

SYNERGY BETWEEN PUBLIC SPACE POLITICS AND MOBILITY STRATEGIES

Author: **Milos Stipic**
University: Polytechnic University of Catalonia (UPC)
Director: Miquel Martí Casanovas
Email: stipicmilos@gmail.com

ABSTRACT

Up to which point and under which circumstances mobility, as a functional and an inevitable aspect of the human environment, can become an affirmative element of public space giving it a new significance and an additional value? Dialog between mobility and public space can be explained by understanding mobility strategies as a supporter of integration of different urban logics, by observing infrastructure as an element of public space configuration and by questioning transport as a pivot of public space character and identity. The main focus of this discussion is on mobility lines, specifically urban and contextual integration of transport systems seen as a crossroads between urban and transport logic, developed as a single expression. Harmonizing this paradox it is possible to create synergies between public space and mobility which gain new dimensions.

Key words: Public space, mobility strategies, infrastructure

RESUMEN

¿Hasta qué punto y en qué circunstancias movilidad, como aspecto funcional e inevitable del entorno humano, se puede convertir en un elemento afirmativo de espacio público dándole un nuevo significado y un valor añadido? Diálogo entre movilidad y espacio público se puede explicar mediante la comprensión de las estrategias de movilidad como partidario de la integración de diferentes lógicas urbanas, observando infraestructura como un elemento de configuración de espacio público y al cuestionar transporte como pivote del carácter e identidad de espacio público. El objetivo principal de esta discusión es la integración urbana y contextual de los sistemas de transporte vistos como confluencias de lógica urbana y lógica de transporte desarrolladas como una sola expresión. Armonizando esta paradoja es posible crear sinergias entre espacio público y transporte que ganan nuevas dimensiones.

Palabras claves: Espacio público, estrategias de movilidad, infraestructura

1. URBAN LOGIC VS. TRANSPORT LOGIC

Up to which point and under which circumstances **mobility**, as a functional and an inevitable aspect of the human environment, can become an affirmative element of public space giving it a new significance and an additional value?

Is it possible to generate a **new urban reality** and to reach a polysemy of performative artifacts by changing the usual perspective through a multidisciplinary collaboration?

Is it possible to establish some new connections between **mobility strategies** and **public space politics** by exceeding usual functional requirements and by treating infrastructure as a project of urbanity?

This short discussion is a part of the wider investigation, doctoral thesis, with the objective to explain the dialog between mobility and public space on the example of transit systems from different urban contexts. The focus is on three major issues: understanding **mobility strategies as a supporter of integration of different urban or social logics** within complexity of contemporary city (like continuity of urban mosaic or correlation between intertwined urban structural systems); observing **infrastructure as an element of public space configuration** (having in mind retrieval of human scale of public space, superposition of urban activities or nodes as a new urban focal points); questioning **transport as a pivot of public space character and identity** (its recognizability, meaning or more general urban image and landscape).

1.1 PHENOMENOLOGY, EXEMPLIFICATION AND TAXONOMY OF THE SYNERGIES

Cities were always largely **determined by transport**. Medieval towns were often founded on the crossroads facilitating communication and trade, while their urban structure (network of narrow streets and squares) was an expression of the pedestrian movement. The big innovations of the 18th century were avenues and wide squares which for the first time allowed fast movement by carriage through the city and a new perception of the urban environment (Smets, 2010). In the 19th century with the arrival of the railway a new infrastructure has emerged whose immense dimension could no longer be aborted by the street as a defined space of the historic city, but it could only be developed in the network of its own separated from the rest of the city, resulting often in the demolition of the poorer areas. (Hauck, 2010). Train stations have redefined urban territory, becoming landmarks and new authentic public spaces with cafes and restaurants. Industrial city introduced a new requirement - journeying between home and work. Increased transport of individuals and materials led to dynamic urban planning and design theories which saw an unobstructed flow as an objective of urban planning (Smets, 2010). By the end of the 19th public transport (first animal-powered and later electric trams) became the pivot of urban development running through every major street.

In the 20th century use and popularity of cars drastically **changed urban morphology** of the city. New urban theories like the Charter of Athens introduced an innovative concept of the city based on the division of the four urban functions and a new approach to the public space design based on the segregation of the modes of different speed. These ideas, together with technological complexity of the traffic, led to the theoretical and professional separation between transport and urban design. Though interdependence between infrastructure and urban development has always been one of the most important topics of urban planning in the discourse of urban design infrastructure played a comparatively subordinate role (Smets, 2010). Gradually, these concepts led to some of the major problems of the contemporary cities (urban sprawl, traffic congestion, superabundance of infrastructure, degradation of the public space and the loss of its traditional meanings).

In the decades after IWW new urban theories started to emerge introducing a **critical approach** to the relationship between traffic and city. Some of those ideas were expressed in Buchanan's report, Jane Jacobs or Lewis Mumford openly criticized the role of the car, Team X's experiments led to some innovations, like the

first pedestrian street (Rotterdam) which become a modern approach in the 70s, later postmodern theories expressed some new ideas, particularly New Urbanism, etc.

Finally interrelations between cities and transport could be followed all the way up to the **complexity of the contemporary city and its dialectic relationship with mobility** (Miralles, 2002). Miscellaneous experience of the practical solutions and the theoretic concepts from the past, together with modern-day urban challenges impose search for the new innovative concepts. Word transport is often superseded by the broader term mobility which includes the social dimension of the problem, with ideas of intermodality, inclusion, diversity and sustainability. Mobility could be defined as a transport planned in equilibrium with urban context, as the element of intermediation between community and built environment with an incentive for overall improvement, whenever possible. Furthermore, this approach permits mobility and infrastructure to be related to the fundamental concept of Genius Loci or sense of place in the terms of human attachment and feeling of belongingness to a certain place as something that represents a social phenomenon and a summation of individual sensations.

In the last decades and years we can see a new approach in the contemporary urban design towards transport infrastructures treated as elements which do not remain anonymous. Instead, they influence, dominate or even define their urban context (Hauck, 2010). Therefore, we can talk about the **interaction between public space and transport** even on their high conceptual levels, such as public space politics and mobility strategies. Indivisibility of cities and transport makes strategic approach to the urban mobility a constituent part of the contemporary public space politics.

Generally, in this research synergy could be defined as any conceptually unifying and institutionally coordinated action between transport and public space design with the mutual objective to improve the urban environment and enable functionality. Examples of **contemporary practice** could be found on different scales. From balance between urban planning and transport through strategies of Transit oriented development around intermodal nodes or public transport, concept of interconnected city, to equilibrium between mobility modes expressed through pedestrianization, shared space philosophy, limited access areas, traffic calming, traffic diversion, street hierarchization, etc. One of the major issue is urban 'digestion' of the parking facilities (understood as the improvement of the space required for parking, as well as the public spaces in its immediate surroundings) or different park and ride schemes and systems. Urban and contextual integration of mobility lines (routes that are crossing the urban fabric like transit routes, railways or public transport lines) and the projects of their integration into the urban context scope different technics like covering, under-grounding, urban terrace, mitigation, alleviation, hiding, residual space, etc.

1.2 PUBLIC TRANSPORT - SYNERGY OF THE SYNERGIES

The main focus of this discussion are mobility lines and specifically transport systems seen as a crossroad between dynamic and static visions developed as a single equation. The practice of multidisciplinary projects with an objective to **integrate public transport into the urban environment** linking it with public space, which is becoming a common place for many contemporary cities. These projects are producing new types of urban reality, according to the different logics and timelines. The relationship is the key to the success of the design. Routes that link urban neighborhoods which are strangers to each other act as lines that create their urbanity.

Unlike other more aggressive or high-capacity infrastructure lines like urban highways or railroads (Hauck 2010) public transport lines have much higher levels of adaptability to the context, while the complexity of their integration comes from their **interconnection with all other synergies** causing direct and indirect effects on the surroundings (Dell'Oso, 2009).

A strong link between public transport and public space design is a global and relatively new phenomena - integration is understood as the incorporation into the urban context different logics and concepts. This synergy gains social dimension, particularly in the underserved or previously neglected communities.

1.3 CASE STUDIES

This theoretic framework could be exemplified analyzing four Ibero-American cities.

At the beginning of 20th century **tram** was dominating mode of transport in **European cities**. After the WWII, with the popularity of the car and following ideas of the Athens Charter, the tram was seen as an obstacle and was withdrawn from the streets (with some exceptions in Central and Eastern Europe). Renaissance of the tram started by the end of the 80s and the beginning of the 90s with a new generation of tram and light rail systems which were re-introduced first in French cities (Nantes 1985, Grenoble 1987 and Strasbourg 1994). New trams were more than just a transport solution, they were treated as an urban project, related to reduction of cars, improvement of the urban environment and overall public space renewal. Similar concepts were followed by almost every French city (France has 28 operating tram systems and several more in planning procedure) and many other cities in other European countries (Italy, UK, Netherlands, Belgium, Ireland, Greece, Germany, etc.). Bilbao was the first Spanish city which has re-introduced new trams in 2002 and up to today 10 cities have similar systems (Seville, Alicante, Barcelona, Madrid, Zaragoza, etc.)

One interesting example is the city of **Barcelona**. Since the 80s and the restoration of democracy, the city was paying special attention to its public spaces. The Olympic Games, economic recovery and intensive progress, together with a strong urban culture led to the development of the authentic politics of public space with defined objectives, which made Barcelona a paragon in this field on the international level. In the 2004 Barcelona introduced two LRT systems (Trambesós and Trambaix) connecting towns on the periphery of its urban area with the central city core. We can recognize two phenomena - public space politics of Barcelona has naturally influenced other towns in its intermediate surroundings which adapt similar ideas. We can also recognize the tram system as one of the articulators of urban renovation. **Trambaix** has transformed the image of the crossed municipalities within the county of the Baix Llobregat, which we can observe 10 years after its implementation.

Contrary to that in the year 2011 Zaragoza implemented its new tram line crossing the city from one edge to the other through the center (the first line of the more extensive system). A special attention was paid on the project of its urban integration, which won several important international prizes, like the one by International Association of Public Transport (UITP) for the innovative project of urban integration of the tram. Tram of Zaragoza was designed 20 years after the first trams made comeback in Europe and was designed following the ideas of its predecessors. There was a broad practical experience and theoretic background which enabled its designers to fully use all the potentials of the integration improving the role model from previous decades.

The Latin American context, with different economic, social and urban conditions led to different solutions, but with some similar paradigms. During the decades after the WWII the most of the Central and Latin American cities were experiencing process of a very intensive urbanization. Problems like uncontrolled urban growth, social segregation or crime together with car-oriented urban policy (and paradoxically low car ownership) caused difficulties in the mobility for the large part of the population, for the most of the cities of the region. Due to the economic situation it was necessary to propose feasible solutions that would resolve the problem.

During the 60s and 70s, while car-oriented urban policy was still dominating, the city of **Curitiba** proposed and put in the practice a new innovative solution - a rapid bus system planned as a network of bus dedicated lanes that cross the entire urban territory playing a role of the rapid high capacity transit for the affordable price. Furthermore, the entire urban planning concept was developed around the idea of Rapid bus and transport system literally become an integral part of **comprehensive urban and social project** directing the entire urban growth. City become the pioneer in this field. Curitiba was a role model for the whole region and many cities decided to implement a similar solution with some additional innovations. One of the newest examples is the **Transmilenio system of Bogotá**, an ongoing project with the first line implemented in the year 2000. Similar to Barcelona, Bogotá has very defined public space politics. Being newer example than Curitiba, Bogotá naturally introduces some innovations, but on the other hand city did not grow around its bus network, it was additionally added to the completed city, which is why these two examples make dynamic comparison.

2. CONCEPTUALIZATION OF THE NEW URBAN AXIS - Trambaix, Barcelona

Twelve years ago in 2004 Barcelona has inaugurated two trams (light rail) systems Trambaix and Trambesós running in south and north part of its urban area, but without central connection between two systems (see item 1). For the first time after more the 30 years trams were running again through the streets of Barcelona. The first horse tramway line was introduced in 1872 from the Gracia town of Barcelona. Decades to come were the golden age for the tram, which became dominant mode, with large network that was covering the entire city area. Similarly to other cities in Europe, starting from the 50s, tramways were gradually withdrawn and the last line was removed in 1971 (except of historic line Tram Blau which was kept as a touristic attraction). In the present moment urban solutions and opportunities of the connection of two separate systems are initiating intensive discussion among professionals as the future project, but the objective of this analysis is to evaluate effect which existing tram system had on public space having in mind considerable time span. Particularly interesting is the example of Trambaix which runs through 5 municipalities of the Baix Llobregat region and act as **an articulator of public space** of previously neglected area (item 2).

2.1 INFRASTRUCTURAL PUBLIC SPACE AS AN EXPRESSION OF PUBLIC SPACE POLITICS

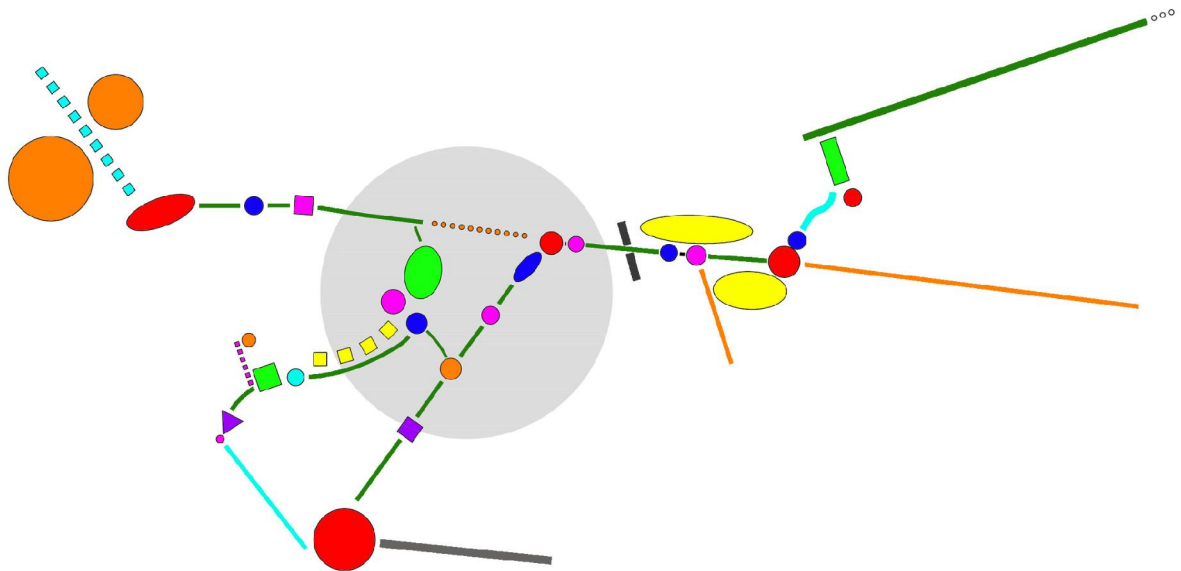
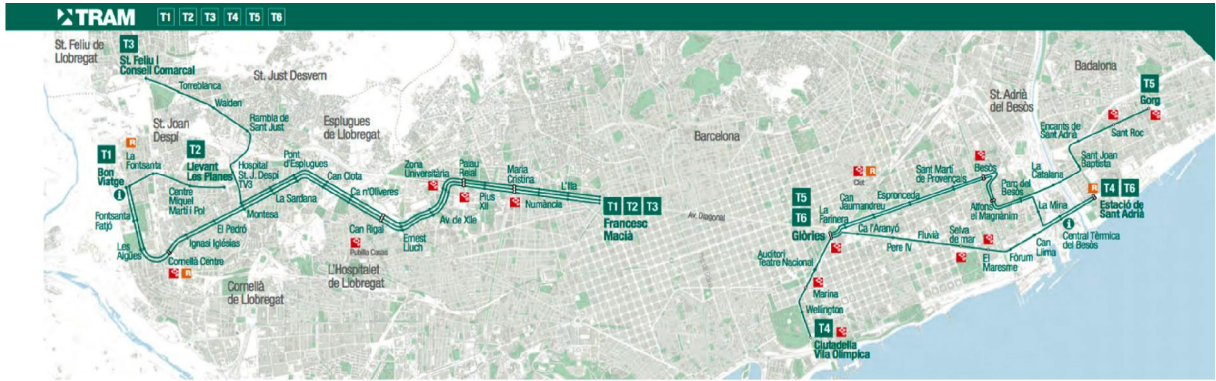
Conspicuous and defined the politics of public space of Barcelona from the 80s and 90s had an inevitable influence on the municipalities within its urban region, encompassing not just the traditional public space of a compact city, but also metropolitan infrastructure lines which are conceived with the integrative complexity becoming elements of articulation between local and metropolitan scale and consolidation between compact and fragmented city. Route of Trambaix from Barcelona to its final destination Sant Feliu de Llobregat was designed to express the idea of the continuity of metropolitan axis (avenue Parallel - N-340), bestowing a civic value to the main transport spindle alleviating it, introducing elements characteristic for the city center within borderline semi-industrial or rural area and by establishing connections to the adjacent public space and urban projects. Therefore, the whole Trambaix network could be observed as a **series of independent micro-urban projects** which at the same time belong to the same network and follow the same logic of civic public space (item 3).

2.2 TRANSIT AS FORTUITOUS INTEGRAL CONSTITUENT OF TERRITORIAL DYNAMICS

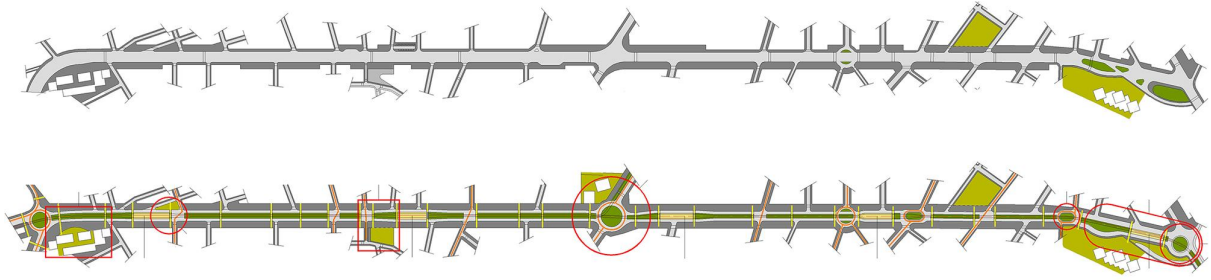
Urban and social restructuring of the area where public transport was never an integral component is based on the **capacity of transit to act as a lever** to encourage higher density and pedestrian-oriented development. Within the fragmented city transit system assumes structuring logic initiating process of urban densification and intensification of centrality, as one of its intertwined urban systems. In some cases (like Zaragoza or Curitiba) public transport is intentionally designed as an impetus for urban development and this process was guided by relevant public institutions. This process occurs in the area of Baix Llobregat **without firm administrative or institutional frame**, but as a logic outcome of the new connectivity in the dilapidated area.

2.3 EQUALIZATION AND FORMAL CONTINUITY AS INSTRUMENTS OF URBANITY

Technical requirement, control of the quality and the efficiency of transport route always lead towards the tendency of the standardization which has effects on the mobility facilities and their adjacent public space. Standard appearance is something that often identifies the networks (Smets, 2010) giving a visual clue that all the elements which constitute the network belong to the same system. Generated formal continuity has emphatic influence on the overall urbanity. Suburban neighborhoods are **qualitatively upgraded by the equalization and harmonization** of the previously irregular street profile (inconstant sidewalk width, interrupted pedestrian itineraries, discontinues green strips, disorganized street parking, absence of street activities, undefined visual identity), which mitigate urban discontinuity and consistent landscaping becomes recognizable reference marking consistent continuity (items 4 and 5).



- Item 1: Map of Barcelona and its tram network – Trambaix on the left and Trambesós on the right (source www.redtransporte.com)
- Item 2: Trambaix network within 5 municipalities of Baix Llobregat region (own elaboration)
- Item 3: Trambaix observed as series of urban events, micro urban projects within proximity of the network (own elaboration)



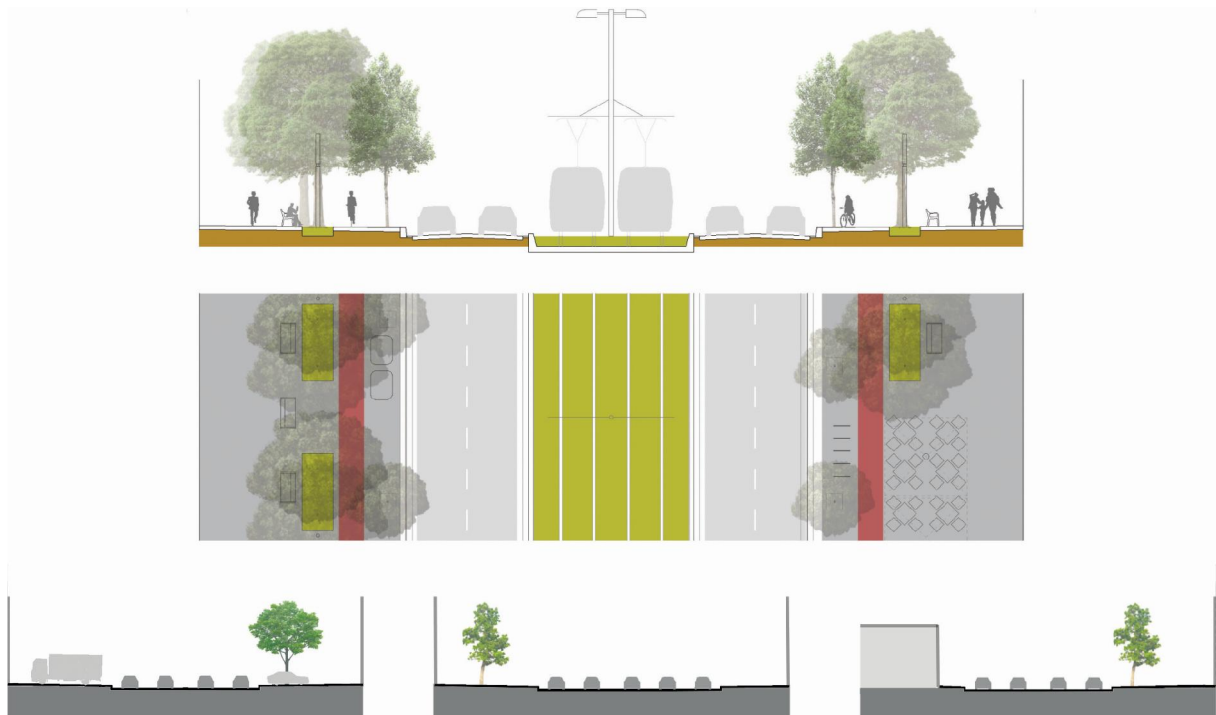
Item 4: Urban axis of av. de Cornellà, ctra. d'Esplugues (former part of c-245 transit route) before and after implementation of the tram system, with pedestrian links (yellow) and motorized traffic flows (orange) – (own elaboration based on Institut Cartogràfic de Catalunya)

2.4 PERMEABLE URBAN MEMBRANE

The transformation of the space wiped out the effect of the border between the two districts. The infrastructure of the transit route c-245 which was the cause of the urban fragmentation and rupture of the continuity was converted into integrated public space that allows longitudinal and transversal movement of the users, people and cars. Item 4 shows an increase of pedestrian transversal connections and rationalization of the car access.

2.5 SUPERPOSITION AS A MEAN OF DIVERSIFICATION OF URBAN COMPOSITE

Superposition of several modes of transportation (car, tram, pedestrians and cyclists) in the same public space, enabled not only unification of irregular street profile and establishing of the urban continuity, but also a treatment of the new, wider sidewalk as an authentic public space with its singular relevance able to accommodate traditional urban activities like leisure, encounter, public seating, walk, shopping, café, etc. The different materials used in the design of floor textures permit to identify the various functions related to the new activities or the movement of the pedestrians and tram: differentiate sectors, access, crosswalk, waiting areas, etc. More complex sidewalk has increased readability and sense of security for pedestrians (item 5).



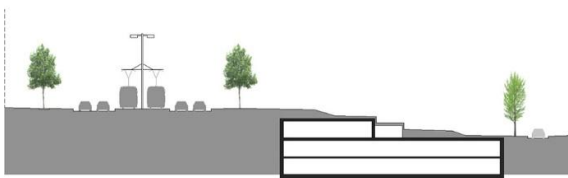
Item 5: Former irregular street profile (below) as car-dominated area with ineligious use of sidewalk as an area that negates pedestrian sojourn and the new integrated street profile design to harmonize different use and presence of various users (own elaboration)



Item 6: Crossroad of av. Cornellà and Laureà Miró before and after implementation of the tram – rationalization and articulation of the road space enables reduction of residual space around infrastructure opening possibilities for new activities and new sense of belongings for pedestrians (own elaboration)

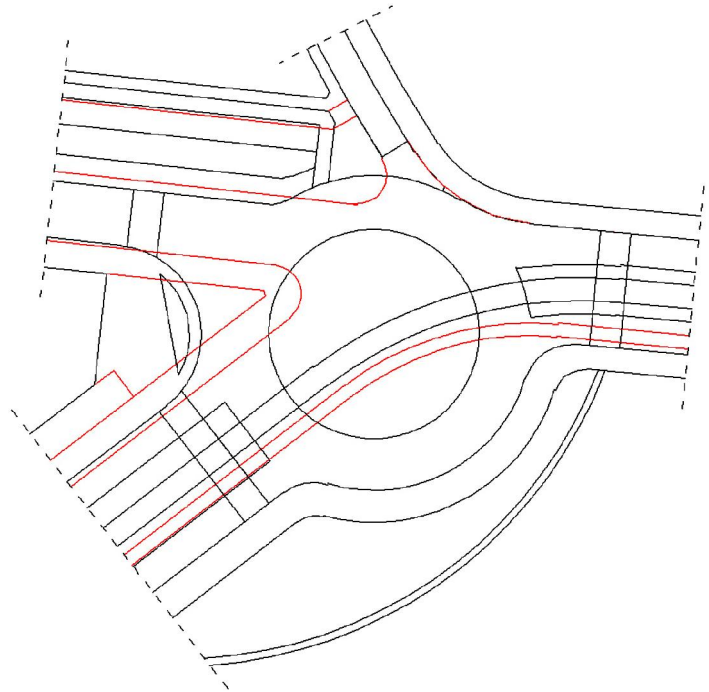
2.6 TRANSIT AND MICRO-URBAN EFFECT: RECLAMATION OF MARGINAL SPACE

German 19th century urbanist Josef Stübben has defined ‘traffic places’ and started contemplating about empty spaces created around transport proposing their beautification by introducing works of public art, fountains or greenery. Nowadays, as mobility is getting more complex in the multimodal connected city this problem is becoming more conspicuous. The implementation of the Trambaix within the fragmented and unarticulated area in the proximity of the more compact historical cores of the municipalities served by the network opened possibility for realization of a series of relatively small scale micro-urban interventions and reclaim marginal space in between mobility and urban value by creating pedestrian corners and the places of civic dignity around crossroads, roundabouts, over covered infrastructure, under the elevated infrastructure (of the train), pedestrians plateau around stops and stations, elevated platforms, etc. (items 6, 7 and 8)



Item 7: Pl. del Sol, Cornellà de Llobregat (left) created over underground parking as the part of overall public space refurbishment

Item 8: Pl. Mercé Rodoreda, Sat Joan Despi (right) – transformation of the morphology and use of the square with Bon Viatge tram stop (own elaboration)

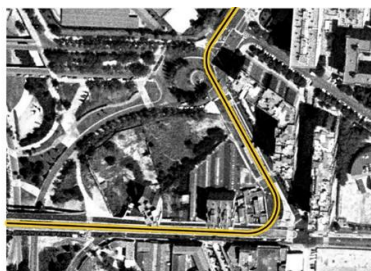
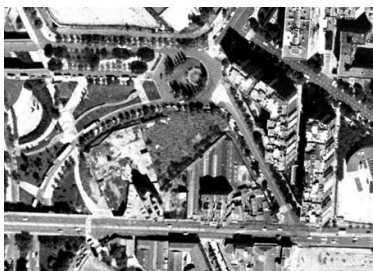


Item 9: Pl. Santa Magdalena and the crossroad of av. Cornellà and Laureà Miró (the future multi modal station Espluges Centre) before and after implementation of the tram, mobility gave character to former no place. Right - Superposition of the place before the transformation (red) and new morphology of the area (black) – (sources: left panoramio.com, right own elaboration)

2.7 MULTIMODALITY AS AN IMPETUS FOR URBAN PLACE

Public space is understood as an open and accessible collective space of community, with the possibility to be shared by different social groups, usually, being paid and maintained by public authorities. Infrastructure fulfills all these general criteria, but real civic urban public space should also have a sense of the place understood as human attachment and feeling of belongingness to certain public space (Léon Krier). According to Yi-Fu Tuan place come into existence when humans give a meaning to a part of larger indifferent urban space. Sense of space felt by users, visitors and inhabitants is a social phenomenon, a summation of individual sensations and is fundamental not only to attract people, but to attract activities. Therefore, the sense of place of public space is directly linked to its use, purpose and activities.

Tree large multimodal nodes of the Trambaix network Cornellà Centré, Ernest Lluch, San Feliú de Llobregat were transformed following these general guidelines. Located in between compact, historical centers of each municipality and intermediate infrastructural public space. Integrated projects scope different interventions like covering the transport area, landscaping, traffic calming, deflection of the traffic, traffic calming, streetscaping, positioning of the tram stops, introduction of public art or public seating, etc.



Item 10 – Intermodal node of Ernest Lluch before the implementation of the trams (left) and during the different phases of the rerouting of the tram line. The final solution tends to scope marginal and residual space adjacent to the infrastructure and to create a synergetic public space (like a square area between tram node on one side and the bus hub on the other side or the green area of the community garden

3.

MANNERIST APPROACH IN URBANISM OR IMPROVEMENT OF URBAN QUALITY?

First tram line of Zaragoza

'Urban integration is the incorporation into the public space of all logic that cross the city: pedestrians, cyclists, public transport, private vehicles, neighbors, merchants, visitors, history, culture, urban development, vegetation, water, etc.' (Alda y Jover architects, landscape architects of Zaragoza tram)

In the 2011, after a long discourse among professionals, Zaragoza introduced its first tram line (item 11) which runs through the city from the north to the south, crossing the historic center and replacing urban bus in this main transport axis. The model was adopted based on the example of French cities and several Spanish ones which adopted the same strategy. It is noticeable that all cities follow a similar pattern of synergy with public space, removing drastically cars in the center areas, transforming public space in less centric zones and creating new urban development on the outskirts. Since trams in the history were placed and removed from the streets of European cities, arising question is if this new popularity of the tram is just a passing fashion followed by Mannerist repetition of the similar urban pattern or a true improvement of the urban quality. On the other hand Alday Jover architectural studio was in charge of the project of urban integration of the transit in its context and have received different international rewords.

3.1 DELIVERANCE OF PEDESTRIAN ITINERARY THROUGH SELF-RELIANCE OF TRANSIT

The urban requalification brought by the introduction of the tramway allows a complete revision of the deteriorated urban landscape in order to create a public area that is really shared by all users. One of the objectives of the plan was to seek **to retain efficiency of the main transport route** through which trams operate, but at the same time to create a high degree of transverse porosity within the urban landscape and **to prioritize weaker users**, forcing the pedestrian continuity through the public space, the direct links for the pedestrians on the major crossroads and the removal of the barriers. The streets in the historical center were designed as the pedestrian zones, forcing cars to circulate at low speed, resulting in space under the control of pedestrians (items 12 and 13).

3.2 EQUITABLY DEPLOYMENT OF OPPORTUNITIES

The peculiarity of the integration of Zaragoza tram is the **constant quality** of the design parameters and architectural language through the entire urban territory: establishment of the coherent system of paving and urban elements throughout the city, design of urban mobiliary (like tram stops, street light, greenery, public seating and others), as well as democratic treatment of the public space in the suburbs and in the central areas. The constant quality of uses linked to the constantly reinforced the visual identity of the sequences being travelled through are fatherly complemented by a series of interventions at the key points (items 15 and 16).

3.3 URBAN MEMORY

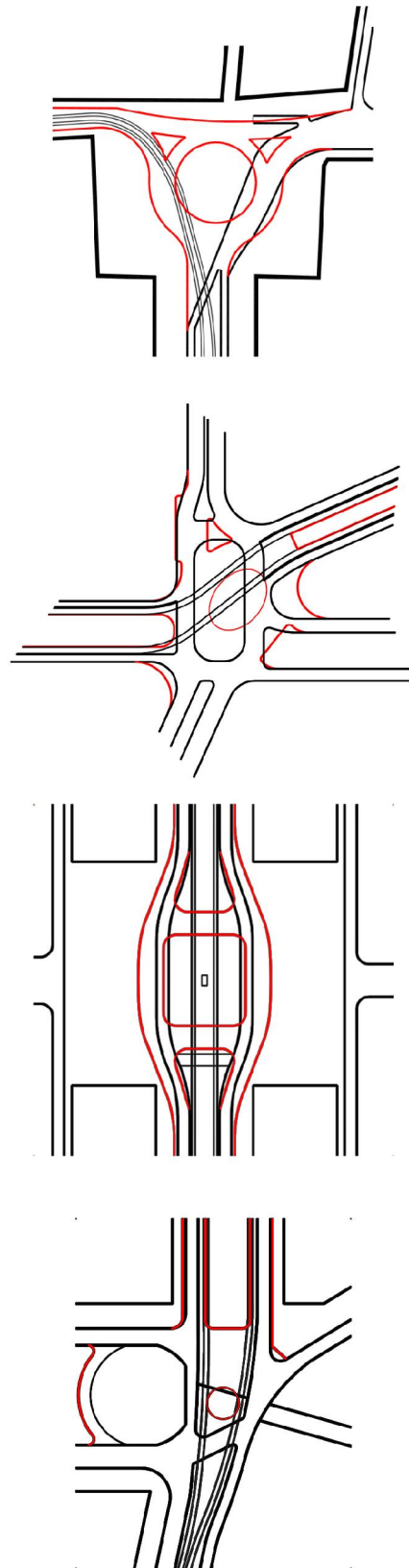
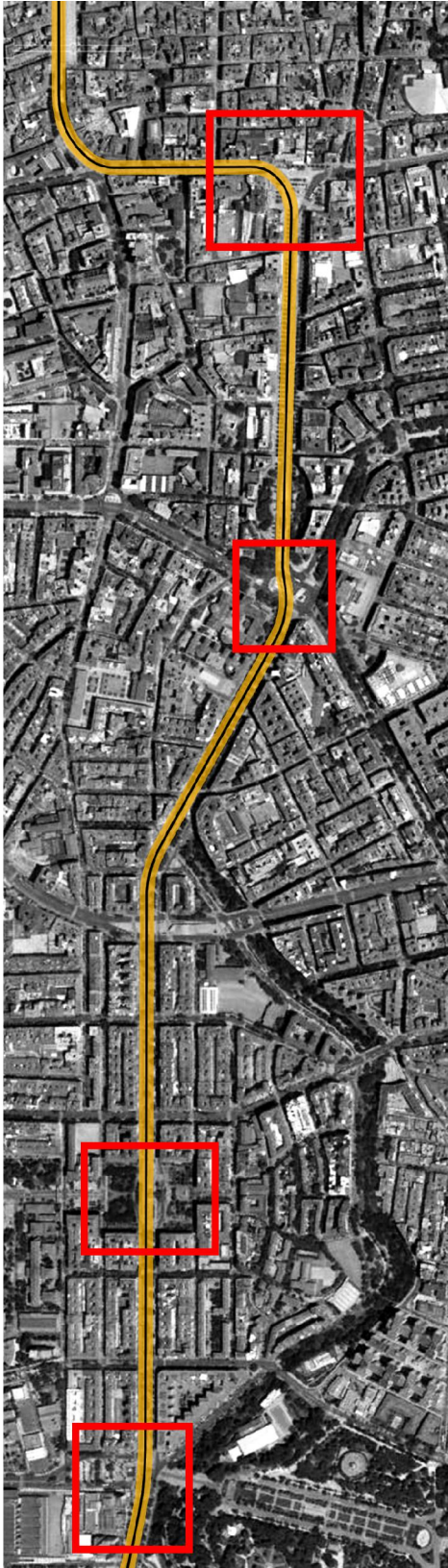
Evoking traditional forms and uses of public space, while integrating tram into their context is often a technique used in many European cities (item 14). Though being criticized for its postmodern formality, for its ineffectiveness having in mind the needs of contemporary city or even for its insecurity for pedestrians in the areas like historic centers where space is being shared with the trams, it is indubitably restoring the idea of the public space as an urban area shared by all users.



- Trams integrated with pedestrians (shared space)
- Central pedestrian promenade (sp. rambla)
- Trams on segregated platforms
- Double directional lateral tram tracks
- Planned trams lines
- Main transport route
- Tram stop
- Major hubs (main hub, train and bus station)
- New social housing districts alongside the routes



Item 11: Urban territory of Zaragoza and modes of incorporation of the tram in the street profile (own elaboration)



Item 12: Central fragment of the tram line - Paseo Independencia, Paseo de la Gran Vía, Paseo Fernando El Católico (right)

Item 13: Distinguish nodes of the fragment (pl. España, pl. Basilio Paraíso, pl. San Francisco, pl. Emperador Carlos) and the morphological transformation of the spaces before the implementation of the tram (red) and after (black) as the expression of the tendency to regain human scale of public space (own elaboration)

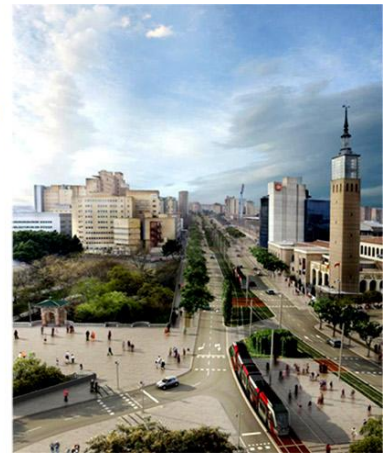


Item 14: The main square of Zaragoza (pl. España) and its morphological transfiguration during 20th and 21st century

At the beginning of the last century trams were present in every large street or square surrounded by public space shared by all users. After the Second World War trams were removed from the streets which were redesigned following guidelines from the Charter of Athens and confirmed in Buchanan's report like the separation of the modes of different speed. Contemporary configuration and the revival of the trams is regenerating traditional relationship between users, evoking the past (source panoramio.com)



Item 15: The historic core of Zaragoza and the creation of the pedestrian area around the tram line, following the model of many medium size European cities (on the first place French cities of Nantes, Grenoble and Strasbourg who initiated the process in the 80s). Removal of the car drastically changes the character of the space (source google maps / streetview)



Item 16: 3d presentation of the re-designed public space around tram line, with the introduction of the new activities, greenery, treatment of vehicle design as an integral element of the public space identity, the new morphology of the space and the increased possibilities to use public space (source: Alday Jover architects)

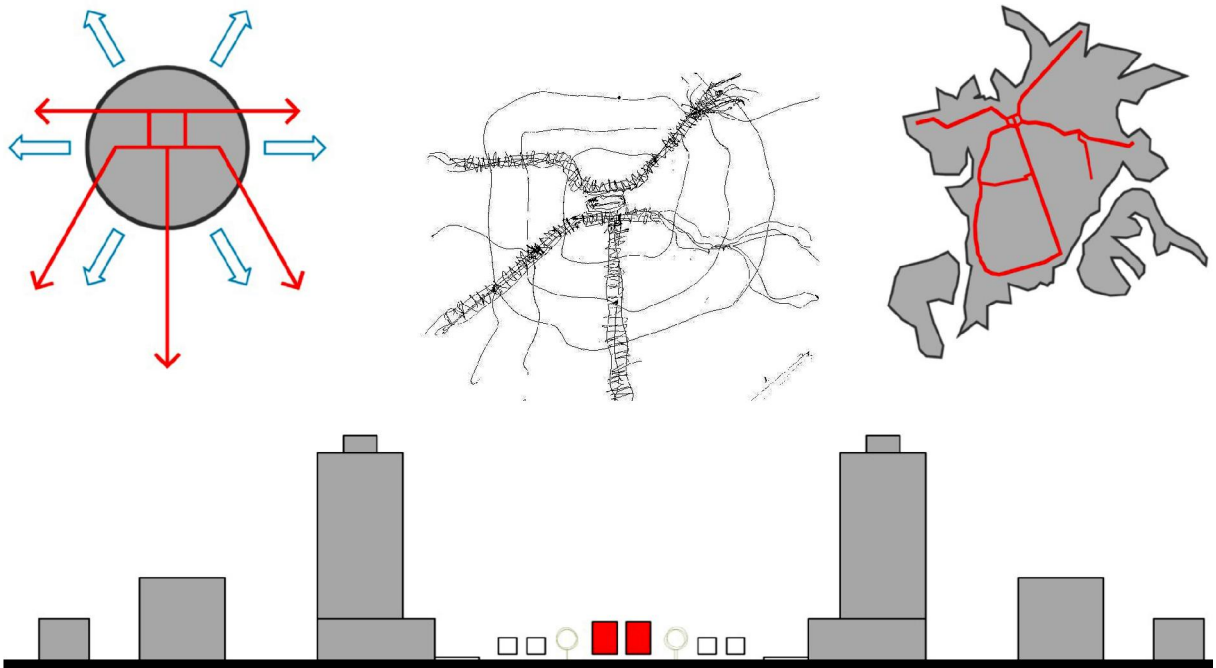
4. SOCIALLY RESPONSIBLE URBAN INFRASTRUCTURE

RIT, Curitiba

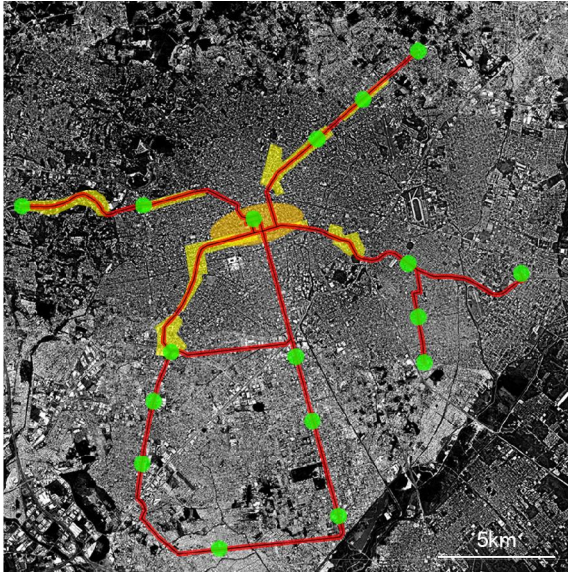


Item 17 and 18: Typical bus stop and red buses (left); high density alongside Curitiba's avenues (right) - (source IPPUC)

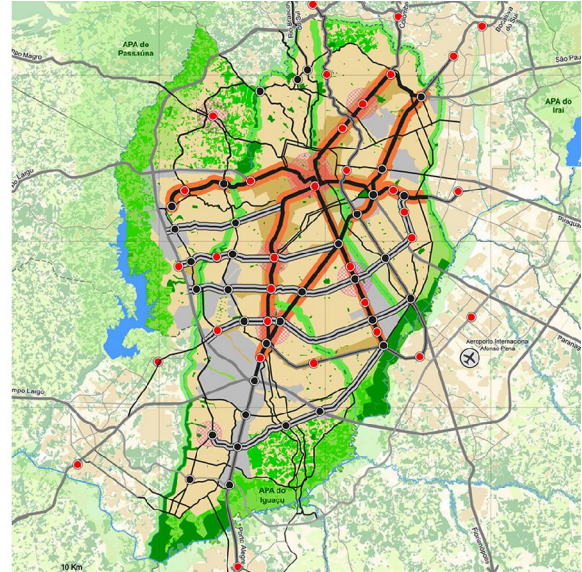
In the 60s Curitiba was suffering from the rapid increase of population and uncontrolled urban growth. It was a time in which Brasilia and its modernist planning were still considered to be a paradigmatic urban model for Brazilian cities, therefore the Government proposed a plan for Curitiba based on widening all major roads and transforming the city on behalf of private vehicle. Radically different proposal, very advanced for its time, came from investigation group lead by young architect Jaime Lerner who later become mayor of Curitiba. The plan was based on guiding linear growth of the city along five specified avenues with dedicated bus lanes, which would allow uninterrupted bus flow from the periphery to the center with speed and capacity of the rapid transit system like metro, but for the much lower price. The Proposed Rapid Bus System was to be integrated with urban growth based on the idea of intensified urban development and centrality alongside the bus corridors, which would additionally make the system more rational (items 17 - 21). Implementation of this general plan was a difficult task for the years to come and should include zoning and planning regulations, negotiations with citizens and other interested groups different urban and overall social strategies.



Item 19: The general principle of the model Curitiba – the integration between mobility and urban planning achieved through association of urban density with five avenues that accommodate rapid bus system and direct growth of the city (own elaboration)



Item 20 (left): Urban territory of Curitiba and rapid bus network (own elaboration)



Item 21 (right): Zoning plan from 2012 follows the same concept conceived in the 60s with green belt around the city and high density associated with the bus network (source: Instituto de Pesquisa Planejamento Urbano de Curitiba)

4.1 SOCIAL AND INSTITUTIONAL ENDEAVOR AS BACKDROP OF INTEGRATED PROJECT

Jaime Lerner was Curitiba's mayor for three alternating terms which gave his team enough time to implement the plan (items 20 - 22). The main part of the plan are the five avenues that guide the Bus Rapid System and are backbone of urbanization supported by the institutional planning. Another aspect are the conventional bus routes that were feeding the main system on circumferential routes around the center together with mini buses that were used in poor areas in which regular buses could not go in. The integral part of the plan was pedestrianization of the historic center, which found on strong resistance within society of the time. Different strategies related to the alleviation of poverty were essential in order to make the idea work (like reduced prices or even free rides for the residents of the slums who were participating in the local waste recycling projects, just like some special programs within schools that would inform young citizens about the social programs and benefits related to the programs). In the words of Jaime Lerner the most difficult task was to avoid centralized planning of the imposed plan which often led to the complete impracticability. The solution was to include the local community in the planning, to give some economic incentives for investors who participate in the program and make sure that all interested sides understand and have an interest in the realization of the plan following idea that **fusion of mobility and urban growth** is a multidisciplinary task with a strong social background.



Item 22: Aerial view of the Curitiba's urban morphology (source Panoramio)

4.2 MEANINGFUL HIGH-TECH MIMICRY

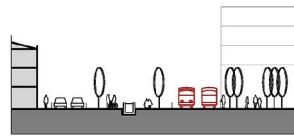
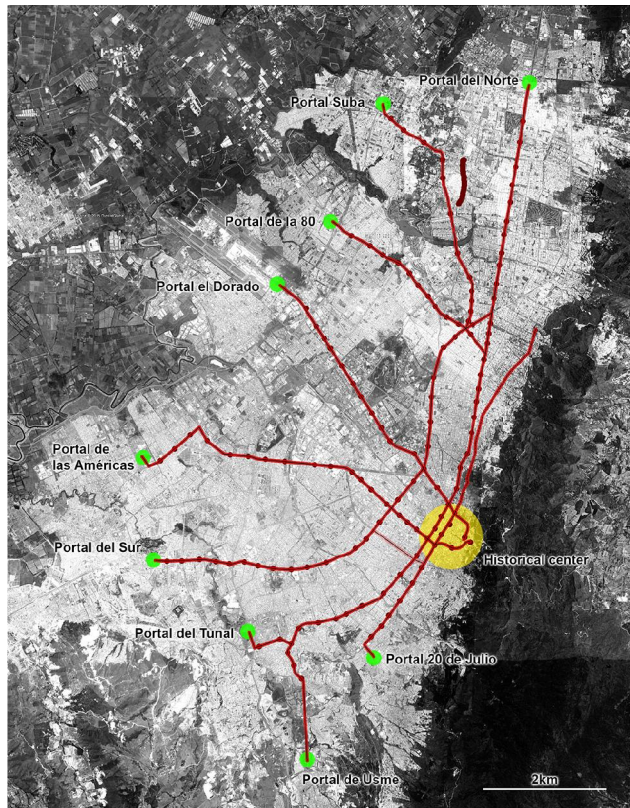
The bus system was designed to be visible and recognizable element on the streets of Curitiba. Except the red buses which create noticeable urban images while running on their dedicated lanes and have become an element adapted by different cities that adapted model of Curitiba, another specific element of BRT were cylindrical tube glass stations (item 23). Designed in a futuristic, high-tech manner as a symbol of technological ability their basic function is to provide a shelter and allow people to buy tickets when entering the station, before the bus comes in order to save time of loading and unloading of passengers. Stations are equipped with different amenities like the elevators for people with disabilities (which was an innovation for the 80s), public phones, newspaper stands, small retail, etc. Design, form, materials and futuristic look of the tube stations was an obvious mimicry of rapid transport systems like metro, planned as an element which will give the feeling of safety and efficiency to the passengers. But is this **post-modern high tech urban decoration** of the city or a **human scale** element which gives benefit to the users? During the years tube stations were heavily criticized for being uncomfortable by giving an unnecessary feeling of being trapped while waiting for the bus. Expect of that, stations can be defined as an introvert urban element, since they are all the same and unlike other transit systems, are designed without any local sensitivity and do not adjust to the public space or surrounding. Though, stations were very innovative for the time they were built, as the time was passing and a new technology was introduced, their functionality is questionable (low platform buses do not require an elevated access and the contemporary tickets registration works well without any previous ticket purchase). Still, iconic and recognizable appearance of the tube stations could be compared with the paradigmatic metro stations (like the Paris or Bilbao) which became real urban landmarks. Having in mind all the pioneer innovations which tube stations have originally introduced, even if they are once removed from the streets of Curitiba cylindrical glass stations will probably still be remembered as a certain symbol.



Item 23: The avenues and the typical cylindrical bus stop of Curitiba (source IPPUC and Panoramio)

5. SPATIAL (DIS) CONNECTION ON LOCAL AND METROPOLITAN SCALE

TranMilenio, Bogotá



Item 24 (right): The urban territory of Bogotá with TranMilenio network and the city center zone (own elaboration)

Item 25 (left): Typical modes of incorporation of TransMilenio into the public space – central district (above), urban avenues (middle) and urban highways with rapid bus station (below) - (own elaboration)

The rapid bus system of Curitiba proved to be a successful and economic solution for South and Central America and many cities have decided to adopt some similar strategies. By the end of the 20th century the city of Bogotá was faced with many problems like the increased urban population, poverty, insecurity, crime and low capacity of public transport together with one of the lowest car ownership in the region. The city adopted various urban strategies with the objective to improve the conditions - from overall public space politics, social projects to radically change of its urban mobility. Apart from the new pedestrian areas in the center, new urban parks, one of the longest bike lane network in South America and the world known carefree days, the city decided to implement a rapid bus system similar to Curitiba's giving it branded name to mark the beginning of the new period Transmilenio.

5.1 AFTERMATH OF SUPERPOSITION OF URBAN LAYERS

Unlike Curitiba, which grew together with its transit system, Bogotá was already developed city which played a role of a dynamic multi-layered support for the new layer. The basic idea in Bogotá was to use the existing urban highways which are crossing the whole urban territory and to use the central zone of those highways as the space for the bus corridors (troncales). The last terminal of each line was connected by regular feeder buses to its surroundings in which Transmilenio didn't have the access, which generates a powerful flux of people in the area of each terminal. The transit system provided a good territorial connection within the city, but as a new urban layer within the city it often caused local conflicts and disconnection on the urban level. All the required infrastructure (stations, buses, the intensive flow of people) is often too dramatic for its surroundings (item 26).



Item 26: Urban highways and avenues of Bogotá with TransMilenio buses, segregation of transportation modes and conflicts with surrounding public space

The rapid bus terminals caused intensive development of the urban area in the terms of the creation of the new residential districts as the result of increased connectivity (item 29), large retail facilities around the terminals. But, the urbanized public spaces in between those new artifacts, due to the social and safety conditions, often cannot be fully used or even cannot be developed having in mind their potential quality (item 30). Therefore, the terminals cause intensification of centrality and urbanization, but often the urbanized area generated in its proximity stays without clear significance and meaning.

5.2 FROM CORNERS OF PEDESTRIAN PERMANENCE TO INCOMPLETE CONCEPTUALIZATION OF URBAN RENEWAL

The Transmilenio started as an economic version of the rapid transit system, as a suitable solution for all the cities of the entire region of South America. But in the newer fazes there is a tendency to use the transit system as a tool to develop quality urban space in its proximity (items 27, 28 and 29). On one side, the large parts of the network are completely indifferent to their adjacent public space (or are incapable to have any influence on the morphologically defined and pedestrian antagonistic space like the urban highways) and a series of no places are emerging around the network. On the contrary to that, some areas of special interest are treated in a particular way and transformed into the civic places (like monumental areas, centric zone, historic core, important crossroads, terminals, etc.) which is an obvious improvement comparing it with preceding cases.

The question which is emerging is up to which point urban context and financial reality represented inevitable obstacles for system like Transmilenio to develop fully its potential as articulators of the public space in the terms of the overall improvement and up to which point we can talk about unachieved potentials of this synergy.



Item 27 (left): Intersection of Calle 6A and Carrera 10 - Intersection of the Transmilenio corridors in the wider zone of the city center has been as an opportunity to restore the pedestrian role and allow the movement of people, together with the articulation of its surrounding
Item 28 (right): The area in the front of the National museum in the center of the city was transformed into the pedestrian zone after constructing the first underground station of Transmilenio.



Item 28: Avenue Jiménez or Eje Ambiental in the historical center of the city, a street built over river San Francisco, an area of particular cultural and ecological importance of the city transformed into the pedestrian zone. Transmilenio as the additional layer follows the European model of integration of pedestrians and transit in the central area of the city



Item 29: Portal Usme on the south edge of the city – Images are showing the area in the year 2000 (left) and 2015 (right) Arrival of the Transmilenio encouraged the development of the large residential area (own elaboration)



Item 30: Uncomplete conceptualization of the public space? Public seating in front of the Transmilenio station, a large space without the users (left) and the portal Suba on the north edge of the city with large commercial artifacts developed in its proximity and intermediate public space (right)

6. CONCLUSIONS

Analyzed cases are **different from one another** due to the contextual adaptation to the circumstances, in the terms of a cultural framework, urban situation or technical requirements. This leads to the utilization of some different design technics and instruments of the relation with the urban environment and is causing different effects. In spite of that, we can **draw parallels between them**.

One of the main general aspirations is a conversation of a **transit place to urban place** and humanization of the environment, without depletion of its technologic or social constituent. This reconciliation between traditional use of public space and movement creates balanced, but hybrid environment and is followed by **paradox between metropolitan mobility and contextual locality**, defined by many different authors as a trans-locality (Bremer, 2010).

Evolutionary development of the paradigmatic concepts of integration can be seen by comparing early examples with more recent ones. The newer examples show a deeper alliance between mobility and public space, as well as a stronger formal recognition of the space through visual perception. Often, we can see a higher grade of improvement of the quality of urban life, in the terms of the level of the reconciliation of the ambiguity between public space and transport or the intensity of the reconfiguration. Accumulated practical experience of the previous references and a theoretical understanding of mobility as one of the layers within the urban complexity is making projects of urban integration more complex and multifaceted. Their designers have higher levels of consciousness of the synergistic effects.

Different urban logic are intertwined and public space alongside infrastructure routes is conceived as an expression and a logical continuation of the public space politics, showing ideas like the emphasis of or the pedestrian itinerary. In some of the cases urban mosaic of the city is changed by alleviating usual barrier effect caused by infrastructure. Enabling longitudinal and transversal connection and permeability of the new route makes infrastructural public space integral unit of the urban fabric.

Transit is becoming a constituent of the urban **territorial dynamics** by supporting a new development, centrality and urbanity. A common aspect of the cases of Barcelona and Curitiba is a strong relationship between the new transit system and the process of urban densification and centralization. Curitiba tends to institutionalize its implementation instruments (through master plans and negotiation with all interested sides) and its bus network was intentionally designed as an impetus for urban development. This process is more spontaneous, but logic in the metropolitan area of Barcelona within its economic context and the situation of increased connectivity.

The cases of Curitiba and Bogotá are illustrating paradigms of public space conditions derived as an outcome of the integrated, **organic development** of the city with mobility and the state of disorder caused by an **additional layer** introduced into the existing urban fabric.

On the urban level **new configuration of the public space acts as a base for the urban quality** and retrieval of the human scale. There is a tendency in all cases to convert residual and marginal space on the edge of the infrastructure and encompassed it into the urban composite. Idea is to convert previously unused parts of the urban fabric into the area of pedestrian permanence with some new urban activities (like plateaus, public seating, cafes or green strips).

Superposition of the mobility modes, followed by **superposition of the urban activities** contributes to the urban vitality and creation of the urban places. But still, that concept is not always possible due to the technical restrictions and the nature of the transit route.

Standard appearance of the infrastructure, as an outcome of the constancy of service and quality, emerges as a strong element of urbanity and an articulator of urban context, particularly clear in the case of Barcelona. Equalization, permeability, superposition and civic value are structural constituents of the conceptualization of the synergistic, infrastructural public space.

Transit acts as a strong element of urban image of the crossed area, giving a new character and identity to the public space. Urban landscape of infrastructural public space transforms rural, industrial or suburbanized areas (cases of Barcelona and Bogotá) or gives a new meaning to the urban environment through evoking historical urban morphologies (Zaragoza), emphasizing technological progress (Curitiba and partly Bogotá). It becomes a recognizable part of the visual identity. In the case of Curitiba the aesthetic of the bus stations seems to be driven by the formal mimicry of a rapid transit mode like metro, or even by the 'decoration' of the city using the exaggerated infrastructure, rather than being derived from the user's needs. The formality of a nostalgic evoke of traditional public space characteristic for European trams is apparent in the case of Zaragoza.

BIBLIOGRAPHY

- AUGÉ, M. (1995). *Los no-lugares: espacios del anonimato. Una antropología de la sobremodernidad*. Barcelona: Gedisa.
- AUGÉ, M. (2007). *Por una antropología de la movilidad*. Barcelona: Gedisa.
- BUCHANAN, C. (1964). *Traffic in Towns*. Harmondsworth: Penguin Books.
- BUGATTI, A., DELL'OSSO, R., & DE LOTTO, R. (2004). *Abitare paesaggio*. Milano: Libreria Clup.
- CHILDS, M. (1994). *Parking spaces. Design, implementation and use. Manuel for architects, planners and engineers*. New York: Columbia University.
- DELL'OSSO, R., SALVATORE, B. & MAURIZIO, S. (2001). *Paesaggio e Mobilità*. Milano: Libreria CLUP.
- DELL'OSSO, R. (2009). *Architettura e Mobilità*. Milano: Maggioli Editore.
- DE CESARIS, A. (2004). *Infrastrutture e paesaggio urbano*. Rome: EdilStampa.
- DUNPHY, R. et al. (2004). *Developing around transit: Strategies*. Washington: ULI-The Urban Land institute.
- GEHL, J. (2010). *Cities for people*. Washington, DC: Island Press.
- GONZÁLEZ A. (1997). *Els Tramvies de Barcelona: dels orígens a 1929: història i explotació*. Barcelona: Rafael Dalmau.
- GRONECK, C. (2006). *Metros in Frankreich*. Berlin: Robert Schwandl Verlag.
- HAUCK, T. et al. (2011). *Infrastructural Urbanism. Addressing the In-between*. Berlin: DOM Publishers.
- HERCE, M. (2009). *Sobre la movilidad en la ciudad: propuestas para recuperar un derecho ciudadano*. Barcelona: Reverté, cop.
- HERCE, M. (2002). *El Soporte infraestructural de la ciudad*. Barcelona: Edicions UPC.
- LERNER, J. (2005). *Acupuntura urbana*. Barcelona: Institut d'Arquitectura Avançada de Catalunya (IAAC).
- LYNCH, K. (1985). *La buena forma de la ciudad*. Barcelona: Gustavo Gili.
- MIRALLES-GUASCH, C. (2002). *Ciudad y transporte: el binomio imperfecto*. Barcelona: Ariel.
- MUMFORD, L. (1963). *Techniques and Civilization*. San Diego: Harcourt Brace.
- RICHARDS, B. (2001). *Future transport in cities*. London: Spon Press.
- SHANNON, K. & SMETS, M. (2010). *The landscape of contemporary infrastructure*. Rotterdam: NAI Publishers.