cerda's plan were similar to the ones of Haussmann, as the starting conditions for both cities were the same. With a mathematical approach Cerda envisioned the new expansion of Barcelona to be based on the grid system where each square would allow for infinite possibilities and provide a green oasis for its inhabitants. Between those squares there would be spaces for social connection points - created by the chamfered corners of the buildings. (See

10 Urbano, 'The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning', 48.
11 Soria y Puig, 372.
12 Soria y Puig, 372.
13 Soria y Puig, 360.
14 Soria y Puig, Cerda. The Five Bases of the General Theory of Urbanisation., 132.

Fig. 10) The Cerda plan focused on the three aspects of reorganisation: the urban grid, the housing block, and the social transformation, similar to the Haussmann plan in Paris.[15]

Fig. 10. Chamfered corners in the building layout from Cerda.



Everything in the grid was about equality - equal distribution of goods, people, and facilities. This was done through clear network of roads established as the basis for the buildings. "The city's expansion was organised into a regular orthogonal grid – reminding us of the planning of Greek and Roman cities – for order and clarity, and into blocks measuring 113 meters square. The blocks had buildings and sidewalks cut at 45 degrees angle in all corners for higher visibility at street intersections, improving mobility and allowing for a small central plaza for services and complimentary activities." [16] This regular street grid was then connected to the larger boulevards piercing through the city – for better connections throughout and keeping the existing traffic structures in Barcelona intact. Although designed in the time of carriages, the plan already had planned connections for tram traffic.[17]

Due to the wide street layout and porosity of the grid, entire buildings, and quarters which were previously deprived of air and light receive the benefits of the direct rays of sunlight and more efficient ventilation.[18] "It is known fact that streets should not be seen just from the perspective of traffic and that for towns, they are airways, through which the breath of all the inhabitants is drawn."[19] Although based on a equal grid layout, the city's facilities were spread throughout the footprint of it, therefore encouraging mixing of social classes and equal development. To improve living conditions Cerda also wanted to introduce greenery throughout the grid – he fixed the building height to 23 meters and planned green corridors in each building block for better air circulation and light.[20] Cerda proposed modular blocks equal in height so that land would be of equal value. Although occupying the same amount of space, all of the blocks were envisioned

15 Soria y Puig, 104.
16 Urbano, 'The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning', 48.
17 Urbano, 48.
18 Soria y Puig, Cerda. The Five Bases of the General Theory of Urbanisation., 387.
19 Soria y Puig, 104.
20 Urbano, 'The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning', 48.

Fig. 11. La Sagrada Familia fitting on one square of the Cerda grid in Barcelona, 2015

as different structures with diverse layouts and densities.[21] The size of each square allowed for even the most ambitious projects to be placed in them (see Fig. 11.)

Due to the good location and the new design in the first phases of the project most middle class and wealthy families chose the Eixample for their new homes, as a result no social classes were mixed in the newbuilt blocks.[22] The rest were left within the confined walls of the inner city. In his initial concept Cerda argued that “the Eixample would embody the Liberal ideas of liberty, equality, harmony and individualism, whilst acting as an expression of mercantile and rural nature of Barcelona”. [23] In his Barcelona extension Cerda wanted to reintroduce city dwelling and city property ownership as something prestige and attractive, in hopes to bring middle class families and activities back into the city. This shift in social classes, that resided in cities would in his opinion guarantee peace and public order. This class separation and exclusivity of the Eixample area in Barcelona evened out over time, adjusting to the local demographic and housing even more people than previously imagined.

21 Soria y Puig, Cerda. The Five Bases of the General Theory of Urbanisation., 44.

22 Urbano, ‘The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning’, 50.

23 Greaves and Wallace-Hadrill, ‘Ildefonso Cerda and the Eixample Grid Plan (1859) To Be or Not to Be Rome?’, 347.

3 INFLUENCES ON THE 19TH CENTURY TRAFFIC NETWORK DEVELOPMENT

In the second half of the 19th century the world experienced changes that also influenced urban traffic networks. New technical inventions changed how they function, traffic flows were adjusted and due to new job opportunities the demographic of the city changed once again.

Fig. 12. The first car design by Karl Benz.

First of all, in the late 19th century the steam turbine (1884) and the car (1885) were invented, which allowed for traffic network rapid improvements on a bigger scale. In Paris, the first horse-drawn tram lines began operation in 1855, eventually transitioning to electric trams and buses, the iconic Paris Metro opened its first line in 1900 for the Exposition Universelle. In Barcelona, on the other hand, the first horse tram lines appear only in 1872, with subsequent opening of the metro in 1924. Just in a few years the urban grids had to undergo major changes to adapt to the growing needs of traffic in the cities.

Fig. 13. Passeig de Gracia in Barcelona was one of the first to transform to a street for cars.

Fig. 14. Rue de Rivoli transformed from one of the first bulevards (see Fig.2.) to a car promenade in 20th century.

The streets, previously used only for light carriage traffic, had to be readapted to the mix of car and pedestrian traffic. In Barcelona the square in the middle of each intersection was removed to substitute the public space with a more efficient junction. Originally, Cerda saw the streets as a lively area for the residents, but the needs for growing car traffic transformed the idea.[24] “Ildefons Cerda’s 1859 plan for Barcelona focused on network urbanism and system integration”, which eased the transformation after the introduction of new mobility concepts.[25] In Paris, on the other hand, most of the wide boulevards allowed for seamless integration of cars in the city centre without much changes. No major transformation of the grid was required. This smooth change in both cities was only possible because of the visionary approach of both planners, who already during the no-car times of the city mobility planned for adaptable streets in the case of new possibilities in traffic.

24 Soria y Puig, Cerda. The Five Bases of the General Theory of Urbanisation.

25 Neuman, ‘Centenary Paper: Ildefons Cerdà and the Future of Spatial Planning: The Network Urbanism of a City Planning Pioneer.’, 117.

The new inventions improved the transport network in and to the cities, therefore causing another surge of immigration and even denser housing blocks in the same plots. The shift to a more efficient traffic network and denser living spaces reduced the non-liveable spaces in the grid to the minimum. Cerda, for example, originally had set the building limit of the grid to the 28% of the overall possible limit of the buildable surface on the plots. After the industrial revolution, the amount was doubled, but nowadays it has become one of the densest cities in Europe. There was no density limitation in the Haussmann plan, however, as it offered flexibility and adaptation to the individual needs from the beginning on. Haussmann's projects in Paris were partly motivated by ensuring a greater quantity and quality of housing at reduced costs, sometimes reaffirming pre-existing demographic distributions, or constructed on greenfield land.[26] Nevertheless the housing blocks in Paris also became denser, whilst keeping the principles and appearance of a uniform block.

The outcomes of these transformations are the grids that we see in both cities nowadays (see Fig. 15 and Fig. 16 for both plans just after transformation in the 20th century). Both of these are again on the verge of transformation.

26 Freemarkt, Bliss, and Vale, 'Housing Haussmann's Paris: The Politics and Legacy of Second Empire Redevelopment'.

Fig. 15. The current networs of streets in Paris
Fig. 16. The current network of streets in Barcelona

4 THE CURRENT TRENDS IN THE TRANSFORMATION OF THE URBAN GRID

With the environmental crisis in mind, cities are readapting their approaches to urban planning to meet the goals of the European Green Deal, with the most important ones in this context being: sustainable mobility, energy efficiency, green infrastructure and inclusive transition.[27] In the geographic context of this work, this deal is one of the most influential ones for both cities analysed. Although each city has a different approach for reaching this goal, both of them have common criteria. Firstly and most importantly, all of them are aiming to reduce the pollution caused by traffic in the inner cities and revive these areas back to residential use. With green belt policies, governments are manning motorised vehicles from the city centres to reduce carbon emissions. Nowadays, however, not only the carbon emissions are the culprit of health issues but also the water, noise and light pollution. In addition to the environmental factors, cities are also experiencing another wave urban migration, similarly as in the late 19th century, as the urban life is becoming more appealing due to jobs, culture and social connections. This change in the criteria for urban planning leads on the second adaptation of the grid, when cities are moving form the car appropriated grids to the no-car traffic again.

4.1 THE ADAPTATION FOR THE NEW TRAFFIC REQUIREMENTS

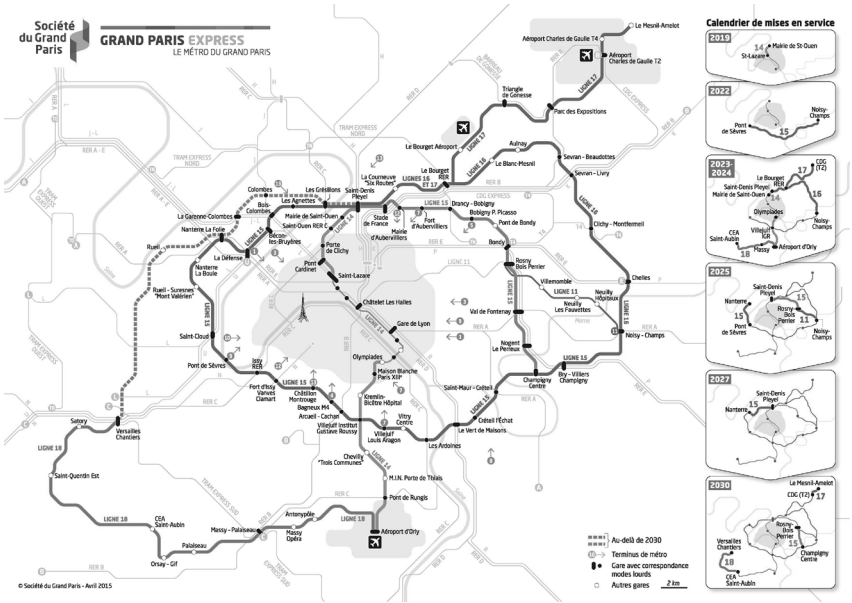


Fig. 17. The Grand Paris plan reintegrating outskirts of the city back into the urban network.

Fig. 18. The transformation of streets to bike lanes in Paris - Rue de Rivoil. See Fig. 4 and Fig.14 for the previous transformation of the same street.

The most important factor in transforming the urban fabric is the overall reduction of cars in central areas. The Grand Paris project, scheduled for completion in 2030, for example, seeks to link the entire Greater Paris region by extending public transport lines to reinvent cultural hubs outside of the centre and reduce the car traffic by offering attractive public transport options. During lockdown in 2020, for example, the city turned 70km of roads into bike lanes and banned cars from Rue de Rivoil, serving as an inspiration for new pedestrian zones.[28] One of the biggest re-integration projects in Paris is the plan of Champs-Elysées where

27 European Commision, 'The European Green Deal'.
28 Huw, 'How Paris Plans to Become Europe's Greenest City by 2030'.

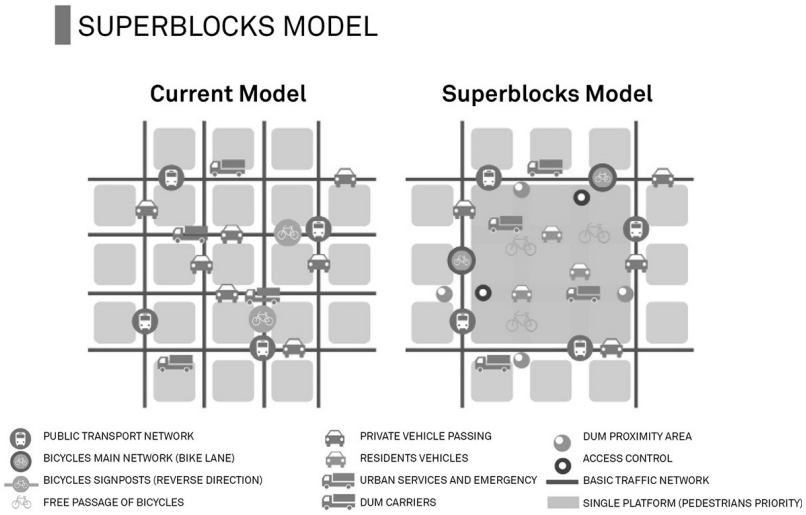
Fig. 19. Champs-Élysées transformation into a green garden.

the big traffic street would be replaced by a green garden, while still keeping some traffic connections. [29] (See Fig. 19). In contemporary Paris, the urban network established by Haussmann continues to serve as the backbone for the city's layout, with adaptations to meet new sustainable urbanism concepts.

In Barcelona, on the other hand, the car traffic is reduced by implementing Superblocks - "square sections of the city's grid made up of nine actual blocks, with a combined area of just under 40 acres, where through traffic is permitted only on perimeter roads."[30] (See Fig.20.) In Superblocks the traffic would be reduced to minimum and the internal streets given back to residents while the cars would go around the structures on main roads. That would mean isolating parts of the grid while keeping functional access routes. In the middle of the Superblocks playground areas, pop up stores and greenery are implemented. On the basis of the Cerda plan, the current Superblock isolates a portion of the city therefore creating secondary and primary streets in the grid, that did not exist before.

On the other hand, by removing the traffic from the smaller streets it is redirected to bigger streets in other areas. This would lead to more intense traffic and more air pollution in those areas. The redirection of cars is not solving the problem nor reducing the amount of traffic in the cities. The approach helps with reintroducing parts of the city back to the pedestrians. Green belt approaches could be more effective in the overall reduction of traffic in desired areas, as the whole area of the city is not easily accessible by car anymore.

Fig. 20. The superblock concept in Barcelona - the before and after.



4.2 PEDESTRIAN LEVEL TRANSFORMATION

Not only the car network has been adapted but also the quality of pedestrian networks. The junctions created by the primary and secondary streets in Paris enable for a better adaptation to the no car city concept, as the transformation of minor streets to pedestrian zones does not affect the overall city traffic so much

29 Willsher, 'Champs-Élysées to Be given Makeover before Paris Olympic Games'.

30 O'Sullivan, 'Barcelona's Car-Taming "Superblocks" Meet Resistance'.

- this smaller street adaptation gives the city some domestic quality.[31] Some of these secondary streets have been transformed to gardening centres as a citizen initiative. After the changes in 20th century Paris “the accessible portion of roadways, as a public space and a mobility space, within a walkable perimeter of 400m meters is 63%.”[32], which was already a good score, therefore pedestrian route integration in the sustainable urbanism goal is even more feasible.

Paris for this goal is not only creating a green zone in the middle of the city but also emphasizing the 15 minute city concept. The spatial efficiency of the Haussmann grid contributes to the overall walkability of the city – the grid has twice as many junctions per square kilometre as Barcelona and “the number of services accessible on foot within 400 meters is 175, compared to […] 59 for Barcelona”.[33]. To further introduce greenery zones accessible for everyone, plans are in place to plant four new ‘urban forests’. “By 2026, mayor Hidalgo has pledged to plant more than 170,000 trees across the capital, with 50 percent of the city covered by planted areas by 2030.[34] This includes Champs-Elysées as well, which will be turned into an ‘extraordinary garden’ as part of a massive €250 million makeover. In the bigger avenues like that, the plans include reducing the number of car lanes from four to two, creating new pedestrian and green areas, and planting ‘tree tunnels’ that improve air quality along the 1.9km-long avenue.[35] This and other such initiatives are an example of readapting existing structures to new uses for greenery. While focusing on the pedestrians as the main users “the Haussmann grid of open spaces reveals itself to be particularly efficient: first of all [..] with a high number of junctions or connections (210 intersections per km2) twice that of Cerda’s Eixample.” [36]

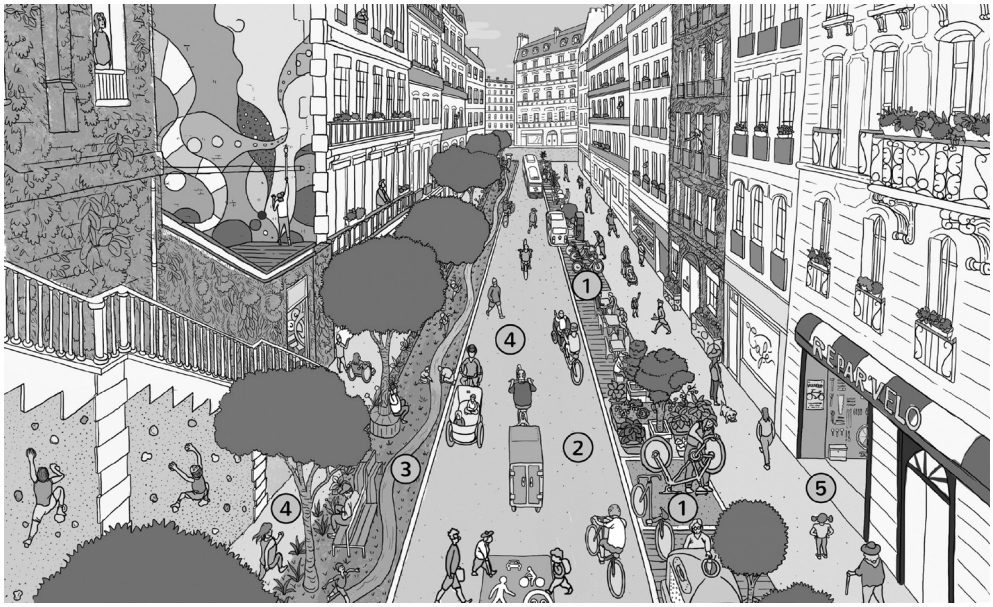


Fig. 21. The 15 minute city concept sketch for Paris

The scheme for reinventing Barcelona was introduced during the time of Ada Colau as the mayor – they wanted to “give the metropolis back to pedestrians”, also introduced by the Parisian government in they revival plans.[37] In the begin-

31 Boutte and Napolitano, Haussmann Paris, 18.
32 Boutte and Napolitano, 22.
33 Boutte and Napolitano, Haussmann Paris, 22.
34 Huw, ‘How Paris Plans to Become Europe’s Greenest City by 2030’.
35 Huw, ‘How Paris Plans to Become Europe’s Greenest City by 2030’.
36 Boutte and Napolitano, Haussmann Paris, 21.
37 Macher, ‘Selbst Für Barcelona Zu Radikal’.

ning of the project in 2017 when the Superblock was created in the neighbourhood of Poblenou, it happened almost overnight. “Overnight, brightly coloured markings were painted on the asphalt: abstract patterns in yellow, blue and green, jumping games for children, racing tracks for scooter riders. Access roads were blocked off with flowerpots or bollards. Barcelona called these emergency measures “tactical urbanism.””[38] The transition aims to bring back the porous city concept from the initial Cerda plan. Not only the Superblock plan but also reintroduction of greenery in the city has been an important part of the new Barcelona concept - “since 1987 the city through public-private initiatives has been promoting the conversion of the interior spaces for some blocks into gardens and public facilities”.[39] In city on the pedestrian level in these new concepts cars are only allowed to drive at walking pace, and only for certain sections: at intersections, they are usually forced to turn into a side street and the main traffic diagonals are also part of the plan and to be transformed into “green axis connecting the city on the pedestrian level”. [40] Only every third street would have been able to be used normally.[…] And all this in the Eixample: with 36,000 people per square kilometre, it is one of the most densely populated districts in Europe [41] Initially the Superblock concept was supposed to extend across the whole city by the end of 2018, with around 500 Superblocks planned around the city. Currently only few of them are realised, therefore questioning the overall feasibility and time required for this project.

4.3 THE VIEWPOINT OF THE CITY DWELLERS

And lasty, the third factor in regenerating the grid is the social aspect of introducing new structures in the fabric and readapting the existing ones. In Paris the approach of Haussman of distributing the services and social classes throughout the city is still kept in current planning – the Grand Paris plan, mentioned previously, seeks to integrate the outer parts of the city into the urban life and provide more sustainable connections for all its residents.

In Paris the 2030 Plan has been viewed critically by the general public referring to the constant changes made in project’s purposes, as well as criticising the current push that has been done for the Olympic games in Paris.[42] The main criticism on such large scale projects is always the budget - public finances being stretched to the breaking point, speculative investments on real estate and new administrative bodies.

> *“These factors have all contributed to making the Grand Paris into the hodgepodge it is gradually becoming “pieces of city” that have sprung up around public transport stations, according to the Paris Urbanism Agency (APUR), especially to the east of the capital, in the poorest suburbs. With property prices that were initially lower than elsewhere, the potential for development was greater.” [43]*

It is not clear how much of this grand plan will be realised in the end and will it end

38 O’Sullivan, ‘Barcelona’s Car-Taming “Superblocks” Meet Resistance’.
39 Urbano, ‘The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning’, 50.
40 Macher, ‘Selbst Für Barcelona Zu Radikal’.
41 Macher
42 Regnier, ‘How the Greater Paris Metropolis Accelerated Gentrification’
43 Regnier.

up being a city wide transformation that would benefit all. The residents “say they cannot wait for a multimillion project to turn the wider area into what Paris’s city hall has called an “extraordinary garden”, scheduled to start after the Olympic Games. Therefore, small green gardens and street paintings appear throughout the city, where the Grand Paris plan transformation is expected as a citizen initiative for the project.

In Barcelona, on the other hand, the first Superblocks appeared overnight, causing some resistance from the residents and local commuters, as their routes had been heavily affected. The Superblock concept changed how the organisation of the city is viewed. Although, a completely new concept, it has been successfully integrated into the urban life. People seem to enjoy the urban areas regained back for pedestrian use and opportunities made by these urban spaces. The main problem still remains the dense traffic route around these peaceful Superblock structures. The retail was affected the most, as the routes now through the city have been readapted and customer flows together with them. The needs of the retail were not taken into the account during the planning, so many of them lost their revenue due to the urban change. In Barcelona residents report that the readaptation of the block “is making their daily lives far more complicated by forcing local drivers to take long, circuitous routes around the neighbourhood.”[44] By changing the streets to mostly pedestrian routes, urban planning actually improves the conditions for the retail chains on these streets.

44 O’Sullivan, ‘Barcelona’s Car-Taming “Superblocks” Meet Resistance’.

5 CONCLUSIONS: THE RESILIENCE OF BOTH URBAN PLANNING SYSTEMS

Not only Paris and Barcelona, but also other cites in Europe experienced phases of transformation both in the past and currently, there were multiple criteria that allowed for such adaptations. With the focus on how the traffic networks have changed the urban grids, there are a few main points to be highlighted for the summary of resilient urban planning.

The first factor affecting the resilience of the urban network is the established street network structure that serves as the backbone for the new planning. Let it be an orthogonal grid of Cerda plan or the multi-layer street system of Paris. An established structure allows for structured changes in the concept, without transforming the main ideology of the city. In Barcelona the Superblock is the natural response to the rigid grid; in Paris the multiple sizes and scales of streets allow for different small scale strategies to be implemented all across the city without disrupting the existing hierarchy of networks. Both of the grids survived the first adaptation in the late 19th century after the rapid expansion of traffic network, therefore proving their adaptability and resilience. Currently the ability to integrate smaller scale streets proves to be more feasible as a response due to the smaller scale - just like in the street transformation examples in Paris.

The second factor is derived from the first - new commuter networks. With these networks smaller secondary streets and diversified junctions allow for an undisrupted transformation to pedestrian zones. With diversified street scales alternative networks can be introduced without affecting the existing traffic - like the transformation example of the Rue de Rivoli. While keeping the main traffic, space is given to pedestrians. In the Haussmann plan this condition was existing in the first iteration of the plan, therefore one of these criteria for sustainable urbanism was already meat from the beginning. The Cerda plan, however, had to introduce it artificially, as the streets have the same size and functionality throughout the grid.

Thirdly, a looser framework in terms of the building block. The Haussmann block, for example, can be rebuilt and readapted to different needs as there are no concrete rules except for the uniform façade. It can accommodate denser living quartiers or open up for green courtyards. In Barcelona, on the other hand, the rigid form of the dense urban block allows for only so many variations both in the building and the spaces in between because of the height regulations and the rigid street network around it. Not only the block transformation but also the distribution of services is different - with the decentralised approach as in Paris everything could be much more evenly dispersed through the city, which it is currently centralised in one Superblock in Barcelona.

And lastly, the overall walkability of the city – either it be the green boulevard or the complete transformation to no car streets in both cities. Like the Superblock courtyard the transformation, or the Rue de Rivoil in Paris mentioned throughout the text. Without the car in the city everything should be easily accessible on foot, and these pathways should be made attractive for everybody. With better environments for commuters, the traffic networks will transform themselves over time.

Based on these criteria one can conclude, that the pre-conditions for sustainable urbanism in the urban grid are similar in both cities, the approach is different in each of them. In Haussmann plan the grid had to undergo less changes to accommodate the principles of urban sustainability and the climate goals set - accommodating the mix of pedestrian and car traffic, green urban islands and 15 minute city. The looser framework of Haussmann can therefore be seen as more resilient to future change and more adaptableto the ideas of sustainable urbanism than the rigid grid of Barcelona.

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7 LIST OF ILLUSTRATIONS:

8 REDLICHKEITS-ERKLÄRUNG DECLARATION OF ORIGINALITY

I hereby confirm that I am the sole author of this written work:

The rehabilitation of the pedestrian city

and that no help was provided from other sources as those allowed. All sections of the paper that use quotes or describe an argument or concept developed by an other author have been referenced, including all secondary literature used, to show that this material has been adopted to support my thesis.

Evita Ratniece

Zurich, 10.06.2024