

# CHANCES

Alma Mater Studiorum - Università di Bologna

CHANCES.  
PRACTICES, SPACES AND BUILDINGS IN CITIES'  
TRANSFORMATION.

Curator: Prof. Arch. Annalisa Trentin



International Conference, 24<sup>th</sup> October 2019

CHANCES was an international conference that aimed to explore, from a multidisciplinary perspective, the fragile but continuous urban transformation through the effective contribution of culture, nature and technology.

The conference wanted to provide a deeper understanding of urban transformations' research and practices, focusing on the use, re-use, design, renovation and innovative governance and management of public spaces, urban commons and buildings.

The organizing committee believes that these thoughts will largely contribute to shape and increase sustainable design, construction and planning in constant cities' transformation.

The selected contributions were built on reflections and studies concerning current or historical approaches that are changing or drastically changed the cities we lived in.

The Conference has been organised by the PhD in Architecture and Design Cultures -  
Department of Architecture - University of Bologna

#### **/ SCIENTIFIC COMMITTEE**

The scientific committee is composed by the editor in chief of SCIRES-IT and the members of the academic board of the Phd in Architecture and Design Cultures of the department of Architecture of the Alma Mater Studiorum - University of Bologna.

Info: <https://phd.unibo.it/architettura/en/people>

#### **/ ORGANISING COMMITTEE**

XXXIII PhD cycle, Architecture and design cultures.

Lorenzo Badini, Anna Bonora, Ilaria Cattabriga, Giorgio Dall'Osso, Claudia De Luca, Eleonora Fantini, Caterina Morganti, Karilene Rochink Costa, Elena Vai, Francesco Volta.

**License CC BY 4.0**



ISBN 9788854970748  
DOI 10.6092/unibo/amsacta/6596

# Indice

## Track 1 / DESIGN AND PRACTICES

Alberto Bassi, Tommaso Listo, Giuliana Califano <i>Remembrance Archives</i>	8
Veronica Balboni <i>On building site in early modern Ferrara. Urban transformation of the ducal city in the second half of XVIth century through two archival sources about human behaviour, economical aspects and construction process in architectural production</i>	16
Francesca Ronco <i>Cities: settings for democracy. From Tigre (Argentina) to Turin (Italy) context. An action-oriented working methodology</i>	28
Francesca Zanotto, Marco Zanini <i>Waste as a Commons: Shared Practices of Materials Reuse for the Design of the Built Environment</i>	38
Giulia Bertola <i>"But eyes are blind. You have to look with the heart". IBA Berlin 1979 - 1987, the drawing as tool to read and disclose</i>	46
Marcello Capucci, Marcella Isola, Luciano Vecchi <i>Regional Hub for Temporary re-use. Methods and practices to support Urban regenerations starting from experiences developed in the Emilia-Romagna Region</i>	56
Silvia Pericu <i>Waking up the sleeping giants. A 2nd chance</i>	68

## Track 2 / SPACES

Simone Gheduzzi <i>Feeling the public space</i>	81
Carmela Mariano, Marsia Marino <i>Towards a sustainable turning point of the urban project. The role of public space in adapting cities to the effects of climate change</i>	92
Claudio Zanirato <i>Urban regeneration through alternative public spaces</i>	104
Dragana Ćorović, Zlata Vuksanović-Macura, Marija Milinković <i>Re-thinking city space in the context of nineteenth century Belgrade</i>	117
Elodie Bitsindou <i>"Levittvilles": a case in favor of the suburban</i>	126
Daniela Fondi, Fabio Colonnese <i>Responsive architecture and adaptive reuse of the 8th ex-CE.RI.MANT military area in Rome</i>	134
Francesca Sabatini <i>When opera met the city: emerging intersections between culture and people in urban transformation</i>	150
Lorenza Fortuna, Gabriele Paolinelli, Giulia Pecchini, Chiara Santi <i>Living streets: how pedestrians and cyclists can share places in the urban landscape</i>	163
Giacomo Corda <i>The park architecture in the contemporary city: reconfiguration of the Tiberius Bridge basin in Rimini</i>	179
Ilaria Tonti, Elisa Torricelli <i>Residual spaces and adaptive urban landscapes. New regenerative scenarios in the Turin area</i>	189
Lidia Errante <i>Public space as a medium for quality of urban life: an interpretative tool for socio-spatial dynamics</i>	200
Marco Graziano <i>Natural lighting of the urban visual scene. Static and dynamic analysis in Barcelona</i>	217

Massimo Carta	235
<i>The quality of public space and tourist specialization phenomena: the historical centers of Florence and Fes</i>	
Michela Bonato	249
<i>Chongqing urban parks as representation and performance of a spatial imaginary</i>	
Sara Nasuti	267
<i>New reconstruction paradigms</i>	
Stefano Converso	278
<i>The “Open Source Park”: innovating the design-build-operate cycle in bottom-up managed public space</i>	
Violante Torre	292
<i>Regenerating memory, remembering space. Commemorative politics on the ‘Avenida 26’, Bogotá, Colombia</i>	
Andrea Zamboni	308
<i>The monumental complex of St. Peter Cloisters. The “unfinished” as a regeneration strategy</i>	
Caterina F. Carocci, Valentina Macca	320
<i>The castle and the city. Challenges and opportunities for the Eurialo Castle area in Syracuse following the recent establishment of the Regional Archaeological Park</i>	

### Track 3 / BUILDING DESIGN

Adèle Hogge, Bie Plevoets <i>The episcopal sports center: an opportunity to reuse the existing green place and to restore the relationship between Liège and its Meuse River</i>	334
Blazej Ciarkowski <i>In search for authenticity in a post-socialist city. adaptive re-use of socialist modernist architectural heritage in Poland</i>	345
Myriam Guedey, Dieter Uckelmann <i>Smart home goes public - retrofitting public buildings with smart home technologies and open source software</i>	356
Giulio Paparella, Maura Percoco <i>Direct 3d printing for post-emergency settlements</i>	368
Valentina Coccia, Michela Pirro, Gemma Renella <i>Energy renovation of historic building: the case study of hunting lodge in Rome suburb</i>	380
Olimpia Di Biase <i>The 18th century in Ferrara: architecture on pre-existing buildings. the case of Palace Estense Gavassini Pareschi</i>	389
Stefano Brusaporci, Alessandra Tata, Pamela Maiezza <i>Toward a new point of view: the H-BIM Procedure</i>	403
Vladimir Bojković <i>Architecture that brings urban transformation, the case of two buildings in the Montenegrin city of Nikšić</i>	414

---

## CHANCES

Practices, spaces  
and buildings  
in cities' transformation

---

### TRACK 1 / **DESIGN AND PRACTICES**

*Society should be a great laboratory in which social forms are experimented, new solutions and meanings are produced. Practices and relationships in continuous transformation generate the different times of the city and shape its spaces. People, in their various expressions, play a key role in the creation of new and renewed processes and systems connected to local business networks, stimulating the design to differentiated and complementary scales (from micro to macro). They enhance participation of the communities, creating impact through concrete initiatives, playing a role of mediation and anticipating future scenarios. This section introduces contributions about actions, projects and design practices for transforming cities driven by the behaviour of citizens and favoured by design driven processes.*

# LIVING STREETS: HOW PEDESTRIANS AND CYCLISTS CAN SHARE PLACES IN THE URBAN LANDSCAPE

**Lorenza Fortuna \***  
**Gabriele Paolinelli \*\***  
**Giulia Pecchini \***  
**Chiara Santi \*\*\***

\*Landscape Architect, Researcher (fellowship at the Landscape Design Lab of the University of Florence)

\*\*Architect, Ph.D. in Landscape Design, Professor of Urban Planning (director of the Landscape Design Lab at the University of Florence), [gabriele.paolinelli@unifi.it](mailto:gabriele.paolinelli@unifi.it)

\*\*\*Architect, Researcher (fellowship at the Landscape Design Lab of the University of Florence)

## Abstract

Cars have played a crucial role in shaping cities by intricate infrastructure systems for transport and have transformed the evaluation and planning process for the future changes in urban mobility.

Designers often give cars more relevance than people, but drivers are first of all pedestrians, aren't they? Pedestrians and cyclists have the right to reach every place; this is why a strategy is needed to shift the focus towards on creating a widespread network of cycling-pedestrian paths whatever the street dimension is.

"Pratomobile" is a research by design started from the Sustainable Urban Mobility Plan (2017) of Prato, in Tuscany, and entrusts the street as a catalyst for urban change that enhances the quality of public spaces, also by integrations with the Urban Forestry Action Plan (2018).

The project concerns two of the most congested streets in the urban area and it critically measures the opportunity to create shared or separate paths for cyclists and pedestrians according to administration policies and dimensional constraints. The design process revealed benefits and values of shared places in narrow spaces, in order to avoid spatial fragmentation in extremely tight exclusive-use corridors. Although shared paths are frequent in urban parks and suburban or rural areas, they conversely are uncommon in densely built environments, due to the cultural belief that they may cause several conflicts among different users. The solution to this issue lies in a change in attitude and behaviour by looking at a past when cars were not the leading subject of planning processes and street were places for collective urban life. Present challenges and questions for a new, sustainable and multifunctional city, turn back streets from infrastructures to places, combining and integrating every element needed for city landscape's efficiency and efficacy: water, soil trees and people.

## Keywords

Urban landscape, shared place, living street, sustainable mobility

## 1. Context

Pedestrian and cycle mobility is a powerful chance for sustainability in urban and suburban landscapes. But it can be developed only by a widespread network of paths connecting the most part of buildings and open spaces. Such a vision requires to explore ways of integration in the landscape, about both size and shapes of open spaces and their multiple functions. This is the hypothesis we have stressed by the *Pratomobile Research*, facing issues about separating vs. sharing

pedestrian and cycle spaces for moving and staying, in a more liveable and enjoyable city.

About the 'living streets policies' the Los Angeles Department of Public Health recommends to provide *well-designed pedestrian accommodation in the form of sidewalks or shared-use pathways on all arterial and collector streets and on local streets* (RENEW, 2011). So it is not enough to have cycle lanes without capillary and liveable pedestrian and cycle connections.

But nowadays the most of urban streets again are for cars rather than people. *Busier roads will*



*have underpasses or bridges, and concrete kerbs, barriers and traffic islands will fragment the space, isolating small residual spaces for pedestrians from each other and from the traffic. Compensatory measures for people with visual or physical disabilities, such as drop kerbs, standardised tactile paving and beeping pedestrian crossing signals add to the visual and audio confusion. Our streets are not welcoming places* (Hamilton-Baillie 2008, 131).

In the urban roads the average speed of a driver equals the speed of a cyclist, exceeding by only 2 km/h pedestrian during traffic congestion hours (Fiorillo, Laurenti, Bono eds., 2018). As citizens-consumers, we spend significant amounts of time and money to feed disruptive, dysfunctional systems that generate a lack of liveability of everyday landscapes, making cities a hostile habitat, characterized by insufficiencies in psychological and physical well-being, a lack of social aggregation and social integration of the communities, deficiencies in the economic competitiveness, and finally unsafety on the streets.

Playing on the street or sitting and watching the passage of time are ways to live comfortably if public spaces are not mostly parking areas but multifunctional places (La Cecla, 2006). Furthermore a parking lot is not usually thought of as a habitat favourable to human life. Although this is an unjustifiable nonsense, it is a fact that can be easily seen as a rule in the face of rare exceptions: basically cars receive more attention than people. Both effectiveness and safety of mobility are necessary but not sufficient for city liveability. An urban landscape where people cannot walk and meet in conditions of psycho-physical well-being is a non-human based habitat that does not favour the sustainable development.

The current cultural attention for sustainable solutions entails the improvement of urban lifestyles and places and putting the bicycle back into play as a different medium to the daily movement. This process aims to induce the greatest number of users to abandon polluting private and public vehicles, firstly represented by the car, and to live the experience of moving into the city in an alternative, healthy and ecological way. This change naturally triggers a transformative process of urban places and landscapes. It produces new relationships between pedestrians, cyclists and motor-vehicle drivers: all human beings, all road

users. It also generates systemic integrations; for example it happens between trees and pavements both in the hydrological conditioning and in the micro-climatic one as also in other functional relationships. In such a context, the planning of a pedestrian and/or cycle path has more to do with the architectural research on the identity of places than with the infrastructural settlement of a spatial corridor for slow transits without motor vehicles. An interesting article about this concept has recently published on the *European Journal of Landscape Architecture*: "Back on the Street" (Furtlehner, Lička, 2019).

The research *Pratomobile* has been developed in the biennial 2017-2019 by an agreement between the Municipality of Prato (Offices of Mobility), in Tuscany, and the Department of Architecture of the University of Florence (Landscape Design Lab). *Pratomobile* explores critical issues about the concept of infrastructure and the spatial specialization phenomena. The research looks for environmental changes of the public urban places favourable for social and economic relationships in the comprehensive goal of sustainability.



**Fig. 1:** In a space too much narrow for separating pedestrian and cycle paths, a just standardized infrastructural vision produces ineffectiveness and inexpressiveness of the place and trivialization of its landscape (Pistoia, Italy).



**Fig. 2:** With enough space, a site-specific architectural vision can make effective and expressive a place with separated pedestrian and cycle paths, enhancing the landscape identity just by simple intervention (Boulogne-Billancourt, France, © AAUPC).

The qualitative and quantitative issues in which the reasons for the separation and sharing of people's movement spaces are opposed - cyclists and motorists, such as cyclists and pedestrians - are systemic and in turn closely connected to more complex, dependent variables: the reduction in volumes of private vehicle traffic in urban and peri-urban areas and in general in metropolitan areas; the reduction of the maximum speed allowed for vehicular traffic of the amount retained; the increase in the extension and continuity of a network of shared places.

Sizes and shapes of the public road corridors typical of European cities are structural constraints which are therefore associated with management constraints constituted by the political choices of municipalities and the technical ones of their offices. Practically, the determinations relating to the conservation of quantities and positions of spaces for parking, as road lanes for driving are often quite independent variables in the design processes. A further non-negligible restriction is then constituted by the occupation of the first subsoil by technological networks, often dense and

chaotic due to defects of infrastructural coordination between specifically competent public and private companies.

Anyway, enhancing the movement of pedestrians and cyclists through dedicated paths in exclusive or shared form is necessary to generate socio-cultural triggers and behaviors that may constitute indirect factors of more significant modal transitions and spatial changes about urban mobility. In other words, working by actions of urban regeneration to favor the well-being growth also by satisfying needs of movement and of outdoor life produces physical changes of the landscape and induces cultural changes of its social perceptions and therefore of individual and collective behaviors. A new perspective can evolve focused on the 'why', 'what' and 'how' we live, more than on design methods and techniques (Corner, Hirsh, 2014).

All this leads to the demand for critical thinking and designing about the development of pedestrian and cycling private mobility on an urban and neighborhood scale. Indeed the separation of transits is a requirement for optimizing the users safety and fluidity. Scientific literature as well as technical applications and implementation experiences give an articulated range of positions on the topic of the separation of spaces: those for cyclists from those for motor vehicles, but also those for cyclists from those for pedestrians. On the opposite several positions emerged on shared spaces, both about vehicles with pedestrians or cyclists and about pedestrians with cyclists.

In order that separation does not give rise to critical effects of fragmentation and congestion of public places such as roads and squares, appropriate spatial sizes are necessary to generate identity of places and good relationships between their specialized spaces.

Projects have the technical responsibility to evaluate and communicate the compatibility of the functional hypotheses with the structural and management constraints of every place they deal with. The comparison of alternatives is essential in order to analyze the specific variables of the problems for expressing the highest degree of sustainability of their solutions. The independent variables constituted by the overall transversal dimensions of streets and avenues must be taken as structural constraints, and those constituted by the

transversal dimensions attributable to the paths for the protected mobility of pedestrians and cyclists due to the choices relating to transit and parking of motor vehicles must be considered as management constraints.

In the United States approach at cycle paths prevail the cases on roadways, with paths at most separated from lanes by curbs. Anyway cyclist paths are mostly specialized spaces separate from sidewalks. On the contrary, in Australia and New Zealand shared spaces between pedestrians and cyclists are dominant, not only in urban parks and in the extra-urban areas, but also in urban streets. In Europe there is a widespread application of the specialized bike path model (in roadway variations or at its own site) and a significant consideration of 'shared paths'. In the United Kingdom, for example, the municipality of Birmingham has invested in the latter, accompanying its implementation with cultural campaigns regarding the values and ways of sharing public spaces.

The pedestrian and the cycling opportunities of development of a sustainable mobility cannot be interpreted with sector projects, forced by separated administrative and technical competences, because they obviously are too much abstract regarding the complexity of reality. So the aim of Pratomobile was promoting an idea, a type of cultural and social and therefore also economic growth, starting from the improvement of urban habitats. We strive to develop and promote a contemporary idea of a city that can be defined as smart to the extent that it succeeds first of all in being sufficiently ecological, involving the intelligence of ecosystems in its functionings. The research takes citizens as reference subjects for a study about a mobile city in which they live, moving and communicating inside it.

## **2. Main topics**

*We exist within complex sets of interactions – that is, we live in an ecological world. Learning to perceive the world as a never-ending system of interactions – that is, to think about our surroundings and our relationships with our environments and each other ecologically – is challenging. Such thinking forces us to rethink our views of economics, politics and business. It suggests different ways to plan and design* (Steiner, 2002).

After centuries of scientific progress and cultural evolution, the awareness of playing a significant role in natural systems and that nature is essential for our life has led us to rethink our assumed supremacy on it, inspiring our ideas and actions to its resilience and working patterns.

Conceiving cities changes also by working with nature-based solutions (Balmori, 2010) requires systemic integrations of factors and processes that shape the urban landscapes carrying out several roles into their functionings.

If we design cities changes as belonging to the natural world, they become more human based habitats. If such urban landscapes also work through ecosystems, their resilience can become closer to that of natural systems (Spirn, 2014) in a dynamic balance where nature reacts to anthropic pressures and cities respond to natural impacts firstly due to climate changes.

The design process should consider such complex interaction of variables with a synthetic and integrated approach, cross-cutting the scales of landscape planning, urban landscape planning, and places design, with a special attention towards the public realm and so the streets network and its essential role in urban accessibility.

Streets change with time in the history of cities as also social perceptions and demands do. Involved in continue experiences, citizens are both spectators and actors (Turri, 1998) of urban landscapes changes.

Therefore street design has to go beyond the normative sphere of urban mobility infrastructures. It must also deal with accessibility and psychophysical wellness, values which concerned all human being's right to take part in collective life and shape anthropic places and human relationships.

So, as the Municipality of Prato asked us to suggest solutions for cycling and pedestrian mobility, we considered this main goal as a 'chance' to enhance the synergy of different systems.

The Pratomobile Research faced three main topics: urban forestry, urban hydrology and urban mobility, looking at this latter also from the quoted point of view of the urban accessibility. So the street turns back to its deep nature of multifunctional place, opposite to that of infrastructure as

specialized space. Regenerating streets can produce places and networks where cyclists, pedestrians, trees as also shrubs and grasses, water and soil, work together for a more resilient city by sustainable systemic relationships.

The quoted topics are strictly related, as each takes part in shaping streets both living and liveable places of the urban landscape.

Urban forests are the backbone of green infrastructures (Salbitano et al., 2016) and seem to be effective strategies to make streets more hospitable as the effects of climate change become undeniable. Trees and other plants provide food and shelter for wildlife, improving biodiversity; they help remove dust and particulate from air and reduce the urban heat island effect; they can enrich and purify the soil, if polluted, but can also help reduce flooding by slowing the rate at which rainfall reaches the ground, and last, they can make public places more desirable and attractive. Greening the cities is certainly a crucial point of the process that can turn urban polluted areas into human ecosystems that are meant to ensure a high-quality of life (Ferrini et al., 2017).

Ground solutions for urban hydrology are useful for filtering and infiltrating stormwater, absorbing pollutants and restoring natural hydrological cycles. Such nature based solutions bring also comfort benefits with draining pavements and ecological benefits with plantings, increasing species habitats and urban biodiversity and, consequently, improving the street's scenery, because (...) *water is not just a vital element in our lives, it can also be experienced in a whole variety of ways. It creates different kinds of atmospheres and moods that appeal to our feelings* (Dreiseitl, Grau, 2005).

Sustainable mobility can enhance a healthier everyday life for citizens, but can also make it safer, as pathways become wider and well separated by vehicular lanes, and moreover play a crucial role in defining place's identity if pavements host inviting building edges and shaded spaces to rest and wait.

So each topic provides different benefits to the street environment, some of which overlap or depend on each other.

We can't imagine a high-quality streetscape with wide pavements but without trees, or filled with trees planted in compacted soil that causes frequent

floodings, or again equipped with a complete vegetal structure but fringed by uncomfortable pavings for walking or cycling.

To value the overall experience within the pavement we can think about it as a place defined by four interfaces: the ground level, the canopy level, the roadside edge and the building edge. The relations between these should provide connectivity, accessibility, safety and expressivity to encourage people living the street.

But as a matter of fact cars have changed the way we measure and plan urban transformations, introducing new parameters to describe quality and efficiency of spaces, such as flow capacity, number of vehicles per hour, lanes and parking lots. Actually cars gave people a great illusion of moving power while they were, and are still, depriving us of movement (Illich, 1973, La Cecla, 2006). This does not deal with sustainability. As drivers are not the only users of streets the project has the responsibility to provide wellness and efficiency to all and to drive a cultural change towards a more sustainable city.

### **3. 'Pratomobile': a research by design**

#### **3.1 Basic items**

According to the outlined context and main topics, the studies deal with the improvement of pedestrian and cycling mobility through the regeneration of public open spaces, in the broader cultural furrow of urban sustainability research.

An important aspect of the research has been the dialogue and interdisciplinary comparison that led to the sharing of the design process as a tool for the evolution of culture and the technique of transformations of the urban landscape. The Landscape Design Lab has in fact established a relationship of close collaboration with the Mobility and Infrastructure Office of the Municipality of Prato but has also shared opinions with the Town Planning Office.

The periodic sessions of dialogue with the various offices have strengthened the collective character of the project and produced intervention proposals that not only arise from a thorough research on contemporary urban planning topics but respond to models of full feasibility in all aspects, from the economic and regulatory one to

the aesthetic and functional one, implementing and detailing the approved plans.

The Lab has also deemed it necessary to collaborate with experts in urban arboriculture, identified among scholars of Florence University and professionals of Prato Municipality for the evaluation of the state of the street trees involved in the project and the proposal of new species for the integration or replacement of plants.

A coordination with the Communication Lab of the University of Florence has also been planned for defining a system of horizontal signs about the new cycle-pedestrian paths.

The comparison has helped everyone to make informed and thoughtful design choices, bringing to light the beliefs, visions and professionalism of the individual actors, allowing the deepening of fundamental themes of the design approach under a technical-scientific profile.

Among these and according to the competent municipal offices, the separation of the transit spaces of cyclists from those of motor vehicles has been a shared choice because of the priority to reduce accidents with cyclists victims of clashes with vehicles for the much higher level of severity in comparison to pedestrian-cyclist accidents (Chong et al., 2010).

Even if these arguments find numerous and substantial obstacles, it is important to practice them identifying both real intrinsic weak points and insignificant limits, sometimes perceived as insurmountable just by effect of conventions and customs.

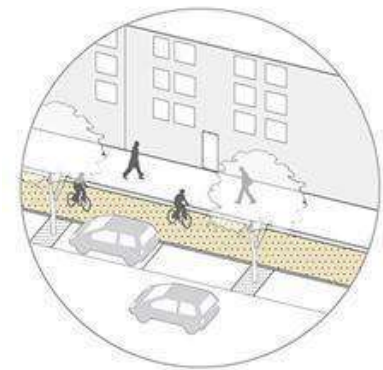
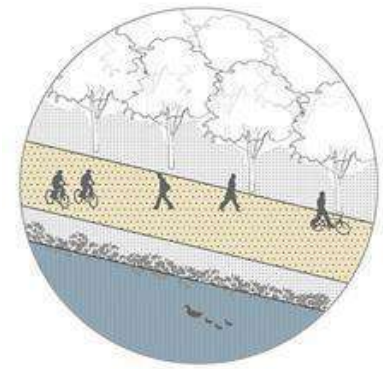
#### **3.2 Pathways hierarchization**

Urban roads form a complex, highly hierarchical network, in which each axis takes on a different role based on the relationships that it triggers, on the spatial dimensions and flows. Bicycles have to travel all roads in safety and comfortable conditions, with continuity and pleasure. For this reason the urban cycle network should provide a widespread and capillary accessibility to all the places in the city by developing the best integration of the typology of paths (Figure 3).

Cycle lanes are at the apex of a hierarchical structure of a network for landscape accessibility by cycles (Figure 4). These kind of paths for cyclists and pedestrians is suitable for urban and metropolitan fast connections. These paths don't interfere with

public and private vehicular mobility and are often built along rivers or in periurban contexts in support of sports tourism and leisure activities. But within the city facilities for cycle mobility often come into conflict with the other elements that make up the streets. So *shared paths* are frequently used to achieve the often-called-for separation of cyclists from motorised traffic within built-up cities where room for a separate cycleway is impractical and/or prohibitively expensive. Such separation is thought to be safer for cyclists (Hatfield, Prabhakaran, 2016).

The recent attention on the urban plans for sustainable mobility in fact leads Municipalities to provide cycle lanes in urban streets, by forcing the spatial scan of the public corridor and thus causing a contraction of pavements and/or driveways. Therefore, the cycle path distinct from the pavement, useful for separating the flows of cyclists and pedestrians with different needs and speeds, can be a problem when the space of the road corridor is not sufficient for a qualitatively adequate integration.



**Fig. 3:** Pedestrian and cycle pathways hierarchization; from top to bottom: a suburban cycle path, an urban cycle path, an urban shared path and an urban shared place ('zone 30') - (University of Florence, Department of Architecture, Landscape Design Lab, 2019)

Since it is not possible to exclude bicycles from all roads that cannot contain cycle runways in suitable conditions and in accordance with the public management choices, it is necessary to consider the possibility of designing 'shared paths' between pedestrians and cyclists. This choice allows both more safety than by the option of narrow pavements and cycle lanes in the roadways and a more widespread and continuous urban network of spaces suitable for cycle mobility (figure 4).

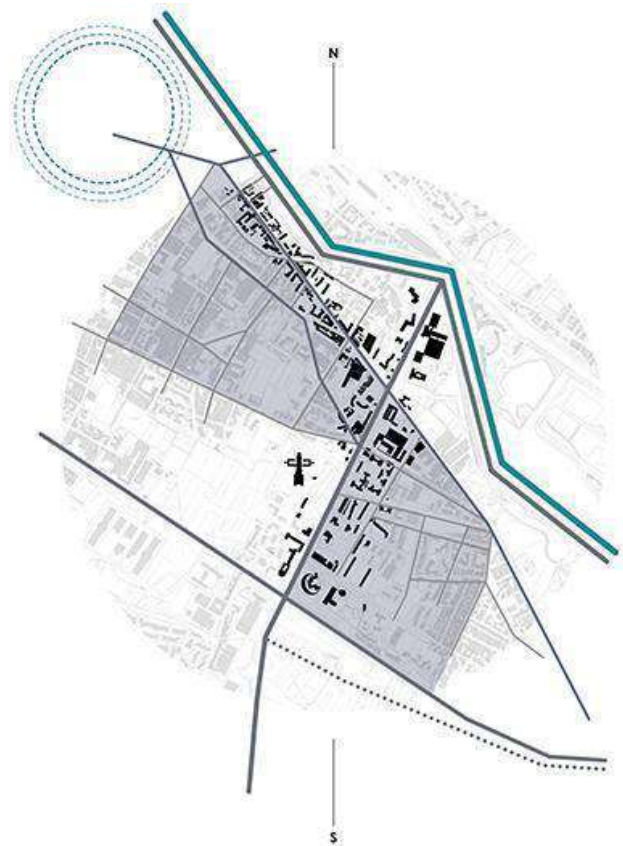
Issues and inefficiencies of a mobility focused on the car highlights the necessity of a radical change of public policies for sustainability, in order to encourage walking and cycling. The challenge is therefore to design roads that offer adequate services to all road users, without causing obstacles to their movement in space and ensuring a high level of well-being.

### **3.3 Structural and management constraints: from general concepts to specific applications**

The policies of the Municipality of Prato have been oriented from the outset to maintaining the current structure of vehicular traffic, providing for changes to the urban road network in order to maintain the number of lanes within the roads. By understanding the dimensional aspects of each road and the constraints set by the Public Administration, different design choices have been investigated with regard to the shared cycle-pedestrian paths at the level of the pavements. Indeed the management policies have strongly influenced the width of spaces available for pedestrian and cycle paths.

The choice between the different design solutions was therefore carried out step by step evaluating two main types of contextual bonds, structural constraints, such as boundaries of property and sizes of streets public corridors, and management constraints, such as number of driving lanes and presence of parking lots in the carriageways.

Two studies have been developed, on 'Viale della Repubblica' and on 'Viale Monte Grappa', in order to make a critical review of some design choices. These two avenues are characterized by variable width of the public corridor and inhomogeneity of the built-up fronts and of the intended use of the ground floors.



**Fig 4:** Proposed hierarchy and continuity of a network for pedestrian and cycle mobility within the study area (University of Florence, quoted)

The research analyzes the hypothesis of separation of the cycle and pedestrian paths comparing two options: the maintenance of structural and management constraints (figures 5, 7, 8, 10); the maintenance of structural constraints with changes of the management constraints, for example by the elimination of a driving lane or of a parking row (figures 6, 9). The study outputs show that the functional specialization of the spaces is not always possible with good structural qualities of identity. Furthermore specialization can lead to very negative consequences on the urban liveability, making indeed impractical the solution or producing dysfunctional and uncomfortable places by its application.

On the other hand, when it is possible to obtain a separation of cycle and pedestrian paths through strips with plants, the resulting landscape is pleasant from a visual and a microclimate point of view but also functional both for the hydrological increase of pervious surfaces and for the mobility

management with regard to the people flows (figure 9).

In fact the biggest disadvantage of shared paths is the potential conflict between pedestrian and cyclist flows and the consequent decrease in efficiency and discouraging the use of cycle. To minimize conflicts are also useful social campaigns of cultural awareness enhancement, to strengthen the sense of civic duty and mutual respect between the different road users.

The technical guidances of Washington explain that *shared-use paths are designed for both transportation and recreation purposes (...). Some common locations for shared-use paths are along rivers, streams, (...) and within and between parks as well as within existing roadway corridors. A common application is to use shared-use paths to close gaps in bicycle networks. (...) Where a shared use path is designed to parallel a roadway, provide a separation between the path (...). As with any roadway project, shared-use path projects need to fit into the context of a multimodal community (Washington State, 2019).*

Practically, the more the structural and management constraints are strong the more the creation of a single shared place for people without motor-vehicles has advantages. It amplifies the perceived cross size of the road spatial corridor and can express identity and scenic charge: the experience of walking or cycling in the city becomes more pleasant and safer.

A shared path needs a continuous surface at least about three-four meters wide, but also quantities of fluxes is an important variable (figures 11, 12) to make right choices about sharing vs. separating (State of Queensland, 2014).

These are basic qualities by which spaces can develop more characters of places than of infrastructures. In fact shared paths allow the slow down or stop without hindering the transit of other passers-by, favoring interactions between citizens.

### 3.4 'Viale della Repubblica': specific features

According to the above outlined issues, the data from Viale della Repubblica show a series of critical factors that lead us to review by designing this inter-neighbourhood urban road towards a new, safer

mobility model, capable of responding to the needs of all users. The avenue hosts the transit of almost 50 thousand vehicles a day and is one of the areas with the highest accidents in the city.

Because of this is a main axis of mobility and collective life for a large part of the city, it is necessary to manage flows and relations for an integrated functioning of the urban habitat.

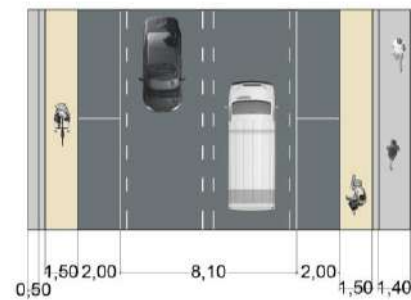


Fig 5: Viale della Repubblica - design option one; specialized paths in respect of the management constraints set by the Municipality: two driving lanes, two parking rows (University of Florence, quoted)

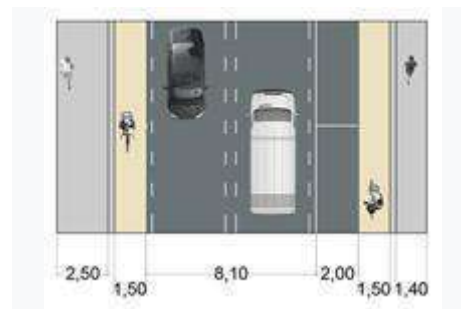


Fig 6: Viale della Repubblica - design option two; specialized paths with modification of the management constraints: two driving lanes, a parking row (University of Florence, quoted)

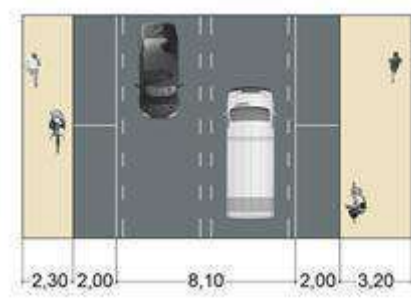
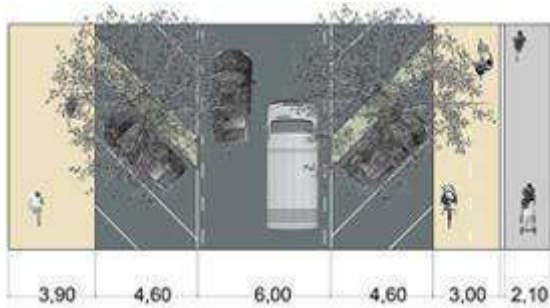
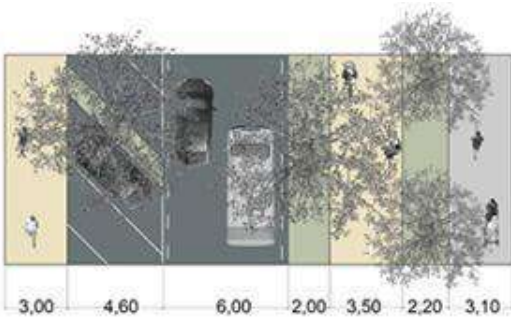


Fig 7: Viale della Repubblica - design option three; final proposal of shared paths in compliance with the management constraints set by the Municipality (University of Florence, quoted)

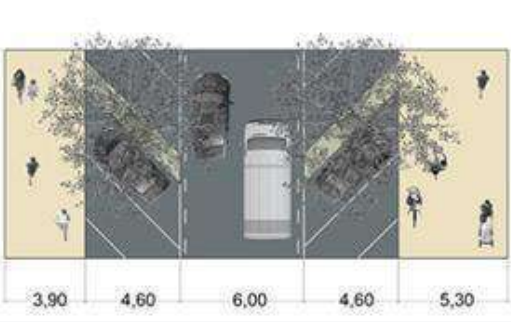




**Fig 8:** Viale Monte Grappa - design option one; specialized paths in respect of the management constraints set by the Municipality: two driving lanes, two herringbone parking rows (University of Florence, quoted)



**Fig 9:** Viale Monte Grappa - design option two; specialized paths with modification of the management constraints: two driving lanes, a herringbone parking row (University of Florence, quoted)



**Fig 10:** Viale Monte Grappa - design option three; final proposal of shared paths in compliance with the management constraints set by the Municipality (University of Florence, quoted)

So even if the driveway is subject to minor changes since the number and the direction of the driving lanes remain unchanged, their width is reduced to a constant size of 3.5 meters also inducing a significant reduction in speed. Small spaces are equipped for parking bicycles with plants

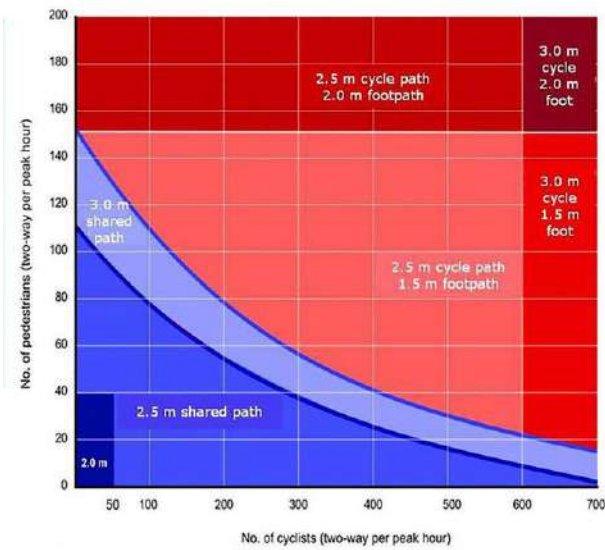
and furnitures. The open sides of pavements in front of the schools facilitate the management of space in the hours of maximum use, but also make the collective space a place of meeting and relationships. The pedestrian paths are located on both sides of the road, while the sharing with bicycles is on one side or two, depending on features of the context, like metric parameters, properties, utilities and land use. Pavements and cycle lanes are never physically separated since the road section has been judged too narrow, but also because the research tried to work on the street as a living and liveable place, where mobility is just one function of the public realm.

### 3.5 'Viale Montegrappa': specific features

This boulevard is a main urban cross-axis of the 'Viale della Repubblica' and is almost entirely one-way in the North-West direction.

The intervention on the street can be very effective to enhance sustainable mobility in the city and also represents an opportunity to replace existing trees that are in poor structural and sanitary conditions. A survey carried out in 2007 on the trees highlighted and described for each one the peculiar characteristics and the hypotheses of intervention; as a result, for most of the specimens the only solution is felling and replacement. The report also reveals that the plantation dates back to about 70 years ago and underlines critical conditions about an excessive proximity to the buildings and between trees, compared to the species and the spaces available for the development of their foliage. The effects of errors of plantation and building up are visible today: the trees were subjected to strong pruning in order to contain their growth, and this led to problems for specimens and a general loss of architectural connotation and legibility that's also a component of the urban landscape identity. In addition, the actual irregular plantation entails a chaotic distribution of the parking lots.

A first study underwent changes following the participatory meetings with the citizens, which highlighted in particular the problems concerning the width of the roadway, considered too narrow for the traffic pressure during daylight hours. For this reason the roadway has been redesigned in two lanes with the same direction of travel of constant width equal to 6 meters in order to allow the regular circulation of cars at a lower speed.



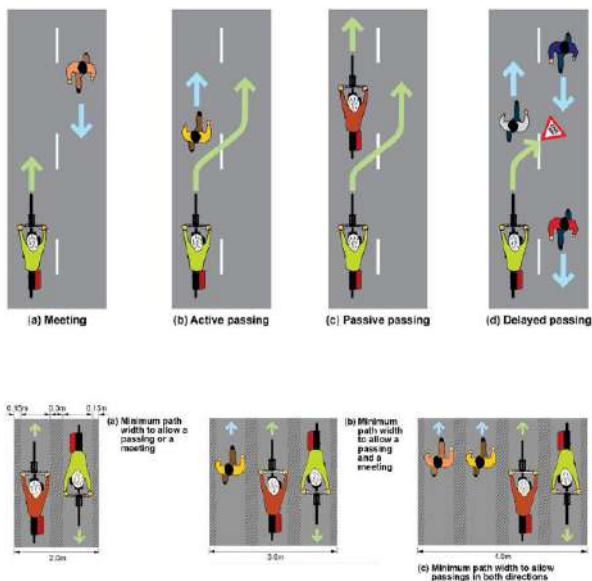
**Fig 11:** Diagram of the ranges of cross size for shared paths (blue and sky-blue) and separated pedestrian and cycle paths (red) with regard their capacity to sustain two-way fluxes of pedestrians (ordinates) and cyclists (abscissas) - (Fowler, Lloyd, Munro, unknown year)

Good qualities of segregation between pedestrian and cycle paths have been investigated by designing. The word 'segregation' is conventional in literature with the meaning of physical separation; instead as 'separation' is also considered a simple distinction by a painted line. This proposal (figure 9) has been refused because of its conflicts with the management constraints: just one parking row on alternate sides and a chicane carriageway instead of two parking rows and a straight carriageway.

The final proposal (figure 10) has a shared path on a side, with an average width of about 4 meters, while on the opposite side the pavement is only for pedestrians, with smaller dimensions. The need for parking has led to further changes to the initial project, in which the number of spaces had been reduced to better satisfy the other design needs. In the final proposal the number of existing parking spaces was increased, where possible, also to avoid the widespread problem of double-row parking.

The choice of new tree species has taken into account the cross size of the road and the proximity between building edges and pavements. For these reasons, species have been chosen whose growth remains between 10 and 20 meters in height. The proposed planting layout is alternate with the parking spaces to produce a clear and readable spatial configuration of the street.

In order to make paths comfortable for cyclists and pedestrians we worked both about size and pavings and planned a trees plantation with several little bioretention swales and boxes for hydrological management, all together contributing to shape a more liveable street in a more sustainable city.



**Fig 12:** Main interactions on shared paths (top) and their widths (down): to allow meeting and passing, 3 meters is the minimum width; to allow passings in both directions needs at least 4 meters (State of Queensland, 2014)

**4. Feedbacks**

In a technical context, Landscape Design has to face all constraints of reality. At the same time, from a scientific point of view, it must express a critical thinking about effects of rules, convention and practices on the urban landscapes. Joining these two dimensions of designing can provide meaningful contributes into the evolution of reality, step by step, through bottom-up expressions and experiences, also towards possible innovations of acts, but firstly of individual and social behaviours.



**Fig. 13:** "Viale della Repubblica": a sample of wide shared path with vegetal equipment along the little urban park near the Court (University of Florence, quoted).



**Fig. 14:** "Viale Monte Grappa": a view of the proposed arrangement of the northernmost part of the avenue, near the intersection with the "Viale Veneto" (University of Florence, quoted).

The research brought out the gap between theory and practice as the difficulty arises to merge different knowledges in a synthetic proposal.

Despite the awareness of the lack of a collective vision for new sustainable, contemporary and integrated practices, Pratomobile found out how the context can condition landscape changes since the projects to their appropriate funding and effective implementation.

Periodically during the research we discussed with the Municipality of Prato trying to combine technological innovation with urban management and projects implementation.

The proposals for a sustainable integrated system of mobility, forestry and hydrology, have often met obstacles due to varied economic, cultural, technical and political issues.

With regard to the development of sustainable mobility, the Municipality decided to keep again unchanged the priority of cars, without modifying streets hierarchy and vehicular traffic but just introducing cycling paths where specified by the Urban Sustainable Mobility Plan. This wary choice doesn't embrace the needs of contemporary cities which claim changes of past assumption of roads as space for cars. On the opposite, it displays how deeply-rooted is the twentieth century urban model, despite its several economic, environmental and social critical consequences.

Also funding issues have been crucial in the process of adaptation to a more efficient and sustainable city. For testing architectural and engineering innovations the municipalities should invest more money than they are used to even if it would represent a great opportunity for functionality, beauty, resilience, that's for citizens' life quality.

Lack of funds, or lack of interest in investing, often entails alterations of projects, which can lose their meaning and effectiveness. Anyway working by low budgets can also represent an interesting opportunity to go on studying for different, less expensive solutions, enhancing creativity and knowledge.

The lack of technical expertise has been another obstacle towards innovations. It regards both project managers and workers: instead of learning how designing about and working by new

technologies, often people prefer to adopt common solutions, sometimes considered less risky just because of the poor experience in their applications.

Pavings, plants, hydrological ground solutions are costs in the public realm budgets but they also provide direct environmental and social benefits and also economic indirect ones. Furthermore, by designing their integration in the urban landscape by coordinate technical and administrative processes, they need lower investments. Actually the implementation of such works is also influenced by underground technological utilities which lay under our feet and require frequent maintenance, adaptations or integrations.

So, for trees plantings we suggested to dig long and deep trenches to increase water absorption, connected with pervious surface filled with structural soil and hydrophytic plants, and also to install draining pavings. Because of all the quoted reasons municipalities often lean to work more about appearance rather than substance of projects and actions, looking more at visible features of urban landscape and less considering its remarkable functionalities also depending on the underground.

During the Pratomobile research process, materials, colours and sizes of paving technologies have been discussed many times to find solutions that could integrate drainage effectiveness in a perspective of expressivity, comfort and appropriate cost. Again about implementations, trees have been planted according to proposed quantities, species and positions to have uncluttered pavements and widespread pervious surfaces. But these latter have been closed by non permeable continuous kerbs during the works, no structural soils have been used neither herbaceous plantations have been again provided.

By discussing in the research group and with the Public Administration of one more factor has been shared the importance and influence in the design process of public spaces: communities who live and inhabit places. Participatory events have been hold during the design process, to better understand needs and desires of citizens, that have been discussed and, in part, received. The challenge is to engage a more and more meaningful dialogue where citizens, designers and municipalities can put in discussion their specific knowledges and

positions, trusting each other and communicating effectively to establish a shared vision and to start with its development by designing and so with its spatial implementation.

The whole experience brought out the importance of developing a critical thinking on design, being flexible to constant adaptations to meet varied needs, thus denying practices which isolate design in sectorial processes without involving the complexity of landscapes.

In this century we need to regenerate large parts of the existent cities and to image and generate new cities. We have to work for changing the city in a more liveable habitat, also starting to think the street as a living place, widely shared.

## REFERENCES

- Balmori D. (2010). *A Landscape manifesto*. Yale University Press, New Haven.
- Chong S. et al. (2010). *Relative injury severity among vulnerable non-motorised road users. Comparative analysis of injuring arising from bicycle-motor vehicle and bicycle-pedestrian collision. Accident analysis and prevention*. Sydney. <https://www.sciencedirect.com/science/article/abs/pii/S0001457509002140>
- Corner J., Hirsh A. B. (2014). *The landscape imagination: collected essays of James Corner 1990-2010*. Princeton Architectural Press, New York.
- Dreiseitl H., Grau D. (2005). *New waterscapes. Planning, building and designing with water*. Birkhauser, Basel.
- Ferrini F., Konijnendijk van den Bosch C. C., Fini A. ed. (2017) - *Routledge handbook of urban forestry*. Taylor & Francis Group, Abingdon.
- Fiorillo, Laurenti, Bono eds. (2018). *Ecosistema urbano. Rapporto sulle performance ambientali nelle città 2018*. Legambiente, Roma.  
[https://www.legambiente.it/sites/default/files/docs/ecosistema\\_urbano\\_2018\\_2.pdf](https://www.legambiente.it/sites/default/files/docs/ecosistema_urbano_2018_2.pdf)
- Fowler M., Lloyd W., Munro C. (unknown year). *Shared Paths Widths undertaken for VicRoads*, Victoria, Australia. ViaStrada Ltd and SKM Melbourne.
- Furtlehner J., Lička L. (2019). *Back on the Street: Vienna, Copenhagen, Munich, and Rotterdam in focus*. Journal of Landscape Architecture, 14(1), 72-73. <https://www.tandfonline.com/doi/full/10.1080/18626033.2019.1623551?scroll=top&needAccess=true>
- Hamilton-Baillie B. (2008). *Towards shared space*. in "URBAN DESIGN International". Palgrave Macmillan, Basingstoke.
- Hatfield J., Prabhakaran P. (2016). *An investigation of behaviour and attitudes relevant to the user safety of pedestrian/cyclist shared paths*. "Transportation Research Part F". Elsevier LTDm, Sydney.
- Illich I. (1973). *Tools for conviviality*. Marion Boyars Publishers, London.
- La Cecla F. (2006). *Per una critica delle automobili*. in "Illich I." L. Cecla F. ed Bollati Boringhieri, Turin.
- RENEW (2011). *Model Design Manual for Living Streets*. Los Angeles County, Department of Public Health, Los Angeles.
- Salbitano F. et al. eds. (2016). *Guidelines on urban and peri-urban forestry*. FAO, Rome.
- Spirn A. W. (2014). *Eye Is a Door: Landscape, Photography, and the Art of Discovery*. Wolf Tree Press, Regina.
- State of Queensland, Department of Transport and Main Roads (2014). *Guidance on the widths of shared paths and separated bicycle paths*. State of Queensland.
- Steiner F. (2016). *Human ecology. How nature and culture shape our world*. Island Press, Washington DC.
- Turri E. (1998). *Il paesaggio come teatro. Dal territorio vissuto al territorio rappresentato*. Marsilio, Venice.

Washington State, Department of Transportation (2019). *Design Manual - Chapter 1515 - Shared-use paths*.  
Washington State