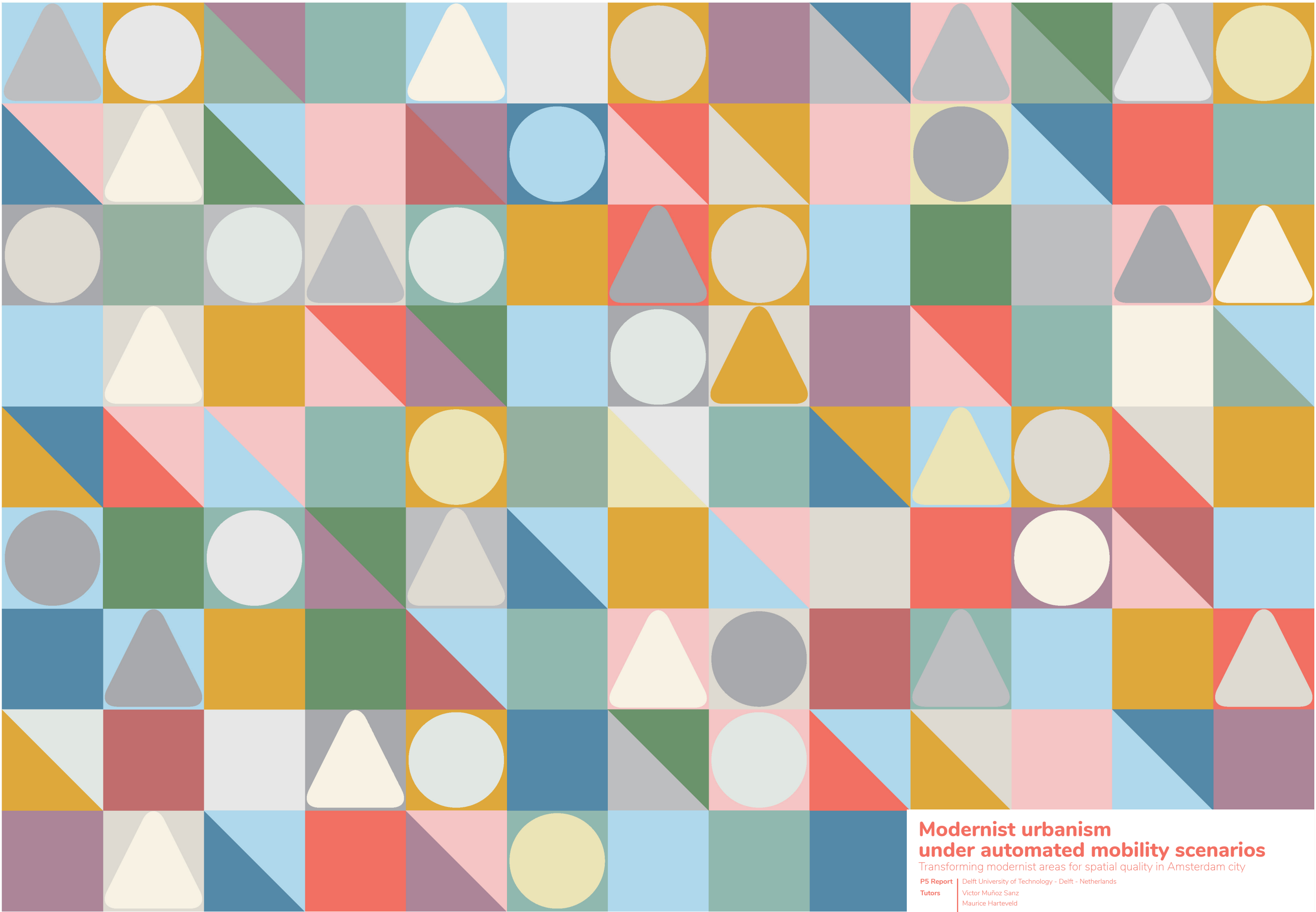




Modernist urbanism under automated mobility scenarios

Transforming modernist areas for spatial quality in Amsterdam city

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Figure 1.
City of the Future from. The Wonderful World:
The Adventure of the Earth We Live On by James
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Source: <https://bit.ly/2Wk40NA>

ABSTRACT

Abstract

Modernist urbanism under automated mobility scenarios, develops a method to intervene and enhance the quality of public spaces in modernist areas, based on a possible automated mobility scenario that triggers new relationships between car infrastructure, public space and the rest of the urban fabric. New uses for mobility landscapes in transformation are proposed, the new interventions stimulate an optimized use of the space, and upgrade the overall quality of the existing urban environment.

In this project, the modern model is, on the one hand, used as an historical / conceptual reference, in which vehicular technology have been used as a determining factor in the development and transformation of cities contributed to the creation of an urban model considered unsuccessful (Aquilué & Ardura, 2017). On the other hand, is also used as a contextual reference, that has produced patterns of open block structure, separation of traffic and functions and the elimination of the street as a 'social space' at a global scale. In order to use Automated mobility as a trigger to generate upgrading opportunities for these areas, we try to identify typical patterns of value related to the model, to generate design proposals that can be transferable to different contexts.

To this aim, this project develops a Toolbox, where a database combines information from the literature framework, and a system of pattern language is used to combine all the elements, and a possible scenario of automated mobility, to create design proposals that are tested in the Slotemeer area in Amsterdam.

Finally, possibilities for future developments as an Online tool are outlined, envisioning the possibilities of application and knowledge transferability, allowing for different scales of implementation and interaction with users; increasing the flexibility of the system, allowing user interaction, the integration of knowledge, and its use as a basis for the development of participatory processes and interventions in diverse contextual situations.

Keywords:

Modern urbanism - Automated mobility - Public space quality - Pattern language.

Introduction

INTRO DUCTION

Introduction

The modern urban model, seek to respond to the needs of mid-twentieth century problems of overcrowding and unhealthiness of cities with proposals that emphasize hygienic distance, the separation of functions, the hierarchization and segregation of urban mobility and standardization. The new formal order, starts from a deterministic construction of the urban environment, and the construction of an utopian society where, based on the understanding of the urban problem and the creation of formal solutions from a technocratic vision, that places the automobile and associated infrastructure at the center of the new formal and hierarchical order of planning and urban development.

The general guidelines and common ideological basis of the model have contributed to its 'universal character' that replicates in a variety of contexts, with different magnitudes and scales, which result from the particular socio-economic, political and geographical situation of each location. However, ends up developing similar patterns of decay in many cases, and as a consequence, also a broad theoretical current of criticism, as well as diverse models of intervention that aim to address the problems associated with the model.

Today, the future of mobility seems invariably linked to the new technologies associated with the automated vehicle, which is expected to have a great impact on mobility patterns, and on the physical structure of cities. This technological revolution presents the problem of imagining and re-proposing the 'city of the future' once again. However, I believe the new challenge should not be viewed in its technical dimension, associated with the integration between technology and infrastructure, and new development patterns that follow the guidelines traced by technology; but rather, as a how the new technological scenario can help to build more attractive urban environments, by revaluating the existing built patrimony, re-stitching the fragments caused by the automobile and its infrastructure, and guaranteeing diversity in the mobility offer.

In this sense, the new technological panorama requires reflection on the past technocratic approach to urban development, to be able to propose new patterns of technology integration, so that works towards the re-composition and re-valuation of the already existing urban fabric to help optimize the potential of existing urban structures, and create more attractive and livable urban areas.

This project aims to study how future scenarios of autonomous mobility could offer new possibilities to address the conflicts typical of modernist urban areas, opening the possibility to apply this knowledge in other modern sites around the world. To do so, in the first chapter, this research tries to construct a general vision of the modern urbanism, and its relation to mobility and infrastructure, the basic elements, scales of application and most critical aspects associated with the model.

In the second chapter a study the influence of the modern model in the city of Amsterdam through the expansion projects of the city, AUP and Biljmer, together with some critical impressions about the impact of the model in the city. In addition, an approximation to the development of autonomous mobility in the Netherlands, and the new utopian visions associated with autonomous vehicles, all are used as a base to construct the problem analysis and the research questions.

The third chapter the methodological structure of the project is outlined, complemented with considerations related to societal and scientific relevance of the project, and a reflection that includes an overview of the project in terms of methods, results, limitations, and guidelines for future developments. In the fourth chapter -theoretical framework- of the project is developed. Here, the fundamental concepts in relation to quality of public spaces, and the influence of the automated mobility in the physical environment are studied. The literature in relation to the quality of public space is selected based on their connection to the typical issues related to the modernist urban model.

The fifth chapter -Atlas of modernism as an universal model-is a more detailed account of X is modern urbanism, from the perspective of its universal character, also taking into consideration the different scales of intervention, adaptation and regeneration approaches, developed in representative projects around the world.

The sixth and seventh chapters present an analysis of Amsterdam, at different scales, and a first intervention strategy idea, based on the potentialities of the territory. These analysis are oriented to the construction of an automated mobility scenario suitable for Nieuw West area.

The eighth chapter -Toolbox- is the central development of the project, which combines the possibilities of transformation offered by the automated mobility scenario and the problems and solutions related to public spaces developed in the theory chapter. The idea is to develop method for urban interventions that is flexible enough to be applicable to modernist urban areas in many different contexts. In this chapter, a database of problems and solutions related to public space quality is developed, and used for the creation of a pattern language, oriented to create a structure for territorial interventions, based on the opportunities offered by the automated mobility scenario.

In the ninth chapter, the series of 28 patterns are tested, the chosen area of Nieuw West – Amsterdam; followed by a reflection on the applicability and possible transferability of the method to be applied in different contexts, and guidelines for future developments in the final chapter.

PROBLEM BACK- GROUND

1. Problem background

Modernism

A context for Modernism: functionalist grid and future mobility

In *Reweaving UMA*, Calabrese makes use of paradigms to dissect 'the role of mobility in the shaping of modern urbanism and architecture'. According to this study, cities have been frequently 'analyzed, narrated and set into paradigms'; and with the rise of social sciences, new possibilities for the analysis of cities and its processes emerge, helping to give response to the question of 'urban growth, density and social polarization'; questions that were usually responded by means of 'metaphorical interpretations', applying 'the humanist's analogy of the body', (Calabrese, 2004, p. 327). Among these, the 'paradigm of rationalization' as described by Calabrese, is said to 'contribute to the radical change within the design practice of architecture and urbanism towards mobility'; The model, re-introduces the 'gridded city' as an attempt to 'rationalize the urban space by using a systemic approach', generating three basic grid variants, classified by (Calabrese, 2004, p. 381) as follows:

- 1- 'The engineered grid', represented in Cerdà's Expansion Plan for Barcelona;
- 2- 'The utilitarian grid' represented in The Commissioners Plan for New York;
- 3- 'The functionalist grid' for which Le Corbusier's Plan Voisin is representative.

From these, the functionalist model and representative grid scheme, is the one that establishes the most sharp break with past traditions, with a decisive future oriented outlook, 'based upon statements on future mobility networks', where 'Traffic flows and their underlying principles are the primary determinant of the urban form' (Calabrese, 2004, pp. 414-415).

Modernism embraces science to provide a collective understanding on urban and design problems, and as an allied to take formal decisions about urbanism. In this sense, creating and orienting cities around the problems related to traffic engineering, and the system of movement is seen as a scientific measure. In this sense, the 'inner city streets, considered dangerous in most western cities', the urban blocks considered 'overcrowded, unhealthy and socially unsafe', and displaying an insufficient capacity to accommodate the increasing automotive traffic; are all

arguments used as 'proof of the failure of any attempt of integration between the road and the city' (Calabrese, 2004, p. 414), marking the definitive rupture with the traditional urban grid. The new grid is a composition of isolated mega buildings, asymmetrically superimposed over a green layout with no distinction between public and private space, establishing what Calabrese defines as the 'definitive disconnection between motorized traffic and all the other urban functions', aiming for a 'better functioning of the city as a whole' (Calabrese, 2004, p. 413).

Moreover, building upon these premises, the movement establishes subsequent basic notions later described on The Athens Charter such as 'The four separation of functions of the city', Dwelling, Recreation, Work, Transportation, and Legacy of history. As well as the need for standardization and industrialization, as the new logic used to design and organize the city. CIAM: a structure for the Modernist discourse The innovations proposed by modern urbanism are consolidated with the support of CIAM, the International Congress of Modern Architecture (Monclús & Díez Medina, 2018, p. 38). Producing the theoretical basis for the movement that Frampton classifies into three stages of development:

- 1- First stage 1928 – 1933, described as the 'most doctrinaire'; was dominated by the German-speaking Neue Sachlichkeit architects, and dedicated to the problem of 'minimum living standards' and 'optimum height and block spaces' for the most efficient use of land and materials.
- 2- Second stage 1933 – 1947, 'The Functional City' was dominated by Le Corbusier, producing a comparative analysis of 34 cities in Europe, with a strong focus was on 'town planning'. During this stage, the basis for the articles contained in the Athens Charter was created.
- 3- Third stage 1947-1956, 'The Heart of the City'; is characterized by 'liberal idealism' over materialism of the earlier stages and creates distance from the 'abstract sterility of the Functional City'. The new CIAM aim is 'the creation of a new physical environment that will satisfy man's emotional and material needs'. (Frampton, 2007, pp. 270-271)

Modernism as an universal model

Establishing a sense of order at various scales, that go from functional zoning in urban planning, and the differentiation of streets according to their nature, to the need for standardization and industrialization, together with the problem of minimum living standards; All play a role aiming at the creation of an universal language of subsequent universal applicability.

Moreover, the principles and knowledge of Modernist urbanism and Le Corbusier's legacy, on the one hand, proposes the abolition of the traditional street, 'death of the street', and on the other, assigns a qualitative value to the 'idea of speed as the key to urban progress'; According to Calabrese, these ideas 'signed a decisive turn in the way future generations of architects and urbanists will look at the relationship between road infrastructure and the built environment'. (Calabrese, 2004, pp. 415-461).

Visions and metaphors

The modernist urbanism has now a leading role in the design of the city, and the architect is the 'organizer of strategies, before being the designer of objects' (Calabrese, 2004, p. 417), within this framework, Le Corbusier and many other architects of the time engaged in the creation of prototypes that envisions the city of the future, according to the new ideals of progress related to mobility, and the freedom lifestyles of the modern men.

Calabrese frames some of these visions within the 'Metaphors paradigm', on which architects, usually, inspired in mobility and infrastructure related themes, produce a sort of 'Modernist prophesy'. Infrastructure and technology play a strategic role in the creation of a vision for a future cities, on which the goal is 'freeing the street from human pedestrians', in these visions, human presence is usually substituted by the automobile.

Moreover, these metaphors try to offer solutions to the 'modern city dominated by traffic congestion' by proposing further possibilities to segregate functions and mobility flows, proposing 'elevated walkways and functions moved to first or second floors in order to liberate the ground space for cars. (Calabrese, 2004, p. 461).



Figure 2.
Ville Contemporaine - A city for 3 million inhabitants
Source: www.fondationlecorbusier.fr

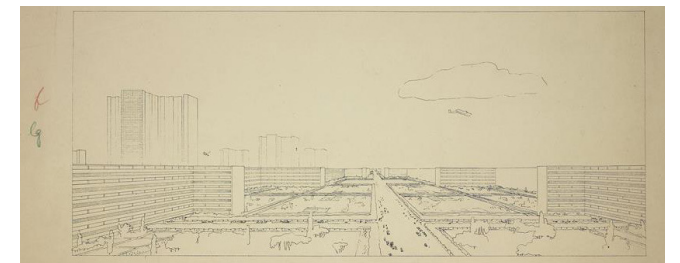


Figure 3.
Ville Contemporaine - A city for 3 million inhabitants
Source: www.fondationlecorbusier.fr

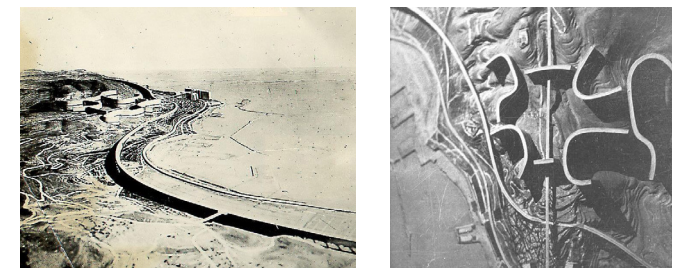


Figure 4-5.
Plan Obus
Source: www.fondationlecorbusier.fr

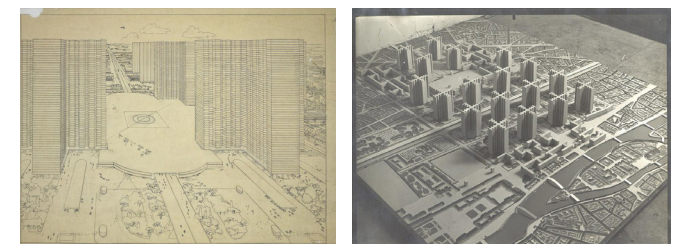


Figure 6-7.
Plan Voisin for Paris
Source: www.fondationlecorbusier.fr

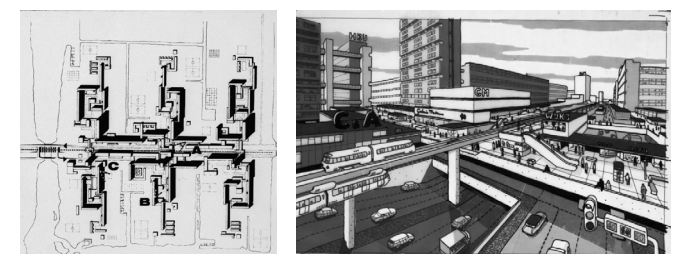


Figure 8-9.
Pampus Plan
Source: www.schatkamer.nai.nl/en/projects/uitbreidingsplan-pampus

From visions to modern realities

Murray defines North America and Europe as the 'basic template and source of ideas for understanding the evolving contours of urbanization on a global scale' (Murray, 2017, p. 23).

However, when it comes to modernism, these ideas seem to have had different scales of impact outside the territories that created them; For instance, on how the transferability of modernist ideas manifested in Latin American capital cities, that -by the 1920's- were characterized by problems with industrial growth, demographic mobility and urban sprawl. In the following years, plans implemented in these cities, aiming to address these issues were highly implemented by local governments in the area, most of them were 'relying on a mix of foreign experts and new generations of local professionals'. According to Almandoz, 'most of the national municipal offices of urbanismo in Santiago, Montevideo, Buenos Aires, Mexico City, Havana, Rio, Sao Paulo, Lima, Bogota and Caracas, emerged from joint efforts between the national governments, professional associations and research centers, creating a new generation of local 'de facto urbanistas' that were highly influenced and in active collaboration with European and North American 'famous experts'; creating what he interprets as 'vestige of inter-war colonialism in a Latin America seduced by

'Old World' academic prestige' (Almandoz, 2010). The results are plans that 'achieve the status of manifestos or birth certificates of an emerging discipline', where architectural modernism was seen in relation to the pursued values of economic development and progress. The strategic alliance between modernizing governments and modernist architects reached a peak especially in the cases of Mexico, Brazil and Venezuela, creating what Almandoz calls 'alternative modernism'.

The case of Chandigarh goes by the same token, a strategic alliance with the national government for the planning and construction of the city, allowed Corbusier to experiment and test his hypothesis on Modernist urbanism at a scale that was difficultly applicable in Europe.

The modern legacy have steered the development in some of these developing nations generating some of the most prominent expressions of the Modern movement around the world (Almandoz, 2010).

Macro - City scale



Figure 10-11.
Brasília
Source: <https://en.wikipedia.org/wiki/Bras%C3%ADlia>

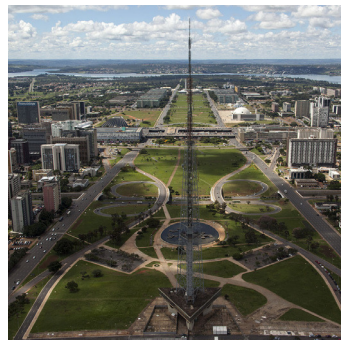


Figure 12-13.
High-income Lago Sul neighborhood in central Brasília Vs. Low-income Sol Nascente neighborhood in Ceilândia, 26 kilometers west of the capital
Source: <https://www.thepolisblog.org/2013/02/brasilia.html>

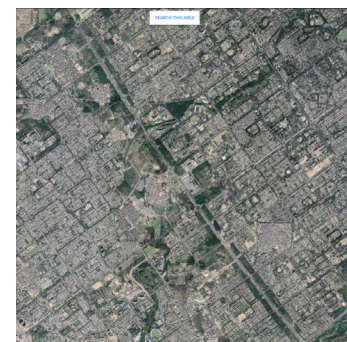
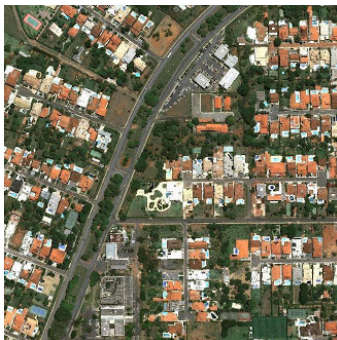


Figure 14-15.
Chandigarh
Source: www.wikipedia.org/wiki/Chandigarh



Figure 16-17.
Chandigarh proletarian fortress
Source: www.thefunambulist.net/architectural-projects/proletarian-fortresses-the-corbusean-grids-anomaly-burial-in-chandigarh



Micro - Street scale



Figure 18-19.
Caracas Av Bolívar
Caracas, Avenida Bolívar and Centro Simón Bolívar.
The most representative icon of Modernity in Caracas city center



Figure 20.
Caracas Av Bolívar
Caracas, Avenida Bolívar and Centro Simón Bolívar. The most representative icon of Modernity in Caracas city center



Figure 21.
Avenida Bolívar empty and derelict public spaces
Source: <https://bit.ly/1JaYfNjc>

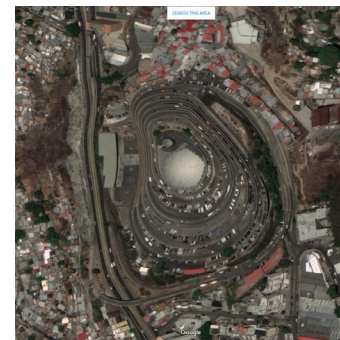


Figure 22-23.
Caracas Helicoide
Caracas, El Helicoide, a spiral-shaped, drive-through shopping mall. Designed by Jorge Romero Gutiérrez, Pedro Neuberger and Dirk Bornhorst
Source: Google maps & <https://bit.ly/2U0FEuK>



Figure 24.
El Helicoide's ramps lined with container homes during the 1979-1982 "Gran ocupación." And El Helicoide today surrounded by police vehicles
Source: <https://bit.ly/2i5Qo9v>



Figure 25.
Caracas Helicoide
Today the Helicoide building is used as a jail by Maduro's political police forces.
Source: <https://bit.ly/2U0FEuK>

Meso scale - 'City within a city'



Figure 26-27.
Caracas, Universidad Central de Venezuela.
Designed by modernist architect Carlos Raul Villeneuve
Source: Google maps & Coss, (2011)

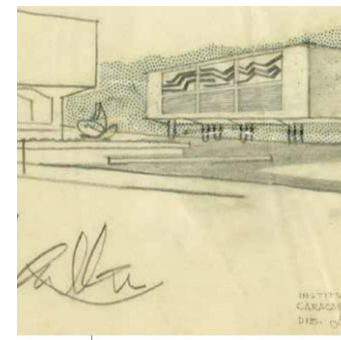


Figure 28-29.
Caracas, Universidad Central de Venezuela.
Designed by modernist architect Carlos Raul Villeneuve
Source: <https://bit.ly/2umg3h5>



Figure 30.
Caracas, Universidad Central de Venezuela.
Rectorate square as parking space
Source: <https://bit.ly/2HzL2iw>

Examples of housing estates in Europe

Even though most of this visions and knowledge about the functional city was being created in Europe, the most representative construction of the model in the continent, are in the form of housing estates, especially in cities affected by the World War II. In this sense, standardization and prefabrication processes represented a practical solution to housing shortages in the region, resulting on a 'extraordinary process of construction and proliferation of mass housing' (Monclús & Diez Medina, 2018, p. 40).

Criticism on the Modernist model

The Modernist movement ideas begin to be contested at an early stage, Mumford, questions the four functions of the city, arguing the lack of inclusion of the political, educational and cultural functions of the city (Mumford, 2002). Moreover, a period of 'profound review of its principles' occurs simultaneously to the hard criticism related to its 'excessive radicalism' during the 'third stage' of development of the movement (Monclús & Diez Medina, 2018, p. 41).

According to Frampton, despite the new concerns for the qualities of space presented during the third phase of the movement, the model did not demonstrated enough capability to address the complexities posed by post-war cities, leading to an upscaling wave of criticism that paradoxically coincide with the period of proliferation of mass housing estates in Europe during the 1960's (Monclús & Diez Medina, 2018, p. 40).

The team X introduces a strong rejection to the four functions, in favor of the 'urban re-identification grid' (Mumford, 2002), and the development of 'a more psychological and phenomenological basis for the development of form', inspired by the desire to create 'a sense of place'.

Moreover Richard Sennett is very critical with the model's, stating that the separation of functions sacrifice the life on the ground plane. The over-determination of the Modern model, over the city's visuals and its social functions, 'creating cities that decay much more quickly than the urban fabric inherit from the past' (Haas & Westlund, 2018).

Meso scale - Housing Estates

Critical aspects / actual situation

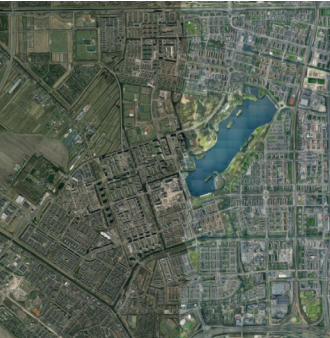


Figure 31.
Amsterdam Nieuw West area
Source: Google maps



Figure 32.
Amsterdam Nieuw West area - Buitenveldert
aerial view 1934
Source: González J.G. (2003)



Figure 33.
Amsterdam Nieuw West area
Source: Own elaboration



Figure 34-35.
Gropius Stadt Berlin
Source: Google maps & https://bit.ly/2UOpdic



Figure 36.
Gropius Stadt Berlin - today
Source: Google maps & https://bit.ly/2OnU4jm



Figure 37-38.
Southwest Besós Estate, Barcelona (1958-1965)
Source: Google maps & Monclús & Diez Medina. (2018)



Figure 39-40.
Southwest Besós Estate, Barcelona - today
Source: https://bit.ly/2YcO5Sj



Figure 41-42.
Nowa Huta (1960)
Source: Google maps & Henryk Grzędę/PAP
https://bit.ly/2usAXLv



Figure 43-44.
Nowa Huta - today
Source: Google maps & Monclús & Diez Medina, (2018)

Conclusions driven from modernism as an universal model

In relation to modernism as a universal model, its global impact is undeniable. The legacy of the model initially created in Europe and then transferred to the United States is used as a basis for the formation and development of cities around the world, framed in a paradigm that still today influences the current dynamics of urbanization (Calderón, 2017).

The model focused on the creation of the city of the future, and within its scientific framework worked to establish parameters of diametric rupture with the past.

Traffic is proposed in disconnection from the rest of the urban functions, and the automobile is considered the technological element governing the future of mobility, hence, a structuring element of the urban space. In this sense, the model presupposes not only a radical change of scheme and structure of traditional cities, but also creates ideological bases, of universal applicability, that guided the transformation of cities around the world.

The legacy of the model in Europe is significant, not only for the production of ideas and knowledge in relation to the model, but also for the production of urban development plans that will impact especially the development of housing taking the form of the so-called 'housing estates' (Monclús & Díez Medina, 2018).

However, the legacy is especially significant in developing nations with an interesting mix of economic growth, social mobility and political will favorable to the idea of progress associated with the modern movement.

The vision of the future model, finds in the theme of mobility its inspiration for the creation of a modern urban society, but leads to the 'annihilation of the public space as a shared space'; in other words, 'the death of the street', the formation of monofunctional expansion models, and oversized structures associated with the automobile (Calabrese, 2004).

This new ideal of physical space, establishes the bases of the 'automobile as a culture' and its infrastructure as a 'structuring element of mobility', resulted in cities, urban areas, avenues and even city-buildings that, in many cases, present a mixture between patrimonial value and poor spatial quality that respond to the logics behind the design and to other local determinants.

How to deal with the legacy?



Figure 45.
Aerial photo by the US Geological Survey comparing mono-lithic blocks of Pruitt-Igoe with pre-Modernist buildings of St. Louis
Source: <https://goo.gl/XCh4Xr>

Figure 46.
April 1972. The second, widely televised demolition of a Pruitt-Igoe building
Source: www.wikipedia.org/wiki/Pruitt-Igoe



2. Problem analysis

Modernism and automated mobility - The case of Amsterdam



PROBLEM ANALYSIS

2. Problem analysis

Relevance of modernism in Amsterdam

The city is known for its characteristic historic centre, but the AUP areas had a big influence in the city

In the Netherlands, Modernist ideals had an influence in the expansion of the cities in the mid-20th century, where an economic growth and significant population increase, together with the mechanization and standardization of the construction processes propitiated the construction of massive mono-functional neighbourhoods. Later, the period after the WWII is marked by the welfare state and the creation of a motorway network that gains importance over the railway transportation (Rutte & Abrahamse, 2016, p. 260).

The city of Amsterdam was not the exception to this rule, it extends beyond the historic structure, that shaped the central core of the city as the integrated 'Dutch City of Homes', where the house functions as an 'economic unit'. (Komossa & Cook, 2010).

By 1935, the City Council adopted The General Expansion Plan (AUP) designed by Van Esteren, who was also president of CIAM from 1930 to 1947; the analysis of the Amsterdam Extension Plan directed by him is considered a milestone of modernist urbanism (Monclús & Diez Medina, 2018, p. 42).

The Plan marks a break with the past extension plans, introducing the idea of the 'undivided city', structured around the division of functions, housing, employment, traffic & transport and leisure, operating to create an 'efficient, well-equipped and beautiful city'. The Plan expanded the city in the south-west direction, almost doubling the territory of the city (Jolles & May, 2003, p. 69)

In response to the more extensively used and diversify traffic in the city, the AUP Plan constructs the ring road (today A10), along the periphery of the pre-war city. On the other hand, the city also devoted attention to transportation by bike, train and barge, however, the approach to public transport by tram reveals to be vague (Jolles & May, 2003, p. 74).



Figure 47.
Plan AUP
Source: Jolles, A & May, A (2003)

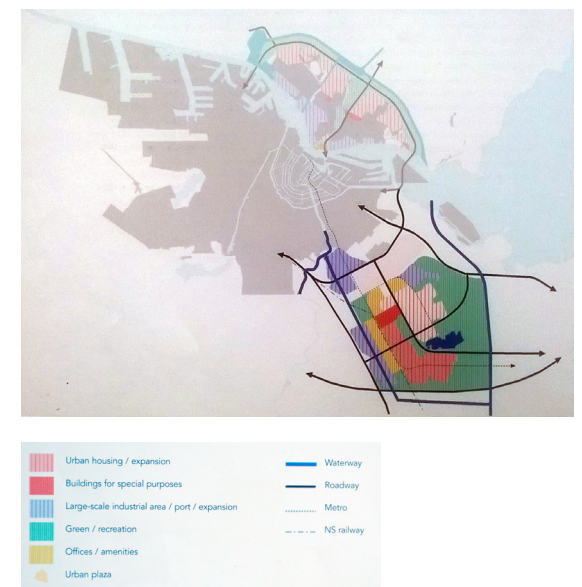


Figure 48.
Structure Plan for Amsterdam Zuid & Zuid Oost 1965
Source: Jolles, A., & May, A. (2003). Planning Amsterdam: Scenarios for urban development, 1928-2003. Rotterdam



Modernist housing estates in Amsterdam.
Comparative analysis of planning ideals, critical outcomes and redevelopment approaches in the case of Western garden cities and Biljmermeer.

Abstract
Amsterdam city is an exceptional testing field for the implementation of modernist ideals about utopic societies and cities. The innovative General Expansion Plan (AUP) and Structure Plan for Amsterdam Zuid-Oost, represent paradigmatic cases of 'modern town planning'. Despite the fact that these plans have similar ideological base, rooted predominantly on CIAM's precepts that ambitioned the creation of an urban utopia. Based on an over-deterministic approach to plan the urban environment, and the society. Despite the common ideological influences, each plan had a different perspective; The AUP plan was deeply influenced by the 'Garden City' and the 'Neighborhood Unit' concept, while the plan for the Zuid-Oost area seemed to be more influenced by an over- deterministic construction of the urban environment and the ideal of collectivity. These difference in focus, ended up constructing diametrically opposed projects. However, despite their different characters, and spatial qualities, both projects ended up facing intense criticisms, even before their implementation. Followed by a wide range of socio-spatial issues, that are still present and relevant today. This research will try to understand the motivations and concepts that molded the planning approach. While also, try to explore the relations between the early criticism to the projects, their current socio-spatial issues, and the different regeneration approaches taken by the local authorities. All this in an attempt to understand the weaknesses from the planning stage, the design process, and the regeneration approaches.

Key words: Western Garden Cities. Biljmermeer. Modern urban planning. Neighborhood Unit concept. Urban renewal. Adaptive re-use.

Introduction

The AUP plan and the Zuid-Oost plan designed for the expansion of Amsterdam represent an important epitome of the modernist ideal. These two projects emerge as a result of the joint effort between a highly structured institutional power, highly skilled professionals in the field of urbanism and architecture, and their exceptional openness to innovation, in favor of the improvement of the city's image and urban conditions. In this sense, the preexisting conditions for both plans seem to be very similar, but most importantly seem to be framed within a similar ideological base, rooted predominantly on CIAM's precepts.

Moreover, both projects seem to be also aligned in their intentions of designing an utopic urbanity, based on the over-deterministic approach to planning, not only the urban environment, but also the society.

Amsterdam city is an exceptional testing field for the implementation of these new ideals of modern future, and the innovative expansion plans created by van Eesteren and Naussuth introduce the basis for 'modern town planning'. However, despite the common basis, a variety of factors would contribute to the realization of diametrically opposite projects. In this sense, the concepts of 'garden city', 'neighborhood unit' and the ideals of 'collectivity' would appear to explain the different perspectives that influenced the planning and design of the AUP and the Zuid-Oost plans.

These different perspectives would also be deeply influenced by the rapid change in the geopolitical, technological and socio-economic panorama during the first half of the XXth Century. Exerting forces that would difficult the implementation of such 'extreme functionalist ideas'. Seriously compromising the future effectiveness and resilience of the plans. Resulting, -to a greater or lesser degree - projects that shaped a very well structured urban environment but failed in their attempt to shape societal trends and behavior. On the contrary, the numerous complexities connected to the societal structure of the city appear to have molded the urban condition in these territories, more than the plans did.

In this paper, I will try to describe the concepts and dynamics that shaped these extension plans in greater detail, starting with a more descriptive elaboration on the

context and concepts that shaped both plans, helped by the detailed descriptions of Jolles & May (2003). Moreover, the concepts of 'Neighborhood unit' and 'Collectivity' will try to shed light on how the diametrically opposite character between both plans. In addition, an attempt to elucidate the evolution of critical aspects related to each plan will be made. Starting from their elaboration, and initial criticism and how this would inform the current socioeconomic situation of the areas constructed under each planning framework. To this aim, the following inquiry will give structure to this investigation: What are the different conceptual and spatial manifestations of the modernist urban ideals in Amsterdam, and how the criticalities associated to the plan's implementation, have informed the current situation and transformations in the area?

To respond to this question, an investigation based on literature review of the AUP and Zuid-Oost plans will be carried out, considering the exhaustive historical descriptions made by Jolles & May (2003) and Hellinga (1998), in the case of The General Expansion Plan (AUP); and Mentzel, (1990) and Aquilué & Ardura (2017) as main references on the Zuid-Oost plan and all the concepts guiding the desing solutions for the Biljmermeer project. Moreover, the concept of 'Neighborhood Unit' will be understood throughout the descriptions of Mens (2016). To have a better understanding on the current situation of the Western Gardens and the Biljmermeer areas, I will use the available data created by the project Restructuring, Large-scale Housing Estates in European Cities: Good practices and New Visions for Sustainable Neighborhoods and Cities, (RESTATE); this project produce an amount of comprehensive evidence-base material related to the issues affecting large housing estates in Europe. In the case of Amsterdam, the material produced includes a report that contains the data produced by an extensive surveys made in representative areas of the New-West and Biljmermeer.

This information will serve to draw a general panorama of current socio-spatial characteristics of the area. Finally, a discussion will try to decode the relationships between concepts and planning conceptions, the implementation of the project and the early criticisms, and how these relate to the legibility of these areas, throughout the lenses of its current socio-spatial issues and the various approaches of urban regeneration, going from 'urban renewal' to 'adaptive re use'.

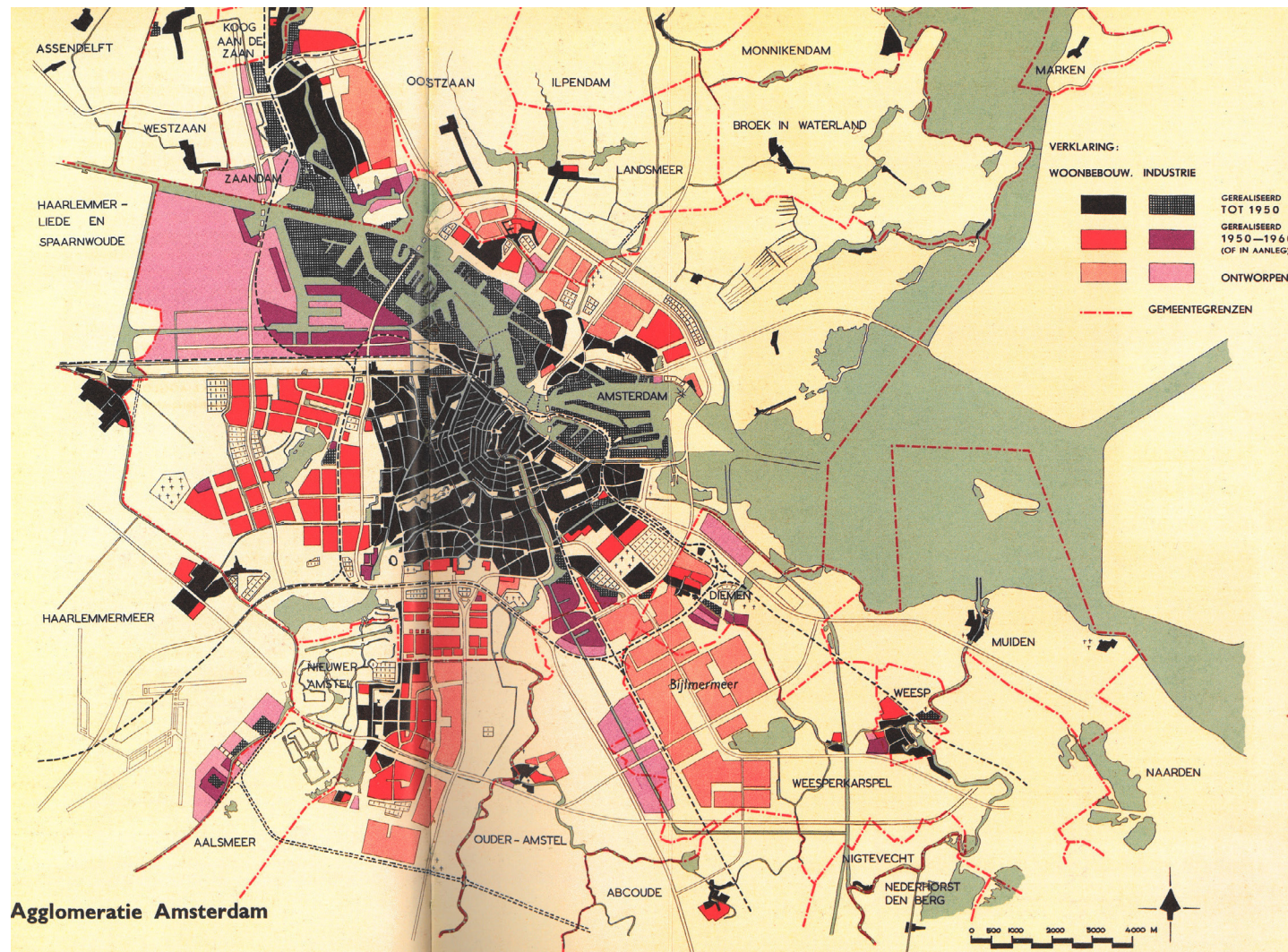


Figure 49.
General Expansion Plan map 1950 -60
Source: Jolles, A & May, A (2003)

Post-war urban expansions in Amsterdam

I. The General Expansion Plan AUP

By the first quarter of the ninetieth century, Amsterdam was experimenting a variety of urgencies, in relation to the location of port-related industry -often mixed with residential functions- traffic issues and difficulties with accessibility to businesses (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 49).

The poor quality of the housing stock in the oldest parts of the city, was a crucial issue, causing a phenomena of 'selective relocation', where middle and high income residents would move out of the old residential areas, to settle in generally newer areas near to Amsterdam, such as: Laren, Blaricum, Huizen, Diemen, Badhoevedorp and Bergen. Subsequently, this phenomena would also result in a 'decline in social support for all kinds of facilities in the capital' (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 69).

Moreover, legislative requirements, following the amendments of the 1901 Housing Act, required towns to design extension plans that would consider public spaces and transport routes, but also the spaces in between them.

However, Amsterdam's City Council was expecting the issues of the city to be addressed in the most innovative and visionary way, doing 'justice to the most up to date insights in the fields of housing, recreation, economic activity and traffic' (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 51). A new division within the Department of Public Works (SO), and an institutional climate, favorable to bureaucratic cooperation between this and the Housing Department, allowed a consensus on the need of an innovative plan for the future of the city.

Cornelis van Eesteren is appointed as chief planner of the Town Planning Department in 1929, and four years later, the Algemeen Uitbreidingsplan or General Extension Plan (AUP) was completed. The AUP introduces a 'model for modern town planning' to address the legislative requirements of the time and the particular urgencies of the city (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 51).

Van Eesteren's engagement with conceptual approaches such as the conciliation between abstract and objective notions, marked a clear influence by De Stijl's ideas of universal values and harmony; additionally, his past approaches to urban design would also account as an indication of his affinity with Le Corbusier ideas (Brierley,

1976, p. 503). This, and his later appointment as president of CIAM in 1930, would frame the conceptual base and guidelines of his work, in the creation of the AUP plan.

In strict connection to the development of CIAM ideals, the model of town planning proposed in the AUP is demarked by two phases, one, the pre-war phase characterized by being more analytical, deductive and engaged with socio-economic regards, while the second one, the post-war phase -more contemporary to the implementation of the plan- is more inductive, but also reflective on the ideals of society and culture (Brierley, 1976, p. 503).

The fundamental structuring value of the plan was the creation of an 'efficient, well-equipped and beautiful city', in which the four functions of city - housing, employment, traffic, transport and leisure were fully operational and balanced (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 69).

Science is use in the attempt to achieve an harmonious society; and for this reason, special attention was given to projections of the future society; for instance, it was envisioned that the population of the city would grow to at least one million people by the year 2000 (Brierley, 1976, p. 503). Housing occupation rates were estimated to drop from 3.74 to 3.37 in the year 2000. Moreover, estimations where made that port related industry would keep providing 30% to 35% of all jobs in the city. The spatial dimension of housing quantity and space, street space, quantity of greenery, and industrial space, would largely depend on these estimations (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, pp. 70-71).

Moreover, according to Jolles & May (2003), van Eesteren did not focused only on the aesthetics of the urban space, but treated the city as a collage of 'town planning elements' that have their own expressive qualities', and 'deserve a place in the design'.

o Traffic and infrastructure

In this sense, infrastructure is seeing as a functional but also 'essential component of the beauty of the urban framework', and traffic is addressed as 'a structural concept' in relation to all the areas of the city, from center to the periphery. One of the most important adjustments to the plan foresaw the construction of a ring ring-road in the periphery of the pre-war city, today known as A10 ring (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 74).

o Public transportation

However, when it comes to public transportation, Jolles & May (2003), affirm that the AUP was ambiguous about transportation by tram, in the infrastructural design considerations were made only for a future metro line. On the contrary, the railway ring was proposed as an important element for the transportation of goods, in service of the port related industry. However, the railway route later revealed to be of extreme importance, for the transport of people and as a connection to the airport.

o Green and public areas

The green areas are a 'structuring element of the plan', an

estimation of 3.5m2 of parks per inhabitant, plus another 1m2, allowing green areas to act as a buffer in between neighborhoods, residential and industrial areas, as well as in between built and rural areas (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 72). This structures residential neighborhoods and areas connected through a system of green and recreational areas; where the green areas along the banks of the lake performing as the 'heart of the system' (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 75).

o Housing

The plan estimated that the use of space per inhabitant would be fixed at 116,6 m2 and propose an increase on the average housing size from 50 to 80 m2. The plan was design on the basis of low density of about 40 buildings per hectare, however, this density was only achieved on the earlier developments of the plan. During the 50's and 60's, higher housing demands caused these density to grow, arriving to 150 buildings per hectare. Regarding to the application of new formal requirements to the housing block, van Eesteren applies a strategy considered a 'masterpiece of interconnection, innovation and detailing', using the railway ring as a sort of perimeter between the structure of the old city and new city. A transition between the 'fixed past and the malleable future' (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, pp. 52-56).



Figure 50. Scheme of the concept of neighborhood unit from Wij en de wijkgedachte, as cited in (Mens, The implementation of the neighbourhood unit concept in the Western Garden Cities in Amsterdam in the early post-war period, 2016)

From the 'Garden City' concept to the 'Neighborhood Unit' concept

In 1923 the municipal executive appointed a commission to evaluate the advantages of the garden cities, where they should be located, and their possible impact on traffic. Economic aspects and appropriate forms of government and local administration were to be considered as well. The work of this commission concluded that an acceptable proposal of a garden city in Amsterdam should be located very near to city, but separated from it by a wide green belt, moreover, the garden city would have to take the form of an independent satellite city with its own employment

opportunities (Hellinga, 1997).

Later, the new department of urban design conducted by van Eesteren, considered the garden city model would be inadequate for the future requirements of the city, in terms of population, density, and commuting distances between house and work. However, aiming to satisfy the many advocates of the concept, the AUP would incorporate design elements that resemble those of the garden city. These elements would foresee a certain grade of independence of each neighborhood, and very low densities, expecting to construct 50 to 60 percent of single family houses (Hellinga, 1997). Highrise building would act only as ‘aesthetic accents’, and would be located within the green belts or buffer-zones between the different neighborhoods (Mens, 2016).

According to Mens, the 1930’s, partial plans already introduce the open parceling structures, however, these presented difficulties for the creation of a ‘pleasant urban space’. For this reason, a quest was made for more building variety within the parceling structure.

After the WWII, more partial plans were required for the adaptation to a new reality; new densities would affect the balance between high and low rise buildings, and increased the need for more special and public buildings; resulting on neighborhoods with a strong ‘autonomous character’, designed on the basis of scientific studies of demography, industry developments, traffic and even the nature of the soil. The result is a new urban concept based on the ‘neighborhood unit’, characterized by Mens with the following features:

- o Clear borders;
- o A distinct neighborhood center;
- o Mix of different housing typologies;
- o Introduction of the ‘L’ shaped courtyards;
- o Repetition of large series of urban elements;
- o Introduction of high rise buildings.

The diagram illustrates the ‘neighborhoods and sub-neighborhoods as the units of a human scale on which the individual can interact’. According to Mens, this model can be clearly seen in Amsterdam’s western gardens cities. With the return to more enclosed parcel structures, the relational dynamics between function, scale and location, with different distances associated to public use, different scales of greenery in relation to housing units, and different scales of street in relation to their connective function.

Apart from the structuring ideal of complete break with the past, the post war reconstruction is marked by optimism. The new urban expansions conceived under the neighborhood unit concept, and the new parceling structures, inspired on the motto ‘light, air and space’, applied in various scales, from the building as an architectonic element, to the urban scale, with the block as an aggregative element. The new hierarchical composition of the urban elements blurred the limits between private and public space.

Amsterdam’s western garden of Geuzenveld is a good example of the application the concept; W. van Tijen, ambioned to encourage the community spirit and self-sufficiency in the neighborhood, with vegetable gardens

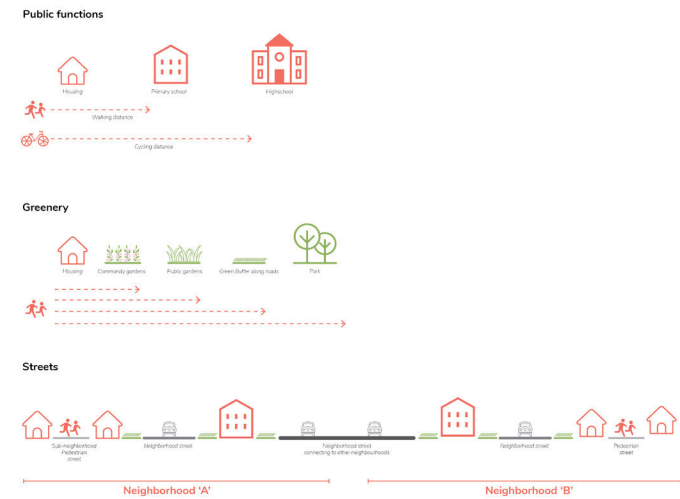


Figure 51. Schemes dynamics between urban elements in relation to function, scale and location. Eesteren’s neighborhood unit concept applied to Amsterdam western gardens (Mens, 2016).

in the spaces between the buildings, and with sub-neighborhood centers with shop streets, workshops and small industries.

According to Mens, the modifications included in the partial plans enhanced the qualities of the original plan that had already envisioned four relatively independent areas. The neighborhood unit concept is design to act as a ‘catalyst of a revitalized community’ and ‘determined the identity of the modern citizen’ (Mens, 2016).

Early criticisms and outcomes

o Decision-making and genesis of the plan

According to Jolles & May (2003), no clear stages for political decision-making were clearly indicated, and this resulted in a marginal political involvement in the preparation of the plan. This situation, together with the extremely positivistic view, and approaches to planning issues, could relate to some of the most critical outcomes of the AUP plan.

According to Jolles & May (2003) The plan is a ‘project of science’, and its authors believe in blueprints for the future and ideas of a constructed society. Moreover, ‘politicians and experts were convinced that they could clearly detect and translate signals from society’.



Figure 52. Street view of Vlugtlaan Burg. Source: Google maps.

o The garden city model

When it comes to the garden city, the concept started to be questioned by researchers since the 1950’s, however, it continued to be use as a conceptual and structural framework for housing estates construction in the Netherlands until well in the 1960’s (Mens, 2016).

o Imprecise estimates

Estimated calculations on the possible future behavior of the population and the economy were at base for the design strategy. However, many of these estimations turned out to be very different in the reality. This can be seen in the case of housing occupancy, that was expected to have a small drop from 3.74 to 3.37 in the year 2000; however the real drop reveal to be much higher in reality, where 1.98 inhabitants were to be found in Amsterdam’s households in 2000. Moreover, according to the planed estimations, one million people were expected to live in the city by the year 2000, however, only 735.3000 were actually living in the city by that time (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, p. 70).

In this sense, the ‘projected calculations’, in combination with other economic and demographic phenomena like, economic growth, the emergence of the city-region, and the sharp increase in housing supply, may had being wrongly informing the spatial decisions for the plan; possibly affecting its adequacy to future requirements.

o The relation between architecture and urbanism

The plan is considered a ‘description of the buildings form’ with extremely rigid limitations that would restrain architects from proposing alternative solutions. According to Hellinga (1997), ‘unlike the architectonic culture of the Nieuwe Bouwen, the objective of regulating the design of the buildings, did not anticipate the possibility of a liberating reality, but it was more a matter of ‘keeping things under control’’ (Hellinga, 1997). This situation would keep architects very unsatisfied with the ‘excessive control of the Urban Development Department’ over the elaboration, detailing and execution of the plan’.

Moreover, critics directed from the newspaper Volkskrant, would dedicate a couple of articles to compare and criticize the aesthetics of the project in Amsterdam, in this case, specifically the Vlugtlaan Burg, is described as a ‘street of side walls, devoid of vitality and joy’. (Hellinga, 1998) Additionally, members of the group ‘8’ and the ‘Opbouw’ criticized the plan from a more urbanistic perspective. At the center of the critics were the repetitive footprint of the residential blocks, the unclear relation between the new suburban area and the city center, and the monofunctional character of the Nieuw West areas.

Issues and re-development approaches from a contemporary perspective.

From ‘urban renewal’ to ‘adaptive re-use’

Nowadays, the Nieuw West area has evolved, from a masterpiece of modern urbanism of the 1950’s to a stigmatized, relatively poor and peripheral neighborhood. Now, one of the largest urban renewal projects in Europe is

taking place in the area. This phenomena, as described by Mepschen(2015), is most likely a consequence of the ‘broad metamorphosis of the Dutch society, from a pillarized, Fordist welfare state, to a post-Fordist and increasingly globalized society’.

An overview of the current situation could shed light on the performance of the plan over the years. The area was subjected to a systematical downgrading process. A cycle of population decline, and selective relocation led to a substantial change in the social structure of the area; favoring the arrival of large amounts of population from foreign origins in situation of vulnerability. Different factors combined with this seem to have activated a cycle of stigmatization processes that starts principally by older inhabitants. Consequently, turnover rates start to increase, and difficulties to activate social cohesion dynamics help to perpetuate the downgrading processes. The challenges encounter in the area tend to be related mostly with facilities, low educational levels, school drop-outs among young, high rates of unemployment, vulnerability, and safety issues (Aalbers, Musterd, & Ostendorf, 2005, p. 14). Contributing to the systematical decline of the area’s image, despite the attractiveness and convenience of its location.

In this regard, the concept of ‘urban renewal’ gains importance. The associated paths of demolition and new building related to these processes reached its peak in the 1980’s. However, the Monumenten Inventarisatie Project (MIP) initiated in 1987, helped identify the most culturally valuable monuments constructed during the period of 1950’s and 1940’s. Bringing to attention the value of the areas that were most affected by the urban renewal processes. In accordance to this, new approaches of ‘adaptive re-use’, are found to create a more dynamic balance between conservation and demolition.

This being said, is important to highlight the integral focus of the renovation processes that have taken place in the area. On the one hand, a series of interventions in cooperation with the residents help support vulnerable population, improve health, educational performance, and safety. On the other hand, physical interventions aim to improve the quality of the urban environment; hence, the transformation from a monofunctional to a mix-use area; the improvement and activation of the green areas, and a process of selective demolition or renovation of the troubled blocks. All this to strategically allow for a more diverse composition of the housing stock and the diversification of the area in terms of population (van Heelsum, 2007).

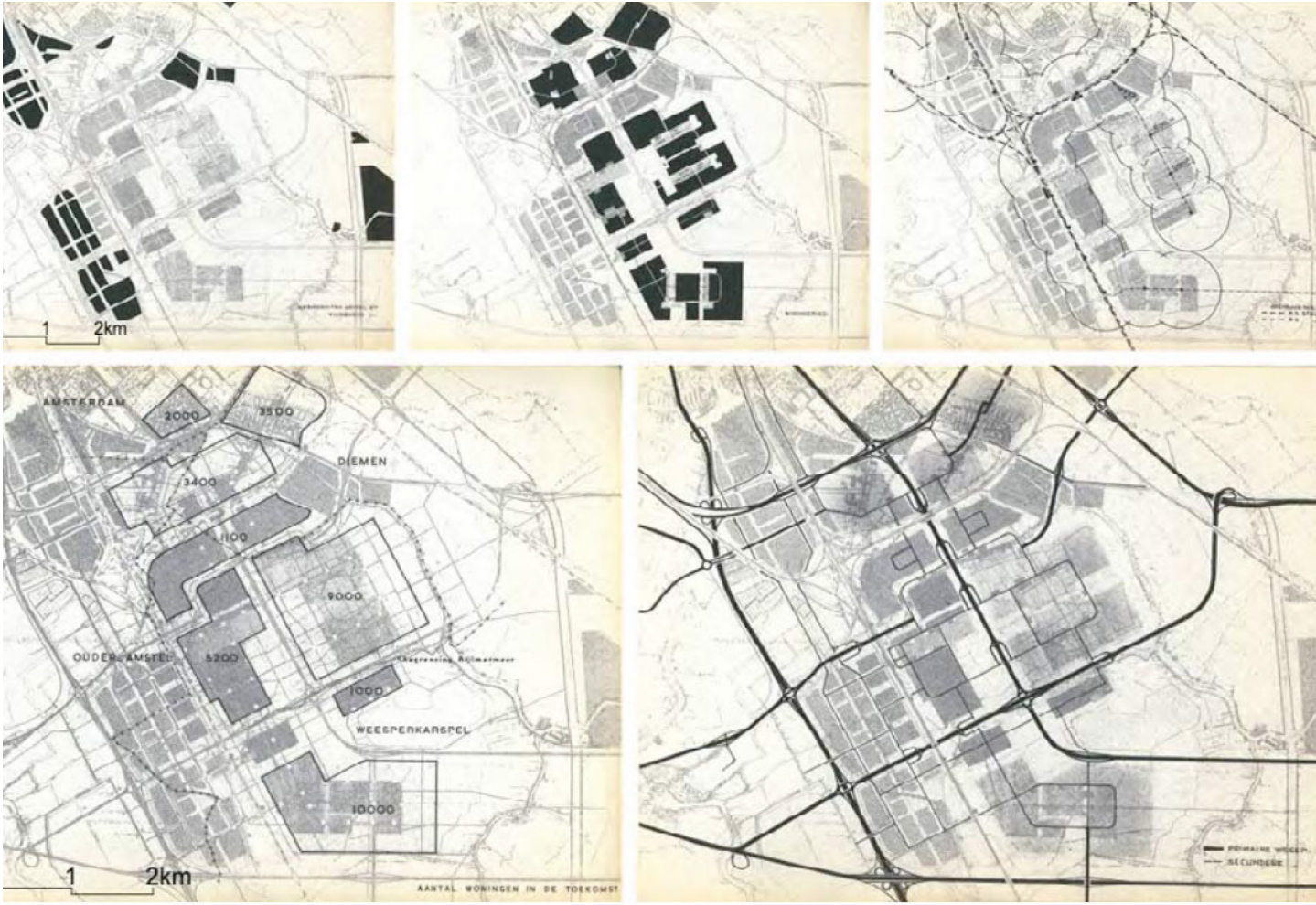


Figure 53. Biljmermeer urban planning schemes. 1- industrial areas, 2- living areas, 3-metro lines, 4-function areas, 5-primary and secondary vehicle roads. Zuid-Oost Urban Planning department, 1965. As cited in (Aquilué & Ardura, 2017)

II. The Structure Plan Zuid and Zuid-Oost and Biljmermeer

Responding to a large process of renovation and clearance of housing that was expected to take place in the city, the Stadsrandplan or City Perimeter Plan is created to explore the possibilities of a further expansion of Amsterdam. Later in 1965, the Zuid-Oost Structure Plan appears as an elaboration of the City Perimeter Plan, and becomes the second far-reaching revision of the AUP (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003).

The Biljmermeer, district of the future is designed by the urbanist Sigfried Nassuth. It was located in a dried polder, 8 km to the south of Amsterdam City. This area later added to Amsterdam’s municipality after 1978. The design of this expansion responds, not only to the process of renovation and clearance, but also to an expected increase of housing demands, an issue that the AUP plan was not able to fully resolve. 40.000 new dwellings were expected to accommodate 100.000 new residents, as well as part of the population that would need to move out of the urban renewal areas in the old part of the city.

Jolles & May (2003), draws attention to some of the reactions to the plan during the mid 1960’s, when the press would usually stress on the innovative character of the plan, usually considering it as the’ mark of a new era in urban planning’. In this sense, a number of factors help to construct this innovative character of the plan. A

modern urban planning method was based on a rational, yet integral approach, that address urban socio-cultural and functional issues at various scales. Similarly to the past developments of the AUP plan, the emphasis is put into the ‘harmony between form and function’, and the clear definition of the district area, that was believed it would allow residents to develop a sense of connection with the place (Jolles & May, Planning Amsterdam: scenarios for urban development, 1928-2003, 2003, pp. 78-79). Moreover, the new plan includes a very detailed analysis of location and distribution of traffic lines and roads, according to the transportation typologies, including cyclists and pedestrians, developing detailed analysis of traffic in street sections. These analysis would also include

industrial, commercial, services residential and recreational areas as well, for these, analysis on their relation to density, vegetation and public space would be made as well (Aquilué & Ardura, 2017). These analysis would be at the base of the principles guiding the design of the whole Biljmermeer complex.

In this regard, Mentzel (1990) would consider that ‘once the design fundamentals are defined, the structure of Biljmermeer is extremely simple and readable’; this is exemplified with his categorization of the 3 principal aspects Zuid Oost plan:

o Integration of the Biljmermeer in Amsterdam

As explained before, a serious shortage of space was affecting the city, and new residences and services

developments would have to be built outside the city boundaries. The question of annexation of the Biljmermeer area to Amsterdam’s territory arise. By 1978, the former Municipality of Weesperkarspel, (Biljmermeer area), finally becomes part of Amsterdam.

However, according to Jolles & May (2003), the designers in the Amsterdam’s Planning Department, considered the distance between the Biljmer and the pre-war city as a big concern; especially in terms of public transportation. To overcome this obstacle, an extension of the railway line and a metro line, were considered as principal connections to the city lobe. These measures would doubled the transport ratio to the city.

o An increase of scale in various levels and areas

According to Aquilué & Ardura, the change in scale seems to respond to a ‘necessity to consider traffic as a great superorganism’, echoed in the special attention put into the analysis, design and classification of traffic and connectivity. Establishing a very defined structure for each typology, for instance, the primary roads of national character, were designed to be 6 to 9 meters above the ground floor; and the secondary roads of local character, were designed to be 3 to 4 meters above the ground; this way, with the ground floor freed up from car traffic, the space would be exclusively used by pedestrians and bikes (Aquilué & Ardura, 2017).

The classification and separation of traffic forms, promoted by modernist ideals and enacted by van Eesteren in the Western Gardens, is taken to a much higher level in Nassuth’s plan. On one hand, traffic seems to really act as structuring element for all the other functions, for instance, housing densities and location of different types of services are all proposed in relation to their proximity to traffic infrastructure and metro stations. On the one hand, the increase of scale on this modern imaginary, favors speed in detriment of the character of the traditional street, contributing to its final annihilation.

Another significant increase of scale refers to the residential block, the Biljmermeer’s residential structure would be composed mainly by high-rise buildings of 9 storeys of housing units, plus 2 storeys of basement. Introducing another sharp contrast with the ideals of low density / garden neighborhoods proposed by van Eesteren in the AUP plan.

o Emphasis on the combination of collective and private

According to Aquilué & Ardura (2017), Naussuth’s plan is not only based on CIAM’s rationale, it is furthermore influenced by ideals of collectivity, rooted in the East bloc of the Soviet union (Hommels, 2005) as cited in (Aquilué & Ardura, 2017). This frame of reference seems to reveal the ultimate ambition of the project: to sculpt the future society throughout the utopic rationalization of the living environment. The causal role of this social utopia, reflects unmistakably on the proposed interactions between public and private in Naussuth’s plan.

The concept of Collective / semi-public space plays a central role for the design of the new typologies of urban assemblages. For instance, the first floor of the residential

blocks were designed as a semi-public space of ‘collective distribution’ that could be accessed from a footbridge, connected to the parking garages. Moreover, community spaces, footbridges, and public green areas were all designed for a ‘new social system on which people should behave in a certain way In a certain space’; Where the utopic society of the future, would reproduce from the deterministic construction of a completely planned urban environment (Aquilué & Ardura, 2017).

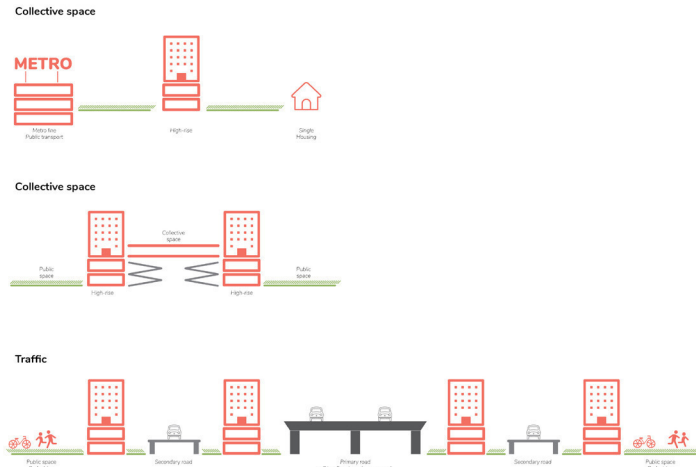


Figure 54. Schemes of dynamics between urban elements. Public transportation, collective space and traffic roads in the Biljmermeer project. Source: own elaboration

Early criticisms and outcomes

The Biljmermeer is considered an ‘anachronic project’; born in a time when criticism towards the formal paradigm of modern urbanism was already established. Team X leaded criticism from inside the CIAM movement. Other critics such as Jacobs, leading the criticism from outside the movement would generally agree the lack of safety and vitality of the street and the ground floor levels (Aquilué & Ardura, 2017). This condition could be associated with many of the problematics experimented in the Biljmermeer, from the very beginning of its construction. The main critical aspects could be summarized as follows:

o Extreme functionalism and the collectivity ideal

The ideal of collectivity appears as a notable example of the anachronistic character of the project. As Mentzel (1990) describes, the ideal appears to navigate against the current trends of ‘individualization of home life’, exposing the obsolescence of the extreme functionalist ideal, by the time the project was constructed (Mentzel, 1990).

o Decision-making and genesis of the plan

The vision and decision-making process for Biljmermeer project takes place in a closed group of professionals planners and designers, that had a preconceived ideology. Little receptiveness to criticism or different opinions, penalized their possibilities of improving the project with the help of public inquiries or discussions.

o Lack of proper connectivity and late arrival of public transportation

According to Mentzel (1990), the suburbs of Diemen and

Duivendrecht, separated the Biljmermeer area from the rest of the city, and the new metro line was urgently needed to create a proper connection; however the construction was delayed causing a rush of discontentment within the first group of inhabitants in the area. (Mingle, 2018).

o Lack of variety in the housing offer and the ‘Highrise wave’

The Biljmermeer project is a representative case of what Wassenberg calls ‘The high rise wave’; a popular constructive current in the Netherlands, which, at the time, wins and loses popularity at an impressive speed. As a consequence, the high-rise blocks constructed within the project, ended up not corresponding to the preferences of the intended middle-class families. Moreover, the offer of an unique housing typology (large flats of 100 m2 under a rental regime), exceeded by far the housing demands of the time.

However, as explained before, various phenomena like ‘selective relocation’, the systematical drop of inhabitants per dwelling, and the emergence of the city-region, might all have played a big role on Biljmermeer’s loss of attractiveness.

Issues and Re-development approaches from a contemporary perspective

Demolition and diversification

Aquilué & Ardura, (2017) hold the view that Biljmermeer experimented difficulties from the very beginning. Before the inauguration of the project in 1971, a first memorandum on the issues affecting the area was already issued. A decade later in 1985, the conference Post-War Public Housing in Trouble, would the Biljmermeer as the ‘most problematic example at national level’; all this, despite that the first rehabilitation phase had already started a decade before in 1980 (Aquilué & Ardura, 2017).

A question of preferences seem to have profoundly punished the performance of the project; as the families from Amsterdam preferred individual and low-rise single family housing. This among other factors have negatively affected the occupancy rate of the apartments; that soon would become the only living option for the most vulnerable sector of the population at the time: single-parent families, and newly arrived immigrants. Other processes of displacement of vulnerable groups in other areas of the city, had also helped to intensify the degradation in Biljmermeer area, and helped perpetuate a cycle of stigmatization and selective relocation.

Drastic rehabilitation measures arrived in 1990 with the report ‘De Biljmer Blift, veranderen’, that proposed the demolition of 25% of the high-rise blocks, the sale of 25% of the blocks, and the renovation of the remaining buildings. The report seemed to have deeply inspired the re-development approaches in the area. In the following years, a series of official plans and evaluations, helped to reinforced the ideas of demolition as a suitable approach. The character of the area changed drastically, 50% of the high-rise blocks where demolished and replace by other housing typologies. This changes introduce a new mix of uses in the area, as well as a new proportional dynamic between the increased densities and floor space

consumption, and the reduction of green-open areas (Aquilué & Ardura, 2017).

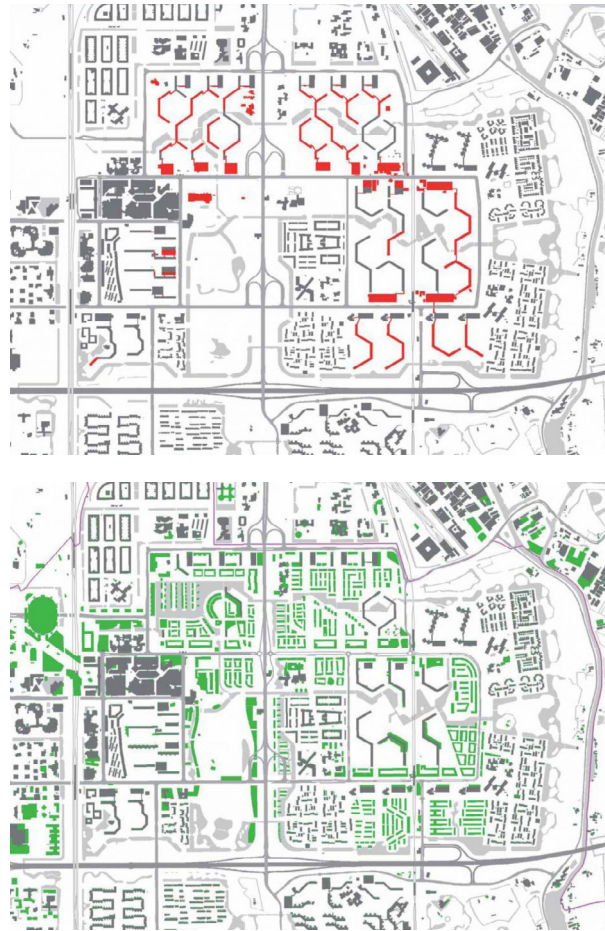


Figure 55-56.
Biljmermeer - Demolition & Construction Plan
Source: www.biljmermuseum.com/het-biljmer-ontwerp/

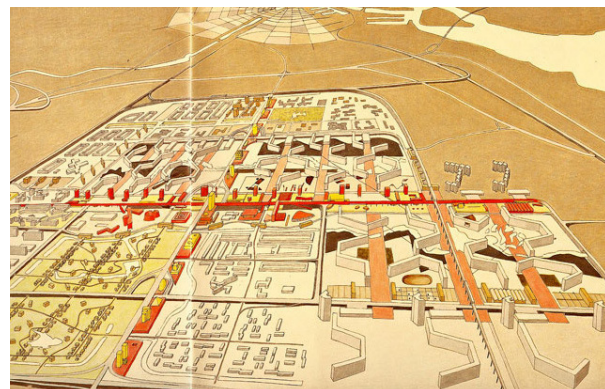
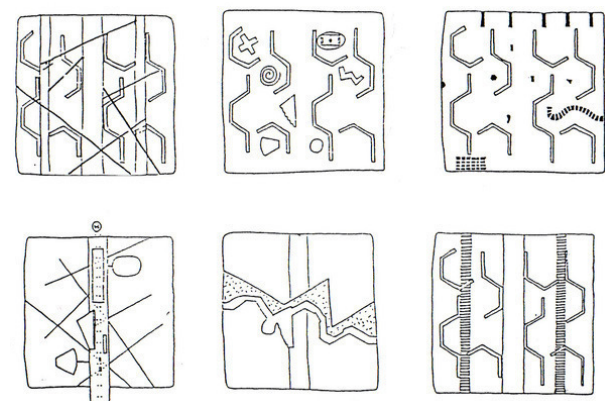


Figure 57-58.
OMA Biljmermeer Redevelopment
Source: www.biljmermuseum.com/het-biljmer-ontwerp/

III. Discussion and conclusions

As elaborated in this article, the concept of ‘Neighborhood Unit’ and the Garden City, helps to shape the particular character of the Nieuw-West, constructed under the controlled structure and vision on van Eesteren in the AUP plan.

The outcome of this planning model outlines areas of relatively low densities, mix of building typologies and greenery as a structuring element. In the case of the Biljmermeer, the results are diametrically opposed; high-rise buildings are implanted in a layout of green areas. In this case, traffic (segregated according to typology), and movement are a structuring element for all the other urban functions; however, the concept of collectivity seems to dominate the social dimension of the project, establishing particular dynamics between public and private, but more importantly, seems to deeply influence a shift on the scale and density dimensions. The spatial characteristics and relations between the urban elements in both projects are indeed very different, however, the most critical issues presented later in these areas, seem to have similar origins, and similar manifestations in the socio-physical structure of the territory.

Critics to both of the plans and related projects, have arrived from the beginning, even before the process of implementation. Many of these critics would highlight spatial and urban quality as the most critical elements, such as the repetitive stamp for instance; while other critics would highlight the monofunctional character, the high-rise scale, or the overdetermination of the form and the social structures as the main issues affecting the quality of these areas.

However, considering that the current issues affecting the

Nieuw-West and Biljmermeer areas today, derive in socio-economic dynamics, the quality of the physical space also seem to play a big role in the endless cycle of influences between the image of the area, the attractiveness, the level of satisfaction of the residents and the subsequent stigmatization / degradation processes.

The findings from this study suggest that other sources of the current issues associated with this areas might be related with very conception of the plan, the top-down approach and the one-sided vision of the technical perspective of the urbanist-architect, that ambitions to give fixed and absolute solutions to the complexity of urban and socio-economic processes.

Despite its scientific approach, and aiming to the highest standards of spatial quality for the societies of the future, the modern model of urban planning shows great flaws that start with the quality of the physical environment. In this sense, the concept of flexibility, would allow verification of the strategies during the design process and implementation.

On the other hand, the regeneration approaches, seem to have provide very different spatial solutions, in the case of the Western-Gardens, the re-regeneration approach introduces the concept of ‘adaptive re-use’, benefiting from the architectonic value and imageability of the area. On the contrary, the case of Biljmermeer presents a more invasive approach to urban renewal that eliminates the possibility of building value from the identity of the area, and its distinguishing modernist character has been heavily intervened and modified.

AMSTERDAM MODERNIST AREAS

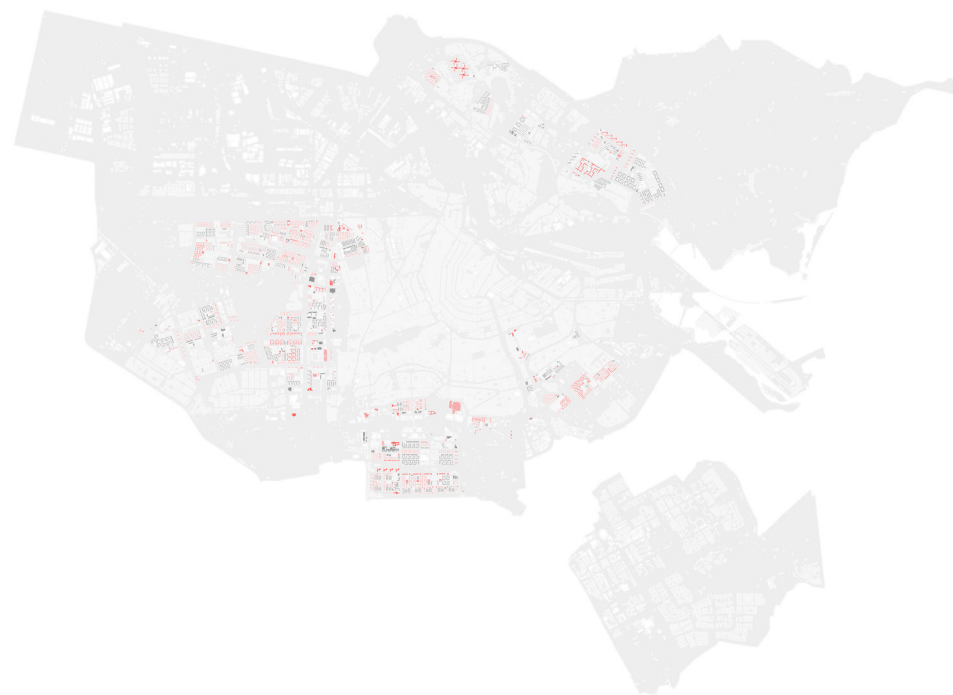
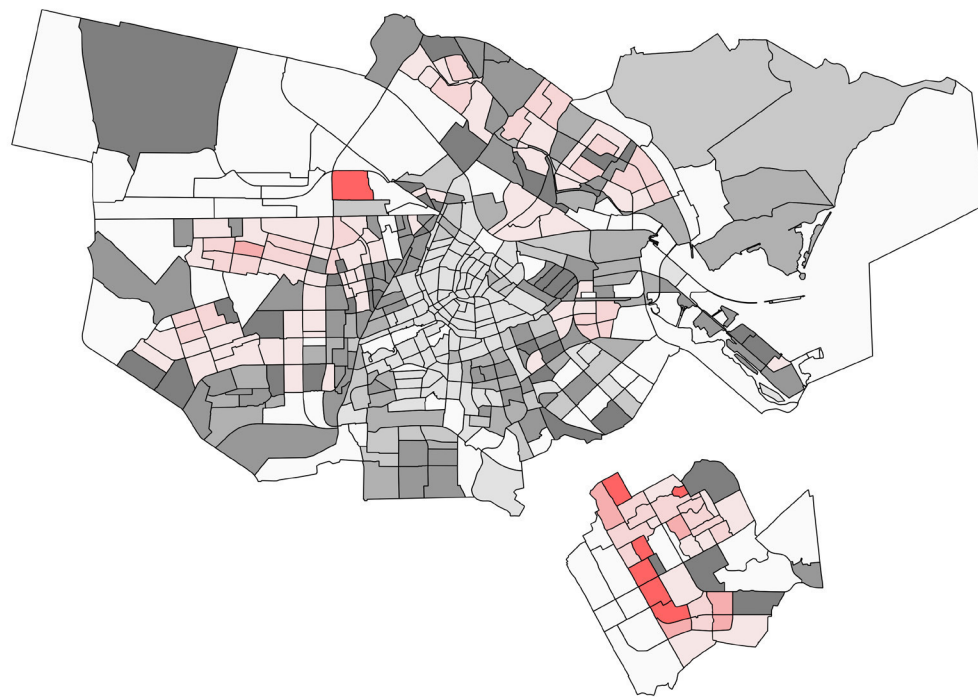
General criticality of the model in the Amsterdam examples

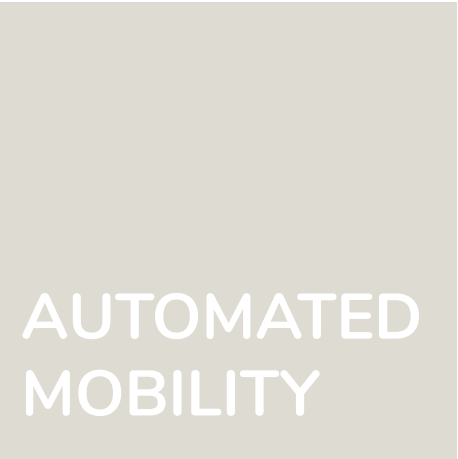
Komossa makes a description on the General Expansion Plan and the impact of the Modernist layout implemented in Amsterdam. On the one hand, she states that the Plan leaves the shape of the urban block undefined; on the other hand she believes the model propitiates the 'disintegration' of the typical urban block, and with it, the formal relation between the built private space and the street. Moreover, it also implies the transformation of the house from an economic to a social unit (Komossa & Cook, 2010, p. 15).

On the other hand, Komossa is also critical with the urban green spaces produced under the modernist framework. The map of the General expansion display 6 kinds of green space: parks and gardens, woods, cemeteries, sports

grounds allotment gardens and school gardens; however, four of these are said to be only partially accessible to the general public, and though forming barriers to pedestrians and cyclists, in this sense, green areas serve to divide and compartmentalize, rather than connect (Komossa & Cook, 2010, pp. 184-185).

However, the success or failure of the housing estates models, does not seem to depend exclusively on their alignment with modern urbanism; Monclús and Diez Medina suggest that other particular circumstances, associated to periods of rapid construction processes could have lead to a significant loss of their urban quality (Monclús & Diez Medina, 2018, p. 71).





Automated mobility as an opportunity for city transformation

Automated mobility will represent the driving force of change in the mobility sector in the future, yet, it is also expected to have a profound impact on both, the spatial configurations of cities, people’s mobility behaviours, and lifestyles.

This technological revolution is expected to enter the mobility scenario in the Netherlands between 2025 and 2045 and the country is already building capacity to adopt and integrate legislation, to infrastructure and cities to this technology, in this sense, the country is also leading the 2018 charts of Autonomous Vehicles Readiness Index (AVRI) (Threlfall, 2018).

This new and technology & mobility revolution, poses the problem of thinking and designing the city of the future once more; within the current scenario of Calabrese’s ‘paradigm of Restoration’, aiming to take tangible and active actions, to restore spaces of mobility, and to create a better synergy with the built environment. Automated mobility represents a compelling opportunity to reflect and learn from the recent past idea of future -set by the modernist model- and to explore possibilities aiming to restore the relationship and balance between the street, the public space and the urban tissue.

In this sense, even though the challenges imposed by the modernist model in cities have been, and are still being widely address, the possible synergies with the spatial changes that automated mobility may bring are yet to be explored.

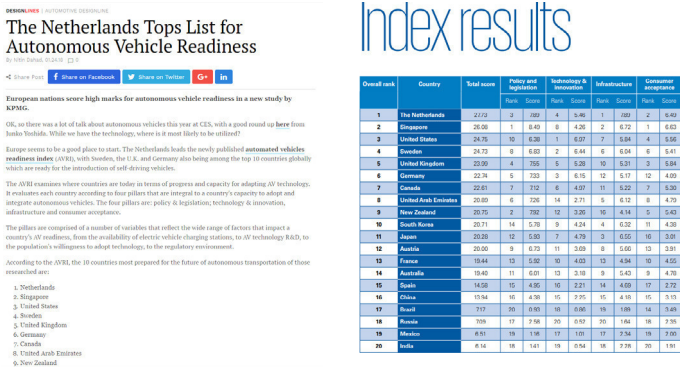


Figure 59.
Netherlands tops list for autonomous vehicle readiness in 2018
Sources:
<https://ubm.io/2FSGAZ4>
<https://bit.ly/2TVFO28>



New utopias - Automated mobility visions

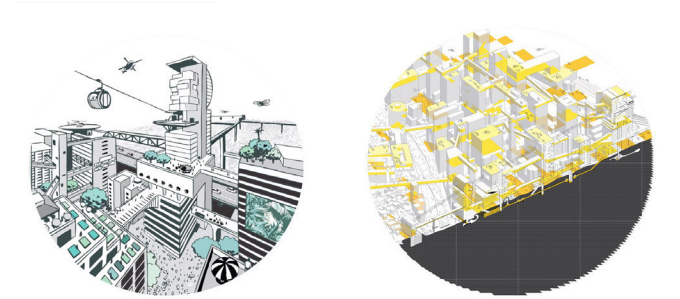


Figure 60.
Audi urban future award 2012
Urban Think Tank: urban parangolé the mobile village - Sao Paolo

New Mobility+space relations



Figure 61.
Robocar Evolution
TU Delft - 2018

PROBLEM STATEMENT

Problem statement

The Modernist urban ideal proposed a definitive rupture with past urban models, and embraced science to, on the one hand, provide a collective understanding on urban and design problems, and on the other hand, as an allied to take formal decisions about urbanism. As a consequence, the traditional urban block is re-proposed and converted into a 'gridded city', an attempt to 'rationalize the urban space by using a systemic approach', guided by the automobile technology and traffic as a milestone element for structuring the new urban layout (Calabrese, 2004).

The model build upon a 'deterministic construction of a completely planned urban environment' (Aquilué & Ardura, 2017), and a new utopic society, re-shaped and molded, according to a new rationalized living environment. This overdetermination of the urban form, social structures, and the technocratic approach are believed to have contributed to the failure of the model, reflected on poor spatial qualities and life conditions that typically challenge modernist urban areas today.

A current scenario -on the brink of a new technological revolution- is redefining the relationship between the physical environment and digital systems. Concepts such as Smart Cities, Smart Urbanism, Automation and Automated Mobility, among others, are expected to deeply impact and modify the physical structures of cities, as much as the way people move and interact with the urban environment, presenting generally accepted ideas on advantages and disadvantages. However, according to the view of (Luque & Marvin, 2015) on Smart Urbanism, for instance, these 'concepts are usually promoted by international organizations, the corporate sector and local governments (..) and the discourses around them, are deeply rooted in seductive and normative visions of the future, where digital technology stands as the primary driver for change'. Moreover, the focus tend to be usually set on the 'achievement of optimal outcomes, under current technical, political and market conditions,

with limited critical analysis, and disregarding the social and political domains'. In a way, this is panorama can only be comparable with technocratic approach proposed by modernist urban planning model (Luque & Marvin, 2015).

The current technological panorama offers the challenging opportunity to underpin future scenarios of development, reflecting on past ideals of future -avoiding to commit the same mistakes of past techno-utopian approaches- while exploring synergies between the built legacy and technological progress that aim to enhance or activate new forms of spatial quality in the urban environment.

The city of Amsterdam presents an interesting opportunity for intervention. On the one hand, the city has been highly influenced by the modernist urban model, framed within two post-war expansion plans, the General Expansion Plan AUP -considered a milestone of modern urbanism- and Structure Plan for Amsterdam- Zuid & Zuid-Oost. On the other hand, the forthcoming arrival automated vehicles -expected to be available by the year 2045- (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015) has already stimulate local institutions to start exploring the possible implications and opportunities this technology may bring for the future of the city.

Research question

How can modernist urban areas be transformed to enhance spatial quality under future automated mobility scenarios?

Sub-questions

1-What are the different manifestations and impact of modernism around the world? > *Atlas of most representative projects*

2-Representative re-envisioning projects > study cases

3-What are the criticalities of the modern model? >What is spatial quality and its relation to 3 lenses > *Literature review*

4-What is the future of mobility? > automated mobility spatial implications in urban contexts > *Literature review*

Contextualize the problem

What are the opportunities that future automated mobility scenarios could represent to modernist urban areas in Amsterdam?

5-How can the modernist urban areas respond to the opportunities offered by future automated mobility scenarios? > *Analysis, mapping, field work and research by design*

6-What are the opportunities of transferring this knowledge? > *Reflection and back to atlas.*

3- Methodology

Main methods & possible outcomes

METHODOLOGY

3. Methodology chapter

Elaboration on the main methods and possible outcomes

Research approach

- Research philosophy – Mixed method
- Type of research – Mix between exploratory and deductive
- Research approach – Mixed methods inductive and deductive

For the purpose of this research, the modernist urban model is studied throughout the lenses of its “universal” character. As it has been used as basis for the formation and development of cities globally, under a paradigm that still influences the current dynamics of urbanism around the world (Calderon, 2017).

To respond to this main goal, this research will be mix positivistic approach for the analysis of some data and a phenomenological approach for the study of theory case studies and design interventions.

The type of research that will be carried out in the first phase of the project will have a strong compound of predictive analysis of urban data; Later, as the project is dealing with automated mobility -a phenomena that may occur in the future- results will be grounded on analysis that come from an exploratory type of research, that will help produce future scenarios, and guide the design interventions.

As a result, we can conclude that this research will use mixed methods, for the methodological approach which will include quantitative and qualitative data, and deductive and inductive analysis.

Emphasizing that the explorative character of the research based of possibilities related to future developments of AV's in relation to the urban context, many aspects involved in this future dynamics will imply a speculative or idealized character of the design solutions. In this sense the application of mixed methods is necessary, to allow existing quantitative data, to inform future speculative scenarios. In what Michael Patton describes as ‘to bring different perspectives to bear in the inquiry and therefore support triangulation of findings’. (Patton, as cited in Johnson et al, 2007).

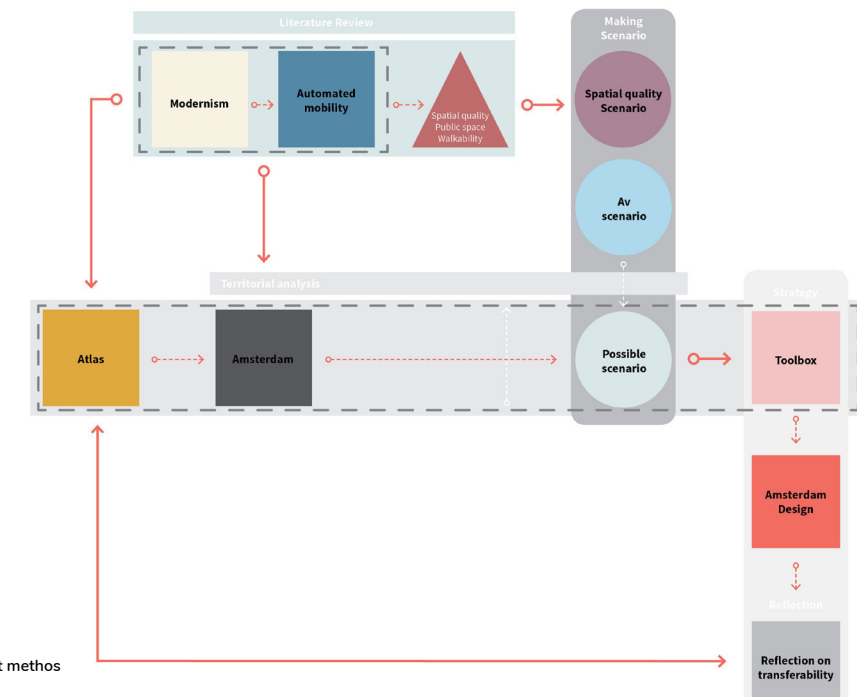


Figure 1.
Scheme on relations between different methods
Source: own elaboration

Design goals

The goal of this research is to explore opportunities that AVs may bring, and how these can enhance the spatial quality of modernist urban areas.

The research will have a strong base on existing literature, needed to construct an understanding of modernist urbanism, its main characteristics and the criticalities of the model. Moreover, the concept of spatial quality will also be explored throughout the lenses of most prominent authors, and with a focus on quality of public space, and how these can favor positive dynamics for pedestrians. Finally, automated mobility will be studied in relation to their possible impact on the urban tissue. An understanding of the three concepts and how to promote synergies between them, that would improve the spatial quality of public space in modernist areas, is at the base of this research and subsequent spatial interventions.

In the same line of thought, understanding modernist urbanism will help to draft parallelisms between the modernist approach to planning and design -as a model of past technological revolution, related to the automobile- and automated mobility -as an upcoming technological revolution related to AVs. This parallelism would help to reflect on the past approaches to technology and inform new approaches and in the creation of desirable scenarios for the future. That would focus and aim for the spatial quality of the urban environment.

Moreover, modernist urbanism will be studied throughout the lens of its ‘universality’, throughout the main compositive elements of modernist urbanism, its different scales of intervention and most representative projects around the world. Aiming to build an understanding on the universal character of the model, find similarities in their qualities and issues. This study aims to be able to find patterns in the application of the model that would help us to abstract its critical elements and contrast them against the most prominent ideas of ‘spatial quality’ and ‘quality of public

spaces’ and to understand how main structural elements of the model could respond to future changes that automated mobility may bring. To this aim, a selection of some of the most representative modernist projects around the world will be presented in the form of an operative atlas, that will in parallel inform the design, spatial-quality oriented solutions that will be proposed in the project.

The city of Amsterdam will serve as testing ground for the ideas produced in this research. The area will be analyzed from a macro scale throughout a -collective atlas- of the AMA region. Following a meso-scale analysis of the city, that will start with the study of the modernist housing estates, constructed under the framework of the expansion plans AUP and Zuid-Oost. This study takes place in the form of the research paper: Modernist housing estates in Amsterdam - Comparative analysis of planning ideals, critical outcomes and redevelopment approaches in the case of Western garden cities and Bijlmermeer.

Finally, a micro-scale analysis will be made in the Western Garden cities area, selected as the final testing ground of the design solutions.

Following a preliminary analysis of the city at various scales, a possible scenario for the adoption of AVs in this area will be drafted, and thereafter, a toolbox of possible design interventions that integrate the knowledge produced in the atlas, an analysis on spatial quality and the possible scenario of automated mobility. This toolbox will be finally tested in a chosen area located in the Nieuw-West area of Amsterdam.

To conclude, a reflection on the outcomes of the toolbox and the research on modernism as an universal model will aim to understand the possibilities of transferability of this knowledge, in order to inform possible intervention in other modernist contexts around the world. Followed by recommendations for future research.

Methods

Analytical tools

Literature review

An extensive review on literature will be made aiming to construct the conceptual basis that will guide the data research and analysis. The conceptual framework will try to build a comprehensive understanding of the modernist model as an universal model and its specific impact in Amsterdam city. Going through the specificities and guidelines of the model ideas, implementations and most generally recognized critical aspects of implementation. All the concepts will be explored through the lenses of public space quality, walkability and mobility, going from a more general “Universal” perspective with the atlas, to a more specific one, at meso-scale in the city of Amsterdam.

A similar pattern of study will be used to analyze automated mobility, in this case, the background of literature will have a bigger context-based compound, with the intention of building upon the knowledge already created by research groups in the Netherlands. In these sense the Netherlands, is seeing as a sort of “best case scenario” where legislative measures from the European Union have exhorted forces leading a wide spread Institutional interest in the subject.

Territorial analysis

Atlas of modernism as an universal model (Global scale)

Analytical methods will be used to analyze the territory at different scales. The universality of the modernist model will be studied trough a selection of some of the most representative modernist projects compiled in an ‘Atlas of modernism as an universal model’, that includes a small review of the different projects, acknowledged issues presented after the implementation, and different approaches to urban regeneration. To this aim, mapping will be used, in combination with historical and literature research, in order to build a general understanding of the model.

Amsterdam territorial analysis (Meso-scale and micro-scale)

Quantitative and qualitative data will be processed in order to build understanding of Amsterdam city, in terms of its spatial, infrastructural, mobility and social structures. The analysis will lead to the creation of a group atlas “mapping existing and exploring opportunities for future mobility” from which the selection of a test-case area will follow. Other analysis such as mapping, field work, study of transformation approaches and social and physical structures in the selected area will follow, in order to constitute a preliminary design strategy and propose possible future scenarios of automated mobility.

Design driven tools

Scenario setting

Two opposite scenarios will be created, one will based

on the literature related to spatial quality, representing a sort of ‘public space utopia’ based on spatial quality based literature. A second scenario will be based on a future where automated mobility is fully implemented with no restrictions. The contrast and relations between these two will inform the creation of a third scenario “possible utopia” that will be further developed as a base for the design intervention.

Toolbox

The toolbox is the central instrument that will give form to the project. This tool, must integrate data collected in the literature study, the projects studied in the Atlas of modernism, and the spatial implications given by the autonomous mobility scenario. The main idea is to generate a tool that is sufficiently flexible, so that it can be used as a basis for urban intervention in diverse modern contexts, but still provide possibilities for adaptation, inclusion and participation, which allow the design to be adapted to specific conditions of each territory. The central method for the construction of this tool will be the pattern language, which represents a powerful tool for the management of complex processes, so that they can be presented in a simple way, and easily adaptable.

Reflection (Conclusions and future implementations)

*Applicability and knowledge transferability

A reflection on the toolbox possibilities of implementation and knowledge transferability will be made at the end of the research, leading to recommendations for further future research on the issue of transferability.

the transportation system in the coming decades. This technology will represent digital breakthrough for mobility and a major catalyst of urban transformation, that will contribute to the redefinition of urban mobility and patterns of lifestyle and movement. Many possible advantages and disadvantages in relation to the adoption of this technology are already being studied, however, a reflection on past historical failures related to similar technological disruptions may help to build a understanding on the challenge and better steer the future scenarios of development of these technologies. Hopefully avoiding the mistakes committed in the past, and favoring dynamics that would stimulate spatial quality of the built environment.

Currently, urban studies on AVs typically focus on urban design, in most cases the critical reflection on past or present technologically-driven concepts is absent, as the tendency is that to embrace technological progress as panacea for any kind of challenge. On the other hand, the modernist ideal has been almost fully dissected, criticized, intervened and transform almost since the very first manifestations of the movement, however, the re-development approaches had usually tend to focus on a cycle scheme of demolition and construction of different typologies of buildings; nonetheless, this research will focus on the spatial quality of the public space, the pedestrian, and the possibilities of redefining the relations between the street, the public space and the building. Catalyzed by the opportunities offered by the adoption of AVs technologies.

This study is especially relevant for the city of Amsterdam, because it has been greatly impacted by modernist urban planning. For instance, the post-war expansions, framed under the General Expansion Plan AUP, has almost doubled the territory of the city. Today, this area present multiple challenges, in relation to life quality and quality of the urban space associated with the model implementation; however, future urban transformations in the Haven Stadt area will most probably activate new urban dynamics in the area, going from a apparently peripheral location to a strategic one.

Finally, a reflection on the universal character of the modernist model aims to reflect back on the design strategies proposed for Amsterdam Nieuw-West. With an idea to pave the way for the transferability of this knowledge to other modernist urban areas in different contexts. And help to build knowledge in relation to the transformative opportunities of this areas, in the context of automated mobility.

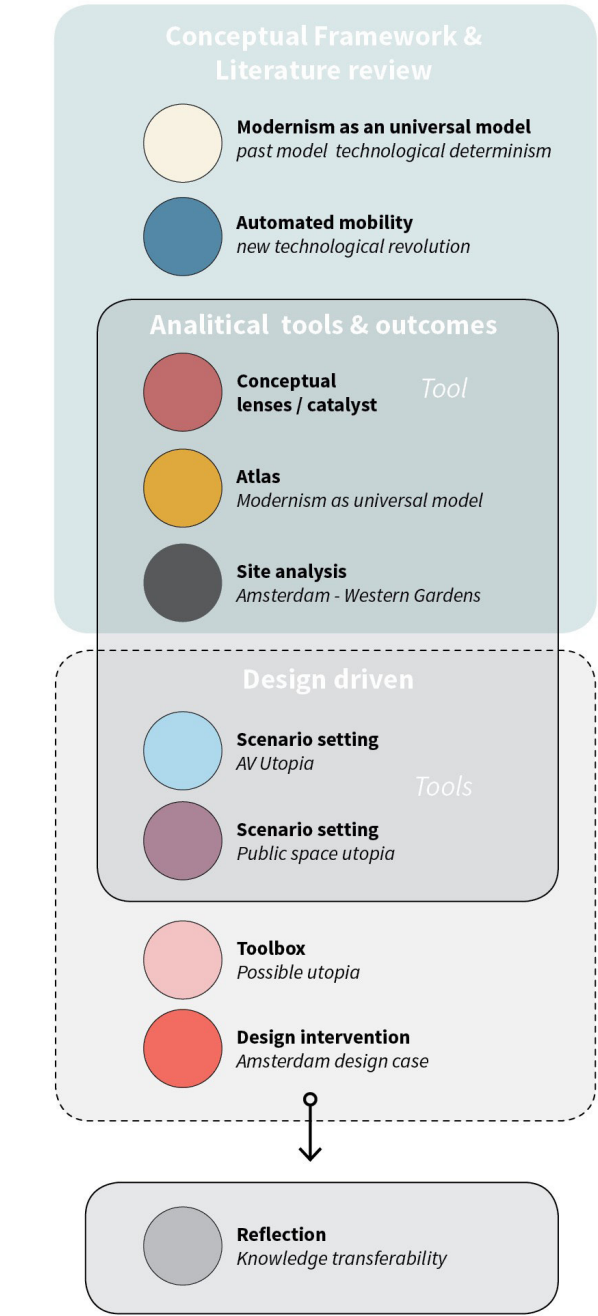


Figure 2.
Scheme on methodological sequence
Source: own elaboration

Societal and scientific relevance

The modernist urban model holds and universal character, draft by the ideologies of CIAM and the values of post-war planning. The model had different scales of impact that range from micro-scale of interventions to complete cities design under modernist urban planning schemes in many cities around the world. However, the model's over deterministic and technocratic approach have reflected in a series of critical aspects that typically affect modernist urban settlements around the world. Car favoring urban planning resulted in massive car infrastructures, highway centered and single mode urban freeways (Brown, Morris and Taylor, 2009) as cited in (Duarte & Ratti, 2018) that deeply compromise the quality of the public space.

In the case of automated mobility, is generally accepted as a rapid developing technology expected to be part of

METHODOLOGY SCHEME

Methodology scheme

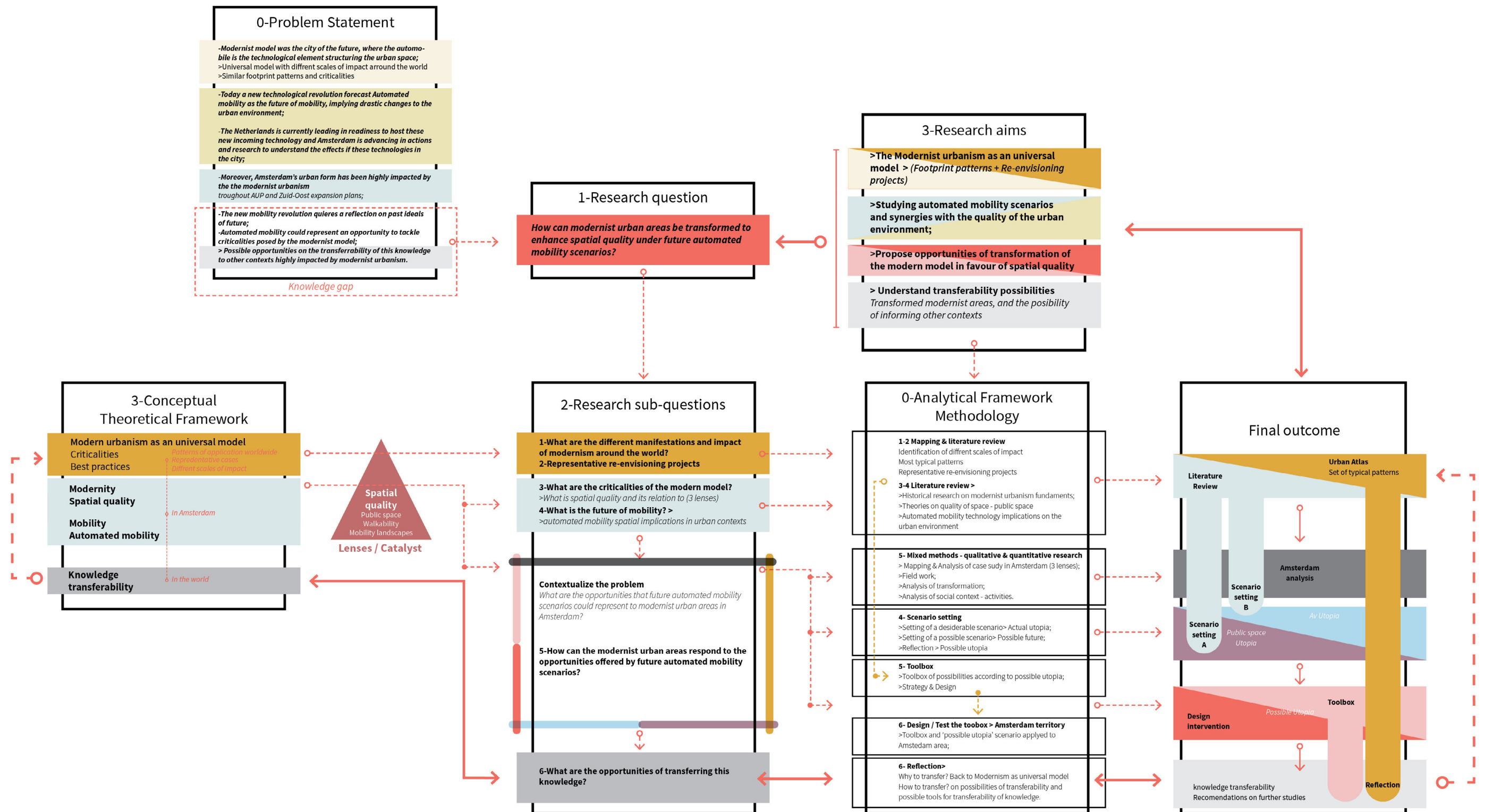


Figure 3.
Complete methodological scheme
Source: own elaboration

METHODOLOGY SCHEME

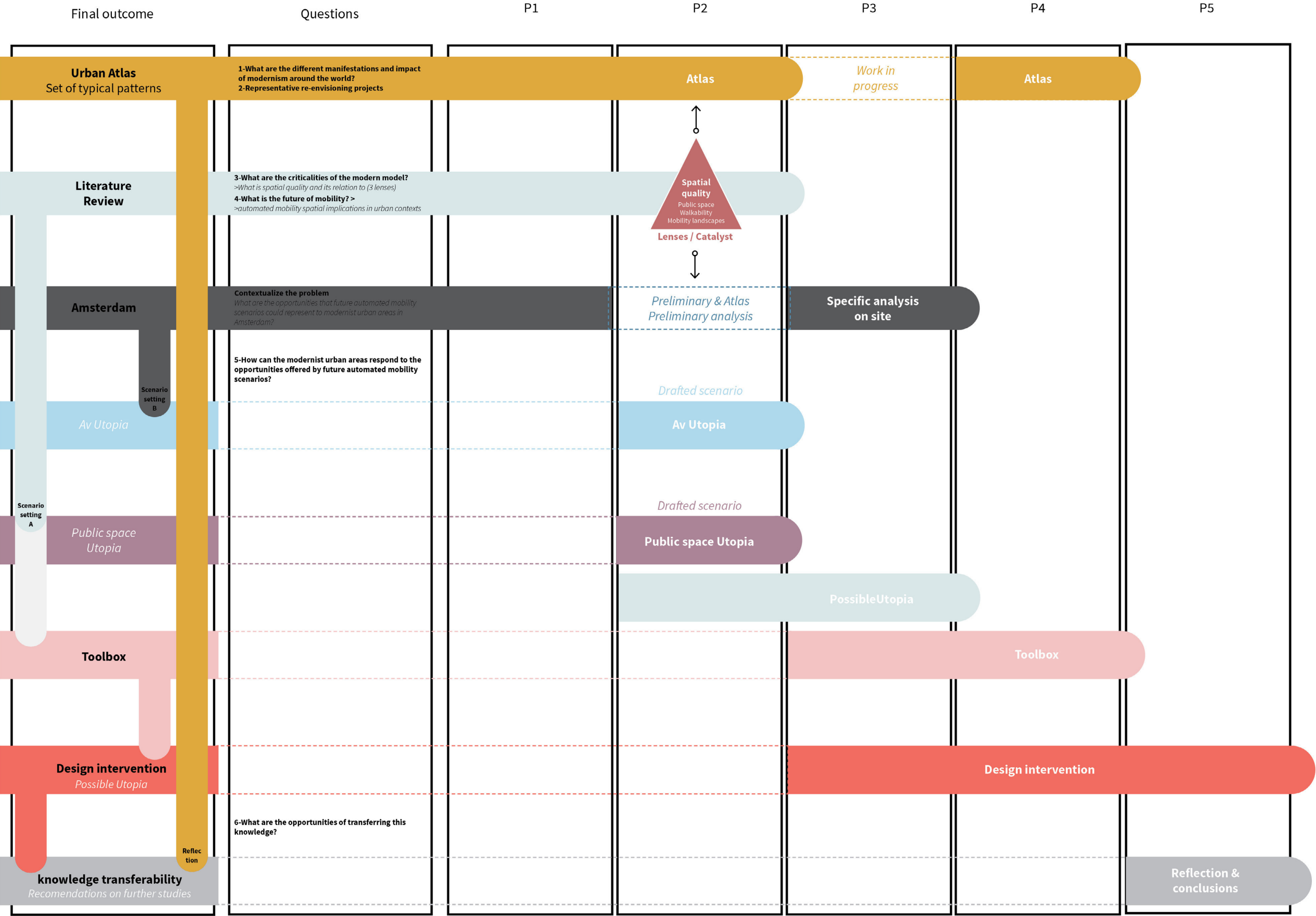


Figure 4.
Project Timeline
Source: own elaboration

REFLECTION

Reflection

Modernist urbanism under automated mobility scenarios Transforming modernist areas for spatial quality in Amsterdam city

The project 'Modernist urbanism under automated mobility scenarios' aims to explore the possibilities of transformation and valorization of the -usually problematic- public space of areas designed under the modern urban paradigm. The model, 'adopts science to build an understanding of urban problems,' based on statements on future mobility networks' and using the mobility system as a 'unit of scientific measurement'. building a vision of great impact on urban development, planning and the resulting urban fabric, which still today influences the dynamics of urbanization around the world, contributing to the creation of a universal model.

The modern urban model establishes a “deterministic construction of a completely planned urban environment” (Aquilué & Ardura, 2017), where the technocratic approach manages to construct a city model where 'traffic flows and their underlying principles are the primary determinant of the urban form', and where a radical separation with the traditional urban model is established, breaking the basic structure of the urban block, eliminating the street as a social space, and separating motorized traffic and the rest of urban functions, creating an urban space considered over rationalized and unsuccessful.

The current scenario raises possibilities for new relationships between the physical environment and digital systems, where technology plays an increasingly important role in the configuration, understanding and transformation of the urban fabric. Among the different technological variables with a possible disruptive power in the city, Automated mobility, is expected to deeply impact, not only mobility, but also the relationship between the urban fabric and car infrastructure; Considered a 'structuring element of the modern city' (Calabrese, 2004).

In this sense, the project tries to establish parallelisms between the rationalist and highly technocratic vision at the base of the 'failed' modern model, and the new 'seductive' vision of autonomous mobility, presented by companies and international organizations in order to build a more critical vision of urban transformation processes in relation to technological approaches. Allowing for the construction

of future scenarios, in which the conjunction between autonomous mobility and the existing territory, presents possibilities for a more optimized use of the territory, and the improvement or revaluation of the existing public space. Therefore, the following question is posed:

How can modern urban areas be transformed to enhance spatial quality under future automated scenarios?

To answer this question, the Nieuw West area of Amsterdam, developed with modernist guidelines under the General Expansion Plan (AUP), has been chosen as a contextual scenario for the project. Moreover, the city is planning to ban diesel and gasoline cars by the year 2030, and automated mobility is expected to be fully available by the year 2045. This framework allows the creation and implementation of a possible automated mobility a scenario.

To do this, the project develops a method that combines:

- A critical dimension of modern urbanism (Literature);
- A vision of automated mobility; (Literature & spatial analysis)
- Possible solutions established in theories about spatial quality (Literature)
- Development of possible intervention strategies, (Pattern method)
- Tested in the Nieuw West area in Amsterdam (Mapping - Testing pattern method)

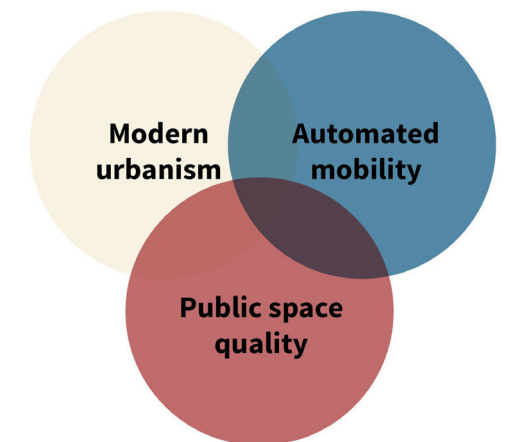


Figure 5.
Scheme on problem relations
Source: own elaboration

To do this, the project is divided into 5 operational phases:

I. Theoretical framework

That serves as a base for the creation of the following ones. In this we study the three structuring concepts of the project, trying to focus on the possible links that exist between them.

II. Atlas of modernism as an universal model

In the second phase, an exploration of the 'universal character' of modern urbanism, is made, studying modern representative projects, in different scales and contexts; going from the implementation of the plan, elements of adaptation to the particular context, the critical aspects of the project after implementation, and the possible

approaches to urban regeneration implemented in the area.

III. **Toolbox**

The Toolbox is the central outcome of the project. it has as a method that makes it possible to operationalize the theoretical dimension of spatial quality, and the merely speculative dimension of the autonomous mobility scenario for Amsterdam, creating a database that structures and operationalize the different concepts about public space quality, studied in the conceptual framework. Problems and solutions are classified in relation to their field of influence throughout key words, that allows to create a first attempt of connection between problems and solutions. Following this process, a pattern system is used to create a more defined connection between the problems and solutions, adding the spatial-design dimension; each pattern represents a design intervention, for cluster of diverse problems and solutions.

IV. **Pattern application**

Consist on the application of the Toolbox in a selected area within the Nieuw West neighborhood in Amsterdam city, in order to test the applicability of the tool.

V. **Reflection (Conclusions)**

The reflection I will try to elaborate on the applicability of the tool for the resolution of the typical spatial issues of modernist urban areas, located in different contexts around the globe. Moreover, it will reflect on the different scales of relation between the Toolbox and the user, and guidelines for future research and applications.

The toolbox is composed of 4 basic elements:

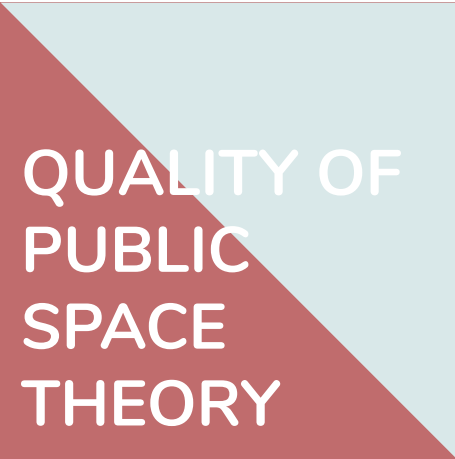
- 1- A database of problems and solutions;
- 2- The hashtags, connecting problems and solutions;
- 3- Systemized version of the Av scenario;
- 4- The patterns, connecting problems – solutions and the automated mobility scenario through design.

The system of knowledge systemization elaborated in this project, allows to process and use complex concepts and large amounts of information related to them; in this case creating relationships between problems and solutions related to the quality of public space, and making it operational for the design process, and the their subsequent application of design alternatives in the territory. The system is virtually applicable to urban projects in any context, and the design solutions – references obtained will depend on the conceptual framework used and the specific scenario utilized to create the patterns.

However, the current system works on the basis of a relatively limited number of concepts and patterns, limiting the field of action only to the issue of automated mobility, spatial quality and modern urbanism. However, publishing this database Online would increase the potentiality of the tool, becoming more flexible and managed as an open source tool, increasing the possibilities of integration of knowledge, theory, patterns and solutions, referenced to a variety of problems and territories. This way, the tool could become more complex, integrate the knowledge of

professionals around the world, and become a useful tool for designers, who seek to develop the first guidelines for a site intervention. Starting from the definition of a problem, one could have access to large amounts of information regarding that problem and the possible existing solutions contained in a network that is constantly being fed by professionals in the area of urbanism and architecture in a collaborative way. This information obtained using the tool could provide insights for design interventions according to specific issues, and could be the base for the integration of other collaborative systems like, participation processes, bottom up initiatives, or the incorporation of stakeholders or local experts, to further test the applicability of certain solutions in a specific territory.

4- Theoretical framework



I. Theoretical framework

What are the criticalities of the modern model?
What is spatial quality and its relation to (3 lenses)

Spatial quality and Public Space

Public space is by the Encyclopedic Dictionary of Landscape and Urban Planning as ‘An open urban area, freely accessible to everybody, which forms a structural element in a city [squares, parks, roads], and is a characteristic part of a system of urban spaces. The design of public spaces and the multifunctionality of their use [predominantly as meeting places] often determine the image of a city and are of significant economic importance as a location factor’.

Public spaces hold a multiplicity of functions that makes them ‘indispensable to a well-functioning city’ (Van Melik & Lawton, 2011). Streets and parks are an important structural element of urban space, and have a ‘practical function in promoting the access point of buildings, and connections to different neighborhoods, strengthening city’s identity (Van Melik & Lawton, 2011). Moreover, public spaces are also important for the environmental balance of the city, as ‘pockets of ecologically important infrastructure within urbanized areas. Thus, trees, gardens, play areas and parks, all potentially hold substantial ecological value’ (Mell, 2009). Additionally, according to Mehta, public space plays an important role in sustaining the public realm, as it is ‘an elementary component of the social infrastructure of the city’, and is ‘required for the social and psychological health of modern communities’ (Mehta, 2014).

Mehta gives a bold definition of public space as: ‘the space open to the general public, which generates public use and active or passive social behavior, and where people are subject to the general regulations that govern the use of space’. However, the author highlights that, even though public space is referred to as a space of participation and amicable behaviors, it is also a contested territory between various groups, private and public, and regulating authorities and citizenry. These complexities associated to public space lead to the question of ‘quality’ associated to public space, and highlights accessibility and use as particularly relevant conditions for their evaluation.

Moreover, (Carmona, 2010), in its Critique to Contemporary

Public Space, addresses the key tensions at the heart of the contemporary public space debate. Classifying the critics according on two main trends: over-management of public spaces and under-management of public spaces.

In relation to the most critical aspects of undermanagement of public space, Carmona, precisely stresses on the close relation between quality and use of public space, where the space for the car had play a significant role in the ‘Invasion’ of public space, and ‘sacrifice’ of pedestrian space, leading to vicious cycles of reduction on quality of the public space, and the subsequent reduction on their use and maintenance (Table 1).

Along these lines, Carmona also highlights the work of campaigners such as David Engwicht, promoting the need to ‘claim the street space from cars, to make it available as social space for the full range of users’. Moreover, the author argues that ‘the more the city devotes to movement, the more exchange space becomes diluted and scattered. The more diluted and scattered the exchange opportunities, the more the city begins to lose the very thing that makes the city: a concentration of exchange and opportunities’ (Engwicht, 1999) as cited in (Carmona, 2010).

Furthermore, even though technology is already having an impact on the definition of new typologies of public space, and will also play an important role in future urban scenarios, many authors suggest that ‘face to face communication would remain as the preferred mode of interaction between business, as well as for private activities’. New concepts such as that of ‘Third spaces’ could offer an initial overview on how public spaces would integrate new technologies and new spaces for traditional face to face interactions.

On the other hand, while Carmona’s ideas in relation to under-managed public spaces, offers a perspective that relate with dynamics of quality and use, on the other hand, the challenge of over-managed public spaces, is defined by the question of ‘accessibility’. In this sense, the new public space, defined corporate and commercial interests creating what Boyer (1993) calls a ‘City of illusion’, where the space is enclosed and over-protected; centered mainly on dynamics of consumption, and therefore excluding for the less affluent sectors of society. This over-managed public spaces are presented by Carmona, as a consequence of the issues created by under-managed public spaces (Table 2).

Carmona’s management perspective on public space

Table 1 - An overview of Carmona’s under-managed public spaces

An overview Carmona’s under-managed public spaces. Adapted from Contemporary Public Space: critique and classification. Part one: Critique. Carmona 2010.

Under-management of public space	
Defined by the notion that public space, and therefore the public realm is experiencing a physical decline.	
>Neglected space	In relation to Wilson and Kelling (1982) influential work ‘Broken Windows Theory’, where the failure to deal with smaller sings of decay within an urban area could bring a rapid spiral of decline. Francis Tibbalds studies recognizes good urban design and management as effective means to reverse the problems of derelict public realm.
	-Lost spaces Refers to authors like Loukaitou-Sideris (1996), ‘Cracks in the City’ that focus on the ‘in-between spaces, residual, under-utilized and deteriorating spaces’. Trancik (1986) ‘Lost Space’ as spaces that are in ‘need of re-design, anti-spaces, making no positive contribution to the surrounds or users’, e.g. the base of high-rise towers, unused sunken plazas, abandoned waterfronts, train yards, deteriorated parks and marginal public housing projects’. Trancik establishes a direct relation between ‘lost spaces’ and the car, urban renewal, the privatization of public space, functional separation of uses and with the modern movement.
	-Twenty-four-hour space Respond to the evening economy and the 24-hour city policies linked to regeneration processes that typically turned urban centers into ‘youthful playscapes’, these spaces may not be neglected, but have been abandoned to market forces’, ‘perpetuating forms of exclusion’.
>Invaded Space	‘Sacrificing public space to the use of needs of the car, effectively allowing movement needs to usurp social ones’. ‘The invasion of private cars have led to a dramatic reduction to the space available to pedestrians, a reduction on the quality of the space that remains, and a significant restriction to the freedom of movement to pedestrians’.
	-Traffic and parking over pedestrian space in streets and squares Leading to consequent, dirt, noise and visual pollution that helps to impoverish city life (Gehl & Gemzoe, 2001).
	-Loss of social function The number of car users greatly exceeds the number of pedestrians using the street, and the space given to road space exceeds that dedicated to footpaths. (Gehl and Gemozoe 2001) ideas state that invaded space is generally impoverished and loses most of the social and recreational activities, living only the most utilitarian functions.
	-In-between spaces deteriorate Based on ‘archipelago of enclaves’ (Hajer and Reijndorp, 2001), where distant spaces are compressed by instant connection by car roads, while the in-between spaces are ostracized and deteriorate and perceived as absent of attractors.
>Exclusionary space	-Exclusively car reliant environments External public space does not exist in any traditional form, and is replaced by a series of disconnected roads and car parks.
	Physical and psychological barriers (fear of the other) dominate public space design and management strategies. Some of the most influential figures in urban design such as Jane Jacobs (1984), Jan Gehl (1996), and William Whyte (1980-1988) have suggest the connection between use of public space and its quality factors. Arguing a connection between decline of quality, less use, and less incentive to provide new public spaces or maintain existing ones.
	-Disabling spaces Simple physical barriers could represent major obstacles for the use of public space, particularly for people with disabilities, children in push chairs and elderly. The author emphasizes on the necessity of making the environment accessible and easier to use for everyone; including psychological barriers related to crime, or unsafety related to fast traffic movement.
	-Parochial Space Based on Loukaiyou-Sideris, (1996) ideas on fragmentation of the public realm, and its relation to conflicts between different social groups which influences fear, suspicion and tensions, resulting on spatial segregation of activities in terms of class ethnicity, race, age and type of occupation. Creating what Lofland, (1998) describes as ‘parochial space’ that are appropriated only for certain groups of people.
>Segregated space	Associated to the desire of affluent groups in many societies to separate from the rest of society, as a reflection of fear of crime or need of exclusiveness. Leading to the global phenomena of ‘gated communities’. Carmona points out that crime and uncivil behavior can quickly undermine the quality of public spaces, and feed a cycle of segregation of uses and users of public space, consequently contributing to their decline.
>Domestic, Third and Virtual Space	According to Sennett (1977), the idea of decline in public life could be related to an ‘increasing emphasis on the private relations of individuals, their families and intimate friends, driven by the rise of secularism and capitalism. A dynamic that had contribute to a retreat to domestic space, while public life in the streets is replaced by the ‘suburban Livingroom’. In relation to this, technology is identified as a ‘key threat to the very notion of public life’. As, a variety of activities that typically took place in public spaces now can take place at home.
	-Third spaces The idea was originally proposed by Oldenburg (1989), and proposes broadening of the definition of public space, that include the notion of ‘third spaces’ - private spaces such as coffee shops or book stores, among others places - that ‘support and enable social interactions, regardless of their ownership’.
	-Virtual Space Studies in relation to virtual spaces range from the extreme ‘techno-determinists’ predicting the end of urban life, to other currents suggesting the increasing importance of computer networks for ‘urban life as street systems’. However, other authors such as Graham & Marvin (1999) suggest a reinforcement on the role of public space, as space to get in contact with others; and Castells (1996) and Sassen (1994), suggest that ‘face to face communication would remain as the preferred mode of interaction between business, as well as for private activities’.
All texts and authors are as cited in (Carmona, 2010)	

Table 2 - An overview of Carmona’s over managed public spaces

An overview Carmona’s over-managed public spaces. Adapted from Contemporary Public Space: critique and classification. Part one: Critique. Carmona 2010.

>Privatized space	‘Allowing public space to be privatized, with knock on impacts on political debate and social exclusion’ -Increase in public space security In association to the neo-liberal era of the 1980’s and 1990’s and to terrorism. -Corporate privatization Based on Low & Smith (2006), privatization of public space by corporate or commercial interests. Evolving into what Boyer (1993) names a ‘City of illusion’, and Loukaitou-Sideris and Banerjee (1998), argues on post-modern design where ‘space is cut off, separated, enclosed so that it can be easily enclosed and protected’. Resulting in the exclusion of the poor and the avoidance of realities related to landscapes of fear, neglect and deterioration.
>Consumption space	‘Failing to address the relentless commodification of public space and the dangers of financial exclusion of less prosperous segments of society’ Hajer and Reijndorp (2001) ‘note the unprecedented increase in the deliberate consumption of places and events as a consequence of the dramatic expansion an domination of the middle classes in developed countries’ -Financial exclusion Charging entry fees and visual cues, help to exclude people without the ability to pay. The space is ‘apolitical’ and the only social purpose is consumption. Mattson (1999) establishes a relation between ‘lack of public spaces and the insidious impact of that on lack of democracy’.
>Invented space	‘Condoning the spread of a placeless formulae-driven entertainment space’. -Loss of authenticity and growth of ‘placelessness’ Relph (1976), Canter (1977), Punter (1991), Montgomery (1998), discussed the components of place, typically focusing on three elements: Physical form, Human activities, Meaning or image. However, other authors such as Carr et al. (1992), focus on the qualities of successful places, measure trough their response to five needs: 1-Comfort, encompassing safety from harm as well as physical comfort; 2-Relaxation, allowing a sense of physiological ease; 3-Passive engagement, with the surroundings and other people, 4-Active engagement, 5-Discovery, reflecting the desire for variety and new experiences. Nonetheless, according to Carmona, ‘the desire for and spread of globalization processes, mass culture and loss of attachment to place, has led to repetition of certain formulaic responses across the world’.
>Scary space	‘Where crime, and more often fear of crime has been allowed to dominate the perceptions of place, and where crime prevention strategies -public and private- impact on the freedom with which space is used and enjoyed’. -Instrumentalizing the poor Fear leads to segregation, and the dynamic s created by it create a market of fear (gated communities, guns, surveillance equipment) -Exclusionary Policing According to Minton (2006), describes social exclusion in terms of ‘hot spots’ of affluence, and ‘cold spots’ of exclusion. ‘Hot spots’ -such as urban regeneration areas or BIDS- are characterized by having clean and safe policies that displace social problems. ‘Cold spots’ are characterized by the socially excluded who are unwelcome in the ‘Hot spots’, creating socially polarized urban public spaces’.
All texts and authors are as cited in (Carmona, 2010)	

The elements of a ‘quality public space’

A perspective on experience and quality of urban design elements

The wide-ranging study of Carmona on under-managed and over-managed public spaces, displays a comprehensive overview on how different dynamics between management, accessibility and use of public spaces, can create a better or worst experience of the public realm; underpinning the importance of the qualitative factor on the public space discussion. in this sense, (Mehta, 2014) highlights the work of two authors that ‘provide the most elegant and complete understanding of activities in public space’:

Public Space, a research elaborated by Carr et al., 2009: p.19 – 20, suggest three essential qualities of public spaces with a focus on socio-cultural aspects:

- Responsive: ‘are those spaces design and managed to serve the needs of their users’ this activities could also result in important health and restorative benefits for people, such as comfort relaxation, visual and physical contact with nature and plants;
 - Democratic: ‘spaces are accessible to all groups’ a place that is own by all people;
 - Meaningful: allow people to make strong connections between the place, and their personal, cultural, historic or social context.
- Life between buildings: using public space by Gehl (1987), ‘propose a framework to understand the use and sociability of public space, by categorizing activities with focus on behavioral aspects:
- Necessary: intentional activities such as going to work or school;
 - Optional: leisure activities that ‘occur when the environmental conditions are optimal’;
 - Social: activities that ‘require a high environmental quality and are the result of a high level of optional activities. (Mehta, 2014).

Moreover, on Close encounters with buildings Gehl stresses on the conflict between a current forms of urbanization, that create ‘close self-absorbed buildings, and the desirability of ‘open, versatile, interesting and safe cities’. To understand this challenge, special attention is put on the gap between small and large scales, and between ‘quick’ and ‘slow’ architecture.

The ground floor façade is understood as the place where ‘the building and town meet’ and therefore an element of close encounter vital for the creation of ‘good cities’. (Gehl, Kaefer, & Reigstad, 2006). Gehl’s study results on a series of analysis of urban elements that define a good relationship between the street and the building, capable of provoking a desirable, rich and quality urban experience for pedestrians (Table 3).

Table 3 - Experiencing public spaces according to ‘Close encounters with buildings’

Elements for experiencing public space. Adapted from Close encounters with buildings. (Gehl, Kaefer, & Reigstad, 2006) - Edited by author.

CLOSE ENCOUNTER WITH BUILDINGS (GEHL, 2006) > EXPERIENCING PUBLIC SPACE
Experiencing People >Sight and hearing are our remote senses. Closer up we can also activate sense of smell, touch and taste. >Short distances are needed to provide intense and emotionally powerful experiences
Experiencing streets Perception of public space depends on viewpoint, distance, and speed. >5km/h architecture (Slow architecture) The human sensory apparatus is designed to perceive and process sensory impressions while moving at about 5km/h -Spaces are small, -Pedestrians can get quite close to facades -Signals and signs can be small and refined -Architecture is rich in detail <i>In contrast with</i> >60km/h architecture along roads used by vehicles Drivers and passengers cannot perceive details when moving at speed -smooth buildings -short in detail Modern cities are heavily influenced by the confusion over these two scales, and pedestrians are often forced to walk in 60km/h urban landscapes and new architecture is design boring and sterile, 60km/h buildings in 50km/h traditional streets.
‘The urban experience > The ground floor - Where building and city meet If the ground floors are interesting and varied, the urban environment is inviting and enriching. If the ground floors are closed or lacking of detail the urban experience is correspondingly flat and impersonal’
Urban scenes at eye level >Scale and rhythm Pedestrians experience the urban scene at maximum 5km/h with time to enjoy the surroundings. Small units provide wide range of experiences; Large number of doors provide points of exchange between outside and inside >Transparency The opportunity to be on the inside looking out – and on the outside looking in – significantly broadens the range of experiences in the buildings themselves and in the urban space. >Appeal to many senses We can draw on all our senses when we are close to buildings and we have sufficient time to look, listen smell, and touch the good things on offer. >Texture Good materials and fine details are an attraction for people strolling through the city. Opportunities to reach out and touch the buildings(...). Attractive ground level facades offer texture, good materials and carefully crafted details. >Diversity of functions The functions inside the buildings have a major impact on the activity and attractiveness of the spaces outside. Narrow units and many doors in the façade reflect on a wide functional variation inside and therefore on many points of exchange between inside and outside and many different events and experiences. >Vertical façade rhythms Walking along a ground floor façade with primarily vertical rhythms makes the walk much more interesting and eye-catching.
All texts and authors are as cited in (Gehl, Kaefer, & Reigstad, 2006)

Finally, Gehl's 12 Urban quality criteria to evaluate public spaces combines both behavioral and socio-cultural aspects with more contextual, environmental and physical-design qualities; proposing a set of elements that link the condition of ‘quality’ with variables related to the context, the environment and a desirable set of human perceptions; moreover, urban design is proposed as a tool that integrates the different dimensions (Table 4).

For the purpose of this research, this Urban quality criteria to evaluate public spaces will be used as a framework of reference to establish a preliminary evaluation of the existing public spaces in the area of study, and to establish a connection between the current state and future desirable scenarios of spatial quality of public spaces. Gehl’s framework, should inevitably be informed by other variables related to the specific contextual situation, and the possible future scenarios offered by development of automated mobility technologies.

Gehl - Quality criteria of public spaces

Table 4 - Quality criteria of public spaces

12 Quality Criteria of public spaces. (Gehl, 2018). Retrieved December 2018 www.gehlinsitute.org - Edited by author.

12 Quality criteria of public spaces (Gehl, 2018) > Qualities of public space			
Protection	Protection against traffic and accidents	Protection against crime and violence, feeling secure	Protection against unpleasant sensory experience
	• Traffic safety • Protection for pedestrians	• Lively public realm • Allow for passive surveillance • Overlapping functions day and night • Well-lit lighting in human scale	• Wind / draft • Rain / snow • Cold / heat • Pollution • Dust / noise / glare
Comfort	Opportunities to walk	Opportunities to stand and stay	Opportunities to sit
	• Room for walking • Interesting facades • No obstacles • Good surfaces • Accessibility for everyone	• Attractive and functional edges • Defined spots for staying • Objects to lean against or stand next to • Facades with good details that invite staying	• Defined zones for sitting • Pleasant views and people watching • Good mix of public and coffee sitting • Resting opportunities
	Opportunities to see	Opportunities to talk and listen	Opportunities for play and exercise
	• Room for walking • Interesting facades • No obstacles • Good surfaces • Accessibility for everyone	• Low noise levels • Public seating arrangements that are conducive to communicating ‘talkscapes’	• Allow for physical activity exercise, play and street entertainment • Temporary activities (Market, festivals, exhibitions, etc) • By day and night • In summer and winter
Enjoyment	Dimensioned at human scale	Opportunities to enjoy the good aspects of weather	Aesthetic qualities
	• Dimensions of buildings and spaces in observance of the important human dimension in relation to senses, movements, size and behavior.	• Sun / Shade • Heat / Coolness • Shelter from wind – breeze	• Good design and detailing • Good materials • Fine views and vistas • Rich sensory experiences: trees, plants, water
All texts and authors are as cited in (Gehl, 2018)			

For the purpose of this research, this Urban quality criteria to evaluate public spaces will be used as a framework of reference to establish a preliminary evaluation of the existing public spaces in the area of study, and to establish a connection between the current state and future desirable scenarios of spatial quality of public spaces. Gehl’s framework, should inevitably be informed by other variables related to the specific contextual situation, and the possible future scenarios offered by development of automated mobility technologies.

The elements of a 'quality public space' - Perspective of form and quality

Public space have been widely studied by designers and researchers. Some such as Kevin Lynch establish theses connection of spatial qualities and perception as part of the quality of space, or more specifically ‘visual quality’, as ‘the apparent clarity or legibility of cityscape. (...)’ Where theoretically, ‘the different elements of the city can be recognized and organized into a coherent pattern’. ‘A legible city would be one where its districts or landmarks are easily identifiable and grouped into an over-all pattern’. The main elements identified by (Lynch, 1960) in The image of the city are:

On the other hand, Jane Jacobs focuses on liveliness of public space, based on a critical perception of the modern top-down planning ideals, that according to her, destroyed the social structures of the city and the life on the ground floors of the streets. In fact, in her view quality is strictly related with the idea of livability and life in the street, where humans are a the basic quality of the public space.

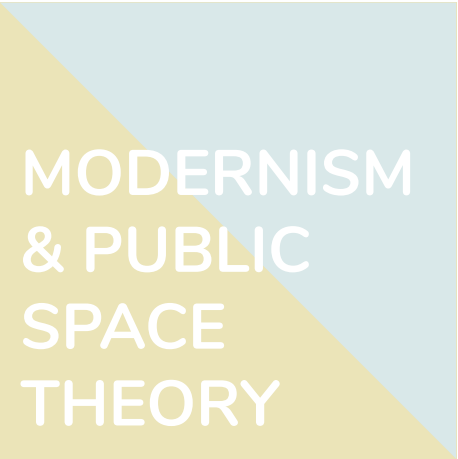
Lynch - The image of the city

Table 5 - Elements of the image of the city

Elements of the image of the city (*Lynch, 1960*) - Edited by author.

On perception	
The image of the environment	
<i>Legibility</i>	Clear structure and coherent patterns. Emphasizes positive values of a legible surrounding.
<i>Image</i>	A two way process between observer and the environment, where the environment suggest distinctions and relations, and the observer selects, organizes and gives meaning.
<i>Structure and identity</i>	Identity: distinction from other means, an separable entity; Structure: spatial or pattern relations object-observer; Meaning: practical or emotional.
<i>Imageability</i>	High probability of evoking a strong image
On form	
Main elements of public space are	
<i>Paths</i>	Routes along which people move throughout the city;
<i>Edges</i>	Boundaries and breaks in continuity;
<i>Districts</i>	Areas characterized by common characteristics;
<i>Nodes</i>	Strategic focus points for orientation like squares and junctions;
<i>Landmarks</i>	External points of orientation, usually a easily identifiable physical object in the urban landscape.
(Lynch, 1960)	

- Quality and liveliness
- Functional mixture provide adequate services and proximity synergies;
 - Density could provide for concentration of people and institutions;
 - Social mix, is valuable and an essential component of the contemporary urban environments in attractive cities;
 - The physical space should provide: short blocks, life on the ground floors and attractive corners and side streets. (Jacobs J. , 1961)



Public space and the modernist ideal

A more defined and conclusive perspective on quality emerge from the critical perspective of Allan Jacobs and Donald Appleyard in Toward an urban design manifesto describe some coherent ideas in relation to the most critical aspects of the modernist urban model.

Highlights on the critics:

-The building is a work of art. they identify the emphasis that CIAM ideals put on buildings, that ‘sit in space’, and not on public life that takes place constantly in public spaces.

-Garden cities resemblance suburbs more than cities;

Problems with modern urban design

-Poor living environments: usually dangerous, polluted, noisy anonymous wastelands;

-Gigantism and loss of control: cities in the hands of large-scale developers. The elements of the city grow in size and massive transportation systems are segregated for single travel modes. Loss of control over the homes and I neighborhoods;

-Large scale privatization and loss of public life: emphasis on the individual and private sector, a trend they believe to be stimulated by the spread of the automobile. ‘As public transit systems have declined, the number of places in American cities where people of different social groups can meet each other has dwindled’;

-Centrifugal fragmentation: advanced industrial cities have took work is out of the home and the neighborhood, the automobile and growing scale of commerce took shopping out of the local community. Fear had led to homogeneity and segregation;

-Destruction of valued places: exploitation of places lead to the destruction of heritage and natural amenities become overused;

-Placelessness: cities become meaningless places with loss of community and participation;

-Injustice: cities are usually symbol of inequality with big

differences between places for rich and poor;

-Rootless professionalism: many professionals are part of an universal professional culture more than part of the local cultures (Jacobs & Appleyard, 1987).

Moreover, the authors emphasize on the increasing ‘scale of capitalism and bureaucracy, in a context where the automobile has destroyed our cities as they once were’.

The whole focus of the analysis is to take a stand and formulate a new ‘manifesto’ contraposing to that of CIAM over half a decade ago.

The Manifesto is based on the following goals for urban life:

- Livability
- Identity and control
- Access to opportunity, imagination and joy;
- Authenticity and meaning;
- Community and public life;
- Urban self-reliance;
- An environment for all.

These elements of urban life link with a general idea of the good city and its spatial qualities, as prerequisites for a sound urban environment:

-Livable streets and neighborhoods;

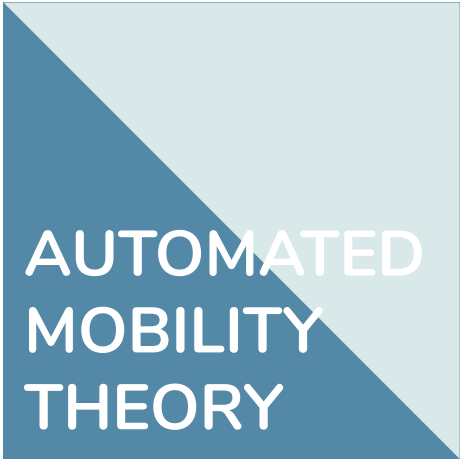
-Minimum density of residential development, intensity of land use;

-Integration of activities, living, working, shopping in reasonable proximity to each other;

-Buildings that define public space (not sit in space);

-Many separate distinct buildings with complex arrangements and relationships, as opposed to huge large buildings (Jacobs & Appleyard, 1987).

This comprehensive statement on urban life will be used as a main reference framework to inform strategical choices in favor of quality of urban life, while the frameworks proposed by Gehl, Lynch and Jacobs will serve to inform specific spatial qualities and the urban elements that compose it.



What is the future of mobility?

Automated mobility, spatial implications in urban contexts

Automated mobility technology is expected to be part of the transportation system in the coming decades. It represents a real digital breakthrough for mobility, with the potential to become a major catalyst of urban transformation, and a redefining factor for urban mobility (Duarte & Ratti, 2018). Increased automation and connectivity between vehicles and road infrastructure could bring potentially enormous benefits for the mobility system. (COM(2018) 238). However, these possible impacts in the city infrastructure are yet to be steered and design.

Effects of AV’s in the territory

Advantages

Some of the most generally expected advantages include traffic safety, considering that human error is estimated to account for 94% of accidents. A wider reach of mobility, mostly in areas underserved by public transportation. A wider range of people would have access to mobility, for instance, kids, elderly and people with disabilities. An increase in the value of time during travels, as this time can be use for leisure purposes or work. In addition, spatial-environmental advantages related to car sharing schemes, a reduced amount of cars in the streets and consequently,

Scenarios of automated mobility in the netherlands

Table 6 - Scenarios of automated mobility development in the Netherlands

Automated vehicles development in the Netherlands - scenario matrix and possible interactions among drivers. (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015)	
1 AVs in stand by Low level of governmental investment and industry driven development. Fully automated vehicle become available after 2030 -Some negative implications pf this approach would include induced travel demand, sprawl, and pressure to public transport.	2 AVs in bloom High level of governmental investment and involvement, and fast growing technology and demand. Fully automated vehicle become available in 2025 -With fast growing vehicle travel, the future challenges will include management of demand and regulatory measures.
4 AVs in doubt Low level of governmental investment and involvement, slow technology evolution and negative customer attitude. The system does not evolve enough to become fully automated, and only becomes available after 2040. The technology including automated taxis evolve as an upper-class luxury.	3 AVs in demand High level of governmental investment and involvement, but slow technology evolution. Fully automated vehicle become available in 2040 -This scenario would result in a sharp increase of vehicle travels, and therefore the government should take demand management measures.

less CO2 emissions. Less need for parking space and narrower street could free up some valuable city space for other uses. However, most of these effects can be expected only in case of high penetration rates, most probably between the years 2040 and 2060 (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015)

Disadvantages

Regulation policies, and development approaches taken to integrate this technologies into the urban system could however easily turn advantages in disadvantages. For instance, an overly technocratic approach, or favoring technological and industrial progress over other aspects inherent to societal, environmental, spatial and living qualities, could result in echoing the questionable approaches taken under the modernist paradigm. I this sense, a wider reach and access to this technology could also signify more urban sprawl and diminish possibilities of choosing active travels over car travels. Favoring private ownership over car sharing schemes could increase the number of cars in the streets, traffic congestions, increase CO2 emissions, and maintain or increase the need of parking space. Moreover, public transportation may not be able to compete with the cost-effective and far reaching travels of automated cars.

Application in the Netherlands

Some researches have studied the plausible paths for future development of automated vehicles In the Netherlands, for instance, (Milakis et al 2015) has developed a comprehensive study, aiming to inform national institutions on the possibilities of automated mobility for future planning and development of Dutch cities, in a timeframe ranging from 2030 to 2050. The study, develops 4 possible scenarios based on the definition of sixteen key factors and five driving forces, critical for the future development of automated vehicles in the Netherlands. Among these, technology and policies were identified as the most relevant (influential and unpredictable) driving forces. High or low technological development and restrictive or supportive policies are the fixed variables utilize to construct all four scenarios (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015).

Advantages & disadvatages of automated mobility

Table 7 - Advantages and disadvantages of automated mobility development

Accepted advantages and disadvantages of automated vehicles development according to literature – Sources: (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (COM(2018) 238). Edited by author.		
Advantages		Disadvantages
REACH, USE AND INTEGRATION		
Public transport	>Dual role between bus services and AVs >Low density areas AVs may replace bus services >High density areas AVs may act as bus-feeder (Begg, 2014). >AVs could offer a more flexible and inexpensive alternative to high-speed trains, if especial express lines are developed for this purpose (Silberg et al. 2012). Paradox >Long distance public transport services seem to have better potential to operate their own automated public transport service, due to less stops and traffic conflicts (Polzin, 2014). >AVs would not represent a substitute for public transport as they could hardly compete with the average capacity of a subway or even a bus (Duarte & Ratti, 2018)	>AVs and car-sharing schemes could make public transport obsolete (in particular rail transport), especially in mid to low density areas (O’Toole, 2014). >AVs may not serve as last mile supporting service, as people would prefer not to transfer to another mode to reach their final destination, especially in less congested road environment (O’Toole, 2014). >AVs may influence primarily investment decisions for long distance public transport services, since traffic capacity improvements may eliminate the role for public transport in meeting future capacity needs (Polzin, 2014).
Bicycle & pedestrians	>Part of the existing human-driver infrastructure could be converted into bicycle or pedestrian uses, due to increase in traffic capacity (Silberg et al., 2012).	>Another possibility is that more traffic is accommodated in the same road space, without any benefits for pedestrians and cyclists (Begg, 2014). >Increased traffic volumes and speeds with AVs may degrade walking and cycling conditions (Litman, 2014).
Sharing schemes	>Encourage car-sharing schemes and mobility as a service;	
SPACE AND INFRASTRUCTURE		
Environment	>Accelerate vehicle electrification and electro-mobility; >Reduction on CO2 emissions and fuel consumption; (COM(2018) 238)	
Infrastructure & Roads	>Reduce the need for conventional infrastructural investments (extra wide lanes, wide shoulders, guardrails, rumble strips, stop signs) (Van Melik & Lawton, 2011), and traffic lights. >Utilizing existing infrastructure >Re-propose the obsolete existing infrastructure	>If especial dedicated lanes for AVs are necessary, additional infrastructural investments may take place >Smart infrastructure, especially for vehicle-infrastructure communications (Silberg et al. 2012). >Smart infrastructures may soon become obsolete if they are not constantly maintained and upgraded (O’Toole, 2014)
Parking	>Significant reduction of the amount of spaces dedicated to parking in urban areas (Anderson et al., 2014) >Automated vehicles drive themselves to peripheral parking lots after dropping off passengers. >Car-sharing schemes could potentially lead to a reduction in car ownership or car-free lifestyles (Silberg et al., 2012), reducing the car spaces in residential areas. >Development of automated parking in less expensive areas of the city. >Automated parking is expected to partly replace on street parking	
Traffic	>Less cars on the road; >Increase traffic capacity and reduce need for road expansions	>Increase in vehicle-kilometer travels (VKT) due to low cost and induced demand
QUALITY OF LIFE		
Safety	>Improvement on road safety, considering that human error is estimated to account for 94% of accidents;	
Accessibility	>Widened the range of access to mobility (e.g. people with disabilities or unable to drive, elderly, etc.);	
Cost	>Lower driver cost for freight traffic and taxis (Litman, 2014) >Fuel cost reduction as a result of more cost-efficient driving (Brown, Gonder and Repac, 2013)	> Fuel cost may increase in case of VKT increase
Time	>Travel time increase its value, and can be used for leisure or work;	
All authors as cited in (COM(2018) 238) and (Van Melik & Lawton, 2011)		

AV ownership or sharing schemes impact on more or less cars, more or less parking spaces, and public transportation According to (Duarte & Ratti, 2018) would not represent a substitute for public transport as they could hardly compete with the average capacity of a subway or even a bus. In this sense, despite the technological breakthrough, AVs might need to be proposed in synergy with other technologies and urban design strategies, such as Transit Oriented Development (TOD) or other forms of community transit and bus feeder systems. Even though, studies indicate that personal mobility will still increase, sharing mobility schemes are already a widespread accepted and attractive alternative to private ownership. AVs could provide a dramatic improvement to sharing mobility schemes, and this could possibly lead to a wide range of advantages related to few cars on the streets and less traffic.

Moreover, sharing schemes and the intrinsic optimization of driving times that AVs represent, could also imply less demand for parking, and entail enormous potential for urban transformation. (Duarte & Ratti, 2018) argue that, the advantages related to reduced need for parking start with the image and overall quality of the public space, as 'garage building create monstrous and unappealing urban structures in downtown areas, and on-street parking spots eat-up sidewalk space as well as an additional traffic lane which negatively affects both pedestrians and drivers' Donald Shoup (2006) as cited in (Duarte & Ratti, 2018). In this sense, the elimination of on-street parking could reduce the number of required lanes allowing for densification and 'helping reduce energy consumption tied to private and passenger transportation' Brunn and Givoni (2015) as cited on (Duarte & Ratti, 2018). Moreover, as Duarte & Ratti propose, freight-transport AV platforms could optimize the use of space horizontally and vertically, and offer a flexible solution for parking spaces that works according to specific needs and events.

AV and urban sprawl
Studies show great possibilities that AVs may bring important reductions in traffic and travel values, however, these are usually coupled with possibilities of and an important increase in vehicle-kilometers of travel (VKT). Moreover, online courses, online shopping and entertainment, together with other technological advances might change the way people interact and move around the city. In this possible future scenario, AVs 'could foster a growing tendency of decoupling traditional urban and social functions from their respective spatial and temporal constraints' (Duarte & Ratti, 2018) possibly inducing to more urban sprawl dynamics. However, urban environments in cities hold the potential of becoming increasingly safer, livable and attractive in comparison to suburbs or extra urban areas. In this sense, more livable urban areas, may become more attractive living environments for people.

AV and infrastructure

According to (Duarte & Ratti, 2018), solutions to mobility in the early Twentieth Century, gave up city-centered and multimodal approaches, and adopted highway-centered and single mode urban freeways, this car-favoring approach is at the root of the problem bad planning brought

to cities throughout the Century. Today, integration of AVs technologies to the existing infrastructures will possibly require substantial investments, however, the challenge will be on exploring the opportunities that these adaptations may bring, in order to formulate solutions that include and center on the quality and livability of the urban environment, where pedestrians and bicycles play a central role. In this sense, some reference studies could be Snelweg x Stad (Highway and City), that explore the future of urban ring roads and reflect on possibilities to renew the relationships between highway infrastructures and the adjacent living environment, and the integration of new infrastructural typologies such as the mobility HUB; while opening up to possibilities of integration and use of the freed up space for green infrastructure and energy production. Others, such as Robocar Evolution, have explore possibilities in the changing landscapes of the urban streets.

Table 8 - Matrix of accepted advantages and disadvantages of automated mobility

Accepted advantages and disadvantages of automated vehicles development according to literature – Sources: (Milakis, Snelder, Van Are, Van Wee, & Correia, 2015), (COM(2018) 238). Edited by author.

ADVANTAGES		DISADVANTAGES
REACH, USE AND INTEGRATION		
PUBLIC TRANSPORT	>Dual role between bus services and AVs -Low density areas AVs may replace bus services -High density areas AVs may act as bus-feeder (Begg, 2014). >AVs could offer a more flexible and inexpensive alternative to high-speed trains, if especial express lines are developed for this purpose (Silberg et al. 2012). - Paradox >Long distance public transport services seem to have better potential to operate their own automated public transport service, due to less stops and traffic conflicts (Polzin, 2014). >AVs would not represent a substitute for public transport as they could hardly compete with the average capacity of a subway or even a bus (Duarte & Ratti, 2018)	>AVs and car-sharing schemes could make public transport obsolete (in particular rail transport), especially in mid to low density areas (O’Toole, 2014). >AVs may not serve as last mile supporting service, as people would prefer not to transfer to another mode to reach their final destination, especially in less congested road environment (O’Toole, 2014). >AVs may influence primarily investment decisions for long distance public transport services, since traffic capacity improvements may eliminate the role for public transport in meeting future capacity needs (Polzin, 2014).
BICYCLE & PEDESTRIANS	>Part of the existing human-driver infrastructure could be converted into bicycle or pedestrian uses, due to increase in traffic capacity (Silberg et al., 2012).	>Another possibility is that more traffic is accommodated in the same road space, without any benefits for pedestrians and cyclists (Begg, 2014). >Increased traffic volumes and speeds with AVs may degrade walking and cycling conditions (Litman, 2014).
SHARING SCHEMES	>Encourage car-sharing schemes and mobility as a service;	
SPACE AND INFRASTRUCTURE		
ENVIRONMENT	>Accelerate vehicle electrification and electro-mobility; >Reduction on CO2 emissions and fuel consumption; (COM(2018) 238)	
INFRASTRUCTURE & ROADS	>Reduce the need for conventional infrastructural investments (extra wide lanes, wide shoulders, guardrails, rumble strips, stop signs) (Van Melik & Lawton, 2011), and traffic lights. >Utilizing existing infrastructure >Re-propose the obsolete existing infrastructure	>If especial dedicated lanes for AVs are necessary, additional infrastructural investments may take place >Smart infrastructure, especially for vehicle-infrastructure communications (Silberg et al. 2012). >Smart infrastructures may soon become obsolete if they are not constantly maintained and upgraded (O’Toole, 2014)
PARKING	>Significant reduction of the amount of spaces dedicated to parking in urban areas (Anderson et al., 2014) >Automated vehicles drive themselves to peripheral parking lots after dropping off passengers. >Car-sharing schemes could potentially lead to a reduction in car ownership or car-free lifestyles (Silberg et al., 2012), reducing the car spaces in residential areas. >Development of automated parking in less expensive areas of the city. >Automated parking is expected to partly replace on street parking	
TRAFFIC	>Less cars on the road; >Increase traffic capacity and reduce need for road expansions	>Increase in vehicle-kilometer travels (VKT) due to low cost and induced demand
QUALITY OF LIFE		
SAFETY	>Improvement on road safety, considering that human error is estimated to account for 94% of accidents;	
ACCESSIBILITY	>Widened the range of access to mobility (e.g. people with disabilities or unable to drive, elderly, etc.);	
COST	>Lower driver cost for fright traffic and taxis (Litman, 2014) >Fuel cost reduction as a result of more cos-efficient driving (Brown, Gonder and Repac, 2013)	> Fuel cost may increase in case of VKT increase
TIME	>Travel time increase its value, and can be used for leisure or work;	
	All authors as cited in (COM(2018) 238) and (Van Melik & Lawton, 2011)	

5. Atlas - Modernism as an universal model

Atlas MODERNISM UNIVERSAL MODEL

ATLAS OF MODERNIST URBANISM



Atlas of modernist urbanism

The Atlas is an approximation to the 'universal character' of modern urbanism, studying representative projects of the model, in different scales and contexts. This study takes the form of an Atlas of modernism as a universal model, and contains a basic study about the project development, characteristic and particular elements and how the model adapts to climatic, spatial and social conditions of the context, the critical points of its implementation, and finally, intervention and regeneration approaches, applied to the territory after the appearance of issues. This way, both the original elements of the urban model and the intervention models, are used as a reference for the creation of new intervention strategies in the territory.

Brasilia

MACRO
SCALENowa
HutaMESO
SCALEUCV
University campusWestern Gardens
Nieuw West

Chandigarh

Gropius
StadtBesós South
West & La mina

Biljmer

Churchill
Gardens

Malakoff

Unité
d'abitationAv.
Bolívar

1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960

1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970

MACRO SCALE

BRASILIA
1956

Continent: America
Country / City: Brasil - Brasilia
Designers: Lucio Costa & Oscar Niemeyer

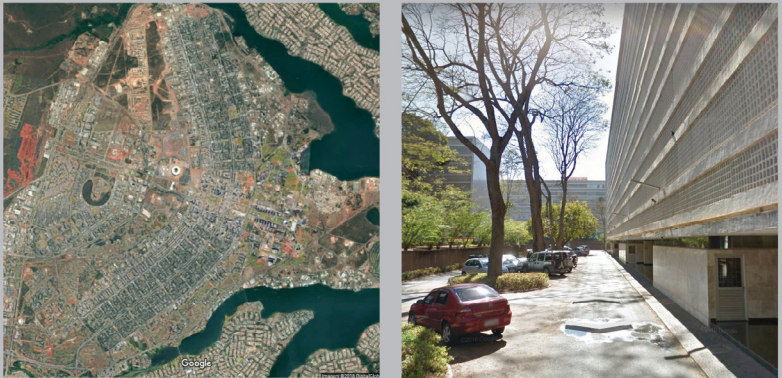
Scale & Landscape | ‘Quadra Modelo’

The city of Brasilia is molded, not only by its modernist fundaments, but also by a strong nationalist character, that seeks to adapt the elements of the project to the culture and local context.

The so-called ‘quadra modelo’ becomes a reference as the exemplary block of Brasilia. A faithful exemplary of the modernist ideals expected to become the archetype of Brasilia’s block layout.

The ‘Quadra modelo’ integrates different functions such as health, education and cultural functions within a fluid layout of green areas design by Burle-Marx, whose contribution to Brasilia’s project establish a new relation between landscape and architecture. In this case adapting the modernist precepts to the natural and climatic conditions of the area.

However, the gardens, design by Burle-Marx’s are considered ‘islands inside the city’, due to the lack of an integral landscape plan for Brasilia.



Source: Google maps



BRASILIA
‘The Garden
as an artistic
expression’

The Garden as an artistic
expression

Burle marx uses the garden as a means of artistic expression. The modern garden recovers the tradition of statues and symbolism, including pieces of avant-garde artists and sculptures in his compositions, in which the garden is a mean for artistic expression.

The topography is used to create frames of formal variety that resemble natural forms, water is many times the protagonist of the work and vegetation serve as a transition between architecture and landscape, and a space that uses objects from both worlds. Artificial elements and furniture is usually proposed in curved lines, combined with rectilinear elements.

Despite the characteristic problems of the quadra, in which the car occupies a preponderant place in the configuration of the space; Burle Marx’s gardens offer an added value to the project, by achieving a good integration of public space with the project.

The environments are properly characterized and provided with sinuous urban furniture, generating spaces with different characteristics, but which do not compete with each other. The ground floor on ‘pilotis’ also allows a greater visibility and a more fluid connection and between the different gardens (Otero, 2018).

http://oa.upm.es/51898/1/TFG_Otero_Nunez_Mariaop.pdf

Vision Vs current situation



Ministerios Brasilia
Source: <http://bit.do/Brasilia-now>



Low-income Sol Nascente neighborhood in Ceilândia, 26 kilometers west of the capital
Source: <https://bit.ly/2iK1I2J>

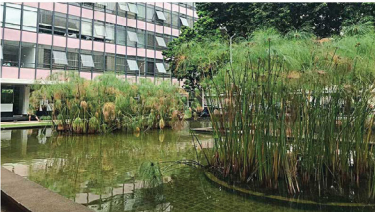


Massive public spaces
Source: <https://bit.ly/2DpDgEI>

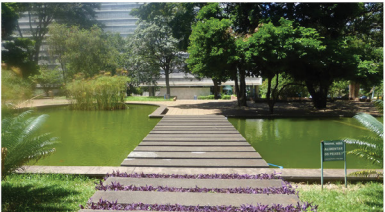
The garden as an artistic expression



‘Tremaine beach house’
Source: <https://mo.ma/2ly4pj7>



‘Burle Marx gardens in Quadra Modelo - Brasilia’
Source: <https://bit.ly/2PqjWH1>
<https://bit.ly/2UL7eNN>



MACRO SCALE

CHANDIGARH
1950-65

Chandigarh - India
Designers: Fry & Drew - Le Corbusier

Scale - Heritage - Landscape |

Chandigarh masterplan by Fry & Drew and Le Corbusier, combines elements of Maciel Nowicki's original superblocks plan, and Le Corbusier, Winner & Sert's plan for Bogotá, resulting in a 5.380 acres plan, divided into 39 built sectors, all intersected by north-south green corridors, and east-west commercial roads, and the monumental core of the area with government buildings such as the Secretariat, the Assembly and the High Court, declared World Heritage by UNESCO. The layout of routes is characterized by Le Corbusier's '7V' system, that classifies routes by speed, going from V1-V2 superhighways, V4 commercial streets, to V7 green pedestrian routes.

Chandigarh becomes an icon of modern urbanism. The project's monumental core is exhibited in CIAM 8 'The heart of the city' with a central concern on the modern auto-based city and the necessity to 'design new civic center elements that would synthesize architecture, landscape architecture and city planning.'. Emphasizing on the importance of 'places for pedestrians and democratic debate'. However, Chandigarh's Monumental core is 'intentionally designed by Le Corbusier as a massive space, which requires the use of the car to move around it' (Mumford, 2018).

Some of the most critical aspects affecting the project today are, in relation to the exponential growth of the population that exceeds the capacity of the project, built for 500.000 inhabitants, expandable to one million. This process has occasioned the unplanned growth of adjacent satellite cities and industrial areas that are completely dependent of Chandigarh for all services and institutions. However, is the 'decision to locate the Capitol complex separated from the city, that rendered this monumental dimension (...) more remote and distant from the citizens of Chandigarh' (Fitting, 2002).



Source: Google maps - Wikipedia



CHANDIGARH
'Tropical
Modernism'

Tropical modernism

For this project, Le Corbusier and Fry & Drew ideas and technologies, some already utilized by Le Corbusier in Marseille Unite d'Habitation, the '5 Points of Architecture' are used in such a way that would lead to the creation of a 'tropical modernism' where climatic devices are used as decoration, such as brise soleil, precast concrete screens, and the work local artists is incorporated to the buildings, signs and symbols.

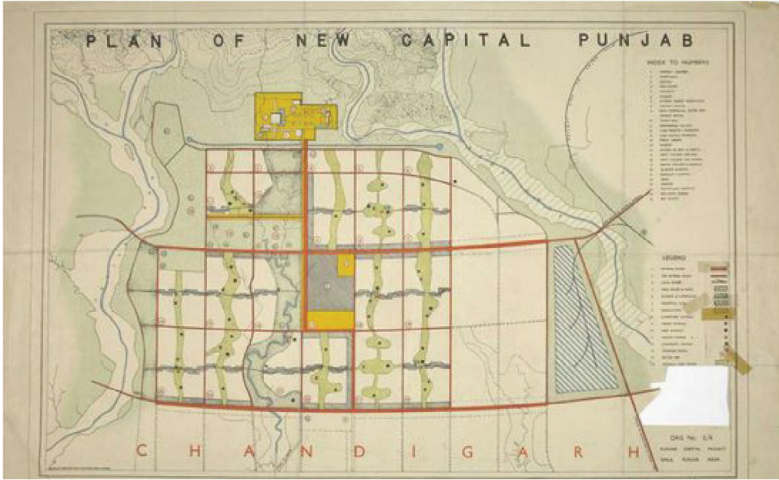
The open space and green
landscape as a structural
element

An extensive structure of green corridors and parks is embedded in the Chandigarh plan, this characteristic has been proof beneficial for the quality of life in the city, were this green structure becomes part of the legacy of the city.

The open spaces present a well-structured order and hierarchy, that goes from the neighborhood level of gardens, memorials and open vistas, to the city level with themed parks, tree plantations, green belts along avenues, lakes and a leisure Valley that comprehends 8km of parkland with various themed gardens.

The authorities of the city are now emphasizing on the importance of the conservation of the green areas as a heritage asset, but is also committed to the revitalization and the qualitative and quantitative enhancement of the green assets. (Chandigarh Master Plan, 2031)

Vision Vs current situation



Chandigarh Plan
Source: <https://bit.ly/2D2aY4K>



Chandigarh's underutilized green areas
Source: (Bansal, 2014)

Elements of tropical modernism - Landscape - Symbols



Chandigarh perimeter of smaller community areas - Outside teaching spaces
Source: Iain Jackson - AA conference - From Croydon to Chandigarh: The creation of tropical modernism



Shanti Kunj park
Source: Chandigarh Master Plan - 2031

Chandigarh symbols
Source: Iain Jackson - AA conference - From Croydon to Chandigarh: The creation of tropical modernism

MICRO SCALE

AVENIDA BOLÍVAR
1936-53

Caracas Venezuela
Designers: Cipriano Domínguez, Tony Manrique de Lara, José Joaquín Álvarez

Integration |

The arrival of the automobile stimulates new patterns of urbanization of the city towards extreme areas where the railway had not arrived.

The Rotival Plan appears in 1938, in response to an exponential demographic growth, and increasing environmental deterioration and road congestion in the center of the city. The plan proposes an urban model inspired by Haussmann's plan for Paris. The plan is not built but evolves in the Caracas Regulatory Plan of 1951, this time, inspired by modern urban bases and CIAM, proposes an exhaustive road plan with a large capacity system, the zoning of segregated residential and industrial areas , and the creation of residential areas inspired by the guidelines of the neighborhood units (Llanos & Bellorin, 2014)

Within the framework of the Regulatory Plan, however, works of public and cultural nature are developed, and Bolivar Avenue, inspired by the monumental axis proposed in the Rotival Plan, aims to establish a road axis that connects the historic center of the city with new major public and commercial and cultural developments, one of the most significant is the Simon Bolivar Center, which tops the end of the avenue with two office towers and a large shopping center, under which several basement levels for parking and the buried part of the avenue, leaving a large pedestrian free space on the surface.

In this way, the project emphasizes the value of the foundational historic area with the new areas of development through an intricate infrastructural development that revolves around automotive technology as the ideal of a city of the future.

However, the project divides the city center in two separated parts, and to make its construction possible, 25 blocks of the old city center had to be demolished.



Source: Google maps - Wikipedia



Avenida Bolívar and Centro Simón Bolívar
Source: <https://bit.ly/2Pk671m>



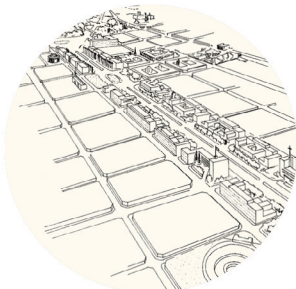
Av. BOLÍVAR
'The street as a space of dialogue'

'The use of the street as a space of dialogue and intermediation'

Despite the success of the Centro Simón Bolívar as an architectural landmark and congregation center, the Bolívar Avenue, did not have a great success as an axis of connection with the cultural complexes developed a posteriori. Multiple projects (not completed) tried to improve the spatial quality of the avenue, adding street furniture, and pedestrian connectivity, however the projects were proved unsuccessful.

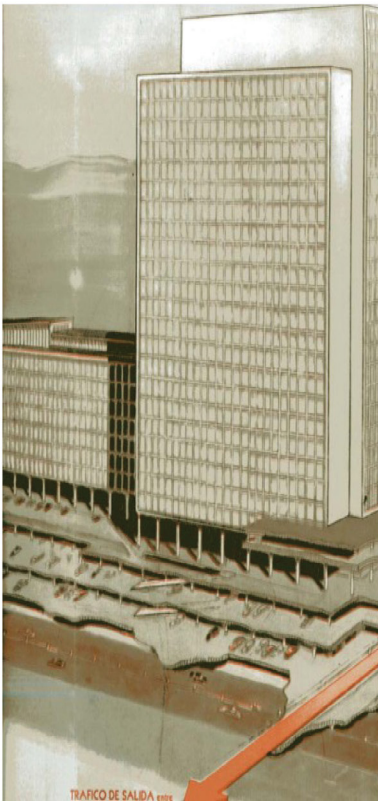
Recently, the public contest Urban Amenities brought together a series of interesting proposals aimed at the activation of dynamics for the collective occupation of public space in the area.

The selected project proposes 'the use of the street as a space of dialogue and intermediation', through the occupation of empty spaces with a corridor of urban elements for recreational and sports activities, aiming to 'rescue the original scale of the city'.



Caracas - Plan Rotival 1938
Source: <https://bit.ly/2Vc75SR>

Vision Vs current situation



Towers of Centro Simón Bolívar
Source: <https://bit.ly/2USChqc>

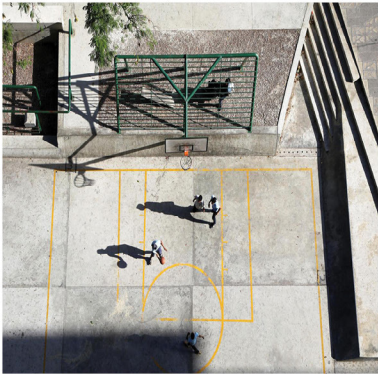


Centro Simón Bolívar
Source: <https://bit.ly/2Pk671m>



Avenida Bolívar empty and derelict public spaces
Source: <https://bit.ly/1JaYNjc>

Public space activation - Amenidades Urbanas competition



MESO SCALE

University Campus
UCV
1956

Caracas - Venezuela
Designers: Carlos Raul Villanueva

Heritage value | ‘Synthesis of the Arts’

Caracas University campus is an example of modern urbanism, with the scale of a ‘city within a city’. The project is considered a lab, where the postulates of the modern movement are tested. ‘The fundamental themes of the modern movement are clearly manifested in a composition with all elements of the modern ideal (Marcano , 2003), open public spaces, open building blocks, and segregation of traffic and pedestrian movement, with strong attention to the needs for vehicular movement in terms of connectivity with the rest of the city and within the campus.

However, Villanueva manage to reinterpret the characteristics of the modern project, adapting it to the tropical context and the characteristic of the place, creating what some scholars call ‘overcome modernity’, that goes beyond the universalist language and recognizing the local conditions (Marcano , 2003).



Source: Google maps - Wikipedia



U.C.V &
‘Overcome
Modernity’

‘Overcome Modernity’ or
‘Specific Modernity’

Modernity, found architects who believed in the need to adapt modernism postulates to the particular situations of the environment, in what Montaner calls, architects of ‘Overcome Modernity’, those who transcend the universalist language and recognize local characteristics. Villanueva adapts his architecture to tropical conditions, ‘achieving a differentiation from universal modernity and proposing ‘Specific Modernity’, which gradually reaches its universal value from its synthesis between modernity and culture of the place’ (Marcano , 2003). Some of the most characteristic architectural elements that construct the connection between the modernist universal model and the local conditions are:

- System of covered pedestrian paths** that connect most important locations, while protecting from rain and sun.
- Facades sytems with ‘brise-soleil’** and ventilation blocks that control the shades the light while allowing the entry of air.

Síntesis de las Artes - Synthesis of the Arts and the ‘fluid space’

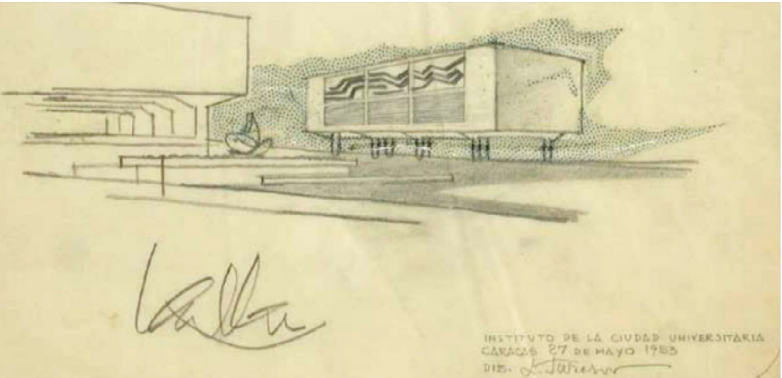
The art-city relationship was the result of the formal concerns of modern architecture during the 50s. The covered plaza of the central university of Venezuela is one of the best examples of fluid space and the spatial plastic experience, because it generates qualities different spaces from different expressive supports in a concept known as the synthesis of the arts.

The Synthesis of the Arts

Is a western culture aspiration or utopia, that Villanueva manage to make a reality. With the support of some of the greatest national and international plastic artists, the Synthesis ideal builds spaces that are enriched by diverse means of expression, such as architecture, painting and the sculpture.

System of ‘Synthesis of the Arts’ in the Central University of Venezuela builds 107 artworks created by 25 artists. The art works are usually integrated within the architectural elements like wall or facades, in other cases they are architectural elements themselves, capable of defining the structure of the space.

Vision Vs current situation



Sinthesis of arts detailed drawing
Source: Coss, 2011



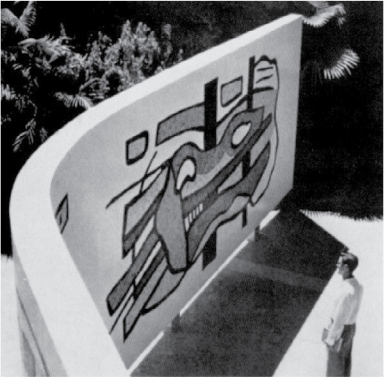
Plaza del Rectorado / Mural - Oswaldo Vigas
Source: <https://patrimoniocuc.wordpress.com/> - <https://bit.ly/2lx1vEM>



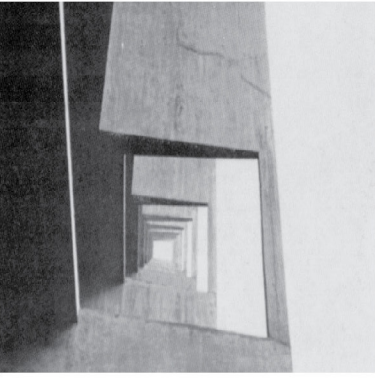
Elements of tropical modernism - Landscape - Symbols



‘Pastor de Nubes’ Jean Arp
Source: www.fundacionvillanueva.org



‘Himnial’ Fernand Léger
Source: www.fundacionvillanueva.org



‘Brise Soleil’
Source: www.fundacionvillanueva.org



‘Plaza Cubierta’ (Fluid Space) Carlos Raúl Villanueva
Source: www.fundacionvillanueva.org

MESO SCALE

NOWA HUTA
1949-1960

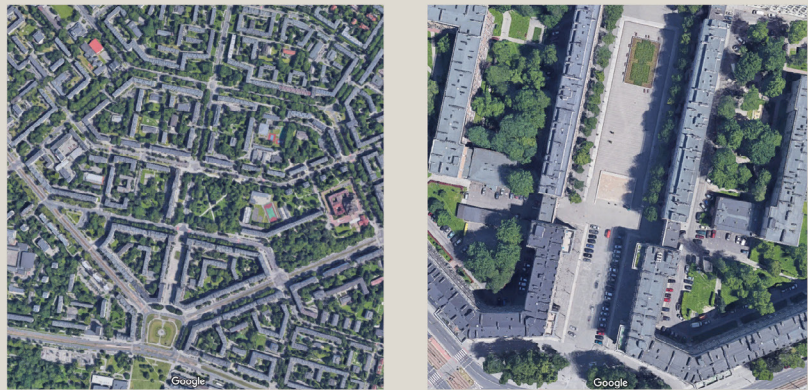
Cracow - Poland
Designers: Tadeusz Ptaszynski

Heritage value | Heritage value = Economic value

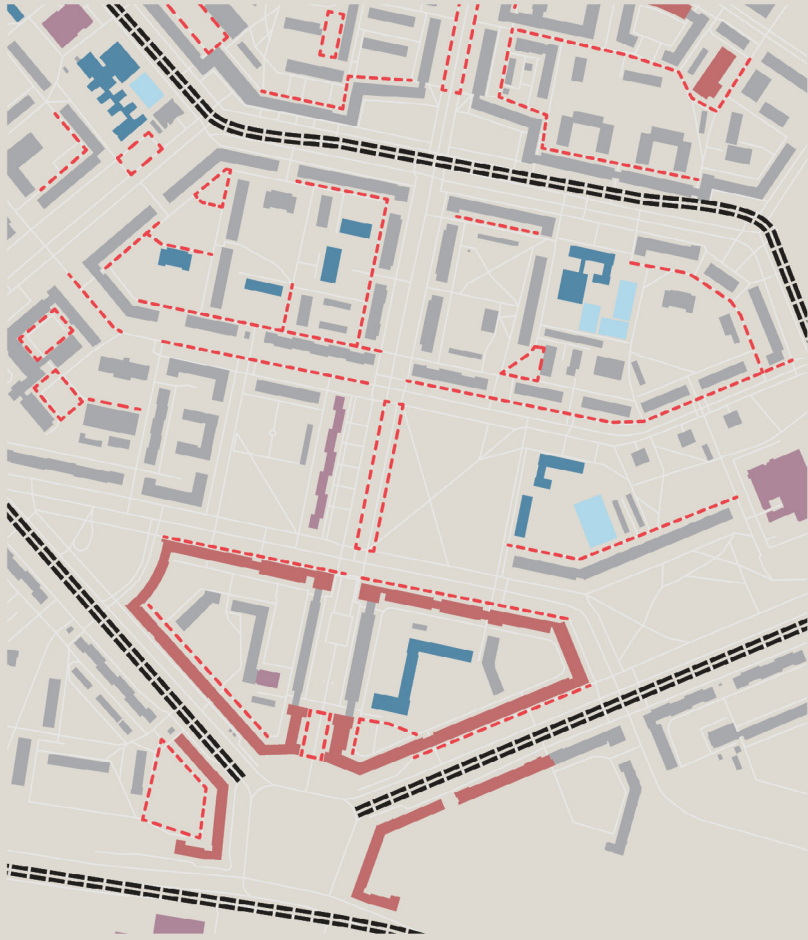
The area allowed the construction of a geometric layout of streets that originate in the central square, basis of the project. The building blocks of four to seven storeys were design in accordance to the 'neighborhood unit' concept; planned for 100.000 inhabitants. (Kantarek & Samuels, 2017).

Envisioned as 'the perfect working-class city', is an example of the modernist Soviet experience in eastern Europe, where the estates typically present an increased scale, the 'uniformity of the urban landscape' is a reflection of equality and centralized administration (Marek Kępa, 2018).

Strict zoning and uniform typology, are a result of the speed of construction processes and the significant increase in scale of the estates; all this led to a generalized (although not indiscriminate) loss of 'urbanity' giving rise to the publication of many studies in search of 'indicators' that would allow guaranteeing an acceptable level of urban quality. However, the project presents historical heritage values, and its urban layout is registered as a historical monument of Cracow.



Source: Google maps - Wikipedia



NOWA HUTA
'Culural & economic value'

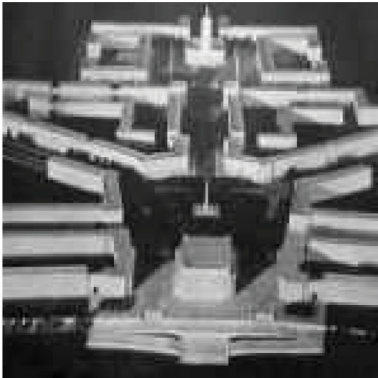
'Cultural and economic value '

The socialist heritage of Nowa Huta has become a 'one of the elements of its economic structure'. According to Holuj, cultural heritage has two dimensions of values: cultural and economic, where specific qualities of heritage may carry diverse types of cultural value, and each of these could also have an economic value, generating the possibility to create gods and services with the use of heritage resources (Hołuj, 2017).

In the case of Nowa Huta, the 'Łaźnia Nowa' Theater and Historical museum of Krakow were opened / relocated in Nowa Huta in 2005, bringing a first range of cultural products and commercial activities, presenting the complexity of the cultural heritage, including the socialist tangible heritage with outdoor exhibitions and sightseeing program routes, presented as 'living museums', and entertainment, educational and cultural events for the local communities, related to the history of the place.

Moreover, Nowa Huta also displays interesting examples of adaptation of historical structures to new functions. E.g. 'Łaźnia Nowa' Theater is located in a former building of a Mechanical school complex, the PRL museum is located in the former Światowid Cinema, and the historical museum of the city of Cracow is located in the former Nowa Huta Scout Storehouse.

Vision Vs current situation



Nowa Huta - Project model
Source: <https://bit.ly/2L6NZfF>



Source: Google maps - Wikipedia



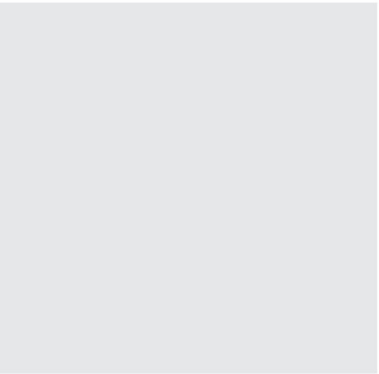
Socialist heritage as cultural & economic value



PRL Museum
Source: <https://goo.gl/kvjZV2>



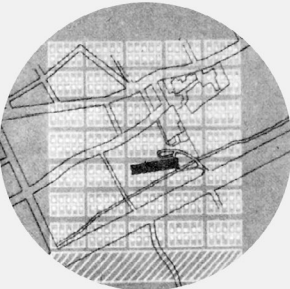
Łaźnia Nowa Theater
Source: <https://bit.ly/2G9e0E0>



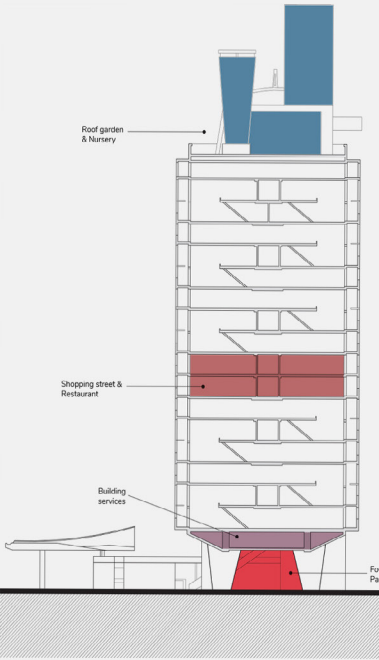
MICRO SCALE

UNITÉ
D'ABITATION
MARSEILLES
1947-52

Marseilles - France
Designers: Le corbusier



OMA - Bijlmermeer redevelopment
Source: <https://bit.ly/2Zo5pVq>



OMA - Bijlmermeer redevelopment
Source: <https://bit.ly/2Zo5pVq>

- Local street
- Pedestrian
- Parking
- Vehicular
- Educational
- Public use
- Cultural use
- Commercial
- Sports
- Green

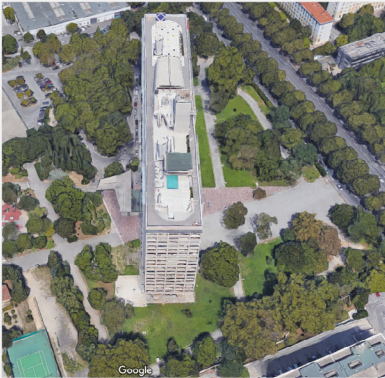
Heritage & conceptual value |

Contrary to the 'garden city' ideal of planned settlement of land, the Unité d'Habitation, proposes to 'free the land from construction by concentrating all the activities in a small 'vertical garden city' raised above the ground and designed as a self-sustaining community' of 1600 inhabitants. The building materialize Le Corbusier's ideal of modern life in a single object that contains different categories of services spread vertically throughout the building; in the top floor a garden terrace, and in the following twelve storeys, 23 different types of residential units and facilities for the residents, while the ground floor, supported on Pilotis separates the building block from the ground freeing up the space for parking (Monclús & Díez Medina, 2018).

Although the project was designed as an Utopian-socialist prototype, a process of gentrification has led to the entire privatization of the building spaces, the apartments are privately owned, and some of the common spaces, such as the rooftop gymnasium and the hostel for guests are used for private lucrative activities. Moreover, as the building has been declared a World Heritage Site by UNESCO, the complex has attracted more residents belonging to bourgeoisie and intellectual French society. In this sense, the privatization of the units and private spaces, together with the World Heritage status, seem to allow a solid maintenance system, guaranteeing the protection of the architectonic heritage, however, evidencing the failure to maintain a true conjunction between architectonic quality, heritage value, and modern utopian model designed to meet the housing needs of the collectivity.



Source: Google maps - Wikipedia



UNITÉ
D'ABITATION
MARSEILLES
'5 Points of architecture'

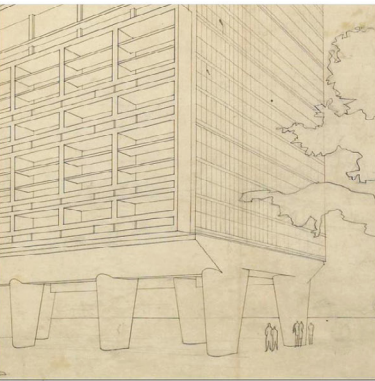
'5 Points of architecture'

Even though Le Corbusier conceive the prototype as 'normative and universal' and influenced numerous housing schemes during the 40's and 50's, the model could not be considered an applicable solution for all situations or contexts; however, the model, had inspired solutions in different contexts, adapting the model to the local climate, geographical and cultural conditions (Curtis, 2010).

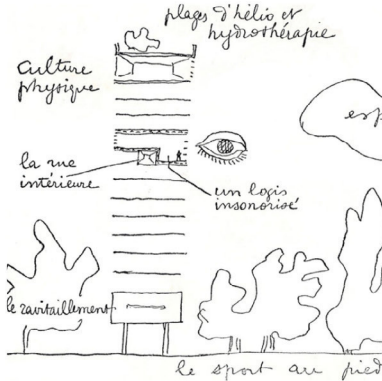
As the concept of the building follows the precepts of the '5 Points of Architecture', and introducing a third one, the 'brise soleil', (fixed concrete sunshades applied to the building façades); these elements, as abstracted from the architectonic unit, can be considered typical copositive elements of the modernist housing complexes that had been inspired by the Unite d'Habitation and Le Corbusier ideals around the world.

- 1-The Pilotis replace the supporting walls;
- 2-The free ground plan in absence of supporting walls;
- 3-Free design of the façade, setting it free from structural constraints;
- 4-The roof gardens, to serve domestic and collective purposes;
- 5-Long strip windows

Vision Vs current situation



Unité d'Habitation project drawings
Source: <https://bit.ly/2D2aY4K>



Source: Google maps



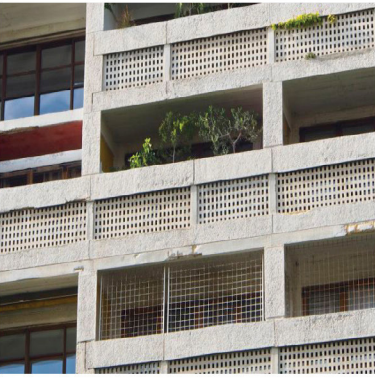
Elements of tropical modernism - Landscape - Symbols



Pilotis
Source: Radiant City: The Marseilles Housing Unit (2017)
Retrived at: <https://bit.ly/2laho3Q>



Free ground plan
Source: Radiant City: The Marseilles Housing Unit (2017)
Retrived at: <https://bit.ly/2laho3Q>



Long strip windows
Source: Radiant City: The Marseilles Housing Unit (2017)
Retrived at: <https://bit.ly/2laho3Q>



Brise soleil
Source: Radiant City: The Marseilles Housing Unit (2017)
Retrived at: <https://bit.ly/2laho3Q>

MESO SCALE

GROPIUS
STADT
1962-75

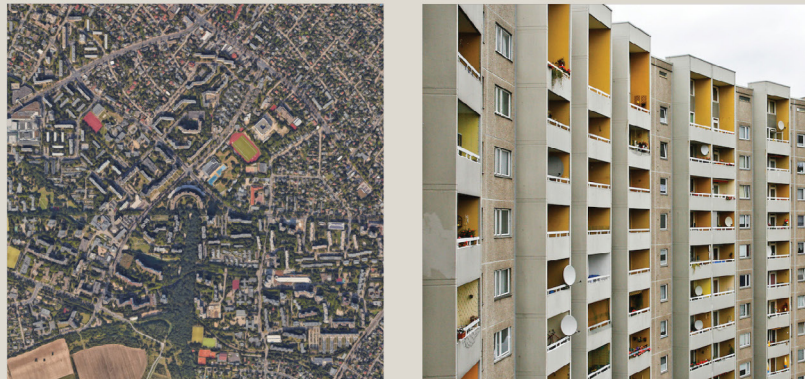
Berlin - Germany
Designers: Walter Gropius

Heritage value |

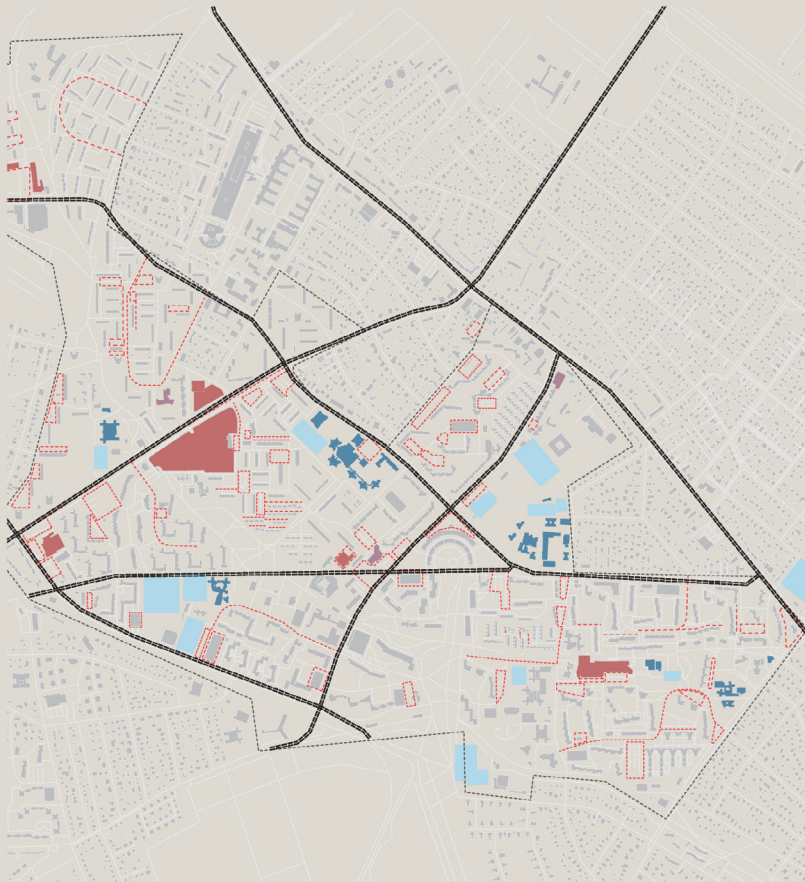
Walter Gropius and the North American studio TAC (The Architects collaborative,) designed what is considered one of the most characteristic examples of housing estates in West Berlin, with very sharp characteristics of modernist functionalist urbanism, large open-green areas with no clear distinction between public and private, hierarchy or formal definition (Monclús & Díez Medina, 2018).

The complex is designed for 50.000 people approximately, in 18.500 apartments of which social housing accounts for 90%. The high density requirements due to the planning paradigm shift to 'Urbanity through density' and the need for infrastructure facilities and parking spaces forced the construction of high rise towers, in this way, the alterations to the densities established on the original design occasioned significant change on the scale of the housing blocks, and the lack of identifiable small scale neighborhoods within the large scale settlement.

The attractiveness of the early years started to fade in the following years, The low quality of the open spaces and common areas like stairs and corners, deeply affected the social life and use of the public spaces and facilities. However, after several large scale housing improvement projects, that included re- design of the green areas, according to the original Gropius project, the creation of additional community services, and the flexibilization of requirements for the acquisition of the apartments, the quality of life and attractiveness of the complex improved considerably. (<https://bit.ly/2G5fFZZ>)



Source: Google maps - Wikipedia



GROPIUS
STADT
'Social &
environmentally
sustainable
development'

'Social & environmentally
sustainable development'

Bottom Up initiatives
Researchers and students from TU Berlin, under academic trans-disciplinary laboratory The Academy of a New Gropiustadt (AnG) have worked on the development of a platform where policy makers, local authorities, owners, and residents discuss and negotiate the future development of the area; producing temporary and long term projects aiming at a socially and environmentally sustainable development in Gropiustadt. Some of the interventions included:

The transformation of vacant structures
for temporary exhibition areas and venue for a public forum and workshops about the future of the area. Temporary structures as a way of creating new patterns of appropriation of the public space and sense pf security. The U-Rangery project, is a greenhouse that serves as a learning space for children and a resting space for passers-by.

Carpark upgrade
Partly unused multi-storey car parks seemed to contribute to the sense of 'unease' in the open space at night. The solution proposed in the project includes the installation of a mix of offices, manufacturing industry warehouses, sports venues and artist studios, in this way reinforcing social control by stimulating new uses of the unused space and new patterns of appropriation of the near green areas.

Design of underdeveloped areas between the extensive green belt
in cooperation with the local Community Center and housing associations, temporary 1:1 scale interventions in the space were constructed in order to test the solutions in the space and gather feedback from the inhabitants. Three interventions were finally constructed: a nut tree garden, a door opening for the Community Center towards the public green area, concrete sitting blocks, and a square. (Stollmann, 2016)

Vision Vs current situation



Gropius Stadt postcard
Source: <https://bit.ly/2GBnFzr>

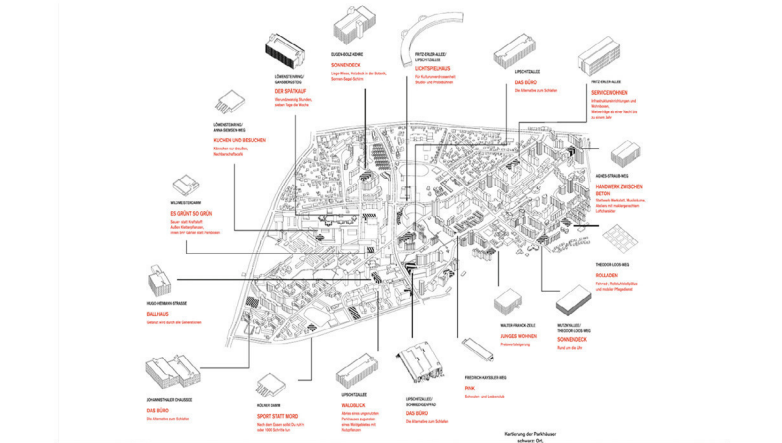


Gropius Stadt public space
Source: <https://bit.ly/2V7B53h>



Gropius Stadt public space
Source: <https://bit.ly/2V7B53h>

The Academy of a New Gropiustadt (AnG)



Local examples as models
Source: The Academy of a New Gropiustadt (Stollmann, 2016)



Intercultural meeting place
Source: The Academy of a New Gropiustadt (Stollmann, 2016)



The U-Rangery
Source: The Academy of a New Gropiustadt (Stollmann, 2016)

MESO SCALE

CHURCHILL GARDENS 1946-62

London - UK
Designers: Powell & Moya

Conservation area |

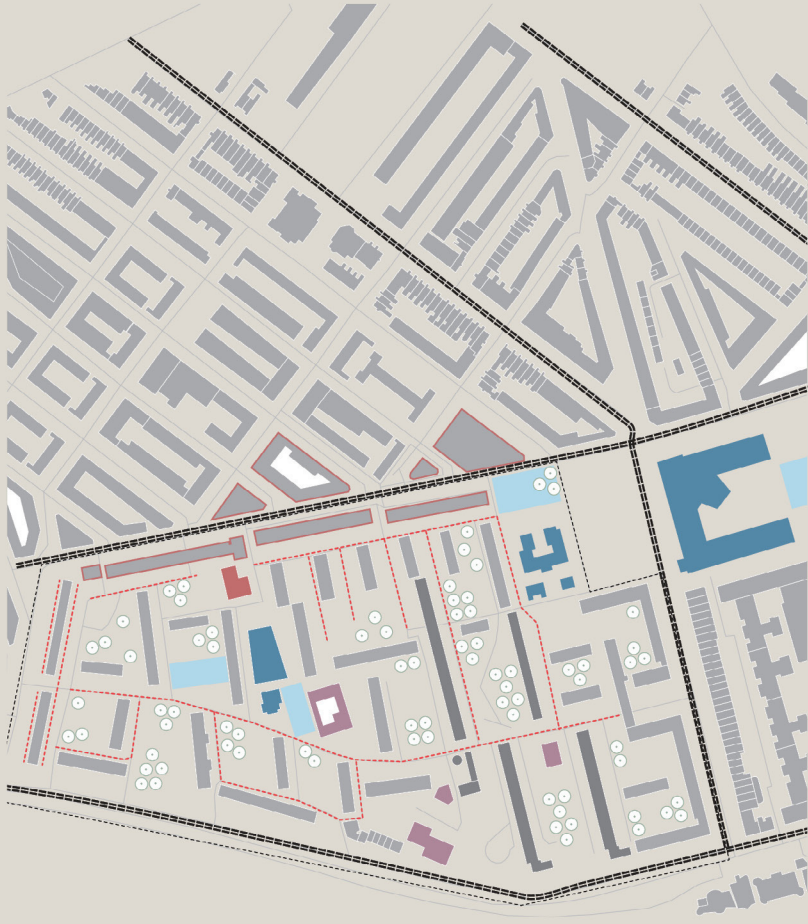
Churchill Gardens 'is the first CIAM-inspired vision of high-rise urban reconstruction'. The project develops an area of 31 acres with a mixed development of 36 blocks with reinforced concrete frame, that go from of nine to seven storey, and smaller blocks of maisonettes and terraces of three to five storey. The project also includes a series of street oriented shops, social amenities, health care, and the first central heating system scheme in Britain.

The buildings are surrounded by an informal landscape setting of large green spaces laid in north-south direction between the towers , and smaller green areas between the maisonette blocks. Public space is furnished with sport courts, raised and sunken areas of garden, and a series of playgrounds that have later been demolished. (Mumford, 2018). <http://londongardensonline.org.uk/gardens-online-record.php?ID=WST019>

The state is designated a conservation area in 1990 and in 2000 won the civic Trust 40th anniversary award, for the most outstanding scheme since the awards began. In general terms, the conservation area includes the modern character of the architecture, the scale, the landscape setting and the riverside frontage with dramatic Thames-side landmark.



Source: Google maps



CHURCHILL GARDENS 'Playgrounds'

'Overcome Modernity' or 'Specific Modernity'

Trees and open spaces contribute to the character and value of the conservation areas 'providing a soft edge within urban landscapes and bringing environmental benefits'.

Part of the distinctive signature of the public spaces in Churchill Gardens is the combination of hard and soft landscaping surfaces; where different types of materials and settings are used in a mixture of paving slabs and granite, and later brick surfaces, with the addition of playgrounds and sport areas that had eventually been demolished.

The framework for the future landscape and furniture maintenance in the area, includes a landscape strategy for soft and hard surfaces and street furniture, and foresees the maintenance of the streetscape quality throughout the removal of redundant items like fences; and the incorporation of elements of the original scheme that had been demolished. (Westminster Department of Planning and City Development, 2005)

In 2015, The collective studio Assemble and the artist Simon Terrill, created the "The Brutalist Playground", an installation that explores the playfulness of postwar design, inspired by diverse London monuments, such as Churchill Gardens, Pimlico, Brunei Estate, Paddington and Brownfield Estate, where the playgrounds where made of concrete and 'offered abstract landscapes to be occupied and entertained'

Retrieved from: Plataforma Arquitectura. 'Installation recreates a brutalist playground in London'. <https://bit.ly/2GfvCNs>

Vision Vs current situation



Churchill Gradients f-state facade
Source: <https://bit.ly/7vl yP9>



Churchill Gradients f-state playgrounds
Source: <https://bit.ly/7vl yP9>

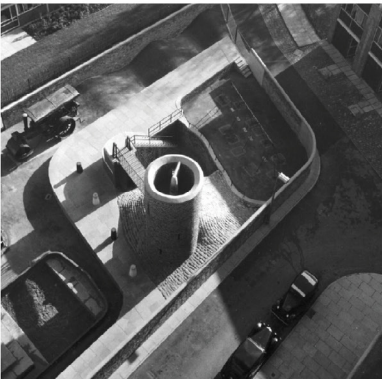


Churchill Gradients Estate facade
Source: <https://bit.ly/1KfwwCj>



Churchill Gradients Estate playgrounds
Source: <https://bit.ly/1KfwwCj>

Playgrounds



Plataforma Arquitectura. 'Installation recreates a brutalist playground in London'
Source: <https://bit.ly/2GfvCNs>



MESO SCALE

PORTELA DE SACAVÉM
1965-1978

Lisbon - Portugal
Designers: Fernando Silva

Social homogeneity | ‘Occasional encounters Vs collectivity

Portela, located in the north of Lisbon Metropolitan Area, hosts 11.000 inhabitants in 1km2 circa, which makes it is one of the biggest and densest housing estates in Portugal (Pacheco, 2014)

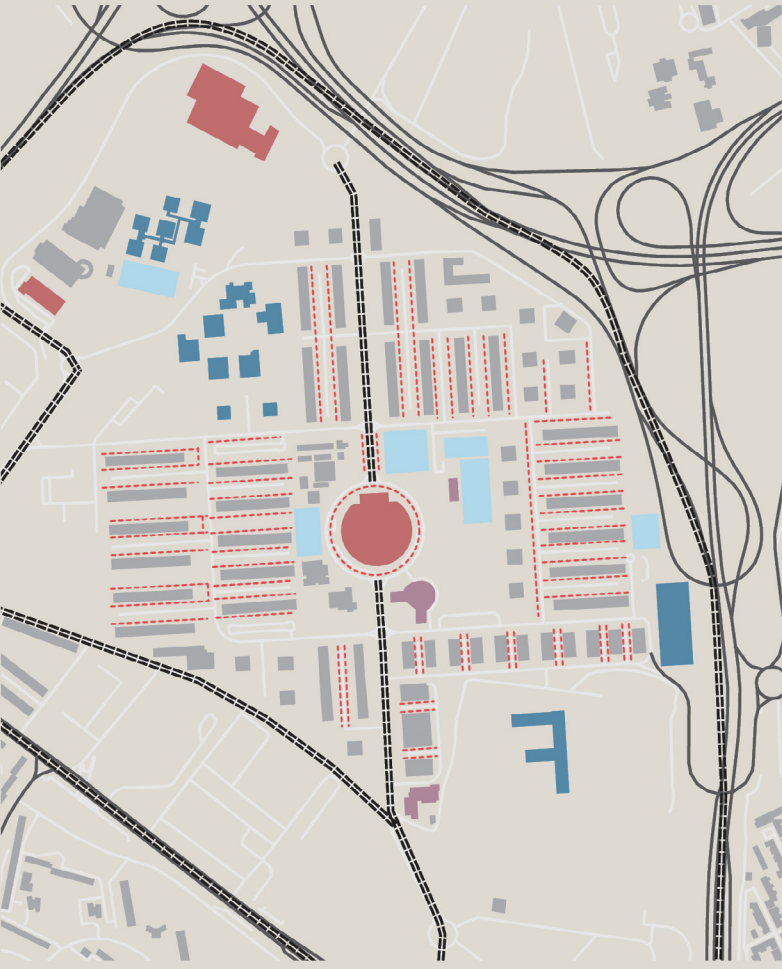
The project is recalled as ‘eclectic’ by authors, given its capacity to ‘combine and reinvent diverse urban theories’ such as the Garden City and the neighborhood Unit, where ‘occasional encounters’ overlay the ideal of collectivity (Pacheco, 2014).

The buildings were constructed with the ‘latest materials and amenities’, while the big apartments (bigger than the Lisbon average), come in a mix that allowed people to choose between modern and conservative typologies. Moreover, prices were affordable, allowing the middle classes to have access to ownership.

The project, despite being located in a predominantly unprivileged area of Lisbon (eastern border), was able to attract residents of different social backgrounds, but ‘with sufficient resources to buy a house’. Contributing to the perception of a ‘socially homogeneous’ environment, is believed to have reinforced the sense of community and identity of the neighborhood. (Pereira, 2017).



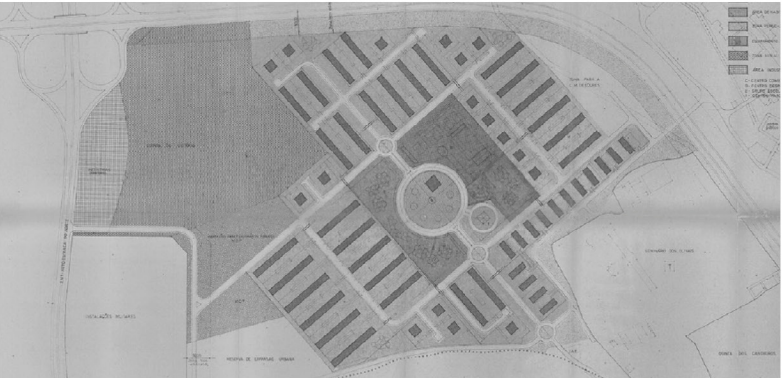
Source: Google maps & Pereira, (2017)



- Pedestrian
- Parking
- Metro
- Local street
- Primary roads
- Civic center
- Commercial
- Educational
- Demolished blocks

PORTELA
‘Occasional encounters Vs collectivity’

Vision Vs current situation



Plan of Portela 1969
Source: Pereira, 2017



Portela spaces between buildings
Source: Google maps

Elements of tropical modernism - Landscape - Symbols



Portela parking spaces around commercial center
Source: Google



Portela parking spaces around housing blocks
Source: Google

MESO SCALE

MALAKOFF
1969 - 1971

Nantes - France
Designers: Georges Evano, Michel Cormier,
Choisel Leroux, Jean-Luc Pellerin and Pierre
Thabart

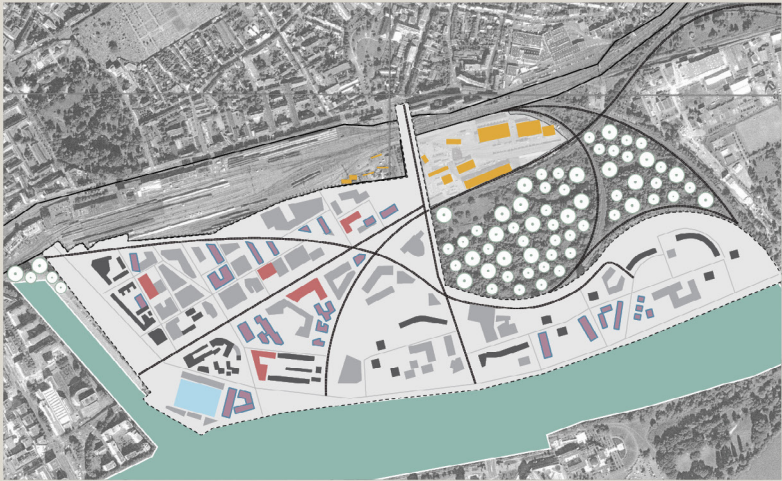
High density - Attraction poles -Rehabilitation | ‘Collectivity ideal’

The project located in front of the River Loire, is constructed in the early 70's as a development priority area, as a response to a severe housing shortage. The social housing complex is comprised of 1.600 dwellings in housing blocks distributed along a 'green carpet' that seek to extend the green areas of the 'Pettite Amazonie Park' located away from the industrial areas along the railway infrastructures.

The project, contained between the railway and the river is accessible only trough bridges and an underground passage. Moreover, a de-industrialization process has triggered a process of degradation and isolation for which, the complete demolition of the complex was proposed. (Ruiz Cabrero, Ezquiaga, & NuTAC, 2018). However, in 2000, the project was designated for a transformation and revitalization process 'Grand Project de Ville', which prioritized Diversification, Re-structuring public spaces, development of new facilities and natural areas. (Bragança, 2007).



Source: Google



- Local street
- Pedestrian
- Parking
- Vehicular
- Educational
- Public use
- Cultural use
- Commercial
- Sports
- Green

MALAKOFF
‘High density
Attraction poles
Rehabilitation’

Higher desity / Re-use /
Reahabilitate

The process of deindustrialization during the decades following the construction of the project in the 60s, accelerated the physical and social degradation of the neighborhood.

The transformation plan initiated in 2001, directed by Atelier Ruelle, within the framework of the Grand Project de Ville, proposes:

Higher densities

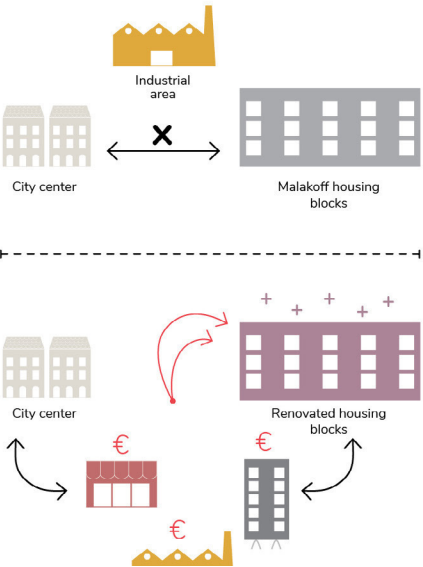
Rehabilitation of the original buildings in combination with selective demolition, to achieve higher densities.

Poles of activities

Industrial spaces are recycled to generate a new services, office and commercial center, with more than 1,300 homes, 130,000 m2 of offices, and 30% of social housing.

Use of revenues for rehabilitation

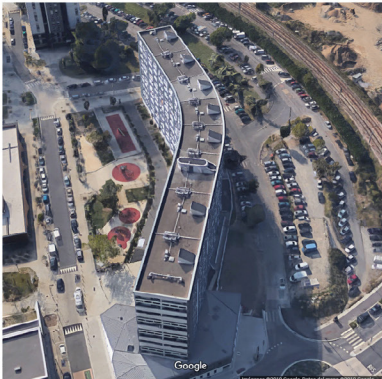
Revenues obtained from the housing development are used for the rehabilitation of the old housing blocks, upgrading and building a great variety of public spaces as the heart of the project (Ruiz Cabrero, Ezquiaga, & NuTAC, 2018).



Vision Vs current situation



Housing blocks Malakoff 1960 / Now
Source: http://bit.do/Malakoff_1960



Malakoff parking spaces around housing blocks
Source: Google



Malakoff public spaces around housing blocks
Source: Google

High density - Attraction poles -Rehabilitation



MESO SCALE

BESÓS South West
& La Mina
1959-65
Barcelona - Spain
Designers: Giráldez, López Íñigo i Subías, arquitectes

Spaces between housing blocks
Barcelona Metropolis
Source: <http://bit.do/Barcelona-metropolis>



‘Continuity & integration’ |

The ‘Polígono del Sudoeste Besós’, designed according to modern principles, is considered a high quality housing estate prototype in Barcelona city. According to the Partial Plan that set the general conditions for the area: 4.843 dwellings in 34,5 ha, of Low height constructions in a central area, surrounded by higher build-ings of 14 storeys. The superblocks combine and 6-storey blocks and 2-storey rows that combine a mix of housing typologies, while educational and commercial facilities are located in the intermediate spaces. (Díez Medina, Monclus, Ezquerro, & García-Pérez, 2018)

The success of this project can be related to its adaptation to the orthogonal grid of Cerdá Expansion zone, allowing for continuity between the ‘neighborhood unit’ and the rest of the city. The project has been subject of requalification processes since the 1090’s, and new road systems and pedestrian promenades have been constructed.

The project is based on the configuration of built areas and voids, but these, are seen as ‘excessively monotonous and depersonalized big surfaces, lacking of squares, semi-enclosed spaces, hierarchy and identity, that cause the intermedi-ate spaces to degrade rapidly’ (Mirón, 2016).



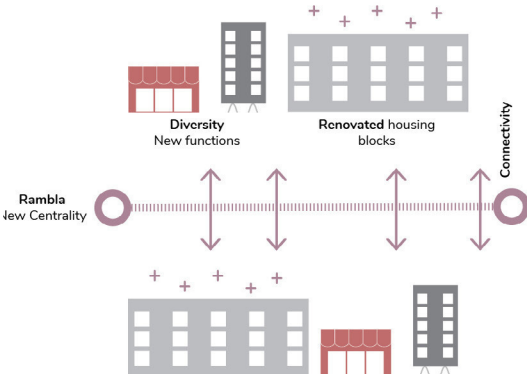
Source: Google



LA MINA
‘Mixed Strategy’

Mixed Strategy
The Special Urban Transformation Plan, carried out in 2002 by the firm Jornet - Llop - Pastor, designs a combined and multi - scale intervention strategy, that includes rehabilitation, demolition and construction of new buildings. Using three basic principles:
1-Centrality > Rambla
2-Diversity > Semi-open blocks, a wide variety of building types, commerce in the ground floor, area allowed by means of Flexible regulations;
3-Exchange> street pedestrian connectivity is achieved through increasing pedestrian permeability, ground floors with no residential activities, and social actions that support the use of public space.

Rambla
The plan includes the creation of a Rambla that connects the Besós park with the nearby coastal area, connects the neighborhood in a transverse axis. The new Rambla, is endowed with semi-open blocks that integrate homes, services, shops and public spaces. The project and all the proposed interventions are accompanied by a **Social Action Plan** that supports the social, cultural and economic aspects of the intervention. (Ruiz Cabrero, Ezquiaga, & NuTAC, 2018)



Vision Vs current situation



Source:
<http://bit.do/Besos-southwest>
<http://bit.do/Besos-southwest-now>



Barcelona Metropolis
Source: <http://bit.do/Barcelona-metropolis>



La Mina neighborhood Urban Reorganization Plan by Jornet - Llop - Pastor



MESO SCALE

BILJMERMEER
1966-73

Amsterdam - Netherlands
Designers: Siegfried Nassuth

Urban Renewal - Demolition

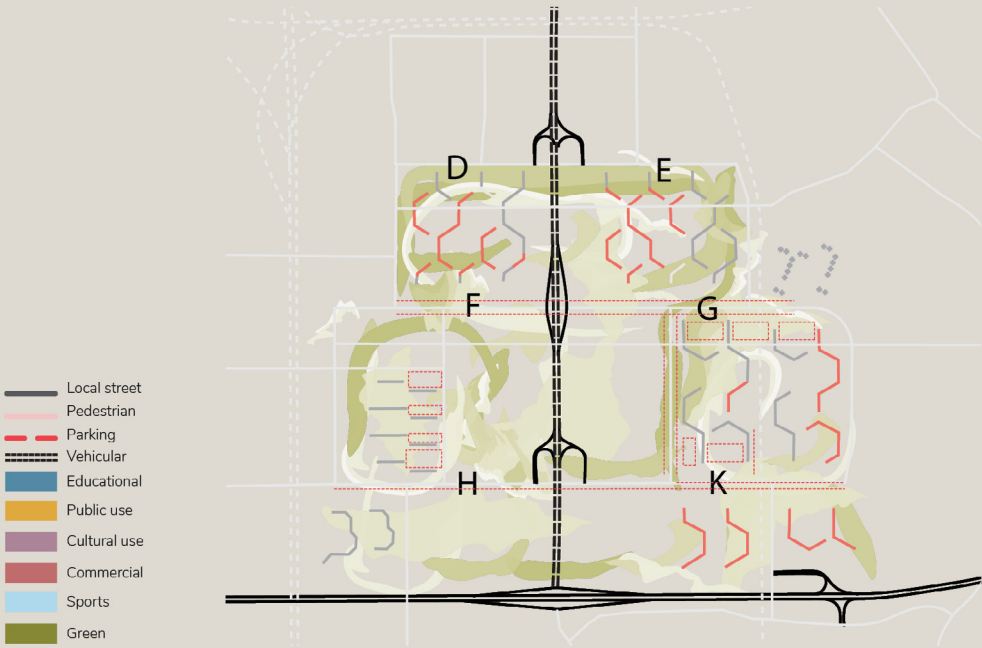
‘Collectivity ideal’ |

The project emphasize the ‘harmony between form and function’, and the clear definition of the district area, that was believed it would allow residents to develop a sense of connection with the place (Jolles & May, 2003, pp. 78-79). It proposes a very detailed analysis of location and distribution of traffic lines and roads, including cyclists, pedestrians and recreational areas, in relation to density, vegetation and public space. The exhaustive studies result in a project that proposes a drastic change of scale of the residential block (9 housing floors + 2 basement), and ‘traffic as a great superorganism’ (Aquilué & Ardura, 2017).

Before the end of construction phase, the project is already criticized as ‘anachronic’; and soon starts to show some difficulties associated with an ‘Extreme functionalism and the collectivity ideal’, lack of proper connectivity, vandalism and sense of insecurity. These difficulties have stimulated many re-generation plans consisting of urban renewal strategies, that considered demolishing most of the high rise buildings, to be substituted with other housing typologies.



Source: Google



BILJMERMEER
‘Urban renewal
& Demolition’

Tropical modernism

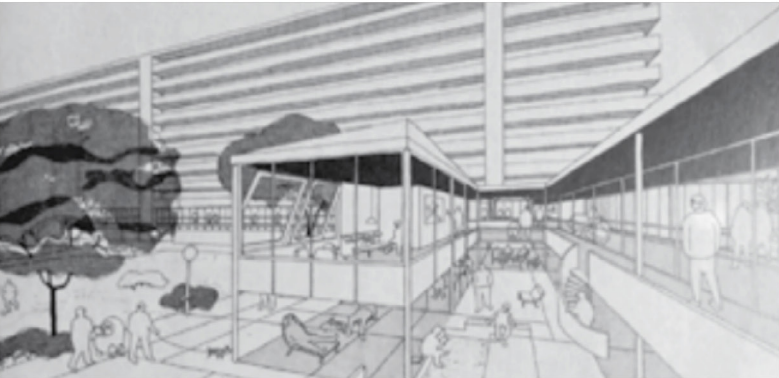
Due to the wide range of issues affecting the area, even before the completion of the project, drastic rehabilitation measures were taken in the area, 25% of the high-rise blocks, were demolished 25% put on sale, and the remaining buildings were renovated. The report seemed to have deeply inspired the re-development approaches in the area. As a consequence, the character of the area changed drastically, as 50% of the high-rise blocks were demolished and replaced by other housing typologies introducing a new mix of use in the area, a new dynamic between the increased densities and floor space consumption, and the reduction of green-open areas.

However other projects such as OMA's Biljmermeer Redevelopment project, that consisted the existing layout of Biljmermeer as a resource, and thus worthy of being improved, overlapping a layout with a new street that would add new program and different typologies of buildings to the area, and consequently seek for the creation of new dynamics of use of the public space and break the monotony of the state.



OMA - Biljmermeer redevelopment
Source: <https://bit.ly/2Zz5pVq>

Vision Vs current situation



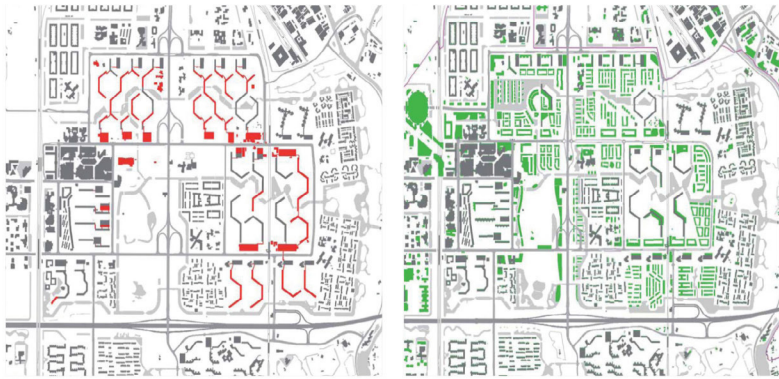
Sketch 'collectieve voorzieningen', 1967
Source: http://bit.do/Biljmer_collective



Sketch 'collectieve voorzieningen', 1967
Source: <https://bit.ly/2Pk9Ufb>



Elements of tropical modernism - Landscape - Symbols



Biljmermeer - Demolition & Construction Plan
Source: www.biljmermuseum.com/het-biljmer-ontwerp/



Renovation projects in Biljmermeer
Source: [Failed architecture https://goo.gl/XMS5N](https://goo.gl/XMS5N)



MESO SCALE

NIEUW
WEST /
SLOTERMEER
1956

Amsterdam - Netherlands
Designers: Cornelis van Eesteren

‘Garden city & Neighborhood unit’ |

The AUP plan responds to the housing requirements of the post-war period and offers an alternative to bad living and environmental conditions in the historical center of Amsterdam.

The model is articulated with the central area of the city, but presents the characteristic attributes of modern urbanism. The system propose a hierarchical order, based on the infrastructural, green and water networks, where large proportions of free space connect the segregated areas for work, residence and recreation. The focus of the system is to create a closer relationship with nature and the human scale, adhering to the guidelines of the garden city model.

To respond to the requirements of scale and population density, two categories of residential neighborhood are established, one of larger scale that is located along a green belt and fast roads; and a second one related to neighborhood streets, with lower scale, but more density of green areas. In this way, the hierarchies and typologies of building are related to the scale of the road, allowing to make different combinations between green areas, water channels and building typologies, favoring the creation of different neighborhood units, with similar characteristics in terms of heights, scale and proportions.

The Slotermeer area is conform by seven neighborhood units that share a common central area. The blocks are located with a north-south arrangement, in blocks of two that make up in-between green spaces for gardens, play areas and parking lots.

Today, the area still possesses many of the qualities of the original plan, however problems in relation to the quality of life and social cohesion in some areas, have greatly affected the quality and use of public space and commerce, especially when the distance between blocks is bigger.



Source: Google



Nieuw West
Adaptive
re-use +
architectonic
value

Tropical modernism

The systematic downgrading process and population decline that took place in the area, activated diverse mechanisms of urban renewal, however, after a process of identification and declaration culturally valuable monuments in most part of the area, the process of urban renewal have been mixed with conservation and adaptive re-use processes, that have worked for the most part in cooperation with the residents, and aimed to transform the area from monofunctional to mixed use, with additional services and housing typologies.

Dudok hooks > Van Schagen architects
Addition of a residential floor by raising the attics

A few houses have been merged, and balconies have been extended. Addition of lifts installed on the corner of the hooks, resulting in a new entrance. These adjustments have ensured that the homes are now also suitable for the elderly, the disabled, large families and starters. In addition to rental properties, a considerable number of owner-occupied properties have been added. <https://www.arcam.nl/dudokhaken/>

Burgemeester De Vlugtlaan
high-level renovation of the 138 Airey homes and the three business units on the Burgemeester de Vlugtlaan in Amsterdam. With the installation of a fully insulated installation package, new floor plans and the original façade restored. <https://www.hooysschuur.nl/projecten/transformatie/burgemeester-de-vlugtlaan/>

Renovation Knijptijzerpanden
The housing complex was designed in 1955 by the architect Herman Knijptijzer (1914-1994) for the Rochdale Housing Association. The complex consists of 364 homes and 4 shops, spread over 8 building blocks with 4 and 7 floors. After the complex had been nominated for demolition it was decided to be maintain and renovate, by installing central heating and mechanical ventilation, renovation of wooden exterior frames and balcony gates. <https://www.bna.nl/project/renovatie-knijptijzerpanden/>

Vision Vs current situation



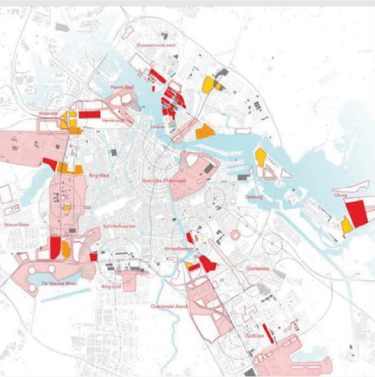
Sketch 'collectieve voorzieningen', 1967
Source: http://bit.do/Biljmer_collective



Public spaces in Slotermeer area
Source: Own elaboration



Elements of tropical modernism - Landscape - Symbols



Ruimte voor de stad Koers 2025
Source: Gemeente Amsterdam



Dudok Hooks
Source: <https://www.arcam.nl/dudokhaken/>



Knijptijzerpanden renovation
Source: <https://www.bna.nl/project/renovatie-knijptijzerpanden/>



Burgemeester De Vlugtlaan_restoration
Source: <https://bit.ly/2KTgLOr>

BRASILIA 1956	CHANDIGARH 1950-65	AVENIDA BOLIVAR 1936-53	BESÓS South West & La Mina 1959-65	UCV University Campus 1953	NOWA HUTA 1949-1960
Scale & Landscape 'Quadra Modelo' & 'The garden as an artistic expression'	Scale / composition 'Tropical Modernism'	Integration 'The street as a space of dialogue'	Adaptive re-use 'Mixed strategy'	Heritage value 'Overcome modernity'	Heritage value = Economic value



Modernist urbanism under automated mobility scenarios - Transforming modernist areas for spatial quality in Amsterdam city

UNITÉ D'ABITATION MARSEILLES 1947-52	GROPIUS STADT 1962-75	CHURCHILL GARDENS 1946-62	PORTELA 1970	BILJMERMEER 1966-73	NIEUW WEST 1956
Heritage value '5 Points of architecture'	Heritage value 'Sustainable development'	Succesfull model 'Playgrounds'	Succesfull model 'Occasional encounters Vs collectivity'	Urban Renewal - Demolition	Adaptive re-use + architectonic value



Modernist urbanism under automated mobility scenarios - Transforming modernist areas for spatial quality in Amsterdam city



6. Territorial analysis

City scale analysis

AMSTERDAM TERRITORIAL ANALYSIS
City scale - Present situation

TERRITORY ANALYSIS AMSTERDAM PRESENT



Figure 58.
Car mobility
Amsterdam
Car mobility networks

- Parking space
- Parking space
- Roadway motorway
- Regional motorway
- Automobile dump areas
- Highway
- Main roads

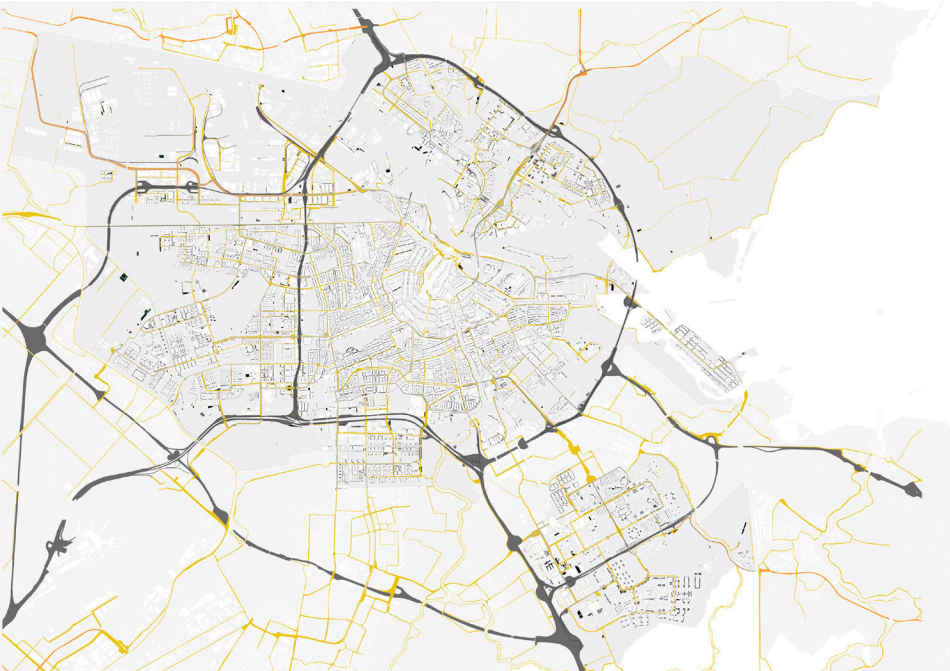


Figure 59.
Public transport & pedestrians
Amsterdam
Public transport & pedestrians

- Pedestrian
- Metro
- Tram
- Meto free tram rail
- Railway production site
- Regional ways
- Train - railway

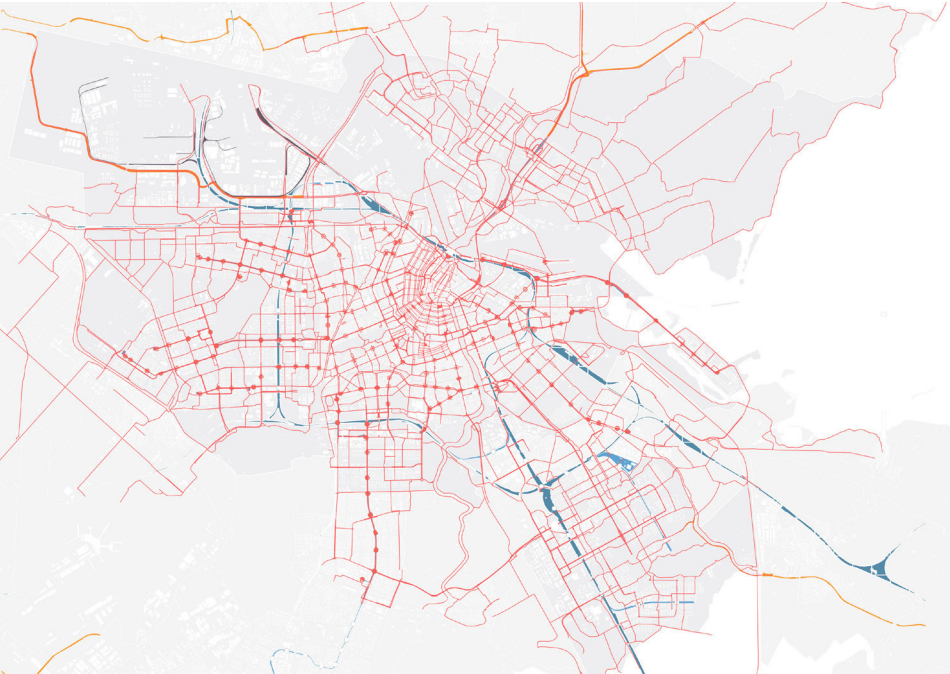


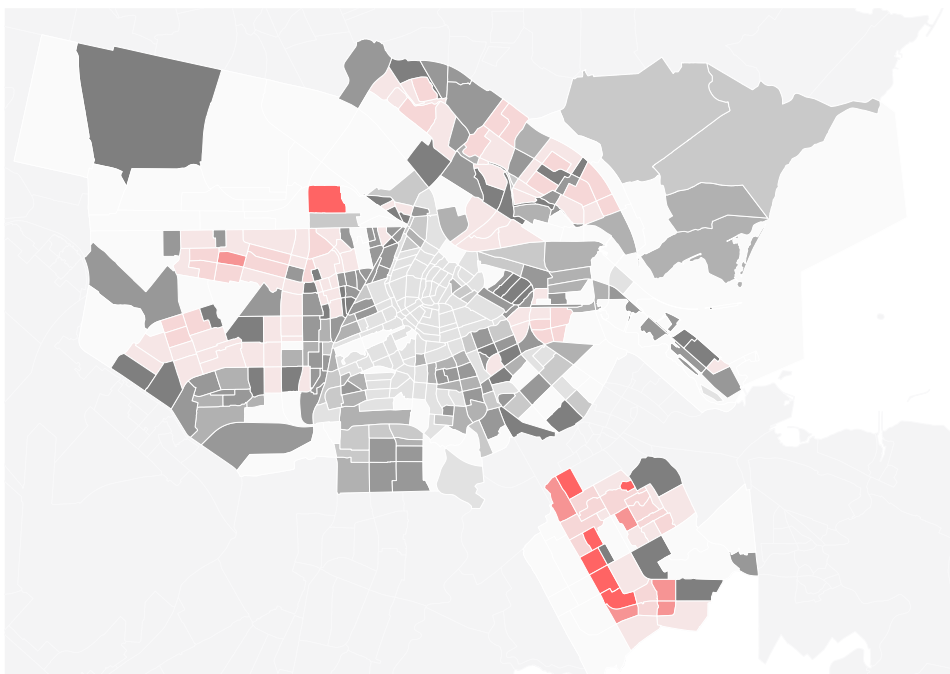
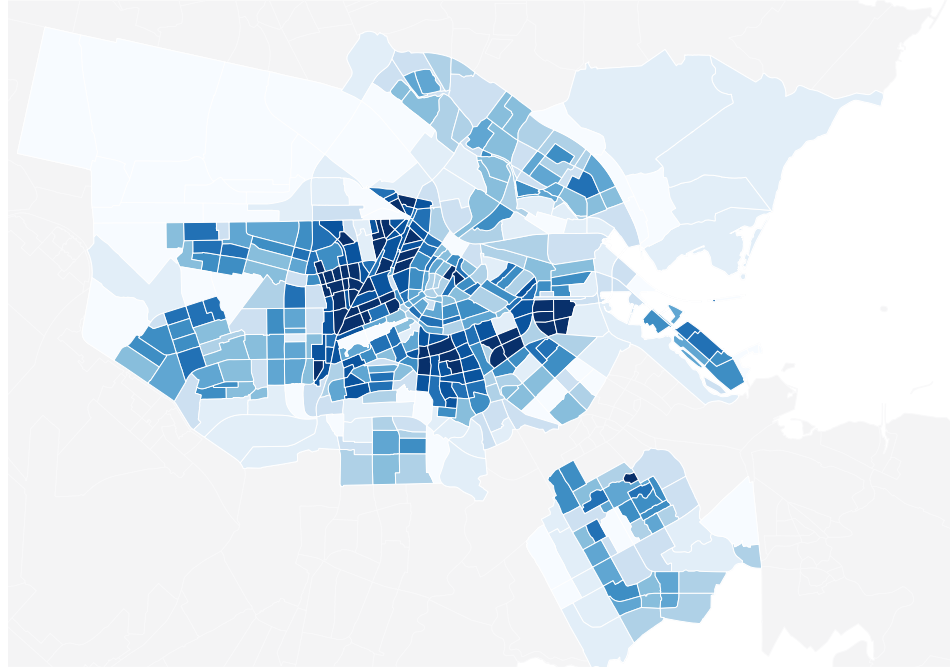
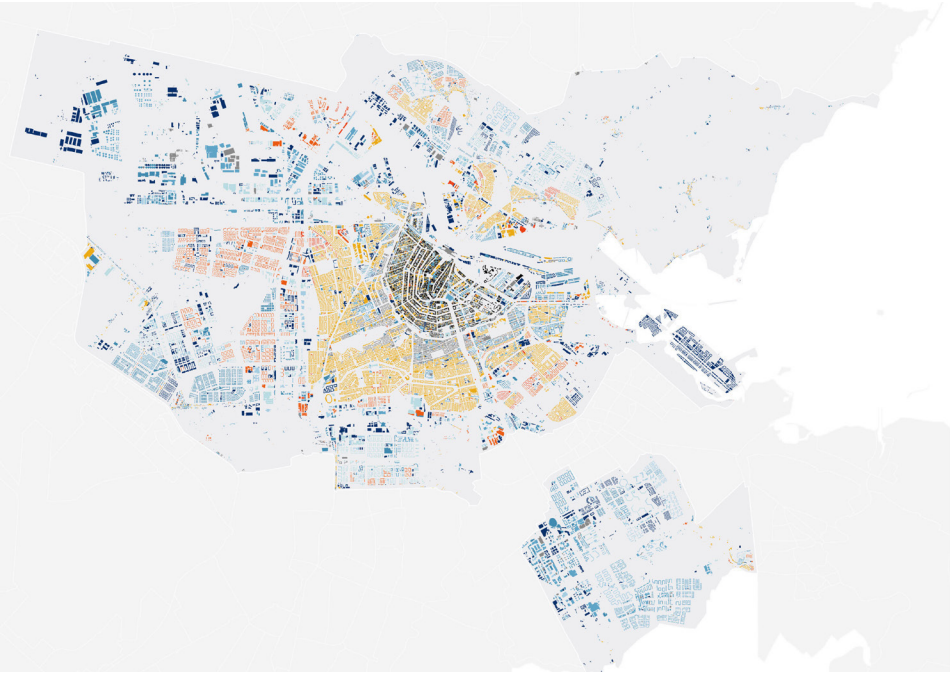
Figure 57.
Building year
Amsterdam
Building year

- 0 - 25
- 25-631
- 631-3876
- 3876-6414
- 6414-8277
- 8277-10232
- 10232-13185
- 13185-17706
- 17706 - 22209
- 22209-33147

Figure 60.
Amsterdam
Population Density

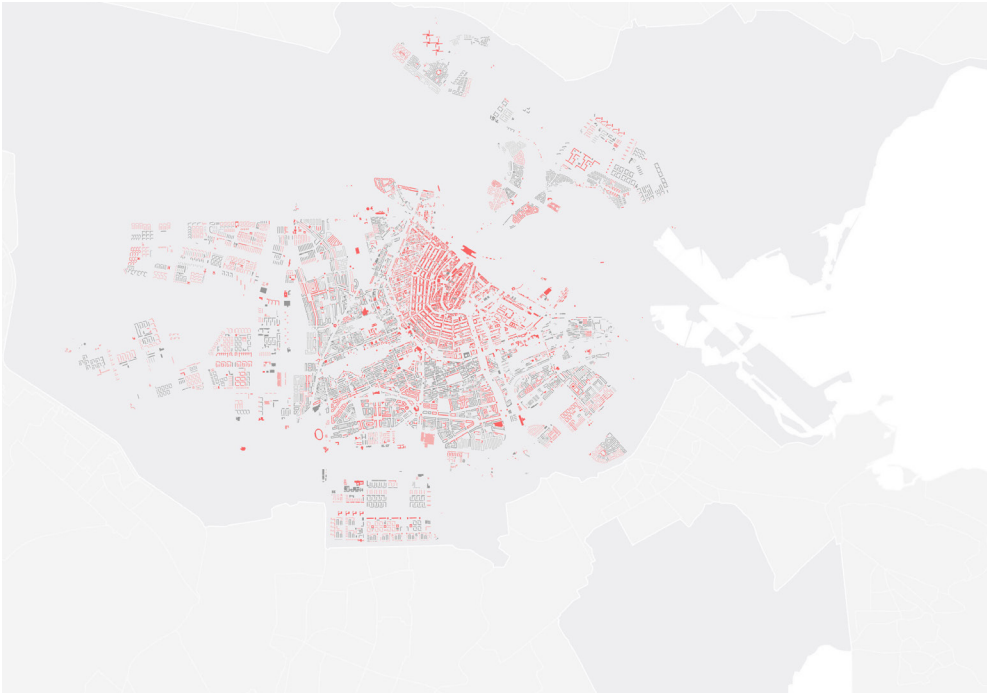
- Very inadequate
- Largely insufficient
- Inadequate
- Weak
- Enough
- Largely enough
- Good
- Very good
- Excellent

Figure 61.
Amsterdam
Quality of life



- 1
- 2
- 3
- Basic
- Demolition

Amsterdam
Building quality
Figure 62.
Building quality



- 1
- 2
- 3
- Basic
- Demolition

Amsterdam
Building quality AUP area
Figure 63.
Building quality AUP area



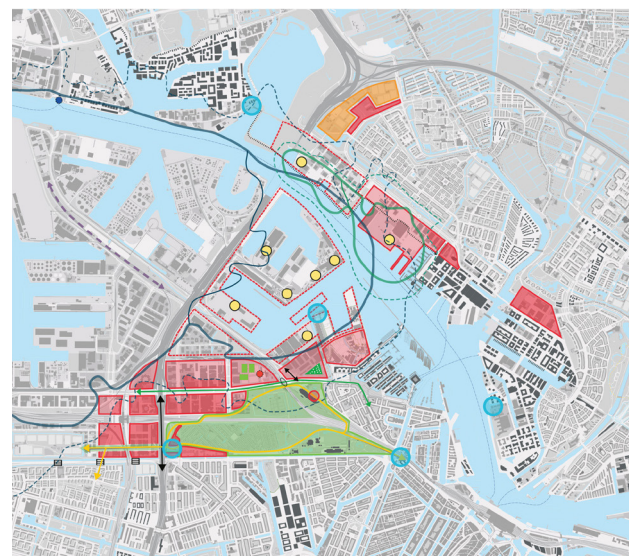
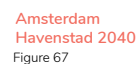
- Recognition
- Strategic space until 2025
- Strategic space long term
- In construction
- Investment decision taken
- Completed
- Principle decision taken

Amsterdam
Housing plans
Figure 64.



AMSTERDAM TERRITORIAL ANALYSIS
City scale - Future situation

TERRITORY ANALYSIS AMSTERDAM FUTURE



The future of Amsterdam

The report 'Amsterdamse Trends' released by the city's Bureau of Research and Statistics (O+S) at the initiative of the Amsterdam City Archives. Outlines a series of trends of future development for the city.

The application of technological innovations in many areas, individualization, self-organization and new sharing, together with significant demographic developments and the 'struggle for space' will especially influence the development of the city. From these, six trends are highlighted:

A flexible work economy

-Self-employment and Spare time

Foresee an increase in self-employment and self-employed part time jobs. This trend will be linked with a consequent increase in free time for education or leisure.

- Public space becomes more important

Increased importance of public spaces to work and to network, so-called third-spaces, (including coffee shops);

- Decrease in traditional retail patterns, trough hybrid working hours;

- Shop-in-shop, pop up-stores, may demand for flexibly changeable spaces;

-‘The atmosphere’ will play a big role in making these areas more attractive;

-Office space

Post-industrial heritage: empty office complexes at Zuidas and Sloterdijk;

The impact of the internet in the city

92% of the city's residents have an internet connection at home, and its use could change the provision of services and activities in the city. Where, some services will tend to disappear and others may need to change.

- Internet as a marketplace and dominant provider of services

The online marketplace will be competitive providing many services such as clothing, books and movies.

- Internet makes sharing economy possible

New mobility trends

The relation between modes of transport changes, and new supplies emerge thanks to technology. The use of scooters and bikes increases, while car ownership and the use of public transport decreases, causing elimination of some bus, tram and metro stations, and possibly replaced with shared car schemes.

While the lack of space seems to also play a big role in these dynamics, increasing the pressure in traffic and more competition for parking spaces for cars. While bikes traffic and parking become a problem mostly in specific locations such as central stations and shopping areas.

The future trends also outlines the transition from petrol to electricity.



The changing needs of Amsterdammers

The city’s population will become both older and younger, and will increasingly choose to stay in the city. An increasing number of families and elderly will stimulate new needs for the use of public space, green in more central areas, and leisure activities and infrastructural facilities in the city’s edge.

Highlights:

- Increasing number and diversity of families;
- Increasing use of the city by families;
- More use of green and park areas;
- More free time spread over the city;
- Self-construction;
- New housing forms.

The city-state-citizen triangle

Citizens demand efficient and reactive actions from their local government. However, they also want room for their own initiatives, which take different forms thanks to new technologies. These dynamics are believed to possibly cause a fragmentation in political choice, and involvement in more personal initiatives.

Tourism

The city may tend to heavily rely on tourism, and expect an increasing arrival of visitors in the city center, developments of different hotel types, international conferences, and tourism related retail.

Fragmentation in the future

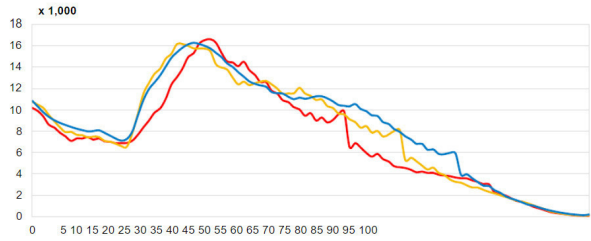
‘Society consists of more and more groups that are not fixed. People are part of a certain group one moment, the other moment of another, or act purely as an individual’. This phenomena is believed to mainly concern the weakening of connection with traditional institutions, such as the church, political parties, trade unions and - perhaps - the family.

Individualization and fragmentation are the result of a need for individual (choice) freedom. Also ethnic groups as such will become less and less important, as ethnic identity is not the only determining factor for people’s identity and thinking.

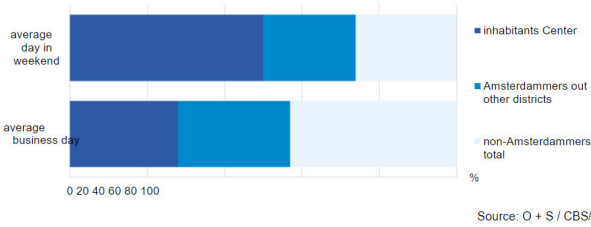
Nevertheless, this development presents the challenge on how to maintain solidarity.
(Gemeente Amsterdam, Bureau Onderzoek en Statistiek, 2014)

52,000 new homes by 2025

The 52,500 homes will be built throughout the city in numerous small developments, as well as within larger existing developments such as IJburg, Zeeburgereiland, Noordelijke IJ-oever (Overhoeks, NDSM, Buiksloterham), Houthavens and the Zuidas. The construction of so many homes within a short time is a huge challenge, in terms of the quantity and demands, as the new developments should ensure access to housing for all levels of income. (Amsterdam Gemeente, 2018).



Population by age, 2003, 2013 and prognosis 2023
Figure 70 (Gemeente Amsterdam, Bureau Onderzoek en Statistiek, 2014)

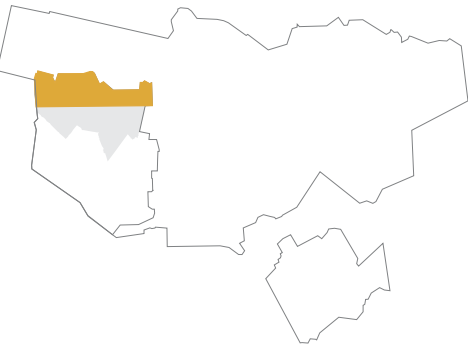


Distribution of groups of people in the Centrum district to the target and weekday, 2012 (%)
Figure 71 (Gemeente Amsterdam, Bureau Onderzoek en Statistiek, 2014)

District scale analysis
Havenstadt & Nieuw West

TERRITORIAL ANALYSIS
Amsterdam Sloterdijk in relation to Nieuw-West area

TERRITORY ANALYSIS AMSTERDAM HAVENSTAD



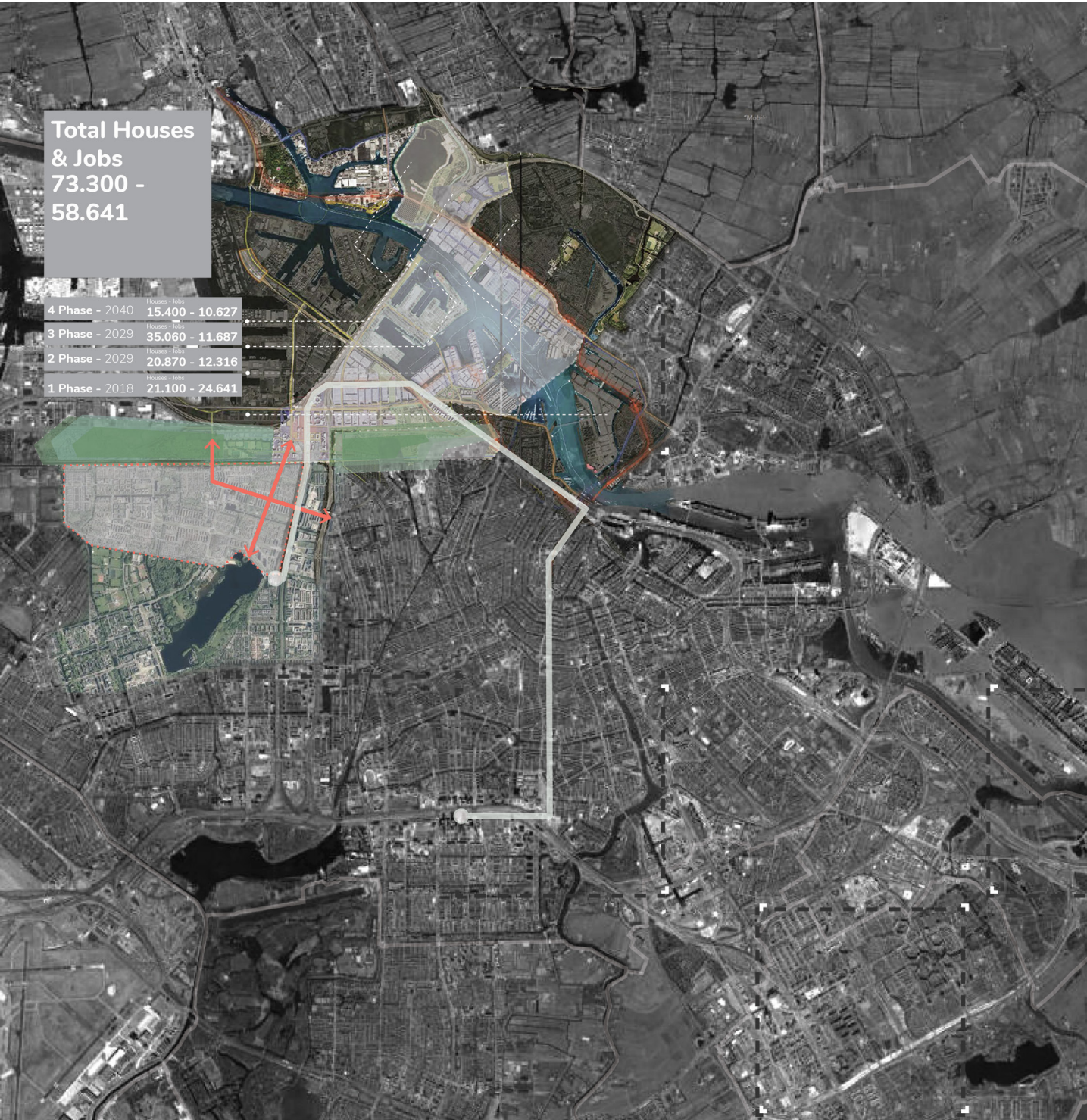
District scale analysis
Amsterdam - Havenstad 2040



AUP & Zuid Oost plan areas



Amsterdam Nieuw West area



Amsterdam Havenstad 2040 in relation to Nieuw West area

District scale analysis - Nieuw West / Sloterdijk

- Buildings
- 38 - 50 %
- 50 - 58%
- 58 -73%
- 73 - 100%

Nieuw West & Sloterdijk

- Buildings
- 0 - 20 %
- 20 - 27%
- 27 -36%
- 36 -92%
- 92 - 100%

% Non residential functions

Ground floor

Non residential functions

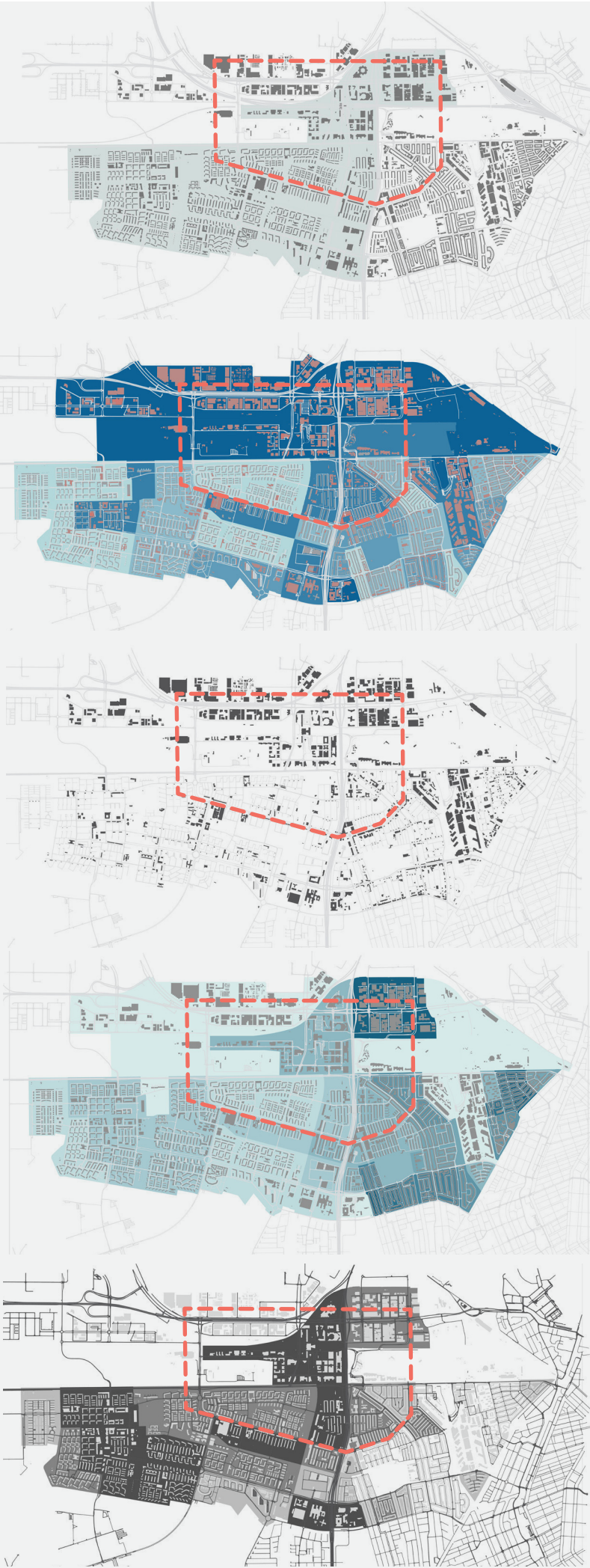
- Buildings
- 0 - 24%
- 24 - 47%
- 47 -71%
- 71 -94%
- 94 - 118 %
- 118 - 142%
- 142 -165%
- 164 - 189%
- 189 - 212%

Housing density

Houses / ha

- Buildings
- 38 - 50 %
- 50 - 58%
- 58 -73%
- 73 - 100%

Inmigrants

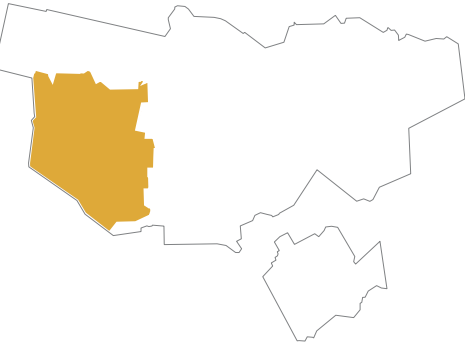


District scale analysis
Nieuw West area

TERRITORIAL ANALYSIS
Amsterdam Nieuw-West



TERRITORIAL ANALYSIS NIEUW WEST



Nieuw-West analysis of the phisical environment and public transportation networks

Nieuw-West area incorporates post WWII residential districts, culturally rejuvenated former business parks and the vast Sloterplas lake and surrounding park. The maps show a general overview of the north area of the Nieuw-West, that comprise the neighborhoods of Geuzenveld and Slotermeer.

In the layer of buildings, the urban layout clearly shows open-bloc structure of the neighborhood constructed in the 50's. The buildings seem to form different sub-structures within each neighborhood, where the relation between the building and the green areas change, and tends to face the border of the streets with more open areas. While the green and blue network map, showed the clear structure of green areas cutting the constructed tissue, showing that Nieuw-West is the largest and greenest district of Amsterdam.

The infrastructure layer shows the different levels of transportation network, throughout the calculation of integration of the metropolitan streets, together with the street areas of typical congestion according to Google maps (Friday 3.00 pm), with some punctual traffic areas near some neighborhood centers.

The public network layer shows clear stamps of small and scattered neighborhood centers, that seem to be the principal attractors of non-residential functions and public facilities, that, as typical of post-war neighborhoods are scarce and scattered.

On the other hand, the FSI ratio shows the relation between floor area and land size. Showing high proportions of non-built against built in the north of the Nieuw-West area. While the GSI, shows high density of occupancy of the blocks, only in very few and scattered buildings around the area.

Analysis public transportation network

The analysis of the public transportation network shows that, even though the area is well connected to the rest of the city, is now mainly served by bus service and tram, which services seem to fairly cover the area in terms of number and location of stops, in a served ratio of 300m from each stop.

The passenger volumes instead, seem to be higher for tram routes, but very localized, while the bus routes have a wider distribution network over the territory, as the bus stops are also better distributed over the territory.

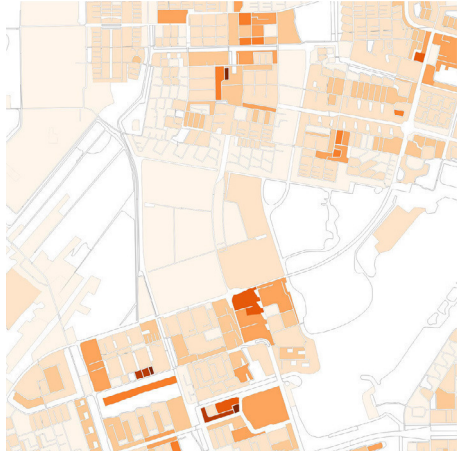
Buildings



Public facilities



FSI



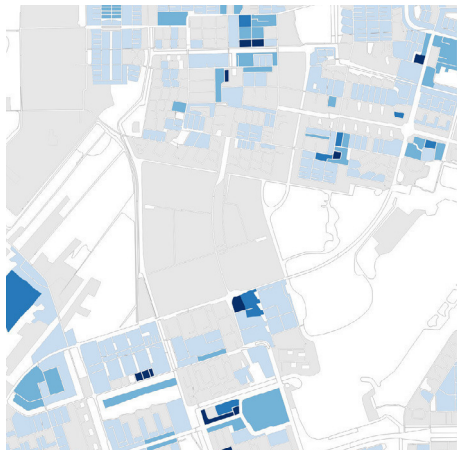
Infrastructure



Public network



GSI



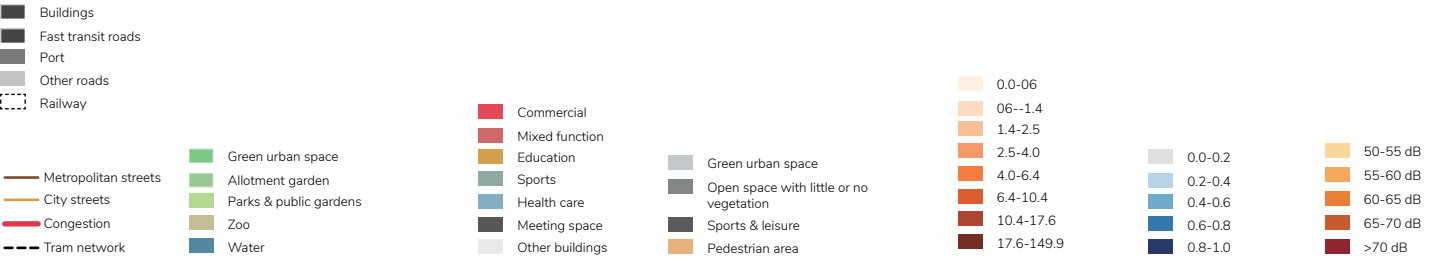
Blue-green network



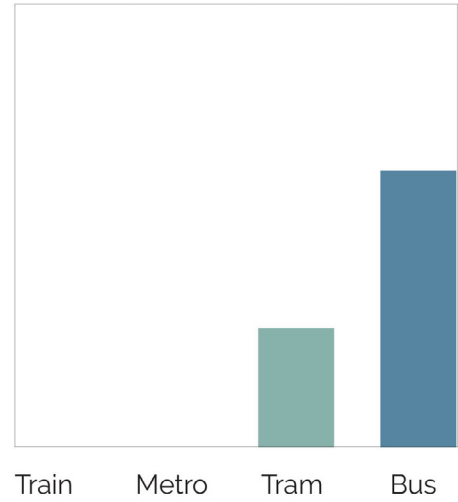
Public realm



Noise by traffic



Density of public transport stops



Coverage of metro stops Ratio 0



Passenger volume by metro stop



Distribution of public transport stops



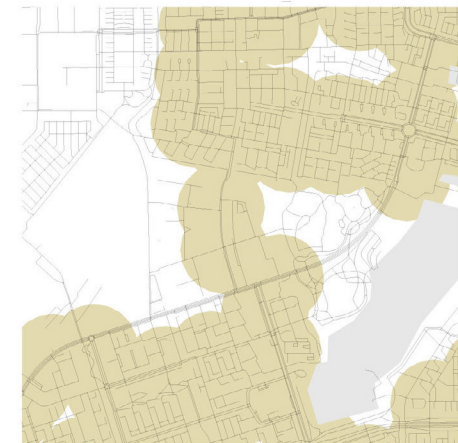
Distribution of tram stops Ratio 25.96%



Passenger volume by tram stop



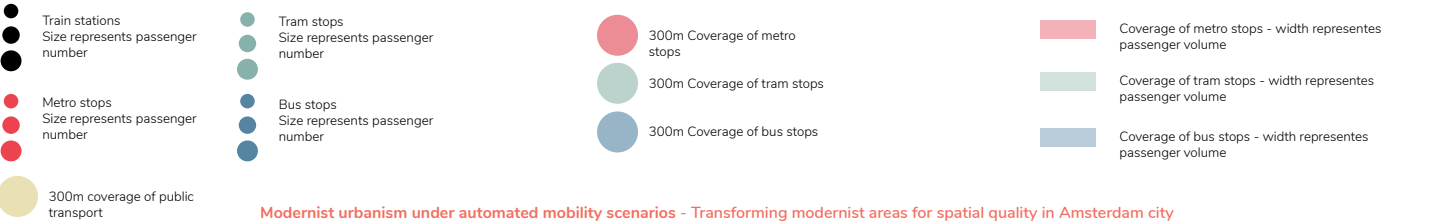
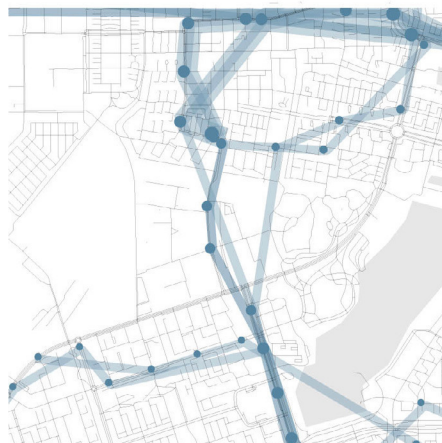
Coverage of public transport stops



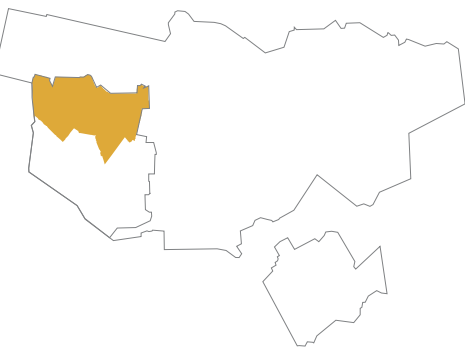
Coverage of bus stops Ratio 85.40%



Passenger volume by bus stop



TERRITORIAL ANALYSIS GEUZENVELD SLOTERMEER



Neighborhood scale analysis Nieuw West - Geuzenveld – Slotermeer – Sloterdijken area

The area consist of five neighborhoods: Slotermeer – Northeast and Southwest, Bedrijventerrein Sloterdijk, Westerpoot Eendracht.

The population today accounts for 45.000 people, 63% of non-western immigrants and 35% of families with children, and 27% of couples without children.

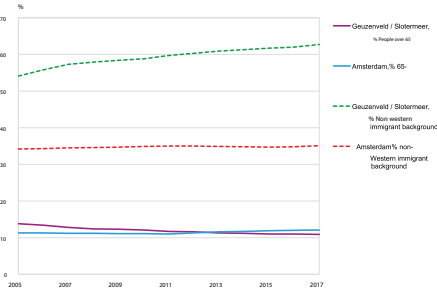
Today the Nieuw-West area faces many issues, the residents are little satisfied with the neighborhood, and many of them believe the area continues to deteriorate. The social structure is composed by many people with migration background, and many people with low levels of education and socio-economically vulnerable. The appearance of the environment is not attractive for the residents, and the maintenance of streets and sidewalks. On the other hand, some areas present vulnerability to extreme rain.

Dissatisfaction among residents is causing high turnover rates, in fact, the area is expected to decrease to 43.000 inhabitants in 2025.

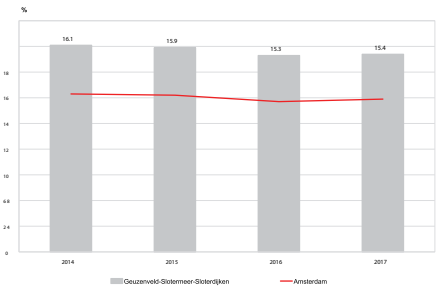
However, the city has planned several projects for housing and neighborhood improvement. And considering the high amounts of green areas, and relatively affordable rents, account for some of the most important strengths of the area.

Geuzenveld & Slotermeer Future trends

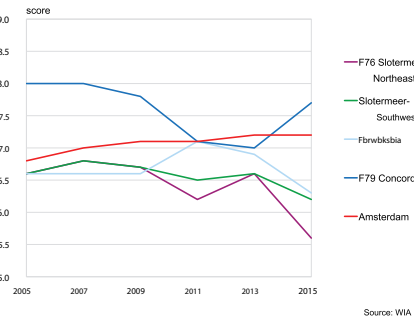
Present



Proportion of people over 65
Non-western immigrant 2005-2017
Figure 72. (WIA)



Registered unemployment
2014-2017
Figure 75 (WPI / CBS/ machining OIS)



Grade of home maintenance
2005-2015
Figure 73 (WIA)

Figure 75. (Structurevisie 2040, p. 192)

Living in New West per cluster - indication of delivery of homes by type of location

(in numbers)	2010-2020	2020-2030	2030+	totaal
cluster Zuidas / Aviation City	0	2.000 ¹	4.000 ²	6.000
remaining	4.950 ³	2.400 ⁴	0	7.350
total	4.950	4.400	4.000	13.350

^{1,2} Homes div.locations
³ Homes div. small locations
⁴ Homes Lelylaan and div. small locations

Working in New West per cluster - indication of delivery of office space

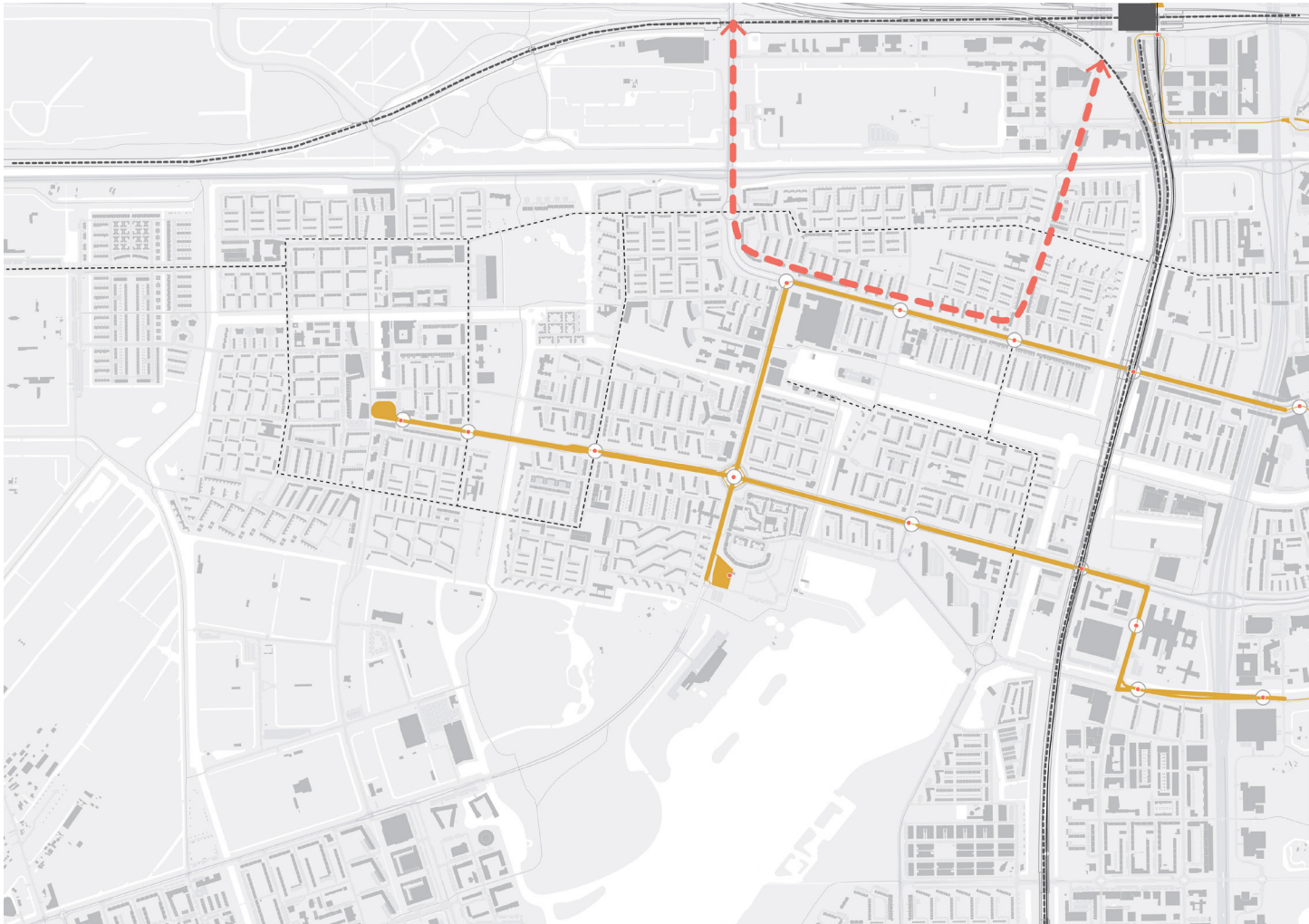
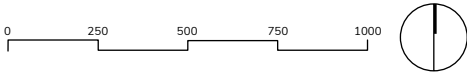
(in m²)	2010-2020	2020-2030	2030+	totaal
cluster roll out	37.500 ¹	18.000 ²	70.500 ³	126.000
remaining	31.500 ⁴	15.000 ⁵	35.500 ⁶	82.000
total	69.000	33.000	106.000	208.000

^{1,2,3} Office space for various locations Zuidas-LuchtHaven-Stad (zuidwest)
^{4,5,6} Office space various locations

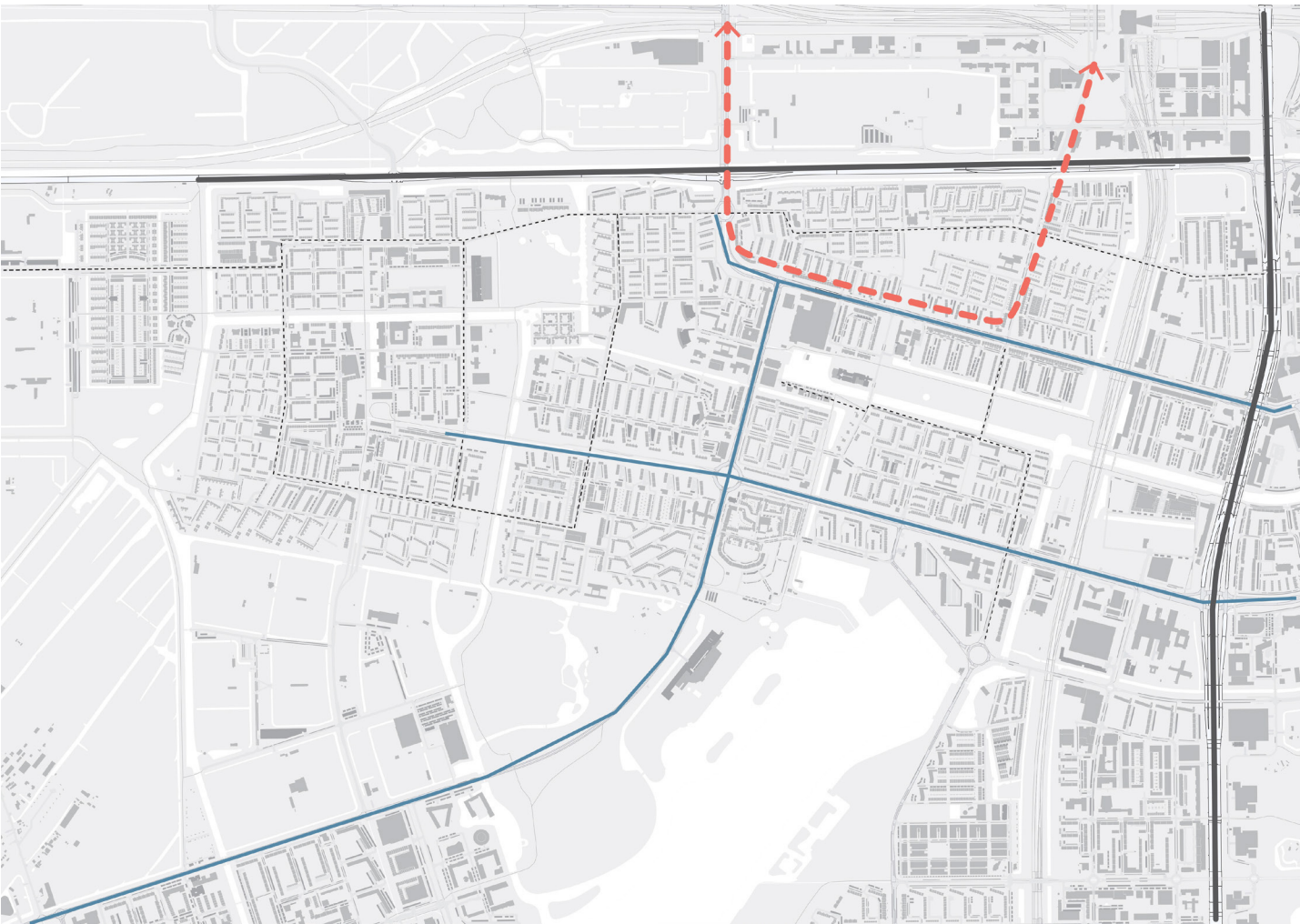
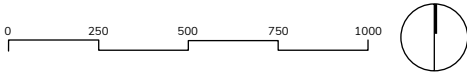
Cost overview - execution in New West

(in mln €)	2010-2020	2020-2030	2030+	totaal
infra	100 ¹	90–135 ²	5.000–7.000 ³	5.190–7.235
area development	101	82	18	201
green	15 ⁴	8 ⁵	0	23

- Street structure
Public transport
- Tram
 - Neighborhood street
 - Tram stop
 - Railway
 - Trainstation

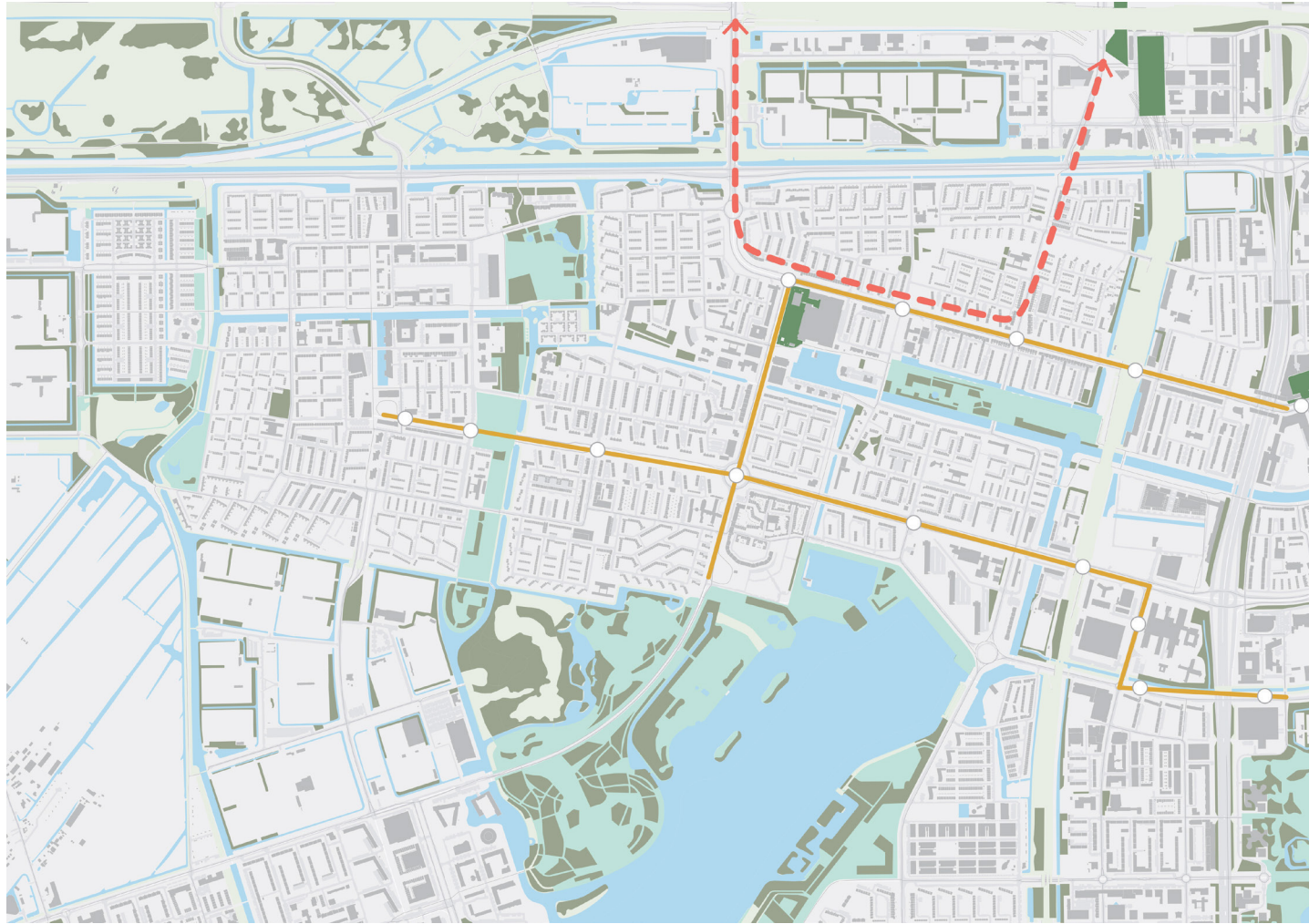
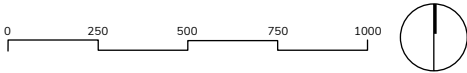


- Car
Infrastructure
- Ring
 - N200 Harlemerweg
 - Ring road A10
 - Regional road
 - Neighborhood street
 - Local streets
 - Parking



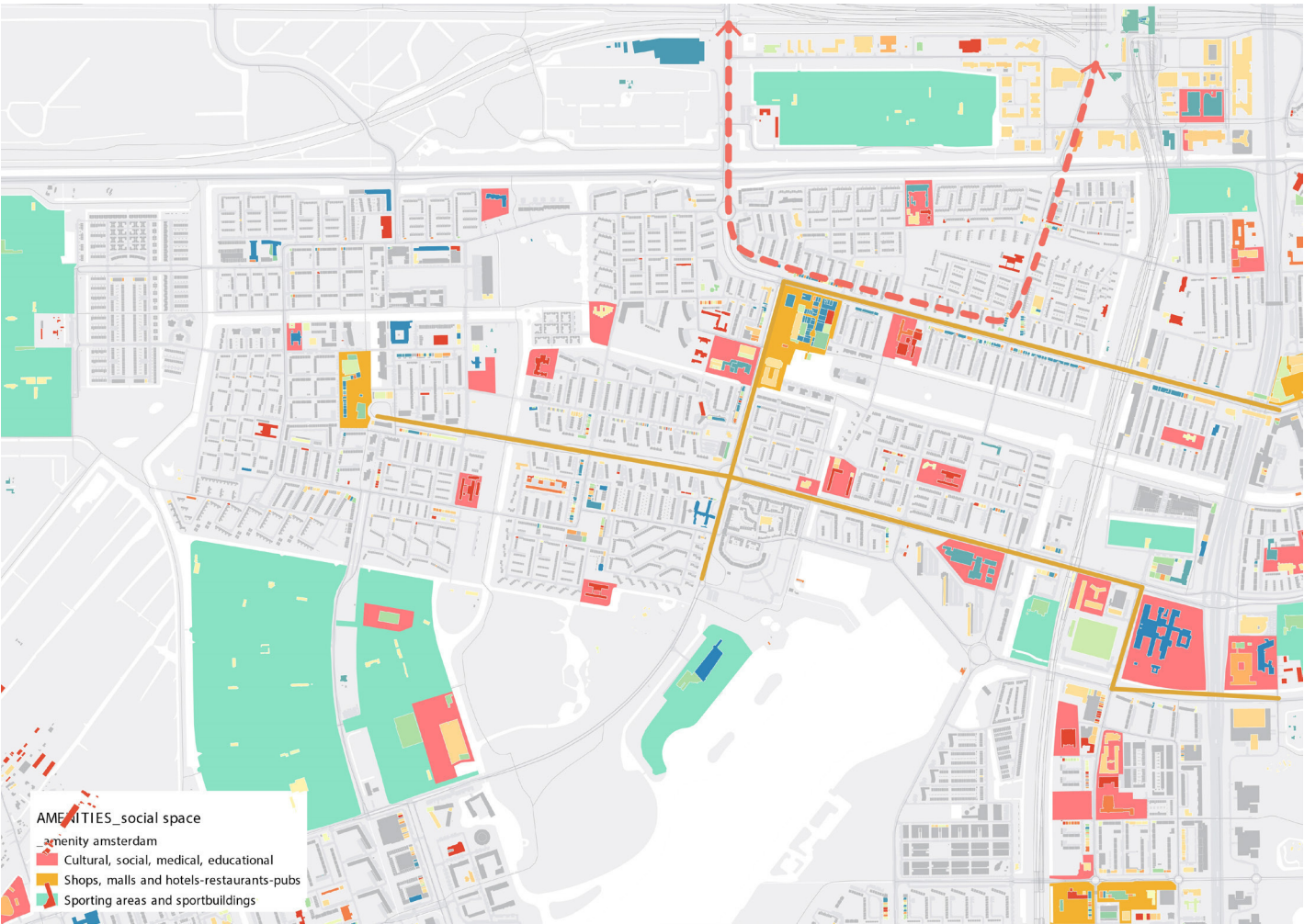
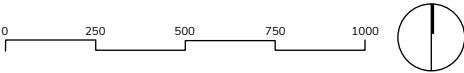
Blue green structure

- Water
- Green
- Eco structure
- Forest



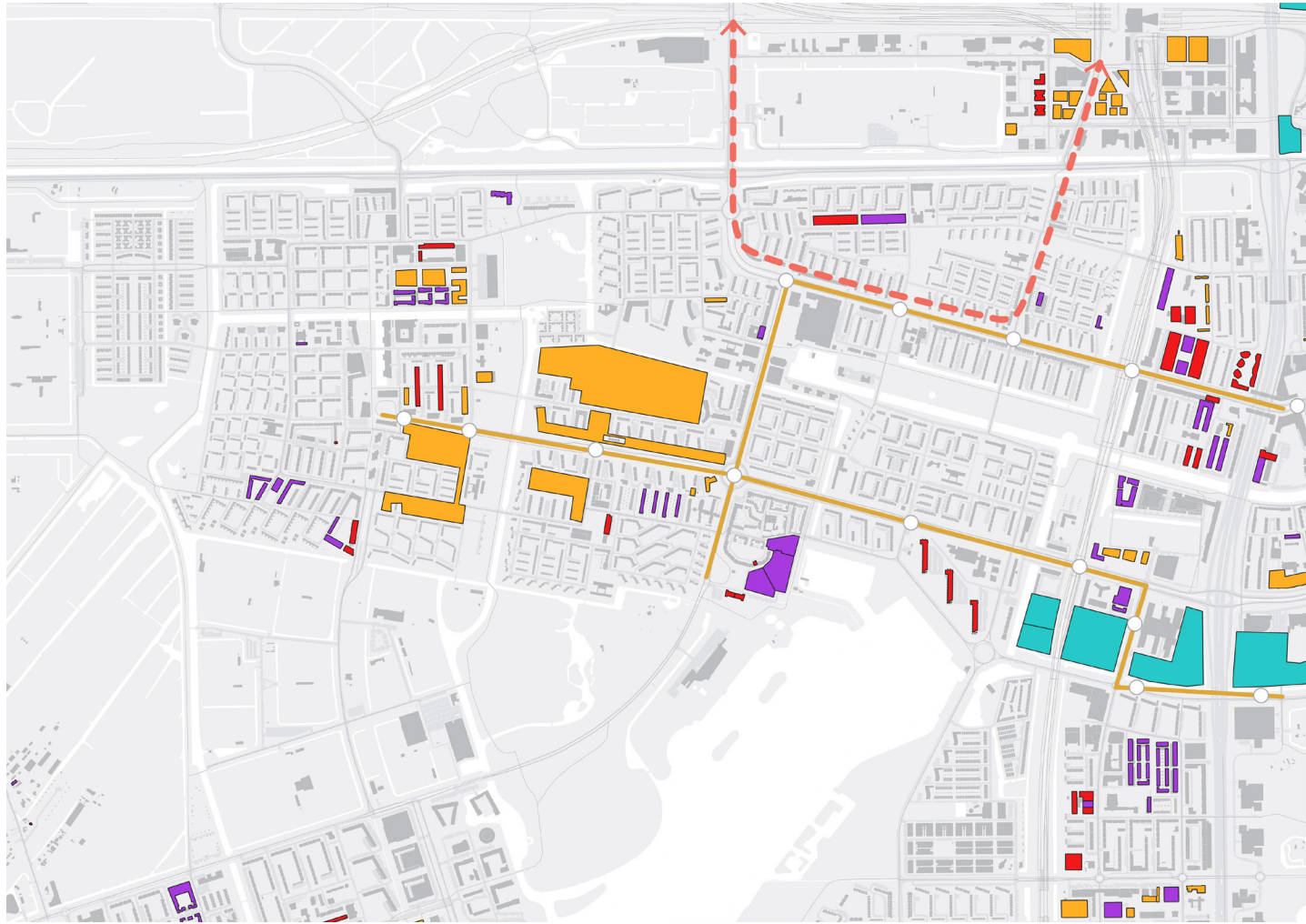
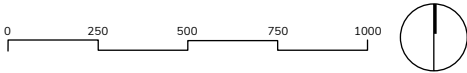
Amenities

- Cultural - social
- Shops
- Sports



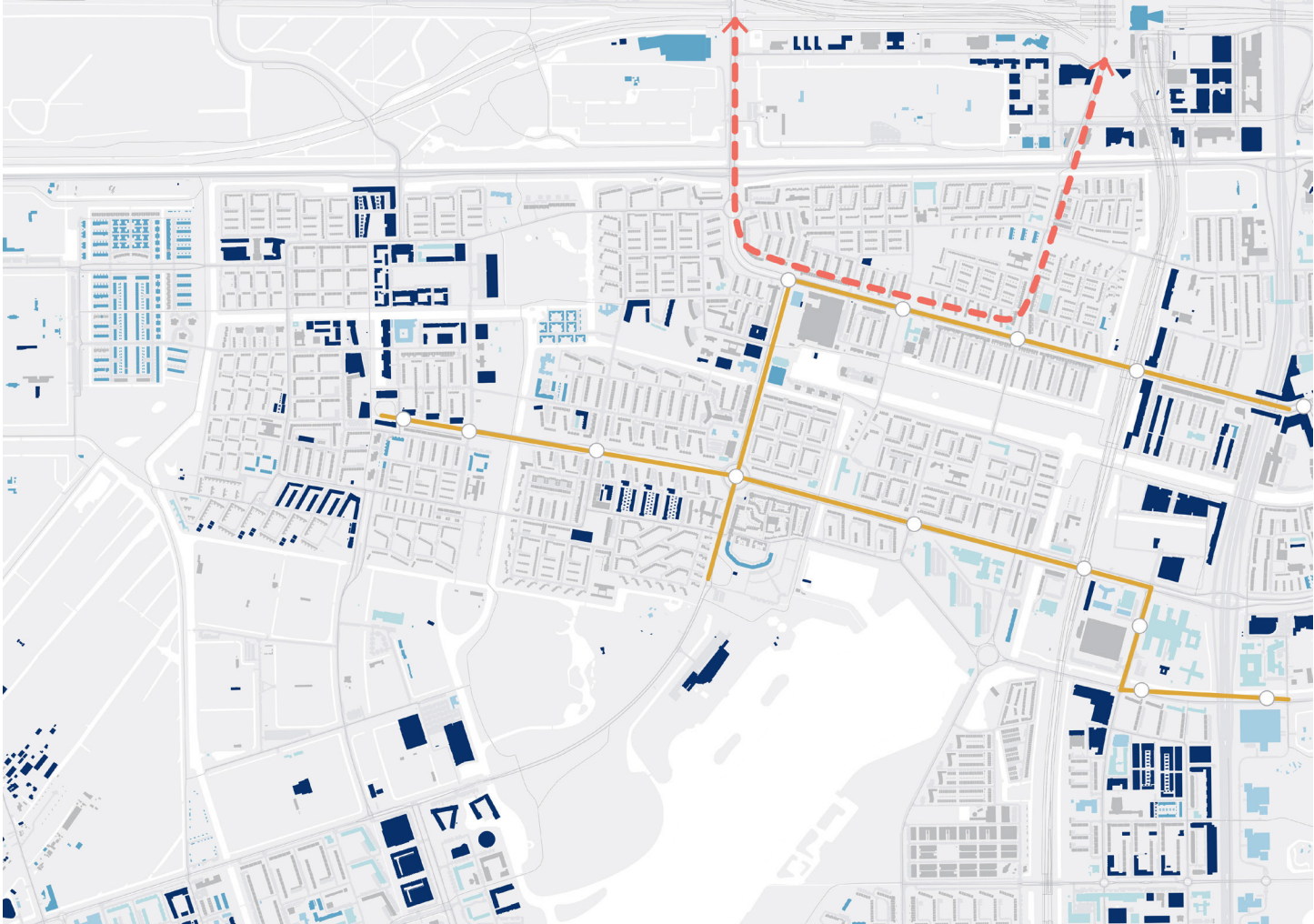
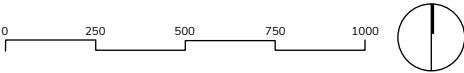
Municipal plan

- In construction
- Investment decision taken
- Completed
- Principle decision taken



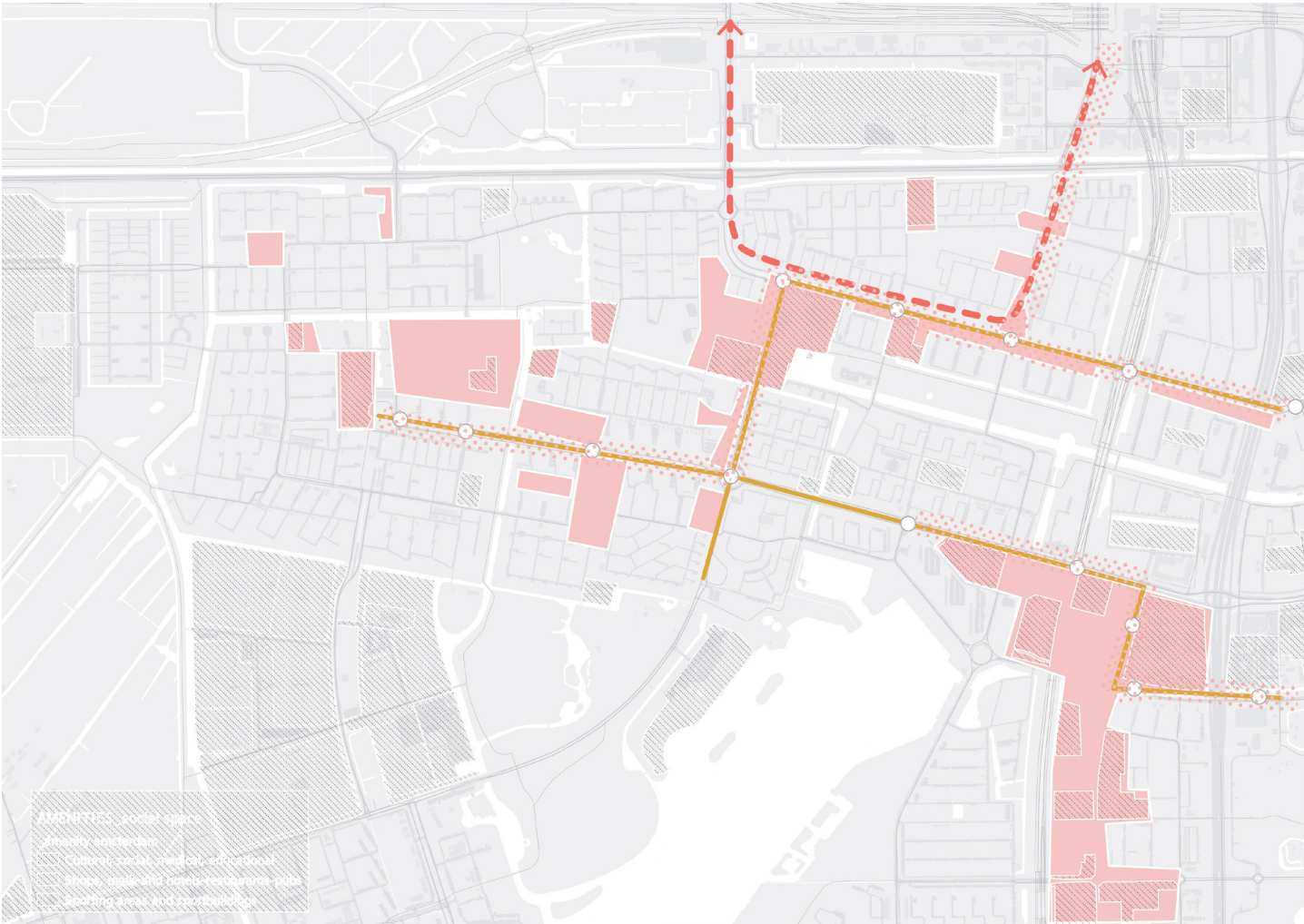
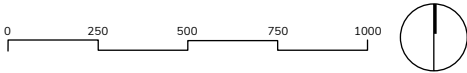
Building year

- 1960-1970
- 1970-1980
- 1980-1990
- 1990-1990
- 2000- 2015



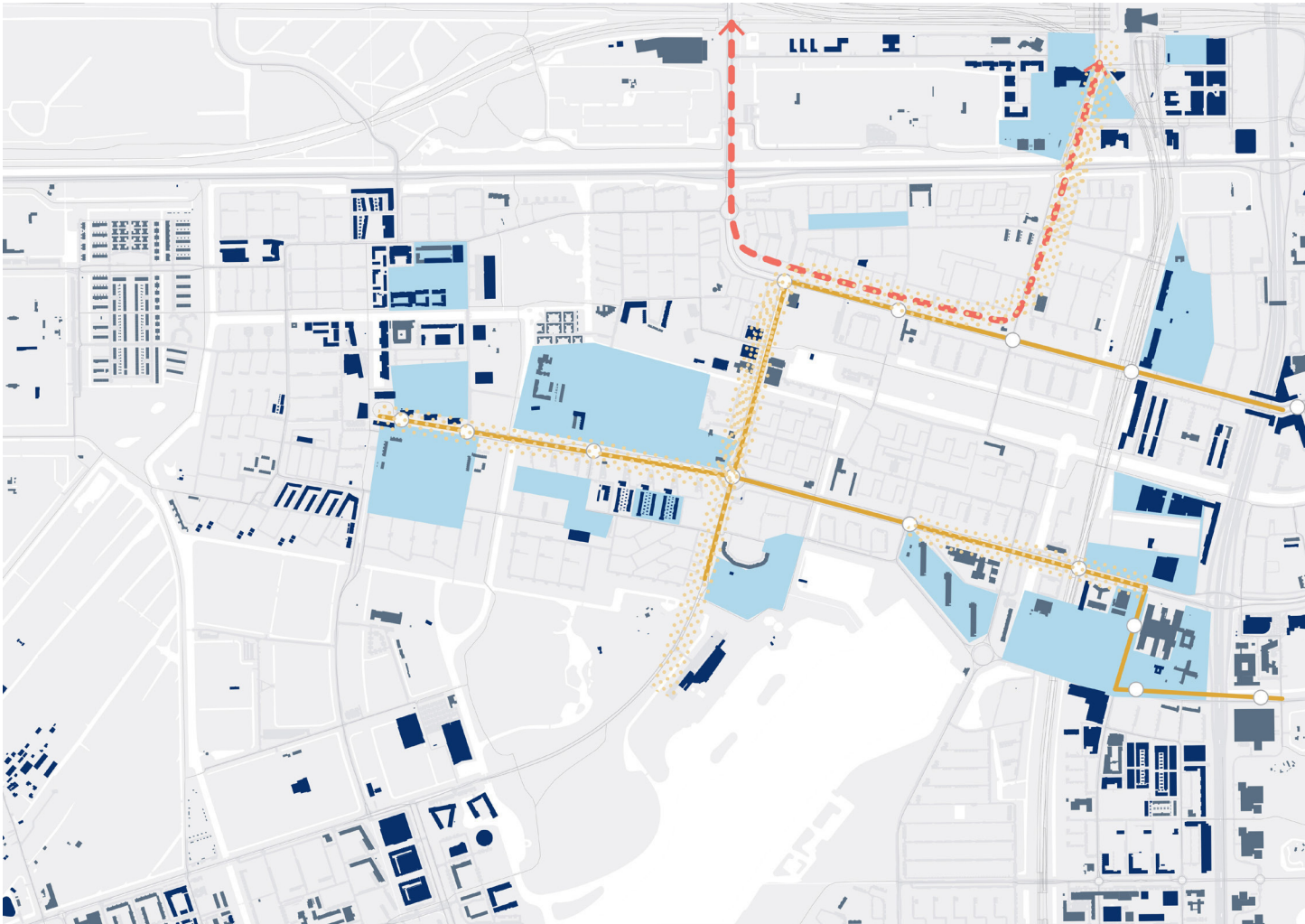
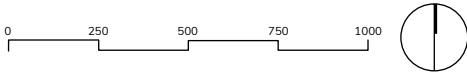
Centralities

- Concentration of non residential functions
- Concentration of non residential functions
- Connection to Sloterdijk
- Tram and bus
- Tram and bus stop
- Axis of concentration
- Concentration of housing development plans

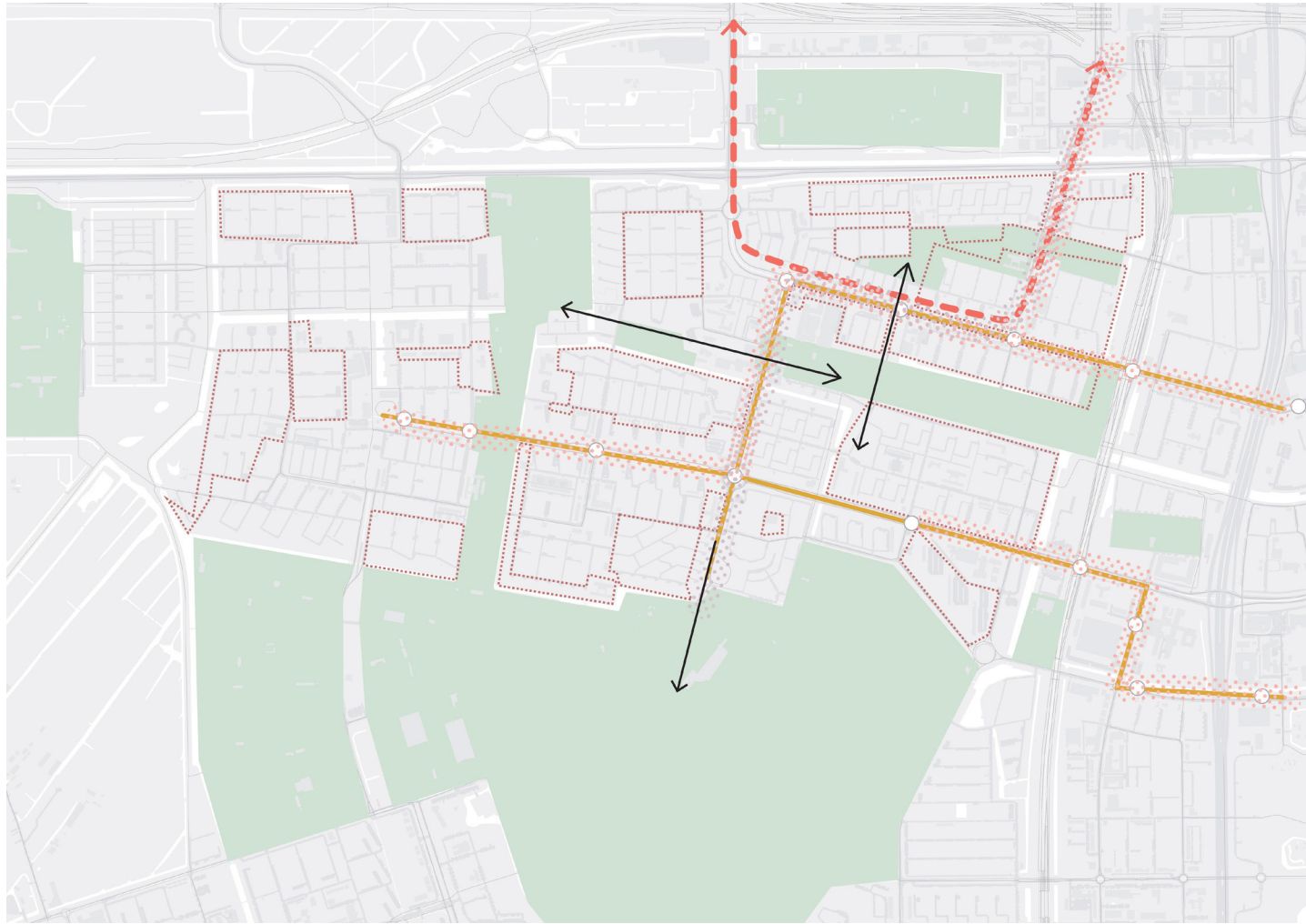


Municipal plan

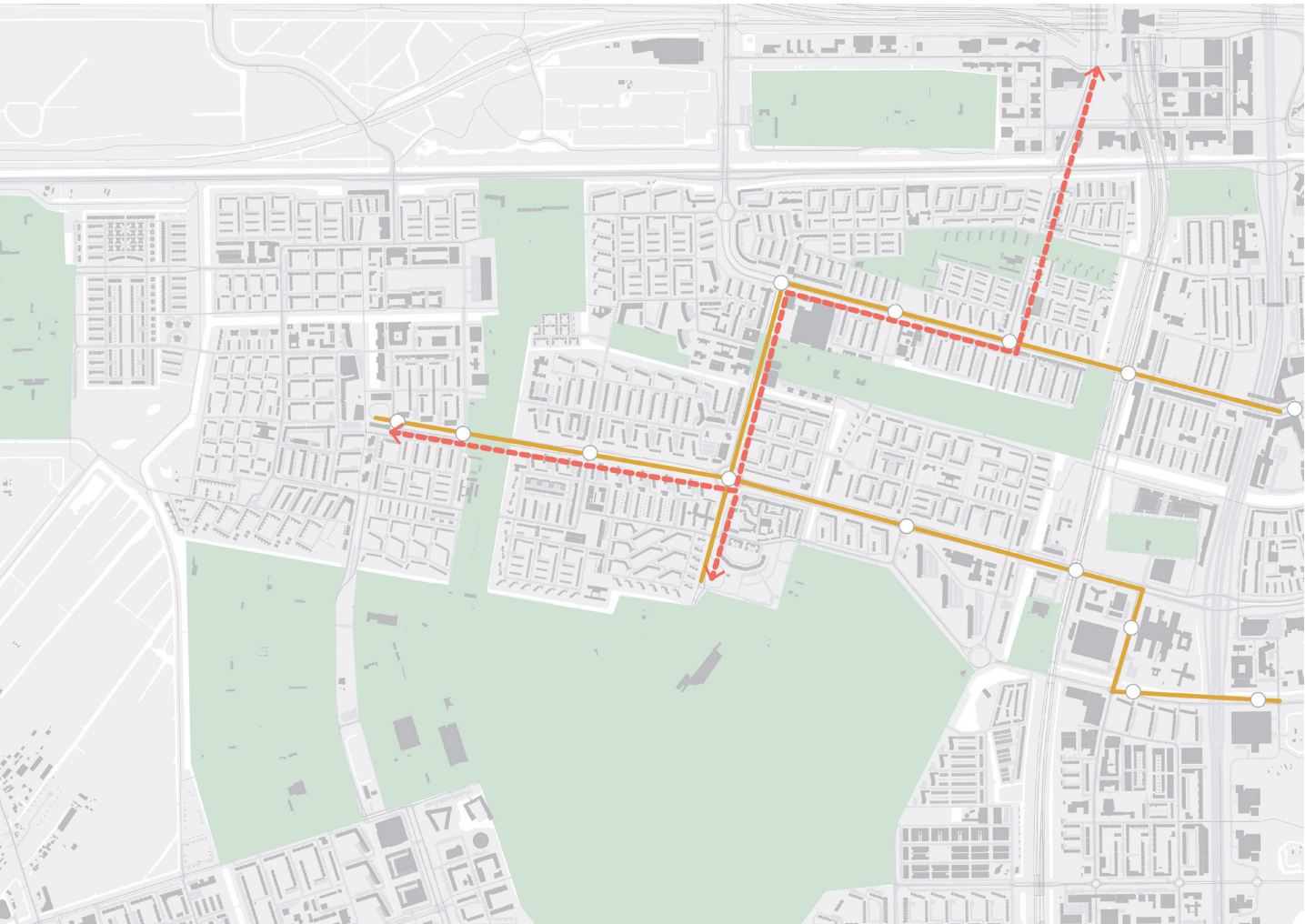
- 1970-1980
- 2000- 2015
- Concentration of non residential functions
- Connection to Sloterdijk
- Tram and bus
- Tram and bus stop
- Axis of concentration
- Concentration of housing development plans



Centralities



Street as an axis of development



INTERVENTION STRATEGY

Preliminary intervention strategy Nieuw West - Geuzenveld Slotermeer

The analysis carried out in the Nieuw West area, gives indications for the creation of a preliminary intervention strategy. As indicated in the territorial analysis in the previous chapter, the proximity of the Nieuw West area with the future urban developments of Havenstadt and Sloterdijk, constitute an opportunity to take advantage of the proximity with the city's new service and housing core. In this sense, the strengthening connection between the two neighborhoods constitutes one of the main intervention strategies for this territory. On the other hand, the use of the existing potential of the territory must be complemented with a strategic scheme of improvement and optimization of the space.

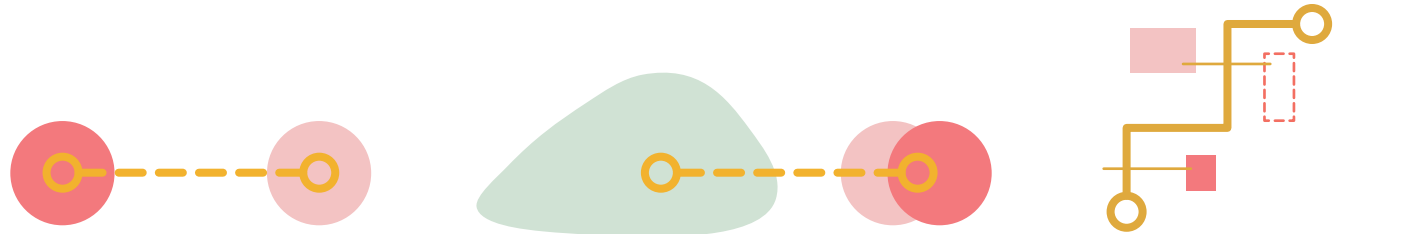
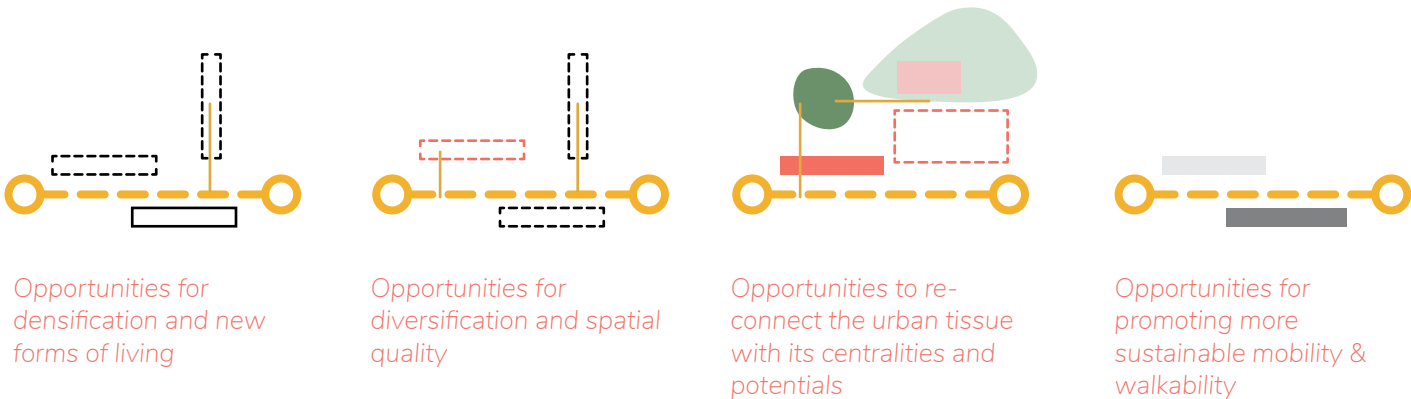
As can be seen in the maps of the territory, one of the greatest potentials of the territory is precisely in the large amounts of green space and public spaces, although these are generally over-sized and unattractive. On the other hand, the territory presents an important inventory of buildings with high architectural and patrimonial value, which could be subsequently valorized to increase the attractiveness of the territory, and foster the protection of the patrimony through proposals aimed at increasing the versatility of the built heritage.

The integration of public services commerce and housing density should also complement the intervention. This strategy should on the one hand, help improve the attractiveness of the territory for pedestrians, and on the other hand increase the possibilities of reinterpretation of the built heritage.

Potentials in the territory

-  Landscape
-  Green areas around buildings
-  Space for densification and diversification
-  Buildings as cultural and historical patrimony
-  Disperse but many centralities of non residential functions

Potentials in the street for automated cars and public transport



THE STREET

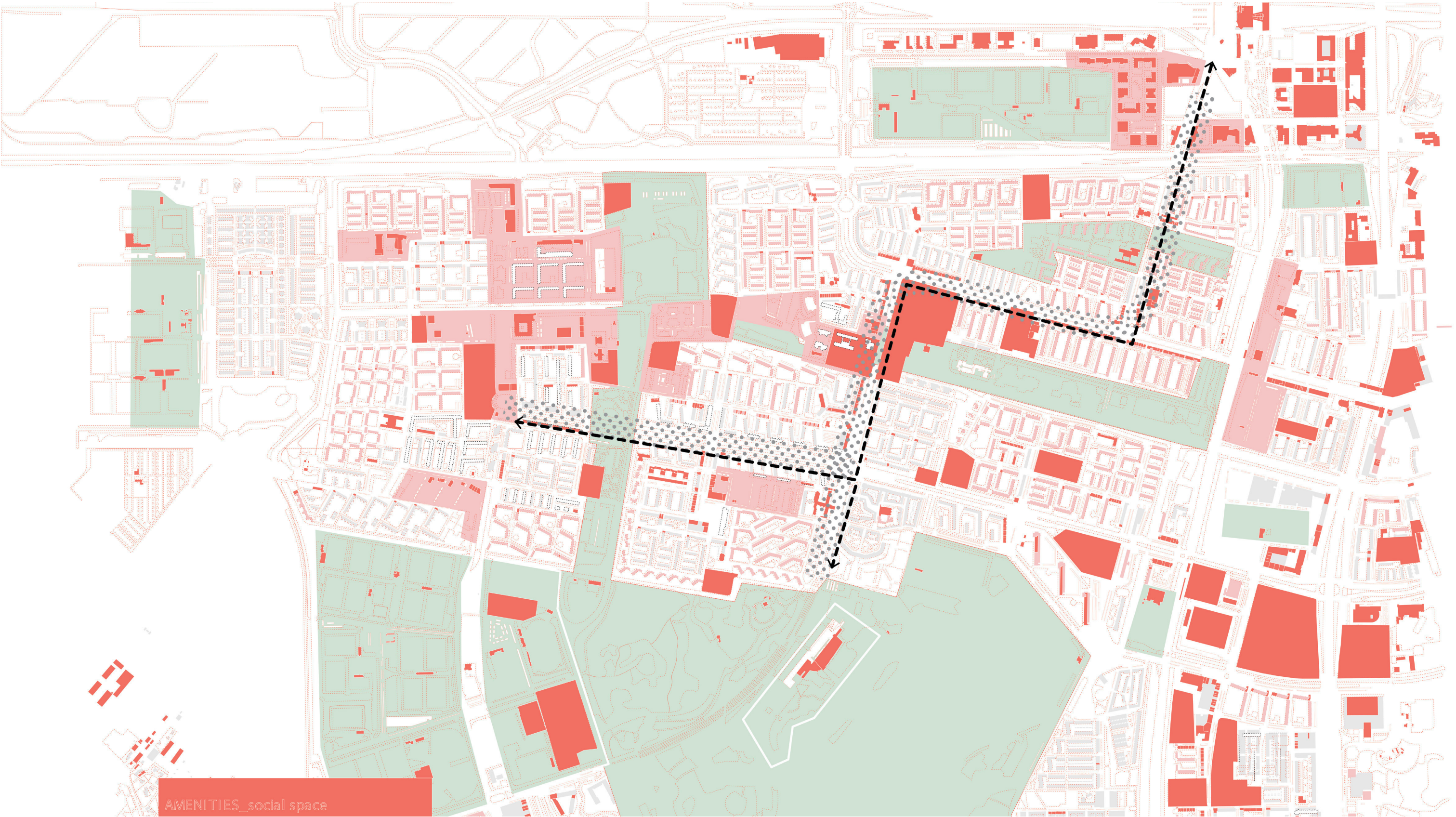
As a link between poles of activity and connection

THE STREET

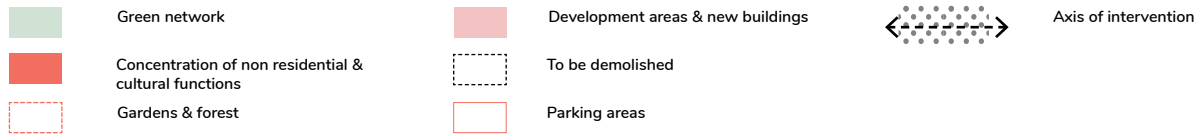
As a link between natural and urban landscape

THE STREET

As a link between potentials of the territory



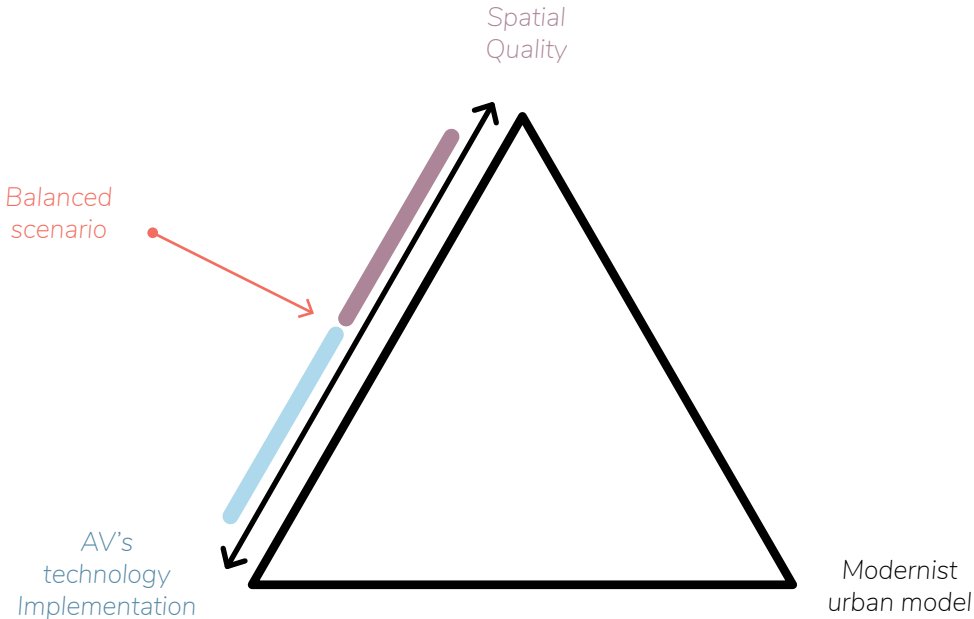
Spatial drivers



7. Scenarios of automated mobility
Public space utopia Vs Automated mobility utopia

Scenarios of automated mobility
PUBLIC SPACE UTOPIA Vs AUTOMATED MOBILITY UTOPIA

AV'S
SCENARIOS



Scenarios of automated mobility

For the scenarios of future automated mobility are framed within three main lines of thought coming from the literature, the literature available in relation to the critical aspects of the modernist model and the subsequent construction of a desirable urban environment, for which, ideas on spatial quality and liveliness, provide a basic structure. Jane Jacobs and Jacobs & Appleyard are the principal authors taken into consideration to construct and idea of the basic elements of public space quality.

The concepts and context relate to automated mobility are informed by the literature available, but with main focus on the existing literature that provide a wide overview on accepted advantages and disadvantages of this technology, its impact on pedestrian transit and public transportation, and future possible scenarios of implementation in the Netherlands. For this, Milakis et al. Duarte & Ratti, and Levine at al. are main sources of inspiration.

A matrix of concepts has been used to confront the possible relations between theories on spatial quality and AV's most discussed and probable advantages and disadvantages. The first matrix (Table 9), is used to contrast advantages and disadvantages on the adoption of this technologies in

relation to the approach, from these, possible driving forces for each situation is drafted.

A subsequent couple of tables (Table 10-11), are created to confront these driving forces against the elements required for spatial quality of public spaces, from this table, a spatial dimension on the impact of the technology is drafted, and confronted with the elements of spatial quality. From this analysis , an idea on which drivers could be more or less advantageous for the quality of the public space are extracted.

The scenarios are inspired in this confrontation between a more technology driven approach, and an approach that could focus on the warranting spatial quality above all. Resulting in two scenarios, one -Actual Utopia- is centered on spatial quality, public transportation and walkability, and the other tries to find a mid-way solution and balanced synergy between Utopia and Possibility -Possible Utopia- All the scenarios are framed on the hypotheses that AV's will be introduced in the market in 2025, and fully operative by 2040 (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015).

Table 9 - Accepted advantages and disadvantages of automated mobility and possible drivers

	Advantages	Driver	Disadvantages	Driver
Reach, Use and Integration				
Public transport	>Multimodal mobility services >Emphasis on Public transport as it offers better functional capacity	>Preserve priority of public transportation especially in higher density areas	>AVs and car-sharing schemes make public transport obsolete; >AVs may not serve as last mile supporting service, as people would prefer not to transfer; >Traffic capacity improvements eliminate the role for public transport;	>Prioritize total access of cars; >Lack of regulations; >Prioritize car infrastructure development;
Bicycle & pedestrians	>Part of the existing infrastructure becomes bicycle or pedestrian uses, due to increase in traffic capacity	>Low traffic intensity, and VKT >Offer diverse means of transportation	>Another possibility is that more traffic is accommodated in the same road space, without any benefits for pedestrians and cyclists >Increased traffic volumes and speeds with AVs may degrade walking and cycling conditions (Litman, 2014).	>Market driven approach; >Prioritize total access of cars; >Strong induced travel demand;
Sharing schemes	>Encourage car-sharing schemes and mobility as a service;	>Policies and taxes	>Prevailing private cars	>Lack of regulations;
Space and infrastructure				
Environment	>Accelerate vehicle electrification and electro-mobility; >Reduction on CO2 emissions and fuel consumption; (COM(2018) 238)	>Low traffic intensity, and VKT >Offer diverse means of transportation >Policies and taxes	>Increase or maintained CO2 emissions	>Strong induced travel demand;
Infrastructure & Roads	>Reduce the need for conventional infrastructural investments >Utilizing existing infrastructure >Re-propose the obsolete existing infrastructure	>Low traffic intensity, and VKT >Offer diverse means of transportation >Policies and taxes	>If especial dedicated lanes for AVs are necessary, additional infrastructural investments may take place >Smart infrastructure, especially for vehicle-infrastructure communications >Smart infrastructures may soon become obsolete if they are not constantly maintained and upgraded	>Prioritize vehicle as transportation mean; >Prioritize car infrastructure development; >Strong induced travel demand; >Not prioritizing Multimodal mobility services;
Parking	>Significant reduction of the amount of spaces dedicated to parking in urban areas >Automated vehicles drive themselves to peripheral parking lots after dropping off passengers. >Car-sharing lead to a reduction in car ownership or car-free lifestyles.	>Preserve priority of public transportation as a priority, especially in higher density areas; >Offer diverse means of transportation >Policies and taxes >Development of automated parking in less expensive areas of the city.		
Traffic	>Less cars on the road; >Increase traffic capacity and reduce need for road expansions	>Offer diverse means of transportation	>Increase in vehicle-kilometer travels (VKT) due to low cost and induced demand	>Market driven approach; >Not prioritizing Multimodal mobility services. >Decrease in value of time
Quality of life				
Safety	>Improvement on road safety, considering that human error is estimated to account for 94% of accidents;	>High technological development; >Controlling accessibility and intensity of car traffic		
Accessibility	>Widened the range of access to mobility (e.g. people with disabilities or unable to drive, elderly, etc.);	>AV's have total access to city		
Cost	>Lower driver cost for freight traffic and taxis; >Fuel cost reduction as a result of more cost- efficient driving.	>High penetration and adaptation of AV's	> Fuel cost may increase in case of VKT increase	
Time	>Travel time decrease its value, and can be used for leisure or work;	>More time for leisure and work	Increase in travel demand and VKT	>Decrease in value of time



Could promote / Likelihood



Do not promote / Unlikely



Possible with:

- Design strategies & proposals
- Policies
- Management

Not direct impact or uncertain

Table 10 - Advantages drivers of automated mobility and possible synergies with the qualities of public space

		Advantage drivers					
	Advantages drivers	>Preserve priority of public transportation especially in higher density areas >Offer diverse means of transportation > Environment	>Low traffic intensity, and VKT	>High technological development; >Controlling accessibility and intensity of car traffic	>AV's have total access to city >High penetration and adaptation of AV's	>Development of automated parking in less expensive areas of the city.	Decrease in value of time
	AV'S advantage	Integration to Public transport, Bikes and pedestrians	>Integration to Public transport, Bikes and pedestrians >Environment >Infrastructure & roads	>Safety	>High accessibility by car >Cost	>Parking >Integration to Public transport, Bikes and pedestrians	Time for leisure or work
	Impact on space	>More space Reduced emissions Density	>More space Use of non-operative infrastructure Reduced emissions	>Different meanings and means for typical infrastructure	>Urban sprawl >Streets & parking preserve same use & scale >Need of dedicated infrastructure or enlargement of existing >No additional space	>More space >Integration to Public transport, Bikes and pedestrians >Different meanings and means for typical infrastructure	>Increased value and use of public spaces
Public space - life qualities							
Quality & Liveliness Jane Jacobs	Goals Qualities public space Kevin Lynch						
Functional mixture provide adequate services and proximity synergies	Livability Identity and control Access to opportunity, imagination and joy; Authenticity and meaning;	😊	😊	😊	😞	😊	😊
	Integration of activities, living, working, shopping in reasonable proximity to each other;	✓	✓	✓	✓✗	-	✓
	Community and public life;	✓	✓	✓	-	-	✓
	An environment for all;	✓	✓	✓	-	-	✓
	Urban self-reliance;	✓	✓	✓	-	-	✓
The physical space should provide: short blocks, life on the ground floors and attractive corners and side streets.	Buildings that define public space (not sit in space);	😊	😊	-	-	😊	😊
	Many separate distinct buildings with complex arrangements and relationships, as opposed to huge large buildings.	✓	-	-	✗	✓	-
	Livable streets and neighborhoods;		✓	-	✗	✓	✓
	Gehl						
	Opportunities for play and exercise	✓	✓	✓	✗	✓	✓
	Opportunities to talk and listen	✓	✓	✓	✗	✓	✓
	Opportunities to walk	✓	✓	✓	✗	✓	✓
Density could provide for concentration of people and institutions;	Minimum density of residential development, intensity of land use;	😊	-	-	😞	😊	-



Could promote / Likelihood



Do not promote / Unlikely



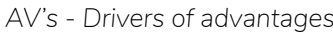
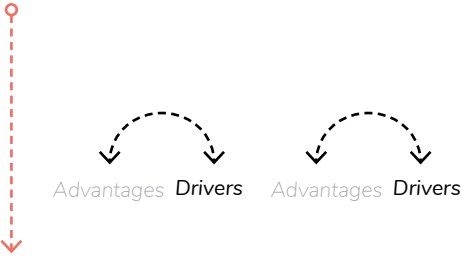
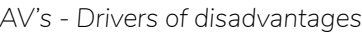
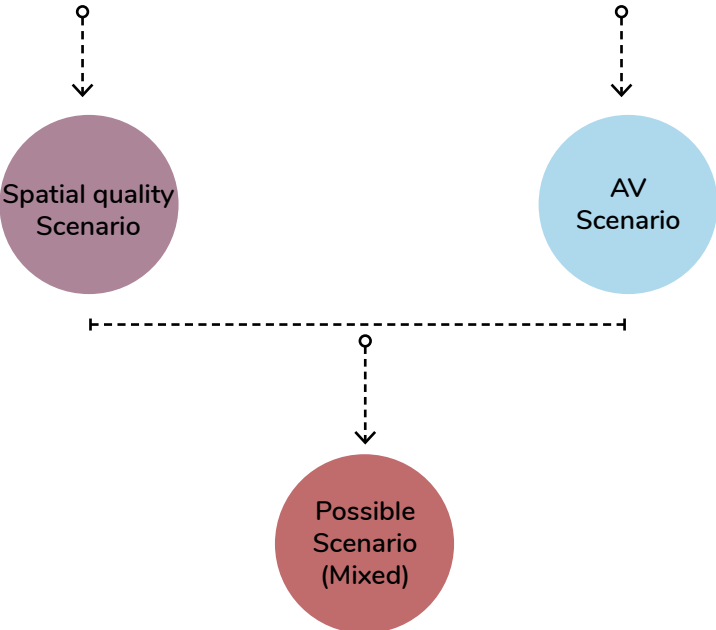
Possible with:

- Design strategies & proposals
- Policies
- Management

Not direct impact or uncertain

Matrix of disadvantages, possible drivers of dynamics and qualities of public space.

- 😊 Could promote / Likelihood
- 😞 Do not promote / Unlikely
- ✓ Possible with:
 - Design strategies & proposals
 - Policies
 - Management
- Not direct impact or uncertain

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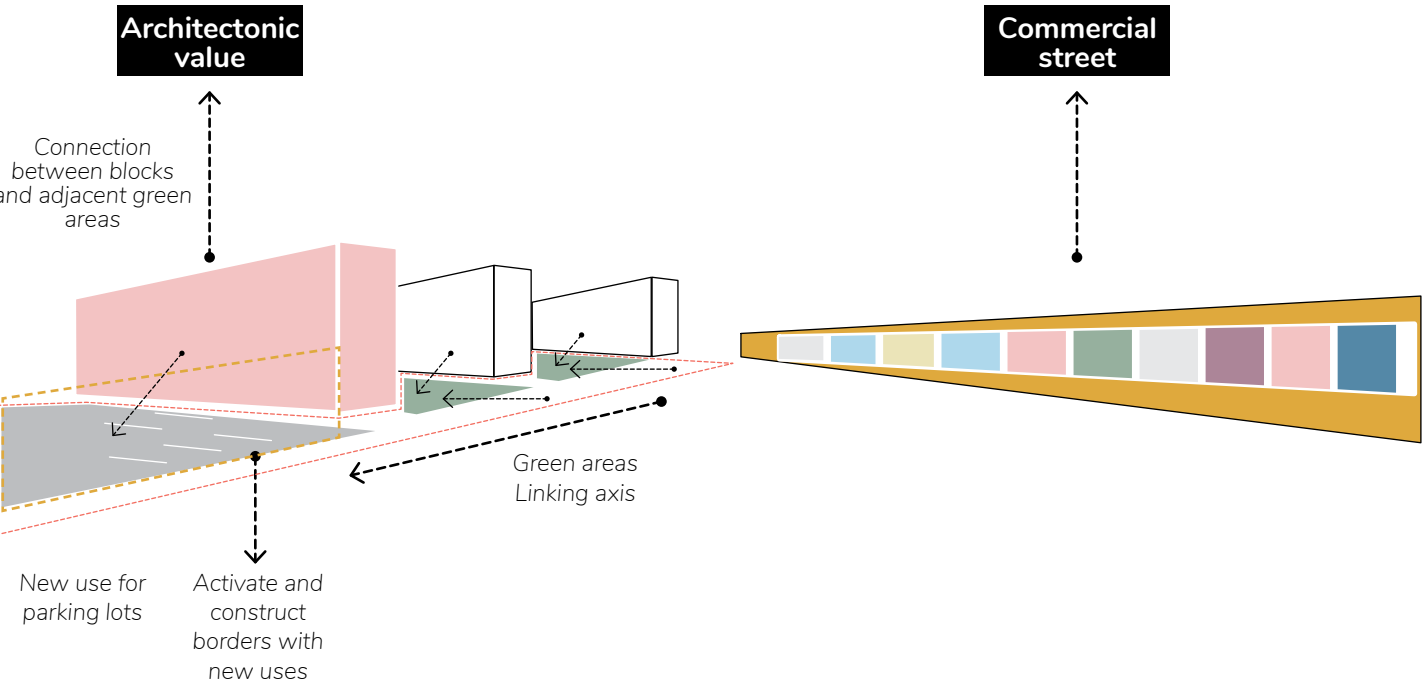


- Parking**

Parking & green areas between buildings & facing the street
- Open block**

Blocks hold architectonic value
- Commerce**

Commerce only on one side of the street



SPATIAL
QUALITY
SCENARIO

Scenario 1 / Actual utopia

Strong restrictions of access to AV's, the focus is more on public transportation, walkability and a consequent creation of spatial quality opportunities.

The densified centers and highly accessible peripheries will become more attractive and mixed urban environments.

Focus on spatial quality;

Priority to public multimodal transportation (Multimodal HUBS) and walkability;

AV's (private & shared) vehicles separated from other transportation systems and highly restrictive in terms of accessibility (Only on highways);

- High involvement of public authorities;
- Emphasis on regulations and policies;
- Impact on space
 - Densification;
 - More space in streets and parking;
 - New uses for old infrastructure;
 - Incentive creation and value of public spaces;
- Multimodal structures located in central stations and along strategic ring roads and roads.
- Reduction in CO2 emissions.
- Criticalities of the model:
 - Overcome users and market non conformity with regulations;
 - Overcome the last mile issue;
 - High infrastructural investment;
- (Gehl, Kaefer, & Reigstad, 2006) (Jacobs & Appleyard, 1987) (Lynch, 1960) (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Duarte & Ratti, 2018),



AV SCENARIO

Scenario 2 / Possible utopia

Market – driven focus;

Priority to private and sharing cars;

AV's (private & shared) vehicles highly mixed with other transportation systems;

High involvement of public authorities and low level of regulations.

Impact on space

Sprawl - growth of urban expansions outside the city, due to the higher accessibility and reduction in time value;

Same or higher amounts of space are needed to host

increasing traffic;

Pressure on existing infrastructure;

No reductions of CO2 emissions increasing traffic and VKT;

Pressures on non-built land, for growth demands;

No additional space from parking or streets due to strong travel demand and use of private and sharing cars;

Criticalities of the model:

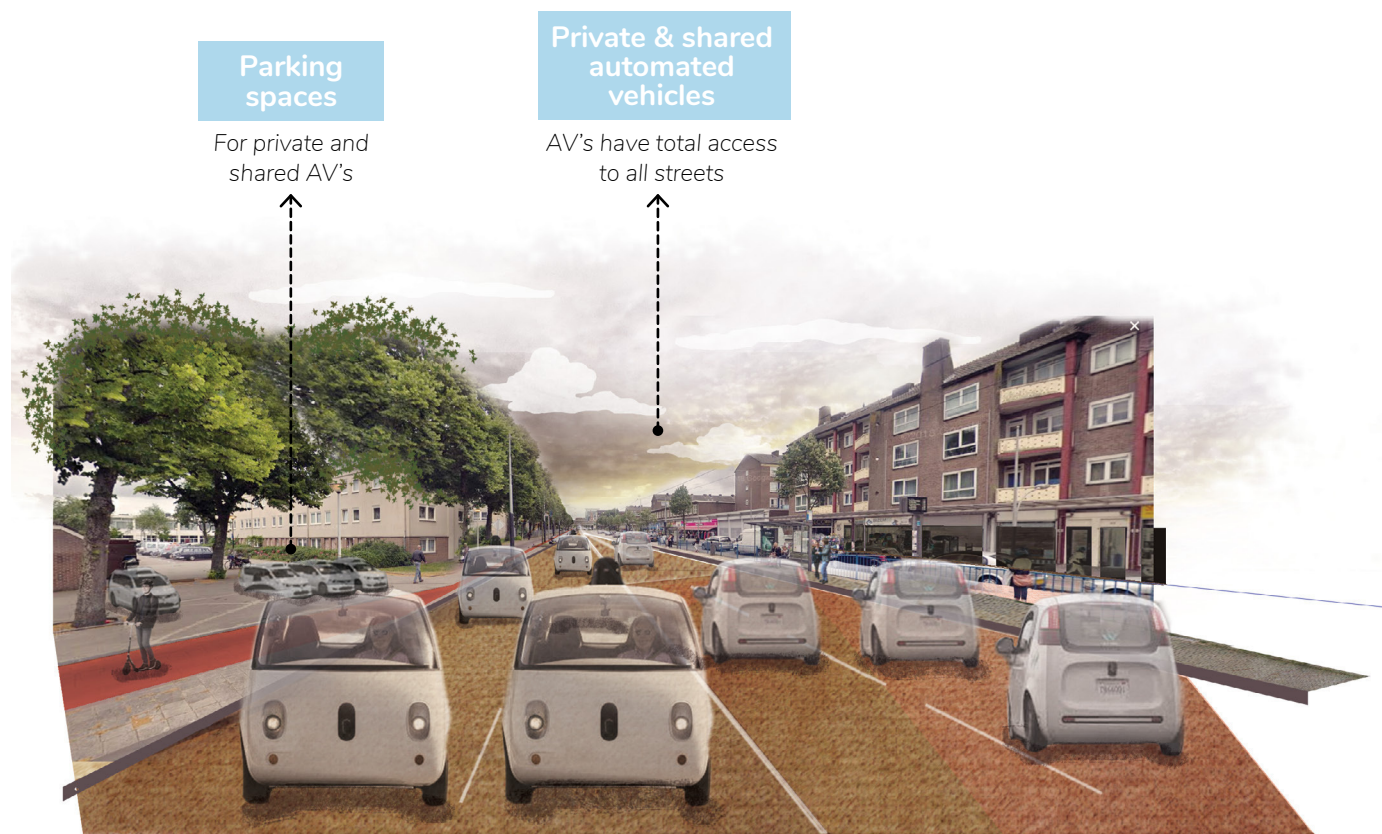
Pressures on non-built land, for growth demands;

Pressures on public transportation and other mobility modes;

Pressures on parking infrastructure;

Continuity of current pressures on the quality and livability of the public spaces.

(Gehl, Kaefer, & Reigstad, 2006) (Jacobs & Appleyard, 1987) (Lynch, 1960) (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Duarte & Ratti, 2018),



MIXED SCENARIO

Scenario 3 / Possible Utopia

The focus of this scenario is on the right combination and balance between AV's and public and other modes of transportation.

However the mixed system still gives priority to alternative, public and shared modes of transport. Public transportation is not endangered by the arrival of AV's due to high connectivity and capacity of the system.

The system is possible in highly connected areas, and should provide possibilities for densification, intervention on public areas that become more valuable, and allow for pedestrianization of streets in accordance to strategies for management and use of public space.

Focus on spatial quality and accessibility;

Priority to public multimodal transportation (Multimodal HUBS) and walkability;

AV's (private & shared) vehicles highly mixed with other transportation systems;

Activate plans to create car free neighborhoods;

High involvement of public authorities;

Emphasis on regulations and policies;

Impact on space

Densification of strategical urban areas (policies needed); Multimodal structures located in central stations and along strategic ring roads and roads.

New multi storage self-parking areas; New uses for some old infrastructure, parking and car-free streets;

Incentive creation and value of public spaces;

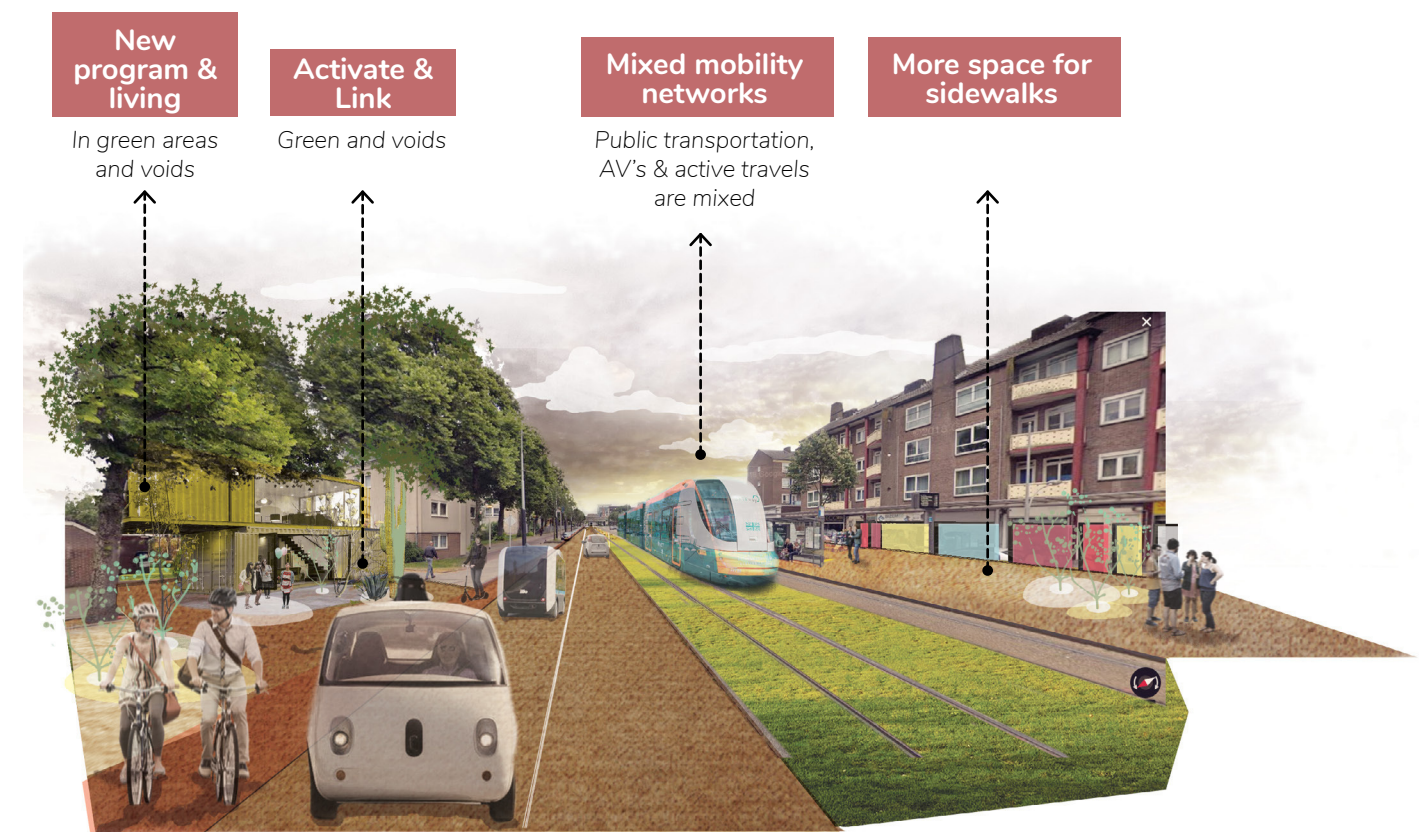
Reduction in CO2 emissions.

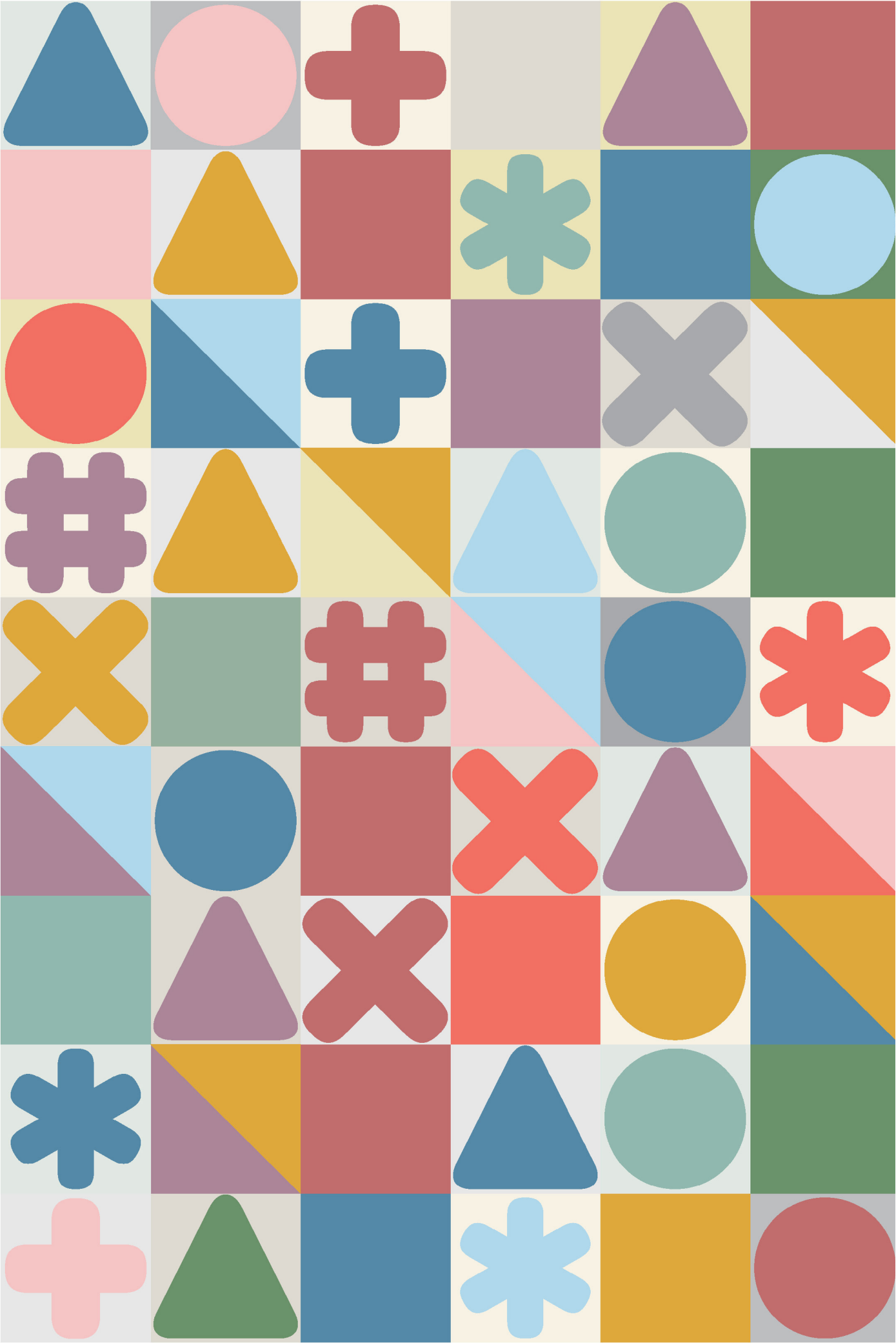
Criticalities of the model:

Preventing increase of private AV's traffic and CO2 emissions;

Providing regulations that incentive a balanced system of AV's private and public; and re-thinking existing and new infrastructure for spatial quality; High infrastructural investment;

(Gehl, Kaefer, & Reigstad, 2006) (Jacobs & Appleyard, 1987) (Lynch, 1960) (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Duarte & Ratti, 2018).



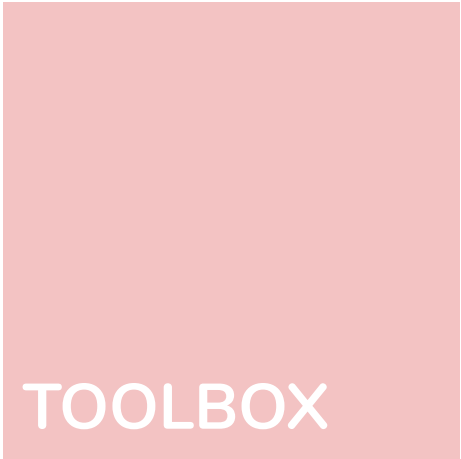


8. Toolbox

Quality of public spaces under automated mobility scenarios

Quality public spaces under automated mobility scenarios

TOOLBOX



The toolbox

The toolbox is a tool that seeks to connect the problems of the public spaces with the possible solutions find in the quality of public spaces literature.

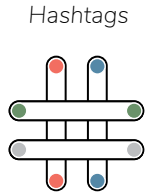
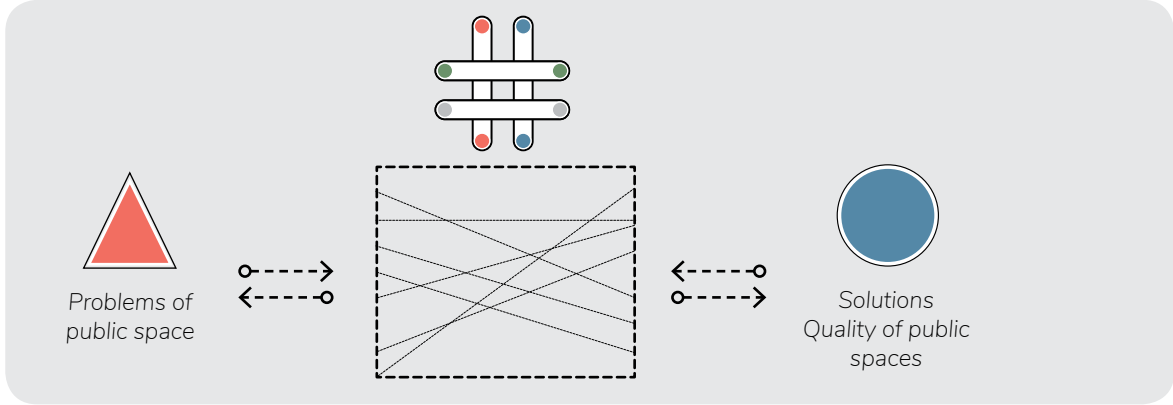
Problems, and qualities of public space are collected in a database and the concepts are connected to each other through a hashtag (Key word), related to a neutral category.

The possibilities offered by the chosen automated mobility scenario will inform the possibilities of connection between problems and solutions, meaning that most of the interventions on public space will be triggered by the dynamics created by the new mobility scenario, and its implication in the physical space. The result of this integration of elements will be a set of patterns created to help structure the interventions in the territory.

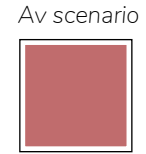
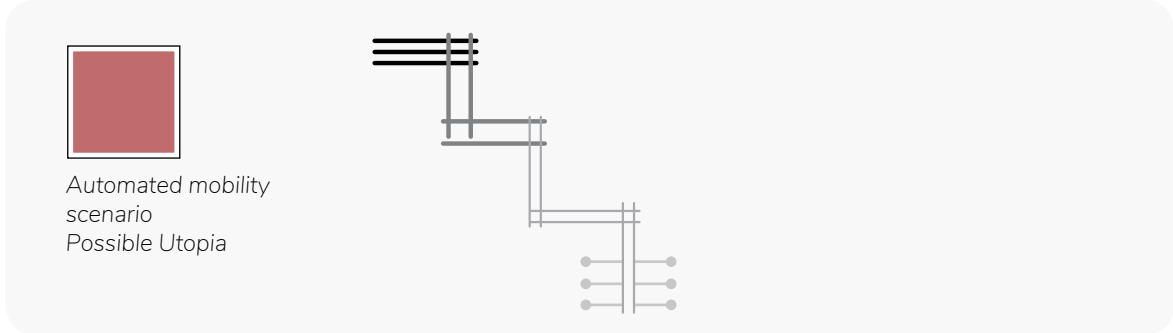
In order to operationalize the theoretical dimension of spatial quality, and the merely speculative dimension of the autonomous mobility scenarios for Amsterdam, 4 basic elements have been developed to construct this toolbox:

- 1. A database of problems and solutions;
- 2. The hashtags, connecting problems and solutions;
- 3. Systemized version of the Av scenario;
- 4. The patterns, connecting problems – solutions and the automated mobility scenario through design.

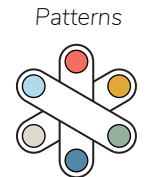
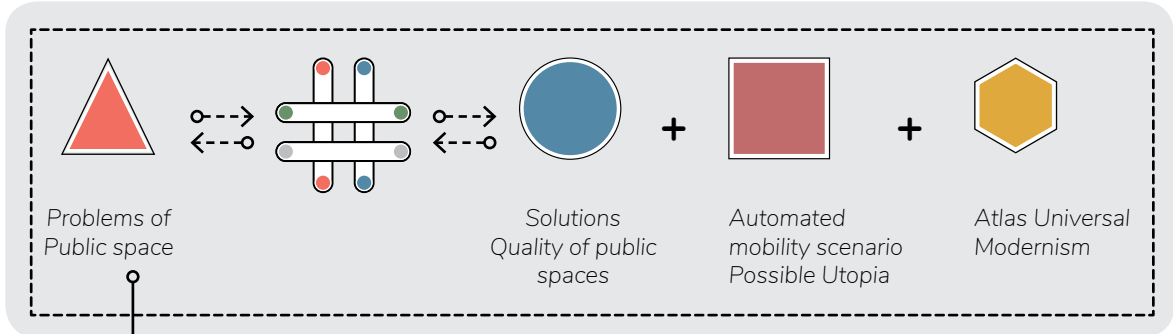
1-Database / 2-Hashtags



3-Automated mobility scenario

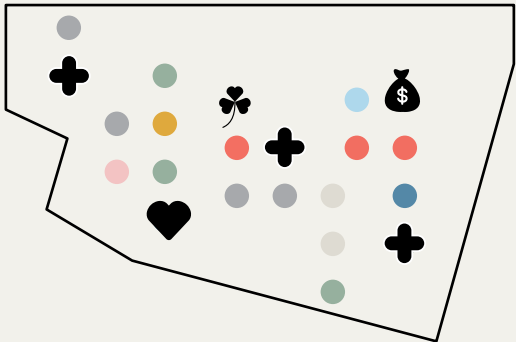


4-Patterns



Application of patterns in the territory

5-application of patterns in the territory



PROBLEMS OF PUBLIC SPACES

Management perspective

Carmona's 'under-managed' and 'over-managed' public spaces

Table 1 - An overview of Carmona's under-managed public spaces	Table 2 - An overview of Carmona's over managed public spaces	Toward an urban design manifesto
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An overview Carmona's under-managed public spaces. Adapted from Contemporary Public Space: critique and classification. Part one: Critique. Carmona 2020.	
Under-management of public space Defined by the notion that public space, and therefore the public realm is experiencing a physical decline.	
>Neglected space In relation to Wilson and Kelling (1982) influential work 'Broken Windows Theory', where the failure to deal with smaller slings of decay within an urban area could bring a rapid spiral of decline. Francis Tibbatts studies recognizes good urban design and management as effective means to reverse the problems of derelict public realm. -Lost spaces Refers to authors like Loukaitou-Sideris (1996), 'Cracks in the City' that focus on the 'in-between spaces, residual, under-utilized and deteriorating spaces'. Francis (1986) 'Lost Space' as spaces that are in 'need of re-design, anti-spaces, making no positive contribution to the surrounds or users', e.g. the base of high-rise towers, unused sunken plazas, abandoned waterfronts, train yards, deteriorated parks and marginal public housing projects'. Francis establishes a direct relation between 'lost spaces' and the car, urban renewal, the privatization of public space, functional separation of uses and with the modern movement. -Twenty-four-hour space Respond to the evening economy and the 24-hour city policies linked to regeneration processes that typically turned urban centers into 'youthful playplaces', these spaces may not be neglected, but have been abandoned to market forces', perpetuating forms of exclusion'.	
>Invaded Space 'Sacrificing public space to the use of needs of the car, effectively allowing movement needs to usurp social ones'. 'The invasion of private cars have led to a dramatic reduction to the space available to pedestrians, a reduction on the quality of the space that remains, and a significant restriction to the freedom of movement to pedestrians'. -Traffic and parking over pedestrian space in streets and squares Leading to consequent, dirt, noise and visual pollution that helps to impoverish city life (Gehl & Gemzoe, 2001). -Loss of social function The number of car users greatly exceeds the number of pedestrians using the street, and the space given to road space exceeds that dedicated to footpaths. (Gehl and Gemzoeo 2001) Ideas state that invaded space is generally impoverished and loses most of the social and recreational activities, living only the most utilitarian functions. -In-between spaces deteriorate Based on 'archipelago of enclaves' (Hajer and Reijndorp, 2001), where distant spaces are compressed by instant connection by car roads, while the in-between spaces are estranged and deteriorate and perceived as absent of attractors. -Exclusively car reliant environments External public space does not exist in any traditional form, and is replaced by a series of disconnected roads and car parks.	
>Exclusionary space Physical and psychological barriers (Fear of the other) dominate public space design and management strategies. Some of the most influential figures in urban design such as Jane Jacobs (1984), Jan Gehl (1996), and William Whyte (1980-1988) have suggest the connection between use of public space and its quality factors. Arguing a connection between decline of quality, less use, and less incentive to provide new public spaces or maintain existing ones. -Disabling spaces Simple physical barriers could represent major obstacles for the use of public space, particularly for people with disabilities, children in push chairs and elderly. The author emphasizes on the necessity of making the environment accessible and easier to use for everyone, including psychological barriers related to crime, or unsafety related to fast traffic movement. -Parochial Space Based on Loukaitou-Sideris, (1996) ideas on fragmentation of the public realm, and its relation to conflicts between different social groups which influences fear, suspicion and tensions, resulting on spatial segregation of activities in terms of class ethnicity, race, age and type of occupation. Creating what Lofland, (1998) describes as 'parochial space' that are appropriated only for certain groups of people.	
>Segregated space Associated to the desire of affluent groups in many societies to separate from the rest of society, as a reflection of fear of crime or need of exclusiveness. Leading to the global phenomena of 'gated communities'. Carmona points out that crime and uncool behavior can quickly undermine the quality of public spaces, and feed a cycle of segregation of uses and users of public space, consequently contributing to their decline. >Domestic, Third and Virtual Space According to Sennett (1977), the idea of decline in public life could be related to an 'increasing emphasis on the private relations of individuals, their families and intimate friends, driven by the rise of secularism and capitalism. A dynamic that had contribute to a retreat to domestic space, while public life in the streets is replaced by the 'suburban Livingroom'. In relation to this, technology is identified as a 'key threat to the very notion of public life'. As, a variety of activities that typically took place in public spaces now can take place at home. -Third spaces The idea was originally proposed by Oldenburg (1989), and proposes broadening of the definition of public space, that include the notion of 'third spaces': 'private spaces such as coffee shops or book stores, among others places - that 'support and enable social interactions, regardless of their ownership'. -Virtual Space Studies in relation to virtual spaces range from the extreme 'techno-determinists' predicting the end of urban life, to other currents suggesting the increasing importance 'of computer networks for 'urban life as street systems'. However, other authors such as Graham & Marvin (1999) suggest a reinforcement on the role of public space, as space to get in contact with others; and Castells (1996) and Sassen (1994), suggest that 'Text to face communication would remain as the preferred mode of interaction between business, as well as for private activities'. All texts and authors are as cited in (Carmona, 2010)	

An overview Carmona's over-managed public spaces. Adapted from Contemporary Public Space: critique and classification. Part one: Critique. Carmona 2020.	
>Privatized space	'Allowing public space to be privatized, with knock on impacts on political debate and social exclusion'
>Consumption space	-Increase in public space security In association to the neo-liberal era of the 1980's and 1990's and to terrorism. -Corporate privatization Based on low & Smith (2006), privatization of public space by corporate or commercial interests. Evolving into what Boyer (1993) names a 'City of Illusion', and Loukaitou-Sideris and Banerjee (1998), argues on post-modern design where 'space is cut off, separated, enclosed so that it can be easily enclosed and protected'. Resulting in the exclusion of the poor and the avoidance of realities related to landscapes of fear, neglect and deterioration. >Scurry space 'Where crime, and more often fear of crime has been allowed to dominate the perceptions of place, and where crime prevention strategies -public and private- impact on the freedom with which space is used and enjoyed'. -Instrumentalizing the poor Fear leads to segregation, and the dynamic s created by it create a market of fear (gated communities, guns, surveillance equipment) -Exclusionary Policing According to Merton (2006), describes social exclusion in terms of 'hot spots' of affluence, and 'cold spots' of exclusion. 'Hot spots' -such as urban regeneration areas or BID's- are characterized by having clean and safe policies that displace social problems. 'Cold spots' are characterized by the socially excluded who are enwomene in the 'hot spots', creating socially polarized urban public spaces'.
All texts and authors are as cited in (Carmona, 2010)	

PROBLEMS	Characteristics
Allen Jacobs and Donald Appleyard > Problems with modern urban design <i>Based on public domain: road/city</i> Poor living environments	Usually dangerous, polluted, noisy anonymous wastelands.
Gigantism and loss of control	'The elements of the city grow in size and massive transportation systems are segregated for single travel modes; Loss of control over the homes and neighborhood.
Large scale privatization and loss of public life	Closes in the hands of large-scale developers, individual and private sector (stimulated by the spread of the automobile). 'As public transit systems have declined, the number of places in American cities where people of different social groups can meet each other has dwindled'
Centrifugal fragmentation	Advanced industrial sites have took work is out of the home and the neighborhood. The automobile and growing scale of commerce took shopping out of the local community. Fear had led to homogeneity and segregation. Exploitation of places lead to the destruction of heritage and natural amenities become overused. 'Cities become meaningless places with loss of community and participation Many professionals are part of an universal professional culture more than part of the local culture.
Destruction of valued places	
Placelessness	
Rootless professionalism	

>Invented space 'Condoning the spread of a placeless formulae-driven entertainment space'. -Loss of authenticity and growth of 'placelessness' Relph (1976), Carter (1977), Punter (1993), Montgomery (1998), discussed the components of place, typically focusing on three elements: Physical form, Human activities, Meaning or image. However, other authors such as Carr et al. (1992), focus on the qualities of successful places, measure trough their response to five needs: 1-Comfort, encompassing safety from harm as well as physical comfort; 2-Relaxation, allowing a sense of physiological ease; 3-Passive engagement, with the surroundings and other people, 4-Active engagement, 5-Discovery, reflecting the desire for variety and new experiences. Nonetheless, according to Carmona, 'the desire for and spread of globalization processes, mass culture and loss of attachment to place, has led to repetition of certain formulaic responses across the world'. >Scurry space 'Where crime, and more often fear of crime has been allowed to dominate the perceptions of place, and where crime prevention strategies -public and private- impact on the freedom with which space is used and enjoyed'. -Instrumentalizing the poor Fear leads to segregation, and the dynamic s created by it create a market of fear (gated communities, guns, surveillance equipment) -Exclusionary Policing According to Merton (2006), describes social exclusion in terms of 'hot spots' of affluence, and 'cold spots' of exclusion. 'Hot spots' -such as urban regeneration areas or BID's- are characterized by having clean and safe policies that displace social problems. 'Cold spots' are characterized by the socially excluded who are enwomene in the 'hot spots', creating socially polarized urban public spaces'.	
All texts and authors are as cited in (Carmona, 2010)	

Problems

- >Neglected space
- >Invaded space
- >Exclusionary space
- >Segregated space
- >Domestic & Third space

- >Privatized space
- >Consumption space
- >Invented space
- >Scurry space

- >Poor living environments
- >Gigantism and loss of control
- >Large scale privatization and loss of public life
- >Centrifugal fragmentation
- >Destruction of valued places
- >Placelessness
- >Rootless professionalism

SOLUTIONS

Experience and quality of urban design elements

Gehl's 'Elements for experiencing public space'

Table 3 - Experiencing public spaces according to 'Close encounters with buildings'	Table 4 -12 Quality Criteria of public spaces. (Gehl, 2018)	Table 5 - Elements of the image of the city (Lynch, 1960)
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Elements for experiencing public space. Adapted from Close encounters with buildings. (Gehl, Kaefer, & Reijndorf, 2006) - Edited by author.	
CLOSE ENCOUNTER WITH BUILDINGS (GHEHL, 2006) > EXPERIENCING PUBLIC SPACE	
Experiencing People >Sight and hearing are our remote senses. Closer up we can also activate sense of smell, touch and taste. >Short distances are needed to provide intense and emotionally powerful experiences. Experiencing streets Perception of public space depends on viewpoint, distance, and speed. >50km/h architecture (Slow architecture) The human sensory apparatus is designed to perceive and process sensory impressions while moving at about 50km/h -Spaces are small, -Pedestrians can get quite close to facades -Signals and signs can be small and refined -Architecture is rich in detail In contrast with >60km/h architecture along roads used by vehicles Drivers and passengers cannot perceive details when moving at speed -smooth buildings -short in detail Modern cities are heavily influenced by the confusion over these two scales, and pedestrians are often forced to walk in 60km/h urban landscapes and new architecture is design boring and sterile, 60km/h buildings in 50km/h traditional streets. 'The urban experience > The ground floor > Where building and city meet If the ground floors are interesting and varied, the urban environment is inviting and enriching. If the ground floors are closed or lacking of detail the urban experience is correspondingly flat and impersonal' Urban scenes at eye level >Scale and rhythm Pedestrians experience the urban scene at maximum 50km/h with time to enjoy the surroundings. Small units provide wide range of experiences; Large number of doors provide points of exchange between inside and inside >Transparency The opportunity to be on the inside looking out – and on the outside looking in – significantly broadens the range of experiences in the buildings themselves and in the urban space. >Appeal to many senses We can draw on all our senses when we are close to buildings and we have sufficient time to look, listen smell, and touch the good things on offer. >Texture Good materials and fine details are an attraction for people strolling through the city. Opportunities to reach out and touch the buildings(…). Attractive ground level facades offer texture, good materials and carefully crafted details. >Diversity of functions The functions inside the buildings have a major impact on the activity and attractiveness of the spaces outside. Narrow units and many doors in the façade reflect on a wide functional variation inside and therefore on many points of exchange between inside and outside and many different events and experiences. >Vertical facade rhythms Walking along a ground floor façade with primarily vertical rhythms makes the walk much more interesting and eye-catching. All texts and authors are as cited in (Gehl, Kaefer, & Reijndorf, 2006)	

Quality and liveliness
'Death and life of great American Cities' Jane Jacobs (1961)

QUALITIES	Characteristics
JACOBS 1961 > Quality / Quality and liveliness <i>Death and life of great American Cities'</i> Functional mixture	Provide adequate services and proximity synergies;
Density	Could provide for concentration of people and institutions.
Social mix	Is valuable and an essential component of the contemporary urban environments in attractive cities;
Physical space	Should provide: -Short blocks, -Life on the ground floors -Attractive corners and side streets.

Qualities / Solutions

- >Experiencing people
- >Experiencing streets
- >Urban scenes at eye level
- >Transparency
- >Appeal to many senses
- >Texture
- >Diversity of funtions
- >Vertical facade rhythym

- >Functional mixture
- >Density Social mix
- >Physical space
 - Short blocks
 - Life on ground floors
 - Attractive corners
 - Attractive side streets

Quality criteria of public spaces

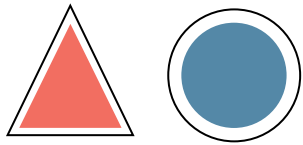
Gehl's tool for evaluation of public spaces

12 Quality Criteria of public spaces. (Gehl, 2018). Retrieved December 2018 www.gehlstitute.org - Edited by author.	
12 Quality criteria of public spaces (Gehl, 2018) > Qualities of public space	
Protection	Protection against traffic and accidents • Traffic safety • Protection for pedestrians Protection against crime and violence, feeling secure • Lively public realm • Allow for passive surveillance • Overlapping functions day and night • Well-lit lighting in human scale Protection against unpleasant sensory experience • Wind / draft • Rain / snow • Cold / heat • Pollution • Dust / noise / glare
Comfort	Opportunities to walk • Room for walking • Interesting facades • No obstacles • Good surfaces • Accessibility for everyone Opportunities to stand and stay • Attractive and functional edges • Defined spots for staying • Objects to lean against or stand next to • Facades with good details that invite staying Opportunities to sit • Defined zones for sitting • Pleasant views and people watching • Good mix of public and coffee sitting • Resting opportunities
Opportunities to see	Opportunities to talk and listen • Low noise levels • Public seating arrangements that are conducive to communicating 'talkscapes' Opportunities for play and exercise • Allow for physical activity exercise, play and street entertainment • Temporary activities (Market, festivals, exhibitions, etc) • By day and night • In summer and winter
Enjoyment	Dimensioned at human scale • Dimensions of buildings and spaces in observance of the important human dimension in relation to senses, movements, size and behavior. Opportunities to enjoy the good aspects of weather • Sun / Shade • Heat / Coolness • Shelter from wind – breeze Aesthetic qualities • Good design and detailing • Good materials • Fine views and vistas • Rich sensory experiences: trees, plants, water
All texts and authors are as cited in (Gehl, 2018)	

Elements of the image of the city (Lynch, 1960) - Edited by author.	
On perception	
The image of the environment	Legibility Clear structure and coherent patterns. Emphasizes positive values of a legible surrounding.
Image	A two way process between observer and the environment, where the environment suggest distinctions and relations, and the observer selects, organizes and gives meaning.
Structure and identity	Identity: distinction from other means, an separable entity; Structure: spatial or pattern relations object-observer; Meaning: practical or emotional.
Imageability	High probability of evoking a strong image
On form	
Main elements of public space are	
Paths	Routes along which people move throughout the city.
Edges	Boundaries and breaks in continuity.
Districts	Areas characterized by common characteristics.
Nodes	Strategic focus points for orientation like squares and junctions.
Landmarks	External points of orientation, usually a easily identifiable physical object in the urban landscape. (Lynch, 1960)

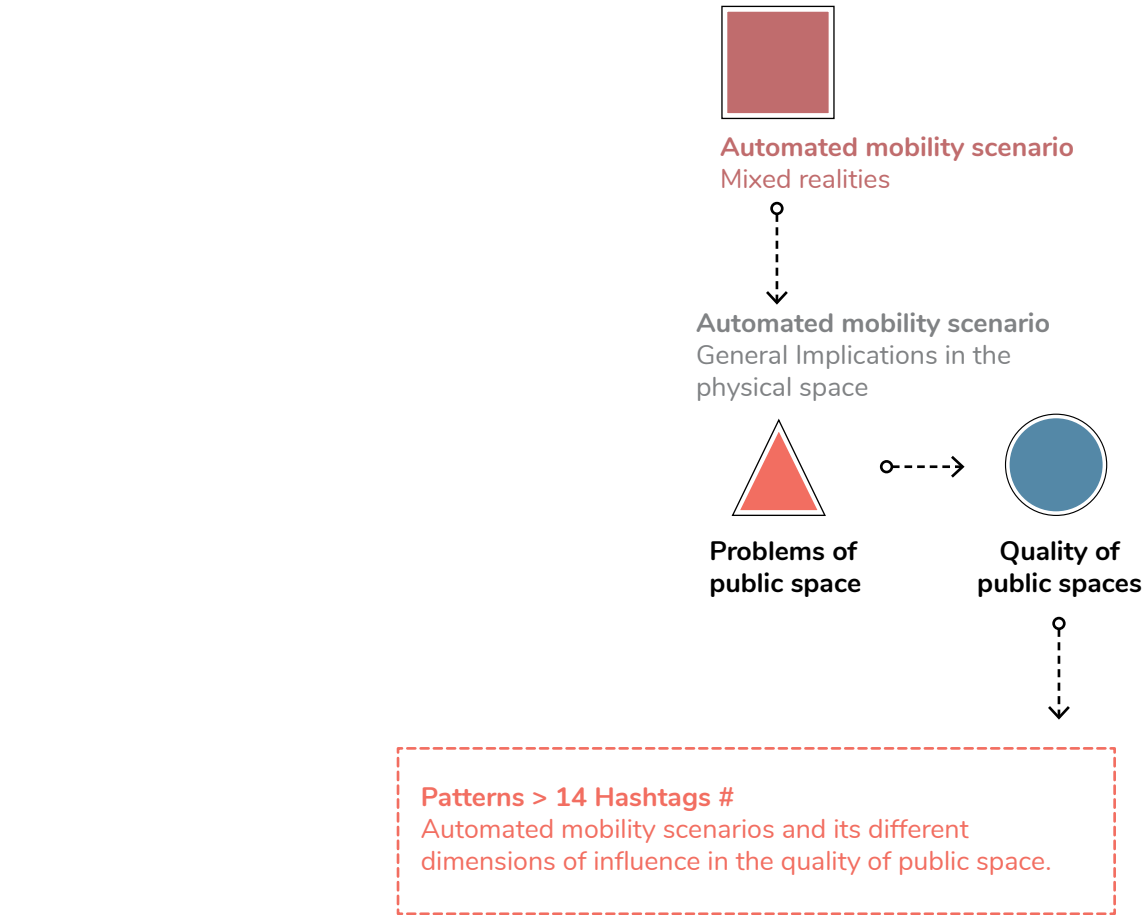
1-DATABASE

Quality of public spaces - problems and solutions according to literature



1- Public spaces Theory Data Base

The data base data created in Excel, systematizes all the concepts related to public space problems, and the solutions proposed by the theorists in the conceptual framework, creating a matrix of problems and solutions connected between them throughout hashtags.

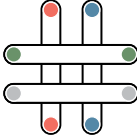


Database Literature review



Problems

Poor living environments
Gigantism and loss of control
Large scale privatization and loss of public life
Centrifugal fragmentation
Destruction of valued places
Placelessness
Rootless professionalism
Neglected space - Lost space
Neglected space - 24 hour space
Invaded space - Traffic and parking over pedestrian space in streets and squares
Invaded space -Loss of social function
Invaded space Inbetween spaces deteriorate experience
Invaded space Exclusively car reliant environments
Exclusionary space - Disabling spaces
Exclusionary space - Parrochial spaces
Segregated space
Domestic,Third and Virtual Space - Third spaces
Privatized space - Increase in public space security
Privatized space - Corporate privatization
Consumption space - Financial exclusion
Consumption space Domination of consumption spaces
Invented space - Loss of authenticity & growth of placelessness
Scary space - Instrumentalizing the poor
Scary space - Exclusionary policing



6 Categories

Spatial qualities

Sustainability & environment

Mobility & walkability

Socio-economic

Identity

Attractiveness & livability



14 Hashtags #

Physical space

Density

Sustainability

Mobility

Walkability

Socio - economic

Accesibility

Heritage

Place identity

Integration of activities

Attractiveness - experience

Safety

Virtual space



Solutions

Livability
Identity & control
Access to opportunity, imagination and joy
Authenticity & meaning
Community & public life
Urban self-reliance
An environment for all
Experiencing people
Experiencing streets - 50 km/h architecture
Urban scenes at eye level - Scale & rhythm
Urban scenes at eye level - Urban scenes at eye level - Transparency
Urban scenes at eye level - Texture
Urban scenes at eye level - Diversity of functions
Urban scenes at eye level - Vertical façade rhythms
Protection - Against traffic and accidents
Protection - Against crime and violence, feeling secure
Comfort - Opportunities to walk
Comfort - Opportunities to stand and stay
Comfort - Opportunities to sit
Comfort - Opportunities to see
Comfort - Talk and listen
Comfort - Opportunities for play and exercise
Enjoyment - Dimensioned at human scale
Enjoyment - Opportunities to enjoy good aspects of weather
Enjoyment - Aesthetic qualities
Functional mixture
Density
Social mix
Physical space

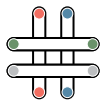
Database Excel sheet / Problems & solutions

Family /
category[illegible]

Qualities of public space

2-HASHTAGS

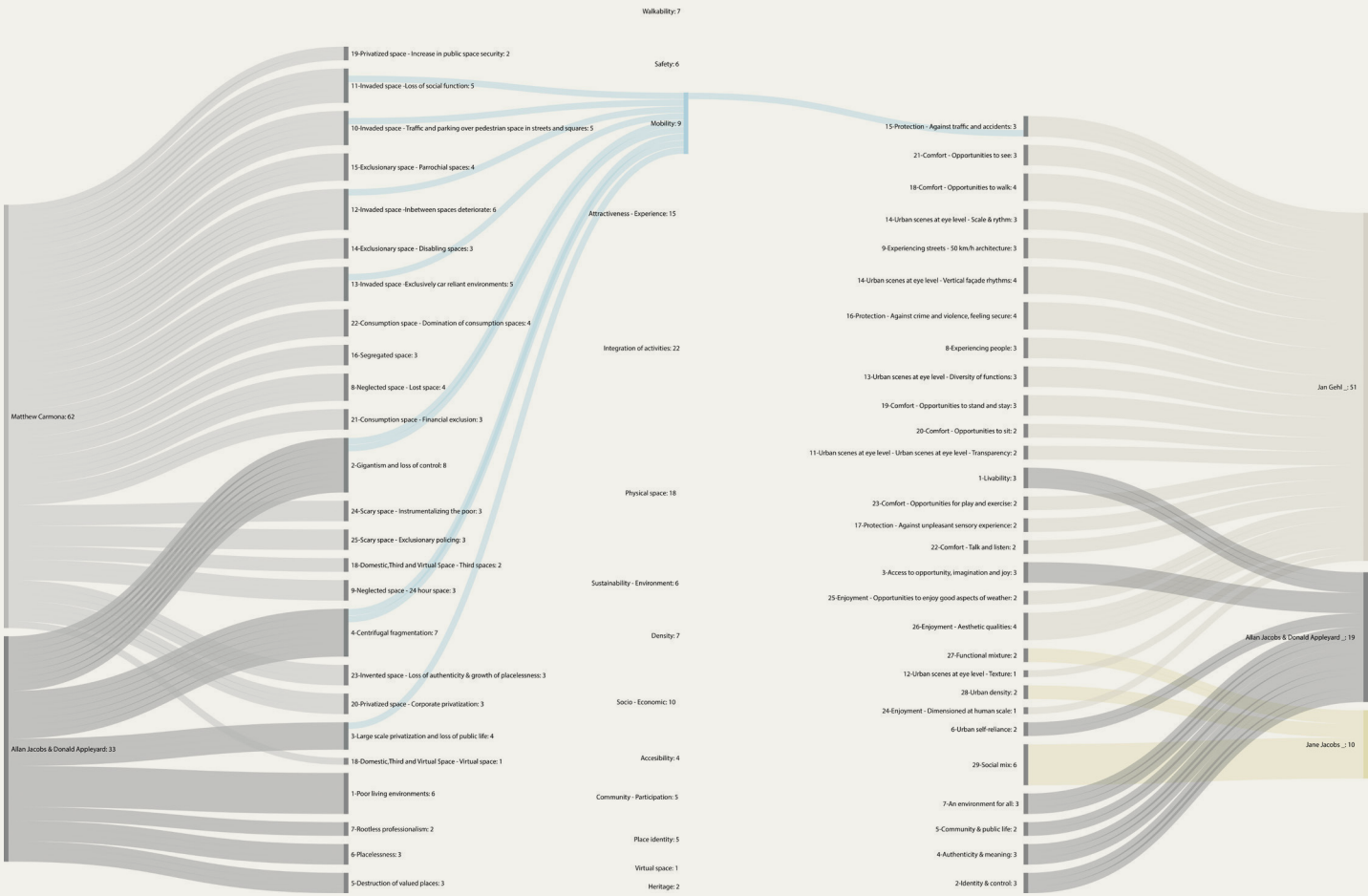
Categorize and interconnects problems and solutions



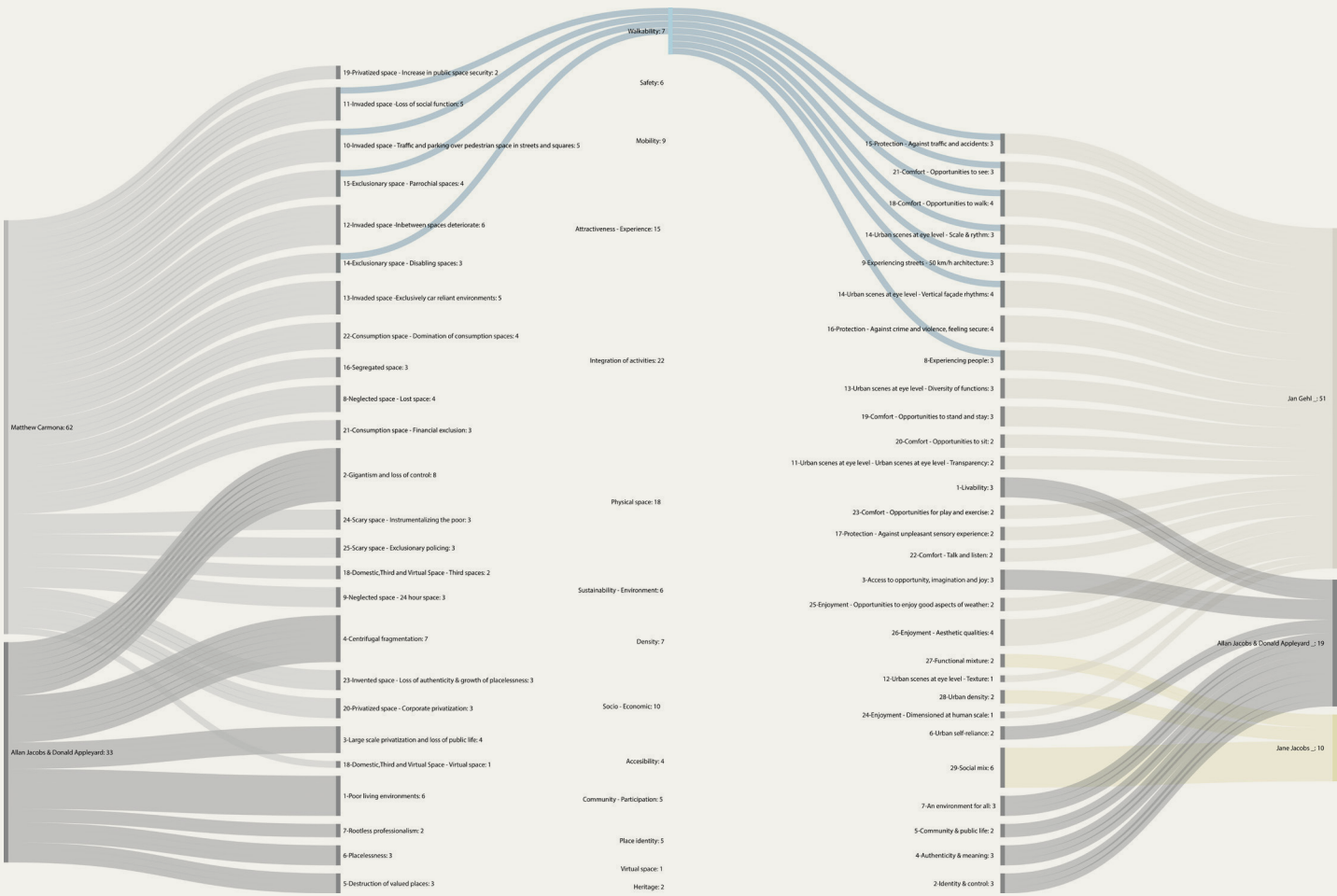
2- Hashtags

Each concept related to problems and solutions is studied and connected to key words that relate it to their field of influence. In this way the data base allows to separate the concepts related to problems and solutions, but in turn connects them through hashtags, which in the system allows finding different solutions for each problem. The hashtags organize by clusters the different both of influence of the concepts studied, establishing 14 categories. Typically, each problem and each solution is associated with one or more hashtags.

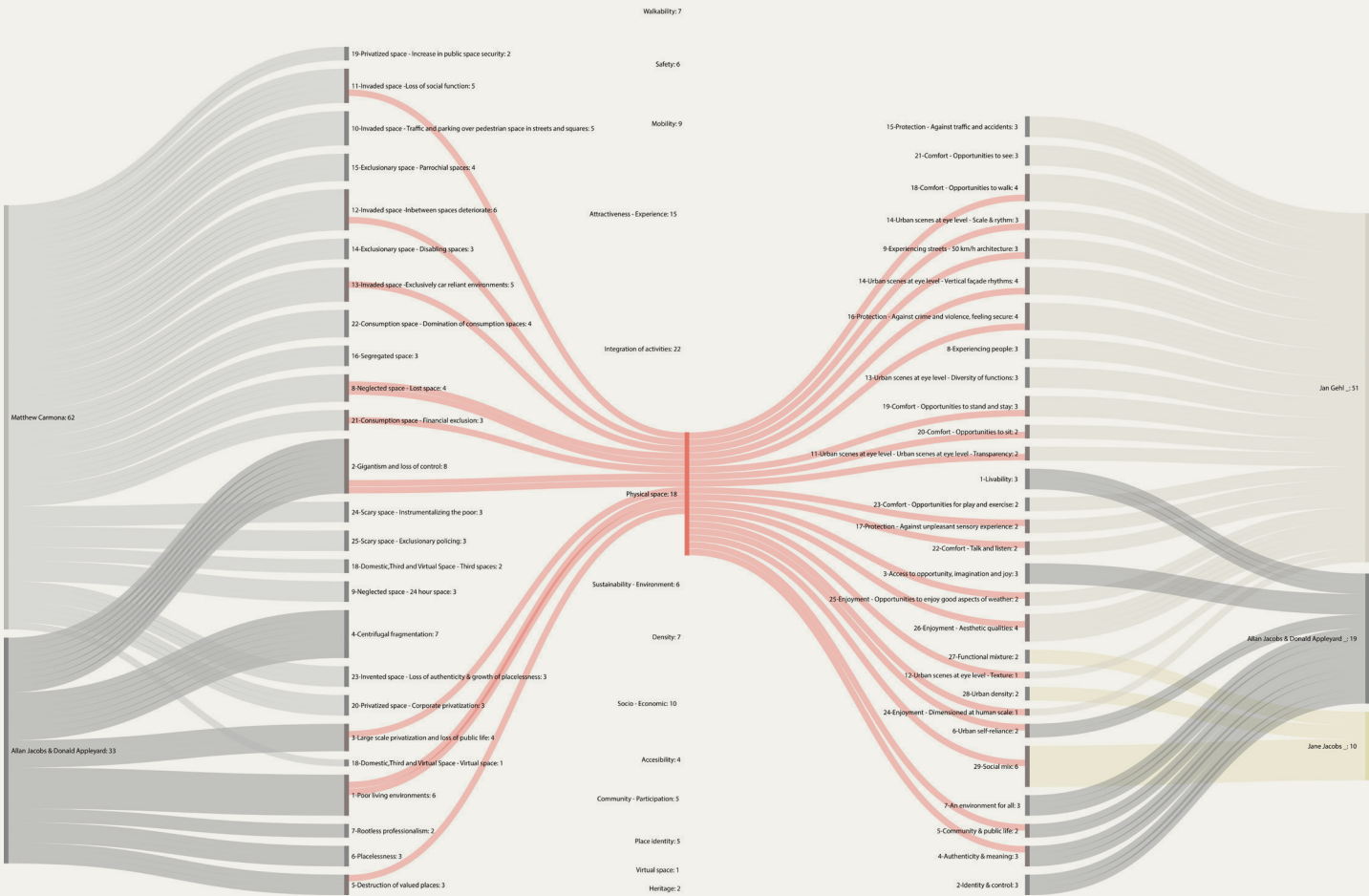
Mobility



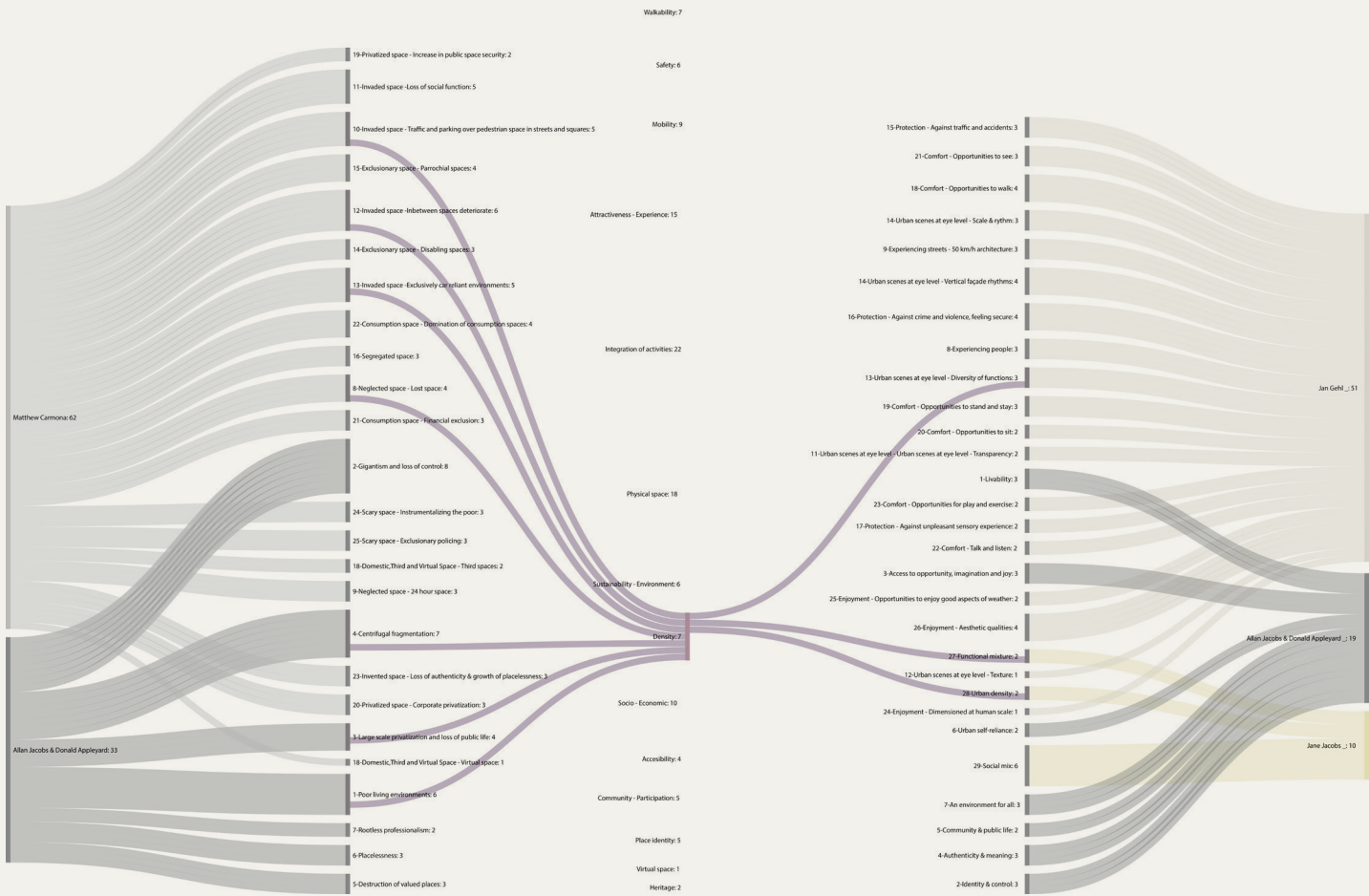
Walkability



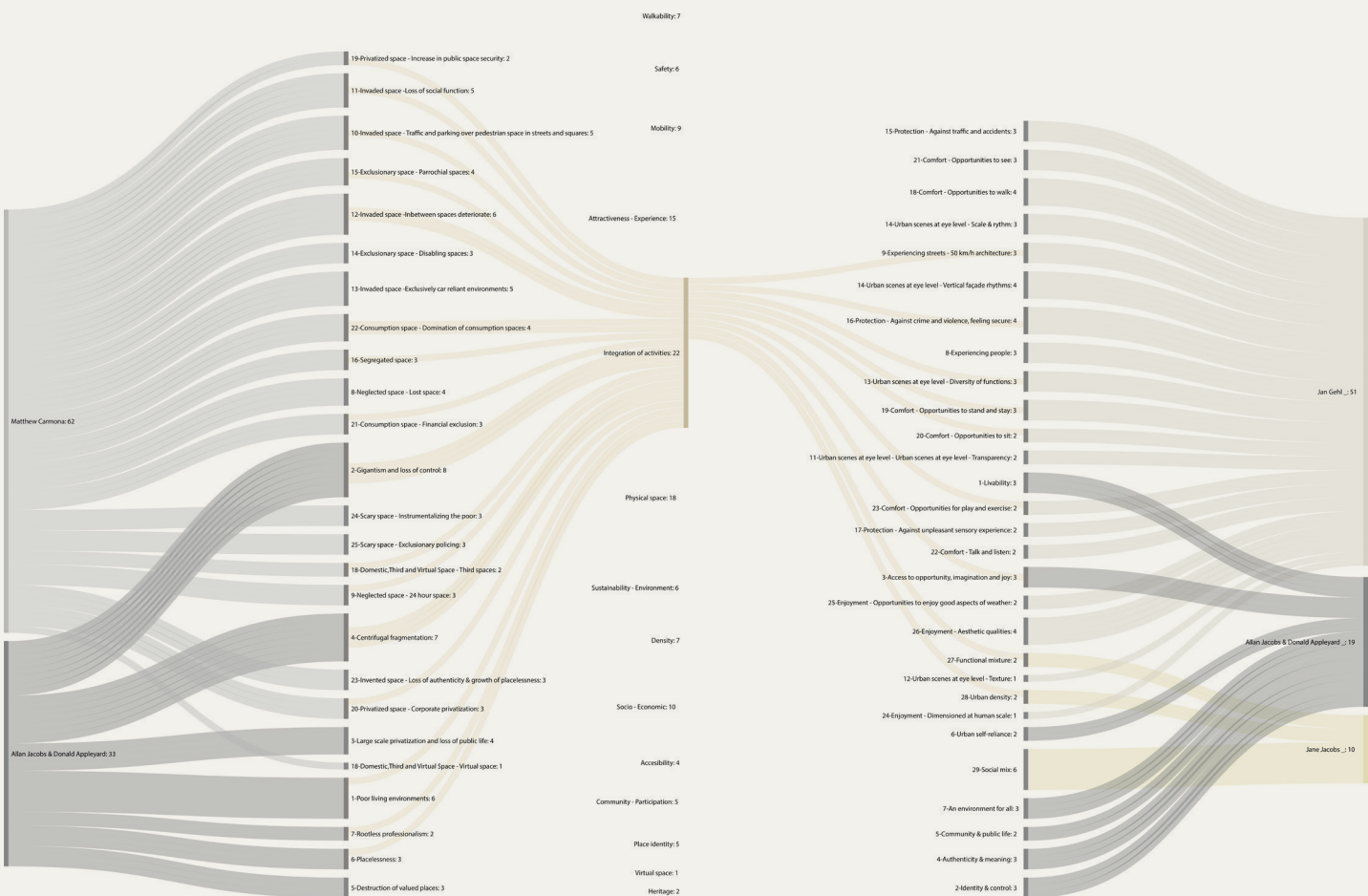
Physical space



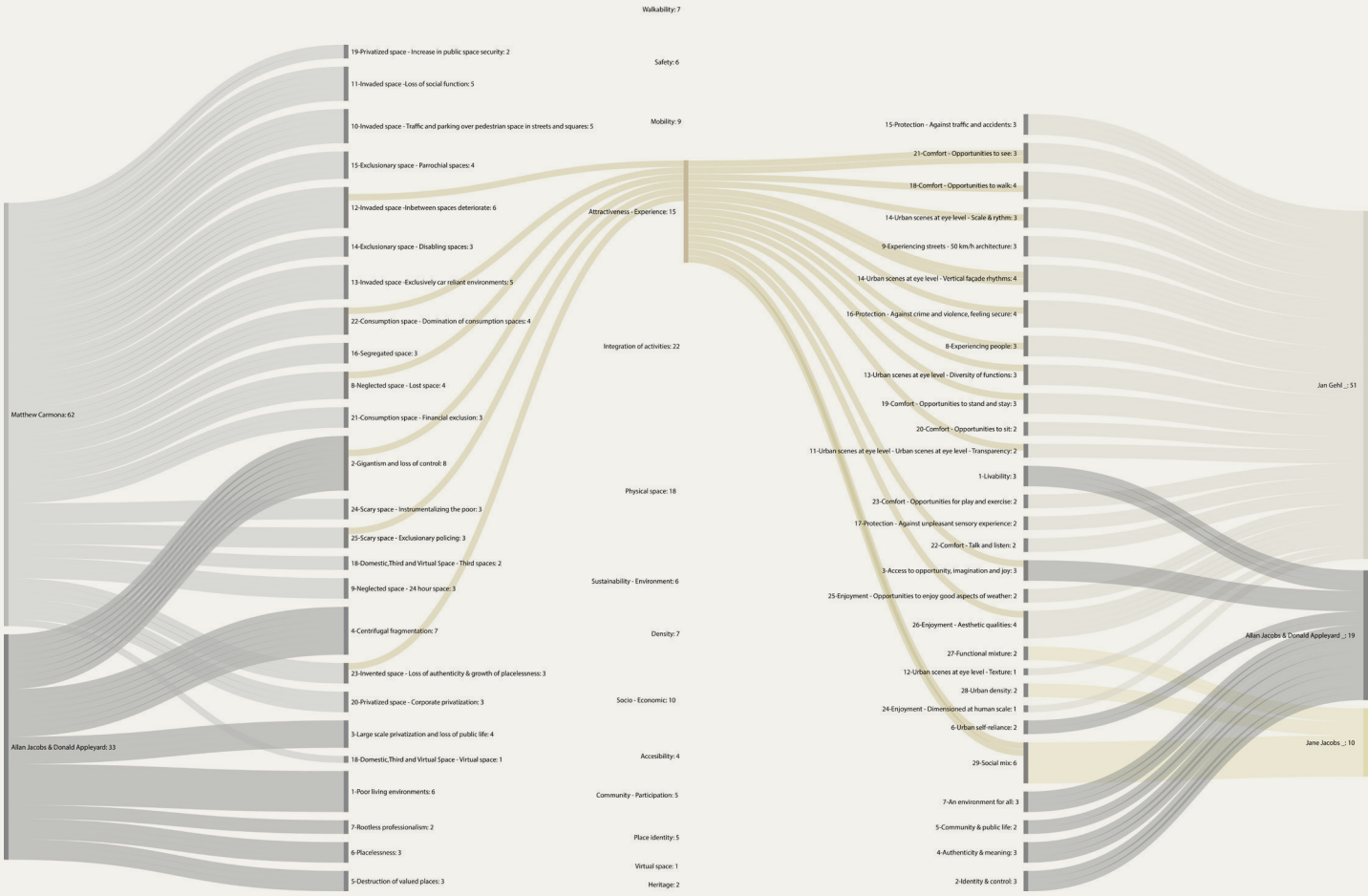
Density



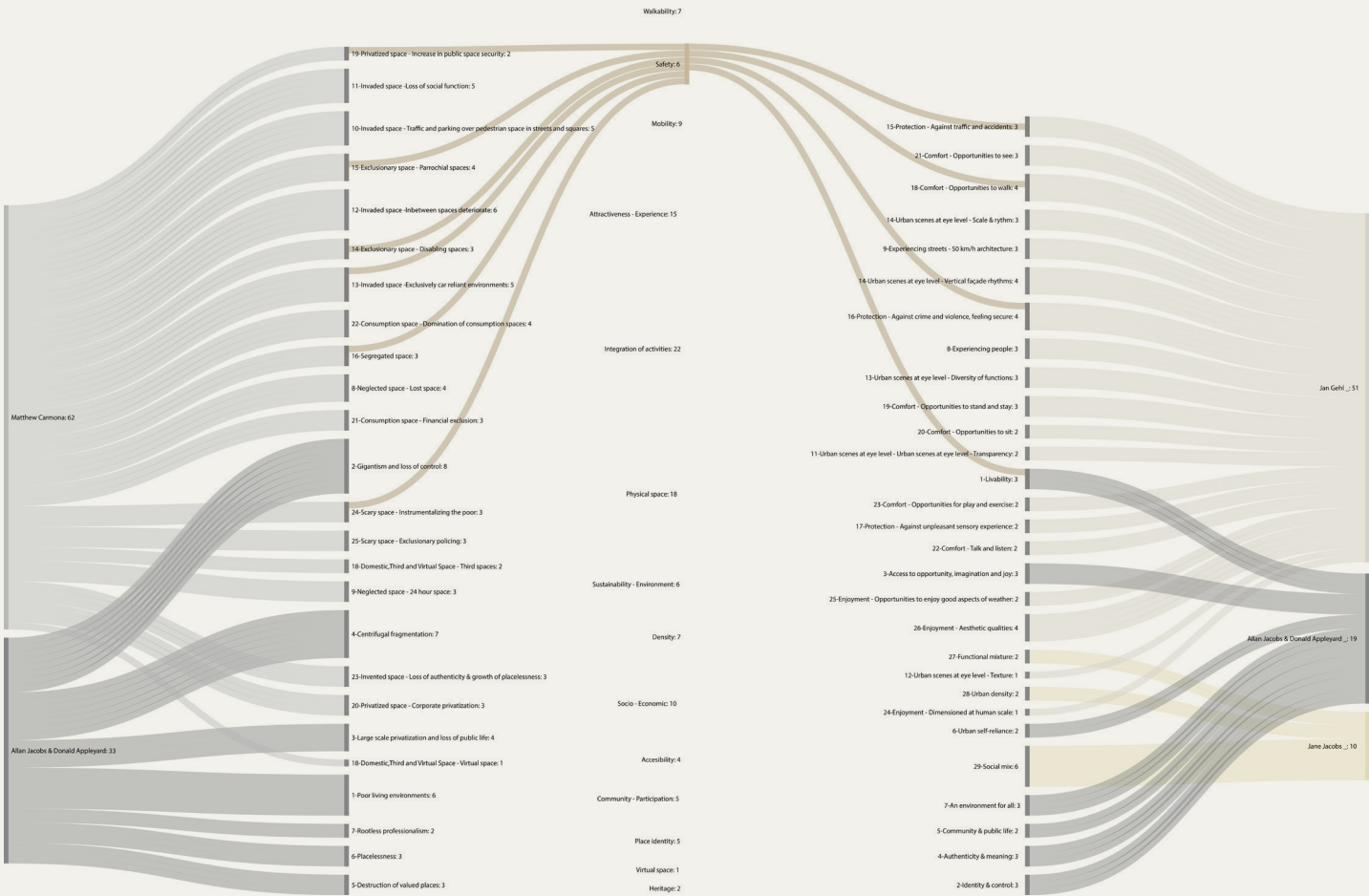
Integration of activities



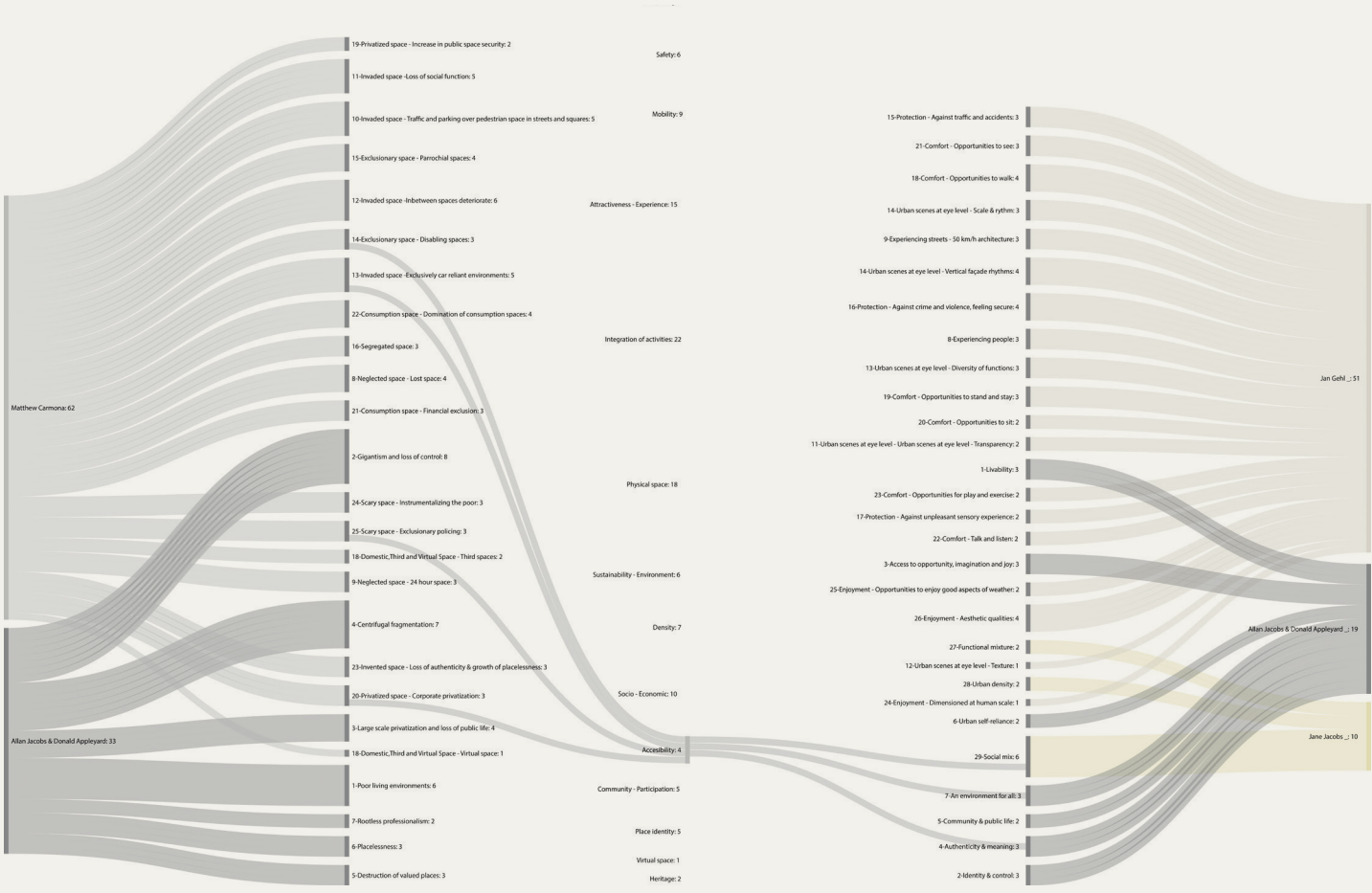
Attractiveness & experience



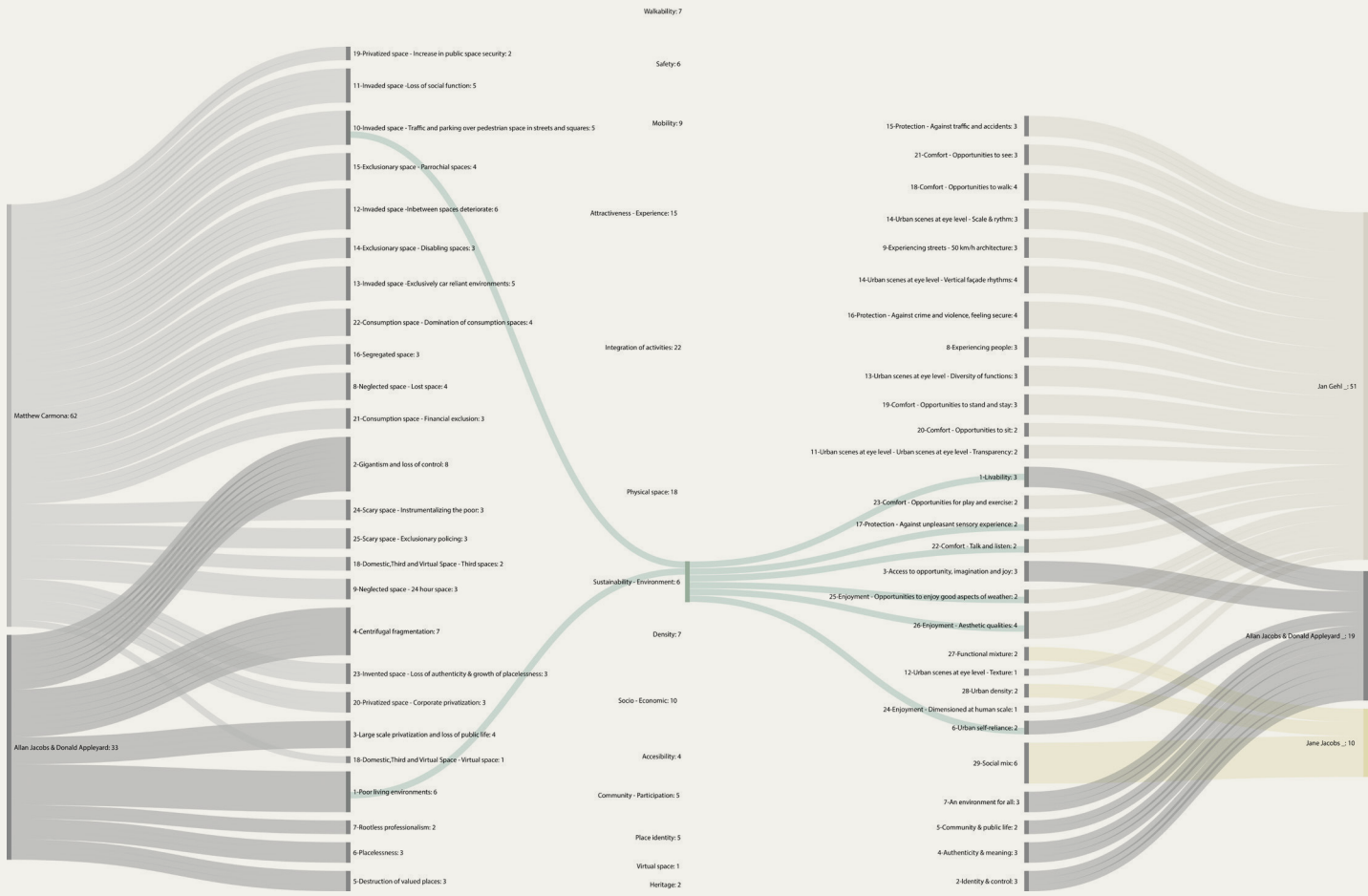
Safety



Accessibility



Sustainability



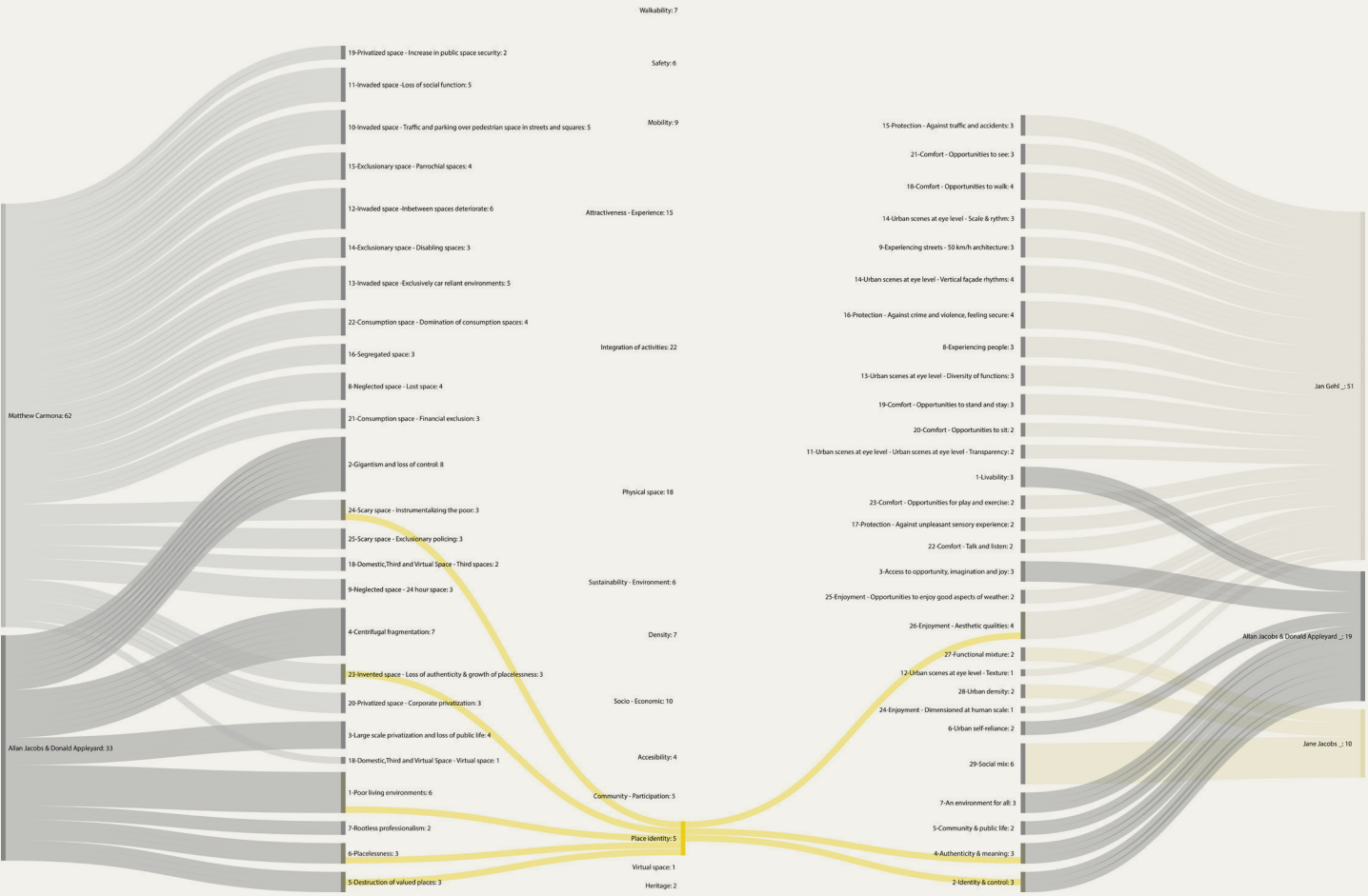
Heritage



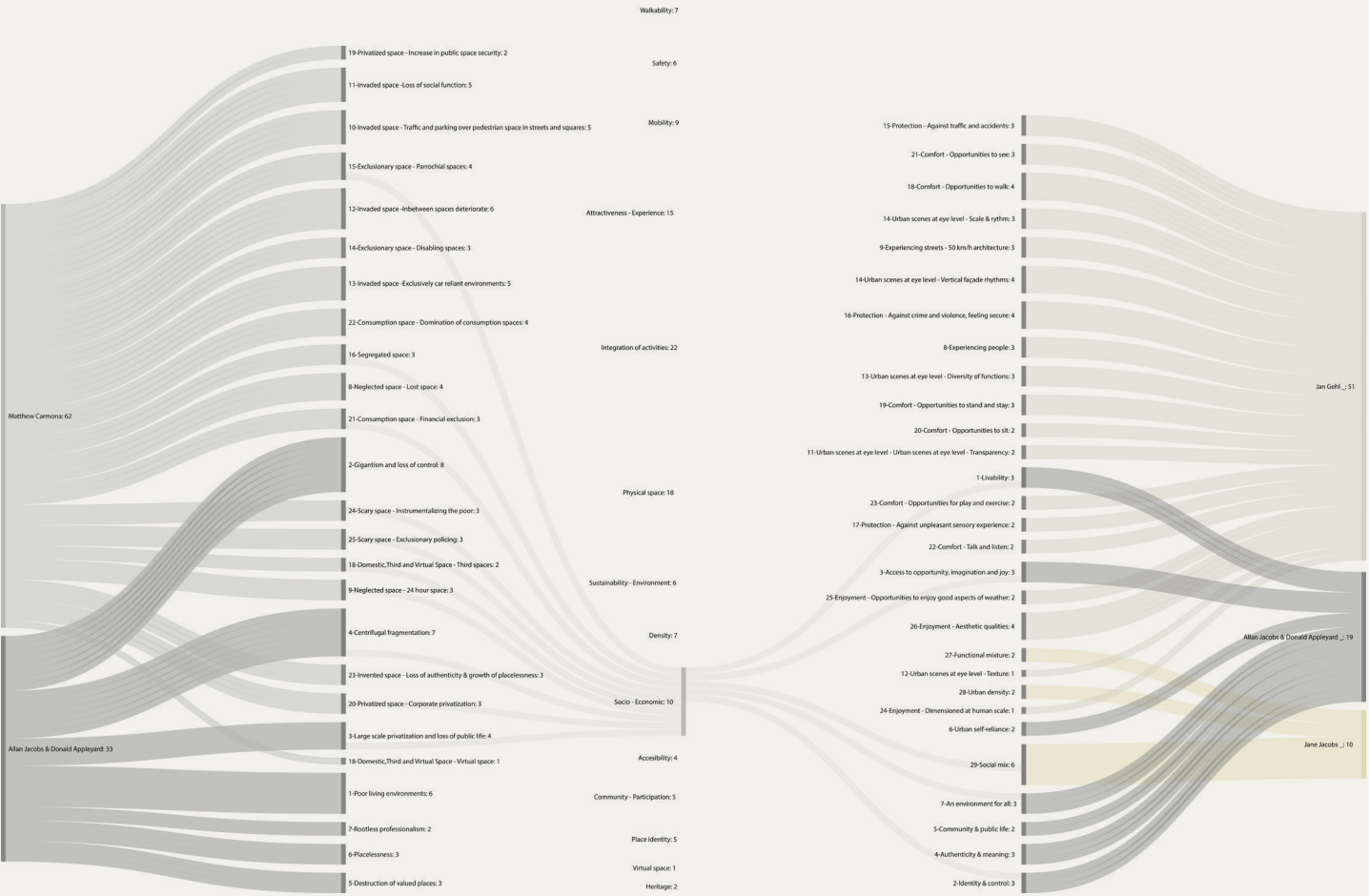
Toolbox - Hashtags

Scheme problems - solutions categorized by Hashtags

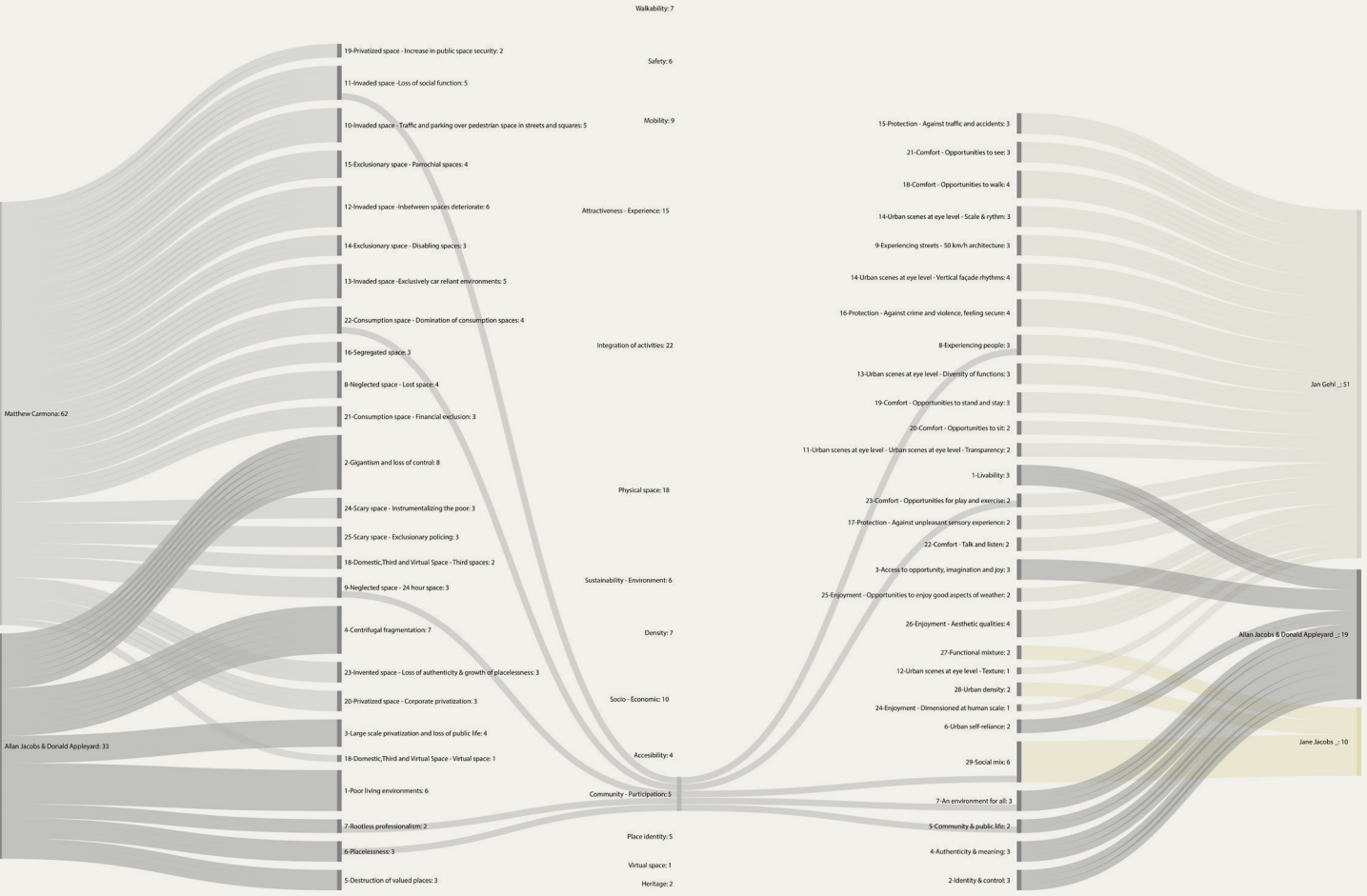
Place identity

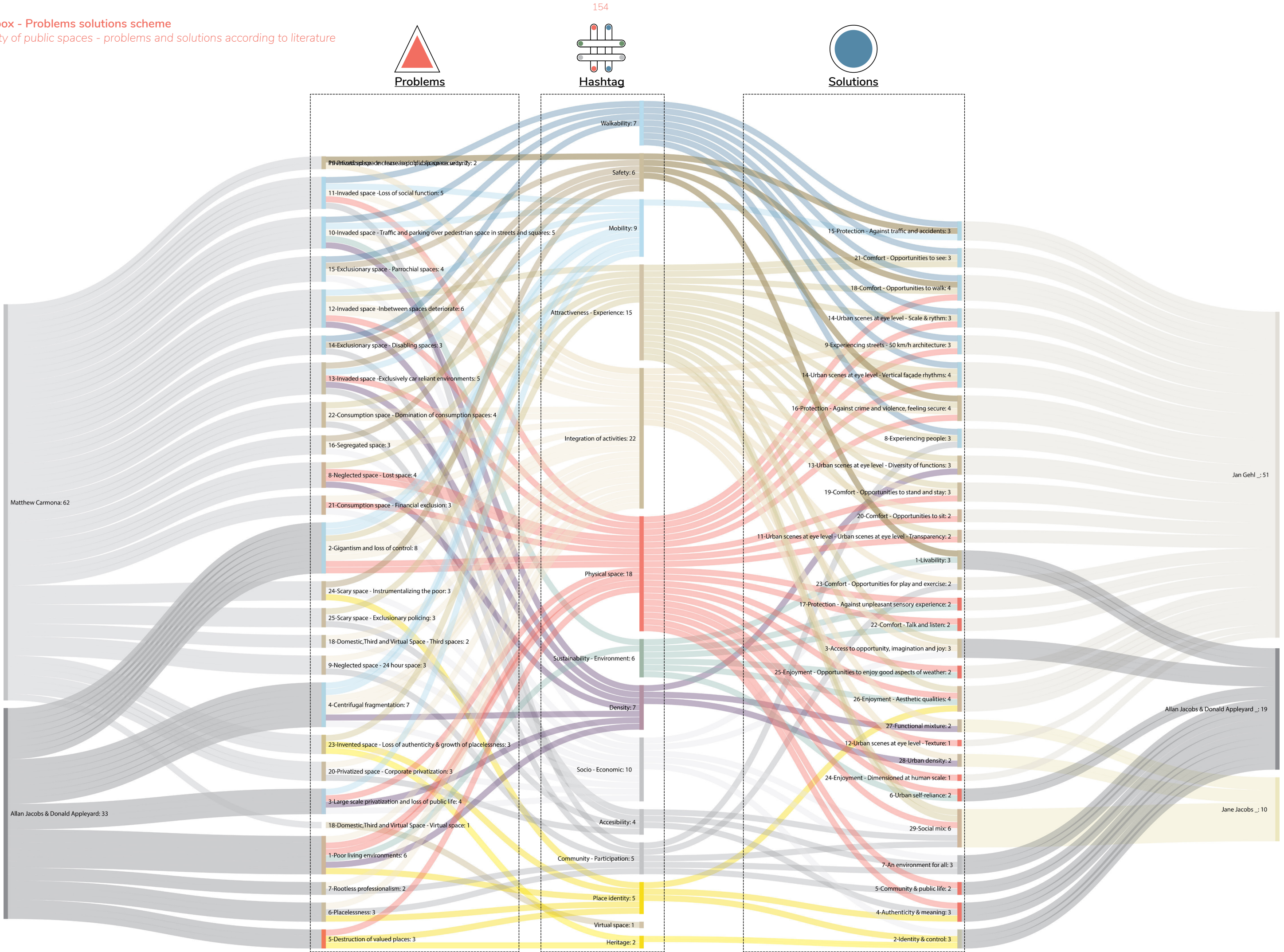


Socio economic



Community participation





3-SCENARIO

Automated mobility scenario and problem solution database are the base for creating patterns

3- Systematized version of the Av scenario

Automated mobility + Possible Utopia scenario

'The focus of this scenario is on the right combination and balance between AV's and public and other modes of transportation.

However the mixed system still gives priority to alternative, public and shared modes of transport. Public transportation is not endangered by the arrival of AV's due to high connectivity and capacity of the system.

The system is possible in highly connected areas, and should provide possibilities for densification, intervention on public areas that become more valuable, and allow for pedestrianization of streets in accordance to strategies for management and use of public space'.

Matrix of public space quality & AV's - Drivers of advantages

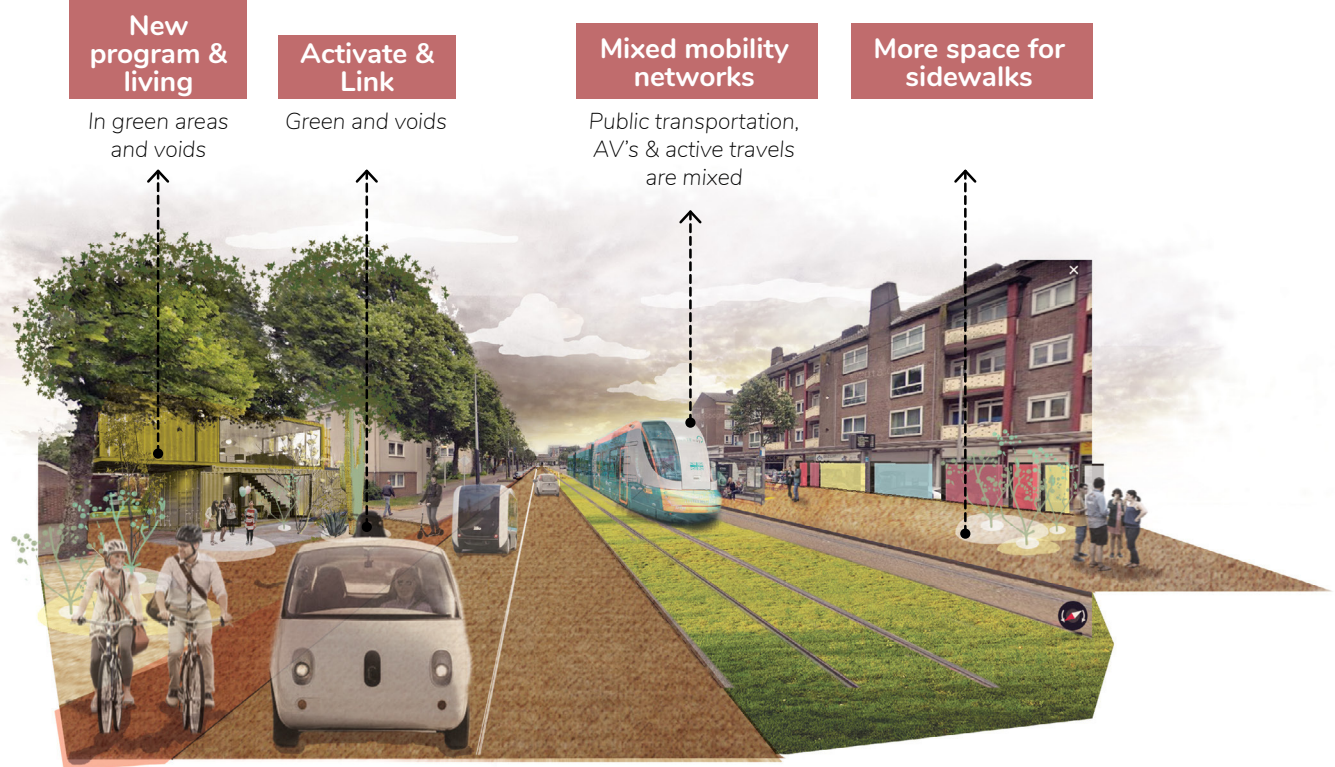
	Advantages drivers	Advantage drivers					
		>Preserve priority of public transportation especially in higher density areas; >Emphasis on Public transport as it offers better functional capacity	>Low traffic intensity, and VET	>High technological development; >Controlling accessibility and intensity of car traffic	>AV's have total access to city >High penetration and adaptation of AV's	>Development of automated parking especially in higher density areas of the city	Decrease in value of time
	AV's advantage	>Integration to Public transport, Bikes and pedestrians >Environment >Infrastructure & roads	>Safety	>High accessibility by car >cost	>Parking integration to Public transport, Bikes and pedestrians >Environment >Infrastructure & roads		Time for leisure or work
	Impact on space	>More space Reduced emissions Density	>More space Use of non-operative infrastructure Reduced emissions	>Different meanings and means for typical infrastructure	>Urban sprawl >Streets & parking preserve same use & scale >Need of dedicated infrastructure or enlargement of existing >No additional space	>More space Integration to Public transport, Bikes and pedestrians >Different meanings and means for typical infrastructure	Increased value and use of public spaces
Public space - life qualities							
Quality & Liveliness Jane Jacobs Kevin Lynch	Goals Qualities Functional mixtures provide adequate services and amenity synergies						
	Integration of activities, living, working, shopping in reasonable proximity to each other	✓	✓	✓	✓X	-	✓
	Community and public life; An environment for all; Urban self-reliance;	✓	✓	✓	-	-	✓
	The physical space should provide short blocks, life on the ground floor and attractive corners and side streets.	✓	✓	✓	-	✓	✓
	Many separate distinct buildings with complex arrangements and relationships, as opposed to huge large buildings; Livable streets and neighborhoods;	✓	-	-	X	✓	✓
	Gehl	✓	✓	✓	X	✓	✓
	Opportunities for play and exercise	✓	✓	✓	X	✓	✓
	Opportunities to talk and listen	✓	✓	✓	X	✓	✓
	Opportunities to walk	✓	✓	✓	X	✓	✓
	Density could provide for concentration of people and institutions;	⊕	-	-	⊕	⊕	-

Drivers of advantages & disadvantages of automated mobility according to literature

	Advantages	Driver	Disadvantages	Driver
Public transport	>Multimodal mobility services	>Preserve priority of public transportation especially in higher density areas	>AVs and car-sharing schemes make public transport obsolete; >AVs may not serve as last mile supporting service, as people would prefer not to transfer; >Traffic capacity improvements eliminate the role for public transport;	>Prioritize total access of cars; >Lack of regulations; >Prioritize car infrastructure development;
Bicycle & pedestrians	>Part of the existing infrastructure becomes bicycle or pedestrian users, due to increase in traffic capacity	>Low traffic intensity, and VET >Offer diverse means of transportation	>Another possibility is that more traffic is accommodated in the same road space, without any benefits for pedestrians and cyclists >Increased traffic volumes and speeds with AVs may degrade walking and cycling conditions (Litman, 2014).	>Market driven approach; >Prioritize total access of cars; >Strong induced travel demand;
Sharing schemes	>Encourage car-sharing schemes and mobility as a service;	>Policies and taxes	>Prevailing private cars	>Lack of regulations;
Space and infrastructure	>Accelerate vehicle electrification and electro-mobility; >Reduction on CO2 emissions and fuel consumption; (COM2018) 238)	>Low traffic intensity, and VET >Offer diverse means of transportation >Policies and taxes	>Increase or maintained CO2 emissions	>Strong induced travel demand;
Infrastructure & Roads	>Reduce the need for conventional infrastructural investments >Utilizing existing infrastructure >Re-propose the obsolete existing infrastructure	>Low traffic intensity, and VET >Offer diverse means of transportation >Policies and taxes	>If special dedicated lanes for AVs are necessary, additional infrastructural investments may take place >Smart infrastructure, especially for vehicle infrastructure communications >Smart infrastructures may soon become obsolete if they are not constantly maintained and upgraded	>Prioritize vehicle as transportation mean; >Prioritize car infrastructure development; >Strong induced travel demand; >Not prioritizing Multimodal mobility services;
Parking	>Significant reduction of the amount of spaces dedicated to parking in urban areas >Automated vehicles drive themselves to peripheral parking lots after dropping off passengers. >Car-sharing lead to a reduction in car ownership or car-free lifestyles.	>Preserve priority of public transportation as a priority, especially in higher density areas; >Offer diverse means of transportation >Policies and taxes >Development of automated parking in less expensive areas of the city.		
Traffic	>Less cars on the road; >Increase traffic capacity and reduce need for road expansion	>Offer diverse means of transportation	>Increase in vehicle-kilometer travels (VKT) due to low cost and induced demand	>Market driven approach; >Not prioritizing Multimodal mobility services; >Decrease in value of time
Quality of life	>Improvement on road safety, considering that human error is estimated to account for 94% of accidents;	>High technological development; >Controlling accessibility and intensity of car traffic		
Accessibility	>Widened the range of access to mobility (e.g. people with disabilities or unable to drive, elderly, etc.)	>AV's have total access to city		
Cost	>Lower driver cost for freight traffic and taxi; >Fuel cost reduction as a result of more cost-efficient driving. >Travel time decrease to value, and can be used for leisure or work;	>High penetration and adaptation of AV's	>Fuel cost may increase in case of VKT increase	
Time		>More time for leisure and work	>Increase in travel demand and VKT	>Decrease in value of time

Matrix of public space quality & AV's - Drivers of disadvantages

	Advantages drivers	Advantage drivers					
		>Preserve priority of public transportation especially in higher density areas; >Emphasis on Public transport as it offers better functional capacity	>Low traffic intensity, and VET	>High technological development; >Controlling accessibility and intensity of car traffic	>AV's have total access to city >High penetration and adaptation of AV's	>Development of automated parking especially in higher density areas of the city	Decrease in value of time
	AV's advantage	>Integration to Public transport, Bikes and pedestrians >Environment >Infrastructure & roads	>Safety	>High accessibility by car >cost	>Parking integration to Public transport, Bikes and pedestrians >Environment >Infrastructure & roads		Time for leisure or work
	Impact on space	>More space Reduced emissions Density	>More space Use of non-operative infrastructure Reduced emissions	>Different meanings and means for typical infrastructure	>Urban sprawl >Streets & parking preserve same use & scale >Need of dedicated infrastructure or enlargement of existing >No additional space	>More space Integration to Public transport, Bikes and pedestrians >Different meanings and means for typical infrastructure	Increased value and use of public spaces
Public space - life qualities							
Quality & Liveliness Jane Jacobs Kevin Lynch	Goals Qualities Functional mixtures provide adequate services and amenity synergies						
	Integration of activities, living, working, shopping in reasonable proximity to each other	✓	✓	✓	✓X	-	✓
	Community and public life; An environment for all; Urban self-reliance;	✓	✓	✓	-	-	✓
	The physical space should provide short blocks, life on the ground floor and attractive corners and side streets.	✓	✓	✓	-	✓	✓
	Many separate distinct buildings with complex arrangements and relationships, as opposed to huge large buildings; Livable streets and neighborhoods;	✓	-	-	X	✓	✓
	Gehl	✓	✓	✓	X	✓	✓
	Opportunities for play and exercise	✓	✓	✓	X	✓	✓
	Opportunities to talk and listen	✓	✓	✓	X	✓	✓
	Opportunities to walk	✓	✓	✓	X	✓	✓
	Density could provide for concentration of people and institutions;	⊕	-	-	⊕	⊕	-



Choosing automated mobility drivers according to the 'mixed realities scenario'

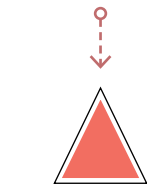
- Policy based drivers
- Possible impact on mobility
- Possible impact on physical space



Premises for a 'mixed realities' scenario

- >Last mile services & mobility hubs
- >Prioritizing public transport
- >Car sharing schemes over private ownership
- >Encourage active travels - walking & biking
- >Less Traffic
- >Less use of road space
- >Re-purpose part of existing car infrastructure
 - Roads
 - Parking
- >Mobility hubs
- >Flexible parking structures

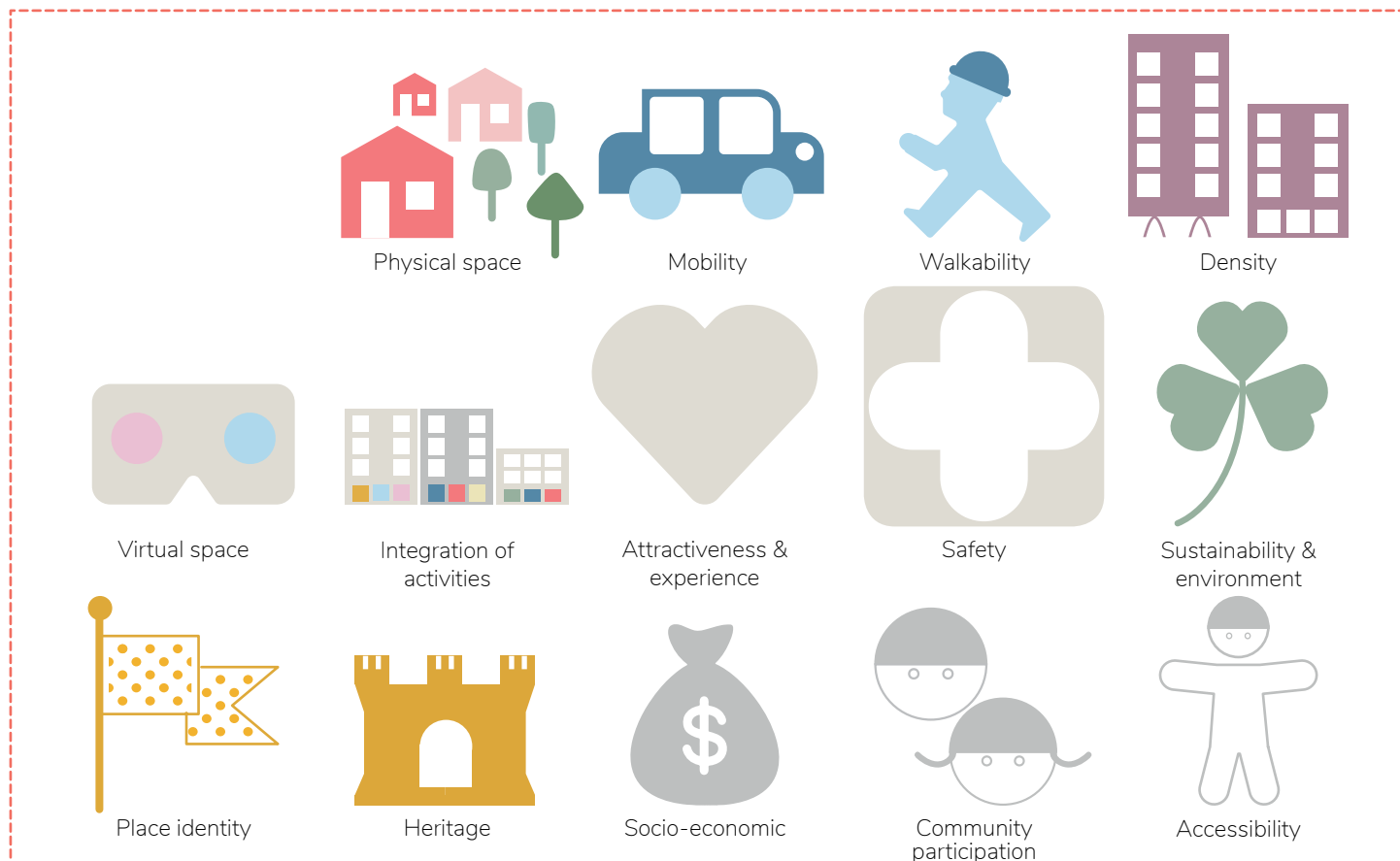
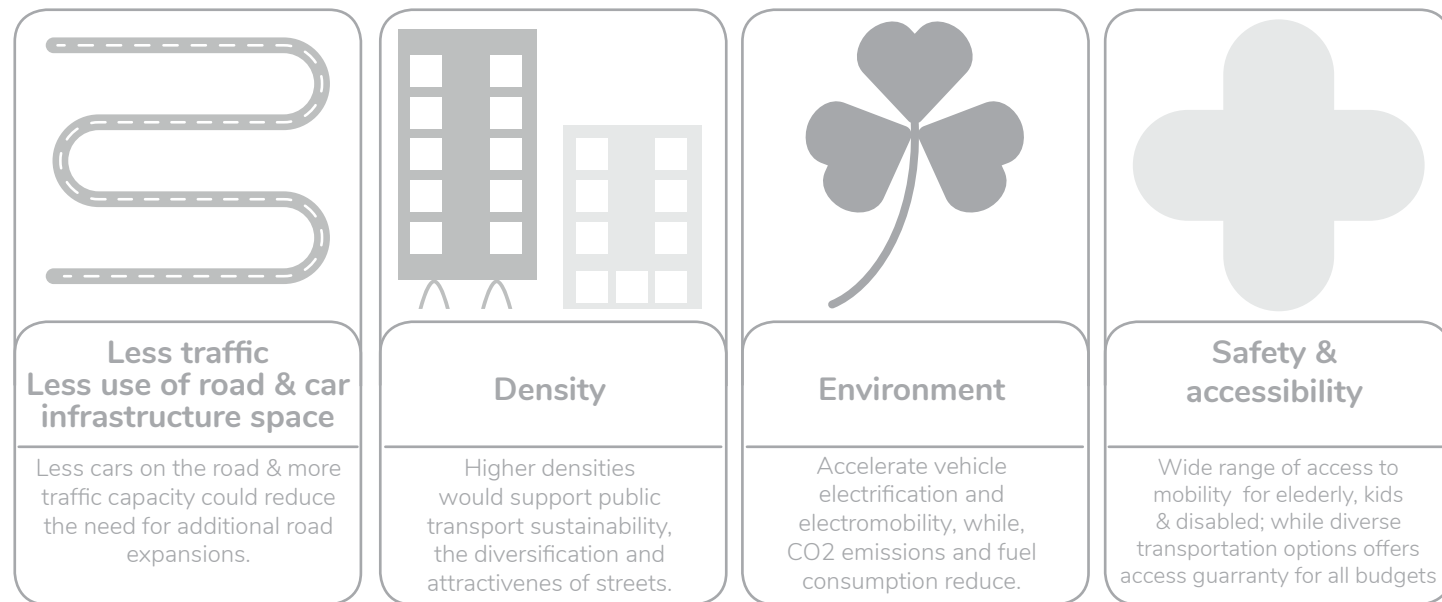
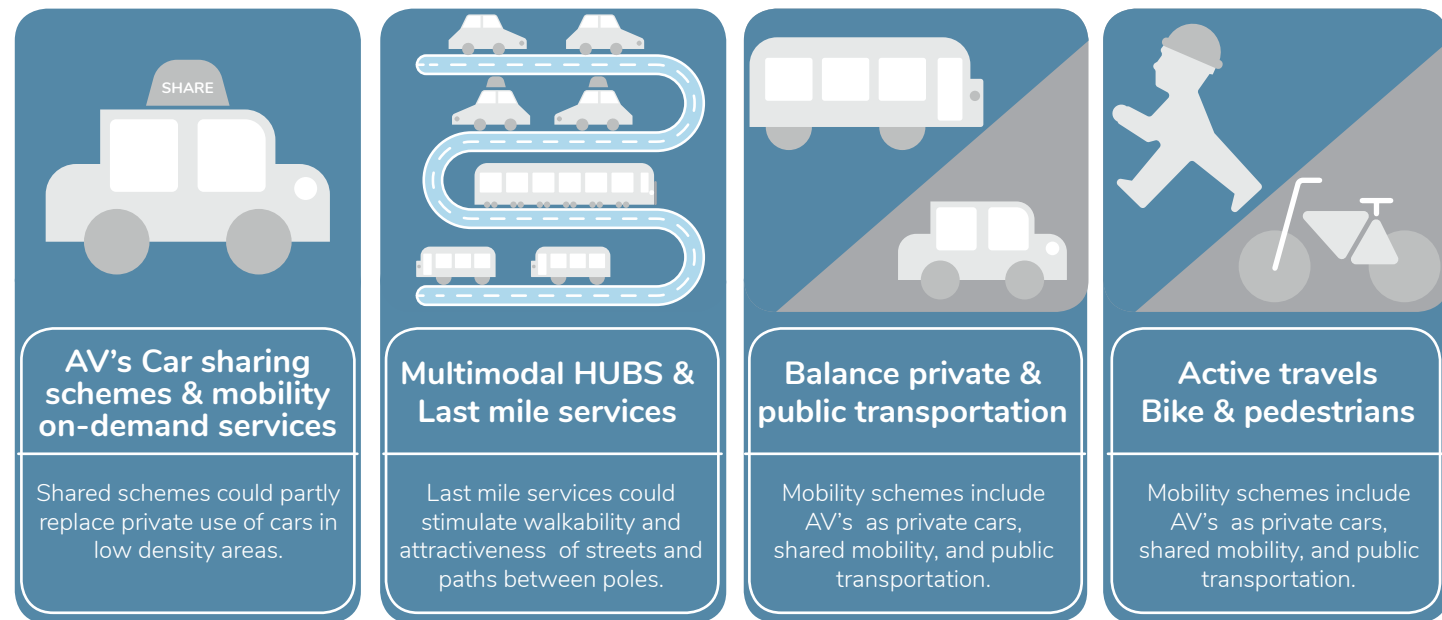
The premises for a mixed realities scenario are used as drivers to create connections between problems and solutions



Problems
Typical problems of public space



Solutions
Qualities of public space

**Toolbox - Av Scenario**

Scheme of interconnected elements for the creation of patterns

3- Systematization of the automated mobility scenario (Guidelines)

The guidelines are established for the application of the autonomous mobility scenario, in this case, as the created scenario that directly affects the structure of the streets, it is decided to establish seven intervention areas of influence categorized by street typology.

Highways / Freeways*Transit mode*

Av Smart sensing and optimized road networks could lead to increased safety and quality of public space

Character - Land use

Maximum connectivity & diversified borders

Road space demand

Maintained

Av Infrastructure

Mobility Hubs & Modal interchange stations

Road - Parking - Car infrastructure

Optimized use of buffer zones

Road - Public space

Optimized use of buffer zones

Road - Building relation

Increase porosity of freeway - traffic is no longer a barrier

Arterial roads*Transit mode*

Public transportation / Last mile services / Active travels

Character - Land use

Maximized use of space for Density / Mixed functions / Attractiveness of street

Road space demand

Free space from side parking

Av Infrastructure

Public transport stop - Drop-off areas

Road - Parking - Car infrastructure

Replaced by Density / Mixed functions / Attractiveness

Road - Public space

Pockets of activities

Road - Building relation

Ground-floors Maximum attractiveness for walkability

Block perimeter

Collector / Distributor*Transit mode*

Limited shared / Active travels

Character - Land use

Place identity / Community interaction

Road space demand

Free space from side parking

Av Infrastructure

Mobile parking

Road - Parking - Car infrastructure

Free space from side-parking & parking-lots

Road - Public space

Free space from side parking & parking lots

Road - Building relation

Maximum appropriation of street and public space for community activities

Local neighborhood*Transit mode*

Last mile services / Active travels

Character - Land use

Maximized use of space for Density / Mixed functions / Attractiveness of existing public - free spaces

Road space demand

Free space from side parking

Av Infrastructure

Drop-off areas

Road - Parking - Car infrastructure

Free space from side-parking

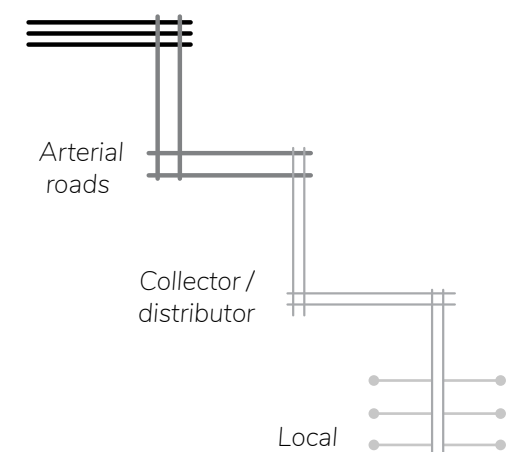
Road - Public space

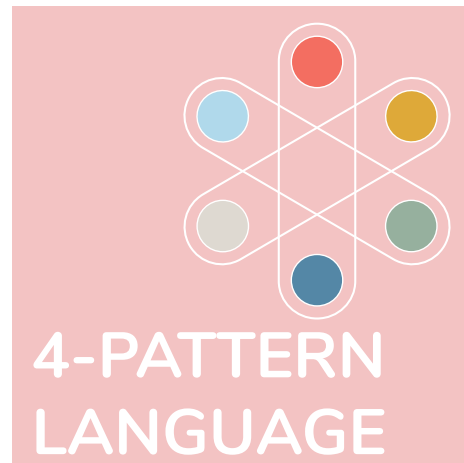
Attractive sidewalks - Maximize pedestrian connectivity between main road & existing public spaces

Road - Building relation

Attractive sidewalks - Maximize pedestrian connectivity between building entrances & public spaces (Pockets of passive-active activities)

Highways /
Freeways





A Pattern language system

'A pattern describes a problem which occurs over and over again in our environment, and describes the core of the solution to that problem, in such a way that you can use this solution a million times over without doing it the same way twice' (Alexander, Ishikawa, & Silverstein, 1977).

As the project aims to develop possibilities offered by automated mobility scenarios, that allow for spatial quality in typical modernist urban structures, that have been replicated with a more or less universalist language at a global scale.

The problem requires the development of a method that allows the analysis of modern urbanism, spatial quality and automated mobility in a systematic way, finding patterns of relationship between different elements that can then be used as a basis for design interventions, generic enough to be flexible and adaptable to different contexts of modern urbanism.

The pattern language appears as 'a powerful tool for controlling complex processes' capable of 'abstracting cause & effect' and 'documenting recurring solutions obtained under different conditions' (Salingaros, 2000). In this sense, the pattern language would not only allow to manage the complexity of the design involving so many different elements in a simple way, but also, allowing for different possibilities for the communication of the project and the use of design solutions, making it accessible to people with different backgrounds, 'accelerating understanding and hopefully encouraging collaboration' (Mentink, Henriquez, Van Niekerk, & Verheul, 2013).

Another significant aspect of the pattern language is in relation to the applicability of the method, and the transferability of knowledge, as it provides a framework for the design that 'impose constraints', 'eliminating a large number of possibilities, while still allowing an infinite number of possible designs' (Salingaros, 2000).

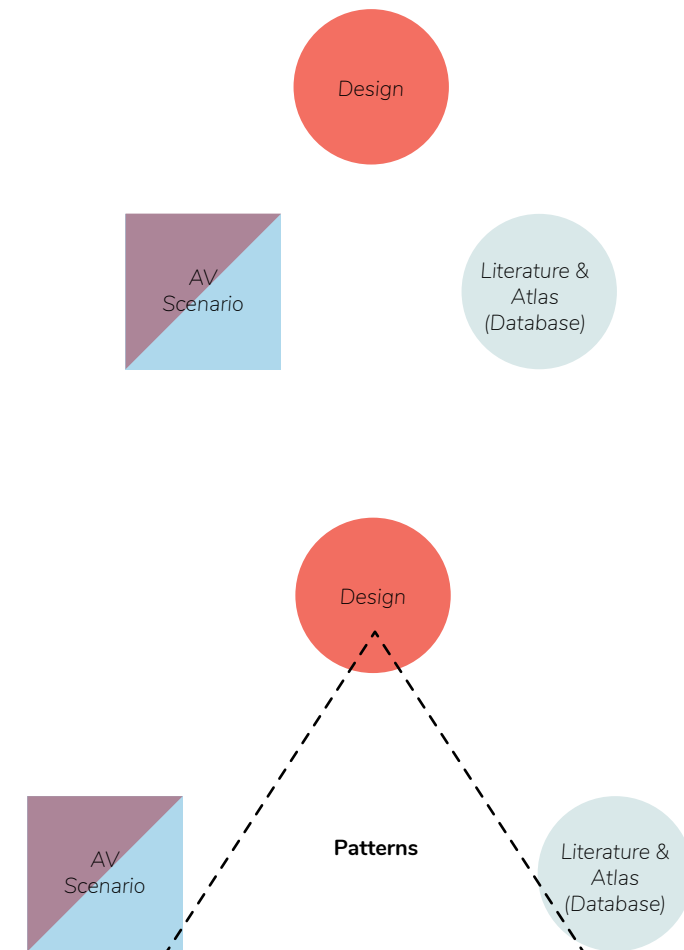
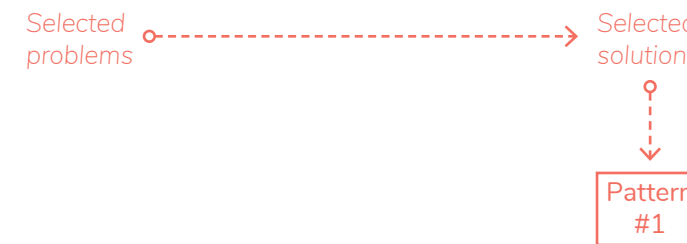


Figure 1.
Patterns as method of integration
Source: Own elaboration

Pattern methodology

In this project, the patterns are created integrating the selected literature regarding modernist urbanism and quality of public spaces, systematically classified in a database of problems and solutions, the examples of intervention and valuable elements of modern urbanism, displayed in the Atlas of modernism as an universal model, and an automated mobility scenario. The resulting 28 patterns that combine groups of relatable problems that can be solved by putting together a set of solutions. The more patterns can be created using this method, more design solutions can be associated to particular problems.



Hierarchy relations

In relation to the hierarchy between patterns, a first approach to establish hierarchy relations has been made with the patterns that are at the base of the automated mobility scenario, and therefore, could be considered as catalyzers synergies that enable all the other patterns to form.

- 1-Mobility Hubs & Last mile services;
- 2-AV Public transportation;
- 3-Parking infrastructure (Mobile – fixed);
- 15-Mobility landscapes become public spaces;
- 23-AV Infrastructure triggers more porosity in neighborhood borders.

Applicability and transferability of knowledge

In relation to the applicability and transferability of knowledge, the methodology of pattern language utilized in this project should allow the integration of different levels of interaction between users. These levels of interaction could be enabled through the creation of an user-friendly / on-line interface that allows professionals to have access to a database of problems and solutions, enabling the creation of more patterns, in a crowd source based platform. On the other hand, On the other hand, the interface, could also allow the use of the existing patterns, as a base for project communication with stakeholders, and other participative design processes. An user friendly interface and the integration of a crowd-source structure, could allow for the integration of many different sources of knowledge and design interventions that could inform and adapt to a variety of contexts.

Problems - solutions graphic / Classified by problems

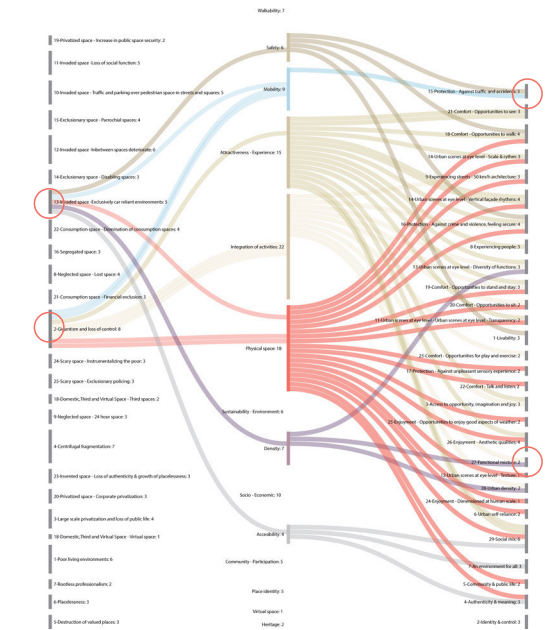


Figure 2.
Problems - solutions graphic
Source: Own elaboration

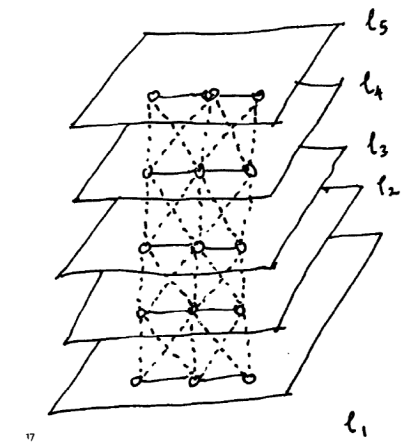
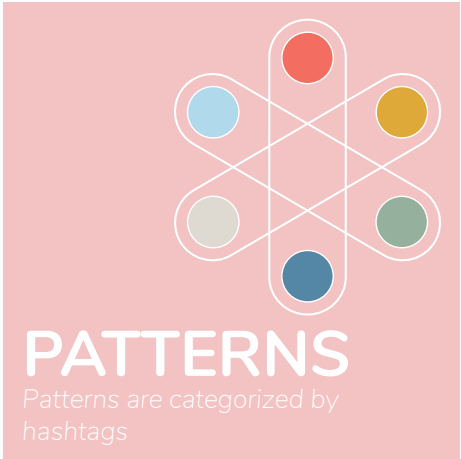
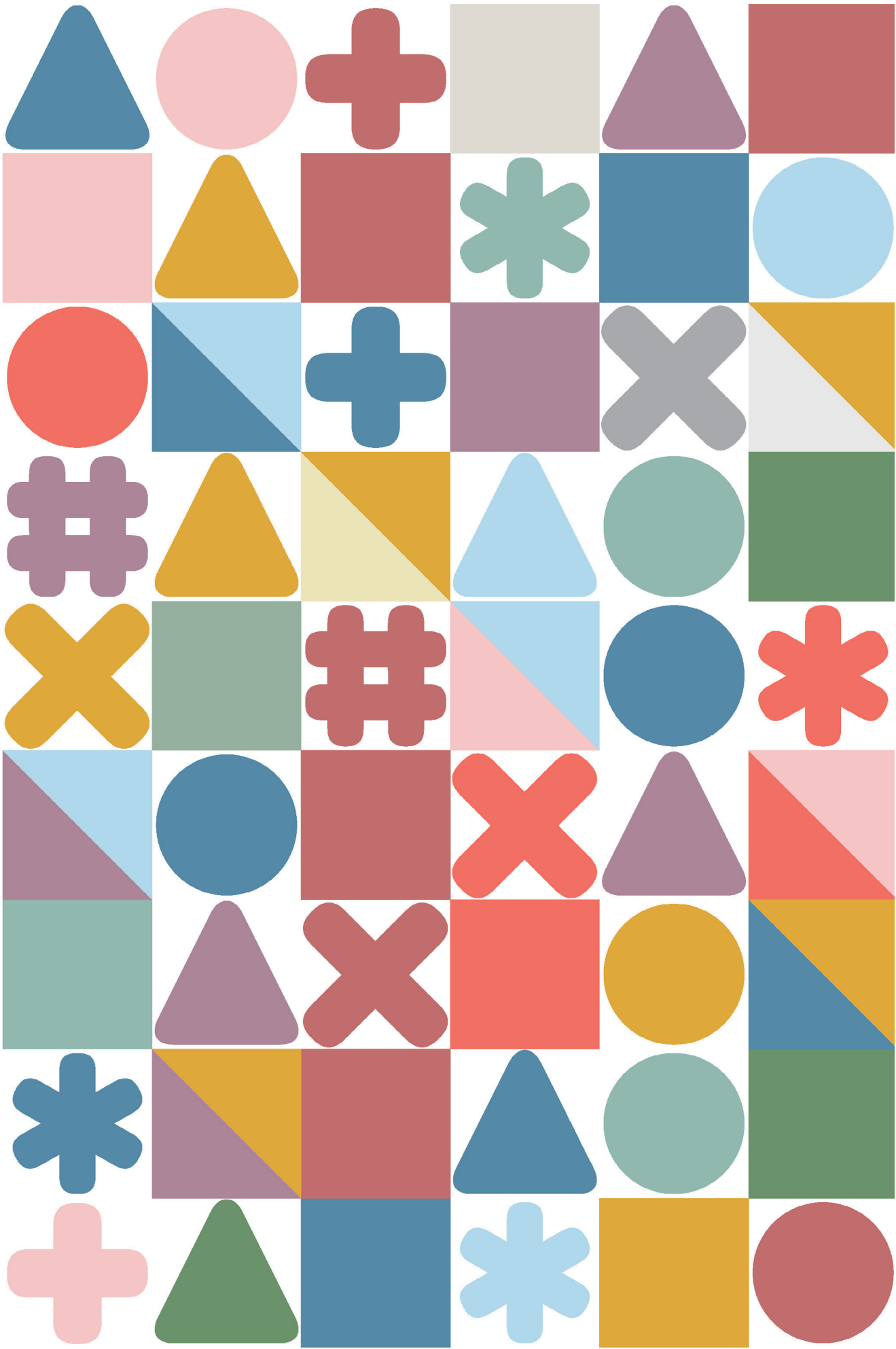


Figure 3.
Hierarchical connections
Source: Salingaros, (2008)

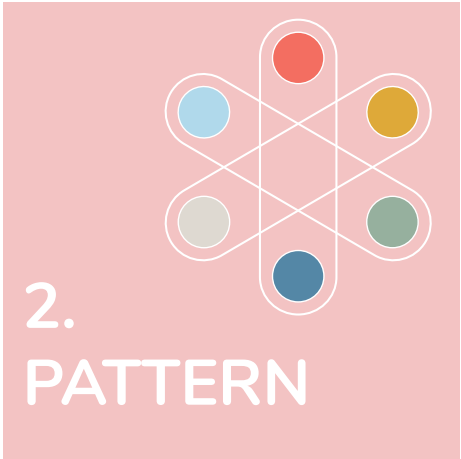
1. **Level of knowledge operability**
The tool informs the design process.
2. **Level of knowledge creation & collaboration**
More literature & more patterns.
3. **Level of communication & participation**
Participative processes with stakeholders & communities.
4. **Level of transferability**
Inform intervention of modernist urban projects in different contexts.

Figure 4.
Levels of applicability
Source: Own elaboration



4- Patterns System

The Patterns System offers the possibility of creating a more consistent relationship between problems and solutions, applying a specific spatial character to them, making them easily recognizable and applicable in the territory. For the creation of this Toolbox's patterns, I make use of the data base (graphic) that connects problems with possible solutions through hashtags, in this way, we have a first approximation to the possible design solutions for each problem. Each pattern contain clusters of problems and their solutions connected through hashtags, and the solutions are design taking into account the guidelines established by the automated mobility scenario.



2. **PATTERN**

2-AV Public transportation and Neighborhood routes.

- Problem**
- 2-Gigantism and loss of control
 - 3-Large scale privatization and loss of public life
 - 4-Centrifugal fragmentation
 - 8_Neglected space - Lost space

The issue of invaded space, as proposed by (Gehl & Gemzoe, 2001), leads to consequent dirt, noise and visual pollution, that greatly impoverish life in the city. Parking spaces, roads and related infrastructure can affect the functionality and attractiveness of public spaces, while underutilizing highly valuable areas of the territory.

Solution

Av Public transportation

The proposed automated mobility scenario encourage the creation of a strong Public transportation network mainly along arterial roads and principal streets with restricted transit for private cars and taxi. This strategy aims to stimulate a positive impact of autonomous mobility on the territory. Taking into account the common problems of the post-war neighborhoods, where car mobility usually dominates the landscape, the weak connection with the surrounding urban fabric, the open block issues, and the oversized public spaces. The strategy aims to establish healthier connections between mobility routes and the urban tissue, prioritizing public transportation, in order to also stimulate active travels, greater densities and diversity of uses in the territory, and using the street as a catalyst of vitality and attractiveness of public space.

This pattern is connected with density of houses and mix of programs, that should be promoted in vicinity to public transport stops,; in order to create nodes of activities concentration in main routes, that could connect with more passive and community activities in collector and neighborhood roads.

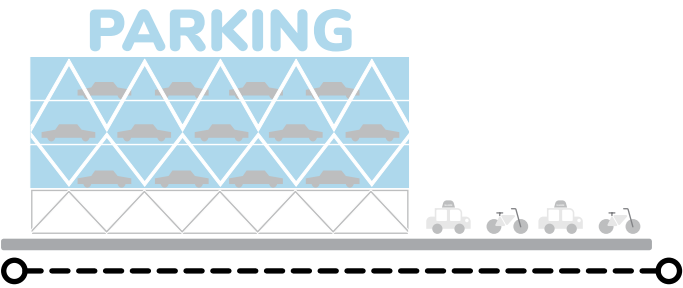
Roads

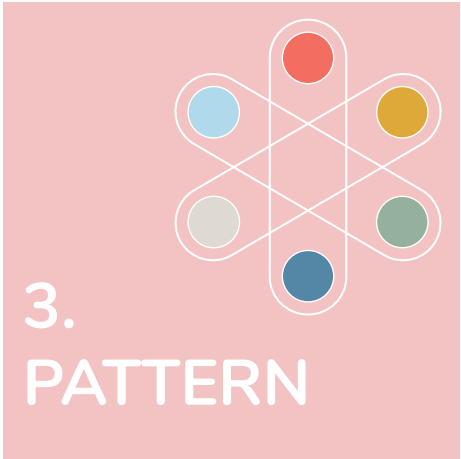
Arterial roads / Collector -Distributor / Neighborhood roads

Sources

(Carmona, 2010)(Gehl & Gemzoe, 2001), (Jacobs & Appleyard, 1987), (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Meyboom, 2018).

- Related patterns**
- 4-Nodes as meeting points
 - 8-More density & diversity of uses
 - 13-Functionally mixed oriented infill





P₃

3-Parking infrastructure (mobile – fixed)

Problem

- 1-Poor living environments
- 2_Gigantism and loss of control
- 10-Invaded space - Traffic and parking over pedestrian space in streets and squares
- 11-Invaded space -Loss of social function
- 12-Invaded space -In-between spaces deteriorate
- 13-Invaded space -Exclusively car reliant environments

Matthew Carmona with the concepts of ‘Invaded space’ relates traffic and parking and exclusively car reliant environments with issues associated with poor living environments, proposed by Allan Jacobs and Donald Appleyard. According to these statements, the mobility landscapes such as roads and car parks act as a psychological and safety barrier and are usually absent of attractors, leading to subsequent deterioration and loss of social functions.

Solution

Parking infrastructure

A combined strategy of fixed parking structures in combination with Mobility hubs, and mobile AV platforms, that could be located in cheap and less central parking areas, or move to specific locations according to specific requirements of parking spaces. This strategy could help gain free space in strategic areas, such as street sides, traffic lanes and parking lots invading public spaces and green areas.

‘One of the positive effects of driver-less cars could be decreasing the demand for parking spaces in cities’ (Duarte & Ratti, 2018). The proposed automated mobility scenario, give priority to public transportation, shared cars and active travels along main routes, this could stimulate a decrease in parking demand, and therefore, make possible the use of the surplus territory in an optimized way. Aiming for a more sustainable development of the city, through the valuation and densification of the existing territory, and increasing

its attractiveness in combination with high quality public spaces.

Roads

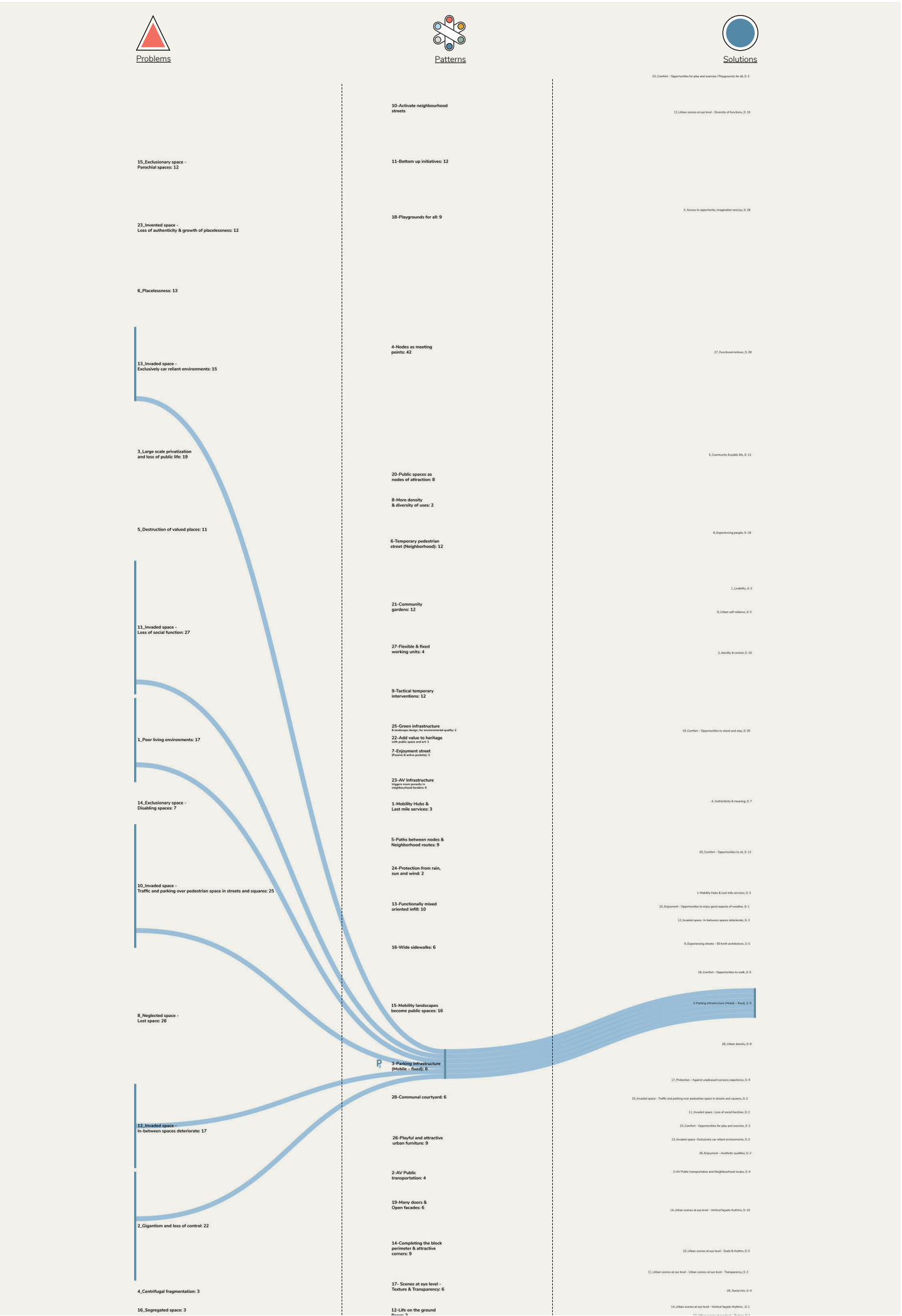
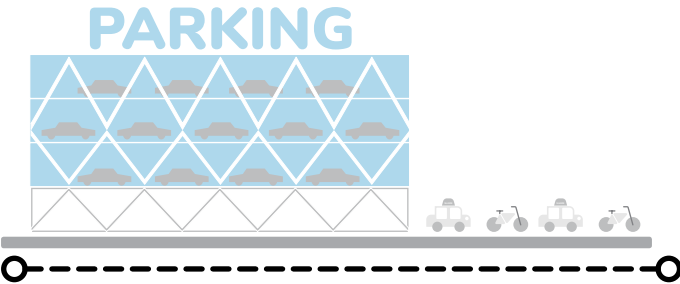
Highways - Freeways / Arterial roads / Collector -Distributor / Neighborhood roads

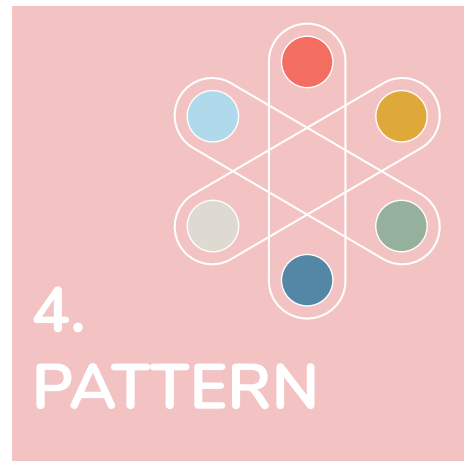
Sources

(Duarte & Ratti, 2018), (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Meyboom, 2018).

Related patterns

- 1-Mobility Hubs & Last mile services
- 2-AV Public transportation
- 8-More density & diversity of uses
- 15-Mobility landscapes become public spaces





4-Nodes as meeting points

Problem

- 1-Poor living environments
- 2-Gigantism and loss of control
- 3-Large scale privatization and loss of public life
- 5-Destruction of valued places
- 10-Invaded space - Traffic and parking over pedestrian space in streets and squares
- 13-Invaded space -Exclusively car reliant environments
- 19-Comfort - Opportunities to stand and stay
- 20-Comfort - Opportunities to sit
- 23-Invaded space - Loss of authenticity & growth of placelessness

Solution

- 3-Access to opportunity, imagination and joy
- 8-Experiencing people
- 13-Urban scenes at eye level - Diversity of functions
- 27-Functional mixture

According to Lynch, 'Nodes are the strategic foci into which the observer can enter typically either junctions of paths or concentrations of some characteristics'. 'Sense of arrival' may be one of the key aspects of a node, and in the proposed automated mobility scenario, that aims to establish new synergies between mobility infrastructures and quality of public spaces, the concentration nodes should secure and enhance the value of public spaces, along local and collector roads, guarantying their nature as a concentration point. On the other hand, an automated mobility scenario, prioritizing public transportation along main streets could also profit from the transport stops, as junction nodes and concentration points, where density should be promoted, (when possible), and the quality and attractiveness of the street should be a priority.

Roads

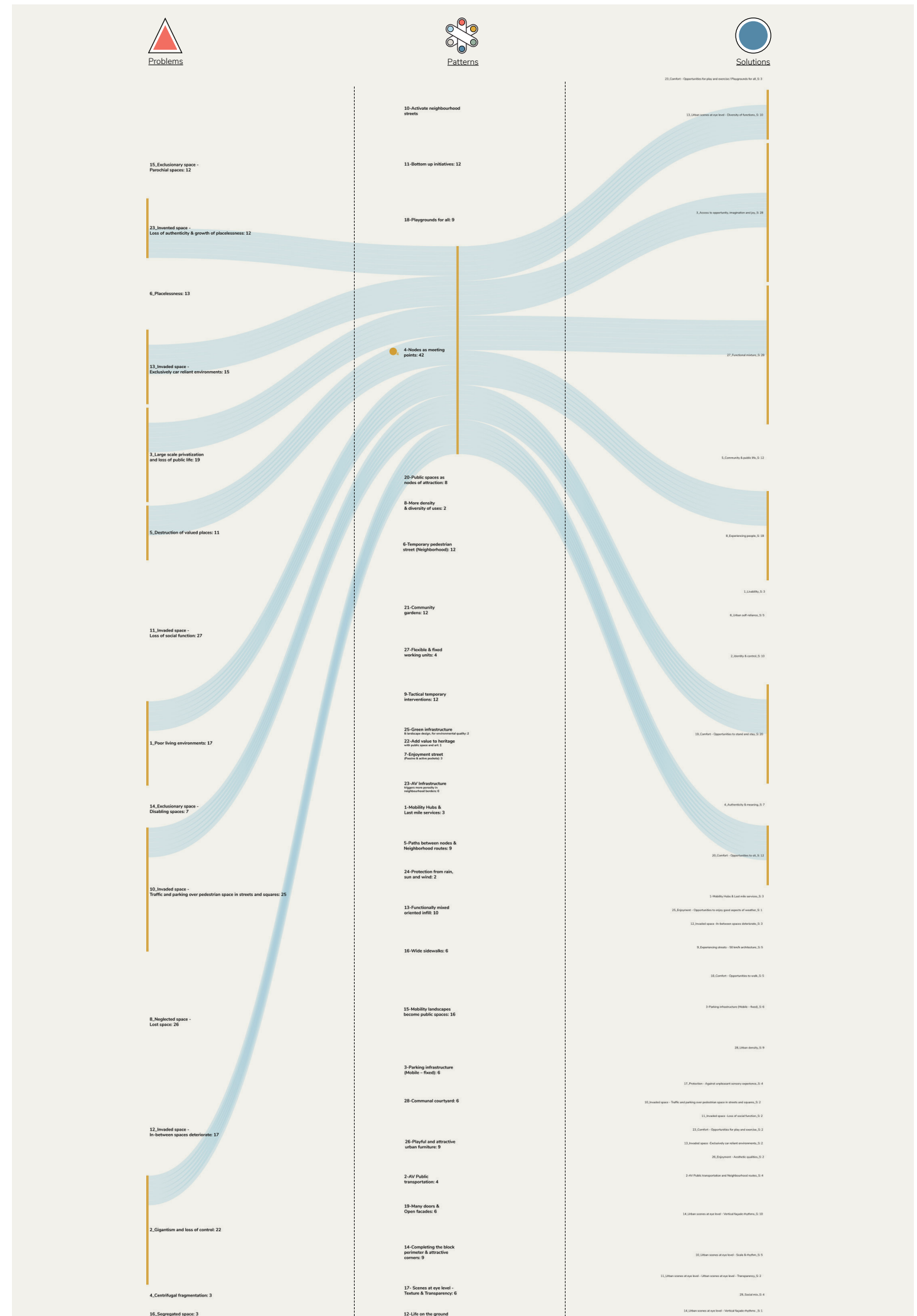
Arterial roads / Collector -Distributor / Neighborhood roads

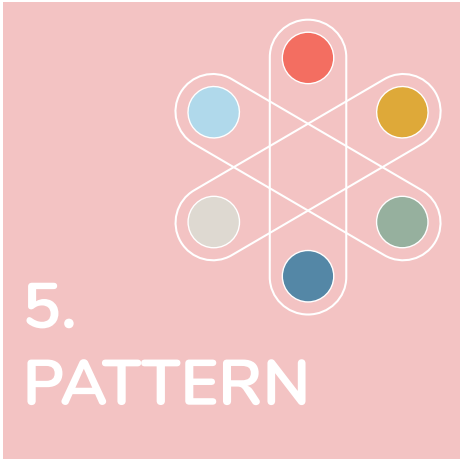
Sources

(Lynch, 1960), (Jacobs & Appleyard, 1987), (Carmona, 2010), (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Meyboom, 2018).

Related patterns

- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 22-Add value to heritage with public space and art
- 26-Playful and attractive urban furniture





5

5-Paths between nodes & Neighborhood routes

- Problem**
11-Invaded space -Loss of social function
12-Invaded space -In-between spaces deteriorate
14-Exclusionary space - Disabling spaces

In Post-War neighborhoods, public-green spaces are usually over dimensioned, under-managed and lack of services and identity, therefore underutilized.

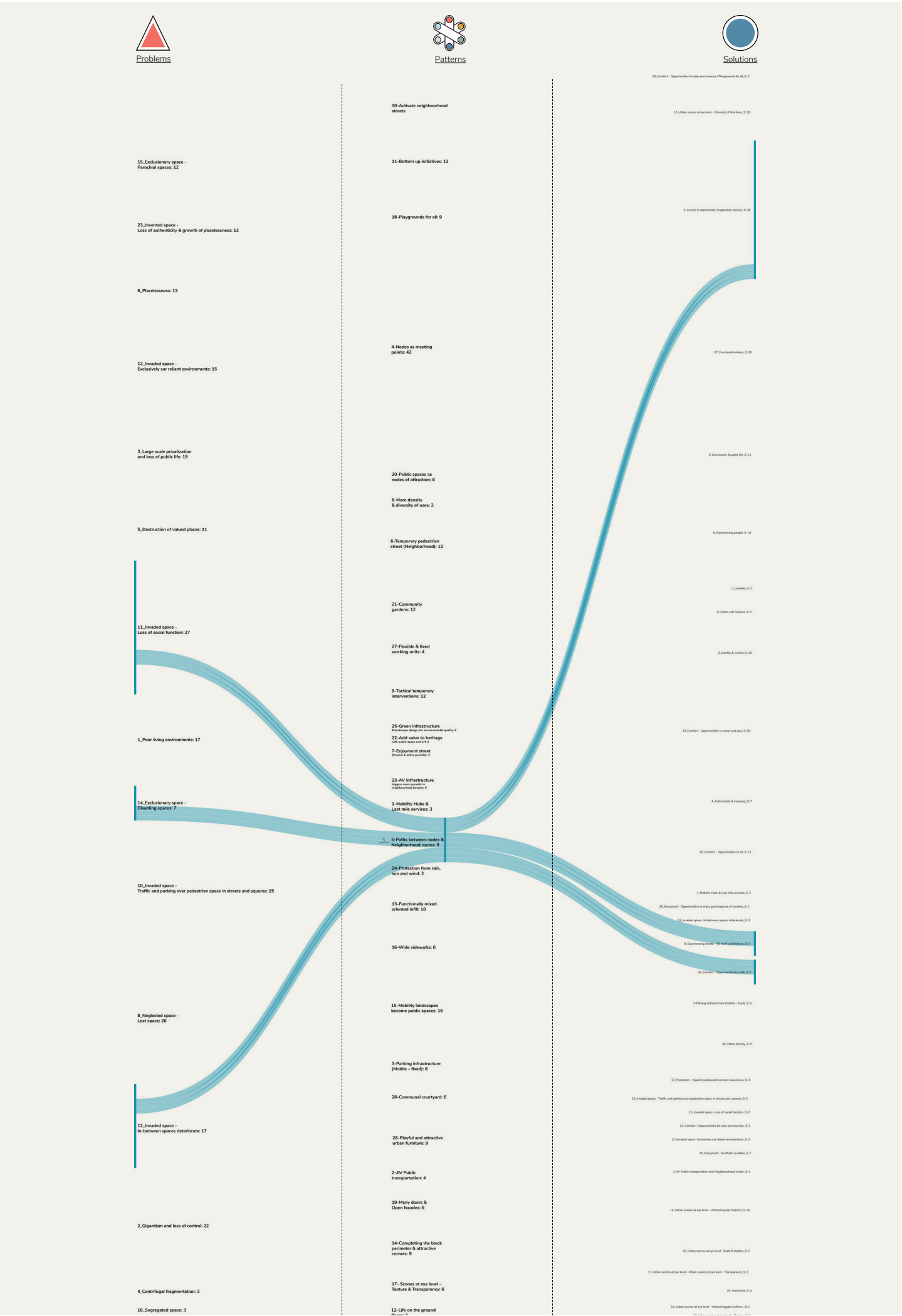
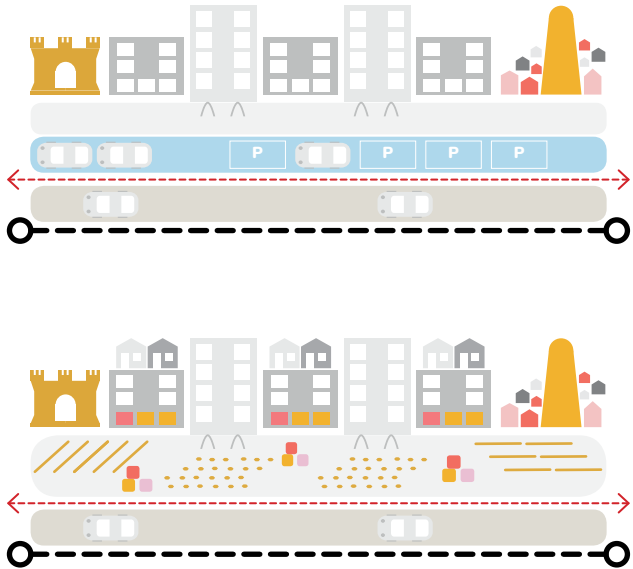
- Solution**
3-Access to opportunity, imagination and joy
9-Experiencing streets - 50 km/h architecture
18-Comfort - Opportunities to walk

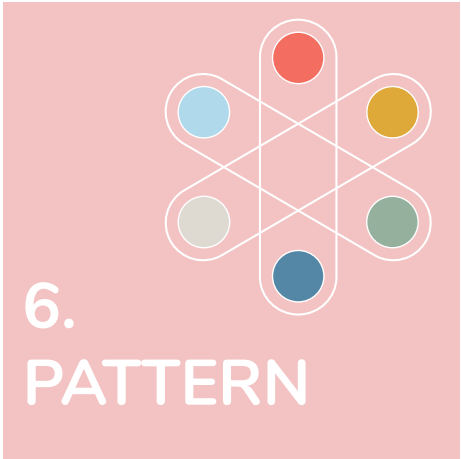
According to Lynch, ‘Paths are the channels along which the observer customarily, occasionally or potentially moves. People observe the city while moving through streets, walkways, and transit lines, and all the environmental elements are ‘arranged and related’ (Lynch, 1960). Under an automated mobility scenario, the activation of main streets for walkability and attractiveness, is expected to have an equal impact on the attractiveness of the local streets, in this sense, Paths should promote the connection between highly transited streets, and nodes of attraction located in the nearby neighborhood streets, developing a sort of route that takes advantage of the proximity to services and the high traffic developed on the main roads, creating connections and building additional value in otherwise segregated or hidden public spaces.

Roads
Collector -Distributor / Neighborhood roads

Sources
(Carmona, 2010), (Lynch, 1960).
(Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015),
(Meyboom, 2018).

- Related patterns**
4-Nodes as meeting points
8-More density & diversity of uses
16-Wide sidewalks
17- Scenes at eye level - Texture & Transparency





6-Temporary pedestrian street (Neighborhood)

- Problem
- 6-Placelessness
 - 11-Invaded space -Loss of social function
 - 14-Exclusionary space - Disabling spaces

- Solution
- 1-Livability
 - 2-Identity & control
 - 4-Authenticity & meaning
 - 5-Community & public life

Temporary use in community street

The proposed automated mobility scenario proposes a restriction for private cars to access neighborhood and city streets within the neighborhood unit, moreover, last mile services and sharing schemes will be incentivized, allowing for most cars to be able to self-park in dedicated structures outside the neighborhood units. This way some local streets could become temporary or permanent spaces for neighborhood activities, such as local markets, small garage sales, or temporary workshops for the local communities. These streets will apply special restrictions to car mobility, and banned parking, becoming safer places for kids and elderly, and an attractive place for community activities, triggering social cohesion, identity and appropriation of the place.

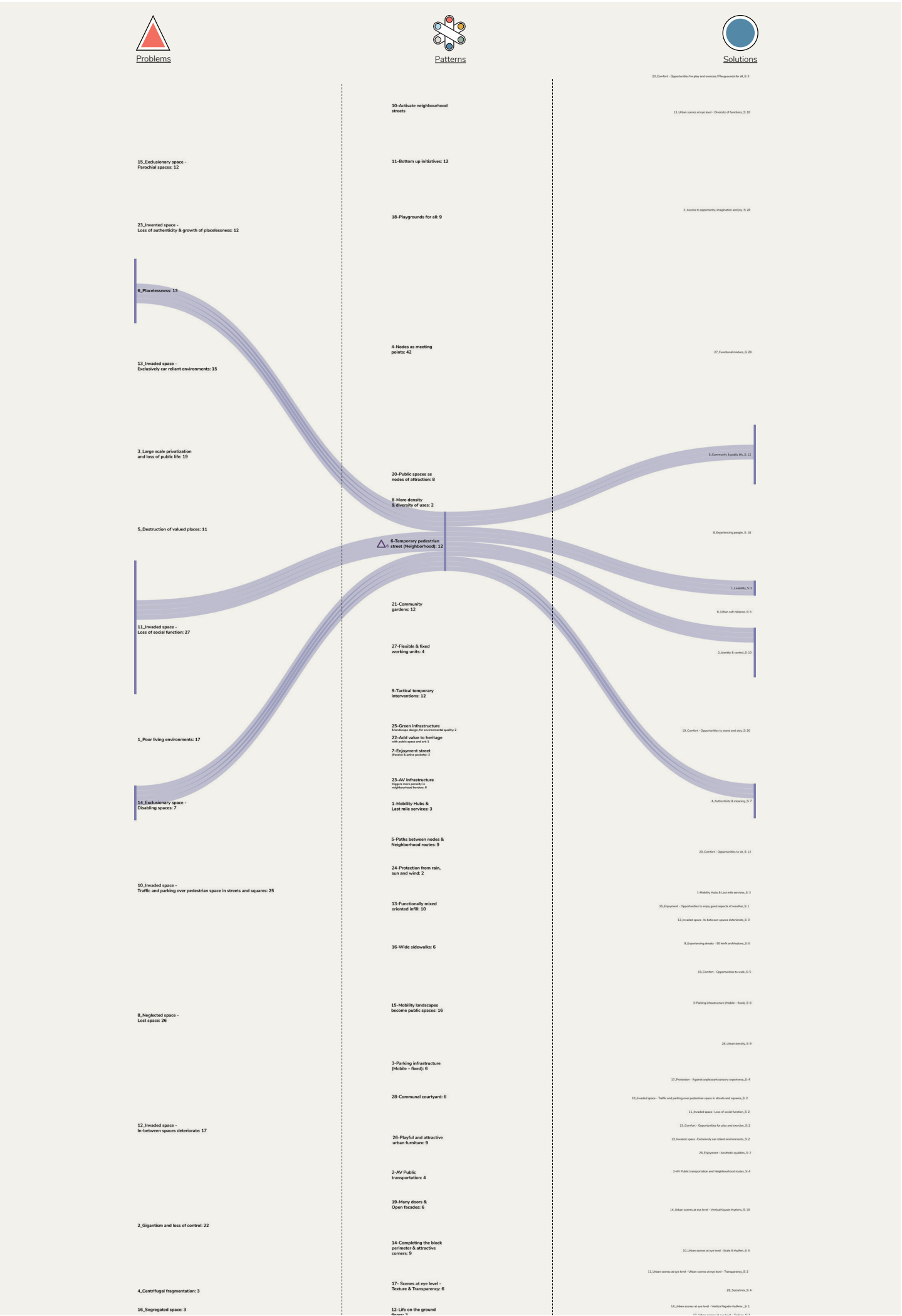
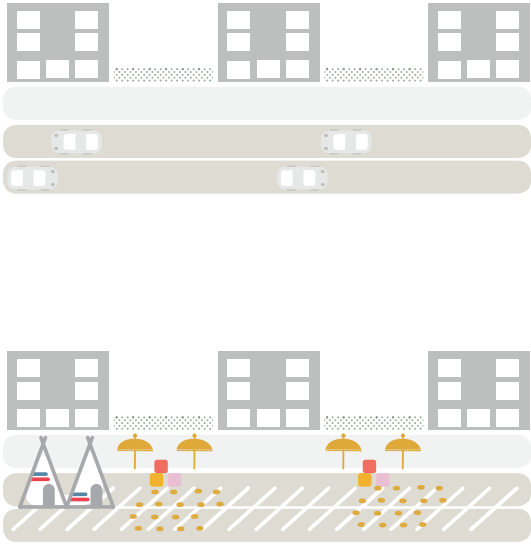
Roads

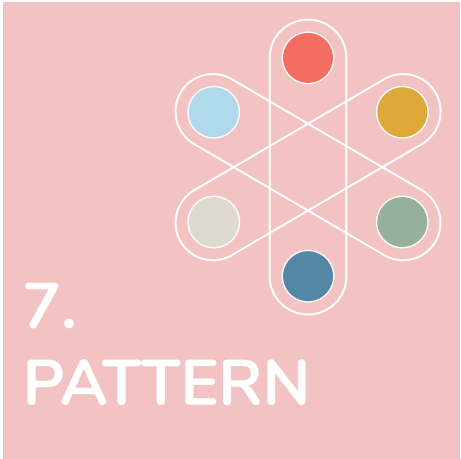
Neighborhood roads

Sources

(Lynch, 1960), (Jacobs & Appleyard, 1987), (Carmona, 2010), (Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015), (Meyboom, 2018).

- Related patterns
- 3-Parking infrastructure (Mobile – fixed)
 - 9-Tactical temporary interventions
 - 11-Bottom up initiatives
 - 18-Playgrounds for all





O₇

7-Enjoyment street (passive & active pockets)

Problem
3-Large scale privatization and loss of public life
10-Invaded space - Traffic and parking over pedestrian space in streets and squares
11-Invaded space -Loss of social function

Loss of public life
As Allan Jacobs and Donald Appleyard consider that cities largely influenced by the private sector and the spread of the automobile, have loss its social functions. Different social groups do not mix, and public life is only dependent on planned formal occasions and in protected internal spaces. The automated mobility scenario The street offers the possibility to transform some streets into social interactions incubators, that could be possibly capable to trigger more pedestrian travels and social interactions in main and local streets.

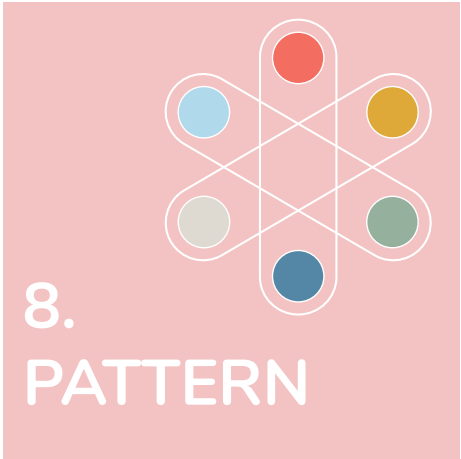
Solution
19_Comfort - Opportunities to stand and stay
Pockets of passive and active activities
In the desirable automated mobility scenario, principal streets provide gain space from side parking and car lines, allowing for densification, however, interventions should guaranty alternation between actively walkable areas and pockets for passive activities, where people have the opportunity to sit, play and contemplate in open air spaces that are available and suitable for different social groups.

Roads
Collector -Distributor / Arterial roads

Sources
(Carmona, 2010), (Lynch, 1960).
(Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015),
(Meyboom, 2018).

- Related patterns**
4-Nodes as meeting points
5-Paths between nodes & Neighborhood routes
16-Wide sidewalks
18-Playgrounds for all
24-Protection from rain, sun and wind
26-Playful and attractive urban furniture





8-More density & diversity of uses

Problem
3-Large scale privatization and loss of public life

As Allan Jacobs and Donald Appleyard argue, cities in the hands of large scale developers and private sectors has been in part stimulated by the spread of the automobile and the decline of public transit systems, preventing the mix of different social groups and causing the loss of public life.

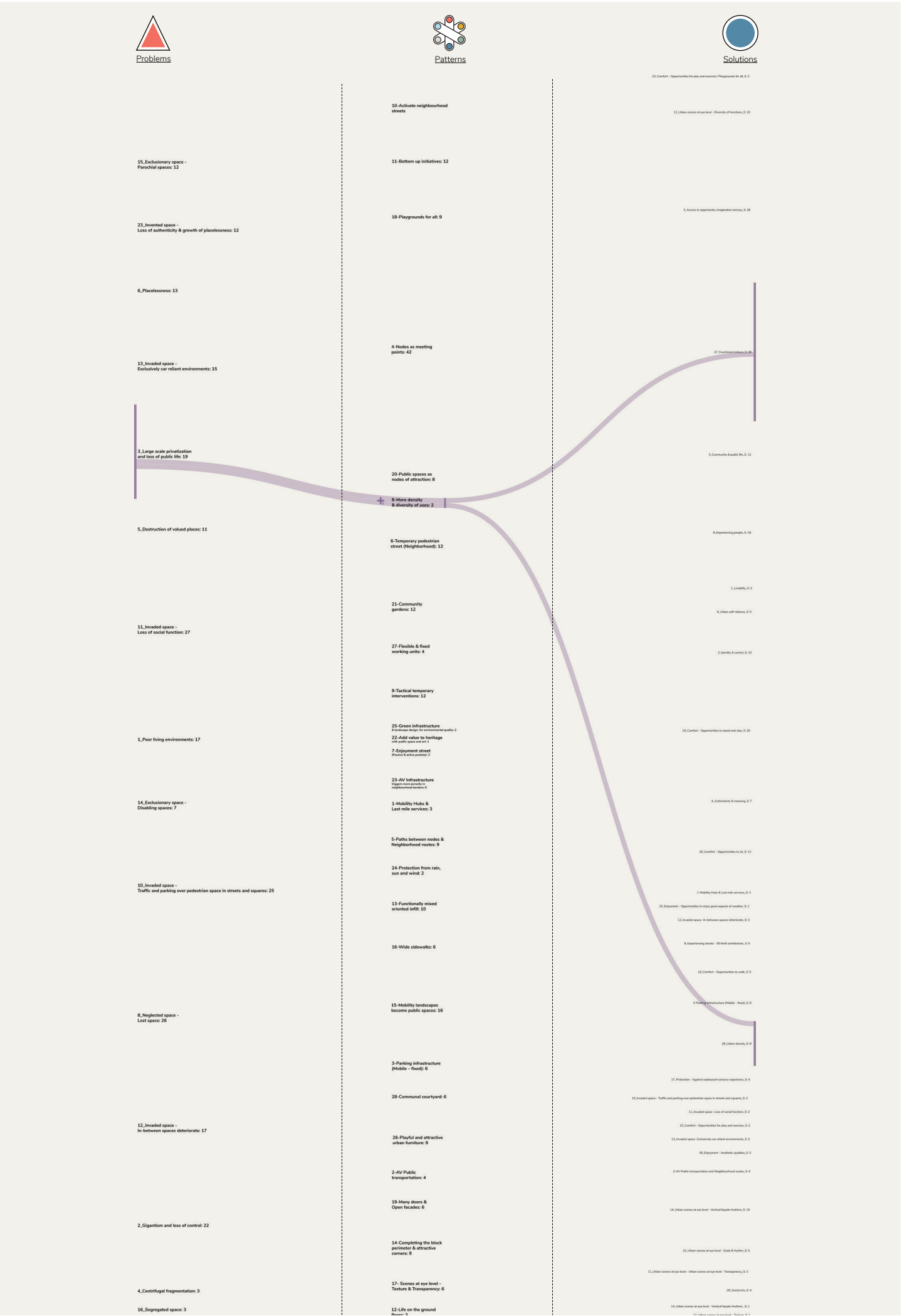
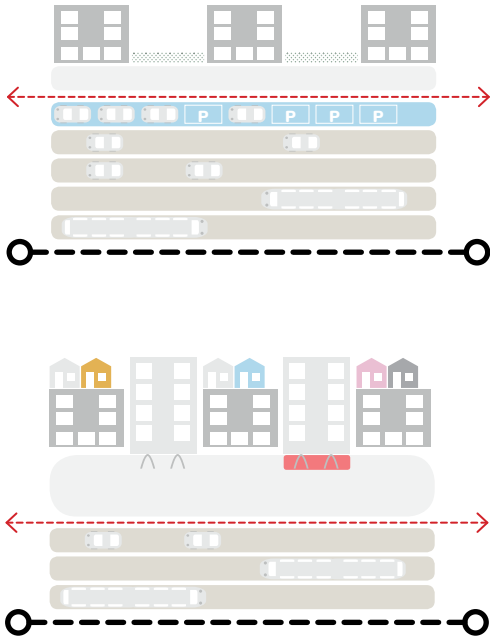
Solution
27_Functional mixture
28_Urban density

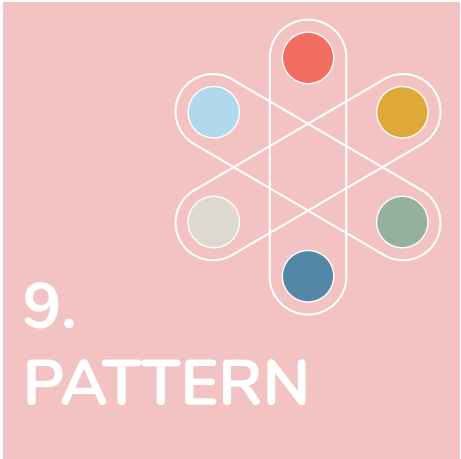
Density and concentration of people and institutions
In the desirable automated mobility scenario, last mile services and public transportation will be prioritize within each self-contained neighborhood units, especially in primary streets connecting several neighborhoods. Space gained from side parking and car lines could be utilized to densify and diversify the edges of the street, creating lively connective paths between neighborhoods.

Roads
Arterial roads / Collector -Distributor / Neighborhood roads

Sources
Allan Jacobs & Donald Appleyard;
Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015;
(COM(2018) 238), (Meyboom, 2018).

Related patterns
2-AV Public transportation
4-Nodes as meeting points
15-Mobility landscapes become public spaces





9-Tactical temporary interventions

Problem
12_Invaded space -In-between spaces deteriorate

Distant spaces comprised by instant connection by car roads tend to present or stimulate deterioration of in-between spaces, ‘perceived as absent of attractors’.

Loss of public life
As Allan Jacobs and Donald Appleyard consider that cities largely influenced by the private sector and the spread of the automobile, have loss its social functions. Different social groups do not mix, and public life is only dependent on planned formal occasions and in protected internal spaces. The automated mobility scenario The street offers the possibility to transform some streets into social interactions incubators, that could be possibly capable to trigger more pedestrian travels and social interactions in main and local streets.

Solution
3_Access to opportunity, imagination and joy
8_Neglected space - Lost space
10_Invaded space - Traffic and parking over pedestrian space in streets and squares
15_Exclusionary space - Parochial spaces
27_Functional mixture

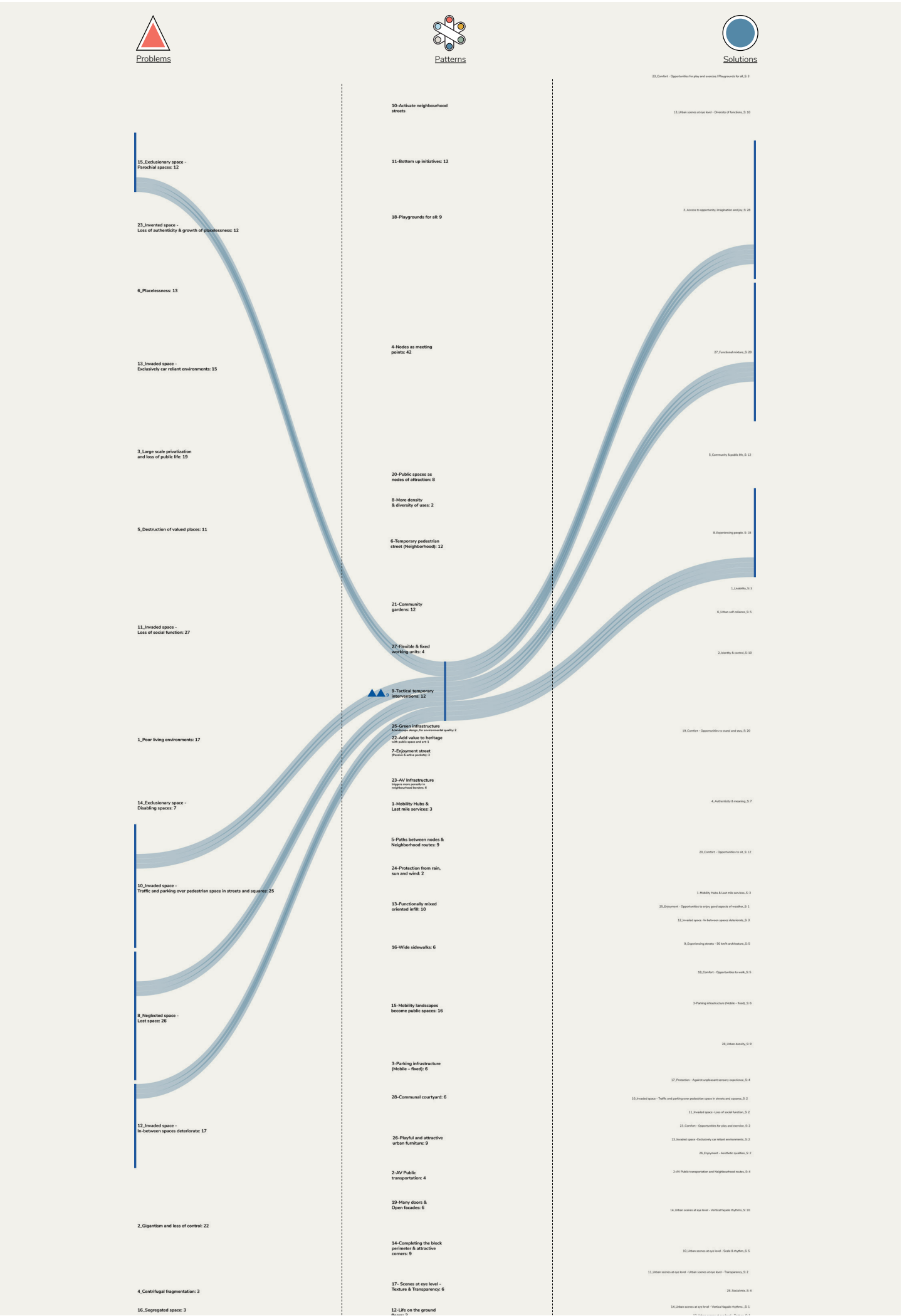
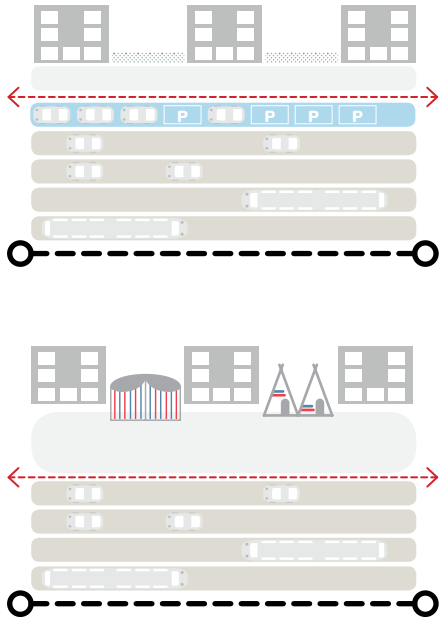
Functional mixture and temporary interventions
In the desirable automated mobility scenario, connective roads will be served by last mile services and public transportation, moreover, when space can be gained from side parking or car lanes, the space can be dedicated to activate walkability in the street , while in-between spaces can be activated to support more intensive use and program. Tactical temporary interventions could help ‘improve the livability and aesthetics of local neighborhoods, (...) in an adaptable process where the urban landscape can become an urban lab for people to test diverse ideas’ with low cost and minimum effort (Azhar & Morten, 2016).

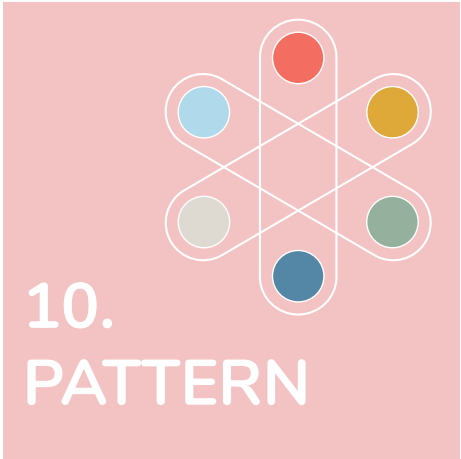
Roads
Arterial roads / Collector -Distributor / Neighborhood roads

Sources
Hajer and Reijndorp, (2001); Carmona, (2010); Azhar & Morten, (2016).

Milakis, Snelder, Van Arem, Van Wee, & Correia, (2015), (COM(2018) 238), (Meyboom, 2018).

Related patterns
4-Nodes as meeting points
7-Enjoyment street (Passive & active pockets)
15-Mobility landscapes become public spaces
16-Wide sidewalks
20-Public spaces as nodes of attraction
21-Community gardens





10-Activate neighborhood streets

Problem
6_Placelessness
15_Exclusionary space - Parochial spaces
23_Invented space - Loss of authenticity & growth of placelessness

The concept of placelessness as presented by Allan Jacobs & Donald Appleyard describes how cities become meaningless places, where ‘most people withdraw from community involvement to enjoy their own private and limited worlds’. This phenomena can be experienced in ‘homogeneous social enclaves’ of groups isolated from each other. This is evident in the case of local streets in post-war neighborhoods, where the separation of functions leads to lack of functions on the ground floors, especially when family housing areas, where storage or parking boxes are located in the front facades, contributing to impoverished and unattractive neighborhood streets (Jacobs & Appleyard, 1987).

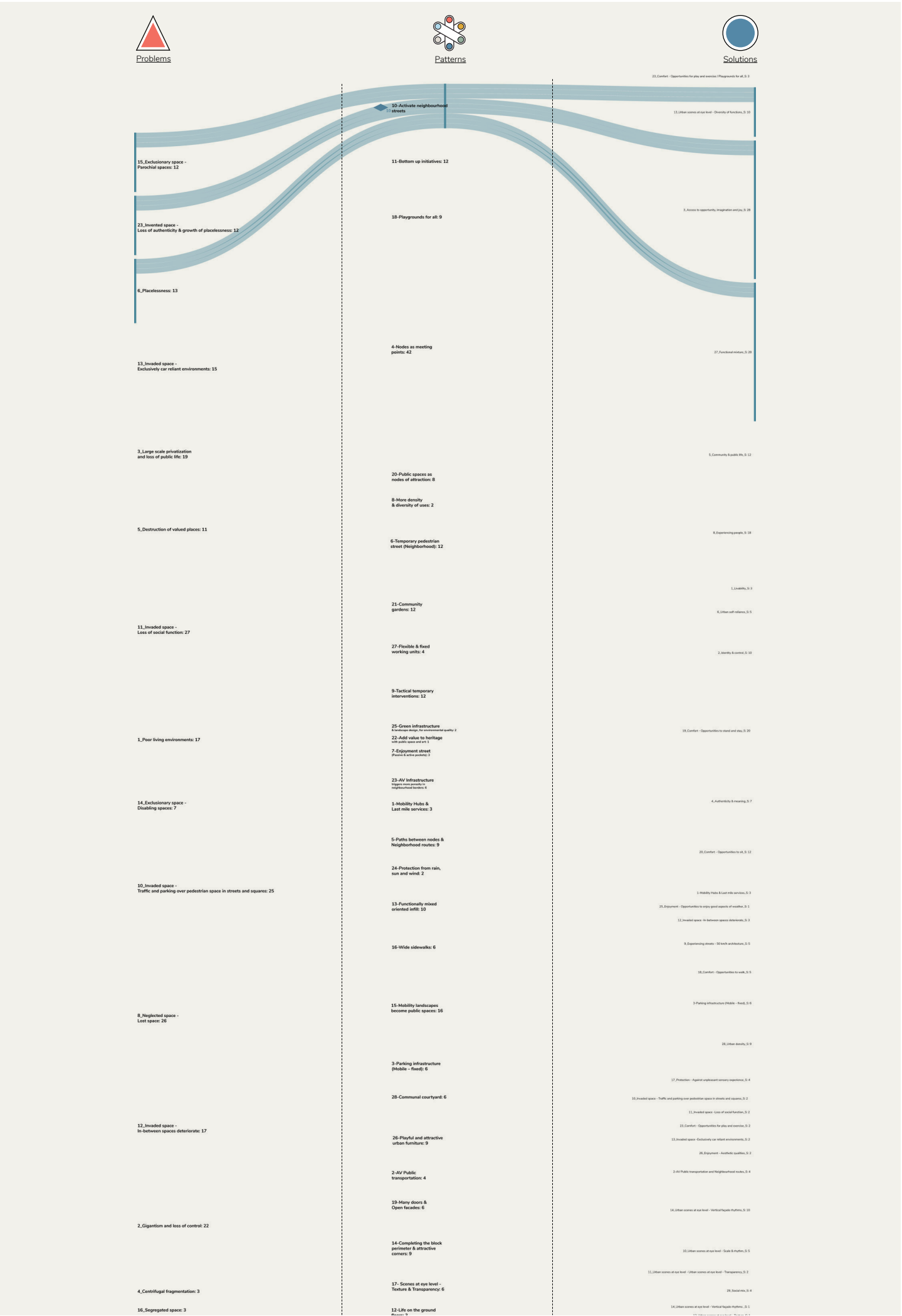
Solution
3_Access to opportunity, imagination and joy
13_Urban scenes at eye level - Diversity of functions
27_Functional mixture

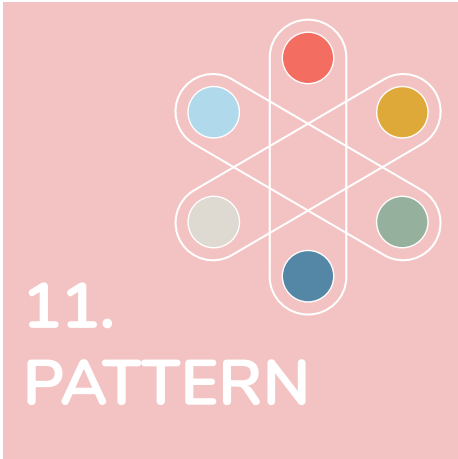
Liberating streets from side parking , and the introduction of restrictions to private cars and self-parking structures, gives an opportunity to reactivate the social function and attractiveness of neighborhood streets by allowing for the extension of front facades, and consequently, the possibility to change the use from storage/parking boxes, to more social o attractive uses such as private workshops or working spaces, with upgraded façade materials that allow for more interaction openness and attractiveness of the street, e.g. glass and different textures, colors and doors (Jacobs & Appleyard, 1987), (Gehl, Kaef, & Reigstad, 2006).

Roads
Neighborhood roads

Sources
(Carmona, 2010); (Gehl & Gemzoe, 2001)
Milakis, Snelder, Van Are, Van Wee, & Correia, 2015), (COM(2018) 238), (Meyboom, 2018).
Milakis, Snelder, Van Are, Van Wee, & Correia, 2015; (COM(2018) 238), (Meyboom, 2018).

Related patterns
6-Temporary pedestrian street (Neighborhood)
12-Life on the ground floors
13-Functionally mixed oriented infill
17- Scenes at eye level - Texture & Transparency
19-Many doors & Open facades
27-Flexible & fixed working units





11
11-Bottom up initiatives.

Problem
11_Invaded space -Loss of social function
13_Invaded space -Exclusively car reliant environments
15_Exclusionary space - Parochial spaces
23_Invented space - Loss of authenticity & growth of placelessness

When the number of car users exceeds the number of pedestrians using the streets, and the space given to road space exceeds that dedicated to footpaths, are believed to be generally impoverished, and loses most of the social and recreational activities, leaving only the most utilitarian functions. (Carmona, 2010). Public spaces in post-war neighbourhoods are usually oversized, underused, and peripheral, while strategic areas near housing entrances in the ground floors and neighbourhood streets are usually invaded by parking lots, side parking and residual green spaces.

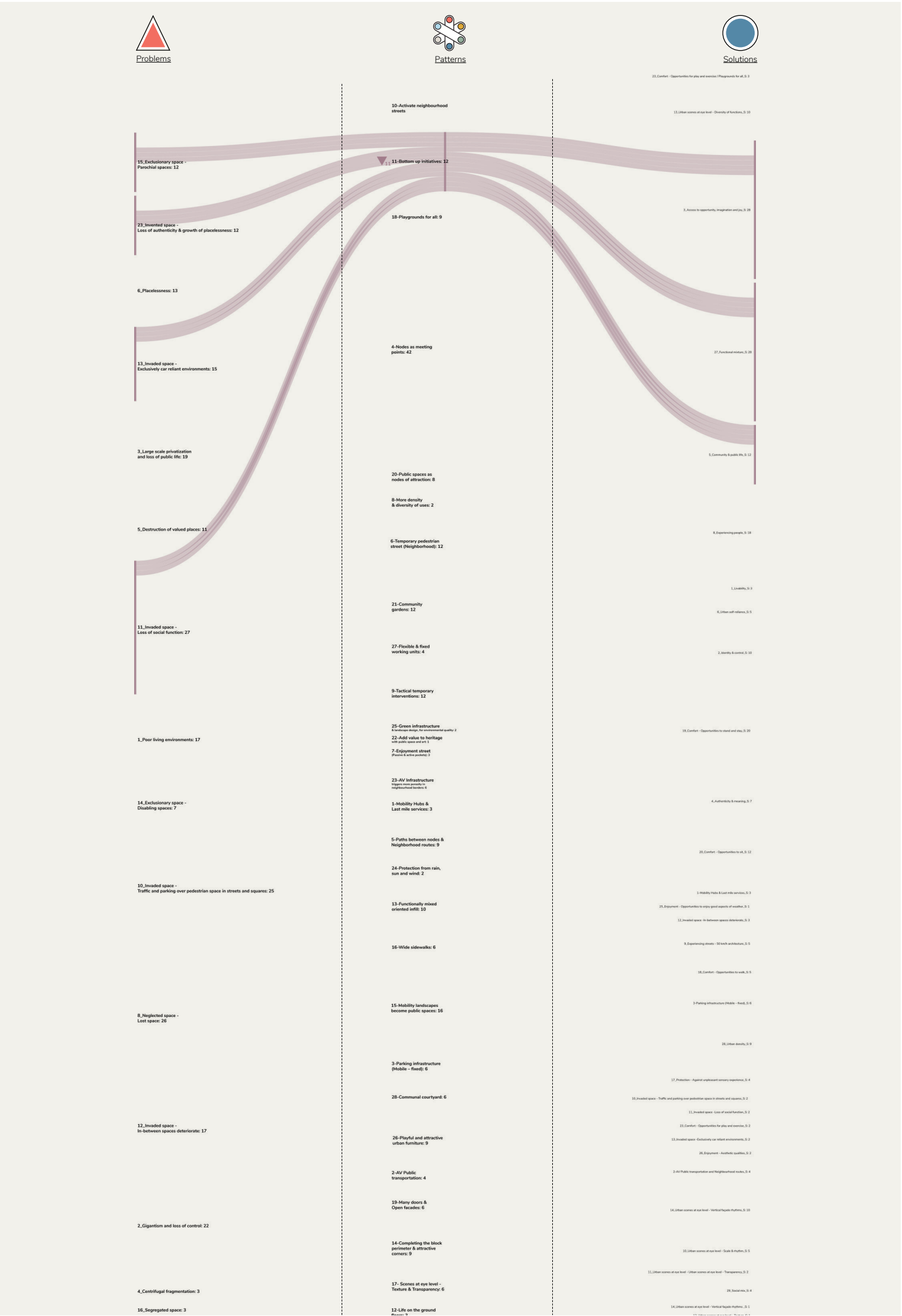
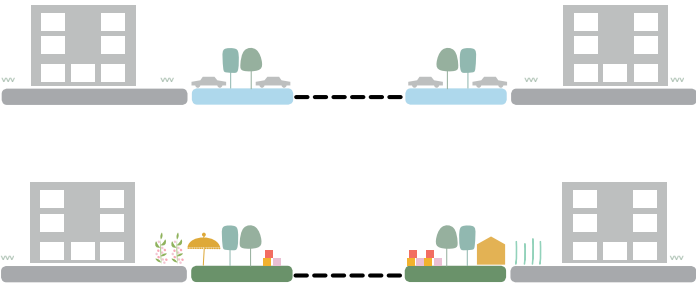
Solution
5_Community & public life
27_Functional mixture
3_Access to opportunity, imagination and joy

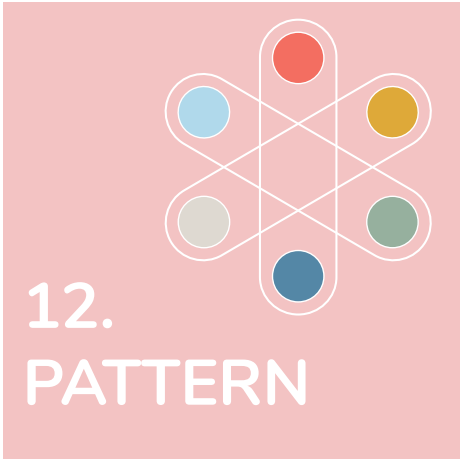
A strategy for re-proposing car infrastructures should give priority to parking spaces near housing blocks, especially in areas where more housing entrances are facing the parking space. Re-proposing these areas should take into consideration bottom-up initiatives, for the proposal of new forms of appropriation of the space that involves the community in activities for space management, and the design of public furniture to create spaces to stay and meet people.

Roads
Arterial roads / Collector -Distributor / Neighborhood roads

Sources
(Carmona, 2010); (Gehl & Gemzoe, 2001)
Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015),
(COM(2018) 238), (Meyboom, 2018).

Related patterns
6-Temporary pedestrian street (Neighborhood)
15-Mobility landscapes become public spaces
21-Community gardens
28-Communal courtyard





12-Life on the ground floors

Problem
2_Gigantism and loss of control

The elements of the city grow in size, and massive transportation systems are segregated for single travel modes, leaving people with less control over their homes neighbourhoods and cities.

Solution
14_Urban scenes at eye level - Vertical façade rhythms
(Gehl, Kaefer, & Reigstad, 2006)
29_Social mix - Short blocks, life on the ground floors, attractive corners (Jacobs, 1961)
12_Urban scenes at eye level – Texture
(Gehl, Kaefer, & Reigstad, 2006)

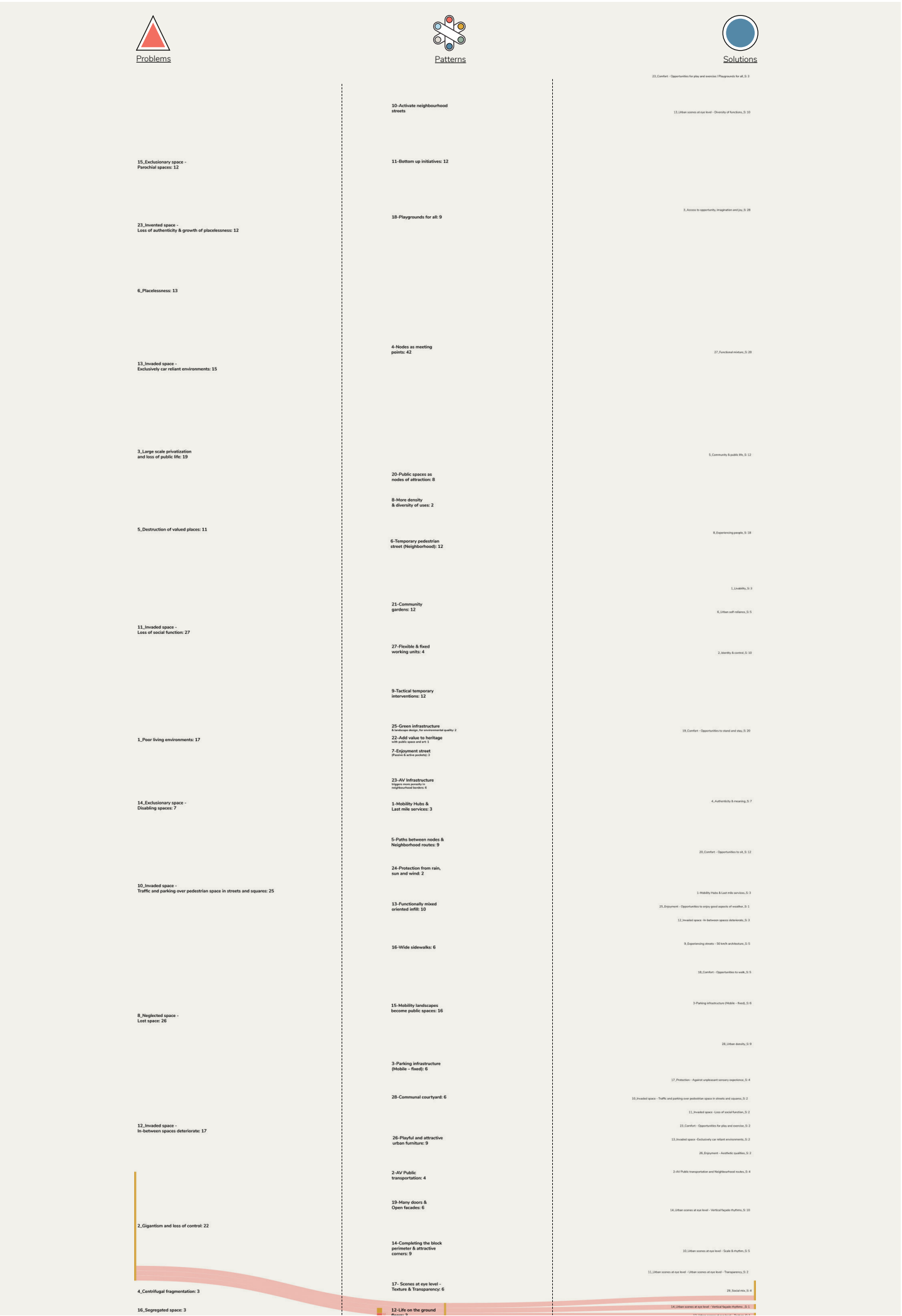
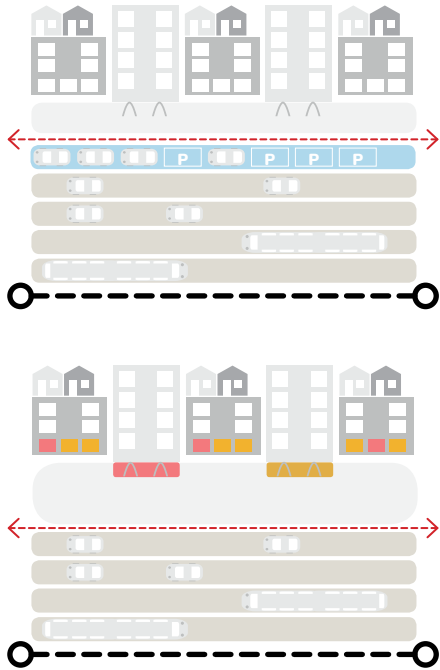
Life on the ground floor
Re-proposing the uses on the ground floors of big scale housing blocks. According to the relationship between the housing block and the street different strategies could be taken. In the case of blocks facing potentially attractive streets or places, different types of commerce or cultural uses could be proposed on the ground floors. In the case of blocks facing secondary or neighbourhood streets, other near attractive spaces like parks or squares, proximity and centrality should be taken into consideration for the proposal of spaces dedicated to work & community activities, not only for the block residents, but for all the surrounding areas.

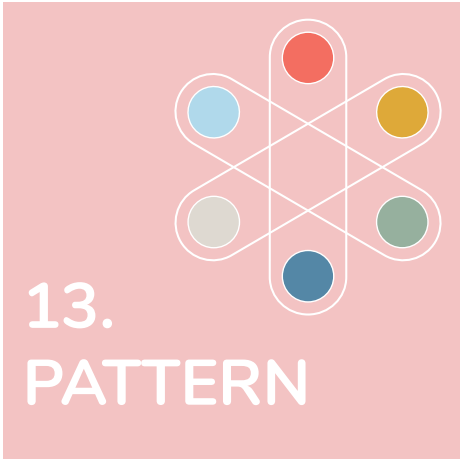
Roads
Arterial roads / Collector -Distributor / Neighborhood roads

Sources
(Gehl, Kaefer, & Reigstad, 2006); (Jacobs, 1961)
Milakis, Snelder, Van Arem, Van Wee, & Correia, (2015), (COM(2018) 238), (Meyboom, 2018).

Related patterns
15-Mobility landscapes become public spaces
16-Wide sidewalks

17- Scenes at eye level - Texture & Transparency
19-Many doors & Open facades
26-Playful and attractive urban furniture





13-Functionally mixed oriented infill

Problem

- 1_Poor living environments
- 4_Centrifugal fragmentation
- 8_Neglected space - Lost space
- 12_Invaded space -In-between spaces deteriorate
- 13_Invaded space -Exclusively car reliant environments

The automobile and separation of uses leads to fragmentation in the city. When work has been taken out of the homes, and the automobile and growing scale of commerce has taken shopping out of the local community, influencing patterns of homogeneity, segregation and fragmentation.

Solution

- 27_Functional mixture
- 28_Urban density

Infill intervention strategy

Big commercial centers, and overly monotonous landscapes, could be taken into consideration for infill interventions to diversify the area. Residual or underutilized spaces, and parking lots surrounding commercial centers, could be infilled with different typologies mix-use housing buildings and commerce. Moreover, excessively monotonous housing areas, could be infilled with flexible co-working and creative industry spaces.

Roads

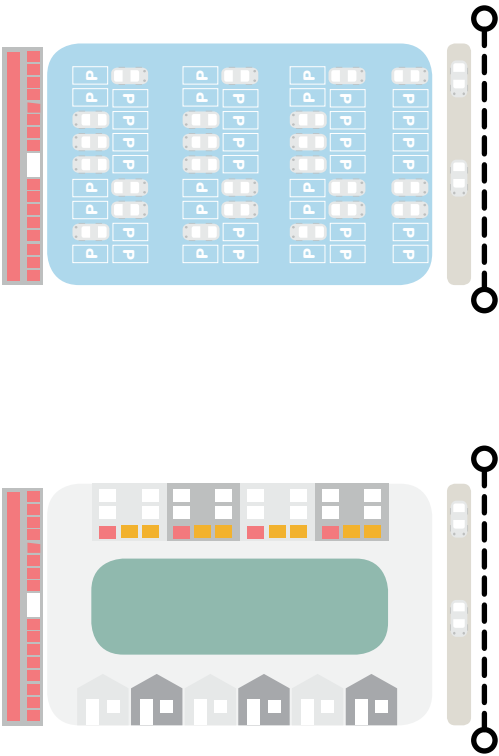
Arterial roads / Collector -Distributor / Neighborhood roads

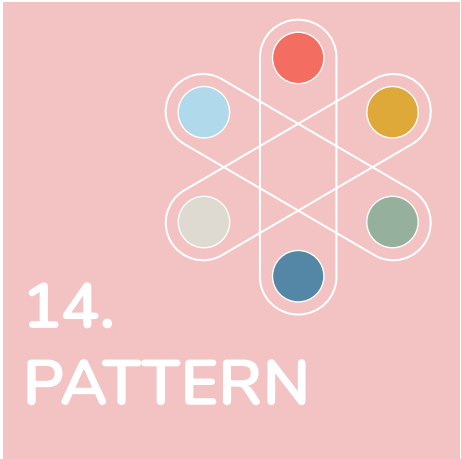
Sources

(Jacobs & Appleyard, 1987)
Milakis, Snelder, Van Arem, Van Wee, & Correia, (2015),
(COM(2018) 238), (Meyboom, 2018).

Related patterns

- 8-More density & diversity of uses
- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 14-Completing the block perimeter & attractive corners
- 15-Mobility landscapes become public spaces





14-Completing the block perimeter & attractive corners

- Problem
- 2_Gigantism and loss of control
- 8_Neglected space - Lost space
- 12_Invaded space -In-between spaces deteriorate

The elements of the city grow in size, and massive transportation systems are segregated for single travel modes, leaving people with less control over their homes neighbourhoods and cities. In post-war neighbourhoods, the separation of transit modes leads to an urban layout where street space is usually ‘noisy and anonymous’, while buildings are surrounded with public spaces / green areas that are usually oversized ‘anonymous wastelands’. The open-block presents a street perimeters that is usually scattered with large voids, and the blocks are devoid of corners, leading to what Matthew Carmona describes as ‘Cracks in the city’, residual and underutilized in-between spaces.

- Solution
- 14_Urban scenes at eye level - Vertical façade rhythms (Gehl, Kaefer, & Reigstad, 2006)
- 28_Urban density (Jacobs, 1961)
- 29_Social mix - Short blocks, life on the ground floors, attractive corners (Jacobs, 1961)

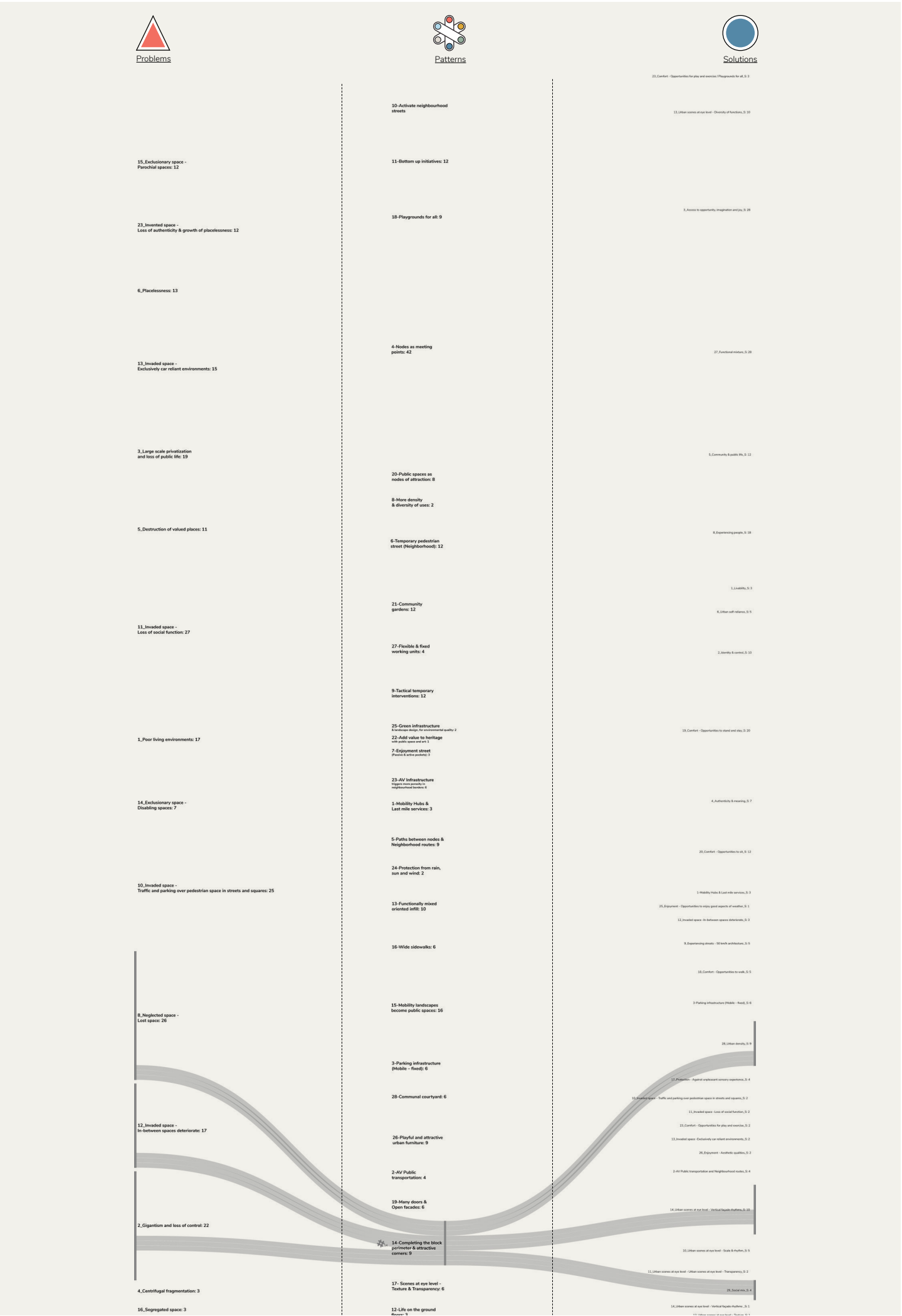
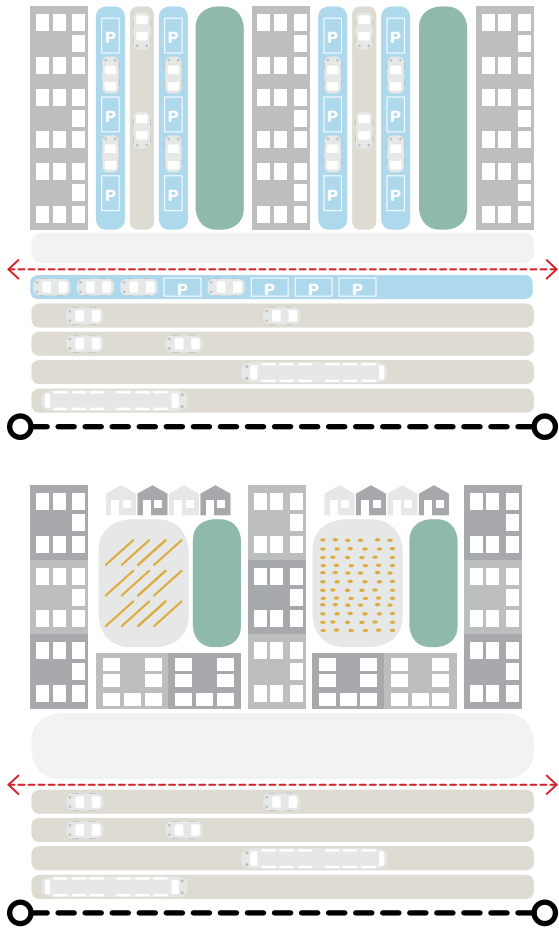
Attractive corners
Completing the block perimeter with infill buildings are a good opportunity for the creation of attractive corners in the urban tissue; re-dimensioning the urban scene for a more human scale and attractive street.

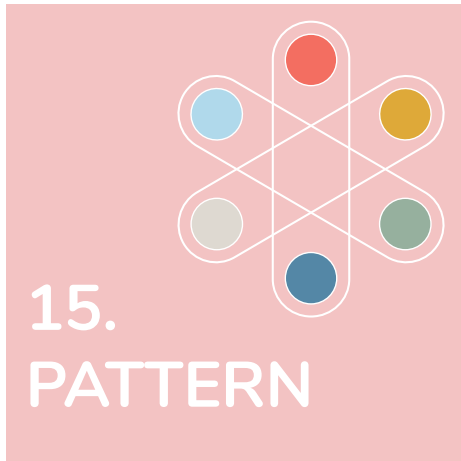
Closed blocks > Internal courtyards
Internal courtyards could provide public spaces with different levels of privacy, (public or semi-public) allowing for a diversified selection of collective spaces and adding attractiveness in the domestic dimension of the urban block in case of semi-private courtyards, or more diversified and interesting routs for pedestrians. Courtyard entrances, should be clearly marked, well-lit and attractive, in order to be safe, and provide different scales of rhythm to the street profile.

Roads
Arterial roads / Collector -Distributor / Neighborhood roads

- Sources
- (Gehl, Kaefer, & Reigstad, 2006); (Jacobs, 1961)
- Milakis, Snelder, Van Arem, Van Wee, & Correia, (2015), (COM(2018) 238), (Meyboom, 2018).

- Related patterns
- 8-More density & diversity of uses
- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 17- Scenes at eye level - Texture & Transparency
- 19-Many doors & Open facades





15-Mobility landscapes become public spaces

Problem

8_Neglected space - Lost space

(Carmona, 2010)

10_Invaded space - Traffic and parking over pedestrian space in streets and squares

Carmona refers to authors Loukaitou – Sideris (1996), that focus on the ‘in-between spaces, residual, underutilized and deteriorating spaces’. Trancik (1986) ‘Lost spaces’ are spaces in need of redesign, make no positive contribution to the surroundings or users’, e.g.

- The base of high rise towers
- Unused sunken plazas
- Abandoned waterfronts
- Train yards
- Deteriorated parks and public space

Solution

4_Authenticity & meaning

(Jacobs & Appleyard, 1987)

5_Community & public life

(Jacobs & Appleyard, 1987)

19_Comfort - Opportunities to stand and stay

20_Comfort - Opportunities to sit

(Gehl, Kaefer, & Reigstad, 2006)

The proposed scenario of Automated mobility proposes restrictions to private cars and parking solutions for self-driving shared cars outside the neighbourhood unit would free up parking spaces within neighbourhood streets and parking lots. The freed up space could be re-purposed for social functions, and public spaces.

Tackle residual space

In the desirable automated mobility scenario, lower volumes of private car traffic and prioritizing active travels could help to improve the overall quality of spaces in between roads and streets. In an environment relived from high traffic volumes and nuisance it is possible to utilize residual spaces and provide them with program or furniture in order to make them function as public spaces for the nearby neighbors and passengers, or to serve as

support for local businesses and offices. Nearby pedestrian and commercial-social activities, and community support should be considered critical aspects for the transformation proposal in residual spaces (Lewis & Schwindeller, 2014).

Appropriation & use of Green space near parking and streets

Green areas and public spaces near neighborhood parking lots tend to be highly unattractive and unused green patches. A future automated mobility scenario where public transportation prevailed, could allow for some car infrastructure to be re-proposed for other uses. As Parking lot spaces within neighborhoods are re-purposed for different uses, the near green areas could function to support community activities that allow for the appropriation of the space by locals, while strengthening social cohesion and place identity.

Re-purpose a new relationship between HighTower bases and mobility landscapes

As ground space in housing block or high rise towers is re-purposed to host new program, according to the necessities of local communities and the relation between the building and the street, also the parking structures on the ground space can be re-purposed to support the new functions, Comfort and opportunities to play, exercise, sit and stay would create more attractive space around blocks and entrances.

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Sources

(Gehl, Kaefer, & Reigstad, 2006); (Jacobs, 1961), (Lewis & Schwindeller, 2014)
Milakis, Snelder, Van Arem, Van Wee, & Correia, (2015), (COM(2018) 238), (Meyboom, 2018).

Related patterns

3-Parking infrastructure (Mobile – fixed)

9-Tactical temporary interventions

11-Bottom-Up initiatives

12-Life on the ground floors

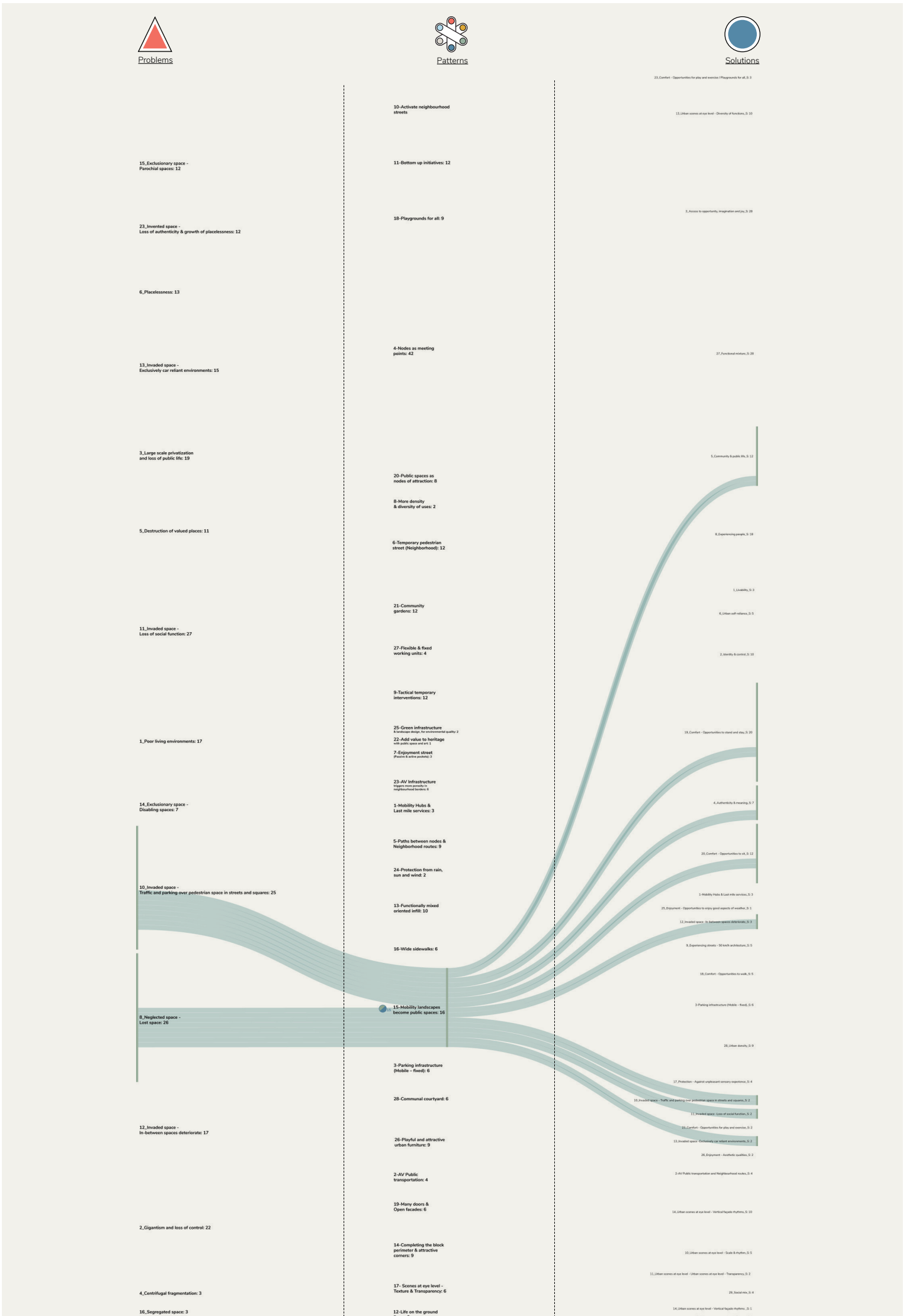
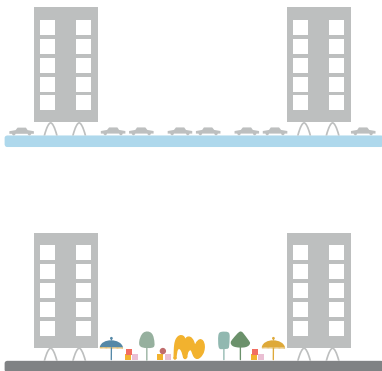
13-Functionally mixed oriented infill

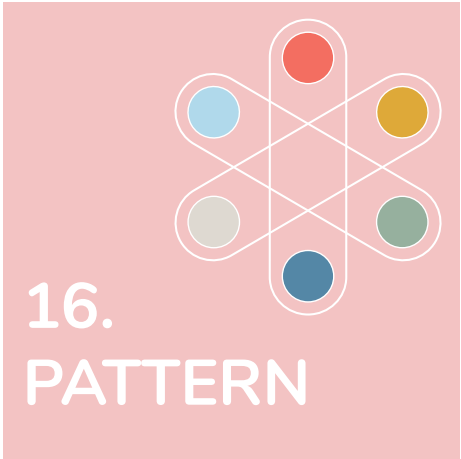
16-Wide sidewalks

17- Scenes at eye level - Texture & Transparency

21-Community gardens

26-Playful and attractive urban furniture





16-Wide sidewalks

Problem
11_Invaded space -Loss of social function
10_Invaded space - Traffic and parking over pedestrian space in streets and squares

In Post-war neighborhoods, streets tend to be invaded by roads and side parking. This phenomena causes visual and environmental pollution contributing to the impoverishment of public life. Reducing the capacity of the street to attract and accommodate pedestrians, and making both the journey and the stay less pleasant for the users. In an automated mobility scenario, more space could be gained from side parking and in some cases from car lines, in this sense, the gained space could be used to stimulate a better walking experience in principal streets (Collector and distributor), triggering greater pedestrian connectivity in the adjacent local streets as well. The typical neighborhood unit character of the modern neighborhoods, could be used as an advantage to achieve better synergies between the main street and the local streets transferring its capability to host pedestrians.

Solution
9_Experiencing streets - 50 km/h architecture
14_Urban scenes at eye level - Vertical façade rhythms
18_Comfort - Opportunities to walk

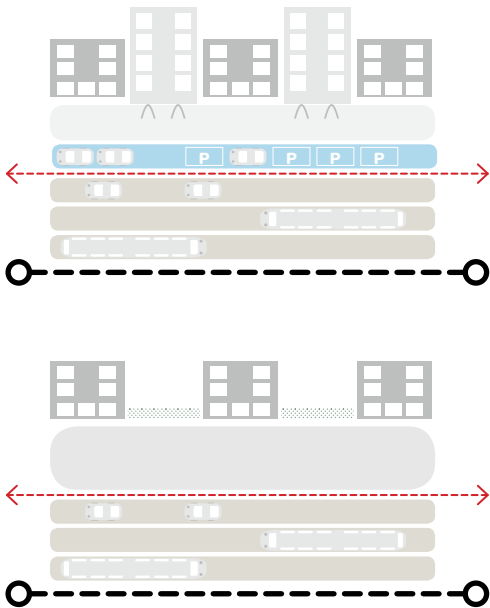
Wide sidewalks
According to Gehl et al. 'Wide sidewalks with a few breaks and accessible to all social groups' is one determinant element to be included in the planning process to create living city streets (Gehl, Kaefer, & Reigstad, 2006).

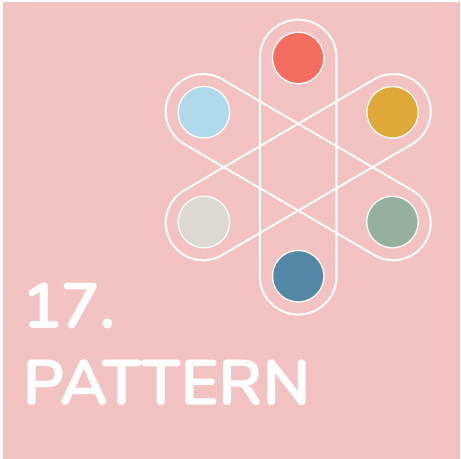
Roads
Collector -Distributor / Arterial roads / Neighborhood roads

Sources
(Gehl, Kaefer, & Reigstad, 2006), (Gehl and Gemzoe, 2001), (Carmona, 2010)

- Related patterns**
- 3-Parking infrastructure (Mobile – fixed)
 - 5-Paths between nodes & Neighborhood routes
 - 9-Tactical temporary interventions
 - 12-Life on the ground floors
 - 17- Scenes at eye level - Texture & Transparency

- 26-Playful and attractive urban furniture
- 27-Flexible & fixed working units





17- Scenes at eye level

Problem
10-Invaded space - Traffic and parking over pedestrian space in streets and squares
2-Gigantism and loss of control

Solution
10_Urban scenes at eye level - Scale & rhythm
11_Urban scenes at eye level - Urban scenes at eye level - Transparency
14_Urban scenes at eye level - Vertical façade rhythms

10_Urban scenes at eye level - Scale & rhythm
Many Units & Vertical divisions
According to Gehl, a minimum of 10 units x 100 meters allows for the attractiveness of the façade, while the ‘vertical façade expression’ shortens the perception of distance’

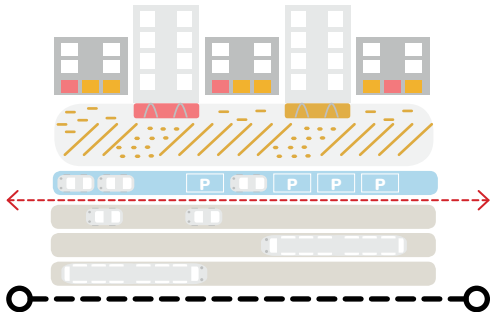
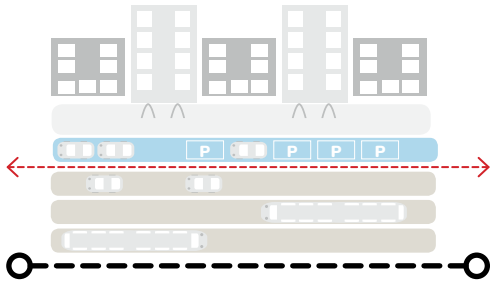
11_Urban scenes at eye level - Urban scenes at eye level - Transparency
According to Gehl, visual contact between inside and outside could increase the perception of a wider street and opportunities to interact with the buildings. This effect could be achieved by stimulating the creation of interesting windows and many entrances (Gehl, Kaefer, & Reigstad, 2006).

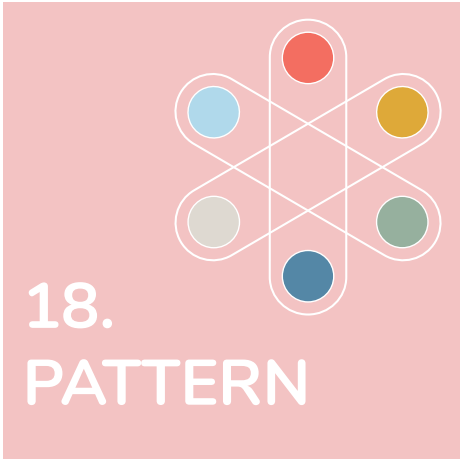
14_Urban scenes at eye level - Vertical façade rhythms
Many doors
Narrow units and a high number of doors, together with a wide range of mixed functions, would provide a ‘dynamic rhythm’ to the street (Gehl, Kaefer, & Reigstad, 2006).

Roads
Arterial roads / Collector -Distributor

Sources
(Gehl, Kaefer, & Reigstad, 2006)
Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015;
(COM(2018) 238), (Meyboom, 2018).

Related patterns
7-Enjoyment street (Passive & active pockets)
12-Life on the ground floors
15-Mobility landscapes become public spaces
16-Wide sidewalks
26-Playful and attractive urban furniture





18
18-Playgrounds for all

Problem
3_Large scale privatization and loss of public life
11_Invaded space - Loss of social function
15_Exclusionary space - Parochial spaces

In the case of modernist urban areas, public and green spaces tend to present patterns that connect a diversity of problems; large extensions of green yards with vegetation with no furniture or associated services that guaranty a minimum use of the space, on the other hand, kids playgrounds and sport fields tend to be segregated for single uses, and therefore the space is only appropriated and used only for a certain group of people. The space is used by specific groups and specific purposes, but not allowing for the mix of people or additional value to the context and the quality of the public space.

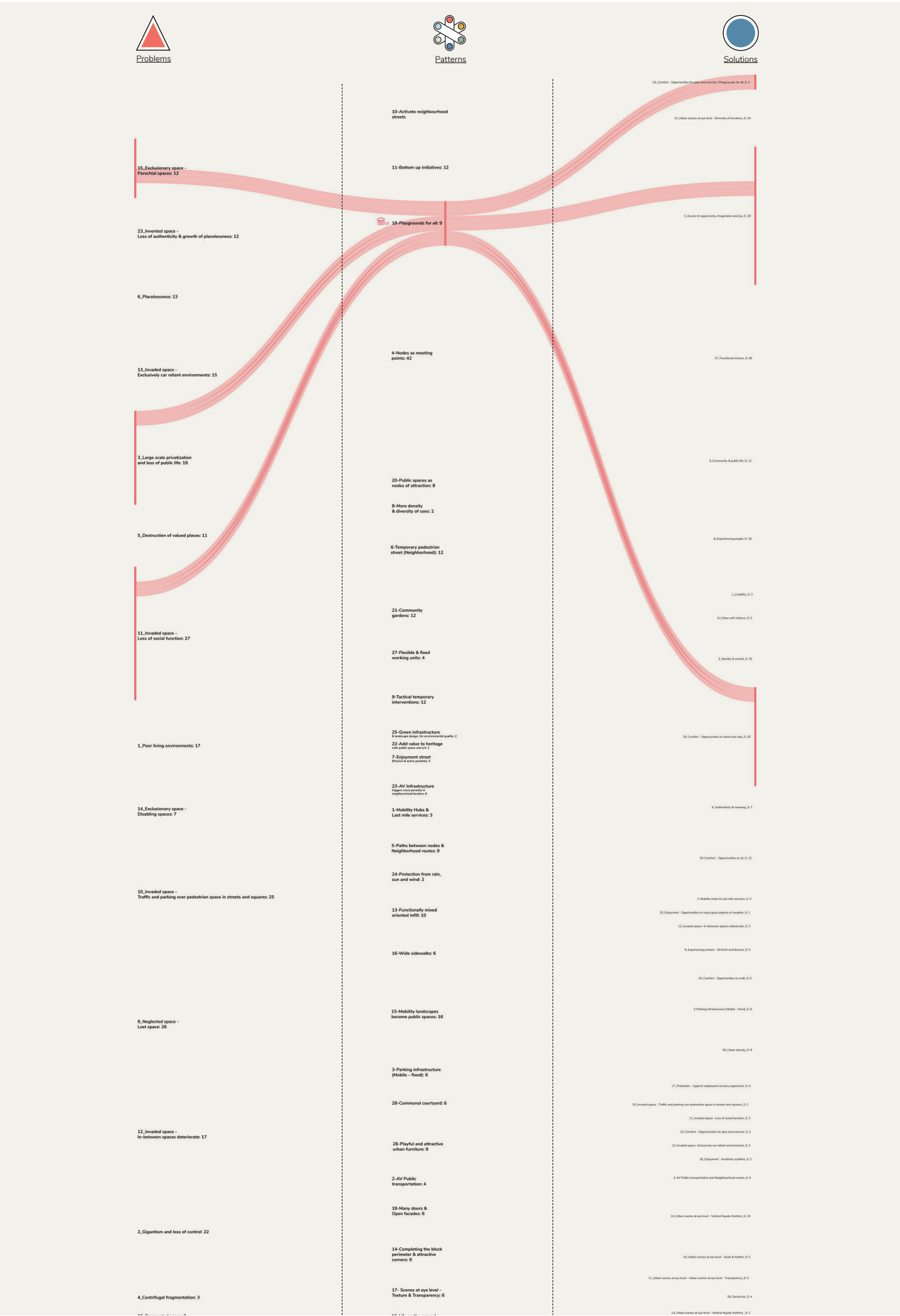
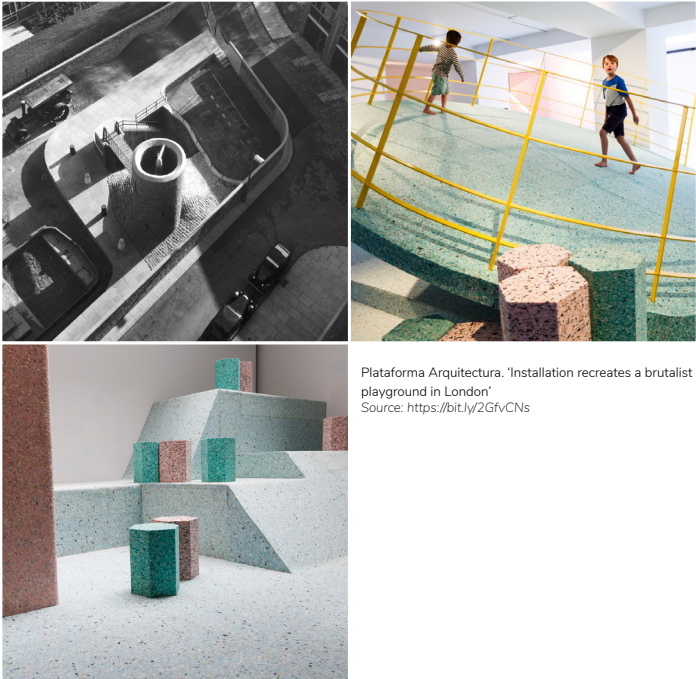
Solution
3_Access to opportunity, imagination and joy
19_Comfort - Opportunities to stand and stay
23_Comfort - Opportunities for play and exercise / Playgrounds for all

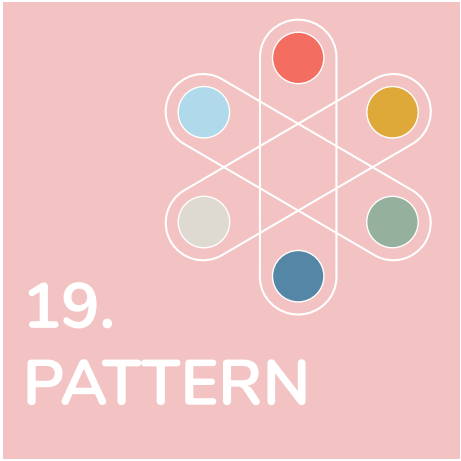
According to Gehl, having the opportunity to play and exercise, is an important element for the creation of a lively and healthy city. Playgrounds for all, must ensure a balanced overlap of functions and groups of people, so that the space is attractive, inclusive and flexible. The Atlas of modernism representative projects presents the ‘The Brutalist Playground’ as an interesting example of playgrounds with higher design quality, which are visually attractive elements, used by kids and adults, and also an additional value to the image and identity of the place, by rescuing some the typical qualities of post-war modernist design.

Roads
Neighborhood roads

Sources
(Jacobs & Appleyard, 1987), (Carmona, 2010), (Gehl, Kaefer, & Reigstad, 2006). Plataforma Arquitectura. ‘Installation recreates a brutalist playground in London’. <https://bit.ly/2GfvCNs>

Related patterns
20-Public spaces as nodes of attraction
26-Playful and attractive urban furniture
28-Communal courtyard





19

19-Many doors & Open facades

- Problem**
- 2_Gigantism and loss of control
 - 11_Invaded space -Loss of social function
 - 12_Invaded space -In-between spaces deteriorate

According to (Hajer and Reijndorp, 2001), distant spaces compressed by instant connection by car roads (in-between spaces), tend to be absent of attractors and deteriorate. In the case of modernist post war neighborhoods, the typical open block layout with massive open green public spaces and parking lots, could influence the deterioration of public spaces, and the loss of aggregative and social character, especially in the streets and public spaces located adjacent to rapid roads. The facade could act as an important element to structure the quality of the street and enhance its attractiveness and walkability.

Opening up doors in the ground floors

Backstreet facades in city streets and facades facing public and private spaces and gardens should be open, to stimulate accessibility, appropriation and use of the space. In the case of high streets with businesses on the ground floors, more doors and windows should be open, to profit from wider sidewalks and activate liveability in the back side of the streets as well as in the front sides.

This pattern would be especially applicable in the case of arterial and collector roads where 'last mile' mobility services should guaranty walking and biking as alternative mobility options to arrive to destinations points.

- Solution**
- 10_Urban scenes at eye level - Scale & rhythm
 - 14_Urban scenes at eye level - Vertical façade rhythms

Many Units & Vertical divisions

According to Gehl, a minimum of 10 units x 100 meters allows for the attractiveness of the façade, while the 'vertical façade expression' shortens the perception of distance'

Many doors

Narrow units and a high number of doors, together with a wide range of mixed functions, would provide a 'dynamic rhythm' to the street (Gehl, Kaefer, & Reigstad, 2006)

Unbroken facades

According to Gehl, a living city street should provide with facades in line with other facades in the street, and with no gaps in between buildings (Gehl, Kaefer, & Reigstad, 2006).

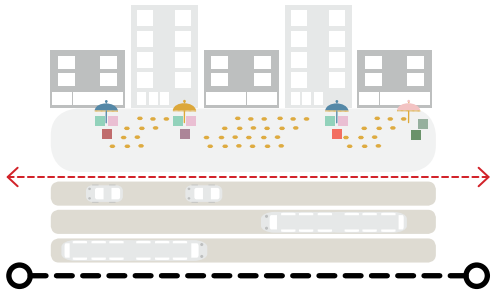
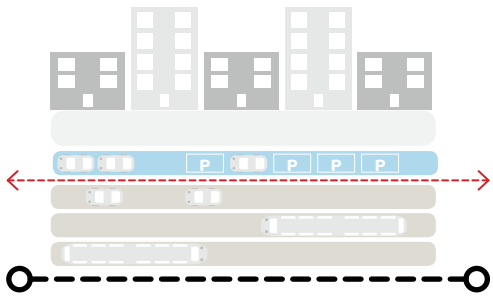
Roads

Arterial roads / Collector -Distributor

Sources

(Hajer and Reijndorp, 2001), (Carmona, 2010), (Gehl, Kaefer, & Reigstad, 2006).

- Related patterns**
- 12-Life on the ground floors
 - 16-Wide sidewalks
 - 17- Scenes at eye level - Texture & Transparency
 - 26-Playful and attractive urban furniture



20.
PATTERN



20-Public spaces as nodes of attraction

Problem

- 3_Large scale privatization and loss of public life
- 6_Placelessness
- 8_Neglected space - Lost space
- 11_Invaded space -Loss of social function

Large green public spaces in Post war neighborhoods are usually over dimensioned, difficult to maintain and lack of identity and attractiveness. These aspects can be related to the concepts of 'Placelessness', 'Loss of public life' (Jacobs & Appleyard, 1987); and to the concepts of 'Neglected space' and 'Invaded space', which highlight the idea of lack of quality spaces for people to meet, either because they are degraded, deteriorating or lacking of identity and legibility, deprived of recreational activities, and therefore underutilized or misused.

Solution

- 3_Access to opportunity, imagination and joy
- 8_Experiencing people
- Connect & add program to unused parks & large green areas

According to Lynch, Legibility is a crucial aspect for the city setting, where 'Districts, Landmarks, or Pathways are easily identifiable and easily grouped into an overall pattern (...) objects are not only able to be seen, but presented sharply & intensely to the senses (...). A highly imageable and (apparent, legible or visible) city would seem well formed, distinct, remarkable, and invite the eye and the ear to greater attention and participation'. (Lynch, 1960). Public spaces designed considering these attributes should allow for an upgrade from anonymous green yards to identifiable, legible and attractive places, highly involved with the context.

A- Attractive gardens - Native plants

Introducing gardens with native species could help create more attractive green spaces, while restoring the biodiversity in urban areas throughout adaptive and resilient design. The 'Atlas of modernism as an universal model' introduce an example of this approach in Brasilia, where Burle Marx introduce the notion of the 'garden as an artistic expression', where the garden recovers the tradition of statues and symbolism, including pieces of Avant-garde artists and sculptures, providing a high level of quality to the green areas.

B-Pocket parks

Wasted landscapes and residual spaces could be re-proposed as Pocket parks in areas with high densities and lack of public-green. Under an automated mobility scenario, the green spaces located near to parking lots, or the parking areas it-self could be devoted to pocket parks, when private mobility means will be substituted by public transport and sharing cars, and parking can be located in mobility hubs, mobile parking structures or nearby areas with less value in terms of its geographic location, e.g. Buffer zones.

Roads

Neighborhood roads

Sources

(Jacobs & Appleyard, 1987), (Carmona, 2010), (Gehl, Kaefer, & Reigstad, 2006). Plataforma Arquitectura. 'Installation recreates a brutalist playground in London'. <https://bit.ly/2GfvCNs>

Related patterns

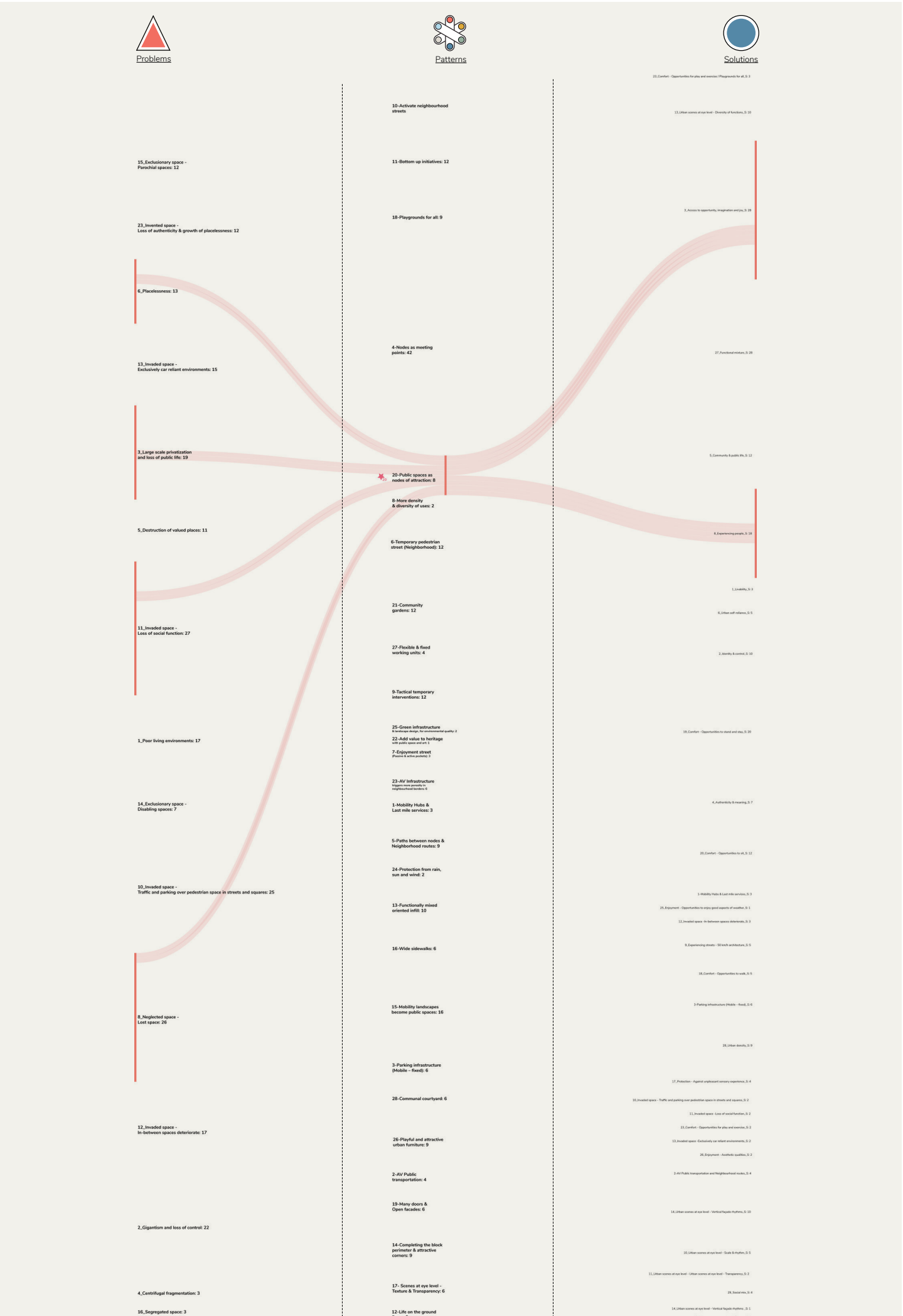
- 9-Tactical temporary interventions
- 11-Bottom-Up initiatives
- 13-Functionally mixed oriented infill
- 18-Playgrounds for all
- 22-Add value to heritage with public space and art
- 24-Protection from rain, sun and wind
- 26-Playful and attractive urban furniture



'Tremaine beach house'
Source: <https://mo.ma/2ly4pl7>



'Burle Marx gardens in Quadra Modelo - Brasilia'
Source: <https://bit.ly/2PizjWH>
<https://bit.ly/2UL7eNN>



21.
PATTERN



21-Community gardens

- Problem**
- 6_Placelessness
 - 8_Neglected space - Lost space
 - 11_Invaded space -Loss of social function

The usually unbalanced relation between public space and mobility space, creating high amounts of wasted spaces and negatively influencing the quality of public space near to mobility landscapes. Evolving into what Allan Jacobs calls ‘Placelessness’ and Carmona calls ‘Neglected space’ and ‘Invaded space’ as one of the main causes for the loss of social functions and impoverishment of city life.

- Solution**
- 2_Identity & control
 - 5_Community & public life
 - 6_Urban self-reliance
 - 8_Experiencing people

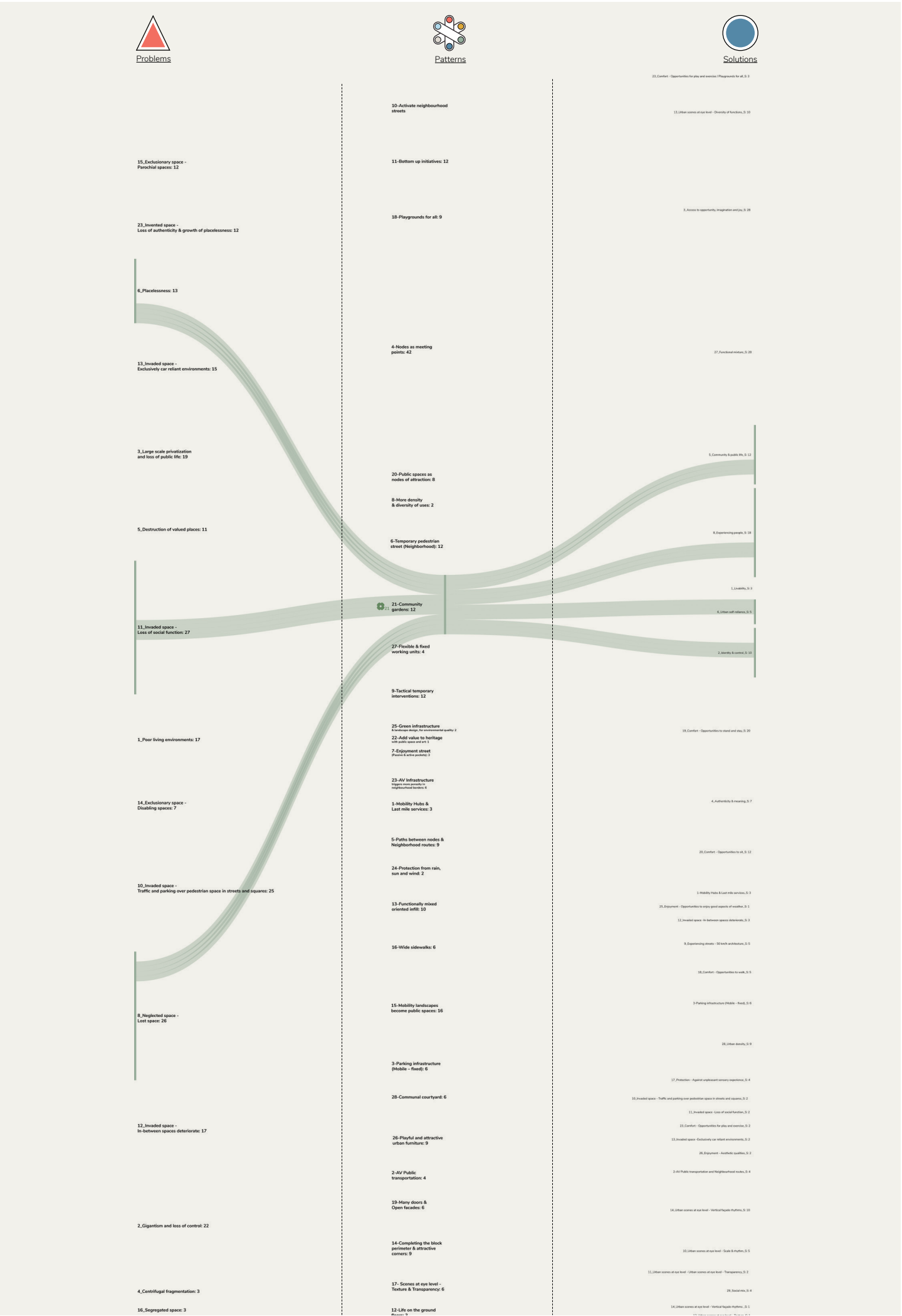
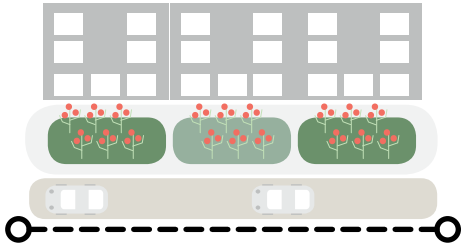
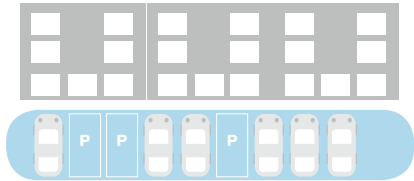
Under an automated mobility scenario, meaning more space could be gained from side parking on the streets, or parking lots, these spaces could be potentially dedicated to enhance the social cohesion in neighborhoods, while strengthening the connection between the locals and the place throughout new forms of appropriation of public and residual spaces. Community gardens, could be dedicated to urban agriculture, small ornamental gardens, or simply seasonal appropriation of small green areas to take the sun or run neighborhood parties during the summer. These actions wold aim to improve the sense of community in the neighborhood, by stimulating new forms of use and appropriation of the territory.

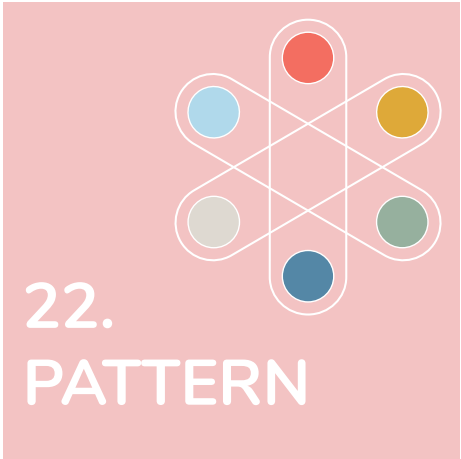
Roads
Neighborhood roads

Sources

(Carmona, 2010), (Jacobs & Appleyard, 1987), (Gehl, Kaefer, & Reigstad, 2006).
(Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015),
(Meyboom, 2018).

- Related patterns**
- 9-Tactical temporary interventions
 - 11-Bottom-Up initiatives
 - 15-Mobility landscapes become public spaces
 - 26-Playful and attractive urban furniture





22-Add value to heritage with public space and art

Problem
5_Destruction of valued places

According to Jacobs and Appleyard, destruction of valued places is related to the exploitation of heritage and natural amenities, however, Post-war neighborhoods present a different prospect, as heritage buildings and public spaces are usually exposed to systematic downgrading and stigmatization processes, that could favor the obsolescence and disuse of the space, and therefore more prone to be subject of urban renewal processes.

Solution
4_Authenticity & meaning

Large public green areas are part of the typical structure of Post-war neighbourhoods; as automated mobility makes it possible to change the use of car structures to convert them into spaces that give greater added value to the public space. In this sense, the spaces near to the monuments of architectural or landscape value should be a priority within the car infrastructure reconversion strategy. These infrastructures could be replaced by small squares, patios or gardens; or even host pieces of art and urban furniture, to allow for a better enjoyment of the space and appreciation of the valuable building or landscape, in a process relate d to what Jacobs and Appleyard call 'an authentic city', where the 'origins of things and places are clear , and the urban environment reveal its significant meanings'.

Atlas
The landscape and symbols elements 'Synthesis of the Arts' used by Villanueva in the in the U.C.V. project could be an example of how modern architecture included artistic and symbolical elements that generates different quality of spaces, using different expressive supports.

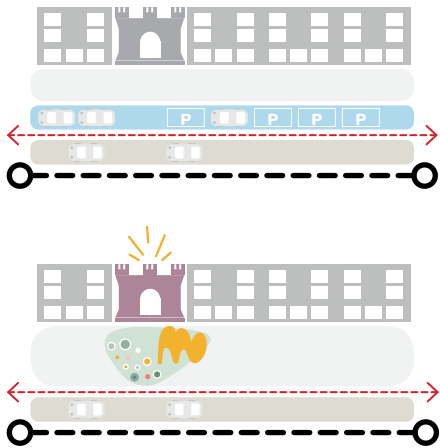
In the Nowa Huta project, where heritage is profited in its cultural and economic dimension, creating the possibility to generate goods and services with heritage resources (Hotuj, 2017).

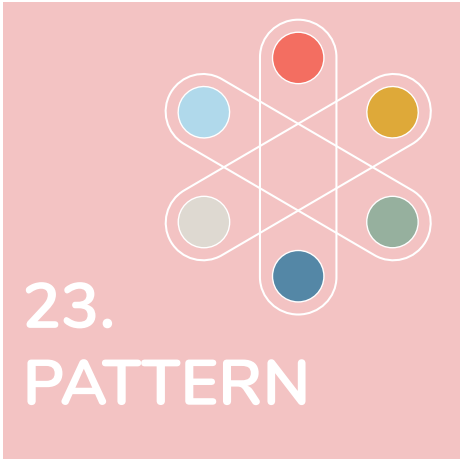
Roads
Collector -Distributor / Arterial roads / Neighborhood roads
Sources
(Jacobs & Appleyard, 1987), (Hotuj, 2017).
(Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015),
(Meyboom, 2018).

Related patterns
9-Tactical temporary interventions
20-Public spaces as nodes of attraction
26-Playful and attractive urban furniture



'Bimural' Fernand Léger
Source: www.fundacionvillanueva.org
PRL Museum
Source: <https://goo.gl/kVjZV2>





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00023

23-AV Infrastructure triggers more porosity in neighborhood borders

- Problem**
- 1_Poor living environments
 - 2_Gigantism and loss of control
 - 13_Invaded space -Exclusively car reliant environments

Massive and segregate transportation systems (infrastructure) is usually related invaded and impoverished space and homogeneous and segregated living areas, that tend isolate and protect themselves from the nuisance of car infrastructures, generating massive amounts of wastelands, and disconnect neighborhoods from one another.

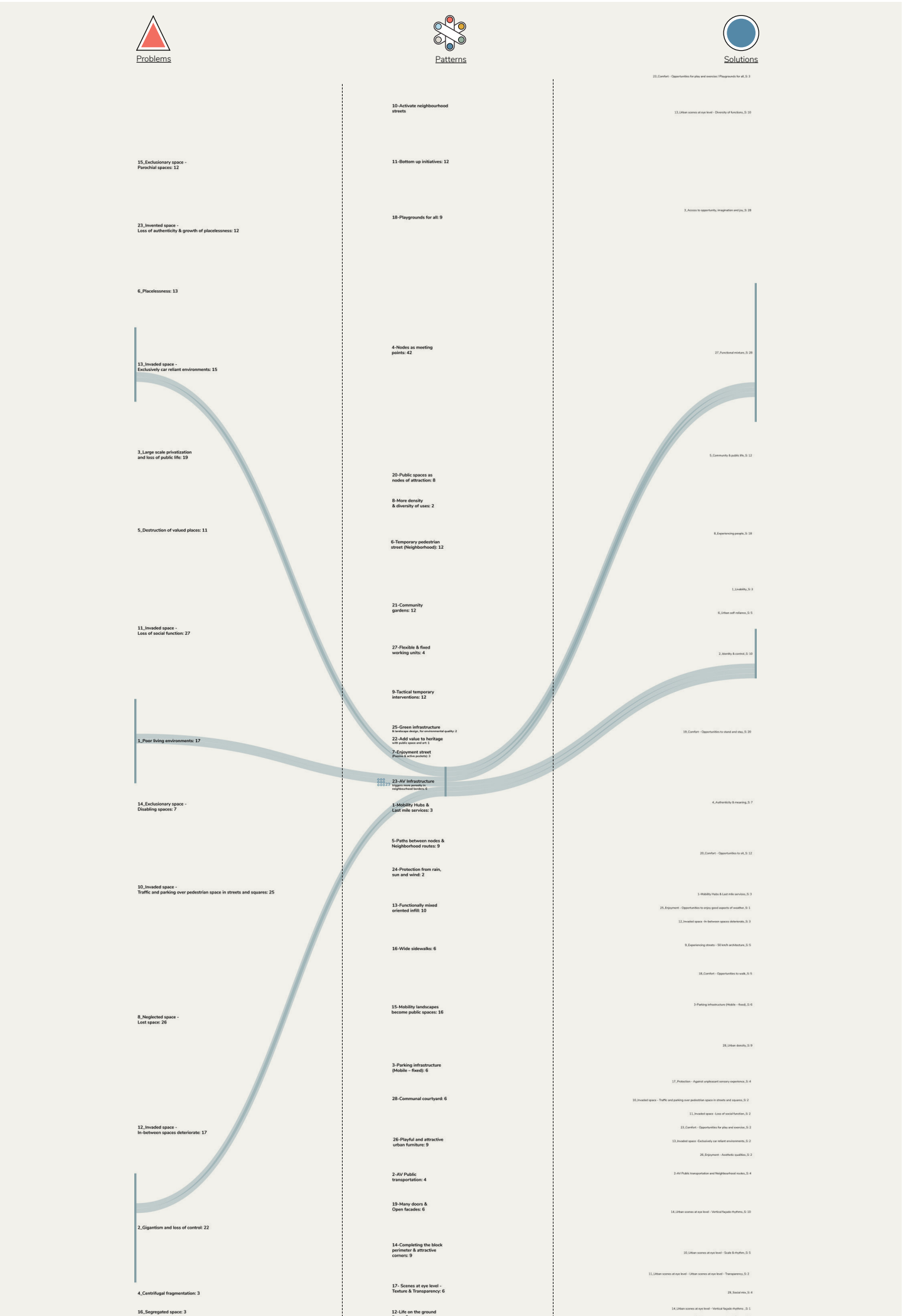
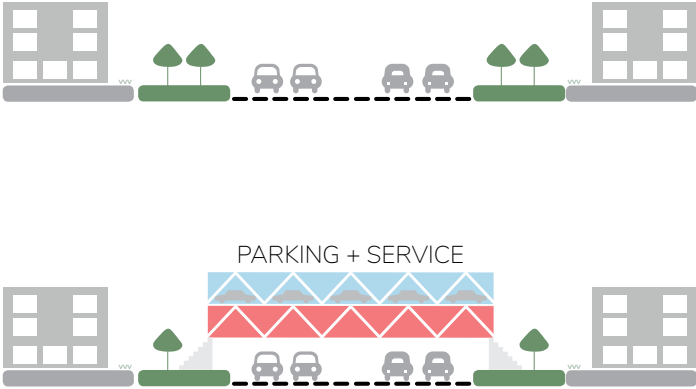
- Solution**
- 2_Identity & control
 - 27_Functional mixture

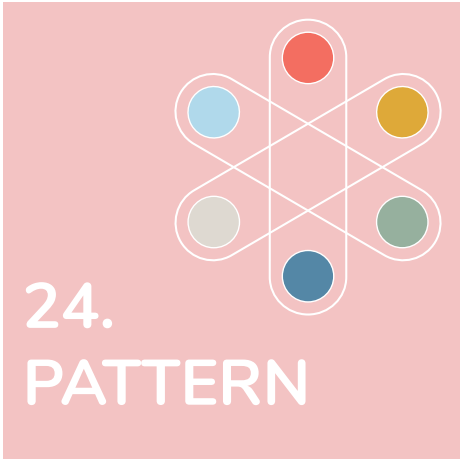
According to Lynch, the Neighbourhood border is an important part of the identity of the territory, and in the proposed automated mobility scenario, new infrastructure such as Mobility Hubs, could allow for a more optimized use of these borders, also when in vicinity with Highways and arterial roads. Increasing the porosity of the infrastructure, the accessibility of the adjacent neighbourhoods to the rest of the city, and providing a more optimized use of the borders, and buffer areas, where mixed services, connective buildings and bridges, and parking infrastructure (fixed or mobile) could be located, so that the mobility landscapes and infrastructures within the territory can be utilized for other uses, aiming for the quality of the space.

Roads
Freeway - Highway / Arterial roads

Sources
(Jacobs & Appleyard, 1987).
(Milakis, Snelder, Van Arem, Van Wee, & Correia, 2015),
(Meyboom, 2018).

- Related patterns**
- 1-Mobility Hubs & Last mile services
 - 3-Parking infrastructure (Mobile – fixed)
 - 13-Functionally mixed oriented infill





24-Protection from rain, sun and wind

Problem
1_Poor living environments
'Poor living environments are usually dangerous, polluted, noisy and anonymous' (Jacobs & Appleyard, 1987)

Solution
17_Protection - Against unpleasant sensory experience
25_Enjoyment - Opportunities to enjoy good aspects of weather

A good public space should offer the opportunity to enjoy good aspects of weather, for this, the space needs to adapt to local weather conditions, and a good variety of atmospheres in order to guaranty the possibility of use during different seasons and weather conditions. Urban furniture and vegetation can be designed to be flexible and adaptable to a diverse range of climate conditions. In the proposed automated mobility scenario, parts of the space gained in streets could be utilized to host light structures that, on the one hand, allows for southern exposure to make the space more attractive during the winter, and on the other, help protect people from, rain, in all seasons. These structures could be proposed, especially in vicinity to mobility nodes, or areas where a concentration of people standing or waiting is expected.

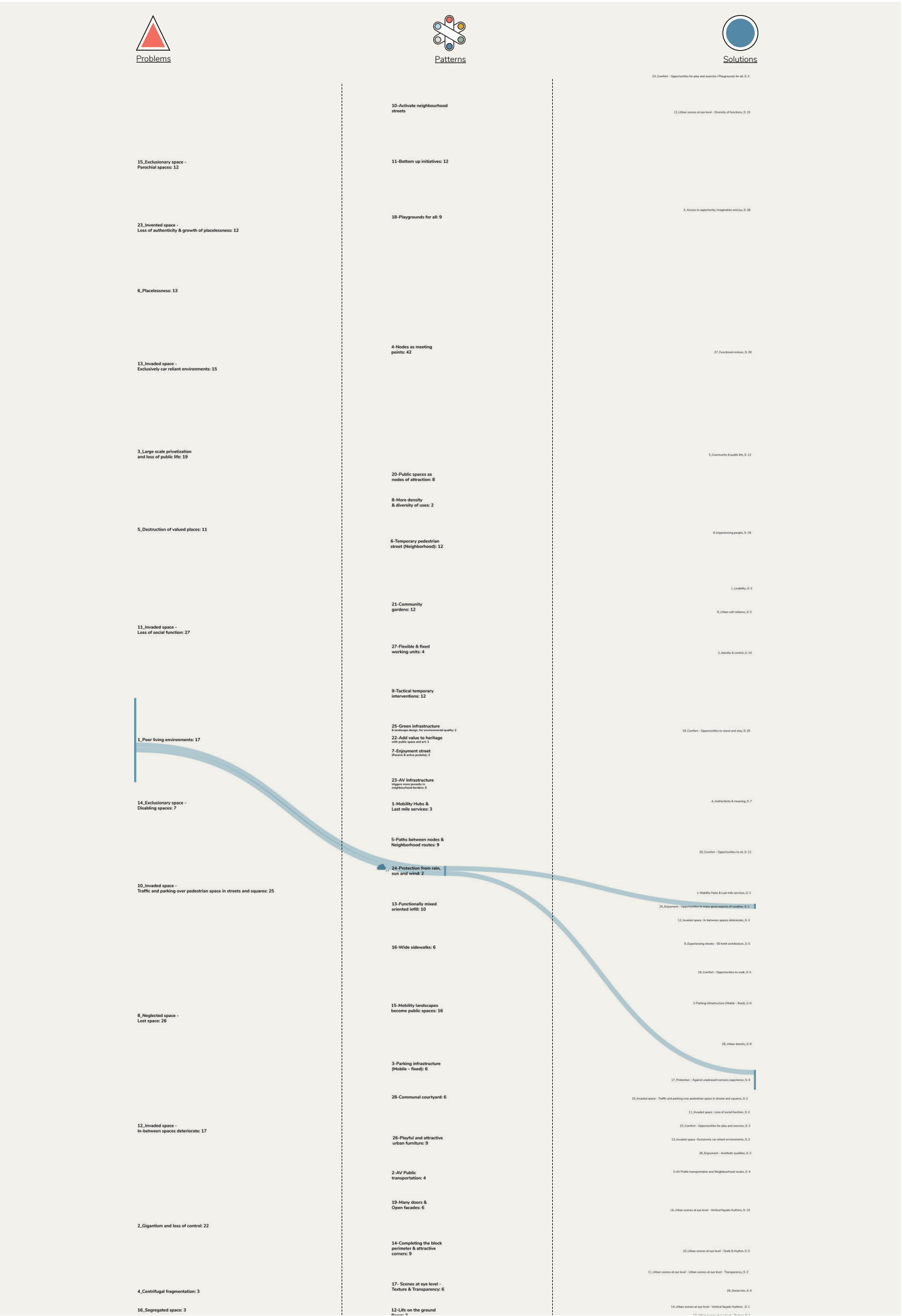
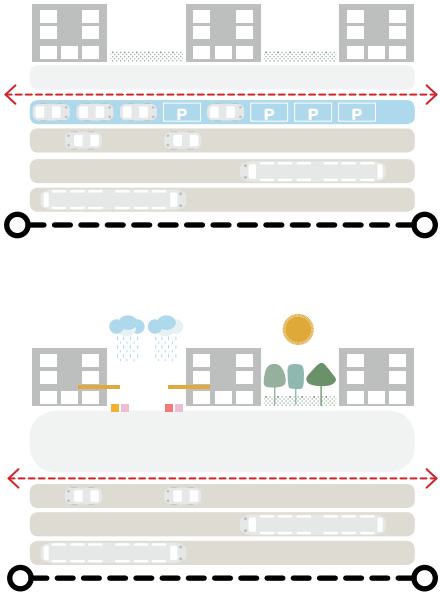
Atlas
The landscape and symbols elements 'Synthesis of the Arts' used by Villanueva in the in the U.C.V. project could be an example of how modern architecture included artistic and symbolical elements that generates different quality of spaces, using different expressive supports.

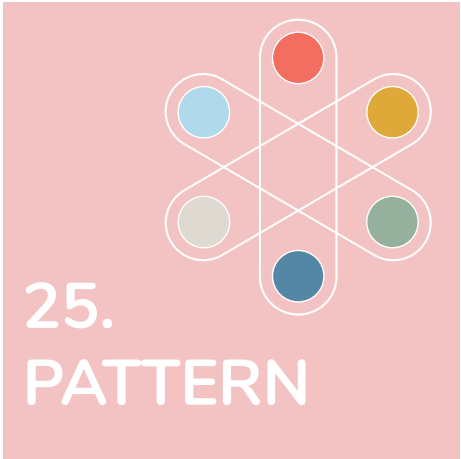
In the Nowa Huta project, where heritage is profited in its cultural and economic dimension, creating the possibility to generate goods and services with heritage resources (Hołuj, 2017).

Roads
Collector -Distributor / Arterial roads / Neighborhood roads

Sources
(Jacobs & Appleyard, 1987), (Gehl, Kaefer, & Reigstad, 2006).

Related patterns
4-Nodes as meeting points
15-Mobility landscapes become public spaces
20-Public spaces as nodes of attraction





25-Green infrastructure and landscape design, for environmental quality.

Problem

- 1_Poor living environments
- 3_Large scale privatization and loss of public life

The concepts of Poor living environments and loss of public life refer to territories that are affected by pollution, noise and anonymity. While the loss of public life refers to the actual loss of social and recreational functions, due to lack of basic environmental qualities. These spaces can be invaded by cars, or be directly affected by nearby roads and traffic or simple green areas in disuse and degraded.

Solution

- 6_Urban self-reliance (ecological)

Large green – public spaces represent a good opportunity to contribute to environmental quality. Green infrastructure can protect the territory from water overflow, and overload of the sewage system. An ecological way to reduce the pressures is implementing rain gardens, bioswales, and green roofs, which could also generate attractive landscapes design with plants. However, implementing green infrastructure that function as public space, and recreational purposes could stimulate identity and sense of belonging, while releasing the pressure on the sewage system contribution to a more environmentally resilient territory. In the context of a desired automated mobility scenario, this type of infrastructure should be proposed as nodes of attraction, to be proposed as an alternative use of wastelands of underused green, in facing water overflows issues.

Roads

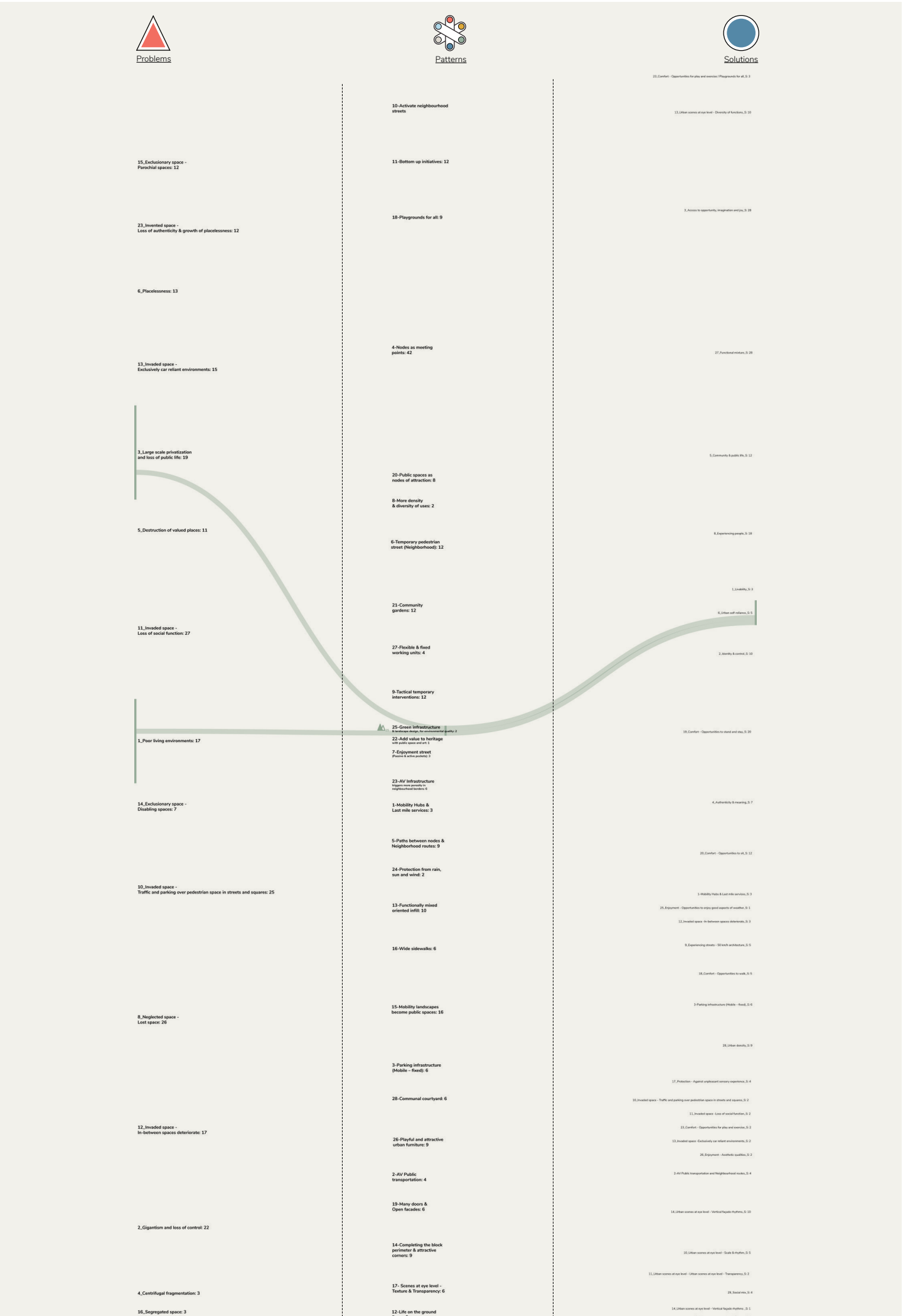
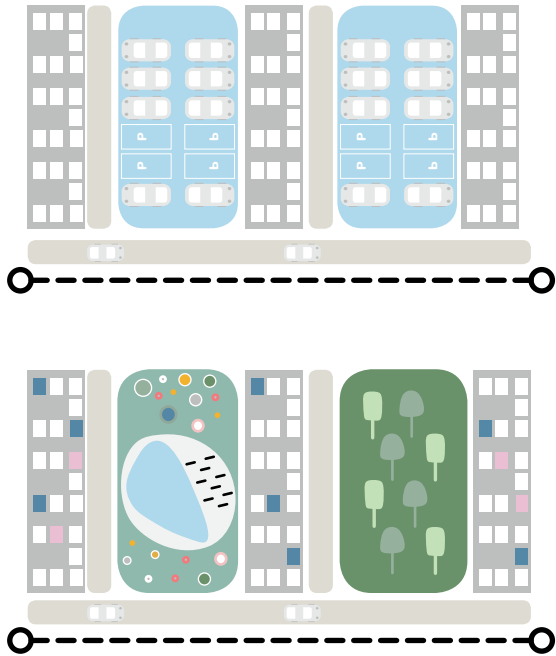
Collector -Distributor / Neighborhood roads

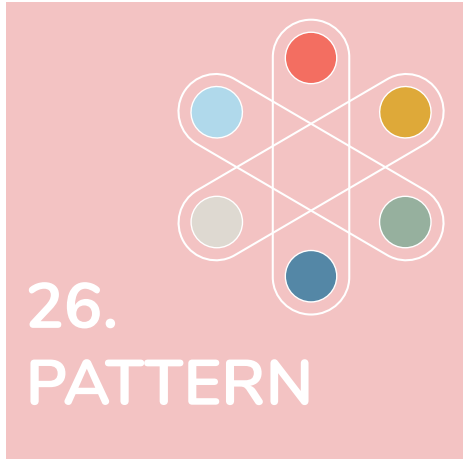
Sources

(Jacobs & Appleyard, 1987), (The Pattern Book #1: E.M.U. TU Delft, 2012).

Related patterns

- 20-Public spaces as nodes of attraction
- 21-Community gardens
- 24-Protection from rain, sun and wind
- 26-Playful and attractive urban furniture





H₂₆
26-Playful and attractive urban furniture

- Problem**
1_Poor living environments
8_Neglected space - Lost space
12_Invaded space -In-between spaces deteriorate

Lost spaces, in-between spaces and lost spaces, refer to residual, deteriorated or underutilized urban areas that could have been affected by stigmatization issues or physical and environmental degradation due to the invasion of cars and massive roads. Which makes them loos their attractiveness, identity, and functional capacity as a social space.

- Solution**
20_Comfort - Opportunities to sit
19_Comfort - Opportunities to stand and stay
17_Protection - Against unpleasant sensory experience

‘Comfortable benches invite people to stay’, however, the lack of urban furniture can affect the aggregative and social function of space, while, an adequate proportion of furniture, in strategic places could add great attractiveness and comfort to the space, turning it into a place of social aggregation. In the proposed automated mobility scenario, more space in streets, and wider sidewalks could accommodate attractive and playful urban furniture, offering possibilities to young and old people to choose their own ways of using the urban elements, while creating an interesting view for pedestrians. This furniture could be located along the most transited streets, in proximity to nodes of attraction, or in residual spaces requalified and appropriated by the local communities.

Atlas
Atelier Ruelle’s urban renovation project in Malakoff - Nantes, utilize a combined strategy to activate public spaces, that become the heart of the project.

Light infrastructure as public space activators
Re-dimensioned streets with wider sidewalks could host light infrastructure and public furniture to activate ‘dynamics of collective occupation of the public space’, these structures could offer different possibilities of use and patterns of appropriation that can be attractive to a

wide variety of ages, while providing a space protected from environmental conditions.
Urban amenities
The project elaborated for Urban Amenities competition, proposes an interesting range of public spaces, that intend to use ‘the street as a space of dialogue’.

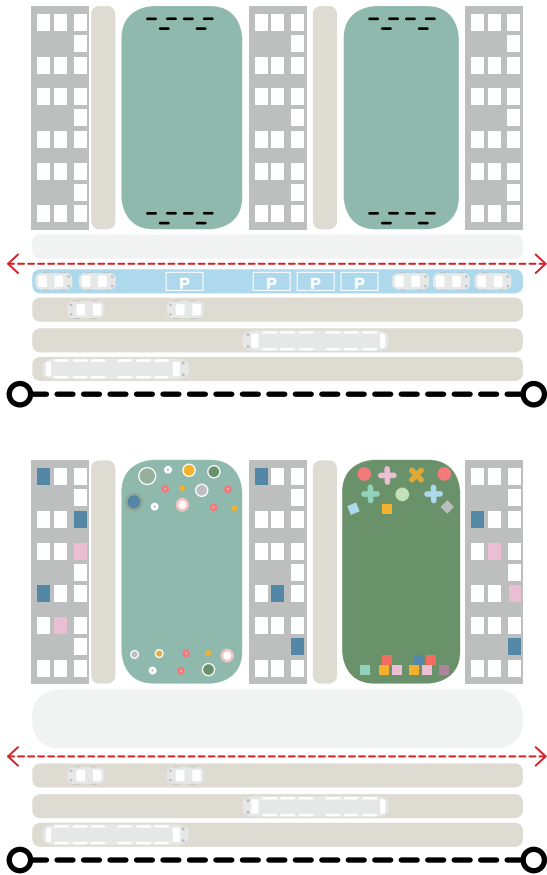
Roads
Arterial roads / Collector -Distributor / Neighborhood roads

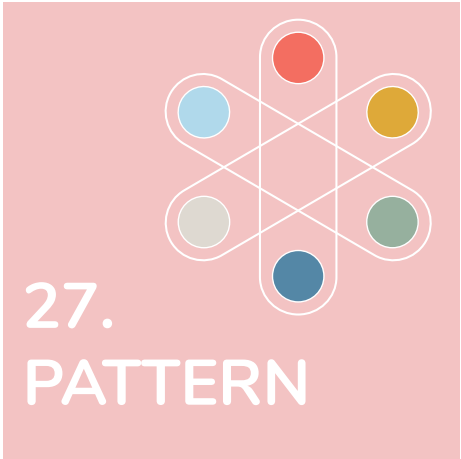
Sources
(Jacobs & Appleyard, 1987), (Carmona, 2010), (Gehl, Kaefer, & Reigstad, 2006).

- Related patterns**
4-Nodes as meeting points
9-Tactical temporary interventions
11-Bottom-Up initiatives
15-Mobility landscapes become public spaces
18-Playgrounds for all
21-Community gardens
22-Add value to heritage with public space and art
28-Communal courtyard



Public space transformation by Atelier Ruelle
Source: http://www.atelier-ruelle.fr/nantes?id_article=





27-Flexible & fixed working units

Problem
5_Destruction of valued places

The concepts of Poor living environments and loss of public life refer to territories that are affected by pollution, noise and anonymity. While the loss of public life refers to the actual loss of social and recreational functions, due to lack of basic environmental qualities. These spaces can be invaded by cars, or be directly affected by nearby roads and traffic or simple green areas in disuse and degraded.

Solution
2_Identity & control
4_Authenticity & meaning
12_Invaded space -In-between spaces deteriorate
27_Functional mixture

Fixed & mixed working units

Some Housing typologies can lose functional capacity, when the dimensions of housing units do not correspond to societal requirements, moreover, the typically monofunctional character of the buildings in Post-war neighbourhoods can also negatively affect the quality of public space in streets and squares. Within the proposed automated mobility scenario, more space will be available to be reconverted to other uses or to enhance the quality of the existing ones and promote the valorisation of architectonic heritage. Functional mixture within the building blocks in monofunctional areas, could help build more diversified neighbourhoods, and guaranty the usability of public spaces at all hours. In this sense, new Working and coworking units could replace some apartments in building blocks, within the higher or ground floors, depending on their connection to the street and the characteristics of the public space surrounding the building.

Flexible working units

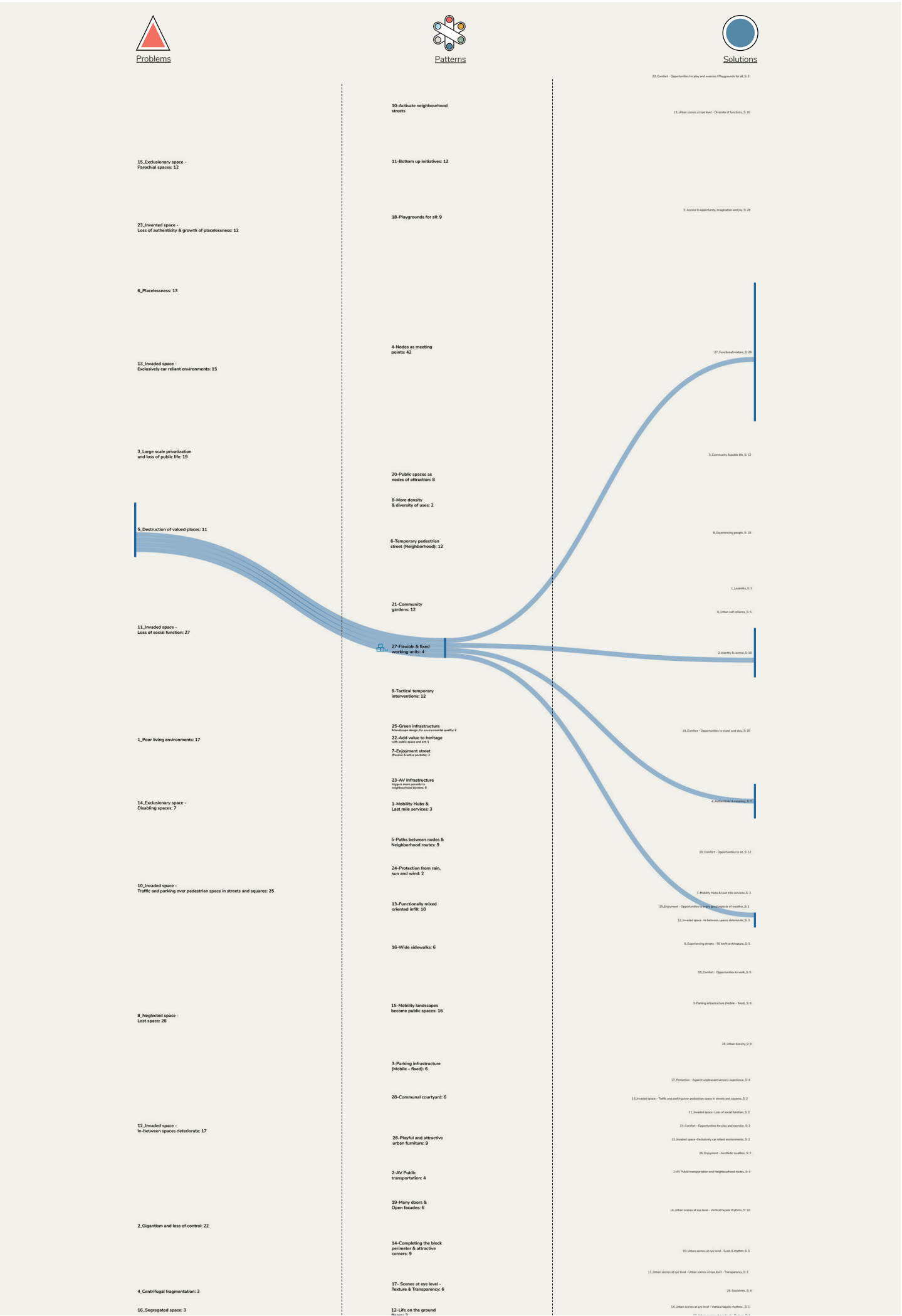
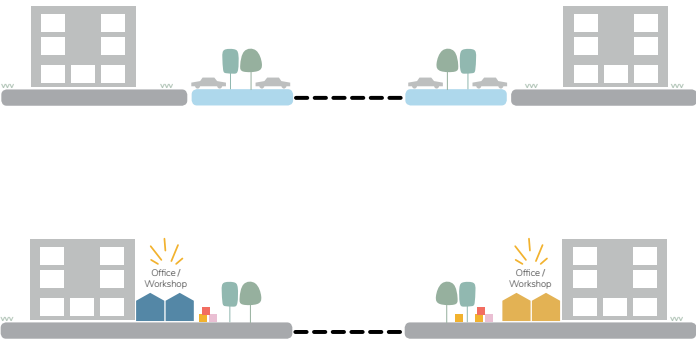
Another typology of working units could be propose in the form of flexible spaces in light structures, that could be located within large green areas and parks, to offer flexible working spaces to the local community, and at the same time introduce a mix of services and uses that could help intensify the use of public spaces and make them more attractive to the general public

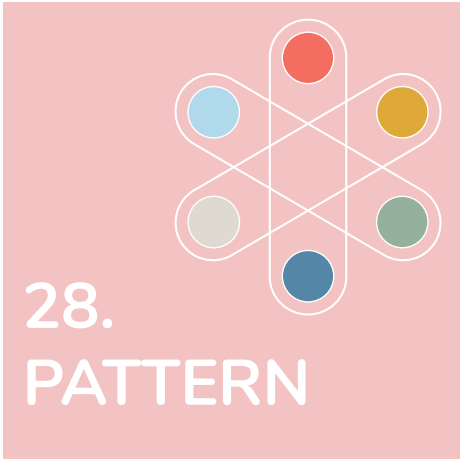
Roads
Collector -Distributor / Neighborhood roads

Sources
(Jacobs & Appleyard, 1987), (Jacobs J. , 1961).

Related patterns

- 6-Temporary pedestrian street (Neighborhood)
- 13-Functionally mixed oriented infill
- 14-Completing the block perimeter & attractive corners
- 17- Scenes at eye level - Texture & Transparency
- 21-Community gardens





28-Communal courtyard

Problem
3_Large scale privatization and loss of public life
16_Segregated space

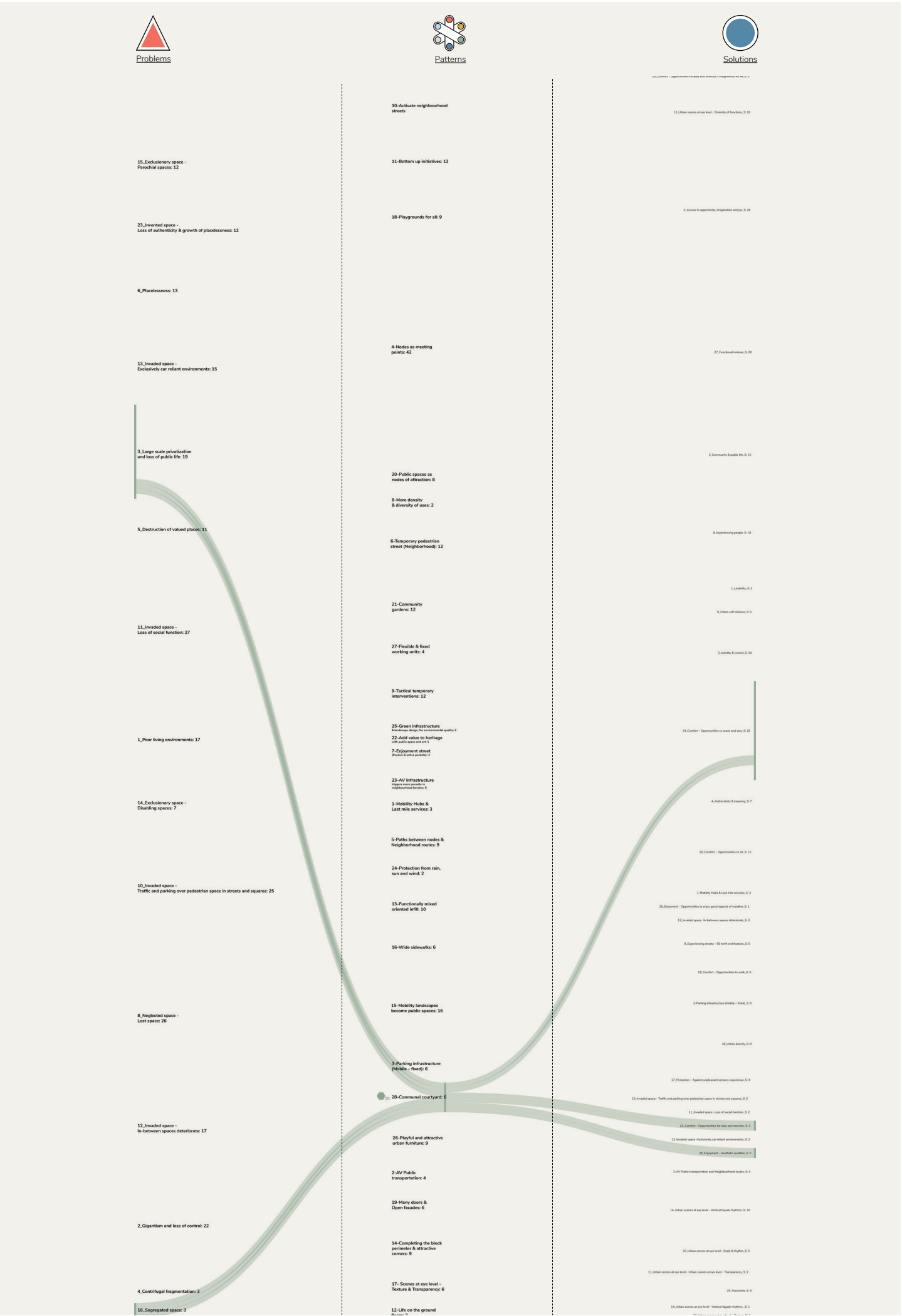
Solution
19_Comfort - Opportunities to stand and stay
23_Comfort - Opportunities for play and exercise
26_Enjoyment - Aesthetic qualities

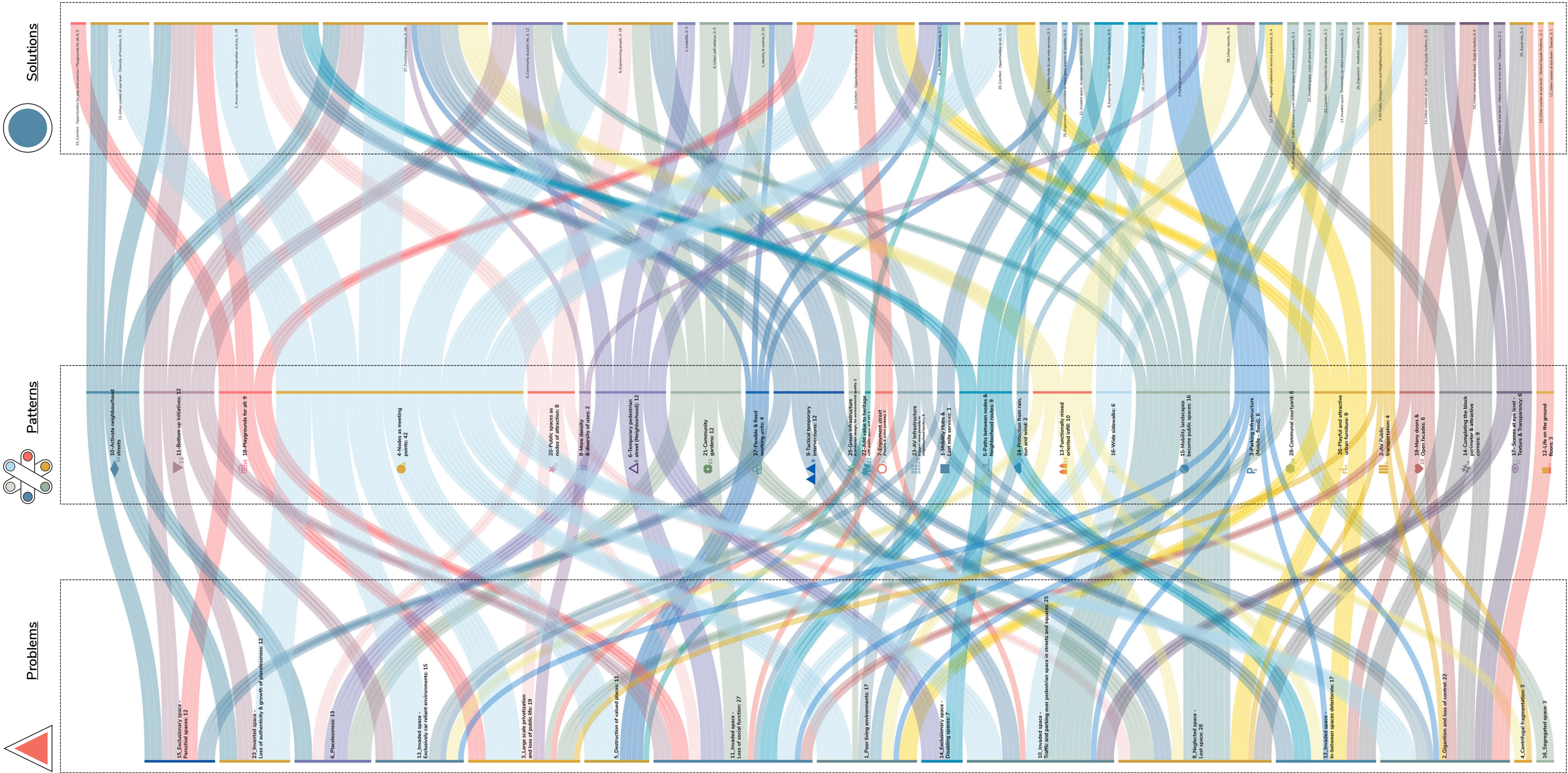
Open or closed courtyards
Green courtyards areas should promote different ways of space appropriation, and identity. When possible, internal courtyards should be used by local communities, promoting mix of functions, furniture, playgrounds and a variety of opportunities to stay, sit, see and play. In order to achieve this, accessibility from the ground floors should be provided, and when possible, the near by spaces could be use to locate urban furniture that can be used as an opportunity see and contemplate attractive gardens. When the structure of the block, and mobility landscapes, can repurposed for other uses, internal courtyards could be proposed, as an alternative use of the space.

Roads
Collector -Distributor / Arterial roads / Neighborhood roads

Sources
(Gehl, Kaefer, & Reigstad, 2006).

- Related patterns**
- 11-Bottom-Up initiatives
 - 18-Playgrounds for all
 - 19-Many doors & Open facades
 - 21-Community gardens
 - 24-Protection from rain, sun and wind
 - 26-Playful and attractive urban furniture





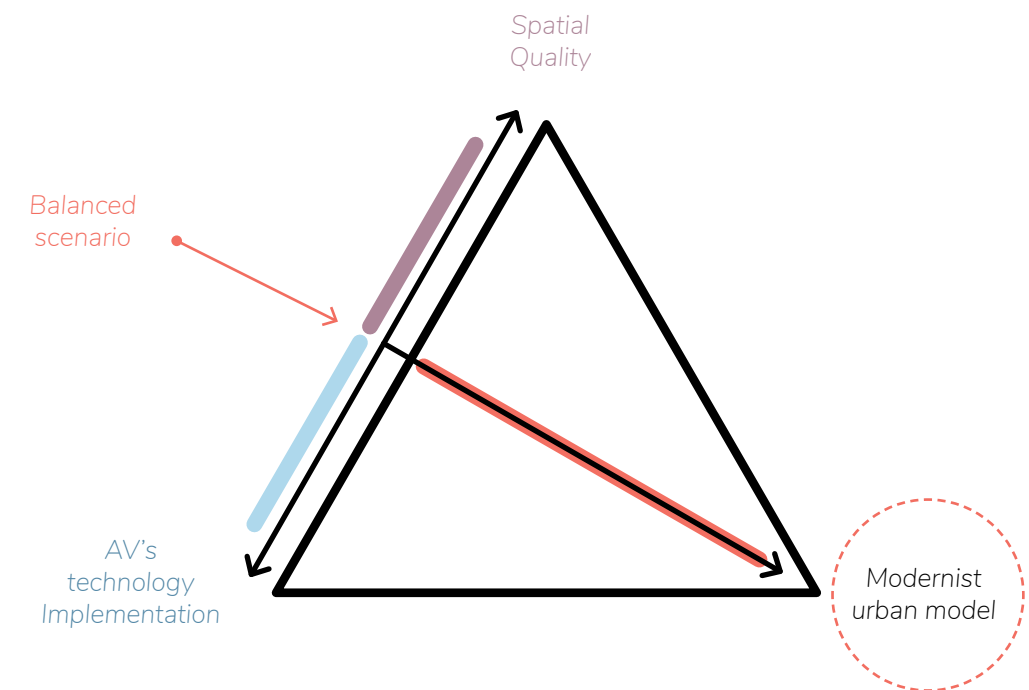
9. Pattern application

Amsterdam Nieuw West - Geuzenveld & Slotermeer

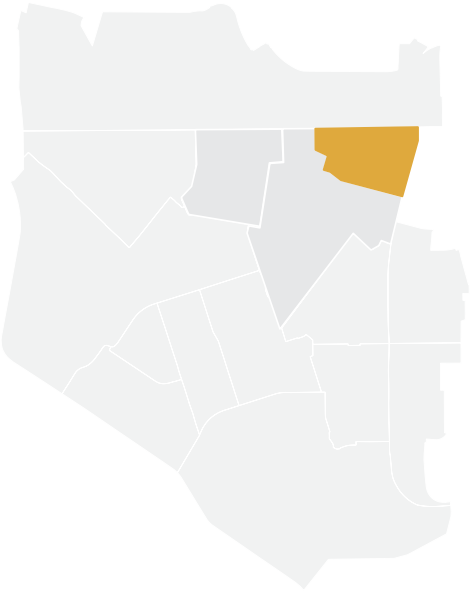
PATTERN APPLICATION

Amsterdam Nieuw West / Geuzenveld & Slotermeer

INTERVENTION STRATEGY



SLOTERMEER-AREA



Slotermeer and Geuzenveld, within the western garden cities of Amsterdam are in proximity with the future developments that will take place in the Sloterdijk area.

This connection will for sure create new poles of attraction that could represent and advantage also for the adjacent areas.

Slotermeer and Geuzenveld were planned and constructed under the influence of the modernist ideal, and this can be clearly seen in the structure of the blocs and the open spaces, however, the influence of the garden city ideals are also very strong and influence the landscape of the area. This is for sure one of the most important values of this territory; and could become even more valuable in the near future with the near poles of development and maximum profitability of the territory.

An automated mobility scenario of development should take these qualities into consideration for the future development of the area, historical values and high connectivity with the center of Sloterdijk and Amsterdam center could help build scenarios that favor spatial quality, while exploiting the capacity of the territory, for more livable and quality public spaces that could influence and serve a larger area within the territory of Amsterdam.

Buildings

Buildings

Mobility

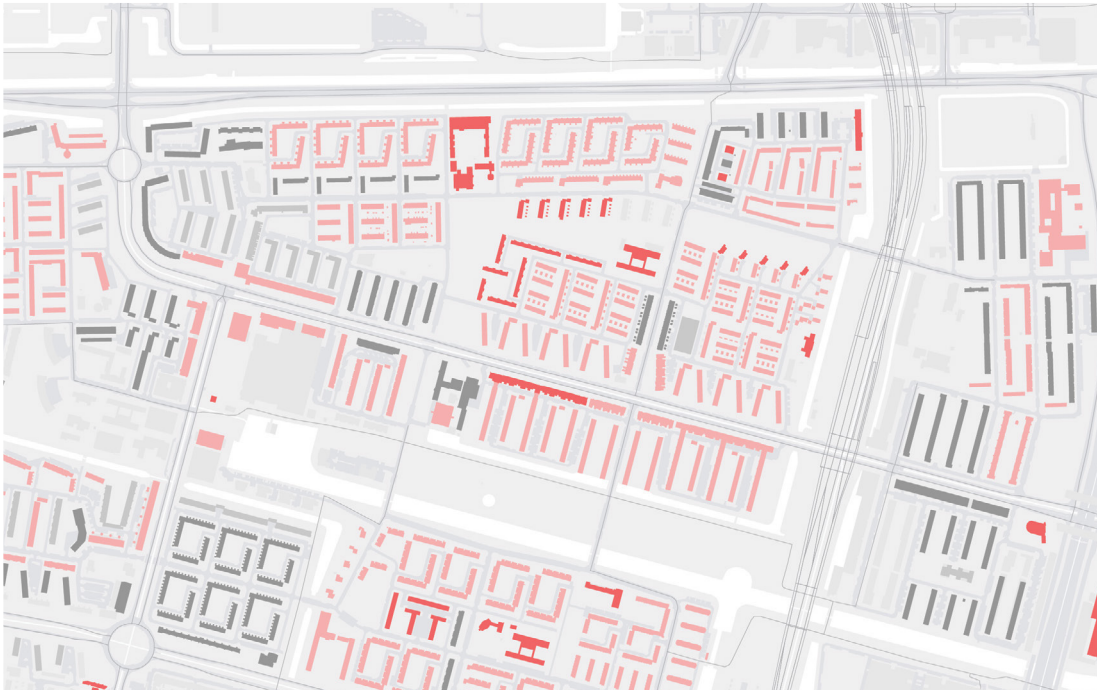
- Regional road
- Street
- Highway
- Neighborhood street
- Buildings

Public space

- Public space - gardens
- Buildings
- Park
- Green areas
- Water



0 250 500 750 1000



- Heritage
- 1
 - 2
 - 3
 - Basic
 - Demolition



- Public transport
- Metro
 - Tram
 - Tram stop
 - Train
 - Train station



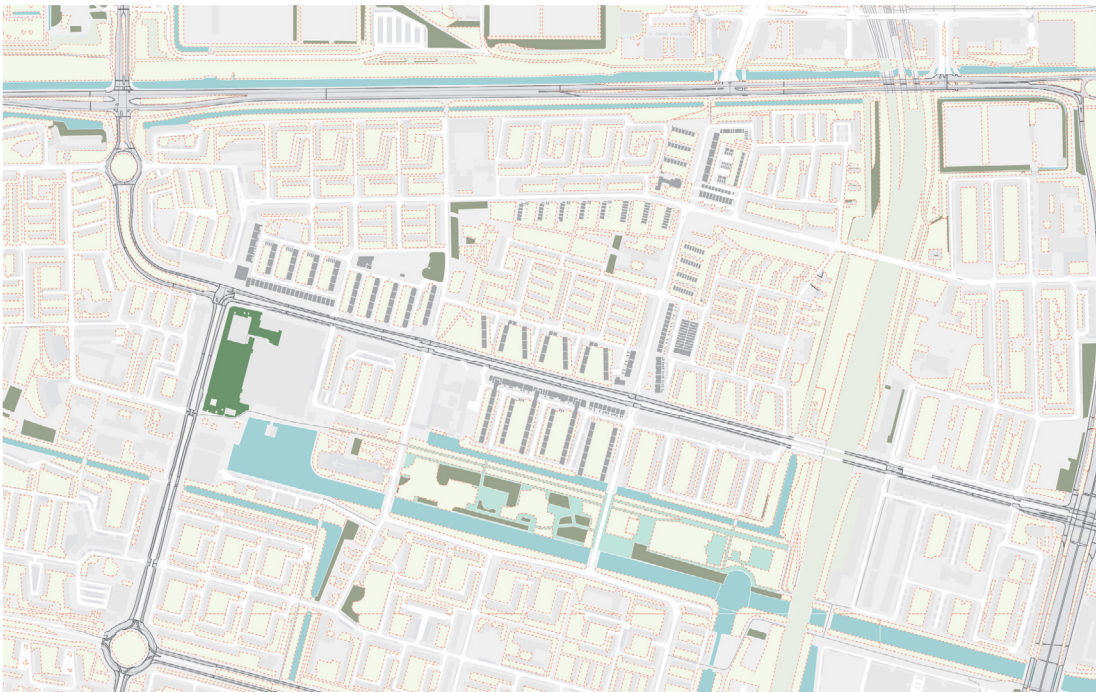
- Sidewalks
- Sidewalks
 - Buildings



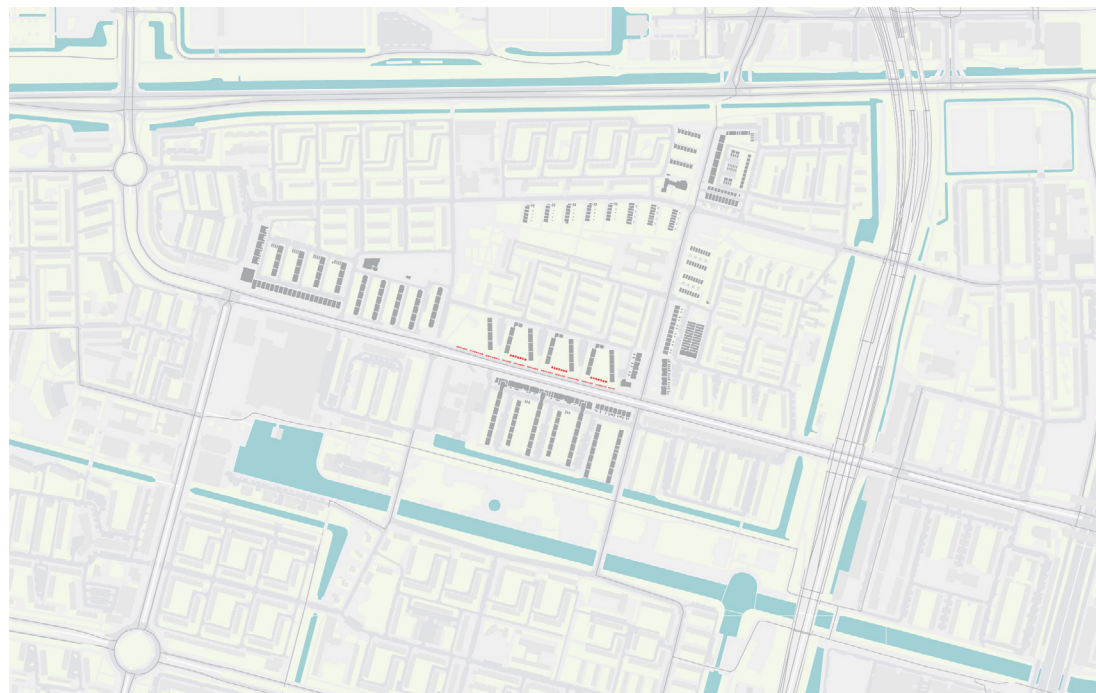
- Parking
- Parking spaces
 - Street parking
 - Buildings



- Private space
- Private green spaces
 - Buildings



- Public space
- Public green spaces
 - Buildings
 - Park
 - Green areas
 - Water



Av Scenario

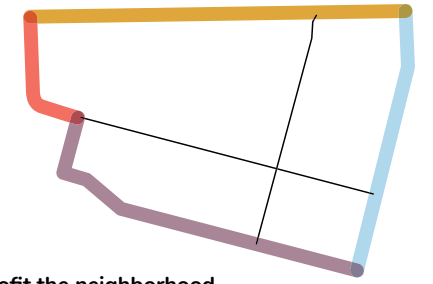
Project proposal - Av Vision & strategy

The integration of the possible scenario in the territory of Slotermeer, allows a more detailed view of the proposal, understanding how the structure of the territory can adopt this new mobility scenario, aimed at optimizing the use of space, and its attractiveness through of interventions in the public space.

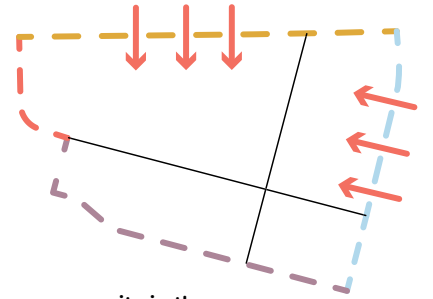
The 'neighborhood unit' structure of the Slotermeer and Geuzenveld area. Characterized by clear edges, a distinct neighborhood center, the serial repetition of urban elements, such as linear rows of housing and L-shaped courtyards, different scales of greenery in relation to housing units, and different street scales in relation to their connective function.

The new hierarchical composition of urban elements blurred the boundaries between public and private space.

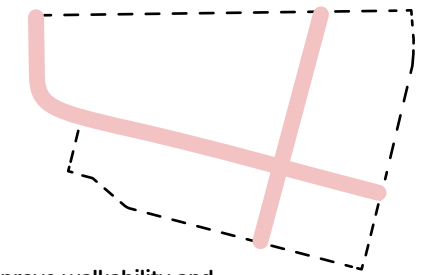
However, this structure offers the possibility to design a strategy of intervention that allows increasing the porosity of the neighborhood borders, in order to improve the connectivity with the context, through the structure of arterial and collector roads, while the neighborhood streets and parking areas can be adapted for neighborhood uses, recreation, or as routes of connection between attraction nodes, such as schools, buildings of public and cultural use, public / green spaces, or built heritage.



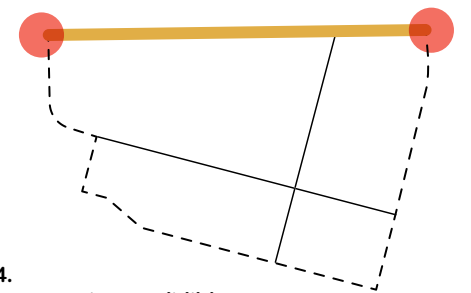
1.
Profit the neighborhood unit structure



2.
Improve porosity in the borders



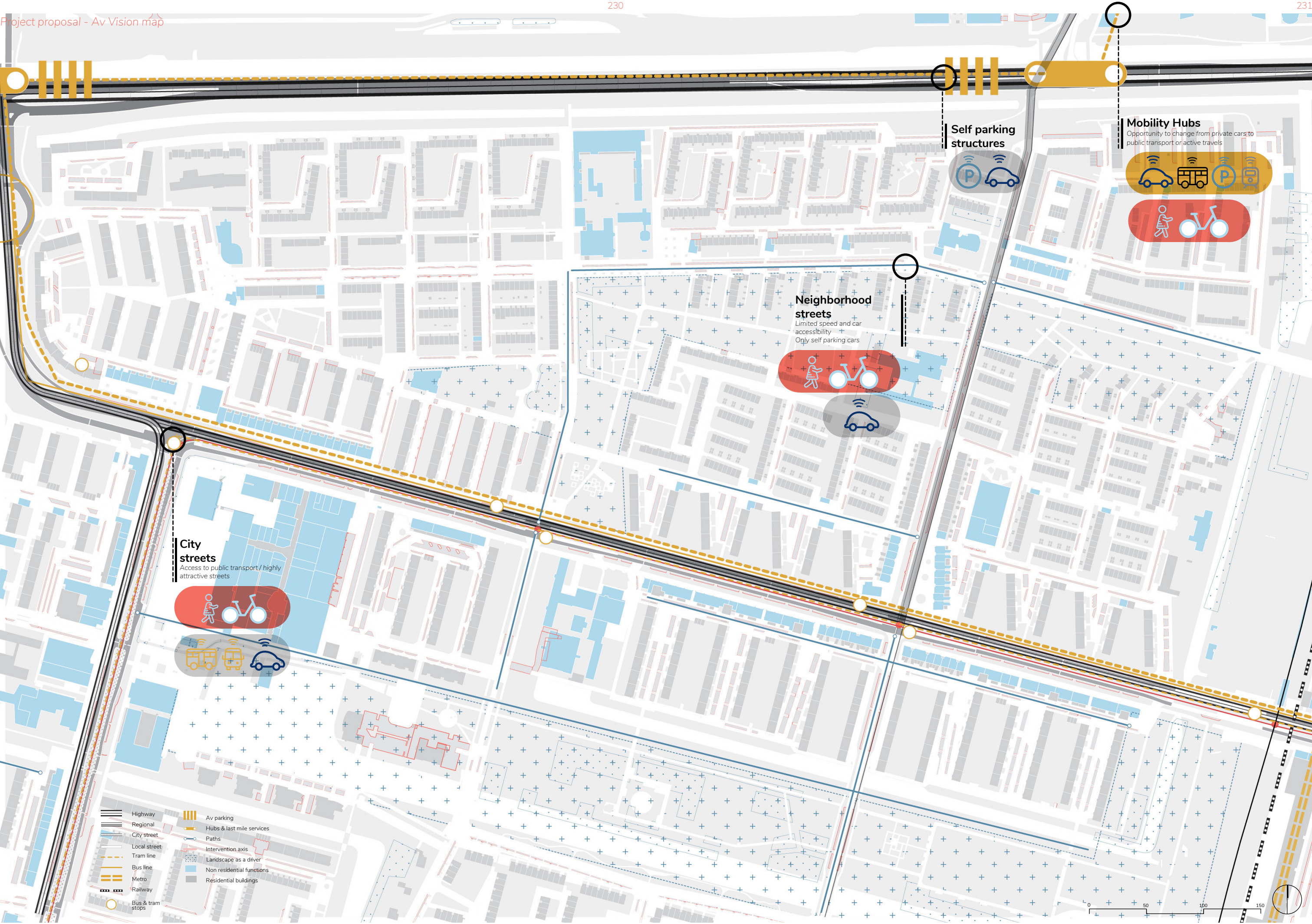
3.
Improve walkability and attractiveness
In arterial and collector roads



4.
Improve the possibilities of connection between nodes
In all types of roads



5.
Neighborhood roads for neighborhood activities
Neighborhood roads



Spatial

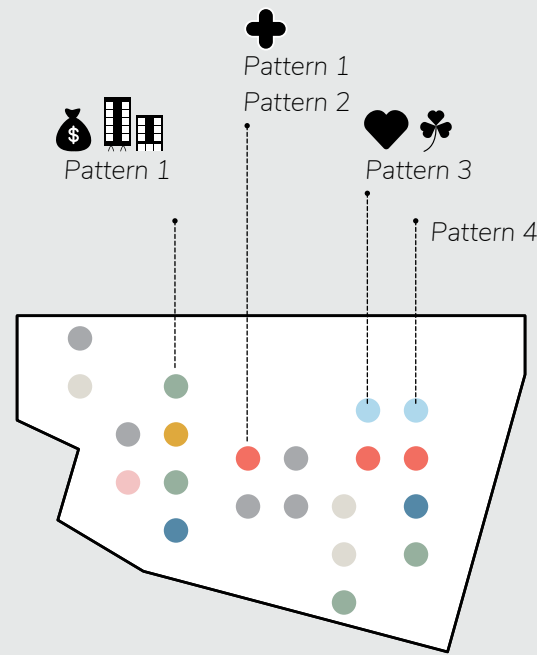
Modernist urbanism under automated mobility scenarios - Transforming modernist areas for spatial quality in Amsterdam city

[illegible]

Spatial
Spatial code + Site analysis



Patterns



Spatial

Wastelands – Residual space – In-between spaces
Degradation of public space or architectural elements
Massive scale buildings
Degradation of public space or architectural elements
Public space (Underutilized – degraded)
Public space near mobility landscapes (Underutilized – degraded)
Pollution (air, visual) & noise
Anonymity – Lack of identity
Neighborhood boundaries
Uses (Prevalence of private uses)
Uses (Prevalence of commercial – third spaces)
Uses (Monofunctional areas)
Uses (Public -cultural)
Uses (Prevalence of Big structures - shopping malls / light industry)
Uses (Public -cultural)
Uses (corporate space – offices)
Uses (Gated communities)
Public transportation systems (Lack – or deficient)
Rapid roads – Highways car infrastructure are prevalent
Mobility landscapes – Parking (are prevalent)
Social composition class, ethnicity (mixed Vs homogeneous or segregated)
Heritage buildings -Art
Community centers – Social activities
Mobility landscapes – Parking (invade public & pedestrian areas)
Barriers (for pedestrians, kids elderly & disabled)
Criminality -Stigmatization
Uses (Attraction poles urban renewal areas
Ground floors
Barriers (Gated communities -fenced public space)
Barriers (Traffic)
Barriers (Gated communities -fenced public space)
Suitable Areas for densification



Problems

Poor living environments
Gigantism and loss of control
Large scale privatization and loss of public life
Centrifugal fragmentation
Destruction of valued places
Placelessness
Rootless professionalism
Neglected space - Lost space
Neglected space - 24 hour space
Invaded space - Traffic and parking over pedestrian space in streets and squares
Invaded space -Loss of social function
Invaded space Inbetween spaces deteriorate
experience
Invaded space Exclusively car reliant environments
Exclusionary space - Disabling spaces
Exclusionary space - Parrochial spaces
Segregated space
Domestic,Third and Virtual Space - Third spaces
Privatized space - Increase in public space security
Privatized space - Corporate privatization
Consumption space - Financial exclusion
Consumption space Domination of consumption spaces
Invented space - Loss of authenticity & growth of placelessness
Scary space - Instrumentalizing the poor
Scary space - Exclusionary policing

Patterns
Literature review



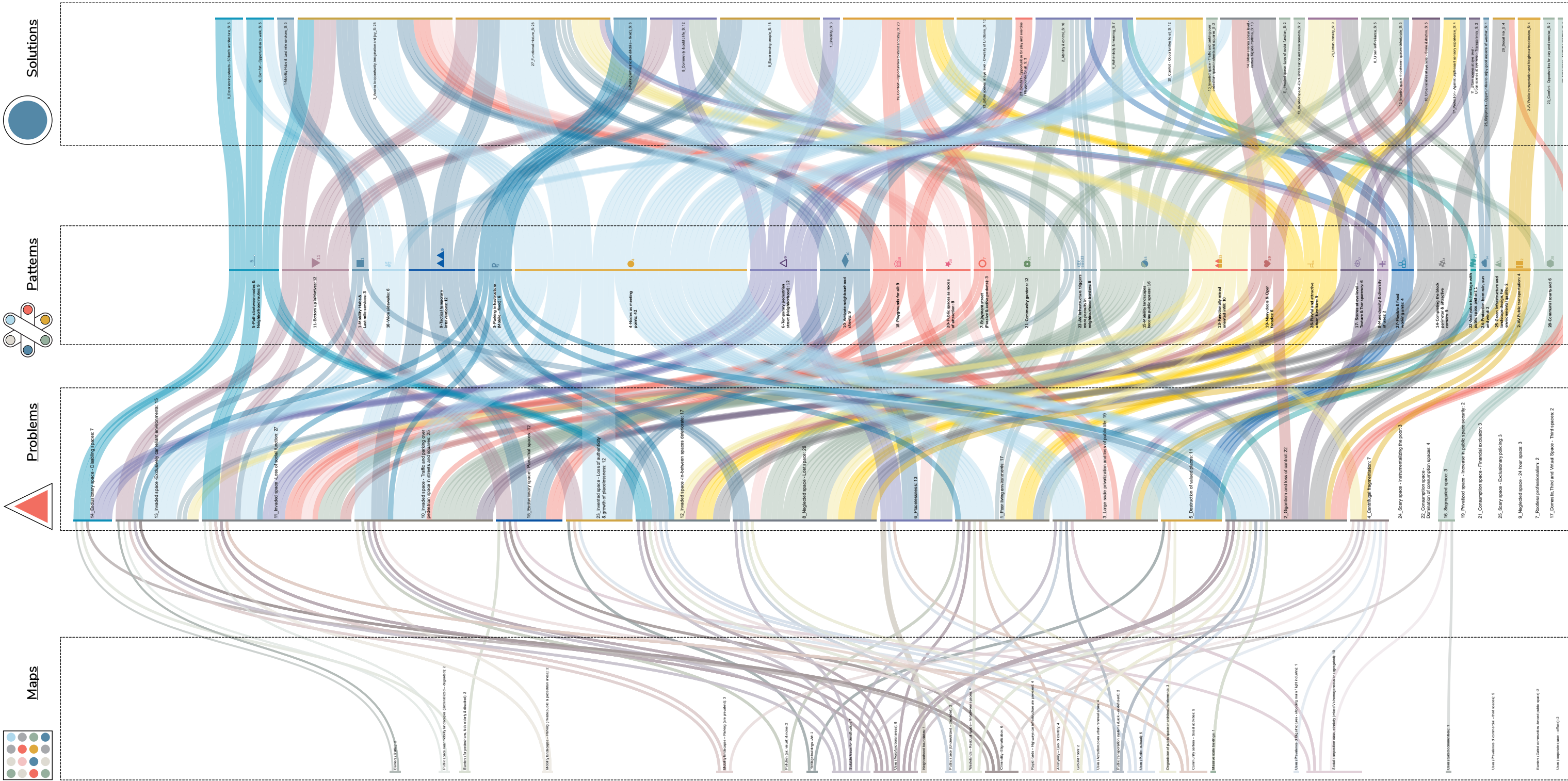
28 Patterns

- 1-Mobility Hubs & Last mile services
- 2-AV Public transportation
- 3-Parking infrastructure (Mobile – fixed)
- 4-Nodes as meeting points
- 5-Paths between nodes & Neighborhood routes
- 6-Temporary pedestrian street (Neighborhood)
- 7-Enjoyment street (Passive & active pockets)
- 8-More density & diversity of uses
- 9-Tactical temporary interventions
- 10-Activate neighbourhood streets
- 11-Bottom-Up initiatives
- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 14-Completing the block perimeter & attractive corners
- 15-Mobility landscapes become public spaces
- 16-Wide sidewalks
- 17- Scenes at eye level - Texture & Transparency
- 18-Playgrounds for all
- 19-Many doors & Open facades
- 20-Public spaces as nodes of attraction
- 21-Community gardens
- 22-Add value to heritage with public space and art
- 23-AV Infrastructure triggers more porosity in neighbourhood borders
- 24-Protection from rain, sun and wind
- 25-Green infrastructure and landscape design, for environmental quality
- 26-Playful and attractive urban furniture
- 27-Flexible & fixed working units
- 28-Communal courtyard



Solutions

Livability
Identity & control
Access to opportunity, imagination and joy
Authenticity & meaning
Community & public life
Urban self-reliance
An environment for all
Experiencing people
Experiencing streets - 50 km/h architecture
Urban scenes at eye level - Scale & rythm
Urban scenes at eye level - Urban scenes at eye level - Transparency
Urban scenes at eye level - Texture
Urban scenes at eye level - Diversity of functions
Urban scenes at eye level - Vertical façade rhythms
Protection - Against traffic and accidents
Protection - Against crime and violence, feeling secure
Comfort - Opportunities to walk
Comfort - Opportunities to stand and stay
Comfort - Opportunities to sit
Comfort - Opportunities to see
Comfort - Talk and listen
Comfort - Opportunities for play and exercise
Enjoyment - Dimensioned at human scale
Enjoyment - Opportunities to enjoy good aspects of weather
Enjoyment - Aesthetic qualities
Functional mixture
Density
Social mix
Physical space



APPLYING PATTERNS

To apply the patterns in the territory, a process of problem mapping is performed. For this, a process of recognition of the spatial factors associated with each problem was carried out. Generally, the problems studied are related to a limited number of spatial issues, for this reason, each problem results in the combination and superposition of several problems maps. The graphic gives provides a selection of patterns associated to each problem, and once the problems are mapped, the patterns can be applied on the specific areas that require intervention. However the selection process is also influenced by the specific acquired knowledge of the territory, and the applicability or relevance of each proposed solution in relation to the specific contextual situation.

**1**

1-Mobility Hubs & Last mile services.

**2**

2-AV Public transportation

**3**

3- Parking infrastructure.

**4**

4-Nodes as meeting points.

**5**

5-Paths between nodes & neighborhood routes.

**6**

6-Temporary pedestrian street.

**7**

7-Enjoyment street.

**8**

8-More density & diversity of uses.

**9**

9-Tactical temporary interventions.

**10**

10-Activate neighborhood streets.

**11**

11-Bottom up initiatives.

**12**

12-Life on the ground floor.

**13**

13-Functionally mixed oriented infill.

**14**

14-Completing the block perimeter.

**15**

15-Mobility landscapes become public spaces .

**16**

16-Wide sidewalks

**17**

17- Scenes at eye level- Texture & transparency.

**18**

18-Playgrounds for all.

**19**

19-Many doors & open facades.

**20**

20-Public spaces as nodes of attraction.

**21**

21-Community gardens.

**22**

22-Add value to heritage with public space and art.

**23**

23-AV Infrastructure triggers more porosity in neighbourhood borders.

**24**

24-Protection from rain, sun and wind.

**25**

25-Green infrastructure and landscape design, for environmental quality.

**26**

26-Playful and attractive urban furniture.

**27**

27-Flexible & fixed working units.

**28**

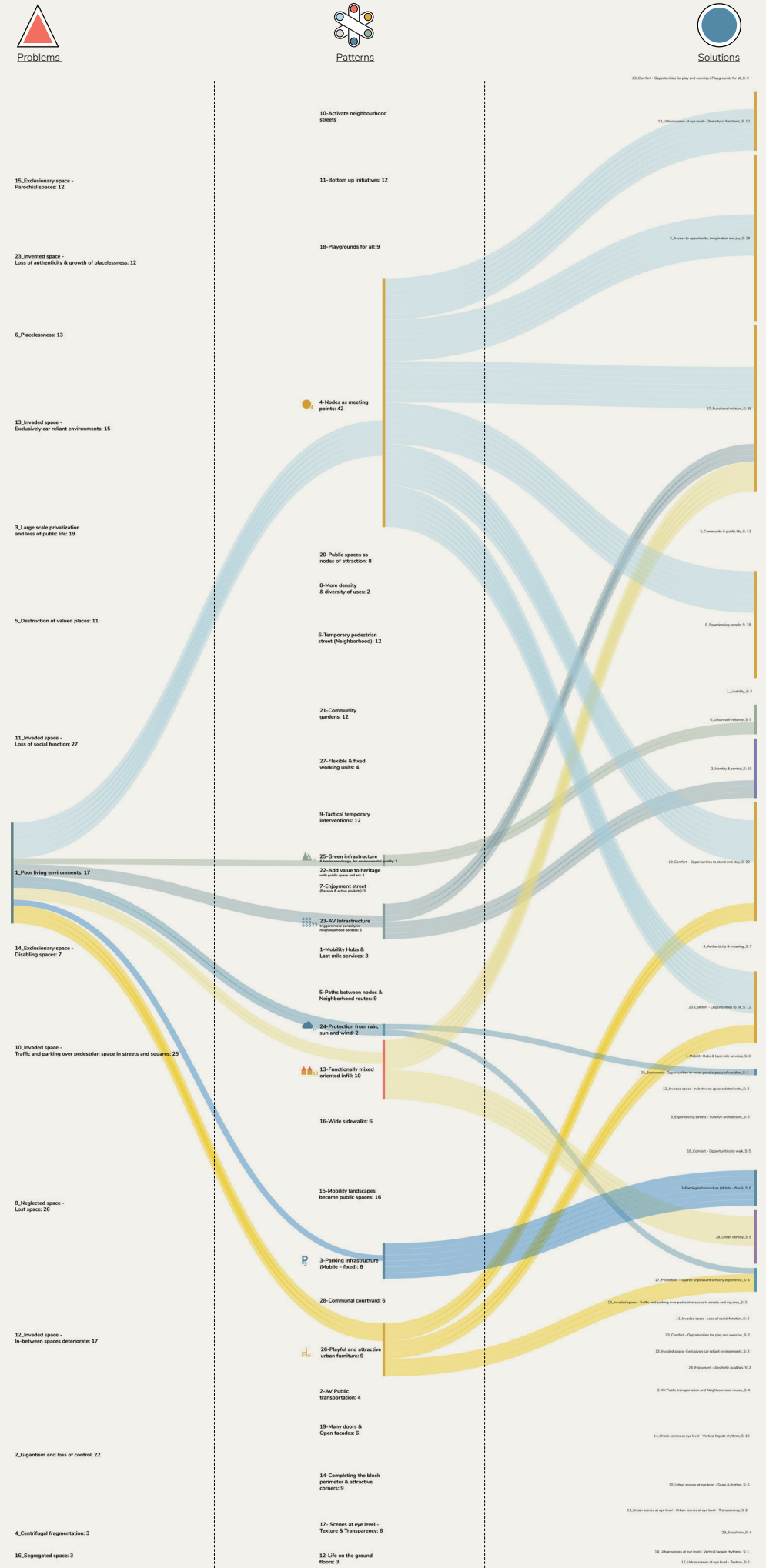
28-Communal courtyard.

Noise by traffic

An aerial photograph of a city block, likely in New York City, showing a grid of streets and buildings. The image is overlaid with a semi-transparent orange color that highlights specific areas, possibly indicating proposed development, zoning changes, or a specific neighborhood boundary. The orange areas are concentrated along the streets and around certain building footprints. The buildings themselves are shown in a light gray or white color, with some darker areas indicating shadows or different building types. The overall image has a slightly grainy, high-resolution appearance.



Problems



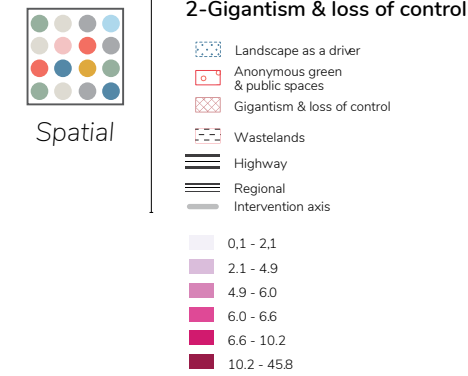
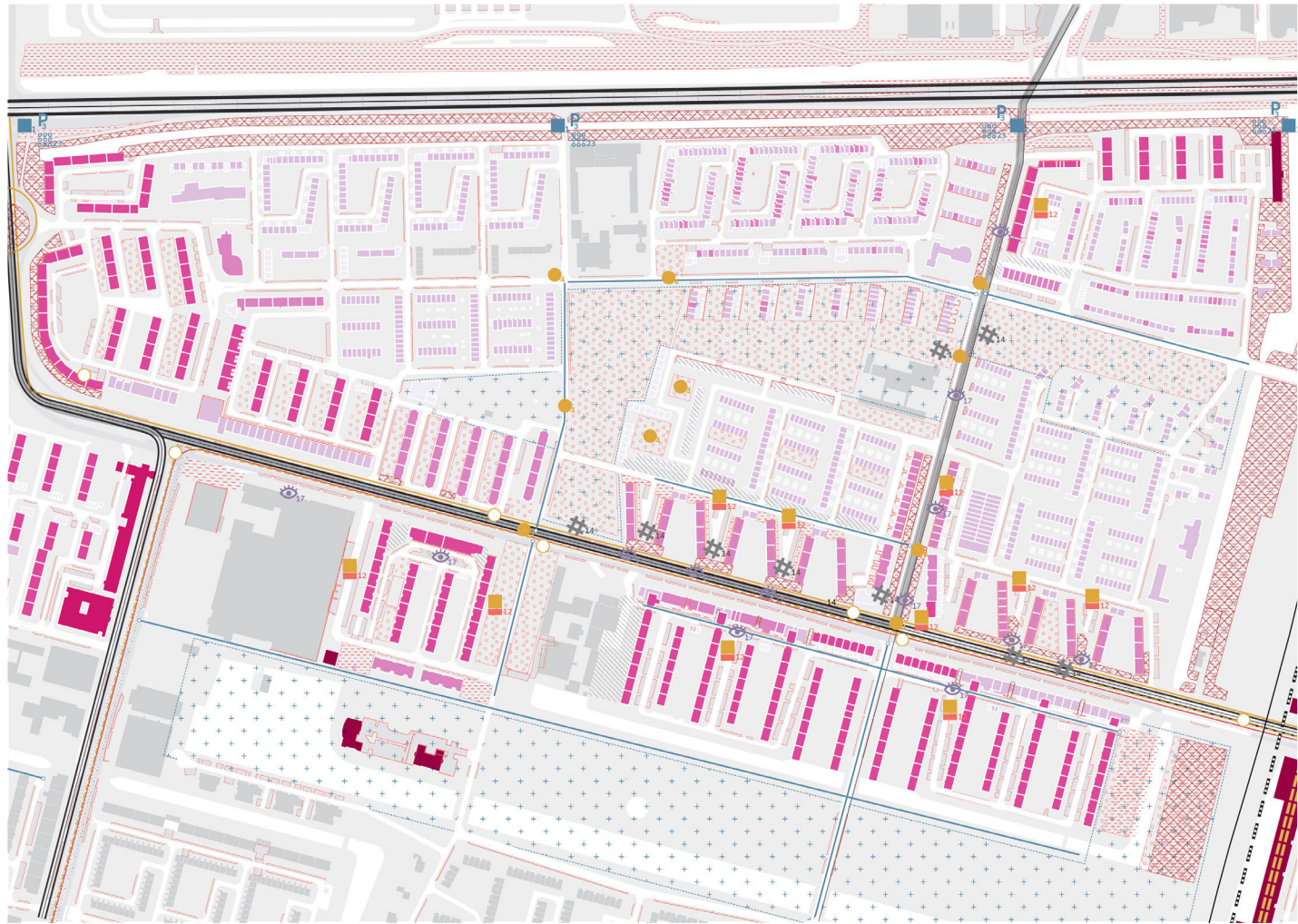
2- Gigantism & loss of control

Cities in the hands of large-scale developers. The elements of the city grow in size and massive transportation systems are segregated for single travel modes. Loss of control over the homes and neighborhoods.

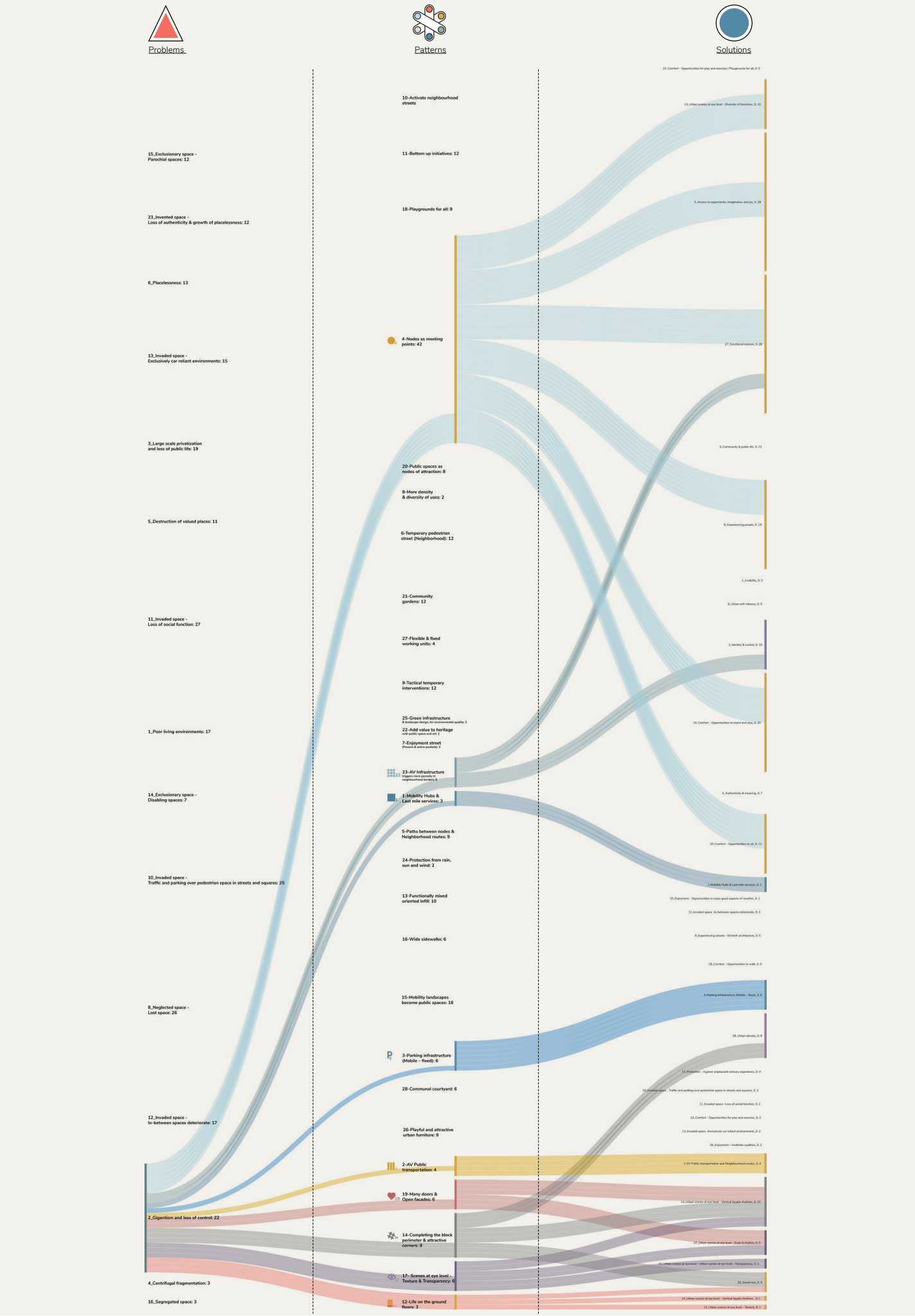
Building heights



2- Gigantism and loss of control + recommended patterns

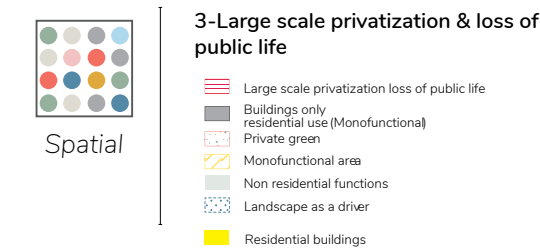


2-Gigantism & loss of control - Patterns scheme



Emphasis on the individual and private sector, a trend they believe to be stimulated by the spread of the automobile. 'As public transit systems have declined, the number of places in American cities where people of different social groups can meet each other has dwindled'.

Emphasis on the individual and private sector, a trend they believe to be stimulated by the spread of the automobile. 'As public transit systems have declined, the number of places in American cities where people of different social groups can meet each other has dwindled'.



Urban Space

Problems

- 16. Segregated space: 3
- 4. Contradictory fragmentation: 3
- 2. Gentrification and loss of control: 22
- 10. Involed space - Traffic and parking over predilection space in streets and squares: 25
- 8. Neglected space - Left spaces: 26
- 12. Involed space - In-between spaces deteriorate: 17
- 3. Parking infrastructure (Mobile - Fixed): 6
- 28. Communal courtyard: 6
- 15. Mobility landscapes become public spaces: 16
- 16. Wide sidewalks: 6
- 13. Functionally mixed oriented inRt: 10
- 24. Protection from rain, sun and wind: 2
- 5. Paths between nodes & Neighborhood routes: 9
- 1. Mobility Hubs & Last mile services: 3
- 23. AV Infrastructure (aggregates urban services to neighborhood services: 6
- 7. Employment street (Private & semi-private: 3
- 25. Green infrastructure (landscape design, permeability, quality: 7
- 22. Add value to heritage (visibility, space, and art: 1
- 9. Tactical temporary interventions: 12
- 27. Flexible & fixed working units: 4
- 21. Community gardens: 12
- 6. Temporary pedestrian street (Neighborhood): 12
- 8. More density & diversity of uses: 2
- 20. Public spaces as nodes of attraction: 8
- 4. Nodes as meeting points: 42
- 18. Playgrounds for all: 9
- 11. Bottom up initiatives: 12
- 10. Activate neighbourhood streets
- 23. Invented space - Loss of authenticity & growth of placelessness: 12
- 15. Exclusionary space - Perforical spaces: 12
- 13. Involed space - Exclusively car reliant environments: 15
- 6. Placelessness: 13
- 3. Large scale prioritization and loss of public life: 19
- 5. Destruction of valued places: 11
- 11. Involed space - Loss of social function: 27
- 1. Poor living environments: 17
- 14. Exclusionary space - Disabling spaces: 7

Patterns

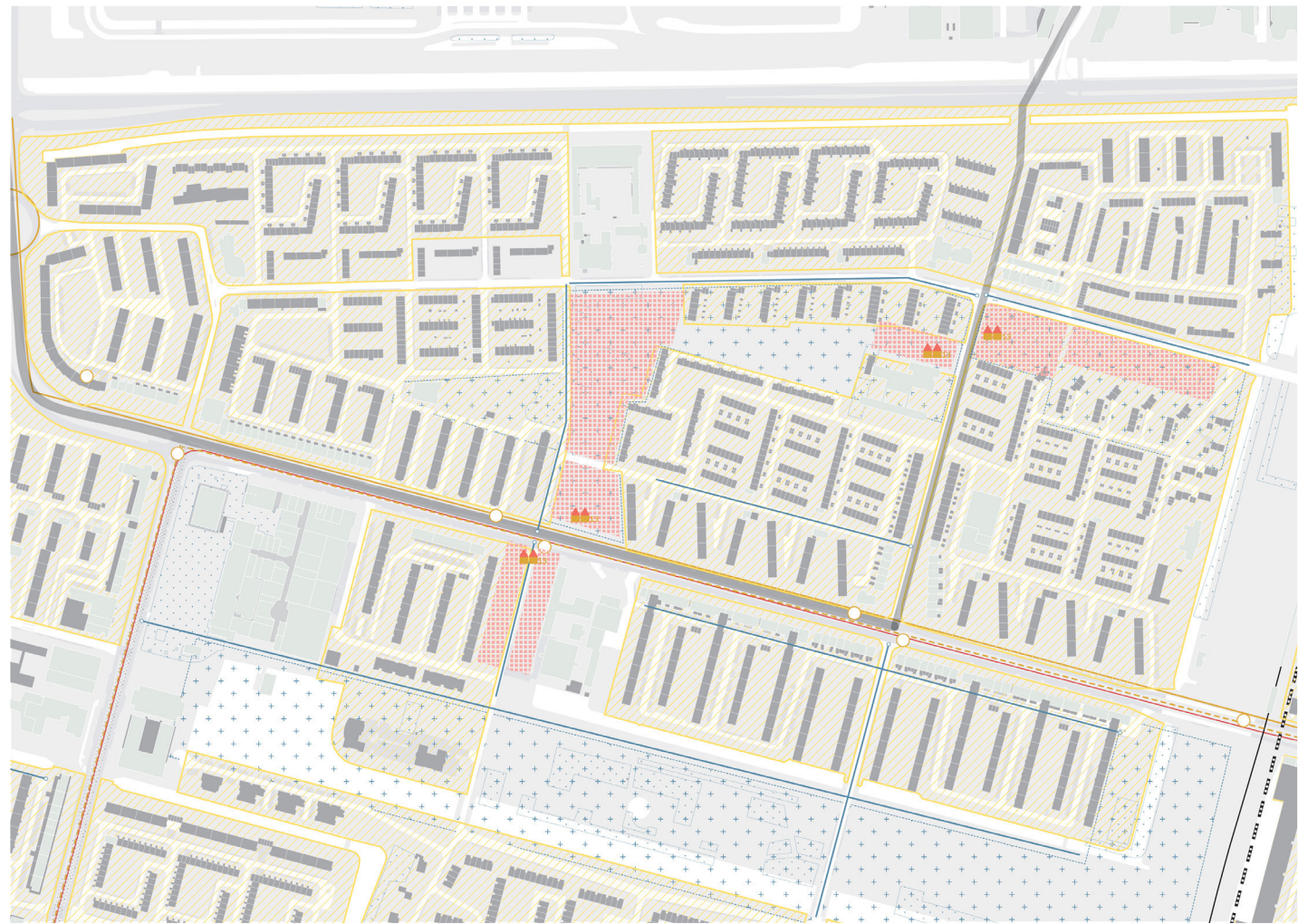
Solutions

- 2. AV Public transportation: 4
- 10. Many doors & Open facilities: 5
- 14. Completing the block perimeter & attractive corners: 3
- 17. Scenes at eye level - Texture & Transparency: 6
- 1. Life on the ground floors: 3
- 24. AV Public transportation and Neighborhood routes: 4
- 14. Urban scenes at eye level - Vertical Space Hierarchy: 10
- 11. Urban scenes at eye level - Urban scenes at eye level - Transparency: 10
- 29. Street mix: 4
- 14. Urban scenes at eye level - Vertical Space Hierarchy: 10
- 13. Urban scenes at eye level - Texture: 10
- 25. Equipment - Authentic qualities: 10
- 13. Involed space - Exclusivity (or urban environments): 10
- 23. Context - Opportunities for play and recreation: 10
- 11. Involed space - Loss of social function: 10
- 10. Involed space - Traffic and parking over predilection space in streets and squares: 10
- 17. Protection - Against car-related sensory experience: 10
- 26. Urban density: 10
- 9. Pedestrian-pedestrian (Urban - Road): 10
- 18. Context - Opportunities to walk: 10
- 8. Expanding network - 100 yards architecture: 10
- 25. Equipment - Opportunities to extend and mix: 10
- 3. Mobility Hubs & Last mile services: 10
- 25. Context - Opportunities to extend and mix: 10
- 4. Authenticity & meeting: 10
- 24. Context - Opportunities to extend and mix: 10
- 25. Equipment - Opportunities to extend and mix: 10
- 2. Mobility Hubs & Last mile services: 10
- 6. Urban self-reliance: 10
- 1. Livability: 10
- 8. Expanding network: 10
- 5. Community & public life: 10
- 17. Functional mix: 10
- 3. Access to opportunity, imagination and joy: 10
- 10. Urban scenes at eye level - Diversity of functions: 10
- 23. Context - Opportunities for play and recreation: 10

4-Centrifugal fragmentation

Advanced industrial cities have took work is out of the home and the neighborhood, the automobile and growing scale of commerce took shopping out of the local community. Fear had led to homogeneity and segregation.

4-Centrifugal fragmentation + recommended patterns



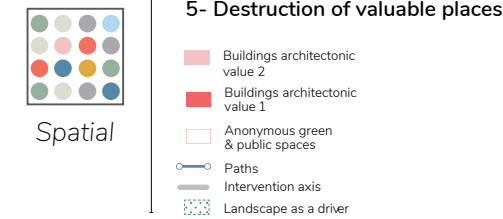
4-Centrifugal fragmentation - Patterns scheme



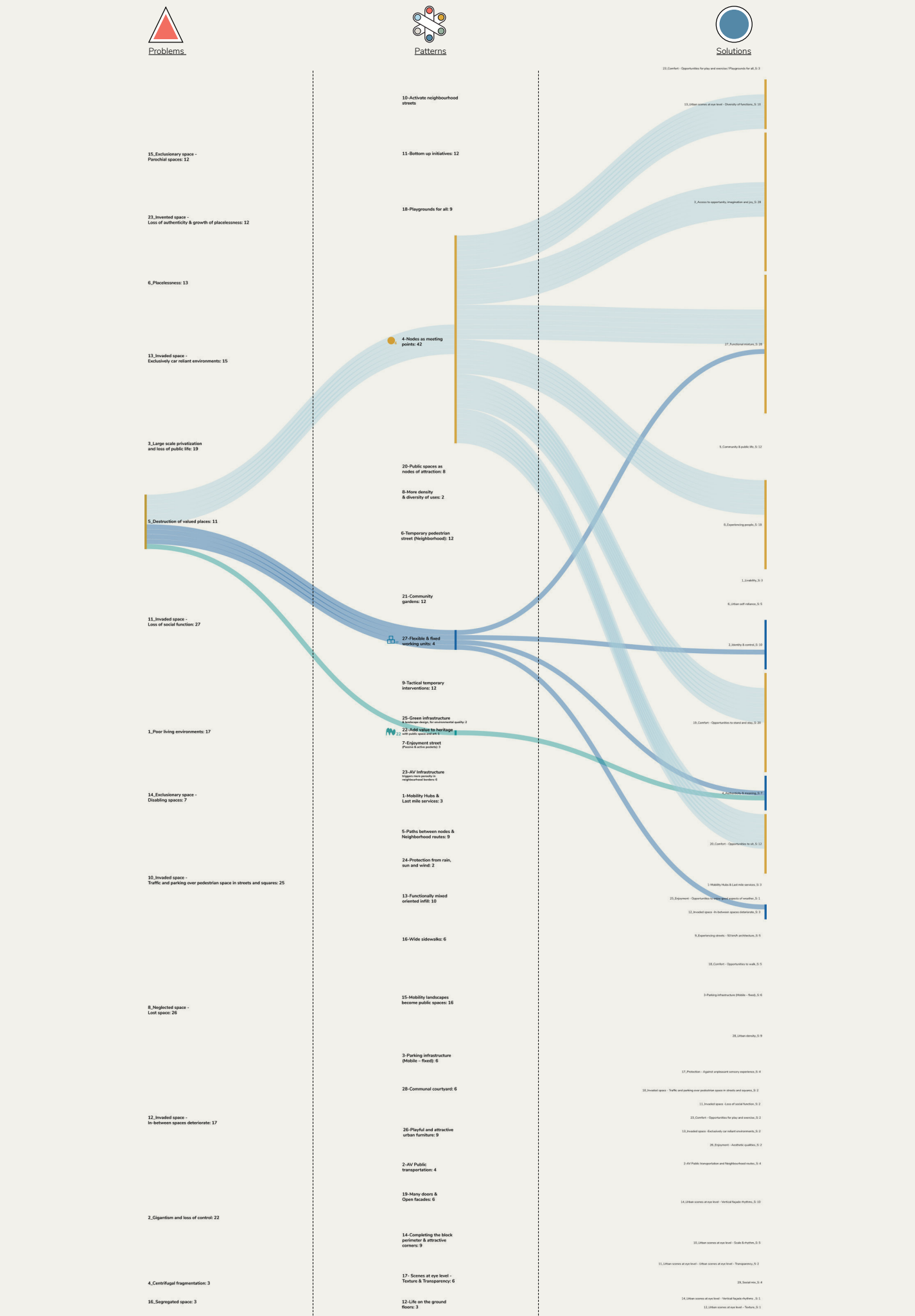
5-Destruction of valuable places

Exploitation of places lead to the destruction of heritage and natural amenities become overused.

5-Destruction of valuable places + recommended patterns



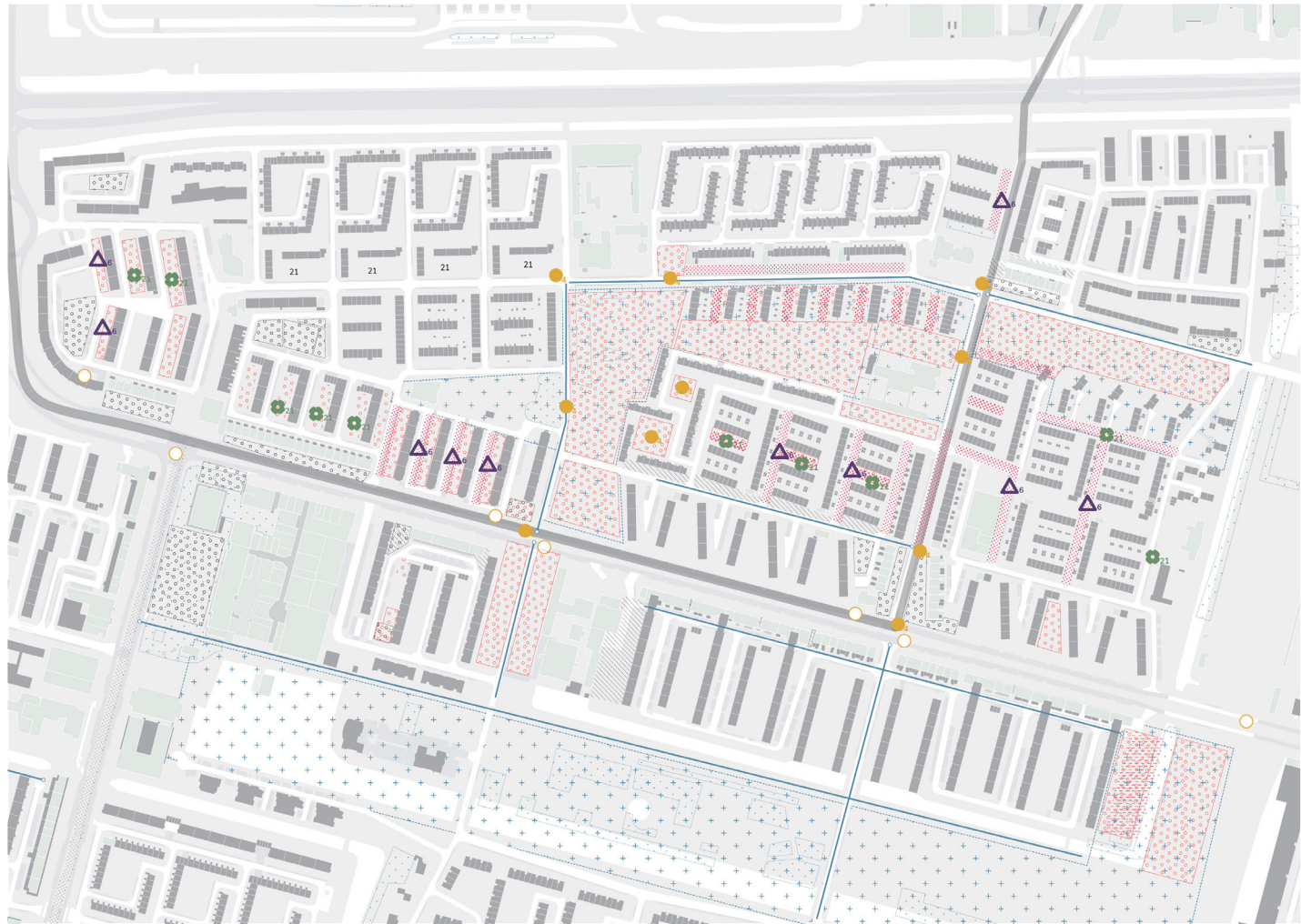
5-Destruction of valuable places - Patterns scheme



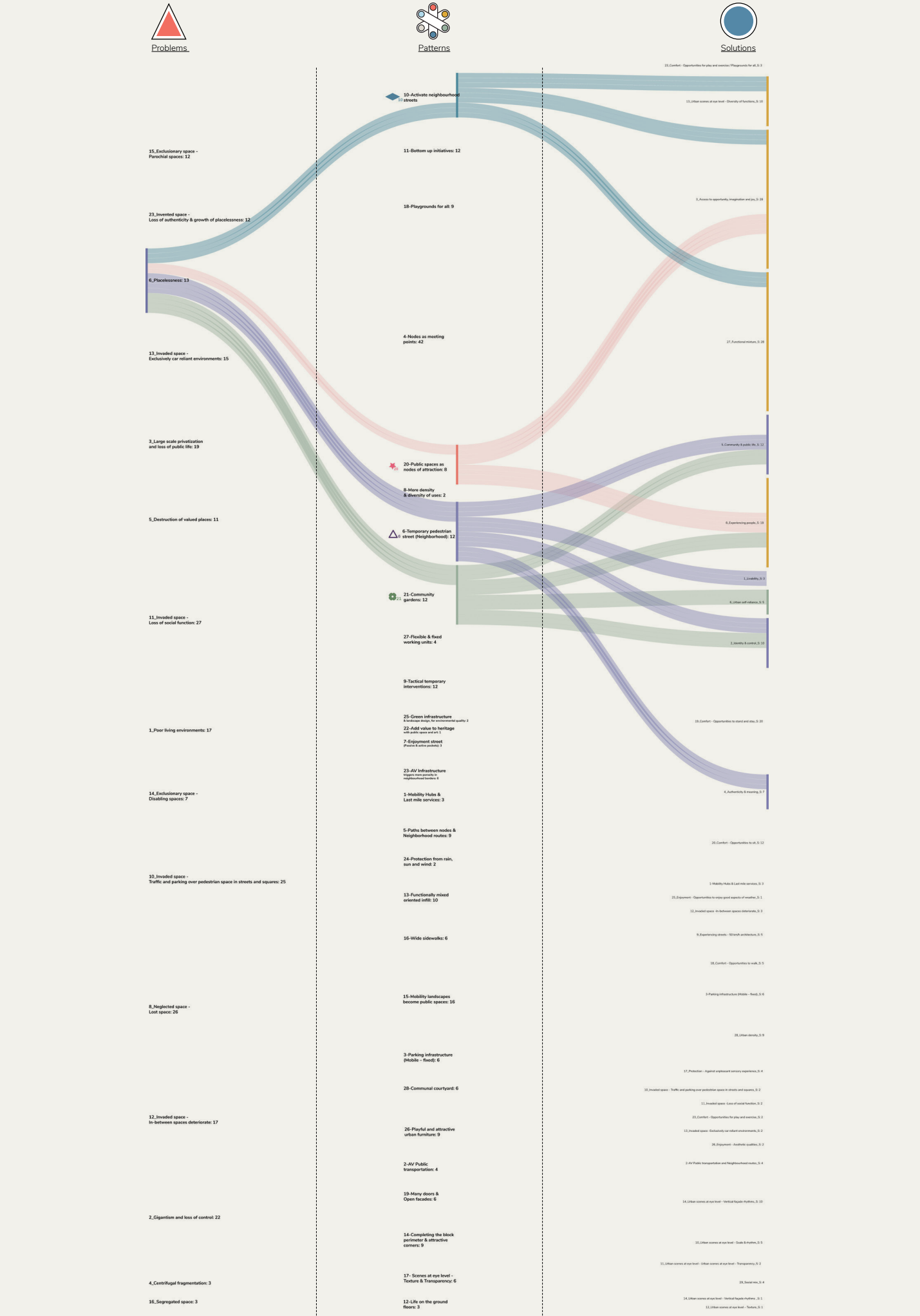
6-Placelessness

Cities become meaningless places with loss of community and participation.

6-Placelessness + recommended patterns



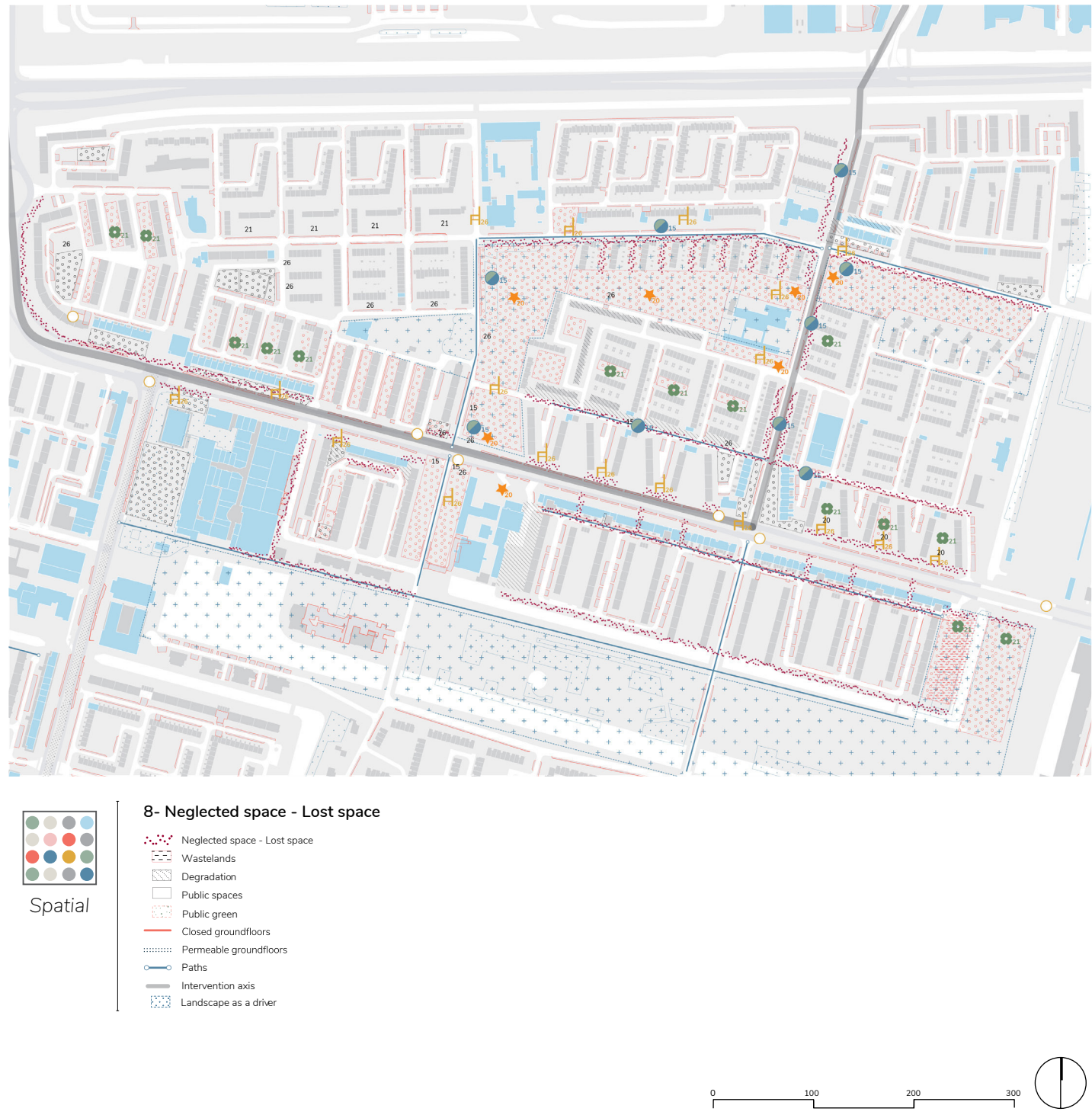
6-Placelessness - Patterns scheme



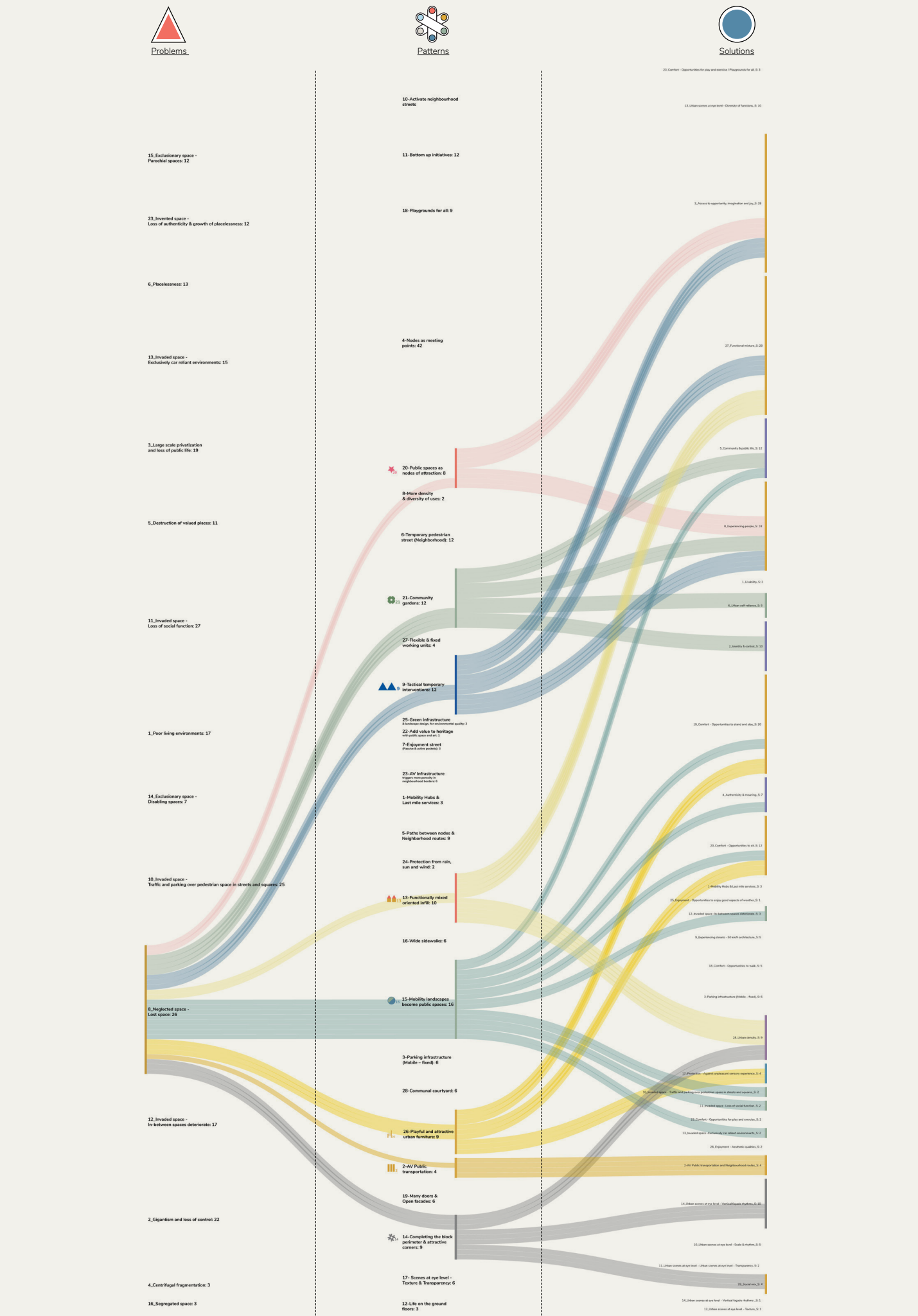
8-Neglected space - Lost space

Refers to authors like Loukaitou-Sideris (1996), ‘Cracks in the City’ that focus on the ‘in-between spaces, residual, under-utilized and deteriorating spaces’. Trancik (1986) ‘Lost Space’ as spaces that are in ‘need of re-design, anti-spaces, making no positive contribution to the surrounds or users’, e.g. the base of high-rise towers, unused sunken plazas, abandoned waterfronts, train yards, deteriorated parks and marginal public housing projects’. Trancik establishes a direct relation between ‘lost spaces’ and the car, urban renewal, the privatization of public space, functional separation of uses and with the modern movement.

8-Neglected space - Lost space + recommended patterns



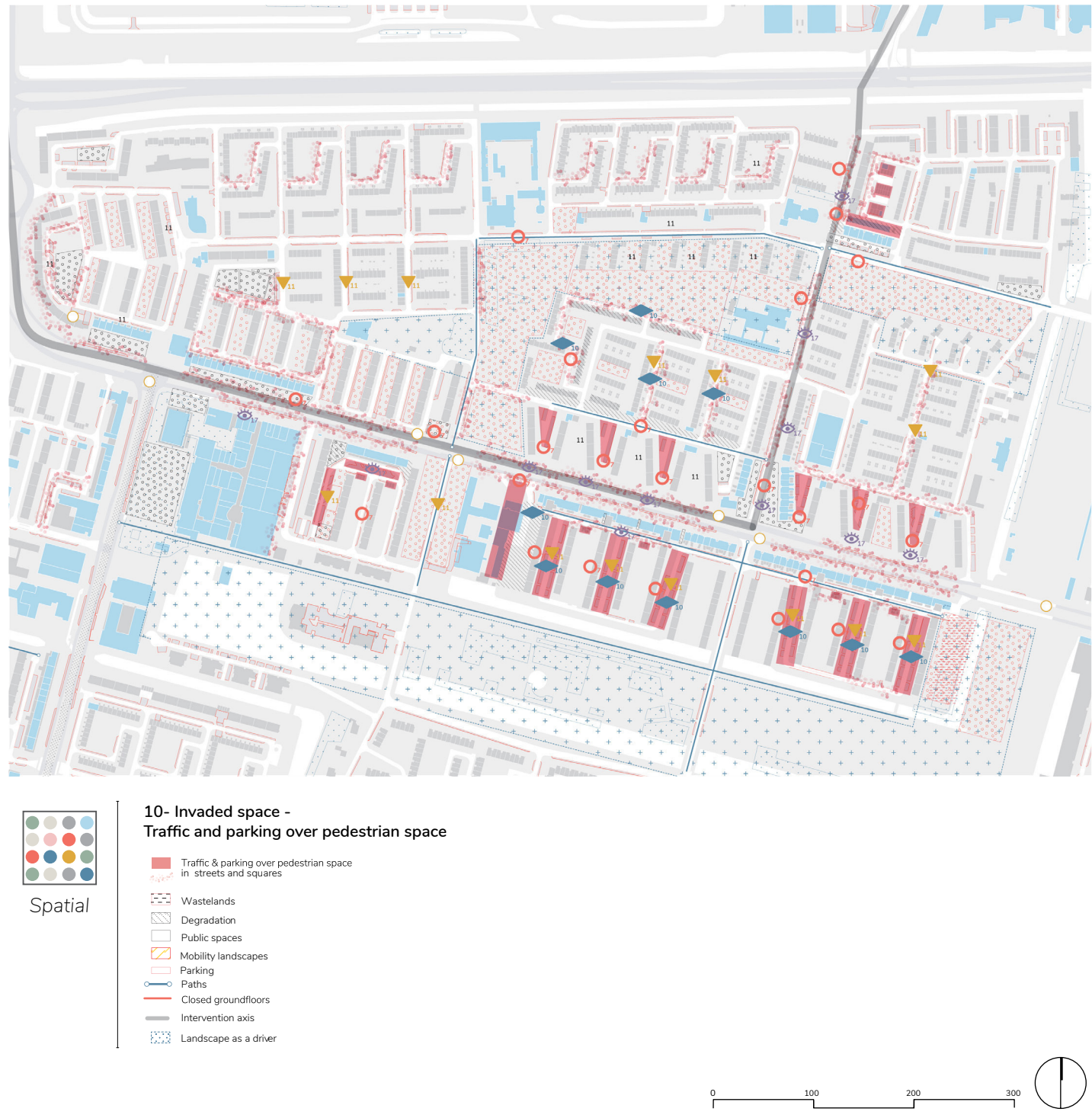
8-Neglected space - Lost space - Patterns scheme



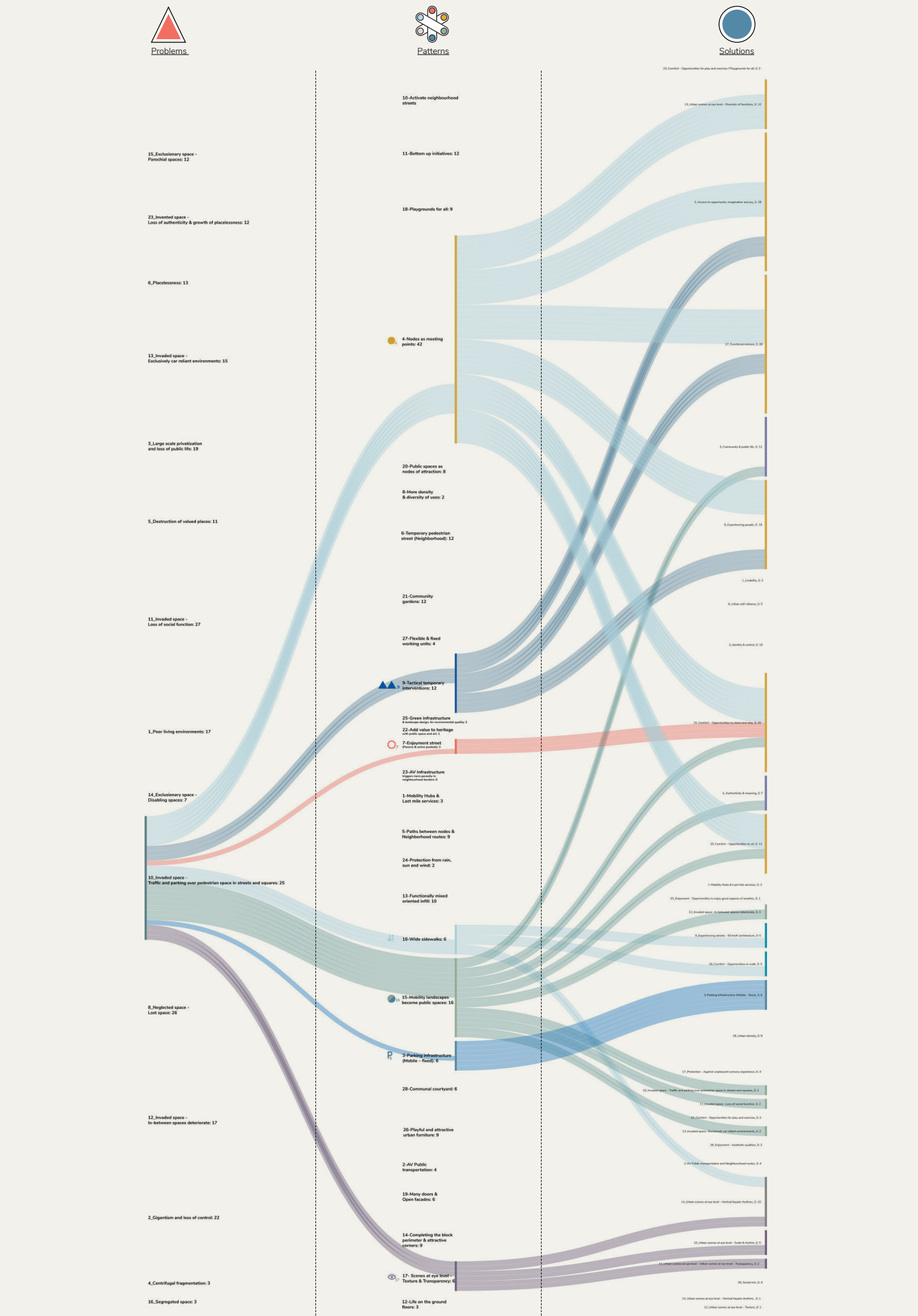
10-Invaded space - Traffic and parking over pedestrian space in streets and squares

Leading to consequent, dirt, noise and visual pollution that helps to impoverish city life (Gehl & Gemzoe, 2001).

10-Invaded space-Traffic & parking over pedestrian space in streets & squares + recommended patterns



10-Invaded space-Traffic & parking over pedestrian space in streets & squares - Patterns scheme



The number of car users greatly exceeds the number of pedestrians using the street, and the space given to road space exceeds that dedicated to footpaths. (Gehl and Gemzoe 2001) ideas state that invaded space is generally impoverished and loses most of the social and recreational activities, living only the most utilitarian functions.

The number of car users greatly exceeds the number of pedestrians using the street, and the space given to road space exceeds that dedicated to footpaths. (Gehl and Gemzoe 2001) ideas state that invaded space is generally impoverished and loses most of the social and recreational activities, living only the most utilitarian functions.

This map illustrates a residential neighborhood in the City of San Diego, featuring a variety of housing types and street layouts. The map includes a legend with symbols for different types of housing (e.g., single-family, multi-family, mobile home) and a scale bar. The map is oriented with North at the top.

The map shows a grid of streets with various housing units. Some units are marked with numbers (e.g., 11, 21, 31, 41, 51, 61, 71, 81, 91, 101, 111, 121, 131, 141, 151, 161, 171, 181, 191, 201, 211, 221, 231, 241, 251, 261, 271, 281, 291, 301, 311, 321, 331, 341, 351, 361, 371, 381, 391, 401, 411, 421, 431, 441, 451, 461, 471, 481, 491, 501, 511, 521, 531, 541, 551, 561, 571, 581, 591, 601, 611, 621, 631, 641, 651, 661, 671, 681, 691, 701, 711, 721, 731, 741, 751, 761, 771, 781, 791, 801, 811, 821, 831, 841, 851, 861, 871, 881, 891, 901, 911, 921, 931, 941, 951, 961, 971, 981, 991, 1001, 1011, 1021, 1031, 1041, 1051, 1061, 1071, 1081, 1091, 1101, 1111, 1121, 1131, 1141, 1151, 1161, 1171, 1181, 1191, 1201, 1211, 1221, 1231, 1241, 1251, 1261, 1271, 1281, 1291, 1301, 1311, 1321, 1331, 1341, 1351, 1361, 1371, 1381, 1391, 1401, 1411, 1421, 1431, 1441, 1451, 1461, 1471, 1481, 1491, 1501, 1511, 1521, 1531, 1541, 1551, 1561, 1571, 1581, 1591, 1601, 1611, 1621, 1631, 1641, 1651, 1661, 1671, 1681, 1691, 1701, 1711, 1721, 1731, 1741, 1751, 1761, 1771, 1781, 1791, 1801, 1811, 1821, 1831, 1841, 1851, 1861, 1871, 1881, 1891, 1901, 1911, 1921, 1931, 1941, 1951, 1961, 1971, 1981, 1991, 2001, 2011, 2021, 2031, 2041, 2051, 2061, 2071, 2081, 2091, 2101, 2111, 2121, 2131, 2141, 2151, 2161, 2171, 2181, 2191, 2201, 2211, 2221, 2231, 2241, 2251, 2261, 2271, 2281, 2291, 2301, 2311, 2321, 2331, 2341, 2351, 2361, 2371, 2381, 2391, 2401, 2411, 2421, 2431, 2441, 2451, 2461, 2471, 2481, 2491, 2501, 2511, 2521, 2531, 2541, 2551, 2561, 2571, 2581, 2591, 2601, 2611, 2621, 2631, 2641, 2651, 2661, 2671, 2681, 2691, 2701, 2711, 2721, 2731, 2741, 2751, 2761, 2771, 2781, 2791, 2801, 2811, 2821, 2831, 2841, 2851, 2861, 2871, 2881, 2891, 2901, 2911, 2921, 2931, 2941, 2951, 2961, 2971, 2981, 2991, 3001, 3011, 3021, 3031, 3041, 3051, 3061, 3071, 3081, 3091, 3101, 3111, 3121, 3131, 3141, 3151, 3161, 3171, 3181, 3191, 3201, 3211, 3221, 3231, 3241, 3251, 3261, 3271, 3281, 3291, 3301, 3311, 3321, 3331, 3341, 3351, 3361, 3371, 3381, 3391, 3401, 3411, 3421, 3431, 3441, 3451, 3461, 3471, 3481, 3491, 3501, 3511, 3521, 3531, 3541, 3551, 3561, 3571, 3581, 3591, 3601, 3611, 3621, 3631, 3641, 3651, 3661, 3671, 3681, 3691, 3701, 3711, 3721, 3731, 3741, 3751, 3761, 3771, 3781, 3791, 3801, 3811, 3821, 3831, 3841, 3851, 3861, 3871, 3881, 3891, 3901, 3911, 3921, 3931, 3941, 3951, 3961, 3971, 3981, 3991, 4001, 4011, 4021, 4031, 4041, 4051, 4061, 4071, 4081, 4091, 4101, 4111, 4121, 4131, 4141, 4151, 4161, 4171, 4181, 4191, 4201, 4211, 4221, 4231, 4241, 4251, 4261, 4271, 4281, 4291, 4301, 4311, 4321, 4331, 4341, 4351, 4361, 4371, 4381, 4391, 4401, 4411, 4421, 4431, 4441, 4451, 4461, 4471, 4481, 4491, 4501, 4511, 4521, 4531, 4541, 4551, 4561, 4571, 4581, 4591, 4601, 4611, 4621, 4631, 4641, 4651, 4661, 4671, 4681, 4691, 4701, 4711, 4721, 4731, 4741, 4751, 4761, 4771, 4781, 4791, 4801, 4811, 4821, 4831, 4841, 4851, 4861, 4871, 4881, 4891, 4901, 4911, 4921, 4931, 4941, 4951, 4961, 4971, 4981, 4991, 5001, 5011, 5021, 5031, 5041, 5051, 5061, 5071, 5081, 5091, 5101, 5111, 5121, 5131, 5141, 5151, 5161, 5171, 5181, 5191, 5201, 5211, 5221, 5231, 5241, 5251, 5261, 5271, 5281, 5291, 5301, 5311, 5321, 5331, 5341, 5351, 5361, 5371, 5381, 5391, 5401, 5411, 5421, 5431, 5441, 5451, 5461, 5471, 5481, 5491, 5501, 5511, 5521, 5531, 5541, 5551, 5561, 5571, 5581, 5591, 5601, 5611, 5621, 5631, 5641, 5651, 5661, 5671, 5681, 5691, 5701, 5711, 5721, 5731, 5741, 5751, 5761, 5771, 5781, 5791, 5801, 5811, 5821, 5831, 5841, 5851, 5861, 5871, 5881, 5891, 5901, 5911, 5921, 5931, 5941, 5951, 5961, 5971, 5981, 5991, 6001, 6011, 6021, 6031, 6041, 6051, 6061, 6071, 6081, 6091, 6101, 6111, 6121, 6131, 6141, 6151, 6161, 6171, 6181, 6191, 6201, 6211, 6221, 6231, 6241, 6251, 6261, 6271, 6281, 6291, 6301, 6311, 6321, 6331, 6341, 6351, 6361, 6371, 6381, 6391, 6401, 6411, 6421, 6431, 6441, 6451, 6461, 6471, 6481, 6491, 6501, 6511, 6521, 6531, 6541, 6551, 6561, 6571, 6581, 6591, 6601, 6611, 6621, 6631, 6641, 6651, 6661, 6671, 6681, 6691, 6701, 6711, 6721, 6731, 6741,

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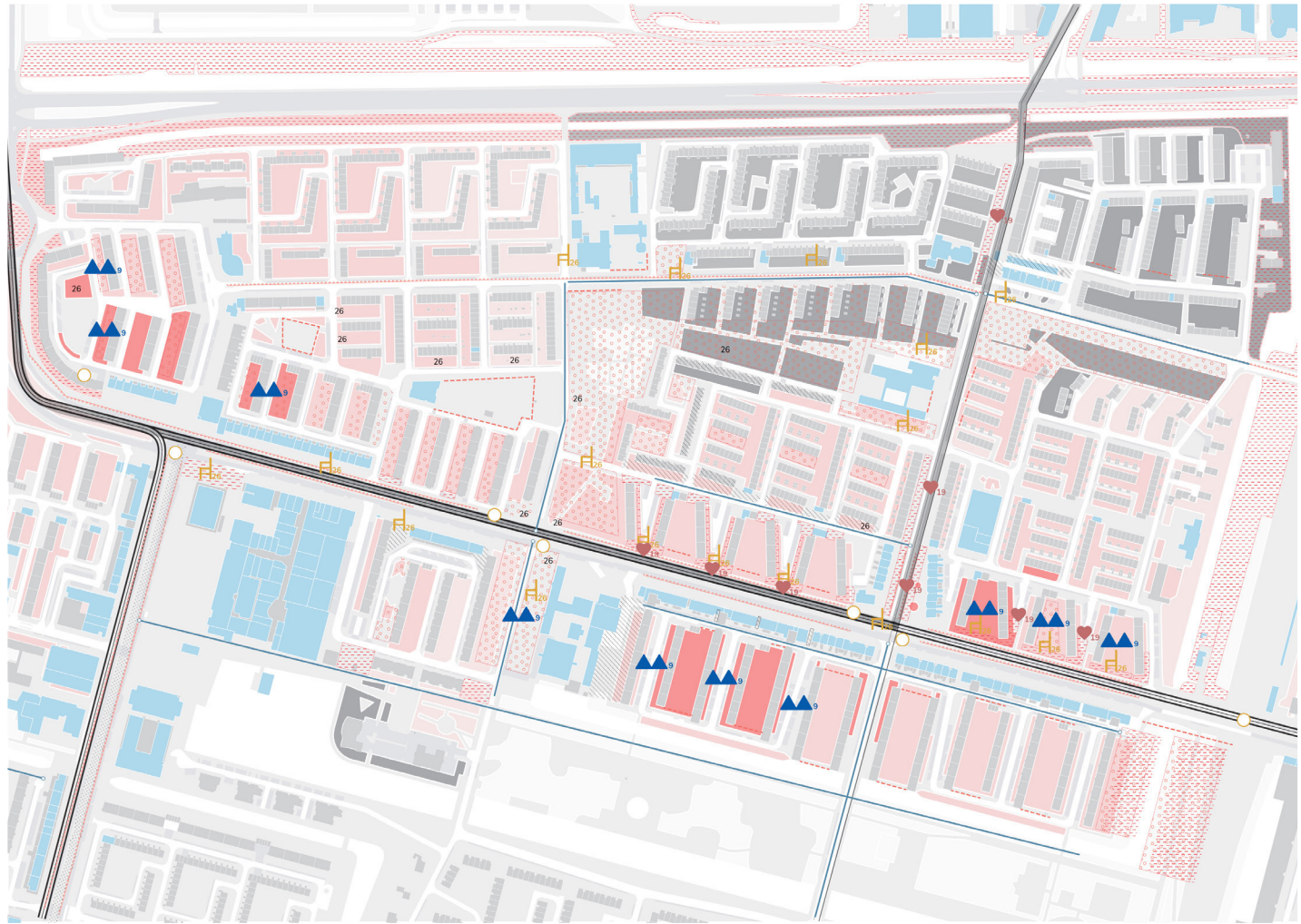
12-Invaded space-In-between spaces deteriorate

Based on ‘archipelago of enclaves’ (Hajer and Reijndorp, 2001), where distant spaces are compressed by instant connection by car roads, while the in-between spaces are ostracized and deteriorate and perceived as absent of attractors.

Quality of life buurt



12-Invaded space-In-between spaces deteriorate + recommended patterns



Spatial

12-Invaded space-In-between spaces deteriorate

Non residential functions

Anonymous green & public spaces

Public spaces

Traffic as a safety barrier

Boundaries fences

Regional

City street

Intervention axis

Very inadequate

Largely insufficient

Inadequate

Weak

Enough

Largely enough

Modernist urbanism under automated mobility scenarios - Transforming modernist areas for spatial quality in Amsterdam city

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12- Invaded space-In-between spaces deteriorate - Patterns scheme

Problems

- 10. Exclusionary space - Parcelled spaces: 12
- 23. Invaded space - Loss of authenticity & growth of placelessness: 12
- 6. Placelessness: 13
- 13. Invaded space - Exclusively car reliant environments: 15
- 3. Large scale privatization and loss of public life: 19
- 5. Destruction of valued places: 11
- 11. Invaded space - Loss of social function: 27
- 1. Poor living environments: 17
- 14. Exclusionary space - Disabling spaces: 7
- 10. Invaded space - Traffic and parking over pedestrian space in streets and squares: 25
- 8. Neglected space - Lost spaces: 26
- 2. Gentrification and loss of control: 22
- 4. Centrifugal fragmentation: 3
- 16. Segregated space: 3

Patterns

- 10. Activate neighbourhood streets
- 11. Bottom up initiatives: 12
- 18. Playgrounds for all: 9
- 4. Hubs as meeting points: 42
- 20. Public spaces as nodes of attraction: 8
- 8. More density & diversity of uses: 2
- 6. Temporary pedestrian street (neighbourhood): 12
- 21. Community gardens: 12
- 27. Flexible & fixed working units: 4
- 9. Tactical temporary interventions: 12
- 26. Green infrastructure & green spaces as environmental quality: 2
- 22. Add value to heritage (as public space and art): 7
- 7. Bridging street (Public & private spaces): 2
- 23. AV Infrastructure (improve connections in neighbourhood borders): 6
- 1. Mobility Hubs & Last mile services: 3
- 5. Paths between nodes & neighbourhood routes: 9
- 24. Protection from rain, sun and wind: 2
- 13. Functionally mixed oriented infill: 10
- 16. Wide sidewalks: 6
- 15. Mobility landscapes become public spaces: 16
- 3. Parking infrastructure (Mobile - fixed): 6
- 28. Communal courtyard: 6
- 12. Invaded space - In-between spaces deteriorate: 17
- 26. Playful and attractive urban furniture: 9
- 2. AV Public transportation: 4
- 19. Many doors & Open facilities: 6
- 14. Completing the block perimeter & attractive corners: 9
- 17. Scenes at eye level - Texture & Transparency: 6
- 12. Life on the ground floors: 3

Solutions

- 25. Comfort - Opportunities for play and recreation (Playgrounds for all): 9
- 13. Urban corner at eye level - Diversity of functions: 10
- 3. Access to opportunities, imagination and play: 14
- 27. Function mixtures: 14
- 5. Community & public life: 12
- 6. Overlapping paths: 14
- 1. Quality: 10
- 8. Urban self-reliance: 10
- 2. Density & control: 10
- 26. Comfort - Opportunities to create and share: 14
- 4. Authenticity & meaning: 10
- 23. Comfort - Opportunities to relax and share: 10
- 1. Mobility Hubs & Last mile services: 3
- 24. Opportunities to enjoy great spaces of nature: 10
- 22. Invaded space - In-between spaces deteriorate: 17
- 6. Expanding green - Wide sidewalks: 6
- 18. Comfort - Opportunities to walk: 10
- 9. Parking infrastructure (Mobile - fixed): 6
- 28. Urban corner at eye level - Vertical facade rhythm: 10
- 11. Invaded space - Loss of social function: 27
- 23. Comfort - Opportunities for play and recreation: 10
- 13. Invaded space - Exclusively car reliant environments: 15
- 26. Equipment - Authentic quality: 10
- 3. AV Public transportation and neighbourhood routes: 4
- 12. Urban corner at eye level - Vertical facade rhythm: 10
- 11. Urban corner at eye level - Urban corner at eye level - Transparency: 10
- 28. Street mix: 14
- 14. Urban corner at eye level - Vertical facade rhythm: 10
- 13. Urban corner at eye level - Texture: 10

Modernist urbanism under automated mobility scenarios - Transforming modernist areas for spatial quality in Amsterdam city

External public space does not exist in any traditional form, and is replaced by a series of disconnected roads and car parks.



Problems

Patterns

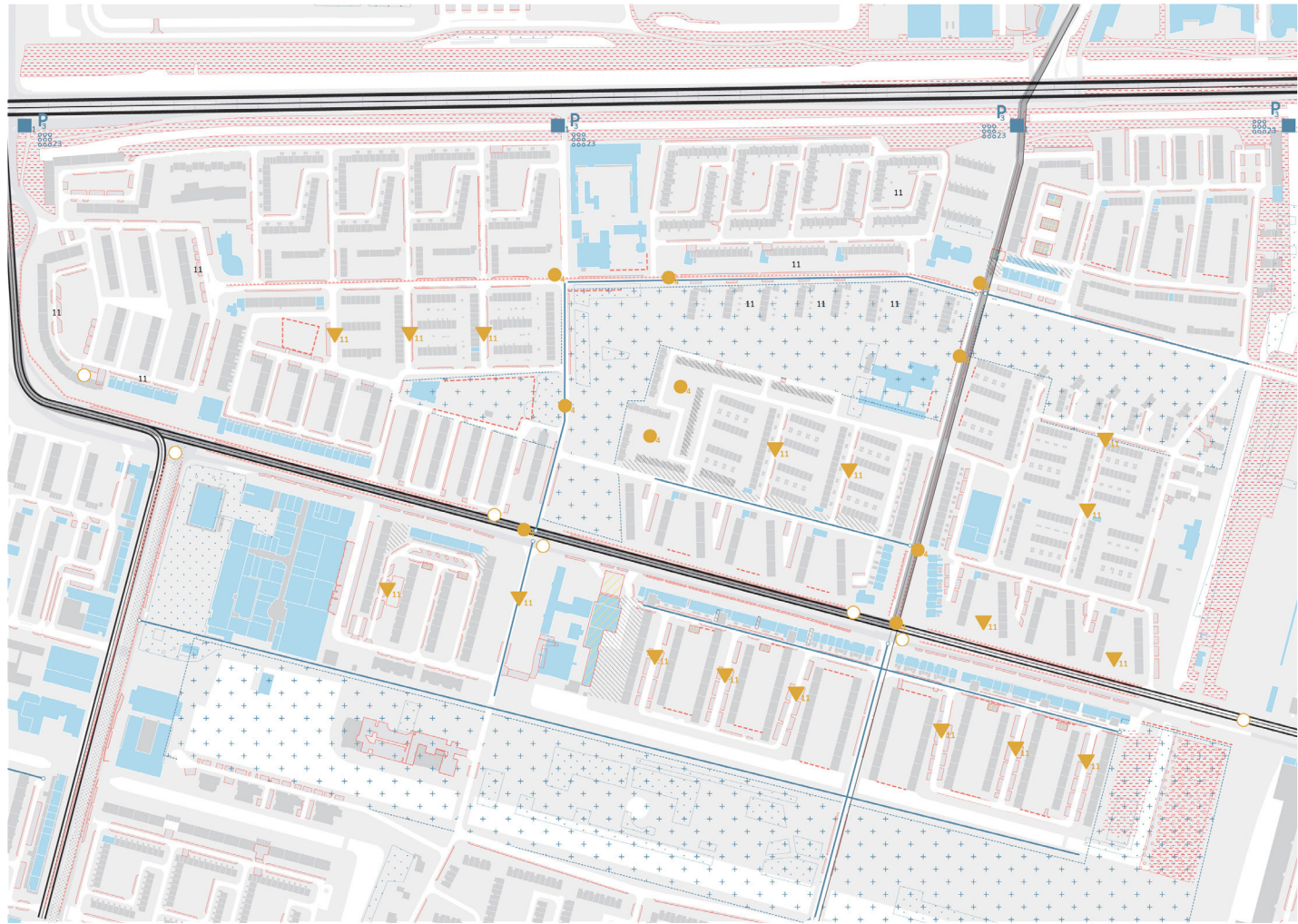
Solutions



15-Parochial space

Based on Loukaiyou-Sideris, (1996) ideas on fragmentation of the public realm, and its relation to conflicts between different social groups which influences fear, suspicion and tensions, resulting on spatial segregation of activities in terms of class ethnicity, race, age and type of occupation. Creating what Lofland, (1998) describes as 'parochial space' that are appropriated only for certain groups of people.

15-Parochial space + recommended patterns



Spatial

15-Parochial space

Parochial space

Private green

Mobility landscapes

Parking

Traffic as a safety barrier

Boundaries fences

Sport areas

Squares

Community gardens

Play spaces for kids

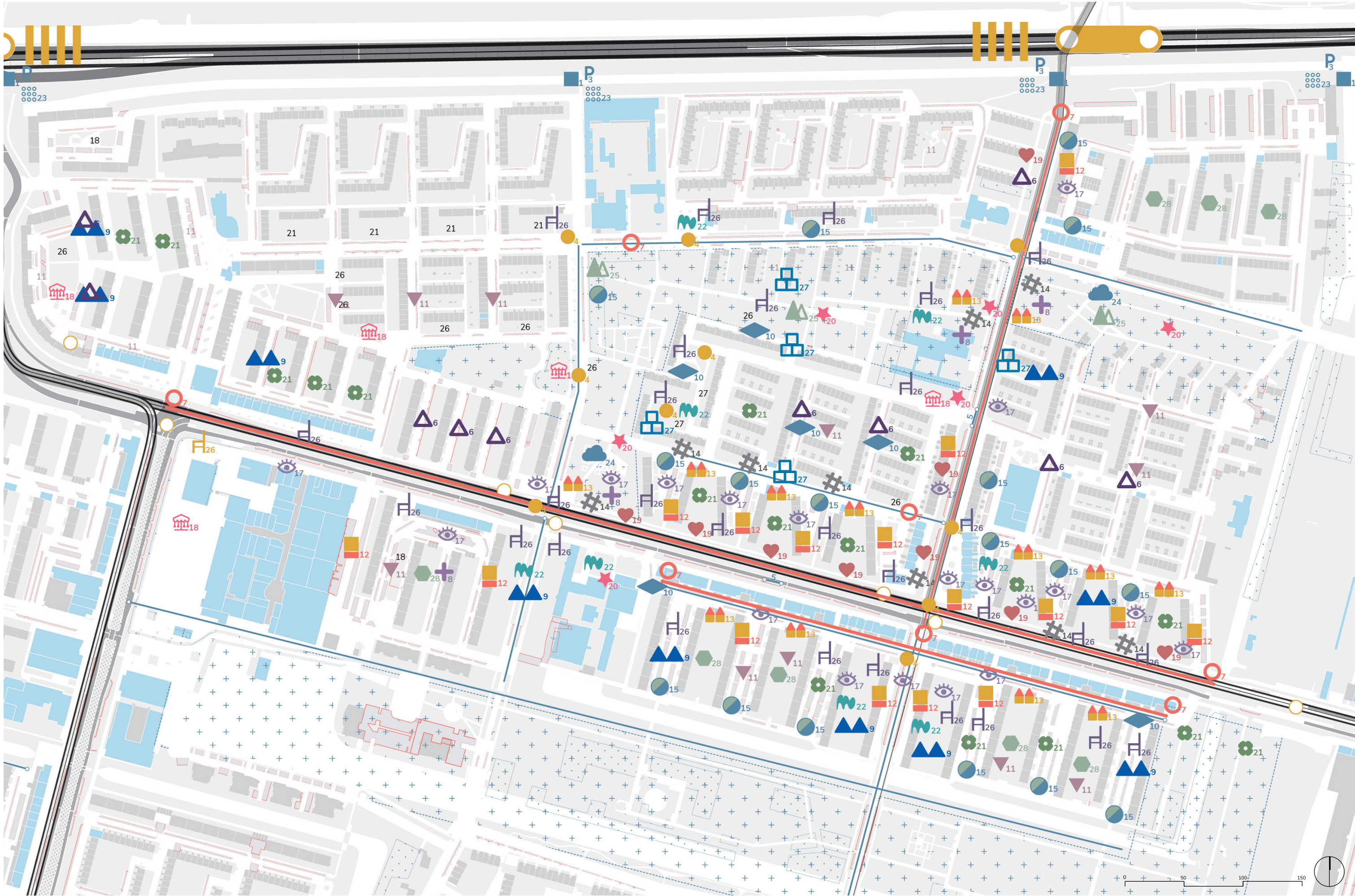
Intervention axis

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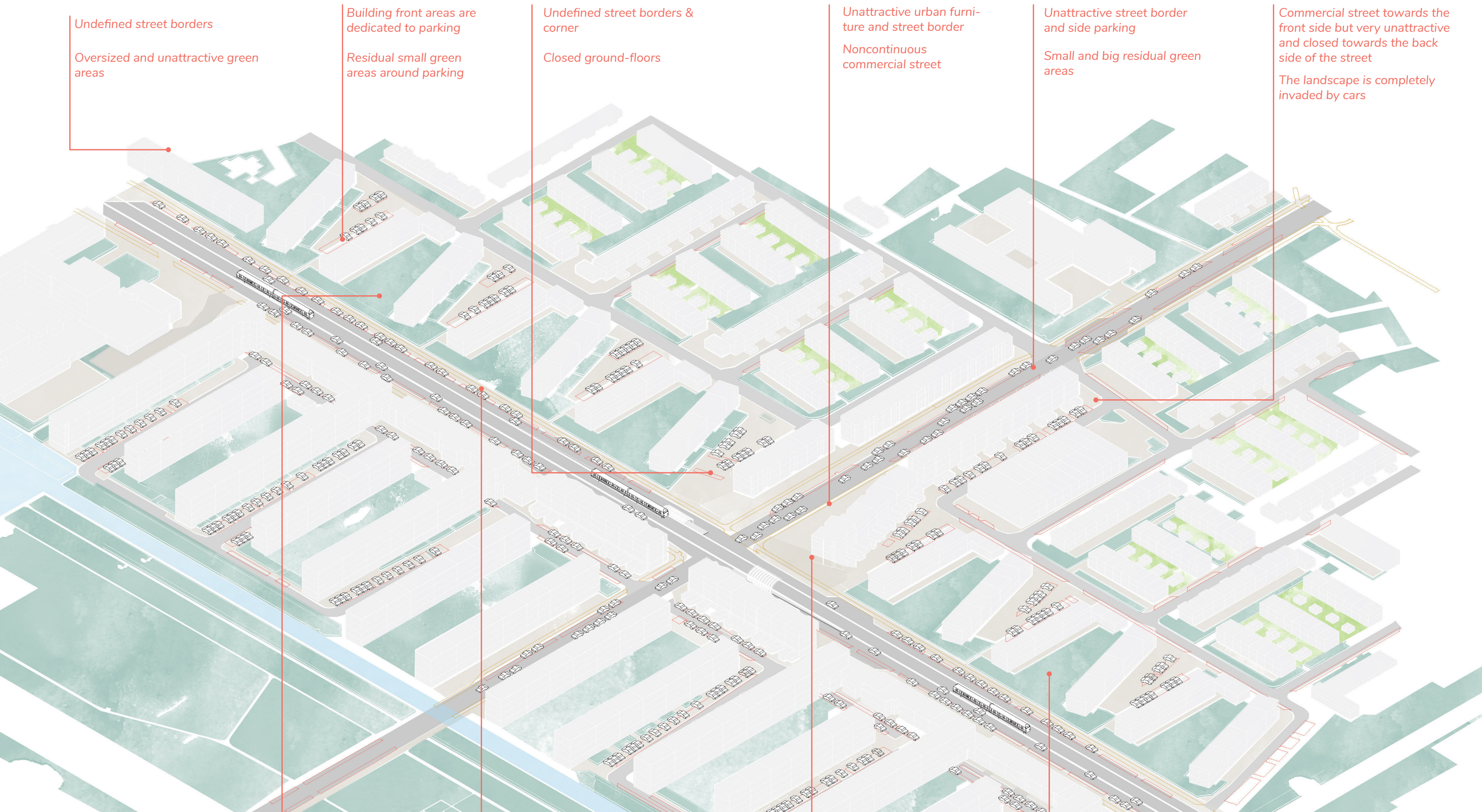
15-Parochial space - Patterns scheme

Modernist urbanism under automated mobility scenarios - Transforming modernist areas for spatial quality in Amsterdam city



Current situation

Visualization of areas to be intervened



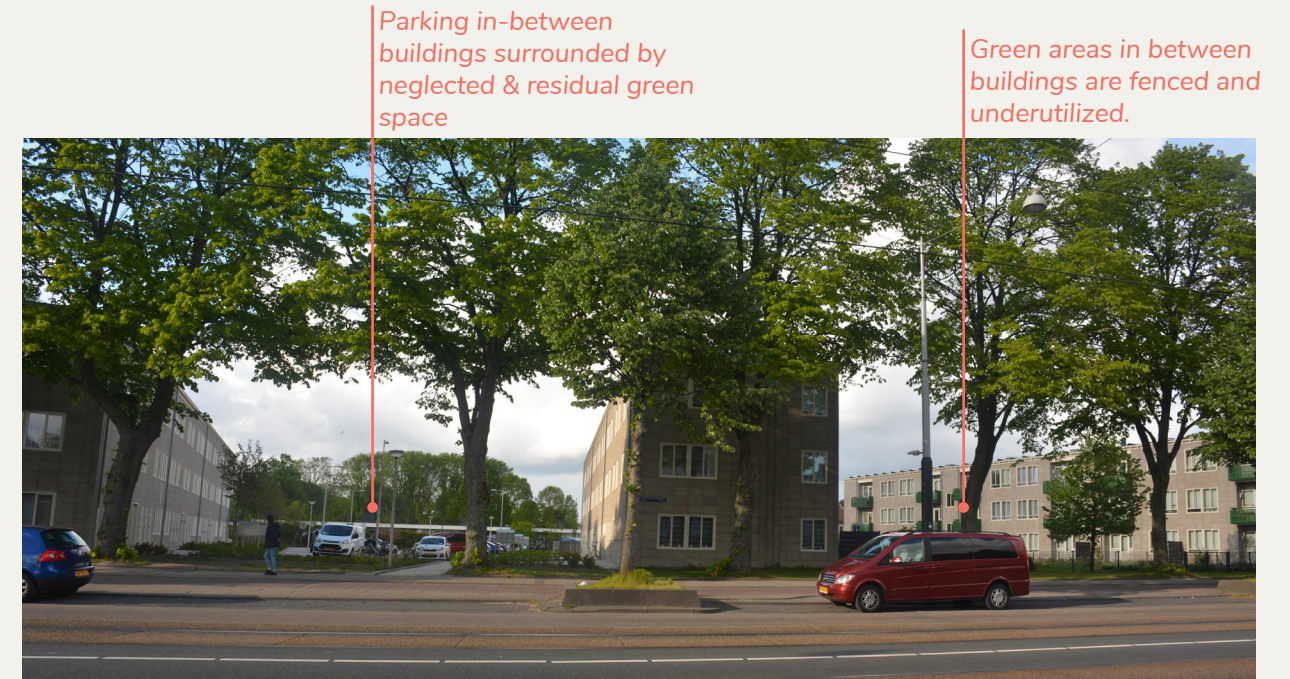
Intervention view

Visualization of patterns in the territory



Intervention view

Visualization of patterns related to Neglected space - Lost spaces



15-Mobility landscapes become public spaces



26-Playful and attractive urban furniture instead of parking



20-Public space acts as node of attraction with a variety of furniture for different uses and users.



26-Playful and attractive urban furniture on the edges of the street



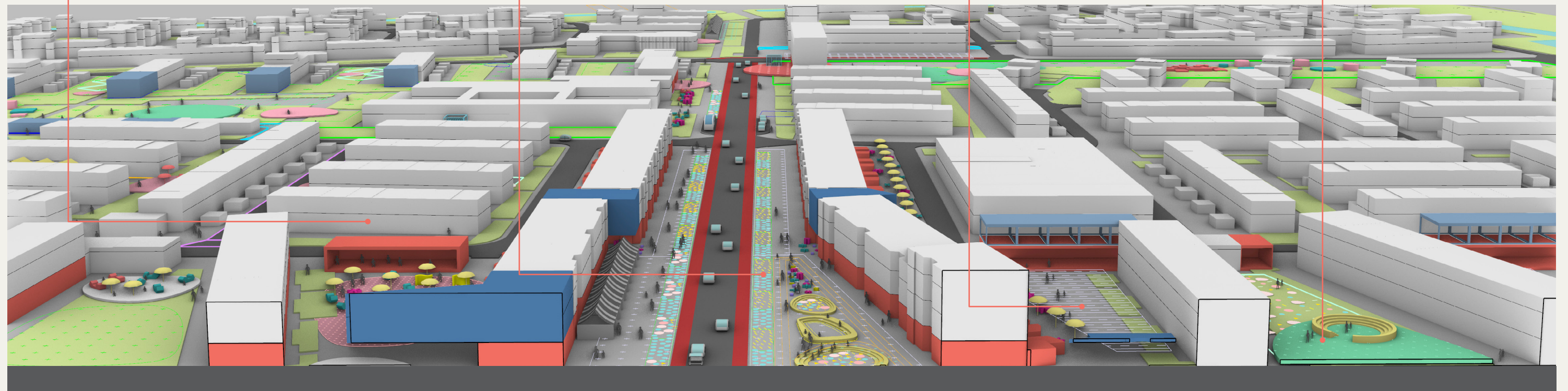
15-New relation between mobility landscapes and public space - commerce can open back streets towards reconverted parking spaces.



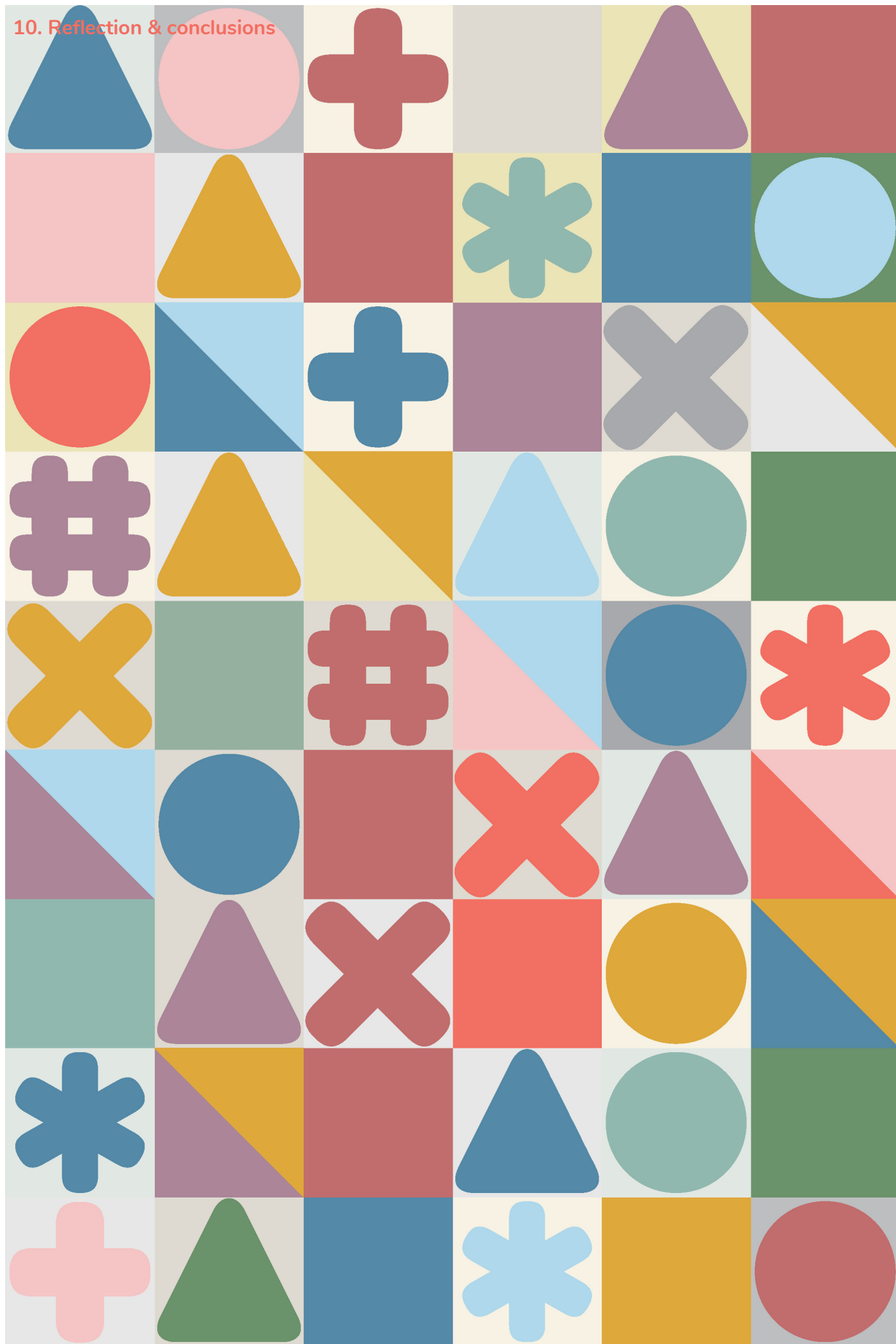
21-Community gardens, flower gardens and furniture to activate appropriation of the private gardens.



26-Playful and attractive urban furniture.



10. Reflection & conclusions



Future implementations and knowledge transferability

The future operability of the proposed toolbox depends on the integration of its database into an online system. The publication of the database online allows for different grades of influence and interaction with the user. In a first instance we found a basic level of use for architecture and urban planning professionals, as an informative tool for the design process. In this sense, the tool would allow the integration of existing knowledge in relation to public space and modern urbanism, allowing the designers integrate the knowledge produced in the literature to the design process.

A second more advanced level could allow the integration of more knowledge to the tool, through the interaction with users, in this sense, two specific dimensions are identified that could complement the tool, the integration of literature, that could increase the amount and complexity of topics contained in the tool, therefore connect more problems with possible solutions, moreover, the creation of more patterns would allow to integrate a variety of design possibilities, even associated with specific contextual problems or local realities.

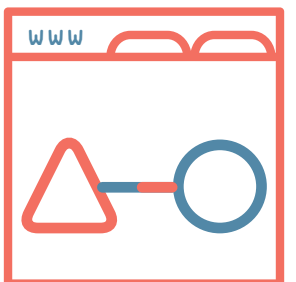
In the third instance, the level of communication and participation offers the opportunity of integration of local knowledge hold by stakeholders and local communities. In this sense it would be necessary to include ways to process the information, so that can be presented to the general public.

At the fourth level, we find the level of transferability offered by the online platform, where collaboration among users, could allow the use of this knowledge as a basis for the design process in virtually any context. In this meta level all the dimensions mentioned above are found.

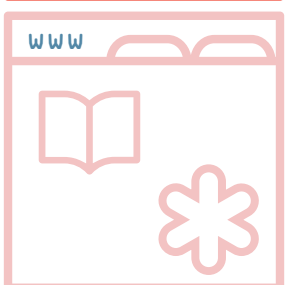
The illustrative graphic shows different levels of interaction and influence of the on-line tool, and in the next pages, a DIY layout ready to print for the implementation of the third level of communicative / participatory process of the pattern system developed in this thesis project.



1. Level of knowledge operability
The tool informs the design process.



2. Level of knowledge creation & collaboration
More literature & more patterns.



3. Level of communication & participation
Participative processes with stakeholders & communities.



4. Level of transferability
Inform intervention of modernist urban projects in different contexts.



CONCLUSIONS

Conclusions

Modernist urbanism under automated mobility scenarios, develops a method to intervene and enhance the quality of public spaces in modernist areas, based on a possible automated mobility scenario that triggers new relationships between car infrastructure, public space and the rest of the urban fabric. New uses for mobility landscapes in transformation are proposed, and the new interventions stimulate an optimized use of the space, and upgrade the overall quality of the existing urban environment.

In this project, the modern model is used as an historical / conceptual reference, in which vehicular technology have been used as a determining factor in the development and transformation of cities. This technocratic approach have contributed to the creation of an urban model considered over-rationalized and unsuccessful (Aquilué & Ardura, 2017). However, despite the challenges, the modern ideal has had a 'great impact on urban development, planning and the resulting urban fabric' (Meyboom, 2018, p. 103) eventually producing a universal legacy at various scales, ranging from typical Housing Estates in Europe, to the development of complete cities in America and Asia, reason why, the model as also used as a contextual reference, with an universal footprint that typically manifests in the form of open block structure, the separation of motorized traffic from the rest of the functions urban areas, and the elimination of the street as a 'social space'. Leading to major challenges related to the implementation of the projects in the territory, the relationship and integration in the urban context, oversized and underused public spaces, formal monotony and social uniformity and segregation, leading to the destruction of the built heritage through urban renewal processes.

In this sense, the project proposes to explore an approach to the adoption of the new automated mobility technology, that generates opportunities to improve the existing public space in modernist urban areas. In this sense, we try to identify typical patterns of value related to the model, helping to reduce the complexity of the urban realities, while expanding the possibility of repercussion of intervention ideas by appealing to the transferability of the proposal.

For this, the project is structured around four basic elements:
1-Literature framework;
2-Automated mobility scenario;
3-Atlas of modernism as 'universal model';

4-Toolbox.

The literature framework, allows to build a general vision of the problems associated with the modern movement, and the main characteristics of a public space of quality reviewed in the literature. In addition, the 'Atlas of modern urbanism as a universal model' tries to build additional understanding on these aspects, through an analysis of representative modern projects, its different scales of implementation, its adaptation to different contextual and cultural situations, differences with respect to the utopic vision of the project, most critical aspects of the built projects, and the different approaches to re-valorization, renovation and adaptation of these territories.

Moreover, an automated mobility scenario is developed, by assembling and contrasting the information related to quality of public spaces and possible impact of automated mobility in the urban space. This scenario represents the structuring element guiding the design proposals and strategies of intervention developed in the following steps.

In order to manage and process all the data obtained in the literature framework and the autonomous mobility scenario, a Toolbox is proposed as a method to combine all the different elements. Making use of a database that contains the collected theoretical information, and connects problems and solutions related to the urban space through keywords called 'hashtags'. This method allows the creation of a pattern language that connects the problems and solutions offered in the literature with the autonomous mobility scenario, connecting them with the design dimension.

The developed patterns are tested in the area of Sloterveer in the city of Amsterdam, an area that is part of the General Expansion Plan (AUP), which represents a paradigmatic case of 'modern town planning'. Testing the patterns in this urban context, reveals the great transformative potential of automated mobility and a the great capacity of modern urban areas to integrate these transformative power. However, this potential can only be achieved through comprehensive proposals that seek to balance integrate different levels of use and possession of automated cars, sharing schemes, public transportation and active travels. A balanced relationship between these different systems offers real possibilities for the improvement and optimization of the public space in these contexts, especially in a future scenario where public space could increase its importance, as automated mobility will allow more free time for recreation.

Finally, in the next chapters, some directives of future implementation of this work are established. Starting with the premise of an online tool, that would enhance the possibilities of application and knowledge transferability, allowing for different scales of implementation and interaction with users; increasing the flexibility of the system, allowing user interaction, the integration of knowledge, and its use as a basis for the development of participatory processes and interventions in diverse contextual situations.

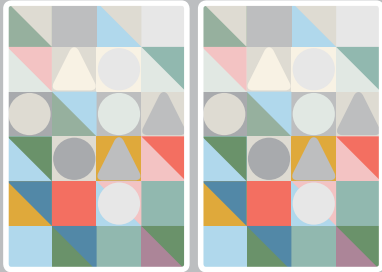
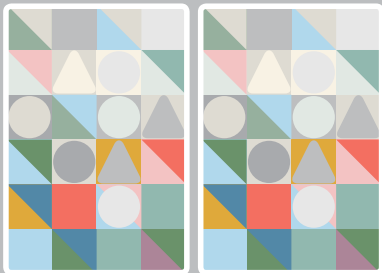
11. Appendix - DIY Toolkit for communication & participation processes

User instructions for DIY toolkit

1. Use the Online platform and select the material of your interest classified by problems or wishes related to territory you want to intervene.



2. Print and cut the material related to the problems or wishes you are interested in



4. Use the pattern cards to have a better understanding on the meaning of each pattern



5. Share and Integrate local knowledge to your proposal



1 Poor living environments

'Usually dangerous, polluted, noisy anonymous wastelands'.

2 Gigantism & loss of control

'Cities in the hands of large-scale developers. The elements of the city grow in size and massive transportation systems are segregated for single travel modes. Loss of control over the homes and neighborhoods'

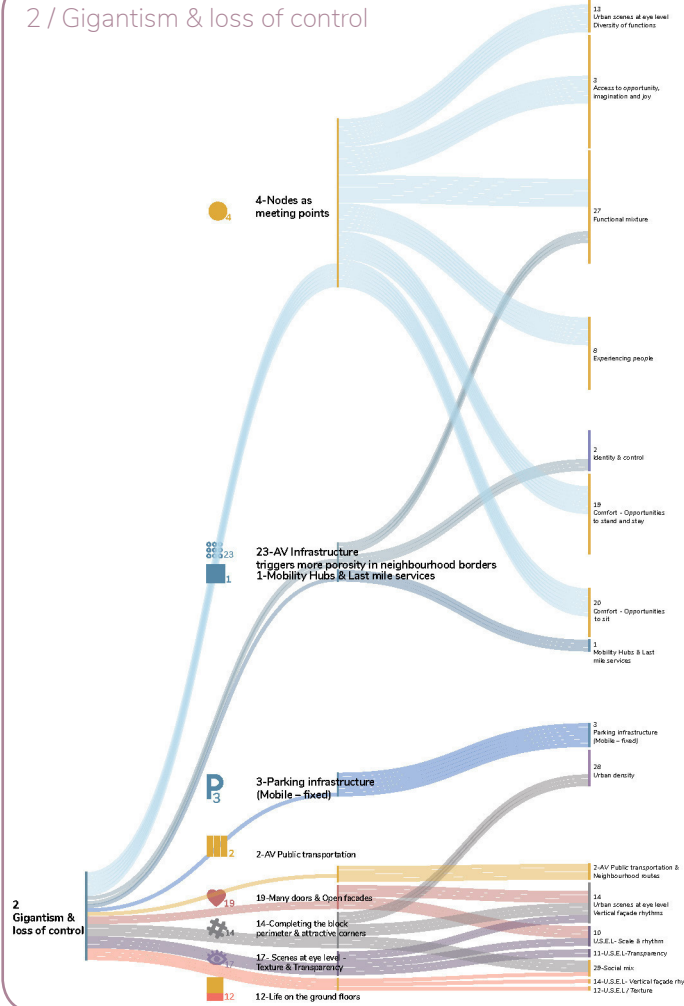
3 Large scale privatization & loss of public life

Emphasis on the individual and private sector, a trend they believe to be stimulated by the spread of the automobile. 'As public transit systems have declined, the number of places in American cities where people of different social groups can meet each other has dwindled'.

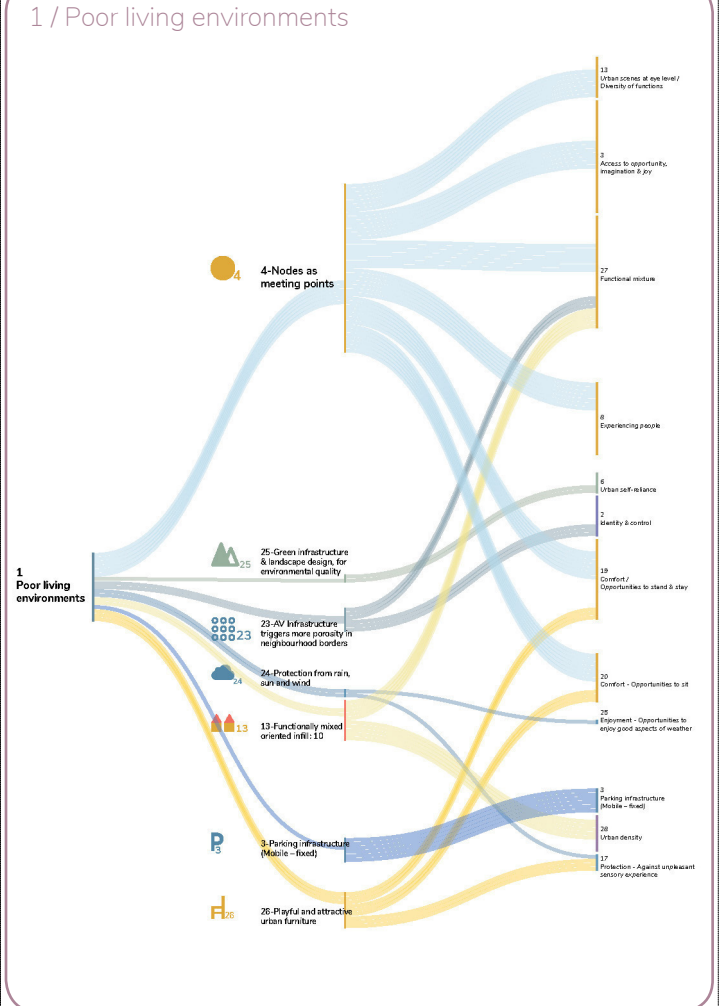
4 Centrifugal fragmentation

'Advanced industrial cities have took work is out of the home and the neighborhood, the automobile and growing scale of commerce took shopping out of the local community. Fear had led to homogeneity and segregation'.

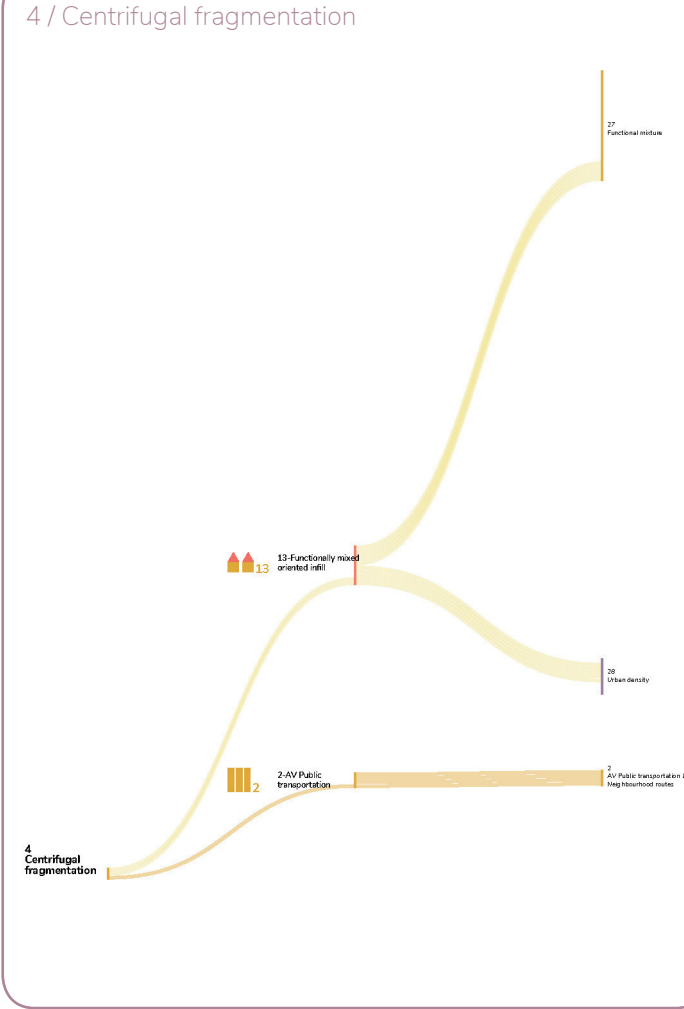
2 / Gigantism & loss of control



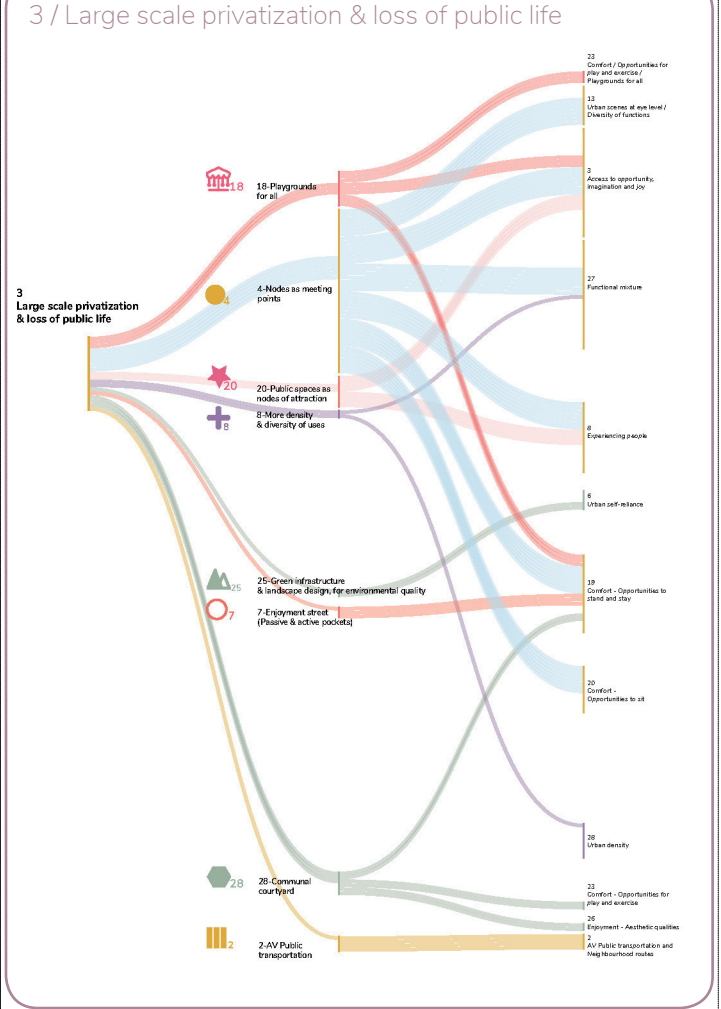
1 / Poor living environments



4 / Centrifugal fragmentation



3 / Large scale privatization & loss of public life



5 Destruction of valuable places

'Exploitation of places lead to the destruction of heritage and natural amenities become overused'.

6 Placelessness

'Cities become meaningless places with loss of community and participation'.

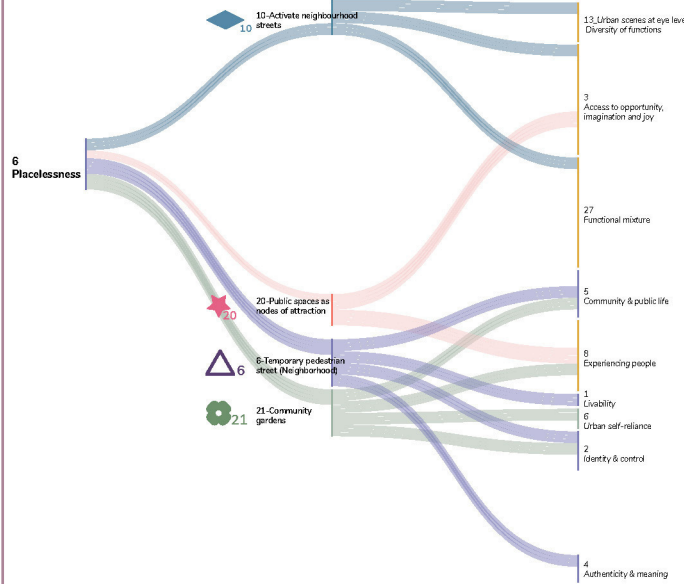
8 Neglected space - Lost space

'Refers to authors like Loukaitou-Sideris (1996), 'Cracks in the City' that focus on the 'in-between spaces, residual, under-utilized and deteriorating spaces'. Trancik (1986) 'Lost Space' as spaces that are in 'need of re-design, anti-spaces, making no positive contribution to the surrounds or users', e.g. the base of high-rise towers, unused sunken plazas, abandoned waterfronts, train yards, deteriorated parks and marginal public housing projects'. Trancik establishes a direct relation between 'lost spaces' and the car, urban renewal, the privatization of public space, functional separation of uses and with the modern movement'.

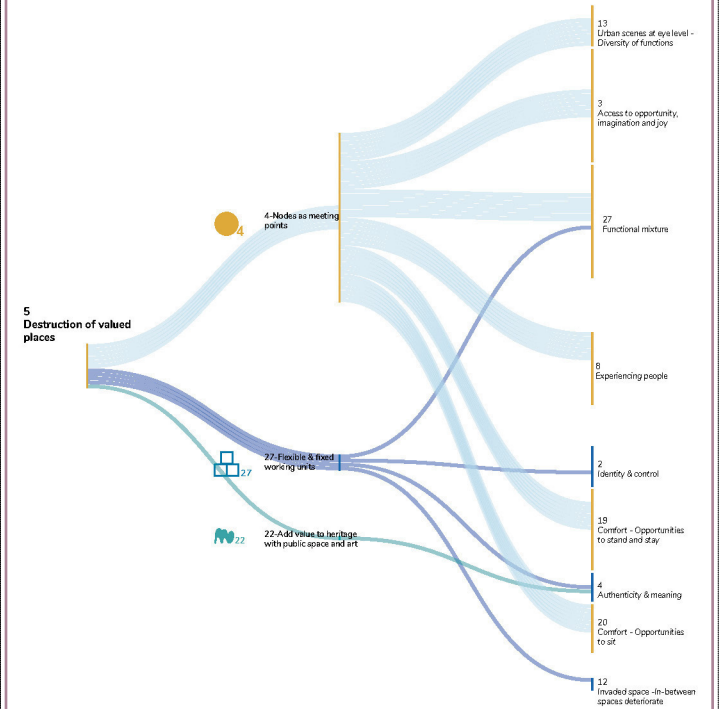
10 Invaded space - Traffic and parking over pedestrian space in streets and squares

'Lead to consequent, dirt, noise and visual pollution that helps to impoverish city life (Gehl & Gemzoe, 2001)'.

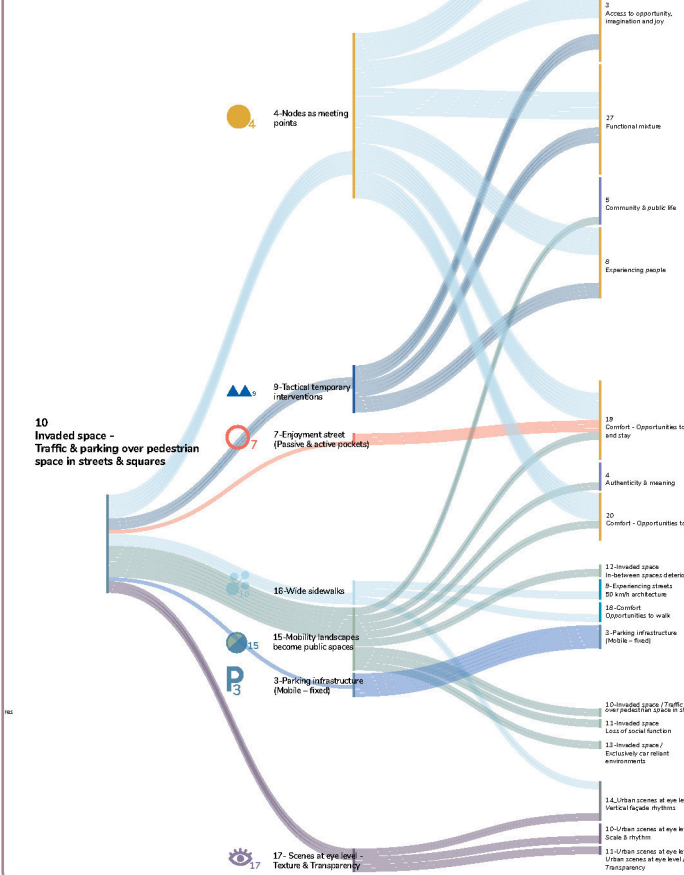
6 / Placelessness



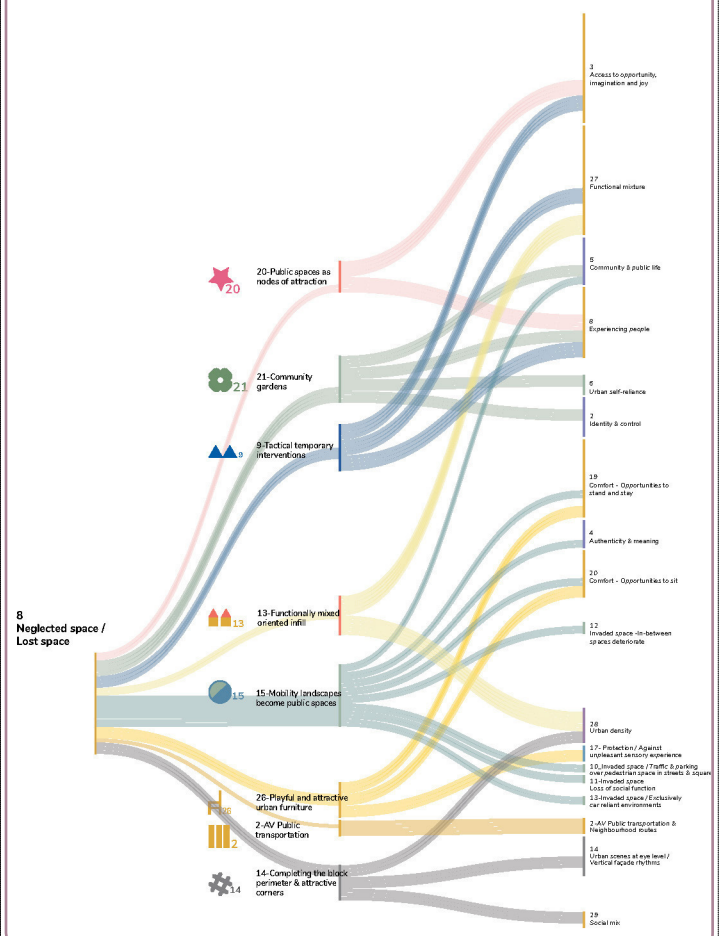
5 / Destruction of valuable places



10 / Invaded space - Traffic and parking over pedestrian space in streets and squares



8 / Neglected space - Lost space



11 Invaded space - Loss of social functions

'The number of car users greatly exceeds the number of pedestrians using the street, and the space given to road space exceeds that dedicated to footpaths. (Gehl and Gemzoe 2001) ideas state that invaded space is generally impoverished and loses most of the social and recreational activities, living only the most utilitarian functions'.

12 Invaded space-In-between spaces deteriorate

Based on 'archipelago of enclaves' (Hajer and Reijndorp, 2001), where distant spaces are compressed by instant connection by car roads, while the in-between spaces are ostracized and deteriorate and perceived as absent of attractors.

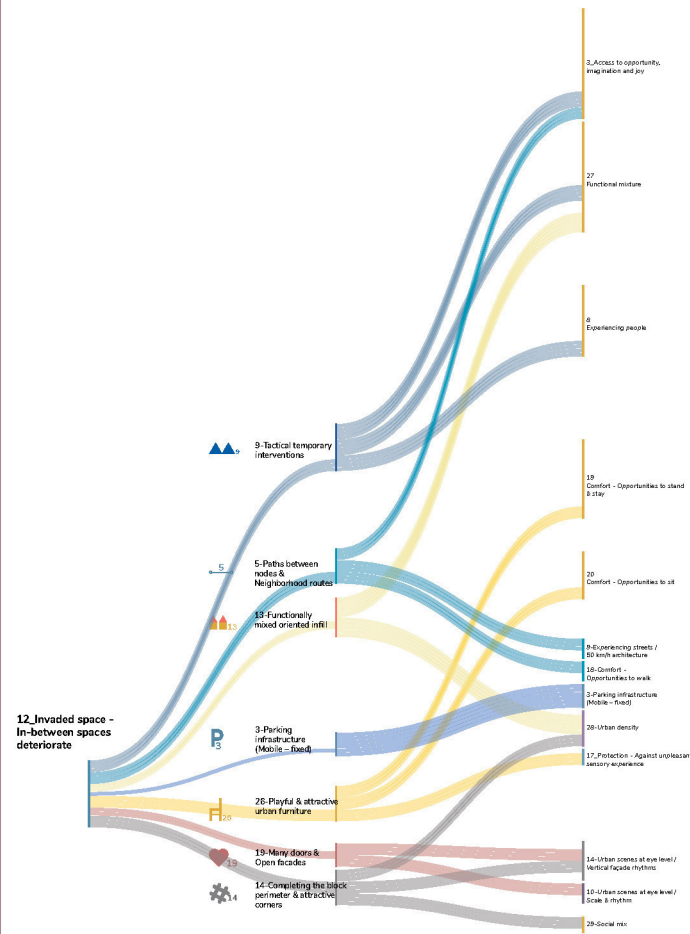
13 Exclusively car reliant environments

'External public space does not exist in any traditional form, and is replaced by a series of disconnected roads and car parks'.

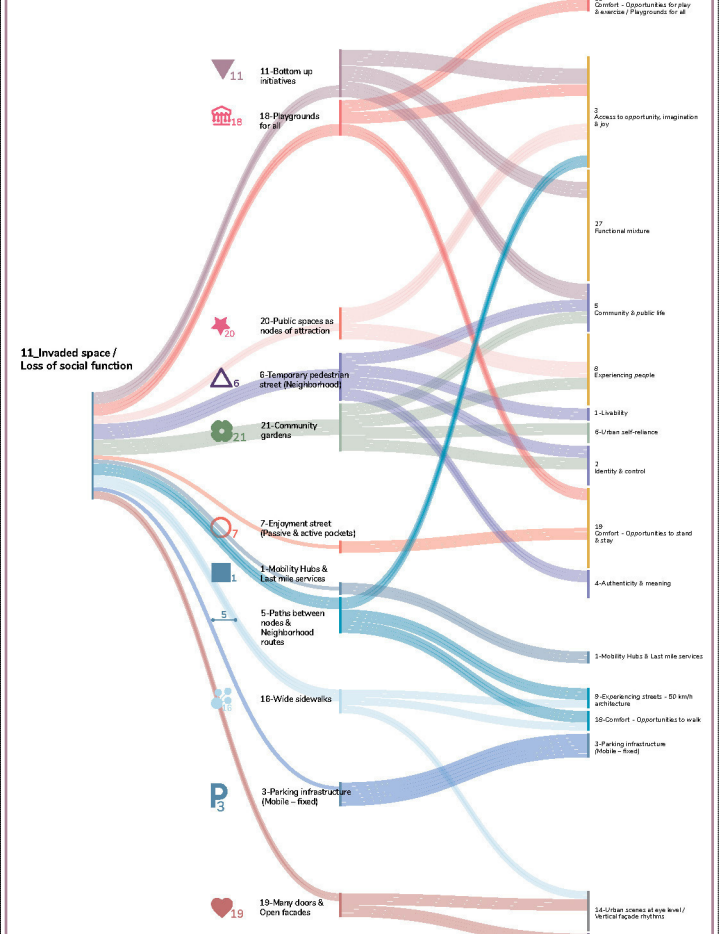
14 Exclusionary space - Disabling spaces

'Simple physical barriers could represent major obstacles for the use of public space, particularly for people with disabilities, children in push chairs and elderly. The author emphasizes on the necessity of making the environment accessible and easier to use for everyone; including psychological barriers related to crime, or unsafety related to fast traffic movement'.

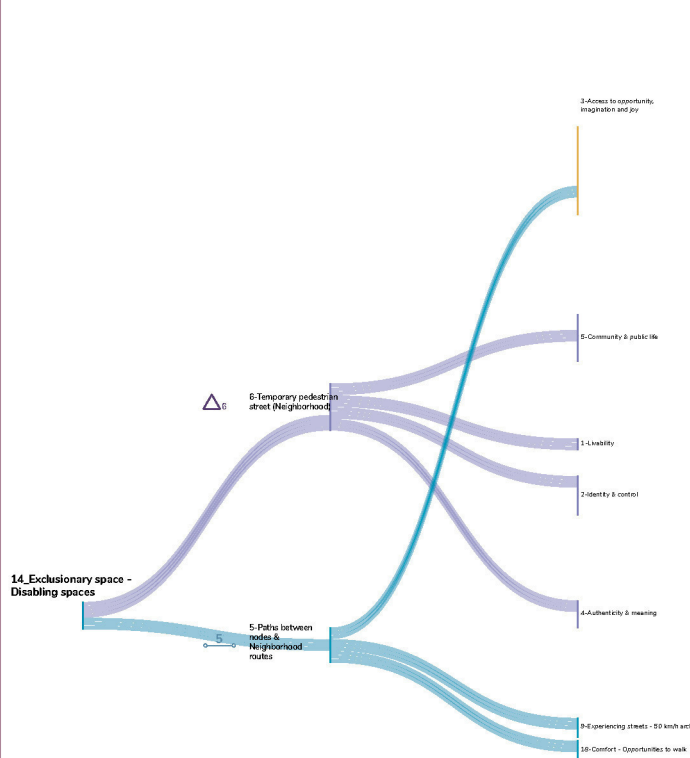
12 / Invaded space-In-between spaces deteriorate



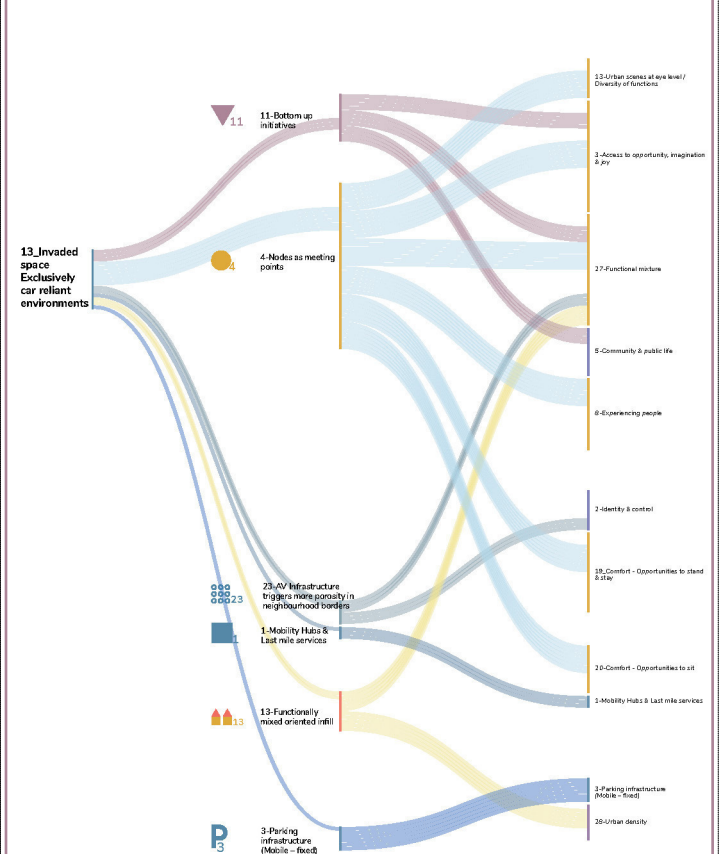
11 / Invaded space - Loss of social functions



14 / Exclusionary space - Disabling spaces



13 / Exclusively car reliant environments



15 Exclusionary space - Parochial spaces

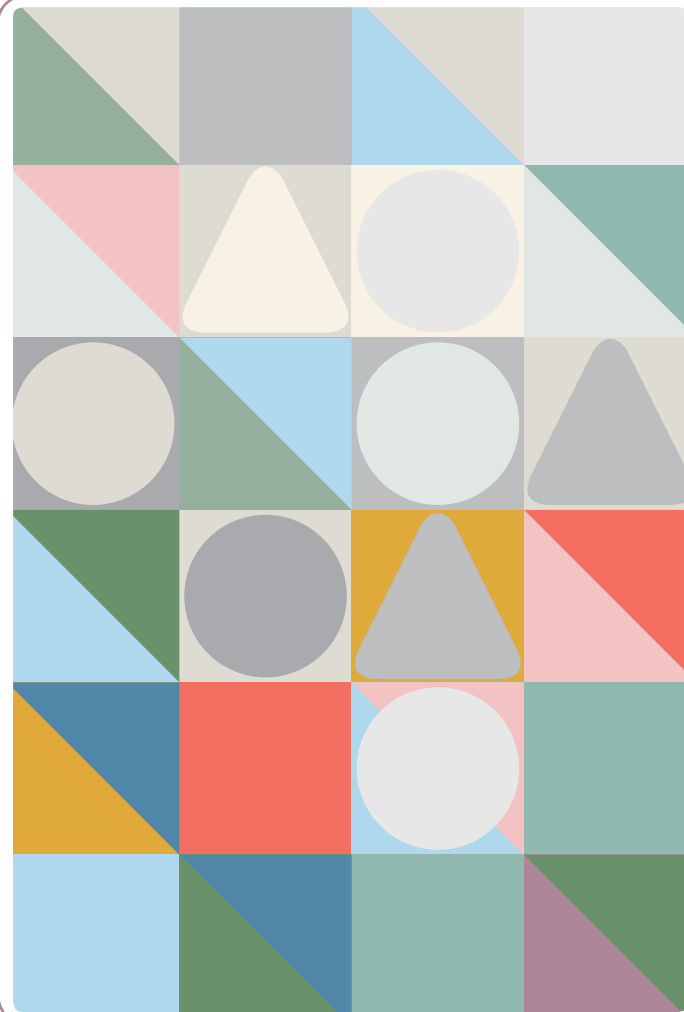
Based on Loukaiyou-Sideris, (1996) ideas on fragmentation of the public realm, and its relation to conflicts between different social groups which influences fear, suspicion and tensions, resulting on spatial segregation of activities in terms of class ethnicity, race, age and type of occupation. Creating what Lofland, (1998) describes as 'parochial space' that are appropriated only for certain groups of people.

16 Segregated space

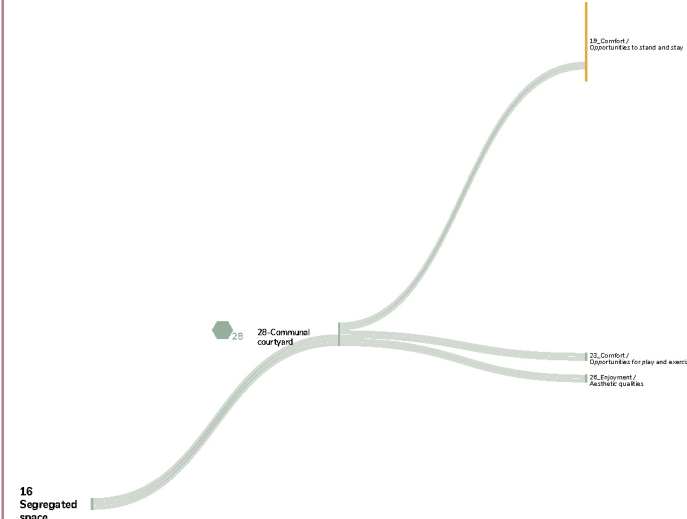
'Associated to the desire of affluent groups in many societies to separate from the rest of society, as a reflection of fear of crime or need of exclusiveness. Leading to the global phenomena of 'gated communities'. Carmona points out that crime and uncivil behavior can quickly undermine the quality of public spaces, and feed a cycle of segregation of uses and users of public space, consequently contributing to their decline'.

23 Loss of authenticity and growth of placelessness

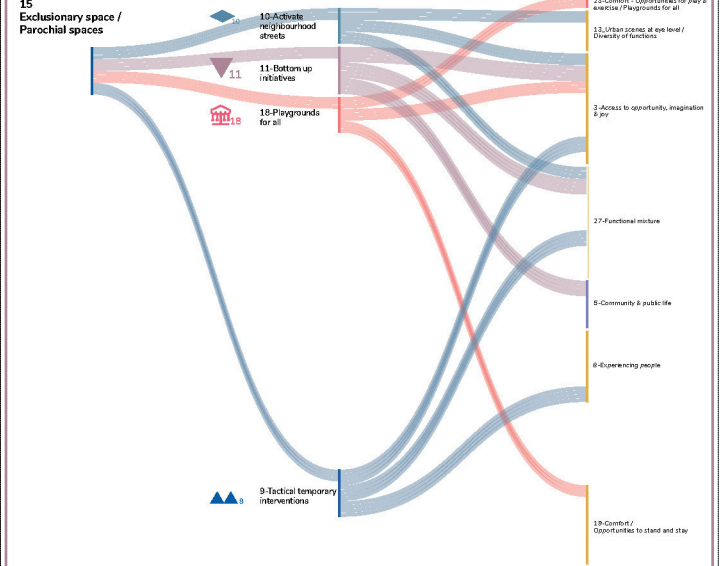
'According to Carmona, 'the desire for and spread of globalization processes, mass culture and loss of attachment to place, has led to repetition of certain formulaic responses across the world'.



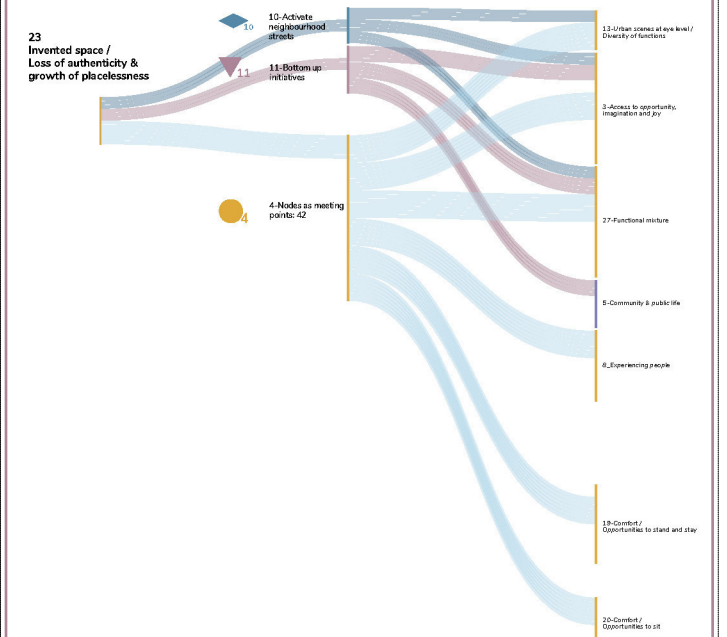
16 / Segregated space



15 / Exclusionary space - Parochial spaces

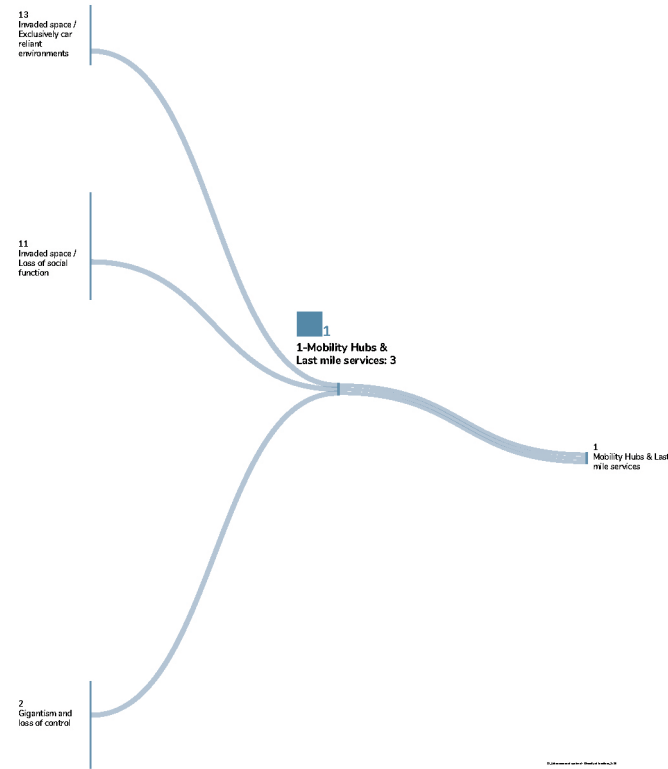


23 / Loss of authenticity and growth of placelessness



1

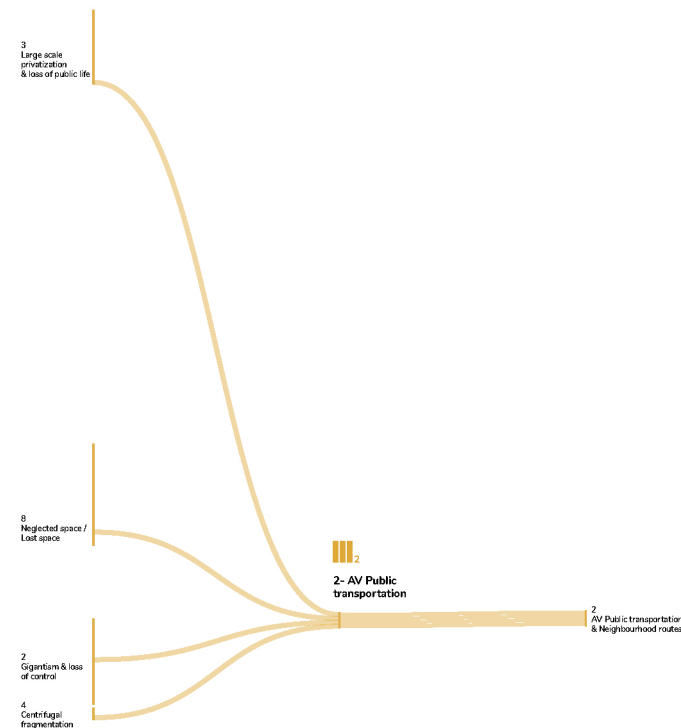
1-Mobility Hubs & Last mile services.



Urbanism and Mobility

2

2-AV Public transportation and Neighbourhood routes.



Urbanism and Mobility

1

Mobility Hubs & Last mile services

Problem

2-Gigantism and loss of control

11-Invaded space -Loss of social function

13-Invaded space -Exclusively car reliant environments

Allan Jacobs and Donald Appleyard condense in these concepts, a series of scenarios that establish a connection between the car infrastructure, and lack of public transportation, with a series of urban problems, going from segregation to the loss of control over neighborhoods, and traffic as a safety barrier. These seem to greatly influence the impoverishment of city life, the environment, and the loss of social life in public spaces invaded by the car

Solution

Mobility Hubs & Last mile services

The proposed desirable automated mobility scenario, propose Mobility hubs as a connectivity space where different modes of transportation come together, these will be located along neighbourhood borders, in connection with railways, bus terminals and intersections with Highways – Freeways and arterial roads and will serve as support for Last mile services, allowing for the exchange of means of transportation, from private car and taxi, to shared cars, public transport and active travels such as bicycle and walking. This way allowing for more connectivity and speed in rapid roads, but prioritizing public transportation and active travels within the neighbourhoods.

Roads

Freeway - Highway / Arterial roads

Related patterns

3-Parking infrastructure (Mobile – fixed)

5-Paths between nodes & Neighborhood routes

27-Functional mixture

2

AV Public transportation and Neighborhood routes.

Problem

2-Gigantism and loss of control

3-Large scale privatization and loss of public life

4-Centrifugal fragmentation

8_Neglected space - Lost space

The issue of invaded space, as proposed by (Gehl & Gemzoe, 2001), leads to consequent dirt, noise and visual pollution, that greatly impoverish life in the city. Parking spaces, roads and related infrastructure can affect the functionality and attractiveness of public spaces, while underutilizing highly valuable areas of the territory.

Solution

Av Public transportation

The proposed automated mobility scenario encourage the creation of a strong Public transportation network mainly along arterial roads and principal streets with restricted transit for private cars and taxi. This strategy aims to stimulate a positive impact of autonomous mobility on the territory. Taking into account the common problems of the post-war neighborhoods, where car mobility usually dominates the landscape, the weak connection with the surrounding urban fabric, the open block issues, and the oversized public spaces. The strategy aims to establish healthier connections between mobility routes and the urban tissue, prioritizing public transportation, in order to also stimulate active travels, greater densities and diversity of uses in the territory, and using the street as a catalyst of vitality and attractiveness of public space.

This pattern is connected with density of houses and mix

of programs, that should be promoted in vicinity to public transport stops,; in order to create nodes of activities concentration in main routes, that could connect with more passive and community activities in collector and neighborhood roads.

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

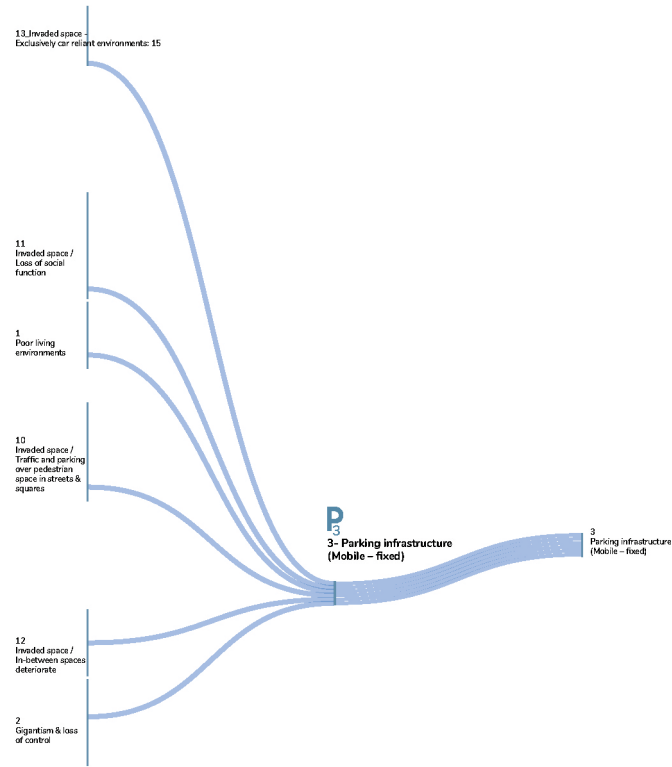
4-Nodes as meeting points

8-More density & diversity of uses

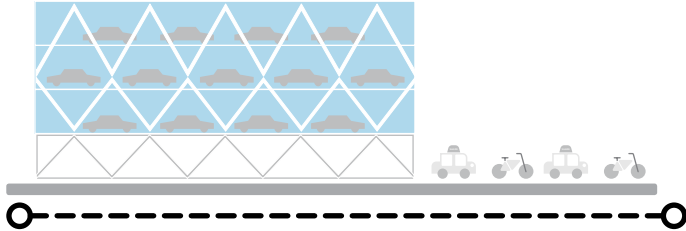
13-Functionally mixed oriented infill

P
3

3- Parking infrastructure.

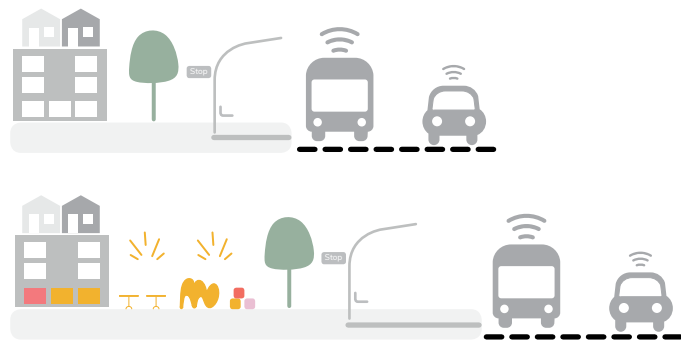
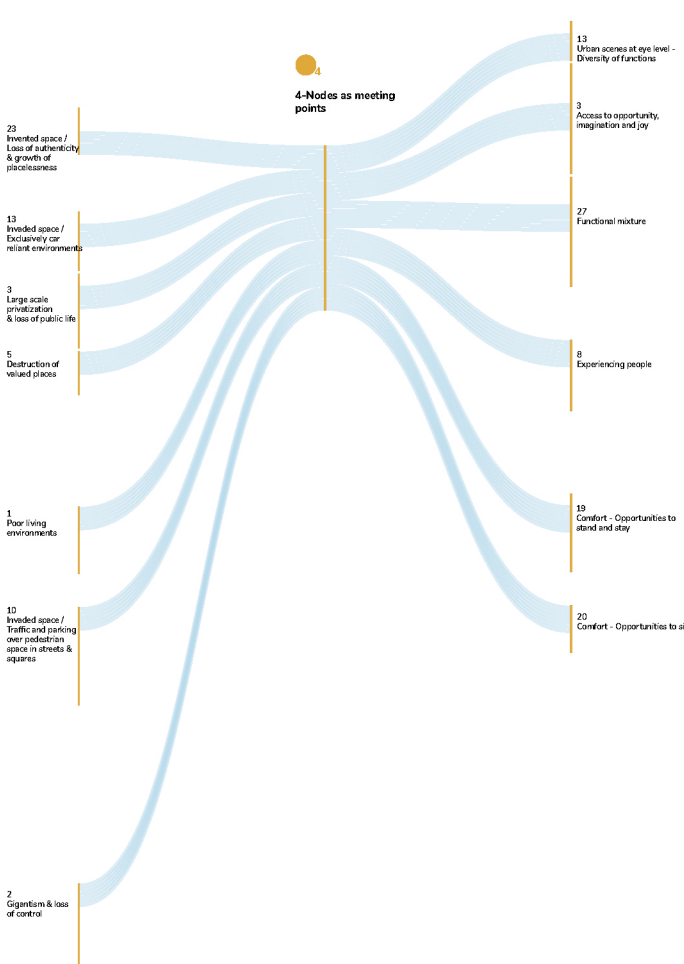


PARKING



4

4-Nodes as meeting points.



3

Parking infrastructure (mobile – fixed)

Problem

- 1-Poor living environments
- 2-Gigantism and loss of control
- 10-Invaded space - Traffic and parking over pedestrian space in streets and squares
- 11-Invaded space -Loss of social function
- 12-Invaded space -In-between spaces deteriorate
- 13-Invaded space -Exclusively car reliant environments

Matthew Carmona with the concepts of 'Invaded space' relates traffic and parking and exclusively car reliant environments with issues associated with poor living environments, proposed by Allan Jacobs and Donald Appleyard. According to these statements, the mobility landscapes such as roads and car parks act as a psychological and safety barrier and are usually absent of attractors, leading to subsequent deterioration and loss of social functions.

Solution

Parking infrastructure

A combined strategy of fixed parking structures in combination with Mobility hubs, and mobile AV platforms, that could be located in cheap and less central parking areas, or move to specific locations according to specific requirements of parking spaces. This strategy could help gain free space in strategic areas, such as street sides, traffic lanes and parking lots invading public spaces and green areas.

'One of the positive effects of driver-less cars could be decreasing the demand for parking spaces in cities' (Duarte

& Ratti, 2018). The proposed automated mobility scenario, give priority to public transportation, shared cars and active travels along main routes, this could stimulate a decrease in parking demand, and therefore, make possible the use of the surplus territory in an optimized way. Aiming for a more sustainable development of the city, through the valuation and densification of the existing territory, and increasing its attractiveness in combination with high quality public spaces.

Roads

Highways - Freeways / Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

- 1-Mobility Hubs & Last mile services
- 2-AV Public transportation
- 8-More density & diversity of uses
- 15-Mobility landscapes become public spaces

4

Nodes as meeting points

Problem

- 1-Poor living environments
- 2-Gigantism and loss of control
- 3-Large scale privatization and loss of public life
- 5-Destruction of valued places
- 10-Invaded space - Traffic and parking over pedestrian space in streets and squares
- 13-Invaded space -Exclusively car reliant environments
- 19-Comfort - Opportunities to stand and stay
- 20-Comfort - Opportunities to sit
- 23-Invaded space - Loss of authenticity & growth of placelessness

Solution

- 3-Access to opportunity, imagination and joy
- 8-Experiencing people
- 13-Urban scenes at eye level - Diversity of functions
- 27-Functional mixture

According to Lynch, 'Nodes are the strategic foci into which the observer can enter typically either junctions of paths or concentrations of some characteristics'. 'Sense of arrival' may be one of the key aspects of a node, and in the proposed automated mobility scenario, that aims to establish new synergies between mobility infrastructures and quality of public spaces, the concentration nodes should secure and enhance the value of public spaces, green spaces, heritage buildings and street corners, along local and collector roads, guarantying their nature as a concentration point. On the other hand, an automated mobility scenario, prioritizing public

transportation along main streets could also profit from the transport stops, as junction nodes and concentration points, where density should be promoted, (when possible), and the quality and attractiveness of the street should be a priority.

Roads

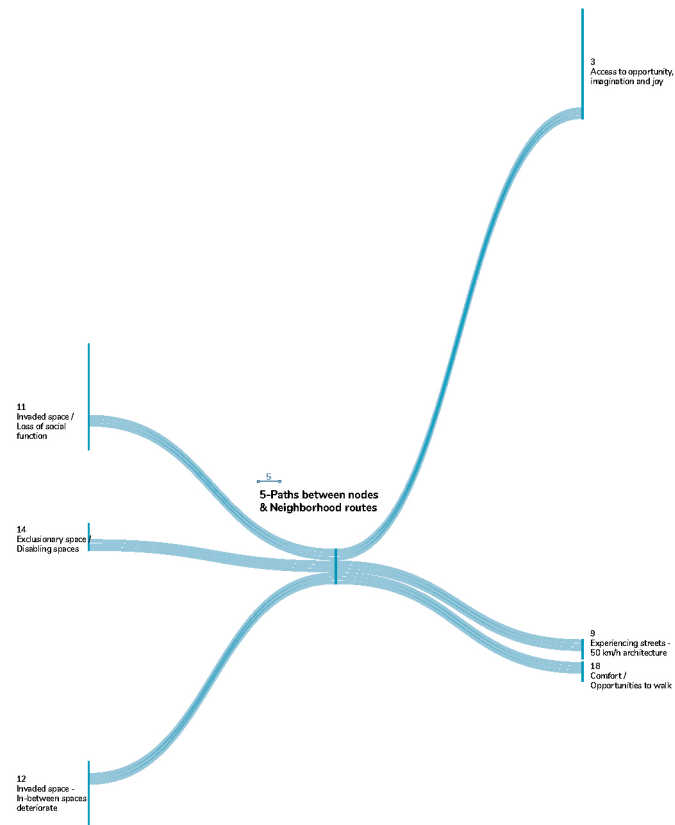
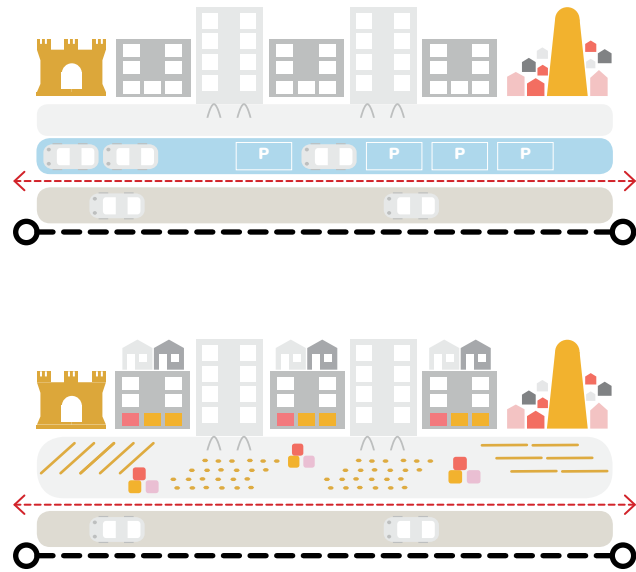
Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 22-Add value to heritage with public space and art
- 26-Playful and attractive urban furniture

5

5-Paths between nodes.



5

Paths between nodes & Neighborhood routes

Problem

- 11-Invasion space -Loss of social function
- 12-Invasion space -In-between spaces deteriorate
- 14-Exclusionary space - Disabling spaces

Solution

- 3-Access to opportunity, imagination and joy
- 9-Experiencing streets - 50 km/h architecture
- 18-Comfort - Opportunities to walk

According to Lynch, 'Paths are the channels along which the observer customarily, occasionally or potentially moves. People observe the city while moving through streets, walkways, and transit lines, and all the environmental elements are 'arranged and related' (Lynch, 1960). Under an automated mobility scenario, the activation of main streets for walkability and attractiveness, is expected to have an equal impact on the attractiveness of the local streets, in this sense, Paths should promote the connection between highly transited streets, and nodes of attraction located in the nearby neighborhood streets, developing a sort of route that takes advantage of the proximity to services and the high traffic developed on the main roads, creating connections and building additional value in otherwise segregated or hidden public spaces.

Roads

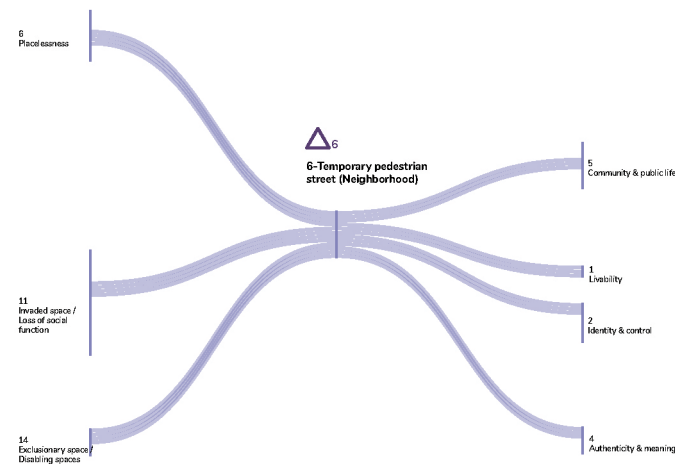
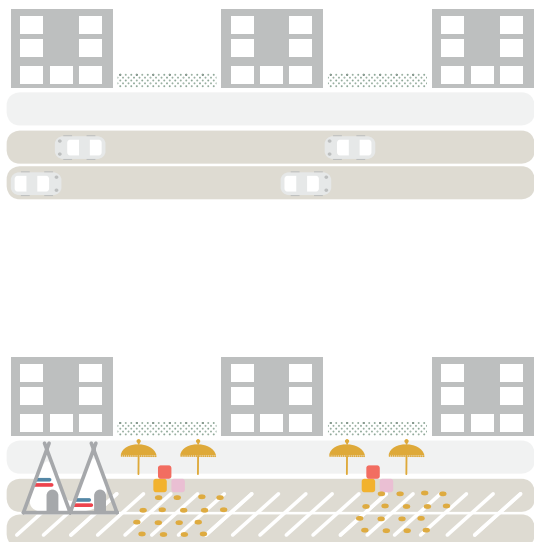
Collector -Distributor / Neighborhood roads

Related patterns

- 4-Nodes as meeting points
- 8-More density & diversity of uses
- 16-Wide sidewalks
- 17- Scenes at eye level - Texture & Transparency

6

6-Temporary street.



6

Temporary pedestrian street (Neighborhood)

Problem

- 6-Placelessness
- 11-Invasion space -Loss of social function
- 14-Exclusionary space - Disabling spaces

Solution

- 1-Livability
- 2-Identity & control
- 4-Authenticity & meaning
- 5-Community & public life

Temporary use in community street

The proposed automated mobility scenario proposes a restriction for private cars to access neighborhood and city streets within the neighborhood unit, moreover, last mile services and sharing schemes will be incentivized, allowing for most cars to be able to self-park in dedicated structures outside the neighborhood units. This way some local streets could become temporary or permanent spaces for neighborhood activities, such as local markets, small garage sales, or temporary workshops for the local communities. These streets will apply special restrictions to car mobility, and banned parking, becoming safer places for kids and elderly, and an attractive place for community activities, triggering social cohesion, identity and appropriation of the place.

Roads

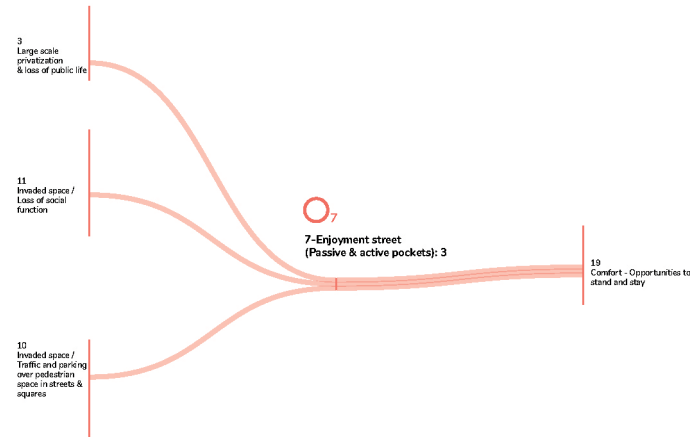
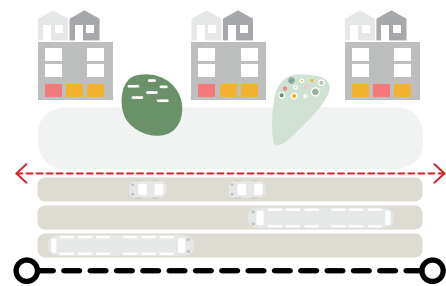
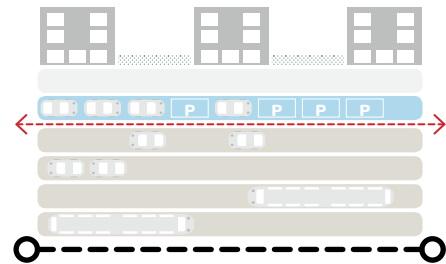
Neighborhood roads

Related patterns

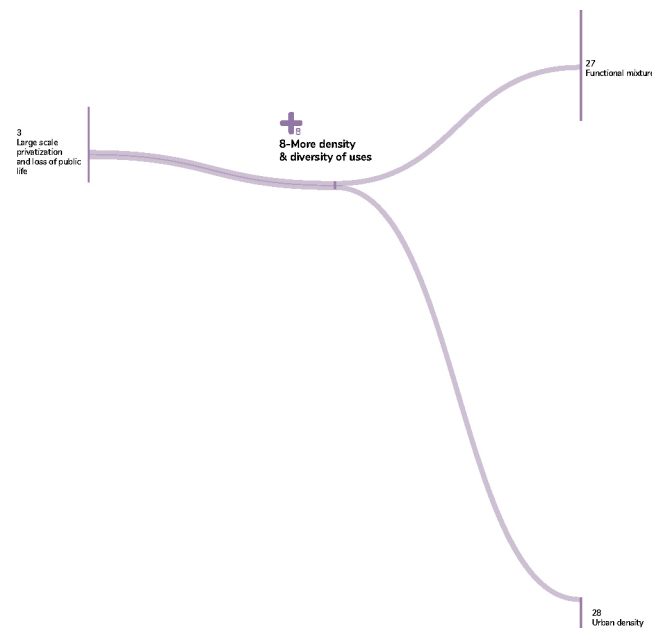
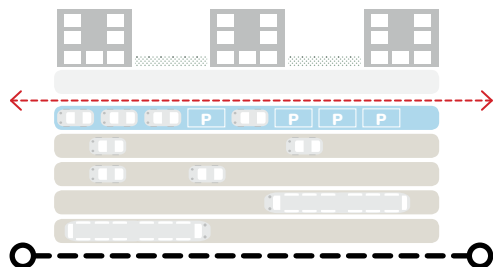
- 3-Parking infrastructure (Mobile – fixed)
- 9-Tactical temporary interventions
- 11-Bottom up initiatives
- 18-Playgrounds for all

O₇

7-Enjoyment street.

+₈

8-More density & diversity of uses & transportation modes.



7

Enjoyment street (passive & active pockets)

Problem

- 3-Large scale privatization and loss of public life
- 10-Invaded space - Traffic and parking over pedestrian space in streets and squares
- 11-Invaded space -Loss of social function

Loss of public life

As Allan Jacobs and Donald Appleyard consider that cities largely influenced by the private sector and the spread of the automobile, have lost its social functions. Different social groups do not mix, and public life is only dependent on planned formal occasions and in protected internal spaces. The automated mobility scenario The street offers the possibility to transform some streets into social interactions incubators, that could be possibly capable to trigger more pedestrian travels and social interactions in main and local streets.

Solution

- 19_Comfort - Opportunities to stand and stay
- Pockets of passive and active activities

In the desirable automated mobility scenario, principal streets provide gain space from side parking and car lines, allowing for densification, however, interventions should guaranty alternation between actively walkable areas and pockets for passive activities, where people have the opportunity to sit, play and contemplate in open air spaces that are available and suitable for different social groups.

Roads

Collector -Distributor / Arterial roads

Related patterns

- 4-Nodes as meeting points
- 5-Paths between nodes & Neighborhood routes
- 16-Wide sidewalks
- 18-Playgrounds for all
- 24-Protection from rain, sun and wind
- 26-Playful and attractive urban furniture

8

More density & diversity of uses

Problem

- 3-Large scale privatization and loss of public life

As Allan Jacobs and Donald Appleyard argue, cities in the hands of large scale developers and private sectors has been in part stimulated by the spread of the automobile and the decline of public transit systems, preventing the mix of different social groups and causing the loss of public life.

Solution

- 27_Functional mixture
- 28_Urban density

Density and concentration of people and institutions In the desirable automated mobility scenario, last mile services and public transportation will be prioritize within each self-contained neighborhood units, especially in primary streets connecting several neighborhoods. Space gained from side parking and car lines could be utilized to densify and diversify the edges of the street, creating lively connective paths between neighborhoods.

Roads

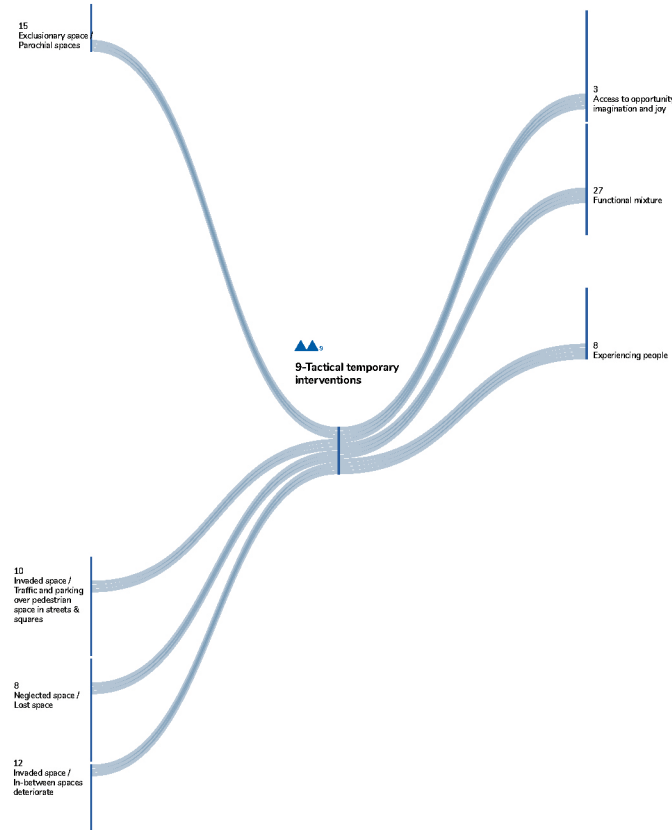
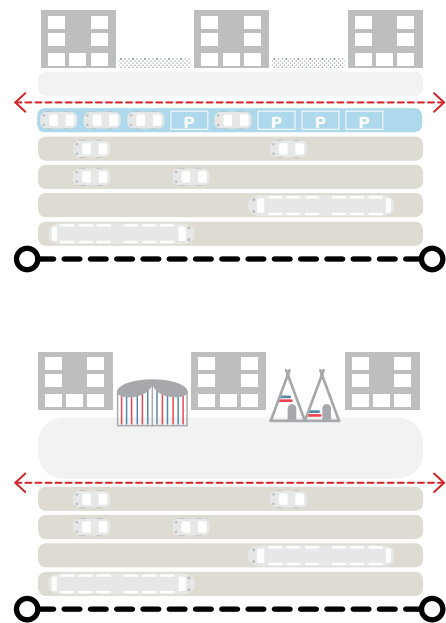
Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

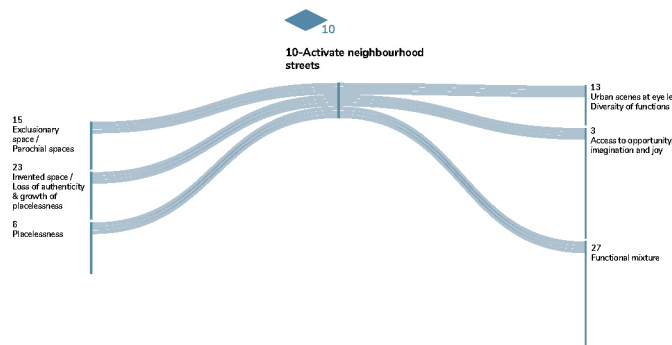
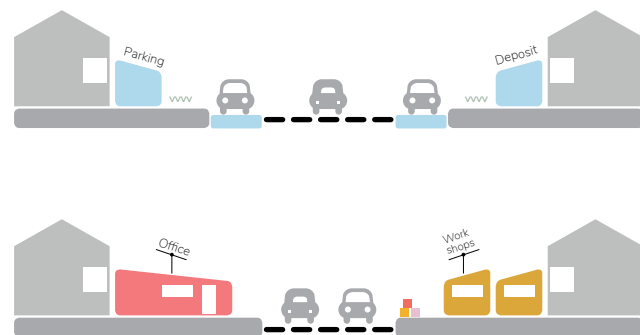
- 2-AV Public transportation
- 4-Nodes as meeting points
- 15-Mobility landscapes become public spaces



9-Tactical temporary interventions.



10-Pedestrian streets (Temporary or permanent).



9

Tactical temporary interventions

Problem

12_Invaded space -In-between spaces deteriorate

Distant spaces comprised by instant connection by car roads tend to present or stimulate deterioration of in-between spaces, 'perceived as absent of attractors'.

Loss of public life

As Allan Jacobs and Donald Appleyard consider that cities largely influenced by the private sector and the spread of the automobile, have lost its social functions. Different social groups do not mix, and public life is only dependent on planned formal occasions and in protected internal spaces. The automated mobility scenario The street offers the possibility to transform some streets into social interactions incubators, that could be possibly capable to trigger more pedestrian travels and social interactions in main and local streets.

Solution

3_Access to opportunity, imagination and joy

8_Neglected space - Lost space

10_Invaded space - Traffic and parking over pedestrian space in streets and squares

15_Exclusionary space - Parochial spaces

27_Functional mixture

Functional mixture and temporary interventions

In the desirable automated mobility scenario, connective roads will be served by last mile services and public transportation, moreover, when space can be gained from side parking or

car lanes, the space can be dedicated to activate walkability in the street, while in-between spaces can be activated to support more intensive use and program. Tactical temporary interventions could help 'improve the livability and aesthetics of local neighborhoods, (...) in an adaptable process where the urban landscape can become an urban lab for people to test diverse ideas' with low cost and minimum effort (Azhar & Morten, 2016).

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

4-Nodes as meeting points

7-Enjoyment street (Passive & active pockets)

15-Mobility landscapes become public spaces

16-Wide sidewalks

20-Public spaces as nodes of attraction

21-Community gardens

10

Activate neighborhood streets

Problem

6_Placelessness

15_Exclusionary space - Parochial spaces

23_Invaded space - Loss of authenticity & growth of placelessness

The concept of placelessness as presented by Allan Jacobs & Donald Appleyard describes how cities become meaningless places, where 'most people withdraw from community involvement to enjoy their own private and limited worlds'. This phenomena can be experienced in 'homogeneous social enclaves' of groups isolated from each other. This is evident in the case of local streets in post-war neighborhoods, where the separation of functions leads to lack of functions on the ground floors, especially when family housing areas, where storage or parking boxes are located in the front facades, contributing to impoverished and unattractive neighborhood streets (Jacobs & Appleyard, 1987).

Solution

3_Access to opportunity, imagination and joy

13_Urban scenes at eye level - Diversity of functions

27_Functional mixture

Liberating streets from side parking, and the introduction of restrictions to private cars and self-parking structures, gives an opportunity to reactivate the social function and attractiveness of neighborhood streets by allowing for the extension of front facades, and consequently, the possibility to change the use

from storage/parking boxes, to more social or attractive uses such as private workshops or working spaces, with upgraded façade materials that allow for more interaction openness and attractiveness of the street, e.g. glass and different textures, colors and doors (Jacobs & Appleyard, 1987), (Gehl, Kaefer, & Reigstad, 2006).

Roads

Neighborhood roads

Related patterns

6-Temporary pedestrian street (Neighborhood)

12-Life on the ground floors

13-Functionally mixed oriented infill

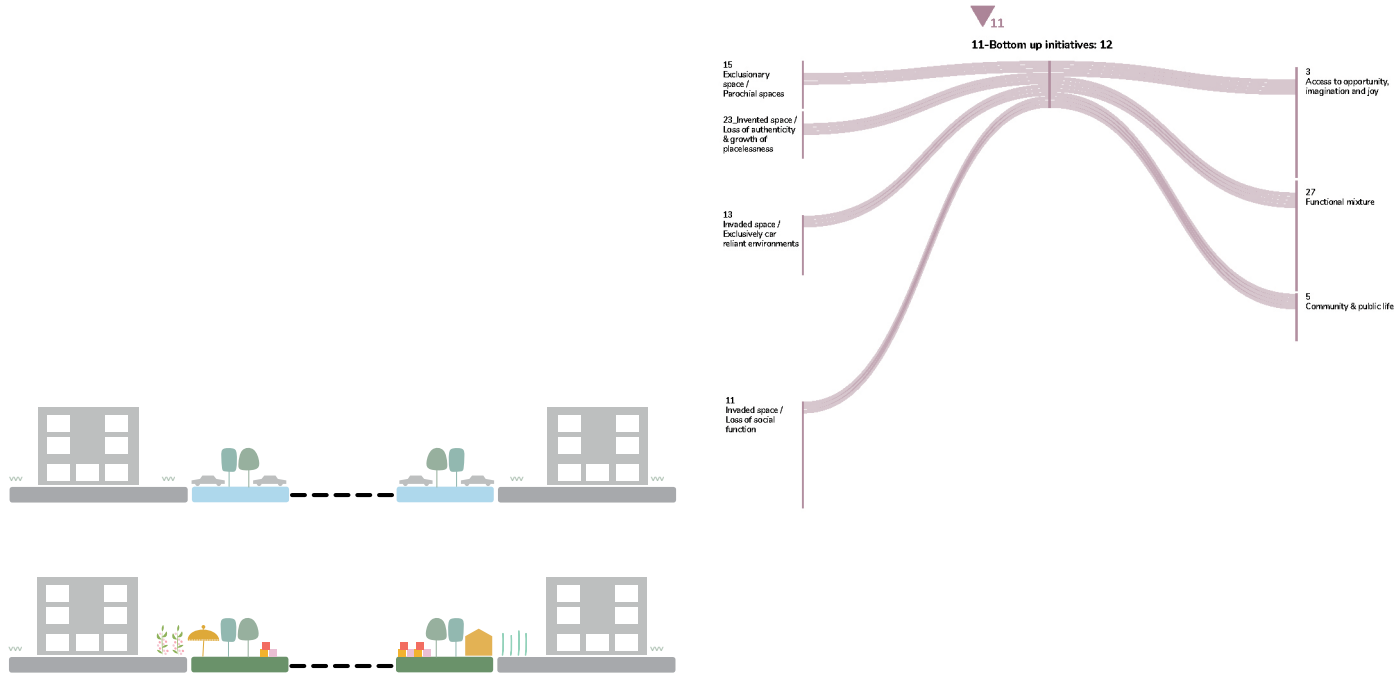
17- Scenes at eye level - Texture & Transparency

19-Many doors & Open facades

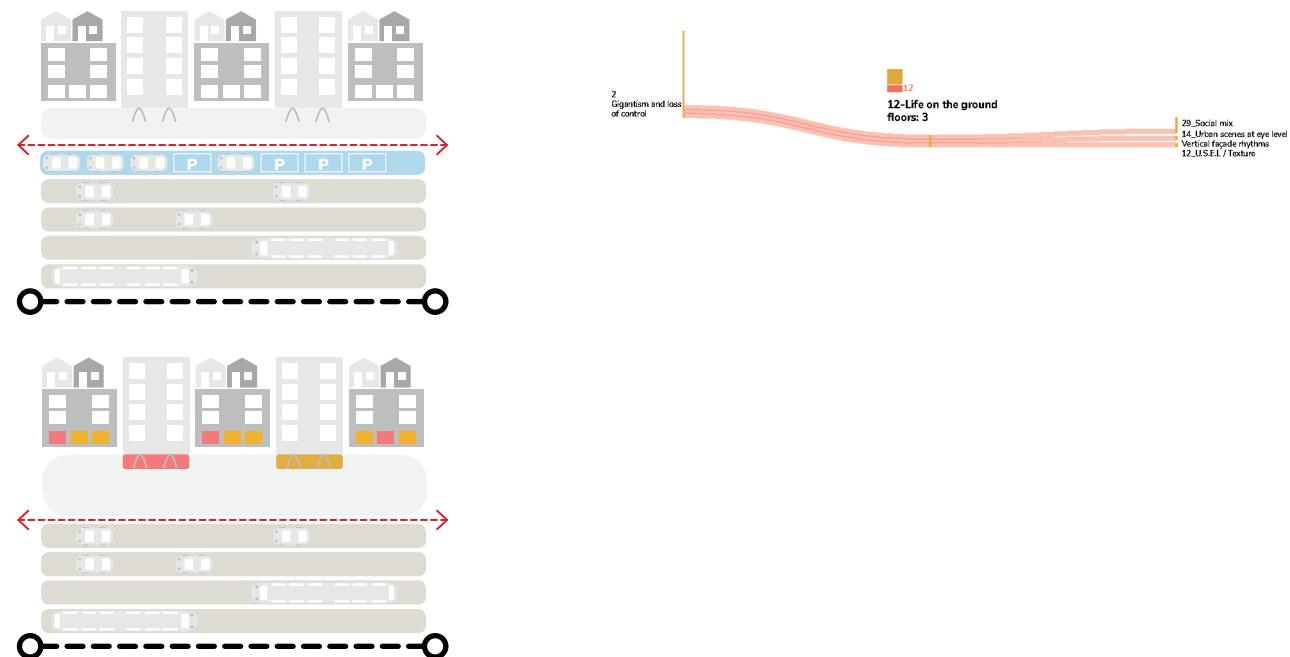
27-Flexible & fixed working units



11-Bottom up initiatives in re-converted streets and parking lots.



12-Occupy the ground floor.



11 Bottom up initiatives.

Problem

11_Invaded space -Loss of social function

13_Invaded space -Exclusively car reliant environments

15_Exclusionary space - Parochial spaces

23_Invaded space - Loss of authenticity & growth of placelessness

When the number of car users exceeds the number of pedestrians using the streets, and the space given to road space exceeds that dedicated to footpaths, are believed to be generally impoverished, and loses most of the social and recreational activities, leaving only the most utilitarian functions. (Carmona, 2010). Public spaces in post-war neighbourhoods are usually oversized, underused, and peripheral, while strategic areas near housing entrances in the ground floors and neighbourhood streets are usually invaded by parking lots, side parking and residual green spaces.

Solution

5_Community & public life

27_Functional mixture

3_Access to opportunity, imagination and joy

A strategy for re-proposing car infrastructures should give priority to parking spaces near housing blocks, especially in areas where more housing entrances are facing the parking space. Re-proposing these areas should take into consideration bottom-up initiatives, for the proposal of new forms of appropriation of the space that involves the community in activities for space management, and the design of public

furniture to create spaces to stay and meet people.

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

6-Temporary pedestrian street (Neighborhood)

15-Mobility landscapes become public spaces

21-Community gardens

28-Communal courtyard

12 Life on the ground floors

Problem

2_Gigantism and loss of control

The elements of the city grow in size, and massive transportation systems are segregated for single travel modes, leaving people with less control over their homes neighbourhoods and cities.

Solution

14_Urban scenes at eye level - Vertical façade rhythms

(Gehl, Kaefer, & Reigstad, 2006)

29_Social mix - Short blocks, life on the ground floors, attractive corners (Jacobs, 1961)

12_Urban scenes at eye level - Texture

(Gehl, Kaefer, & Reigstad, 2006)

Life on the ground floor

Re-proposing the uses on the ground floors of big scale housing blocks. According to the relationship between the housing block and the street different strategies could be taken. In the case of blocks facing potentially attractive streets or places, different types of commerce or cultural uses could be proposed on the ground floors. In the case of blocks facing secondary or neighbourhood streets, other near attractive spaces like parks or squares, proximity and centrality should be taken into consideration for the proposal of spaces dedicated to work & community activities, not only for the block residents, but for all the surrounding areas.

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

15-Mobility landscapes become public spaces

16-Wide sidewalks

17- Scenes at eye level - Texture & Transparency

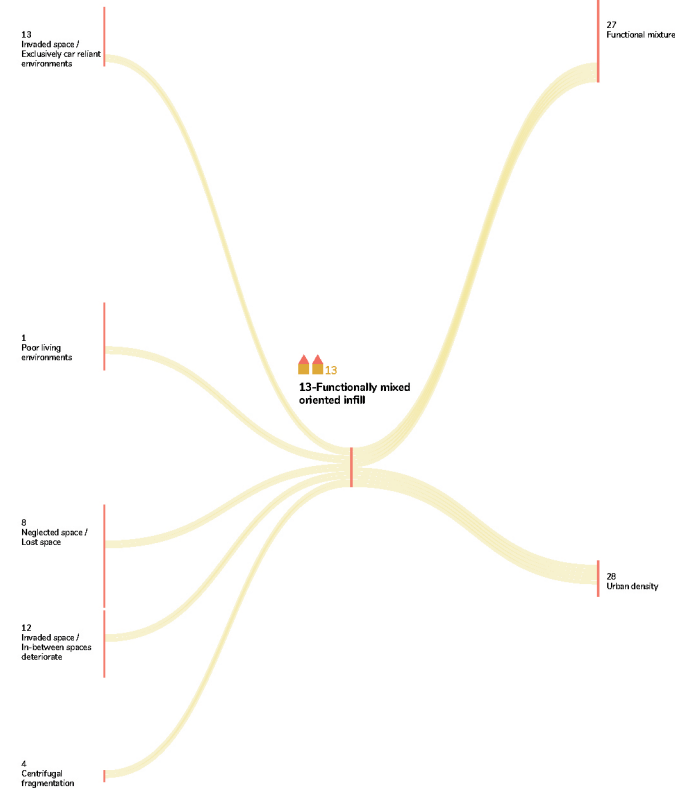
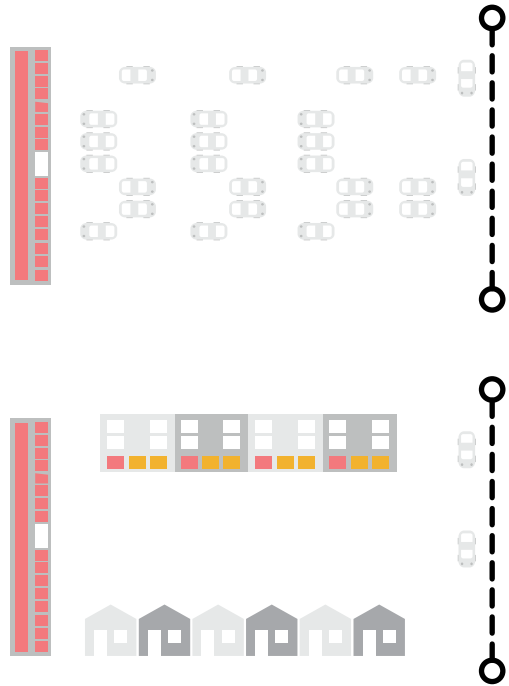
19-Many doors & Open facades

26-Playful and attractive urban furniture



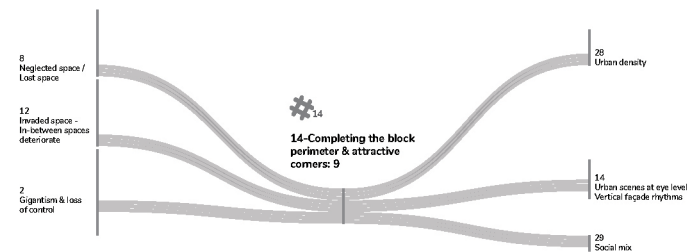
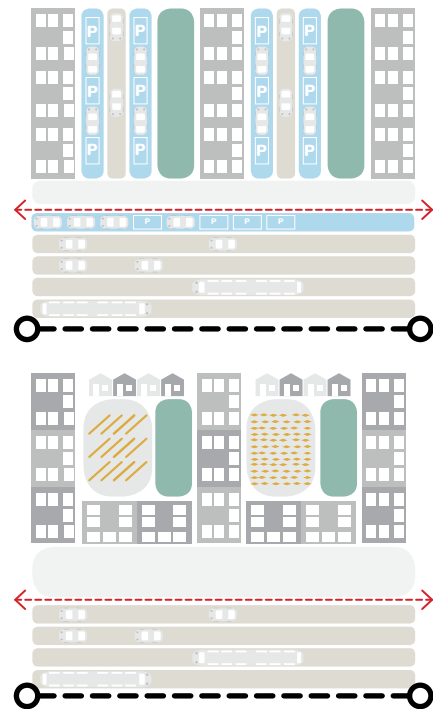
13

13-Functionally mixed oriented infill.



14

14-Completing the block perimeter.



13

Functionally mixed oriented infill

Problem

- 1_Poor living environments
- 4_Centrifugal fragmentation
- 8_Neglected space - Lost space
- 12_Invaded space -In-between spaces deteriorate
- 13_Invaded space -Exclusively car reliant environments

The automobile and separation of uses leads to fragmentation in the city. When work has been taken out of the homes, and the automobile and growing scale of commerce has taken shopping out of the local community, influencing patterns of homogeneity, segregation and fragmentation.

Solution

- 27_Functional mixture
- 28_Urban density

Infill intervention strategy

Big commercial centers, and overly monotonous landscapes, could be taken into consideration for infill interventions to diversify the area. Residual or underutilized spaces, and parking lots surrounding commercial centers, could be infilled with different typologies mix-use housing buildings and commerce. Moreover, excessively monotonous housing areas, could be infilled with flexible co-working and creative industry spaces.

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

- 8-More density & diversity of uses

- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 14-Completing the block perimeter & attractive corners
- 15-Mobility landscapes become public spaces

14

Completing the block perimeter & attractive corners

Problem

- 2_Gigantism and loss of control
- 8_Neglected space - Lost space
- 12_Invaded space -In-between spaces deteriorate

The elements of the city grow in size, and massive transportation systems are segregated for single travel modes, leaving people with less control over their homes neighbourhoods and cities. In post-war neighbourhoods, the separation of transit modes leads to an urban layout where street space is usually 'noisy and anonymous', while buildings are surrounded with public spaces / green areas that are usually oversized 'anonymous wastelands'. The open-block presents a street perimeters that is usually scattered with large voids, and the blocks are devoid of corners, leading to what Matthew Carmona describes as 'Cracks in the city', residual and underutilized in-between spaces.

Solution

- 14_Urban scenes at eye level - Vertical façade rhythms (Gehl, Kaefer, & Reigstad, 2006)
- 28_Urban density (Jacobs, 1961)
- 29_Social mix - Short blocks, life on the ground floors, attractive corners (Jacobs, 1961)

Attractive corners

Completing the block perimeter with infill buildings are a good opportunity for the creation of attractive corners in the urban tissue; re-dimensioning the urban scene for a more human

scale and attractive street.

Closed blocks > Internal courtyards

Internal courtyards could provide public spaces with different levels of privacy, (public or semi-public) allowing for a diversified selection of collective spaces and adding attractiveness in the domestic dimension of the urban block in case of semi-private courtyards, or more diversified and interesting routes for pedestrians. Courtyard entrances, should be clearly marked, well-lit and attractive, in order to be safe, and provide different scales of rhythm to the street profile.

Roads

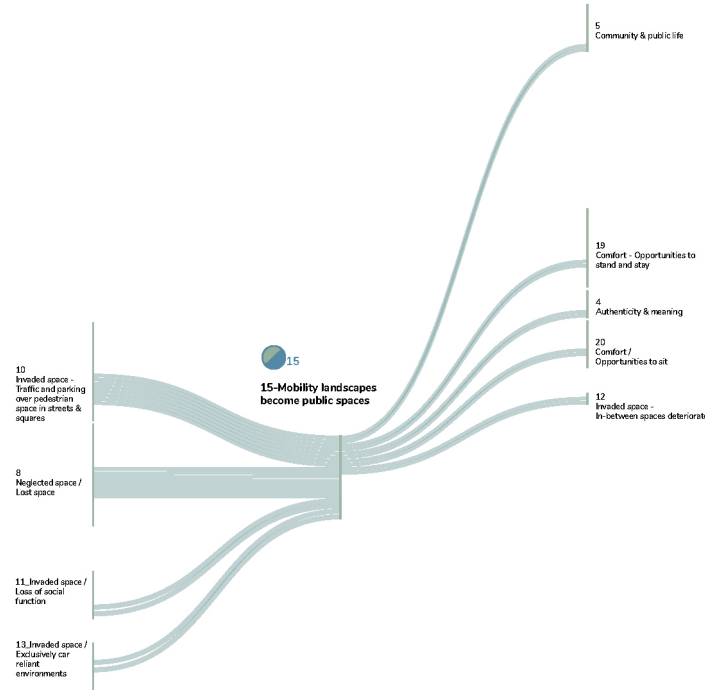
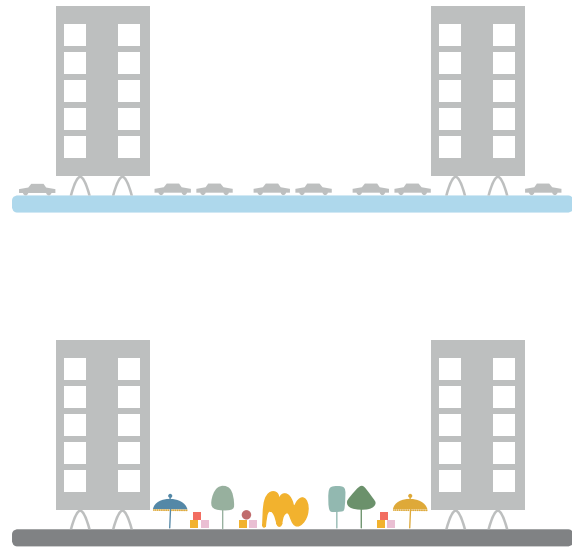
Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

- 8-More density & diversity of uses
- 12-Life on the ground floors
- 13-Functionally mixed oriented infill
- 17- Scenes at eye level - Texture & Transparency
- 19-Many doors & Open facades

15

15-New relation between mobility landscapes and public space.



15

Mobility landscapes become public spaces

Problem

8_Neglected space - Lost space

10_Invaded space - Traffic and parking over pedestrian space in streets and squares

Carmona refers to authors Loukaitou – Sideris (1996), that focus on the 'in-between spaces, residual, underutilized and deteriorating spaces'. Trancik (1986) 'Lost spaces' are spaces in need of redesign, make no positive contribution to the surroundings or users', e.g. The base of high rise towers - Unused sunken plazas - Abandoned waterfronts - Train yards - Deteriorated parks and public space.

Solution

4_Authenticity & meaning, 5_Community & public life

19_Comfort - Opportunities to stand and stay, 20_Comfort - Opportunities to sit

The proposed scenario of Automated mobility proposes restrictions to private cars and parking solutions for self-driving shared cars outside the neighbourhood unit would free up parking spaces within neighbourhood streets and parking lots. The freed up space could be re-purposed for social functions, and public spaces.

Tackle residual space

In the desirable automated mobility scenario, lower volumes of private car traffic and prioritizing active travels could help to improve the overall quality of spaces in between roads and streets. In an environment relived from high traffic volumes and nuisance it is possible to utilize residual spaces and provide them with program or furniture in order to make them function as public spaces for the nearby neighbors and passengers, or to serve as support for local businesses and offices. Nearby pedestrian and commercial-social activities,

and community support should be considered critical aspects for the transformation proposal in residual spaces (Lewis & Schwindeller, 2014).

Appropriation & use of Green space near parking and streets

Green areas and public spaces near neighborhood parking lots tend to be highly unattractive and unused green patches. A future automated mobility scenario where public transportation prevailed, could allow for some car infrastructure to be re-proposed for other uses. As Parking lot spaces within neighborhoods are re-purposed for different uses, the near green areas could function to support community activities that allow for the appropriation of the space by locals, while strengthening social cohesion and place identity.

Re-purpose a new relationship between HighTower bases and mobility landscapes

As ground space in housing block or high rise towers is re-purposed to host new program, according to the necessities of local communities and the relation between the building and the street, also the parking structures on the ground space can be re-purposed to support the new functions, Comfort and opportunities to play, exercise, sit and stay would create more attractive space around blocks and entrances.

Roads

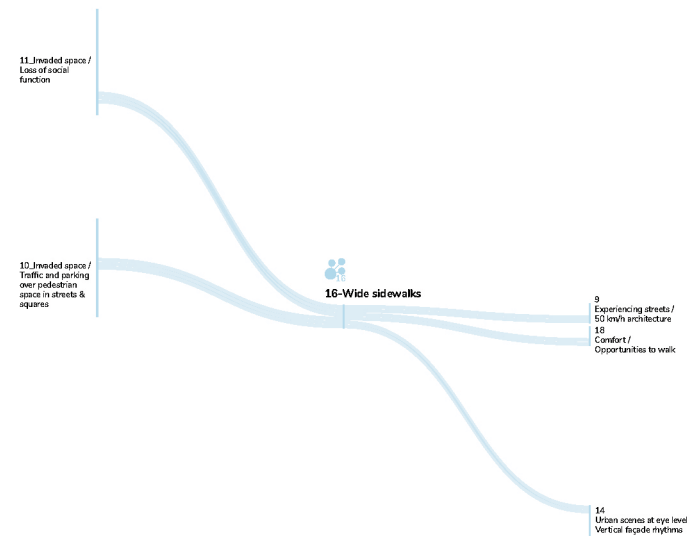
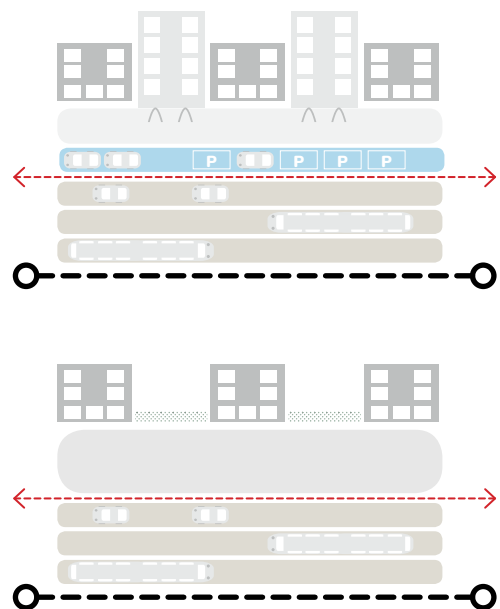
Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

3-Parking infrastructure (Mobile – fixed) 9-Tactical temporary interventions 11-Bottom-Up initiatives 12-Life on the ground floors 13-Functionally mixed oriented infill 16-Wide sidewalks 17- Scenes at eye level - Texture & Transparency 21-Community gardens 26-Playful and attractive urban furniture

16

16-The Street as a social space - Active travels.



16

Wide sidewalks

Problem

11_Invaded space -Loss of social function

10_Invaded space - Traffic and parking over pedestrian space in streets and squares

In Post-war neighborhoods, streets tend to be invaded by roads and side parking. This phenomena causes visual and environmental pollution contributing to the impoverishment of public life. Reducing the capacity of the street to attract and accommodate pedestrians, and making both the journey and the stay less pleasant for the users. In an automated mobility scenario, more space could be gained from side parking and in some cases from car lines, in this sense, the gained space could be used to stimulate a better walking experience in principal streets (Collector and distributor), triggering greater pedestrian connectivity in the adjacent local streets as well. The typical neighborhood unit character of the modern neighborhoods, could be used as an advantage to achieve better synergies between the main street and the local streets transferring its capability to host pedestrians.

Solution

9_Experiencing streets - 50 km/h architecture

14_Urban scenes at eye level - Vertical façade rhythms

18_Comfort - Opportunities to walk

Wide sidewalks

According to Gehl et al. 'Wide sidewalks with a few breaks and accessible to all social groups' is one determinant element to be included in the planning process to create living city

streets (Gehl, Kaefer, & Reigstad, 2006).

Roads

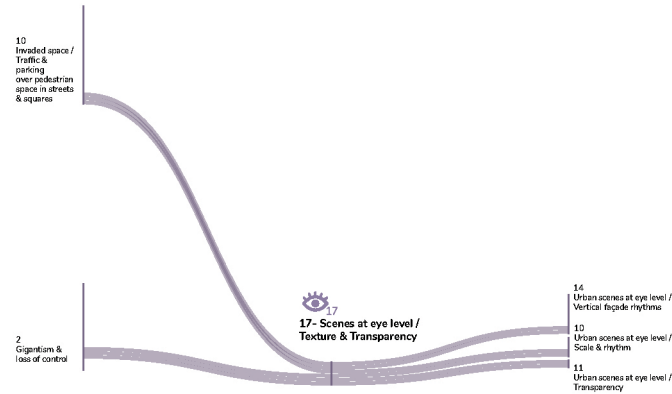
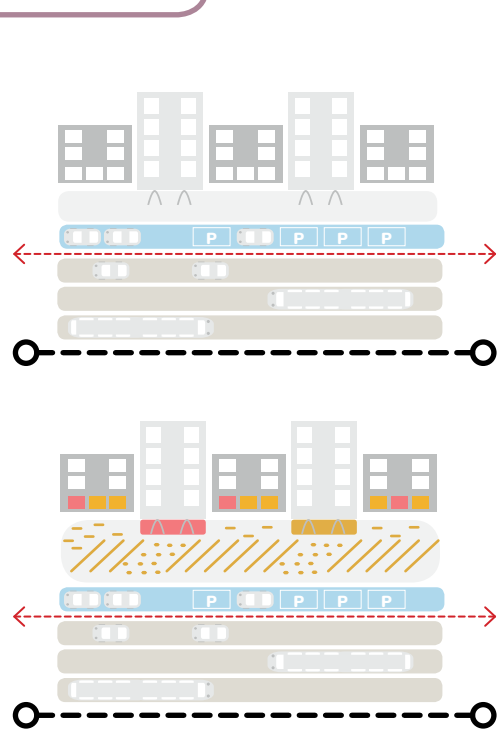
Collector -Distributor / Arterial roads / Neighborhood roads

Related patterns

3-Parking infrastructure (Mobile – fixed) 5-Paths between nodes & Neighborhood routes 9-Tactical temporary interventions 12-Life on the ground floors 17- Scenes at eye level - Texture & Transparency 26-Playful and attractive urban furniture 27-Flexible & fixed working units



17- Scenes at eye level.



17 Scenes at eye level

Problem

10-Invaded space - Traffic and parking over pedestrian space in streets and squares
2-Gigantism and loss of control

Solution

10_Urban scenes at eye level - Scale & rhythm
11_Urban scenes at eye level - Urban scenes at eye level - Transparency
14_Urban scenes at eye level - Vertical façade rhythms

10_Urban scenes at eye level - Scale & rhythm

Many Units & Vertical divisions

According to Gehl, a minimum of 10 units x 100 meters allows for the attractiveness of the façade, while the 'vertical façade expression' shortens the perception of distance'

11_Urban scenes at eye level - Urban scenes at eye level - Transparency

According to Gehl, visual contact between inside and outside could increase the perception of a wider street and opportunities to interact with the buildings. This effect could be achieved by stimulating the creation of interesting windows and many entrances (Gehl, Kaefer, & Reigstad, 2006).

14_Urban scenes at eye level - Vertical façade rhythms

Many doors

Narrow units and a high number of doors, together with a wide range of mixed functions, would provide a 'dynamic rhythm' to the street (Gehl, Kaefer, & Reigstad, 2006).

Roads

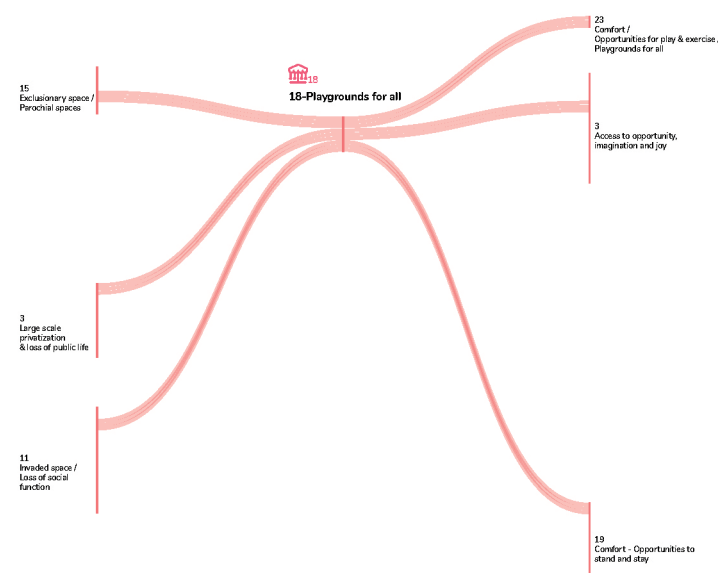
Arterial roads / Collector -Distributor

Related patterns

7-Enjoyment street (Passive & active pockets)
12-Life on the ground floors
15-Mobility landscapes become public spaces
16-Wide sidewalks
26-Playful and attractive urban furniture



18-Playgrounds for all.



18 Playgrounds for all

Problem

11-Invaded space -Loss of social function
10-Invaded space - Traffic and parking over pedestrian space in streets and squares

In Post-war neighborhoods, streets tend to be invaded by roads and side parking. This phenomena causes visual and environmental pollution contributing to the impoverishment of public life. Reducing the capacity of the street to attract and accommodate pedestrians, and making both the journey and the stay less pleasant for the users. In an automated mobility scenario, more space could be gained from side parking and in some cases from car lines, in this sense, the gained space could be used to stimulate a better walking experience in principal streets (Collector and distributor), triggering greater pedestrian connectivity in the adjacent local streets as well. The typical neighborhood unit character of the modern neighborhoods, could be used as an advantage to achieve better synergies between the main street and the local streets transferring its capability to host pedestrians.

Solution

9_Experiencing streets - 50 km/h architecture
14_Urban scenes at eye level - Vertical façade rhythms
18_Comfort - Opportunities to walk

Wide sidewalks

According to Gehl et al. 'Wide sidewalks with a few breaks and accessible to all social groups' is one determinant element to be included in the planning process to create living city streets (Gehl, Kaefer, & Reigstad, 2006).

Roads

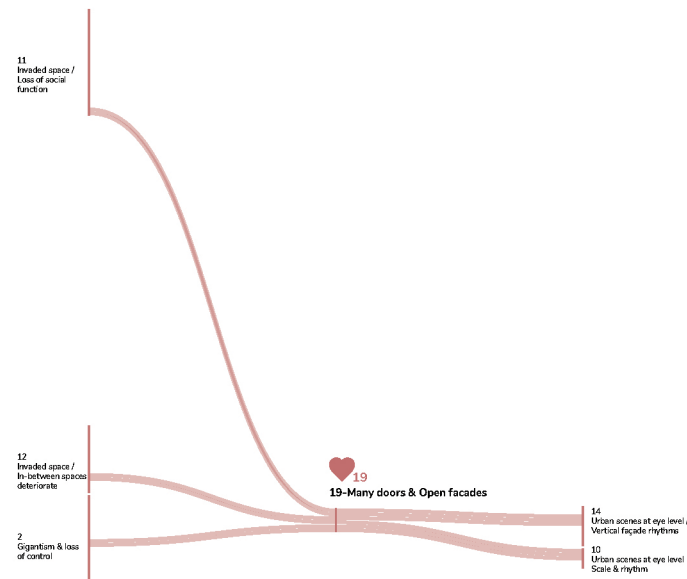
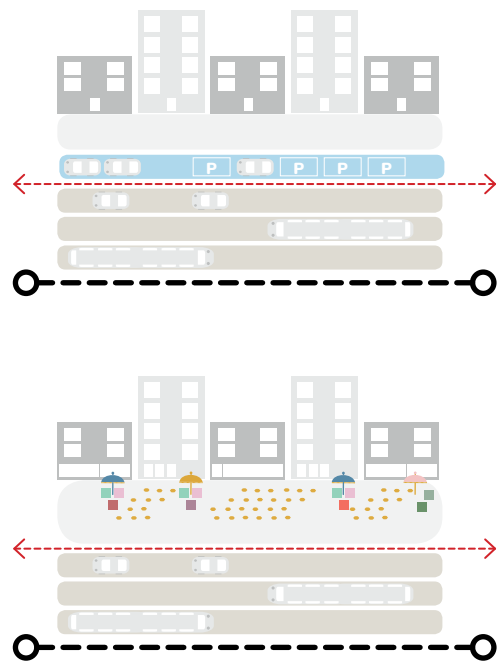
Collector -Distributor / Arterial roads / Neighborhood roads

Related patterns

3-Parking infrastructure (Mobile – fixed)
5-Paths between nodes & Neighborhood routes
9-Tactical temporary interventions
12-Life on the ground floors
17- Scenes at eye level - Texture & Transparency
26-Playful and attractive urban furniture
27-Flexible & fixed working units

19

19-Attractiveness at human scale.



19

Many doors & Open facades

Problem

2_Gigantism and loss of control

11_Invaded space -Loss of social function

12_Invaded space -In-between spaces deteriorate

According to (Hajer and Reijndorp, 2001), distant spaces compressed by instant connection by car roads (in-between spaces), tend to be absent of attractors and deteriorate. In the case of modernist post war neighborhoods, the typical open block layout with massive open green public spaces and parking lots, could influence the deterioration of public spaces, and the loss of aggregative and social character, especially in the streets and public spaces located adjacent to rapid roads. The facade could act as an important element to structure the quality of the street and enhance its attractiveness and walkability.

Opening up doors in the ground floors

Backstreet facades in city streets and facades facing public and private spaces and gardens should be open, to stimulate accessibility, appropriation and use of the space. In the case of high streets with businesses on the ground floors, more doors and windows should be open, to profit from wider sidewalks and activate liveability in the back side of the streets as well as in the front sides.

This pattern would be especially applicable in the case of arterial and collector roads where 'last mile' mobility services should guaranty walking and biking as alternative mobility options to arrive to destinations points.

Solution

10_Urban scenes at eye level - Scale & rhythm

14_Urban scenes at eye level - Vertical façade rhythms

Many Units & Vertical divisions

According to Gehl, a minimum of 10 units x 100 meters allows for the attractiveness of the façade, while the 'vertical façade expression' shortens the perception of distance'

Many doors

Narrow units and a high number of doors, together with a wide range of mixed functions, would provide a 'dynamic rhythm' to the street (Gehl, Kaefer, & Reigstad, 2006)

Unbroken facades

According to Gehl, a living city street should provide with facades in line with other facades in the street, and with no gaps in between buildings (Gehl, Kaefer, & Reigstad, 2006).

Roads

Arterial roads / Collector -Distributor

Related patterns

12-Life on the ground floors

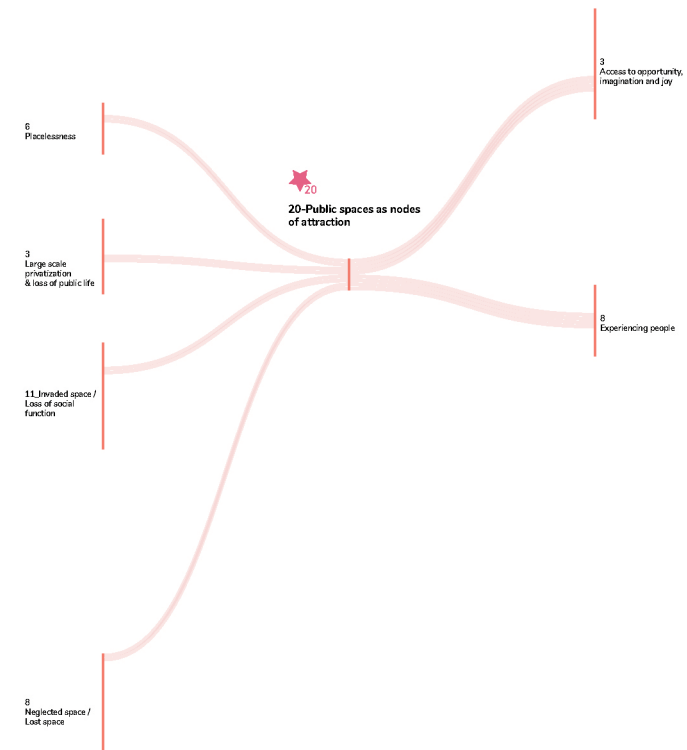
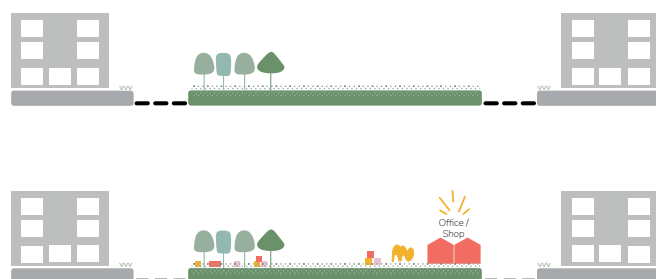
16-Wide sidewalks

17- Scenes at eye level - Texture & Transparency

26-Playful and attractive urban furniture

20

20-Public spaces as nodes of attraction.



20

Public spaces as nodes of attraction

Problem

3_Large scale privatization and loss of public life

6_Placelessness

8_Neglected space - Lost space

11_Invaded space -Loss of social function

Large green public spaces in Post war neighborhoods are usually over dimensioned, difficult to maintain and lack of identity and attractiveness. These aspects can be related to the concepts of 'Placelessness', 'Loss of public life' (Jacobs & Appleyard, 1987); and to the concepts of 'Neglected space' and 'Invaded space', which highlight the idea of lack of quality spaces for people to meet, either because they are degraded, deteriorating or lacking of identity and legibility, deprived of recreational activities, and therefore underutilized or misused.

Solution

3_Access to opportunity, imagination and joy

8_Experiencing people

Connect & add program to unused parks & large green areas

According to Lynch, Legibility is a crucial aspect for the city setting, where 'Districts, Landmarks, or Pathways are easily identifiable and easily grouped into an overall pattern (...) objects are not only able to be seen, but presented sharply & intensely to the senses (...). A highly imageable and (apparent, legible or visible) city would seem well formed, distinct, remarkable, and invite the eye and the ear to greater attention and participation'. (Lynch, 1960). Public spaces designed considering these attributes should allow for an upgrade from anonymous green yards to identifiable, legible and attractive places, highly involved with the context.

A- Attractive gardens - Native plants

Introducing gardens with native species could help create more attractive green spaces, while restoring the biodiversity in urban areas throughout adaptive and resilient design. The 'Atlas of modernism as an universal model' introduce an example of this approach in Brasilia, where Burle Marx introduce the notion of the 'garden as an artistic expression', where the garden recovers the tradition of statues and symbolism, including pieces of Avant-garde artists and sculptures, providing a high level of quality to the green areas.

B-Pocket parks

Wasted landscapes and residual spaces could be re-proposed as Pocket parks in areas with high densities and lack of public-green. Under an automated mobility scenario, the green spaces located near to parking lots, or the parking areas it-self could be devoted to pocket parks, when private mobility means will be substituted by public transport and sharing cars, and parking can be located in mobility hubs, mobile parking structures or nearby areas with less value in terms of its geographic location, e.g. Buffer zones.

Roads

Neighborhood roads

Related patterns

9-Tactical temporary interventions

11-Bottom-Up initiatives

13-Functionally mixed oriented infill

18-Playgrounds for all

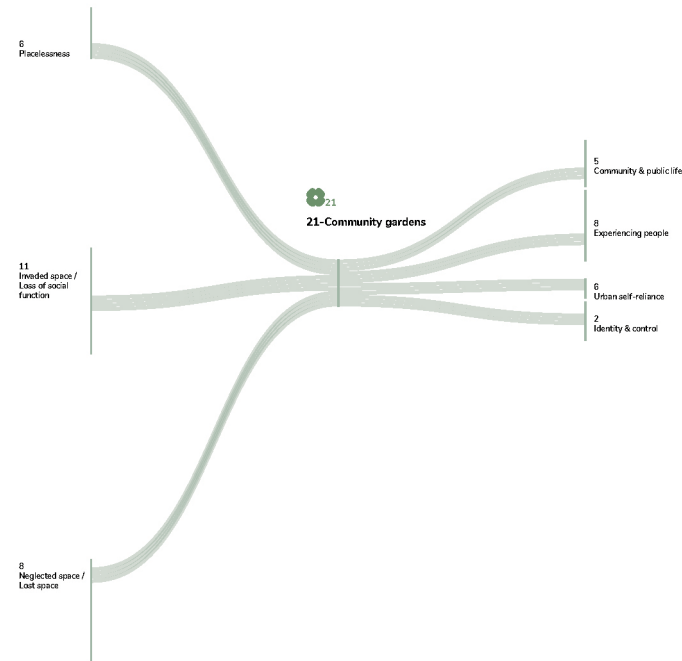
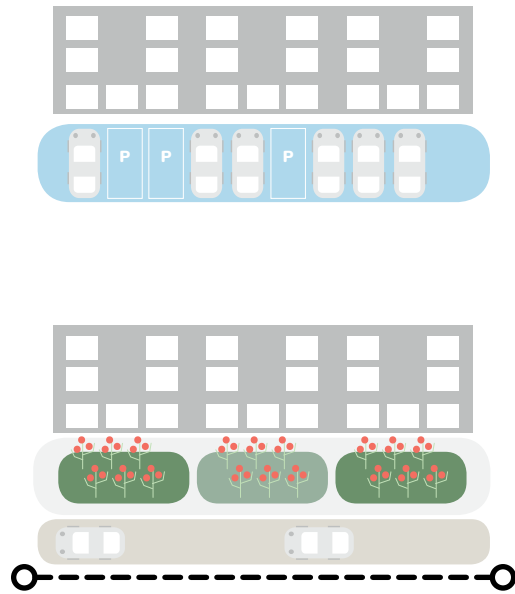
22-Add value to heritage with public space and art

24-Protection from rain, sun and wind

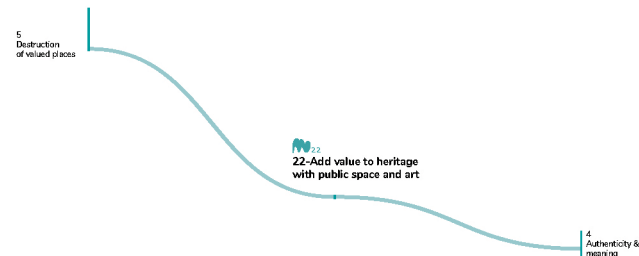
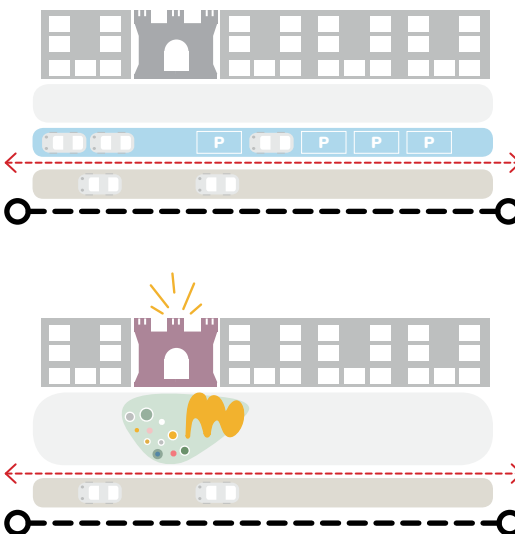
26-Playful and attractive urban furniture



21-Community gardens.



22-Add value to heritage with public space and art.



21 Community gardens

Problem

6_Placelessness

8_Neglected space - Lost space

11_Invaded space -Loss of social function

The usually unbalanced relation between public space and mobility space, creating high amounts of wasted spaces and negatively influencing the quality of public space near to mobility landscapes. Evolving into what Allan Jacobs calls 'Placelessness' and Carmona calls 'Neglected space' and 'Invaded space' as one of the main causes for the loss of social functions and impoverishment of city life.

Solution

2_Identity & control

5_Community & public life

6_Urban self-reliance

8_Experiencing people

Under an automated mobility scenario, meaning more space could be gained from side parking on the streets, or parking lots, these spaces could be potentially dedicated to enhance the social cohesion in neighborhoods, while strengthening the connection between the locals and the place throughout new forms of appropriation of public and residual spaces. Community gardens, could be dedicated to urban agriculture, small ornamental gardens, or simply seasonal appropriation of small green areas to take the sun or run neighborhood parties during the summer. These actions would aim to improve the sense of community in the neighborhood, by stimulating new forms of use and appropriation of the territory.

Roads

Neighborhood roads

Related patterns

9-Tactical temporary interventions

11-Bottom-Up initiatives

15-Mobility landscapes become public spaces

26-Playful and attractive urban furniture

22 Add value to heritage with public space and art

Problem

5_Destruction of valued places

According to Jacobs and Appleyard, destruction of valued places is related to the exploitation of heritage and natural amenities, however, Post-war neighborhoods present a different prospect, as heritage buildings and public spaces are usually exposed to systematic downgrading and stigmatization processes, that could favor the obsolescence and disuse of the space, and therefore more prone to be subject of urban renewal processes.

Solution

4_Authenticity & meaning

Large public green areas are part of the typical structure of Post-war neighbourhoods; as automated mobility makes it possible to change the use of car structures to convert them into spaces that give greater added value to the public space. In this sense, the spaces near to the monuments of architectural or landscape value should be a priority within the car infrastructure reconversion strategy. These infrastructures could be replaced by small squares, patios or gardens; or even host pieces of art and urban furniture, to allow for a better enjoyment of the space and appreciation of the valuable building or landscape, in a process related to what Jacobs and Appleyard call 'an authentic city', where the 'origins of things and places are clear', and the urban environment reveal its significant meanings'.

Atlas

The landscape and symbols elements 'Synthesis of the Arts' used by Villanueva in the in the U.C.V. project could be an example of how modern architecture included artistic and symbolical elements that generates different quality of spaces, using different expressive supports.

In the Nowa Huta project, where heritage is profited in its cultural and economic dimension, creating the possibility to generate goods and services with heritage resources (Hołuj, 2017).

Roads

Collector -Distributor / Arterial roads / Neighborhood roads

Related patterns

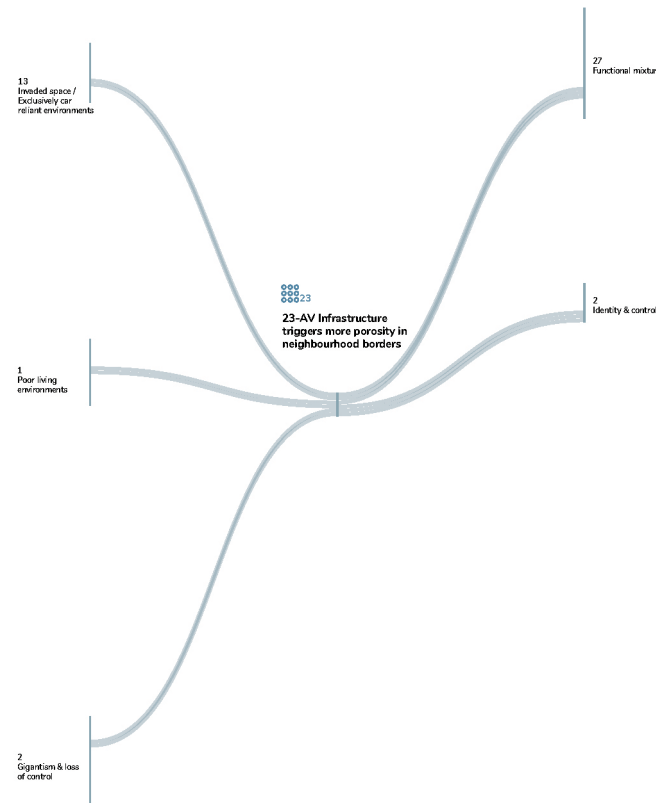
9-Tactical temporary interventions

20-Public spaces as nodes of attraction

26-Playful and attractive urban furniture

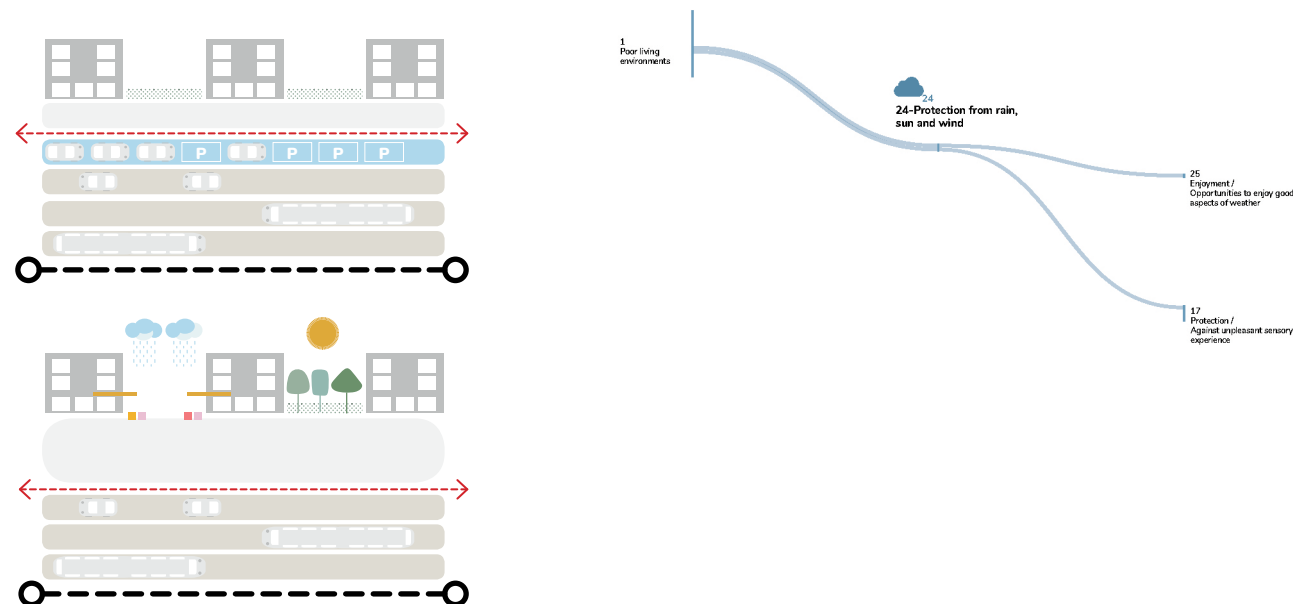
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23-AV Infrastructure triggers more porosity in neighbourhood borders.



cloud
24

24-Protection from rain, sun and wind.



23

AV Infrastructure triggers more porosity in neighborhood borders

Problem

1_Poor living environments

2_Gigantism and loss of control

13_Invaded space -Exclusively car reliant environments

Massive and segregate transportation systems (infrastructure) is usually related invaded and impoverished space and homogeneous and segregated living areas, that tend isolate and protect themselves from the nuisance of car infrastructures, generating massive amounts of wastelands, and disconnect neighborhoods from one another.

Solution

2_Identity & control

27_Functional mixture

According to Lynch, the Neighbourhood border is an important part of the identity of the territory, and in the proposed automated mobility scenario, new infrastructure such as Mobility Hubs, could allow for a more optimized use of these borders, also when in vicinity with Highways and arterial roads. Increasing the porosity of the infrastructure, the accessibility of the adjacent neighbourhoods to the rest of the city, and providing a more optimized use of the borders, and buffer areas, where mixed services, connective buildings and bridges, and parking infrastructure (fixed or mobile) could be located, so that the mobility landscapes and infrastructures within the territory can be utilized for other uses, aiming for the quality of the space.

Roads

Freeway - Highway / Arterial roads

Related patterns

1-Mobility Hubs & Last mile services

3-Parking infrastructure (Mobile – fixed)

13-Functionally mixed oriented infill

24

Protection from rain, sun and wind

Problem

1_Poor living environments

'Poor living environments are usually dangerous, polluted, noisy and anonymous' (Jacobs & Appleyard, 1987)

Solution

17_Protection - Against unpleasant sensory experience

25_Enjoyment - Opportunities to enjoy good aspects of weather

A good public space should offer the opportunity to enjoy good aspects of weather, for this, the space needs to adapt to local weather conditions, and a good variety of atmospheres in order to guaranty the possibility of use during different seasons and weather conditions. Urban furniture and vegetation can be designed to be flexible and adaptable to a diverse range of climate conditions. In the proposed automated mobility scenario, parts of the space gained in streets could be utilized to host light structures that, on the one hand, allows for southern exposure to make the space more attractive during the winter, and on the other, help protect people from, rain, in all seasons. These structures could be proposed, especially in vicinity to mobility nodes, or areas where a concentration of people standing or waiting is expected.

Atlas

The landscape and symbols elements 'Synthesis of the Arts' used by Villanueva in the in the U.C.V. project could be an example of how modern architecture included artistic and symbolical elements that generates different quality of spaces,

using different expressive supports.

In the Nowa Huta project, where heritage is profited in its cultural and economic dimension, creating the possibility to generate goods and services with heritage resources (Hołuj, 2017).

Roads

Collector -Distributor / Arterial roads / Neighborhood roads

Related patterns

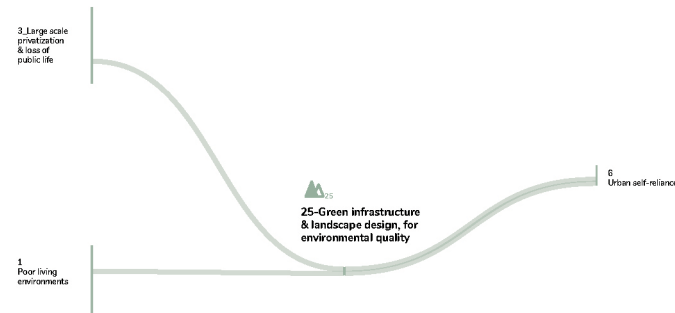
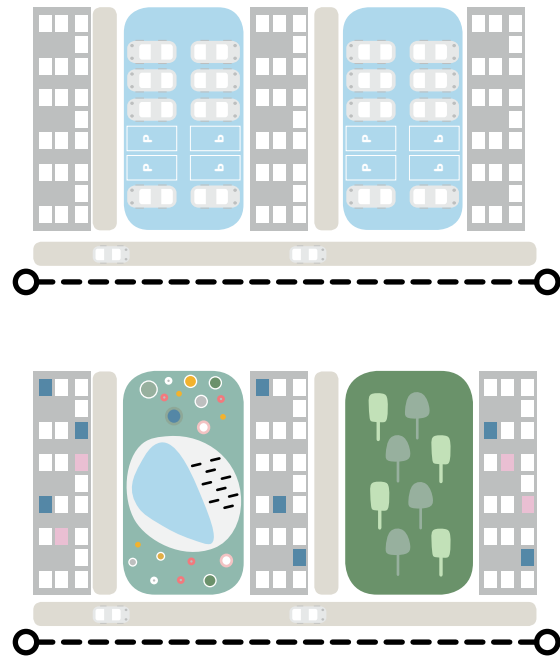
4-Nodes as meeting points

15-Mobility landscapes become public spaces

20-Public spaces as nodes of attraction



25-Green infrastructure and landscape design, for environmental quality.



25

Green infrastructure and landscape design, for environmental quality.

Problem

1_Poor living environments

3_Large scale privatization and loss of public life

The concepts of Poor living environments and loss of public life refer to territories that are affected by pollution, noise and anonymity. While the loss of public life refers to the actual loss of social and recreational functions, due to lack of basic environmental qualities. These spaces can be invaded by cars, or be directly affected by nearby roads and traffic or simple green areas in disuse and degraded.

Solution

6_Urban self-reliance (ecological)

Large green – public spaces represent a good opportunity to contribute to environmental quality. Green infrastructure can protect the territory from water overflow, and overload of the sewage system. An ecological way to reduce the pressures is implementing rain gardens, bioswales, and green roofs, which could also generate attractive landscapes design with plants. However, implementing green infrastructure that function as public space, and recreational purposes could stimulate identity and sense of belonging, while releasing the pressure on the sewage system contribution to a more environmentally resilient territory. In the context of a desired automated mobility scenario, this type of infrastructure should be proposed as nodes of attraction, to be proposed as an alternative use of wastelands of underused green, in facing water overflows issues.

Roads

Collector -Distributor / Neighborhood roads

Related patterns

20-Public spaces as nodes of attraction

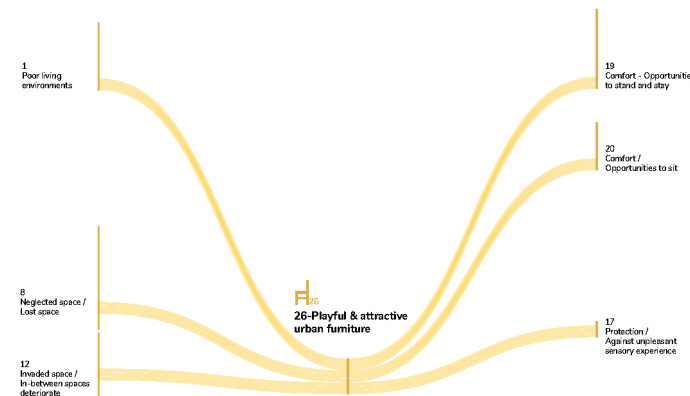
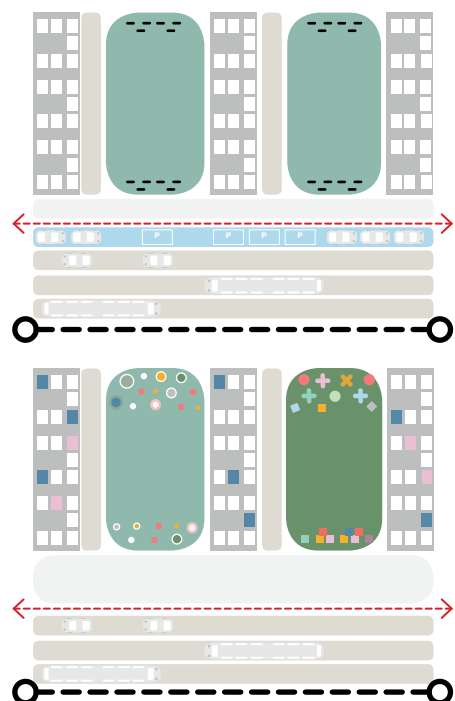
21-Community gardens

24-Protection from rain, sun and wind

26-Playful and attractive urban furniture



26-Playful and attractive urban furniture.



26

Playful and attractive urban furniture

Problem

1_Poor living environments

8_Neglected space - Lost space

12_Invaded space -In-between spaces deteriorate

Lost spaces, in-between spaces and lost spaces, refer to residual, deteriorated or underutilized urban areas that could have been affected by stigmatization issues or physical and environmental degradation due to the invasion of cars and massive roads. Which makes them lose their attractiveness, identity, and functional capacity as a social space.

Solution

20_Comfort - Opportunities to sit

19_Comfort - Opportunities to stand and stay

17_Protection - Against unpleasant sensory experience

'Comfortable benches invite people to stay', however, the lack of urban furniture can affect the aggregative and social function of space, while, an adequate proportion of furniture, in strategic places could add great attractiveness and comfort to the space, turning it into a place of social aggregation. In the proposed automated mobility scenario, more space in streets, and wider sidewalks could accommodate attractive and playful urban furniture, offering possibilities to young and old people to choose their own ways of using the urban elements, while creating an interesting view for pedestrians. This furniture could be located along the most transited streets, in proximity to nodes of attraction, or in residual spaces requalified and appropriated by the local communities.

Atlas

Atelier Ruelle's urban renovation project in Malakoff - Nantes, utilize a combined strategy to activate public spaces, that become the heart of the project.

Light infrastructure as public space activators

Re-dimensioned streets with wider sidewalks could host light infrastructure and public furniture to activate 'dynamics of collective occupation of the public space', these structures could offer different possibilities of use and patterns of appropriation that can be attractive to a wide variety of ages, while providing a space protected from environmental conditions.

Urban amenities

The project elaborated for Urban Amenities competition, proposes an interesting range of public spaces, that intend to use 'the street as a space of dialogue'.

Roads

Arterial roads / Collector -Distributor / Neighborhood roads

Related patterns

4-Nodes as meeting points

9-Tactical temporary interventions

11-Bottom-Up initiatives

15-Mobility landscapes become public spaces

18-Playgrounds for all

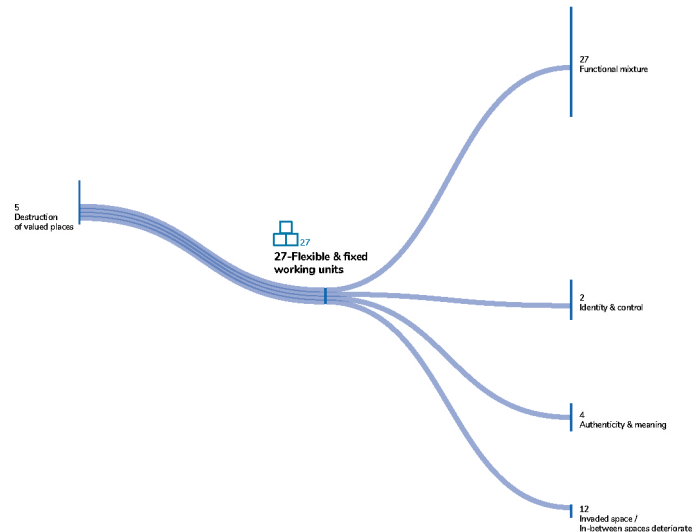
21-Community gardens

22-Add value to heritage with public space and art

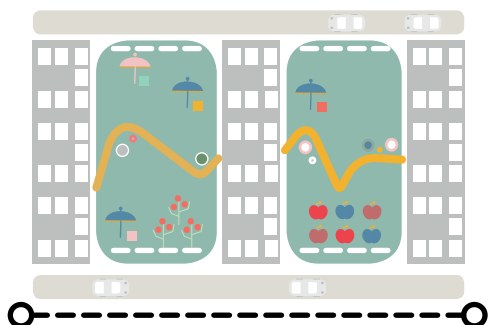
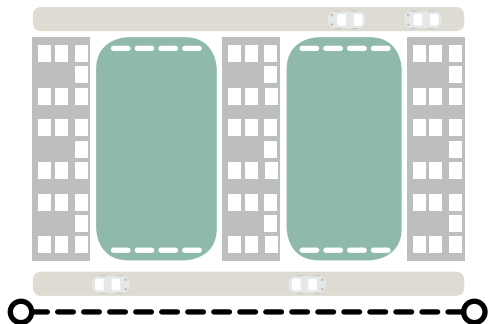
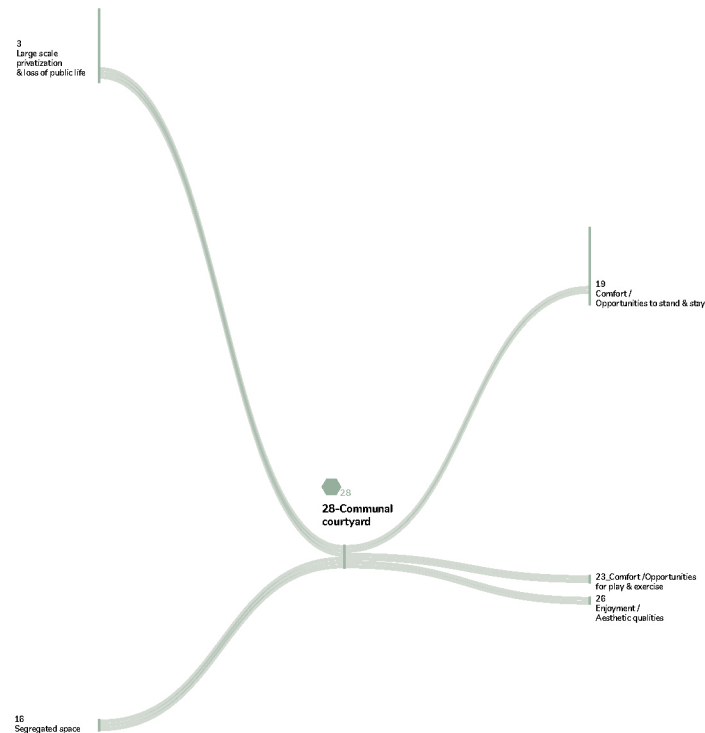
28-Communal courtyard



27-Flexible & fixed working units.



28-Communal courtyard.



27 Flexible & fixed working units

Problem

5_Destruction of valued places

The concepts of Poor living environments and loss of public life refer to territories that are affected by pollution, noise and anonymity. While the loss of public life refers to the actual loss of social and recreational functions, due to lack of basic environmental qualities. These spaces can be invaded by cars, or be directly affected by nearby roads and traffic or simple green areas in disuse and degraded.

Solution

2_Identity & control

4_Authenticity & meaning

12_Invaded space -In-between spaces deteriorate

27_Functional mixture

Fixed & mixed working units

Some Housing typologies can lose functional capacity, when the dimensions of housing units do not correspond to societal requirements, moreover, the typically monofunctional character of the buildings in Post-war neighbourhoods can also negatively affect the quality of public space in streets and squares. Within the proposed automated mobility scenario, more space will be available to be reconverted to other uses or to enhance the quality of the existing ones and promote the valorisation of architectonic heritage. Functional mixture within the building blocks in monofunctional areas, could help build more diversified neighbourhoods, and guaranty the usability of public spaces at all hours. In this sense, new Working and coworking units could replace some apartments in building

blocks, within the higher or ground floors, depending on their connection to the street and the characteristics of the public space surrounding the building.

Flexible working units

Another typology of working units could be propose in the form of flexible spaces in light structures, that could be located within large green areas and parks, to offer flexible working spaces to the local community, and at the same time introduce a mix of services and uses that could help intensify the use of public spaces and make them more attractive to the general public

Roads

Collector -Distributor / Neighborhood roads

Related patterns

- 6-Temporary pedestrian street (Neighborhood)
- 13-Functionally mixed oriented infill
- 14-Completing the block perimeter & attractive corners
- 17- Scenes at eye level - Texture & Transparency
- 21-Community gardens

28 Communal courtyard

Problem

3_Large scale privatization and loss of public life

16_Segregated space

Solution

19_Comfort - Opportunities to stand and stay

23_Comfort - Opportunities for play and exercise

26_Enjoyment - Aesthetic qualities

Open or closed courtyards

Green courtyards areas should promote different ways of space appropriation, and identity. When possible, internal courtyards should be used by local communities, promoting mix of functions, furniture, playgrounds and a variety of opportunities to stay, sit, see and play. In order to achieve this, accessibility from the ground floors should be provided, and when possible, the near by spaces could be use to locate urban furniture that can be used as an opportunity see and contemplate attractive gardens. When the structure of the block, and mobility landscapes, can repurposed for other uses, internal courtyards could be proposed, as an alternative use of the space.

Roads

Collector -Distributor / Arterial roads / Neighborhood roads

Sources

(Gehl, Kaefer, & Reigstad, 2006).

Related patterns

- 11-Bottom-Up initiatives
- 18-Playgrounds for all
- 19-Many doors & Open facades
- 21-Community gardens
- 24-Protection from rain, sun and wind
- 26-Playful and attractive urban furniture

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