Milos Stipcic

Architect, graduated from the University of Belgrade and a PhD candidate at Polytechnic University of Catalonia. His research is about public spaces and infrastructure. He worked in several architectural and urban design studios in Barcelona and Belgrade. He held lectures on different universities (UPC, Belgrade University and Trinity College - Barcelona) and participated in international conferences.

Infrastrutture come Occasione di Arte Pubblica per la Valorizzazione e l'Identità del Paesaggio

Infrastructure as Public Art: Additional Value and Identity of Landscape

Questo articolo esplora la complessità nella comprensione delle infrastrutture di trasporto come elementi positivi del paesaggio urbano mediante processi progettuali che uniscono specifiche qualità ed eccellenza estetica con le relative caratteristiche d'operatività e d'uso. Questo studio è tratta dall'esempio del sistema tramviario di Strasburgo e consiste di quattro parti. La prima descrive la sinergia tra tram moderni come strategia di mobilità e il rinnovo dello spazio pubblico come parte di quella stessa strategia. La seconda parte è una struttura teorica e riflette sul rapporto tra le infrastrutture e il senso dei luoghi. La terza è l'analisi di tre nodi intermodali la cui comune caratteristica è l'unità con il relativo paesaggio urbanistico. L'ultima parte sintetizza i parametri del progetto e l'uso che l'autore ne fa per la concezione di questi progetti.

This article explores complexity of conceptualization of transport infrastructure as an affirmative element of urban landscape, through design process which amalgamates distinctive qualities and aesthetic excellence with its operational and serviceable character. The study is exemplified through case of tram system in Strasbourg and it consists out of four parts. First part describes synergy between modern trams as mobility strategy and a renewal of public space as a part of that comprehensive strategy. Second part is a theoretical framework and reflects about relationship between infrastructure and sense of the place. Third part is analysis of three representative intermodal nodes with the quality of an assemblage within their urban landscapes. The last part summarizes the indicators of design and author's position applied to conceive these projects.

Parole chiave: paesaggio urbano, spazio pubblico, infrastrutture di trasporto, strategie di mobilità, arte pubblica.
Keywords: Urban landscape, public space, transport infrastructure, mobility strategies, public art

SINERGY BETWEEN LANDSCAPE DESIGN AND IMPLEMENTATION OF MODERN TRAM SYSTEM

Infrastructure and urban context

Urban landscapes of contemporary cities are largely shaped by transportation infrastructure, which becomes pivotal element and interacts with city by generating movement, increasing accessibility or influencing real estate capacity. As cities are highly dependent upon movement of people mobility becomes inextricable part of urbanization and infrastructure, as a public investment, presents a good opportunity to influence the inhabited urban landscape and create better environment[1]. Commonplaces of contemporary mobility design are urban interventions alongside infrastructure with an objective to integrate transport into urban context, beautify the area, ease the access, increase operationally, give identity to public space, generate new use.

Treatment of infrastructure as multidisciplinary project with greater involvement of architects, landscape architects or artist, reconsideration of the strict 'form follows function' concept catalyzed by modernistic movement, relinquishment of rigorous zoning based on division between transport areas and other functions, gradually leads to transition from over-engineered infrastructure typical for the second half of 20th century to contemporary trend of designing infrastructure as an object, piece of architecture or even urban landmark[1]. In the last few years we see increasingly frequent attempts to re-design transport public space and give it civic character.

Up to which point and under which circumstances infrastructure, as a functional and inevitable aspect of urban environment, can become its affirmative element, giving it new significance and additional value? Initial assertion is that multidisciplinary collaboration during mobility design could generate new landscape and establish new connections between infrastructure and landscape by exceeding usual functional requirements of infrastructure treating it as an artifact of monumental, sculptu-

Figures 1 & 2 - TSquare Lesseps, Barcelona (renewal 2009, arch. Albert Viaplana) Fusion of civic public space and transportation node
[Previous page]
Figure 1 - http://www.viaplana.com/PLACA%20LESSEPS/index-plantilla.htm
Figure 2 – by author

ral and artistic value.

Having in mind that infrastructural objects are not separated units, but fractions of larger system, the idea is to critically discuss relationship between aesthetic qualities, functionality and cost through evaluative principals like contribution of these projects to their urban context, assessment of their effectiveness, level of enhancement of urban landscape, feasibility, artistic value, challenges and opportunities. New generation trams in the context of medium size European city, particularly in France, are good examples that illustrate these ideas.

The role of tram in European city: from traditional to new generation trams

In the last few decades we are witnessing interesting process of reviving the trams, which encompasses many cities in Europe. It started in France with Nantes (1985) then Grenoble and Strasbourg and until today it spread over 34 cities in France[2], several Spanish cities and many others in Europe. This wide phenomenon, is not just a simple improvement of public transport, but a mobility strategy which works in synergy with other transportation strategies and is followed by comprehensive public space policy, with an objective to redefine way of movement in the cities and give them back lost human scale[3]. To understand it we have to un-

derstand the history of this process.

Trams were the first public transport mode that was introduced in European city in early 19th century as animal-power and rail-guided, first in UK and in other countries. As technology was developing electric power replaced animals - first in Berlin in 1881 and in following years in other cities like Paris, Budapest or Sarajevo. Soon trams become not only indispensable transport mode, but also backbone of urbanity and the essential part of urban landscape. By the beginning of 20th century tram routes were generating urban development, vehicles were recognizable part of city image while trams were sharing the same space with other participants of mobility

[Next Page]
Figure 3 – Renewal of public space in synergy with implementation of trams, Strasbourg
Images by C.T.S. Strasbourg

(pedestrians, bicycles and cars).

As technology was progressing needs of society were changing and urban theories were conceiving different cities that will meet new conditions. Car become dominant mode of transport and principals of the Charter of Athens were fully promoting this new mode proposing, among other things, separation between different speed mobility modes and re-configuration of the traditional street[4]. After the WW2 car become symbol of the new age, buses were considered to be flexible transport mode fully compatible with cars, sharing the same space. Trams were seen as an obstacle and were gradually removed from the streets of almost all cities, which was a sign of progress in that time.

Car-oriented policy seemed as progressive at the beginning, but through decades led to devastation of public space in terms of loss of traditional and social activities of the street with sidewalks reduced to function of communication, large parking area in the city centers, traffic jam, noise, pollution, over-sized transportation facilities and generally loss of human scale[5].

Decision to re-introduce trams followed by renewal of public space and creation of new urban landscape was seen as a possible solution to these complex problems. City of Strasbourg is a successful example of these multi-disciplinary interventions[6].

Strasbourg - logic of its tram system, mobility strategies and public space

Strasbourg, with population of 270.000[7], is among largest French cities and capital of Alsace region. Rich cultural heritage and dynamic history made Strasbourg to be a multicultural administrative center. Old town, located on river island Grande-Île, is protected by UNESCO as important medieval urban ensemble.

Just as in other cities in France, car-oriented urban policy of post war period led to similar problems of public space devastation particularly in the Old town where parking and car lanes occupied large areas. It was clear that city needed a better public transport and the city

[Next Page]
Figure 4 – Strasbourg, tram network and logic of its implementation
(by author)

planners chose modern tram over LRT, claiming it was not just a mobility improvement, but a tool for a larger urban transformation. When the first line was implemented in 1994 there was a strong opposition6, fearing that tram might impede car traffic, reduced accessibility or won't be feasible due to its high cost. But soon it was proven as a success and system is constantly expanding. Now network consists of 6 lines covering the whole city, 37 km of track, 67 stops and more than 300.000 rides daily. Its high cost (approx. 25-30 m. Euros per km[8]) has been justified by the cost of renewal of public space that was following implementation of tram system and was an additional value for the city. Network is radial and

most of the lines pass through historical core of the city intersecting at the square Homme de Fer, the main hub. The line E[9] is the only orbital one, giving reticulate character to the network.
The whole area of the Old town has been transformed into a large pedestrian zone with limited car access while trams share space with pedestrians. In order to make possible such large pedestrianization different measures were required. Besides that trams served as powerful connection between peripheries and the center enabling pedestrianization, it was necessary to decrease on-street parking within the pedestrian areas and resolving the problem of parking space became a ma-

jor task. This was achieved by planning park and ride system with more than 4000 parking lots within 8 tram terminuses located in the outskirts of the city, equipped with different facilities, connected to urban trams, buses and bicycle network.
Another important operational feature are platforms on which trams are running separated from the cars and the rest of the traffic, which gives trams features of rapid system and additionally, platforms are reducing area dedicated to cars, making trams the fastest mode. Thanks to light synchronization and right-of-way, system becomes more efficient which enables all of mobility strategies (pedestrian areas, trams, P&R terminuses, etc.) to
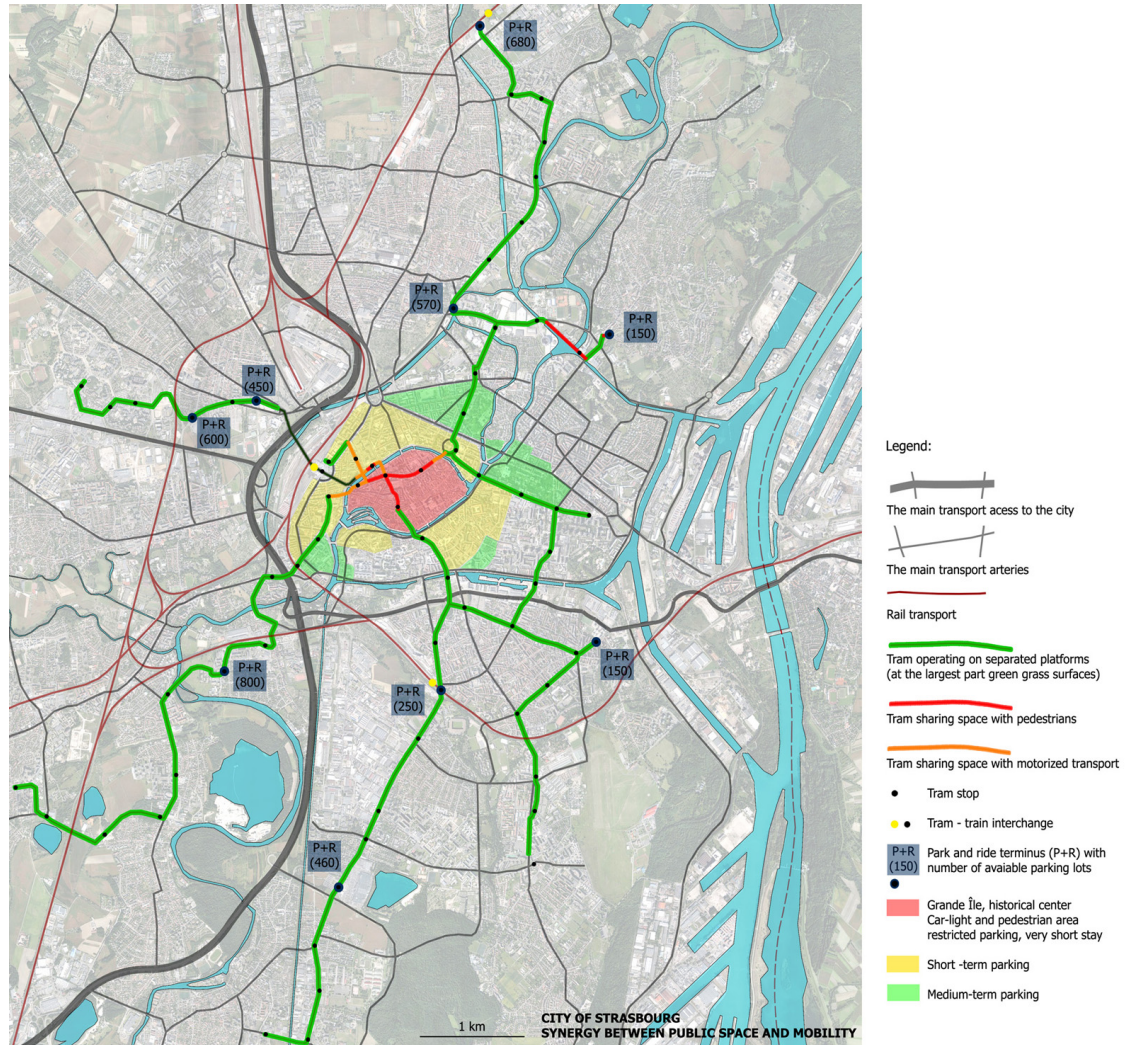
work together.

Except civic character of public space, pedestrianization and social activities public artworks were in the main focus and eco aspect was expressed through greening space around infrastructure (alley, grass platforms, etc.)[10]. These intentions gradually led to a series of urban interventions alongside tram routes and three most interesting examples are the main hub, square Homme de Fer redesigned by local architect Guy Clapot as a fusion of transport hub and civic place and two suburb P&R terminuses Hœnheim-Nord, designed by Zaha Hadid architects and Robertsau Boecklin, work of French architectural studio Paradon & Denu. Despite of their differences, all of them were designed to be valuable parts of urban landscape with aesthetical qualities that can be compared to artworks, each one with its particular sense of the place.

INFRASTRUCTURE AND
SENSE OF THE PLACE

Conceptual background for all these urban interventions associated with implementation of modern tram could be explained through much wider field of complex relationship between transportation infrastructure with principle of sense of the place, as one of the crucial subjects of discussion of contemporary urbanism, public space and urban landscape.

Legend:

The main transport acess to the city

The main transport arteries

Rail transport

Tram operating on separated platforms
(at the largest part green grass surfaces)

Tram sharing space with pedestrians

Tram sharing space with motorized transport

• Tram stop

• Tram - train interchange

P+R (150) Park and ride terminus (P+R) with number of avaiable parking lots

Grande Île, historical center Car-light and pedestrian area restricted parking, very short stay

Short -term parking

Medium-term parking

CITY OF STRASBOURG
SYNERGY BETWEEN PUBLIC SPACE AND MOBILITY
1 km

Public transport nodes as a way to create urban place

Kevin Lynch is classifying urban images through five main concepts: paths, edges, districts, nodes and landmarks. Paths are seen as routes or lines of movement and nodes are strategic focus-points of the city with multilayered significance[11]. Nodes are concentration of movement, intersection or confluence of transport paths and at the same time they present concentration of activity, intensive focus of urban functions, social life, meeting points or places of reunion. To explain this ambiguous character of transport nodes, central issue is relationship between node as concentration of movement and node as focal point of activity.

Sense of the place as the basic concept of urban place

Public space is understood as collective space of community, generally open and accessible to everyone, with possibility to be shared by different social groups. Usually, it is being paid and maintained by public authorities1. Infrastructure, by its very nature, fulfills these general criteria, but public space, understood as urban civic place, should have more than these generic characteristics – it should be a part of urban context with its own sense of place.

Sense of place or Genius Loci was discussed by different multidisciplinary thinkers like urban theorist Jane Jacobs, Jan Gehl or Lewis Mumford. Many human geographers were trying to define this space feature like Yu-Fu Tuan (dealing with questions of place and space relationships) or Tim Cresswell (with special interest in definition of place and its relationship with mobility).

Furthermore, sense of place has special importance in the works of postmodern architects and thinkers like Aldo Rossi with his four main paradigms of architecture (A priori, Archetype Zeitgeist) and Genius Loci) is talking about sense of place.

Genius Loci, in the context of modern architectural theory has profound implication for American approach of place-making, developed by movement of New Urbanism (Pe-

Figure 5 - Rambla del carrer A, Barcelona, 2007
Linear Park under the elevated metro route
(by author)

ter Calthorpe, Andrés Duany, James Howard Kunstler or Christopher Charles Benninger), whose work was largely inspired by European urban planner Léon Krier. Finally, Marc Auge gave contribution to the definition of the term Sense of place by analyzing Non-places as examples of opposite phenomenon.

Sense of place consists of two main aspects – characteristics that some places have and perception held by people. It is about human attachment and feeling of belongingness to certain public space, felt by users, visitors and inhabitants and a social phenomenon, as a summation of individual sensations. Understanding how sense of place develops means to understand how people interact with their environment.

Sense of the place and infrastructure

Marc Auge defines non-places as unidentified space without sense of place, illustrating them by shopping malls, departure stores, fast food restaurants or gas stations and other infrastructural facilities. Infrastructural transportation nodes are considered to have non-place features due to their mainly functional purpose[12]. Transportation requires different physical elements (routes, access zones, auxiliary facilities etc.) which give it unambiguous character. Similar effect is intensified by nature of people movement and presence at transport public nodes. People are there rather because of necessary then pleasure, whether they are standing, sitting, passing through or communicating. Nevertheless, some mobility nodes are demonstrating vice versa outcome, becoming real public space which have more complex meaning for the people.

Historical overview of coexistence of urban activities within transport nodes

Some of the historically most important examples of transport node which is taking an urban image and encourages other urban activities are 19th century train stations[1]. Infrastructural nodes were articulated as public spaces due to increased popularity of the train travel within burgoos society. They were flux points and used by all parts of the society. Train terminals were conceived with certain dualism in mind, consisting out of two parts - one is platform zone that was more of utilitarian nature, with structured modern roofs, sign of technological development and herald of 20th century and the other part was access hall, entrance zone, conceived as grandiose public space, link with the city and typical eclectic architecture of 19th century.

Due to their position in the city, people flux and mixture of users, train stations became public spaces hosting waiting halls, dining rooms, famous restaurants or bars, later shopping zones, etc. Stations become links between travel destination, between city and the transport or between n19th and 20th century. Those areas

overcame their pure practical purpose and be-come civic spaces of higher value. This featu-re is kept up to present-day time, when many large intermodal stations are accommodating facilities which are focal point of the cities and not only meant for the travelers.

Public transport nodes causing micro-urban effect on the landscape
Public transport nodes are different from lar-ge intermodal station due to their size, posi-tion and waiting time. They have more practi-cal purpose and functional meaning, but this does not mean they have no power to articula-te sense of the place.
Impact of public transport node on urban

context could be defined as micro-urban ef-fect. This term refers on small-scale tran-sformation of immediate surroundings, but still strong enough to change character of the place and generate new use. Micro-urban effects could be understood through two con-cepts: social change (use and identity aspect) and material change (intermodal and physical aspect).

Social change, people behavior and feelings
Social change is caused by access and peo-ple flow. Nodes are gathering places for large group of people and different social classes, which is a fundamental feature of urban pla-ces as places that attract people. Still, nature

of people movement within public transport nodes is more of practical purpose and neces-sity. This means that people behaves differen-tly in transport public spaces and civic public spaces. They stay shorter, walk faster and spend less time to sit, stand, enjoy or observe public space and generally, are more nervous and busy5. Waiting time spent there is indi-spensable and obligatory, but not always en-joyable and people complain about crowd and hustle. Central question is up to which point this pragmatic and practical use of urban spa-ce could coexist, or even be integrated, with other more relaxed types of use like leisure, recreation, commercial activities, etc. and if this mixture of use could endow urban space

Figures 6 & 7 - Square Homme de Fer and its position in the Old town
Figure 6 [right] –
by architect
Figure7 [left] – by author

with new meaning and value.

Material change as base for complementary activities

Main tools for material changes are infrastructure, additional facilities and other urban elements. Public transport nodes require infrastructure (routes, platforms, stops, canopies, light, bridges, etc.), which is physical element which presence could transform urban surrounding. Transformation is intensified by necessity to integrate public transport with other mobility modes which requires complementary facilities (pedestrian access, bicycle lanes, parking, walkways, etc.). Finally, it is an opportunity for additional landscape tran-

sformation. This is achieved by introduction of urban elements like pavements, greenery, water, public sitting, pedestrian areas, promenades, paths, etc.

TRANSPORT NODES AS ASSEMBLAGE WITHIN URBAN LANDSCAPE

These theoretical concepts are integrated into the design of three selected nodes: square Homme de Fer, terminus Hoenheim-Nord and Robertsau Boecklin. Analogically to artistic process of assemblage (based on creating artworks by putting one next to another objects which usually do not have artistic value, but which in the new context acquire new meanings), all nodes are compositions of

transportation infrastructure and other urban elements, with an objective to enhance urban landscape and create civic place. Their differences are expressed through comparison with other forms of art, having in mind primer purpose of these.

Homme de Fer is a small ($2000m^2$) triangular square located in the heart of the Strasbourg's Old town, but also a busy intermodal hub, with the main tram station, intersection of almost all lines, underground parking of 450 lots and taxi station. On this square transportation coexist with bustling public space, shops and bars. Homme de Fer is located just next to the main square Kleber and hectic pedestrian streets. By implementing trams square was comple-

Figures 8 & 9 -Square Homme de Fer before and after the renewal
Images by architect

tely renovated becoming one of the pioneers by exploring the idea of infrastructure as a tool to enhance urban context. Before the renewal this square was just an imperceptible street junction and Kleber square was used as parking area.

The comprehensive solution for both squares was to place the entire infrastructure on the smaller square, liberating the main one to be the center of the social life[13]. Effect on the Homme de Fer square was very interesting - infrastructure placed within small public space contributed to reconfiguration of the urban place, changing its morphology, usage, character and creating new sense of the place.

Dominant shape of the square is the circular roof which covers 1/3 of the whole area arising 7.5m above the ground. Symbolic power of circle, with its simple, but strong geometry aims primary to emphasize and signalize importance of the site. On the other hand, circular roof unifies complexity of the space and lowers its scale[14], sheltering tram stop, ticket facilities, taxi station, pedestrian access to the parking, café, public seating and large part of simple walking zone. Both types of human activities (waiting for a public transport which as need-based and walking through the public space as enjoyable, leisure-based activity[5]) are proceeding simultaneously sharing the same area. Both groups of users are merged together, creating crowded, busy place.

It could be observed that dominant circular shape marks the importance of the tram stop and tram system rather than contribute to the significance of the public space itself, which is seen clearly through its indifference towards its urban context[14]. Similar iconic circular roof could be applied on the spaces of different morphologies and glass rotunda is an introvert in regard to its urban environment as a self-sufficient landmark with no relationship with other landmarks, like the statue of an Iron man, previous symbol of the square which gave it name or the Valentin-Sorg tower as the most important architectural piece of post war development.
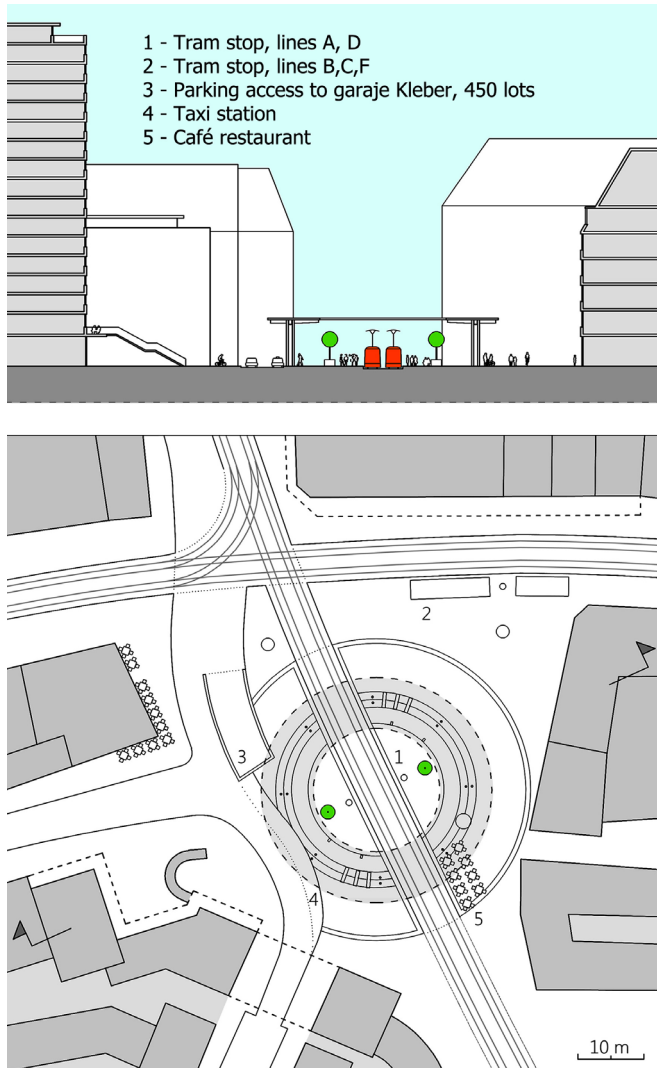
The role of the central tram hub as the imme-

1 - Tram stop, lines A, D
2 - Tram stop, lines B,C,F
3 - Parking access to garaje Kleber, 450 lots
4 - Taxi station
5 - Café restaurant

Figure 10 -Square Homme de Fer – plan and elevation (elaborated by author)

diate moving force of the square refurbishment was additionally augmented by the importance of the site, which is one of the preconditions for validity. Operational character of the hub is well balanced with its civic use, while the circular roof becomes an urban landmark or even a monument, which opens a discussion about its self-sufficiency and contextuallity.

Hoenheim-Nord, located in the north district of Strasbourg, is an intermodal node which contains an interwoven program of waiting space, bicycle storage, toilets, trams, buses, train and 700 parking lots of P&R system. The P&R is planned to encourage people to leave their cars and continue their journey by public transport. Though this strategy decreases number of cars in the center it actually increases parking in the suburb, which opens the questions of its impact on the surroundings relative to location and scale, perceptions of the buildings or how they look and feel both with and without cars.

As intent to give adequate response to this problematic car park was design with an idea to define, rather than occupy space, by creating artificial nature as a fusion of infrastructure and landscape within its urban context.15 When Hoenheim-Nord was open it was a node dislocated from residential zone on the very end of the urban area. But the recent development (third age residence and housing) on the adjacent lot Hoenheim-Nord will become

integrated part of urban tissue, which makes more interesting reflections about its design approach.

The concept of overlapping fields through three dimensional graphics of light and openings tends to create energetic and attractive place, enhancing formal frame of its circulation requirements. The assemblage of fused elements forms constantly changing but defined unity, which echoes the movement of people, cars and trams. Dominant element is the folded concrete canopy which covers the station, marks the urban place scoping the whole area together with the pavement pattern which crosses the rest of the node. Sinuous lines parking lots, emphasized by light posts above each space, additionally contribute to the impression of dynamics.[15]

Described concepts significantly raise the cost compering with other similar terminals opening the issue of its feasibility, though, operational and practical utility has not been diminished. There is a question of size and scale of urban intervention, having in mind transformation of the area from peripheral vacant lot which can lodge high-tech ensemble as this one and the morphologic and social relationship it will establish with its new surroundings. Many of these problems are the consequence of planned mobility strategies and some of inevitable repercussions cannot be overcome.

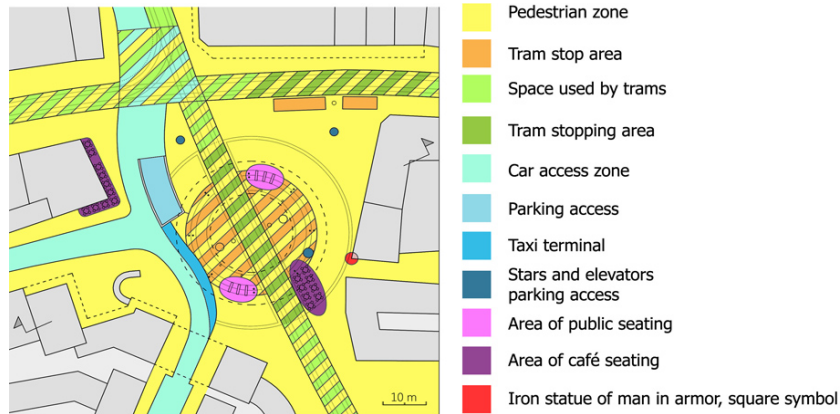Interest of this case, in comparison with the

Pedestrian zone
Tram stop area
Space used by trams
Tram stopping area
Car access zone
Parking access
Taxi terminal
Stars and elevators parking access
Area of public seating
Area of café seating
Iron statue of man in armor, square symbol

10 m

Figure 11 [Top] - Usage of public space and pervasion of activities (by author)
Figures12 & 13 [Middle] — Square Homme de Fer and Stonehenge — symbolic power of the circle (by architect)
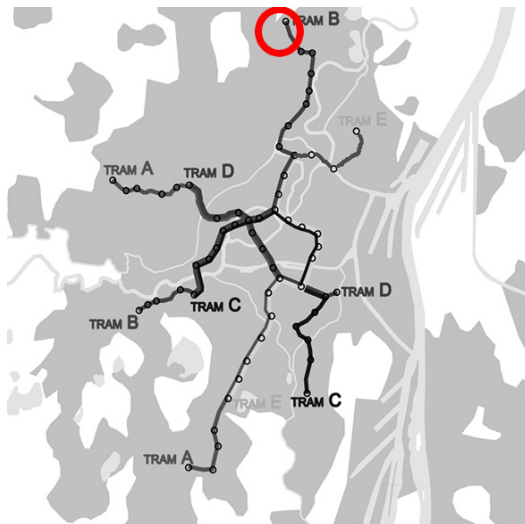Figure 14 [Bottom] — Indifference of circular form (by author)
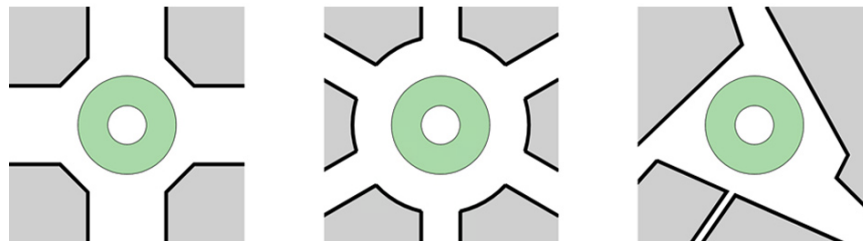
Figure 15 - Terminus Hoen-
heim-Nord and
Its position in the city
(images by architect: http://
www.zaha-hadid.com/archi-
tecture/hoenheim-nord-termi-
nus-and-car-park/)

previous one, is that similar urban program in a slightly different urban context, with time difference of seven years, has been resolved using different planning postulates and mechanism. Authors of the project, Christian Paradon and Claude Denu, have wide experience in infrastructural and transportation design, with different innovative solutions.

The tram terminus is located in the relatively dense suburb residential area, surrounded by large green zone, just next to European district with important administrative institutions. It contains tram stop linked to local buses and slightly dislocated parking with capacity of 150 lots. Tram stop, in this case, served as a powerful tool for revival of this street junction.

Constant movements of people and passengers who are waiting for the public transport have been seen as an opportunity to create local park or gathering place. Design uses geometry of randomly arranged circles, as an abstract art composition, which unifies the whole area. Geometry expands from colored glass, sculptural canopies which evoke flower beds or trees, into flowerpots and green areas with benches.16 Circles are, by the words of architects, echo of nearby European complex which follows the same design pattern. Coalesce of infrastructural and landscape elements creates park like atmosphere, softening transport character of the urban landscape, evoking tranquility of the countryside with overall

impression of cheerfulness and optimism.

The tram station generates movement, which helped re-creating this insignificant urban junction into a small-scale social center and artistically shaped infrastructural facilities inosculate with its surrounding. Other features of this project are unification (in morphological and formal sense) of stop and park, the whole artifact is design to echo its surrounding, while recreation and transport are successfully joined together.
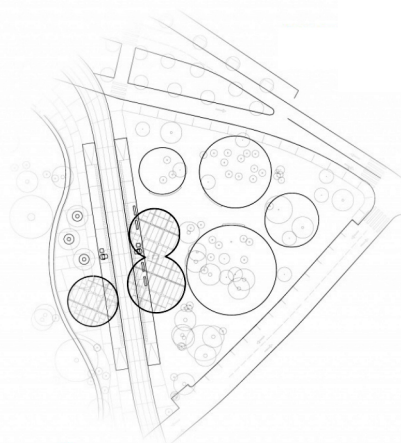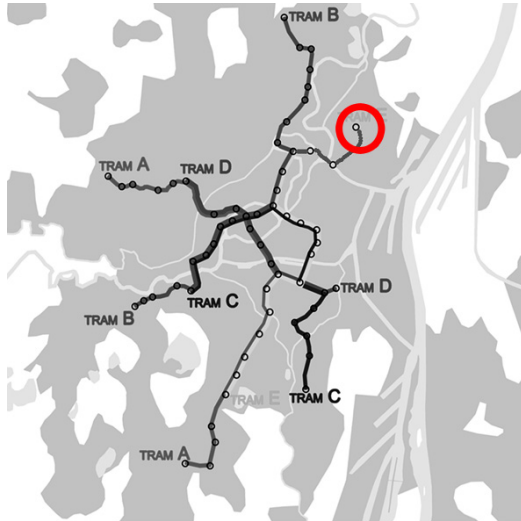
INDICATORS OF DESIGN

Despite of all mutual differences between these examples, we can determine certain similar strategies of design process applied in
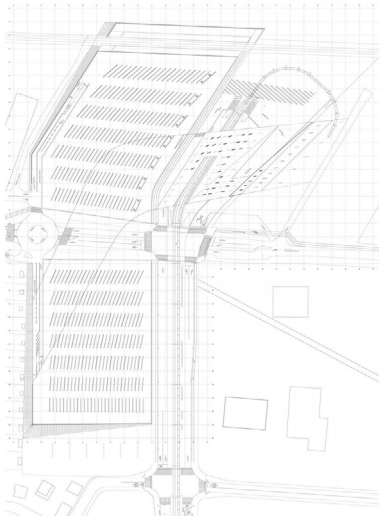
order to integrate infrastructure into urban landscape and enhance the surroundings. These strategies are set of indicators of design or position of authors which can be used to understand and thoroughly explain these cases or as universal guidelines for any urban intervention with an objective to redefine transportation character of urban landscape.

Common approach for all three examples is sculpturalization of infrastructure as place-making tool. In other words, by overcoming functional requirements (like size, form or materialization) during the design process infrastructural artifacts acquires aesthetic values of an artwork and becomes pivotal element of urban landscape. This technic often scopes

wider area then just an infrastructure treating in the same way other elements like greenery, pavement, mobiliary, etc. This approach always significantly increases the total cost, but if applied in adequate manner could be base for improvement of community. Ensuing effect for all three examples is endowment of identity and recognisability of urban landscape, while the outcome varies and the technic of sculpturalization was applied through different figures of speech. The circle in Homme de Fer square has strong symbolism of the form; energetic composition of Hoenheim-Nord is adynaton exaggerating sense of speed and motion; associative form of R. Boecklin could be compared with onomatopoeia.

All three designs try to achieve one of the most important objectives of many landscape designs of contemporary infrastructure unification of public space regardless of diversities in use and purpose. Based on idea to treat infrastructure as an element of integration, rather than a barrier, all landscape projects tend to unify the space. The results varies from total consolidation, like in the case of Hoenheim-Nord or Homme de Fer, to certain fragmentation (as the result of planning policy) between separated parking area and tram stop integrated with urban park.

All these public spaces could be observed as one integral unity which consists out of two constituents: Civic constituent (social or natu-

ral elements) and Infrastructural constituent (transportation facilities). Dialog between them is a pervasion among civic and infrastructural aspect. Graduation in intensity of pervasion and homogeneity of space intensifies in the following way: Hoenheim-Nord, R. Boecklin and Homme de Fer, which is determined not only by design, but by the context itself.

In terms of relationship between infrastructural artifact and its urban context infrastructure could be extrovert or introvert. Results vary from self-sufficiency like Homme de Fer, auto-reference like Hoenheim-Nord or to total echoing of environment in physical or aesthetical terms as R. Boecklin. Finally, ability of infrastructure to articulate or generate urban landscape and its qualitative relationship with surrounding defined as symbiosis or parasitism. Following the logic of living organism infrastructure and landscape could complement each other or could be an encumbrance for full achievement of the potentials. These indicators of design and reflections about relationship between infrastructure and landscape are not closed list, but a group of thoughts open for the further discussion and analysis.

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Figures 16, 17, 18
Terminus Hoenheim-Nord
(images by architect: http://www.zaha-hadid.com/architecture/hoenheim-nord-terminus-and-car-park/)

Figures 19, 20, 21 -
R. Boecklin; (images by architect: http://www.denu-paradon.com/)

NOTES

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