Prosuming Public Space: the UNPark project

The role of urban infrastructures in the regeneration of the in-between spaces

Paolo Carli

with contributions by Francesco Bruschi, Matteo Clementi, Davide Crippa, Luigi De Nardo, Barbara Di Prete, Carol Monticelli, Giulia Procaccini, Agnese Rebaglio and Patrizia Scrugli

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Prosuming Public Space: the UNPark project illustrates the experience of the Urban Nudging Park research project, funded by the social responsibility program of the Politecnico di Milano through the competitive call Polisocial Award 2019. The book returns the complexity that characterised UNPark: a research by design project, in the wake of tactical urbanism, on the theme of the role that urban infrastructures could have in the regenerative processes of the in-between spaces.
Indeed, UNPark has been a transdisciplinarity effort which took shape through a temporary urban tactical intervention and a study about the possibility of transforming the current parking under the Serra - Monte Ceneri Overpass, in Milan, into a multifunctional space equipped for social activities, including street sports.
Prosuming Public Space: the UNPark project is a monographic book, with thematic chapters by the members of the work team, that proposes, in addition to recalling the research work phases, reflections on the city during the pandemic, on the co-design, on the multifunctional regeneration of the urban infrastructures, and about the needed transdisciplinarity in any urban design intervention.

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Contents:

V. The role of infrastructures for a new urban scenario

Patrizia Scrugli and Giulia Procaccini

Cities possess a large inventory of surfaces, structures, supply systems and monofunctional infrastructures that serve urban areas so that they function properly, establishing relationships that do not go beyond a predetermined function. These networks and structures have a huge untapped potential to be unlocked and reinvented by means of a clever, design-oriented and human-centered approach. Reprogramming the city allows us to transform spaces and objects traditionally intended as singular-functioning elements into-multi functioning assets, which can be developed over time, getting ever closer to the needs of citizens. Reimagining resources at hand in a different way is the first step in an adaptive reuse process aimed to unlock this dormant potential and to transform these spaces into platforms of opportunity. Through an accurate reading of international case studies, this chapter aims to encourage reflection on the role of infrastructures for a new urban imaginary.

V.1 URBAN INFRASTRUCTURES AND THEIR DORMANT POTENTIAL

Cities grow, are structured and need new surfaces and services. In an era in which long-distance relationships are closely intertwined with those of proximity, they continually demand more powerful and capillary material and immaterial connection systems (Azzone, Balducci, Secchi, 2020). However, they struggle when it comes to assigning new hierarchies to their spaces even when the purpose is to enhance their uses. Yet, faced with the contemporary challenges related to climate change, the energy crisis, the fight against social fragility, it should be clear enough that every resource and square metre of abandoned or underused urban land is actually a waste of precious space, whereas if it is put to good use, it could make urban agglomerations more liveable and sustainable (Burnham, 2021), from a perspective of functional and strategic support to the physical-economic world and to society itself (Schiaffonati, 2016). Urban infrastructures - in particular those related to mobility - are fully part of this framework, acquiring an ever-expanding role in terms of quality of life. In an increasingly populated, urbanised and complex world, citizens daily experience the imperfections and merits of the infrastructure urban places more incisively than squares and monuments in their firmness. Roads, motorways, viaducts, bridges, interchanges, ports, airports and stations regulate increasingly intense flows, thus becoming real points of reference which, in addition to fulfilling their function, give shape and identity to the territory. What clearly stands out from this snapshot is that the infrastructures will not be able to continue to expand and evolve solely on the technical and functional front: it is in fact time to put into practice some reflections that bypass the logic of the mono-functionality towards a genetic mutation that, from an enhan-

cing perspective, takes into account the impact on the contexts (Ferlenga 2012). All of these reflections lead to a principle that could be defined as ductility. Who says that infrastructures should only fulfil one purpose and that they can only comply with the need for which they were designed? Whether it is the need to move or to supply, infrastructures are a precious asset for contemporary cities and a stock of public space which, with a proper upstream design or a skillful downstream regeneration can generate enormous benefits for the communities with which they come into contact (Burnham, 2018). These are the possible ways to unleash the hidden potential of infrastructures: functional implementation, adaptive reuse, multi-scalar and multi-purpose design. All these achievable approaches find application on an international scale in honourable cases that can contribute to the construction of theoretical arguments to support a broader reflection on the role of infrastructures in our cities. It is therefore worth mentioning at this point some of these projects that embody problems and possible solutions better than others, thus building a cultural reference framework to be shared with all those interested in the subject. The fact that this panorama reveals itself in continuous evolution supports the contemporary relevance of the issue under discussion and, as such, the need to address it urgently.

V.2 FUNCTIONAL IMPLEMENTATION

In the so-called cases of "functional implementation of existing infrastructures", the prevailing function remains unchanged but, through intelligent grafting and redevelopment projects, it is flanked by new se-

FIGURE V.1 - The Bentway, Toronto (Canada), view from Fort York Boulevard, 2022 (Source: Luca Maria Francesco Fabris)

FIGURE V.2 - The Bentway, view towards Strachan Avenue, 2022 (Source: Luca Maria Francesco Fabris)

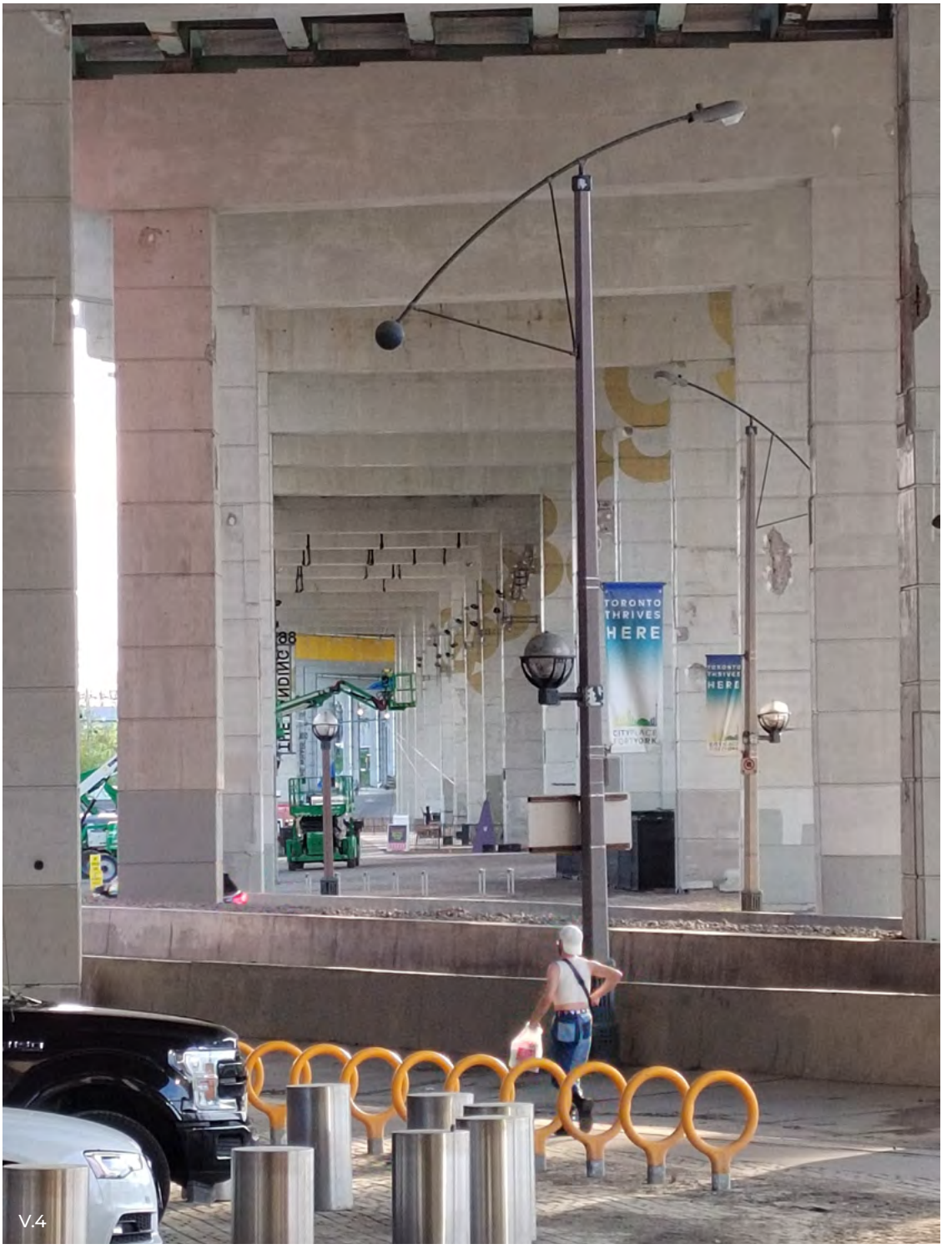
FIGURE V.3 - The Bentway crossing Garrison Road, 2022 (Source: Luca Maria Francesco Fabris)

condary functions (with a view to multi-functionality), aimed at improving the perception and the use of the space by vulnerable citizens. These new practices soften the repelling effect of the infrastructures by rightly inserting technical structures into the dynamics of the use of open spaces.

Bentway Park[1] in Toronto is an innovative project: since 2018, it has transformed 1.75 km of space near the Fort York National Historic Site under the Gardiner elevated freeway into a meeting space for the population, the whole thing being just a few steps from the waterfront of Lake Ontario. The Bentway offers activities and events throughout the whole year thanks to the presence of green areas, spaces for ska-

[1] https://www.thebentway.ca

V.3



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teboarding, public works of art and leisure facilities that allow the creation of temporary exhibitions, festivals, theatre moments, musical, artistic and sporting performances. The name derives from the trilithic system of reinforced concrete supporting elements of the viaduct, named "bents". These create 55 covered outdoor rooms that can work in unison or autonomously, perfectly adapting to the schedule of activities planned by the local agency that coordinates the space. The project is constantly evolving and aspires to connect various districts of the city to the lakefront by the transformation of the physical and social barrier represented by the overpass from a barrier into a new corridor of cultural connection and inclusion: *"from underpass to gateway"*, as stated in the Annual Report 2020/2021[2].

Bruparken[3] is a street sports and game deck built in 2007 underneath the E18 elevated highway in Drammen, Norway. The project stems from the need to recover abandoned and underused spaces to transform them into welcoming places, capable of favouring the connection between the urban fabric of the city centre and the pedestrian paths along the river. Facilities

FIGURE V.4 - The Bentway, bents' perspective at Fort York Boulevard crossing, 2022 (Source: Luca Maria Francesco Fabris

FIGURE V.5 - Bruparken, Drammen (Norwey), the skate park underneath the highway viaduct (Source: Hundven-Clements Photography, LINK Arkitektur)

2 https://www.thebentway.ca/wp-content/uploads/2021/11/WEB-The-Bentway-2020-2021-Annual-Report.pdf

3 https://linkarkitektur.com/en/project/bruparken

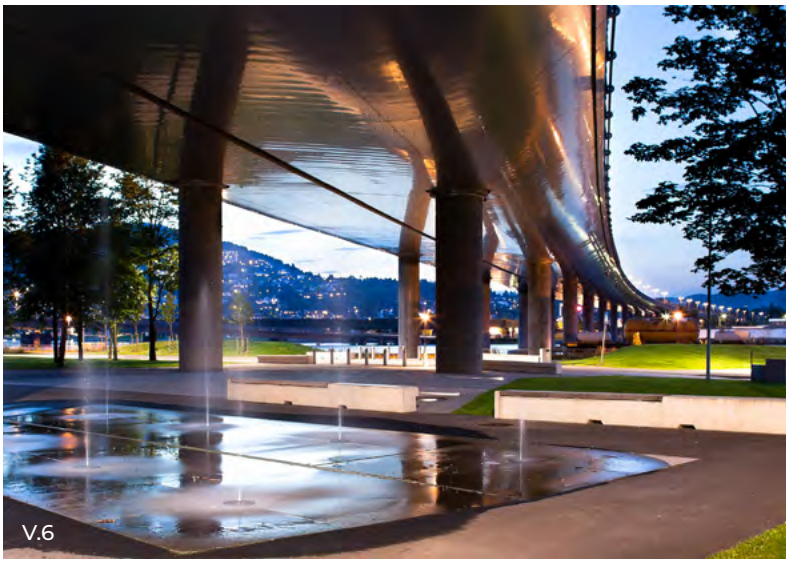

FIGURE V.6 - Bruparken, the water, the artificial lights and the reflective steel cladding (Source: Hundven-Clements Photography, LINK Arkitektur)

such as the skate park, the skate bowl, the outdoor stage, the climbing wall, the hockey field, a gushing fountain and simple seating attract groups of people of all ages who meet in a space that offers a complete sensory experience between movement, water, light and sound. Three works of art immersed in the greenery complete the spatial articulation. A reflective steel cladding upholsters the viaduct to reflect the life of the park during the day, while in the evening it diffuses the artificial lights that enhance its presence. In 2008, the park received the Norway's best public space award from the Norwegian government: a successful example of how the transition from marginal space to a fully equipped park is simpler than imagined.

Aspire[4] is a luminous sculpture realized by the artist Warren Langley in 2010 in Sydney as part of the public art project *Life Under the Freeway*, commissioned by the local community to celebrate the struggle that has allowed to preserve a long-standing residential settlement from demolition: in order to do so, the project for a new motorway has been modified in favour of its supra-elevation. In memory of this collective action,

[4] https://www.warrenlangley.com.au/project/aspire-2/

FIGURE V.7 - Aspire, Sydney (Australia), the lit-up trees sculptures (Source: Warren Langley, 2010)

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Langley proposed 14 stylized silhouettes of bright trees in high-density polyethylene that seem to support the imposing construction. These sculptures, with a familiar design, also have the aim of making the passage of pedestrians more reassuring, giving an identity to an otherwise repulsive place. This example shows how a simple project with a strong emotional value can redeem repulsive places without implying major upheavals thanks to the use of a proper design and artificial light.

A particular case is the one of the *Via Elevada Presidente João Goulart*, also known as *Minhocão or The Big Worm*, in Sao Paulo in Brazil. This 3,6 km long viaduct which crosses the heart of the megacity (with 2,7 km on an elevated road) was inaugurated in 1971 and presented as the solution to congestion. However, due to the several collateral phenomena that have occurred over time (property devaluation, degradation of public spaces on the ground, physical separation) and that have rapidly transformed a sign of faith in progress into an urban scar (Abruzzese, Farinella, 2019), already starting from 1976 the overpass was closed to traffic between 21:30 and 6:30 to limit the negati-

FIGURE V.8 - The Minhocão, Sao Paulo (Brazil) view from R. da Consolação, 2014 (Source: Georgia Santaniello Abejon)

FIGURE V.9- The Minhocão, spontaneous reuse and street art along the overpass (Source: Gabriela Mattei)

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FIGURE V.10 - The Minhocão, spontaneous reuse and temporary installations (Source: Gabriela Mattei)

FIGURE V.11 - The Minhocão, spontaneous reuse, 2017 (Source: Georgia Santaniello Abejon)

ve impact. Over the years, this temporal restriction on the circulation of cars has triggered a slow process of spontaneous appropriation of space by the inhabitants who now live the Minhocão as a sort of informal linear urban park where people can walk, go to cycling and attend artistic performances during the evenings and weekends. Since 2013, the Associação Parque Minhocão has been fighting to transform the viaduct into a permanent park, preserving its informal dimension, in open contrast with the vision of the local administration, willing to give up the viaduct only in view of the construction of a formally regimented public park. Therefore, today the Minhocão is a disputed space in which the daily relationship of the population with the infrastructure has triggered conflicting expectations about its destiny that are difficult to iron out (Hochuli, 2020) and which make this case interesting from the point of view of the right to the city (Lefebvre, 1970).

A separate theme, which is related to that of spontaneous reuse, is the one of temporary installations of which *Küchenmonument (The Kitchen Monument)*[5] plays a full part in its ambivalence as a mobile sculptu-

[5] https://raumlabor.net/kuchenmonument/

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re and generator of temporary public spaces. The purpose of that installation is in fact to create recognisable places in urban spaces with no identity by the activation of social interactions that give a new life back to these places, even though for short periods. *The Kitchen Monument* has been installed in many different locations since its activation year in 2006: the graft under the ramp of an overpass in Duisburg was one such example. This is how an unused space like the imprint of an elevated becomes a banquet hall but also a conference room, a cinema, a concert hall, a ballroom, a dormitory, a boxing arena and a steam room. All of this is possible thanks to the large pneumatic balloon in resistant and translucent plastic material which, once inflated, assumes the shapes of the spaces in which it is housed, allowing introspection between the inside and outside, in a total symbiosis with its context.

FIGURE V.12 - Küchenmonument, Duisburg (Germany), 2006 general view. Project of Raumlabor Berlin and Plastique Fantastique (Source: Marco Canevacci, Plastique Fantastique)

FIGURE V.13 - Küchenmonument, internal view during a community lunch. Project of Raumlabor Berlin and Plastique Fantastique (Source: Marco Canevacci, Plastique Fantastique)

Genoa, a city of sea and infrastructure, is crossed by the controversial Aldo Moro elevated road, at this point an integral part of the skyline of the Porto Antico. In 2016 the *Walk The Line* (WTL) project - conceived by Linkinart, PAGE - Public Art Genoa, Trasherz Lost in Art and supported by the Municipality of Genoa - set itself the goal of transforming the spaces below the infrastructure into an open-air gallery through the presence of street art works, such as graffiti, poster art and stencils. 100 artists for 100 pylons, accompanied by just as many soundtracks composed by the Magellano collective. An ambitious project the one of WTL, still unfinished but able to resume life from its ashes like the Arabic phoenix: not only does it aspire to change the image of the infrastructure itself but also aims to create a vibrant community around it both on a local and international scale, with the intention of initiating a sort of new cultural metabolism that goes beyond the spatial dimension. The objectives of the *Walk the Line*

[6] https://smart.comune.genova.it/pagine/ricerca-sponsor-repicta-genoa-street-art-project-strada-sopraelevata-aldo-moro

V.14

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project have recently merged into the much more imposing project of *Repicta*[6], promoted directly by the Municipality of Genoa with the goal of decorating all eight kilometres of the overpass: the project aspires to be included in the Guinness Book of Records as the largest open-air work of art ever made, and it is realized right on a piece of infrastructure.

FIGURE V.14 - Walk the line, Genoa (Italy), the Aldo Moro overpass and the graffiti gallery on the pylons (Source: Tommaso Scrugli)

FIGURE V.15 - Walk the line, the Aldo Moro overpass and its gallery in proximity of the Acquario di Genova (Source: Tommaso Scrugli)

V.3 ADAPTIVE REUSE

The regeneration of railways, roads and highways, both on the extrados as well as on the footprint of the artifacts, often preserves the connective function by the removal of vehicles in favour of slow and neighborhood mobility and cycle and pedestrian paths, characterised by large spaces dedicated to safe parking, aggregation and entertainment. In this way, linear routes of different extension, originally intended almost exclusively for cars or trains, become alternative travel solutions, at the same time fully falling into the category of public spaces. These so-called adaptive reuse solutions with a view to up-cycling, represent not only a sustainable response to the rapid obsolescence of modern infrastructures but also make the intrinsic urban value of infrastructures very evident, which finds new usefulness in a second life perspective thanks to recycling. To give this type of approach a transversal definition, valid for buildings, infrastructures and open spaces, it can be said that adaptive reuse occurs when new contents are introduced into an existing container: the contents differ from the one for which the container was originally designed. Finally, it is the new content that adapts to the container rather than the other way around, with a view to maximum conservation and minimum processing (Robiglio, 2017). The first example in which memory runs regarding the up-cycling of urban in-

FIGURE V.16 - Les Viaduc des Artes, Paris (France), the permanent arched vaults housing arts and crafts experts and the elevated green promenade, 2022 (Source: Claudia Brivio)

FIGURE V.17 - Les Viaduc des Artes, the elevated green promenade, 2022 (Source: Claudia Brivio)

frastructures is that of the pedestrian promenade of the *Promenade Plantée* in Paris, also known as *Coulée verte René-Dumont*. Built between the eighties and nineties of the last century above the disused railway viaduct of 4.5 km that started from the former Bastille station, today Opéra Bastille, it is the first elevated public park in the world (the source of inspiration for the most famous *High Line* in New York). Surmounted by the famous linear hanging garden, the sixty-seven masonry vaults that characterise the first stretch

FIGURE V.18 - Les Viaduc des Artes, the bridge overpassing Diderot Bd, 2022 (Source: Claudia Brivio)

[7] https://patrickberger.fr/Le-viaduc-des-arts-Paris; http://www.leviaducdesarts.com/en/

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FIGURE V.19 - Les Viaduc des Artes, Paris (France), Coulée verte René-Dumont, 2022 (Source: Claudia Brivio)

of the route, known as *Le Viaduc des Arts*[7], welcome commercial businesses, workshops and exhibition spaces dedicated to the most diverse traditional craft activities. The second section develops in the form of a walkway to then regain the altitude of the countryside definitively and thus give new life to old embankments and tunnels in a decidedly more naturalistic dimension (Borsotti, Pistidda, 2020). The Promenade can be considered an archetypal project of its kind, the son of that lucky season of large projects triggered by the then President Francois Mitterand and aimed at providing Paris with contemporary monuments capable of transforming its skyline and stimulating the economy through real estate operations of building replacement and renovation.

A very different route from the previous one but no less fascinating is that of the 32 km of the *Petite Ceinture*[8], which embrace the entire heart of Paris. The railway belt, built between 1852 and 1869 for freight traffic and equipped with about thirty stations, was gradually abandoned until its complete dereliction in 1985, which coincided with the start of the gradual dominance

[8] https://petiteceinture.org

of nature in the following decades. In 2006 the mayor of Paris Anne Hidalgo decided to respond to the numerous associations that asked for its preservation and return to the city by signing a memorandum of understanding with the SNCF (*Société nationale des chemins de fer français* - National Society of French Railways), which had to regulate its use with the possibility of carrying out maintenance work on the line as long as they were responsible. Consequently, in 2007 a small section of the infrastructure was reopened to the curious. Since then, numerous other sections have been returned to the public in the 12th, 13th, 14th, 15th, 16th, 19th and 20th *arrondissements*, through the creation of green walks and rest areas capable of enhan-

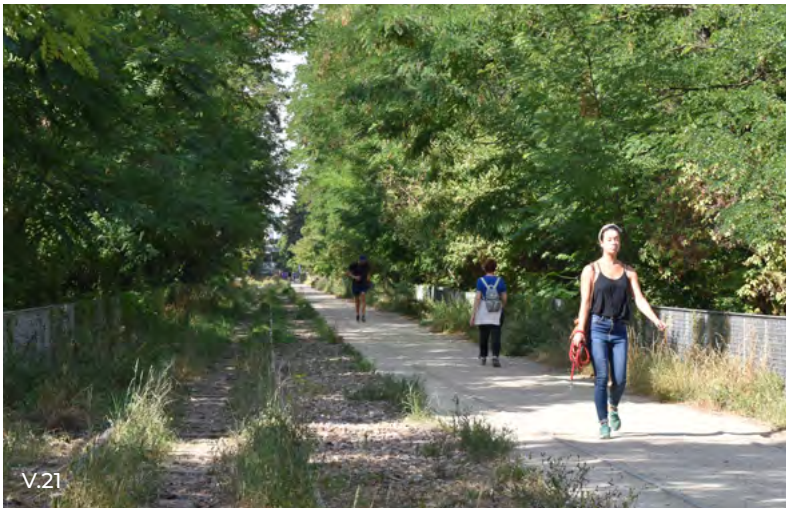

FIGURE V.20 - La petite ceinture, Paris (France), the reused railway, 2022 (Source: Claudia Brivio)

FIGURE V.21 - La petite ceinture, people strolling along the pathway, 2022 (Source: Claudia Brivio)

FIGURE V.22 - La petite ceinture, an accessible disused railway segment with temporary installations, 2022 (Source: Claudia Brivio)

FIGURE V.23 - La petite ceinture, biodiversity and railraod equipment,2022 (Source: Claudia Brivio)

cing biodiversity. In line with the rehabilitation of these stations, nowadays in several of them it is even possible to taste delicious typical dishes or listen to a jazz concert in an atmosphere redolent of the past.

La *Petite Ceinture* is an ongoing project that shows another possible way of recovering and reusing infrastructures, based on soft, reversible and bottom-up

FIGURE V.24 - The Bloomingdale Trail – The 606, Chicago (United States), the elevated pathway, 2022 (Source: Margherita Camilla Guffanti)

FIGURE V.25 - The Bloomingdale Trail – The 606, the elevated pathway crossing Milwaukee Avenue, 2022 (Source: Margherita Camilla Guffanti)

participatory solutions. A very interesting project on the theme of adaptive reuse, especially from the point of view of the regeneration process, is that of the *Bloomingdale Trail*, also known as *The 606*[9], in Chicago. This route, over 4 km long, located in the north-west portion of the city, was obtained from the conversion of an old disused elevated goods line into a line-

[9] https://www.the606.org and https://www.chicago.gov/dam/city/depts/zlup/Sustainable_Development/Publications/Logan_Square_Open_Space_Plan/Logan_contents_thru_guiding_goals.pdf


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ar park. The 606 is an integral part of a larger project, the *Logan Square Open Space Plan*[10], designed with the aim of extending the surface intended for public spaces in a densely populated quadrant of the city but poorly equipped with services for the community. The project, strongly supported by the residents of the area, has allowed the construction of a system of cycle and pedestrian paths that connect various green areas claimed for common use. Today *The 606* is operated through a public-private partnership between the City of Chicago, the Chicago Park District, the non-profit organisation Trust for Public Land and the Friends of the Bloomingdale Trail association. *The 606* is a full member of the *High Line Network*[11], a circuit that networks projects of reuse of infrastructure and people who make them possible every day.

Seoullo 7071[12] is a suitable reuse project for a viaduct in Seoul, South Korea. *Seoullo* in Korean means "towards Seoul" while the code 7071 contains the two dates of construction of the viaduct (1970) and its conversion into a hanging garden (2017). This approximately 1 km long public walkway, with a plant nursery vocation, flies over the tracks in front of Seoul Central Station at a height of 16 metres. The stated aim of its presence is to connect various green spaces and to make the heart of the city more attractive and pleasant. The use of large circular basins for the plants that become, from time to time, decorative elements, rest areas and display systems represent the key design choice that most characterises the image of the object, achieved in order not to impact the existing structures: the basins distribute the load of the cultivated land on the deck without particular burden on both the horizontal and vertical structures, allowing a varied articulation of paths and equipment and effectively making it necessary to rotate mature plants with young ones in

FIGURE V.26 - The Bloomingdale Trail – The 606, the pathway crossed by the elevated train tracks, 2022 (Source: Margherita Camilla Guffanti)

FIGURE V.27 - The Bloomingdale Trail – The 606, the pathway and its users, 2022 (Source: Margherita Camilla Guffanti)

10 http://landlab.co.nz/light-path

11 https://network.thehighline.org/

12 https://www.mvrdv.nl/projects/208/seoullo-7017-skygarden

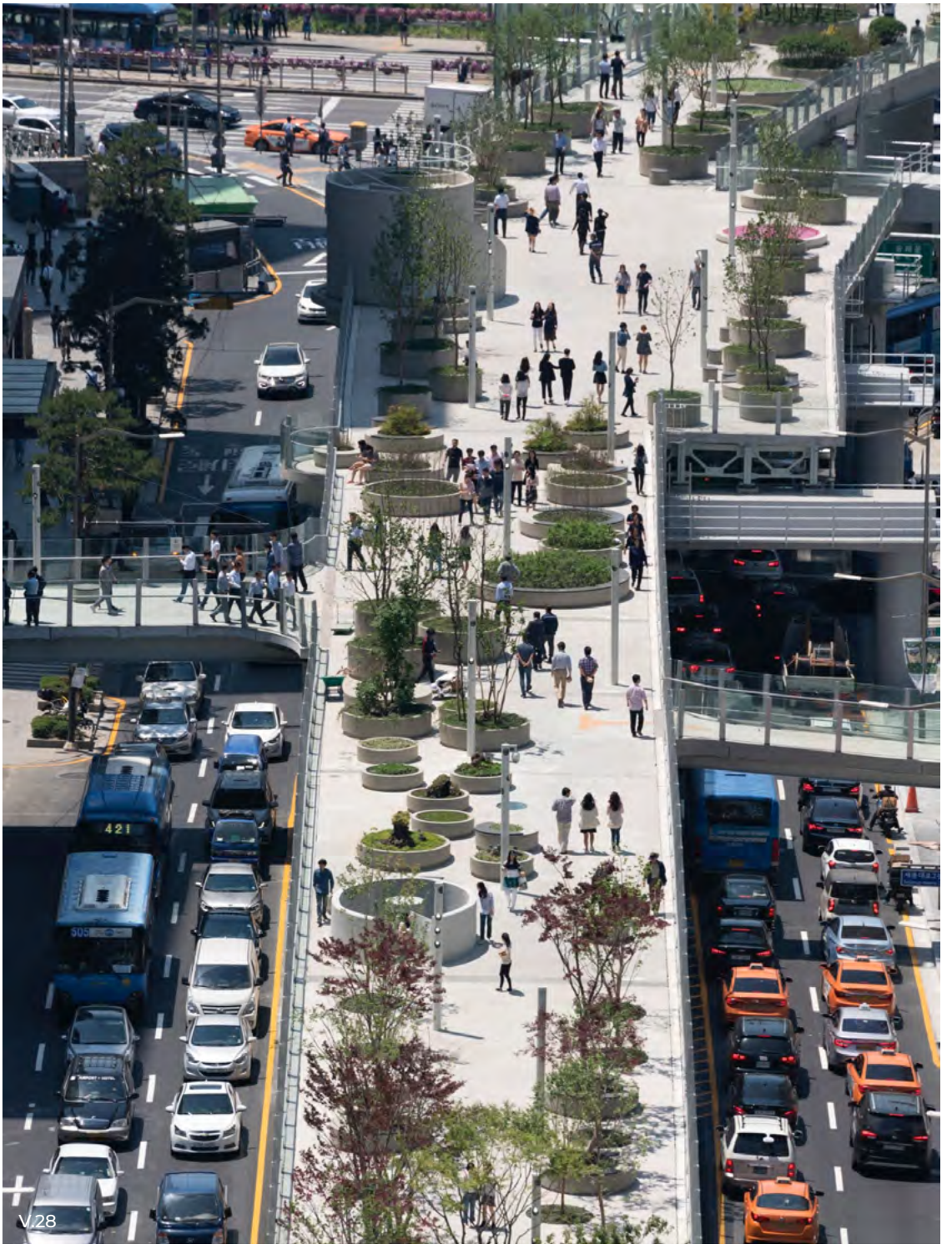

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FIGURE V.28 - Seoullo 7017, the pedestrianised viaduct hosts more than 24.000 trees, shrubs and flowers, 2022 (Source: MVRDV)

FIGURE V.29 - Seoullo 7017, a detail of the circular basins hosting the plants (Source: Tae Han Kim)

FIGURE V.30 - Seoullo 7017, people strolling along the sky garden (Source: Tae Han Kim)

FIGURE V.31 - Seoullo 7017, Seoul (South Korea), bird's-eye view of the elevated public walkway, 2022 (Source: MVRDV)

an ever-dynamic vision of the green. Thus, the project addresses the theme of the green reconversion of suspended infrastructures, giving a strong aesthetic suggestion and combining it with an ingenious technical inspiration.

The *Nelson Street Cycleway*, a pedestrian and cycle path in the heart of Auckland, New Zealand, was inaugurated in December 2015. Also known as *LightPathAKL*[13], this glittering hot pink cycle path recovers an unused stretch of highway by transforming it into a colourful open-air sculpture intended exclusively for bicycles and pedestrians. 300 interactive LED bars sensitive to the intensity of movement at dusk light up 600 metres of bright resins, offering patrons a real sensory experience that is intertwined with glimpses stolen from this real landscape of infrastructures. Artificial light and colour become the key tools in the regeneration of an obsolete infrastructure which, at the end of its life cycle, has been returned to the city and its inhabitants in a more beautiful and lively way than before through a courageous project with strong artistic connotations.

FIGURE V.32 - LightPathAKL, Auckland (New Zealand), a cycle path as an interactive urban light sculpture (Source: New Zealand Institute of Landscape Architects)

FIGURE V.33 - LightPathAKL (Source: Land Lab)

13 http://landlab.co.nz/light-path

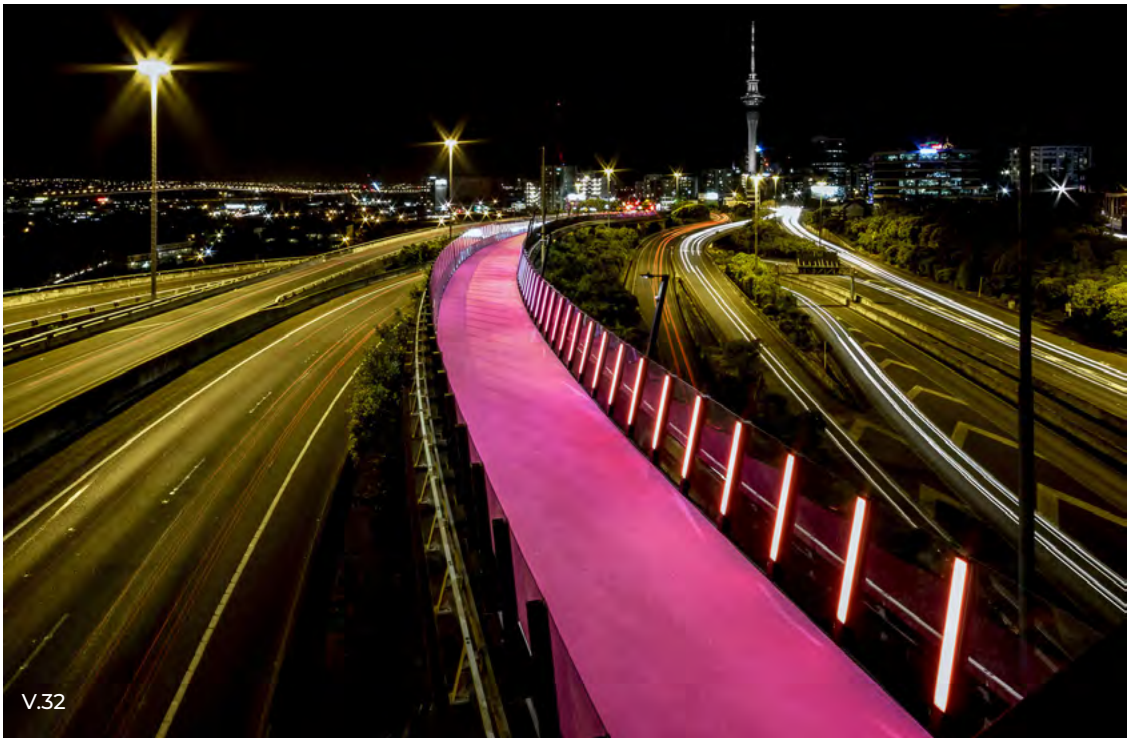

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FIGURE V.34 - Into the shadow, the underpass lit by the interactive installation, 2022 (Source: Elena Beri)

[14] https://nio.nl/into-the-shadow/

The redevelopment project *Into the Shadow*[14] answers a simple as well as a complex question: how is it possible to transform a tunnel into a work of art? The cycle-pedestrian underpass located on Tugelaweg, in Amsterdam, was at the heart of a redevelopment project in 2013 that transformed the tunnel walls into two long interactive screens of a length of 40 metres each, both equipped with sensor-controlled LED lights and surfaces in u-glass. Switching on and off, the LEDs simulate the movement of the large animals of the savannah: here it comes a grazing buffalo, a majestic lion, a leopard that has just woken up, a rhino with its unmistakeable profile and an elephant raising its trunk. The people who pass through the tunnel are tourists that with a little luck will be able to meet a wild animal, otherwise, unfortunately, they will have to settle for the lit wall, illuminated 24/7. The interesting side of this project, sober in its means but powerful in its outcomes, is the principle of dynamism: where it is customary to understand infrastructures as fixed artifacts at the service of the movement, *Into the Shadow* reverses this paradigm giving the infrastructure the power to change together with us, in a sensorial overturning that makes architecture cross over into art and vice versa.

FIGURE V.35 - Into the shadow, Amsterdam (The Netherlands), the interactive wall, 2022 (Source: Elena Beri)

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The *Tunnelen*[15] project, realised in the suburban area of Ammerud in Oslo, Norway, fits within the category of regeneration of mobility infrastructures, even though it presents a much more punctual and localised character.
The project and its construction, dating back to 2015, were curated by the Municipality of Oslo, together with the AHO School of Architecture and Design in Oslo, and saw the active involvement of local citizens. The inclusion of surfaces for free climbing and the setting up of fixed fitness equipment has given new life to an abandoned, unsafe and consequently little used underpass, transforming it into a new service for the community, for the benefit of passers-by and sportspeople frequenting the nearby hiking trail on the Alna River.
This radical but also very rapid transformation was possible thanks to the geometry of the tunnel which, from the very beginning, was able to accommodate alternative and complementary functions to that of a simple crossing. A dark bumper underpass has thus become a pleasant, colourful and identifying space. Nowadays it represents a real reference point for the neighbourhood.

FIGURE V.36 - Tunnelen, Ammerud (Norway), a dark and scary place made into a bright and social activity hub (Source: Taral Jansen)

FIGURE V.37 - Tunnelen, the climbing wall (Source: Taral Jansen)

15 https://reprogramming thecity.com/railway-underpass-transformed-into-a-climbing-wall-and-community-play-space/

Last but not least project in this category is that of the *Via Verde*[16] in Mexico City. “Turning Mexico City’s grey to green” is the slogan coined by Fernand Ortiz Monasterio to describe this visionary idea with which in 2016 he launched a petition on Change.org that in a very short time collected more than 80.000 signatures, thus becoming one of the flagship projects of the local administration.
An idea as simple as it is powerful: to transform the 1.000 pylons that support the 27 km of the Periférico into as many vertical gardens. The project takes advantage of independent structures simply resting

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on the pillars, a drip irrigation system based on the recovery of the rainwater, hydroponic fabrics obtained from recycling plastic, sensors that monitor the environmental conditions in real time and particularly resilient plant species capable of absorbing pollutants in large quantities.
Among the great objectives of the project there is the goal to make the city more liveable, sustainable and less polluted; to reduce the stress of citizens through continuous eye contact with nature and to promote biodiversity.
Via Verde represents an intervention that enhances the presence of nature in the urban context, using the techniques and solutions of the so-called *Nature Based Solutions (NBS)* in an emblematic way[17].

FIGURE V.38 - Via Verde, Mexico City (Mexico), vertical gardens at Mexico City´s Beltway (Source: ViaVerde)

FIGURE V.39 - Via Verde, the water used for the irrigation is a mixture of treated water with rainwater recovery (Source: ViaVerde)

16 *http://viaverde.com.mx/v2/*

V.4 MULTI-SCALAR AND MULTI-PURPOSE DESIGN

In the wake of the "utilitarian tradition" of the project of infrastructures, a new breach which has been opening up lately is the one which sees urban infrastructures as an opportunity to operate in an incisive but widespread manner in those contexts crossed by the infrastructure itself.
In this vision, the mono functionality of the infrastructures gets lost in favour of returning to the primary function of spaces capable of accommodating multiple activities at the service of the surroundings.
In this new concept, infrastructures become multi-scalar and multipurpose elements in which the connectivity remains the main ingredient but no longer the only one, in the awareness that every resource is precious to the community.
This is the case of the Jardines elevados of Sants, in Barcelona, and of the Sky-rail with its Community Nodes in Melbourne. *Jardines elevados de Sants* in

17 The European Commission defines Nature based solutions as: "Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions." (Solutions of this type increase the presence of nature, natural features and natural processes in cities, landscapes and in marine landscapes, through systemic interventions, adapted to the local situation and efficient in terms of resources). https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_it

FIGURE V.40 - Jardines elevados de Sants, Barcelona, Pèrgola fotovoltaica square, 2022 (Source: Ignasi Llorens Duran)

FIGURE V.41 - Jardines elevados de Sants, Barcelona, orientation map, 2022 (Source: Ignasi Llorens Duran)

Barcelona is an urban renewal project that has had a long and difficult gestation. The problem to solve was the layout of the subway itself, which has always represented an element of separation of the Sants district and a cause of logistical problems and degredation. In 2002, the public administration launched a study table with the involvement of local associations: the decision taken excluded the burying of the tracks and led to the definition of a green corridor at high altitude, which was finally inaugurated in 2016 (De Francesco, 2017).

The intervention to date extends for only 800 metres, despite the aim of extending it up to five kilometres. The new roof garden at high altitude is supported by large diagonal beams in prefabricated concrete that call to mind the old railway bridges, enclosing the railway grounds and contributing to the reduction of noise. The linear park houses a row of trees, pedestrian connections and photovoltaic canopies that partially cover energy consumption.

A full-bodied system of punctual lifts - including stairs, ramps, elevators and escalators - finally allows access to the level of the roof garden. Some mi-


JARDINS DE LA RAMBLA DE SANTS
Districte de Sants-Montjuïc
Accessos
A Plaça de sants
B C. d'Antoni de Capmany - Finlàndia (costat mar)
C C. d'Antoni de Capmany - Jocs Florals (costat Muntanya)
D C. d'Antoni de Capmany - Sant Jordi
E C. d'Antoni de Capmany - Pavia / Sant Medir
F C. de la Riera de Tena (Mercat Nou)
G C. de Burgos
H Rambla Badal (costat mar)
I Rambla Badal (muntanya)
J C. de la Riera Blanca
Recorreguts
Esportiu
Serveis
Bar i lavabos
Àrea de jocs infantils
Àrea de fitness
Biblioparc
Umbracle polifuncional
Font
Mirador
Font ornamental
Informació botànica
Estació Mercat Nou (L1)
Equipaments
1 Ascensor
2 Guingueta
3 Escales mecàniques
4 Pèrgola fotovoltaica Riera Blanca
5 Pèrgola fotovoltaica Badal
6 Pèrgola fotovoltaica Jocs Florals
Vostè és aquí
N

V.41

ght argue that the project, parasitising an existing layout, falls into the category of implementations. However, it is important to underline how the elevated *Garden of Sants*, in its value as an urban project, goes far beyond the dimension of the infrastructure: indeed, the infrastructure shifts from representing a problem to becoming a solution.
The whole thing is made possible through a courageous operation of underlining which, at the same time, celebrates the role of the technical building and demonstrates that a second way is possible. Indeed, infrastructures, if well designed, can integrate perfectly with the urban fabric, contributing to its social and spatial dynamics.

The most substantial railway infrastructure project in the history of the Australian state is the *Sky-rail*[18], born within the *Victoria's Big Build* mammoth program, aimed at relaunching infrastructures in the state of Victoria in order to respond to the need to raise the tracks of the Pakenham-Cranbourne line in Melbourne. Objective of the project was to remove 85 crossings at the pedestrian level, which were dan

[18] https://march.studio/skyrail

FIGURE V.42 - Sky-rail, Melbourne (Australia), Community nodes (Source: March Studio)

FIGURE V.43 - Sky-rail, Melbourne (Australia), Reused spaces underneath the elevated railway (Source: March Studio)

V.43

gerous and an obstacle in the way of the efficiency of the railway line and the local mobility, and to open a large public corridor along the railway.
This project has granted us the opportunity to imagine a new collective use of these rediscovered spaces - including sports fields, recreational facilities, green areas and new stations - characterised by a strong uniqueness, liveliness and identity. Bright colours and contemporary graphics contribute indeed to creating a recognisable image that nourishes the sense of belonging of local communities and favours the mending of the different parts.
A challenge, the one of creating functional, attractive and pleasant spaces, that is won thanks to the quality of the project.
Nothing is indeed left to chance: objectives, methods and design choices have been codified within the guidelines drawn up by the *Level Crossing Removal Project*[19] with the aim of ensuring continuity and, therefore, recognition along the entire route.
The removal of the old railway barrier thus transforms the opportunities for access and movement of residents in the close neighbourhoods with consequent beneficial effects on health, general well-being and economic opportunities. This project fully demonstrates how new infrastructures are taking the contemporary stage.

[19] https://levelcrossings.vic.gov.au/about/urban-design-framework

V.5 CONCLUSIONS: A FLEXIBLE APPROACH IN FAVOR OF THE QUALITY OF URBAN LIFE

Following this rich roundup of very different case studies in terms of size, final outcome and process, a final thought goes to the labyrinth of positions between conservation and transformation that dominates the debate on the role of infrastructures in

our country and elsewhere. For most people, skyways and bridges are a quick and effective way of getting from one place to another. The important thing is that traffic flows smoothly both for those who use them and for those who live nearby. If there is a problem, it is mainly noise, overlooking the more subtle effects of air pollution which is certainly less perceptible but no less harmful.
Nobody wonders what lies beneath these structures, because it is assumed that the spaces below have no value other than being the footprint of the infrastructure above.
However, looking at them closely, in these spaces "beneath the threshold of perception" the most incredible uses materialise: parking lots, small businesses, skate parks, abandoned spaces inhabited in a clandestine way and other original activities.
Emblematic in this sense is *"Skies of Concrete"*, a report by the Austrian architectural photographer Gisela Erlacher, who in her travels between China, Great Britain and the Netherlands has portrayed many of these residual spaces together with their not always legal uses, which, despite geographical and cultural differences, have surprising similarities in common. These spaces, as big as the elevated structures above them but, on the contrary, neglected in their role of "shadow" of the previous ones, are impressively extended: it is just necessary to think that in New York below the 700 miles of elevated infrastructures – among those, bridges, freeways, subways and railways – there are millions of square metres of public space (corresponding to an area nearly four times the size of Central Park) which have the potential to radically change the life of the entire city. On this very topic, the non-profit organisation Trust for Public Space conducted the research *"Under the Elevated: Reclaiming Space, Connecting Commu-*

nities" in collaboration with various departments of the City of New York.
Between 2013 and 2020, the researchers of the *El-Space project* inventoried these residual spaces, giving useful information for their recovery and for a new use for the benefit of the community, by means of the Nature Based Solutions.
In fact, the space under the elevated infrastructure has the characteristic of being present in every district of the metropolis (unlike the aforementioned Central Park) and, therefore, of potentially reaching all citizens without any geographical discrimination.
Nevertheless, these spaces are particularly "divisive": normally identified as physical barriers or real borders between different parts of the city, they are frequently the subject of debate and contrast between the opponents who support the demolition of the structures and the supporters who defend the privilege / necessity of fast mobility.
After the success of the *High Line*[20], again in New York, between these two factions the ranks of a third category of contenders have swelled over the years, which could be defined as "progressives": promoters of alternatives or enhanced uses, in a holistic view of infrastructure that goes far beyond the initial purpose for which it was designed.

It is clear that the success of the *High Line* cannot be replicated everywhere and without distinction with the same intensity and achievement, nevertheless it is now evident that an increase in the quality of life in our cities cannot be separated from a critical and flexible approach towards both these unsolved spaces and the development models that generated them. For the scope of the work, it would be good that these alliances leave the scene to a Political evaluation (with a capital P) which should know how to

[20] https://www.thehighline.org/

put people at the center of the transformation, and to a scientific evaluation of impacts, costs and benefits related to the ecological transition, which, in turn, could nourish political choices in an objective way. After all, we are all moving in a direction in which the point will no longer be "if", but "how" to face the challenge of change under way (Sarfatti, 2021). The road is still long but projects like *UNPark - Urban Nudging Park* have the ambition of being able to contribute in their own small way to the investigation of the untapped potential of infrastructure within urban regeneration, a theme that is ever central to the life of our cities and that can no longer be postponed.

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