



HEALTHY CORRIDOR CONCEPT

Project

Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

Acronym

URBiNAT – Urban inclusive and innovative Nature

Title

Healthy corridor Concept

Editor

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Lead partner

CES Centre for Social Studies

Local

Coimbra

Type

Demonstrator

Dissemination level

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776783

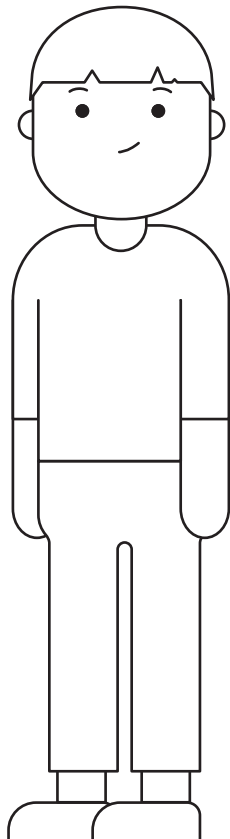
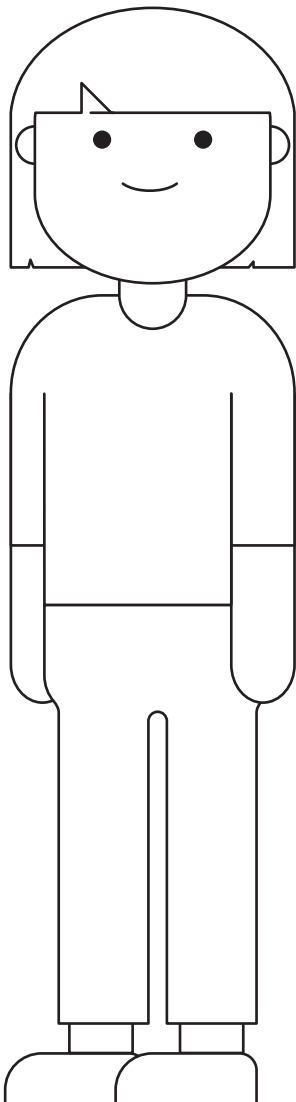
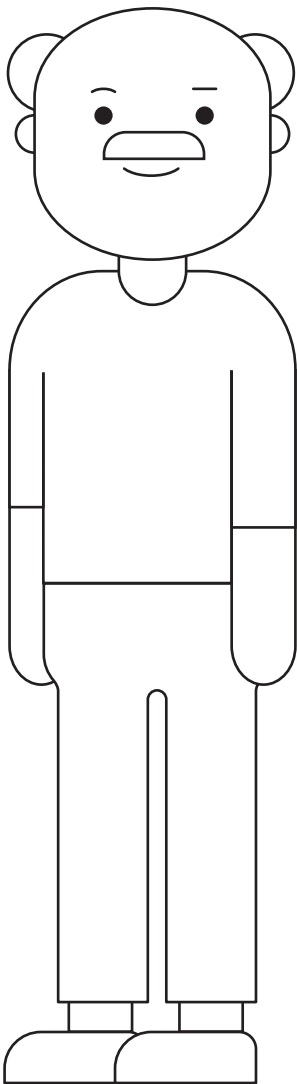


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Purpose of deliverable

The “Healthy corridor Concept” aims to establish the general framework of the healthy corridor urban plan (part 1) and present its application in the three front runners by the local task force: Porto (part 2), Nantes (part 3), Sofia (part 4).

The general framework redefines the concepts, principles and the methodologies related with the healthy corridor urban plan, taking in consideration previous deliverables and integrating the experience acquired in the cities during the co-creation process.

In this sense, the deliverable does a report on the co-creation process that led to the conceptualization of the healthy corridor, by documenting the co-diagnostic of needs and challenges and the co-design of NBS proposals for the study area. The NBS proposals co-developed by citizens are integrated in the global strategy for the territory, in articulation with the municipal goals defined in the urban planning policies of each city.

Finally, this deliverable offers a synthesis of the healthy corridor concept of each city with main achievements and a visual diagram. This process will lead to the healthy corridor urban plan that will be presented in D2.4 and to the healthy corridor and NBS co-implementation described in D.43.

Roles and objectives in relation to other work packages

The deliverable 4.2 “Healthy corridor concept” is a central deliverable in the workpackage 4 developed under task 4.4 “Healthy Corridor concept. Urban co-planning methodology for territorial and technological NBS”. In this sense, the deliverable resulted from the work developed under task 4.1 and 4.2, to co-select and co-design the new NBS with citizens and stakeholders and to integrate it in the healthy corridor, as reported in D4.1 “New NBS”.

The deliverable 4.2 reports the co-design stage establishing the global strategy and the healthy corridor principles for the urban plan that will be developed by each taskforce in task 2.4 “Urban Plan” and presented in the deliverable 2.4 with the same title.

The participatory process carried out in each city to co-design the healthy corridor concept is framed by the co-creation methodology defined in deliverable 3.2 “Report on community driven processes to co-design and co-implement NBS” and task 3.5 “Participatory training workshops”. A close interaction between WP3 and WP4 allowed the collaborative design of methods and tools to activate the participatory process in each city according to a flexible structure of stages, phases, goals, methods and tools. This process was always improved and adapted to the local participatory culture.

The results achieved with deliverable 4.2 are an important starting point for the task 4.7 “Healthy Corridor market potential for social and solidarity economy”. With the definition of the cluster of NBS framed the healthy corridor, it is possible to develop the market potential of the NBS and select business cases taking in consideration its relationships with other solutions and territorial and social context. In this sense, it is also possible to activate WP7, namely task 7.3 “Write up business cases for the most marketable and bankable NBS solutions” and 7.4 “Select business cases for replication and scaling”.

Finally, the deliverable 4.2 focused on the co-production of solutions to regenerate the public space as the material and immaterial support of the healthy corridor. The concept established for each city contributes to the definition of the indicators that will monitor in WP5 the impact on health and wellbeing, environment, socio-economy, governance, culture and the public space itself.

Executive Summary

This deliverable reports the conceptual strategy of Healthy Corridor to be developed as an urban plan (task and deliverable 2.4) by the frontrunners cities, in articulation with the local partners.

It aims to establish the healthy corridor concept in each front-runner city according to the co-creation process developed with citizens, stakeholders, technical staff and elected people. Each city followed the co-creation methodology proposed by URBiNAT but adapted it according to the local urban planning and participation culture.

The deliverable is organised in 4 parts, where each part is an independent document. Part 1 does the introduction to the healthy corridor concepts and methodologies and develops an analysis of the results achieved in each city. Part 2, 3 and 4 are dedicated to the three case studies of Porto, Nantes and Sofia, respectively, where each local taskforce demonstrates the process of constructing their healthy corridor concept. Although each city worked according to their capacities and constraints, the co-design phase was developed with regular meetings of WP4 with the three cities to share the ongoing activities. The production of the deliverable was developed in five months from February to July with weekly meetings to create an intensive platform of dialogue between the cities. Nevertheless, the cities were free to appropriate the common

structure and aims in order to report the specificities of their co-creation process and culture.

The deliverable also integrates in part 1 the reviewers' contributions. In March 2021, the three cities did a mid-term review with a group of members of the URBiNAT scientific commission (Alessandra Capuano, Ana Tostões, Francesco Molinari, Konstantina Demiri, Michael Melenhorst, Raul Sanchez). At the same moment, two internal reviewers Nanna Ostergaard (SLA) and Marie Damsgaard (SLA) analysed the cities' document. Both reviewers contribute with questions and recommendations that make this document more coherent. The members of the scientific commission asked to develop a comparative analysis of the three corridors and highlight the main achievements. SLA members proposed to clarify the co-creation process and explain the impact of green infrastructure/services of the urban plan.

This deliverable articulates the theoretical and methodological framework developed in several reports with the actions that have been taken in the cities to implement the co-creation process and to build together the healthy corridor urban plan according to the local specificities. In this sense, this deliverable was re-designed to present and systematize the information and outputs.

Deliverable structure

Part 1 – Introduction and analysis of the healthy corridor concept

Inclusive Urban Regeneration

Addresses the urban challenges that cities are facing today and the proposal of an inclusive urban regeneration as an answer. It explains criteria for focus on the social housing neighbourhoods and proposes a design methodology based on the inclusive urban project.

Healthy Corridor

Second chapter aims to explore the healthy corridor definition taking in consideration several dimensions that characterize this concept, namely: healthy corridor as a cluster of NBS; co-creation of healthy corridors; healthy corridors references.

Cross analysis of the healthy corridor concepts

It develops a cross analysis of the three healthy corridors concepts, taking in consideration the main themes such as: a) intervention area; b) co-creation strategy; c) New NBS proposal and organisation; d) healthy corridor strategy; e) healthy corridor spatial concept; f) healthy corridor impact

Part 2, 3, 4 – Healthy Corridor Concept (Porto, Nantes and Sofia)

Introduction

Short description of the cities context, study area and intervention area, underlying the urban challenges.

Co-creation process

Description of the all participatory activities, through a timeline identifying the goals and methodologies

From the Co-Diagnostic to Co-Design in order to analyse the co-diagnostic results that informed the co-design process. Identify the indicators

(based on Ekliptik), which results were achieved for each indicator through the different methodologies) and explain how the co-design addressed those results/challenges. Explore the Social analysis and the Territorial analysis

Healthy Corridor NBS (New Ideas)

It explains how the ideas were co-created, analysed by the taskforce and developed with local citizens. Description of each idea, its positive and challenge aspects, and how it came from the local diagnostic and how it was co-design, and what is its current stage

Global strategy for the study area

From the municipal strategy to the healthy corridor – The healthy corridor strategy is developed for the study area in dialogue with the municipal objectives, strategy and plans for the same urban areas, creating synergies between them.

From the healthy corridor to the study area – The healthy corridor strategy establishes the impact of the NBS in the study area beyond the implementation in the intervention area.

Mapping of the NBS by category

Healthy Corridor Spatial Concepts

Describe the guidelines and the plan for the development of the ideas setup by the task force. It identifies the aims and principles for the interventions, organizes the NBS clusters, and describes the main intervention areas.

Healthy corridor concept

It takes the conclusions and main achievements and also develops a diagrammatic representation of the healthy corridor concept.

Annex

It organizes with a common template the NBS co-designed with citizens throughout the co-design phase.

PART 1 – INTRODUCTION AND ANALYSIS OF THE HEALTHY CORRIDOR CONCEPT

Introduction

The first part of the deliverable D4.2, “Healthy Corridor Concept”, aims to propose and discuss the definition that URBiNAT is developing for the Healthy Corridor, as a key concept and methodology of the project, in the frame of an inclusive urban regeneration. As in introduction to the healthy corridor concept of each frontrunner, it offers a cross analyses of the process developed in Porto, Nantes and Sofia. The correlation of the results achieved so far demonstrate how the cities adapt the concepts and methodologies according to the local context.

In this sense, Part 1 is organised in three chapters.

First chapter “Inclusive Urban Regeneration” addresses the urban challenges that cities are facing today and the proposal of an inclusive urban regeneration as an answer. It also focuses the discussion in the production of social housing neighbourhoods, as target urban areas proposed by URBiNAT. To complete, a urban design methodology is proposed and defined as inclusive urban project.

Second chapter “Healthy Corridor” aims to explore the healthy corridor definition taking in consideration several dimensions that characterize this concept. On one hand, the concept of healthy corridor as a cluster of NBS that are more than green solution by integrating human-centered ones. On the other hand, the methodology of co-creation healthy corridors that is proposed

to all the cities to develop a co-creation process. Finally, the chapter presents the state of the art on urban corridors already implemented that support the URBiNAT proposal of an healthy corridor.

Third chapter has the objective of doing a cross analysis of the healthy corridors concepts presented by the three frontrunners cities in part 2, part 3 and part 4. Although the cities started with common concepts and methods, there is a permanent need of adaptation to the specificity of the local case study, in terms of physical and social context of the territory and also the local urban planning culture, especially in terms of participation and urban design. In this sense, the analyses will present a comparative table of the three healthy corridors and some papers developed by several partners on specific topics, such as: the flexibility and adaptability of the co-creation process, the material and immaterial dimension, the gender approach, the healthy strategies and the spatial form of the healthy corridor. To conclude, an analyses of the healthy corridor impact in the frame of the Eklipse challenges opens a discussion that will continue in the frame of the monitoring and evaluation of the healthy corridor, under WP5.

This systematization will support the replication of the concept and methodologies by the follower cities and observers and it will contribute for the “Roadmap for NBS and healthy corridors planning and implementation” to be reported in D2.5.

1. Inclusive urban regeneration

1.1 Urban challenges in the suburbs of cities

Gonçalo Canto Moniz

Cities are facing several urban challenges today which have social and environmental impacts due to the rapid process of urbanization that expanded the centre and created the suburbs in the 20th century. Although the suburb developed several forms in different geographies, it is possible to identify a pattern in European Cities as a result of the modern urban planning anchored in the Athens Charter and implemented in the post-war period.

Modern housing neighbourhoods (estates) were built on the peripheries of cities to offer a house to each family that arrived to work in the metropole or whose houses had been destroyed during World War II¹. These modern estates were built in rural areas without infrastructures connected to the traditional urban system. Although some of these neighbourhoods are already integrated into that system, there are others that are still today isolated and far from the city centre, with physical barriers such as highways or train lines creating physiological walls for their inhabitants, adding to the lack of a sense of belonging, and with high unemployment rates, low incomes, and insecurity (Moniz & Ferreira, 2019).

In many cases, the street, the avenue, the square or the park on which our cities were built over the last few centuries are today no longer public spaces, having lost their character, use and public representation. According to Thierry Paquot (2009: 91), “it is not only the legal regime of land ownership that decides the fate of a soil, but the practices, uses and representations that take place in it”. In fact, the Modern Urbanism that transformed cities and urbanized the territory did not always manage to qualify the open spaces. Conditions for an effective appropriation by citizens were not created, and most of these spaces remained without use, without social practices and without representations, as mentioned also by Paquot. Also forgotten was social interaction,

as Manuel Delgado (1999) mentions in his book *Animal Público*, where “public space is the space of interaction”. The lack of public spaces that are social, as well as political, limits active citizenship and the exercise of democracy.

Outside the historic centres of cities, the public space took on multiple forms and lost its ability to be used and appropriated by citizens. The focus on rapid mobility and on real estate initiatives during the closing decades of the 20th century limited investment in public and green spaces close to citizens and to housing neighbourhoods with which to address social inequalities and climate challenges.

In this sense, there it is urgent to develop urban policies and strategies to improve the open space of the suburbs towards a public space that offers quality of life to the live and work in these urban areas.

1.2 Inclusive public space

Gonçalo Canto Moniz

Today, the suburbs are the urban areas which offer the greatest opportunities to cities that want to implement an alternative urban development model that extends across their entire territory and is not limited to the historical centre.

In fact, UN-Habitat (2018, p.5) claims for “more compact, socially inclusive, better integrated and connected cities and territories that foster sustainable urban development and are resilient to climate change”. These four dimensions can have a transformative impact in the production of public space. Firstly, more compact and dense cities can promote resource profitability and urban life intensification, by the high number of people per km². The densification of the urban area avoids the urban sprawl and the dilution of the city-country boundaries. The more dense cities develop a better balance between the built territory and the natural areas – forest, field, parks, rivers, sea. In this sense, promoting green areas, corridors or rings regenerates the city environment and brings citizens closer to nature. Secondly, the more connected cities may establish a strong link between their centres through a fast mobility network for private and public transport, and a slow mobility network for citizens travelling on foot or bicycle. This slow mobility has a strong

¹ This migration from the countryside to urban areas took place due to the mass destruction, in World War II, of city centres, such as in Nantes and Brussels, as well as due to the economic policies that generated an industrial and commercial boom, as was the case in the URBiNAT cities of Porto, Copenhagen, and Sofia.

impact on citizens' well-being, and makes the use of the public spaces more intense and safer. This network can also combine the traditional street with other routes, both formal and informal, activating urban life in disqualifying areas. The most connected cities are also more humane. Thirdly, more integrated cities develop a balanced network of services and public spaces, allowing citizens access to amenities within a radius of proximity to their home or workplace. This way, the city promotes the citizens' right to housing, education, health and culture. The more integrated cities are, in this sense, more fair. Finally, more inclusive cities establish a dialogue with citizens, particularly the most vulnerable, to ensure not only their access to the public spaces but also their involvement and empowerment in the planning and decision-making process. This way, more inclusive cities ensure that political decisions and urban planning have an effective impact on the citizens' lives. The more inclusive cities are also more democratic.

Thus, it is important to intervene in housing districts, in industrial areas, on vacant lots, and to extend the valorisation of public space to peripheral areas. In other words, there is an opportunity for a physical intervention on open spaces that is reflected in the construction of a public space, with full use, as a stage for human activities, circulation, leisure, community, culture or exchange. But fundamentally, as stated in the Public Space Charter (2013, p.5), that "The inhabitants have the right to be involved through participatory processes in the creation and management of public space". In this way, the open space can become public, and inclusive with urban life, as claimed by Henri Lefebvre (1991, p.286), because "it is not only supported by social relations but is also producing and produced by social relations". Hilde Heynen (2013) also points out the interaction between the spatial and social sphere, where space is the stage that results from social forces and is also "seen as modifying and structuring social phenomena" (p.349).

As already developed in deliverable 4.1 "New NBS", the inclusive urban regeneration aims to promote an inclusive public space that is at the center of the challenge of *doing* and *living* the city as an open system with diverse values of society, culture, religion, ethnicity and environment (Sennett, 2018). This open and democratic character needs to be supported by the engagement of different actors, beyond the usual suspects, to entail an horizontal decision-making process, where all the voices are heard and have the same space. So, inclusive urban regeneration aims to achieve a co-governance model.

In this sense, the healthy corridor concept and strategy can find the answers and the solutions, namely the NBS, in a multiplicity of actors and issues, instead of simply in regulations and other abstract forms of administration or land management. The planner or designer must develop mechanisms that create urban regeneration made "by and with the people", with effective participation – sharing and exchanging power, knowledge and experience – and not "for the people" (Sanoff, 2000).

1.3 Public space for urban regeneration: public housing neighbourhoods

Joana Restivo, José António Ferreira

I.

In Europe, the massive migration towards the main urban centres consequent to the industrialization process was the main reason for the emerging concerns with public health that led to the first public interventions on housing in the early 20th century. After the Great Depression, the role of the state as a housing provider increased with the establishment of the social welfare state. The mass construction of public housing occurs all over Europe when the need for reconstruction of the cities after World War II superposed, in some countries, the pre-war housing deficit. The building conception had to be highly optimized regarding the global cost/total number of dwellings ratio. Notwithstanding the scale, the site plan strategies or the construction methods locally adopted, the image of the housing estates built during the 1950s and 1960s is quite recognizable, also due to their location in the outskirts of the major cities. Sometimes extensive, these areas became in many cases degraded and problematic, with a high concentration of population in socio-economic deprivation, witnessing the decay of the model that had conceived them.

Most frequently these neighbourhoods do present a generous ratio regarding green space area per resident, despite the occupancy density that may be observed (if habitable area per person is considered density might be high depending on the dwellings reduced area). More often discussed which intervention should be undertaken to requalify these neighbourhoods' buildings – from a partial refurbishment to a more extensive intervention –, the public space of these settlements has also been taken frequently as an opportunity

to set off an urban project, transforming these areas more positively for its effective regeneration.

Though accurately designed, the public space of these *ensanches* in some cases resulted from the leftover land in between the buildings distributed in the given area, with minimum earthmoving or slope treatment, failing to comply with some of the present regulations and living standards (e.g. fire safety, accessibility, parking). One main problem stands at the origin: beyond its social homogeneity (higher or lower depending on the eligible population, and thus on the housing policies and allocation models of each country), these recognizable public housing estates (as cost and time saving demanded) in the peripheral urban areas were a hope of a brighter future – a home –, but also an urban fabric extension “detached” from the city. Their road infrastructure, in *coul-de-sac* or with few accesses, meant these neighbourhoods were to arrive or to leave, and rarely to be crossed over.

Nowadays, some of these housing estates became part of the inner city, often corresponding to stigmatized and deprived areas, albeit its potential transformability in liveable parks, natural areas and community spaces, for which the connections to the city must be strengthened. The unique property in many cases is an opportunity for a programmed intervention, whether it might adopt other partnership schemes.

II.

“Not to find one’s way around a city does not mean much. But to lose one’s way in a city, as one loses one’s way in a forest, requires some schooling. Street names must speak to the urban wanderer like the snapping of dry twigs, and little streets in the heart of the city must reflect the times of day, for him, as clearly as a mountain valley. This art I acquired rather late in life; ...”

Benjamin (2006)

There is a confluence (or what you wish to call it) between the public space, a place where people talk, argue, demonstrate and shout, and the physical place, represented by the street or square, where the talking, arguing, demonstrating and protesting gains momentum. In that boundless territory, slogans are shouted that give it identity and materialize the sense of the collective and the sense of progress. That place is where “we get lost”; it is the place we want to visit. A restricted place. Historical. Political. It is a place we identify as central. Never peripheric.

The periphery is the place where, in an opposite and irritating logic, the public housing

projects are generally located (the *bairros* as they are usually identified), as do the ones we are addressing here. Even if the metropolis tries to seize them, like in Porto with Cerco do Porto and Falcão, not so much in Lagarteiro. There too, talking, discussion and protest take place. But there are no demonstrations or marches in those places. The urban centre is always the choice. Here, in the city centre, is where we think the public space is different, a place that gives us prominence, because it is generally well kept, and we see ourselves in its plenitude (we live in a “modern” place but aspire to an “historical” one). This is where the world makes sense. Not in the “periphery”. Because it is less reflexive and “representative”. That is, in the city centre the public space is “capital” and its fruition absolute, open and whole, while in the *bairros* the same place is personal, exclusive and dogmatic. Here, strangers must beware, as does public space. But in the *bairros* the public space gains a new dimension. A new category. The local dwellers make it their own. Something to be proud of. They use it – and abuse it. They demand it adapts to the modern life, their life. They make it, for various reasons, an extension of their lives. They define this diachrony as no one else does. In Porto, a sizable public space is added to the small houses (60 m²). And people therefore use it and abuse it. (The weather helps too, and the space is appealing.)

This way, to interpret the territory which will be the base of our intervention, one must consider (canonically speaking) the nodes (housing estates) as a reference and not as an end. Also, not as a beginning, but a reason. We must design in the academic interstitial space that lies between the *bairros* (estates) and the surrounding environment (which in the eyes of local dwellers is very distant – even if it’s right by their side), so that the historical centre flows through. And hence, find a corridor that rescues the *bairros* (and the city to which they arduously belong to) from the unnatural and unsolvable situation the areas presently under study find themselves in.

1.4 Social housing neighbourhood

Gonçalo Canto Moniz

The urban structure changed dramatically during the 20th century, when the street as corridor became planned as a viaduct without a direct

relationship with the built structures, namely the housing ones. Although Le Corbusier was the great promoter of this idea, the first steps were already given by the urbanists of the Garden City. For the urban planners, the big challenge to solve was the need to expand the city with housing neighbourhoods, in order to give a house to all the people that were moving to cities, to work in industries, commerce and services.

The neighbourhoods built in the 1950s, 1960s and 1970s abandoned low-density housing models and opted for large, high-density complexes built first according to the Athens Charter schemes and then according to the neighbourhood units model. The state, municipalities, and cooperatives developed these housing complexes, which can be recognized on the outskirts of European cities. A new urban structure was created, the suburb, and European cities entered the age of suburbanization, where the housing areas, called “oases of order”, became places of “feigned spontaneity” (Bandeirinha, Correia & Mota, 2017, p. 9; Davidovici, 2017, p. 46).

Motorways and train lines were planned to connect these neighbourhoods with the city centre. When the motorway was not built, the neighbourhood became isolated, but when it was built with one exit or station to each neighbourhood, it became autonomous, as a small city. On one side, these neighbourhoods are now surrounded by roads and railways, although people living there have limited access to them. On the other side, some of these neighbourhoods were built without sanitary infrastructures, which led, for example, to the canalisation of streams being used for sewage.

The rehabilitation of these neighbourhoods today is imperative not only to physically requalify the houses and the open space but also to offer inhabitants effective integration in the city. This cannot be imposed on the residents by the technicians of the municipality, politicians, urban planners or social scientists. It has to arise from the people on the basis of their interests, motivations and aspirations, reopening some well-known participatory processes abandoned in the late 1970s, like the Portuguese SAAL (Bandeirinha, 2007) that was truncated by the imprudence of a young democracy.

Thus, the peripheral areas of large and medium European cities, where the various social housing districts are located, have nowadays enormous potential for urban regeneration, environmental projects and social dynamization.

URBiNAT case studies: The fragmented modern city

The case studies are located on the outskirts of seven European cities – Porto, Nantes, Sofia, Hoje Taastrup (Copenhagen), Brussels, Siena and Nova Gorica – in areas of urban expansion planned in the period 1940-1950 and built over the following decades through housing estates, predominantly for the most disadvantaged social classes.

In this way, it was intended to guarantee a set of common characteristics between the neighbourhoods of these cities. On one hand, sharing a strong potential: architectural quality of housing estates, quality of the urban environment due to the rural matrix of the land, strong sense of community, active presence of groups and existence of cultural, social and sporting associations.

On another hand, less favourable aspects are also identified: conditioned access to the urban centre, limited access to school, health and cultural complexes, multicultural and aged population, high unemployment in the working population, low level of schooling, high rate of insecurity (Deliverable 2.1)

These social neighbourhoods are products of modern urban planning that guaranteed a rapid housing process, either for the rural populations that arrived every day in the city at the height of the industrialization process, as in Porto with the Campanhã parish, in Sofia with the Nadezhda district, in Copenhagen with the suburb of Hoje-Taastrup, or for the people who saw their homes destroyed by World War II, as in the case of Nantes, with the urbanization of the Nantes-Nord district. This changing event also created new geopolitical relations, which developed new cities, such as Nova Gorica, the new frontier city of the Yugoslav government led by Tito. (Moniz & Ferreira, 2019)

The urban plans for these areas were developed in a macro scale defining the new zones for housing, for industry, for healthy and educational facilities, according to the zoning modern principles. The housing estates followed urban and architectural projects that were replicated in several areas of the cities according to the pre-fabrication guidelines. Nevertheless, there was a lack of the intermediate scale where the public space with streets, squares and parks takes the role of connecting the new areas and being the “stage” of everyday life, as defined by Hilde Heynen (2013).

To complete this scenario, these new neighbourhoods were built by various entities,

namely the municipalities, such as Porto and Nantes, the state, as in Sofia or Nova Gorica, and cooperatives, such as Hoje Taastrup and Brussels. Thus, in most cases, municipal management did not address the infrastructures, namely the communication routes, the public spaces of

the neighbourhoods, the spaces of articulation between neighbourhoods, or even the spaces of relation with the consolidated city. These urban fabrics became a mosaic with incoherent relations between the various interventions, or between the interventions and the previous rural fabric.



Figure 1. Porto Urban Plan. "Plano de Melhoramentos", 1956-66. Credits: Porto Municipality Historic Archive

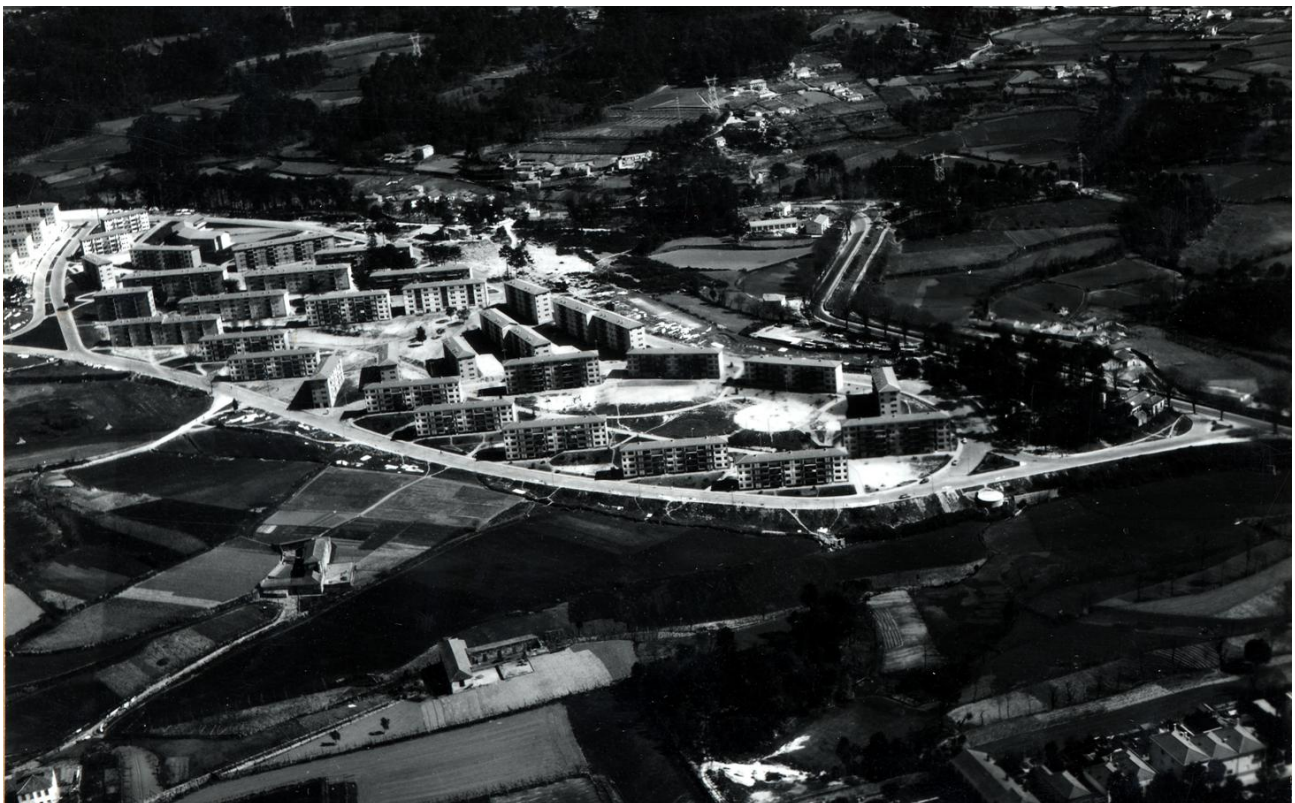


Figure 2. Cerco do Porto neighbourhood, 1961. Credits: Porto Municipality Historic Archive

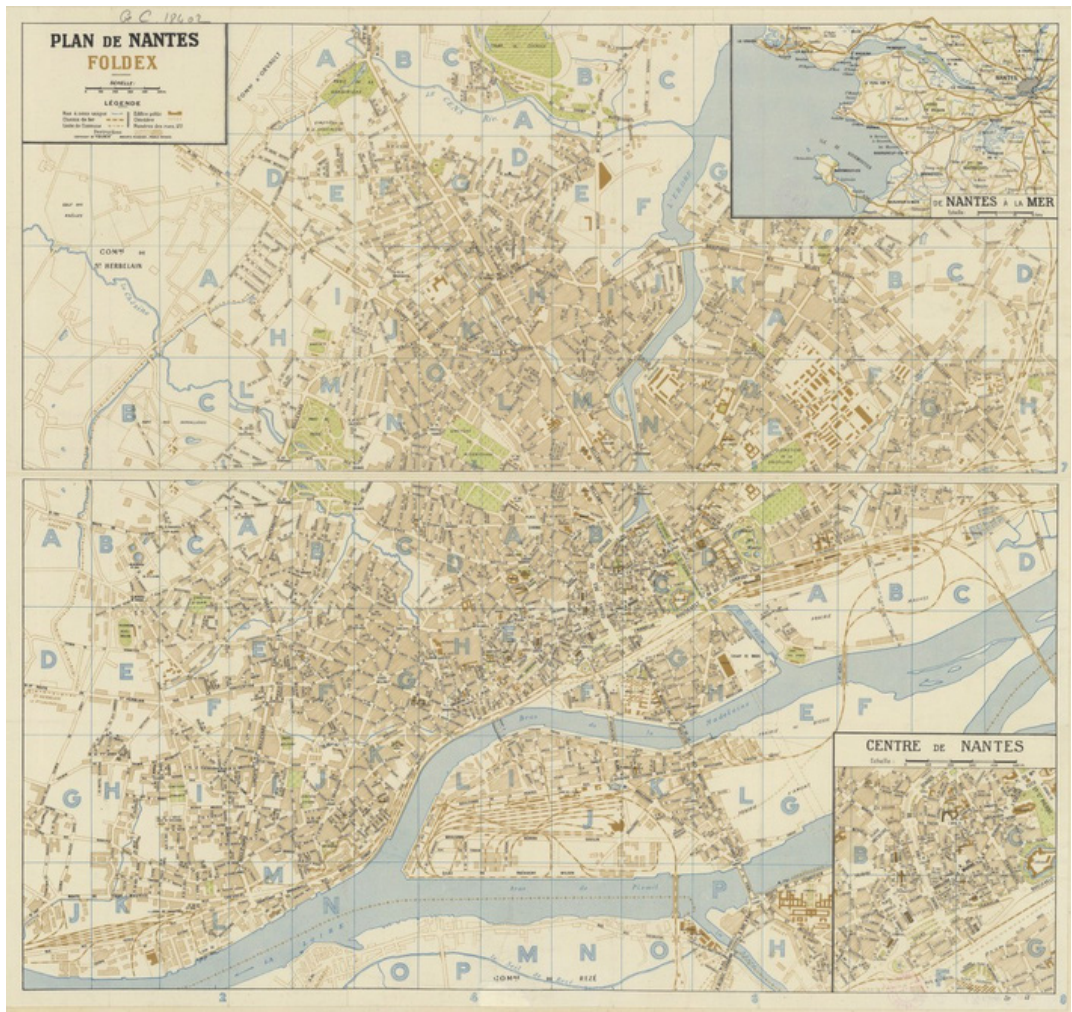


Figure 3. Plan de Nantes, 1948. Credits: gallica.bnf.fr / Bibliothèque Nationale de France.

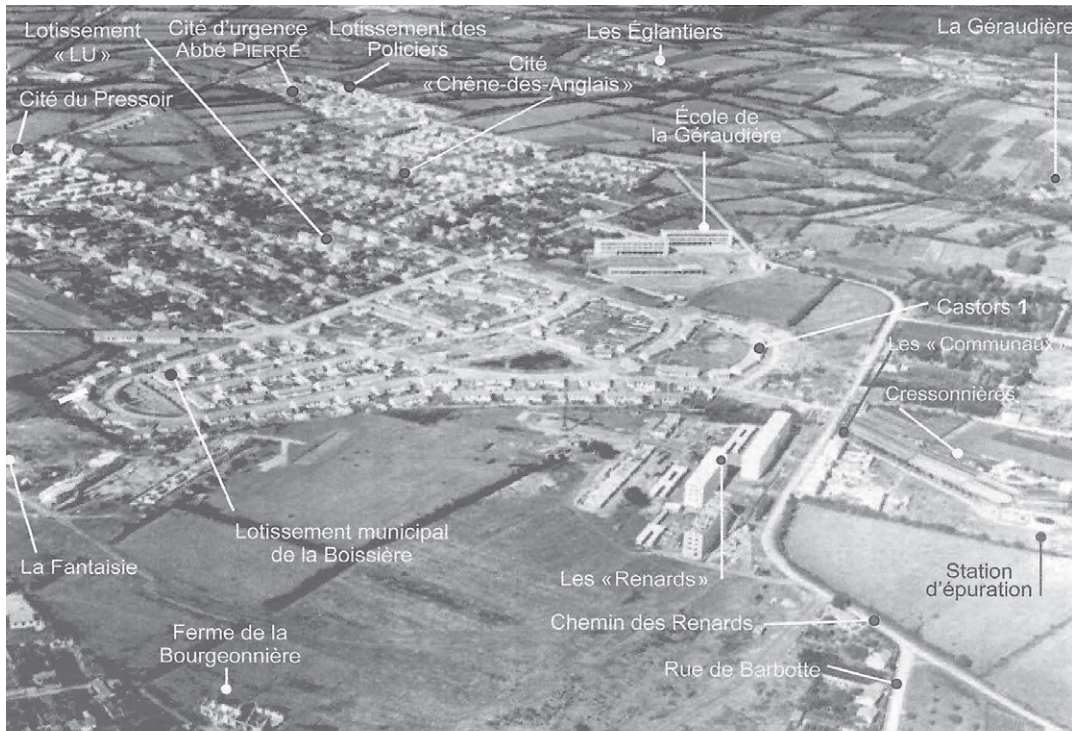


Figure 4. Aerial view of "La Boissière", 1960. Credits: Archives Municipales de la Ville de Nantes

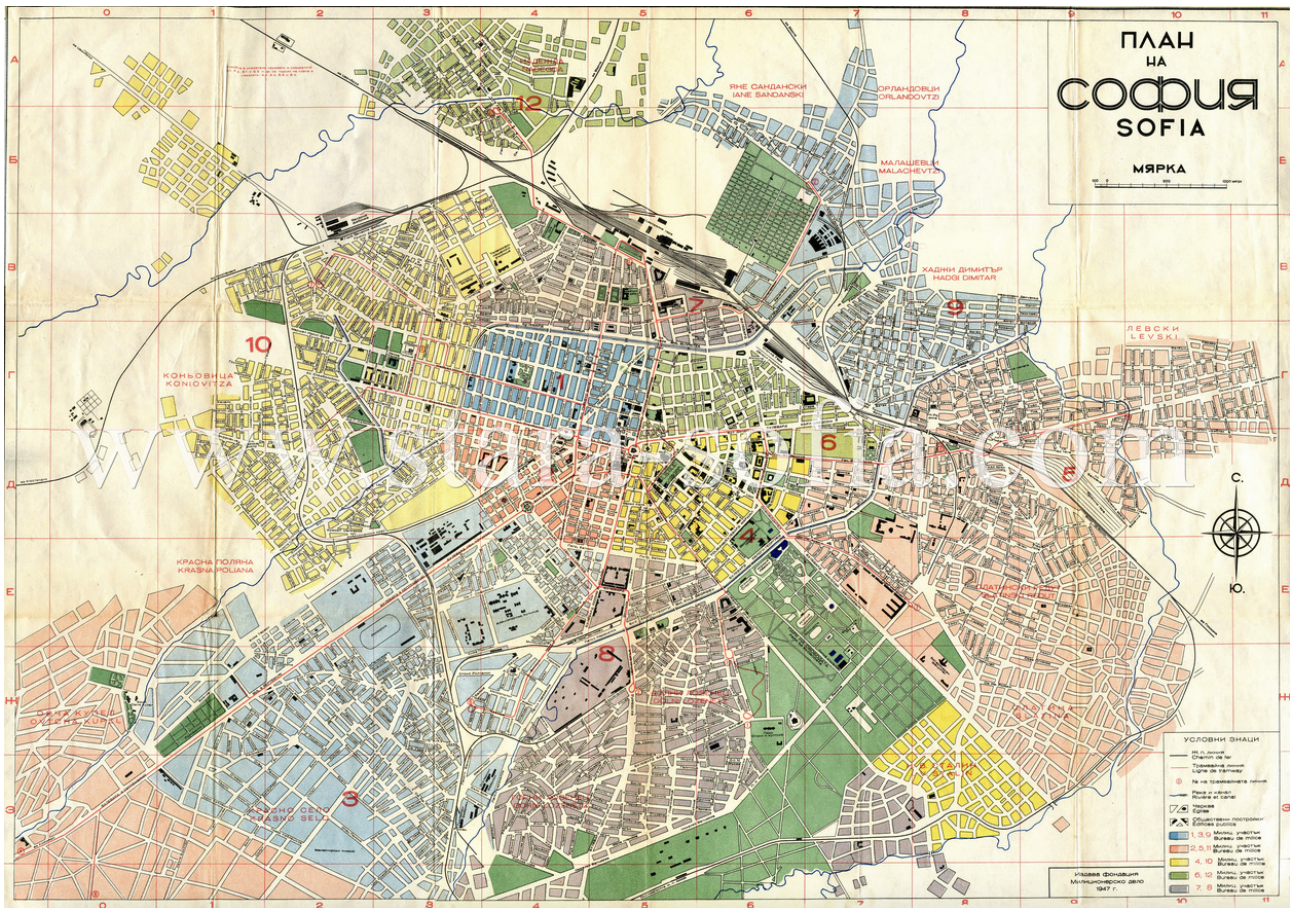


Figure 5. Sofia urban plan 1947. Credits: <http://stara-sofia.com/sofiemap1947.jpg>

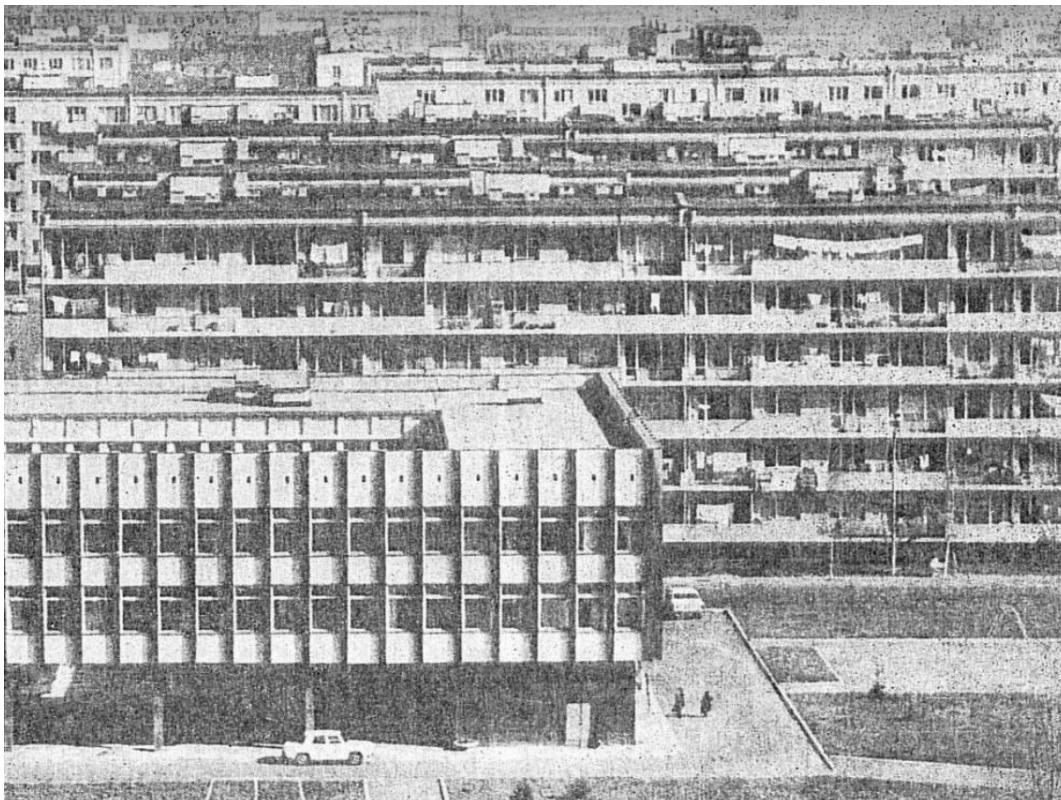


Figure 6. Nadezhda, 1972. Credits: Sofia magazine, December issue, 1972

Although some of these suburbs of social housing are already integrated in the consolidated structure of the city, many others are dependent on fragile connections that put the citizens with a lack of access to work, services and leisure. These conditions improve the level of inequalities and create “abyssal lines”, as defined by Boaventura Sousa Santos (2007), that take the form of visible and invisible walls. These lines move according to the social transformations that take place in the city but they are difficult to erase. At these neighbourhoods, where URBiNAT is working, it is still possible to hear people saying that they go to the city, underlying their feeling of exclusion.

1.5 Inclusive Urban Project

Miguel Correia, Gonalo Canto Moniz

The reaction to the modern zoning that generated these social housing neighbourhoods fragmented from the urban centres started already in the late 1950, in the frame of the CIAM congress and the Housing conferences. In fact, a social approach to architecture and urban planning was claimed by architects and sociologists to address a more humanistic and democratic organization of space (Távora, 1952).

On one hand, the intermediate scale became more and more the urban strategy to explore the relations between the buildings and the public space. On the other hand, the design methods integrated social sciences tools to establish a dialogue between the technicians and the users, namely in new housing projects. These two dimensions were the first steps of the “inclusive urban project” that combined the urban project and the participatory processes.

The urban project has its foundation in the theoretical and design approaches developed in the 1960s, by several authors, such as Aldo Rossi, with the “Architecture of the City” (1966) that takes the urban and architectural history as design tool, Nuno Portas with the “City as Architecture”(1969) exploring the urban and social dimension of the architecture project, and Giancarlo de Carlo with “Architecture’s public” (1969), one of the first text that integrates the participatory process as a design tool and advocates against the authoritarian urban planning, expanded in 1980 with “Architecture of Participation”.

In the last decades of the 20th century, cities started an urban regeneration process focused on public space, namely in Barcelona. In this changing moment, Manuel Solà-Morales (1999)

establishes the URBAN PROJECT theory and practice based on five themes: 1. Territorial effects beyond its area of intervention; 2. A complex and interdependent character of its content beyond mono-functionality, combining uses, users, temporal rhythms and visual guidelines; 3. An intermediate scale, likely to be executed within a maximum period of a few years; 4. The purpose of separating the architecture of the city from the architecture of the buildings; 5. An important public element in the investment and collective uses within the programme. Inspired by Barcelona, cities across the world developed the same strategy creating the stage for the urban tourism that invaded the public space in the two first decades of the 21st century.

Unfortunately, this urban development model created inequalities between the historic centre dedicated to the tourism industry and the other urban areas. Citizens claimed the right to the historic city and to an equal distribution of resources and investment in the non-touristic areas. Climate change and societal challenges are also on the top of the urban agenda and cities need to find integrated solutions. This is the aim of the INTEGRAL URBANISM proposed by Nan Ellin (2006) based also on five qualities: Hybridity; Connectivity; Porosity; Authenticity; Vulnerability. The integral urbanism is in line with the inclusive urban regeneration approach by relating the territorial challenges with the social and the environmental ones throughout networks that understand the city as a system. Integral urbanism goes beyond the intermediate scale and proposes a punctual and tactical strategy through acupuncture actions that promote complementarity and connectivity to address the modern fragmented city. In this sense, integral urbanism is not far from the urban project strategy but it promotes an inclusive approach of collaborative design with citizens and with nature.

In this sense, the urban project must integrate the inclusive dimension (inclusive urban project) and offer the citizens the opportunity for active participation, whether in identifying the needs, drawing up the programme, developing collaboratively the working strategies, discussing of proposals, deciding on the implementation actions and evaluating the use and maintenance. This participatory input, based on URBiNAT co-creation process, must complement the 5 points previously mentioned by Solà-Morales, thereby providing the inclusive urban project with an intelligible human dimension that includes the social and cultural experiences of resident and working populations. In this sense, point 6, could

be: active participation of citizens in the design process.

At a time when the survival of the planet and our own daily existence find themselves at risk, it also becomes imperative to endow these land-use planning resources with an environmental conscience, by adopting low-impact solutions, such as nature-based solutions. It is the responsibility of every architect, urban planner and actors involved in urban projects or regeneration initiatives, particularly those endowed with decision-making powers, to defend these principles, as well as taking advantage of the local culture, represented by the people who live there.

2. Healthy corridors

Chapter 1 identified the urban challenges that cities are facing today in relation with URBiNAT themes: the urban regeneration strategies towards a more social and environmental approach; the social housing neighbourhood integration in the city; the urban design methodologies in the frame of participatory process. In URBiNAT, the answer to these challenges is addressed by the Healthy Corridor. Firstly, the Healthy Corridor is a concept that combines nature-based solutions with human-centered ones to impact citizens' wellbeing. Secondly, the Healthy Corridor is a strategy based on a material and immaterial public space that connects urban areas, namely social housing neighbourhoods. Thirdly, the Healthy Corridor is a process where citizens co-create the solutions for their living lab. Finally, Healthy Corridor is a concept that proposes

URBiNAT aims to engage the citizens and stakeholders that live, work and use these urban areas to build a CoP (Community of Practice) for the purpose of co-creating a Healthy Corridor, contributing to their own wellbeing and empowerment for dealing with future challenges, focusing on: social cohesion; sharing participatory best practices; achieving new models of urban regeneration; expanding nature-based solutions to focus on a human-centered dimension.

The URBiNAT Healthy Corridor is based on the concept of "green corridors" (Moniz, Ferreira, 2019:53) defined as "systems of linear space that are planned, designed and managed for multiple, compatible, synergetic uses. These uses may be ecological, recreational, cultural or aesthetic, and

compatible with a sustainable use of the territory". Therefore, as proposed by Hammerschmidt, Cohen and Hayes (2016), Healthy Corridors are more than just the traditional green corridors that cross our cities, aiming instead to contribute to the overall health of the surrounding community.

The Healthy Corridor, as defined by URBiNAT, is a public space in the form of a pathway that connects and links neighbourhoods, integrating not only nature-based solutions but also human-centred ones, having an effect on the environment as well as on people's health and wellbeing. These NBS are organized in four typologies: 1) Technological; 2) Territorial; 3) Participatory; 4) Social and solidarity economy.

In this sense, the Healthy Corridor is a cluster of NBS that can occupy urban voids or common ground that is not being used or needs regeneration, becoming a link between different areas of the city, contributing to avoidance of the segregation effect and to the promotion of social and urban cohesion.

The URBiNAT Healthy Corridor is being activated in several Living Labs placed on the periphery of the project cities in order to implement a set of nature-based solutions that are being co-created with local citizens, as shown in the following chart.

In this sense, chapter 2 is organised in six chapters to characterize the healthy corridor:

1. Healthy corridors (short) definition
2. Healthy corridor as a cluster of NBS
3. Co-creation of healthy Corridors
4. Healthy Corridor References

2.1 Healthy Corridors (short) definition

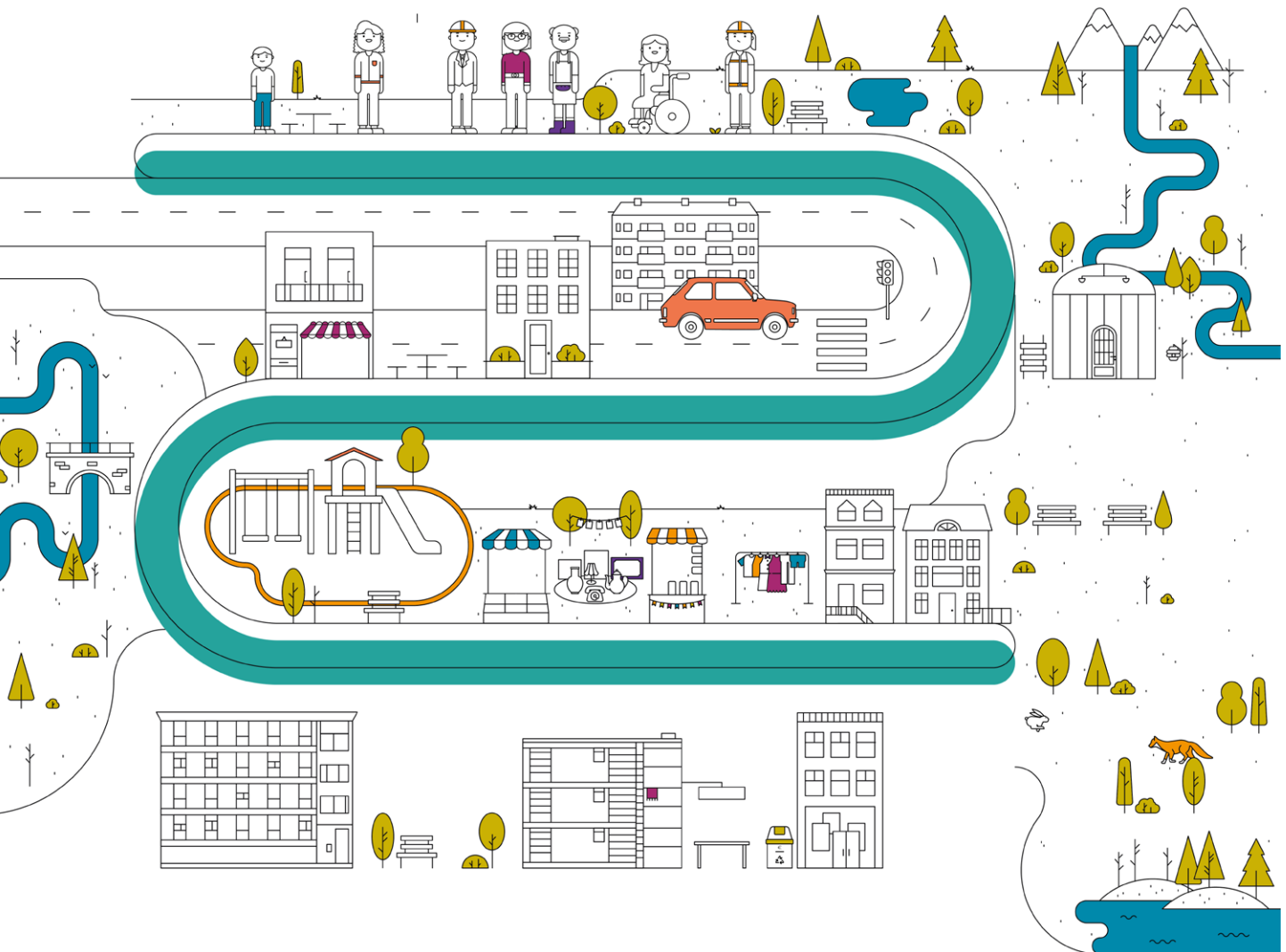


Figure 7. Healthy Corridor concept. Credits: GUDA, URBiNAT, 2020

In URBiNAT, the healthy corridor is a public space, both material and immaterial, that connects and links neighbourhoods as a pathway and as a social, cultural and educational platform. It integrates not only nature-based solutions but also human-centred ones, providing a double effect on the environment and people's health and wellbeing.

It can occupy public and private urban plots or commons that can connect different spaces and different communities while promoting mobility between them; creating better living conditions, based on a safe and healthier environment; decreasing the existing segregation effect through social and urban cohesion; and increasing urban resilience to climate change.

In this sense, the healthy corridor will be activated in several living labs, placed in the city's modern periphery, to implement a set of nature-based solutions NBS that are material and immaterial, co-created with the local citizens and stakeholders (URBiNAT partners, municipal technicians and political decisions makers).

Therefore, based on co-production processes and people-centred perspective, URBiNAT will provide citizens that leave, work or study in social housing neighbourhoods the opportunity to co-diagnostic, co-design, co-implement and co-monitoring nature-based solutions (NBS).

2.2 Healthy corridor as a cluster of NBS

Gonçalo Canto Moniz

According to the deliverable 4.1 (New NBS), “the healthy corridor is under development in the living labs of each city, resulting in the combination of different NBS (territorial, technological, participatory, social and solidarity economy) co-created from the URBiNAT NBS catalogue. The combination and proportion of each NBS, as well as the systemic effect between them is the consequence of the different needs and expectations identified during the co-creation process, namely the co-diagnostic and co-selection phases. However, the corridor will be more than the aggregating structure of nature-based solutions, since the whole is more than the sum of its parts.”

URBiNAT develops a strategy to address specific social, environmental and economic needs of deprived areas of each city. The challenge that URBiNAT faces is about co-designing and implementing these solutions not as individual elements but as part of a broader strategy. This translates into a systemic approach that takes into account linkages and synergies between different components, including the public space created between the individual NBS. The intention of distributing NBS along the Healthy Corridor aims to enhance solutions’ visibility and maximize their impact at different levels such as ecological, social, economic and health.

Each city co-selected with citizens the NBS that address their needs and challenges. These NBS were organised into two types of clusters: the thematic clusters and the place-based cluster. On one hand, the thematic clusters are constituted by NBS proposals that have common characteristics and are supported by specific municipality departments, such as Public Space, Culture, Education, Sports, Environments. On the other hand, the place-based clusters are related with specific places in the corridor intervention area that organise several NBS in a complementary way, taking advantage of its systemic capacity; such as the old farm area in Porto, the green loop in Nantes or the health energy area in Sofia. These areas will also benefit from material solutions that are physically built creating the green support and immaterial ones that will activate the social, cultural and economic dimensions, improving the sense of community and belonging, as well as the impact on wellbeing and health.

This URBiNAT approach explores the holistic dimension of the public space that is not always

represented in the NBS projects, as identified by Naumann (2020) “only limited studies have explored the linkages between biodiversity attributes (species abundance, species diversity, and community habitat structure and species richness) and the delivery of cultural ecosystem services (e.g. landscape aesthetics and recreation)”. In URBiNAT, the aim is to link biodiversity with other cultural, social and economic ecosystems and services, where nature and community are in close dialogue.

2.3 Co-creation of healthy Corridors

Gonçalo Canto Moniz, Américo Mateus,
Luís Miguel Correia, José António Bandeira²

Given the widespread stigma suffered by the communities in these neighbourhoods, the intention is to reverse the decision-making and design process to enable the physical regeneration of the neighbourhoods and the city, contributing to the consolidation of social cohesion. That is, to develop mechanisms that ensure inclusive urban regeneration “by and with the people”, with effective participation that offers citizens control and cooperation, and abandoning the “for the people” as a pseudo-participatory process based on Assistencialism and Domestication (Sanoff, 2000). A new understanding of community participation is that “focus on broader community-driven processes in the construction of the public realm provides a critical perspective with which to transcend the binary relation between professionals and users and the limited model of participatory design” (Hou & Rios (2003). This process, now called co-creation, aims to involve and empower citizens and local actors in its several different stages of dialogue, interaction and decision making.

The issue is not one of excluding the usual political and technical decision makers from the urban planning and design of the cities, but of including other actors who can bring objective contributions to these processes, there by guaranteeing the effective success of the transformation process. Peter Blundell Jones, Doina Petrescu and Jeremy Till (2013, p.xvi) in their book *Architecture and Participation* underline that “participation is not just a catalyst for the

² Text presented and published at the UIA 2021 International congress, Rio de Janeiro, Brazil.

transformation of the role (and eventual lives) of users, but also for the transformation of architectural practice". In fact, Citizens, with their empirical knowledge, culture and experience, have the skills to bring social innovation to the design process, adding human capital, human-based solutions, and new domains of collective creativity. This collaboration can be developed in three stages: involvement – for diagnostics, preparation, learning culture and motivation; integration – supporting the process around validation, systematization, and purpose; interaction – to create space for users' dialogues, activation and connectivity (Leonor, Mateus, Martins, 2017).

The process of the co-creation of urban spaces is itself a promoter of well-being, in the sense that it empowers the people who contribute with their ideas, their knowledge and their experiences for the construction of a better future. It also guarantees that the construction of new urban areas or urban regeneration will not only serve the interests of the state, municipalities or large companies but will also be at the service of people, their needs, expectations, and desires.

The aim of the project is then to contribute to the collective construction of alternative design methods and concepts, which integrate citizens' knowledge and experience. This particularly applies to the process of urban regeneration of the communities who inhabit the areas, enhancing their right to the city in terms of their experience, and also in its reconstruction through humanistic, democratic and environmental principles. In this sense, the space that is the Healthy Corridor is a democratic space that is open to experimentation and to dialogue between the community, urban planners and decision makers.

URBiNAT Co-creation process

URBiNAT considers participation to be both a means and an end. We have therefore designed a model based on a four-stage approach: local diagnosis (co-diagnostic), characterizing the area of intervention in territorial, social and economic terms; the project (co-design), involving citizens in the process of building ideas and strategies, as well as in the design of solutions; construction (co-implementation), inviting citizens to participate in the production of solutions, through volunteer work or exchange of working hours; evaluation (co-monitoring), challenging citizens to convey the benefits and harms of the implemented solutions.

The URBiNAT co-creation process model aims to support the creation of Communities of Practice or Communities of Interest while the project

develops in the time period that is financed by the European Union. In this way, we leave the knowledge, tools, the social and solidarity economy businesses, the training and the self-governance model for active participation, to the citizens and the main stakeholders of these neighbourhoods, ensuring the continuity of co-creation in favour of the community after the completion of the URBiNAT project.

Based on these aims, the URBiNAT co-creation process / model has been designed in accordance with a logical sequence and flow of information: a) Engagement and Involvement of the Target Groups (citizens and city stakeholders); b) Running Local Diagnosis in two stages: (Secondary data collection and Primary data collection); c) Gathering the Problems, Ideas and Solutions of Citizens and Stakeholders; d) Developing the Urban Plan through a participatory decision-making approach; e) Implementing the Healthy Corridor with citizens and other stakeholders; f) Defining and activating social and solidarity economy businesses; g) Creating an observatory for monitoring of the Healthy corridor, involving citizens and stakeholders.

An important component of our co-creation model is the transition point between each of the four main stages: the results and insights from local diagnosis are the starting point of the Co-design stage; the Healthy Corridor plan and participatory governance model is the starting point of the Co-implementation stage; the maintenance and sustainability model is the starting point of the Co-monitoring stage.

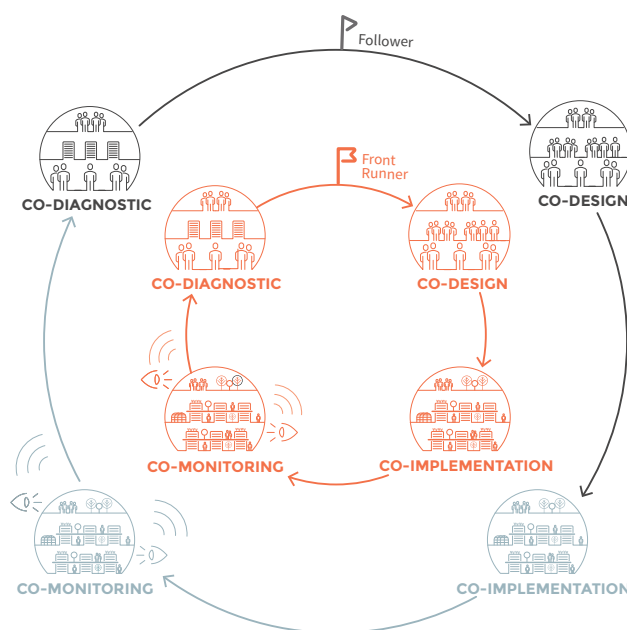


Figure 8. Co-creation circular process. Credits: GUDA, URBiNAT, 2019

The URBiNAT co-creation model and process is in itself the result of an intense internal co-creation process. We combined the experience and expertise of the different teams and experts in the consortium: design for innovation experts (group dynamics techniques, playfulness and system-thinking gaming tools); social science experts (ethnographic techniques and tools for the empowerment of citizens); architects and urban planners (project development techniques and modelling tools); landscape architects and city technicians (territorial techniques and timing frameworks); decision makers and politicians (decision making milestones and go/no-go project gates).

This methodology is being adapted by each city in accordance with its local participatory culture, urban design practice and legal framework, via the local partners who constitute a local Task Force between the municipality and the academic partners. In chapter 3, topic “3.2 The healthy corridor as a flexible and adaptable co-creation process” will analyse how this methodology was implemented in each frontrunner city.

2.4 Healthy Corridor References

Raf Ilsbroekx and Gonçalo Canto Moniz

The healthy corridor is inspired by public space projects that have been developed in the last years, in several cities across the world. Some of these projects are referred to as green corridors and others are related to tactical urbanism. Nevertheless, it's also possible to go back to Hellenic Athens and rethink the principles of the *Panathenaic Way* connecting the gate of Dipylon, the Agora and the Acropolis.

The *continuum naturale* (Caldeira, 1980) and greenways (Ahern 2002, Ferreira, 2005) concepts and strategy frame recognized projects, such as the New York City High Line (2004-2014), designed by Diller Scofidio + Renfro, that created a long public park built on an abandoned elevated railroad in Manhattan. The High Line became a success due to the possibility of transforming a grey solution into a green one that encourages human mobility in a healthy environment in the middle of a polluted city. By improving the quality of life, the abandoned warehouses became new housing and commercial developments as well as cultural initiatives that also promoted it as a tourist attraction. In this sense it became a nature-

based solution as well as social and cultural ones, but on the opposite, it also promoted the gentrification of the area, with the increasing value of the soil. The High Line concept, a greenway in a viaduct, is being replicated in several cities in order to support sustainable policies as the Tehran Nature Bridge (2010-2014) designed by Leila Araghian to connect two parks separated by a highway and the Seoul Skygarden (2015-2017) designed by the Dutch MVRDV to create a park in the air, reusing a disused highway.



Figure 9. New York City High Line (2004-2014), designed by Diller Scofidio + Renfro. Credits: Luís Miguel Correia



Figure 10. Tehran Nature Bridge (2010-2014) designed by Leila Araghian to connect to parks separated by a highway. Credits: Gonçalo Canto Moniz

In a different approach, the Luchtsingel, in Rotterdam, designed by ZUS, develops a viaduct/bridge with a new wood structure, implemented through a participatory method of crowdfunding. This bridge links urban voids (common spaces) with the potential to implement nature-based solutions. These places of opportunity are in-between mobility infrastructures – roads, railroads, highways – and also in the rooftop of office

buildings. Citizens claimed for a solution and together with the office ZUS co-designed and co-implemented the wooden bridge, the urban farm, and the vegetable gardens in the rooftop. (Boxel, Koreman, 2018)



Figure 11. *Luchtsingel*, Rotterdam, aerial photo and birds view, designed by ZUS. Credits: ZUS

The linear park / corridor *Pannenhuispark* in Brussels, designed by LANDINZICHT landscape architects and BAUKUNST architects, opened in

April 2021, thereby establishing the third tentacle of a new framework of linear parks connecting (i) Bockstael in Laken in the north-east, with (ii) the *Tour & Taxis Park* and *Parckfarm* in the south-east and (iii) Belgica station through the *L28* park in the south-west. Hence, this new link connects three neighbourhoods for pedestrians and cyclists, mainly by redesigning abandoned train infrastructures. Also, a playground was added, in a (partly) circular design of reused railway infrastructure. The recycled railway infrastructure is a returning element in this overall park design, thereby emphasising the history of the site, as visible in the three pictures of the *Pannenhuis Park*. Joining this park in the south-east, we find *Tour & Taxis Park*. The picture of the *Tour & Taxis Park* site before intervention, at the left, displays the wasteland state of the site and the act of appropriation visualised by a family picnic scene, thereby emphasising the potential of this place in a modest act of activism, in favour of a public park and urban corridors in this former infrastructure landscape. Moreover, the image was actually picked up in political campaigns in 2013 in favour of the realisation of the park. The photo at right shows the created park by BAS SMETS, re-photographed in 2021.



Figure 12. Linear park *Pannenhuispark* in Brussels, designed by LANDINZICHT landscape architects and BAUKUNST architects, opened in April 2021. Credits: Raf Ilsbroekx, 2021



Figure 13. *Tour & Taxis Park* in Brussels, designed by BAS SMETS; photographed on 17 August 2013 as a wasteland, credits: Hylke Gryseels; Re-photography on 18 July 2021 as a park / corridor, credits: Raf ilsbroekx.

Sønder Boulevard in the *Vesterbro* district of Copenhagen was redesigned by SLA in 2004-2006, thereby reusing and reorganising former car infrastructure. The appropriation of this corridor-based linear park is high, diverse and inclusive, due to high adjacent housing densities, the well-considered ratio between park width and car space, social control (i.e. from adjacent housing, passing traffic) and its specific scenography. Similarly, *Park Belle Vue* in Leuven, Belgium, was designed as a linear park by Artgineering / H+N+S landschapsarchitecten / ARA in 2011-2018, thereby

also transforming car space and residual car space. The specific topography of the site was exploited in the design concept and metaphorically translated into a 'river bank' site, with the railway tracks as a metaphorical river in the scenery. Similar to *Sønder Boulevard*, the appropriation of this corridor-based linear park is high today, the well-considered ratio between park width and car space, social control and the added functional cycle path, which serves the station of Leuven at a larger urban scale. Hence, the design intertwines transit traffic with local traffic into a qualitative urban space.



Figure 14. *Sønder Boulevard* in Copenhagen, Denmark by SLA, 2004-2006. Credits: Raf ilsbroekx



Figure 15. *Park Belle Vue* in Leuven, Belgium, by Artgineering / H+N+S landschapsarchitecten / ARA in 2011-2018. Credits: Raf ilsbroekx, 2021

The urban farm *La Petite Senne* of the project *Bel Akker* by ATELIER GROOT EILAND is located on top of a drained arm of the Senne river. Mainly 'high value crops' are cultivated on this linear garden, destined for local self-managed and external food stores and the local organic supermarket 'The Food Hub'. Furthermore, an inclusive social employment program is carried out by Atelier Groot Eiland. Furthermore, the SPIN-farming method is applied: Small Plot Intensive Farming. Similarly, in Paris,

an abandoned passageway in the rue Saint-Blaise was transformed by ATELIER D'ARCHITECTURE AUTOGÉRÉE (AAA) into the collectively-managed ecological garden *Passage 56*. Prior to the intervention, this residual space was closed in the 1980s due to the construction of a residential block. The passageway has now become a collectively-managed space, accommodating workshops, food production, commercial activities and meetings. *Passage 56* reinforces the idea that collective

space is (continuously) developed as a 'social, cultural and political' production, rather than designing a physical object. Hence, the social connection of the neighbourhood has been revitalised before (i.e. co-planning, co-design), during (co-creation) and after the construction (i.e. appropriation) of this new collective space on a neighbourhood scale. The explicit participative approach and cooperation between residents and experts, contributed to a rigorous project that was agreed upon. Moreover, this approach also continued during the construction phase (e.g. the few constructed objects, as part of the project,

are carried out with recycled materials, collected by the residents themselves). Another innovative project recently occurred in Paris, in 2019, with a new passage *Jardin Truillot* opening an entire building block, as a result of the leverage effect of the city initiative *budget participative*, which enables citizens to start urban projects. The former *Mercedes* automobile store at Boulevard Voltaire, which was abandoned in 2015, was demolished and an opening through the building block between Boulevard Voltaire and Boulevard Richard Lenoir was created and transformed in this corridor-based park passage *Jardin Truillot*.



Figure 16. Urban Farm *La Petite Senne* – project *Bel Akker* by ATELIER GROOT EILAND, in Brussels. Credits: Saskia Vanderstichele



Figure 17. *Passage 56*, Paris: Cultural and ecological space since 2009. Credits: <https://www.publicspace.org/works/-/project/f250-passage-56-cultural-and-ecological-space>



Figure 18. *Jardin Truillot*, Paris: Transformation from building block to park/corridor. Credits: Collage Raf ilsbroekx, source photos: Google Earth



Figure 19. *Jardin Truillot*, Paris, 2019. Credits: Raf ilsbroekx, 2019

TETSUO KONDO ARCHITECTS designed *A Path in the Forest*, a fluttering path in the woods of Kadriorg, in Tallinn, Estonia. The experience of exploring the forest through this path changes the perception of this 300-years old forest while walking, thereby stimulating the relational value and appropriation of the neighbourhood. 'The pathway is supported by a steel tube resting against the trees' trunks without the use of additional columns and was designed as a temporary installation for the 'Urban Installation Festival LIFT11, curated by Margit Aule. A similar concept, though designed as a permanent cycling path, can be found in Hechtel-Eksel, Belgium.

DE GREGORIO & PARTNERS together with BUROLANDSCHAP designed this elevated path *Cycling in the Trees* as a double circle with a length of 700 metres through the forest, as a part of a larger scale recreational cycling path through the neighbourhood. Hence, this cycling path brings the visitors literally into higher realms all the way up to the treetops, up to ten meters of height, thereby generating a unique experience of becoming one with nature. The path is also accessible for walkers and joggers. The columns are made of corten steel, placed close to each other thereby generating maximum spans of 3 meters, which reduced the construction costs for the pathway.



Figure 20. *A Path in the Forest* in Tallinn, installation by Tetsuo Kondo Architects, 2011. Credits: Tetsuo Kondo Architects



Figure 21. *Cycling in the trees* in Hechtel-Eksel, design by DE GREGORIO & PARTNERS and BUROLANDSCHAP, 2018. Credits: Raf ilsbroekx, 2020

Red Ribbon Park in Qinhuangdao, China, designed by TURENSCAPE, transforms the landscape by a scenographic and minimal design solution. The introduction of a 'red ribbon' against the background of the territorial vegetation and forest, enhances the site's landscape qualities. The red ribbon integrates functions such as lightning, seating, a boardwalk and thereby facilitates social meeting in natural environments. The ribbon is made of fiber steel and lit from inside, there turning the ribbon into a red glowing corridor at night. The corridor also includes four pavilions along the ribbon, which are conceived as shelters, meeting opportunities and visual focal points in this rich ecological territory. A more drastic intervention of a much larger scale, also designed by TURENSCAPE, can be found in *Ningbo Eastern New Town Ecological Corridor*, Zhejiang Ningbo, China. This systemic large-scale corridor project is built upon a post-industrial site as an ecological landscape reconstruction project, as a part of an even larger ecological network in the Ningbo eastern new town, thereby aiming for continuity of

an ecological corridor while fulfilling the needs of the adjacent (planned) communities surrounding the site. The project includes the restoration of the hydrological environment, (re)building wetlands on a large urban scale, while providing green public spaces tailored to the demands of modern urban life, thereby explicitly (re)defining the identity of the new urban district, without erasing its history. Hence, the applied strategy includes firstly the preservation, reuse and regeneration of factory buildings, trees and water systems. Secondly, the strategy embraces a design based on hydro-ecological processes such as terraces, curved banks and isles. Thirdly, a diverse vegetation is explicitly aimed for by introducing wetlands, crops and woods. Walkable paths and cycle paths crossing this newly-designed landscape and connecting this recovered territory to the city's greenway system. Several wooden platforms and pavilions in corten steel are designed, both as shelters and as art installations, thereby delivering picturesque viewpoints to this systemic ecological corridor.



Figure 22. *Red Ribbon Park*, Qinhuangdao, China, designed by TURENSCAPE Landscape Architects, 2008. Credits: TURENSCAPE



Figure 23. *Ningbo Eastern New Town Ecological Corridor*, by TURENSCAPE, 2010-2016. Credits: TURENSCAPE

3. Cross analysis of the healthy corridors concepts

This chapter is the result of an open research on the co-creation process undergoing in the three cities. The aim is to correlate and not to compare the results achieved and the tools used in order to demonstrate the flexibility and adaptability of URBiNAT concepts and methodologies.

Although the cities were selected with common criteria, the process shows that local context is reach enough to appropriate and criticize the URBiNAT proposal in order to produce its own concept of the healthy corridor, which is a very positive result. The three cities integrated the healthy corridor strategy in their urban plan strategy to create synergies between them. In this sense, the municipalities integrate the innovative aspects of URBiNAT in terms of nature-based solutions and participatory process, but they also integrate in URBiNAT the experience and best practices already implemented in the city.

To cross analyze the three healthy corridors concept presented in Part 2, 3 and 4, several

partners develop contributions with different themes and methodologies. In this sense, chapter 3 is organised in six topics:

1. Correlation table between the three cities healthy corridors
2. The healthy corridor as a flexible and adaptable co-creation process
3. The healthy corridor as a material and immaterial infrastructure
4. Cross-reading on gender of the projects in the 3 cities
5. The healthy corridor concept: Review and feedback
6. The healthy strategies for the corridor: Porto, Nantes, Sofia
7. A cross-reading on the spatial form of URBiNAT's Healthy Corridors in Porto, Nantes and Sofia.
8. Eklipse challenges and the global strategies of Porto, Nantes, and Sofia

3.1 Correlation table between the three cities healthy corridors

CITY / DISTRICT	PORTO	NANTES	SOFIA
Categories	Campanhã	Nantes Nord	Nadezhda
Intervention area size	Total 1,7 km – new formal paths 4 ha – vacant lots requalified.	Total Bout des Pavés – Chênes des Anglais districts: 51 ha Green loop path: 2158 m Amande park: 6.14 ha Canada Park: 0.79 ha Chênes des Anglais: 0.54 ha	Total – 1,43sq. km: 2,5 km – long pedestrian Path 138,1 ha – buffer area 5,6 ha – vacant Plots
Intervention area status	Public plots Urban void	Public Plots Existing public and green spaces	Public Plots (20) Existing public and green spaces

Intervention area plans	ORU Campanhã (2018) Cerco do Porto public space project (starting) Falcão public space project (concluded) Lagarteiro public space Project (concluded)	Nantes Nord Global Project (2017-2030) Revers' Eau (2023-2025)	Integrated Plan for Urban Regeneration and Development – IPURD (2014-2020)
Intervention area typology	Paths connecting three social housing neighbourhoods – Cerco do Porto, Falcão, Lagarteiro Green area	Paths through social housing neighbourhoods and green spaces	Path connecting 2 urban parks passing through four housing estates neighbourhoods – Lev Tolstoy, Nadezhda 2 Nadezhda 4, Svoboda
Intervention area units (theme)	One unit (Alameda Cartes Park)	Three units (Green Loop, Canada Park, Renard Stream)	Four units (Co-place, Aqua Vita, Health energy, Green Assembly)
Intervention area strategy	Landscape approach and park “Octopus” strategy	Acupuncture approach and linear park “Spider” strategy	Acupuncture approach and linear park “Meandering river” strategy
Local stakeholders	Primary schools Associations Individuals	Secondary school Individuals Associations	Secondary schools Kindergarten Associations Inhabitants, Parents
Gender inclusion	Balance between men and women (children and adults) Families Kora group in schools	Reappropriation of public space by women (children and adults) Families Teenagers The elderly (with difficulties linked to the Covid 19 crisis)	Almost the double of female in co-design workshops (246 to 137) and good participation of children During the co-diagnostic 60 pupils and 80 adults
Participatory activities	Public events Group meetings (workshops) for all area Face-to-face meetings for each NBS	Public events Group meetings (workshops) for each theme inside the units	Public events Group meetings for all area Group meetings (workshops and focus groups) for each zone of intervention Meetings for selected/ specific NBSs

Table 1. Correlation of data from the healthy corridor of three frontrunner cities.

3.2 The healthy corridor as a flexible and adaptable co-creation process

Gonçalo Canto Moniz

The co-creation process, as described in 2.4, is the methodological framework to co-create the healthy corridor. It identifies the four main stages, as well as the actions, objectives, phases, steps, narratives and activities, as described in the co-creation diagram. This process is organised in a linear structure, but the participatory nature of URBiNAT may challenge the each city to go back in order to promote more solid or coherent go forward.

For each stage, the model proposes a set of actions to be adapted by each city, according to their local participatory culture and to the local social and political context. This flexibility has been particularly relevant during the COVID-19 pandemic, when the Living Labs faced several restrictions in use of the public space and in organizing workshops. Nevertheless, the cities are striving to adhere to the objectives and phases in order to achieve the coherence of the model.

Co-diagnostic stage

During the co-diagnostic stage, the three cities (Porto, Nantes and Sofia) developed activities related with the three main steps – presentation of URBiNAT, mapping local culture, participatory activities. The analyses of the co-creation process chapter in each city reveals the commonalities, such as:

- Porto Nantes and Sofia organized meetings to present URBiNAT to citizens, stakeholders, municipal technicians, and political representatives
- The three cities mapped the local participatory culture and the local projects of the associations and the municipality. While Porto and Sofia created specific meetings, Nantes took advantage of the project Dialogue Citoyen, where citizens and stakeholders are involved in a regular base, and also the municipal boards that put technicians and politicians in direct contact every month.
- The three cities organize meetings to trains the municipal technicians with URBiNAT concepts and methodologies
- The three cities organize participatory activities to collect data for the local diagnostic. While Porto and Sofia focused the workshops with pupils of local schools (walkthrough, photovoice, cultural mapping and motivational interviews), Nantes organized thematic workshops (Superbarrio for young people, gardening, soil analyses, well-being)
- The three cities organize public events. Porto organize a public kick-off with participatory activities; Sofia organize two exhibitions to collect data and to inform citizens; Nantes organize sessions in the frame of two local events – Spring week and Fete de la Science.
- The three cities have similar figures related with citizens engagement:

	PUBLIC EVENTS AND WORKSHOPS		SCHOOLS
Porto	147 all ages	20 associations	600 pupils
Nantes	150 adults	30 associations	50 children
Sofia	150 adults	40 associations	150 pupils and teenagers

Table 2. Co-diagnostic stage of the three frontrunner cities.

Nevertheless, each city developed specific activities, according to their local culture, that contributed to frame their approach:

Porto created a strong relation with local associations and the local primary and secondary schools. The participatory workshops with schools and the citizens (public event) gave important data on the perceptions of the territory. The public event in the central square created a good level of information about the project, such as:

Nantes took advantage of the important structure that is already working in Nantes Nord and the high participatory culture of the municipality – project dialogue citoyen, municipal boards, annual district events with citizens.

Sofia created solid bonds with the stakeholders, the schools and the community center. The organization of exhibition was an important tool to involve the community.

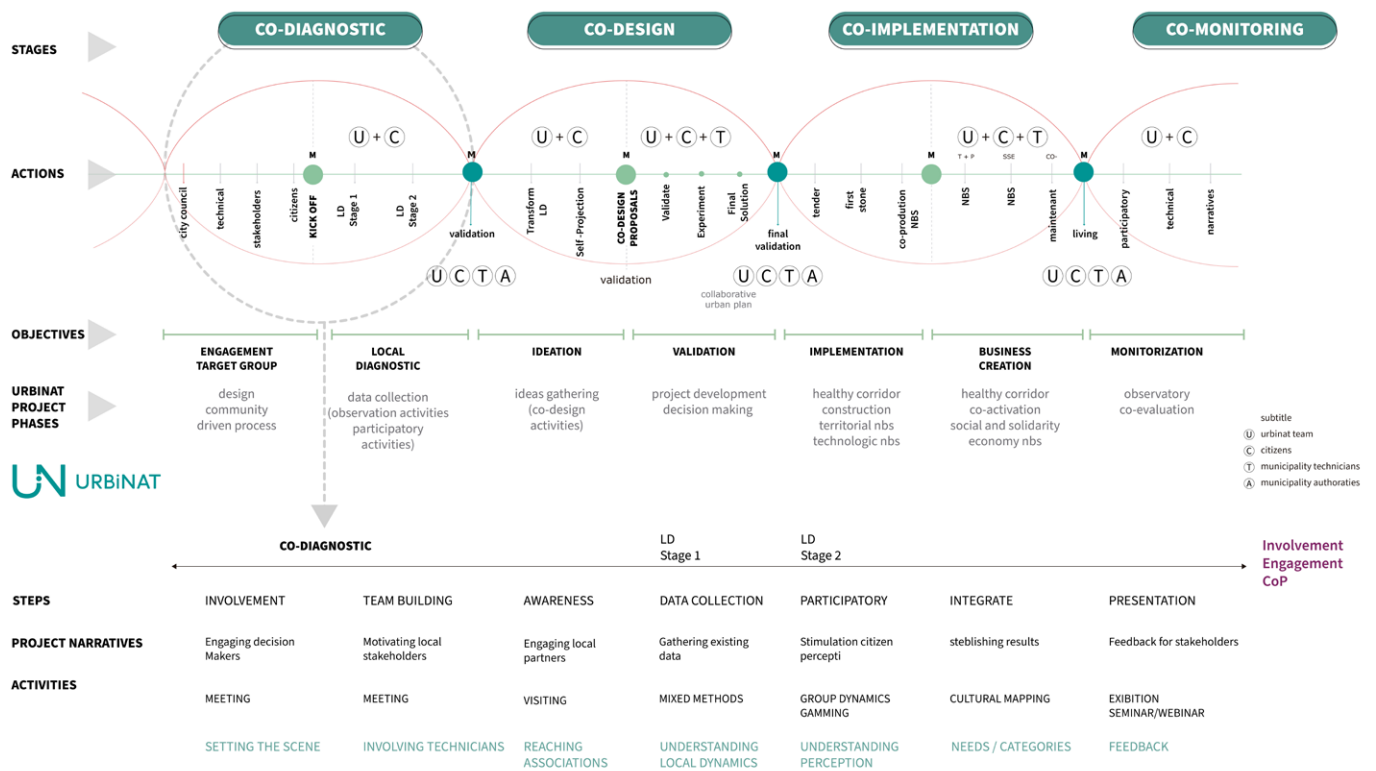


Table 3. Co-creation process with focus on co-diagnostic stage

The next table reflects on the way each local taskforce developed the co-diagnostic stage:

CO-DIAGNOSTIC STAGE			
	PORTO	NANTES	SOPIA
Involvement	Meetings to present to school coordinators, teachers, local associations and institutions; municipal technicians and to political representatives.	Meeting to present URBiNAT to citizen and elected representatives in the frame of Spring week	Meetings to present URBiNAT with Pupils' Parliaments; headmasters of the schools and the teachers; staff of Nadezhda Institute of Culture; centre for arts, culture and education; Local cultural centres; NGOs and professional organizations Municipal technicians and staff at Sofia Municipality and Nadezhda district administration; Political representatives.
Team building			
Project Presentation	Public Event with citizens and political representatives (kick-off)	Health and nutrition seminar with associations and technical staff	On-line seminar to introduce the "tasty gardens of learning". Public Events with open-air exhibition

Mapping the local participatory culture	Meeting to map stakeholders' activities and municipal technicians projects Engage all in URBiNAT process with specific roles	Developed in the frame of Project Global for Nantes Nord	Events in schools Exhibition of the results of the local diagnostic Focus group with teachers, Staff from the local cultural institutions Box for comments Mapping stakeholders' activities Engage municipal technicians in the regular meetings of the Local task Forces to Coordinate with other projects Validation of the scope of the study area
Participatory Activities LD stage 2 Presentation (feedback)	Event in schools – Walkthrough Photovoice, Mapping perceptions (use, feelings, dreams), NBS around the trees. Public Event with citizens and political representatives (kick-off) with participatory activities – jogo da glória, mapping uses, feelings, dreams; Participatory activities with local organisations, such as theatre, market, karate presentation Training of municipal technicians on URBiNAT methodologies	Visit of market gardening with inhabitants to collect views of inhabitants on healthy food issue Workshop in the community center: what kind of walks in the district? Engage and train municipal technicians with different expertises in proposing transversal solutions for Nantes Nord – “Social cohesion” seminar with municipal technicians Workshop SuperBarrio with teenagers at the media library Event at Fête de la science with activities with citizens and schools: activities on soil, climate and water in relation with well-being	Event in schools – Walkthrough Photovoice, Motivational interviews Regular meetings with the “Work with children” mini working group Public events with parents, citizens, local associations and NGO; municipal staff, political representatives Training of municipal technicians on URBiNAT methodologies

Table 4. Co-design stage of the three frontrunner cities.

Co-design Stage

During the co-design stage, the three cities develop parallel processes taking in consideration the co-design steps – transformation; self-projection; ideation; design; validation; argue; systematization; development. To these steps, Sofia proposed to include co-selection, perception, presentation and inclusion. In this sense we can identify similarities between the three cities:

- Related to the **transform** step, the three cities developed activities to promote the appropriation of URBiNAT by the citizens. Porto and Sofia presented the local diagnostic (Porto online, Sofia with exhibition), while Nantes organised a communication campaign to raise awareness on the green loop and the future walkthroughs

- The **self-projection** step asked the citizens to reflect on their contribution to URBiNAT, with motivational workshops in schools (Porto); meetings about URBiNAT topics as healthy food (Nantes); workshops about URBiNAT concepts during the exhibition (Sofia).
- The **ideation** of new NBS took different form, according to the local practices. Porto organize walkthrough with adults and children in the intervention areas and then workshops and online meetings to move from needs and challenges to solutions and proposals. Nantes used the citizens bus to do co-design workshops and organized several walkthrough, namely an innovative online walkthrough due to covid-19 focused in the green loop, finally, one school was involved to co-design a technological NBS. Sofia develop three types of workshops to ideate, firstly during the exhibition, secondly in the intervention area, and thirdly, in the four main places of intervention; the workshops were complemented with superbarrio workshop and the GIS tool; the schools were also involved to ideate and co-design the technological NBS with IAAC.
- The **design** phase was in some cases articulated with the ideation. In Porto, proximity meetings with 1 or 2 citizens developed the idea, as well as workshops between citizens and municipal technicians to frame the ideas according to the legislation and the municipality experience; finally, an online workshop to co-design four ideas after the discussion of the healthy corridor preliminary study. In Nantes the design phase was interrupted by the covid-19, nevertheless several meeting with municipal technicians designed the NBS and articulated URBiNAT with Global project. In Sofia, the design phase was also broken by covid-19 but good advances were made with the technological solutions in workshops with IAAC and the school and also related to health, thermal, water, and swimming and its inclusive potential in focus groups with experts.
- The **argue and validation** of the new NBS and the healthy corridor concept promoted discussions between citizens, municipal technicians and political representatives in a democratic stage. The healthy corridor concept was also approved by the municipal bodies of the three cities. In **Porto**, three online meetings were organized to discuss the new NBS proposed, to validate the decision-making process using TRIZ tool and to present and discuss the healthy corridor preliminary study. In **Nantes**, the healthy corridor concept was discussed during the spring week event. In **Sofia**, the healthy corridor was approved by district and municipality bodies. The covid-19 lockdown (january-april 2021) created delays in this process.
- The **systematization** of the healthy corridor concept was developed by the local taskforces with the organization of the citizens' proposals and the feedback from municipal technicians. The information was systematized in deliverable 4.1 New NBS and 4.2 Healthy Corridor Concept. The NBS proposed by the citizens were grouped in categories and integrated in the healthy corridor concept.
- The **new developments** are being prepared by each taskforce. The three cities are activating the stakeholders advisory with representatives of the citizens, stakeholders, municipal technicians, political representatives and URBiNAT local partners in order to create a co-governance structure of the healthy corridor. This board will be in direct articulation with the development of the NBS in the frame of working groups, workshops and technical team. In the case of Porto and Sofia, this advisory board is a new structure, while in Nantes, the municipality will give this role to an existing citizens board.
- Citizens participation in the co-design activities:

	WORKSHOPS AND FOCUS GROUP		SCHOOLS	
	Male	Female	Male	Female
Porto*	20	25	74 (more female than male)	
Nantes**	103		27 teenagers + 60 children	
Sofia	130	242	7	4

Table 5. Participation groups in frontrunner cities. *In Porto, due to covid-19, the group of individuals and associations was the same, although some didn't attend to all meetings. ** In Nantes, the team doesn't report male/female

The flexibility of the co-creation allows the cities to develop a specific approach that can be described as follow:

- Porto is engaging adults and children of the six primary schools in the co-creation of NBS. Nevertheless the adults core group is constituted by representatives of associations. In this sense, a special effort will be developed to engage citizens from the neighbourhoods in the next steps. Walkthroughs in the intervention area were the most efficient method to identify needs and ideate solutions. Nevertheless, workshops and proximity meeting were important to consolidate and design the proposals. Due to covid, online meetings were organized and reveal a good environment for argue and validation. The advisory board and the working groups associated to each NBS groups can be the key for a successful co-design of the solutions, as well as, for its co-implementation.

- Nantes engages citizens for specific activities and doesn't create a long-term commitment. Each group works on the results of the previous one. The citizens bus is an important infrastructure that improves the proximity with citizens. The innovative online walkthrough can be an important covid-19 contribution. The co-design activities with thematic objectives is an interesting strategy to be replicated.
- Sofia is engaging citizens in the community center, in the school and also in the activities that take place in the four intervention areas. The exhibition to present and discuss results has been a very important tools for the citizens appropriation and also for activating the co-design stage. The design workshops in loco focused on thematic are also an important contribution to the process. An innovative tool with GIS is being tested to be replicated in other cities.

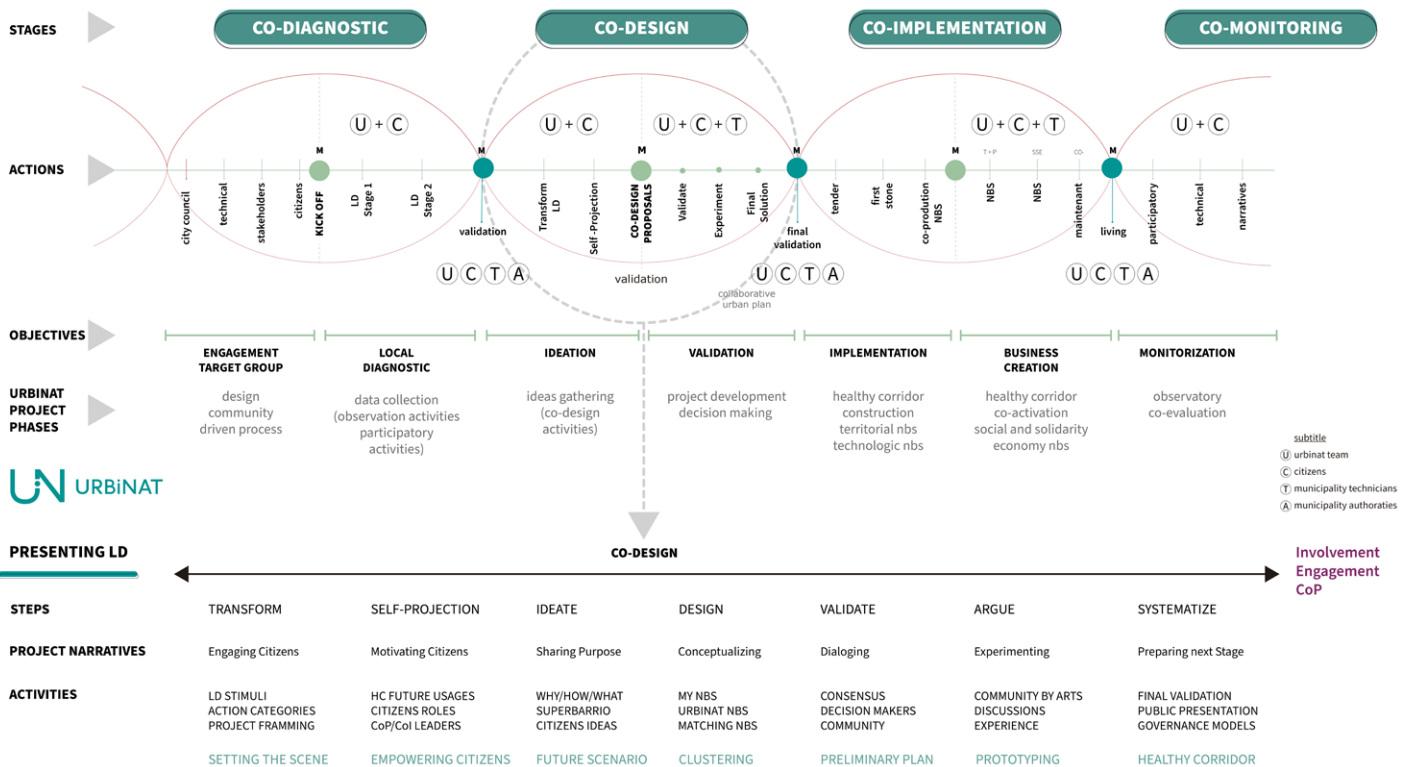


Table 6. Co-creation process with focus on co-design stage. Credits: GUDA, URBINAT, 2021

The next table reflects on the way each local taskforce developed the co-design stage:

CO-DESIGN STAGE			
	PORTO	NANTES	SOFIA
Meeting to present URBiNAT	Meetings to present URBiNAT to stakeholders, schools and municipality	Meetings to present URBiNAT in the frame of events	Meetings to present URBiNAT to stakeholders, schools and municipality
Map local culture and projects	Meetings to map stakeholders and municipal technicians projects	Regular meetings with stakeholders in the frame of dialogue citoyen Regular meetings with municipal technicians in the frame of municipals boards	Meetings to map stakeholders and municipal technicians projects
Training	Training of municipal technicians on URBiNAT methodologies	Training of municipal technicians on URBiNAT methodologies	Training of municipal technicians on URBiNAT methodologies
Participatory workshops	Event in schools – Walkthrough Photovoice, Mapping perceptions (use, feelings, dreams), NBS around the trees.	Workshop SuperBarrio with teenagers at the media library Workshop in the community center: what kind of walks in the district? Visit of market gardening with inhabitants to collect views of inhabitants on healthy food issue	Event in schools – Walkthrough Photovoice, Motivational interviews
Seminars	Online webinar on solidarity markets	Health and nutrition seminar with associations and technical staff	On-line seminar to introduce the “tasty gardens of learning”.
Public Events	Public Event with citizens and political representatives (kick-off) with participatory activities – jogo da glória, mapping uses, feelings, dreams; Participatory activities with local organisations, such as theatre, market, karate presentation	Meeting to present URBiNAT to citizen and elected representatives in the frame of Spring week Event at Fête de la science with activities with citizens and schools: activities on soil, climate and water in relation with well-being	Public Events with open-air exhibition
Transform	Introduction of URBiNAT Planning co-design activities Online Presentation of the Local Diagnostic	A communication campaign to raise awareness on the green loop and the future walkthroughs Engage and experiment green loop	Workshop during the exhibition to Present the local diagnostic On-line seminar for the staff from the kindergartens in Nadezhda District (edible gardens and school yard) Radio Interview on the URBiNAT’s aims and open call for citizens to join the forthcoming workshops

<p>Self- -projection</p>	<p>Community Workshop to prepare the walkthrough</p> <p>Activity about the courtyard in primary schools</p>	<p>(the same as transform)</p> <p>Meeting with the stakeholders and inhabitants engaged/ interested in the food production on the district (green loop).</p>	<p>Workshop during the exhibition to Explain and share URBiNAT's philosophy, achievements and steps forward</p>
<p>Ideation</p>	<p>Walkthrough to Identify needs and challenges</p> <p>Co-selection of new NBS with 3D model</p> <p>Online meeting to ideate new solutions, through design thinking</p> <p>----</p> <p>Walkthrough in the intervention area</p> <p>Workshop activities (mapping, drawing, gaming, 3D model thinking)</p>	<p>Workshop on site with the Citizen bus to co-design the Canada urban park, on site Walkthrough with professionals (municipal services, and local stakeholders) to co-create green loop</p> <p>Walkthrough with inhabitants to co-create green loop</p> <p>Meeting with teachers the Stendhal secondary school to co-select NBS (transform and ideate)</p>	<p>Workshop during the exhibition to map perceptions and to collect ideas for NBSs</p> <p>Collecting ideas through 4 workshops with citizens for 4 locations</p> <p>Citizen workshop at place of intervention "Co-place"</p> <p>Citizen workshop at place of intervention "Green Assembly"</p> <p>Citizen workshops at places of intervention "Aqua Vita" and "Health Energy"</p> <p>Sofia task force meets the Headmistress of 15th school (needs to school yard)</p> <p>Sofia and IAAC – Agreement of the design, functions and structure of the Greenhouse in the 15th school yard</p> <p>Meeting with the headmaster of kindergarten 90 in Svoboda – discuss layout and technical parameters</p> <p>Super Barrio workshop with pupils from 153 school to introduce NBS and select ideas</p> <p>To test "learn for life – GIS for citizen participation – preparation of the workshop with children 15 school</p>
<p>Design</p>	<p>Proximity meetings to co-design of each citizens NBS proposal</p> <p>Citizens produced a video to explain their proposals</p> <p>Workshop with citizens and technicians to co-design each NBS</p>	<p>Meeting Nantes task force to develop Technical instruction green loop</p> <p>Meeting with the urbanist team of the global project to Adequacy between the two urban projects Urbinat and Global project. Presentation of the green loop (design and validate)</p> <p>Meeting – Technical instruction: connection with the Amade park</p>	<p>Focus group of professionals related to health, thermal, water, and swimming and its inclusive potential</p> <p>Elaboration of the rules of Sofia Advisory Board for project URBiNAT Local Task Force, WP3 and Sofia Municipality (inclusion)</p> <p>Co-design of the educational pavilion in the yard of 15 school</p>

Validate	<p>Online Meeting to present new NBS and discuss it with citizens and political representatives</p> <p>Decisions on the proposed ideas with political representatives, citizens and stakeholders (Triz)</p>	<p>“Commission Locale de Quartier” (Local district commission) Presentation to the elected representatives of the healthy corridor (green loop)</p> <p>Presentation of the healthy corridor and further co-creation activities on the immaterial NBS (Spring week) – Validate and argue</p>	<p>Formal approval by the mayor of Nadezhda of the selected 4 areas for workshops with citizens and to discuss the possible interventions</p> <p>Preparation of the Urban Plan Design brief</p> <p>Internal validation among municipal technicians – Agreement on NBS ideas to be channeled for implementation</p> <p>Sending the Report for the Healthy Corridor Concept to the elected politicians at the Municipal council</p> <p>The Healthy Corridor Concept (plots for intervention and axis of the Corridor) approved By Commission on Ecology at the Municipal Council, By Commission on Spatial Planning, Architecture and housing policy at the Municipal Council and finally By the Municipal Council</p>
Argue	<p>One-day Experiment to test ideas in place (suspended due to Covid-19)</p>		
Systematization	<p>Porto TF Meeting to organize and systematize the ideas</p> <p>Healthy Corridor preliminary study</p> <p>Systematization of the process for deliverable 4.2 and 4.3</p>	<p>Systematization of the process for deliverable 4.2 and 4.3</p>	<p>(In depth studies – research) Observation visits of the Local Taskforce to Nadezhda</p> <p>Systematization of the process for deliverable 4.2 and 4.3</p>
Development	<p>Online workshop to co-design four NBS</p> <p>Organization of working groups according to the NBS groups</p> <p>Setup of the Advisory board</p>	<p>Development and construction of specific NBS, such as playground</p> <p>Setup of the Citizens Commission</p>	<p>Setup of the Advisory board</p>

Table 7. Methodological co-creation steps (co-design) in the three cities.

3.3 The healthy corridor as a material and immaterial infrastructure

Gonçalo Canto Moniz

According to D4.1, the URBiNAT New NBS catalogue challenges conventional NBS definitions by not only integrating solutions inspired by nature, including territorial and technological solutions, comprising products and infrastructures, but by also including participatory and social and economic solutions, comprising processes and services, that reinforce the dialogue between the physical structure and the social dimension of the public space.

The goal is to bring these two levels of the public space into a living interaction, building collective awareness around commonalities, both material and immaterial and, by raising the collective understanding of human and non-human urban dimensions, promoting the co-creation, co-development, co-implementation and co-assessment of solutions inspired by nature and in human-nature.

The New NBS were presented individually, but the healthy corridor is a cluster of NBS, as explained previously, where the material and immaterial NBS complement themselves, expanding their impact on the environment, as well as, on the community wellbeing and health.

The three cities developed this approach in order to co-create a healthy corridor that is not

only green. In this sense, the cities and citizens were inspired by the URBiNAT NBS catalogue but the co-creation process develop a specific catalogue in each city, with different groups, according to the local culture, but keeping the solutions that are products and infrastructure (material) and others that are processes and services (immaterial), as described in Part 2, 3, 4, namely in the annex with the NBS Cards.

The aim of this subchapter is to analyse the corridor in each city according to this perspective in two dimensions. Firstly, the transformation of the four initial categories (technological, territorial, participatory, social and solidarity economy) into four-six groups, as can be seen in table 1. Secondly, the creation of clusters in several areas of the healthy corridor in order to activate the public space, as described in table 2.

The next table represents the new categories created by the three cities and its relation with the four NBS typologies proposed by URBiNAT. The territorial NBS were integrated in the category Public Space, associated with Nature in Porto and with Climate Adapt in Sofia. Some territorial NBS were integrated in Education and Sport categories. The technological are integrated in the Education, due to its implementation in the school environment. The participatory NBS were mainly integrated in Education and Culture. Finally, the Social and Solidarity Economy NBS was integrated in a category with the same title, although Nantes, defined a new category related with Food Production to underline this topic.

NBS	PORTO	NANTES	SOFIA
Territorial	Public space and Nature	Public space	Public space Climate Adapt
Participatory Territorial Technological	Education and environment	Education	Education
Participatory Territorial	Culture and Sport	Physical activity & Sport	Sport & Recreation & Sport Culture
Social and Solidarity Economy	Socio-economy and solidarity practices	Social and Solidarity Economy Nature and food production	Social and Solidarity Economy

Table 8. NBS typologies and NBS categories co-created in each city.

The next table analyses the specificities of the NBS co-created in each city, according to the objectives of each category:

NBS	PORTO	NANTES	SOFIA
NBS categories	Public space and Nature Education and environment Culture and Sport Socio-economy and solidarity practices	Public space Nature and food production Education Sport Social and Solidarity Economy	Public space Climate Adapt Education Sport & Recreation Social and Solidarity Economy
Specific NBS	Heritage recycling Cultural platform	Opening stream	Utilizing thermal water
Public Space objectives	<ul style="list-style-type: none"> - accessibility for all - place for community use - presence of nature - safety for all - Multifunctionality 	<ul style="list-style-type: none"> - Accessibility - Sharing of public space/ inclusivity - Place for social cohesion - Multifunctionality 	<ul style="list-style-type: none"> -Improve connections, access and permeability - Inclusive public space - Diversity of uses and multifunctionality - Urban governance and management of the built environment
Nature objectives	<ul style="list-style-type: none"> - Improve autochthonous trees (sobreiro) - promote sensorial gardens - nature as a open air lesson (Living lab) 	<ul style="list-style-type: none"> - Connection to the green star, the green framework of the city of Nantes - Make the green spaces for and with the inhabitants - Preserve or favour biodiversity 	
Culture objectives	<ul style="list-style-type: none"> - empower the community - develop the sense of belonging (identity) - (Re)create identity and uniqueness - promote the cultural capital (heritage routes, campanh'up) 		<ul style="list-style-type: none"> - (Re)create identity and uniqueness
Social and solidarity objectives	<ul style="list-style-type: none"> - solidarity activities to activate the public - contribute for local economy - local food products 	<ul style="list-style-type: none"> - one of the levers for the development of the territories, the political districts - consolidate the place of the SSE in the local economy - Urban agriculture and food aid 	

Educational objectives	- literacy for environmental issues - bio agriculture for healthy food education		behavioral change and lifestyle transformations - Movements, sports - physical activity
Health objectives	- social health with behavioral change - lifestyle transformation - clean public spaces	- Acting to reduce social and territorial inequalities in health - Promote urban health and quality of life - Develop the individual and/or collective capacity of the inhabitants to take action on their health	- Healthy urban environment - Climate change adaptation -Safeguard urban open space - Active inhabitants, social life and wellbeing
Sport objectives	- Open air physical activity and leisure - traditional games to improve community identity	- Development of physical activity for all: improve and renew the offer in the districts - “Nantes terrain de jeux” free sports programme to develop with the inhabitants	- Provide open air spaces and facilities for sport and play

Table 9. NBS co-created in each city, according to the objectives and categories.

3.4 Cross-reading on gender of the projects in the 3 cities

Lia Gil Antunes

The promotion of human rights and gender equality integrates the core of the URBiNAT project since the beginning³. At its bases, the intersectional perspective – that is, the recognition of the multiple layers of oppression and discrimination that interconnect and intensify – was defined as transversal to all phases of the project, from co-diagnostics, co-selection, co-design, to co-implementation and/or co-monitoring and evaluation. This text focuses on the first three phases of achievement and their relationship with the conceptual study of healthy corridors for front-runner cities – Porto, Nantes, and Sofia. The cross-reading of meta-plans will be analyzed with gender and intersectional lens, focusing on the NBS mini catalog, on the daily network of neighborhoods and their connection to the city, and on the perceptions of (in)security for girls and women.

³ These basic principles of URBiNAT were defined and deepened in the deliverables D1.2 (theoretical and methodological foundations of the project) and D1.5 (compilation and analysis of human rights and gender issues).

The idea of a healthy corridor that will connect some disconnected parts of these cities has expanded beyond green approaches. A healthy city is also a place with broad and effective social commitment, defined by the teams as “a city space for all and with all, URBiNAT contributing to the innovative reinvention of the urban policy and the reappropriation of the right to the city with the inhabitants of the project’s intervention areas.”⁴ The intersectional lens looks at “childhood, gender (including gender minorities/diversity), older adults, race and ethnicity, functional diversity, citizenship status (migrant/refugee/asylum seek condition), religious diversity”⁵ as priority specificities. Such an approach should be reflected in the broad participation of different stakeholders, guided by the particularities and limitations of each context and community⁶, and, consequently, in the plurality of final solutions.

⁴ “A corridor of inclusion: city space for and with all”, thematic blog posts by CES team (8th March 2021).

⁵ Regarding age, do not look back or forward. The city must know how to respond to the particularities of each phase of human life that require different notions of quality in the urban space. For further details on each identity axis, see deliverable 3.1 “Strategic design and usage of participatory solutions and relevant digital tools in support of NBS uptake”, pp.22-24.

⁶ About participatory roles and engagement, requirements and limitations experienced by the various segments of citizen, data

The continuous involvement of the communities is, therefore, a fundamental element of the urban project. Participation must be transformative and, therefore, URBiNAT established the realization of “initiatives that allow new groups and individuals (not previously engaged) to participate in the activities and putting their perceptions, agenda and interests on the table (for example women, children, immigrants, etc.).”⁷ The front-runner cities developed a set of structuring methodologies for participation and a series of workshops with different actors (directors and municipal technicians, non-profit organizations and local associations, and schools). Cities named, for example, collective groups of women present in the intervention areas such as the NGO “Les Mains dans la Terre” in Nantes or the Muslim Women’s Group in Sofia. However, the application of effective participation methodologies with the female population (resident in the neighborhoods of the intervention area) should have been continuously and punctually group oriented.

Knowing that space is not neutral, and it can feed or transform social and territorial inequalities, URBiNAT established initial co-designing strategies. These were conceived according to several approaches, namely *nature-based design of inclusive public spaces*, *eco-feminist design*, *gender considerations included in public budgets and inspiring tools from feminist and activist groups*⁸. The first two launch guidelines for an integrated design of the differences that recognize women as active subjects, but historically relegated to the background. Based on these and other principles, front-runner cities Porto, Nantes and Sofia co-analyzed, co-discussed and presented the conceptual strategies in the preliminary projects for healthy runners. The three proposals reflect an effort to engage and negotiate with stakeholders and to synthesize ideas and desires. Furthermore, this immense work was done during a pandemic year and the processes were complexified. The COVID-19 pandemic has exacerbated gender inequalities, but also made women’s contributions visible⁹, and revealed

collection and management, and gender and intersectionality specificities, see deliverable 3.1 “Strategic design and usage of participatory solutions and relevant digital tools in support of NBS uptake”.

7 See Deliverable D3.2 – “Community-driven processes to co-design and co-implement NBS”, p.5.

8 “Co-designing strategies for inclusion, based on gender and intersectional approaches”, thematic blog posts by CES team (8th March 2021).

9 2021 report on gender equality in the EU shows the negative impact of the COVID-19 pandemic on women. Report available here: <https://ec.europa.eu/info/sites/info/files/>

the urgency of prioritizing care tasks in urban planning. Taking children to school, shopping, taking care of elderly adults, accompanying to doctor visits or at leisure in the public space... care requires breaking gender roles and stereotypes and encouraging co-responsibility – also of the city where everyday life takes place. The co-diagnosis phase experienced the location and connection of the intervention area, in relation to the adjacent neighborhoods and the rest of the city, the characteristics of the urban environment, the design of the urban space (or absence of it) and the people who use it¹⁰. This stage should assess whether it responds to the necessary conditions of proximity, diversity, autonomy, vitality, and representativeness¹¹.

Conceptual strategies for healthy runners are generous in trying to solve problems in each urban context. The cities elaborated some important maps and/or analysis schemes for daily networks that should continuously monitor the process, with a focus on: (i) network of local commerce close by and at street level and network of daily and diverse equipment and infrastructures¹², public and community, considered at an adequate distance/time/difficulty, inside and in the vicinity of the neighborhoods, (ii) relationship spaces network, the existing ones *versus* those proposed by URBiNAT, (iii) pedestrian mobility network (formal and informal), and, (iv) public transport network connecting the intervention area to the rest of the city (frequency, location and quality of stops, ...). Such indicators are part of the daily network and can facilitate or hinder the performance of daily activities and care.

The NBS mini catalogue will play an important role in the daily network of each intervention area. It is a reference for material and immaterial ideas and solutions that are contextually and thematically diverse, but also something generalist and undefined in terms of the social groups that will be the potential focuses or users. This apparent

[aiddevelopmentcooperationfundamentalrights/annualreportge2021en.pdf](https://ec.europa.eu/developmentcooperationfundamentalrights/annualreportge2021en.pdf). To understand how the COVID-19 pandemic affects disproportionately women with infographics: <https://www.europarl.europa.eu/news/en/headlines/society/20210225STO98702/understanding-the-impact-of-covid-19-on-women-infographics>

10 Quantitative and qualitative data collected and processed under URBiNAT were disaggregated by sex. We should answer, for example: how do they move? How do they use it? How often and permanently?

11 See the guide by Adriana Ciocchetto and Col.lectui Punt 6, “Espacios para la vida cotidiana. Auditoría de Calidad Urbana con perspectiva de Género”, Barcelona: Editorial Comanegra, 2014.

12 For example, the design of accessible and diverse public toilets requires non-exclusionary discussion and special attention. Gender-Neutral Toilets or Gender-Inclusive Toilets options must co-exist with other solutions for families and others differentiated by sex.

neutrality makes it difficult to understand the answers and proposals for the 3 areas of intervention. NBS Public Space, understood as a space of relationship and socialization, promote a potential improvement of the existing general physical characteristics of the 3 areas of intervention. Like NBS Sports, they must answer to the needs of different bodies, activities, and intensities. Outdoor physical activities¹³ that occupy an extensive area should allow other simultaneous uses at different times of the day. Children's play areas must be designed for different ages and interests of girls and boys¹⁴. Immaterial NBS may also focus on the issue of representativeness and gender equity of those we celebrate in the public space, namely in the name of streets or through NBS that can make women and their history visible within the collective memory of the community, as proposed in the city of Porto.

Another highly relevant issue is the perception of (in)security by women and girls in the public space. Gender-based violence, in its various forms and intensities, is a reality common to all women. It accompanies all stages of life and has implications for their urban experiences. The physical characteristics of the spaces are a determining factor that affects people's perception of (in)security in the public space. It is closely linked to age, ethnic-racial origin, functional capacity, sexual orientation, among others – and occur in different physical and social, private and public spaces. The conceptual plans of the 3 cities should have this concern as a priority and integrated it in and beyond the whole area of intervention, in their relationship with the nearest neighborhoods. In these meta-plans, both the design of public space and NBS do not seem to confront directly such a public problem. Some of the following ideas have already been suggested by some teams, others could be developed in the frame of the urban plan (see deliverable 2.4):

1. The urban context must be visible, that is, it must promote spatial visibility. To fulfil this requirement, it is essential to prioritize the preparation of maps for night lighting, the continuity of paths and the visual connection between spaces, the elimination of corners and hidden areas, the alteration or adaptation of urban furniture, vegetation and other elements that hinder lines of sight, and the elimination or adequacy of underpasses and pedestrian bridges. These elements are mainly present in the Porto approach.
2. The urban context must be vital and informally watch over, that is, it should favour the continued and simultaneous presence of people in different activities and at different times of the day and week. Material NBS should promote the multifunctionality of spaces and the urban structure of streets and corners designed as meeting spaces. More: understand if there are “social eyes” on the street from housing or commerce and services, eliminate blind walls in the route of the streets of the daily network and provide escape routes along the healthy corridor. Also understand the several levels and age variations of the perception of (in)security: for a young woman it may be related to dark streets and/or the presence of only men, for an elderly woman fear may be in the crossroads of a pedestrian crossing or walking on the same path as bicycles.

The lines of action previously suggested underline the relevance of the participation of women living in adjacent neighborhoods, essential to understand and design the daily network and public spaces. For achieving a safe urban environment for all, healthy corridors must be aware of different urban experiences, according to gender, age, race, class, among others. The depth of URBiNAT's methodologies and integrated strategies will certainly promote safe and creative environments that will promote each person's autonomy. The conceptual projects of the healthy corridors for front-runner cities of URBiNAT will value those neighborhoods and cities, supporting the complexity and diversity of life contexts, the social meeting, and the empowerment of those who have been removed from the places of decision about their neighborhoods and cities.

¹³ Men are the ones who generally practice sport in the open air. It is important to take into account the existence (or non-existence) of soccer fields in the intervention area, which are already used, mostly by the male population, and to diversify the sports offer.

¹⁴ Sofia's living playgrounds are interesting educational and playful solutions. For more in-depth knowledge about the socialization spaces of children with a gender perspective, see the work of the Catalan collective Equal Saree, available at: <https://equalsaree.org/es/>

3.5 The healthy corridor concept: Review and feedback

Nanna Østergaard, Marie Damsgaard (SLA)

In March of 2021¹⁵ SLA carried out a review and evaluation of the reports on The Healthy Corridor Concepts developed by the front runner cities (D 4.2). The reports were the first drafts of the work in translating and developing input from the participatory activities into concepts for the development of the Urban Plans. At the time of this review, the reports were not yet completely finalized or lay-outed and comments on the general readability of both text and graphics are therefore left out of this chapter.

The reports followed the same basic structure, but each report was tailored to fit to the specific situation in each of the cities. This allowed the review process to comment on general observations relevant to all three cities as well as giving specific feed back on each concept development. The review revolved around how the cities each approached and adapted their participatory activities into functional and strategic concepts and designs as well as a plan for integration of relevant nature-based solutions. The goal was to identify potentials and challenges across the three reports and give feedback and recommendations that could help qualify the concepts and the further work with the Urban Plans in each of the cities. This chapter will focus on the general feedback and recommendations.

General observations on structure and content

Even though the reports are based on the same basic structure, the output and content of each was quite different – a testament to how difficult it is to create streamlined, identical processes in very different contexts. It also highlights the different starting points for each of the cities regarding existing material and policies to build on and showcases how the URBiNAT approach functions within not only various physical environments but also various social and political realities. However, these differences also to some extent make it difficult to make clear comparisons and conclusions on the processes and results.

¹⁵ Note from the WP4 coordinator: SLA did this feedback in March 2021 in a meeting with the three cities. Between March and July, the three cities and the coordination was able to attend some of the recommendations. Other might be integrated in future reports.

Co-creation process

All three cities have planned and executed a wide range of user involvement activities, all of which is thoroughly described in the reports. However, for all three cities it was at this stage a little unclear how the input from these activities informed the initial designs. The following observations and questions were raised during the review:

- The term “citizens” is used as an all-encompassing term. It is crucial to the project that a diverse range of users are represented, and this needs documentation in the report. Which groups did you reach out to and why? How many people participated? Were you successful in attracting a diverse representation of users?
- How was the outcome from the co-creation activity interpreted and translated?
- Short conclusion on the process – What was the defined goal of the given co-creation activity, and did you succeed in reaching your goals?
- We are aware that the COVID-19 crisis has impacted the involvement process. Maybe include a paragraph on the effects of COVID-19 – how did it change and what was the consequences of that?

NBS catalogue VS. New NBS

It is unclear in all three reports how the NBS catalogue has been used in the involvement and how it has impacted the healthy corridor concept. The process of developing site specific NBS is somewhat hard to follow, and the role of the NBS catalogue developed by the URBiNAT team becomes unclear.

- The “original” NBS are only very little or not at all represented in the solutions; how has knowledge from the NBS catalogue helped inform the new NBS?
- It is unclear how New NBS were developed and qualified. What were the requirements for new ideas and contributions in the co-creation process to be accepted as new NBS?
- NBS in the catalogue is rated on performance – could it be interesting to rate the new NBS in a similar way to show how you expect them to perform and on which parameters?

Nature-based design

From the standpoint of SLA, the biggest concern with the work on the Healthy Corridor Concepts and development of New NBS, is the lack of focus on the “nature” part of nature-based solutions. To some extent the reports reflect how a very thorough and inclusive participatory process has

lessened the focus on qualifying the relevance and performance of the NBS. This has led to New NBS' that are in several instances very simplistic and not actually nature-based i.e., renovation of stairs and pavements. In this regard, we recommend the cities to further qualify their work with nature-based design in the Healthy Corridors and investigate how to work with nature in an inclusive way in each of their specific contexts.

- Which ecosystem services are you working with and how do they perform within each Healthy Corridor?
- How do they support social agendas?
- How do they improve quality of life?
- How can citizens be involved and engaged in local biodiversity?

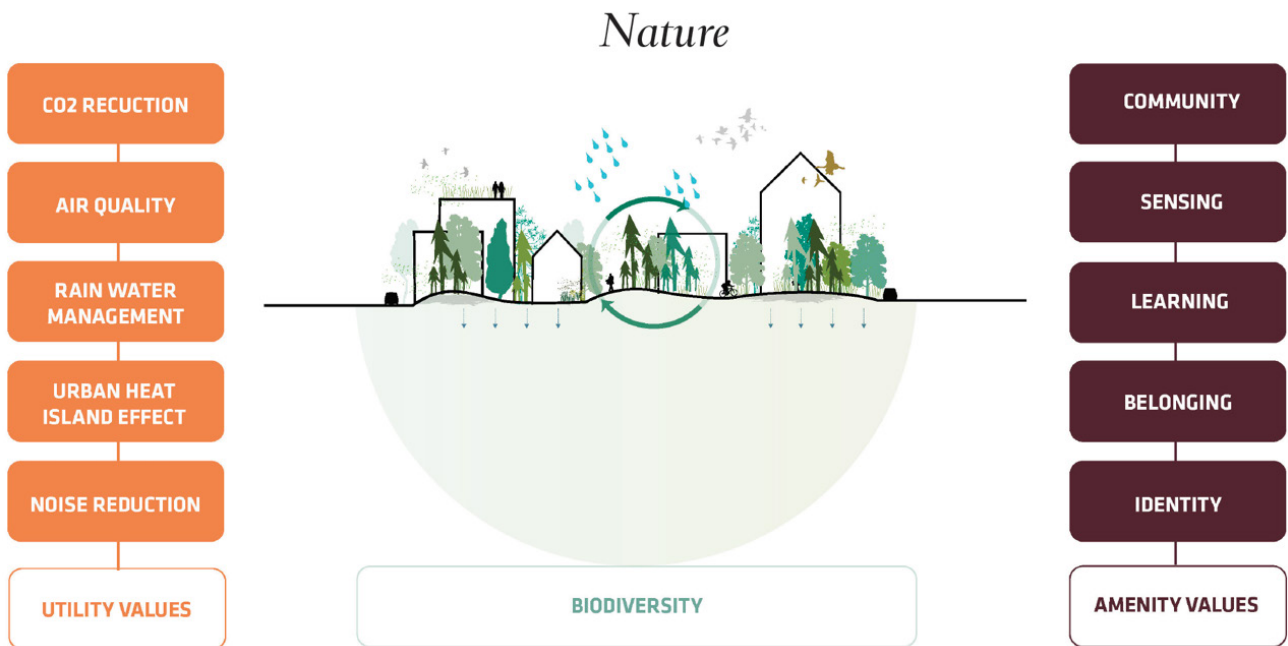


Table 10. Biodiversity scheme by SLA. Credits: SLA

3.6 The healthy strategies for the corridor: Porto, Nantes, Sofia

Vitório Leite

As described in the previous sub-chapters, the urbanization process on the areas that are going to be studied and intervened during URBiNAT has been contributing to a multiple and fragmented morphology of these cities part, which has been crystallized by the unpredictable consequences of inherited socio-spatial arrangements (Brenner & Schmid, 2017).

Despite of the homogeneity and similarity that can be found on the plans used to formulate the mass housing that the study areas has received, these arrangements have been transforming the territory on different ways and they were responsible for triggering the three different strategies for the implementation of URBiNAT urban projects on the three front-runner cities.

In Nantes, the strategy was developed according to a wider plan that included the study area of URBiNAT, already mentioned before. In this sense, the new urban project served to establish a more accurate approach for specific parts of the territory, most of them connected by a path under the name of green loop, which tries to induce walking and with that, healthier behaviors on the inhabitants.

This urban project strategy motivated a closer participation process, with the stakeholders being directly involved with urban spaces that they recognize as quotidian and they know quite well. Considering the already developed participation process for the general plan, this proximity process helped to reveal some uses and motivations in a clearer way about more specific matters.

Differently from Nantes, the historical evolution of the study area in Porto caused a territorial variegation characterized by the presence of unused spaces and vacant plots between the neighbourhoods. Thus, the strategy for the urban

project was defined to cover a large area of territory. With this landscape in consideration, the strategic approach focused on quality pedestrian mobility and the definition of a new urban park that occupies a continuous group of these plots and aims to work as a connector between the three different neighbourhoods of the study area – Cerco do Porto, Falcão and Lagarteiro.

This wider and urgent need, along with the low participatory culture on urban projects, motivated a more diverse strategy for the participation of the local stakeholders. This strategy included moments where a large audience defined principles and proposed general ideas for the area, which complemented the local diagnostic surveys, as well as moments of close proximity work that helped to steady the ideas proposed by citizens and have tried to integrate them in the urban project or in other municipal or citizen initiatives.

In Sofia, the main objective for a possible corridor could be easily identified by a territorial analysis: to connect the two parks situated in the study area. Despite this evidence, the way to connect was established in a closer work with the inhabitants of the area. The answer to specific challenges of the neighborhoods and the decision of what plots to be intervened, according to needs that these challenges created, were fundamental to define the path and the different areas of intervention.

This process created a scale variation on the development of the project, which motivated a strategy that will consider four focal and programmatic points, where different groups of

NBS will be considered, and a new corridor, which will connect these points with the two mentioned parks.

In these three areas, with different geographical characteristics but with similar social, economic and architectural circumstances, there is a common hazard for the population that inhabit these zones. As the evolution of these three collaborative strategies has been shown during the URBiNAT project, the sense of isolation and the psychological effect it may cause is a dangerous issue.

A sense mainly motivated by the distance (physical but also social and political) between these areas and the centre of the city, the lack of qualified public space and the difficulty to establish a collective street life.

Using architecture and urban planning for improving people's possibility of health has been intensively practiced. There is no natural body or brain that has not already been affected by the biopolitical regimes that plan and organize our ways of living (Wigley, 2021). In this sense, URBiNAT strategies here synthesized, are trying to plan beyond the prosaic materialization of the healthy corridors as greener and qualified paths, they are trying to objectively and collaboratively transform the quality of life of these parts of the cities.

The question of health and, by other hand, sickness, as the COVID-19 times we are living have been showing until now, have always been shaping architecture, the urban space and the way we live it and use it. For this reason, the strategies are working on a territorial level, as paths, places, contexts, but also on establishing ways to emancipate and empower the stakeholders that are participating on the URBiNAT urban projects.



Figure 24. Healthy Corridor Global Strategy with NBS co-created with citizens of Porto, Nantes and Sofia. Credits: UC, URBiNAT, 2021

3.7 A cross-reading on the spatial form of URBiNAT's Healthy Corridors in Porto, Nantes and Sofia

Raf Ilsbroekx

URBiNAT's 'Healthy Corridor' (HC) is defined as a 'collective' space (i.e. material and immaterial) that 'connects' neighbourhoods as a pathway and as a social, cultural and educational platform, thus conceptualised as a generic concept, applicable in different cities. Evidently, the specific spatial forms of this generic concept can and will vary, since a tailored approach is aimed for. A cross-reading of the spatial concepts of the three (already) elaborated 'Healthy Corridors' in Porto, Nantes and Sofia, explicitly unveils three different urban figures, thereby all three serving as genuine 'connecting' and 'collecting' concepts. Thereby, this cross-reading of the respective spatial forms confirms URBiNAT's tailored approach in the respective cities, resulting from the territorial reading and participative processes, as a part of the design of these three healthy corridors.

Firstly, Porto's 'Healthy Corridor' occupies an intervention area of 4 hectares, situated in the *Campanhã* parish, today strongly characterised by its topography, its crossing highway structures and its undefined spaces. The elaborated healthy corridor is established as a new multifunctional urban park. Its pathway, as the walkable part of the corridor, metaphorically takes the spatial form of an 'octopus with seven tentacles', connecting and collecting adjacent neighbourhoods. The specific trajectories are mainly synthesised from participatory workshops and territorial readings of the district, thereby partly formalising and materialising current informal connections. Furthermore, an explicit landscape approach is noticeable in the overall design concept, underpinning and fostering ecological dynamics and environmental quality and simultaneously developing a network of pedestrian and cycling routes, thereby promoting soft mobility on a larger scale and creating areas for social events and community initiatives on a local scale. Additionally, the aim is to mitigate the visual, sensorial and environmental impacts of the large road structures (e.g. A43 motorway). As the *Campanhã* parish is currently under investment priority for the municipality, URBiNAT's Healthy Corridor can accomplish a key connection between ongoing and planned projects and interventions. Moreover, since URBiNAT's intervention is aligned with the local municipal investment strategy, an

amplification of initial municipal strategies can be expected, as well as a considerable acceleration in the implementation of ongoing, planned and URBiNAT's interventions.

Secondly, in Nantes, the intervention area is situated central in the parish *Nantes Nord*. Today this district is already served very well by public transport networks, public facilities, the proximity nearby an important economic pole and a well-developed (though underexploited) green environment. Moreover, its proximity nearby agricultural spaces in the North can be read as an additional asset for the neighbourhood. Nantes' 'Healthy Corridor' equally will result in a multifunctional urban park. However, its spatial structure can be read as a grid intensification of an existing (octopus) path structure through the district, rather than as a new imposed 'octopus' structure. In other words, the walkable pathway of the elaborated healthy corridor seems to be woven in between the tentacles of an existing – previously established – octopus pathway structure, thus in a similar way as a spider weaves a 'spider's web'. French-American artist Louise Bourgeois characterised the spider as follows: "The spider is a repairer. If you bash into the web of a spider, she doesn't get mad. She weaves and repairs it." This description by Bourgeois emphasises the time dimension and demonstrates the continuation of future developments on the foundations of previous developments, thus fitting a *Tabula Plena* strategy. Moreover, the city of Nantes already started a major urban renewal project in 2016 for this study area: 'the Global Project', including landscape structures and civil engineering interventions. Hence, URBiNAT as a project will be integrated (preliminary) as a part of this global project and strengthen the 'landscape approach' of the urban project (e.g. the creation of a more readable urban structure, increasing the visibility of services and green spaces and intensifying the specific connections inside the neighbourhood).

Thirdly, in Sofia the 'Healthy Corridor's pathway is planned as a metaphorical 'meandering river' connecting *Severen Park* and *Park Nadezhda*, thereby cutting mainly through the involved housing developments' undefined and under-used spaces, expanded with four areas of intervention along its axis. This linear park/path structure has a length of 2.5 kilometres, along which these four 'thematic' intervention zones are appointed: 'Co-Place', 'Health Energy', 'Aqua Vita' and 'Green Assembly'. Whereas the HC frameworks in Porto and Nantes are elaborated as 'branched' networks, the Sofia HC is clearly articulated as a linear and

meandering framework, designed as a linear park, accompanied by four thematic zones of intervention. Evidently, the main path is crossed by other path trajectories and can expand organically (or planned) with additional crossing branches. By combining an explicit linear and meandering framework, external passage through the neighbourhood is also aimed for, and mixed with the local thematic interventions along this main axis. Hence, the aim is explicitly to mix varying urban scales and contexts, thereby opening the appropriation of the created collective spaces (i.e. paths, nodes, intervention plots) to a larger urban scale than merely the local scale. Similarly, in Porto and Nantes the created urban parks are also designed for mixing passage functions on a larger scale with local needs of the adjacent neighbourhoods, thereby aiming to increase social contacts between various 'users' of the corridor and its facilities.

To conclude, an overarching critical reflection on the healthy corridors and their role and functioning as future 'collective' spaces seems appropriate. Previously, Ali Madanipour reflected upon 'public space' – in general – by three relevant and defining questions: (i) who benefits by the spaces (i.e. interest), (ii) to whom are the spaces available (i.e. access) and (iii) who manages the spaces (i.e. agency)? These three criteria (i.e. Interest/Access/Agency) were initially coined by Benn and Gauss to determine to which extent a place (or activity) is public or private, as dimensions of social organization. A brief critical reflection through this questioning lens on the corridor-based elaborated collective spaces in Porto, Nantes and Sofia results in the following concluding thoughts. Firstly: 'Who benefits?' Since the spaces are designed in strong cooperation with the neighbourhood's citizens, we might expect they will primarily benefit, along with all passage-related users of the spaces. However, it is important to stress on the challenge involved in dealing with urban inequalities in the design of NBS, namely its risks to become a tool or a catalyst for gentrification itself, something the design strategy is initially a campaign against. The regeneration of public/collective space, for example by adding qualitative and inclusive green spaces, can also result in an increase of the real estate values in the impacted neighbourhoods. However, in neighbourhoods where most of the inhabitants are renting their homes, mainly the landlords (private, authorities, social housing companies, speculators) will potentially benefit from this side effect and as a result house rents can increase, thereby initiating a gentrification or expulsion of the initial tenants. However, since

besides ecological benefits, also economic and social benefits are aimed for explicitly, and addressed by URBiNAT's NBS, sustainable and inclusive solutions are to be expected. The healthy corridor in all three cities is clearly more than just a green infrastructure or merely an 'embellishment' of the site. The elaborated program that accompanies the path structure and its additional immaterial dimension explicitly transcend the merely picturesque regeneration, and thereby directly delivers benefits for the involved habitants (e.g. job creation) and the wider neighbourhood. Secondly: 'To whom are the spaces available?' Seen the extensive participative conceptualisation of all three healthy corridors, evidently access for locals seems well-considered and addressed. Also, passage on the larger urban scale is well-considered in all projects, thereby avoiding the creation of (psychologically) enclosed spaces, reserved for residents-only. Hence, an inclusive appropriation on different urban scales is to be expected, though strongly depending on the (future) management of the collective spaces. This brings us to the third and final question: 'Who manages the spaces?' The outcome to this question – on agency – is more difficult to predict, especially on the longer term. Although the management is foreseen to be in hands of the communities and/or the municipalities, depending on the NBS and the paths, it is hard to predict how this planned management (e.g. property rights, further engagements, succession, maintenance) will be (re)formalised and evolve in time. Therefore, a plausible recommendation for further implementation of the healthy corridor could be formulated as a question for further research: '(How) can the inclusive management of these spaces be assured, (also) on the longer term?' Moreover, since the 'management' of these collective spaces and their planned programmes (i.e. NBS along the corridors) also explicitly influences future 'access' and 'interest' issues, this management evidently directly influences the proper functioning of these elaborated collective spaces.

Summarising, we can state that the approach of introducing a generic concept (i.e. the 'Healthy Corridor') clearly has resulted in three tailored and specific spatial forms, metaphorically appointed in this cross-reading as: an 'octopus', a 'spider's web', and a 'meandering river'. In all three cities, there is stressed on the explicit involvement of inhabitants and the mutual exchange of knowledge which has clearly contributed to a more profound understanding of the local social system and the territorial experience and

perception of the neighbourhood, resulting in three inclusive healthy corridors. Furthermore, access and interest of these collective spaces seem extremely well-considered and properly addressed, while the management of the elaborated spaces on the longer term seems less steerable.

3.8 Eklipse challenges and the global strategies of Porto, Nantes and Sofia

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The Healthy Corridor, as a cluster of NBS (Nature Based Solutions), is more than a green space. It is additionally a social and cultural infrastructure that acts as a catalyst, providing apart from environmental, social and economic benefits to the inhabitants by enabling safer and more coordinated mobility in the region, as well as climate change resilience. Healthy corridors are considered as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

In order to establish the Healthy Corridor Concept, the three cities involved in the URBINAT project (Porto, Nantes, and Sofia) analyzed a variety of co-diagnostic results before moving forward with the co-design process. Then, they identify a number of indicators, the findings of which were obtained using a variety of methodologies. Then, they describe how the co-design addressed those outcomes/problems. Besides, they explain how the co-design addressed those results/challenges. The indicators were based on EKLIPSE project.

EKLIPSE as an EU-funded project was launched in 2016 with the goal of assisting governments, institutions, enterprises, and non-governmental organizations (NGOs) in making better-informed decisions about biodiversity and ecosystem services and ensuring their long-term viability. A framework has been developed for facilitating the planning and evaluation of nature-based solutions projects (NBS) and improving climate resilience in urban settings. The EKLIPSE project was commissioned to assist in the development of evidence and understanding on the benefits and problems of implementing NBS e.g nature-inspired and nature-supported solutions to societal concerns.

The objectives of URBINAT for each city were developed in line with the URBINAT Challenges

which in their turn follow the EKLIPSE Challenges. The incorporation of these Challenges was mainly based on the analyses of every city, their socio-ecological context, and the strategies of their municipalities

The Global strategy developed by each city for their selected neighbourhoods was based on URBINAT main goals and is aligned with the existing municipal strategies concerning these areas incorporating the results of the dialogue between these strategies and the studies areas. The healthy corridor strategy established the impact of the NBS in the study area beyond the implementation in the intervention area.

NBS directed towards a given challenge has an associated set of OBJECTIVES AND ACTIONS. Each action has an associated set of EXPECTED IMPACTS, and these impacts can in turn be assessed using a SET OF INDICATORS.

There are 10 climate resilience challenges considered in this impact assessment framework.

- Challenge 1: Contribution of NBS to Climate Resilience
- Challenge 2: Water Management
- Challenge 3: Coastal Resilience
- Challenge 4: Green Space Management (including enhancing/conserving urban biodiversity)
- Challenge 5: Air Quality
- Challenge 6: Urban Regeneration
- Challenge 7: Participatory Planning and Governance
- Challenge 8: Social Justice and Social Cohesion
- Challenge 9: Public Health and Well-being
- Challenge 10: Potential for Economic Opportunities and Green Jobs

Within this framework each city developed its global strategy employing a set of EKLIPSE Challenges:

PORTO's global strategy for Campanhã area is based on URBINAT main goals: to promote social cohesion, to guide the participating actors, to identify local needs, to share best practices with the other partner cities, to achieve new models of urban regeneration. The EKLIPSE Challenges which are used to develop the objectives for the study area are, by order of significance: 6, 9, 4, 7, 8 and 10:

- Related to CH6, the proposed goals were connectivity and mobility for all, security issues, spaces multifunctionality and mitigation of urban fragmentation.
- Related to CH 9 are issues of improvement of social life, living conditions, incorporation

of new activities for the well-being of the residents.

- Related to CH4 are issues of environmental concern and sensibility, and “green interventions.
- Related to CH7 are community involvement issues.
- Related to CH8 are identity of citizens issues and inclusiveness of public space.
- Related to CH9 are issues of solidarity actions within the community and empowerment of local economy.

NANTES' global strategy for Nantes Nord is in line with the strategies of the municipality for the area. The EKLIPSE Challenges which are used to develop the objectives for the study area are: 1, 2, 4, 5, 6, 7, 8, 9 and 10. The objectives of the strategy belong to more than one EKLIPSE challenges and are not clearly related one by one. In general, the focus is more on health issues (physical activities, sport, mental health), nature and food production, connectivity with the neighboring areas, education as a means of sharing knowledge and development of solidarity economy.

SOFIA's overall strategy for the Nadezhda district combines the URBiNAT project's findings with the current planning tool provisions in accordance with administrative and technical

needs and processes. The EKLIPSE Challenges which are used to develop the objectives for the study area are: 1, 4, 5, 6, 7, 8, 9 and 10.

The objectives of the strategy belong to more than one EKLIPSE challenges and are not clearly related one by one as in the case of Nantes. In general, the focus is more on health issues (environment, climate, involvement of citizens in measuring health impact of NBS), connectivity with the neighboring areas and porosity of borders, creation of public spaces for all, encourage active living and strong community bonds through celebrating open spaces.

Overall, the three cities employ for their intervention areas EKLIPSE Challenges with some differences. Nantes and Sofia are based on the same Challenges apart from CH2 which is used only by Nantes referring to Water Management related to nature and food production. Porto relates its global strategy objectives to different EKLIPSE Challenges excluding Contribution of NBS to Climate Resilience (CH1), Water Management (CH2) and Air Quality (CH5). The differences between them are due to diverse interpretations of the Challenges but mainly stem from the different socio-economic context, historical circumstances, needs of the inhabitants and the results of the participatory process that preceded with the municipalities and the citizens.

Main Findings and Results

The healthy corridor concept developed by the three frontrunner cities demonstrated the relevance of the concepts and methodologies proposed. Its implementation in the cities was adapted according to the local culture, but also contributed to improve it.

In this sense, it is possible to identify main finding and results related to three topics: inclusive urban regeneration, inclusive urban project, healthy corridor strategy, co-creation process, NBS clusters.

Inclusive urban regeneration

INCLUSIVE PUBLIC SPACE

- Identify the actors that are interested to activate a living lab
- Activate a living lab to identify the use, the perceptions and the needs of the public space
- Discuss the healthy corridor strategy as solution
- Relate the healthy corridor with the municipality urban policy
- Promote a gender approach to urban regeneration
- Engage children and the schools in the urban regeneration integrating their knowledge, creativity and interest
- The suburbs, namely the social housing neighbourhoods, have a great potential to activate inclusive urban regeneration

INCLUSIVE URBAN PROJECT

- Transformation of architectural practices
- Promote a flexible and adaptable co-creation process
- Dialogue with social actors at all stages of the project
- Integrate tactical actions to test innovative and inclusive solutions
- Act on time but look for wider impact
- Combining green solutions with cultural, economic and educational solutions

HEALTHY CORRIDOR

The healthy corridor can be a pathway, a network of pathways or a green infrastructure, taking the spatial form of an urban park or a linear park.

The healthy corridor needs to combine material and immaterial solutions, which means products and services.

The NBS that build the corridor and activate initiatives should combine territorial, participatory and social and solidarity economy NBS, complemented by technological ones, when possible.

Organize the NBS co-created by citizens in categories that are related with municipality urban policies and local associations goals to develop synergies.

CO-CREATION METHODOLOGY

- Define a methodology that engages citizens in all stage of the creation process.
- URBiNAT stages – co-diagnostic, co-design, co-implementation, co-monitoring – were appropriated by municipalities and partners, as well as by citizens.
- The circularity of the process supports participation and offers clear steps
- The step by step can be adapted; sometimes it's expanded, other times it can be compressed with two-three steps that are addressed in one activity.
- The co-creation methodology is adapted to the municipality way of doing, to citizens proposals, to the taskforce expertise.
- The engagement of different actors and groups offers complementary data and results
- Engage large, medium and small groups in different steps to promote proximity

Lessons from URBiNAT

- Resistance of technicians and politicians to change procedures
- Citizens' willingness for a long co-creation process
- Need for multiple activities to involve different actors
- Limitations of urban regulations
- Financial support to local individuals and associations to reward their participation
- Financial support to develop a long and structured participation
- Contract a facilitation team to guarantee transparency

Conclusions

The healthy corridor concept of Porto, Nantes and Sofia was developed during the co-diagnostic and co-design engaging the local community and the URBiNAT local taskforce, in collaboration with transversal partners, as CES (coordinator), UC and SLA. Each taskforce developed their plan of action following the co-creation methodology combined with the local culture, the municipality strategy and the synergies created with other public and private projects. The local community was engaged from the beginning, with different groups and in several activities, as reported in the topic co-creation process. At this stage, we can conclude that the living labs are already consolidated with the population of the study area involved and with small groups of citizens and local stakeholders strongly integrated in the co-creation of the healthy corridor.

The three healthy corridors have a global strategy for the study area with new pathways that link different areas of the territory, with new green areas and with several nature-based solutions that will activate the use of public space. The NBS are organized in new categories related with public space, nature, education, sports, culture, social and solidarity economy and food production. In this sense, the co-creation process promoted NBS that are products and services or initiatives. These clusters will promote the health and wellbeing of the citizens that leave, study and work in the intervention areas due to their impact on their physical, mental and social health. Although the precise indicators will be presented

in the co-monitoring stage, it's possible to demonstrate that this NBS are related with several Eklipse challenges, namely 4, 6, 7, 8, 9, 10¹⁶. Although, the healthy corridor is starting the co-implementation phase, it is possible to demonstrate an impact on the social health due to the dynamics that are already created between the local citizens and associations, in terms of synergies and experiments that are taking place in frontrunners.

The organization of this deliverable is the outcome of close dialogue with three cities taskforce that allowed the sharing of scientific and technic knowledge. In this sense, this report is the result of an internal participatory process where the structure, the methodology, the analyses of data and the presentation of results was developed together. Beyond the work developed by the local taskforce and coordination, it's important to highlight the contribution of reviewers and other scientific partners that developed a cross analyses of the three healthy corridors concepts, according the specific thematic. The methodology and way of doing will be replicated and adapted by the follower cities in the next steps, testing the coherence of the co-creation process and report.

¹⁶ See topic 3.7 of Part 1 – Challenge 4: Green Space Management; Challenge 6: Urban Regeneration; Challenge 7: Participatory Planning and Governance; Challenge 8: Social Justice and Social Cohesion; Challenge 9: Public Health and Well-being; Challenge 10: Potential for Economic Opportunities and Green Jobs

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HEALTHY CORRIDOR CONCEPT PORTO

Project

Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

Acronym

URBiNAT – Urban inclusive and innovative Nature

Title

Healthy corridor Concept

Editor

Gonçalo Canto Moniz

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Project Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

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Porto



Figure 1. City of Porto map identifying the Campanhã Parish (orange) and URBiNAT' study area (red) and intervention area (white).

1. Introduction

In Porto city, Campanhã parish was identified as one of the priority areas for urban regeneration aiming at a more sustainable improvement of local living conditions. This area faces severe socio-economic challenges territorial aggravated by isolation, due to lack of accessibility, safety, feeling of security and poor overall conditions of the urban space. Despite these challenges, this area is especially rich in green areas and vacant lots that represent unique opportunities for urban regeneration to tackle the identified issues, especially through the use of multifunctional nature-based solutions (NBS). The potential for improvement in this area is fairly recognized by the number of strategic investments that the Municipality of Porto is planning for the area.

Within Campanhã parish, URBiNAT project was able to define a specific study area to develop an extensive analysis of the territory and dialogue with local actors, aligned with the identification of available public areas that could be used for the implementation of NBSs. During this co-diagnostic phase (Deliverable 2.1), different but complementary methodologies were used to acquire the needed information (see 2.2. From the Co-diagnostic to Co-design).

Moreover, existing public areas with high social impact, main services, facilities and green spaces were also accounted for the definition

of the study area, as well as future municipal projects, in order to avoid investment overlaps and promote strategic synergies, amplifying project's impact in the territory.

By the end of the co-diagnostic, it was possible to collect enough framework information about the city, the parish and the study area that, combined and synthesized, allowed for the identification of a new work scale – the project's intervention area (Figure 1). This area, with a total of 4 hectare was defined by a deductive exercise and is located in the interface between three municipal housing neighbourhoods for social rental (Cerco do Porto, Falcão and Lagarteiro) and several important facilities and services (e.g., Oriental City Park, Corujeira Square, Campanhã Cemetery, local schools, sport facilities, Oliveira Urban Garden). Besides the several socio economic and environmental challenges that led to the definition of the intervention area as pivotal for the implementation of the Healthy Corridor, it is important to highlight the occurrence of severe issues of connectivity mainly due to topographic characteristics (Campanhã valley) and physical barriers (highway infrastructure).

Figure 2, highlights the definition process of the study area and intervention area within URBiNAT.

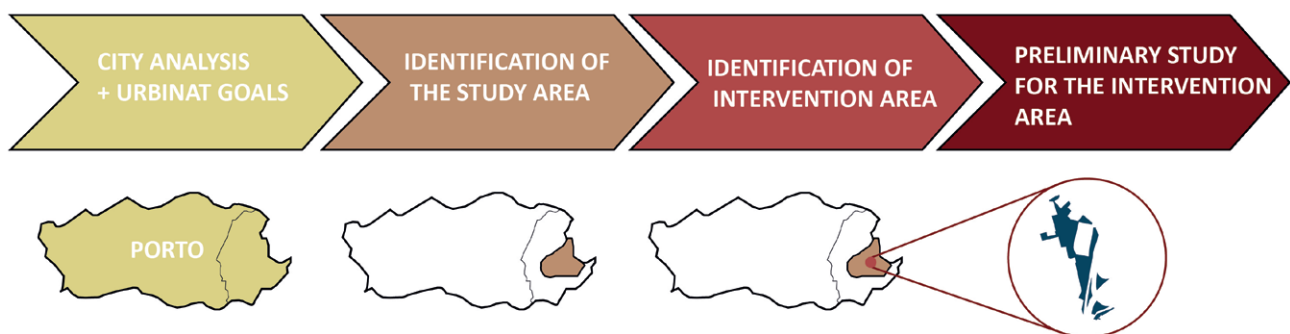


Figure 2. URBiNAT's process from the identification of the study area inside Campanhã Parish and the intervention area where the Healthy Corridor will be implemented.

This deductive process, combined with the opportunity of the available plots to intervene, gradually identified smaller areas of intervention through participatory and multidisciplinary studies, allowing to identify an intervention area with great potential to create better living conditions, with a real impact in the daily lives of local citizens. Moreover, the active involvement of local citizens and organizations in the co-diagnostic and co-design of the Healthy Corridor in Porto were crucial for the decision-making process by allying the local needs to the existing opportunities, and to build locally adapted solutions.

Finally, the present document aims to explain in more detail the methodology behind this process and main results obtained that culminated in a series of operational outputs that will not only guide the implementation of the Healthy Corridor, but will also guarantee its activation and continuity beyond the project's time.

The territory

This territory is marked by its valley topography due to the presence of Tinto river and its streams. This river is one of the few that still runs entirely in its natural course and at surface level. In its margins it is possible to observe ancient rural landscapes, watermills and cultivation fields that, unfortunately, are gradually being replaced by urbanistic interventions. Hydric and climatic conditions dictated the ability of this territory for cultivation purposes, despite the rough topography. The work of Rio Tinto exporter (Exutor), which connects the Meiral and Freixo (ETAR), recently completed, included the execution of an ecological corridor with 6.5 km (walkways, fruition areas and vegetation) from the urban park of Rio Tinto, with connection through Oriental Park (extended from 8 to 18 ha) ending at Freixo (Rua do Freixo next to the roundabout).

The valley topography itself reflects on spatial and visual diversity, resulting in the coexistence of different realities near URBiNAT's intervention area. This complex landscape is a cultural factor recognized and valued by the residents.

However, these marked steeps and topographic variations are an obstacle to human occupation and mobility, while remaining a challenge for all urban interventions, such as buildings and circulation infrastructures. As so, the valley behaved as an obstacle to urban development whose interventions gradually became more disruptive, resulting in a fragmented landscape and obstacles to pedestrian mobility.

Moreover, the exponential growth and lack of integration of urban planning has aggravated such fragmentation, clearly visible by the existing road axes that have been multiplying, overlapping and gaining dimension over time. This resulted in an obvious urban (and social) isolation of Campanhã to the rest of the city that is felt to this day.

This territory is also marked by the presence of a highway (A43) and other large circulation axes (Figure 3) whose disarticulation with the existing topography results on the following several impacts at different levels: distribution of residential units; pedestrian mobility; green structure; psychological barriers that reflect in social segregation and feeling of isolation by local residents.

The overlap of the railway line and the main road VCI from north/south direction, isolate the study area from the rest of Campanhã, making it only possible to reach this territory through underground passages and viaducts. These conditions make it difficult to access several important points in the vicinity, of which the nearest metro and train stations stand out, ensuring connection with the rest of the city, which is thus highly conditioned.

In greater detail, the study area is mostly a residential area, marked by the presence of social housing, most of which owned and operated by Domus Social, E.M., a municipal company responsible for managing municipal housing for social rental, as other public facilities and infrastructures in the municipality of Porto. Along the residential area some relevant services and facilities can be found, such as the Parish council and its auditorium, a group of Schools (6 primary schools and 1 high school), a professional training centre, several sports centres (football, swimming pool, sport pavilion), the Campanhã cemetery and main Church. In what concerns the public space it is important to highlight *Praça da Corujeira* square, the *Parque Oriental* city park and *Quinta da Bonjória*. The great concentration of these elements confirms the elevated social pressure that this area supports and the vast number of people interacting daily with such spaces.

At the same time, it is important to mention that Campanhã Parish is now under investment priority for the municipality. This reflects on the large amount and variety of recent/under development projects that influence the study and the intervention areas, such as: the future Campanhã Intermodal Bus Terminal (under construction); the requalification of the old



Figure 3. Territory fragmented by circulation axes (Highways in red and railway in yellow)

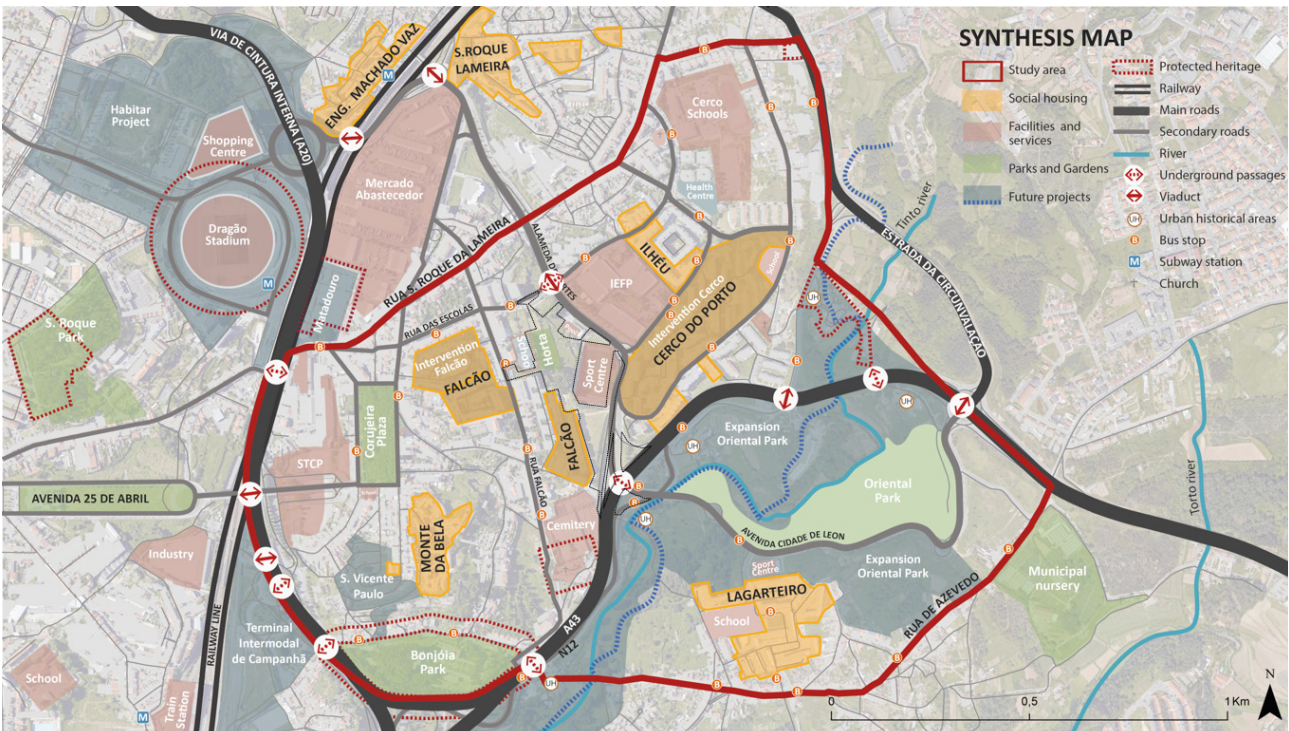


Figure 4. URBiNAT's study area (red limits) showing the main territorial typologies according to its use (social housing, facilities and services, parks and gardens, future projects, protected heritage, urban historical areas, churches) and connective networks.

slaughterhouse *Matadouro Industrial do Porto* (project under development); the requalification of *Praça de Corujeira*, an ancient local square, (a municipal project is underway); the Expansion of the Oriental City Park (from 8 to 18 ha), including the recently completed walkway along Tinto river (already built and successfully used), with the implementation of an ecological corridor with 6.5 km composed by walkways, areas of fruition and vegetation; and the interventions both in Cerco do Porto (buildings refurbishment in construction stage and public space requalification in design stage) and in Falcão social housing (after buildings recently refurbished, the public space requalification is ending construction), as well as Monte da Bela affordable housing in the area of former São Vicente de Paulo neighbourhood (project under development).

URBiNAT then raises the opportunity to look at key connection spaces between all these projects/interventions to considerably improve access and mobility, while creating better living conditions and increased climate change

resilience through green integrated solutions in the available and abandoned/unused lots.

Based on this, the proposed intervention area in URBiNAT will consist in a continuous strip of public land, with a total of 4 hectare, identified as a priority by the several methods implemented in URBiNAT, among them the intense participatory process involving local actors. As such, it is expected that URBiNAT's intervention will have a considerable local social and environmental impact.

Moreover, and as URBiNAT's intervention is perfectly aligned with the local municipal investment strategy, it will not only allow for an amplification of the initial predicted strategy but also a considerable acceleration in its implementation.

Finally, in the present report, the process of co-creation from co-diagnostic to co-design thoroughly explained, describing the main challenges and outputs that will be crucial to support the next phases: co-implementation and co-monitoring.

2. Co-creation process

The co-creation process of the healthy corridor was based on the overall URBiNAT process and methodology and adapted to the local reality by the taskforce to frame the co-diagnostic and the co-design stage, in terms of objectives, phases, steps, narratives and tools. In this sense, this chapter is organized in two topics to analyse the co-creation process. Firstly, the “co-creation chronology” to identify all the participatory activities realised during the co-diagnostic and the co-design stages and to describe it in terms of goals, methods and actors engaged, offering a systematized timeline. This topic also includes an analysis of the co-creation process with the correlation between the methodology and the implementation and also the “challenges of the co-creation process in Porto and the impact of the Covid-19 crisis”. Secondly, the topic “From the co-diagnostic to co-design” develops a deep analysis of the local diagnostic results, organizing the needs identified, and establishing the relation with the co-design proposals, demonstrating the coherence and articulation between the two stages.

2.1 Co-creation chronology

Co-diagnostic

The co-diagnostic stage introduced the project to the several actors – political representatives, municipal technicians, citizens, stakeholders – aiming at their engagement in the project. The “mapping of the local participatory culture” took advantage of what and who was already in the field, creating synergies and learning from previous experiences. Together, the group defined two strategies to develop the participatory activities, one focused on the primary schools to engage children and their families, which took place in May and June 2019, and the other focused on a public event in the central square of Corujeira, to engage the community of Campanhã, which took place in October 2019. These actions involved a large group of participants in URBiNAT and allowed for the activation of the Porto Living Lab (milestone 2). The outputs of these actions were reported in the D2.1 Porto Local Diagnostic (Dec. 2019) and constituted the baseline for the planning of the co-design stage. This new phase of the project consisted in the development of a series of participatory activities that are resumed in (Table 1) below, as well as the main actors involved and content of each initiative.

ACTORS	CO-DIAGNOSTIC STEPS		
	PROJECT PRESENTATION	MAPPING THE LOCAL PARTICIPATORY CULTURE	PARTICIPATORY ACTIVITIES
Goals	Introduction to URBiNAT Engage citizens	Adapt the process to local Create synergies with local projects	Perception of the territory Knowledge of NBS Dreams to transform
School-age children (Primary schools)	Internal meeting with school coordinators and teachers		Event in schools – Walkthrough Photovoice Mapping perceptions (use, feelings, dreams) NBS around the trees
Citizens	Public Event	Public Event	Public Event
Local organizations	Meeting to present URBiNAT and to know the associations and institutions	Meeting to map stakeholders' activities and engage them in URBiNAT process	Participate with activities, such as theatre, market, karate presentation
Municipal technicians	Meeting to present URBiNAT	Workshop (world cafe) to map municipal projects with NBS or Participation and engage technicians in URBiNAT process	Training to get in touch with URBiNAT methodologies
Political representatives	Presentation of URBiNAT		Participation in Public Event
Porto Taskforce – Porto Municipality (CMP), Domus Social, E.M.; CIBIO; CES; UC; GUDA			

Table 1. Resume of participatory activities.

Co-Design

The co-design activities were organized in seven steps, according to the methodology proposed in the co-creation process: transformation; self-projection; ideation; design; validation; argue; and; systematization. These steps aim to engage citizens in the three levels of commitment: involvement, interaction and integration, going from an episodic workshop participation to the development and implementation of each NBS.

Once again, the activities were developed in parallel with adults (individuals and associations) and with school-age children from local primary schools. Due to the intensity of the process, each group had a maximum of 25 participants.

Considering the characteristics of the territory, URBiNAT explored the walkthrough method to discuss the needs and solutions in

the intervention area. During the ideation stage, new NBS were identified by the two groups covering four main categories: public space, culture and sports, social economy, education.

At the design stage, three levels of activities were adopted: one, face-to-face proximity meetings with the citizens in order to support them and to develop the NBS adapted to its context; second, with online intermediate meetings between the participants and URBiNAT local Task Force to create and develop the New NBS, mitigating the challenges imposed by the Covid-19 pandemic outbreak; third, with collaborative key meetings that joined citizens, associations, municipal technicians, political representatives and URBiNAT Task Force to further discuss and developed the proposed New NBS.

After the design stage, URBiNAT team systematized all the collected information and prepared a decision process with the political representatives, using TRIZ method, that ended in two online sessions to discuss the three categories of decision: NBS to develop, NBS to channel to other municipal projects, and NBS not to develop. Finally, the approved NBS proposals were integrated in an urban project

of the healthy corridor that was presented and discussed in an online session with all the actors. Some NBS are being developed in parallel, namely the immaterial solutions that will be fundamental to activate the use of the healthy corridor and the surrounding public space.

The next table relates the co-design steps defined in the methodology with the activities that took place in Campanhã, Porto.

	CO-DESIGN STEPS	
	Adults (citizens and local associations)	School-age-children
Transform	Planning co-design activities Presentation of the Local Diagnostic	Introduction of URBiNAT
Self-projection	Community Workshop to prepare the walkthrough	Activity about the courtyard
Ideation	Walkthrough to Identify needs and challenges Co-selection of new NBS with 3D model Online meeting to ideate new solutions, through design thinking	Walkthrough in the intervention area Workshop activities (mapping, drawing, gaming, 3D model thinking)
Design	Proximity meetings to co-design of each citizens NBS proposal Citizens produced a video to explain their proposals Workshop with citizens and technicians to co-design each NBS	
Validate	Online Meeting to present new NBS and discuss it with citizens and political representatives Decisions on the proposed ideas with political representatives, citizens and stakeholders (Triz)	
Argue	One-day Experiment to test ideas in place (suspended due to Covid-19)	
Systematization	Healthy Corridor preliminary study	
Development	Online workshop to co-design four NBS	

Table 2. Methodological co-design steps.

The next chronology organizes all the participatory activities by date giving a short information on the scope, goals and methods implemented. A picture offers the participatory environment.

co-diagnostic

M01

27/02/2019



Involvement
Meeting with councillors and directors of department

Presentation
URBiNAT presentation for Political involvement

M02

11/03/2019



Involvement
Meeting with municipal technicians

Mapping
To map municipal project in Campanhã and which ones engage citizens

M08

01/10/2019



Involvement
Public meeting in the auditorium of the Parish Council

Perceptions
Presentation of URBiNAT

M07

09/2019



Involvement
NBS training session with municipal technicians

Training
To train municipal technicians in URBiNAT methodologies

M09

11/10/2019



Involvement
Public Kick Off in Praça da Corujeira

Presentations
To present URBiNAT and engage citizens and stakeholders in the participatory process of local diagnostic

co-design

S00

18/11/2019



Involvement
Meeting with citizens (27 participants 13 male / 14 female)

Transform
Introduction - Co-planning of co-design activities

M03

27/03/2019



Involvement

Meeting with Local institutions

Mapping

To map institutions project in Campanhã and which ones engage citizens

M04

31/05/2019



Integration

Workshops with Corujeira primary school

Perceptions

To present URBiNAT and engage children in the participatory process of local diagnostic

M06

17/06/2019



Integration

Workshops with Cerco do Porto primary school

Perceptions

To present URBiNAT and engage children in the participatory process of local diagnostic

M05

5/05/2019



Integration

Workshops with Falcão primary school

Perceptions

To present URBiNAT and engage children in the participatory process of local diagnostic

S01

28/11/2019



Involvement

Corujeira primary school preliminary workshop (19 participants)

Transform

Introduction of URBiNAT

Self-projection

Activity about the courtyard

S02

04/12/2019



Involvement

Citizen workshop (11 participants)

Transform

Presentation of LD – co-creating categories

S03

05/12/2019



Involvement

Cerco do Porto primary school preliminary workshop (10 participants)

Transform

Introduction to URBiNAT

Self-projection

Activity about the courtyard

S04

06/12/2019



Integration

Corujeira primary school workshop

Ideation

Walkthrough in the intervention area and activities (mapping and drawing)

S10

15/01/2020



Interaction

Citizen workshop

Ideation

Presentation of NBS catalogue and co-selection of new NBS

S09

14/01/2019



Involvement

São Roque primary school preliminary workshop

Transform

Introduction to URBiNAT

Self-projection

Activity about the courtyard

S11

24/01/2020



Integration

São Roque primary school workshop

Ideation

Walkthrough in the study area and activities (mapping, drawing, gaming, 3D model thinking)

02/06/2020



Interaction

Face-to-face meetings with citizens

Proximity / Design

Co-design of each citizens NBS proposal

S05

07/12/2019



Integration

Citizen workshop
(7 participants)

Self-projection

Community Workshop to prepare the walkthrough
Analysis of territorial mapping data collected during Stage 2 of the Local diagnostic

S06

13/12/2019



Integration

Cerco do Porto primary school workshop
(17 participants)

Ideation

Walkthrough in the study area and activities (mapping and drawing)

S08

10/01/2020



Involvement

Falcão primary school preliminary workshop

Transform

Introduction to URBiNAT

Self-projection

Activity about the courtyard

S07

14/12/2019



Integration

Citizen walkthrough
(24 participants)

Ideation

Walkthrough in the study area – Identification of needs and challenges

S12

15/06/2020



Interaction

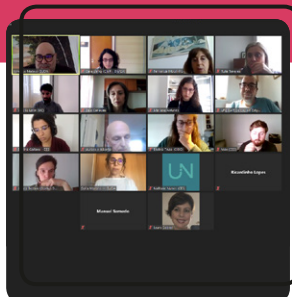
Online meeting with citizens and political representatives

Presentation

Public presentation of the Local Diagnostic

S12a

17/06/2020



Involvement

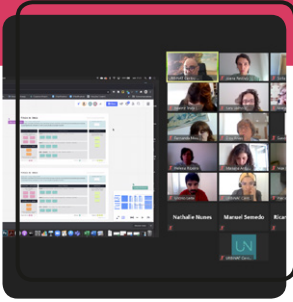
Online meeting with citizens – a)

Transform

Development of new ideas – Needs

S12b

23/06/2020



Integration

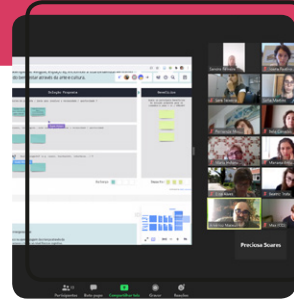
Online meeting with citizens – b)

Self-projection

Development of new ideas – Co-creation of NBS

S12c

25/06/2020



Interaction

Online meeting with citizens – c)

Ideation

Development of new ideas – NBS video

S13b

16/07/2020



Interaction

Workshop with citizens and municipal technicians

Design

Introduction on workshop
Experiment in the intervention area

S13b

16/07/2020



Interaction

Workshop with citizens and municipal technicians

Design

Discussion of the culture and economy NBS

S13b

16/07/2020



Interaction

Workshop with citizens and municipal technicians

Design

Falcão garden group
Logar do Falcão group (vacant building + Oliveira urban garden + existent paths)
Lagarteiro group

S13b

16/07/2020



Involvement

Walkthrough with citizens and municipal technicians

Diagnostic

Walkthrough along the intervention area to analyse local needs and visualise NBS implementation

S13a

26/06/2020

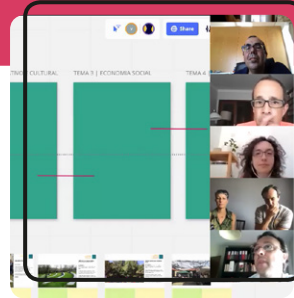


Interaction
Meeting with citizens

Design
Production of video
with the new ideas
by the citizens

S13a

11/07/2020



Integration
Online meeting with
citizens and political
representatives

Validate
Presentation of the new
NBS co-created from
December to June

S13b

14/07/2020



Interaction
Walkthrough with citizens
and municipal technicians

Design
Discussion of
the Educational,
Environmental
and territorial NBS

S13b

14/07/2020

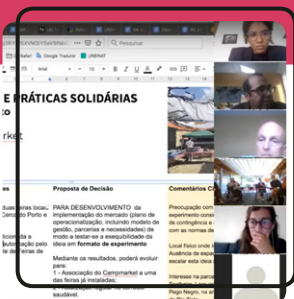


Interaction
Workshop with citizens
and municipal technicians

Design
Discussion
of the Educational,
Environmental
and territorial NBS

S14

18/09/2020



Interaction
Online meeting with
citizens and political
representatives

Validate
Decisions on the proposed
ideas (Triz - description,
positive aspects, challenges,
decision, discussion)

S15

23/10/2020



Interaction
Public Event in the
intervention area
(* cancelled due COVID-19)

Argue / Experimenting
"Experimento" to test
the new NBS

S16a

07/11/2020



Interaction

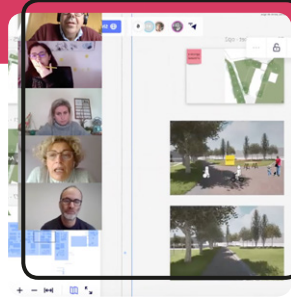
Online meeting with citizens and political representatives

Systematize

Present and discuss the healthy corridor preliminary study

S16b

07/11/2020



Interaction

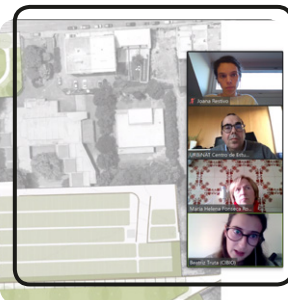
Online meeting with citizens and political representatives

Design

Co-design of four main NBS – Place for exercise, sensorial garden, amphitheatre, solidarity market

S18

14/01/2021



Interaction

Online meeting with the head teacher and coordinators of Cerco do Porto group of schools

Development

Planning the implementation of education NBS urban farmfarm

S17

07/01/2021



Interaction

Online training with citizens

Development

Training on education communication with young adults related with NBS Campanh'up

General challenges of the co-creation process in Porto

During the implementation of the co-creation process in Porto, there were many challenges that the local team experienced, especially during the last year due to the Covid-19 outbreak due to the measures enacted in the state of emergency, as it prevented in person

meetings and workshops to be implemented in a project that is highly dependent on citizens engagement and participation. Nevertheless, the URBiNAT local team directed great efforts in developing mitigation measures in order to minimize the impacts of such restrictions, as resumed in the Table 3, below.

CHALLENGES	MITIGATION MEASURES IMPLEMENTED
<p>Extensive and complex study area</p> <p>The defined study area is extensive and highly complex in terms of territorial uses and background context of its users.</p>	<p>As the healthy corridor in Porto is intended to strengthen the connections between three municipal housing neighbourhoods for social rental, intervening, in particular, in its in-between public space (the intervention area thus being smaller than the study area), it was decided to focus and develop the healthy corridor in-between this main public housing neighbourhoods (estates). Moreover, in order to guarantee that as many inputs (from different background) were included in the proposed solutions, the co-creation process aimed to engage the different communities that may be identified in the study area (the aforementioned neighbourhoods and other local residents), including the Group of Schools (six primary schools and one high school) in the area.</p>
<p>Previous interventions</p> <p>The study area is a sum of several urban successive interventions that evolved from different spatially fragmented realities, making it difficult to implement measures of connection between them.</p>	<p>By involving all different actors, such as municipal technicians from different departments, political representatives, local residents and organizations, URBiNAT was able to create an environment of trust and transparency in order to bring previous experiences to the working participatory sessions and build the new solutions in light of what was already learned. Moreover, the extensive knowledge of the municipal technicians and political representatives about the territory was pivotal to achieve a harmonious connection between other ongoing or programmed projects in the study area. Though not solving the overall feeling of mistrust, URBiNAT is preparing the needed structures and conditions to guarantee that the work developed during the project will be continued after the project ends, namely with the participation of local associations in the design and implementation of NBS.</p>
<p>Feeling of mistrust towards the implementation of new projects</p> <p>Previous projects that ceased right after interventions were over created an overall feeling of mistrust for such initiatives, creating barriers for the engagement and continuous participation in URBiNAT.</p>	<p>URBiNAT dedicated a considerable effort to create, in the last two years, an environment of trust, transparency and close connection between all participants during the participatory process. Since the beginning of this process, the number of citizens involved has increased during the local diagnostic and reduced during the co-design to focus on collaborative activities. Both groups are informed and active with a strong sense of commitment.</p>

Availability for participation	URBiNAT's participatory process was able to keep a rather flexible and organic implementation plan in order to accommodate as best as possible the different availabilities of the participating groups (e.g., different day schedules, different work sessions methodologies such as in room, field trips, face-to-face meetings, online meetings, etc).
The study area has a high level of unemployment and low level of income. As so, citizens have other primary priorities before participating in urban regeneration projects.	
Low participation culture	URBiNAT invested highly in initial engagement initiatives with all the involved actors, together, in order to create a common ground and starting point for the participatory process. Gradually, and although different working sessions were implemented including a specific set of actors (e.g., citizens, schools and associations), key sessions during the participatory process were developed to bring together all participants, including municipal technicians and political representatives. This was the first time that all these actors came together to discuss urban implementations in the study area, which created solid grounds (e.g., experience-based processes and guidelines) for its replication in time, beyond the project's lifetime and its potential upscale to other areas of the city.
Although there are previous experiences in the Municipality of Porto on public participation, its implementation is usually based on common and known methods, with very little space for innovation. This has even more expression when it comes to participation in the co-governance, which is still sparse, leading to a generalized and initial inertia towards the implementation of the participatory sessions.	

Table 3. Challenges and mitigation measures on COVID-19.

Impact of the Covid-19 crisis in Porto's co-creation process

COVID-19 SOCIAL IMPACT AND HOUSING INFRASTRUCTURE IN THE STUDY AREA

Campanhã is a socioeconomically vulnerable and derelict civil parish in the oriental part of the city. According to data collected in the Local Diagnostic, among 7 civil parishes in Porto, Campanhã revealed the greater number of municipal dwellings for social rental (near 3700 along 13 neighbourhoods, meaning 29% of the municipal dwellings in the city, housing circa 30% of the then residents in municipal housing). If the study area is considered instead, the weight of municipal dwellings for social rental is higher, unveiling a higher percentage. The samples for the neighbourhood survey applied in the study area (Local Diagnostic) estimated that nearly 43% of the residents should be living in municipal housing (35% corresponding to the residents in the three neighbourhoods being focused).

Portugal has an extra-small social housing sector in which the people most in need live. Subsidized housing dwellings obey strict area parameters and the reduced areas might be another constraint for the families living in this housing tenure, especially when synching with other vulnerabilities. Disadvantaged households are more exposed to unemployment increase and income decrease, eventually accruing the lack of digital infrastructure at home (for work-at-home and school-at-home) and digital literacy to face the Covid-19 restrictions. These households, with considerable representation in the study area, are therefore more likely to be harmed during this period of growing poverty and social inequalities.

COVID-19 IMPACT IN URBINAT PARTICIPATORY ACTIVITIES

As the implementation of the participatory process depends deeply on face-to-face working sessions and in person engagement initiatives, it suffered several adaptations in order to mitigate the impossibility to meet personally. Moreover, the use of digital tools was a difficult transition of a resident population that is not used to them or doesn't have the digital infrastructure. As so, different measures had to be implemented to face these difficulties, such as:

- Reorganisation of the co-creation process in May 2020, October 2020 and January 2021 in order to face the restriction of Covid-19;
- These reorganisations created demotivation from the citizens, resulting in some leaving the process entirely;
- Many activities were adapted to a digital format using interesting tools to facilitate

interaction. Although some were successful, some citizens didn't participate due to lack of digital tools available and usage know-how;

- The new rules to organize public events made the organisation very difficult, although it was possible to do two on-site important workshops in July 2020;
- The public event "Experimento" was planned to happen in October 2020, with citizens to test some co-created NBS, but it was postponed at the last minute. Since then, it has not been allowed to organize public events;
- Difficulty to maintain the involvement of children due to schools being closed for long periods during lockdown;
- Increased demand for local associations to support families and users from the community, leaving less time for participating in URBiNAT.

2.2. From the Co-diagnostic to Co-design

The local diagnostic was developed during 2019 and included two main stages:

Stage 1 – collection and analysis of existing data at the city, parish and study area level;

Stage 2 – data collected in the study/intervention area through the application of different but complementary methodologies, such as:

- a) **Walkthrough** – The participatory activities organised in the primary schools' events in May-June 2019 aimed to identify the children's perceptions of the public space. In each school, the children from the four years participated in the walkthrough organised in small groups of 12-15 students with two facilitators. The routes started in the primary school and went across the related neighbourhood. In several stops, children identified what they like, what they don't like and what they want to change. The data used in this analysis is related with Falcão primary school, 150 children, June 2019, and the answers to "What do you like to change?"; **P1: Place 1** – Alley on the side of the school – The alley will be open to the public square and a sensorial garden, clean and safer due to the light system, walls removal, paths redesign through terrain modelling. It will be used for mobility and

also to play and to gardening. **P2: Place 2** – Old wall (Sobreiros); **P3: Place 3** – Path between Falcão and soccer Field

- b) Photovoice** – The participatory activities organised in the primary schools' events in May-June 2019 aimed to identify the children's perceptions of the public space. In each school, all the children from the four years participated in the photovoice organised in small groups of 12-15 students with one facilitator. The pictures of the neighbourhood were previously selected by the URBiNAT local team, and children had to identify what they like, what they don't like and what they want to change. In the end they should also play diamond ranking by selecting the more and the less important pictures. The data used in this analysis is related with Falcão primary school, 150 children, June 2019, and the answers to "What do you like to change?"
P1: Place 1 – Photovoice Falcão (05/06/2019) N8 – Caminho lateral da Escola; **P2: Place 2** – Photovoice Falcão (05/06/2019) N5 – Traseiras dos edifícios Falcão Novo; **P3: Place 3** – Photovoice Falcão (05/06/2019) N2 – Caminho lateral ao campo de futebol; **P4: Place 4** – Photovoice Falcão (05/06/2019) – Horta
- c) NBS around the trees** – The participatory activities organised in the primary schools' events in May-June 2019 aimed to identify the children's knowledge about NBS. In each school, all the children from the four years participated in the NBS around the tree's activity organised in groups of 20-25 students with two facilitators. The images from NBS catalogue were previously selected by the URBiNAT team, and children had to identify what they like, and what they would like to implement in their neighbourhood. The data used in this analysis is related with Falcão primary school, 150 children, June 2019, and the answers to what NBS that they would like to implement in their neighbourhood
- d) Mapping Dreams** – The mapping activities took place in the primary schools' events in May-June 2019 aimed to map the way pupils use the territory, what they feel and what are their dreams for the neighbourhood. In each school, all the children from the four years participated in the mapping activities organised in groups of 20-25 students with
- two facilitators. The data used in this analysis is related with mapping dreams where children drew or wrote about one dream on a piece of paper.
- e) Neighbourhood survey** – Conducted between August and October 2019 for the collection of responses from a complete sample composed by residents living in public municipal housing for social rental (inside the study area), residents living in private housing (inside the study area) and a Control Group, composed by residents outside the study area. The main objective was to analyse the interviewees perception on physical and social activity, wellbeing, health and the satisfaction/dissatisfaction with the environment of local residents.
- f) Territorial studies** – Set of territorial studies produced by CIBIO in the study area, as part of the Local Diagnostic and then further developed at the level of the intervention area, during the co-design phase. It included studies concerning: landscape evolution, urban fragmentation, green structure, pedestrian mapping, synthesis analysis, light distribution and public space quality.
- g) Survey to the users** – Conducted by CIBIO in June and August of 2020 in the intervention area. The survey was successfully completed by 101 citizens (54% of the people asked to contribute). The first part of the questionnaire aimed to: a) identify uses/frequencies; b) evaluate the space/main characteristics; c) analyse perception of safety; d) identify urgent needs and possible solutions. The second part aimed at mapping pedestrian networks inside the intervention area but also the relation with its surroundings.
- h) Behavioural Mapping** – Through the analysis of behavioural mapping it was possible to analyse how the citizens are using the project intervention area in four main connecting areas between Corujeira, Falcão, Cerco do Porto and Lagarteiro neighbourhoods, through observational methodologies. This analysis showed which areas are most commonly used and for what purpose, such as: recreational sports, walking, sitting, talking, etc; and the obtained results allowed for a better understanding on the real use of the territory and the main

difficulties it presents. Ultimately this gave important notes on what could be improved to facilitate this use and create a better living experience for users.

The implementation of such methods allowed for a thorough identification of the main needs and challenges of the study area, which were finally confirmed and consolidated by the group of participants during the following participatory activities. As the participants advanced in the participatory process, the needs and their potential solutions (the so-called Nature-based solutions – NBS) became more concrete and the developed NBS (mainly the material ones) were compiled into what is now called the urban project for the intervention area (6. Porto Healthy Corridor), which is currently undergoing a licencing process for final project approval, public procurement process and implementation during 2021. At the same time, several immaterial NBS continue to be developed and fine-tuned, which will be crucial for the long-term activation of the Healthy Corridor. This was the starting point to build together, with all involved actors, the proposals that will compose the Healthy Corridor, representing the beginning of the co-design phase.

Finally, the following tables resume and describe the main needs identified during the co-diagnostic phase, correlating them with:

- a) Specific objectives;
- b) EKLIPSE challenges;
- c) Indicators to monitor how URBiNAT will face such challenges;
- d) Methods used to identify the needs;
- e) Co-design actions that will address those needs.

The needs are organized in two groups – territorial and social – although some needs establish a good relation between these two dimensions:

- a) Territorial Analyses
 - Green areas and their connection for leisure and sports activities
 - Better conditions of pedestrian paths. New connections
 - More accessible paths for all citizens
 - Lightning
 - Stay/sitting/resting areas
 - Qualified green areas and nature in urban environment
 - More autochthonous plants and trees
 - Play areas for children
- b) Social analyses
 - Adequate cleanliness and maintenance of the public space
 - Socialization/community/entertainment opportunities. Community spaces improvement
 - Improve local economy
 - Respect existing memory
 - More connectivity with existing and future projects/initiatives
 - Participatory opportunities/tools for citizens engagement in urban planning
 - Improve literacy for environmental issues

2.2.1 Territorial Analyses

In the territorial analyses citizens focus on the quality of the public space and also on its conditions to be used: physical conditions, light and safety. The needs identified are also related

with the green areas, focusing in the vegetation quality, namely in its local characteristics, such as the wish for autochthonous trees:

NEED: GREEN AREAS AND ITS CONNECTION TO LEISURE AND SPORTS ACTIVITIES RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH6 – Urban Regeneration, CH9 – Public Health & Wellbeing			
URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Connections and mobility	Health and wellbeing survey (residents of the study area)	Area dedicated to leisure and sports activities	New green multifunctional areas where leisure and sports activities can be developed
Space multifunctionality			
Security by presence (residents and passers-by)	Territorial studies (study/intervention area)		New paths, also for cyclable circulation
Liveability	Survey to the users (intervention area)		The NBS “Culture is Health” and “Outdoor for programme activities”, if implemented will contribute to the programmatic activation of the area
More active inhabitants, social life and wellbeing			
Open air physical activity and leisure	Participatory activities (adults)		

Health and wellbeing survey (residents of the study area)
 Collected data revealed a lack of vigorous physical activity in the last 7 days and most of the sample hasn't done moderate physical activities. Nevertheless, most of the residents find walking a very important physical activity that, most of them, engage daily. However, such activity is mostly centred outside the neighbourhoods (indicating lack of walking conditions and security), by 90% of interviewees.
 Collected data suggests that Health Education by promoting regular physical activity for all areas of the sample, in order to install new habits and routines, is one of the main priorities, according to the residents.

Territorial studies (study/intervention area)
 Concluded that the intervention area is key to connect important areas for physical activity: Corujeira Plaza/ Avenida 25 Abril and Oriental Park. Between these spaces, where the intervention area is located, there is a big gap in terms of sports activities and connectivity, from the lack of conditions. Intervening in this area would be key to connect and improve the conditions for recreational activities.

Survey to the users (intervention area)
 When asked about what could be different in the intervention area many users mentioned the desire of having better conditions for recreation activities, including for outdoor physical activity. During the implementation of the survey the team only observed people practicing physical activity near Oriental Park and its expansion along Tinto river.

Participatory activities (Adults)
 The green areas created through the recent rehabilitation of the Oriental city park just nearby the project intervention are of great use for different activities such as recreational walking, jogging and cycling, confirming that these green structures are highly used and in great demand in this territory and local residents (and non-residents) would benefit from their extension and connection. The lower part of the intervention area is of particular importance to connect with the rest of the territory as it represents the interface between the Oriental city park (commonly used for recreational and sports activities) and URBiNAT intervention area to guarantee a continuum of space and its use for these specific purposes. Moreover, during the participatory activities, citizens proposed to create sensorial gardens and to create green areas for leisure and exercise (such as yoga).

Table 4. Green areas and their connection for leisure and sports activities.

NEED: BETTER CONDITIONS OF PEDESTRIAN PATHS. NEW CONNECTIONS
RELATED EKLIPSE CHALLENGES: CH6 – Urban Regeneration, CH9 – Public Health & Wellbeing

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Connections and mobility	Health and wellbeing survey (residents of the study area),	Land dedicated to pedestrians	Improvement of the conditions of existing pedestrian paths (better connection to Oliveira urban garden; Campanhã's cemetery; schools, residential units, bus stops ...)
Local safety	Activities with elementary school children: "Dreams", "NBS around the trees",	No. of linear meters of improved pedestrian paths	
Urban fragmentation mitigation	"Walkthrough" "Photovoice" (Falcão)	No. of linear meters of new connections	
New pedestrian alternatives to reduce walking distance between relevant areas	Participatory activities: walking activity and workshops (adults)	Location and no. of new/relocated walkways	Creation of new connections
	Territorial studies (study/intervention area)		
	Survey to the users (intervention area)		
	Behavioural mapping (intervention area)		

Health and wellbeing survey (residents of the study area)

As referred previously, 90% of the interviewees practice physical exercise outside the neighbourhoods (indicating lack of walking conditions and security). This shows the need to guarantee good walking conditions for local citizens, as this is one of the main physical activities, especially in areas located in-between neighbourhoods, where conditions might not be as favourable.

Activities with elementary school children

- "Dreams": when asked about their dream for the study area, 29 children have said the desire of having more entertainment, other 4 referred culture and leisure, and other 13 community spaces;
- "NBS around the trees": 25 children would like to implement the NBS Cycling and pedestrian path;
- "Photovoice": children indicated the lack of conditions of pathways and sidewalks (P1 + P2);
- "Walkthrough" (Falcão): Better pathways and sidewalks (P2 + P3).

Territorial studies (study area/intervention area)

Pedestrian mapping identified the urgent need to formalize current informal paths, along the study area, that represent important connections used by the citizens. However, in the Intervention area this problem is even more urgent due to the concentration of pedestrian paths (almost 2km).

Survey to the users (intervention area)

73% of the interviewed use the intervention area as a pedestrian connection, most of them several times a day. However, almost 80% refers that the most urgent intervention would be to improve pedestrian paths (level of steepness, pavement conditions, light and shadow). Several users shared that have already fallen when using the paths and know about many others that had similar experiences. Some users also shared that during the winter or after a rainy day they have to use a different path due to the bad conditions of the existing paths. These paths are critical to improve their experience when using public space on their daily basis.

Behaviour mapping (intervention area):

Data collected proved that the intervention area is mostly used for pedestrian crossing

Participatory activities (adults)

identified the importance of the informal paths and the need for renovation, improving accessibility. During the first walk, the group of citizens mentioned the opportunity of URBiNAT to look at the interface area between different municipal projects and invest in improving its connections. Such an observation was indeed confirmed by the municipal technicians and political representatives, confirming that the intervention area in URBiNAT will allow for an effective connection between local ongoing and soon to be implemented interventions, contributing to the local municipal masterplan (PDM).

Table 5. Better conditions of pedestrian paths. New connections.

NEED: MORE ACCESSIBLE PATHS FOR ALL CITIZENS
RELATED EKLIPSE CHALLENGES: CH6 – Urban Regeneration, CH8 – Social Justice & Social Cohesion, CH9 – Public Health & Wellbeing

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Connections and mobility for all	Territorial studies (study/intervention area)	Extension of accessible paths	The intervention in existing paths will soften the slope as much as possible
New pedestrian alternatives to reduce walking distance between relevant areas	Survey to the users (intervention area) Participatory activities (adults)	Alternatives to paths with stairs	New paths will be created as an alternative to current connections made only by stair

Territorial studies (study area/intervention area)

Identified that a great extension of paths is not accessible to all citizens, mainly due to high slopes (as a consequence of the valley topography) but also to the existence of physical barriers such as stairs. This territory is not friendly in terms of pedestrian mobility for all citizens.

Survey to the users (intervention area)

Highlighted that the most relevant paths (currently informal) are totally inaccessible, not only due to its slopes (more than 16% in some parts) but also as a result of bad pavement conditions. In two specific cases (near Oriental Park and Emilio Biel street) the path leads only to sets of stairs. Some citizens shared with the team that they were not able to take outside their relatives who use wheelchairs because the paths are inaccessible to them. In conclusion, some citizens are not able to use these paths and the bikers are forced to carry their bicycles.

Participatory activities (adults)

This topic was mentioned several times during the participatory activities, namely in the walkthrough, where they stressed the bad conditions of the informal paths.

Table 6. More accessible paths for all citizens.

NEED: INCREASE VISIBILITY BETWEEN SPACES
RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH6 – Urban Regeneration, CH8 – Social Justice & Social Cohesion, CH9 – Public Health & Wellbeing

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Local safety for all	Territorial studies (study/intervention area)	No. of obstructed views resolved	Through terrain modelling and planting design strategies, the project will contribute to solve obstructed views allowing for intervisibility between spaces
Connections and mobility for all	Survey to the users (intervention area)		

Territorial studies (study area/intervention area)

By analysing the evolution of the landscape in the intervention area, it was possible to conclude that the area has been used for landfilling several times as a result of urbanistic interventions in its surroundings. Together with the valley topography, walls and existing vegetation the visibility between spaces is very low, which results in safety perception problems.

Survey to the users (intervention area)

It was underlined that perception of safety as a serious problem in the intervention area. The users mentioned the existing walls compromise visibility, creating a general feeling of insecurity in the area.

Table 7. Visibility between spaces.

NEED: LIGHTNING RELATED EKLIPSE CHALLENGES: CH6 – Urban Regeneration, CH8 – Social Justice & Social Cohesion, CH9 – Public Health & Wellbeing			
URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Safety perception Criminal activities reduction	Activities with elementary schools' children: "Walkthrough" (Falcão) Territorial studies (study/intervention area) Survey to the users (intervention area)	No. of lightning points	The project will add lightning points, that will allow for users to safely move through the park during late/early hours of the day
<p>Activities with elementary school children "Walkthrough" Falcão (P1) – Children refer the need to improve light</p> <p>Territorial studies (study area/intervention area) Light studies proved that the intervention area not only lacks public lighting but also, its surroundings suffer from overexposure, namely by the football field. When developing the territorial studies, the team observed several pedestrians using their phones flashlight to provide minimal visibility.</p> <p>Survey to the users (intervention area) When asked about perception of safety most users evaluated this area with a negative score. Some of the ones who don't, mention they only use the space during the day, but are aware of its problems in other hours. Some users shared with the team their experiences with dangerous situations, namely theft or harassment. When asked about what could solve this problem, almost 50% mention the need for improvement in the public light setting.</p>			

Table 8. Lightning.

NEED: STAY/SITTING/RESTING AREAS RELATED EKLIPSE CHALLENGES: CH6 – Urban Regeneration; CH8 – Social Justice & Social Cohesion			
URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Space multifunctionality Security by presence (residents and passers-by) Liveability Inclusiveness of the public space	Survey to the users (intervention area) Behaviour mapping (intervention area)	No. of stay/sitting/ resting areas	New resting areas and benches will be implemented NBS natural amphitheatre to be implemented can also address this need
<p>Behaviour mapping Collected data indicated sedentary use (corresponding to those recorded in the variables "sitting "and "standing") is not significant, which may be a reflection of the absence of stay and sitting spaces in the area.</p> <p>Survey to the users (intervention area) Some users shared with the team the desire of sitting in the intervention area to enjoy existing shadow and nature, however they have to sit on rocks due to the lack of benches. Elderly users express the difficulty of crossing the area due to the lack of resting areas where they could take some breaks and resume the walk when ready. When asked about what they would like to be different, more than 10 users mentioned the need for urban furniture, namely benches.</p>			

Table 9. Stay/sitting/resting areas.

NEED: QUALIFIED GREEN AREAS AND NATURE IN URBAN ENVIRONMENT
RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH6 – Urban Regeneration

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Environmental awareness	Health and wellbeing survey (residents of the study area)	Urban Green Index of Biodiversity	Vacant lots will be converted into a multifunctional urban park, including the following territorial NBS: Wildlife Park, Sensorial Garden, Suds, pedestrian and cycle paths, autochthonous urban forest, slope stabilization (...)
Qualification of green areas	Activities with elementary schools' children: "Dreams", "NBS around the trees", "Photovoice", "Walkthrough" (Falcão)		
Improve Autochthonous trees	Participatory activities: walking activity and workshops		Urban agricultural solutions to be co-implemented in elementary schools (IAAC)
	Territorial studies (study and intervention area)		Oliveira urban garden will be expanded
	Survey to the users (intervention area)		

Health and wellbeing survey (residents of the study area)

Collected data revealed that over half (59%) of the residents are moderately to very satisfied with the "Degree of naturality". As well, just over half (51%) of the residents are moderately to very satisfied with the existing "Green areas and parks". For both indicators, the general degree of satisfaction is more evident in the municipal housing sample, taking to the conclusion that the need for more green areas or naturality seems to be slightly more perceived by the sample inhabiting private housing areas.

Activities with elementary school children

- "Dreams": when asked about their dream for the study area, 36 children referred to the desire of having more parks while 41 others referred to more natural elements;
- "NBS around the trees": 18 children would like to implement the NBS Autochthonous Urban Forest, other 17 children the NBS Hydroponic Winter Garden and other 15 children the NBS Community Composting;
- "Photovoice": children would like more nature (P3);
- "Walkthrough" (Falcão): More nature (P1, P2, P3).

Territorial studies

The intervention area is highlighted for its potential to contribute as qualified green spaces, rather than a set of vacant lots. In terms of green structure, these plots can have a key role to contribute for green and ecological connectivity.

Survey to the users (intervention area)

When asked about what the users most like in the intervention area, almost 45% mention "Trees and nature" stating that the most distinguishing factor when compared to other public spaces in the surroundings, is the existence of natural elements and, consequently, the sense of peace, quiet and freshness. When asked about what they would like to change, almost 40 users mentioned the desire to see a new park implemented.

Participatory activities (adults)

During walkthrough, community workshops and kick-off event activities the improvement of green areas and the presence of nature was identified as very relevant (more green areas, more vegetation and refurbishment of green areas)

Table 10. Qualified green areas and nature in urban environment.

NEED: MORE AUTOCHTHONOUS PLANTS AND TREES
RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH6 – Urban Regeneration

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Improve and promote the local composition of autochthonous plants and trees	Activities with elementary schools' children: "Photovoice"	No. of preserved trees	Preservation of existing autochthonous species;
	Activities with elementary schools' children: "Walkthrough" (Falcão)	No. of new autochthonous species	Introduction of more autochthonous species
	Participatory activities: walking activity and workshops		
	Territorial studies (study/intervention area)		Eco-construction activities to be implemented
	Survey to the users (intervention area)		

Participatory activities

Participants referred the importance of preserving existing cork oak trees

Activities with elementary school children

- "Photovoice": children referred autochthonous species (P1)
- "Walkthrough" (Falcão): children would like more trees (P1, P2)

Territorial studies (study/intervention area)

Green structure analysis mapped autochthonous species and other species with ecological value in the study area. Clearly their distribution needs to be reinforced.

Survey to the users (intervention area)

When asked about what the users most like in the intervention area almost 45% mention "Trees and natures" stating that the most distinguishing factor when compared to other public spaces in the surroundings, is the existence of natural elements, and consequently the sense of peace, quiet and freshness. When asked about what would like to change, almost 40 users mentioned the desire to see a new park implemented.

Table 11. More autochthonous plants and trees.

NEED: PLAY AREAS FOR CHILDREN
RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH6 – Urban Regeneration

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Space multifunctionality	Activities with elementary schools' children: "Photovoice" and "Walkthrough" (Falcão)	Area dedicated to play	Creation of multifunctional green areas where children can safely play
Open air physical activity and leisure			
Inclusiveness of the public space	Survey to the users (intervention area)		Create Pedagogical equipment in the schools' playgrounds

Activities with elementary school children

- "Photovoice" and "Walkthrough" (Falcão): children would like more play areas (e.g., swimming pool, water park, slide) (P3).

Survey to the users (intervention area)

When asked about what could be improved in the intervention area, the second most given answer was about areas for children. Some users mentioned that children often play in the streets. Moreover, it was also called out by the municipal technicians and some citizens that vandalism of play areas for children is very common in the study area. As so, it is crucial to involve local potential users in the process of designing, implementation and even monitoring/maintenance to increase the sense of belonging and protecting.

Participatory activities (adults)

Families feel the need for more spaces for children in the public spaces, namely spaces for families with games, skate areas and swimming pools.

Table 12. Play areas for children.

2.2.2 Social Analyses

In the social analyses, citizens highlight the qualities of the study area, such as the local economy and the existing memory. They also claim for improvements in terms of literacy for

the environment, participatory opportunities, community spaces, cleanliness of public spaces and synergies with existing and future projects.

NEED: ADEQUATE CLEANLINESS AND MAINTENANCE OF THE PUBLIC SPACE RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH9 – Public Health & Wellbeing			
URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Security by maintenance	Health and wellbeing survey (residents of the study area)	No. of maintenance initiatives per year	With this intervention it is expected that users will be more careful and the municipal company (Porto Ambiente) will integrate the area in its cleaning agenda
Environmental awareness	Activities with elementary schools' children: "Walkthrough" (Falcão)	Area of vacant lots intervened	The no. of maintenance actions (cleaning and maintenance of vegetation) in Lagarteiro's path and surrounding areas by the Municipal teams were reinforced, with an immediate impact on perceived local safety and overall quality of the connection by the local community.
Security	Survey to the users (intervention area)		Collective cleaning initiatives were proposed by the citizens. If implemented it will raise awareness on this topic. This action was to be tested in the experiment activity (postponed due to Covid-19)

Activities with elementary school children

- "Walkthrough" (Falcão): Children mention the lack of cleanliness in some spaces (P1)
- "Photovoice": children proposed collective cleaning actions for the neighbourhood public space (P1)

Health and wellbeing survey (residents of the study area)

Collected data suggests that regular maintenance of streets, sidewalks and household waste (especially in private housing areas, i.e., non-municipal housing) is one of the main priorities, according to the residents. Many discomforts with the physical environment of the residential areas (such as unpleasant smells, lack of cleanliness, lack of aesthetics of buildings) were more evident in private housing ("Non Domus" samples than in municipal housing "Domus") and Control Group (Campanhã) samples.

Survey to the users (intervention area)

When asked about what would like to change, 30 users mentioned the desire to see the area cleaner and the vegetation more often under control. When the meadow is high it is difficult to see the irregularities of the terrain and other obstacles/sources of insecurity.

Participatory activities (adults)

During the community workshops citizens underline the need for maintenance and cleanliness of the green spaces

Table 13. Adequate cleanliness and maintenance of the public space.

NEED: SOCIALIZATION/COMMUNITY/ENTERTAINMENT OPPORTUNITIES. COMMUNITY SPACES IMPROVEMENT

RELATED EKLIPSE CHALLENGES: CH7 – Participatory Planning and Governance, CH9 – Public Health & Wellbeing

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Community empowerment	Health and wellbeing survey (residents of the study area)	No. of areas created to promote socialization and entertainment activities	Creation of specific safe and pleasant areas for resting, leisure and socialization: <ul style="list-style-type: none"> • area contiguous to Falcão School • The Old Quinta do Falcão • The natural amphitheatre
Sense of belonging (identity)	Activities with elementary school children: “Dreams”, “NBS around trees” and “Walkthrough” (Falcão)	No. of community activities that can happen inside the intervention area	Community spaces improvement: <ul style="list-style-type: none"> • the expansion of Oliveira urban garden
Identity and uniqueness (re) creation	Survey to the users (intervention area)		More socialization opportunities: <ul style="list-style-type: none"> • Implementation of the Solidarity Market; • Campanh’UP
Inclusiveness of the public space			Still to be developed: <ul style="list-style-type: none"> • “Heritage Routes” NBS • A community project to be developed by a private stakeholder (non-profit association).

Health and wellbeing survey (residents of the study area)

Collected data suggests that Community Education, by living socially, promoting education on civic principles, developing community living skills for all the study area, is one of the main priorities, according to the residents.

Activities with elementary school children

- “Walkthrough” (Falcão): children referred that “community spaces could be better” (P1 and P3);
- “Dreams”: when asked about their dream for the study area, 29 children referred to the desire of having more entertainment, other 4 indicated more culture and leisure and other 13 referred community spaces;
- “NBS around the trees”: 10 children would like to implement the NBS Bread house, 8 children would like to implement the NBS Fairs and Markets, 11 children would like to implement the NBS Multifunctional Pavilion.

Survey to the users (intervention area)

When asked about what could be better in this public space the users mentioned the need for more recreational activities. They refer to the size of the public space as an opportunity to hold different activities.

Behaviour mapping

Data collected reveal that active use related to play and recreation is not significant, as the observed areas also do not reveal scenarios supporting collective use activities, formal or informal play.

Participatory activities (adults)

During the community workshops citizens underline the potential of parks to do sports, the need for sanitary facilities in the parks.

Table 14. Socialization/community/entertainment opportunities. Community spaces improvement.

NEED: IMPROVE LOCAL ECONOMY			
RELATED EKLIPSE CHALLENGES: CH10 – Potential for Economic Opportunities and Green Jobs			
URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Activate inclusion through solidarity activities	Activities with elementary school children: "NBS around trees"	No. of local economy activities per year	A solidarity market to be implemented by a stakeholder (non-profit association). To be tested in the experiment activity (postponed due to Covid-19)
Local economy			
Local products and services	Participatory activities: walking activity and workshops		The Kickoff event (October 2019) had a small solidarity market with local associations
<p>Activities with elementary school children</p> <ul style="list-style-type: none"> • "NBS around the trees": 8 children would like to implement the NBS Fairs and Markets <p>Participatory activities (adults)</p> <p>During the community workshops citizens underline the knowledge and experiences from Campanhã community, the proposal from local associations to implement a local producer's market</p>			

Table 15. Improve local economy.

NEED: RESPECT EXISTING MEMORY			
RELATED EKLIPSE CHALLENGES: CH6 – Urban Regeneration; CH8 – Social Justice & Social Cohesion			
URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Sense of identity	Territorial studies (study/intervention area)	No. of preserved rural infrastructures	Rural walls and the trace of the Old Farmhouse of Falcão will be preserved/reintegrated
Sense of belonging (identity)	Participatory activities (adults): Walkthrough	Conservation of built heritage resources	Most of the new walls, will be built respecting construction vernacular techniques
			Eco-construction workshops are to be developed with local schools by Nuno Moutinho (to be tested in the experiment, postponed due to covid-19)
<p>Participatory activities (adults):</p> <p>During the walking activity, some participants mentioned the importance of preserving local memory, namely the one associated with the rural landscape of Campanhã's valley (granite walls and the old farmhouse of Falcão). One resident, who had a continuous presence through the participatory process and has deep relations with Campanhã parish, shared with the team his knowledge about ancient construction techniques previously applied in the territory.</p> <p>Territorial studies (study/intervention area)</p> <p>The intervention area is fully marked by its ancient rural landscape. CIBIO mapped all rural traces in the intervention area.</p>			

Table 16. Respect existing memory.

**NEED: MORE CONNECTIVITY WITH EXISTING AND FUTURE PROJECTS/INITIATIVES
RELATED EKLIPSE CHALLENGES: CH6 – Urban Regeneration; CH10 – Potential for Economic Opportunities and Green Jobs**

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Community network and local partnership	<p>Territorial studies (study/intervention area)</p> <p>Participatory activities: walking activity and workshops (adults)</p>	<p>No. of improved connections</p> <p>Strengthening the local economy, (formal and non-formal)</p>	<p>The project will directly improve the connections between three municipal housing neighbourhoods (Cerco do Porto, Falcão and Lagarteiro) and other public facilities as Municipal Pools, Football field, Falcão School, Oliveira urban garden and Oriental Park (expansion part). Articulation with the contiguous project area for the Cerco do Porto Public Space Requalification (design stage) is being addressed.</p> <p>Articulation with social project REDES (APPC, Fios e Desafios).</p>

Territorial mapping

The intervention area is located in a strategic position in relation with existing/future projects such as: Cerco do Porto's intervention project; Oriental Park, and will improve indirectly connections between some of the neighbourhoods with news projects in Corujeira Square, Terminal Intermodal and Matadouro renovation;

Participatory activities (adults)

Through the presence of municipal technicians and political representatives, it was possible to define the most up-to-date initiatives and projects ongoing and soon to be implemented, aligning their implementation plans with the intervention of the Healthy Corridor in URBiNAT. This allowed for a systematic and harmonious planning of the territory, based on the vast experience of these actors and know-how on the intervention area.

Table 17. More connectivity with existing and future projects/initiatives.

NEED: PARTICIPATORY OPPORTUNITIES/TOOLS FOR CITIZENS ENGAGEMENT IN URBAN PLANNING RELATED EKLIPSE CHALLENGES: CH7 – Participatory Planning and Governance

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Community empowerment	Activities with elementary schools' children: "NBS around the trees"	No. of existing tools for participatory engagement	Launch and availability of the 'SuperBarrio' App
Improve Sense of belonging (identity)	Participatory activities: walking activity and workshops	No. of participatory opportunities	'SuperBarrio' App workshop to be implemented in the High School of Cerco do Porto (previously postponed due to Covid-19 related restrictions)
Inclusiveness of the public space			'Design Thinking' method was implemented in the co-design phase during community workshops
			Develop Eco-construction and urban farming activities

Activities with elementary school children

- "NBS around the trees": 11 children would like to implement the NBS SuperBarrio while 12 other children would like to implement the NBS Design Thinking.

Participatory activities (adults)

- The citizens asked for participatory activities to improve the sense of community and to engage more citizens in URBiNAT during the planning meeting and during the face-to-face meeting: heritage tours, artistic activities, walks, storytelling.

Table 18. Participatory opportunities/tools for citizens engagement in urban planning.

NEED: IMPROVE LITERACY FOR ENVIRONMENTAL ISSUES RELATED EKLIPSE CHALLENGES: CH4 – Green Spaces Management, CH7 – Participatory Planning and Governance

URBiNAT objectives to address/improve	Methods from Co-diagnostic	Indicators to measure impact	Co-design proposed solution
Environmental education	Participatory activities: Workshops (adults)	No of recreational, cultural and educational initiatives concerning urban ecosystems and their functions/ services	Eco-construction activities to be implemented
			The Healthy corridor will be used as a "Educational Living Lab" (NBS from citizens)
			Collective cleaning actions in public spaces

Participatory activities

During the online meeting, participants asked to develop educational activities in the healthy corridor related to nature, in order to learn from the experience.

Table 19. Improve literacy for environmental issues.

3. Healthy Corridor NBS

3.1 Vacant lots in Campanhã

Though Portugal did not witness the need for reconstruction of the cities after the World War II, in the mid-century the country was still facing severe housing needs consequent to the massive migration towards the main urban centres, as the industrialization phenomena occurred later than in other European countries, in which the welfare state had been earlier established. The image of the housing estates built during the 1950s and 1960s is thereby quite recognizable regarding site plan strategies, local construction methods and optimized building conception, but also due to their location in the outskirts of the major cities. In Porto, many of these housing estates, as others established during the following two decades, have been built where the available land enabled undertaking its urgent construction, occupying low urban density and peripheral areas of the city.

During this time, the oriental parishes of Porto, have been highly urbanized with the planning of these punctual and zoned interventions that left some of the existent agriculture and industrial plots with an uncertain future, contributing to a multiple and fragmented morphology. This is particularly visible in Campanhã, a derelict civil parish in the most oriental part of the city, with a higher number of municipal dwellings for social rental.

During the last decades, these terrains have been occupied through all kinds of processes – sometimes formal, as new public or collective facilities and new vehicular connections, and other sometimes informal, as building squatting or pedestrian informal paths. This process, along with the intensification of the construction of high-speed tracks (highway), contributed to an overall shattering of the area, dividing big plots in small pieces of vacant lots, consequently leading to an ultra-fragmentation of the territory that triggered the following urban organization and the very insecure pedestrian traffic that has been passing through these plots (Figure 5). Nevertheless, this represents a unique opportunity to properly occupy such areas in order to connect key areas and create a multifunctional green continuum in the territory – a Healthy Corridor.





Figure 5. Campanhã study area with the vacant plots and the intervention area.

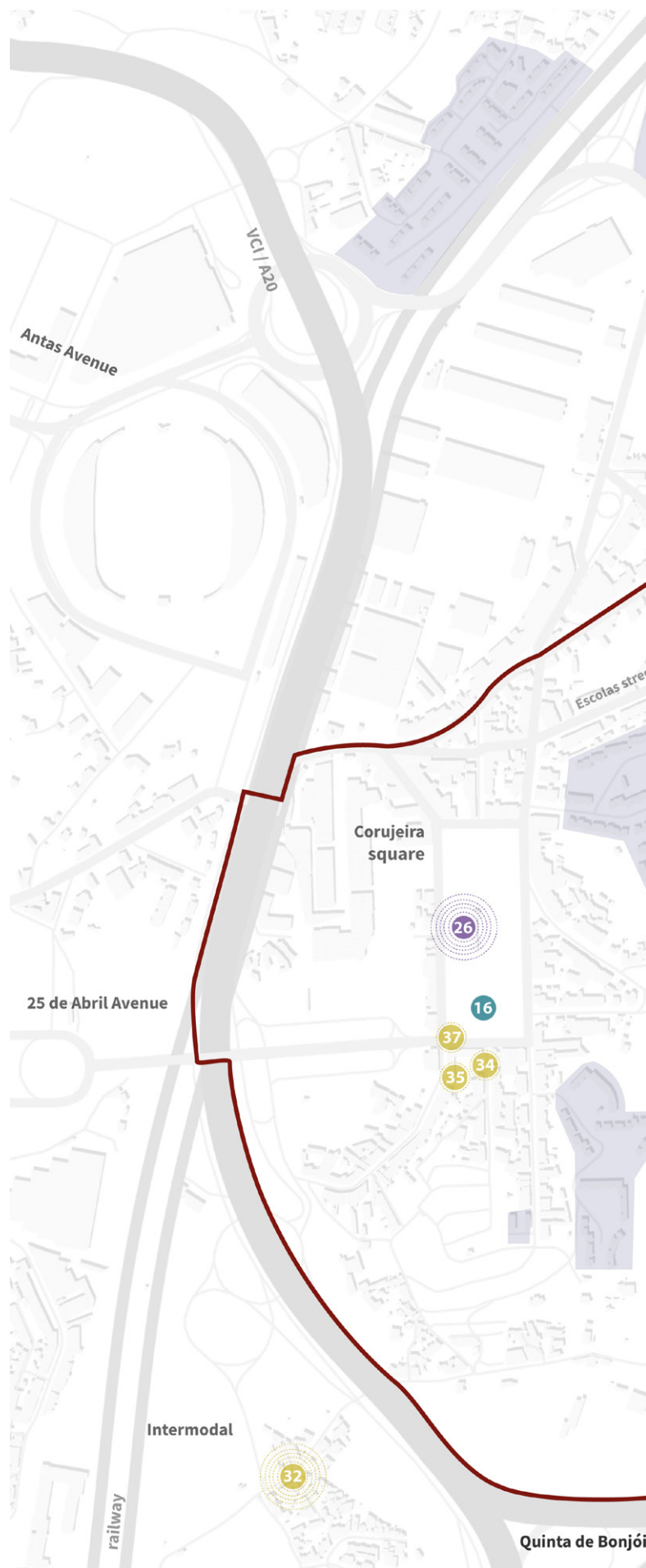
3.2 The New NBS on the Healthy Corridor

During the phases of co-diagnostic and co-design, the aforementioned vacant lots in-between the three municipal housing neighbourhoods – Lagarteiro, Cerco do Porto and Falcão – were identified as the ones that needed an urgent social and environmental transformation. Moreover, a thorough identification of which of these vacant lots belonged to the municipality was developed, in order to define the available areas where URBiNAT could intervene. Based on this two-layered analysis, the proposed ideas of NBS that would compose the Healthy Corridor would preferably fall into these identified and available vacant lots (Figure 6).

After the presentation of these vacant lots, during the developed participatory activities, the engaged citizens identified the related challenges and opportunities. At the same time, there was also an exercise of converging to these particular areas some of the ideas initially conceived for other spaces (while others, by their scope, can be developed in a broader territory of the study area). Some of the proposals aimed at a physical improvement of these plots, but most of them aimed at taking advantage of the existing opportunities, upscaling and/or giving them a new purpose.

The openness of the developed activities and the applied methodology, along with the proximity that the URBiNAT living lab provided¹ allowed the expansion of the existing needs into new ideas proposals inspired by the initial URBiNAT catalogue, allowing the participants to create new possibilities and ways to rethink the territory, while rethinking and reshaping the local culture, economy and education. At this point the New NBS for Porto were defined and allocated to the intervention area (Figure 6). It is important to note that, as many New NBS correspond to immaterial solutions, they were allocated to other strategic areas in the study area (but outside the intervention area), amplifying the impact of the Healthy Corridor (composed by these material and immaterial solutions).

¹ The URBiNAT Living Lab consisted in a room located in the Secondary School of Cerco do Porto that has been kindly made available by the School Community to URBiNAT, where many activities and get-togethers between the participants and URBiNAT team took place to analyse and collect information on the territory, and to develop the ideas to integrate the Healthy Corridor.



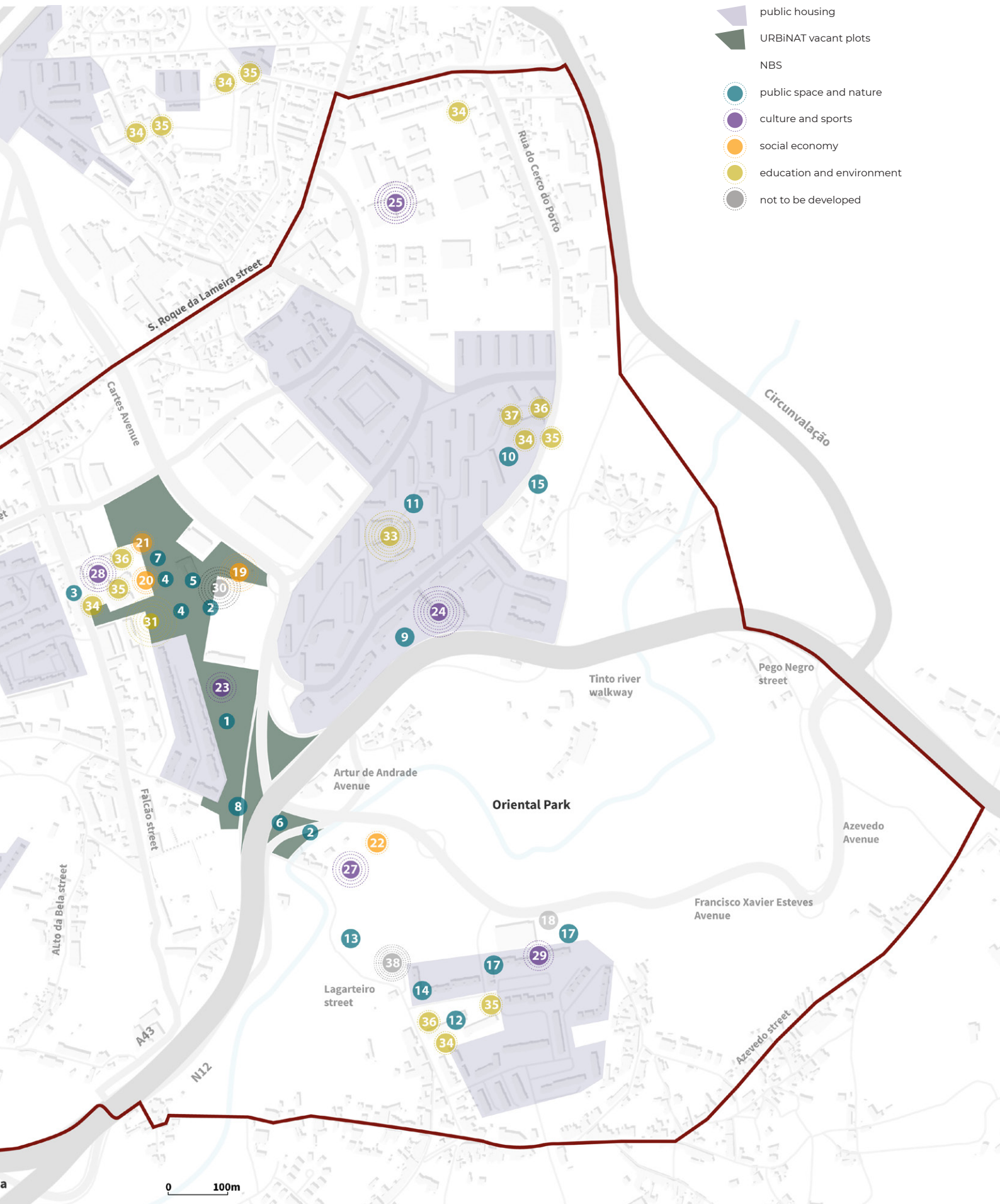


Figure 6. Proposed location of the New NBS for Porto in the study area.

After the definition of the different New NBS, the participatory process continued and these solutions were further co-developed into more detailed proposals through a collaborative, transparent and progressive process with all other local actors (URBiNAT technical team, municipal technicians and political representatives) that carefully analysed them regarding their technical and financial feasibility.

During this systemic analysis, all proposals were divided into three main categories:

- **Category 1)** proposals that will be further developed – proposals that met financial/technical feasibility within URBiNAT and are aligned with the project’s goals and the municipal strategy);
- **Category 2)** proposals that will be channelled to the respective municipal departments to be integrated in ongoing and/or future projects (proposals that didn’t meet financial/technical feasibility within URBiNAT and/or that were not aligned with the project’s goals, but are pertinent for the territory and/or aligned with the municipal strategy for the territory);
- **Category 3)** proposals that will not be further developed/implemented – proposals that didn’t meet financial/technical feasibility within URBiNAT and are not aligned with the project’s goals nor the municipal strategy.

It is important to note that the proposals categorized in **Category 1)** can be further categorized as **Category 2)** or **Category 3)**

depending as the co-development process progresses. After this exercise, the ideas were then aggregated in four main groups: **Group 1)** Public space and nature; **Group 2)** Social economy and solidarity practices; **Group 3)** Sports and culture; **Group 4)** Education and environment. It’s important to note that in this systematization process, an exercise of matching the proposed NBS with the ones listed in the URBiNAT NBS Catalog was also performed.

Many of the ideas or proposals categorized as **1)** were already integrated in the Preliminary Study of the Healthy Corridor (the material ones) or gave the first steps into their implementation (the immaterial ones), and many of them have just started to be co-development in greater detail. After this first version of the Preliminary Study of the Healthy Corridor was obtained, a participatory session was promoted to open the floor for discussion on the collected and categorized proposals with citizens, municipal technicians, political representatives and the URBiNAT team. After that, both the material and immaterial solutions categorized are being further developed aiming at their implementation.

Meanwhile, the ideas categorized as **2)** will soon be forwarded to the responsible municipal departments for further analysis and potential integration in ongoing and future initiatives/projects.

The different steps that compose this process, and involved actors, are resumed in Figure 8, below.

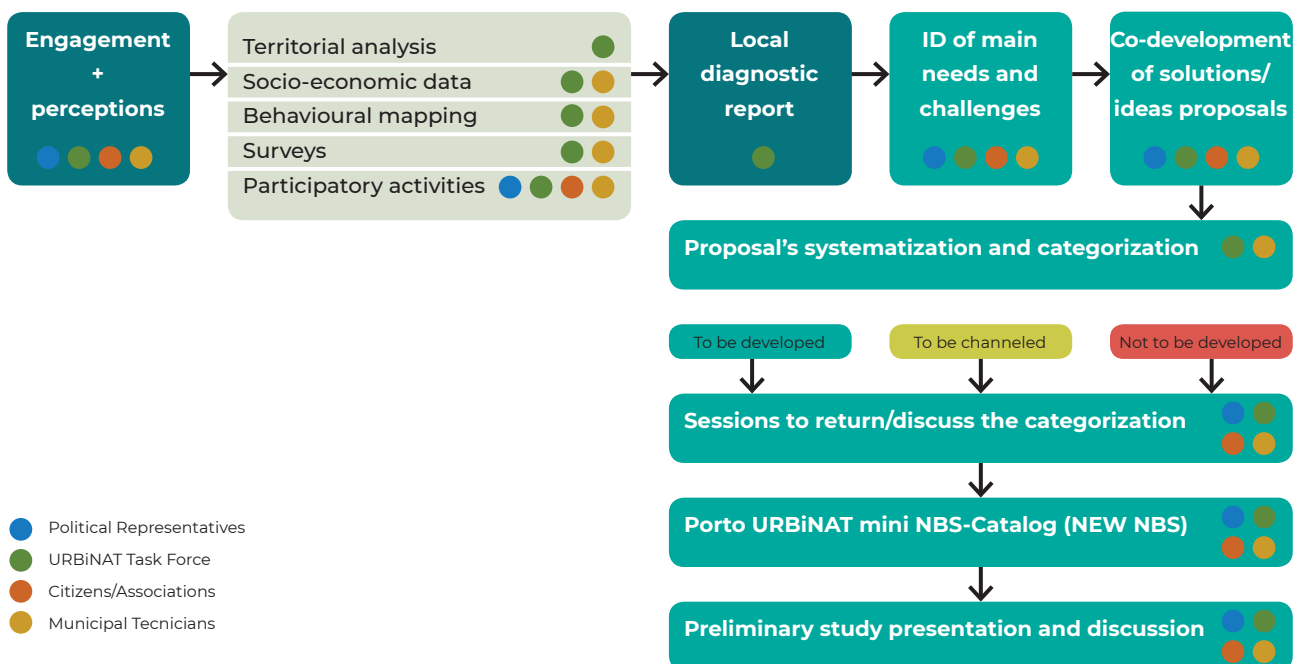


Figure 7. Schematic view of the co-diagnostic (blue) and co-design process (green), detailing the steps from the proposal's systematization to the finalization of the Preliminary study and its presentation/discussion with the actors involved.

Table 20 resumes the categorization of ideas and their aggregation into specific groups.

Although some of the New NBSs can be integrated in the aim of the physical implementation in the intervention area, others, due to their immaterial nature or unspecified location, can be allocated outside the Healthy

Corridor, such as the ones related to social economy and solidarity practices, for example. As so, demonstrates this reality as the NBS can be located within the spaces of the corridor, but they can also be implemented in the surrounding places.

PROPOSALS TO BE FURTHER DEVELOPED	PROPOSALS TO BE CHANNELLED	PROPOSALS NOT TO BE FURTHER DEVELOPED/ IMPLEMENTED
GROUP 1) PUBLIC SPACE AND NATURE		
<ul style="list-style-type: none"> 01. Outdoor space for sports and leisure activities 02. Improvement of connective path between neighbourhoods and facilities 03. Meeting spot next to Falcão Primary School with sensory garden 04. Nature-based amphitheatre 05. Existing ruin recovery 06. Pedestrian connection to the Oriental City Park improvement 07. Oliveira urban garden expansion 	<ul style="list-style-type: none"> 08. Public multipurpose outdoor space with shared maintenance 09. Cerco do Porto Primary School surroundings improvement 10. Ring area recovery (Cerco do Porto) 11. Lagarteiro Primary School surroundings safety increase 12. Viewpoint reformulation next to Campanhã Cemetery 13. Lagarteiro neighbourhood access path requalification 14. Lagarteiro Street section requalification 15. Access to Pego Negro and Oriental City Park improvement 16. Playground in Corujeira Square 17. Lagarteiro sports hall access improvement (informal paths) 	<ul style="list-style-type: none"> 18. Lagarteiro sports hall access improvement (entrance door)
GROUP 2) SOCIAL ECONOMY AND SOLIDARITY PRACTICES		
<ul style="list-style-type: none"> 19. Campmarket 20. Community mobile kitchen 21. Community-based management urban garden 22. Support structure to the Oriental City Park 		

GROUP 3) CULTURE AND SPORTS

23. Outdoor programme for sports and leisure initiatives 24. Cultural platform – Campanh'UP 25. Artistic projects – O Lugar do Olhar 26. Initiative – Memories of Campanhã 27. Local heritage route 28. Initiative – Culture is Health	29. Lagarteiro sports hall renting model improvement	30. Artistic hangar
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GROUP 4) EDUCATION AND ENVIRONMENT

31. Educational Living lab 32. Eco-construction and urban farming activities 33. Collective cleaning actions in public spaces 34. Pedagogical farming initiatives in local schools 35. Educational play equipment in the school's playground	36. Local primary schools playground improvement 37. Local primary schools access area improvement	38. Environmental Education Centre
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Table 20. Systematization of the ideas proposed and developed during the participatory process, organized in three main categories.

3.3. New NBS groups

The series of maps in the following pages show the proposed location for each NBS group in the study area (identified per category), as well as information on its current development status and representative image.

Public space and nature

“Public space and nature” group organises all the solutions co-designed with citizens that are related with the territory and will contribute to improve the quality of the public space in terms of mobility, activities and vegetation.

These are defined as “material solutions” and some of them will be built in the intervention area. Nevertheless, a part of these proposals has also direct relation with immaterial solutions, described in the other three categories.



01. Outdoor space for sports and leisure activities

Decision/State of the art
To be developed
Already incorporated in preliminary study



02. Improvement of connective path between neighbourhoods and facilities

Decision/State of the art
To be developed
Already incorporated in preliminary study



03. Meeting spot next to Falcão Primary School with sensory garden

Decision/State of the art
To be developed
Already incorporated in preliminary study



04. Nature-based amphitheatre

Decision/State of the art
To be developed
Already incorporated in preliminary study



05. Existing ruin recovery

Decision/State of the art
To be developed
Already incorporated in preliminary study



06. Pedestrian connection to the Oriental City Park improvement

Decision/State of the art
To be developed
Already incorporated in preliminary study



07. Oliveira urban garden expansion

Decision/State of the art
To be developed
Already incorporated in preliminary study



08. Public multipurpose outdoor space with shared maintenance

Decision/State of the art
Channelled for other CMP departments/municipal companies



09. Cerco do Porto Primary School surroundings improvement

Decision/State of the art
Channelled for other CMP departments/municipal companies



10. Ring area recovery (Cerco do Porto)

Decision/State of the art
Channelled for other CMP departments/municipal companies



11. Lagarteiro Primary School surroundings safety increase

Decision/State of the art
Channelled for other CMP departments/municipal companies



12. Viewpoint reformulation next to Campanhã Cemetery

Decision/State of the art
Channelled for other CMP departments/municipal companies



13. Lagarteiro neighbourhood access path requalification

Decision/State of the art
Channelled for other CMP departments/municipal companies
A cleaning action was already performed and improved significantly local environment



14. Lagarteiro Street section requalification

Decision/State of the art
Channelled for other CMP departments/municipal companies



15. Access to Pego Negro and Oriental City Park improvement

Decision/State of the art
Channelled for other CMP departments/municipal companies



16. Playground in Corujeira Square

Decision/State of the art
Channelled for other CMP departments/municipal companies



17. Lagarteiro sports hall access improvement (informal paths)

Decision/State of the art
Channelled for other CMP departments/municipal companies



18. Lagarteiro sports hall access improvement (entrance door)

Decision/State of the art
Not to be developed



Figure 8. Proposed New Public Space and Nature NBS for Porto in the study area.

Social economy and solidarity practices

This group organizes all the solutions co-designed with citizens that are related with social economy and solidarity practices in the Campanhã region and will contribute to improve community involvement in promoting the local economy. Based on partnerships between public-private entities and social solidarity institutions; in circular economy models for social purposes and interests; sharing of co-produced and co-developed knowledge that is innovative and social, both in its ends and in its means, it will be possible to dynamize the region socially and economically.



19. Campmarket

Decision/State of the art
To be developed
Being developed by APPC association



20. Community mobile kitchen

Decision/State of the art
To be developed
Waiting for development



21. Community-based management urban garden

Decision/State of the art
To be developed
Waiting for development



22. Support structure to the Oriental City Park

Decision/State of the art
To be developed
Waiting for development



Figure 9. Proposed New Social Economy and Solidarity Practices NBS for Porto in the study area.

Culture and sports

This group organizes all the solutions co-designed with citizens that are related with culture and sports activities in the Campanhã region and will contribute to improve the cultural communication and boost the frequency number and quality of cultural events in terms of music, theatre, cultural and natural heritage, among others. It will also implement open-air physical and leisure activities to improve the citizens wellbeing.



23. Outdoor programme for sports and leisure initiatives

Decision/State of the art
To be developed
Waiting for development



24. Cultural platform – Campanh'UP

Decision/State of the art
To be developed
Being development by APPC and other citizens



25. Artistic projects – O Lugar do Olhar

Decision/State of the art
To be developed
Waiting for development



26. Initiative – Memories of Campanhã

Decision/State of the art
To be developed
Waiting for development



27. Local heritage route

Decision/State of the art
To be developed
Waiting for development



28. Initiative – Culture is Health

Decision/State of the art
To be developed
Waiting for development



29. Lagarteiro sports hall renting model improvement

Decision/State of the art
Channelled for other CMP departments/municipal companies



30. Artistic hangar

Decision/State of the art
Not to be developed



Figure 10. Proposed New Culture and Sports NBS for Porto in the study area.

Education and Environment

This group organizes all the solutions co-designed with citizens that are related with recreational and educational activities in the Campanhã parish, that will improve a set of activities and structures to promote the relationship with space and the sense of belonging at the community level in conjunction with the region's school community. The educational solutions are also focus on environmental issues to create awareness and develop literacy for the environment challenges.



31. Educational Living Lab

Decision/State of the art
To be developed



32. Eco-construction and urban farming activities

Decision/State of the art
To be developed
Waiting for development



33. Collective cleaning actions in public spaces

Decision/State of the art
To be developed
Waiting for development



34. Pedagogical farming related initiatives in local schools

Decision/State of the art
To be developed
Being developed by the schools and IAAC partner



35. Educational play equipment in the schools playgrounds

Decision/State of the art
To be developed
Waiting for the development of an initiative to build a collaborative element



36. Local primary schools playground improvement

Decision/State of the art
Channelled for other CMP departments/municipal companies



37. Local primary schools access area improvement

Decision/State of the art
Channelled for other CMP departments/municipal companies



38. Environmental Education Centre

Decision/State of the art
Not to be developed



Figure 11. Proposed New Education and Environment NBS for Porto in the study area.

Finally, and although the different New NBS belong to specific groups and fields, it is important to highlight that, due to the multifunctional nature of the NBSs, sometimes an overlap between categories occurs among

the different categories, showing the added value and amplified impact of their implementation in the territory.

This aspect can be easily observed in the Figure 12, below.

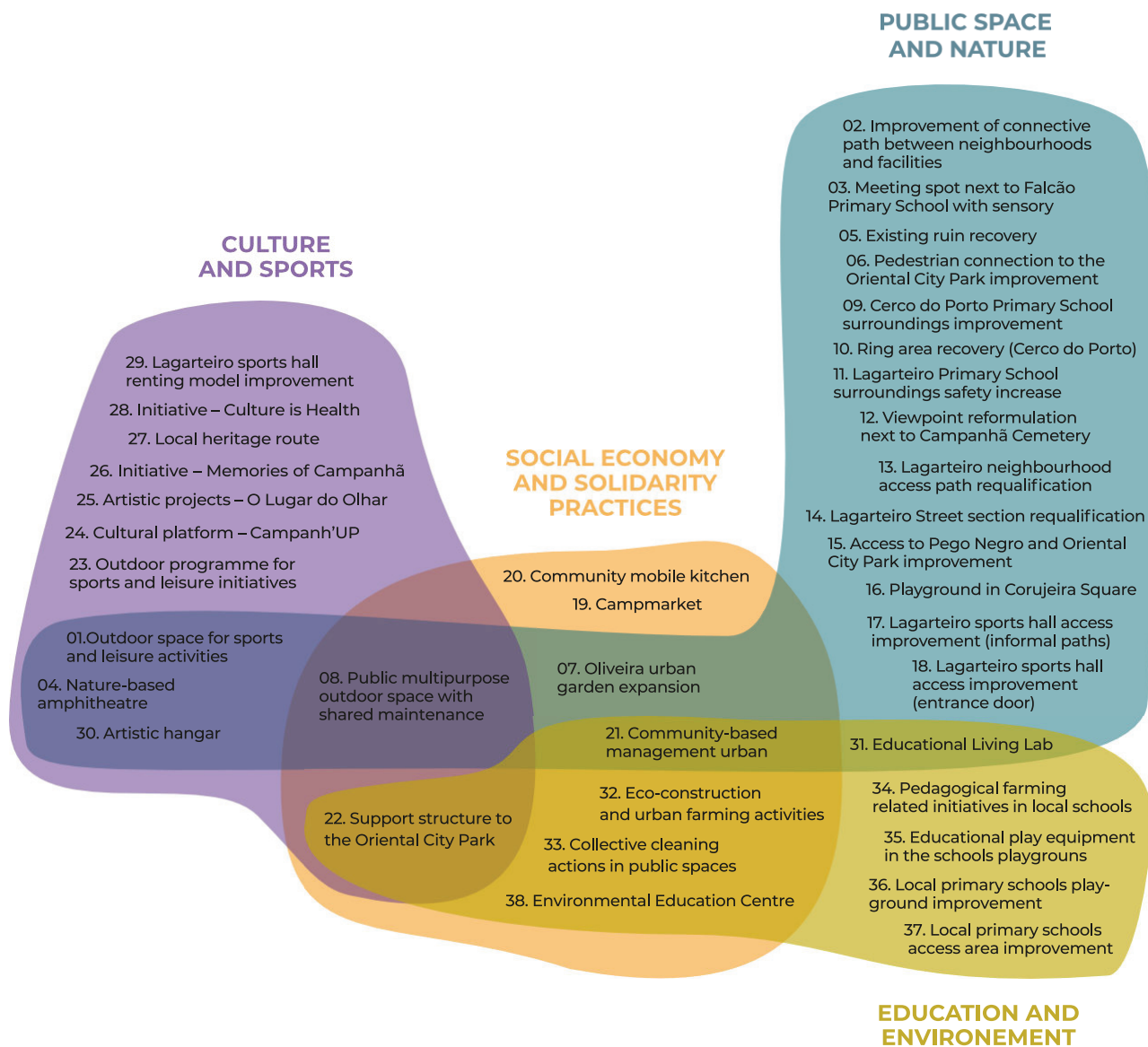


Figure 12. New NBS categorization Venn diagram.

4. Global strategy for the study area

The URBiNAT global strategy for Campanhã is based in the following URBiNAT main goals:

1. Promote social cohesion through the activation of a Living Lab and engagement of a Community of Practice to guide the participating actors and identify local needs and design innovative NBS to tackle them, with continuous support from the URBiNAT team, while actively sharing best practices with the other partner cities;
2. Achieve new models of urban regeneration through the creation of innovative multifunctional public spaces. The Healthy Corridor, as a cluster of NBS, is not merely a green area but also a social and cultural infrastructure and catalyser, creating benefits for the citizens' wellbeing, while allowing for a safer and harmonized mobility in the territory and climate change resilience;

Both objectives are aligned with the existing municipal strategy for the territory – elect Campanhã as a new development area for urban

regeneration, as stated in the urban planning documents – Plano Diretor Municipal – PDM (2016 and its revision in 2021) in a more strategic approach, and Operação de Reabilitação Urbana – ORU Corujeira (2018) in a more operative way, as already analysed in the Local Diagnostic report (D2.1) and resumed in the introductory chapter of the present document.

4.1. Goals for the study area: URBiNAT and Porto Municipality

In this sense, Table 21 compares URBiNAT's challenges and objectives for the study area with the municipal strategy for Campanhã, showing that not only are they aligned but also that the first is considered an important (and crucial) catapult to accelerate the completion of the second.

URBiNAT CHALLENGES	PORTO URBiNAT OBJECTIVES FOR THE STUDY AREA	MUNICIPALITY OF PORTO STRATEGY FOR CAMPANHÃ PARISH
Public Space CH6 Urban Regeneration	Connections and mobility for all	<ul style="list-style-type: none"> • Easier and smoother mobility between spaces; • Promote the creation of green corridors;
	Urban fragmentation mitigation	<ul style="list-style-type: none"> • Promote occupation of empty, obsolete or abandoned spaces in order to requalify a wider area considering social, economic and landscape aspects; • Implementation of a low-density urban system in Azevedo, a territory in the eastern end of the city; • Promote territorial, socioeconomic and cultural interactions with the rest of the city; • Eliminating the effects of spatial segregation and stigmatization;
	Security by presence and maintenance Local safety for all Reduction of criminal activities	<ul style="list-style-type: none"> • Urban requalification and rehabilitation, development of cultural and economic hubs predicted for Campanhã aims to bring a new dynamic to the area, promoting safety by presence; • Creation of open green spaces promotes leisure and sports activities which will also create openness in the territory and increased sense of safety (due to increased presence);

	Space multifunctionality	<ul style="list-style-type: none"> • Regeneration of urban space with a view to attracting new economic activities in multifunctional space; • Reconversion of the public space through places of sharing and conviviality and leisure activities; • Tax incentives that facilitate the dynamics of reconverting vacant industrial spaces into new urban functions;
Health and wellbeing CH9 – Public Health and Wellbeing	More active inhabitants, social life and wellbeing	<ul style="list-style-type: none"> • Improving the living conditions and well-being of the resident population; • Involve local actors around a clear action strategy;
	New pedestrian alternatives to reduce walking distance between relevant areas	<ul style="list-style-type: none"> • Promotion of pedestrian movements, supported by the intermodal transport system and implementation of “proximity urbanism”;
	Better liveability	<ul style="list-style-type: none"> • Attract new economic, social and cultural activities, creating a new functional pole to create new opportunities and better living conditions;
	Open air physical activity	<ul style="list-style-type: none"> • Integrating gentle modes such as bicycle lanes;
Environment CH4 – Green spaces management	Environmental awareness	<ul style="list-style-type: none"> • Promote everyday sustainability practices through projects of environmental education and awareness;
	Qualification of green areas Improve autochthonous trees composition	<ul style="list-style-type: none"> • Systematically re-qualify ecosystems by promoting ecological quality; • Intervention in the public space and improvement of access to the Falcão and Cerco do Porto; • Creation of an urban park in the surroundings of Alameda de Cartes; • Create green corridors, associated with smoother mobility and integrating Nature-based solutions; • Corujeira eco. corridor, a smooth mobility corridor between Corujeira square and the Oriental City Park; • Project FUN PORTO aims for planting 100 000 autochthonous trees in the city;
Participation CH7 – Participatory planning and governance	Community empowerment Local partnership	<ul style="list-style-type: none"> • Guarantee the creation of conditions to achieve a more attractive, dynamic, qualified and inclusive city;
	Community network	<ul style="list-style-type: none"> • Establishing new connections between residents, new users, new economic and social activities.
Culture CH8 – Social justice and social cohesion	Sense of belonging (identity) identity an uniqueness (re)creation	<ul style="list-style-type: none"> • Promote interventions without losing the local historical and urban identity and character;
	Inclusiveness of the public space	<ul style="list-style-type: none"> • Improvements in the public space to support user-friendliness and occupation of free time; • Qualify and make this a more inclusive territory;

Socio-economy CH 10 Potential for Economic Opportunities and Green Jobs	Activate inclusion through solidarity activities	<ul style="list-style-type: none"> • Promote community-based local development strategies, based on initiatives of solidarity economy; • Promote social entrepreneurship and social innovation, with the purpose of designing and promoting a metropolitan resource strategy, based on tackling situations of vulnerability, exclusion and social emergency.
	Local economy, food products and services	<ul style="list-style-type: none"> • Attraction of new economic activities and social interventions.

Table 21. Relation between URBiNAT challenges, Porto URBiNAT objectives for the study area and Porto Municipal Strategy for Campanhã Parish.

Moreover, and based on the above general strategic objectives, URBiNAT has his own specific strategic objectives for the area, which are hereby presented in more detail and divided by categories:

Urban Regeneration towards and inclusive public space

URBiNAT aims to develop an inclusive urban regeneration through the co-creation of innovative public space between social housing neighbourhoods, in the form of a Healthy Corridor, improving connectivity and mobility between different areas and decreasing urban fragmentation. Composed by NBSs, based on a human centered approach, this public space aims to be multifunctional and to address the safety challenges for all, namely for women, children and adults with advanced age.

Wellbeing and health impact of co-created NBS

URBiNAT involved stakeholders in an active citizenship process to co-create solutions for local urban regeneration. In this sense, the Healthy Corridor is a product and also a process that aims to impact in the social and overall wellbeing of users by providing walking and cycling activities, open air physical and leisure activities, while the liveability of the public space with cultural, social and educational activities.

Environment and a sustainable public space

URBiNAT healthy corridor is based on the green corridor concept implemented as a *continuum naturale* that integrates environmental services to qualify brownfields and existing green abandoned areas. This environmental approach aims to promote the increase in the number of autochthonous trees and wild nature

towards a more resilient public space, creating opportunities for environmental awareness and education.

Participation and the community of practice

URBiNAT activated a living lab to engage the local stakeholders in a community of practice to develop solutions together. This strategy aims to empower the community and create a network for local partnership that aims to be continued after the project ends.

Culture and sense of identity

URBiNAT living lab aims to dialogue with the cultural identity of the study area in order to co-create solutions that are site-specific and dialogue with the identity and uniqueness of the local community. In this sense, URBiNAT developed an intensive participatory process with 40 activities to improve the sense of belonging and the inclusiveness of the public space through culturally based actions and solutions.

Solidarity Economy and network for local partnership

URBiNAT aims to activate inclusion through a network of local partnership as an opportunity for innovative processes in the social, political and economic relations for those who live in the neighborhoods, namely to improve local food products, services and solidarity activities.

Building on the general and specific strategic objectives mentioned above, and in order to frame the inclusive urban regeneration process predicted by URBiNAT, six main challenges² are now complemented with the work developed

² This six challenges are under development in task 1.2 and 5.6 to establish an URBiNAT Analytical Framework.

during these next stages, in order to identify strategic connections with the existing surrounding structures and initiatives – **Public space; Environment (Nature); Health and wellbeing; Participation; Culture (Inclusive); Socio-economy.** This attempted connection aims to amplify the work developed by URBiNAT and establish long lasting partnerships that will support and activate URBiNAT's initiatives beyond its implementation.

URBiNAT identified this integrated approach as an opportunity to contribute to a truly inclusive urban regeneration process, with methodologies and strategies that could improve, accelerate and amplify the process that was already being implemented in the field, by making strong connections with its surroundings such as the existing neighbourhoods and accesses, as shown in Figure 14 and Figure 15.

Nevertheless, it is important to highlight that this work was developed based on the acquired information during the implementation of the URBiNAT project so far and, hence, reflects the interpretation of the involved actors during this process.

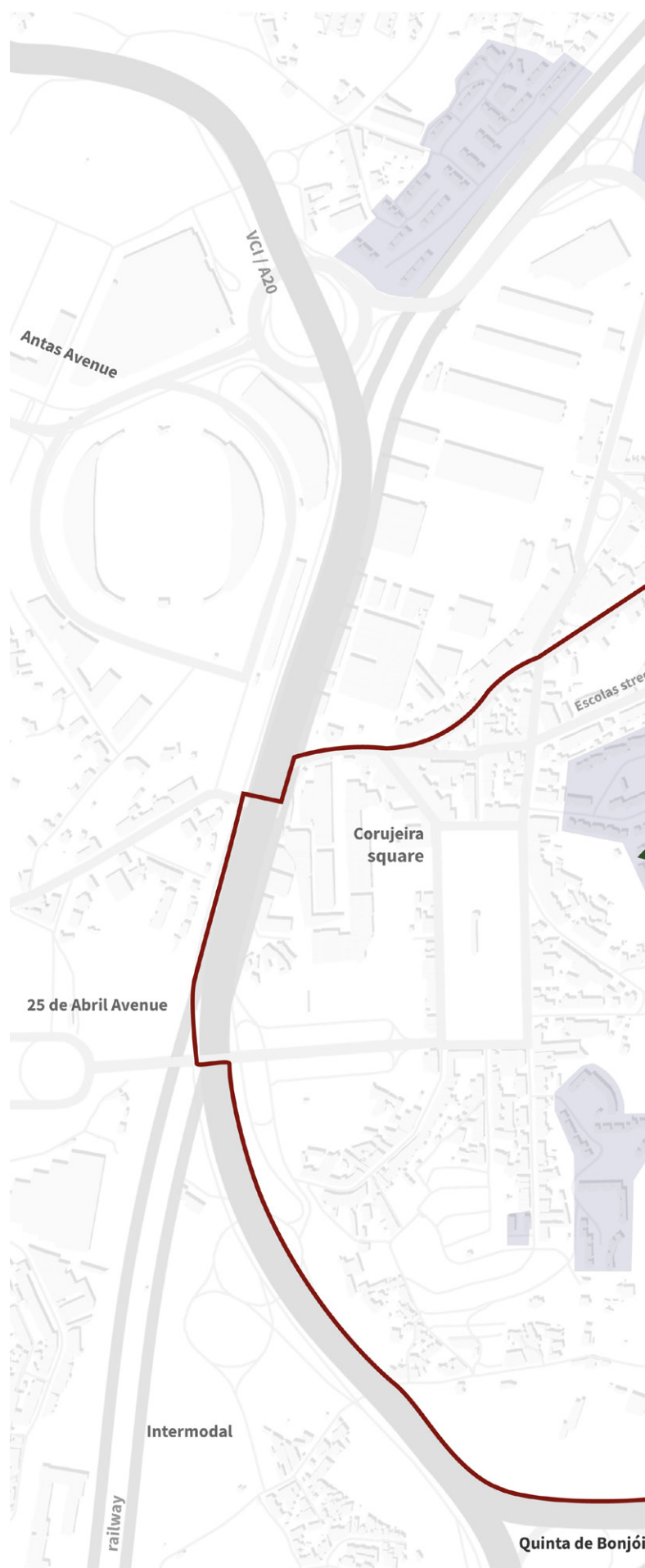
Healthy Corridor pathway and connections with the neighbourhoods

In this area of Porto, URBiNAT Healthy Corridor is going to occupy a group of vacant lots between the three main neighbourhoods of the study area. This in-between characteristic offers the capacity to be a connector, improving physical and social relations between different area typologies.

This intervention aims to be a strategic occupation of what remains of an old agriculture area with farms, such as Quinta do Falcão (Figure 13), allowing for a better connection between the three municipal housing neighbourhoods built in the 1960-70 – Cerco do Porto, Falcão and Lagarteiro. A surgical purpose that will also upgrade the connection of the neighbourhoods with the existent pedestrian mobility network and, consequently, the rest of the parish/city.

Considering the multiple morphologies of this urbanized territory, with lack of an integrated infrastructure, this represents a key change for an increased quality of life, guaranteeing an easier access to the different areas of the territory and its usages – education, healthcare, culture and leisure.

Hence, URBiNAT Healthy Corridor is planning beyond the shape of its design and its physical condition and aims to absorb the territory local



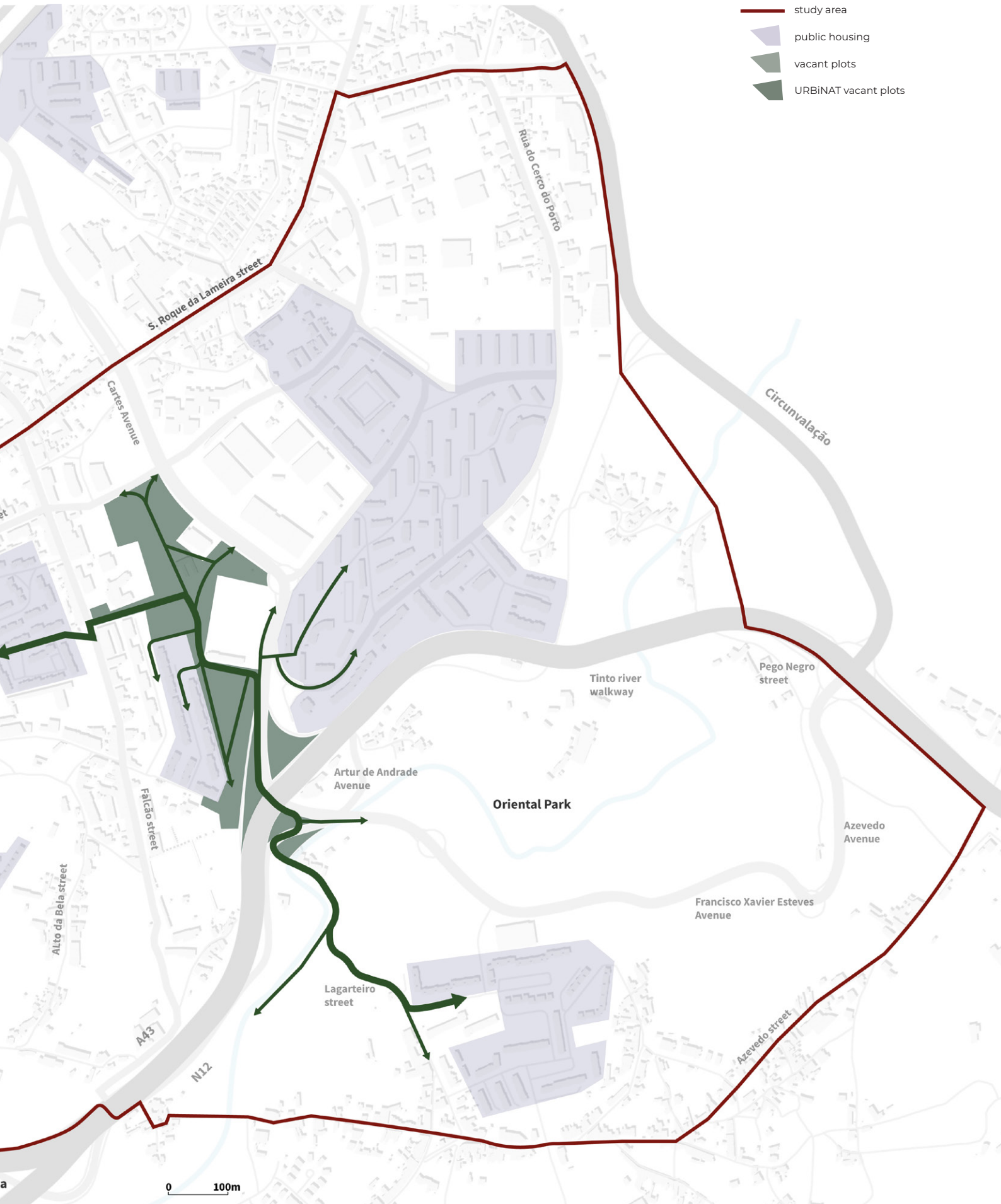


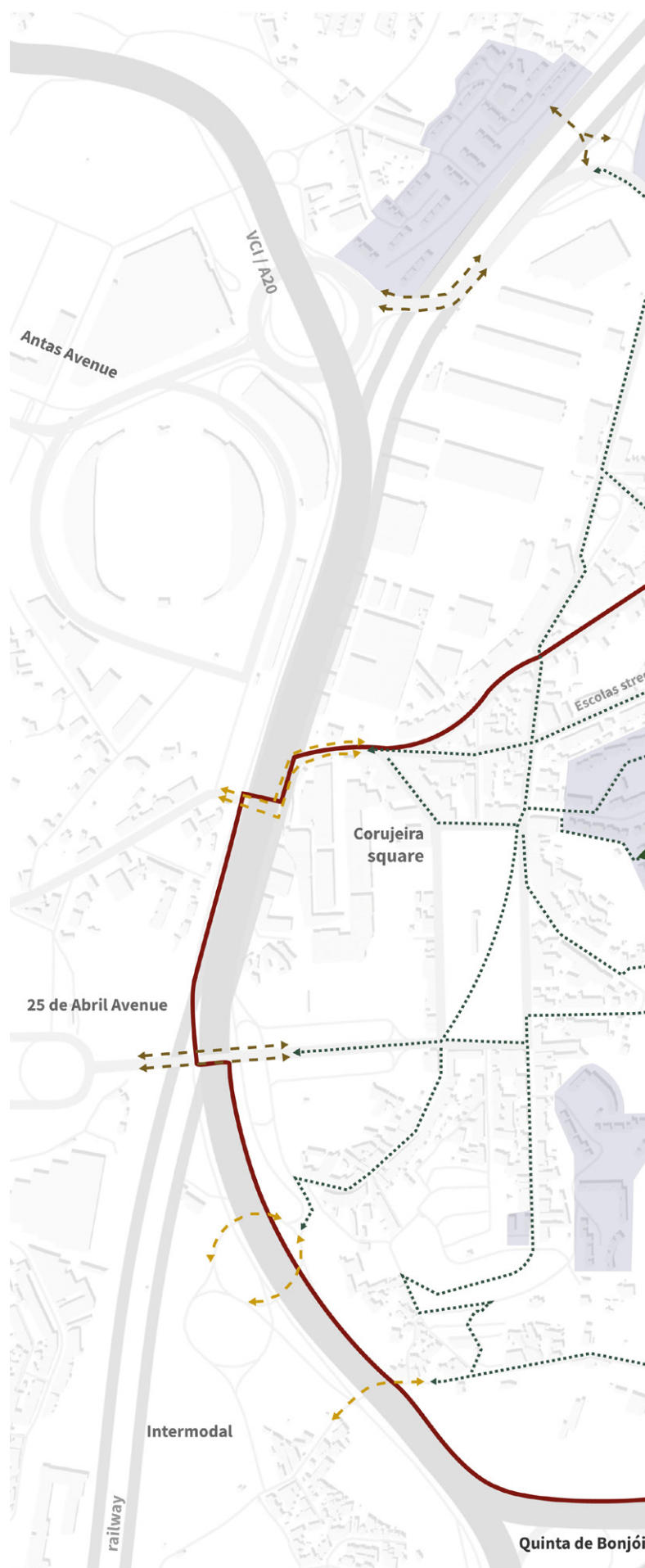
Figure 13. Healthy corridor pathway and connections with the neighbourhoods.

diversity, such as cultural habits, social quotidian and territorial features, and contribute to improve not only the fluidity of local mobility but also the everyday life of inhabitants in the area and its surroundings.

Articulation of the healthy corridor with main accesses

Through the co-created NBS, aligned with the municipal masterplan for the area, the aim of the strategy is to enrich and activate the intervened spaces with the main objective of breaking the existent barriers on this heterodox urban tissue. According to the municipality, the new “Corujeira urban regeneration operation”, ORU Corujeira, will act as an “interface”³.

By improving the paths, lightning the ways and triggering new uses on the vacant plots (Figure 14), it is possible to articulate the existent flows and networks, while highlighting the visible and invisible reasons that can now re-connect the area and transform the territory, its density and its character. In this sense, the Healthy Corridor (Figure 14) proposes the redesign of the informal paths printed in the ground during decades of use by people who moved between Falcão, Cerco do Porto and Lagarteiro social housing neighbourhoods. This pathway and its several branches will then be connected to the pathways and sidewalks that structure the three housing states, as represented in the map, in order to improve mobility, accessibility, safety and inclusion. Some of these paths are being built or renovated in the frame of municipal interventions in the public space of these neighbourhoods, contributing to a new walking and cycling system.



³ PORTO (9th April 2019) “ORU da Corujeira está aprovada e vai acelerar regeneração de Campanhã”. Available in <https://www.porto.pt/pt/noticia/oru-da-corujeira-esta-aprovada-e-vai-acelerar-regeneracao-de-campanha>

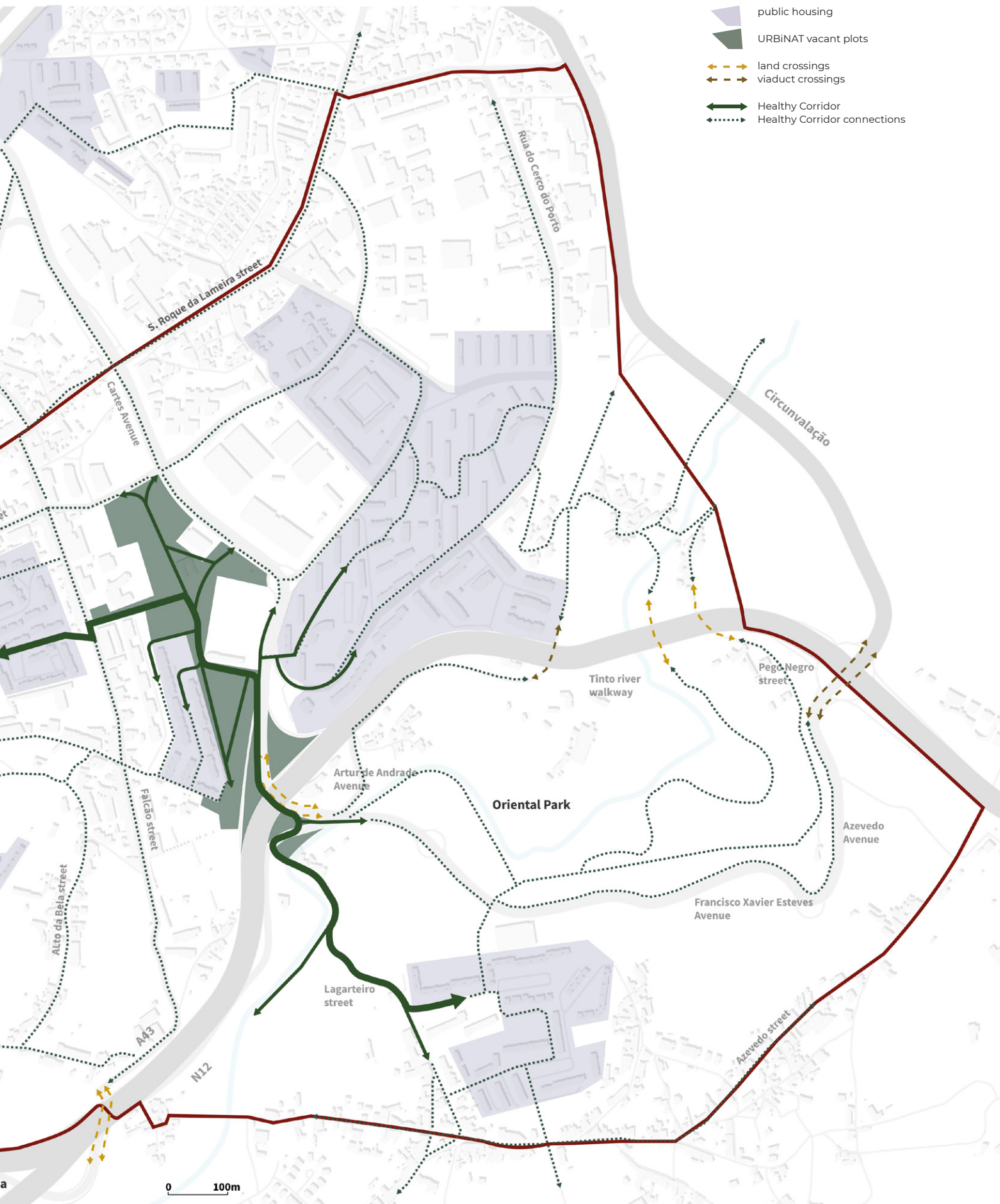


Figure 14. Map with the articulation of the healthy corridor with main paths of the neighbourhoods.

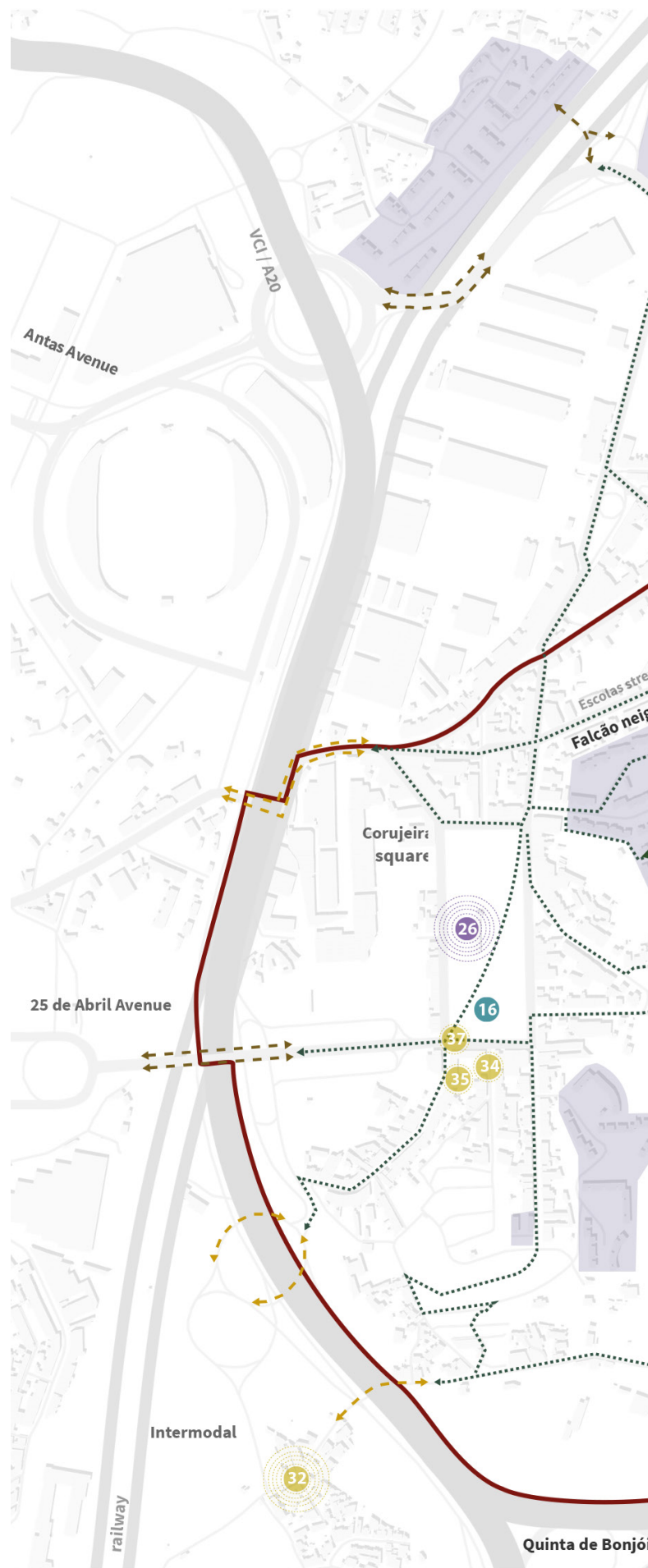
4.2 Study area and NBS networks

The Healthy Corridor's nature-based solutions will activate the use of public space, promoting multifunctionality with the involvement of the local community. These proposals can create a systemic impact with other key solutions, agents and actors already existing in the territory. In this sense, synergies are already being sought out in order to amplify the use and dynamic of the places that are about to be intervened. It is by understanding the existing dynamic and its historical evolution that the corridor is proposed.

These old and new dynamics are illustrated on this subchapter, as multi-layered networks, separated by the groups of NBS, that allowed for a more rigorous systematization process and a closer and more accurate dialogue with the different municipal departments, based on the participants' interests and ideas.

As so, the following considerations are important to consider before the analysis of the networks' analysis:

- The network related to the available public space will have a concrete definition on the Healthy Corridor project, as some of the NBS will be implemented on the corridor and others were channelled to other municipal initiatives according to their characteristics and/or location, for future (potential) implementation;
- The networks based on culture and sports, social economy and solidarity practices, and education NBS are mostly formless and immaterial. Nevertheless, some of these solutions can also have a physical approach with impact in the public space, such as the "Outdoor space for sports and leisure activities" (sports) or the "Campmarket" (social economy and solidarity practices).
- None of these networks are purely analytical, but rather a mapping of empirical relations and synergies that URBiNAT aims to support and develop.



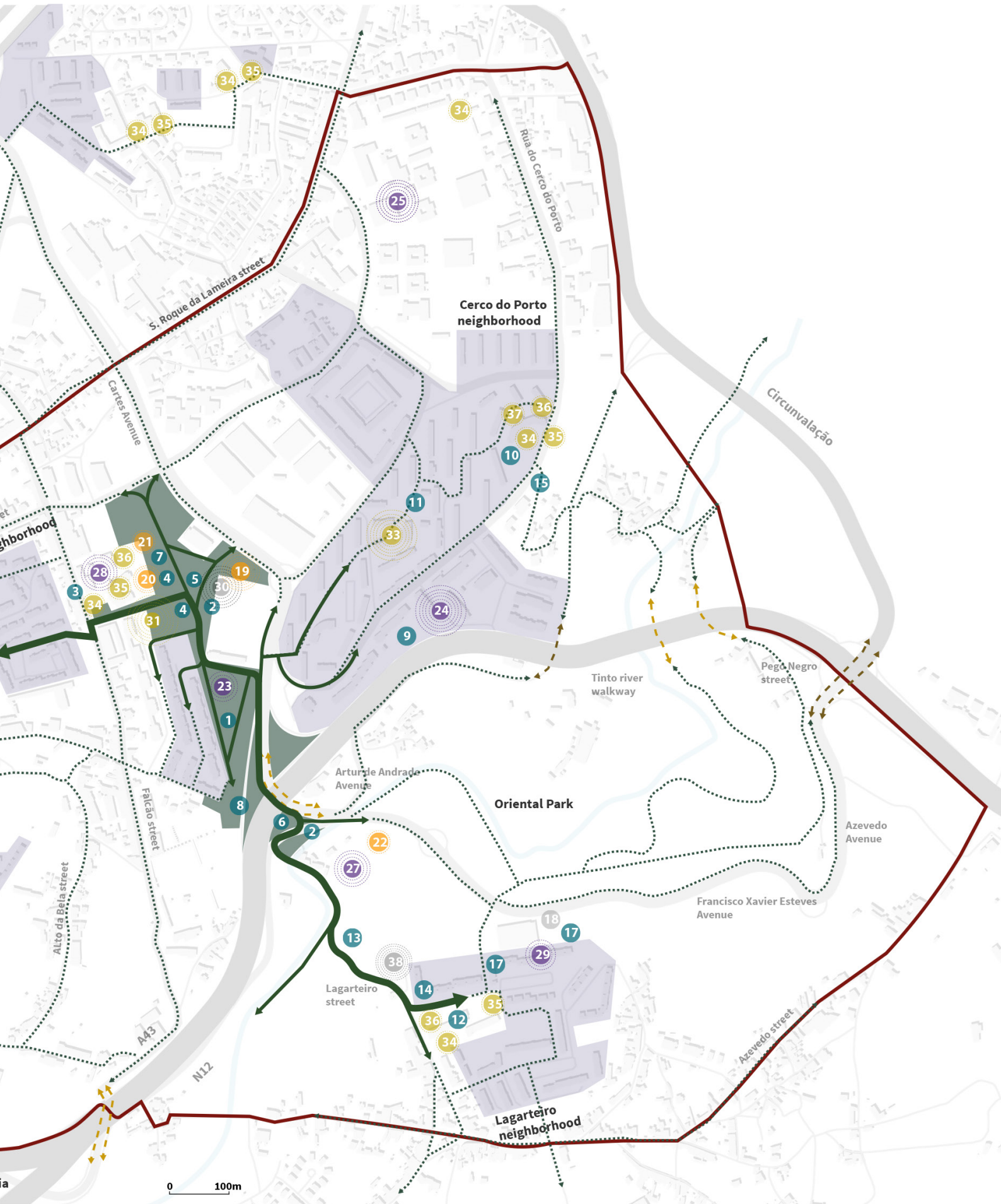


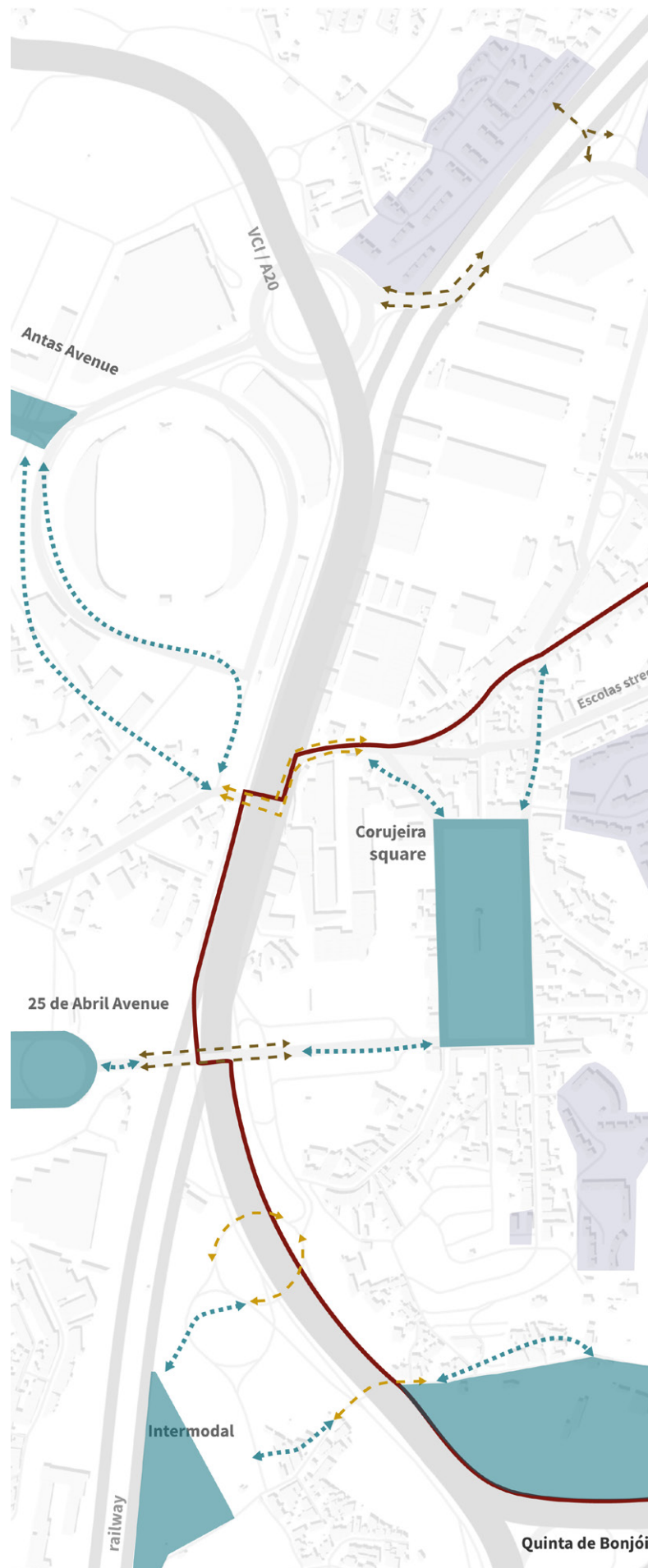
Figure 15. Map with the urban articulation of the Healthy Corridor and the proposed location of the New NBS.

Network of Public Spaces

The existent morphology of the study area acquired a great complexity created by the multiple layers of previous occupations. The rural and industrial old matrix, the uncertain occupation of the vacant lots and buildings, the late-modernist neighbourhoods and the mesh of vehicular and railways created a network of public spaces as mesh of non-fluid pedestrian connections.

This complexity can be acknowledged on the heterodox character of the existent public spaces, where Praça da Corujeira has a predominant role as meeting place, transformed during the last years as a space in-between the occidental part of the city (and the study area). Besides this, the remaining and more recent urban tissue is often discontinued and mainly dedicated to vehicular transportation. On this mesh, the historical streets of São Roque de Lameira and Falcão are still the most important veins of public transportation, pedestrian mobility and collective gathering.

On the eastern part of the study area, the recent Oriental city park is the highlight in terms of public green areas for leisure and sports, but it is also an important north-south pedestrian connection axis. However, there is a lack of staying areas for public meetings outside the surrounding areas, and the main streets (by their scale and character) are not very friendly for pedestrian mobility.



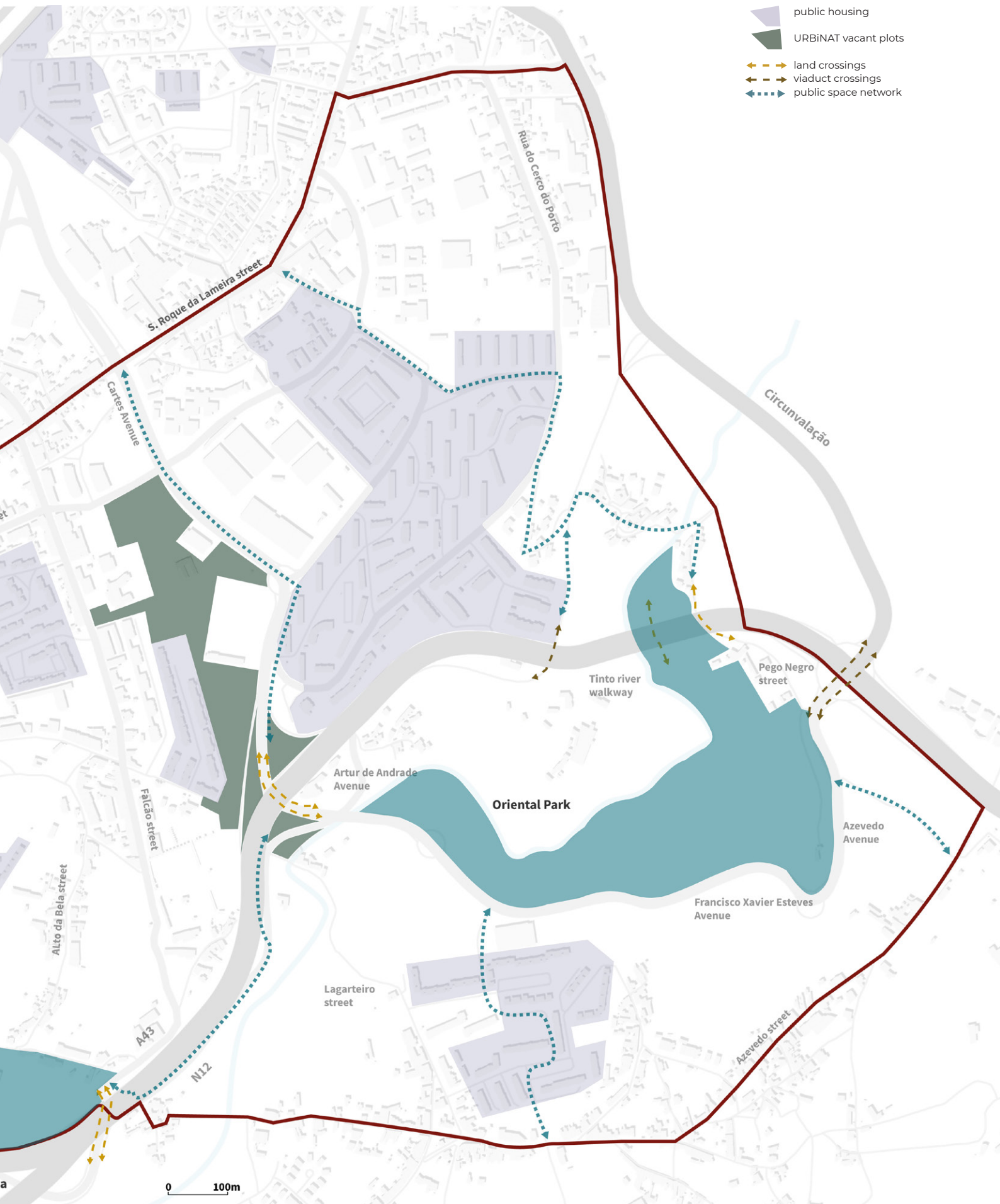
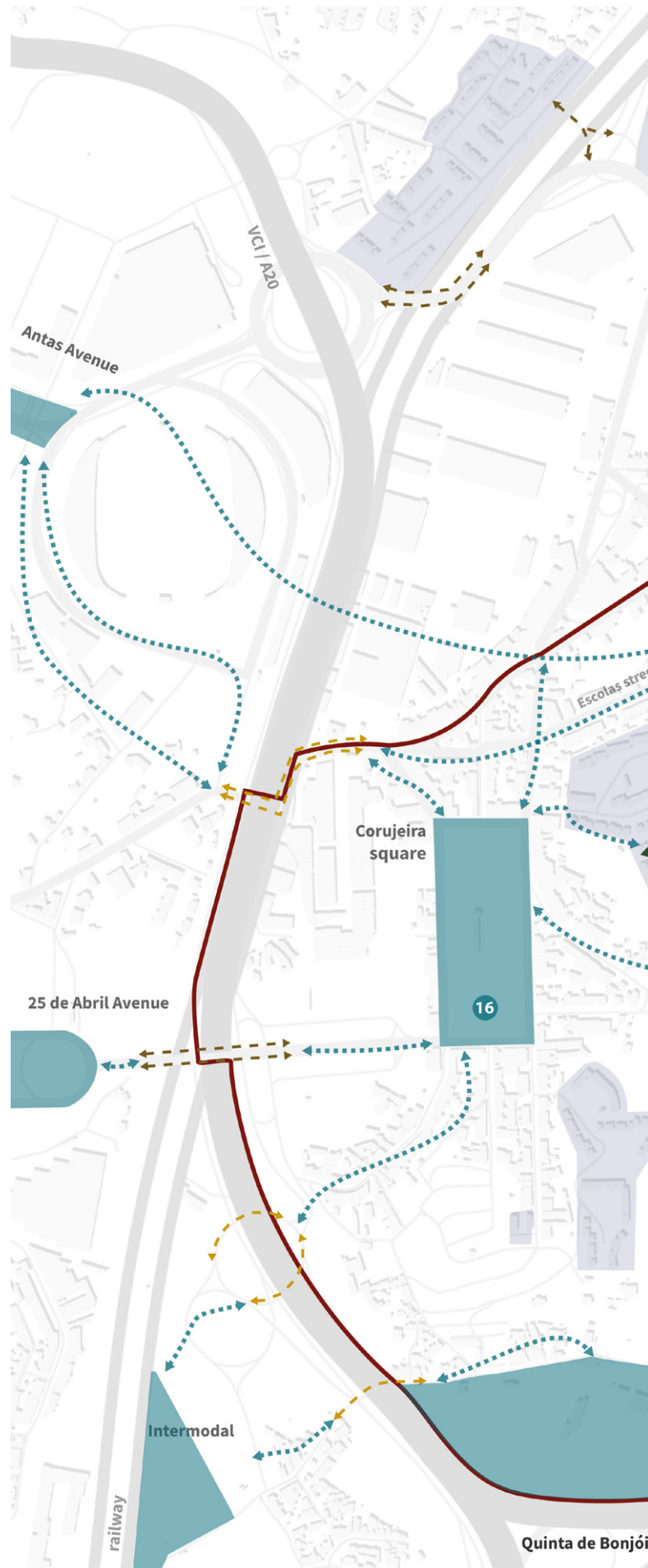


Figure 16. Map of the existing public space network.

As so, URBiNAT's intervention aims to enrich mobility flows in the study area, contributing to a more walkable territory. This new fluidity can be a valuable input to the existing network of public spaces, collective facilities nearby, such as Praça da Corujeira and the Oriental city park (Figure 17).

In this regard, the proposed new NBS for public space will allow for: a concrete improvement of the existing public vacant lots (e.g., Improvement of connective path between neighbourhoods and facilities); attend the needs for multifunctional areas for sports and leisure activities (e.g. Outdoor space for sports and leisure activities and the Meeting spot next to Falcão); and to activate the new public space (e.g., Nature-based amphitheatre).



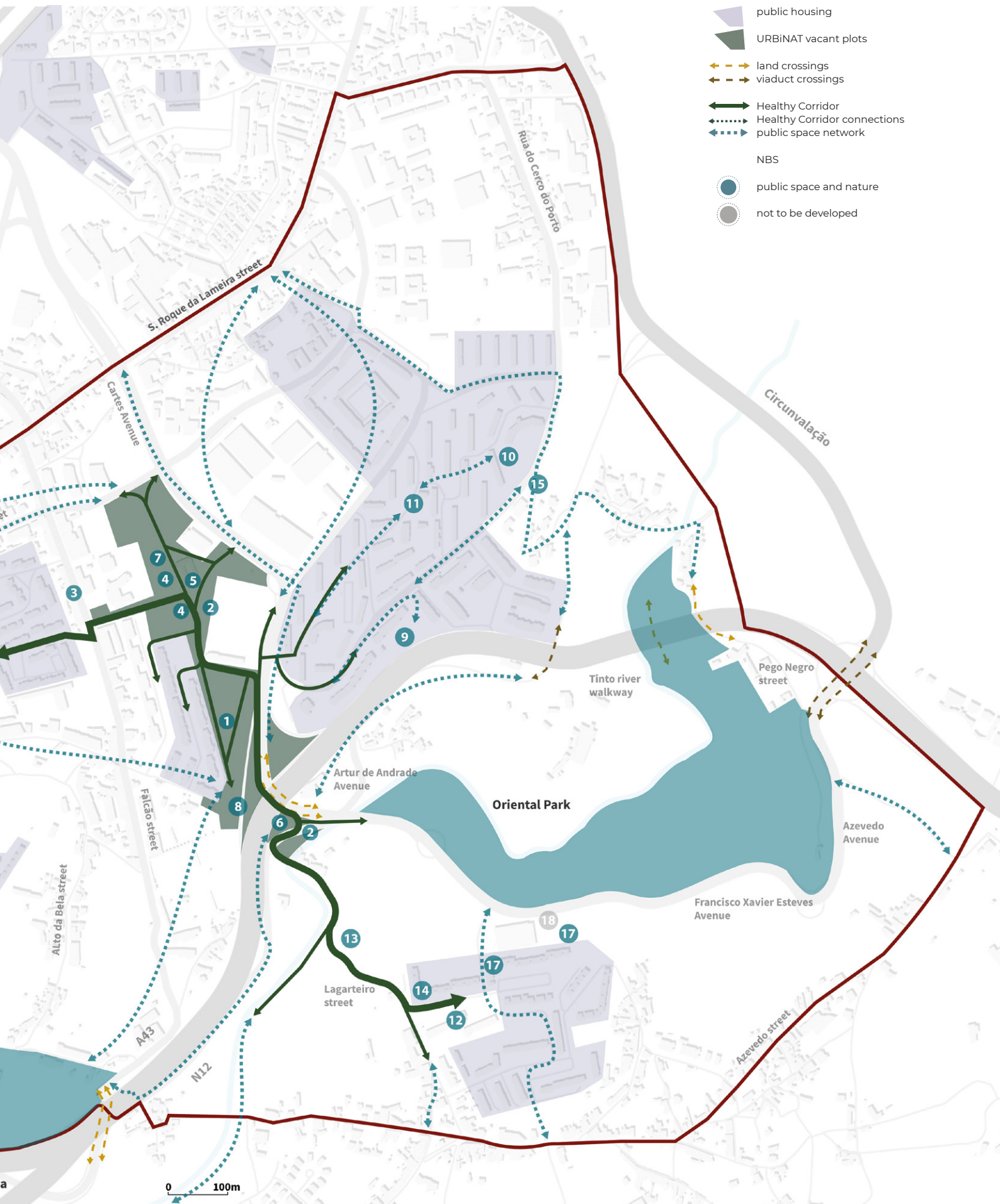


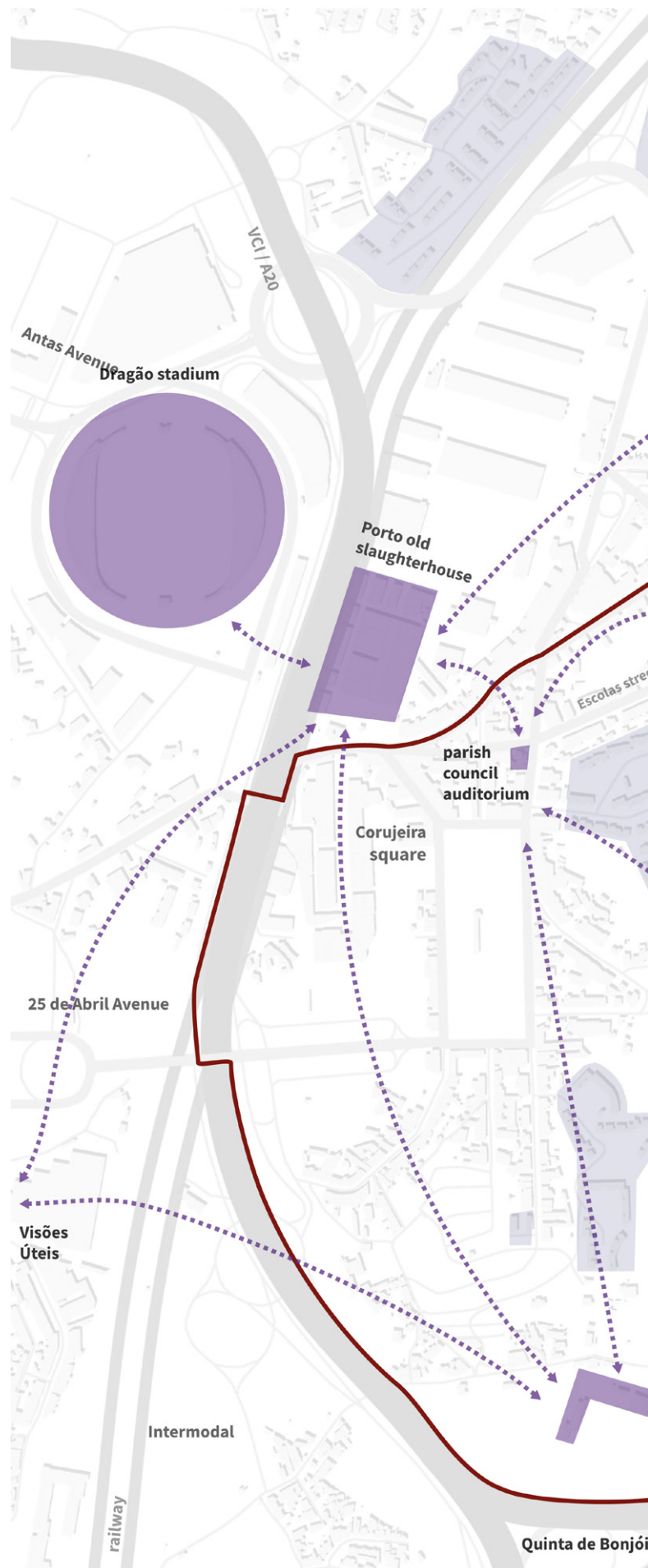
Figure 17. Map of the new public space network articulated with the Healthy Corridor and the new NBS.

Network of culture and sports

This first network analysis includes culture and sports facilities and initiatives, as these two topics are under the same management organic unit in Porto Municipality and because many facilities/areas hold both events on culture and sports.

As it is possible to see in (Figure 18), the cultural network identified in the study area is not very dense. However, there is one notable place – Quinta da Bonjóia –, which is scarcely accessible for the local inhabitants. Also, it is important to point out the existence of important local associations, such as the parish council auditorium where main events happen, and the local high school, an important centre for sports and social events.

Moreover, one of the important investments that is being made for the area is the conversion of the ancient slaughterhouse, which is going to be transformed into a relevant public facility that will accommodate a cultural centre promoted by the municipality.



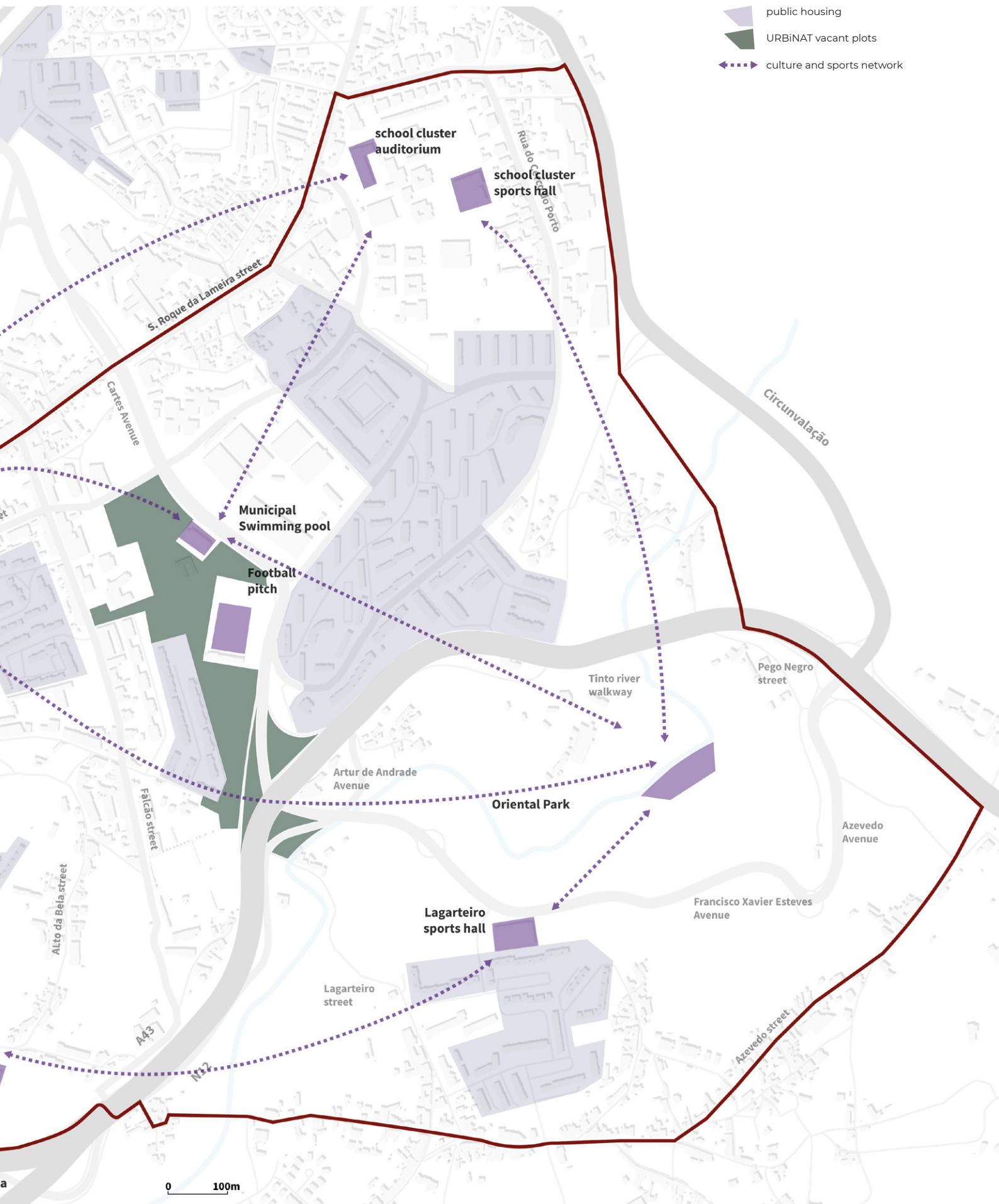
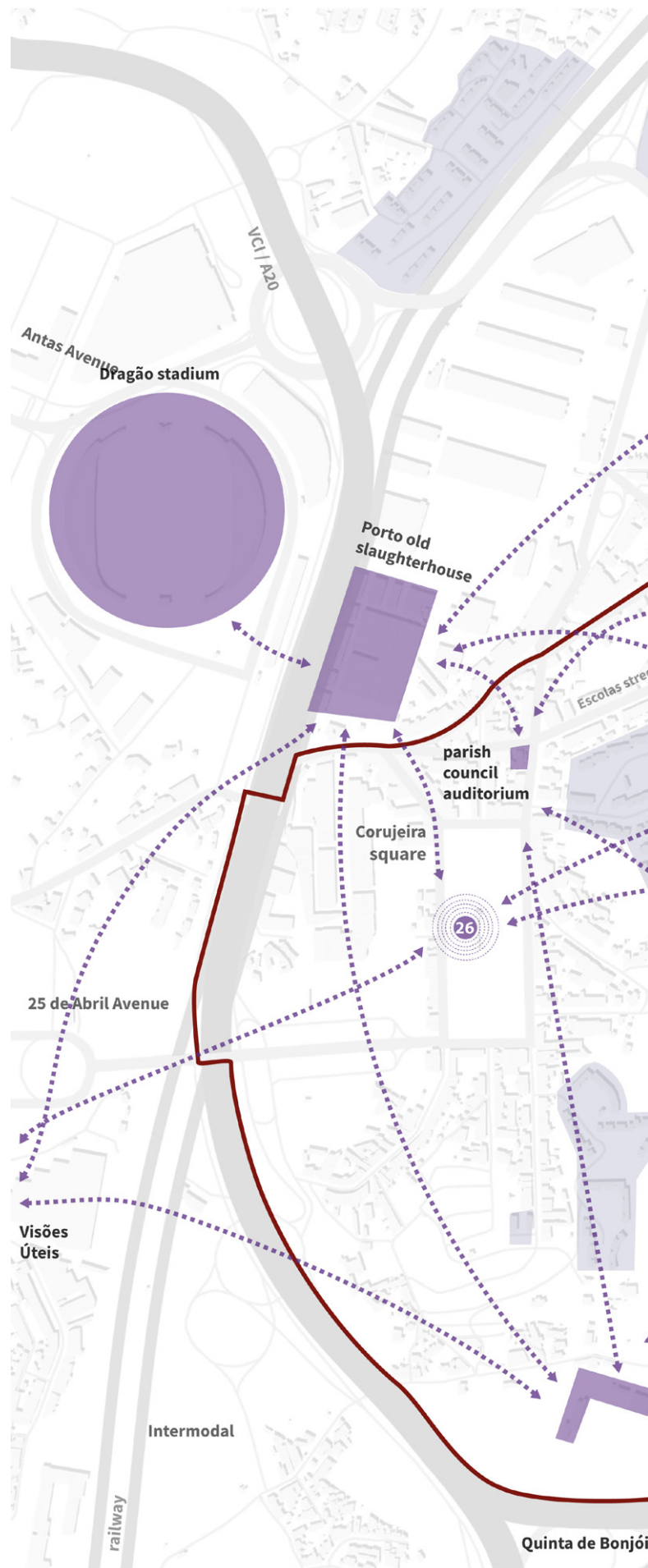


Figure 18. Map of the existing culture and sports network.

The presence of local artists and associations related with cultural activities during the participatory sessions motivated a very intense debate on cultural improvements and solutions, in order to promote the use of the Healthy Corridor and its consequent impact in Campanhã parish.

This discussion expanded the cultural mapping of the area that the project had developed and triggered the creation of physical solutions, such as the “Outdoor programme for sports and leisure initiatives” and more ethereal solutions, such as the “Cultural platform – Campanh’UP”.

It was not only a moment of great enthusiasm and desire to express the different cultures present in this part of the city, but it also allowed for critical thinking sessions about the parish, its identity, heritage, memories and local habits.



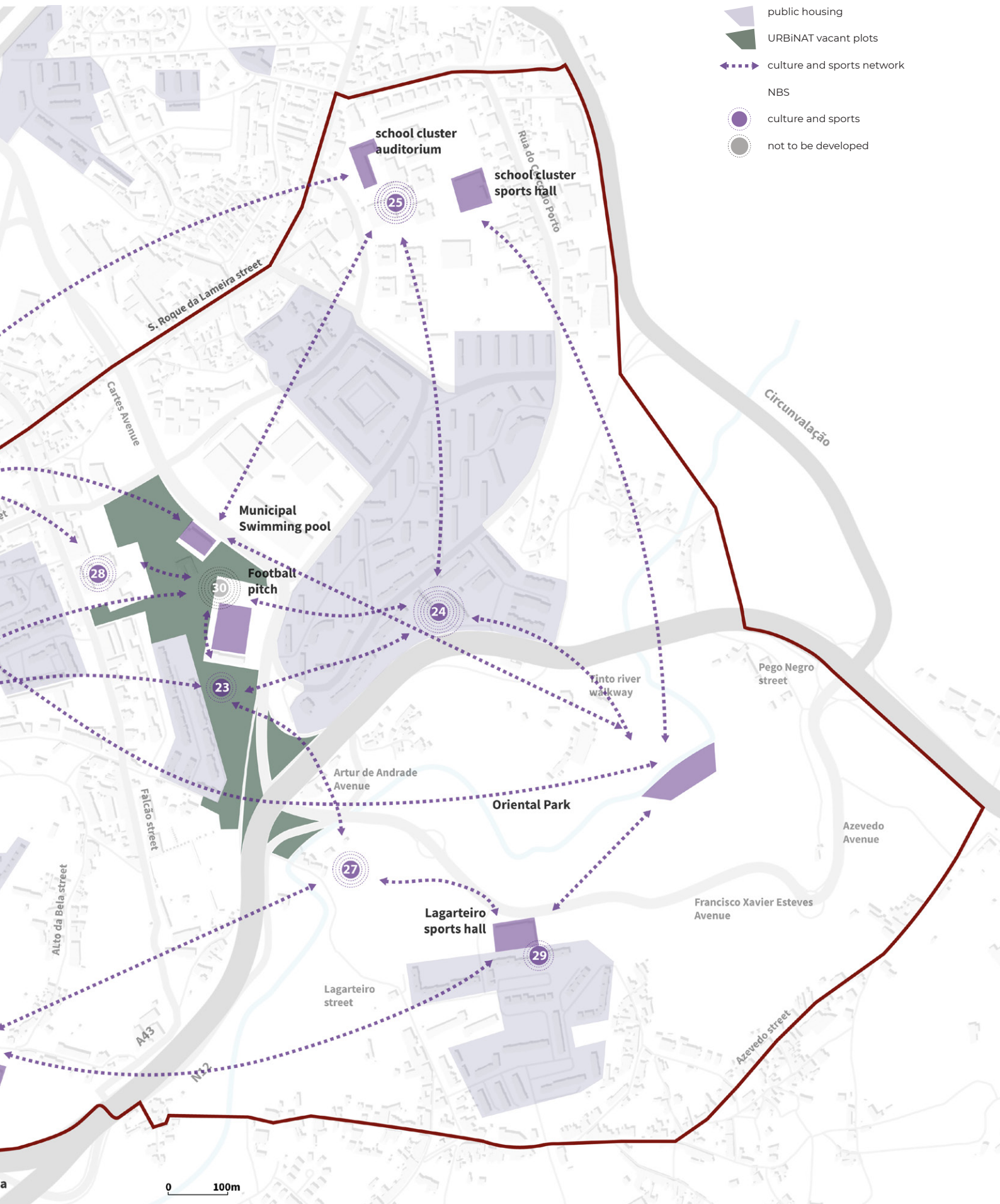


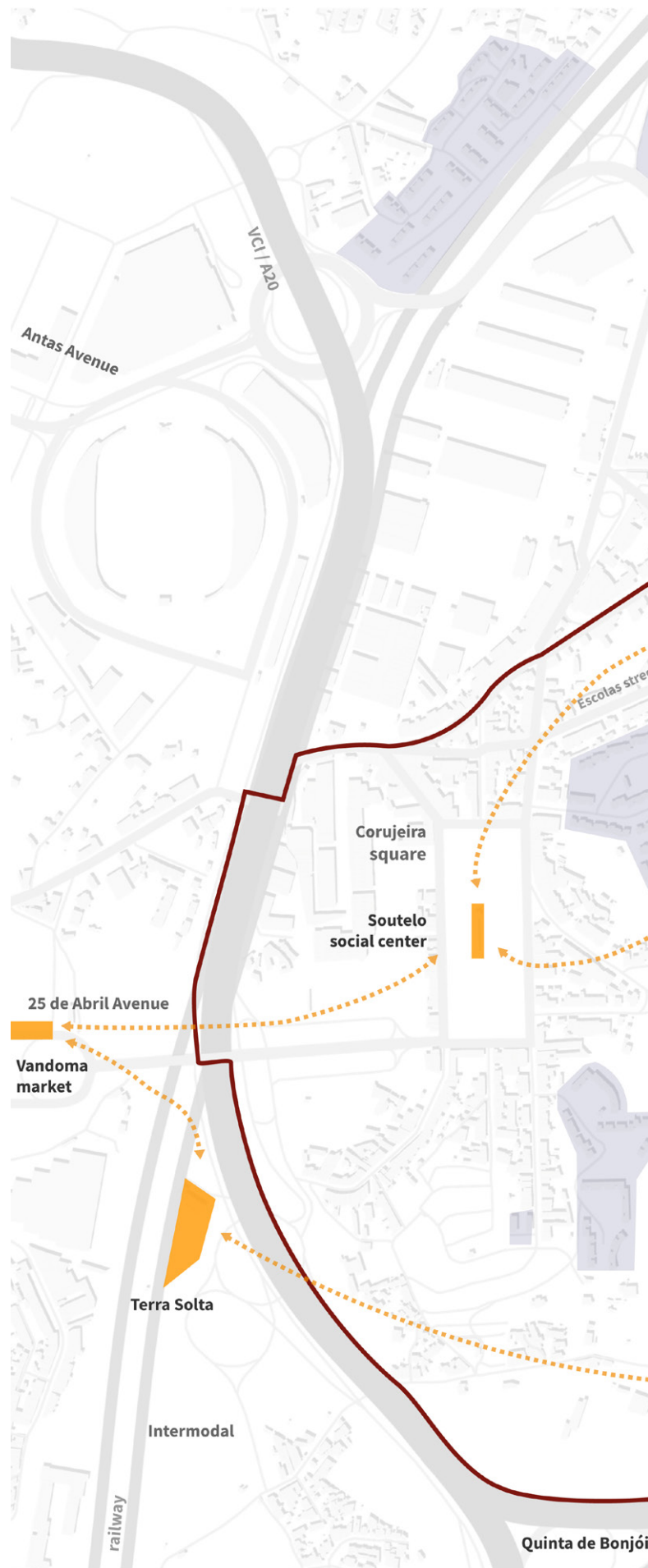
Figure 19. Map of the new culture and sports network articulated with the new NBS.

Network of social economy and solidarity practices

The local associations are an important presence in the parish and in the study area. Although they are quite sprawled on this territory, they have an important work of helping to improve the socio-economic conditions of the inhabitants.

Their purpose and urban role are diverse and as a support for everyday life, they are sometimes used to overcome the lack of public spaces and other facilities by expanding their use as collective venues and mechanisms for local meetings and solidarity initiatives (Figure 20).

Besides the local associations, it is also important to point out other initiatives for the local economy identified in this network – local markets, such as “Feira da Alameda de Cartes” or “Feira da Vandoma” – which are key trade centres in the city of Porto and metropolitan area.



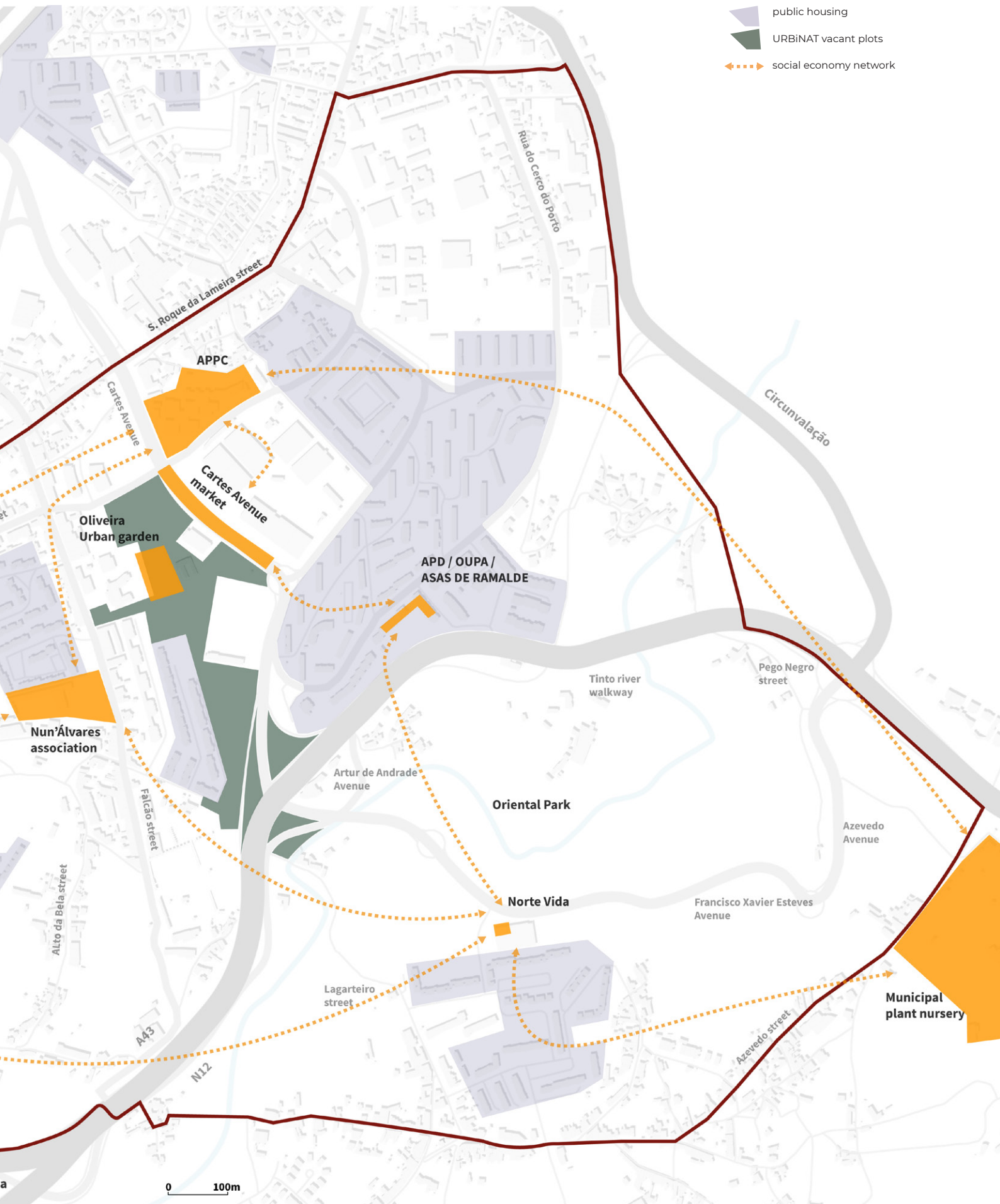


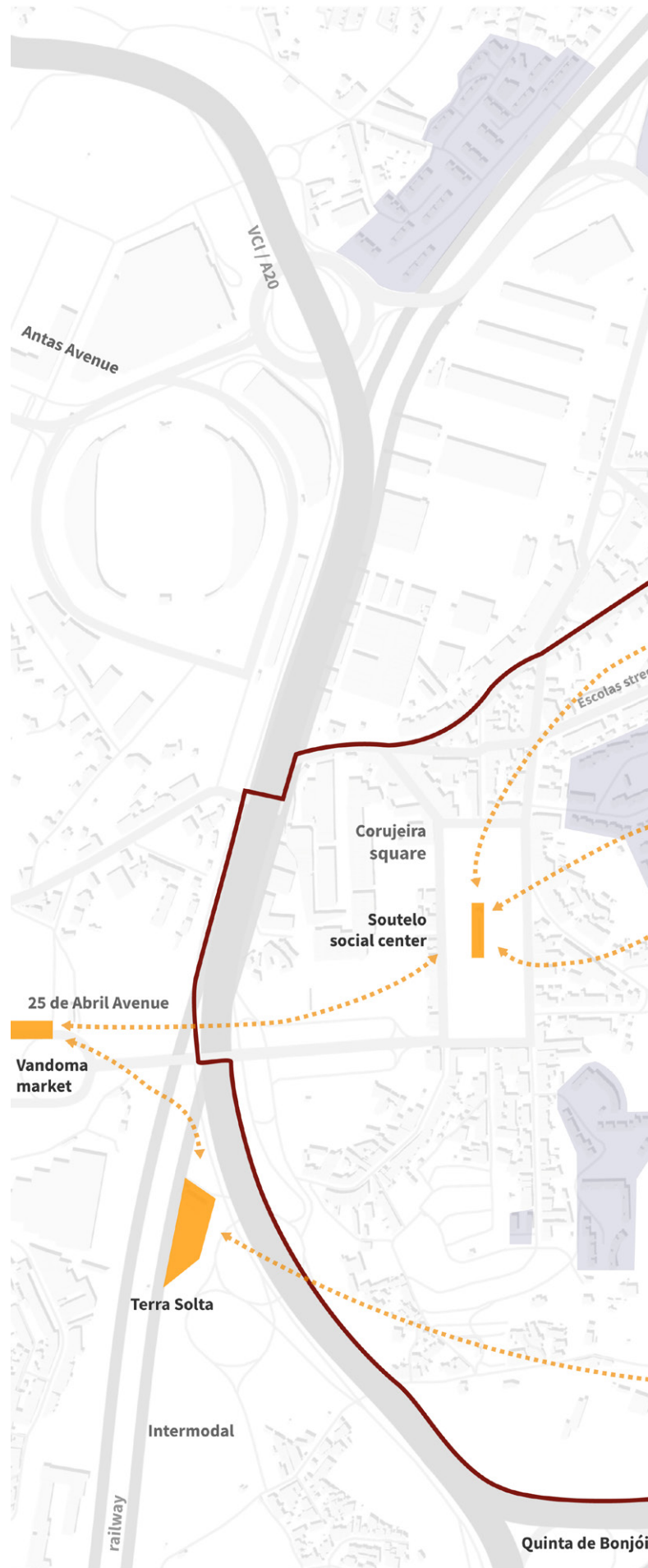
Figure 20. Map of the existing social economy and solidarity practices network.

The new NBS for social economy and solidarity practices aim to activate the public space in strong articulation with the institutions that are already established in the study area, such as APPC or Norte Vida.

Here, it is important to highlight two of these NBS proposals – “Community-based management urban garden” and the “Support structure to the Oriental City Park”. The first one will be the entrance of the healthy corridor, coming from Falcão neighbourhood, and the second can act as one important facility and entrance, near the new expansion of the Oriental City Park. In this sense, these two NBS are important connectors with the urban fabric.

The other two – “Campmarket” and the “Community mobile kitchen” – can happen in other places, but it will take advantage of the public space that is about to be created on the Healthy Corridor, namely the Falcão Square, in the old ruin of Falcão farm. All four ideas have the potential to promote a more active and livelier corridor and they can also contribute to a wider impact on the existing network of social economy and solidarity practices (Figure 21).

It is also important to point out that, during the co-creation process, some local associations were very keen on implementing these types of solutions and they realised the advantages from learning with URBiNAT, and vice-versa. Moreover, this triggered synergies with other associations and inhabitants for the collective purposes they were trying to achieve.



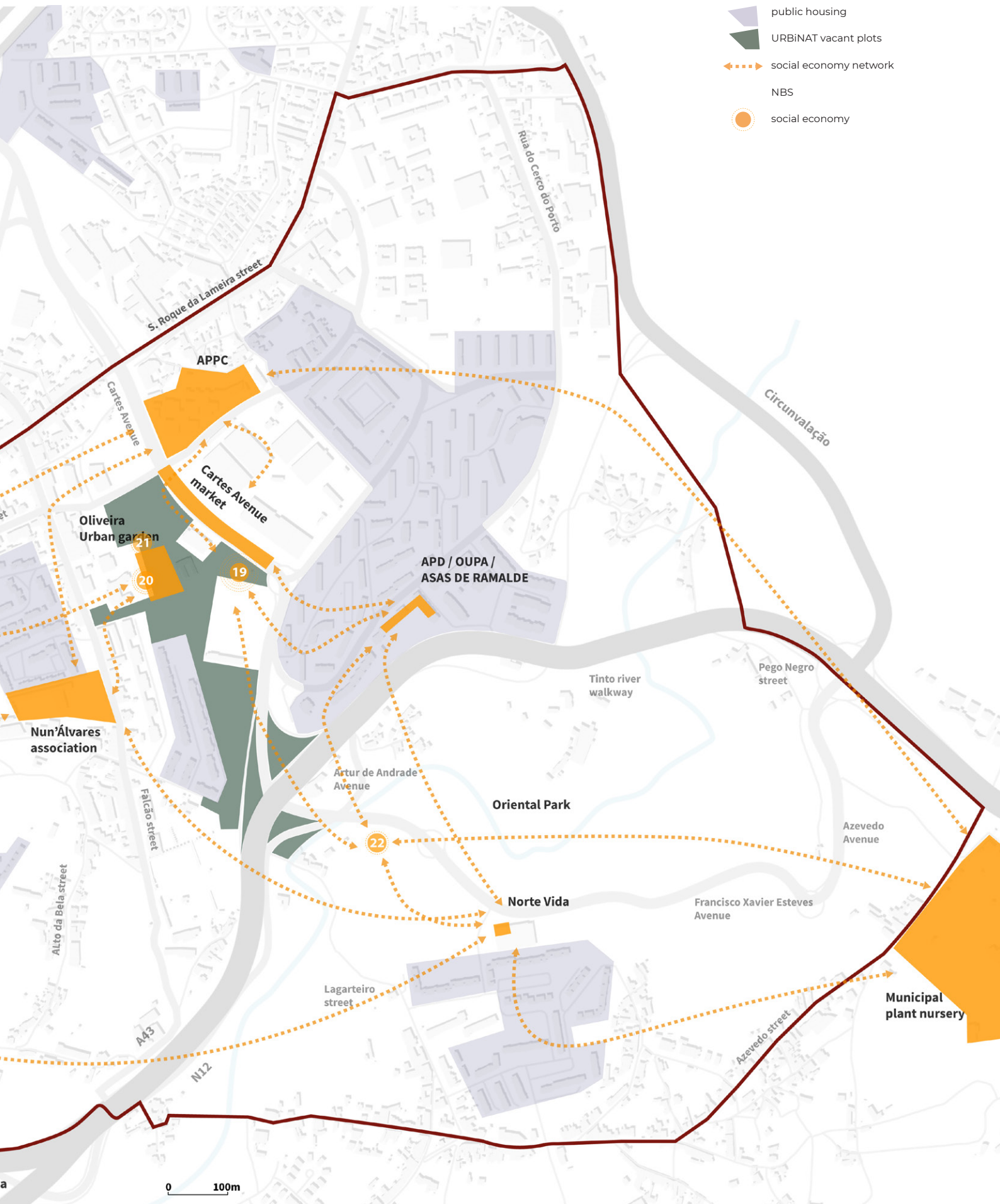


Figure 21. Map of the new social economy and solidarity practices network articulated with the new NBS.

Network of education and environment

As mentioned before, the six local primary schools involved in URBiNAT (all belonging to the same Group of Schools of Cerco do Porto) are well spread on the territory. This allowed for an interesting flow of participants, mostly school-age children, to actively participate in the project in specific moments in time.

This network was pivotal for URBiNAT ideas that were developed, as the group of schools has a considerable size and hold many different initiatives, upon which URBiNAT can grow, amplifying their impact in the community (Figure 22). Also, it is important to note that from November 2020 on, a room in the local high school has been temporarily granted to the project for purposes of activating the URBiNAT Living Lab.

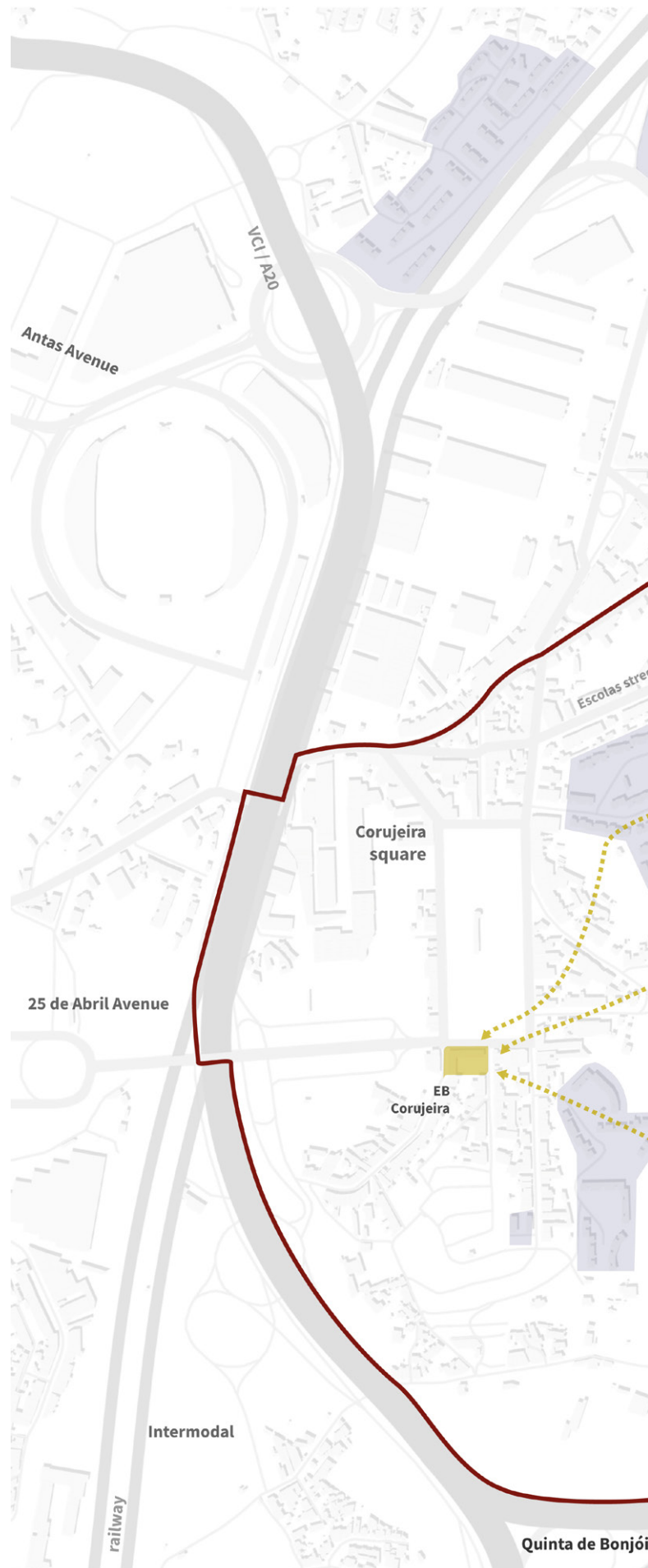




Figure 22. Map of the existing education and environment network.

Most of the so-called Education and Environment NBS are focused on improving the school premises (mainly interventions outside of the classrooms, such as the “Educational play equipment in the school’s playground”), while others are dedicated to the improvement of its surroundings (such as the “Educational Living lab”) (Figure 23).

For the design of the Healthy Corridor, it is also important to refer that some of the proposed ideas that arose from the activities developed with the school communities were considered as public space related solutions, such as the “Collective cleaning actions in public spaces”.

The solution “Pedagogical farming related initiatives in local schools” will be developed in the six primary schools under coordination of Group of Schools of Cerco do Porto in order to create a network pedagogical farming with different and complementary approaches (sensorial garden, vegetables, fruit, animals).

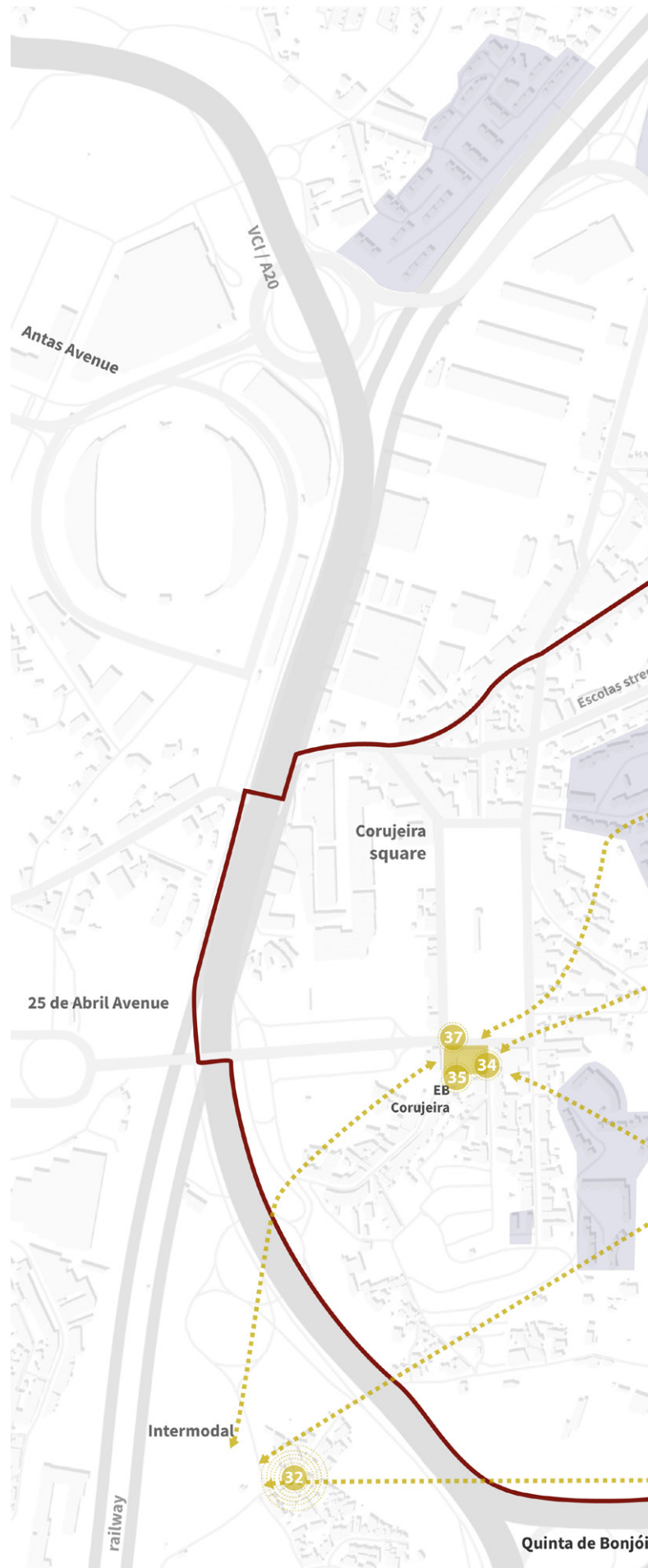




Figure 23. Map of the new education and environment network articulated with the new NBS.

5. Healthy Corridor Spatial Concept

5.1 Aims and Principles for intervention

The spatial concept for the Healthy Corridor is a result of the process explained in this document until this point. It took into consideration the information from the Local Diagnostic to the Co-design, including the continuous analytic process of finding smaller and more defined areas of intervention. The Healthy Corridor in Porto will be established at a multifunctional urban park that will feature a main corridor and will be composed by several nature-based solutions (material and immaterial, some existing in URBiNAT catalogue, others proposed by the participants along the co-creation – 3. Healthy Corridor NBS and (Figure 24). These solutions will address the needs and expectations identified in chapter 2.2. From the Co-diagnostic to Co-design. The project objectives are based on the organisation and design of a green park, in line with a programme that explores the following objectives:

- To design a public-access green park that is multifunctional, inclusive and a driver to improve quality of life for the local community;
- To design a green urban structure that fosters ecological dynamics and environmental quality;
- To develop a network of pedestrian and cycling routes that promote soft mobility;
- To create areas for resting, recreation, contemplation and meeting in an environment of high microclimatic comfort and safety;
- To create areas for social events and community initiatives;
- To underpin the functional and spatial cohesion of the urban network through connections to strategic points;
- To mitigate the visual, sensorial and environmental impacts of large road structures, namely the A43 motorway;
- To provide areas for educational outdoor experiences.

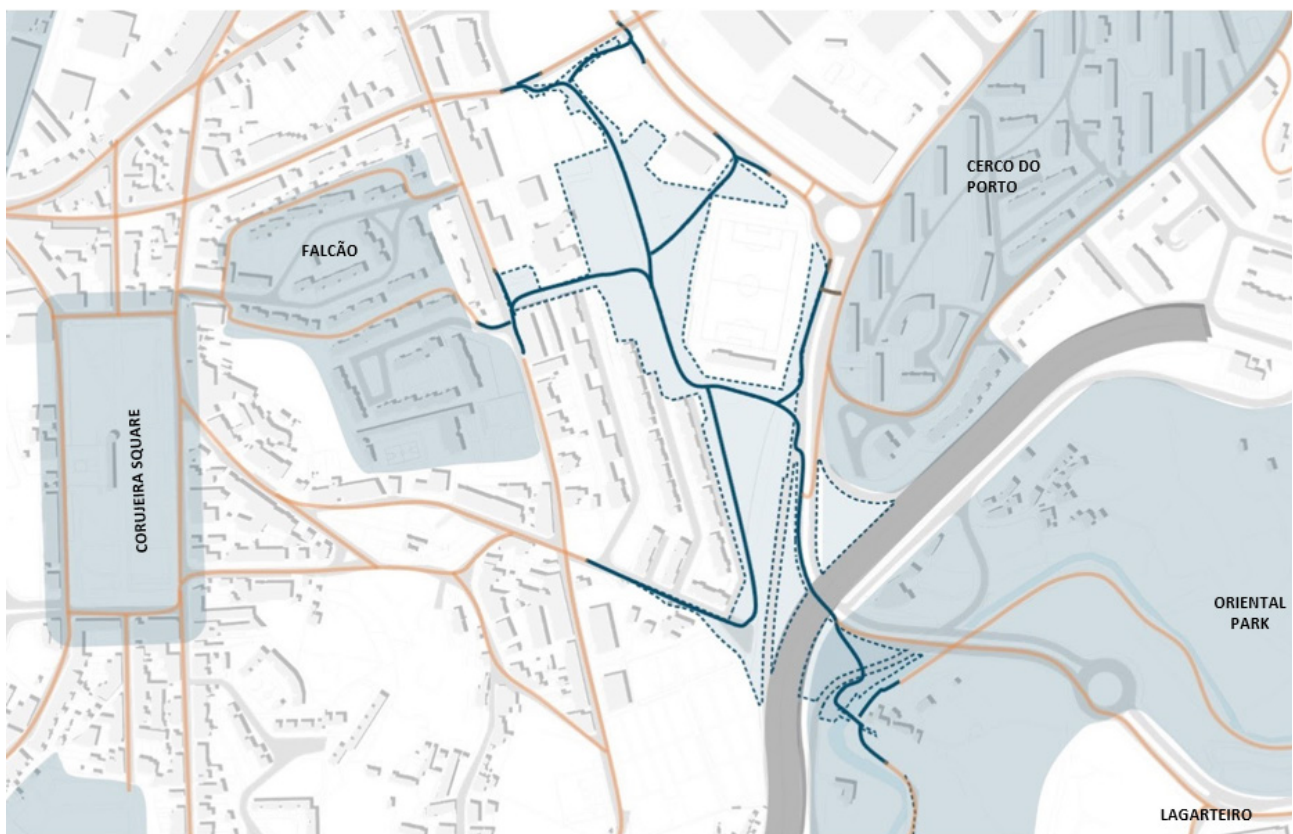


Figure 24. Spatial concept of the Healthy corridor.

The intervention area

The intervention area is composed of several plots of public land, with 4 hectares (Figure 25 and Figure 26). It is bordered by Falcão, Cerco do Porto and Lagarteiro municipal social housing

and also by the Oriental Park expansion areas. The area is marked by physical discontinuities generated by a topography of steep slopes and by the fragmentation imposed by the various road infrastructures over time.

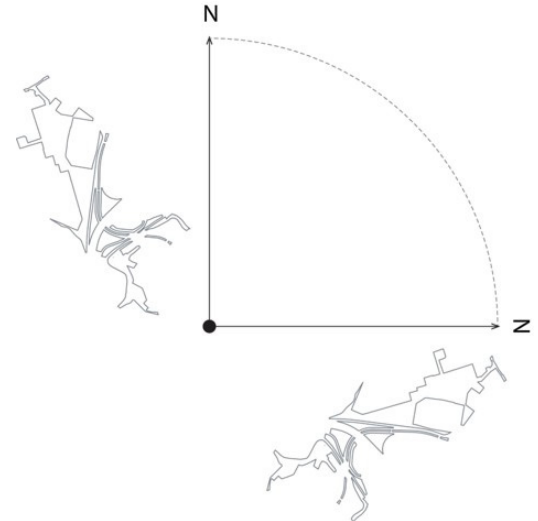


Figure 25. URBINAT's limits for the implementation of the Healthy Corridor in Campanhã Parish.



Figure 26. Relevant features for the implementation of the Healthy Corridor in Campanhã Parish.

This place plays an important role for the inhabitants in terms of pedestrian circulation, even though the current conditions show clear signs of urgent urban regeneration. The intervention area is composed by the following areas:



Figure 27. Plot near falcão; Main path; Oliveira urban garden.

1. Plot near Falcão primary school, currently a vacant lot surrounded by walls interfering with visibility between spaces and compromising pedestrian circulation;
2. Existing informal path connecting Avenida Artur de Andrade to Falcão street and all other facilities/residential units along the way (Oliveira urban garden, Falcão neighbourhood, Campanhã Cemetery, Cerco do Porto neighbourhood);
3. Oliveira urban gardens are part of the intervention area and the access is made through the path mentioned in the previous point;



Figure 28. Clearing near Oliveira Urban garden; Existing ruin; Connection to Municipal swimming pool.

4. Flat clearing on the lower level of the Oliveira urban garden with several informal paths and pre-existing walls that divide the space into terraces, as evidence of its agricultural past;
5. Ruin of old Quinta do Falcão, a complex of house and patio with interesting archaeological value that can be partially preserved, although it presents a safety issue since it is used for illegal activities.
6. Area with informal paths near Municipal swimming pool (Piscina de Cartes);



Figure 29. Clearing near Falcão housing; Avenida Artur de Andrade; Connection to Oriental Park.

7. Moderately sloped clearing in front of the Falcão neighbourhood, where there are several informal paths;
8. Permeable areas along Avenida Artur de Andrade, where topographic features generate a sense of discomfort as they amplify the perception of verticality;
9. Connection to Oriental Park expansion area, currently only possible through stairs.

Main uses of the intervention area:



Figure 30. Children walking to school; Inhabitant crossing the intervention area; Inhabitant walking his dog.

Main constraints of the intervention area:

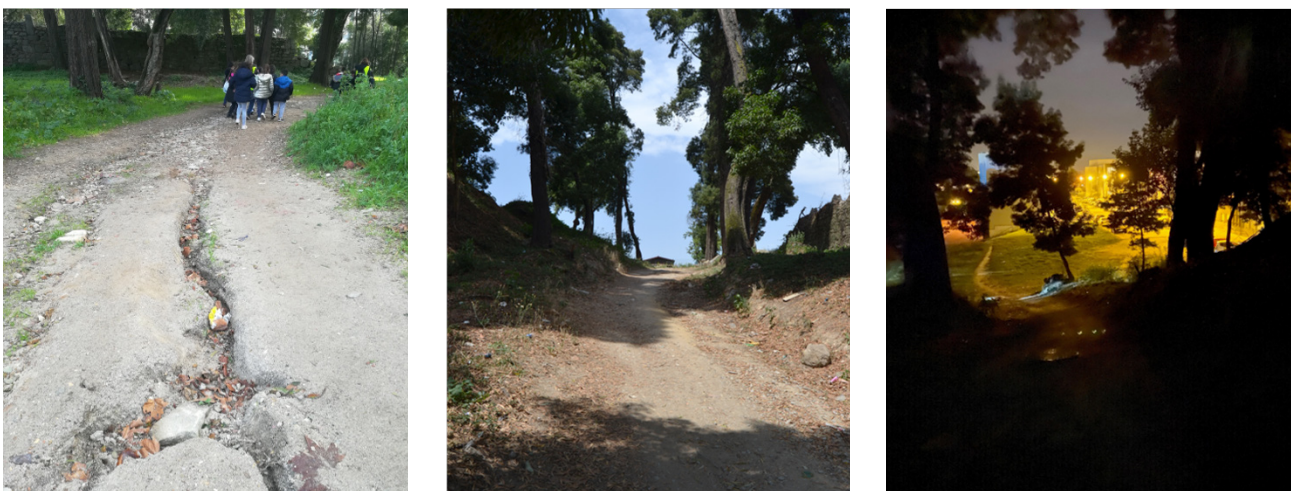


Figure 31. Pavement conditions (worst in winter); Extreme slopes in some parts of the path; Lack of light in the intervention area.

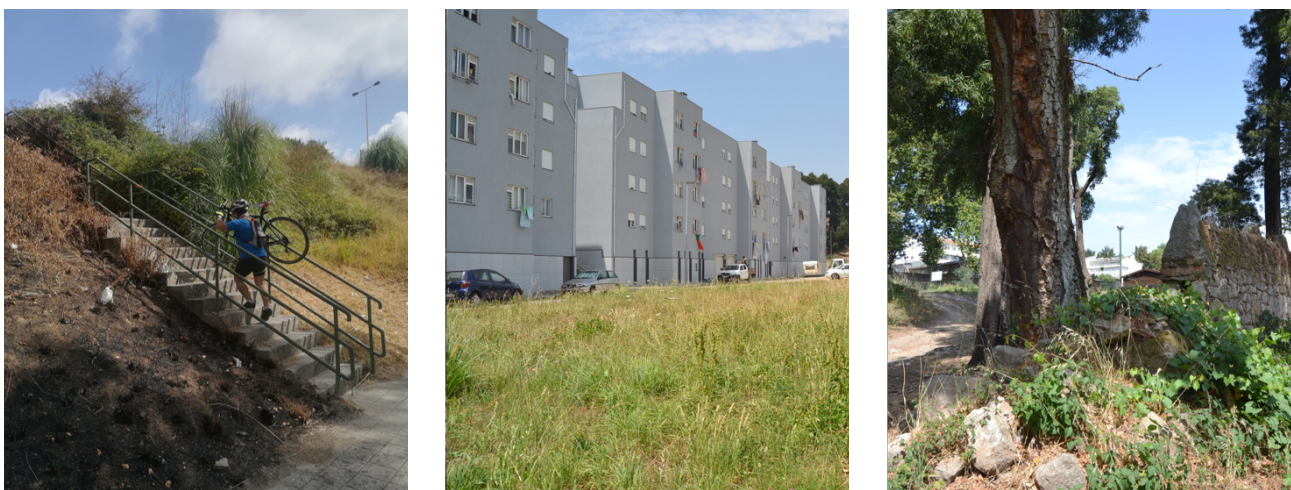


Figure 32. Architectural obstacles to pedestrian/cyclable mobility (many inaccessible paths); Lack of vegetation to balance exposure and bioclimatic comfort; Lack of sitting areas.

5.2 Healthy corridor as a cluster of NBS

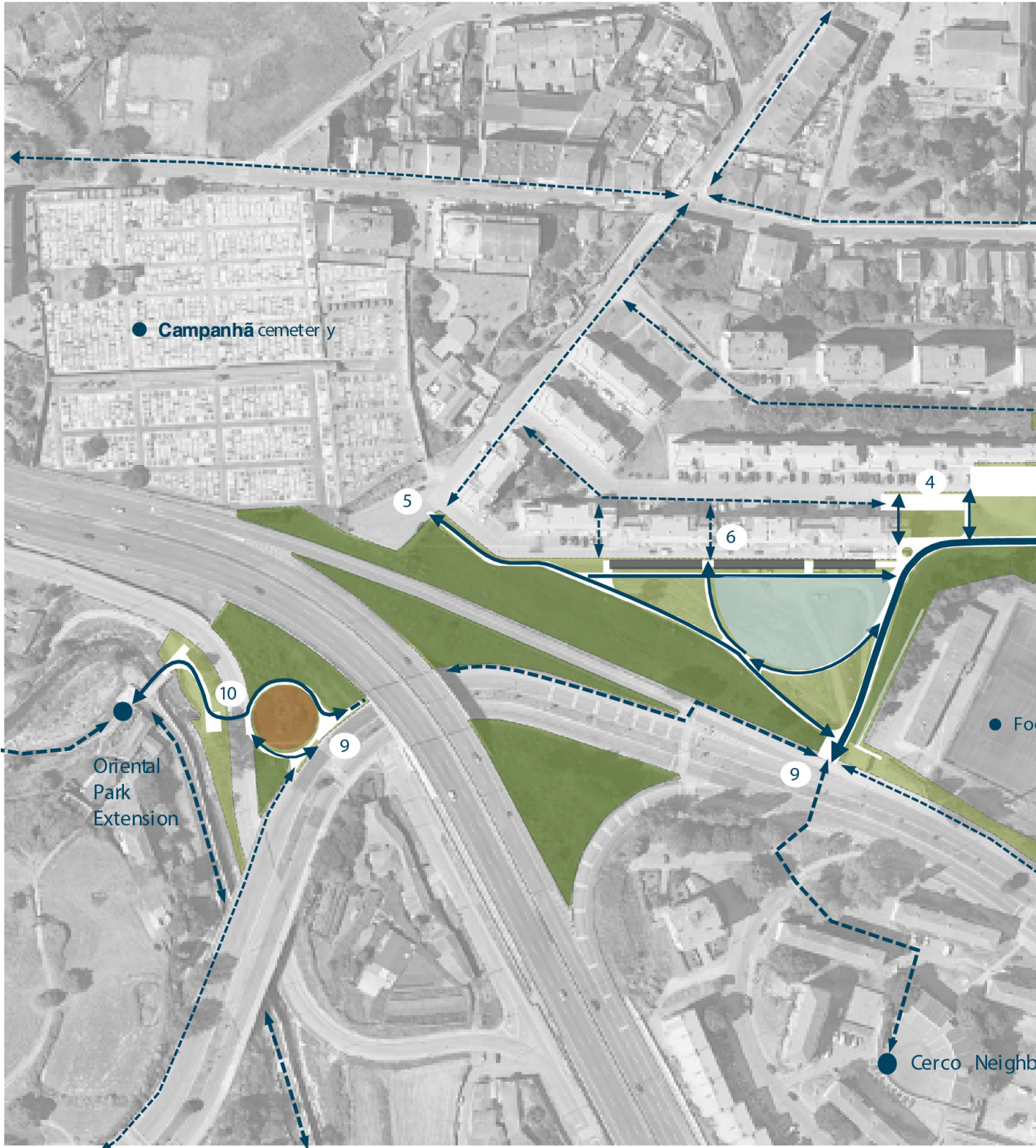
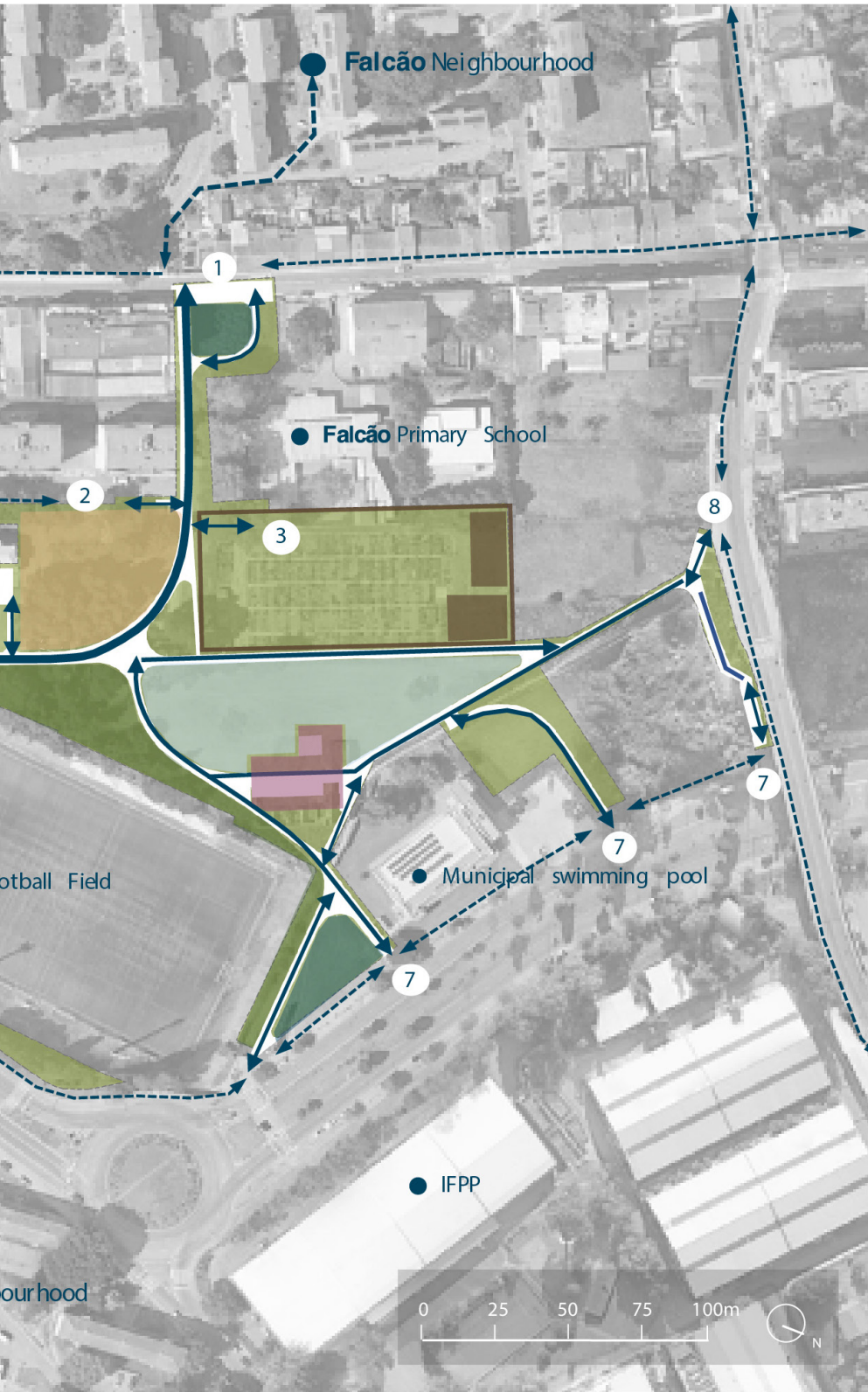


Figure 33. Conceptual plan for the spatialization of the Healthy Corridor.



Functional zoning

- Shaded resting area
- Sports and leisure area
- Framing native woodland
- Vegetable garden extension
- Internal pedestrian network
- External pedestrian connections
- Market and other temporary events
- Ornamental garden with sitting area
- Panoramic garden
- Parking lot

Urban connections

- ① Main entrance from Falcão street
- ② Access from C. Pego Negro street
- ③ Oliveira Urban Garden
- ④ Access from Reinaldo Oudinot street
- ⑤ Access from Monte de Campanhã street
- ⑥ Access from Ana Plácido street
- ⑦ Access from Alameda de Cartes
- ⑧ Access from Emílio Biel street
- ⑨ Access from Avenida Artur de Andrade
- ⑩ Access from Estrada da Circunvalação

The intervention is based on the development of a cohesive landscape. To this end, the following design principles are being embedded in the project (Figure 33):

- Inclusion and preservation of existing constructions in granite masonry, as a way of reconciling with the memory of the place;
- Preservation of natural values, namely the existing cork oaks;
- Enhancement of the ecology, by maximising rainwater infiltration in situ, minimising impermeable structures, improving soil conditions and implementing a diverse and resilient green structure;
- Optimisation of pedestrian and cycling routes, through more gently sloping paths, developed in line with the limitations and opportunities provided by the topography;
- Fostering of a sense of security inside the space, by removing visual barriers to increase visual depth along paths;
- Mitigation of steep slope's erosion and instability through the removal of large

embankments and the re-profiling of the most inclined slopes.

Inside this systemic approach proposed for the intervention area it is possible to identify opportunities for the proposals created during the participatory activities with citizens, and then developed with the local taskforce, municipal technicians and elected people. This conceptual plan ensures the conditions for some of these proposals to be implemented, such as outdoor spaces for physical activities, clearings for solidarity markets and even creates outdoor opportunities for learning by providing conditions for a local education living lab. Besides those proposals, the territory itself revealed the need for other territorial nature-based solutions, such as autochthonous urban forests, slope stabilizations and drainage systems. These needs (Figure 33) were identified by the extensive set of diagnostic analysis performed during the co-diagnostic and co-design phase.

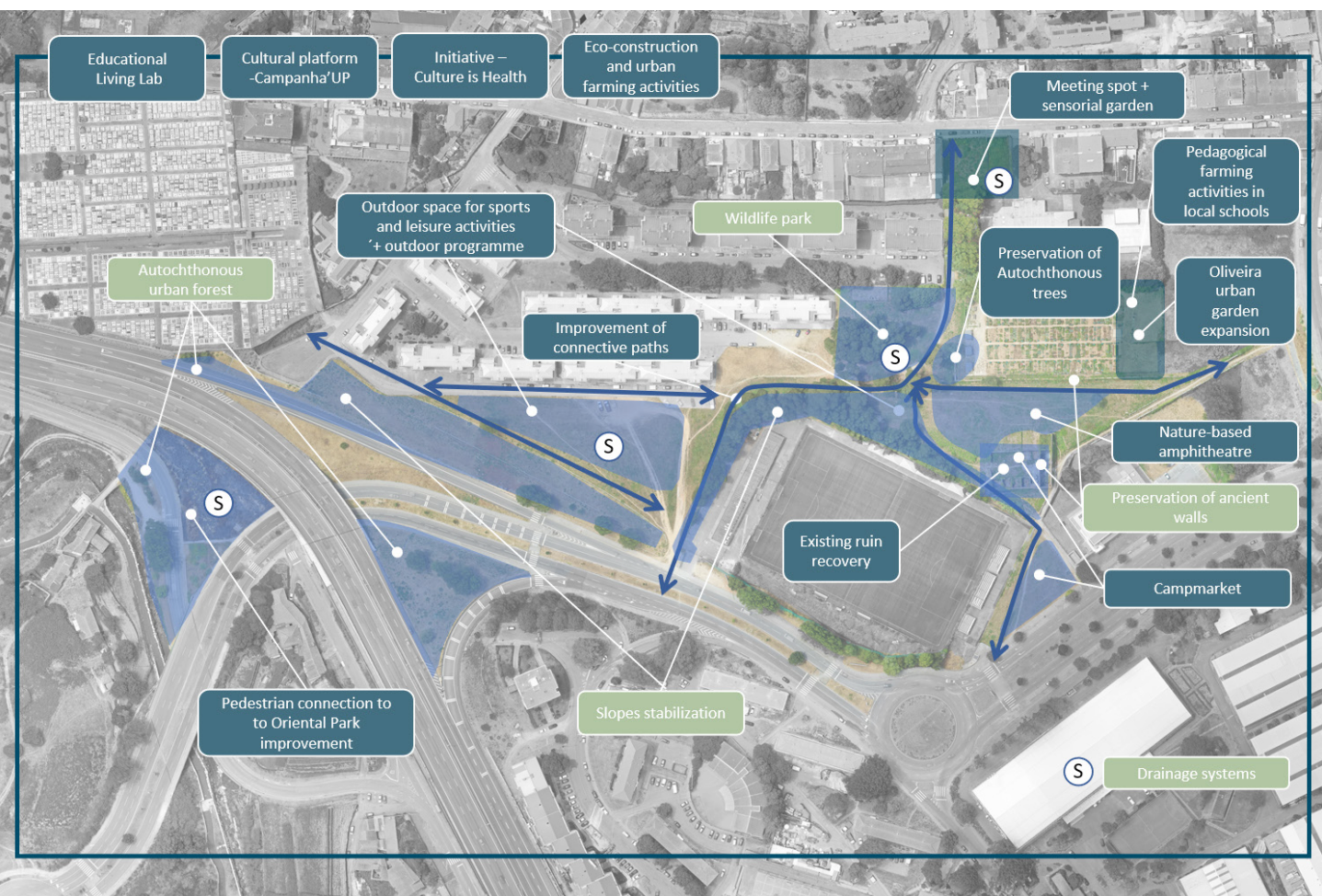


Figure 34. Territorial Nature-based solutions in the intervention area and proposals from the participatory activities.

5.3 Healthy corridor main areas



Figure 35. Urban project intervention area main areas.

A) Meeting spot next to Falcão Primary School with sensory garden – This area has the potential to serve as an important entry in the intervention area as well as to create a meeting point to serve the school entrance, as desired by the participants in participatory activities.

By removing the existing walls, the pedestrian connection and spatial intervisibility can be improved. A relevant constraint is the existing topography, resulting in a 4-meter difference to Falcão street.



Figure 36. Current state of the plot and handmade drawings exploring the design solution.

B) Outdoor space for leisure and sports activities – Flat clearing near Oliveira urban garden that will be transformed into a multifunctional space for outdoor leisure and sports activities. For this purpose, the design team is taking into consideration the existing topography and the right plating design to provide areas of light and shadow for different

types of activities, in different moments of the day, as alerted by the citizens during the workshops. The participants also mentioned the desire to see these outdoor opportunities for physical exercise as part of the global intervention, valuing its level of informality and multifunctionality.



Figure 37. Current state of the plot, handmade drawings exploring the design solution from the design team and some images with the result from the co-design workshop with citizens.

C) Existing ruin of Falcão farm recovery – The existing ruin of “Quinta do Falcão” is constituted by house and courtyard in an advanced stage of physical degradation transformed today in a precarious settlement for homeless and drug consumers.

socio-economy NBS, namely a nature-based amphitheatre and a solidarity market – Campmarket. The strategy agreed proposes the partial demolition of the existing structure in order to create a public space that preserves the main spatial qualities of the building memory. It also contributes to the mobility of the area and to the implementation of new NBS of the healthy corridor.

It is part of the local collective memory as was demonstrated in the participatory activities of the co-design phase, when were raised several proposals to use the space with cultural and



Figure 38. Current state of the ruin, handmade drawings exploring the design solution from the design team and and some images with the result from the co-design workshop with citizens.

D) New entrance in the park – Near municipal swimming pools, it will be possible to create a new entrance in the park, through a clearing that is deeply connected to the existing ruin. The intervention in both these spaces can address the need related to providing new

areas for temporary events and community activities, such as the Campmarket. The area is being designed to hold these and other events, as a multifunctional space but also to improve pedestrian connections, as developed with citizens during the workshops.



Figure 39. Current state of the plot, handmade/digital drawings exploring the design solution, from the design team and an image with the result from the co-design workshop with citizens.

E) Wildlife park near main path – Through terrain modelling and planting design, this area can be recovered and integrated in the park. Its

management and planting scheme will promote autochthonous species and allow for the establishment of natural ecological processes.



Figure 40. Current state of the plot and handmade drawing exploring the design solution.

F) Preservation of existing memory – Intention to preserve as much as possible existing structures, namely granite walls, as respect for their connection to the rural past of the territory. Also, the rocks that are now part of the

ruin can be relocated and used to create new paths, walls, and paved areas. This was a very important topic for the participants present in the workshops, mainly the ones with deeper connections to Campanhã.



Figure 41. Current state of the plot and handmade drawing exploring the design solution.

G) Pedestrian improvement – The Healthy corridor will mostly improve pedestrian circulation as it is one the most urgent needs identified by all the actors involved. Existing connections will be formalized and improved in terms of pavement, slope and intervisibility.

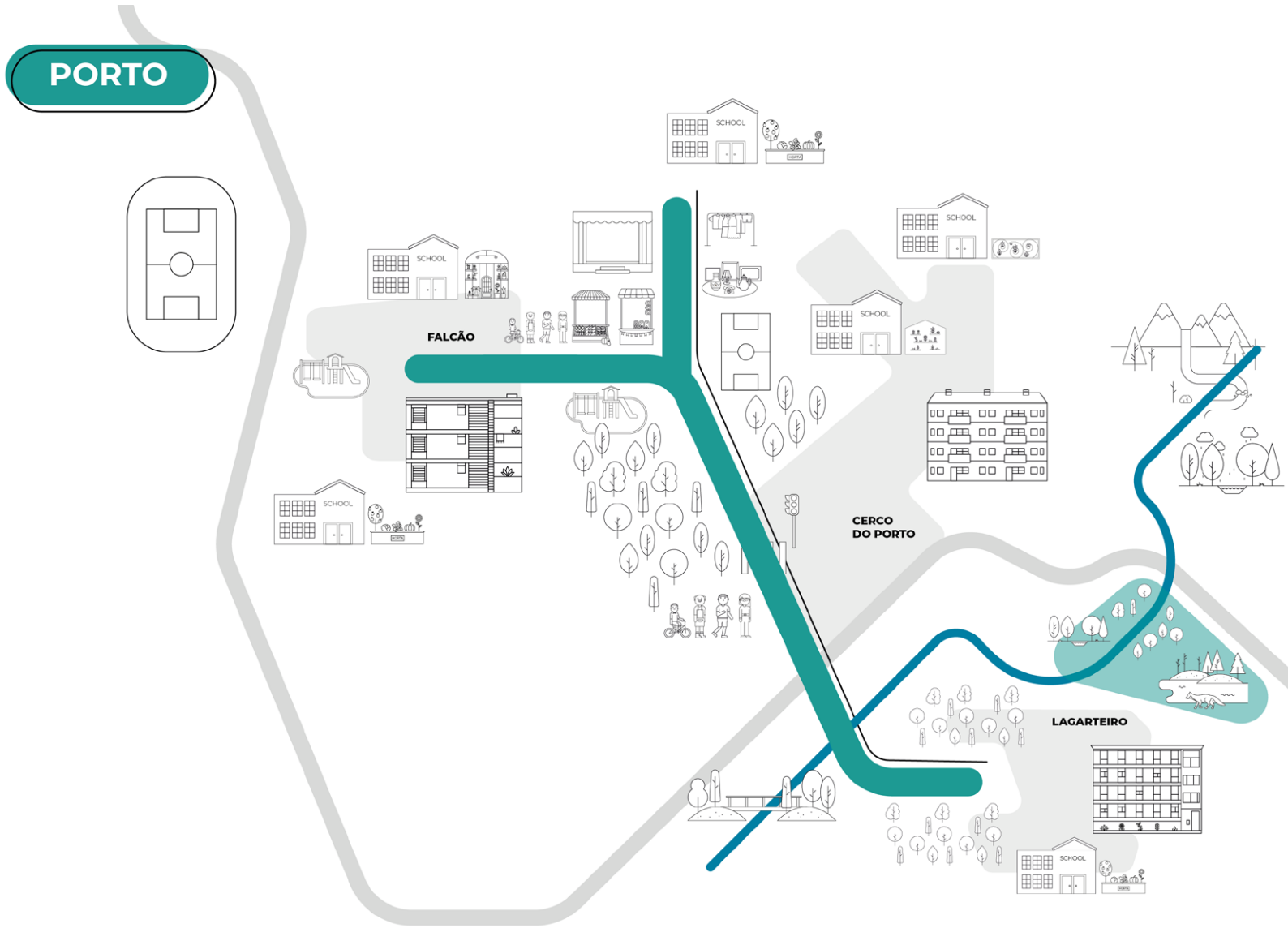
New connections will be created to solve inaccessibility issues and architectural obstacles. This will improve local urban regeneration and allow for the Healthy Corridor to relate with the surrounding territory (facilities, parks, housing units, schools and many others)



Figure 42. Current state of the plot that connects to Oriental Park and handmade drawing exploring the design solution.

6. Porto Healthy Corridor

6.1 Healthy Corridor Conceptual Diagram / Vision



6.2 Main achievements and next steps

Based on the important steps taken so far by the URBiNAT project, the main achievements are hereby resumed, followed by the steps that will compose the next phases – co-implementation and co-monitoring:

- Clear definition of the correlation between identified needs and the co-design proposals;
 - Engagement of 500 children and 200 adults during activities in primary schools, in public spaces and presential/online workshops, resulting in 38 NBS proposals;
 - Acquisition of key diagnostic data focused on the intervention area;
 - Systematization of proposals into operative categories, with involvement of all actors – citizens, local associations, schools, municipal technicians, political representatives and URBiNAT technical team;
 - Organization of the 38 NBS proposals in 3 categories: 22 NBSs proposals will be integrated in the Healthy Corridor plan; 13 NBSs were channelled to other municipal projects; and 3 will not be developed. In this sense, URBiNAT will develop 58% of the proposed NBSs, while 34% will (potentially) be considered in future projects;
 - Stabilization of a Conceptual plan for the Healthy Corridor, officially approved by all the involved actors, that will convert 4 hectares of vacant lots into a Healthy Corridor, based on four types of NBSs – Public space and nature; Culture and Sports; Social economy and solidarity practices;
- Education and environment – and connect the neighbourhoods of Falcão, Cerco do Porto and Lagarteiro;
- Establishment of important synergies with other municipal departments and projects for further integration of the co-created NBSs;
 - Establishment of a working local Task Force that is active and committed in the role of implementing URBiNAT beyond its lifetime;
 - Establishment of an important commitment and investment by Porto Municipality in the Healthy Corridor, by covering the needed costs for the implementation of the Healthy Corridor, beyond the available budget from URBiNAT, guaranteeing its full potential.

Next steps – Co-implementation and Co-monitoring:

- Further development of the conceptual plan for the Healthy Corridor into a more complete urban project (Deliverable 2.4);
- Further development of the immaterial solutions categorized as to be developed under URBiNAT, through close articulation with municipal departments and local citizens and associations;
- Further development and creation of a stakeholder advisory board, constituted by citizens, associations, URBiNAT taskforce and municipal technicians and representatives in order to develop and implement the NBSproposals, named “Comissão de Acompanhamento”.

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Annex

This annex organizes the NBS proposals co-designed with citizens according to the NBS Card template developed in the frame of deliverable 4.1, as NBS Friendly Card. This template includes the decisions taken on the development of NBS, according to the analyses of the NBS developed by the task force, the municipality and the citizens.

In this sense, the template is organised in 6 topics and integrates the content systematized by the taskforce in several stages, taking in consideration the outputs of the workshops and meetings with citizens and municipal technicians and representatives:

- 1 – Title
- 2 – Description
- 3 – Positive aspects/challenges

4 – Participation process to develop the NBS

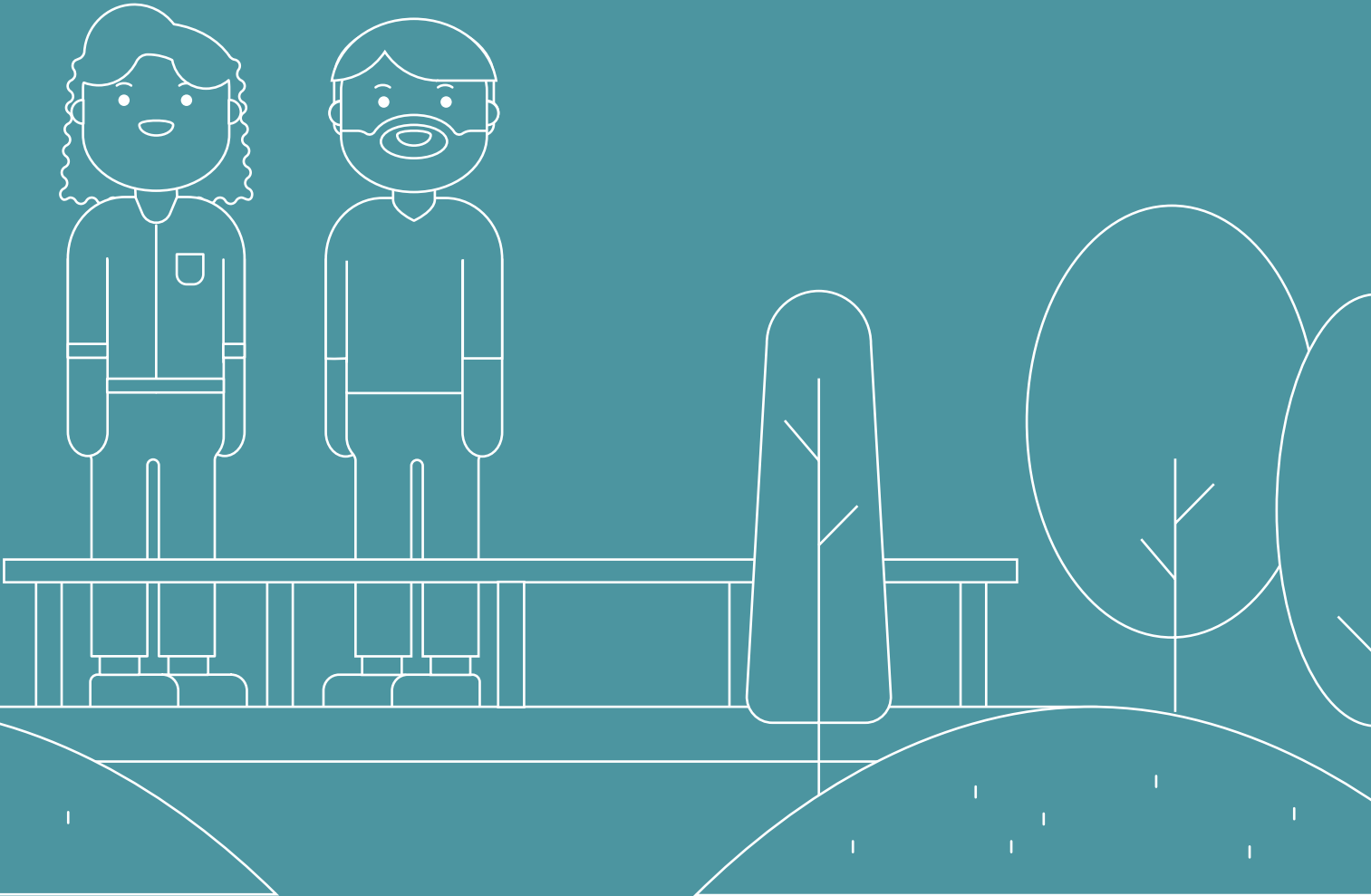
- Co-diagnostic – integration of the analyses developed in subchapter 2.2 From co-diagnostic to co-design

- Co-selection and co-design – integration of the systematization of participatory activities organised in subchapter 2.1 – Co-creation chronology and also the state of the art in terms of its current development.

5 – Best Practices and References

These cards offer a detailed description of each NBS including the participatory process and the decision-making process (see chapter 3 Healthy Corridor NBS). These cards will be developed in the next reports according to the developments taken under the co-implementation and co-monitoring stages.

Public Space





01. Outdoor Space for sports and leisure activities

(Ágora/CMP) that promote Tai Chi, Yoga, Pilates classes in various parks in the city; *Domingos em Forma* (“Sundays in form”), one of the AIIA program (DMCS/CMP); and, more recently, the programme *Desporto no bairro* (“Sport in the neighbourhood”).

CHALLENGES

- Need of a flat and shaded area in the intervention area, where the topography is currently very complex and heterogeneous.

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for green areas and its connection to leisure and sports activities was identified through several methods and activities developed during the local diagnostic.

CO-SELECTION & CO-DESIGN

The proposal of “outdoor space for physical exercise” was proposed by Alberto, a yoga teacher resident in the study area and co-designed during several participatory activities:

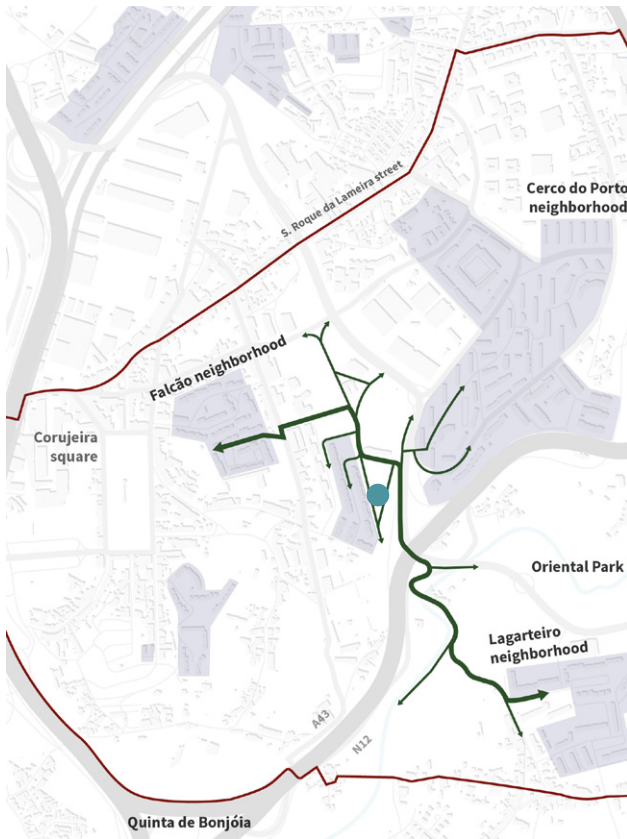
- Citizen workshop with adults (15.01.2020)
- Face-to-face interview with local facilitator (15.01.2020)
- Citizen’s video (26.06.2020)
- Workshop with citizens and municipal technicians (14.07.2020)
- Online workshop to co-design four NBS (07.11.2020)

State of the art: The proposal is already integrated in the healthy corridor preliminary study as part of multifunctional clearings.

Best Practices and References

Porto Oriental and Occidental park, design by Sidónio Pardal

Asprela Park, designed by Paulo Farinha Marques and José Miguel Lameiras, et al.



Description

Proposal to create a green space that favours the development of physical and recreational activities (namely Yoga and meditation). This outdoor space is also intended to be used for other purposes, such as board and traditional games.

Positive aspects/challenges

POSITIVE

- Promotion of sports and leisure activities and a more physically active population in the study area;
- Contribution to increase the appropriation of the public space;
- Consistent with ongoing local programs or initiatives organized by the Municipality of Porto, namely the municipal company *Agora – Cultura e Desporto do Porto, EM*, with the possibility to create synergies namely with: *Dias com Energia* (“Days with energy”)

02. Improvement of connective path between neighbourhoods and facilities



Description

This proposal aims to improve existing pedestrian paths that are widely used by the population to reach Cerco do Porto / Falcão / Lagarteiro / Campanhã cemetery / Falcão Primary School/ Oliveira urban garden and others. The existing main path is not formalised, performing as an obstacle and source of insecurity for pedestrians. At the same time, the frequency of use by the residents proves the importance in their daily lives as a pedestrian connection.

Positive aspects/challenges

POSITIVE

- Formalize and requalify a daily route used by the population that currently does not meet the conditions of safety or comfort;
- Opportunity to improve lighting, urban furniture and maintenance of the path and surrounding areas;
- Ensure universal mobility issues. In the intervention area there are several associations that represent users with some type of disability, whose accessibility to some services is restricted due to the path;
- Possible synergy with other citizens ideas as well as with existing projects: Viewpoint reformulation next to Campanhã Cemetery; Meeting spot next to Falcão Primary School.

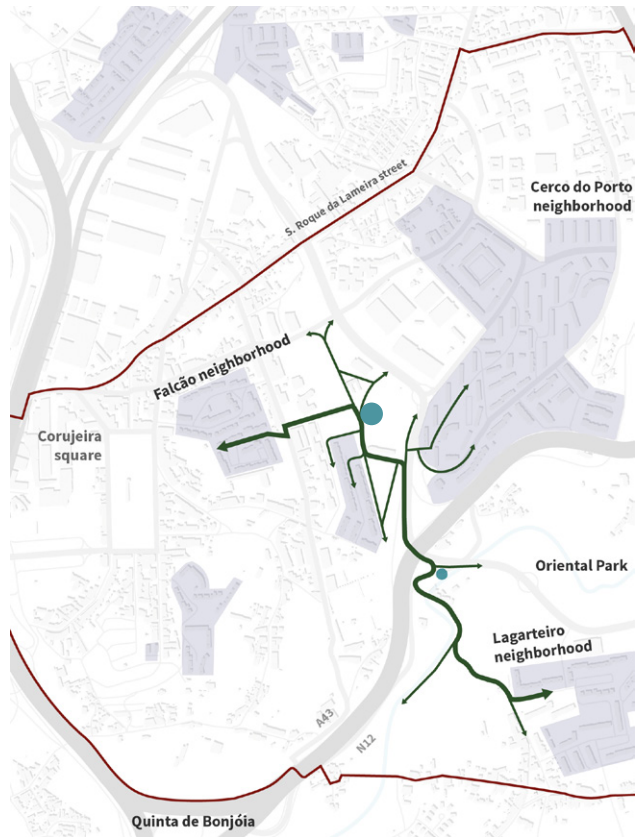
CHALLENGES

- Existing topography (not possible implement maximum regulated slope values in some parts of the paths);
- Articulation with the Mobility Municipal Strategy.

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for more accessible paths for all citizens and better conditions of pedestrian paths and new connections were identified by methods and during participatory activities.



CO-SELECTION & CO-DESIGN

The Intervention in accesses and pedestrian connections was proposed by several participants during the co-design activities and is being tested by the design team:

- Walkthrough with children from 4 primary schools (Dec. 2019/Jan.2020)
- Walkthrough with adults (14.12.2019)
- Citizens workshop with adults (15.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal is already integrated in the healthy corridor preliminary study, improving existing informal paths and creation of new ones.

Best Practices and References

Rio Tinto pathway, designed by Sidónio Pardal



03. Meeting spot next to Falcão Primary School with sensory garden

Positive aspects/challenges

POSITIVE

- Give a new purpose to a vacant lot, by including it in the urban system;
- Mitigate spatial fragmentation;
- Opportunity to improve the reception area of Falcão Primary School;
- Opportunity to Improve pedestrian access along the lot, used by residents/students of the school, residents and users of the Oliveira Urban Garden;
- Possibilible synergy with a sensory garden and with play areas for children.

CHALLENGES

- Constraints in terms of existing topography (4 meters topographic difference);
- The complexity of the proposal is limited by the overall project budget.

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for resting areas and areas for community' socialization and entertainment opportunities in the entrances of the schools, namely in Falcão Primary School, was identified in several workshops and methods during the local diagnostic.

CO-SELECTION & CO-DESIGN

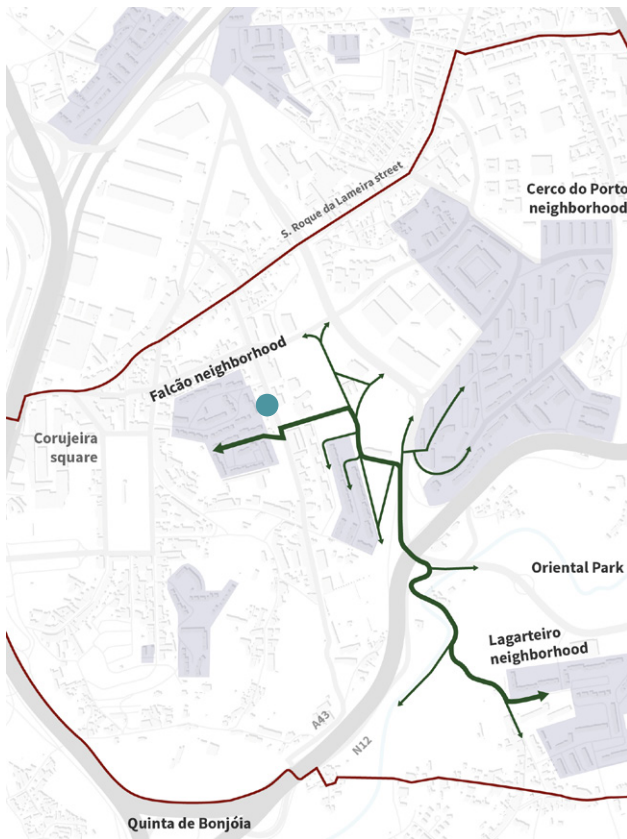
The Meeting spot next to Falcão Primary School with sensory garden was proposed by children and teachers of that same school and developed with other participants in several activities:

- Walkthrough with children of 4 primary schools (Dec. 2019/Jan.2020)
- Walkthrough with adults (14.12.2019)
- Citizens workshop with adults (15.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal is already integrated in the healthy corridor preliminary study.

Best Practices and References

N.A.



Description

The proposal refers to a vacant lot next to the Falcão Primary School with the goal of transforming it into a space for socializing and reception for students/families. Falcão Street has no shade or conditions for the accumulation of so many people as seen during the morning (when school starts) and in the afternoon (when school ends). The space next to the school could help to improve better reception conditions, host a playground, physical exercise equipment and/or a sensory garden (with shared maintenance with school students). This intervention aims to improve the relationship between the school and the community and achieve social cohesion.

04. Nature-based amphitheatre

Description

The proposal foresees the creation of an open-air amphitheatre to stimulate daily use for recreational, sports and cultural activities. This amphitheatre could be built through terrain modelling, taking advantage of existing topography, therefore creating a natural amphitheatre. It would contribute to social and cultural dynamization of the public space within the intervention area.

Positive aspects/challenges

POSITIVE

- Integration in cultural programs in the intervention area;
- Role in public space activation with territorial impact (transformation);
- Possible synergy with other citizens ideas: Cultural platform (campanh'up) and Initiative "Culture is also health";
- The use is compatible with other planned studies and initiatives.

CHALLENGES

- Development of specific terrain modelling studies
- Ensuring that the structure does not promote fragmentation or compromise range vision;
- Need for regular cleaning and maintenance

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for community spaces for Socialization and entertainment opportunities were identified in the co-diagnostic activities and methods.

CO-SELECTION & CO-DESIGN

The Amphitheatre was proposed by a group of artists, namely Ricardinho Lopes and Marco, association OUPA and then developed in several participatory activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face interview with local facilitator (22.01.2020 and 13.02.2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)
- Online workshop to co-design four NBS (07.11.2020)



State of the art: The proposal is already integrated in the healthy corridor preliminary study.

Best Practices and References

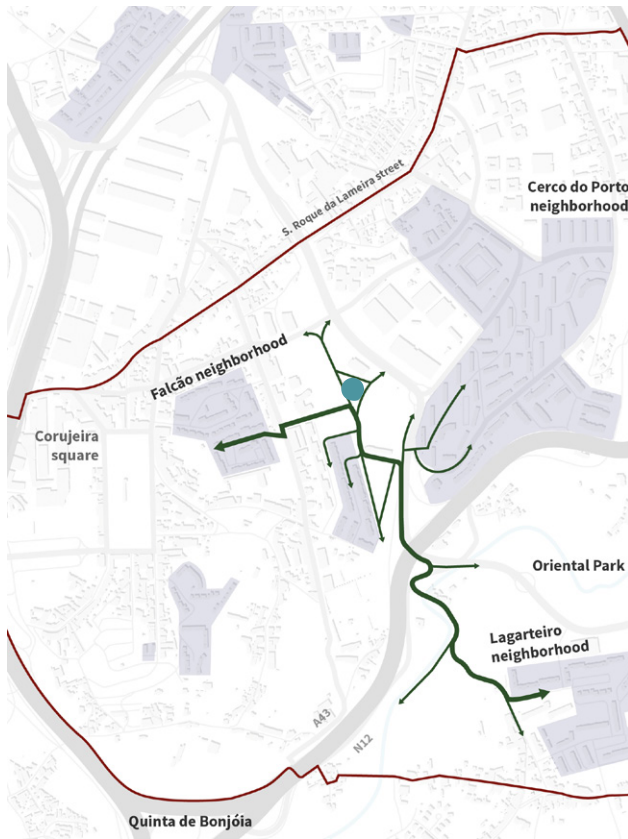
Porto nature-based Amphitheatres in the Oriental and Occidental Park, designed by Sidónio Pardal

Siena urban garden in San Miniato, with an amphitheater in the little forest for concerts.



05. Existing ruin recovery

- Enhance cultural heritage of Campanhã;
- Possible synergy with other citizens ideas as well as with existing projects: Artistic hangar; Nature-based amphitheatre, Educational Living Lab, Cultural Platform, Outdoor Space for Physical Exercise, Campmarket.



CHALLENGES

- Building is not classified urbanistically or under classification;
- Ruin is in an advanced state of degradation, revealing potential danger of collapse; the building current conditions do not guarantee safety conditions for any type of occupation/use. Deep rehabilitation works are needed to ensure safety conditions for occupation and/or use;
- Current occupation for the consumption of narcotic drugs and possible practices of illegal activities;
- The reconstruction of the ruin cannot be supported by the URBiNAT, requiring external investment.

Participation process to develop the NBS

CO-DIAGNOSTIC

The need to respect existing memory and to create community spaces for Socialization and entertainment opportunities was identified in the co-diagnostic activities and methods.

CO-SELECTION & CO-DESIGN

The intervention in the existing ruin was proposed by Carlos, association Visões Úteis, and then developed in several participatory activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face interview with local facilitator
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)
- Online workshop to co-design four NBS (07.11.2020)

State of the art: The proposal is already integrated in the healthy corridor preliminary study. Unfortunately, there are no conditions for the total reconstruction of the building, within the scope of URBiNAT, but the rehabilitation and integration of the ruin in a safe and respectful way is possible.

Description

The proposal intends to intervene in the existing ruin of old Quinta do Falcão house, to preserve the memory of Campanhã's farms, and rural past. The intervention also aims to solve its current conditions that are a source of insecurity for pedestrians crossing nearby. The space, once recovered, could hold artistic and cultural temporary events.

Positive aspects/challenges

POSITIVE

- Opportunity to solve a problem that influences local dynamics, and compromises the security of citizens;
- Recover/respect rural matrix of the former "Quinta do Falcão", an historic building recognized by the agricultural background of the area;
- Take advantage of this space to receive new activities/events;

06. Pedestrian connection to the Oriental Park

Description

This proposal aims at the reformulation of the access stairs to the Oriental Park. Currently this connection is not accessible to all citizens and the existing slope compromises pedestrian safety and intervisibility between spaces. The surrounding green space also requires more frequent management.

Positive aspects/challenges

POSITIVE

- Enable access for all (including for users with reduced mobility);
- Better integration of Rio Tinto walkway in the urban environment (connection to neighbourhoods and housing).

CHALLENGES

- Involvement of other entities for specific approval (IP – *Infraestruturas de Portugal*).

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for more accessible paths for all citizens and better conditions of pedestrian paths and new connections were identified during several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Pedestrian connection to the Oriental Park was proposed by several participants during the co-design activities:

- Walkthrough with adults (14.12.2019)
- Citizens workshop with adults (15.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal is already integrated in the healthy corridor preliminary study.

Best Practices and References

N. A





07. Oliveira urban garden expansion

The entity confirms the need for expansion due to the existence of citizens waiting to obtain agricultural plots.

CHALLENGES

- Expansion is limited by available area (19 plots). Not possible to expand over existing limits given the fact that Campanhã is not one of the parishes with more requests within the scope of *Horta à Porta* project, therefore, it is not a priority area for the expansion of municipal urban gardens;

Participation process to use the NBS

CO-DIAGNOSTIC

The need for Community spaces and Qualified green areas for urban agriculture and gardening, namely with the expansion of Oliveira urban garden was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Oliveira urban garden expansion was proposed by several participants, namely by the users Alberto Rocha, Adelaide Pina, and Associação Nun' Álvares during co-design activities:

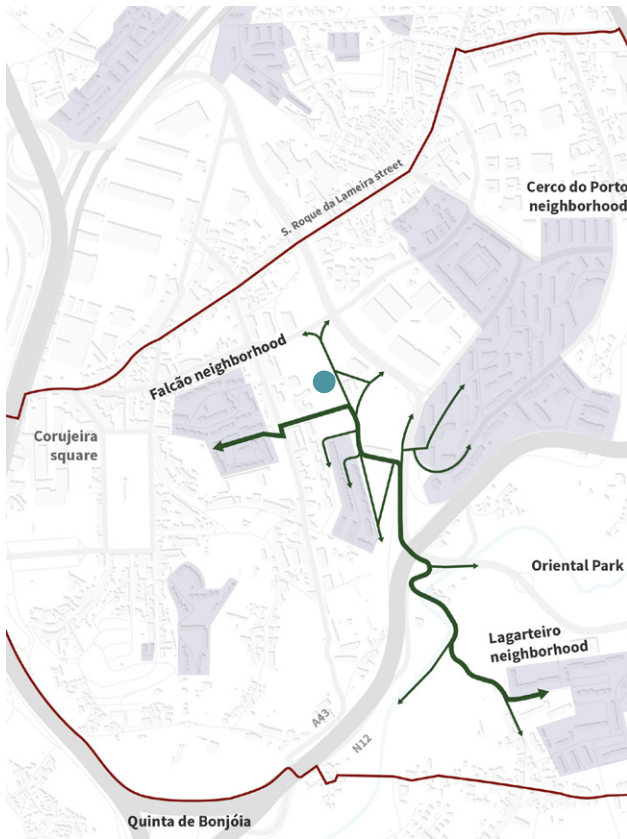
- Walkthrough with adults (14.12.2019)
- Citizens workshop with adults (15.01.2020)
- Face-to-face interview with local facilitator (17.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal is already being implemented by Porto municipality

Best Practices and References

Siena urban garden in San Miniato

Several experiences promoted by LIPOR (intermunicipal waste management service of Grande Porto), with the municipalities of Grande Porto.



Description

This proposal presupposes the expansion of the cultivation area to accommodate more plots, also admitting the improvement of the existing conditions, namely in terms of bathrooms, changing rooms and urban furniture (benches and tables).

Positive aspects/challenges

POSITIVE

- Interest of the resident population in the involvement in urban agriculture activities (List of about 20 candidates waiting for the occupation of the plots);
- Possibility of increasing the existing garden up to 19 plots (25m²);
- Possible synergy with other citizens' ideas as well as with existing projects: Campmarket and *Horta à Porta* project – The proposal is framed with the strategy and in agreement with the managing entity of the garden.

08. Public multipurpose outdoor space with shared maintenance (Cerco do Porto)



Description

The proposal aims to requalify the rear space of buildings no. 33 and 34 from Cerco do Porto social housing neighbourhood so that the associations based on the ground floor of those municipal buildings may carry out activities and common events, while increasing protection from the adjacent highway infrastructure. This proposal is primarily intended to use the space (currently without function or use) in an intergenerational, inclusive, and accessible way, once identified the need for staying areas and outdoor space to unroll multipurpose activities promoted by the associations and/or citizens. Proponents revealed interest in a shared maintenance and management of the space, as well as in a covered area and/or temporary physical structure.

Positive aspects/challenges

POSITIVE

- Give function to a space currently unused, therefore contributing to increase the public security of the neighbourhood;
- Promote contact/relationship/shared responsibilities between associations;
- Bordering area of the municipal social housing neighbourhood under requalification (buildings refurbishment in construction stage and public space requalification in design stage);
- Possible synergy with other citizens ideas as well as with existing projects: local fairs, play areas for children, urban farming.

CHALLENGES

- Outside the defined intervention area;
- Isolation of the terrain, not exploiting the potential of a healthy corridor.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for community spaces improvement with opportunities for socialization and entertainment, as play areas for children, was identified in the local diagnostic with several methods and participatory activities.



CO-SELECTION & CO-DESIGN

The public multipurpose outdoor space with shared maintenance (Cerco do Porto) was proposed by three association Asas de Ramalde, Todos, OUPA, APD, in co-design activities:

- Face-to-face meeting with local facilitator (25.01.2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

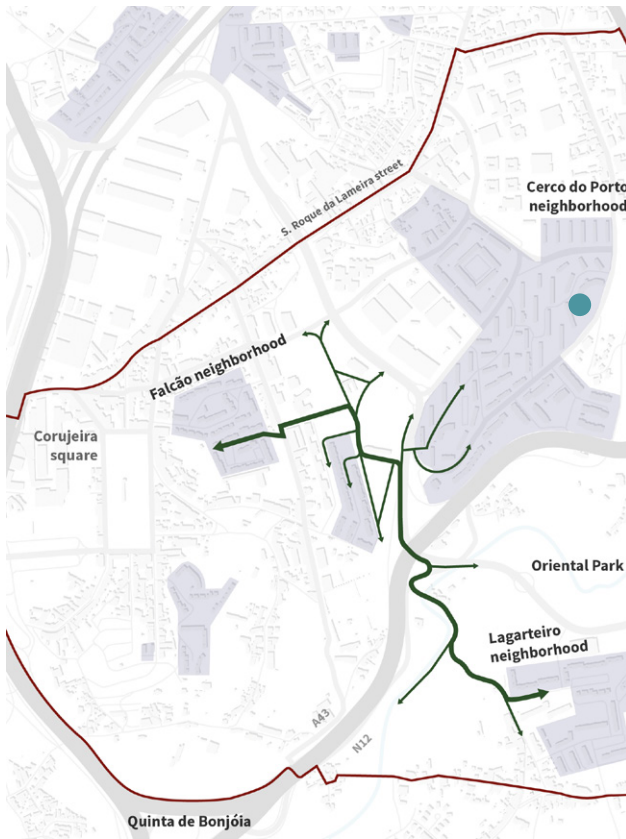
State of the art: The proposal has already been channelled to DomusSocial, EM to be eventually considered in the Cerco do Porto public space requalification project (design stage).

Best Practices and References

N.A.



09. Cerco do Porto Primary School surroundings improvement



Description

The proposal aims to redesign the surroundings and adjacent areas of Cerco do Porto Primary School. The idea previews, as impact, to increase street dynamic and sense of safeness while upgrading the urban design of the school surroundings.

Positive aspects/challenges

POSITIVE

- Involvement of students and teachers in promoting the spaces surrounding the school;
- Cerco do Porto public space requalification project is under development (design stage);
- Possible synergy with other citizens' ideas: Outdoor spaces for physical activity.

CHALLENGES

- Outside the defined intervention area.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for community spaces improvement and qualified green areas was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The improvement of Cerco do Porto Primary School surroundings was proposed by pupils and teachers and developed with other participants in several activities:

- Walkthrough with children of 4 primary schools (Dec. 2019/Jan.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal has already been channelled to DomusSocial, EM to be eventually considered and integrated in the Cerco do Porto public space requalification project (design stage)

Best Practices and References

N.A.

10. Ring area recovery (Cercos do Porto)

Description

This proposal aims to reformulate the Ring (Cercos do Porto), for recreational purposes, the facility eventually supporting the dynamization of activities in the Healthy Corridor. It was also proposed the inclusion of urban furniture, such as benches, closer to the field.

Positive aspects/challenges

POSITIVE

- Integrates the intervention area of Cercos do Porto public space requalification project (design stage);
- It may contribute to boost programming activities articulated with the Healthy Corridor.

CHALLENGES

- Outside the defined intervention area.

Describe participation process to use the NBS

CO-DIAGNOSTIC

The need for adequate cleanliness and maintenance of the public spaces and play areas was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

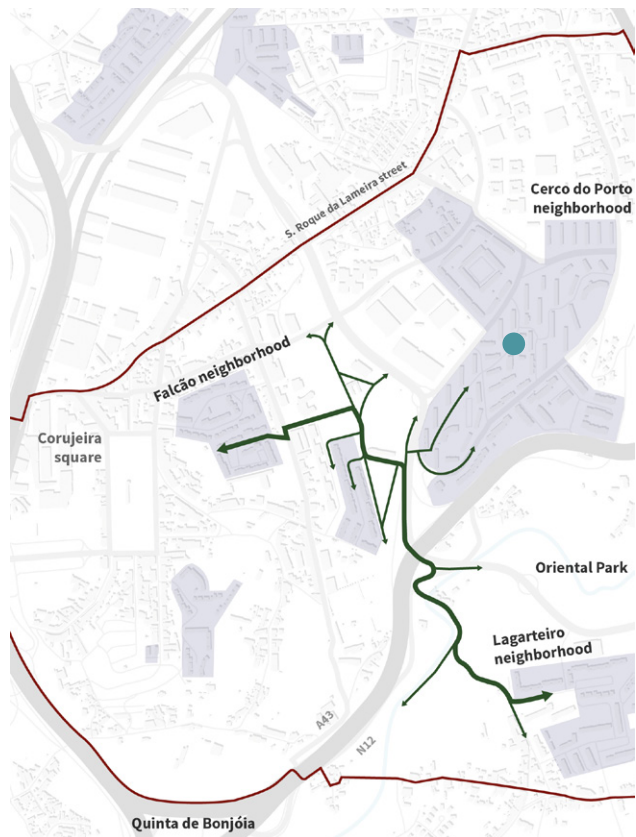
The Ring area recovery (Cercos do Porto) was proposed by pupils and teachers and developed with other participants in co-design several activities:

- Workshop and Walkthrough with children of Cercos do Porto primary school (13.12. 2019)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal has already been channelled to DomusSocial, EM to be eventually considered and integrated in the Cercos do Porto public space requalification project (design stage)

Best Practices and References

N.A





11. Lagarteiro Primary School surroundings safety improvement

Positive aspects/challenges

POSITIVE

- Possible synergy with other citizens' ideas and existing programs: renovation of the Lagarteiro path and the Lagarteiro Street section;
- Provide better security conditions for the school community.

CHALLENGES

- Outside the defined intervention area;
- Requires a holistic intervention from a social perspective.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for community spaces improvement and qualified green areas was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

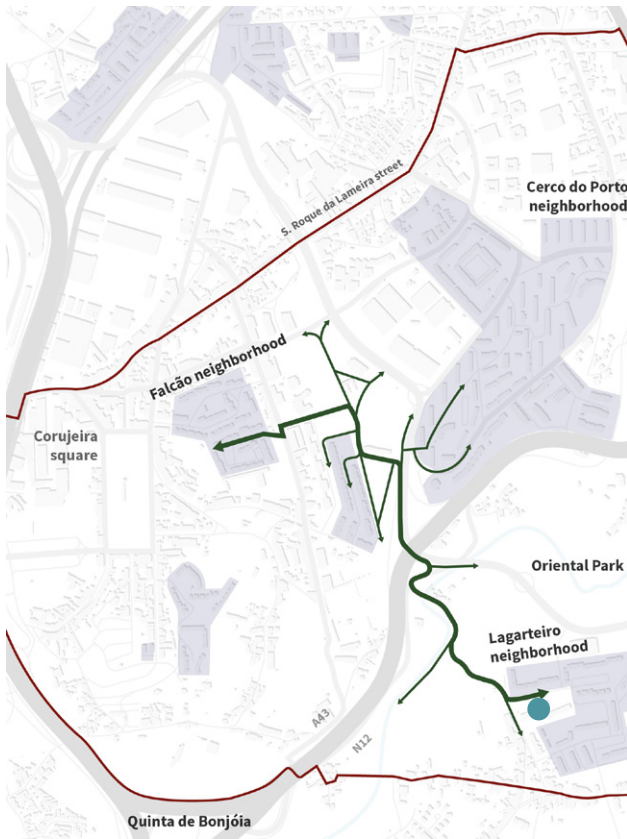
The improvement of Lagarteiro Primary School surroundings safety was proposed by a group of citizens, namely André Sousa, association Norte Vida and then developed in several participatory activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (21.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal was channelled to another municipality project.

Best Practices and References

N.A.



Description

This proposal refers to the surroundings of Lagarteiro Primary School, which lack in terms of dynamism and security. The school has serious social problems, enhanced by its surroundings and morphology. The intervention could “open the school” to the community in order to convey a sense of collective involvement. The objective is to /use the space for socialization between school and the surrounding community, making the area more dynamic and creating more security and circulation conditions. In short, this intervention aims to improve the relationship between the school and the community (reducing school dropout and achieving social cohesion).

12. Renovation of the Viewpoint next to the Cemetery



Description

The proposal aims to renovate the viewpoint taking into consideration the location of the secondary entrance to the cemetery that is widely used by citizens and has interesting views over the Oriental Park and Campanhã rural landscape.

Positive aspects/challenges

POSITIVE

- Possible synergy with other citizens' ideas: outdoor space for leisure and sports;
- Promotion of better conditions of permanence, crossing and safety.

CHALLENGES

- Need for regular cleaning and maintenance;
- Outside the defined intervention area.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for better conditions of pedestrian paths, community spaces and qualified green areas was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

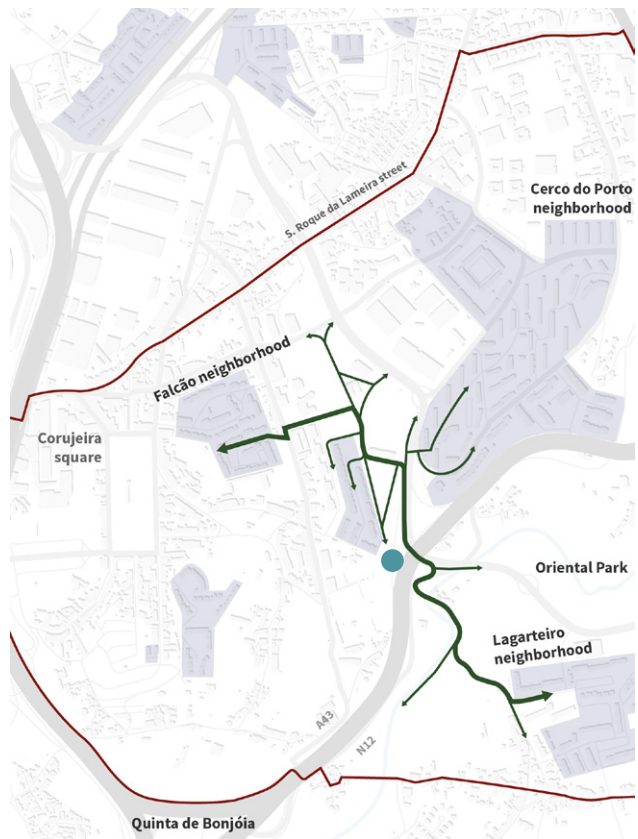
The Renovation of the Viewpoint next to the Cemetery surroundings safety was proposed by a group of citizens in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal was channelled to other municipality departments

Best Practices and References

N.A.





13. Lagarteiro neighbourhood path requalification

CHALLENGE

- The complexity of the proposal is limited by the overall project budget;
- Requires an holistic intervention from a social perspective;
- The path is surrounded by private lands that also need cooperate in terms of vegetation control/maintenance, to ensure the success of the intervention

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for better conditions of pedestrian paths and the respect of existing memory was identified during the local diagnostic activities and methods.

CO-SELECTION & CO-DESIGN

The requalification of the Lagarteiro path was proposed by a group of citizens, namely Laurinda and Paulo Lima from Lagartixa Park association, and then developed in several participatory activities:

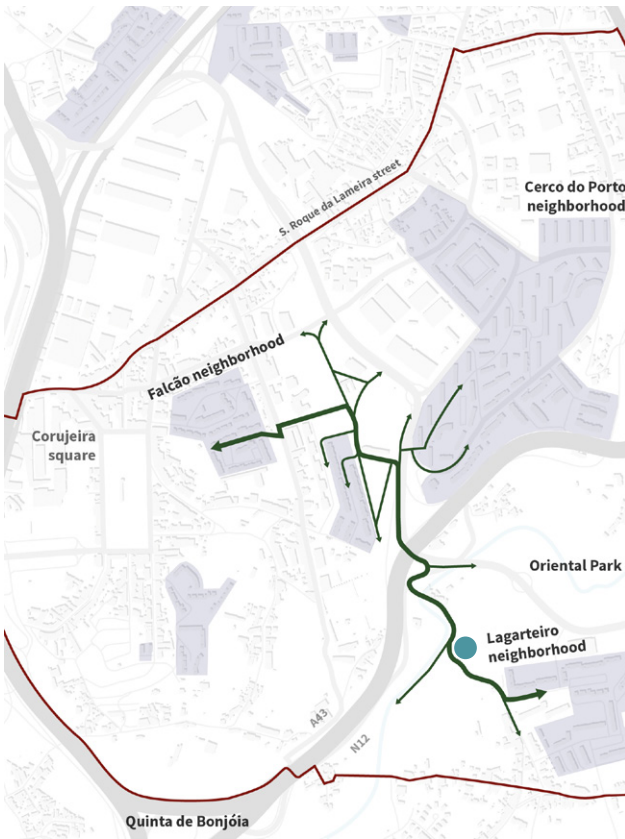
- Citizen workshop with adults (15.01.2020)
- Face-to- face interview with local facilitator
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal was channelled to other municipality projects due to its complexity. Meanwhile, Lagarteiro path and surrounding areas were included in the cleaning and maintenance agenda of the municipal teams and the impact on local safety and connections was already felt in the community.

Best Practices and References

Salemi Recupero strade e aree adiacenti a Piazza Alicia – link

Rua Direita in Porto, municipal programme



Description

The proposal foresees to improve the accessibility to Lagarteiro neighbourhood and its connection with the Oriental Park through the requalification of the old path, deeply connected with the ancient rural landscape of Campanhã. The intervention would be a contribution to an effective improvement in terms of public security and sense of safety, currently compromised by the path conditions and lack of visibility.

Positive aspects/challenges

POSITIVE

- Opportunity to regenerate historic pathways as nature-based solution, preserving existing vegetation with ecological value, traditional walls and pavements

14. Lagarteiro street section requalification

Description

This proposal aims to requalify a section of Lagarteiro street. It was identified the need to improve mobility and connection between *Parque Oriental* and Lagarteiro Neighbourhood.

Positive aspects/challenges

POSITIVE

- Dynamize Lagarteiro Street;
- Possible synergy with other citizens' ideas: Lagarteiro path requalification.

CHALLENGES

- Outside the defined intervention area;
- Requires a concerted approach with Social Action Entities in order to carry out an intervention capable of solving the identified challenges, in a systematic and effective approach (with a sustainable resolution over time), it would be necessary to make a much higher investment than the available in URBINAT Project.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for better conditions of pedestrian paths and the respect of existing memory was identified during the local diagnostic activities and methods.

CO-SELECTION & CO-DESIGN

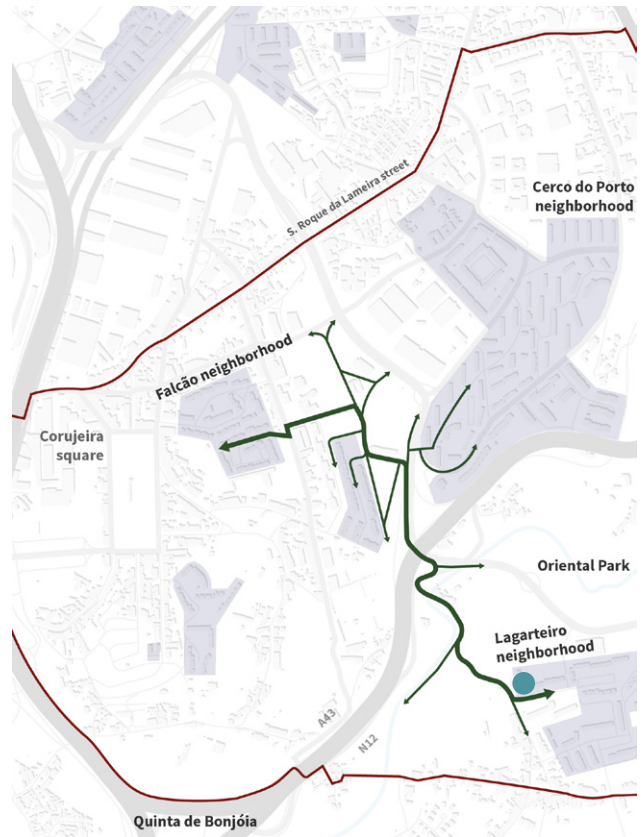
The renovation of a section of the Lagarteiro street was proposed by a group of citizens, namely by André Sousa, association Norte Vida, and then developed in several participatory activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face interview with local facilitator
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal has already been channelled to specific municipal departments.

Best Practices and References

N.A.





15. Access to Pego Negro and Oriental City Park improvement

Positive aspects/challenges

POSITIVE

- Formalize and qualify daily routes used by pedestrians that currently do not meet the conditions of safety or comfort;
- Ensure lighting and maintenance of the path and surrounding areas.

CHALLENGES

- Outside the defined intervention area;
- Some of the land/terrain used for the path is private.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for more accessible paths for all citizens and better conditions of pedestrian paths and new connections were identified during several methods and participatory activities.

CO-SELECTION & CO-DESIGN

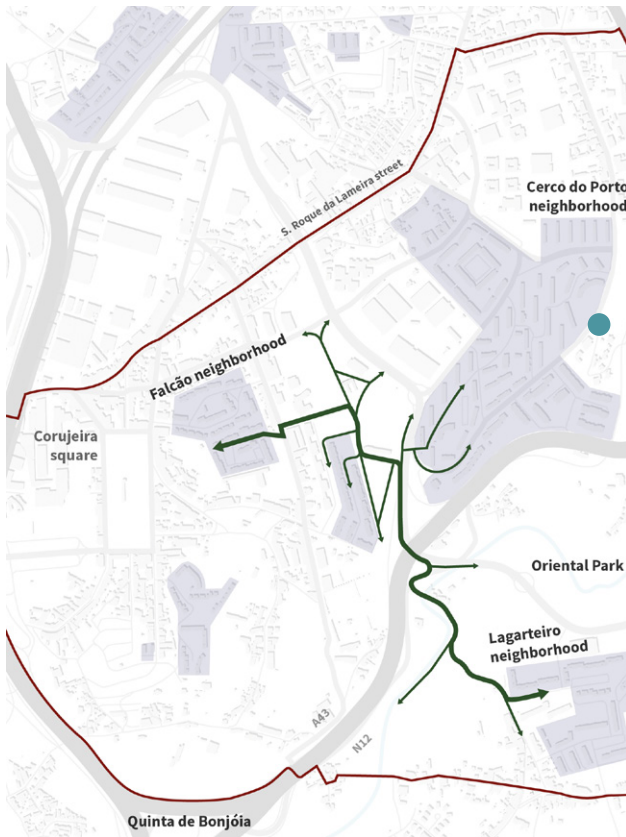
The Access to Pego Negro and Oriental City Park improvement was proposed by pupils and teachers, and developed with other participants in co-design several activities:

- Workshop and Walkthrough with children of Cerco do Porto primary school (03 and 13.12. 2019)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal has already been channelled to specific municipal departments.

Best Practices and References

N.A.



Description

The proposal aims to requalify pedestrian paths that connect Cerco do Porto to Pego Negro and Oriental Park. Due to existing topographic and built infrastructures (large roads), the pedestrian connections are compromised and dangerous. The idea previews, as impact, to increase the existent street dynamic and the sense of safeness.

16. Playground in Corujeira Square (Praça da Corujeira)

Description

The proposal aims for the inclusion of a playground in Corujeira Square. However, the need for more playing areas is transversal to other public spaces in Campanhã.

Positive aspects/challenges

POSITIVE

- This idea is already being developed by the municipality as the ongoing project for the requalification of *Praça da Corujeira* (ongoing) does include, in its programme, children's equipment.

CHALLENGES

- Outside the defined intervention area;
- Attending the level of development of the municipal initiative, it will be difficult to integrate the contributions from the school community.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for green areas and their connection for leisure and sports activities and play areas for children were identified during several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Access to Pego Negro and Oriental City Park improvement was proposed by pupils and teachers and developed with other participants in co-design several activities:

- Workshop and Walkthrough with children of Cerco do Porto primary school (13.12. 2019)
- Walkthrough with adults (14.12.2019)
- Citizens workshop with adults (15.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal has already been channelled to specific municipal departments.

Best Practices and References

N.A.





17. Lagarteiro sports hall access improvement (informal paths)

Positive aspects/challenges

POSITIVE

- Possibility to promote and improve shorter routes between the municipal pavillion and the Lagarteiro neighbourhood;
- Formalize and qualify useful paths daily used as shortcuts through the area.

CHALLENGES

- Outside the defined intervention area;
- The referred paths used as shortcuts through the area do cross private property.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for better conditions of pedestrian paths and qualified green areas was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

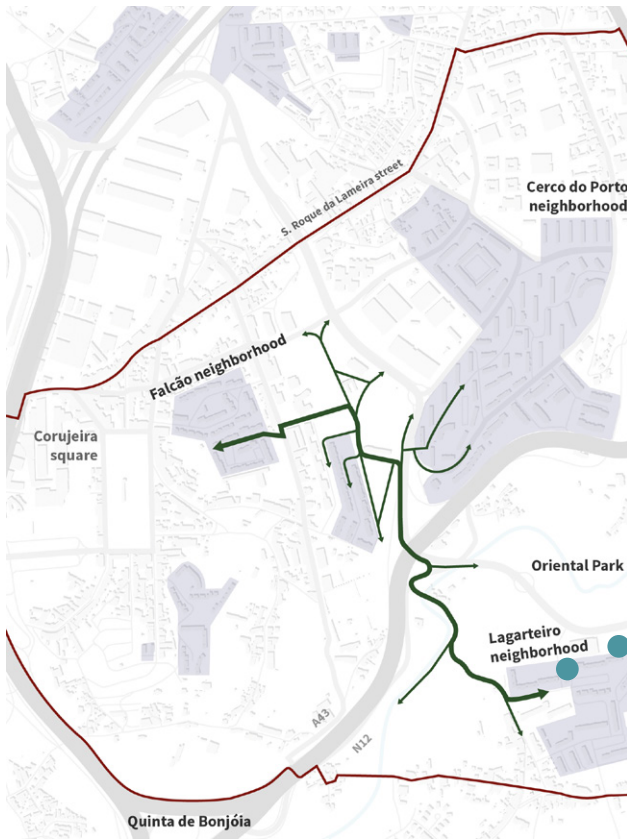
The improvement of Lagarteiro sports hall access (informal paths) was proposed by a group of citizens, namely by André Sousa, association Norte Vida, and then developed in several participatory activities:

- Face-to- face meeting with local facilitator (21.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal will be channelled to other municipal projects.

Best Practices and References

N.A.



Description

The proposal is associated with easing the access to the main entrance of the Lagarteiro sports hall, as citizens coming from the Lagarteiro neighbourhood use an informal, uncomfortable and dangerous path as an alternative shortcut. The reform of the path would then improve the connection/access system between the pavilion and the neighbourhood.

18. Lagarteiro sports hall access improvement (entrance door)



Description

The proposal is associated with the difficulties of accessing the Lagarteiro sports hall. This difficulty of access comes from the fact that the main entrance of the pavilion is located next to a lane (Alameda de Cartes), making the youth and children living in Lagarteiro housing go around the pavilion to enter it. In this sense, a new entrance in the back or lateral side of the pavilion would facilitate the citizens/users coming from the Lagarteiro neighbourhood.

Positive aspects/challenges

POSITIVE

- The new entrance would promote and improve shorter routes to the citizens living in Lagarteiro municipal social housing.

CHALLENGES

- Outside the defined intervention area;
- The new entrance would imply the interior space reorganisation and the reformulation of the security and control system of the building.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for better conditions of pedestrian paths, community spaces and qualified green areas was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

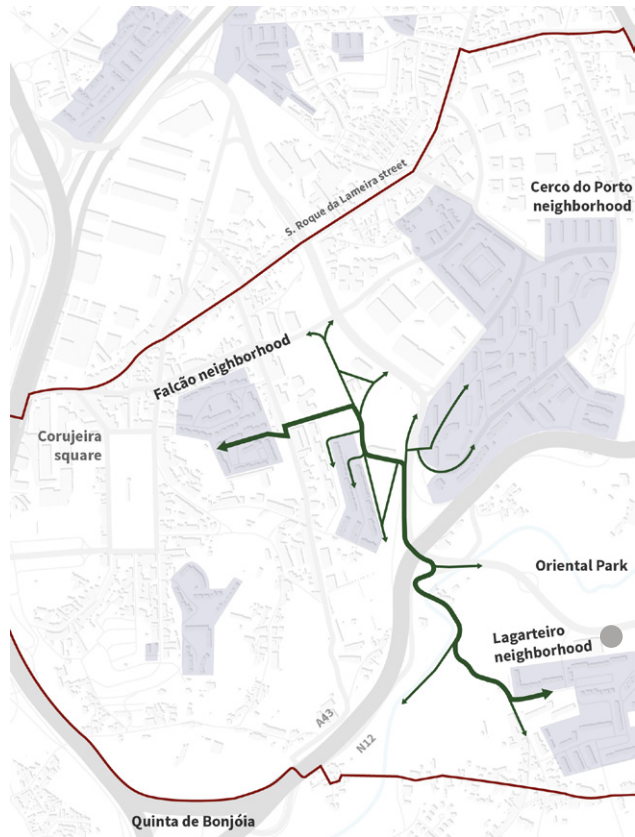
The improvement of Lagarteiro sports hall access (informal paths) was proposed by a group of citizens, namely by André Sousa, association Norte Vida, and then developed in several participatory activities:

- Face-to-face meeting with local facilitator (21.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal will not be developed i

Best Practices and References

N.A.



19. Campmarket

Description

The proposed idea aims to organize and establish the *campmarket*, a solidarity market with local producers and craftsmen, thus also helping to reduce unemployment and to support cultural activities, and promoting a circular economy.

The market could be organised in two spaces: one more related with fresh products (vegetables, fruits) and other with material (books, crafts, clothes). These spaces could be complemented with a market for children. The market can also organise cultural activities during the day.

Positive aspects/challenges

POSITIVE ASPECTS

- Promote and contribute to local economies;
- Local citizens involvement;
- The market can be organized and established by local associations, in particular by APPC (*Associação do Porto de Paralisia Cerebral*) and *Fios de Desafios*, through REDES project;
- The market shall be integrated on already existing activities, so it demands an effort to verify already existing markets and fairs and local authorities licensing;
- The synergies with cultural associations will promote the sense of community.

CHALLENGES

- Organise a complex event on a regular basis.

Participation process to use the NBS

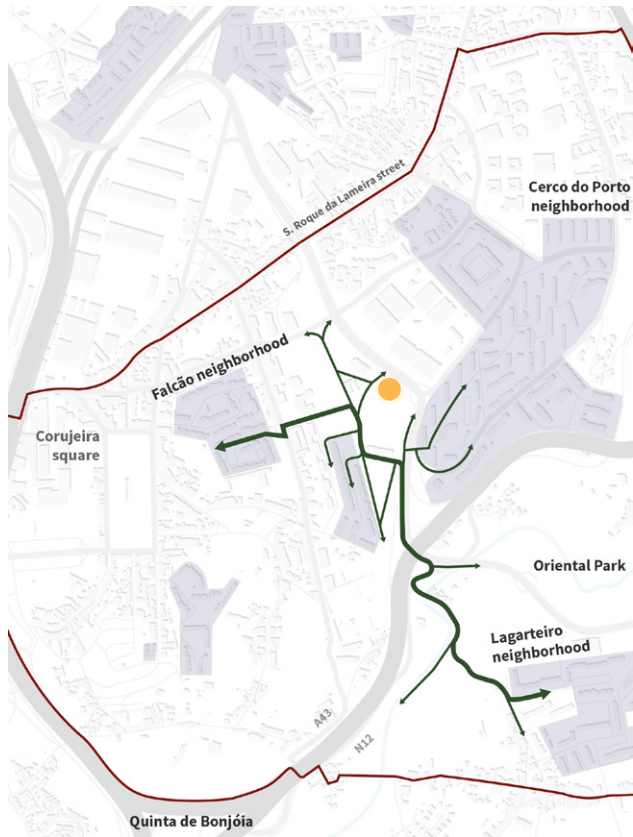
CO-DIAGNOSTIC

The need to improve the local economy and to create community and cultural opportunities was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The initiative Campmarket was proposed by a group of citizens, namely by Isabel Rute Costa from association APPC, and then developed in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (26.01.2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)
- Online co-design workshop (7.11.2020)



State of the art: The proposal will be developed, namely in the public event “Experimento”.

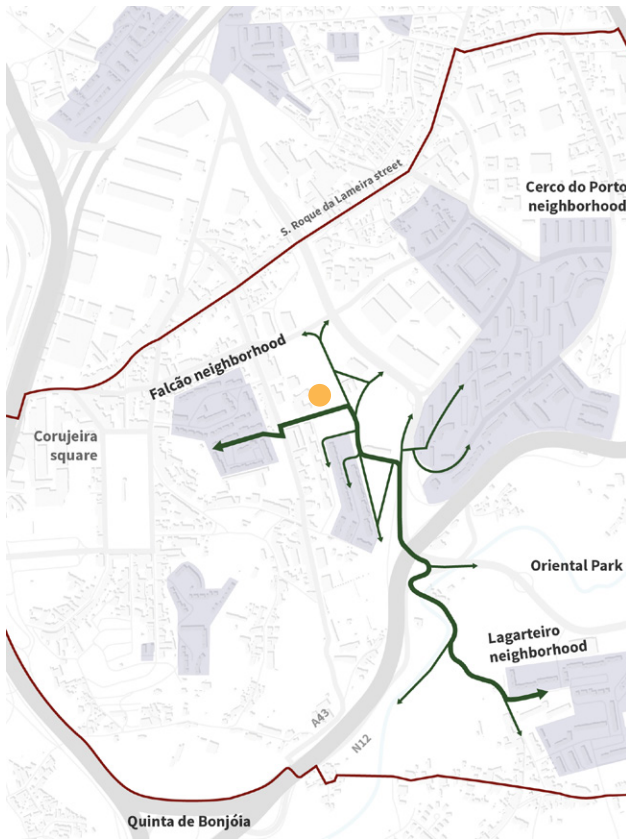
Best Practices and References

Local fairs: *Feira da Vandoma* and *Feira de Produtos Biológicos do Parque da Cidade*.



20. Community mobile kitchen

municipal projects may enhance this initiative and eventually aggregate with others; integration in the Campanh'up platform (involvement of the cultural platform on this activity and other similar ones).



Description

Proposal of a community kitchen that can be mobile or installed on a specific location, aiming to be an opportunity to share traditional recipes and to promote healthy food with the products from the urban garden. 'Community lunch' can be organised on a regular basis to promote the sense of belonging. There is the possibility of articulating with other programmatic and territorial proposals, therefore contributing to dynamizing the space and the community.

Positive aspects/challenges

POSITIVE

- Potential use of products produced in the urban garden;
- Potential partnerships with public-private entities and social solidarity institutions for the provision of mobile kitchens;
- Possible synergy with other citizens ideas as well as with existing projects: articulation with

CHALLENGES

- Logistical needs: equipment, sanitary infrastructure and water supply;
- Need for licensing / authorization for implementation;
- The municipal experience alerts for the risk of vandalism;
- Articulation between the entities involved (URBiNAT partners, local partners and promoters of the initiative) for further development of a temporary demountable community kitchen (operationalization plan, management model, organization, partnerships, needs), so it can be tested firstly, to be eventually evolved to a regular initiative (periodic).

Participation process to use the NBS

CO-DIAGNOSTIC

The need to improve local economy, to encourage healthy and traditional food/products and to create community and cultural opportunities was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Initiative Community mobile kitchen was proposed by a group of citizens, namely by Adelaide Pina (municipal tenant, Falcão housing) and Nuno Moutinho (Association *Terra Solta*), and then developed in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (21.02.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal can be developed, namely in the public event "Experimento".

Best Practices and References

The Association *Terra Solta* organizes a weekly community lunch in the urban garden.

21. Community-based management of urban garden

Description

The proposal intends to implement a community-based management of urban gardens.

The development of this proposal evolves from the idea related to the expansion of the Oliveira Urban Garden's NBS.

Positive aspects/challenges

POSITIVE

- Opportunity to create a pilot case to test a circular economy model for social purposes and interests;
- Sharing knowledge of agricultural practices and resources among users who currently explore the Urban Garden;
- Possible synergy with other citizens' ideas: Community kitchen;
- Learn from LIPOR experience with other municipalities.

CHALLENGES

- The community management needs to be adapted to the local management practices;
- Lack of definition of the concept of "community";
- Identify the association/citizens available to develop this proposal
- The municipal experience alerts that urban gardens up to 20/30 plots, and with reduced common space, are easier to manage.

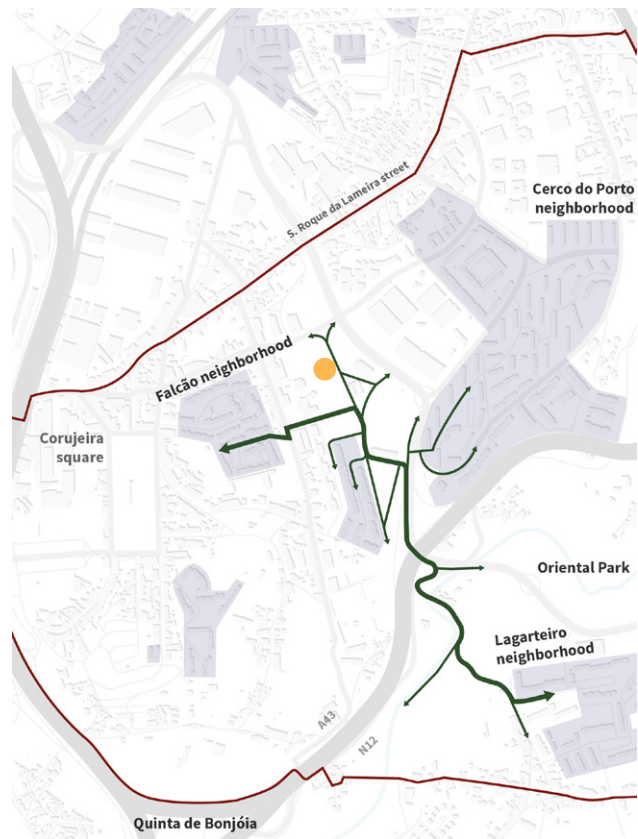
Participation process to use the NBS

CO-DIAGNOSTIC

The need to improve the local economy, to encourage healthy and traditional food/products and to create community and cultural opportunities was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Initiative Community-based management of urban garden was proposed by a group of citizens, namely by Nuno Moutinho (*Associação Soalheira*) and Vítor Parati (*Associação Terra Solta*), Alberto Rocha and Adelaide Pina, and then developed in several co-design activities:



- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (26.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal can be developed, namely in the public event "Experimento".

Best Practices and References

LIPOR (intermunicipal waste management service of *Grande Porto*) – Urban Gardens Project Sienna Urban gardens



22. Support structure to Oriental City Park

Positive aspects/challenges

POSITIVE

- Enhance public-private partnership (Lagartixa Park association owns a lot near Rio Tinto Walkway);
- Proximity to *Bairro do Lagarteiro* (isolated from the surroundings);
- Possible synergy with other citizens' ideas: Community garden management model; eco-construction and urban agriculture activities;
- Could be Included in the Municipal Fund to support popular associations in the Municipality of Porto.

CHALLENGES

- Outside the defined intervention area;
- Private property (conditioning direct investment within the scope of the project).

Participation process to use the NBS

CO-DIAGNOSTIC

The need to improve the local economy, to encourage healthy and traditional food/products and to create community and cultural opportunities was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

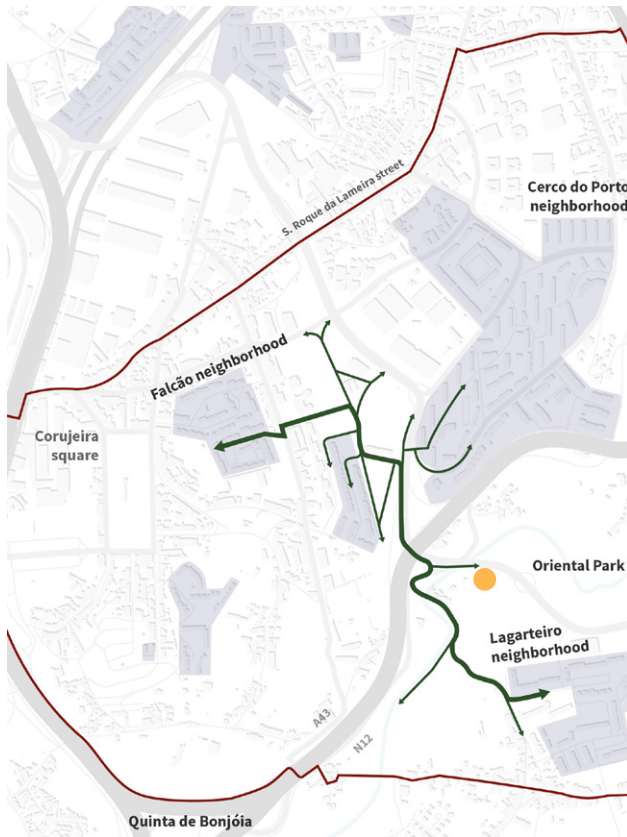
The Support structure to Oriental City Park was proposed by a group of citizens, namely by Laurinda and Paulo Lima, from Lagartixa Park association, and then developed in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (26.01.2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal can be developed, namely in the public event "Experimento".

Best Practices and References

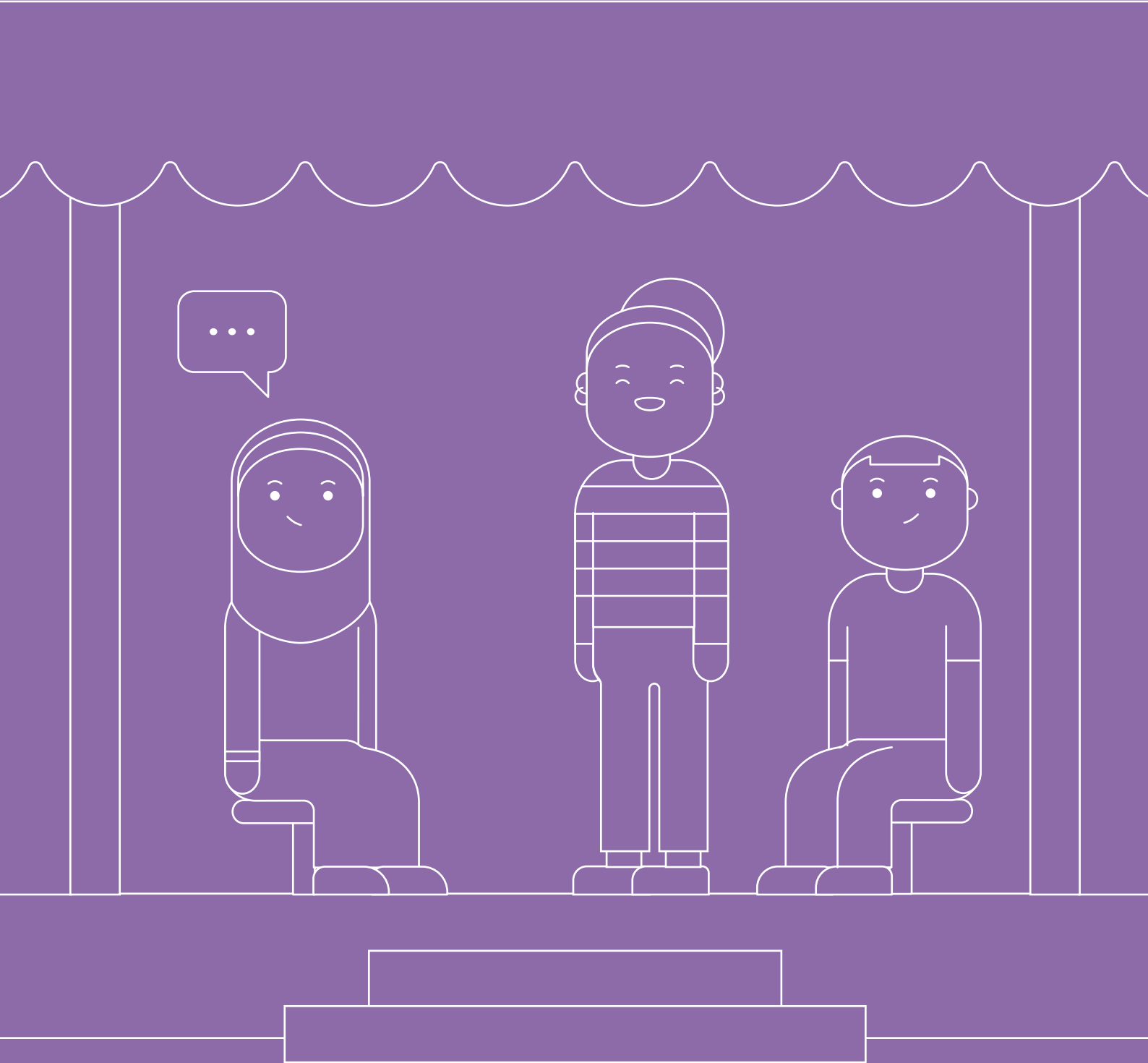
N.A.



Description

The proposal foresees the creation of a support structure for the Oriental Park, where it could be possible to include different activities: Bread ovens, urban gardens; rest areas near the Oriental Park, among others. This proposal, in addition to enhancing the *Rua do Lagarteiro* (Lagarteiro pathway) and the *Passadiço de Rio Tinto* (Rio Tinto Walkway), also has the potential to host and connect with other initiatives and activities by local associations and such as: *Associação Soalheira* and *Visões Úteis*.

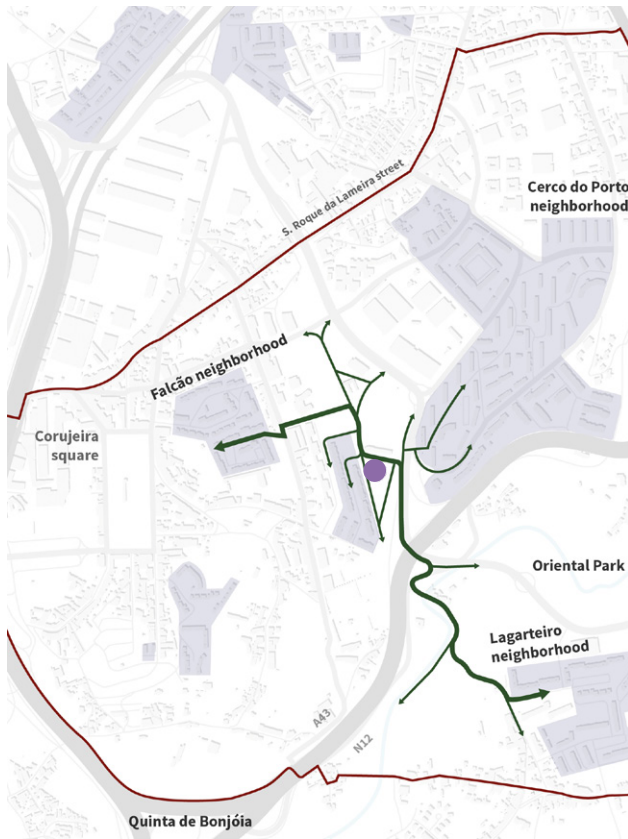
Culture and Sports





23. Outdoor Programme for sports and leisure activities

with: *Dias com Energia* (“Days with energy”) (Ágora/CMP) that promote Tai Chi, Yoga, Pilates classes in various parks in the city; *Domingos em Forma* (“Sundays in form”), one of the AIIA program (DMCS/CMP); and, more recently, the programme *Desporto no bairro* (“Sport in the neighbourhood”).



CHALLENGES

Engage local community in outdoor sports and leisure activities, as users and also as organisers.

Participation process to develop the NBS

CO-DIAGNOSTIC

The need for the improvement of community spaces, play areas for children and green areas and its connection to leisure and sports activities was identified through several methods and activities developed during the local diagnostic.

CO-SELECTION & CO-DESIGN

The proposal of “outdoor programme for physical exercise” was proposed by Alberto, a yoga teacher resident in the study area and co-designed during several participatory activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face interview with local facilitator (15.01.2020)
- Citizen's video (26.06.2020)
- Workshop with citizens and municipal technicians (14.07.2020)
- Online workshop to co-design four NBS (07.11.2020)

Description

Proposal to create a programme that favours the development of physical and recreational activities, such as board yoga, meditation, traditional games. These activities will use the green space that will be developed under NBS 1. Outdoor Programme for sports and leisure activities

Positive aspects/challenges

POSITIVE

- Promotion of sports and leisure activities and a more physically active population in the study area;
- Contribution to increase the appropriation of the public space;
- Consistent with ongoing local programs or initiatives organized by the Municipality of Porto, namely the municipal company *Agora – Cultura e Desporto do Porto, EM*, with the possibility to create synergies namely

State of the art: The proposal is being developed in articulation with Ágora – Cultura e Desporto do Porto, E.M. and several associations, namely OUPA and APPC, in synergy with the REDES project.

Best Practices and References

N. A.



notícias



projetos



entrevistas

24. Cultural platform – Campanh'UP

Description

The proposal aims to create a cultural platform that allows the dissemination, creation of information, training and entertainment through various initiatives and mechanisms (e.g., website, workshops, radio station). The objective will be to streamline the process of creating a platform for disseminating information co-dynamized with the community, with content that is of collective interest, through diversified channels and actions: joint dynamization actions; experiments with different activities; workshops/training; content production; website development, social networks; other diversified products and channels of communication and interaction.

Positive aspects/challenges

POSITIVE

- Platform useful for the development of participation activities within URBiNAT project and other projects, promoting greater involvement of the citizens of Campanhã;
- Ongoing development to support URBiNAT activities;
- High potential for synergy with all immaterial proposals (that consequently have in their essence cultural, artistic, recreational and sports activities);
- Synergies with other municipal projects. Possibility to contribute to a cultural agenda for Campanhã.

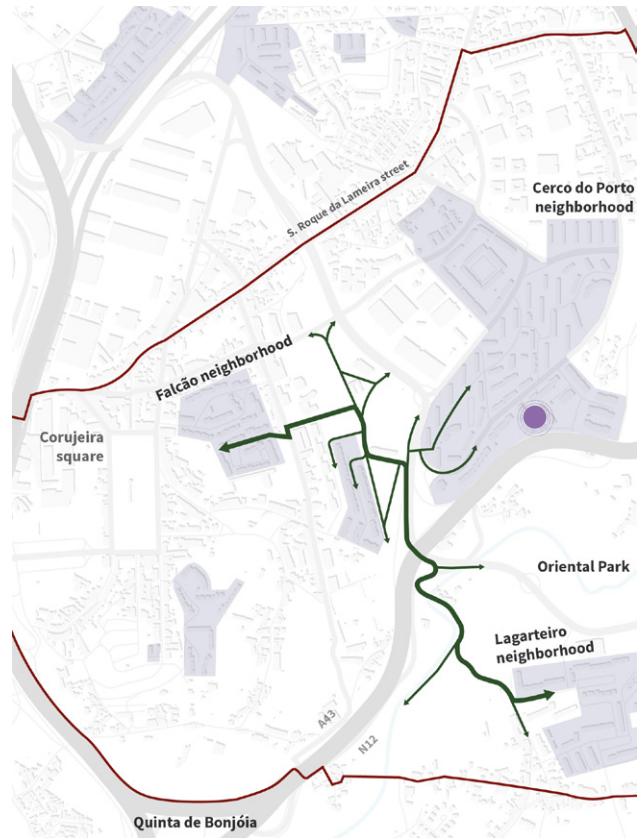
CHALLENGES

- Need for external support to ensure its sustainability after URBiNAT;
- Subject to the budget for participation activities.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to improve community spaces to create cultural opportunities and participatory activities was identified in the local diagnostic with several methods and participatory activities.



CO-SELECTION & CO-DESIGN

The Campanh'UP cultural platform was proposed by a group of citizens, namely by Ricardinho Lopes, association OUPA, and then developed in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (22/01/2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14/07/2020)

State of the art: The proposal is being developed in articulation with Ágora – Cultura e Desporto do Porto, E.M. and several associations, namely OUPA and APPC, in synergy with the REDES project.

Best Practices and References

Cultura em Expansão programme, Municipality of Porto



25. Artistic projects – “O Lugar do Olhar”

Positive aspects/challenges

POSITIVE

- Programmatic proposals that may happen within the study area;
- Potential to involve local schools' communities and programs;
- Possible synergy with other citizens' ideas: Campanh'UP – Cultural Platform.

CHALLENGES

- Availability of the proponents;
- Subject to the budget for participation activities.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to improve community spaces to create cultural opportunities and participatory activities was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

Artistic projects – “O Lugar do Olhar” and others – was proposed by a group of citizens, namely by Joaquim Jesus and André Silva, and then developed in several co-design activities:

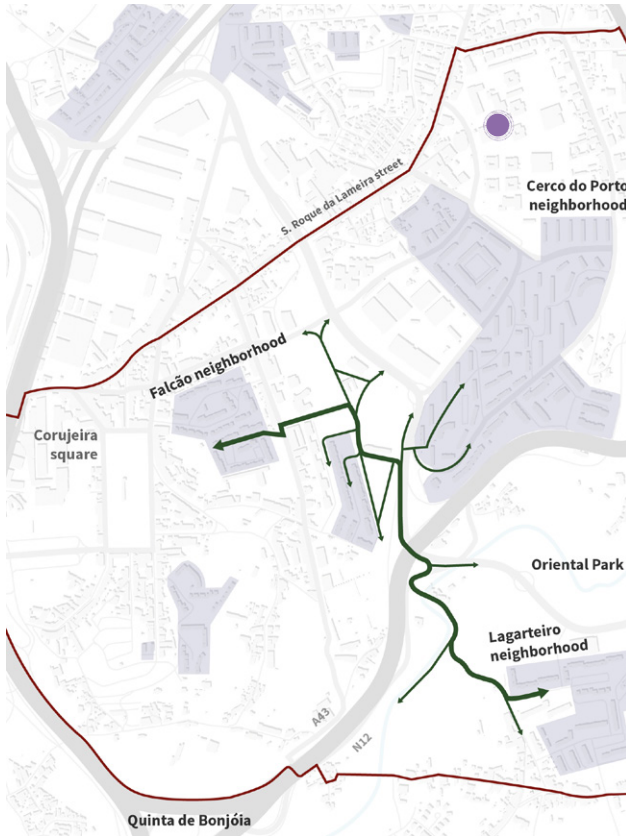
- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (29.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal can be developed, namely in the public event “Experimento”.

Best Practices and References

Cultura em Expansão programme, Municipality of Porto

Temporary Peatonal zones, Municipality of Porto



Description

This proposal aims to boost the Healthy Corridor as a whole by carrying out artistic projects that propose a reflection with citizens on the heritage values of Campanhã. The project “O LUGAR DO OLHAR” (The place of the gaze) will develop a Large-scale cyanotype with photographs and images collected by the participants to perform an artistic intervention. This proposal can integrate other artistic activities/interventions, such as a) Recreate and install a reduced version of *Praça da Corujeira* (or other square in this parish) next to Campanhã Station; b) Explore the memory of the existence of a playground in *Praça da Corujeira*; c) Elephant in the room; d) Railway; e) Shifting lines; f) Between walls

26. Initiative – Memories of Campanhã

Description

The purpose underlying this proposal is to gather up stories and images from personal and municipal archives. Through participatory activities inhabitants of Campanhã could be invited to share their memories contributing to improve the sense of Campanhã belonging. The activities will focus on citizens with advanced age but can be extended to other groups.

Positive aspects/challenges

POSITIVE

- Possible synergy with other citizens' ideas and other municipal programs: *Campanhã é a minha casa* ("Campanhã is my home") from *Cultura em Expansão* programme, and sensorial map of Campanhã; Campanh'up platform;
- Promote Campanhã intangible heritage;

CHALLENGES

- Availability of the proponents;
- Subject to the budget for participation activities.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to create cultural opportunities and participatory activities that respect/activate existing memory was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Initiative Memories of Campanhã was proposed by a group of citizens, namely by Gisela Carvalho, association Soutelo and then developed in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (06.03.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)



State of the art: The proposal can be developed, namely in the public event "Experimento".

Best Practices and References

Campanhã é a minha casa ("Campanhã is my home") from *Cultura em Expansão* programme, Municipality of Porto

"Miraflor emotional map 2.0", Miraforum



27. Local heritage Route

Positive aspects/challenges

POSITIVE

- Promotion of built, natural and cultural heritage in Campanhã;
- The initiative needs a low budget.
- Possible synergy with other citizens' ideas: Campanh'UP – Cultural Platform; Memories of Campanhã.

CHALLENGES

- Availability of the proponents.

Participation process to use the NBS

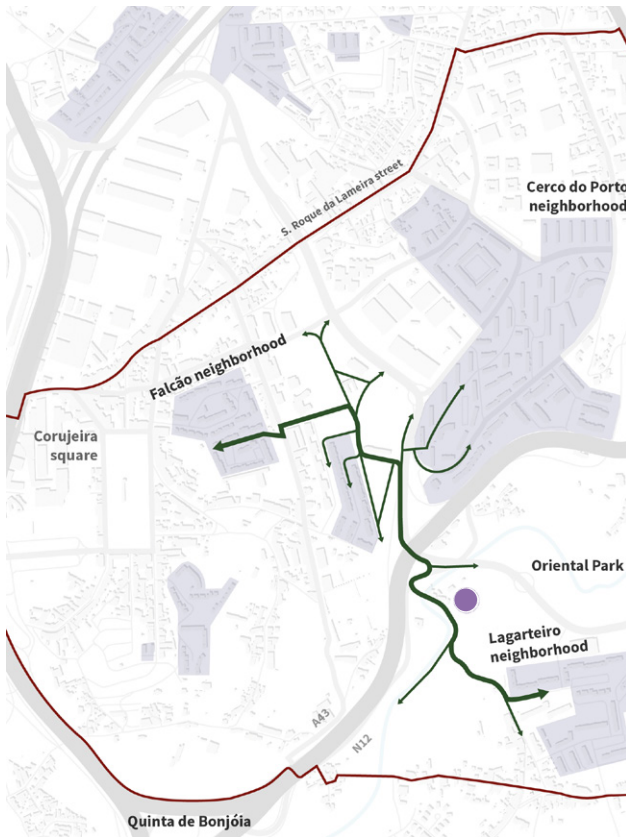
CO-DIAGNOSTIC

The need to create cultural opportunities and participatory activities that respect/activate existing memory was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The Initiative Memories of Campanhã was proposed by a group of citizens, namely by Laurinda e Paulo Lima, from association Lagartixa Park and then developed in several co-design activities:

- Citizen workshop with adults (15/01/2020)
- Face-to-face meeting with local facilitator (26/01/2020)
- Workshop and walkthrough with citizens and municipal technicians (14/07/2020)



Description

The proposal aims to create a Cultural and Heritage Route in Campanhã. It could include visits/routes focusing on agricultural/rural heritage of Campanhã (*Rio Tinto, Pêgo Negro*, among other places).

State of the art: The proposal can be developed, namely in the public event “Experimento”.

Best Practices and References

Heritage routes in Nantes Nord organised by local associations.

28. Initiative – Culture is also Health

Description

The proposal intends to boost a network of community spaces to promote well-being, inclusion and shared responsibility through art and culture (focusing on themes such as multiculturalism, interdisciplinarity), through:

- different local cultural projects and resources (sharing of knowledge);
- use of digital media to support communication/dissemination and aggregation (enhancing the Campanh'UP platform) to promote an artistic and cultural Local Agenda;
- revitalization of existing public spaces and outdoor facilities.

Positive aspects/challenges

POSITIVE

Creation of a citizens' network to promote cultural actions with an impact on health and well-being;

Possible synergy with other citizens' ideas:

Campanh'up and Educational Living Lab

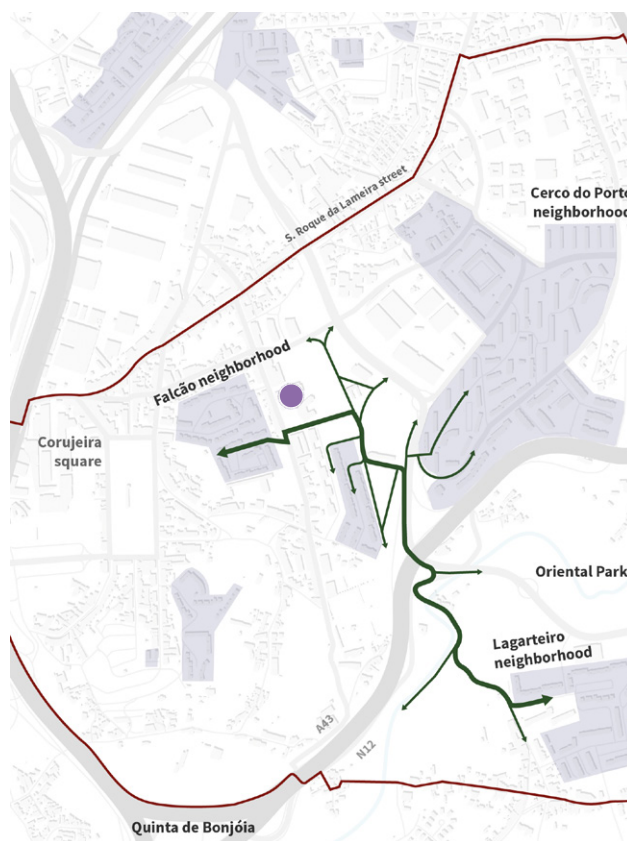
CHALLENGES

- A strategy in the field of culture and sport for the oriental part of the city, is currently under development by the Municipality and other institutions;
- Manage and promote a citizens' network

Participation process to use the NBS

CO-DIAGNOSTIC

The need to create cultural opportunities and participatory activities and to improve literacy for environmental issues was identified in the local diagnostic with several methods and participatory activities.



CO-SELECTION & CO-DESIGN

The initiative Culture is also Health was proposed by a group of teachers and then developed in several co-design activities:

- Online Citizen workshop with adults (17, 23, 25/06/2020)
- Workshop and walkthrough with citizens and municipal technicians (14/07/2020)

State of the art: The proposal can be developed in the frame of the Educational living lab and Campanh'UP

Best Practices and References

N.A.



29. Lagarteiro sports hall renting model improvement

Positive aspects/challenges

POSITIVE

- Increase the use of the sport facility by local inhabitants.

CHALLENGES

- Simplification of the renting process.

Participation process to use the NBS

CO-DIAGNOSTIC

The need for the improvement of community spaces and play areas for children was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

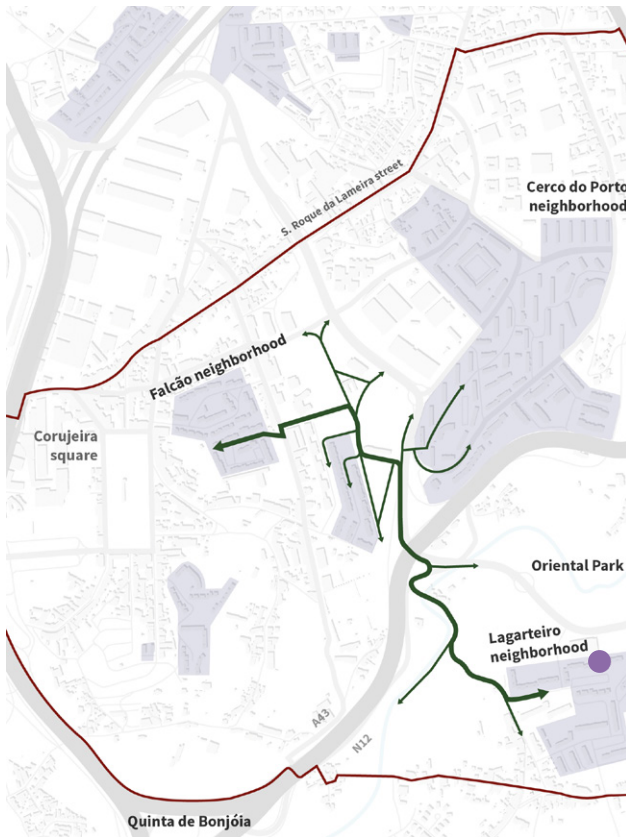
The Lagarteiro sports hall renting model improvement was proposed by a group of citizens, namely by André Sousa, association Norte Vida, and then developed in several participatory activities:

- Face-to-face meeting with local facilitator (21.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal will be channelled to specific municipality departments.

Best Practices and References

N.A.



Description

The proposal is associated with the difficulties experienced during the renting process of the Lagarteiro Sports Hall. The associations installed in the building would like to improve the renting model in order to facilitate the organisation of activities, based on the belief that better renting conditions for the local inhabitants would be possible

30. Artistic Hangar

Description

It was proposed to build a physical structure for cultural dynamics and artistic training, focusing on the formation and development of local culture and art. It was also proposed the development creation of a local agenda, once diagnosed the lack of structures for such artistic and cultural purposes.

Positive aspects/challenges

POSITIVE

- Possible synergy with other citizens' ideas: articulation with other NBS proposals e.g., Nature-based amphitheatre, Campanh'UP, etc.;
- The investment can help to plan and consolidate the healthy corridor;
- Relationship of this proposal with other ideas suggested in the scope of URBiNAT (multifunctionality);
- Possibility to renovate unused spaces with security problems (e.g., existing Ruin of Old Falcão Farmhouse).

CHALLENGES

- The development of this idea in terms of size and function is dependent on the URBiNAT budget or another external to the project;
- It requires a solid plan for sustainable use, maintenance and development, depending on the framework and follow-up given to the initiative by the Municipality.

Participation process to use the NBS

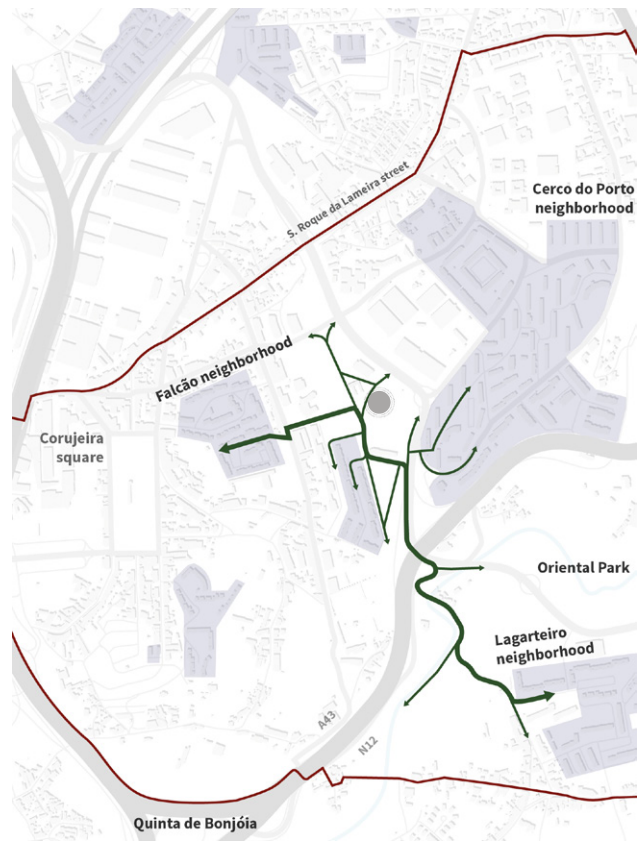
CO-DIAGNOSTIC

The need to improve community spaces to create cultural and entertainment opportunities and participatory activities was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

The artistic hangar was proposed by a group of citizens, namely by Carlos Costa, association Visões Úteis, and then developed in several co-design activities:

- Face-to-face meeting with local facilitator (30.01.2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)



State of the art: The proposal will not be developed. URBiNAT doesn't have the needed budget to implement this proposed cultural facility. Moreover, this idea proposal was not aligned with the action cultural plan predicted for the area, nor is it answering the real social challenges of the territory.

Best Practices and References

Cultura em Expansão programme, Municipality of Porto

31. Educational Living Lab

Description

The proposal to create an Educational living lab embraces the healthy corridor as an opportunity to an inclusive learning space where interactive and intergenerational activities can be promoted. The interest behind this proposal focuses on creating an intergenerational learning space through *in-situ* experimentation, demonstration and motivation.

Positive aspects/challenges

POSITIVE

- Tool to activate the healthy corridor;
- Possible synergy with other citizens' ideas: Sensory Garden; Nature-based Amphitheatre; Eco-construction activities; and with other municipal educational programs or initiatives such as the curricular additional program *Porto de Crianças* ("Porto of children") with several school activities (e.g. *Políticos por um dia* – "Politicians for a day") or the Environmental Education sessions under the *Ambiente em Família* ("Family Environment") programme.

CHALLENGES

- Dependent on external entities for its activation and development (meaning it is not self-implementable).

Participation process to develop the NBS

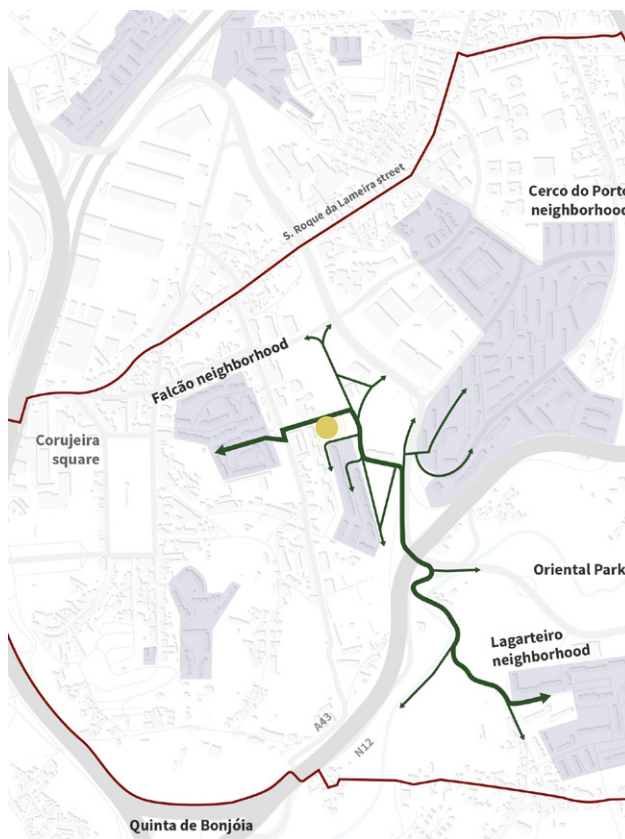
CO-DIAGNOSTIC

The need to improve literacy for environmental issues was identified during the diagnostic activities.

CO-SELECTION & CO-DESIGN

The Educational Living Lab was proposed by teachers of the primary schools and then developed in several participatory activities:

- Online workshop (06.2020)
- Workshop with citizens and municipal technicians (14.07.2020)



State of the art: The proposal is already integrated in the healthy corridor preliminary study. The activities programme can be developed with the teachers of the several primary schools.

Best Practices and References

Environmental Educational Activities organised by the Municipality of Porto (environment Department and São Roque Environment Centre)



32. Eco-construction and urban farming activities

Positive aspects/challenges

POSITIVE

- Citizens involvement in disseminating ancestral techniques and local traditions;
- Promote awareness to the value of local vegetation (cork oak);
- Possible synergy with other citizens' ideas: Campmarket, Campanhã'up.

CHALLENGES

- Need for authorization to boost activities in public space;
- Some activities with specific legal issues: e.g., cork extraction.

Describe participation process to use the NBS

CO-DIAGNOSTIC

The need to improve the local economy, to encourage healthy and traditional food/products, to create community, cultural and participatory opportunities, to respect existing memory and autochthonous plants and trees and, finally, improve literacy for environmental issues was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

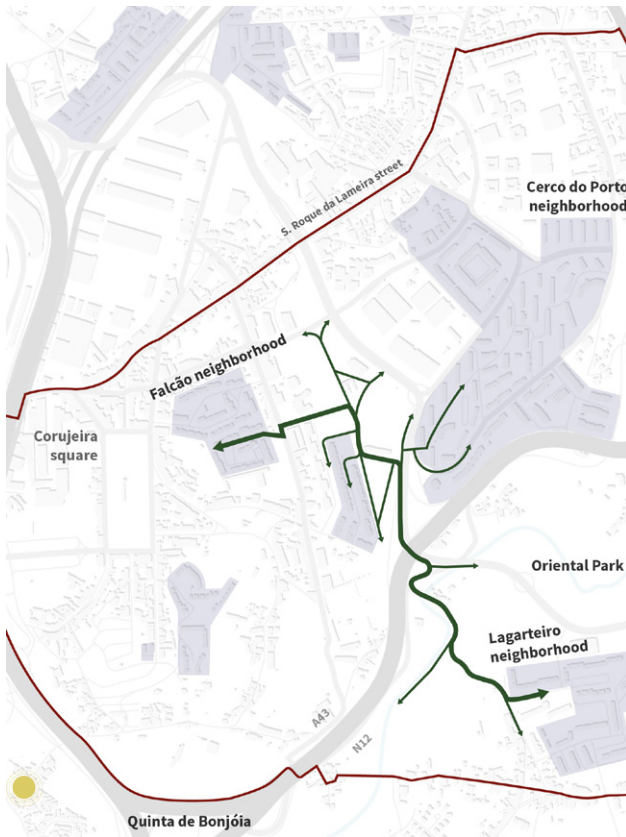
The Eco-construction and urban farming activities was proposed by a group of citizens, namely Nuno Moutinho, *Associação Soalheira*, and then developed in several co-design activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (26.01.2020)
- Citizen's video (26.06.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal can be developed, namely in the public event "Experimento".

Best Practices and References

N.A.



Description

The proposal aims to develop Eco-construction and urban farming activities to share knowledge about the landscape and local practices: broom production; cork harvest; planting and mapping cork oaks; tree planting; dynamization of urban gardens; tree climbing, among others.

33. Collective cleaning actions in public spaces

Description

The proposal to organize cleaning actions follows on from several proposals and ideas that were given concerning the Campanhã area because there is a need to raise awareness for the maintenance and cleaning of public spaces. It is intended to carry out collective cleaning and pedagogical and awareness actions on garbage/consumption. This initiative aims to be included in the school's program to be developed.

Positive aspects/challenges

POSITIVE

- Community cleaning as an opportunity to raise public awareness of the issue;
- Possible synergy with other citizens' ideas: Campanh'up, Educational living lab

CHALLENGES

- Implies ensuring security conditions to those involved so that the activity can take place;
- Requires articulation with municipal social action, civil protection and urban cleaning services.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to create community, cultural and participatory opportunities, to respect existing memory and to improve literacy for environmental issues was identified in the local diagnostic with several methods and participatory activities.

CO-SELECTION & CO-DESIGN

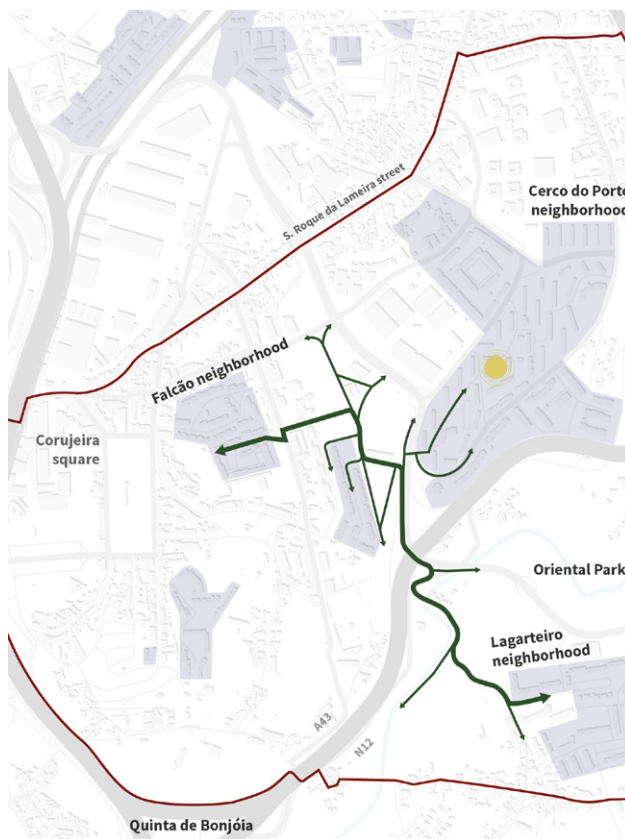
The Collective cleaning actions in public spaces was proposed by a group of citizens, namely pupils and teachers of Cerco do Porto Primary School, and then developed in several co-design activities:

- Cerco do Porto primary school workshop and walkthrough (13.12.2019)
- Citizen workshop with adults (15.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal can be developed, namely in the public event "Experimento".

Best Practices and References

N.A.



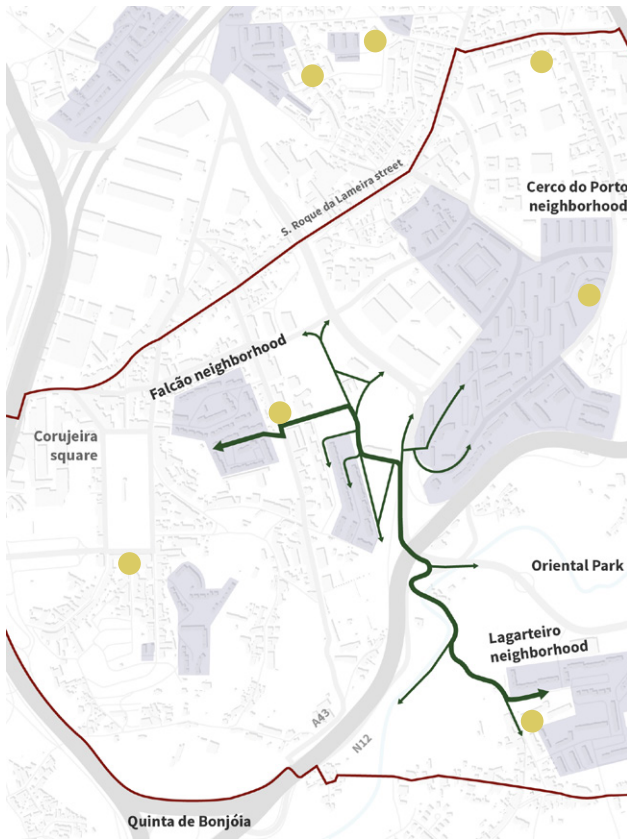


34. Pedagogical farming initiatives in local schools

- Possible synergy with other citizens' ideas: Community garden; Educational living lab;

CHALLENGES

- Regarding schools in the region: Falcão Primary School already has a plot in *Horta da Oliveira*; Corujeira Primary School has no space available; Cerco do Porto Primary School is very close to the future Pedagogical farm (Quintinha pedagógica);
- Several urban gardens distributed over different spaces result in an overload/dispersion of maintenance resources;
- Lack of human resources to ensure the maintenance of equipment and spaces, especially during school vacation periods;
- Nossa Senhora de Campanhã Primary School did not participate in URBinAT activities



Participation process to use the NBS CO-DIAGNOSTIC

The need to Improve literacy for environmental and qualified green areas and nature in urban environment issues was identified during the diagnostic activities.

CO-SELECTION & CO-DESIGN

The Pedagogical farming initiatives in local schools was proposed by pupils and teachers of the primary schools and then developed in several co-design activities:

- Corujeira primary school workshop and walkthrough (06.12.2019);
- Cerco do Porto primary school workshop and walkthrough (13.12.2019)
- Falcão primary school workshop and walkthrough (10.01.2020)
- São Roque primary school workshop and walkthrough (24.01.2020)
- Workshop with citizens and municipal technicians (14.07.2020)
- Online meeting with the head teacher and coordinators of Cerco do Porto group of schools and IAAC (14.01.2021)

Description

This proposal to organize Pedagogical farming initiatives in local schools takes into account the relevance of agriculture in urban context. There is a general interest in promoting educational farms in the different schools of the Grouping of *Cerco do Porto*. In this sense, the proposal aims to expand the existing project "*Quintinha Pedagógica*" to every Campanhã primary school to create urban agriculture or gardening solutions.

In addition to the school community, it would be interesting to involve the local community and parents' associations.

Positive aspects/challenges

POSITIVE

- Integration of local partners in the field of training, raising awareness and maintaining the garden;
- Raise awareness to the value of agriculture in school communities;

State of the art: The proposal is being developed in the frame of the technological solutions proposed by IAAC, with the co-design of one NBS per each school, articulated with pedagogical equipment in the schools' playgrounds.

35. Pedagogical equipment in the schools' playgrounds

Description

The proposal aims to provide more/new pedagogical equipment for school's playgrounds, complementing existing ones, that, in some cases are not appropriate for age groups (usually are only fit for younger children). The proposal is part of the existing agenda aimed at investing in schools.

Positive aspects/challenges

POSITIVE

- Provide recess facilities with educational and playful structures;
- Possible synergy with other citizens' ideas: Pedagogical farming initiatives in local schools.

CHALLENGES

- Outside the defined intervention area.

Participation process to use the NBS

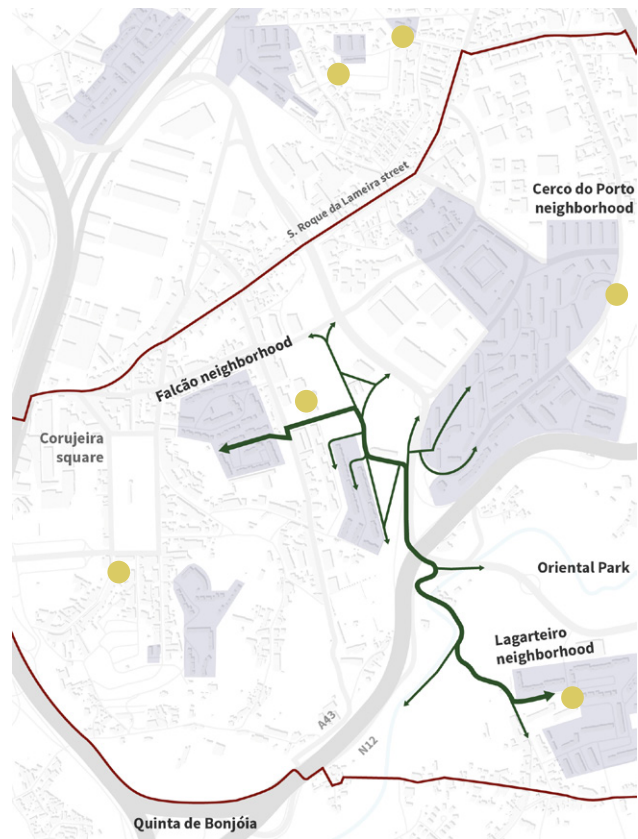
CO-DIAGNOSTIC

The need to qualified green areas, create play areas for children and entertainment opportunities was identified during the diagnostic activities.

CO-SELECTION & CO-DESIGN

The pedagogical equipment in the schools' playgrounds was proposed by pupils and teachers of the primary schools, and then developed in several co-design activities:

- Corujeira primary school workshop and walkthrough (06.12.2019)
- Cerco do Porto primary school workshop and walkthrough (13.12.2019)
- Falcão primary school workshop and walkthrough (10.01.2020)
- São Roque primary school workshop and walkthrough (24.01.2020)
- Workshop with citizens and municipal technicians (14.07.2020)
- Online meeting with the head teacher and coordinators of Cerco do Porto group of schools and IAAC (14.01.2021)



State of the art: The proposal is being developed in the frame of the technological solutions proposed by IAAC, with the co-design of one NBS per each school, articulated with the Pedagogical farming initiatives in local schools.

Best Practices and References

IAAC technological NBS from URBiNAT catalogue



36. Local primary schools playground improvement

Positive aspects/challenges

POSITIVE

- Provide recess facilities with educational and playful structures;
- Offer better conditions of use to students and staff;
- Possible synergy with other citizens' ideas: Pedagogical farming initiatives in local schools.

CHALLENGES

- Outside the defined intervention area.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to qualified green areas, create play areas for children and entertainment opportunities was identified during the diagnostic activities.

CO-SELECTION & CO-DESIGN

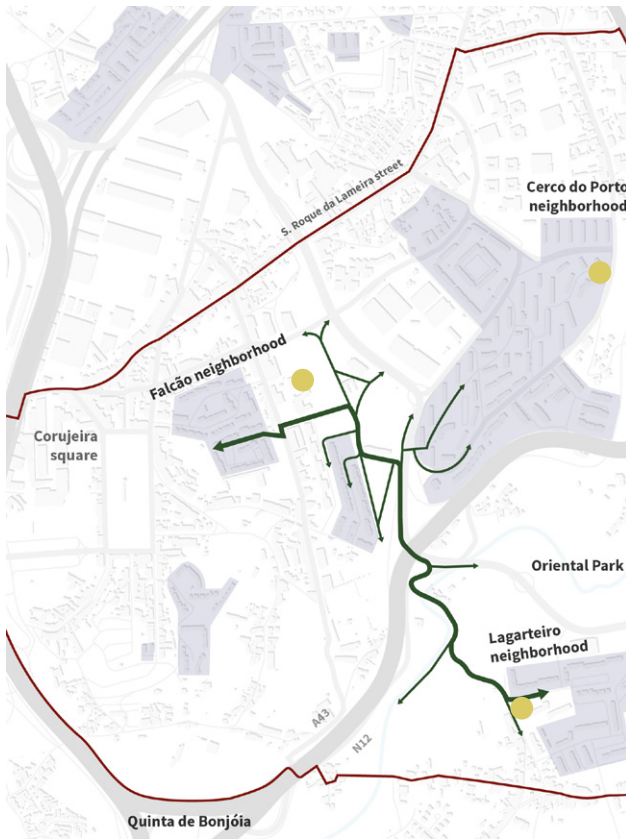
The Local primary school's playground improvement was proposed by pupils and teachers of the primary schools and then developed in several co-design activities:

- Corujeira primary school workshop and walkthrough (06.12.2019)
- Cerco do Porto primary school workshop and walkthrough (13.12.2019)
- Falcão primary school workshop and walkthrough (10.01.2020)
- São Roque primary school workshop and walkthrough (24.01.2020)
- Workshop with citizens and municipal technicians (14.07.2020)

State of the art: The proposal was channelled to other municipality projects.

Best Practices and References

N.A.



Description

This proposal aims to improve local primary schools' playgrounds and is also linked to the lack of pedagogical equipment. It would include: repaint facades, requalify green spaces and existing vegetation, installation of new equipment (drinking fountains, outdoor furniture).

37. Local primary schools access area improvement

Description

This proposal to improve school entrances takes into account the widespread need to rethink school entries in terms of safety for both students, families and staff.

Each school has specific challenges:

- Primary School of Corujeira: Alteration of the entrance to the side street (entrance through the school playground);
- Primary School of Cerco do Porto: Change of entrance to the playground side;
- Primary School of Falcão: Change of entrance due to lack of space on the Falcão Street sidewalk (link with Meeting spot next to Falcão Primary School with sensory garden)

Positive aspects/challenges

POSITIVE

- Provide better accessibility and security conditions to the school community;
- Possible synergy with other citizens' ideas.

CHALLENGES

- Outside the defined intervention area.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to qualified green areas, create play areas for children, resting areas and community opportunities was identified during the diagnostic activities.

CO-SELECTION & CO-DESIGN

The Local primary schools access area improvement was proposed by pupils and teachers of the primary schools and then developed in several co-design activities:

- Corujeira primary school workshop and walkthrough (06/12/2019)
- Cerco do Porto primary school workshop and walkthrough (13/12/2019)
- Falcão primary school workshop and walkthrough (10/01/2020)
- São Roque primary school workshop and walkthrough (24/01/2020)
- Workshop with citizens and municipal technicians (14.07.2020)



State of the art: The proposal was channelled to other municipality projects

Best Practices and References

N.A.



38. Environmental Education Centre

- Alternatively, environmental activities promoted by the proponents can take place in Lagarteiro Primary School.
- Possible synergy with other citizens' ideas: Urban Garden expansion (*Horta do Oliveira*); Educational living lab, eco-construction.

CHALLENGES

- The implementation of the Environmental Education Centre is not enough to solve the need to reformulate/reform the walkway or the insecurity issues identified in the space. It requires not only intervention in the territory but also in the social scope, demanding a more complex and integrated approach;
- Campanhã parish already has an environmental education centre (*Parque de S. Roque da Lameira*) nearby.

Participation process to use the NBS

CO-DIAGNOSTIC

The need to Improve literacy for environmental issues was identified during the diagnostic activities.

CO-SELECTION & CO-DESIGN

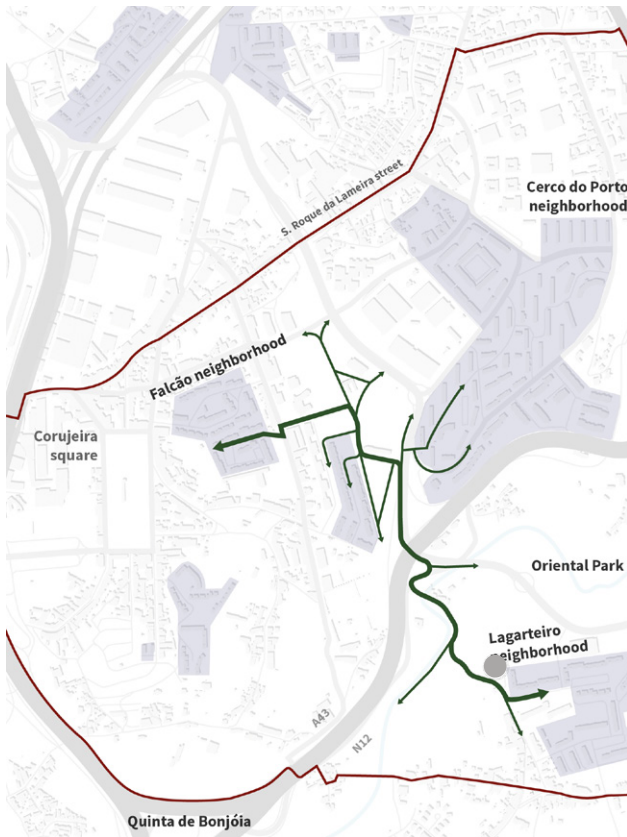
The Environmental Education Centre was proposed by Laurinda and Paulo Lima, association LAgartixa Park, and then developed in several participatory activities:

- Citizen workshop with adults (15.01.2020)
- Face-to-face meeting with local facilitator (26.01.2020)
- Workshop and walkthrough with citizens and municipal technicians (14.07.2020)

State of the art: The proposal is not to be developed because Campanhã parish already has an environmental education centre (*Parque de S. Roque da Lameira*) nearby. Environmental education will be promoted in the frame of the Educational living lab.

Best Practices and References

Environmental Educational Activities organised by the Municipality of Porto (environment Department and São Roque Environment Centre).



Description

The proposal to create an Environmental Education centre stems from the fact that there is an emerging need to “reprogram” the activities and features of the open space at the end of Rua do Lagarteiro through the creation of a facility (e.g., Environmental Education Centre) that leads to its use and maintenance. The proposed facility – URBiNAT school with an environmental education centre – would create awareness of green and natural spaces while increasing the affluence of people, thereby contributing to increasing the safety of the route/area.

Positive aspects/challenges

POSITIVE

- Responsiveness by the Municipal Environmental Education Service to boost activities;

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HEALTHY CORRIDOR CONCEPT NANTES

Project

Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

Acronym

URBiNAT – Urban inclusive and innovative Nature

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Healthy corridor Concept

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HEALTHY CORRIDOR CONCEPT NANTES



Project Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

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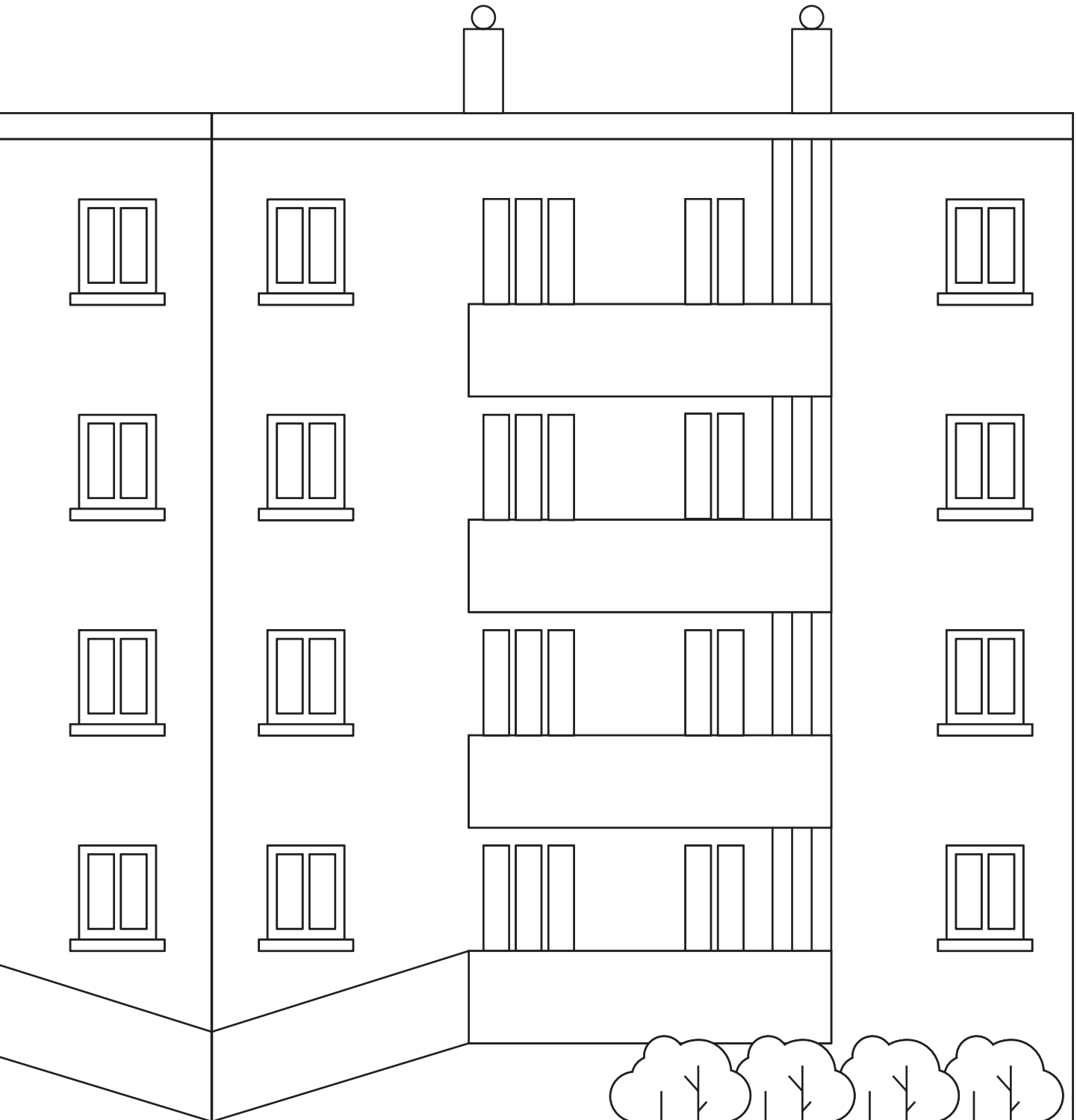
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Nantes

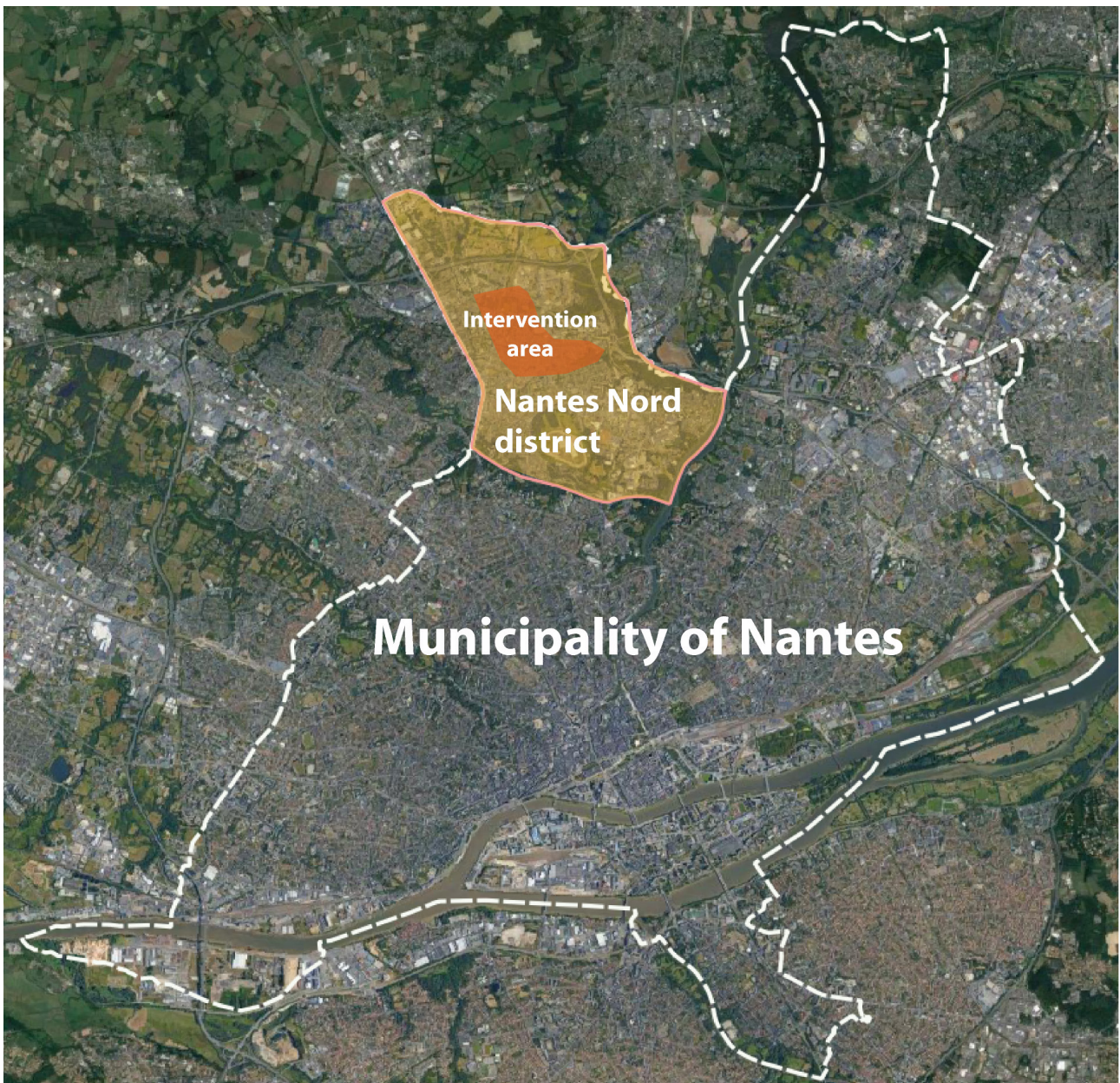


Figure 1. Location of study and intervention areas in Nantes.

1. From the city to the intervention area

1.1 A major urban renovation project at Nantes Nord scale: the Global project

Unlike many French or European social housing areas, Nantes Nord is particularly well connected to the city centre via a tram line, several bus lines and secondary roads. The district is located inside the ring road (except the Angle Chaillou farm which is located on the other side of the ring, accessible by a bridge) and also one of the greenest districts of the city. Though, as the Local Diagnostic will underline, health and socio-economic indicators are worrying. It is indeed one of the districts with the highest poverty rate. The city decided to seek for national funding for the urban renewal of Nantes Nord.

Supported by the ANRU, the national agency for urban renewal, the municipality started to develop an urban project at Nantes Nord scale from 2016 (prefiguration contract).

The urban project – the Global Project – is a major rehabilitation project with a 121 million euros budget. It plans to develop a scheme for the period 2023-2030 (implementation phase). The program targets several topics: social and cultural life, economy and public equipment, mobility issues, public spaces and housing.

It includes an important component on landscape structure and forms, and will thus include NBS. But it also integrates traditional civil engineering solutions, notably with interventions on buildings and infrastructures.

In 2016 and 2017, the one-year extensive co-diagnostic, with more than 900 inhabitants or local stakeholders involved, and the studies carried out mainly by the group of urban planners and landscapers (Mandatory team lead by Germe & Jam, architect-urbanist) led in 2018 to the production of the “guide plan”, the development strategy for the Nantes Nord district by 2030. This one was revised in 2020 integrating complementary studies.

1.2 The URBiNAT opportunity and expected added value

The municipality saw an opportunity in URBiNAT as a preliminary to the Global Project. The two projects indeed share the same general objectives of improving the health and the well-being of the inhabitants.

URBiNAT also meets the municipality concerns of the co-creation process: the so-called Citizen Dialogue, that the municipality has enforced as a way of doing since 2014. The integration in URBiNAT also allows going further in the co-creation process already existing in Nantes, with especially the co-evaluation phase. The municipality has therefore chosen to integrate Nantes Nord as a study area for the URBiNAT project.

Another argument is that the city of Nantes wants to share its experience and explore more in depth the appropriateness of giving more space to green spaces and nature (and by extension to open and public spaces) in urban renovation.

The city of Nantes, through its local history (horticultural and botanical activities) and through a strong political support for several years (“Four flowers” national award in 1988, European Green Capital in 2013), gives importance to the place of vegetation (nature and gardens) in the city. Urban landscape is thus a strategy for the urban development of the city. At the metropolitan level, this strategy is taking shape in the “Green Star” scheme. Seen from the sky, Nantes, with its network of rivers and parks, looks like a large, graphic green and blue star. Announced in 2015 and inspired by Boston’s “Emerald Necklace”, the plan highlights the networking of the green corridors that run along the Loire, Erdre, Cens, Gesvres, Chézine and Sèvre rivers with Nantes’ major parks and green spaces that create a network of biodiversity and walking paths.

The municipality has already several experiences of this urban landscape approach in eco-districts, or in projects in central spaces of the city, but it is a challenge to extend it in a social housing renovation one.

The integration of landscape aspects and NBS are already included in the Global Project, pushed by the municipality. But the Global Project is more constrained by the ANRU framework that, by the way, does not give such importance to landscape and natural aspects. The URBiNAT

project was therefore considered more appropriated. It also gives the opportunity to test the implementation and assess the impact of a network of NBS through the Healthy Corridor.

1.3 URBiNAT intervention area

Nantes Nord perimeter is the study area. This corresponds both to the diagnostic and evaluation scale.

The intervention area focuses on a reduced area in the North of Nantes Nord, where are the priority districts (QPV), the social housing districts with concentration of difficulties.

Located in the north-western part of the city, the “Nantes Nord” district is one of the 11 districts of Nantes municipality. It is itself subdivided in 9 micro-districts.

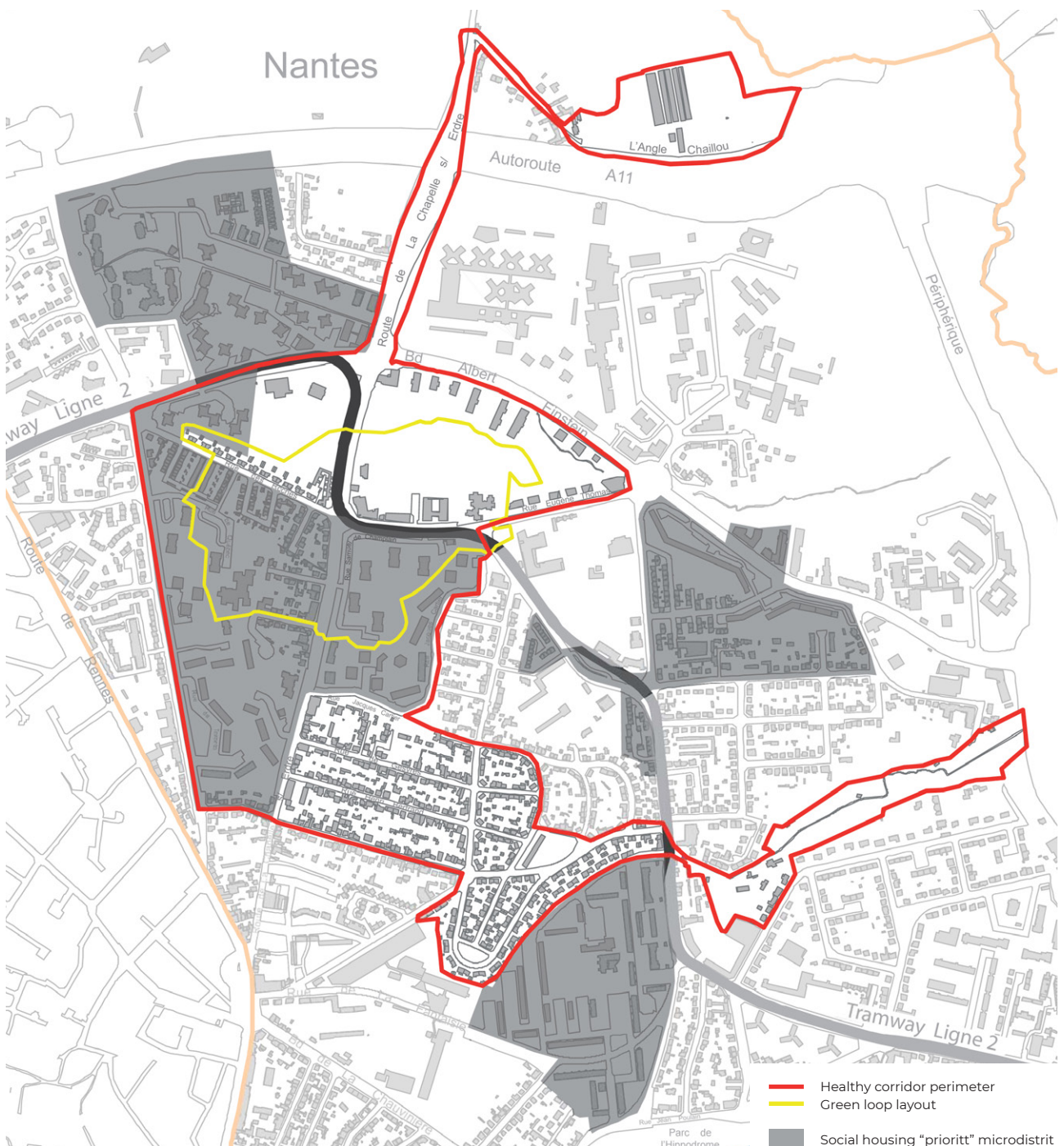


Figure 2. URBiNAT intervention perimeter in Nantes Nord.



Figure 3. The study area with the 9 micro districts of Nantes Nord and the 'priority' areas (QPV, in green).

Between the valleys of the Gesvre, Erdre and Cens rivers and close to Orvault and La Chapelle-sur-Erdre, the Nantes Nord district is one of the gateways to Nantes.

The greenest district of the city (62m² per inhabitant), is made of a mix of urban forms:

- low rise housing area or suburbs for the oldest parts (faubourgs);
- allotments (lotissements);
- New constructions, dead-end housing estates, business and commercial areas;
- Large social housing complexes, university campuses, urban facilities;

The district results now in an archipelago. Social housing estates created in the early 1970s were built according to a sector and residential

unit logic (separation of car and pedestrian flows) leading to the reversal of the traditional block structure: in front the private residential parking lot, behind the green spaces. Social housing estates are therefore easy to cross on foot, with a very good pedestrian network, but difficult to cross by car.

The separation of social housing from the public streets, the introduction of residential landscaped spaces leads to the isolation of social housing. Far away from car traffic, drug dealing can develop more easily.

Nevertheless, social housing is encompassed in an urban fabric meshed by roads, public transport and many facilities.

A very efficient network of services and public spaces allows citizens to access amenities easily within a radius of proximity to their home.



Figure 4. Interlacing between residential areas and social housing buildings in the Chêne des Anglais subdistrict. (Source Nantes Métropole Photo © baloon-photo.com 2015).

2. Co-creation process

2.1 Method approach

2.1.1 Principles

Integration of *URBiNAT* in existing plans and links with the other projects going on in the district

URBiNAT co-creation process in Nantes should not be considered in isolation. It must be integrated in municipal approaches and connect with the other projects.

- The participatory process implemented in URBiNAT is integrated into a territory where dialogue with the inhabitants is already highly implemented. In order to respect the voice of the inhabitants and the principles of co-creation, the task force must guarantee the continuity. Participatory process is therefore not linear, but it is an interactive process. The URBiNAT

participatory process is fed by outputs of previous participatory activities and some of the URBiNAT outputs will feed other/future projects. Indeed, the ideas proposed by the inhabitants may need further discussions for the co-implementation, or more time to integrate the right local stakeholders. This applies in particular to the immaterial NBS.

- As an urban project, the urban renovation project (global project) is integrated in an urban regeneration trajectory. The district has already been the subject of several projects through the last 30 years. Currently, the URBiNAT project is leading in complementarity with the Global project and with the advanced stages of the Revers'EAU project (that will officially start in 2023) Figure 5.

Spatial scales

Projet Global: Large district scale : Nantes Nord

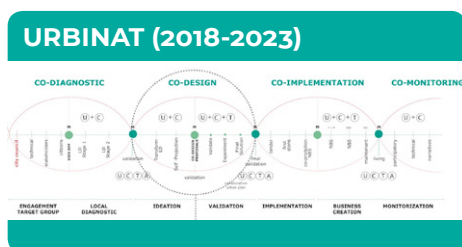
URBiNAT: Nantes Nord as study area and part of it as intervention area

Revers'EAU: the Renard stream valley in Nantes Nord

Schedules

Global project – Urban project for the district
2017-2030 (121 millions Euros)
Initial diagnostic
2016 2017

Physical implementation
2023 2030



Revers'EAU: construction works for the reopening of the Renard stream Interreg project 2023-2027



Figure 5. Interrelation between URBiNAT and the other projects going on in the district.

Identification and engagement of relevant audience for the participatory

The Nantes task force does not necessarily seek to include all inhabitants at every stage, but rather to seek to engage the relevant audiences in the projects. In the Canada Park, for example, the municipality sought to hear from the girls, with the ambition of contributing to the reappropriation of public space by the women and girls of the district. The Canada Park was also intended to enable residents to reclaim the space where drug dealers had taken up residence.

Once the target audience is identified, it is important to tailor the participation materials to the audience. For example, public meetings in the evening are attended mainly by elderly people and people from more privileged socio-professional categories. Working with schools, sports associations, etc. and proposing more lively activities can help to reach younger audiences. Nevertheless, some audiences remain particularly difficult to reach, such as isolated men for example.

2.1.2 An approach with the definition of four framework units

Within URBiNAT intervention area, four preliminary framework units were identified.

- “The Canada park”, a multifunctional urban park with attention on social cohesion and gender issue on public space;
- “The re-opening of the Renards stream”, with a focus on biodiversity;
- “The green loop”, the first walking path out of 5 planned for the district, as a tool for physical activity and support for immaterial NBS;
- Healthy food production access to all through green spaces and community gardens at the district scale. (The initial idea was to take over the Angle Chaillou farm by the municipality, but the negotiations were not successful and the thematic of urban agriculture was rethought through other channels).

Based on local diagnostics, they were determined both on location, specific thematic, concerned inhabitants and the local stakeholders involved.

The identification of framework units does not compromise the integrity of the healthy corridor, the four units being interconnected in the overall URBiNAT project. In fact, the four units have only an operational methodological vocation, mainly to facilitate organization of participation interventions. This division by framework units aims to give well framed participatory activities in terms of goals and length of time. It also aims to target publics that are potentially more interested by identified goals (even if activities are not limited to these most targeted public, and which do not exclude that public can take part in different framework units).

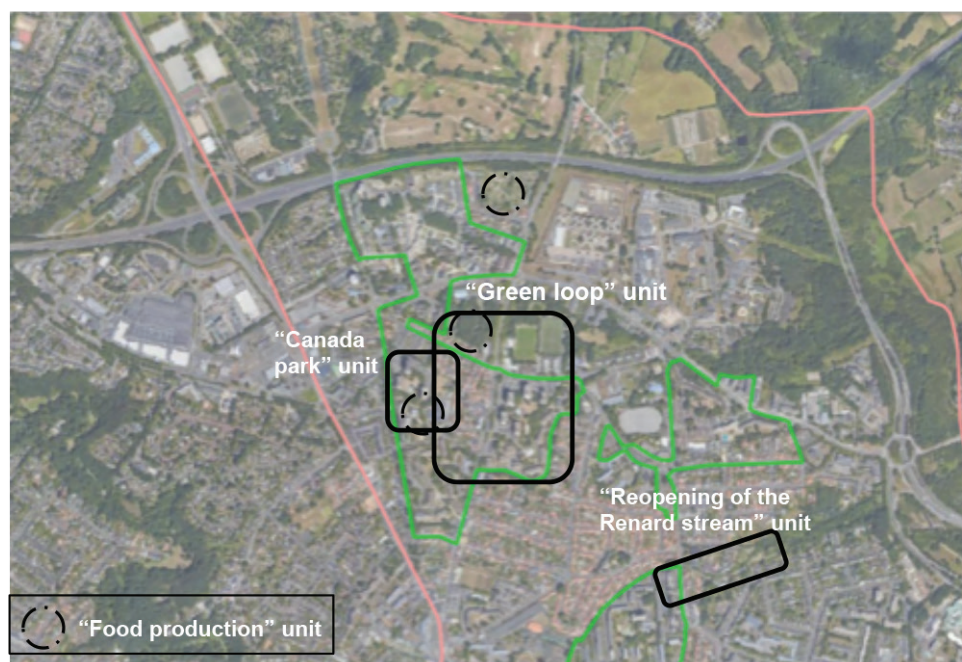


Figure 6. Framework units in Nantes Nord (map centred on URBiNAT intervention area).

2.2 Co-creation – method process

2.2.2 Overview of the co-creation process

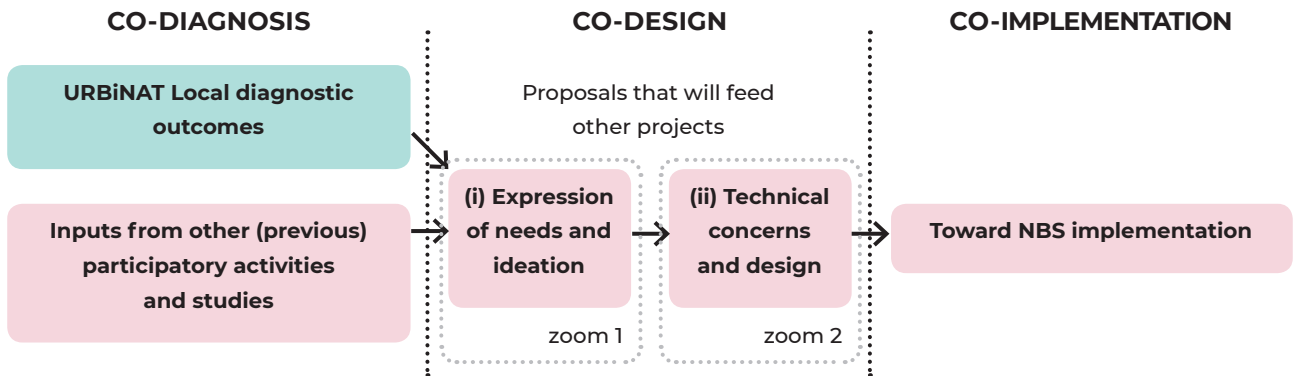


Figure 7. Scheme of the co-creation phases.

2.2.3 The co-diagnostic stage

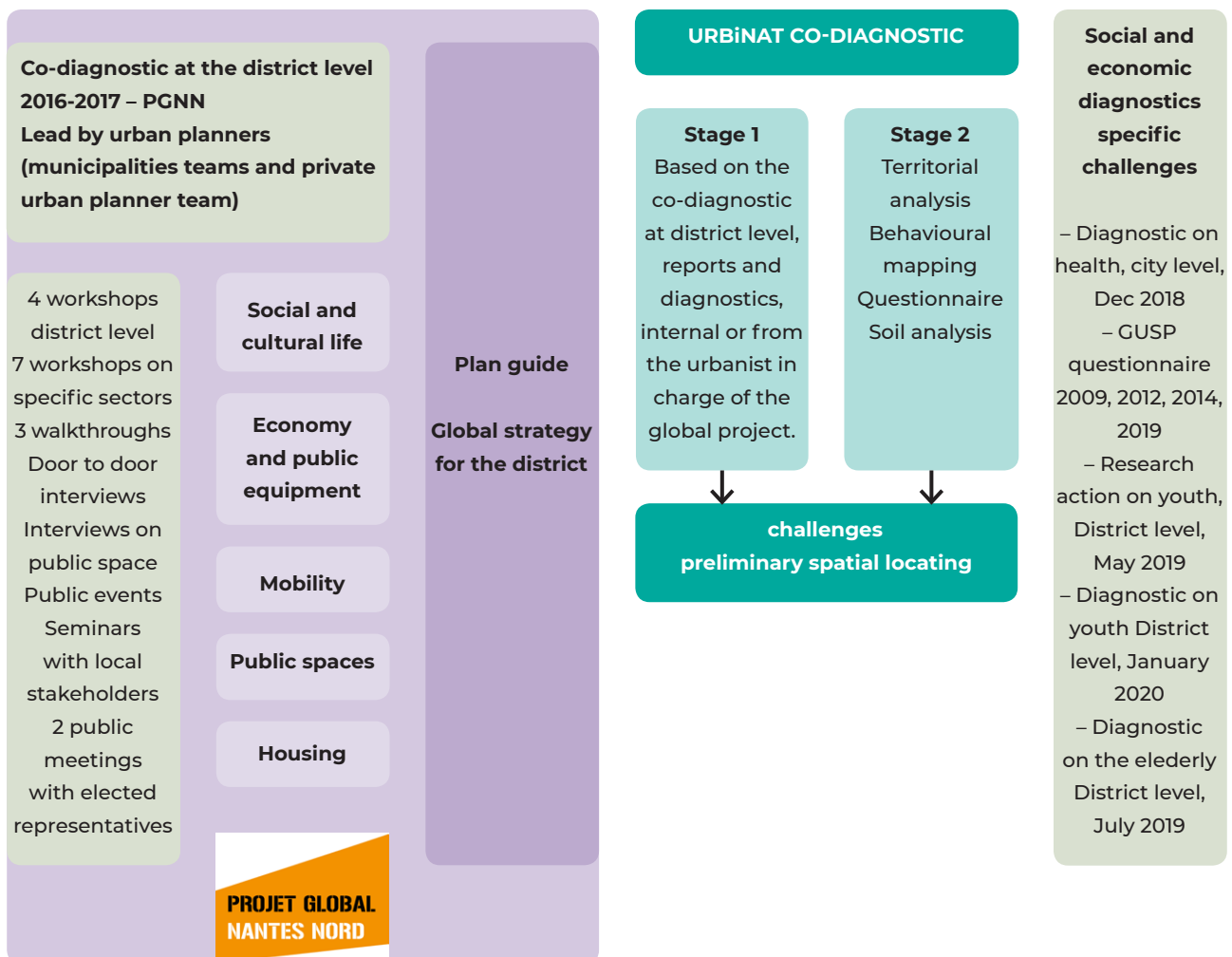


Figure 8. Synthesis of methods (and project affiliation) that produce data used to base the project of the Healthy Corridor.

Nantes Nord is a district in transition, where the culture of dialogue and co-creation is strongly rooted. In 2016-2017, an entire year has been devoted to exchanges with the inhabitants to draw up the guiding plan, the development strategy plan for the district. 350 inhabitants and stakeholders took part in workshops, public meetings and events during the year. A further 900 people were questioned directly on public space. Completed by interviews with local stakeholders and city services, an extensive diagnostic of the city was co-developed. Interviewed in the street, at the foot of the house, over a coffee or at a meeting table, everyone was able to share their knowledge, problems, perceptions and practice on the social and cultural life, on economy and public equipment, on public space, housing and mobility.

These diagnostic elements were reused and completed in the Local diagnostic report implemented in the URBiNAT in 2018-2019. This work was structured following two stages.

The first one aimed to collect existing knowledge and data on the neighborhood, and the second one continued the diagnostic by several methodologies specifically developed by URBiNAT partners.

The outputs of these actions were reported in the D2.1 Nantes Local Diagnostic (Dec. 2019).

Finally, this co-diagnostic stage was completed by specific diagnostics carried out by the municipality services, namely the health diagnostic, the elderly diagnostic, the youth diagnostic and the questionnaire of the Urban and Social Management of Proximity, also fed into the URBiNAT project by underlining the need to target certain groups for whom the issues of physical and mental health are particularly important.

2.2.4 The co-design stage

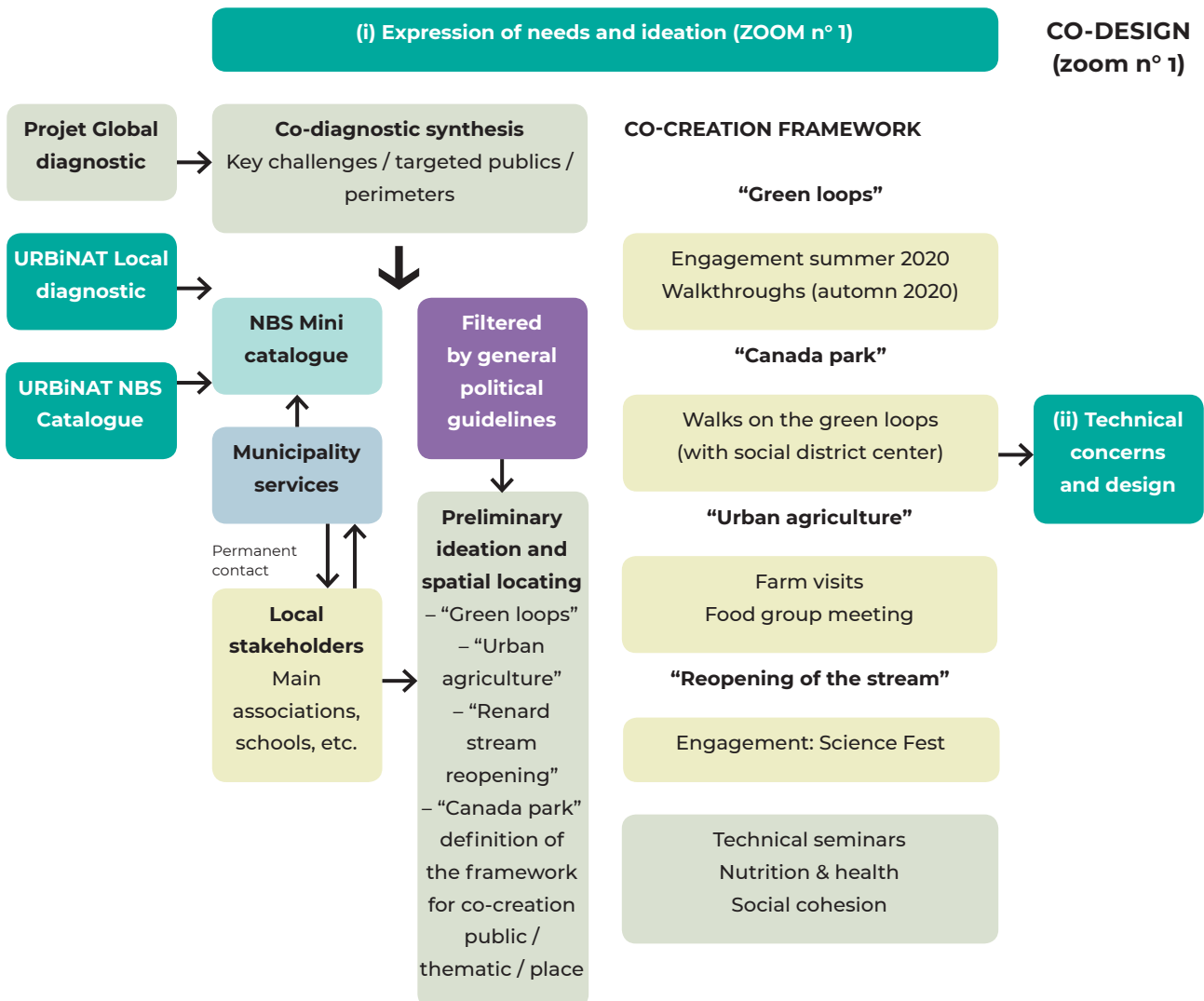


Figure 9. Scheme for the co-design evolution – initial phase.

The co-diagnostic (Projet Global + URBiNAT) made it possible to identify the main challenges to be met in the district and led to 4 strategic objectives of the global project, the urban project that will transform the district by 2030:

enhancing the landscape and green spaces of the neighbourhood, facilitating mobility, especially by car, better distribution of services, rehabilitation of housing.

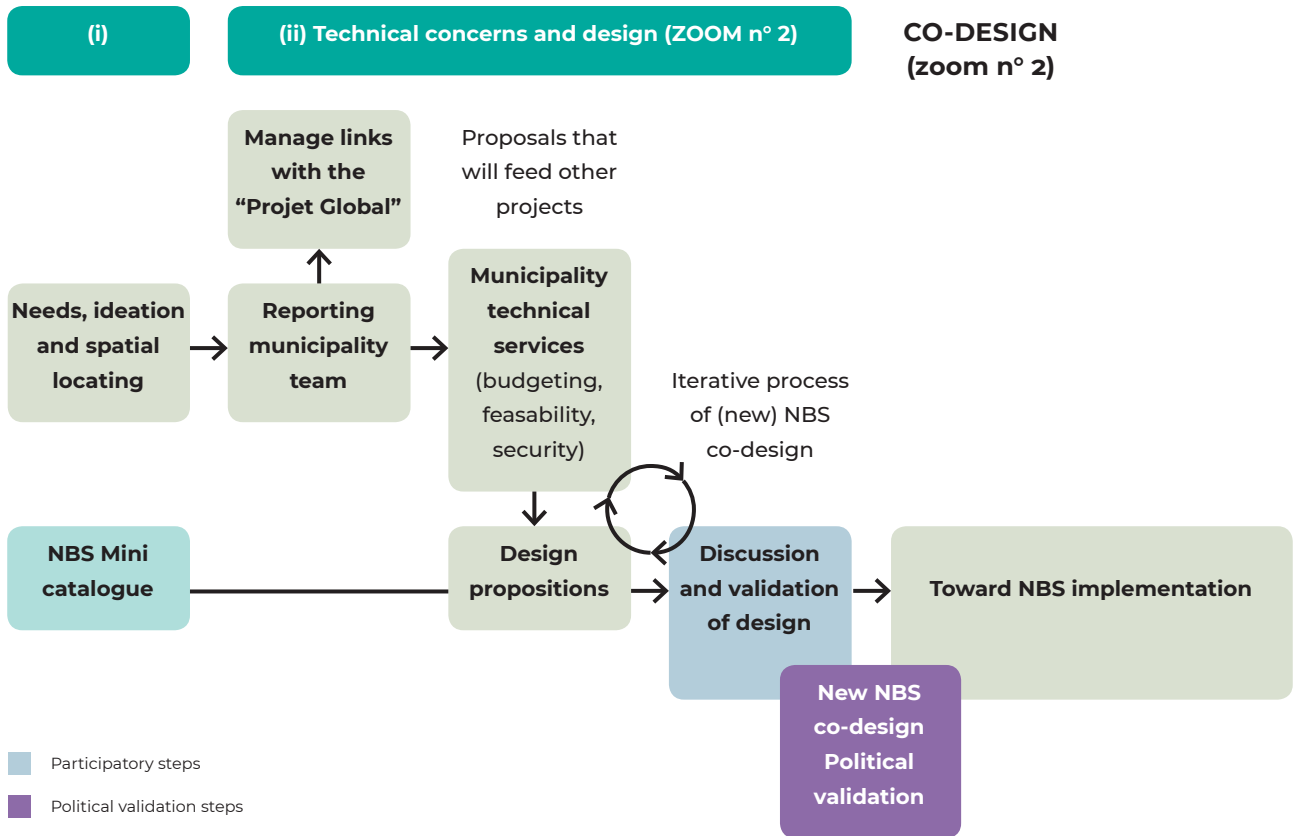


Figure 10. Scheme for the co-design evolution – second phase.

2.3 Co-creation activities and timelines

To set the district in movement, the municipality relies also on local stakeholders to:

- Engage specific publics targeted following the Local Diagnostic
- Propose immaterial solutions to contribute to the healthy corridor

Those immaterial solutions will need to be more defined in a second phase of co-design in Spring 2021.

General co-creation time frame

The co-creation process follows the chronology as developed in the URBiNAT methodology. However, the four different framework units follow different developments and are therefore not necessarily at the same stage at a given moment (Figure 11).

The difference of advancement between framework units depends on different reasons. When one has for example already been nourished by exchanges with the inhabitants before the beginning of URBiNAT, such as the green loop which was proposed within the framework of the consultation of the multi-professional health centre in 2016, others are only at the embryonic stage, such as the reopening and renaturation of the Renards stream in a highly urbanised area which will require several years of studies before it is actually reopened. The works for the reopening of the stream have therefore been integrated in the LIFE REVERS'EAU project as a continuum of the work engaged within URBiNAT.

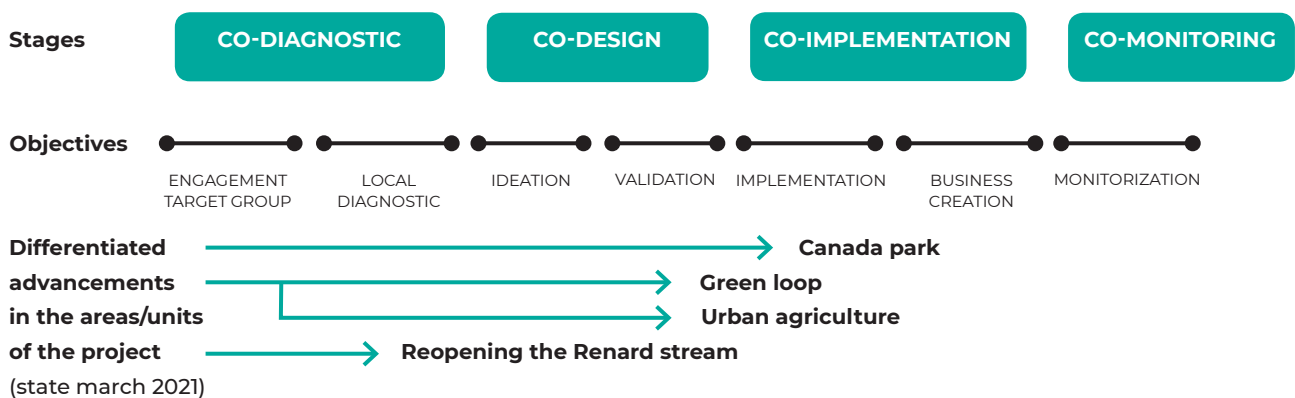


Figure 11. Advancement of the Co creation process in the four framework units.

Below the co-creation time frame for each framework unit.

As the negotiations for the Angle Chaillou farm failed, no direct workshops were planned with the inhabitants on urban agriculture. Though, the district already counts 5 family or shared gardens with a long waiting list. And food

production became even more central with the Covid19 crisis where inhabitants of social housing districts have fallen into such precarity that it was difficult for them to feed their families. Within the green loop walkthroughs in Autumn 2020, inhabitants expressed wishes connected to food production.

Canada park

2017

FEB-MARCH



Engagement
Suggestion box



2017

APRIL-JULY



Co-diagnostic and engagement activities
Main needs and challenges



2018

12TH DEC



Presentation of the general construction plan
Validation by inhabitants



2018

MARCH-APRIL



Public event and co-design activities
Propositions of inhabitants



2019

DEC



Choice of the playgrounds and naming of the park by the inhabitants



2020

FEB



Political validation



2020

MARCH



Start of the construction work

- Inhabitants
- Elected representatives
- Nantes Task force

Figure 12. The Canada Park co-creation timeline.

The co-creation process for the Canada park focuses on participants living near the park. The citizen dialogue bus, the tool for co-creation processes of the municipality, was mobilized directly on site, to get the inputs of the inhabitants. Before that, an idea box was placed in the Canada park to collect the wishes of the inhabitants, as well as a ground marking to delimit the area concerned. This also helped to mobilise them for the first workshop held during the spring of the project, an annual event in the district, where the proposals were studied and discussed by the inhabitants. Many of the children and teenagers present on site and users of the teenage club expressed a desire for a scooter track and swings (especially the young girls). There was a strong demand for gardens and the renovation of the city-stadium. An older request for a petanque court was added, as this space is intended to bring together people of all ages. A second phase with sketches of the playground was proposed to the inhabitants who were able to give feedback on their desires. At the same time, gardening workshops were offered on the recent planters,

in order to engage the inhabitants who had mentioned this wish and created a collective to plant the gardens. Also, benches were made by the gardeners of the City of Nantes from trees cut down in the Amande wood, and unloaded, i.e., taken out of the wood by a horse, which went around the district. Some of them were left at the CUB, so that the inhabitants could personalise them. Most of them were given a metal plate indicating "Made in Nantes Nord" since they were entirely produced in Nantes Nord.

The playground was delivered in Autumn 2020, in the midst of the Covid 19 health crisis, and was a breath of fresh air for the inhabitants of the area. The playgrounds, located near the school exit, has already become a real place of social bonding. In addition, many families who did not allow their children to play outside, so that the children had no time outside of school to meet, now play together in this area. In Spring 2021, the petanque court will be completed, and before the summer a mini pump track will be built for scooter and rollerblade enthusiasts.

The green loop and urban agriculture

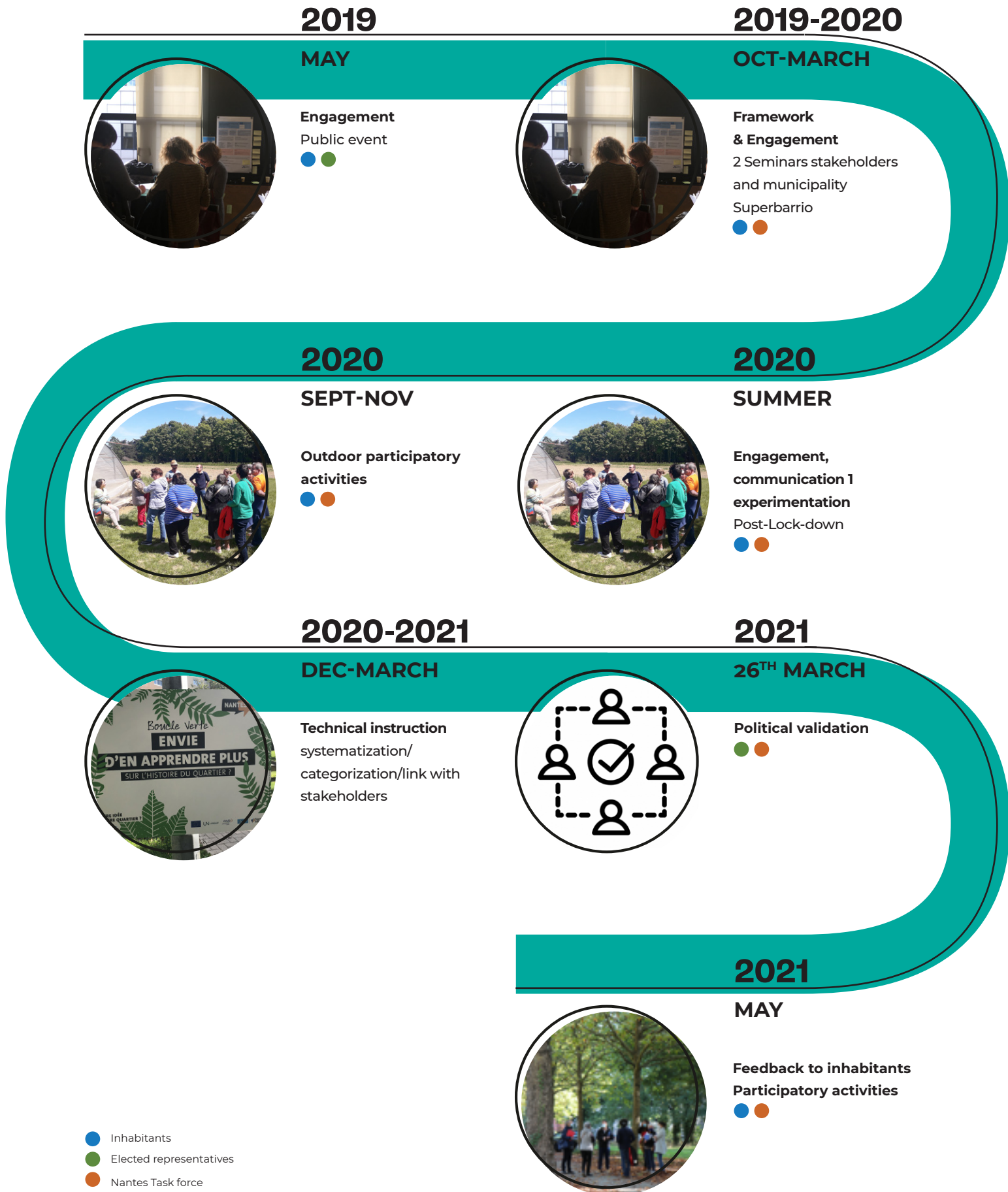


Figure 13. The green loop and urban agriculture co-creation timeline.

The green loop process started within the 2019 spring of the project week, with a presentation of the proposition to inhabitants through an exhibition of a map. The creation of a walking path was initially a suggestion of participants within the co-creation workshop of the health centre in 2016. The participants of the spring of the project focused their remarks on the route of the loop on the map, but had difficulty situating themselves. The task force realised that the process needed to be more framed. With the Local Diagnostic, we decided to write down the specific objectives of the walking path, i.e., improving the health of the inhabitants by encouraging them to take part in physical activity, increasing social cohesion, and being a support to discover the district. The target public was families, young people and the elderly, based again on the Local Diagnostic outputs.

From that point, it was decided to engage first local stakeholders and municipality services (sport, youth, social cohesion ...) to present them URBiNAT and the walking path in two seminars (Nov 2019 and March 2021) to get their input and help engage the target public. The task force also used the experimentation of the participative NBS Superbarrio to engage teenagers interested in digital tools in the URBiNAT project and especially in the green loop co-creation.

The methodology set up planned a walkthrough with professional and local stakeholders, planned in March 2020; a walkthrough opened to all publics in April 2020, during the Spring of the project week, and two specific walkthroughs followed by workshops with specific publics, ie elderly and the mobilisation of the retirement home located on the path and young people.

Due to the Covid 19 health crisis, all the events were cancelled. After 2 months of Lock-down, and with the restrictions that followed, the municipality felt that we needed to get again in contact with the inhabitants, contact that was broken for several weeks to concentrate on the most vulnerable. A communication campaign started in the Summer, with temporary road markings to physically create the path, questioning wood panels to ask the inhabitants what they wanted for the loop, and informal walks with the municipality team and inhabitant to present the project, to prepare the walkthroughs of October.

After the walkthroughs, it was decided to launch the technical instruction on the infrastructures, meaning that the first ideas on immaterial NBS should be deepened during a new session of co-creation workshops that are already planned during the Spring of the project of 2021 in May.

The reopening of the stream “Renards”

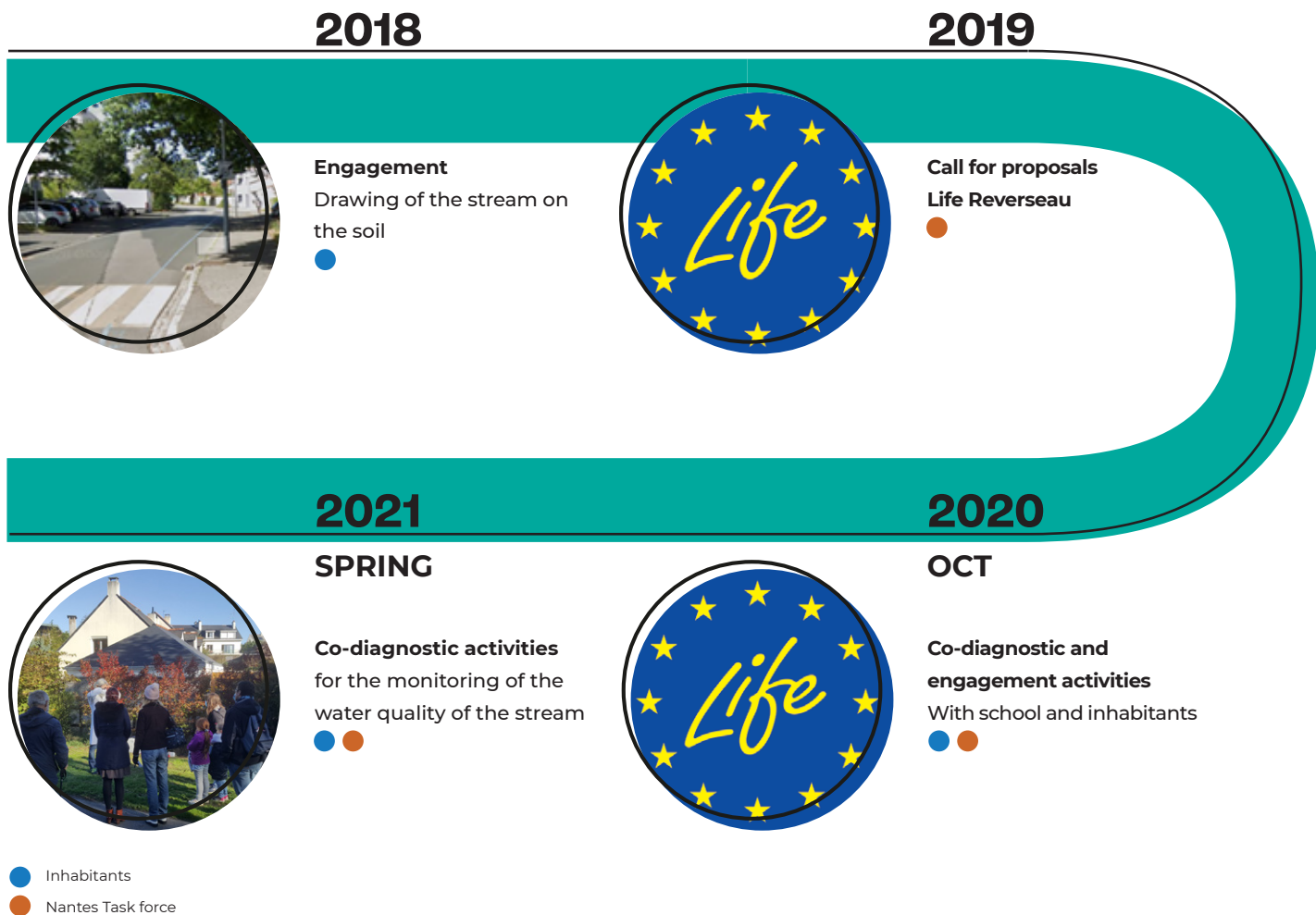


Figure 14. The reopening of the stream “renards” co-creation timeline.

The main orientations of the Water Cycle Department are to develop an integrated strategy for managing the water cycle on the scale of the metropolitan area and to ensure that it is consistent with urban development. It therefore deploys relevant stormwater management in order to better control the risks associated with flooding.

Nantes Métropole has been responsible for “Water Environment Management and Flood Prevention” since 1 January 2015. As such, it carries out actions to restore aquatic environments. It contributes to the achievement of the good status of water bodies/watercourses as defined by the Water Framework Directive.

The reopening and renaturation of the stream Renards is first and foremost an initiative of the municipality and the urbanist of the global project who plan within the global project to bring out the water in general in the landscape of the larger district Nantes Nord, in line with the strategy of Nantes Métropole.

In 2018, a line materialized the stream route on the road. In parallel, the first studies requested by the municipalities showed that the reopening of the stream would take several years of studies and authorizations before being able to start the construction works. It was then decided to ask to finance the construction works within the Life Revers’eau framework and concentrate in URBiNAT on the engagement of the inhabitants for the water quality monitoring of the stream, targeting secondary schools or inhabitants involved in associations related to nature. IRSTV within the annual science fest conducted several workshops on soil, air and water cycle to start the connection with the schools and inhabitants of the district.

The renards stream will in the future be connected to the healthy corridor by the future walking loops that will be networking the district starting from the first URBiNAT loop to the river Erdre at the other end of the district.

co-diagnostic

M01

14/05/2019



Involvement
Public meeting with inhabitants and the elected representatives

Presentation
Introductory meeting: presentation of URBINAT to citizen and elected representatives

M02

14/05/2019



Involvement
Visit of market gardening with inhabitants

Perceptions
Collect views of inhabitants on healthy food issue

M04

18/11/2019



Involvement
Health and nutrition seminar with associations and technical staff

Ideate
Engage and co-design the loop

M03

16/05/2019



Involvement
Workshop in the community center: what kind of walks in the district?

Engage and co-design the loop

M05

12/02/2020



Integration
Workshop SuperBarrio with teenagers at the media library

Engagement
Engagement by testing participatory methodology "Superbarrio"

Experimentation of digital tools for participation

M06

10/03/2020



Involvement
"Social cohesion" seminar with municipal technicians

Training
Engage and train municipal technicians with different expertises in proposing transversal solutions for Nantes Nord

M07

07/10/2020



Integration and Involvement

Fête de la science: activities on soil, climate and water in relation with well-being – activities with schools and with inhabitants

Perceptions

Engagement activities
Pedagogic activities on environment awareness.
Fields: Renards Stream and Eglantiers community garden

M08

14/10/2020



Involvement

Spring (rescheduled) of the project

Perceptions

Engagement activities
Pedagogic activities on environment (soil) awareness.
Presentation of the Eglantier community garden and its gardening activities by the president of the gardeners' association.

S06

01/12/2020



Involvement

Meeting Nantes task force

Design

Technical instruction green loop

S05

14/10/2020



Involvement

Walkthrough with inhabitants

Ideation and design

co-creation green loop

S07

26/01/2021



Involvement

Meeting with the urbanist team of the global project

Design & Validate

Adequacy between the two urban projects URBiNAT and Global project
Presentation of the green loop

S08

29/01/2021
18/02/2021



Integration

Meeting with teachers of the Stendhal secondary school

Transform & Ideate

Co-selection of NBS

co-design

S01

12/12/2020



Involvement

Workshop on site with the Citizen bus at the Canada urban park

Ideation and design

Co-design the urban Canada park

S02

Summer 2020



Involvement

A communication campaign to raise awareness on the green loop and the future walkthroughs

Transform & Self-Projection

Engage on the green loop

S04

25/09/2020



Involvement

Walkthrough with professionals (municipal services, and local stakeholders)

Ideation and design

co-creation green loop

S03

29/07/2020
28/08/2020



Involvement

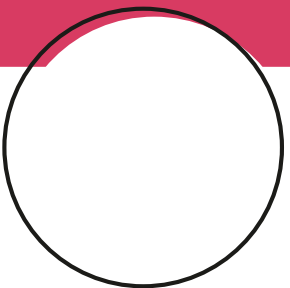
Experiment the green loop

Transform & Self-Projection

Engage and experiment green loop

S09

05/02/2021



Involvement

Meeting with the stakeholders and inhabitants engaged/ interested in the food production on the district

Transform

Engagement for co-implementation green loop

S10

12/03/2021



Involvement

Technical instruction: adequation with the global project

Design

Adequacy between the two urban projects URBiNAT and Global project
Integration of the green loop into the global project design

S11

18/03/2021



Involvement

Technical instruction:
connection with the
Amande park

Design

S12

23/03/2021



Involvement

“Commission Locale
de Quartier” (Local
district commission)
Presentation to the
elected representatives
of the healthy corridor

Validate

Sharing and validation by
elected representative of
green loop project

S14

18/05/2021



Involvement

Spring of the project
Activities with the
inhabitants

Validate & Argue

Presentation of the healthy
corridor and further
co-creation activities
on the immaterial NBS

S13

07/05/2021



Involvement

Co-implementation

Start a group of volunteers
to launch the dynamic
on the gardens

2.4 Challenges of co-creation methodology in Nantes and impact of the Covid 19 crisis

During the implementation of the co-creation process in Nantes, there were many challenges that the local team experienced. These ones are related to the methodology but also to the covid 19 crisis.

Challenges of co-creation methodology in Nantes

- Insert the URBiNAT participation in a continuous participatory process of the municipality
The specificity of the co-creation process

in Nantes is that it must be in line with past consultations conducted by the municipality which has made citizen dialogue a way of conducting projects on the territory. Nantes was awarded EU-capital of innovation in recognition among others of its open and collaborative governance model.

Though, in territories where there was and are several ongoing co-created projects, it can become more difficult to mobilise the inhabitants, because for example the time needed to implement the project after the dialogue was too

long, and especially young people do not benefit from the realisations they took time to co-create with the municipality, because what was expected at 16 is not adapted to a 19 old teenager anymore.

- Reach all the public for a wider representation of the inhabitants

Another challenge relates to the diversity of participants, broaden the viewpoints outside of the “Usual suspects” group, enabling to design public space for all.

To address those challenges, the Nantes task force planned to rely on the local stakeholders to engage the specific public targeted by the different diagnostics.

- Report the advancement and integration of citizen views in the co-creation

It is crucial in the co-creation process to report to the inhabitants the advancement of the project and to show them that their wishes and propositions are integrated in the final project. It is therefore important to highlight the link between the needs and requests expressed and how they are followed by concrete design proposals.

Nevertheless, the length of the participatory process with different stages makes this follow-up difficult. Moreover, the initial proposals of the inhabitants are often reformulated, completed or even associated with other proposals. This makes it difficult to trace inhabitants’ contributions and therefore to demonstrate their integration in the project because connections are not linear or obvious. A report was nevertheless done by municipality teams.

Impact of the covid 19 health crisis

The Covid 19 crises had a major impact on the co-creation process in Nantes. This has had consequences on the delays, and particularly on the URBiNAT dialogue strategy, which was due to start in March 2020.

The creation process had to deal with the lock down and then with several restrictions due to the virus: necessity to favor outside activities, limitations on size of groups, application of health protocol (face mask, distance between participants, etc.).

Participatory task force faces several challenges to:

- relaunch the dynamics of participation and remobilise residents after the first lock down
- adapt and develop digital tools. For example, the preparation of the walkthrough was complemented by an immersive video showing the route of the green loop. It was as much about developing a communication tool as it was about having a support that could be used as a digital participation support, especially in case of lockdown (Figure 16).
- to reschedule and adapt postponed participatory activities. For example, the 2020 edition of the Spring week of the project initially scheduled in may became the Autumn week (finally implemented in october).
- Re-think participatory activities. For example, the Science fest initially based on stands opened to all and co-animated with the cultural Muslim association (ACMNN), was finally rethought in two walkthroughs (targeting children via schools and after-school centers and the general public) only animated by the IRSTV research team.

Considering those facts, it was decided to focus first on the physical works to materialize the healthy corridor and that a second co-design phase would take place after the technical instruction of green loop design developments, i.e., in spring 2021.

There are also concerns that covid has limited citizen participation in 2020.



Figure 15. Immersive video showing the green loop course (<https://vimeo.com/461432240/9845b804e4>).

3. The healthy corridor strategy

3.1 Municipal policy at the city and district scales

This section presents the municipal strategies developed at the city and district scales. These strategies are political validated guidelines that pre-exist URBINAT. URBINAT project integrates them in the co-creation process, and adapts them to the local context.

Health, a cross-cutting issue in the public policies of the city of Nantes

Strengthened by the health crisis, the action of the public health department is more than ever part of a global approach to promoting health and the quality of urban life by taking into account social and territorial inequalities. It provides its expertise, initiates and develops projects to promote environmental health and mental health, but also to prevent risky behaviour and encourage access to rights and care for the most vulnerable.

Its vocation is to encourage living environments that are conducive to health, to promote the autonomy and responsibility of individuals, and to inform them about the risks and determinants of health in order to change their behaviour over the long term.

It pilots the local health contract (2019-2024), a multi-year contract with the State, for the construction of territorial health dynamics at the crossroads of the regional health agency's strategy and that of the local authorities.

The Public Health Department is a member of the Nantes task force and ensures that these issues are taken into account, particularly in the technical examination of proposals from residents and local stakeholders.

At the district level, the following issues have been identified:

1. Supporting the creation of the multi-professional health centre (MSPP) and structuring the prevention aspect of the health centre in conjunction with the local network and the arrival of health mediators
2. Develop the health mediation system to improve access to care (3 mediators to help residents with the opening of rights up to access to care)
3. Promote access for residents to a balanced, quality diet and regular physical activity

4. Take into account health issues in urban development projects (active mobility, etc.)
5. Strengthen the skills of local actors in their dealings with users of psychoactive substances (equip local actors with tools on the issue of addictions in the broad sense)
6. Supporting residents in the fight against pests in their homes

Local and healthy food accessible to all

In order to move achieve "local, sustainable food accessible to all", Nantes Métropole has proposed to all the players in the food system to join the "Territorial Food Project", a joint project aiming to "change the food model", reduce the environmental impact of food production and supply, and thus accompany the food, ecological and energy transitions essential to the well-being of all, by relying on the richness and diversity of its agricultural production, but also on the organisation of the agri-food sector of the Greater West.

8 objectives have been identified:

1. Move towards food production that contributes to the ecological transition
2. Optimise local supply and move towards low-carbon logistics
3. Enable everyone to eat a healthy and balanced diet
4. Intensify the fight against food waste
5. Experiment with the food model of tomorrow
6. Educate and raise awareness about food issues
7. Make food a factor in social cohesion and influence
8. Building a responsible food system together

This strategic plan, managed by the economic department of the municipality, is complemented by the offer of collective gardens (allotment and community gardens) managed by the green spaces department. The aim for the municipality is to offer a diversity of agricultural or food production solutions.

Sport for all

The Sports Department is responsible for implementation of the municipality's strategy, which aims to promote the practice of physical and sporting activities thanks to the 90 agents of the municipal sports department, the development of free sports activities, the accompaniment and support of associations and the management and maintenance of sports facilities.

Sport in Nantes also serves equality, education, social cohesion and the attractiveness of the area. Thus, the agents are committed to strengthening and diversifying the sports offered in the neighbourhoods to meet the expectations of the people of Nantes, just as they promote and support the successes of local clubs operating at the highest level, with the support of Nantes Métropole (major facilities, financial support, contribution to the organisation of sports events).

In Nantes Nord, the following objectives have been identified:

- Strengthen the territorial network of sports facilities
- Rehabilitate municipal sports facilities and make them accessible
- To adapt the municipal sports, offer to new needs (new target audiences, new sport issues such as health, seniors, disabilities, women, gender diversity, etc.): approach and method to be developed to reach out to audiences waiting for a sports offer.
- Support the development of free sports and new disciplines/ in line with the Nantes Playground approach with 3 main families of practice: urban sports, urban sliding, nature sports. This last family is undoubtedly the one to be assessed in connection with the numerous green spaces in the district.
- Supporting sports clubs in their development

Social cohesion and inclusion for more equality

The municipality's social cohesion strategy takes into account the diversity of needs in order to guarantee equality in the development of the inhabitants of Nantes, regardless of their age, situation or origin.

The Department for Social Cohesion ensures coordination between the stakeholders in terms of educational policy, youth and the fight against isolation, and promotes access for all to leisure, sports and culture. For the Nantes Nord district, the following objectives have been targeted:

- To develop a local social action combining support, individual advice and actions of collective interest
- To structure a universal reception (one-stop shop) between the various institutions, both at the first level and in terms of social support, to enable residents to access their social rights, through non-stigmatising spaces
- Take into account the digital division and the language barrier to promote access to rights and services: support in connection with access to rights
- Reduce the financial barrier to access to quality food by promoting access to a diversified and non-stigmatising offer
- Supporting residents in and towards housing in all its dimensions (fuel poverty, prevention of evictions, over-indebtedness, rehousing, etc.)
- Promote mutual aid and local solidarity in a context of deteriorating social links (isolation, elderly people, precarious public....)

Social and Solidarity Economy, one of the levers for the economic development of the city

The social and solidarity economy is one of the levers for the development of the territories, especially the political districts (social housing districts). In the Nantes metropolis, the social and solidarity economy represents 16% of salaried jobs in the private sector. The metropolis relies on the Ecosolies, the cooperation and social innovation cluster, one of the main actors that implement the strategy co-constructed with Nantes Métropole.

Created in 2002, the Ecosolies network now represents more than 300 companies and aims to identify the problems, needs and opportunities for the SSE, with economic actors, institutions and inhabitants. The Ecosolies support opportunities for the creation of activities and jobs in the region, create favourable conditions for the emergence of collective ideas, and accompany projects to secure the path to business creation.

Ecosolies also aims at raising awareness and promotes the SSE, in particular via the Solilab, an experimental space dedicated to the SSE, open to the public and offering various services as office rental, co-working spaces, collective shop, professional and general public events.

The municipality strategy for SSE aims at:

- Consolidating the place of the SSE in the local economy

- Participating in the development of the territories, with a particular focus on urban policy districts and suburban areas.
- Continuing to raise awareness of the SSE among the general public, particularly among young people, by organising commercial events, thematic workshops (societal and ecological transition, participatory democracy, etc.)
- Supporting innovation in 5 priority sectors: Personal and family services, Waste and resources, short circuits and food, Housing and Digital
- Supporting experimentation and social innovation through research and development to better meet the needs of the inhabitants.

3.2 Analyses of the co-diagnostic results that informed the co-design process

This section presents the co-diagnostic results that informed the co-design process.

3.2.1 Challenges emerging from the socio-economic analysis

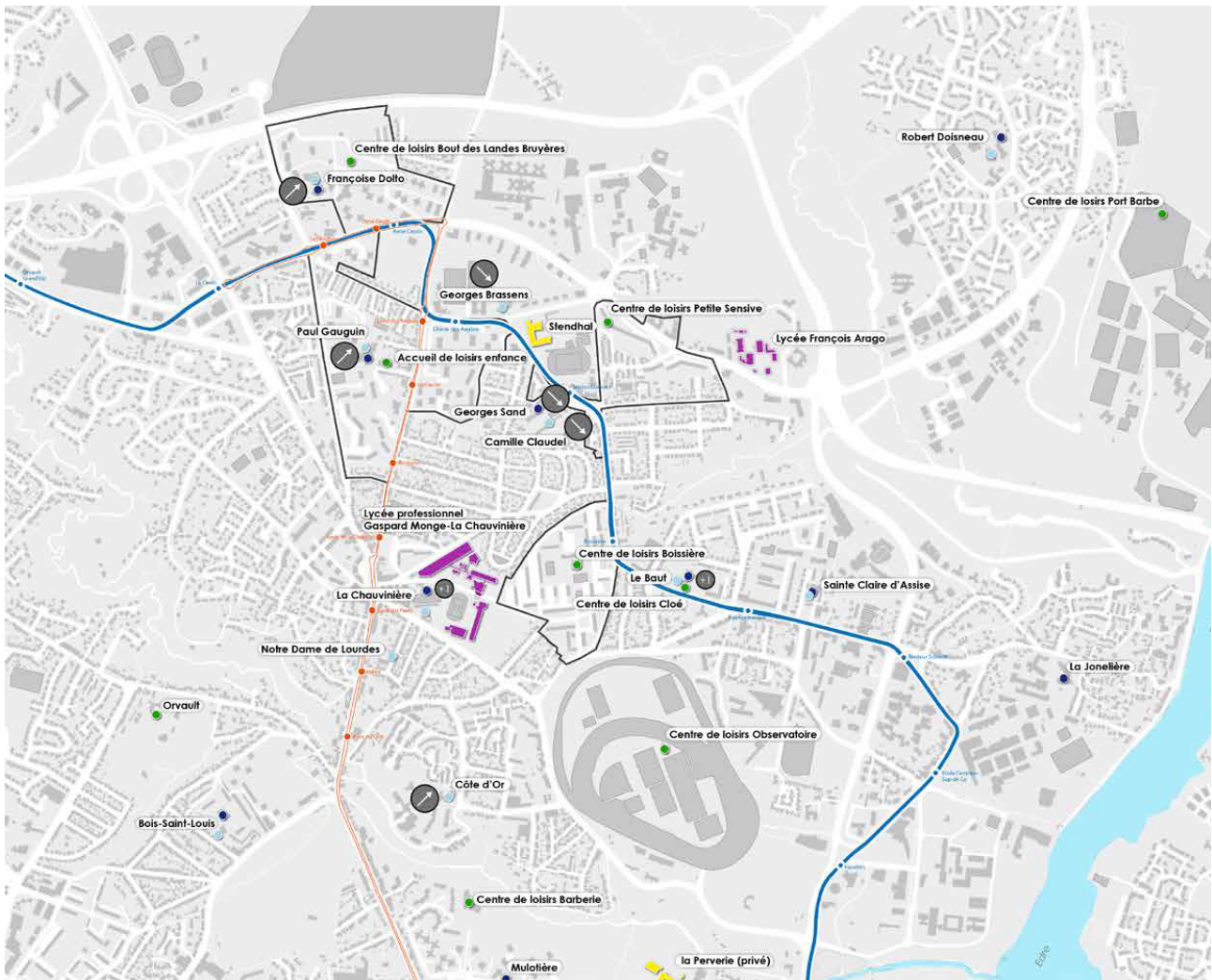
The social analysis highlights strong contrasts in the Nantes Nord district. The diagnostic reveals the presence of vulnerable groups in the area, with various degraded indicators in terms of poverty rate, health and social isolation.

Educative challenge

The high proportion of 0-14 and 0-30-years old people living in the perimeters of the micro-districts make them major public for the municipal public action. They must be the subject of particular attention. Studies have also shown the link between childcare and parents' return to work, which is important to consider in a district as Nantes Nord with a high rate of unemployment.

95% of young people between 15 and 19 years old go to school. Nevertheless, 41 % of the pupils at the last year of secondary school have a learning lag.

That is why education structures and in particular schools are a privileged target for the participatory activities. The 13 schools of Nantes Nord (kindergarten/elementary) are key places to connect in the healthy corridor of the district.



Schools and after school equipments
 ● preschools
 ● primary schools
 ■ secondary schools
 ■ high schools
 ● After school centers
 Evolution of the number of pupils
 ● decrease
 ● increase

Figure 16. Schools (primary to secondary) and leisure centres in Nantes Nord.

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Youth education	Use outdoor space as educative support	Challenge 8 Social justice and social coherence	Number of pedagogic activities implemented	Pedagogic panels Pedagogic projects in the Amande Park by the secondary school Stendhal

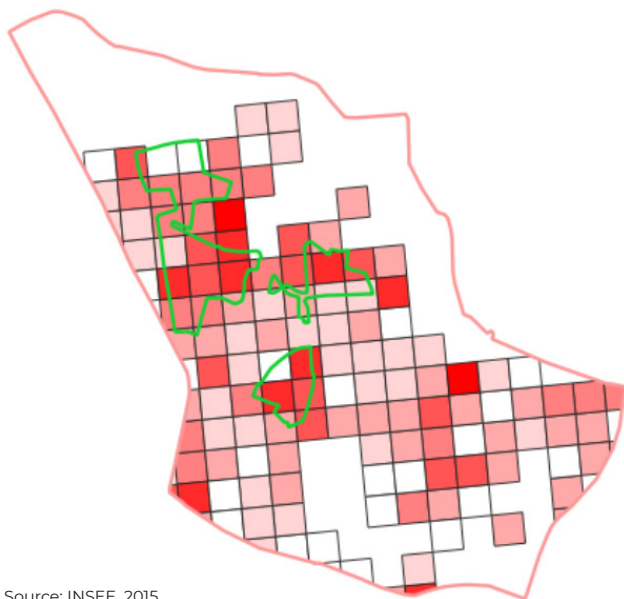
Table 1. Needs on education challenge.

Economic difficulties concentrated in the “priority” micro-districts (QPV)

- High poverty rate

The concentration of the population living below the threshold of poverty is much higher in the priority micro-districts. This is all the truer since the available data take into account the scope of consolidation of IRIS, which is wider than the perimeter of the defined priority geography, which can have a tendency to “smooth” or even minimize reality lived. In the figure below, we can see that the poverty rate of households surrounds 50% in ‘priority’ micro-district (QPV).

This economic statement is confirmed by other economic indicators. In 2011, the median income was 1378 €/month in Nantes Nord and 1636 €/month for the average of the city of Nantes. Regarding unemployment rate, it is 16,7% in Nantes Nord compared to 13,5% in Nantes, but the rate reaches 27,5% and 23,9% in the two micro-districts of Bout des Pavés – Chêne des Anglais and La Boissière.



Source: INSEE, 2015

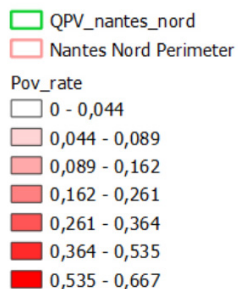


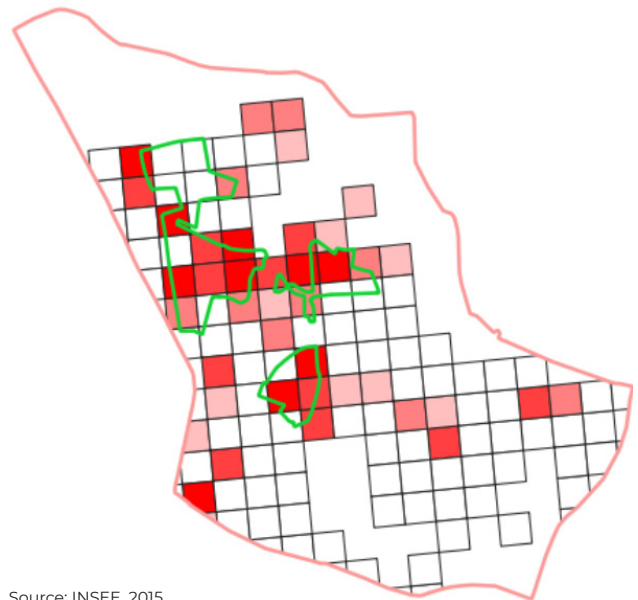
Figure 17. Household Poverty rate in Nantes Nord.

- Social housing concentration

The concentration of economic difficulties in some micro-districts and more specifically the ‘priority’ district can be explained by the concentration of social housing in these areas.

There is a high proportion of social housing located in the neighborhood. By comparison, they are twice as numerous as in the rest of the municipality of Nantes (39% instead of 20% in 2011). The proportion of owner-occupiers is also much lower than in Nantes. Moreover, social housing is clearly concentrated on the priority districts located to the north-west of the district.

Some micro-districts are almost exclusively composed of social housing (Bout des Pavés has 89% social housing) while others are totally devoid of it (the Bourgeonnière – Petit Port micro-district in the South of Nantes Nord has only 1% social).



Source: INSEE, 2015

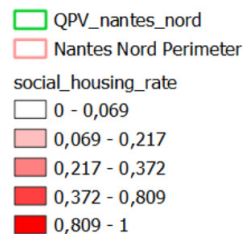


Figure 18. Social housing rate in Nantes Nord.

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Affordable healthy food	Provide to inhabitant's access to affordable fruits and vegetables	Challenge 4 Green space management Challenge 9 Public Health & Wellbeing Challenge 10 Potential for economic opportunities and green jobs	Total weight of vegetables and fruits distributed Number of households that benefits of vegetables and fruits distribution	Develop gardening initiatives Links with local agriculture structures
Economic opportunities	Development of an economy that benefits to the inhabitants (including jobs)	Challenge 10 Potential for economic opportunities and green jobs	Number of associations that benefits of these spaces	spaces in the ground floor of social housing building

Table 2. Needs on economic challenges.

Presence of vulnerable groups

- A high level of social isolation
56% of the households are made of only one person: this could be explained by the presence of the university and students living mostly alone (Bourgeonnières – Petit Port and Jonelière-Université) but as expressed in the graph below, all the micro districts are concerned. The average household size also decreased more sharply than all over the city.
High rate of single-parent families: 33% of the children of the district are part of a single-parent family. As in the graph below, it goes up to 45% for the micro-district Bout des Pavés-Chêne des Anglais, the micro-district that is located in the study area.

- Degraded indicators for health
The report of the ORS Pays de la Loire (Health Regional Observatory) on the health of the people of Nantes, produced at the request of the City of Nantes, confirmed that the Nantes Nord district has dropped out of favour on the main health indicators: health status, such as access to healthcare, or the use of preventive measures.
It is also confirmed by the municipality public health department which conducts medical examinations in all schools on the territory of Nantes, whether public or private. It gives crucial information on the health of children and makes it possible to underline territorial inequalities in health.
The graph on the next page shows the overweight rate and the obesity rate for children aged 5-6 years and 8-9 years. In Nantes Nord, 22% of children aged 8-9 years were overweight or obese (average Nantes 13%).

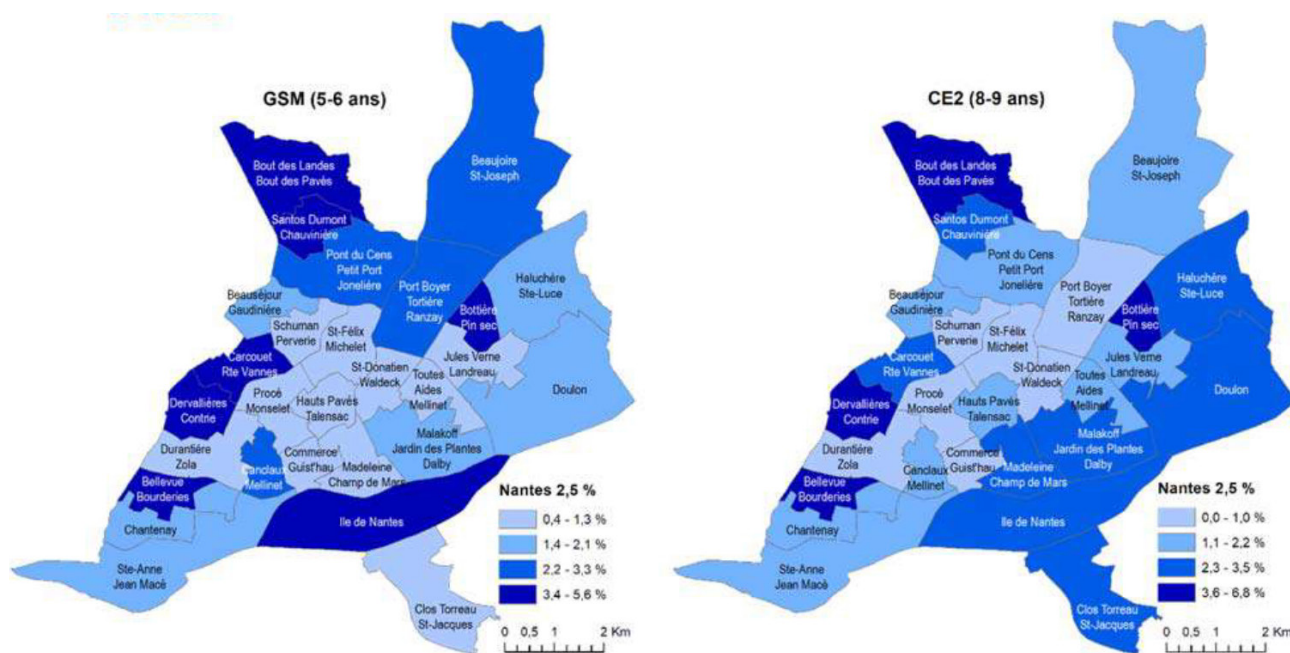


Figure 19. Proportion of overweight children (excluding obesity) by micro-district in Nantes (source: ORS Pays de la Loire, 2012-2017).

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Access to healthy food	Provide to inhabitants' access to healthy food, and especially fruits and vegetables	Challenge 4 Green space management Challenge 9 Public Health & Wellbeing	Total weight of vegetables and fruits distributed Number of households that benefits of vegetables and fruits distribution	Develop gardening initiatives Links with local agriculture structures Experimental district nursery (young shoots)
Physical activity (Physical health)	Develop active mobility for travels within the neighbourhood Favor children physical activity (including girls)	Challenge 6 Urban regeneration Challenge 9 Public Health & Wellbeing	URBiNAT well-being survey: Physical activity indicators	Improve path network Green loop: creation of a walking path within the district Organisation of walks Encourage children to exercise in a fun way

Mental health	Green and public spaces contribute to well-being (favour contact with nature, social relations)	Challenge 6 Urban regeneration Challenge 9 Public Health & Wellbeing	URBiNAT well-being survey: Mental health indicators	Provide new outdoor community spaces in public spaces Propose community activities and opportunities for social interactions Create and improve by several equipment places to stay and to meet In complementarity, the Global Project: plan the construction of a district medical centre to address access to medical services.
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Table 3. Needs on vulnerable groups challenges.

Security issues

Security is a major issue for the inhabitants of Nantes Nord where some areas are controlled by drug dealers. It has a central and significant

impact on the living environment of the Nantes Nord district, and especially in the URBiNAT study area. This is also shown by perception of inhabitants (Figure 21).

Level of safety in the neighbourhood (police, delinquency, theft, drugs, etc.)



Compared to Nantes municipality:



- very satisfied
- satisfied
- moderately satisfied
- not satisfied
- not at all satisfied
- Not concerned

Source: URBiNAT, 2019, Well-being and Quality of life survey

Figure 20. Comparative graphic of level of safety – Nantes vs Nantes Nord.

Some current urban configurations in the district favor insecurity. For example, dead ends are especially appreciated because they facilitate surveillance and complicate police interventions. The drug trafficking that can be done in plain sight.

Even if safety aspects should be integrated in the urban project, this issue should not be the entry for the new design in order not to stigmatize the inhabitants and not to degrade the installations on the other aspects such as the aesthetics, the intimacy, etc.

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Safety	Increase safety and safety perception	Challenge 4 Green space management Challenge 6 Urban regeneration	URBiNAT well-being survey: "Level of safety in your district"	Favor multifunctional public spaces to multiply opportunities for inhabitants to occupy public space In complementarity, the Global Project: open up the district by requalifying some deadends as secondary roads. Improve lighting for more safety while managing the relation to the preservation of biodiversity.

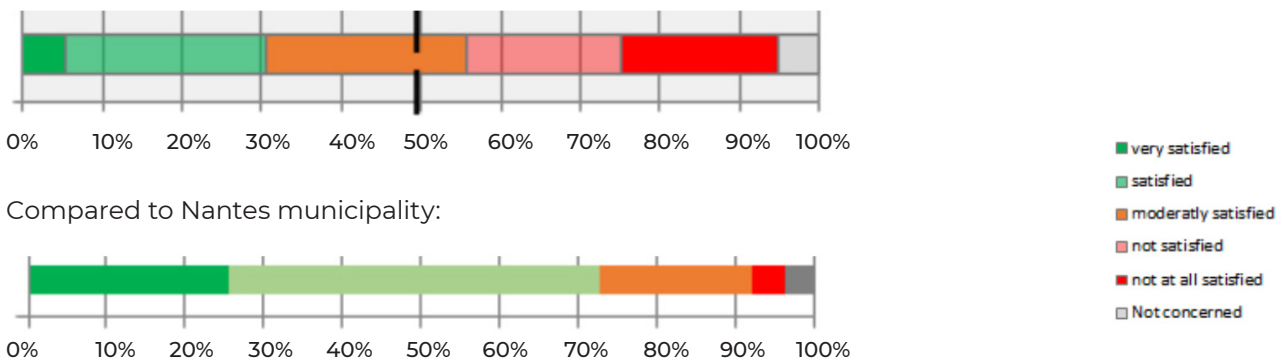
Table 4. Needs on the safety challenge.

Image of Nantes Nord – the paradox

The neighborhood suffers from a negative image. Only 30% of inhabitants interviewed in the URBiNAT well-being and quality of life

survey are satisfied by the reputation of the neighborhood. Safety perception has surely a strong impact on district perception and reputation (Figure 22).

Reputation of the neighborhood – Nantes Nord



Source: URBiNAT, 2019, Well-being and Quality of life survey

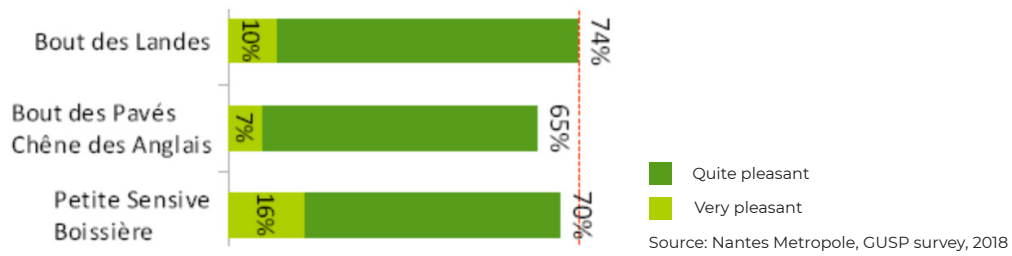
Figure 21. Low indicator regarding the reputation of the neighborhood.

Nevertheless, surveys also highlight that the neighbourhood is appreciated by its inhabitants, when they are asked on the living aspects in the neighborhood. GUSP survey, annually conducted in priority districts by the municipality, reveals that 70% of the inhabitants find their district "pleasant". Neighborhood relations are appreciated by the residents as well. This was also directly

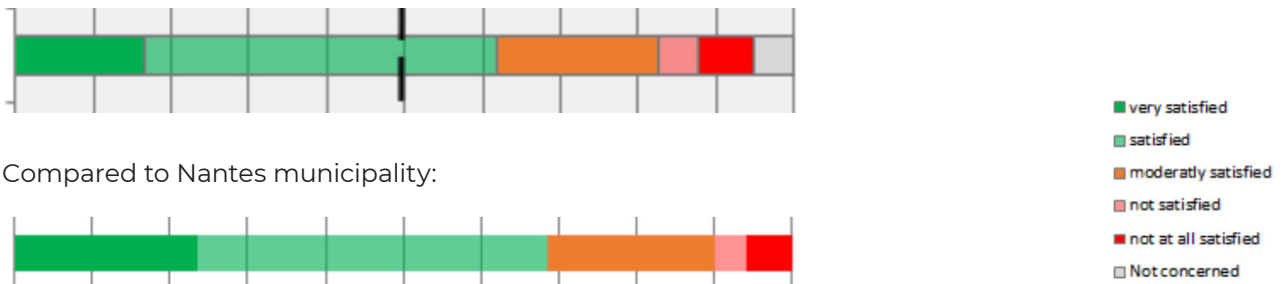
confirmed by some residents during participatory activities by expressing an attachment to the neighborhood.

Far from the caricature (well present in France) presenting social housing districts like ghettos, the perception of Nantes Nord by the inhabitants is therefore more complex.

Would you say your neighbourhood is very pleasant, quite pleasant, not very pleasant or not at all pleasant to live in?



Neighbourhood relations (conviviality, mutual aid, solidarity)



Source: URBINAT, 2019, Well-being and Quality of life survey

Figure 22. Positive feedbacks of inhabitants regarding the living aspects in the neighborhood.

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Image of the district	Valorise district by its quality natural and green spaces	Challenge 4 Green space management Challenge 9 Public Health & Wellbeing	URBiNAT well-being survey: "Reputation of the neighborhood"	Improve access and visibility to existing parks and public spaces by redesigning entrances and installing signages. Develop path network and connect to the rest of the city

Table 5. Needs on the image of the district challenge.

3.2.2 Challenges emerging from the territorial analysis

Several points of improvement have been identified in the neighborhood, as the lack of readable urban structure, the visibility of services and green spaces or the connections inside the neighborhood.

Nevertheless, the district also has important assets. It is very well served by transport networks, including public ones, a lot of public facilities, a proximity with an important economic pole, a green environment with many green and natural spaces.

Urban fragmentation: the absence of a readable urban space

Based on the modern architecture model, the social housing district has been constructed as a district unit that reverses the spatial orientation of the traditional islets: outside, roads, services and car parking and inside, green and pedestrian areas, equipment of proximity.

This urban structure is fragmented and poorly visible to the residents. At the neighbourhood level, we note first of all those the large parking areas surrounding the large housing estates create a real break with the road network and the surrounding suburban neighbourhoods, which have a classic urban structure with alignments on the street. It divides the urban territory into sectors that do not communicate.

Moreover, social housing blocks are generally not crossed by roads, which isolates the equipment of proximity that are only reachable by foot or soft mobilities.

Secondly, public spaces are often poorly structured. The hierarchy between the access ways is not very clear. The boundaries between green spaces, sports areas, children's playgrounds, natural areas, etc. are little or no marked. Finally, there is no identified centre on the scale of the district, but a set of local centralities which bring together at most a dozen shops and public services.



Figure 23. Shops along the La Chapelle-sur-Erdre road.

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Place to meet	Improve social cohesion	Challenge 4 Green space management Challenge 6 Urban regeneration	Number of new community spaces implemented	Provide new outdoor community spaces in public spaces
Knowledge of public places through the district	Make more visible public green areas		Increased number of visits	Improve entrances of the Amande Park Signage panels

Table 6. Needs on the urban fragmentation challenge.

Mobility within the district (urban block scale) but a very good connection at district – municipality levels

Nantes Nord is very well connected to the rest of the metropolitan area by a highly developed

road network and public transport system (bus and tram) that irrigates the area. This is much perceived by the inhabitants with a high level of satisfaction, even higher than the control sample over the rest of the municipality.

Public transport service to the district



- very satisfied
- satisfied
- moderately satisfied
- not satisfied
- not at all satisfied
- Not concerned

Compared to Nantes municipality:



Source: URBINAT, 2019, Well-being and Quality of life survey

Figure 24. Comparative graphic of the level of public transportation – Nantes vs Nantes Nord.

The Nantes Nord district is characterized by the presence of large areas related to enclosed equipment or social housing blocks that prevent a fine road network. In this context, the open space of social housing neighbourhoods plays a major role in the “gentle” practice in Nantes Nord district. Indeed, the inhabitants have several walking paths, separated from the roads to connect to the various public facilities in the neighbourhood (Figure 26, Figure 27).

This connectivity is really important in order to open up the district to itself and its fringes (the university campus in the south of Nantes Nord). This also aims to promote and to support active transport modes.

The project will strengthen the network of paths, in particular by designing the informal paths that have been identified in the Amande Park (Figure 26 in the black square). It is also planned to install signage to facilitate the use of this network of footpaths

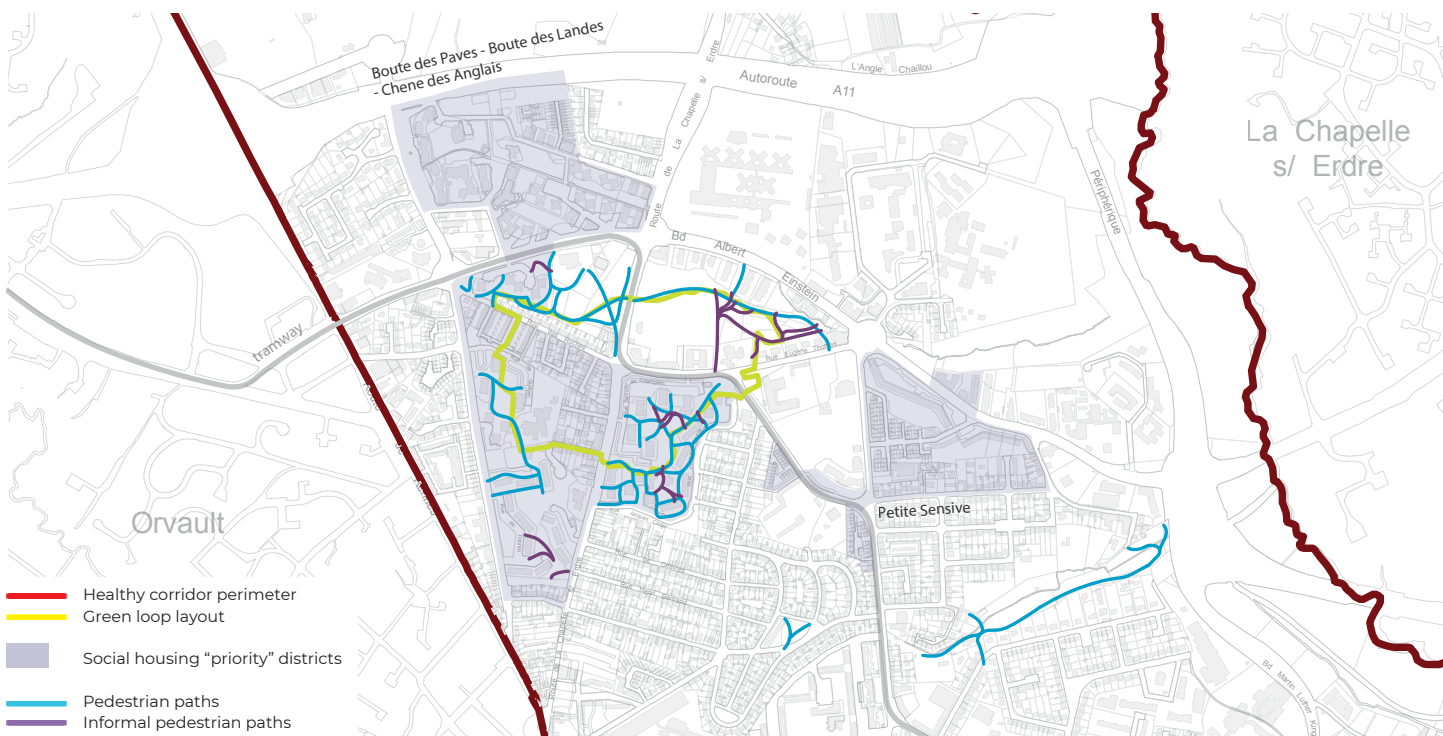


Figure 25. Walking path network in 2019 (Nantes Métropole, URBINAT territorial mapping, 2019).



Figure 26. Designed walking path in Le Bout des Landes microdistrict.

NEEDS	Specific objectives answered by the co-designed proposals	Eclipse Challenges	Indicators	Co-design
Pedestrian mobility within the neighborhood	Improve and facilitate active mobility	Challenge 4 Green space management Challenge 6 Urban regeneration		Improve path network Continuity of walking paths Green loop: creation of a walking path within the district

Table 7. Needs on the mobility challenge.

3.2.3 Nature as an opportunity for NBS development

In the district, the environment does not appear to be a key issue in the sense that the indicators are generally rather positive and, above all, they appear to take second place to the social and economic issues.

The project must ensure that these positive environmental indicators (biodiversity, water management, etc.) are preserved. Some points could also be improved, for example with the reopening of watercourses.

But above all, the environmental aspects are a resource for the project to develop NBS. Indeed, the current environmental qualities of the neighbourhood could contribute more actively to addressing the socio-economic issues in the neighbourhood.

Green structure: one of the keys (but currently underexploited) advantage in the district

- One of the greenest districts of the city
Nantes Nord is one of the greenest districts of Nantes municipality. For a total district surface of 7,6 km², greenery counts for 34 % (256 hectares in total).

Nantes Nord green structure is based on a large diversity of spaces:

- Natural spaces, including wetlands corresponding to the valley's structures by the main one, the Erdre flowing from North to South, and a network of streams.

- Proximity with agricultural spaces in the North
- Private gardens present in residential areas
- Large open green spaces around the social housing buildings

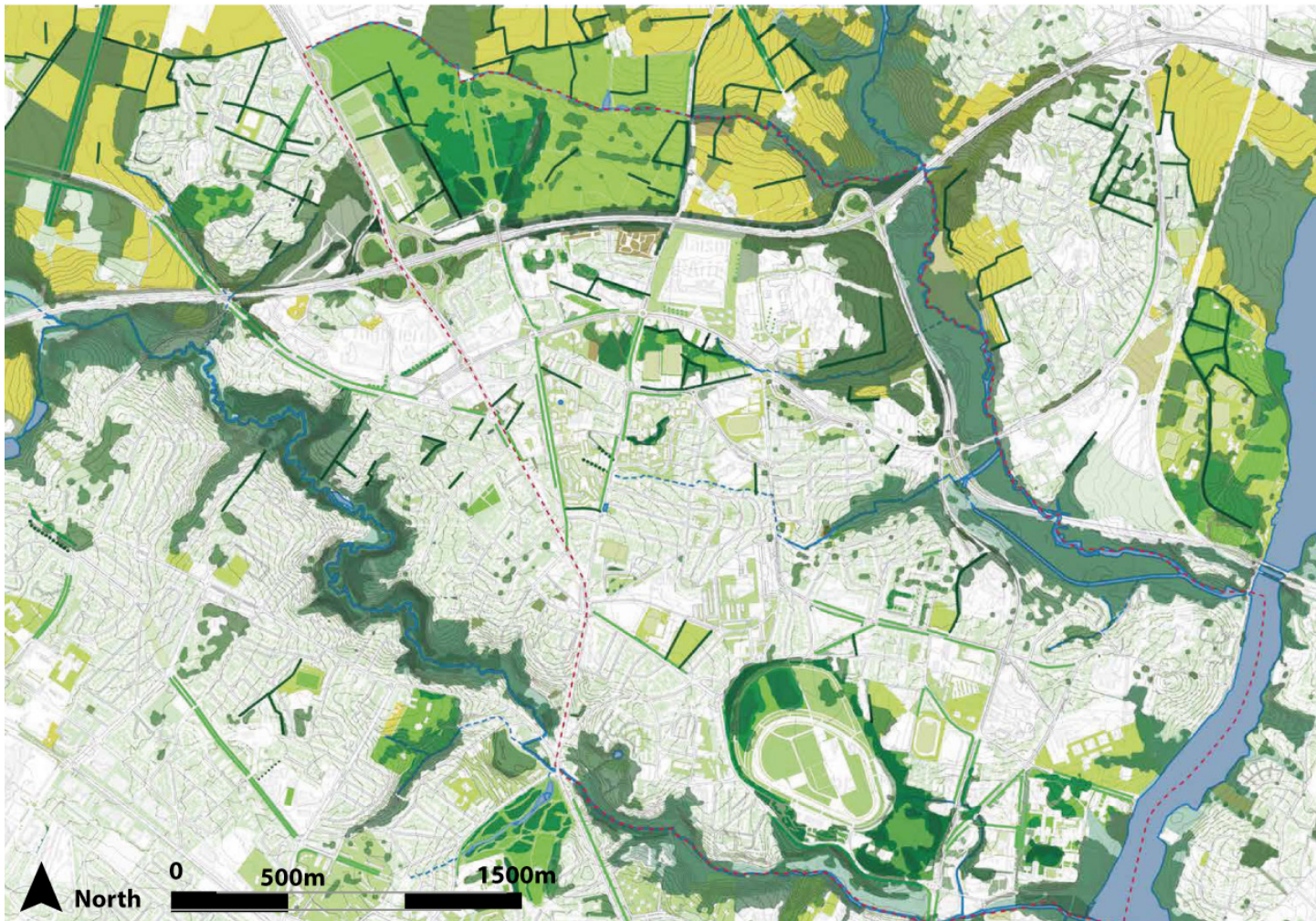


Figure 27. Green structure mapping of Nantes Nord.

Public green spaces are especially remarkable by their quantitative aspect, but it is also important to recognize their qualitative character (even if not fully exploited as we will see). Indeed, the city and the green space department have a long tradition of gardening and invested from a long time ago in the green space design and plantations (Figure 28). Moreover, an important design project that took place in the 1980's is currently reaching a mature level, providing several

amenities: aesthetic effects, space structure, wind shields, cooling effect in summer.

Another aspect revealed by the territorial analysis is the inclusion of the district in the network of small valleys and associated watercourses that link and structure Nantes geography (the Nantes "Green Star" as mentioned in municipality plan). This aspect is little perceived by the inhabitants, because the watercourses are partly piped and others are hardly visible.



Figure 28. Quality green spaces (on the left: *Sequoia sempervirens* in La Boissière, on the right: oak alignment as a heritage of the rural structure).

This green character is well and positively perceived by the inhabitants, as they expressed during the walkthrough organized in the green loop track the 14th october 2020.

Water network

In addition to the aspects of biodiversity (ecological continuity), this topography and the functioning of the water constitute precious supports for creating physical and symbolic connections with the surrounding districts and the rest of the city.

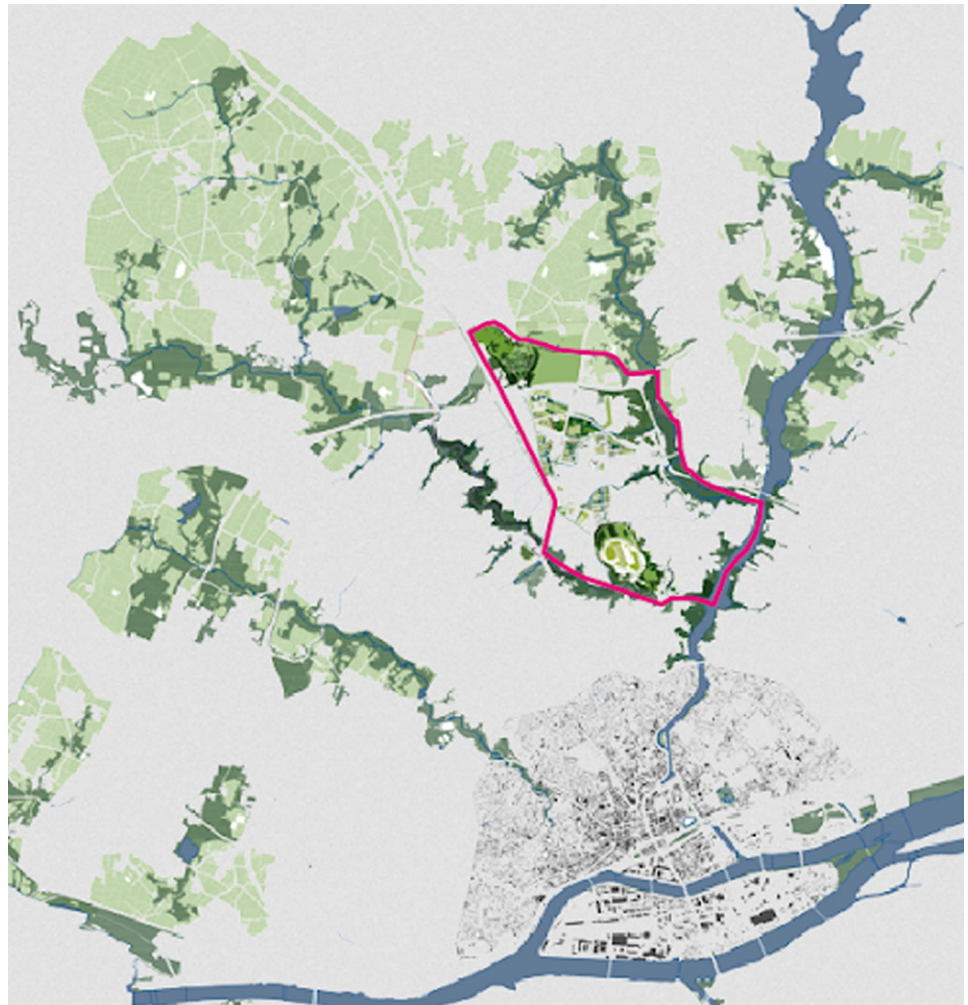


Figure 29. Nantes Nord on valleys that irrigate the territory (source: Bruel-Delmar).

- Nevertheless... some green spaces are poorly identified or poorly qualified

The large landscape elements and parks are on the periphery of the district and the corridor. Although easily accessible by public transport or on foot, they are little or unknown to the



Figure 30. Poorly qualified green spaces in the Bout-des-Landes microdistrict.

inhabitants. The URBiNAT project aims to make them more visible and better known.

Within the corridor, 65% of the green spaces are composed of housing greenery. These green spaces are poorly qualified (Figure 31). They can be considered as vacant lots in the terminology of URBiNAT.

The Park “l’Amande” is a very beautiful urban location, a major public space in the heart of the district. Though, the gradual construction of its edges gradually isolates it, reduces its dimensions, makes it lose its structuring potential. It is a fragmented park with little obvious access, particularly in its relationship to the social housing district to the south. The Park is interspersed with sports fields that divide the park, also reducing its open and free space. It is also divided in two by the street La Chapelle.

The behavioural mapping implemented in January 2020 allowed the task force of Nantes to have a better knowledge on the public uses in five areas of the intervention area, namely: the Amande park, surrounding of district house ‘La Mano’, the Canada park, Rene Guy Cadou Park and the Renard stream valley (Figure 32).



Figure 31. The Five areas targeted in the behaviour mapping.

The behavioural mapping¹ generally confirmed the little or no use by the inhabitants of these areas.

The Amande park:

The entrance to the park is located in zone 4. Although it is located in an area with many activities (sports fields, district centre, media library, nursing home, primary schools and

secondary school), only 25 people used the passageway out of the 669 observed in public space over two days.

Within the Park Amande, the behaviours observed were concentrated on the sports fields, with 88% of the behaviours observed in zones 4 and 5 corresponding to the sports fields. In addition, no static positions were observed in the Parc de l'Amande, outside the sports fields.



Figure 32. Park Amande Behavioural map.

- At the district scale, the urban strategy (Global project and URBiNAT project) aims to use green spaces as the “ structure “ of Nantes Nord. Green spaces are preserved and even reinforced. The project also targets to make more explicit their consistency both as urban and natural components, to make them more visible for residents. They are gardens and parks or natural spaces, ornamental or productive spaces, and they create coherence in the ecosystem network (ecological continuities), etc.
- The URBiNAT project aims at making the green spaces visible, especially the park Amande. It will also include the development of spaces for food production.

The urban farming opportunity

There are currently already many urban farming initiatives in the district. They involve different kinds of actors at professional, associative or educational levels.

This dynamic is even reinforced since the first lock down (spring 2020), with the ‘solidarity gardens’ (Figure 34). This initiative of the municipality aims to use the green spaces as a resource to produce vegetables that are then distributed to vulnerable households.

¹ The implementation of the methodology was difficult due to the insecurity caused by the presence of drug dealers. Staying and observing for a long time is unsafe, it was therefore chosen to observe the area over a short period of time, at the end of school day.

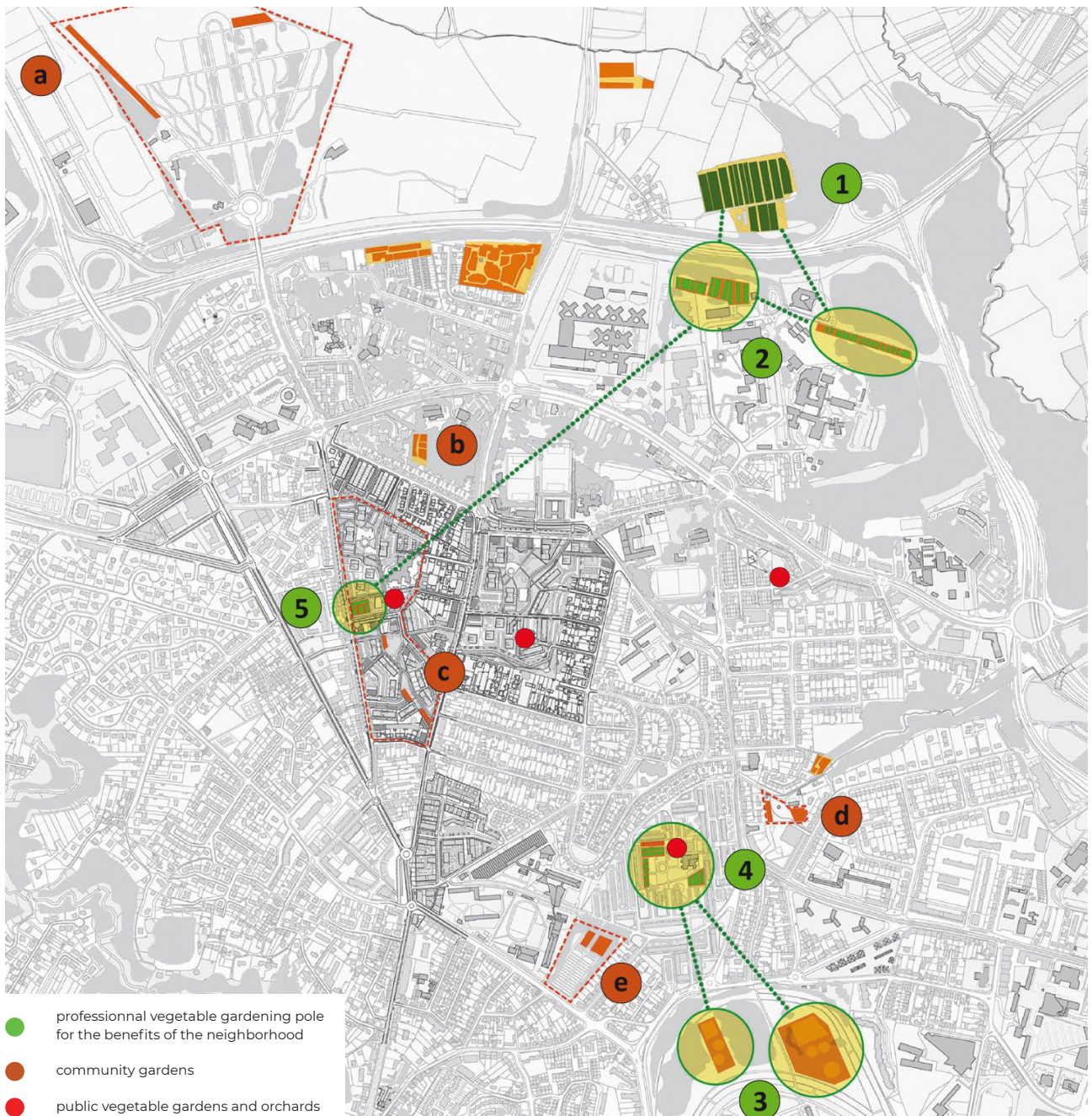


Figure 33. Inventory of existing structures and potentialities for urban farming.



Figure 34. Solidarity gardens.



3.3 Global strategy for the intervention

The Healthy Corridor strategy is in line with the strategies implemented by the municipality in the district described in paragraph 3.1.

The various diagnoses carried out by the city of Nantes' departments as part of the overall

Nantes Nord project and then URBiNAT have made it possible to identify key issues and target groups for which priority action should be taken. See diagrams below.

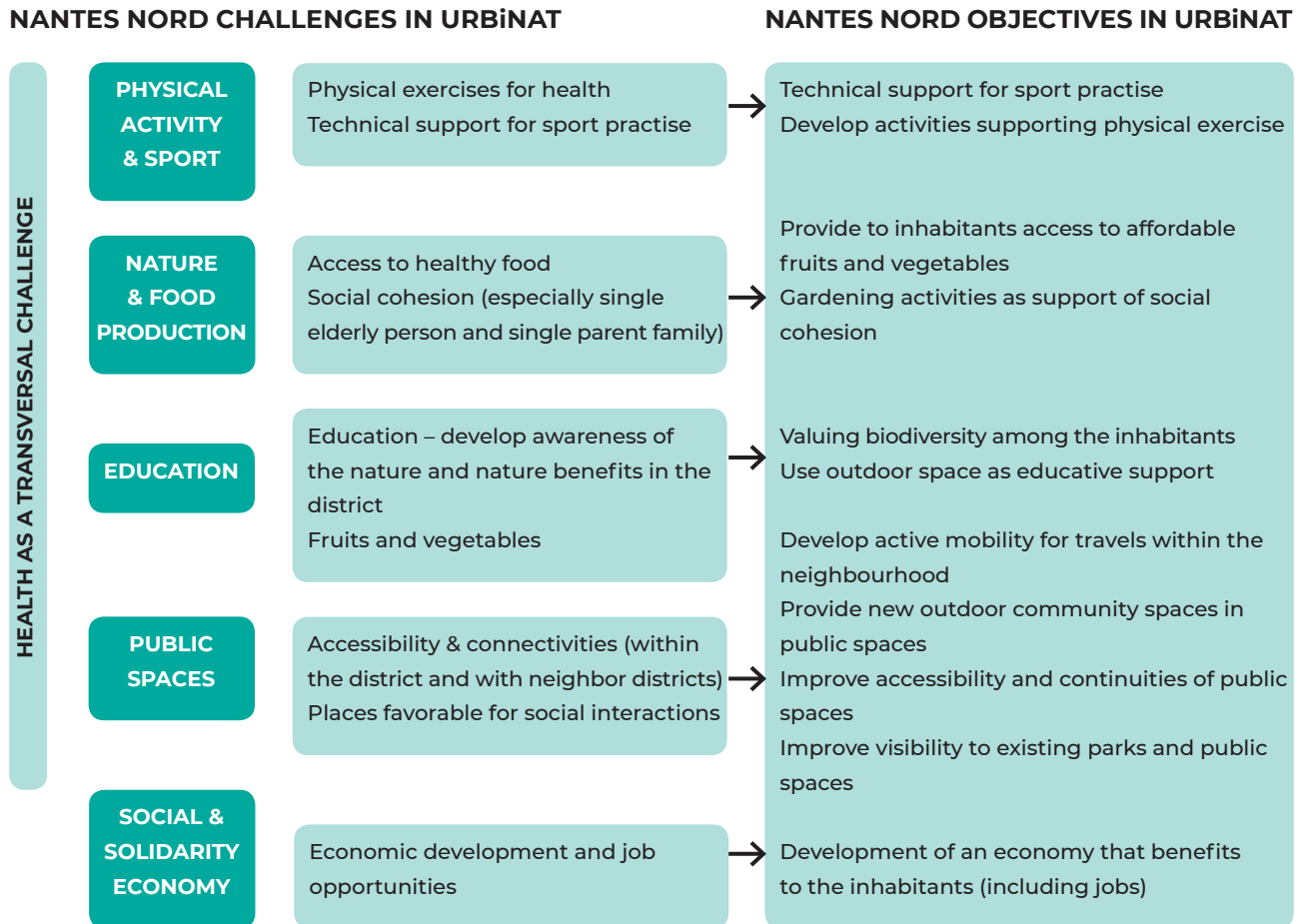


Figure 35. Nantes Nord Challenges and objectives in URBiNAT.

EKLIPSE CHALLENGES

NANTES NORD OBJECTIVES IN URBiNAT

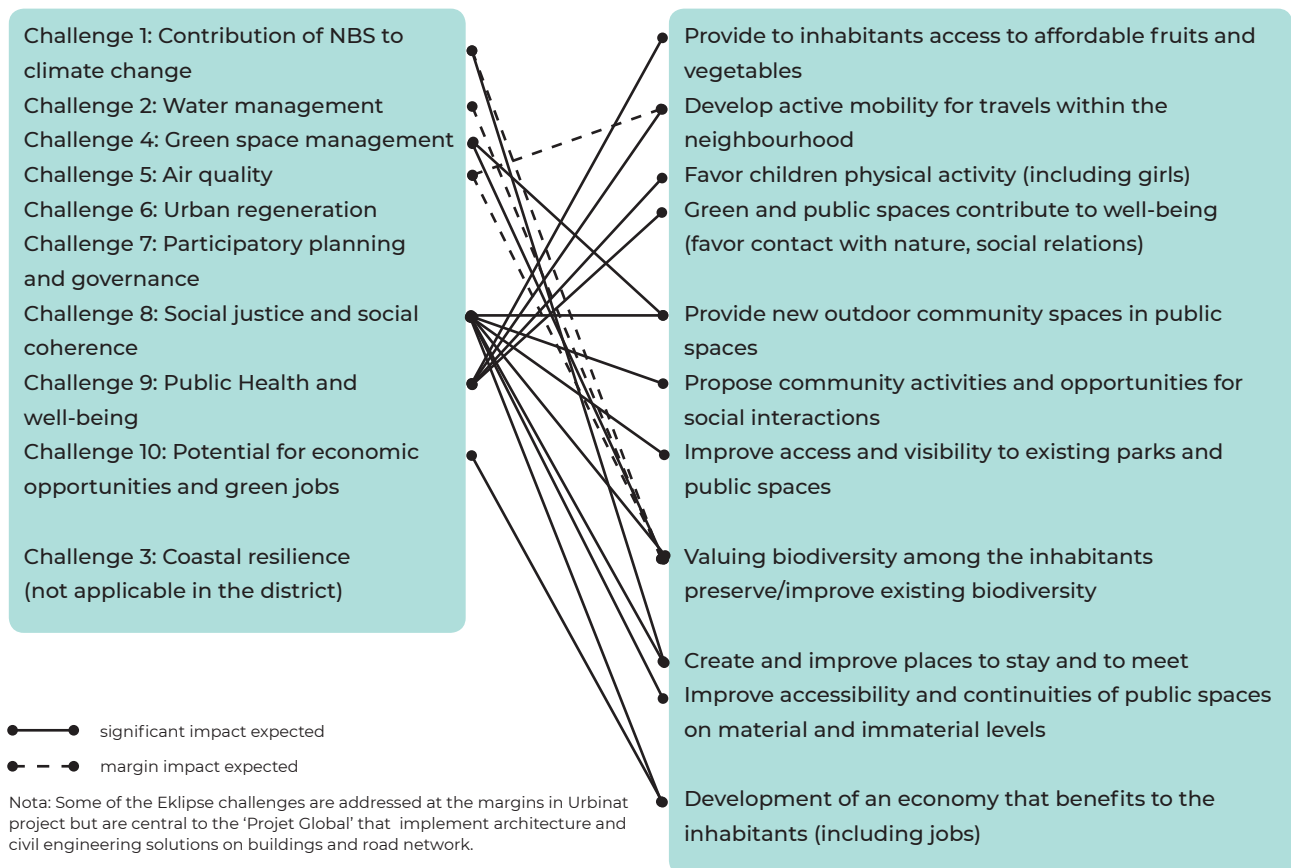


Figure 36. Nantes Nord Eklipse challenges and its relation with URBiNAT objectives.

3.3.1 Health as a transversal challenge for the healthy corridor

Health is a major challenge in the district to fight the degraded indicators that affect the inhabitants of social housing districts and especially the one of Nantes Nord. The challenge of improving health connects most of the NBS solutions together within the healthy corridor. When sport, physical activity and food production impact physical health, they also impact mental health as knowledge sharing within the Education NBS and public space developments, giving opportunities to meet for example and breaking social isolation.

The construction of the health centre within the framework of the global project in the heart of the healthy corridor will be a major equipment for the district where a lack of health professionals has been underlined. The health centre will complement the work of the health department and the social cohesion department, since the place also has the vocation to be a space of prevention and animation in connection with the other actors of the district. The department of health also contracted with health mediators to help the inhabitants of Nantes Nord to connect to the right specialist and facilitate the access to medical services.

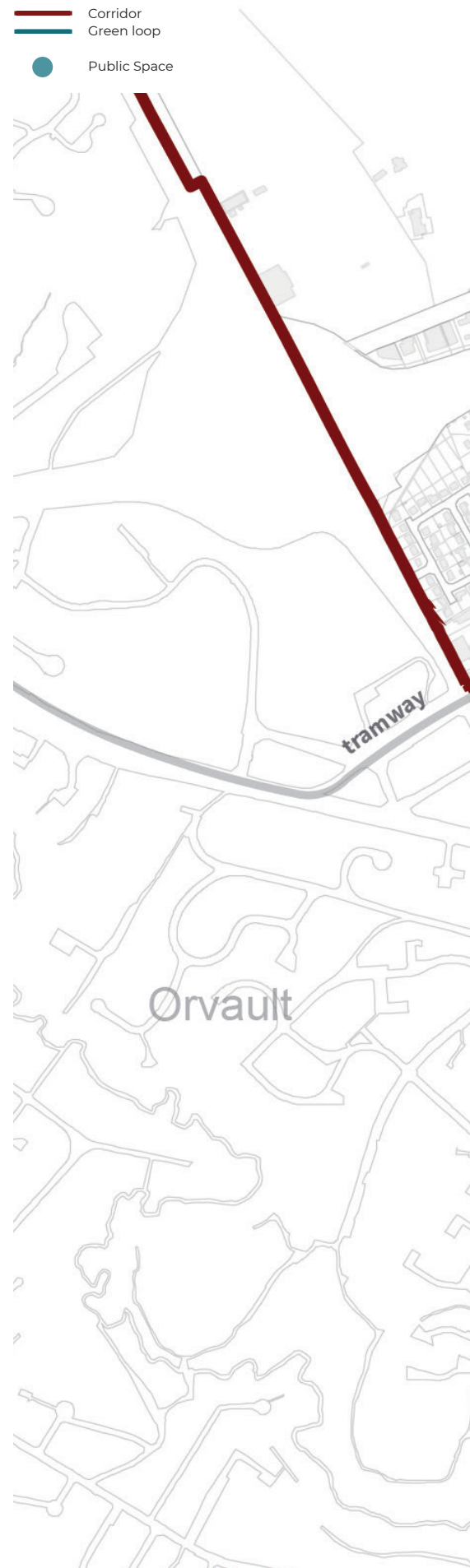
3.3.2 Public spaces

The public space in Nantes should address at least those 3 objectives: they must be accessible, shared and foster social cohesion.

The creation of a walking path (NBS n° 1 on Figure 39 is the network of public spaces with the planned interventions) was suggested in the workshops on the creation of the health centre, where inhabitants and local stakeholders gathered together to define the expected future services provided and the link with the district. The route of the created green loop will connect the public spaces and point of interests of the intervention area as the park Amande, the Canada park and the paddling pools. It will contribute to the visibility of the park Amande (NBS n° 3). It also passes at the foot of the future health facility and could be a support for the prevention actions that health professionals should propose. It is also intended to be a mean of promoting walking or sport, to fight, among other things, against indicators of overweight and obesity as well as social isolation. The continuity of walking path is essential (NBS n° 2).

The Canada park, by its multifunctionalities, aims at being a place shared by all, regardless of age and gender (NBS n° 4).

Those public spaces interact one with each other and also aim at radiating the whole district in the future.



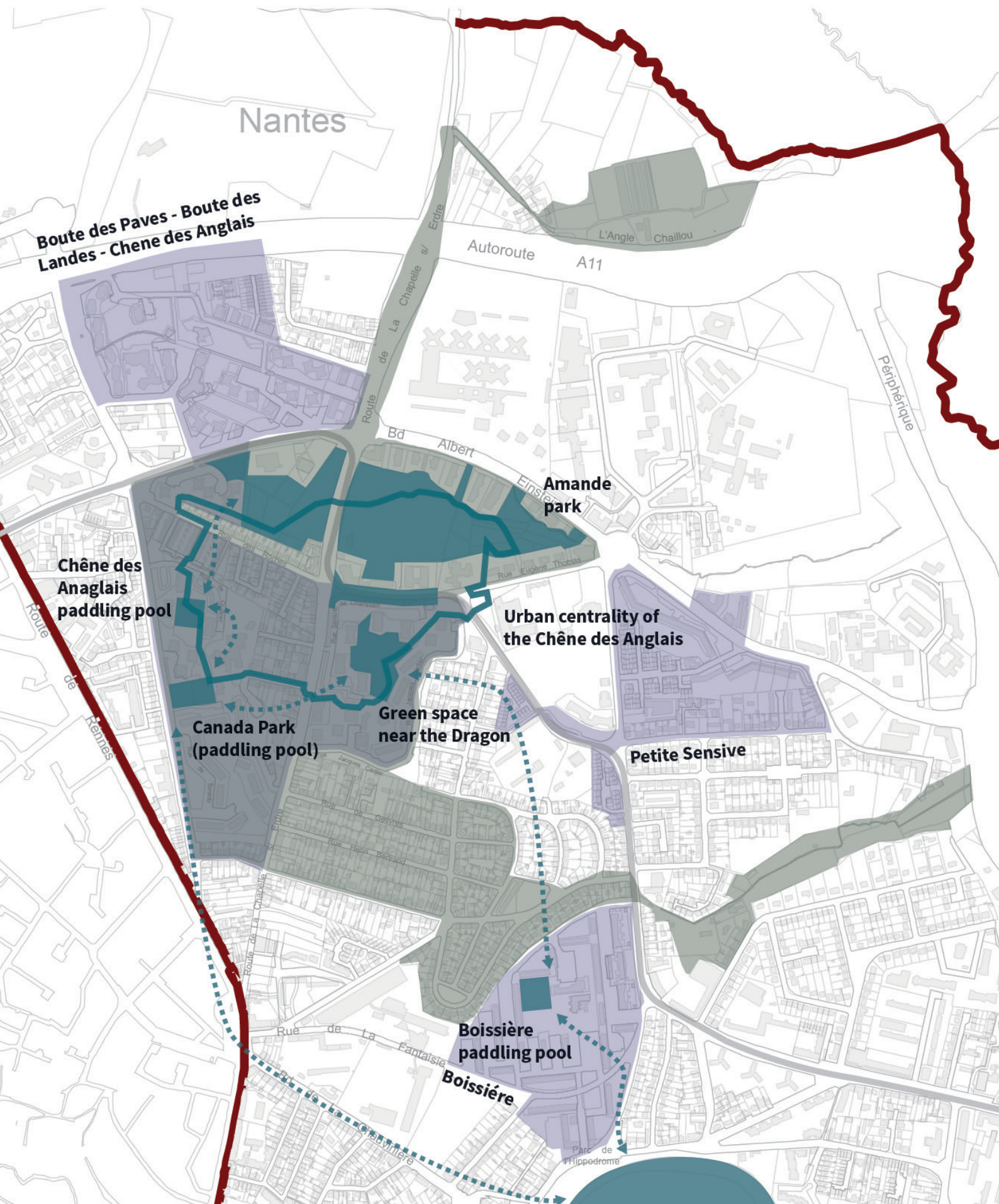


Figure 37. Map of the existing public space network.

- Corridor
- Green loop
- Healthy Corridor
- Public Space



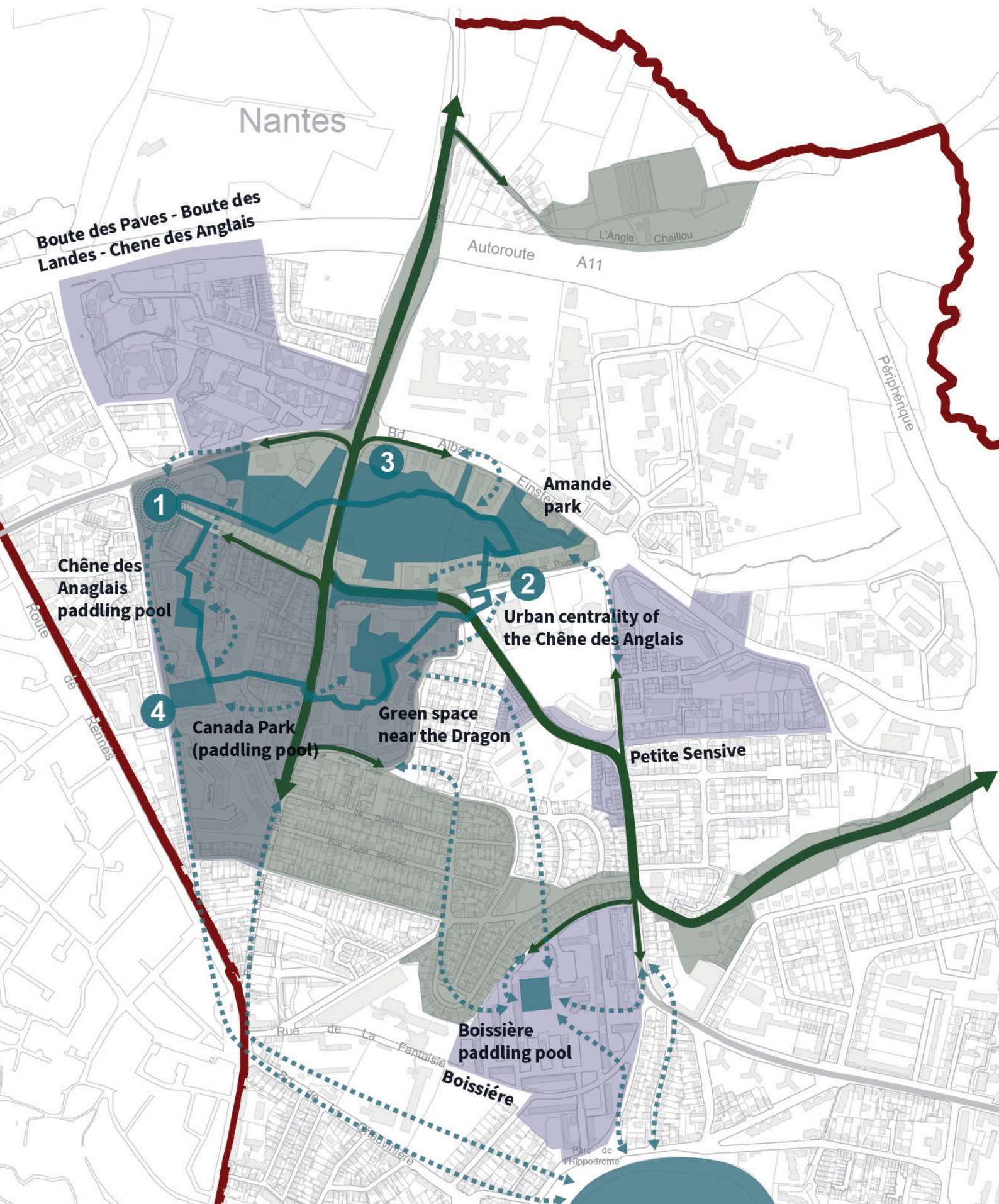


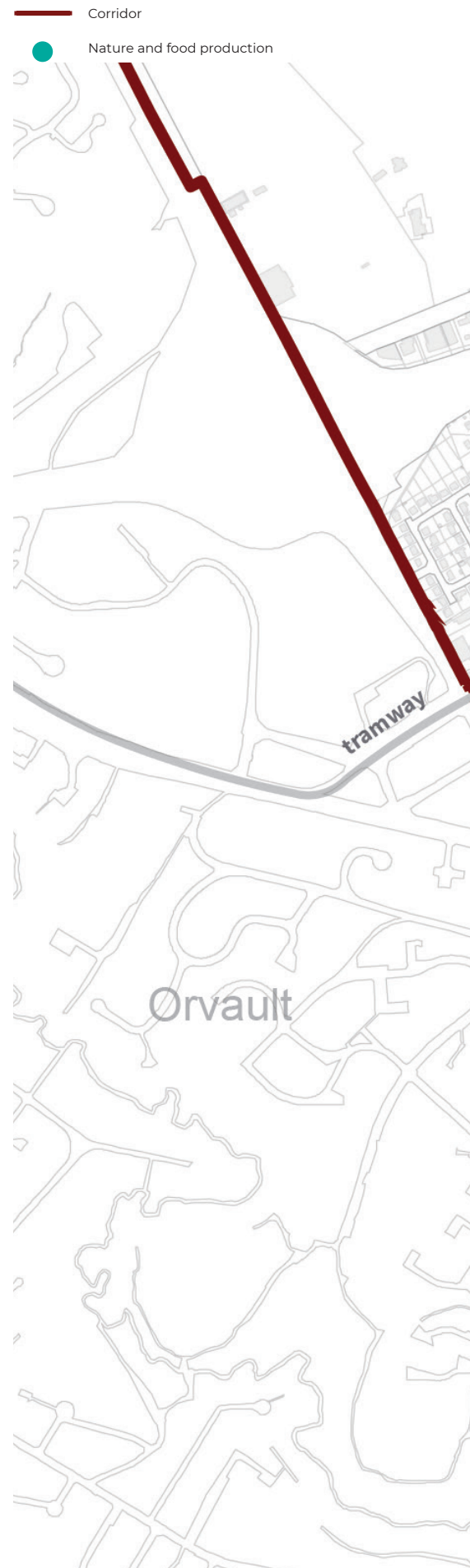
Figure 38. Map of the new public space network articulated with the Healthy Corridor and the new NBS.

3.3.3 Nature and food production

The public health department, in partnership with the CCAS, is also bringing together a group of residents to discuss access to fruit and vegetables as part of a health/nutrition approach. The various production or animation sites planned in the urban agriculture component in the URBiNAT study area will complete the solutions to meet the major health challenges in the healthy corridor.

The new NBS respond to several of these challenges (1, 3, 6, 7, 8), supported by local stakeholders such as the Bio T Full association, a key player in the Nantes Metropolitan area, which promotes urban agriculture through awareness-raising activities, experiments at the Solilab (9,000 m² of a former industrial wasteland for a laboratory of social and environmental innovations) and through project support.

The urban agriculture strategy of the healthy corridor aims to create a diversity of solutions around the theme of food, from already existing family gardens whose production is dedicated to personal use to solidarity gardens (NBS n°8 on the map below) whose production is dedicated to the most vulnerable, from workshops in the geodesic greenhouse led by Bio-T-Full (NBS n°7) to experimentation to propose a new economic model for tomorrow (NBS n°9).



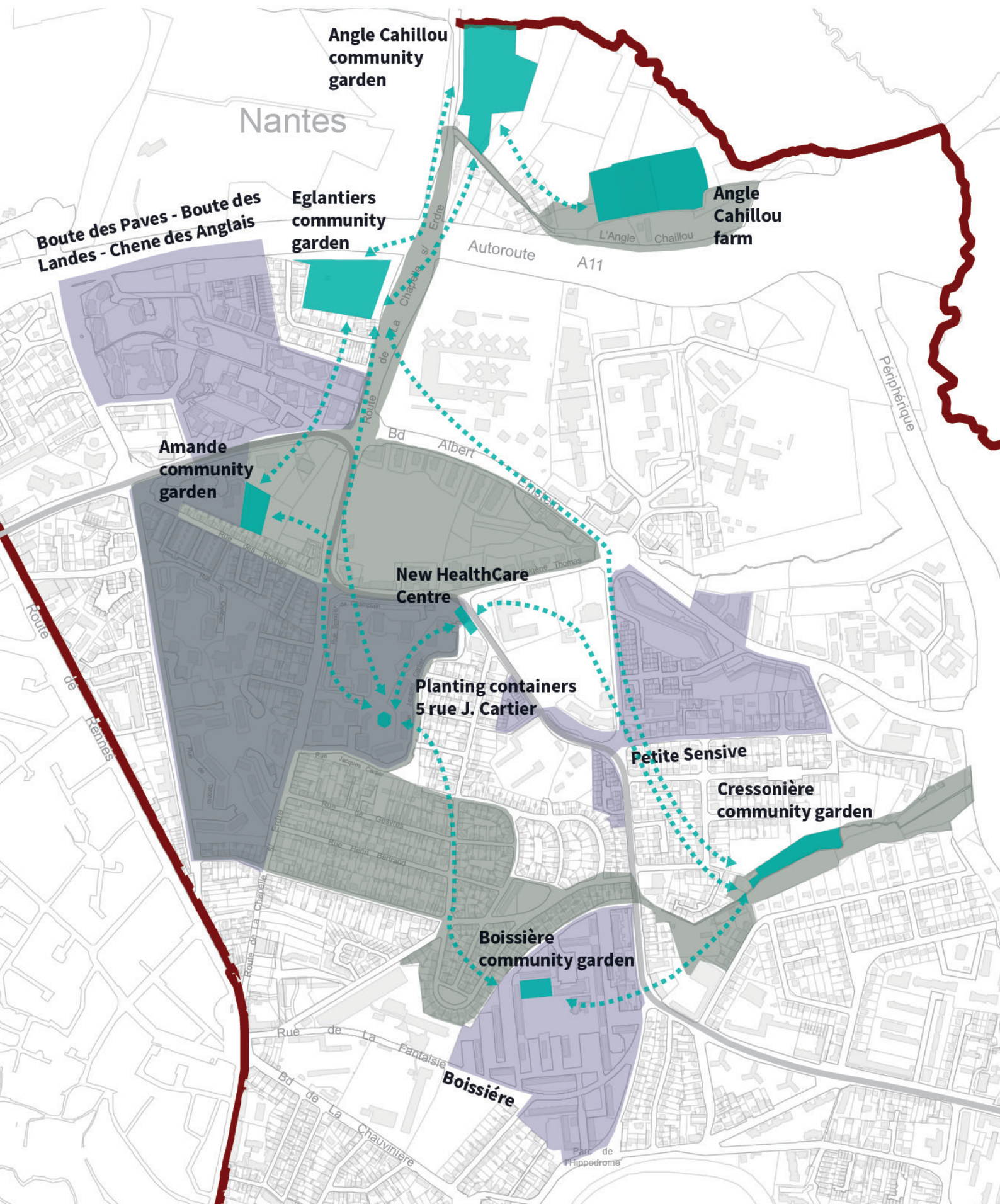
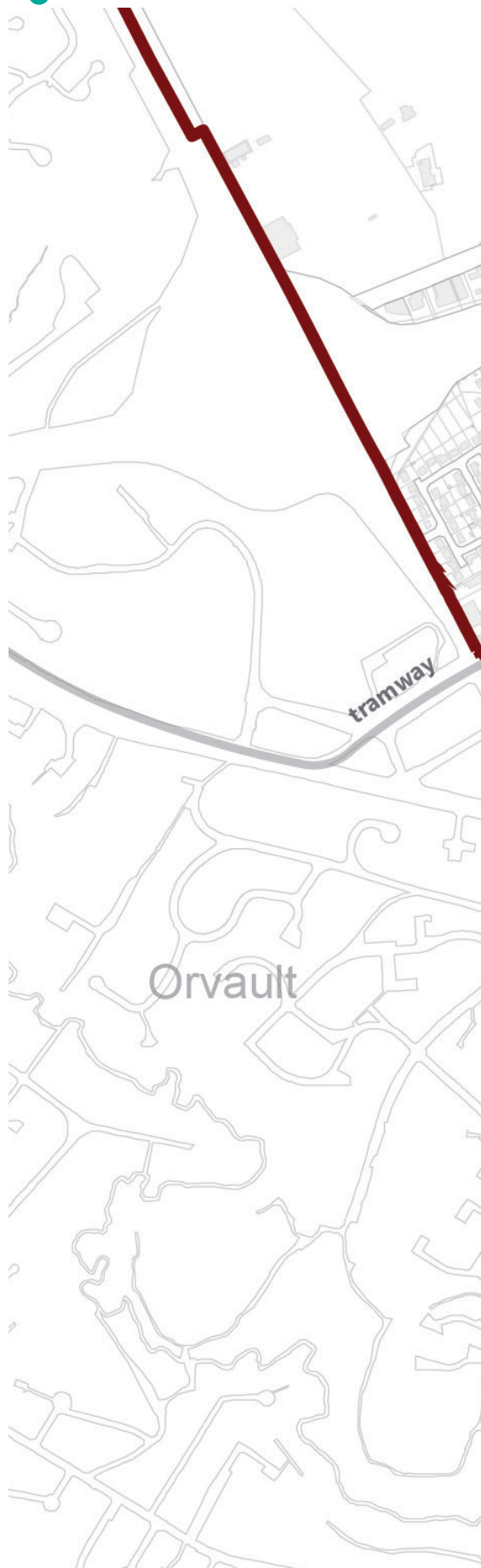


Figure 39. Map of the existing nature and food production network.

- Corridor
- Nature and food production



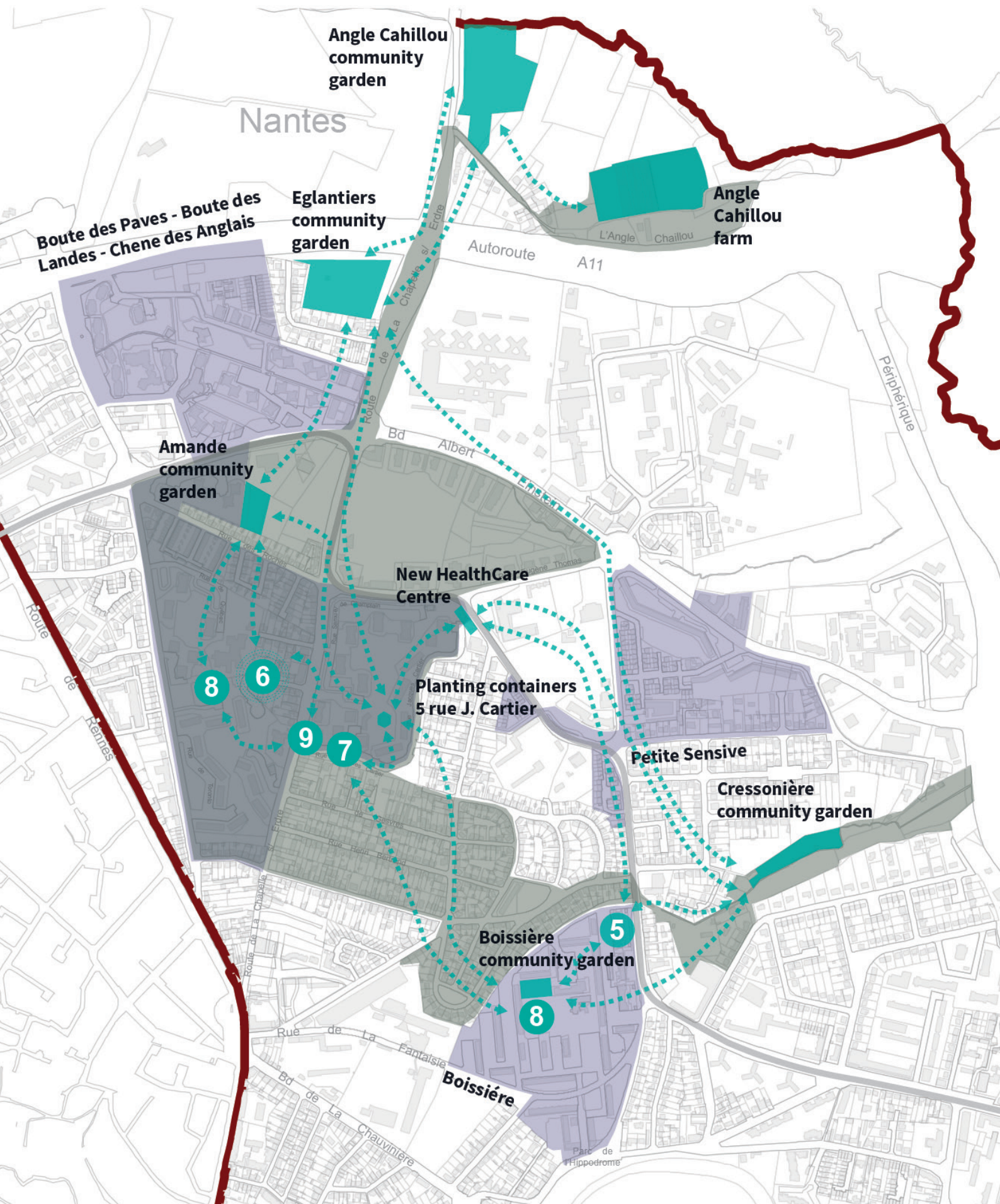


Figure 40. Map of the new nature and food production network articulated with the new NBS.

3.3.4 Education

Education is addressed in two ways in the healthy corridor:

It represents the objective of sharing knowledge to better understand the environment of living, to contribute to social interactions and increase sense of belonging.

It also represents the local stakeholders on which the municipality relies to engage the target groups within the co-creation process. Two schools (Gauguin and Georges Brassens) and a secondary school (Stendhal) are located in the healthy corridor. They are major players in the district, especially since the local diagnostic identified children and young people as a group particularly affected by the deteriorating health indicators.



- Corridor
- Education



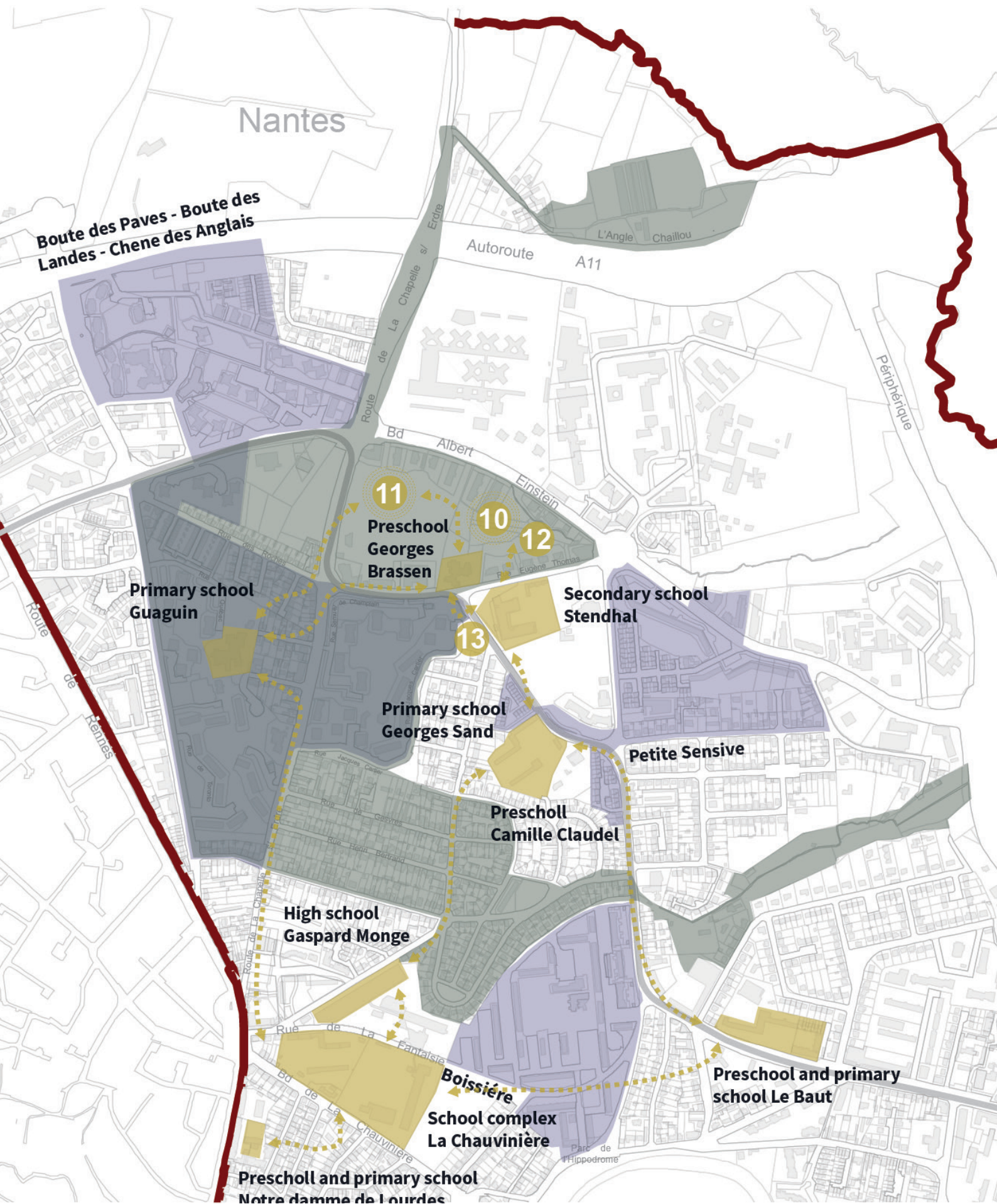


Figure 42. Map of the new education network articulated with the new NBS.

3.3.5 Physical activity & sport

Physical activity and sport are another key aspect of health which is complementary with healthy food and access to well-being.

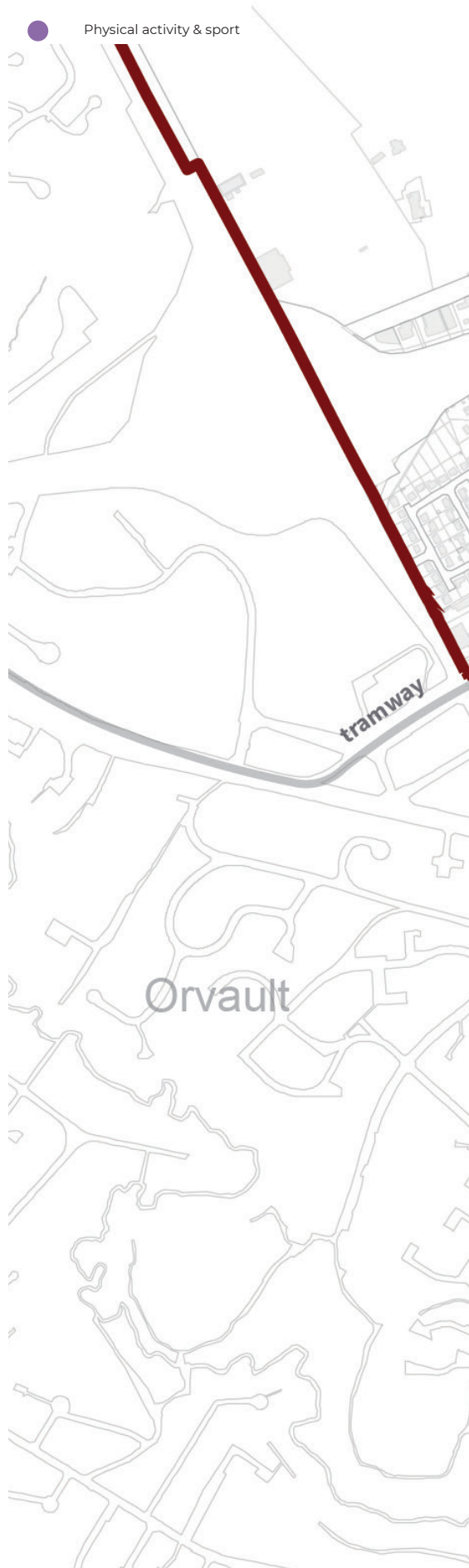
In connection with public spaces design, the objective is to favour physical activities and even sports. This requires both equipment and activities to encourage and engage citizens in this practice. The existing network as described in the map below outlines that the district benefits already from several sport infrastructure.





Figure 43. Map of the existing physical activity and sport network.

- Corridor
- Physical activity & sport



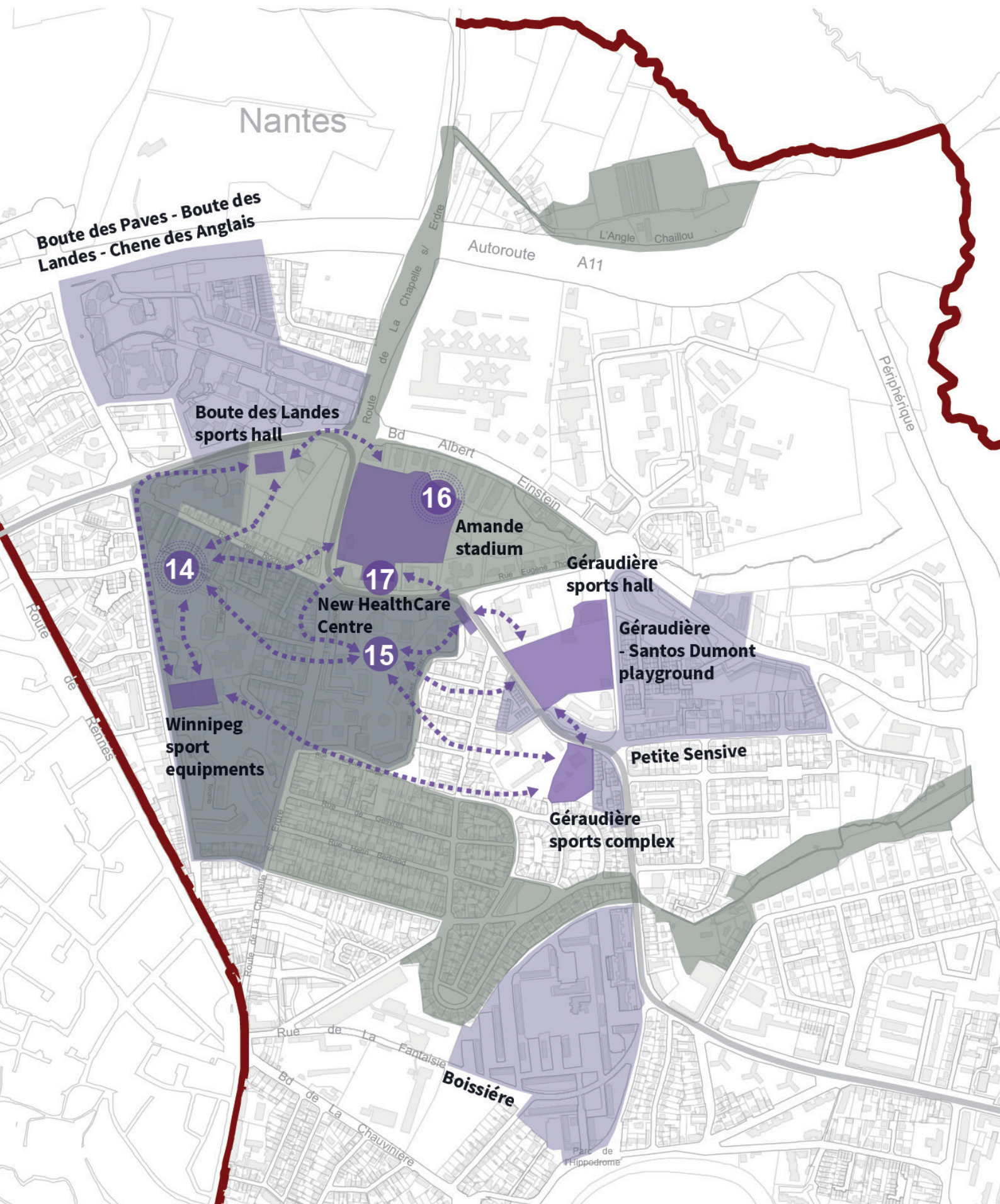


Figure 44. Map of the new physical activity and sport network articulated with the new NBS.

3.3.6 Social and solidarity economy

Social and solidarity economy in Nantes is considered as one of the levers for the development of the territories. Several initiatives are already existing, such as *Ethiquette* for clothing exchange or the *CUB*, do-it-yourself workshop with equipment to use, within the perimeter of the URBiNAT study area. It is integrated in a larger strategy scheme at the metropolitan level for the development of Social and Solidarity Economy. In the intervention area, an ongoing project (solution n°18) co-constructed with inhabitants and local stakeholders will lead to the integration of a new company supporting the local social and solidarity economy.



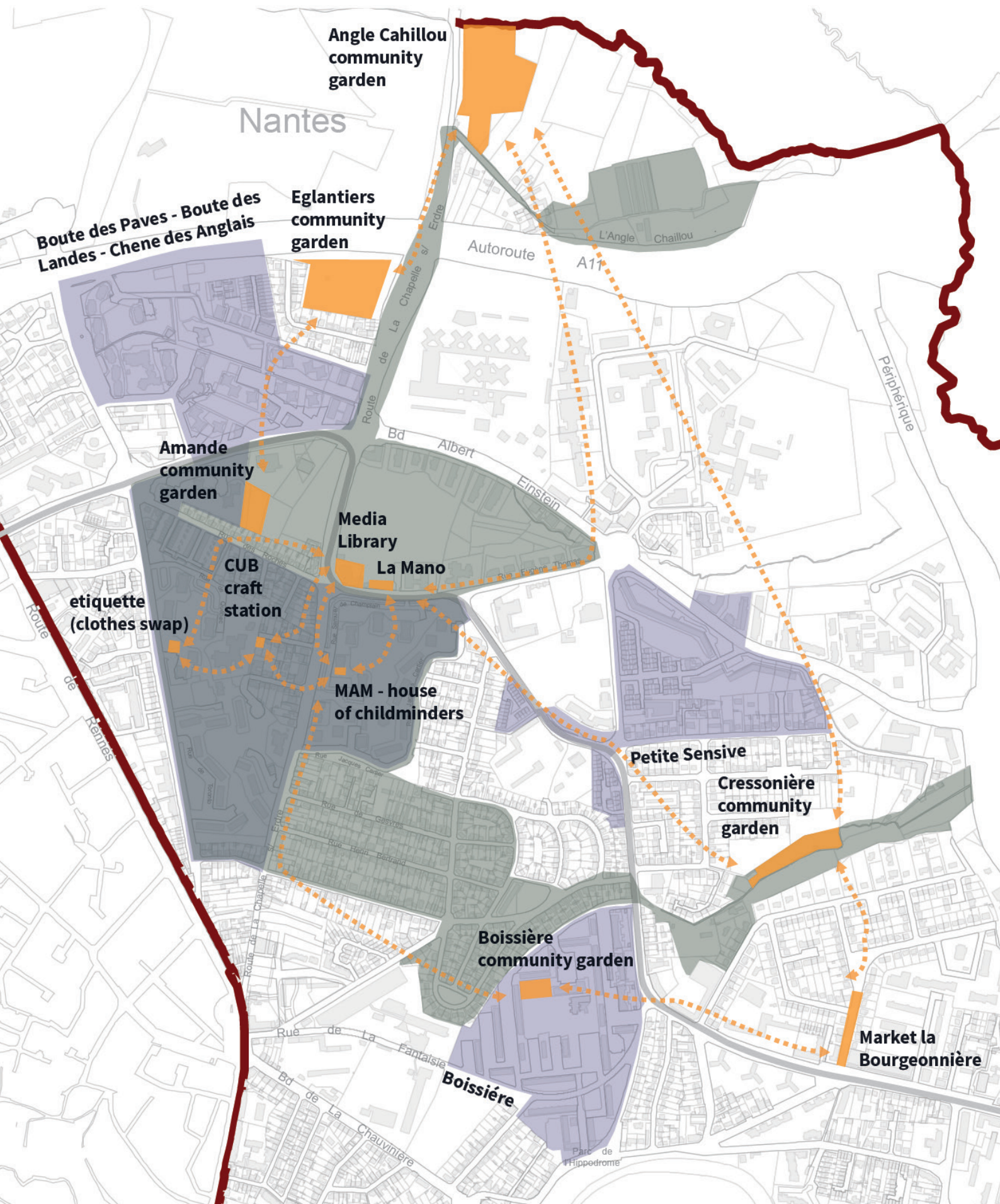
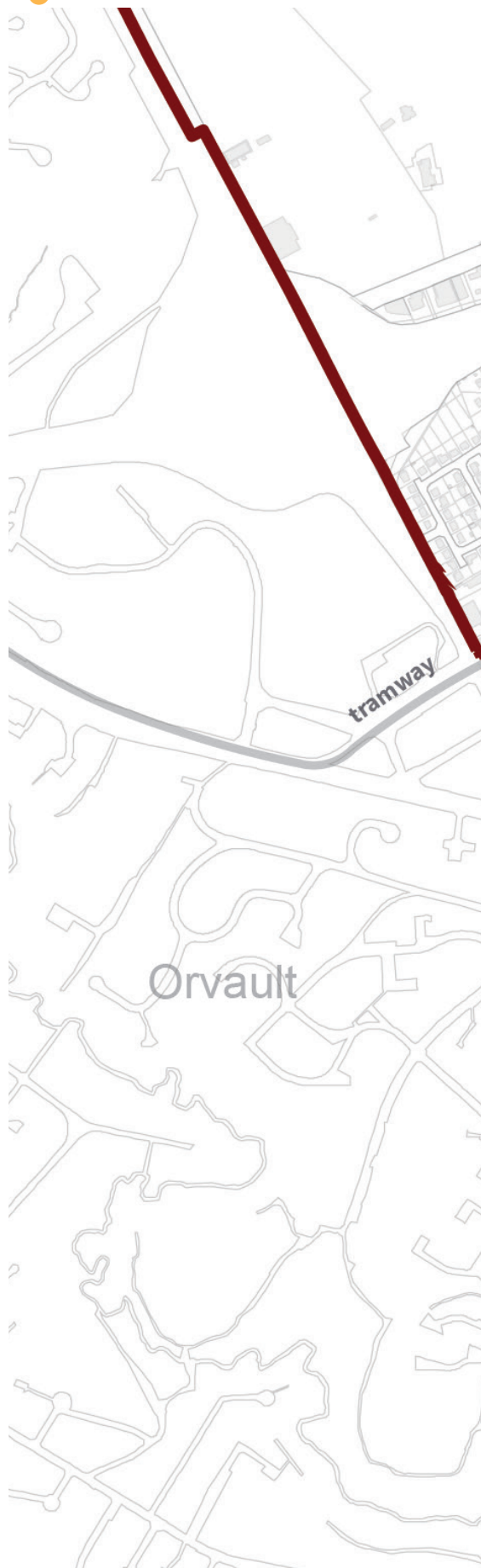


Figure 45. Map of the existing social and solidarity practices network.

- Corridor
- Social and solidarity economy



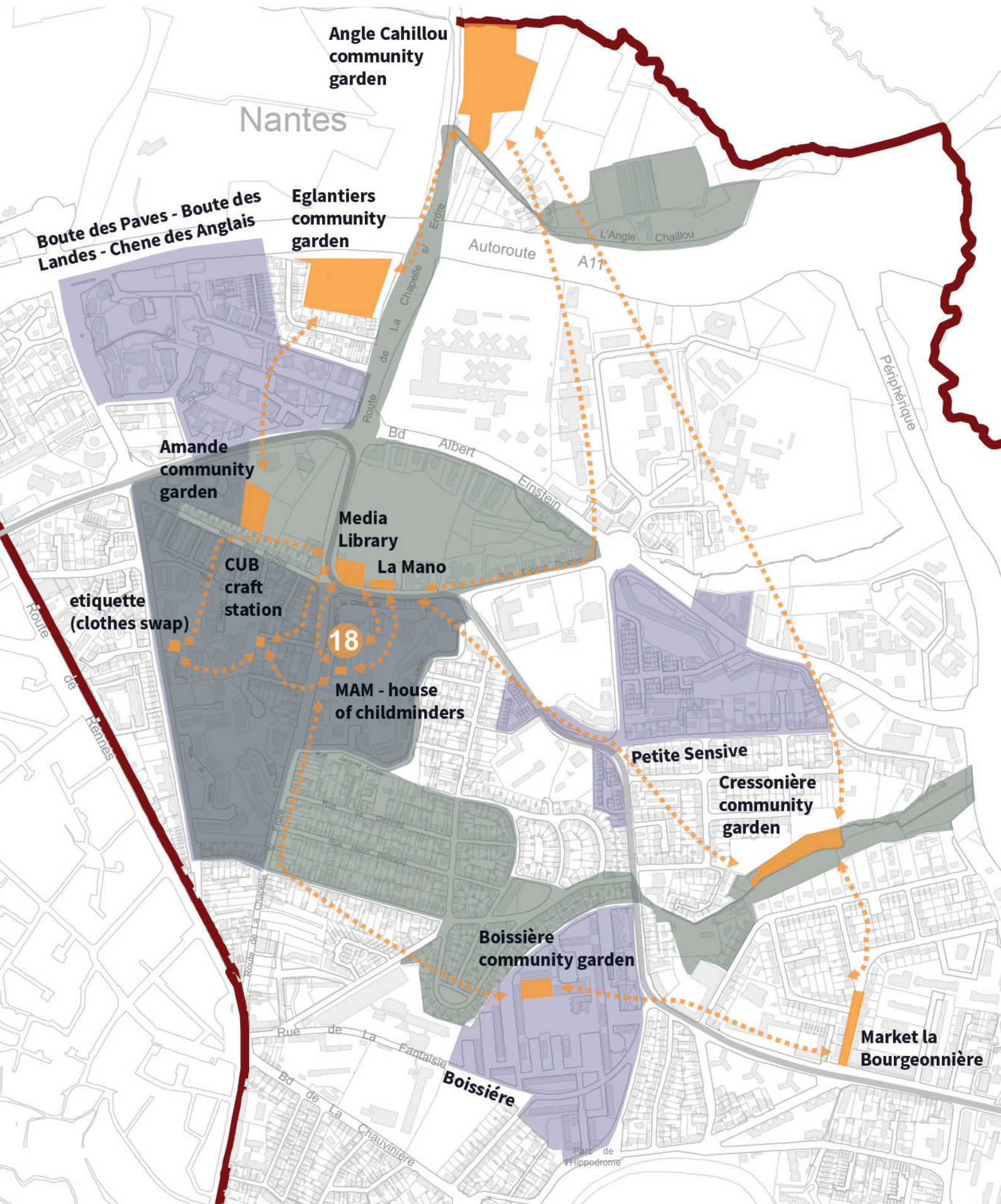


Figure 46. Map of the new social and solidarity practices network articulated with the new NBS.



Figure 47. The future pluri professional health centre of Nantes Nord. (source; Loire Océan Développement)



Figure 48. Future Symbiose greenhouse. (source: Claas Architectes)



Figure 49. The Amande park.

The green loop will connect all the green spaces and point of interests of the healthy corridor, as the health centre, the park Amande, the Symbiose Greenhouse, the Canada park. It will also support the implementation of immaterial NBS especially, and offer opportunities for sport initiatives and food production. Within the park

Amande, the green loop will create a connection to the social housing district with the creation of a formal path.

The Renards stream will be the connection of the next paths to be developed on the district, out of the NBS n°5 that will connect the district to the river Erdre.

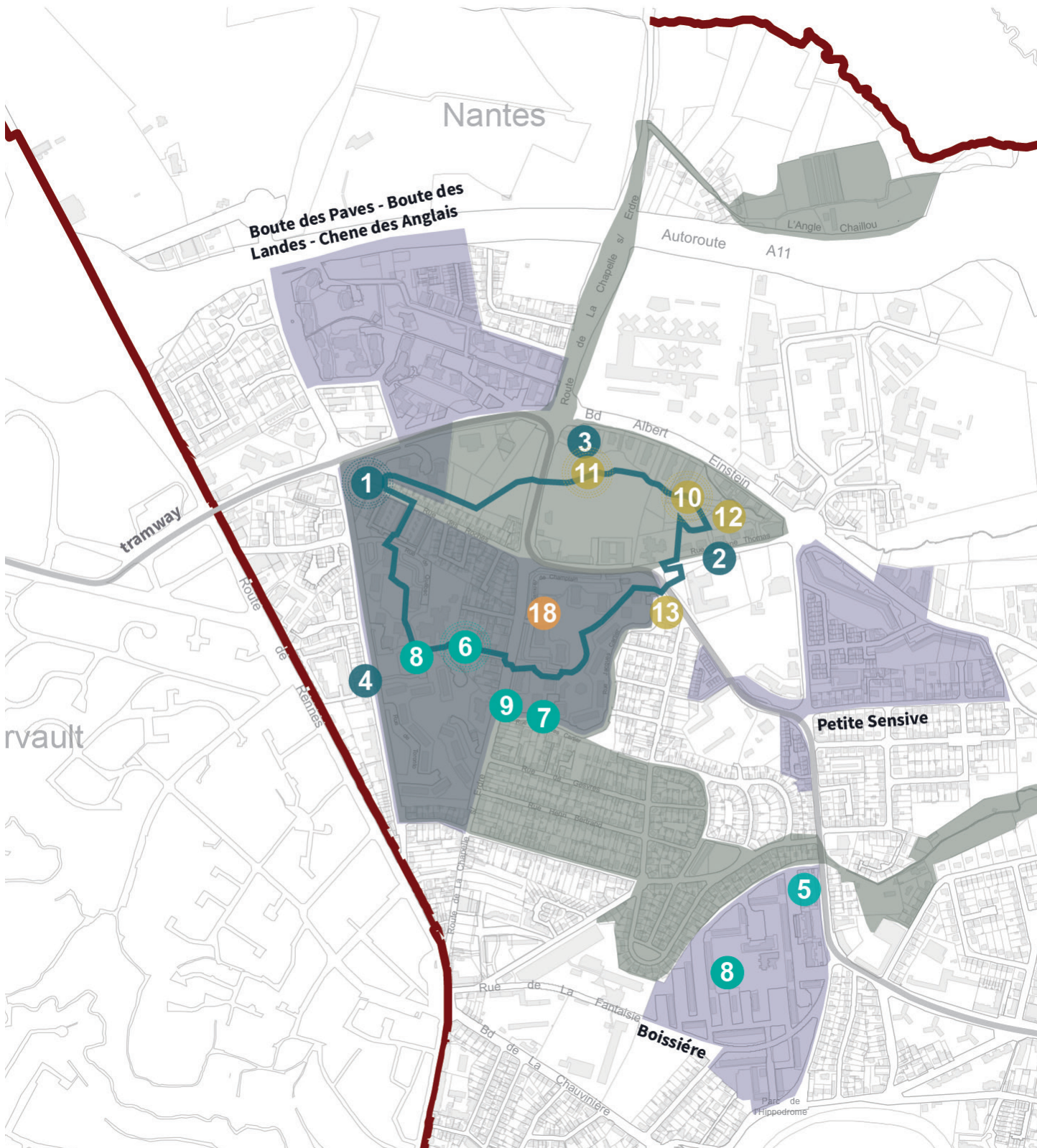


Figure 50. NBS synthesis map.

4. URBINAT's new NBS

In Nantes Nord, the task force built the process on existing participatory processes to guarantee the continuity of the dialogue with the inhabitants on the territory. The healthy corridor is also made of propositions of local stakeholders implicated in the district, as they are considered in the methodology developed in Nantes as key intermediaries with specific or vulnerable inhabitants.

The walkthrough and workshops allowed the inhabitants and stakeholders to express their wishes/needs/dreams for the healthy corridor. The task force “translated” the propositions in NBS, systematized in 5 categories: public space, nature and food production, education, sport and physical activity and social and solidarity economy.

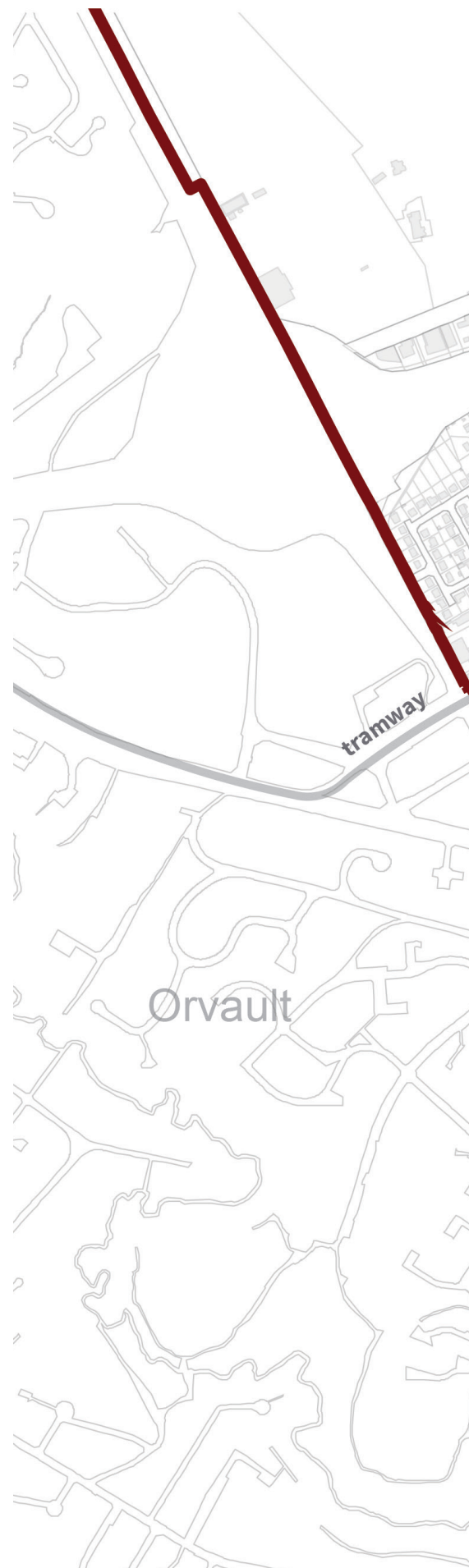
Meetings are organized with the urbanist team in charge of the implementation of the global project to verify the adequacy between the two projects. One meeting was dedicated to the analysis of the proposals that will be financed within the framework of the global project and those within the framework of URBiNAT.

The elected representatives will validate the final project on the 23rd March 2021.

The healthy corridor will be presented to the inhabitants during the spring of the project, the annual week of events, workshops and exhibitions, that will take place from the 17th to the 21st of May 2021.

Then a new round of co-creation will take place to deepen the immaterial NBS.

Synthetic presentation of the solutions integrated in the healthy corridor, forwarded to another project and proposals that will not be further developed/implemented.



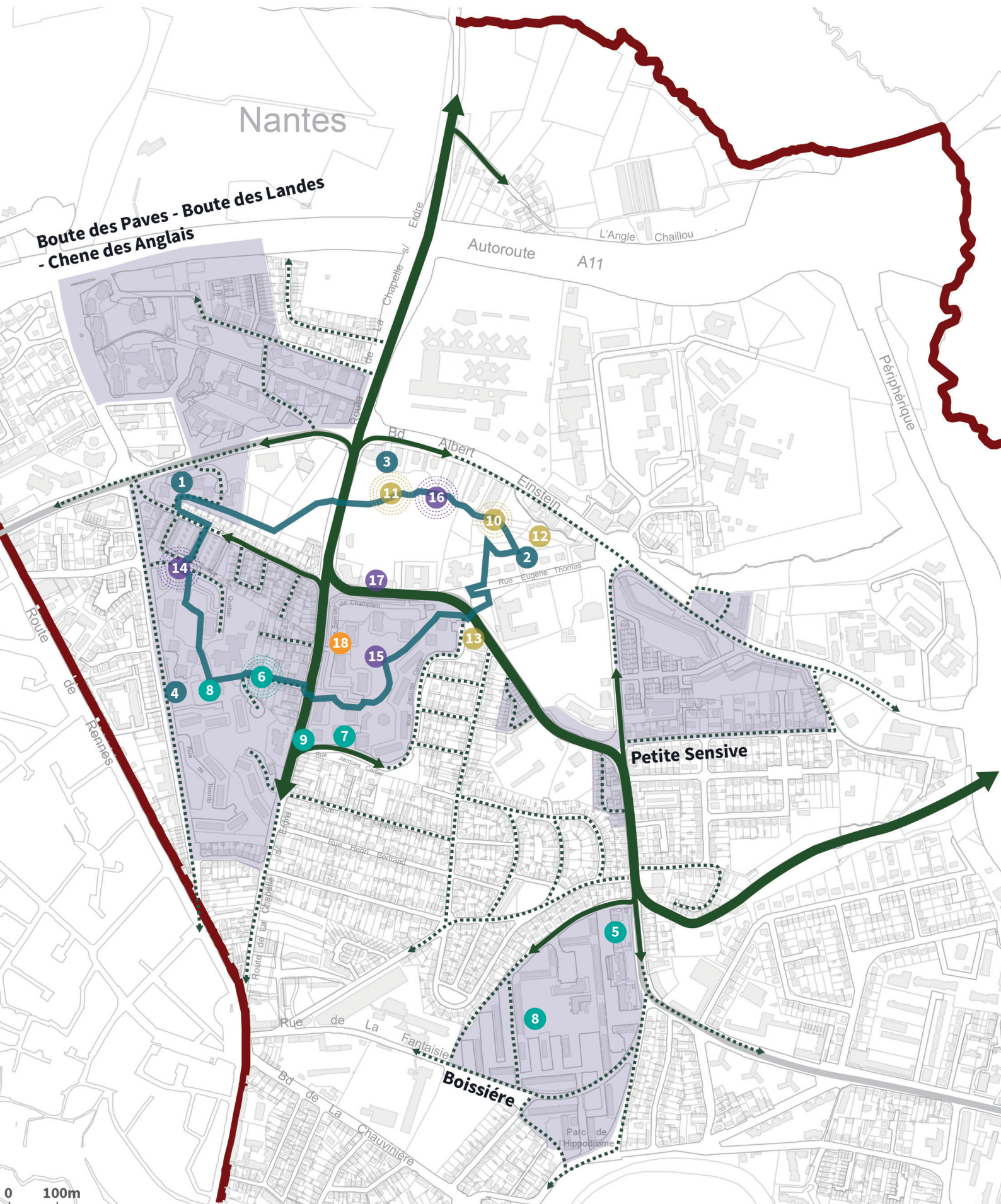


Figure 51. Map with the urban articulation of the Healthy Corridor and the proposed location of the New NBS.

Public space

The category “public space” organises all the solutions proposed by citizens that are related with the territory and will contribute to improve the quality of the public space in terms of mobility, activities and nature. It is important to mention that URBiNAT acts as a preliminary of the global project on the public space. Indeed, the global project is a renovation project at the district level that will have a high impact on the public spaces of the district.

This table represents the decisions taken on the development of NBS, according to the analyses of the NBS developed by the task force, the municipality and the inhabitants.

List of NBS integrated in the healthy corridor:

1. The green loop, a walking path within the district
2. Continuity of walking paths
3. Make the Amande park visible
4. Multifunctional urban park: Canada park

List of propositions integrated in the global project:

- The Amande park
- The lighting of the football field next to the Dragon playground
- Modification of the layout of the green loop
- Accessibility issue on the Quebec Road

INTEGRATED IN THE HEALTHY CORRIDOR	FORWARDED	NOT FURTHER DEVELOPED
Green loop: creation of a walking path within the district Continuity of walking paths Make the Amande park visible Multifunctional urban park: Canada park	Park Amande: enlarging the pond (stormwater basin, etc.), uses of the park, opening of the park on the sports ground. Lighting of the football field next to the Dragon playground Danger of crossing through the Coulée road (blind bend): passing the loop through the Vanille Chocolat kindergarten? Accessibility issue in front of the Quebec Street with car parks and works	

Table 8. Systematization of the ideas proposed for public space NBS, developed during the participatory process, organized in three main categories.

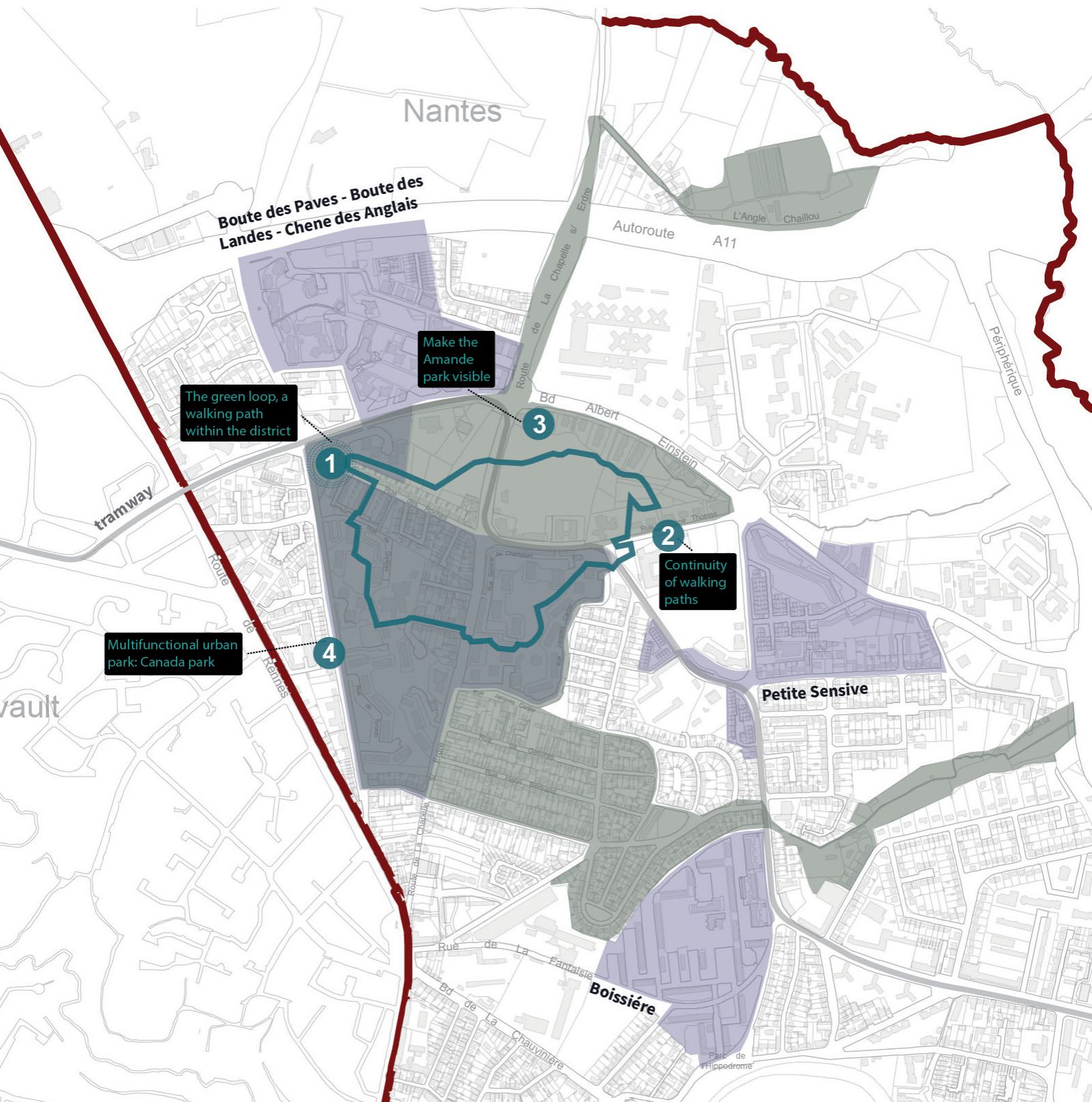


Figure 52. Proposed New Public Space NBS in the study area.

Nature and food production

The category “nature and food production” organises all the solutions proposed by citizens and stakeholders that are related to food production. The COVID 19 crisis had an important impact by strengthening the links between local associations and the municipality to deal with the food emergency that has hit the city’s most deprived families.

At the same time, demand for local fruit and vegetables increased, reducing the surplus of vegetables usually distributed to associations. The green spaces department turned over two 1.8-hectare plots of the municipal nursery in early June 2020 to grow vegetables. The objective is to perpetuate this initiative that was created in a context of crisis in a healthy corridor NBS.

The other new NBS around plantations should make it possible to create a territorial dynamic and, in the long term, to create a link between

the Angle Chaillou farm, which was not sold to the municipality as expected, but whose retired farmer has passed on the land to his daughter. The objective is therefore to work with the new farmer on a project to establish a foothold in the area.

The renaturation of the stream Renards is a municipality suggestion.

List of the new NBS:

5. Reopening of the Renard stream: study phase
6. Planting and picking within the green loop
7. Geodesic greenhouse
8. Solidarity Garden
9. District roof greenhouse experimental nursery.

This table represents the decisions taken on the development of NBS, according to the analyses of the NBS proposed by the task force, the municipality and the inhabitants.

INTEGRATED IN THE HEALTHY CORRIDOR	FORWARDED	NOT FURTHER DEVELOPED
Planting and picking on the green loop Geodetic greenhouse Solidarity vegetable garden Experimental district nursery (young shoots) Reopening of Renards stream: study phase	Work to reopen Renards stream: Project Life Revers’eau	Amande community garden: Bamboo plantation for gardeners

Table 9. Systematization of the ideas proposed for nature and food production NBS, developed during the participatory process, organized in three main categories.

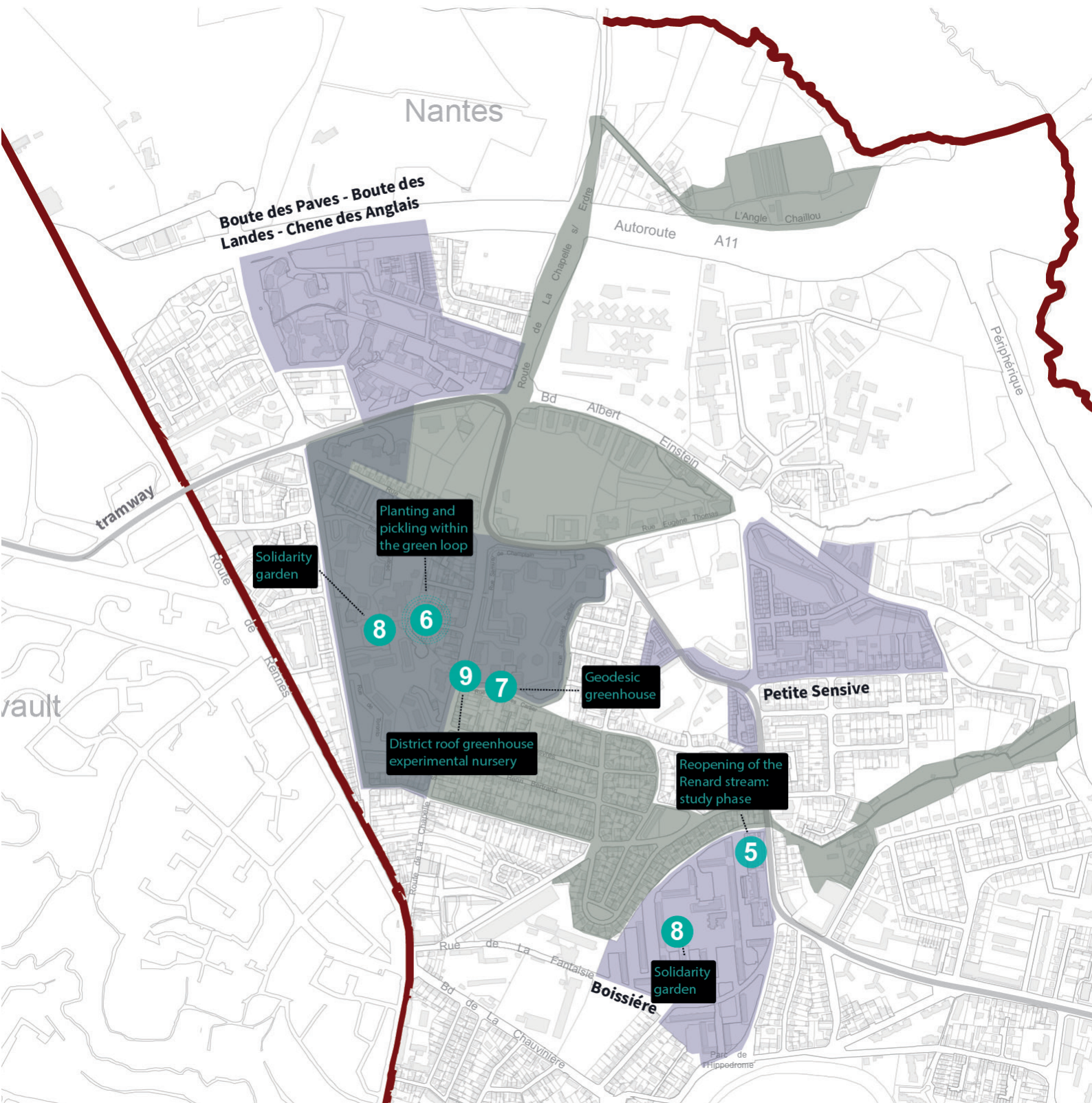


Figure 53. Proposed New nature and food production NBS in the study area.

Education

This part includes proposals that either come from the secondary school or that relate to knowledge sharing. They are a cross between the wishes of the inhabitants that emerged during the walkthroughs and the desire of local stakeholders to get involved in the URBiNAT project via several proposals. The networking and coordination of the several stakeholders for the implementation of the actions will be the task of the municipality, and in particular of the district team.

List of the new NBS:

10. Education on local fauna and flora
11. History of the district
12. Exhibition on the Amande park by Stendhal secondary school
13. Outdoor classroom for the secondary school Stendhal

Forwarded to another project

- Tobacco free outdoor space

INTEGRATED IN THE HEALTHY CORRIDOR	FORWARDED	NOT FURTHER DEVELOPED
Education on local fauna and flora History of the district Exhibition on the Park Amande by Stendhal secondary school Outdoor classroom for the secondary school Stendhal	Tobacco free outdoor space	

Table 10. Systematization of the ideas proposed for education NBS, developed during the participatory process, organized in three main categories.



Figure 54. Proposed New educational NBS in the study area.

Physical activity & Sport

Nantes has a proactive sports policy aimed at giving all Nantes residents access to sport and the opportunity to practice it in good conditions.

The municipal sports department carries out educational activities dedicated to children and teenagers aged 6 to 17. Implemented during school time, but also after school and during the holidays, these actions are aimed primarily at young people in social housing districts (priority districts) who do not practise, or practise very little sport.

But Nantes also wants to support free sports (running, skateboarding, etc.). The municipality has therefore created the "Nantes as a playground" scheme. It should be noted that in Nantes, 1 in 2 sportsmen and women are not members of a club.

At the district level, the sport district team has identified priority challenges linked to health issues. They support the development of free sports and new disciplines as urban sports, urban sliding, nature sports. This last family is undoubtedly the one to be assessed in connection with the numerous green spaces in the district.

List the new NBS on each group:

14. Organisation of walks
15. Encourage children to exercise in a fun way
16. Fitness path
17. Proposition of cycling lessons to women by the Nantes Nord Muslim Cultural Association ACMNN

Forwarded

- To be able to cycle on the green loop

INTEGRATED IN THE HEALTHY CORRIDOR	FORWARDED	NOT FURTHER DEVELOPED
<p>Organisation of walks</p> <p>Encourage children to exercise in a fun way</p> <p>Fitness path</p> <p>Proposition of cycling lessons to women by the Nantes Nord Muslim Cultural Association</p>	<p>To be able to cycle on the green loop</p>	

Table 11. Systematization of the ideas proposed for physical activity and sport NBS, developed during the participatory process, organized in three main categories.

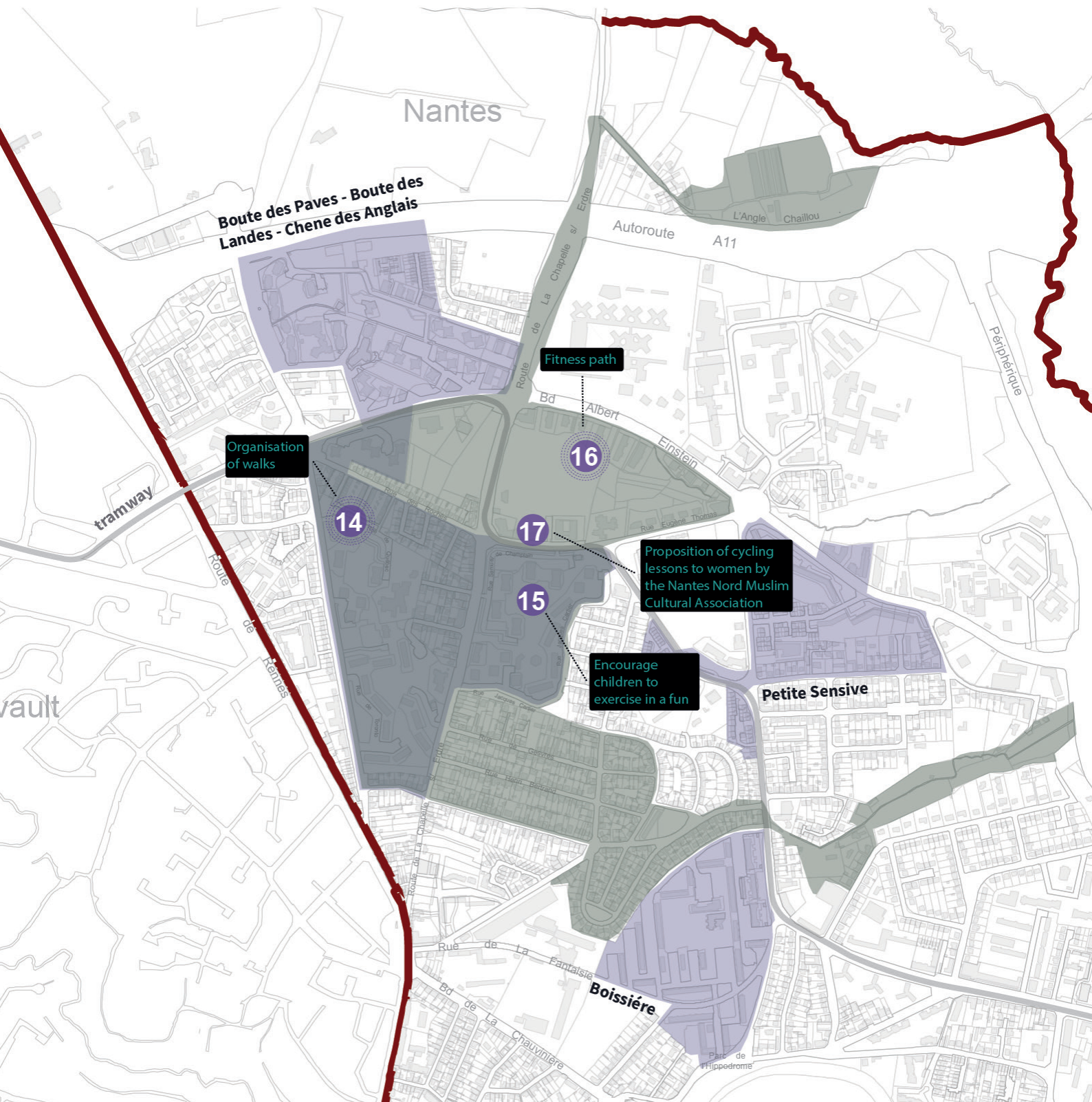


Figure 55. Proposed New physical activity and sport NBS in the study area.

Social and Solidarity Economy

Social and solidarity economy in Nantes is part of the global strategy of the municipality and relies on one of its main tools, the Ecosolies, one of the major actors for the promotion and support of Social and Solidarity Economy projects. The municipality and the social landlord decided to work with the Ecosolies to conduct a diagnostic on what typology of Social and solidarity services are expected both by local stakeholders and inhabitants to then search for the right project and help to integrate it in the district.

Integration of a company of social and solidarity economy in a social housing building.

INTEGRATED IN THE HEALTHY CORRIDOR	FORWARDED	NOT FURTHER DEVELOPED
Integration of social and solidarity economy company in a social housing building		

Table 12. Systematization of the ideas proposed for social and solidarity economy NBS, developed during the participatory process, organized in three main categories.

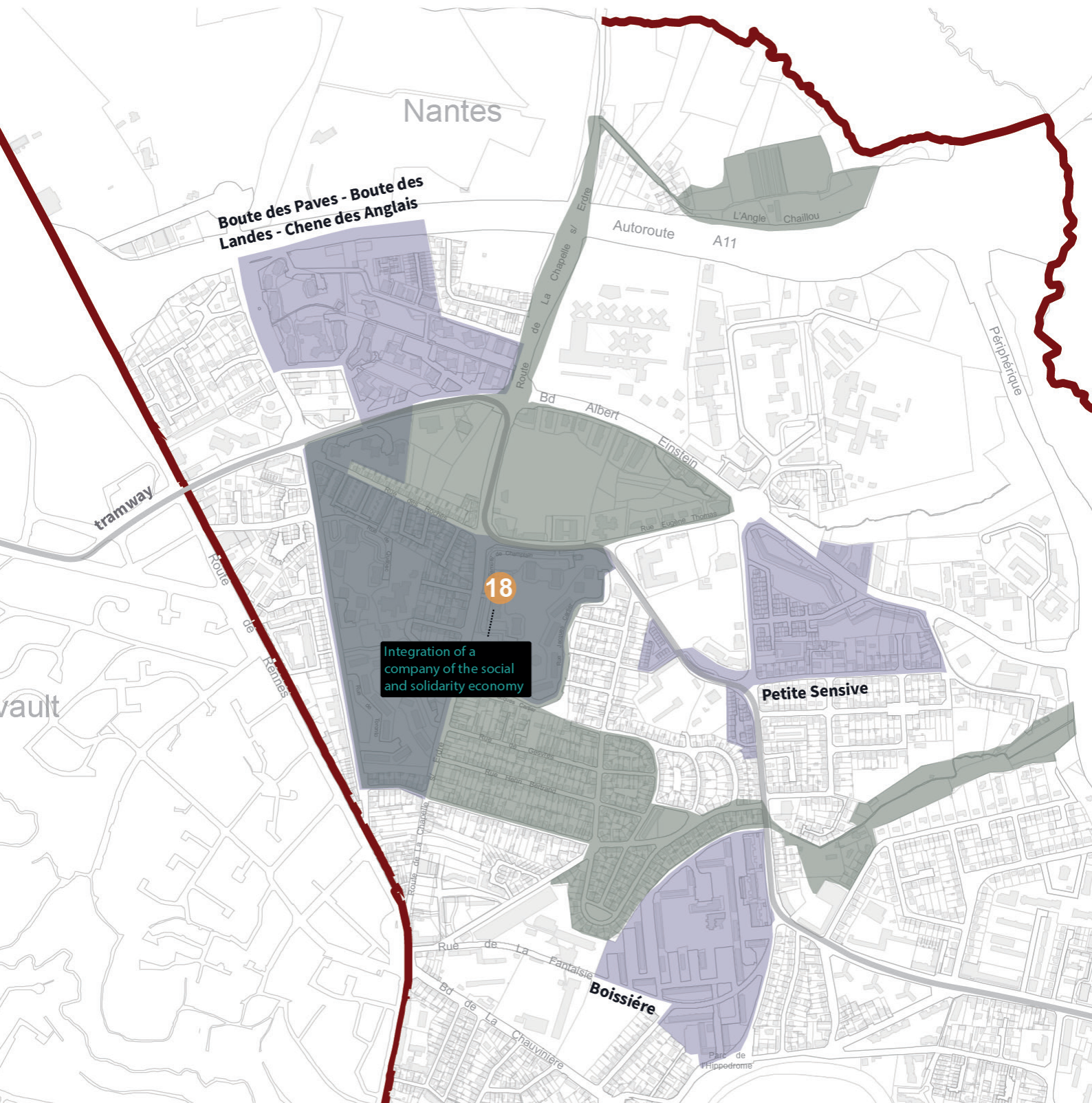


Figure 56. Proposed New social and solidarity economy NBS in the study area.

5. Healthy corridor spatial concept

5.1 Aims and principles for intervention

The Healthy Corridor developed in Nantes is the result of a complex process presented in this document. This is based on both the URBiNAT methodology but also integrates a trajectory of past and current projects (currently with the Global Project) and a continuity of the citizen consultation through the Citizen Dialogue policy approach. The co-creation process allows integrating the information and challenges highlighted in the co-diagnostic process, then the co-design results.

As result, the Healthy Corridor project is situated in a reduced area in the North of Nantes North. It is composed of several NBS (material and immaterial), some existing in URBiNAT catalogue, other proposed by the participants along the co-creation process.

The URBiNAT urban project integrates the design of a multifunctional urban park, the creation of a walking loop support of most of the immaterial NBS and a new tool of animation for the local stakeholders, especially in line with the construction of the Health Centre, and the preparatory studies and activities of the reopening and renaturation of the Renards stream.

This aims to answer the different objectives identified through the co-creation process:

- Provide to inhabitants' access to affordable fruits and vegetables
- Develop active mobility for travels within the neighbourhood
- Favor children physical activity (including girls)
- Green and public spaces contribute to well-being (favour contact with nature, social relations)
- Provide new outdoor community spaces in public spaces
- Propose community activities and opportunities for social interactions
- Improve access and visibility to existing parks and public spaces
- Valuing biodiversity among the inhabitants
- Use outdoor space as educative support
- Create and improve by several equipment places to stay and to meet
- Improve accessibility and continuities of public spaces on material and immaterial levels
- Development of an economy that benefits to the inhabitants (including jobs)

5.2 Healthy corridor as a cluster of NBS

Nantes Nord is one of the greenest districts of the city. Though the most remarkable green spaces such as the Amande park are not known to the inhabitants. The healthy corridor aims at connecting those assets, and to improve connection of inhabitants with their environment. The creation of the first walking loop, the so-called green loop, is the cement and the support of multiple NBS of the healthy corridor, especially the immaterial ones, that will support the appropriation of their environment by the inhabitants.

Make the Amande park visible

Continuity, accessibility and securitisation of paths

As stated before, Nantes Nord benefits from an effective pedestrian network. But accessibility can be an issue that prevents some inhabitants from using the paths without difficulty. It has been decided to focus the interventions on the path of the green loop whose accessibility issues have been mapped during the walkthrough with the inhabitants.



Figure 57. The entrances of the park Amande park.



Figure 58. Elements affecting accessibility.

The territorial mapping of the informal paths within the Local Diagnostic underlined that they were located mostly within the park Amande. The intervention will concentrate on the informal paths within the park Amande that need to be addressed to connect the park to the social housing district. Specific attention to the protection of the surrounding trees will be needed while taking into account the need for

accessibility with the presence of the retirement home.

The walkthroughs with the inhabitants also underlined the danger of certain pedestrian crossings that need to be addressed.

The road la Chapelle especially makes the inhabitants, especially families with children, insecure to cross the street and the tramway line to access the Amande park.



Figure 59. The informal paths within the Amande Park.



Figure 60. Route de la Chapelle crossing.



Figure 61. In-existent crossing at Rue des Roches.

A multifunctional urban park on the green loop

Located on the west of the healthy corridor and on the route of the green loop, the Canada park aims at gathering together several functionalities to address the expectations of the inhabitants, regardless of their age or gender. The aim is to transform a place without attractivity despite its central place into a park with several functions proposed by the inhabitants.

The ambition for the Canada park is to become a central multigenerational public space of the healthy corridor while integrating specific attention to water cycle and biodiversity in its design.

Based on the exchanges with the inhabitants, the park will integrate a recreational space for children until 12 and a bowling alley (Zone 1), a green space dedicated to animation and events from stakeholders or municipality and a place to grow food (Zone2) and a pump-track (zone 3) next to the existing city stadium (in grey).



Figure 62. The Canada Park.



Figure 63. Canada Park project.

The renaturation of the Renards stream

The municipality aims to reopen and restore the Renards stream over 550 linear metres.

This is a pilot project, as it is innovative in the Loire Bretagne basin, with objectives of:

- improving water quality in small urban rivers
- raise awareness among local residents about nature in the city and climate change
- a project on urban planning that integrates water and ecology

The regulatory studies taking longer than expected, it has been proposed to integrate in URBiNAT the activities with the inhabitants to prepare the co-design phase that will take place within the Revers'eau Life project.



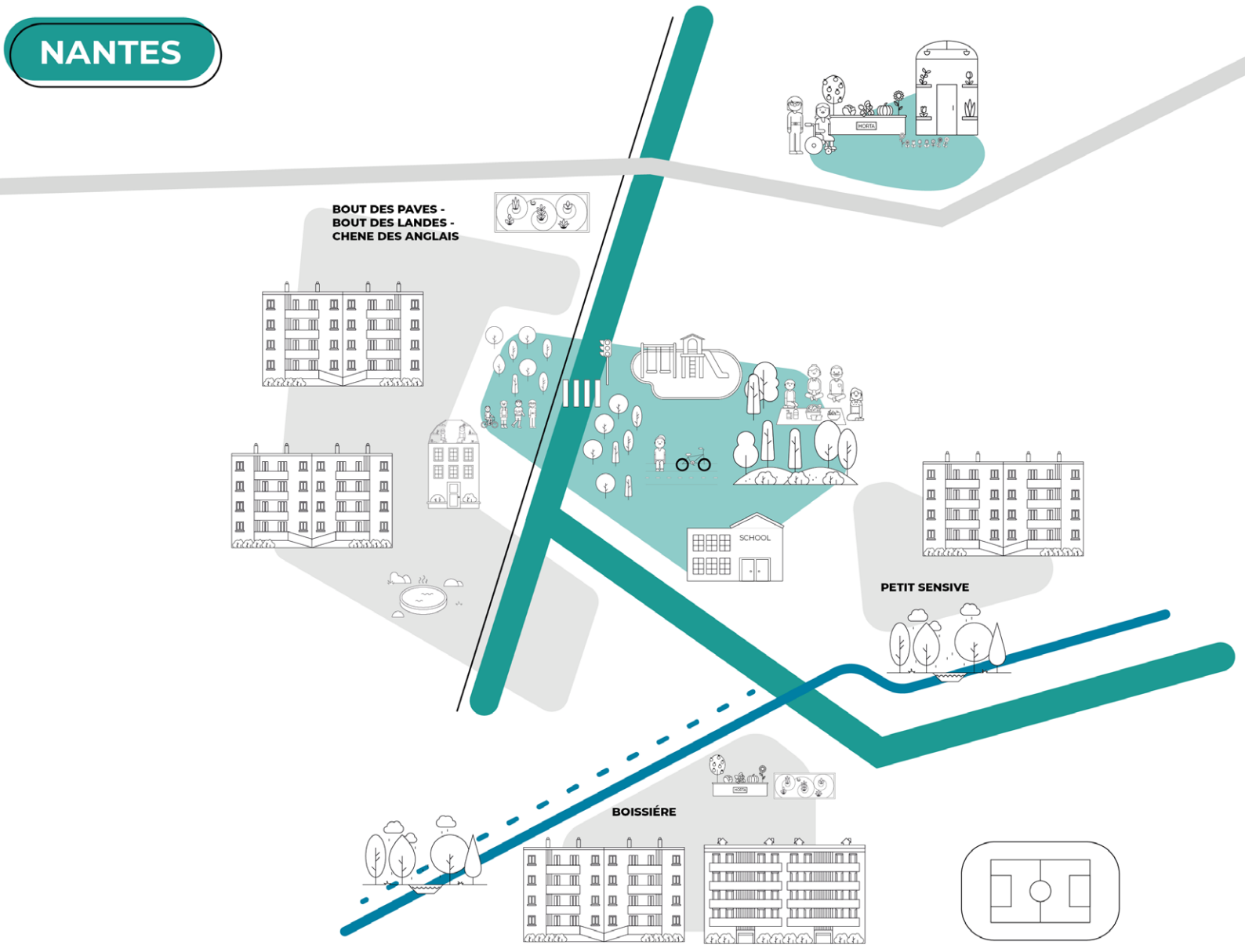
Figure 64. The stream Renards.



Figure 65. The stream Renards, part that is already at open air.

6. Nantes Healthy Corridor

6.1 Healthy corridor diagram



6.2 Main achievements and Results

Based on the important steps taken so far by the URBiNAT project, the main achievements are hereby resumed, followed by the steps that will compose the next phases – co-implementation and co-monitoring:

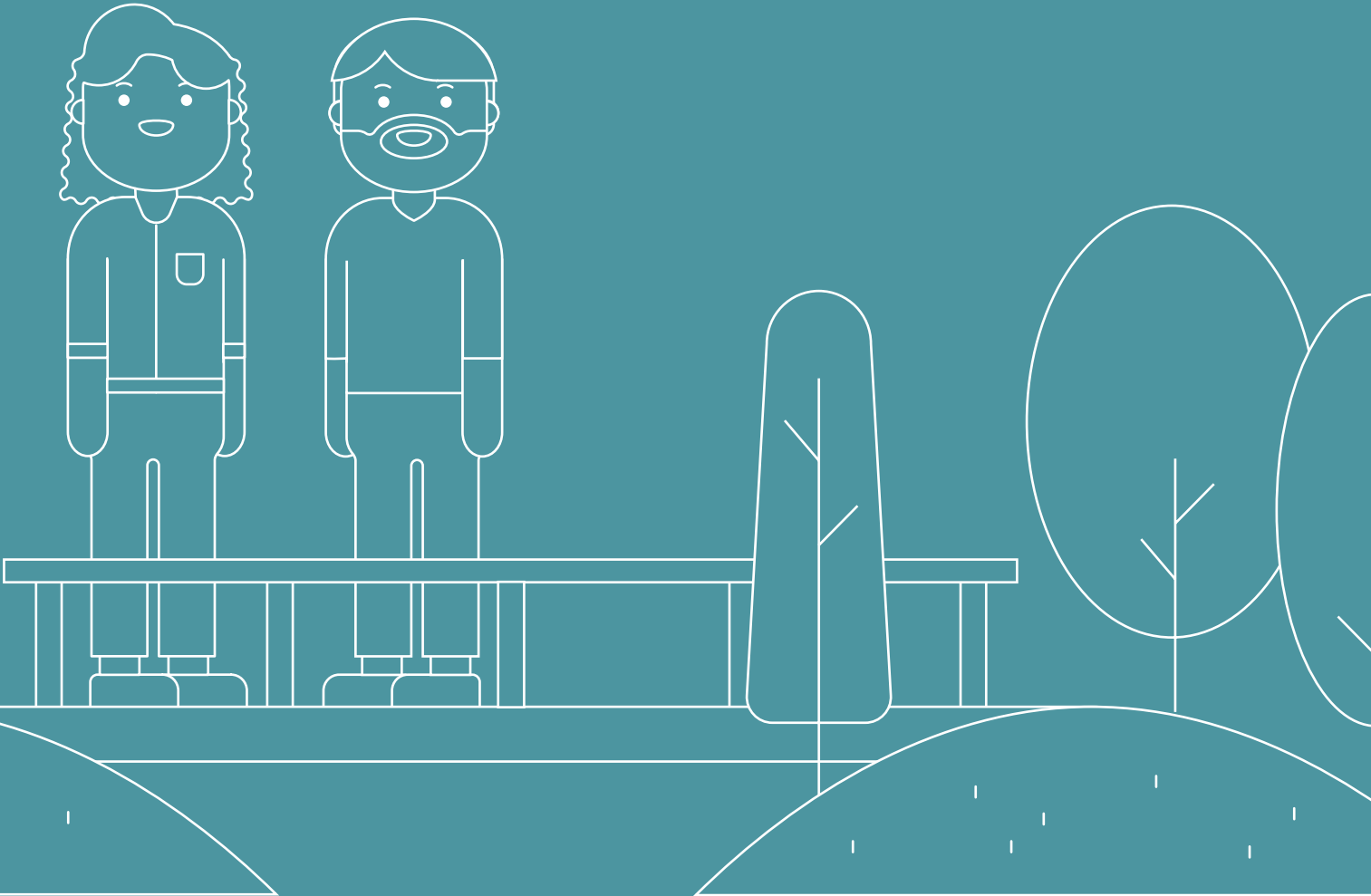
- Based on the co-diagnostic, the identification of key challenges for the neighborhood and their validation by politicians. The health appears a transversal challenge of Nantes project.
- Based on the co-diagnostic, the identification of natural elements that can be used as resources for the future NBS.
- Collection of citizen proposals through several participative activities. The co-creation was more widely integrative with the involvement of actors like local associations, schools, municipal technicians, political representatives and URBiNAT technical team;
- As a result of the co-creation process, 18 NBS that can be classified in 5 categories were finally retained for the project.
- The 18 proposed NBS were then assembled and connect to the district which establish the conceptual plan for the Healthy Corridor
- Important synergies were developed with other projects implemented in the district and especially the Global Project.

Next steps: Co-implementation and Co-monitoring:

- Further development of the Healthy Corridor into a more complete urban project (Deliverable 2.4);
- Further development on the planning and strategy of the co-implementation into the Deliverable 4.3.
- Some complementary technical studies have to be implemented before the implementation of some NBS: for example, a hydrologic study in the rainwater basin in the Amande park.
- Further development of the immaterial solutions categorized as to be developed under URBiNAT, through close articulation with municipal departments and local citizens and associations;

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Public Space





1. The green loop, a walking path within the district

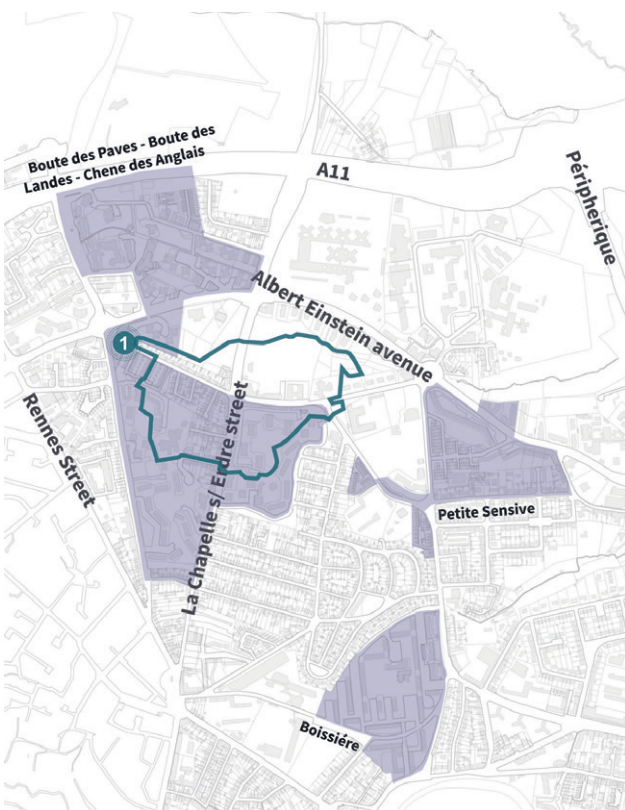
The loop must be physically created, with signs, accessible paths and benches to rest.

Positive aspects/challenges

Once the layout of the loop is physically implemented with accessible paths and adapted signage, the loop becomes a new support for various activities within the healthy corridor for local stakeholders and the municipality. Effective communication must be implemented and stakeholders must also be involved in the co-implementation phase to ensure their engagement.

Co-diagnostic

The green loop was a proposition made by inhabitants in two previous workshops before URBINAT, one carried out on the creation of the health centre (2016) and one on sharing public space (2017). It also made sense within the municipality service of public health that carried out a study with a group of researchers from Toulouse on the social inequalities of health (cf Local Diagnostic)) that underlined those inhabitants of social housing districts are in poorer health. Walking is an activity to promote for the benefit of both physical and mental health. The study also underlined the groups that were most impacted: children, teenagers and the elderly.



Description

The green loop is the first walking loop out of 6 that will connect the different parts of the district Nantes Nord to each other, from the URBINAT study area to the river Erdre. The “URBINAT” green loop will more specifically connect the green spaces and various points of interests within the healthy corridor. It shall also:

- be a support for physical activity such as walking. Expectations may also exist for a more “sports-oriented” approach;
- enhance places linked to the history of the districts, highlighting the geography, fauna and flora, biodiversity;
- allow for relaxation and tranquillity, in the recreational sense of the term;
- accentuate the social role of the loops, which are designed to bring people together or encourage meetings and sharing on the public space.

Co-selection & Co-design

A first workshop took place in May 2019 but with a mitigated success. The task force then decided to engage stakeholders and technicians of the municipality (sport, youth, education) in the process, using two seminars organized by the municipality, one on food and health, the other on social cohesion, to integrate their suggestions and help mobilize the inhabitants they are daily in contact with. The Covid 19 crisis delayed the planned workshop with inhabitants and specific publics. The walkthroughs and face to face interviews inside the bus dedicated to citizen dialogue with a video of the loop took place after the summer, in September and October 2020 and allowed to both map the improvements needed on public space (benches, accessibility issues ...) to physically design the loop and collect wishes and dreams for the activities.

2. Continuity of walking paths

Description

Nantes Nord benefits from an adapted pedestrian network as the territorial mapping underlined in the Local Diagnostic. In the park Amande though, there is no direct connection to the social housing district as the informal paths in the park underline. The Park is not easily accessible from the social housing district for families with strollers or for inhabitants with reduced mobility. A retirement home is located directly next to the park, so accessibility is an important factor.

Though, the park is also labelled Ecojardin (<https://www.label-ecojardin.fr/fr/sites-labellises/parc-de-lamande>), so the soil permeability must be limited. The municipality team is looking for a solution that matches accessibility and the preservation of green spaces.

Pedestrian crossings need to be secured as they were identified by the inhabitants as dangerous. Some accesses are difficult and need to be improved.

Positive aspects/challenges

The Park Amande was awarded Ecojardin label and a consensus will have to be found between the need to link the park to the social housing district and the preservation of the environment. Slope and trees planted along the pathway will require an exchange between the different services of the municipality to find the most suitable solution allowing accessibility to as many people as possible while preserving plant species and especially trees whose roots could be damaged.

The works on the securitisation of the pedestrian crossings will need to integrate a nature component to fit into the landscape and contribute to the identity of the green loop.

Co-diagnostic

Territorial analysis and mapping the existing streets allowed to identify the informal paths.



Co-selection & Co-design

Walkthrough allowed to experience the paths and make an on-site diagnostic. The diversity of participants (a mother with 2 children and a baby in a stroller, a woman who had difficulties to walk...) have highlighted the problems of accessibility and the difficulty of reaching the social housing district once in the park Amande.

Most of the contributions from the inhabitants concerned the diagnosis of accessibility. The municipality's technicians will take over the technical study to make propositions on solutions.



3. Make the Amande park visible

Positive aspects/challenges

A great natural space to preserve, but also to connect to the district so that the inhabitants can actually benefit from such a breathing space in a highly urbanised area.

An important coordination is needed with the urbanist in charge of the global project that will impact the public space in front of the entrances of the park. A study on hydrology will be accessible at the end of the summer and may impact the layout of the path.

Co-diagnostic

Behavioural mapping underlined that despite frequent passage in front of the entrance to the park due to the presence of the tramway station, schools, the community centre and the media library, very few people enter the park, which is almost not visible from the street.

Co-selection & Co-design

Walkthrough: some participants, who live in the district within walking distance of the park, didn't know its existence and discovered it during the walkthrough. They underlined that the entrance of the park has no sign, but also no landscaping elements guiding the inhabitants to the park.



Description

The Amande Park is a green space of more than 6 hectares managed under ecological management since its beginning. It has been developed as a green corridor and holds a great diversity of flora and fauna. The Amande park is made up of storm pools collecting rainwater but not connected, and a small stream Botardière. A school, two sports fields, a retirement home, the community centre and the media library are located around this green space and make it almost invisible from the housing district. Two entrances, without sign and accessible path, “links” the park to the housing district.

4. Multifunctional urban park: Canada park

Description

The Canada Park is one of the first public space to be transformed, giving the inhabitants an idea of what the district will look like at the end of the global project in 2030.

The ambition is to create a unifying public space where everyone, regardless of age and gender, will have an interest in occupying it, allowing for encounters and exchanges between inhabitants.

Moreover, this place had no identity, no name, and no consistency in the equipment. This site was relatively little occupied, and sometimes by individuals linked to traffic. Only the City-stadium is a real place of gathering and exchange, despite its past appearance and a ground that does not satisfy its users.

The renewal of the place will allow to consider water cycle, since, as part of the global project, the objective was set to go out of the pipe system and manage the water cycle via a knot system.

Positive aspects/challenges

Multifunctional space that allows sharing of public space and increased social cohesion.

Challenge on the productive space: get inhabitants involved in the long term to maintain the site.

Co-diagnostic

The diagnostic of the site is a mix of several elements: feedback from the inhabitants, cultural mapping on gender issues carried out by an association of teenagers and report of the citizen's council. The inhabitants described the children's playgrounds as unsuitable and unsafe, have reported drug dealing and a need for a global requalification of the site.

Two suggestion boxes were available for six weeks that was the start for discussions in the first workshop.

Co-selection & Co-design

Several workshops took place, mostly directly on site with the citizen bus, since 2017. After the first workshop dedicated to the expression of needs and diagnostic of the site, workshops defined the specific publics or the specific challenges of the site to achieve a multifunctional park.

The debate in the district on the place of women and girls in public spaces led to the



conclusion that women are absent from public spaces until they become mothers and watch over their children there. A specific workshop with attention to girls led to their wishes to integrate swings on the park.

The swings are games that appeal to children of a large age group, there was a need for the youngest and especially the 0-3 years old, a lack of games for this age has been identified by the Citizen's Council of the district.

The construction of the boulo-drome will respond to a long-standing request from a local resident, who wanted children to see adults playing in the public space.

Many children asked for a circuit to play with their scooters, hoverboards and other rollerblades. A pump-track is planned on the site. An on-site workshop in May 2021 is planned to discuss with children the design of the pump-track.

The Park will also host a place for cultivating vegetables and a green area that will allow gathering and animations.

For forwarding

Park Amande

During the walkthroughs, several propositions concerned the park Amande, but with very different wishes for the space. Some inhabitants wanted to preserve the serenity of the park by limiting the works, others wished to enlarge the storm pool so that water could be more visible, some people wished for the opening of the park by the sports ground, others not.

The local task force decided that the place being large, specific workshops will need to be organised in the park Amande in order to deepen the proposals. The COVID 19 crisis had disrupted the workshops planned by the municipality and in view of the difficulty of the inhabitants to get involved in this difficult period, it was decided to postpone these workshops and to continue this work within the framework of the global project.

The Amande park is indeed central in the renewal of the district in the global project.

Lighting of the football field next to the Dragon playground

Street lighting is a strong issue in the district.

A lighting plan has been developed for the whole city and an intervention at district level is planned as part of the global project. This light plan must indeed be integrated with the black grid developed by the city's green spaces department that aims to develop a night-time ecological corridor without light pollution.

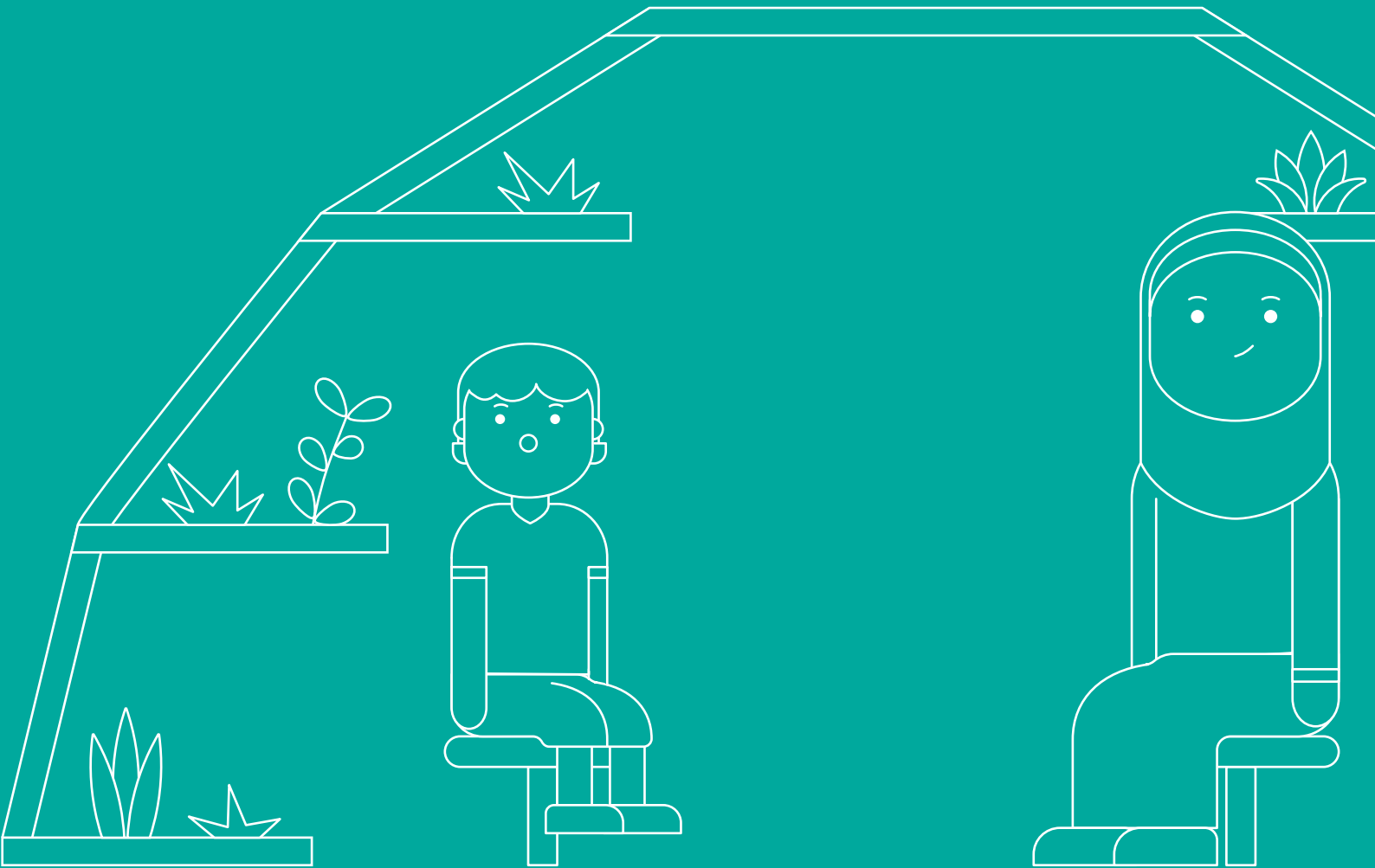
Danger of passing through the Coulée road (blind bend): passing the loop through the Vanille Chocolat kindergarten?

During the walkthrough, several inhabitants noted the dangerousness of the coulée street and proposed to deviate the route of the loop through the kindergarten. However, the global project plans to profoundly transform the path through the kindergarten. Therefore, the passage through Rue de la Coulée is the provisional route, pending the completion of work around the kindergarten. It is then planned that the loop route will indeed pass close to the kindergarten.

Accessibility issue in front of the Quebec Street with car parks and works

Work on the high-rise residential towers on Québec Street has already begun and is temporarily affecting the route of the loop.

Nature and Food production





5. Reopening of the stream

Description

The Renards stream is one of the last affluents on the right bank of the river Gesvres located in the most urbanised part of the watershed (northern districts of the city of Nantes “Bout des Pavés”, “Chêne des Anglais”). It is an integral part of the body of water WFD FRGR0541 entitled “THE GESVRES AND ITS AFFLUENTS FROM THE SOURCE TO CONFLUENCE WITH THE ERDRE” which is located in the Erdre catchment area.

The “Gesvres” water body has a medium ecological status with regard to the Water Department of the municipality (data from the water station located on Vigneux de Bretagne, ecological status 2013). The main causes of the medium quality of the water body are macro-pollutants, morphology and hydrology.

As for the Ruisseau des Renards, it is pumped over 545 ml from its source before being in the open air until its confluence with the Gesvres. There is currently no data on the quality of the water and aquatic environments of this stream and no data on its hydrological functioning.

The inhabitants will be associated in the studies to engage them in the project and prepare the co-design phase that will take place in another EU funded project (Life Revers’eau) in 2025.



Positive aspects/challenges

IRSTV and the department of water cycle will carry on the necessary studies on the quality of water. The aim is to include citizens and schools or associations to participate to the follow up of the indicators.

Co-diagnostic

The project is at first a municipality project, that aims to regain the presence of water in this district. The co-diagnostic will be held within URBiNAT on the quality of the water with the inhabitants, and will also be a phase of engagement of inhabitants for the future of the project. The second phase, the reopening of the stream and the design of the space, will be held within the global project and the Life Revers’eau project.

Co-selection & Co-design

n/a

6. Planting and picking within the green loop

Description

The COVID 19 crisis made it more difficult for the inhabitants to feed themselves, and their desire to have access to local food has also increased. This was reflected in the walkthroughs that were organized, where the inhabitants asked to be able to peck or pick fruit along the loop.

Positive aspects/challenges

Positive impact on health, raise awareness on healthy food.

Difficulty of maintenance with gardeners who are already understaffed

Co-diagnostic

The Local diagnostic underlined the municipality strategy to create a connection between the market gardening farm at the edge of the district and the social housing district. Several initiatives around the production of food have been proposed by local stakeholders and the walkthrough underlined that the food production meets the wishes of the inhabitants.

Moreover, the walkthrough has shown that being able to pick fruit on the way can be a source of motivation for walking (as a physical activity).

Co-selection & Co-design

What to plant and where still needs to be discussed with the inhabitants.





7. Geodesic greenhouse

Description

Bio-T-Full's is an association created in 2015, member of the Ecosolies network, whose ambition is to develop and promote urban agriculture in all its forms and at all scales.

In particular, the association proposes citizen and popular education activities around the transmission of knowledge, in connection with edible plants, sustainable food, natural gardening, or even DIY...

Bio-T-Full is also committed to supporting projects with actors wishing to get involved in the heart of issues related to sustainable development, solidarity and cities in transition. They work with the municipality on the district Nantes Nord to organize workshops with the inhabitants on gardening. They take part in two projects: the geodesic greenhouse and the experimental nursery on the rooftop greenhouse (solution 9).

This geodesic greenhouse project will be implemented on the ground, next to the building with the rooftop greenhouse and will host several events around gardening. The association in charge of the implementation of the geodesic greenhouse is also the one coordinating the solution 9 Experimental district nursery (young shoots)

Positive aspects/challenges

A physical place for events around food and gardening.

The challenge is to create a district dynamic around gardening that will irrigate the several other projects on food production in the district.

Co-diagnostic

The Local Diagnostic underlined that the district is already a place for food production. It has a history as a market gardening land. The aim was not to extend the existing family gardens but create a diversity of gardening/agricultural practices.

Co-selection & Co-design

The walkthrough with the inhabitants confirmed their interest in the food topic. The association will program events and workshops on gardening in the geodesic greenhouse, supporting the territorial dynamics around the topic of food.



8. Solidarity gardens

Description

The solidarity gardens are the continuation of the project carried out by the green spaces department at the end of the first lock down in May 2020. The idea is to plant in each district a solidarity plot of land that will be maintained by associations and residents and whose production will be distributed by the associations and the communal social action centre to the most disadvantaged.

Positive aspects/challenges

The green spaces unit has already transformed large areas into production spaces. This large-scale project has required a strong investment from the municipality's gardeners who are not market gardeners, but this solidarity project has federated the teams around a project that makes sense. It has also strengthened the links between the municipality and the associations working in the field of food solidarity.

The challenge: create a long-term dynamic.

Co-diagnostic

The project is first and foremost a large-scale experiment and an urgent response to the consequences of the health crisis on the city's poorest households. The objective is to structure the project and systematize the actors and the processes. Meetings with the associations have helped to identify the points to be improved, in particular the participation of the inhabitants in the planting and larger plots to increase production. Each district should have one large plot with associations helping to make the connection with the inhabitants.

Co-selection & Co-design

Associations, technicians and inhabitants have suggested two plots in the district to the municipality instead of one as initially asked. Instruction still ongoing for the whole city.





9. Experimental district nursery (young shoots) in the rooftop greenhouse



Description

The project of the greenhouse is managed by the social housing landlord seeking innovative solutions to reduce the environmental footprint of its buildings while limiting the cost of energy for tenants.

Symbiose is an innovative solution that aims to recover heat from the greenhouse installed on the flat roof of existing buildings to heat domestic hot water. The greenhouse project is financed by local, national and EU funds.

In addition, this greenhouse offers a new volume to use. Initially planned for the use of the inhabitants of the building, they did not show interest in the place. The social housing landlord contacted the municipality to study the possibility of creating a place for a farmer. Though, study has shown that the place was not big enough to allow a production from which a farmer would live.

With the help of two stakeholders, the association Bio-t-Full and the chamber of agriculture, it was decided to launch an experimental nursery, allowing to evaluate the economic potential for a farmer in the future, and a place for experiments for students.

The local secondary school has already shown interest in visiting the facility and using it with their students.

Positive aspects/challenges

Positive aspects: a project with impact on education as well and potentially on the economy if the experiment leads to an economically viable agricultural place. Challenge: potential delay in the delivery of the greenhouse which would have an impact on the uses.

Co-diagnostic

The diagnostic was led by the association Bio-t-Full, the department for the development of urban agriculture of the municipality, the local district team and of course the social landlord who owns the building to define the strategy to adopt and the specific objectives for the greenhouse. The greenhouse was perfectly in line with the territorial dynamics supported by the municipality.

Co-selection & Co-design

All the partners involved in the project of Symbiose suggested to create an experimental place for a nursery of young shoots, with two objectives: a place dedicated to students, and experimentation to evaluate the economic potential for a farmer.

For forwarding

works to reopen the stream les Renards

The opening of the stream will need to be authorized with compulsory studies to be carried out. Regarding the delays, it has been suggested to postpone the opening of the stream les Renards after the URBiNAT project, within another Eu-funded Life project that has been accepted: Revers'eau, and in link with the global project.

Not forwarded

bamboo plantation

The planting of a non-endemic species is not envisaged, especially as bamboo is a highly invasive species.

10. Education on local fauna and flora

Description

Nantes Nord is one of the greenest districts of Nantes. Though, the green spaces are either not qualified, or they are not known by the inhabitants. For the municipality, this proposal can also impact the belonging feeling of the inhabitants, by highlighting its assets.

The 2 primary schools of the healthy corridor, including the school that participated in the IRSTV workshops on water, soil and air, and the secondary school, whose biology teacher from the Stendhal college showed interest in the proposition.

Positive aspects/challenges

Strong connections on this initial proposal of inhabitants to include the schools of the district and to integrate the secondary school students in the URBiNAT dynamic, especially for the co-implementation.

Co-diagnostic

During the walkthrough, the inhabitants shared their wishes to get to know their environment, especially the fauna and flora that surrounds them. This is also related to solution 11 on the history of the district, because few inhabitants know that the Nantes Nord district is one of the greenest in Nantes and that before the 1950s, there were market gardens whose tree lines still show traces of the boundaries of these farms.

Co-selection & Co-design

The proposal was the result of several subsequent requests from inhabitants, confirmed during the walkthrough with the inhabitants, workshops conducted by IRSTV and exchanges with the Stendhal college. It allows for joint work with young people from the district who attend secondary school and who are not always easy to integrate into the co-creation workshops on the district.





11. History of the district

Description

The Nantes Nord district is going to change profoundly between now and 2030. The Global project, a €135 million urban renewal project financed in part by national funds (Agence Nationale de Renouveau Urbain) will contribute to the renovation of social housing, public spaces and the living environment of the inhabitants.

The objective is to rediscover the history of the district, by rediscovering the landscape and in particular the presence of water, which the urbanisation of the district has completely removed over the years.

The inhabitants, who are often older, have expressed the wish to be able to reconnect with the history of the district in Nantes Nord.

Positive aspects/challenges

Proposal that may have an impact on the greater sense of ownership of inhabitants of the district

Co-diagnostic

Several diagnostics conducted in the district revealed the lack of belonging of inhabitants of Nantes Nord: a social diagnostic conducted in the specific social housing buildings of Canada and tower 3 and 5 of Québec, the GUSP diagnostic conducted every 2 years (last one in 2019)

Co-selection & Co-design

Workshops and discussions with local stakeholders will be proposed to co-create the solution that will support the sharing about the history of the district. Cultural mapping could be used, as well as a digital enabler.



12. Exhibition on the Amande Park by Stendhal Secondary School



Source: Photo exhibition, Nature reserve of Nalliers (85)
author unknown

Description

In the frame of the school life councils (CVC), teachers and pupils of the Stendhal secondary school implement different projects in parallel of regular pedagogic program.

Initiated by pupils and biology teacher, one of these projects aims to study vegetation and fauna in the surroundings of the secondary school. As result of this work, and exhibition can be organized on the Amande Park.

Positive aspects/challenges

This proposition address both educational and biodiversity challenges and target two publics (pupils and inhabitants)

Co-diagnostic

2 preliminary meetings with the secondary school with a presentation of the project to the pupils by Céline Henry, coordinator of youth actions at the municipality.





Crédit photo: Nature Québec

13. Outdoor classroom of the Secondary School Stendhal



Description

The Stendhal secondary school has created a vegetable garden in the schoolyard which the students take care of during breaks and which is the subject of work in biology and technology classes. In view of its success, the teachers wish to develop this space as a real classroom that can accommodate 24 seated pupils. For their part, the pupils would like to have a relaxing area where they can sit, near the vegetable garden.

Two solutions from the NBS catalogue seem to meet these wishes: the mobile vegetable garden and the food production and leisure pavilion. A meeting has yet to take place with the county since the land does not belong to the municipality but to the county, in order to get the final agreement. The technical instruction is not finished yet.

Positive aspects/challenges

An outdoor area which will also be open to the public during the events organised by the secondary school 3 to 4 times a year.

Challenges: the leisure pavilion is a complex structure, that will need more administrative procedures such as a building permit, county authorisation, supervision by an architect, etc. The division of responsibilities has not yet been totally clarified.

It is not located on municipality land but on county land.

Co-diagnostic

2 preliminary meetings with the secondary school with a presentation of the project to the pupils by Céline Henry, coordinator of youth actions at the municipality.

Co-selection & Co-design

The teaching project must yet be further developed, in parallel with the technical instruction going on to validate the adequate solution out of the two pre-selected. Co-design workshops are planned with the partner IAAC.

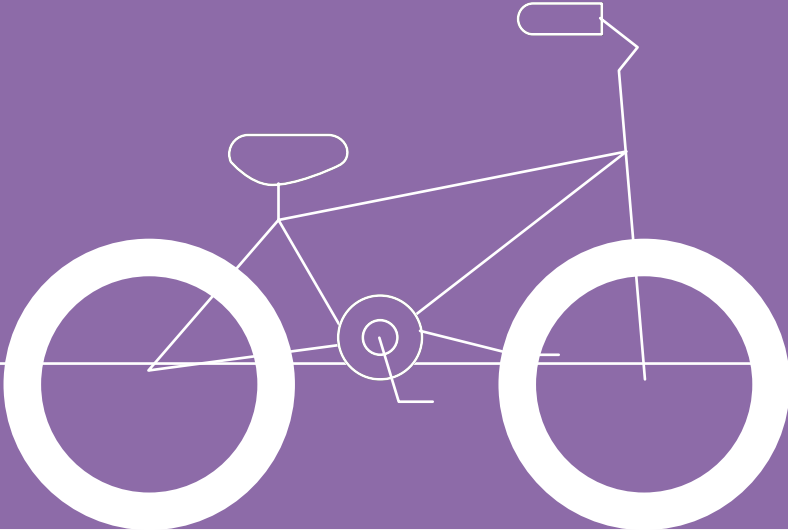
Forwarded

Tobacco free outdoor space

The association Ligue contre le cancer is an association which has a global approach to cancer by acting before, during and after the disease. Financially independent and apolitical, the League, a player in health and social democracy, is helping to change the way our society views cancer and those who suffer from it. While the walkthrough for local stakeholders, two members of the associations proposed to create a tobacco free outdoor space in front of a primary school to create events and exhibitions to help prevent tobacco-related cancers.

The task force decided to forward the proposition and to link it to the health centre whose construction is planned within the global project.

Physical activity & Sport



14. Organisation of group walks, storytelling walks, etc.

Description

The green loop is intended to be a support for numerous activities, which the actors of the territory can take up to propose events or activities. For the public health department of the municipality, walking is an activity to be promoted to fight against overweight, obesity, but also social isolation. It therefore works hand in hand with the municipal social action centre to offer inhabitants walks in the district. The aim though is to enable stakeholders to take over or at least complete the offer.

Positive aspects/challenges

Positive impact on health, social cohesion

Engagement of local stakeholders to complete the offer of the municipality.

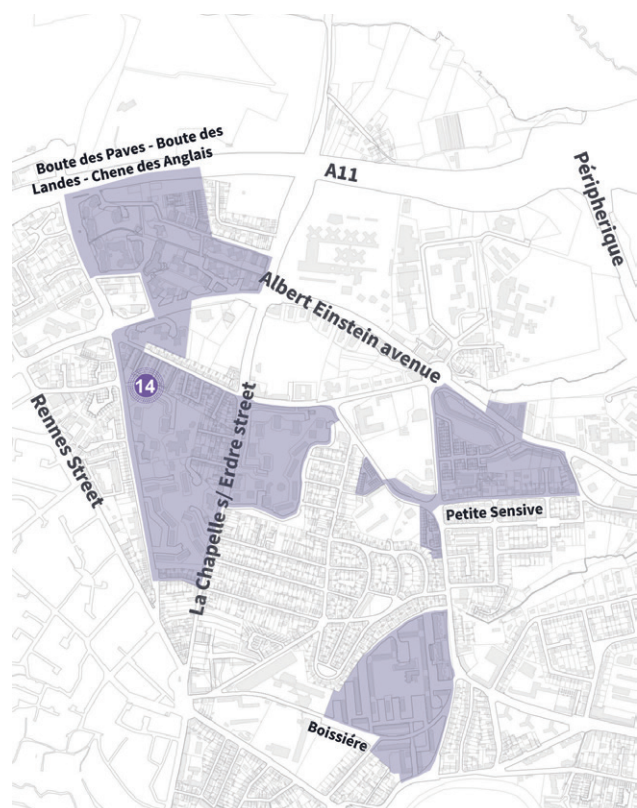
Co-diagnostic

Health diagnoses carried out by the department of public health and researchers of the university of Toulouse stressed out the inequalities in terms of social determinants of health in social housing neighbourhoods. The indicator of obesity, especially for children, is worrying, as is the one on social isolation. Walking is an activity adequate that can help fight both issues.

Co-selection & Co-design

Walkthroughs allowed the inhabitants to highlight the fact that they needed to be in a group to start walking, that they needed a kind of a push, someone to organize the first walks, and that after that, as a group is formed, they may be autonomous.

During the walkthrough with stakeholders, it was suggested to organize thematic walks to promote the loop.





Crédit: usine nouvelle



15. Race start on the walk paths near Dragon to encourage children to take part in sport

Description

In order to promote physical activity for children, it has been proposed by the sports department to use the public space as a support to encourage children to run, jump ... One of the proposals is to create a marking on the ground as a race start. The proposal was enthusiastically received by the inhabitants.

Positive aspects/challenges

Low budget proposition for a more playful public space

Co-diagnostic

Proposition in line with the health diagnostic.

Co-selection & Co-design

Walkthrough allowed the inhabitants to suggest the most suitable place to create the race start.

16. health “trail” on the loop

Description

The inhabitants proposed to create a health/sport path on the green loop. The sports department warned the task force that facilities had been installed in the past in other districts and that these were little used. Before integrating expensive equipment, it was suggested that the public space should be used for sports. If there is an increase in practice, it will be then interesting to integrate equipment.

The municipality also wants to discuss the sport issue with teenagers.

Positive aspects/challenges

Promote physical activity in the district

Challenge: need to be further discussed with specific publics

Co-diagnostic

The youth diagnostic of Nantes Nord collected the views of several young people and one of the requests was for pull-up bars or street out workout. The most suitable place has yet not been defined and will need further discussion.

It was also pointed out that this request came from boys, yet the municipality pays particular attention to the place of women/girls in public space.

Co-selection & Co-design

During the walkthrough, some of the participants confirmed an interest for a more sport-oriented approach of the loop.

A new meeting with the task force and the sports department of the municipality should lead to the proposal of a methodology to work on these subjects, with probably specific workshops to be organized.

The secondary school and in particular the physical activity teacher may be interested in using the loop in his lessons.



Source: Vitaliti, Lorient





17. Proposition of cycling lessons to women by the Nantes Nord Muslim Cultural Association ACMNN

Description

The Nantes Nord Muslim Cultural Association offers cultural, educational and social activities, open to all, in Nantes Nord. In this context, it wishes to offer cycling lessons, mainly for women.

Positive aspects/challenges

Social cohesion, physical activity,

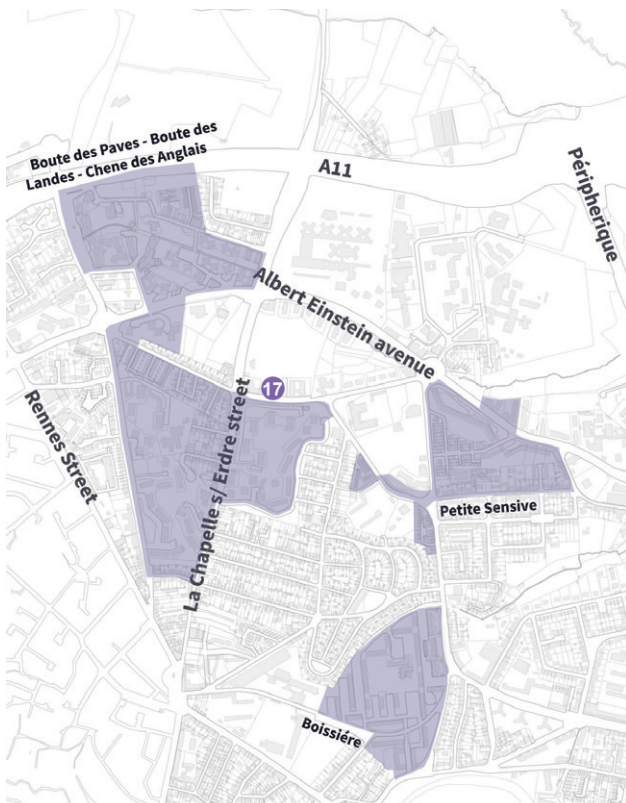
Challenge: cycling paths are part of the global project and will only be implemented in 2030.

Co-diagnostic

Diagnostic made by the association showed that most women have no vehicle to make longer journeys, though mostly within the district, that are not necessarily linked to the public transport network.

Co-selection & Co-design

Proposition of the Nantes Nord Cultural Muslim Association



Forwarded

To be able to cycle on the green loop

A resident who travels a lot by bike expressed her wish to be able to practice the loop on her bike.

It is not the aim of the green loop since it is first aimed to promote walking.

Within the global Nantes Nord project, the development of cycle paths is planned in the district. The inhabitant will therefore be able to join and contribute within the workshops for the co-creation of the cycling routes.

18. Integration of a company of the social and solidarity Economy



Description

The integration of a social and solidarity economy company is part of a larger project of inter-generational housing in the Villogia Tower in the Healthy Corridor. This tower offers a set of housing and shared spaces to accommodate different generations: Housing adapted to ageing, with additional facilities adapted to the loss of mobility, for example, housing in cohabitation with young people...

As the ground floor is not very sought after in the rental market, it was proposed to transform the flats into two premises. One part now houses a parent's day-care centre, the second will host a company of social and solidarity economy identified and supported by the Ecosolies.

The Ecosolies is a cooperation and social innovation cluster and a powerful network of 300 companies that supports the social and solidarity economy strategy of the Nantes metropolis. It conducted a diagnostic in November and December 2020 to identify the needs and challenges for the implementation of a Social and Solidarity Economy company in the district. In April 2021, the Ecosolies will organize workshops with inhabitants to identify the needs of the tenants of the building and local residents and collect ideas for activities. Then the Ecosolies will search for the right project.

Positive aspects/challenges

Positive impact: social cohesion, new meeting place for the inhabitants, develop the economy of the district

Challenge: To build a sustainable and autonomous activity, with an economic model and a shared governance

Service offer adapted to the needs and expectations of Villogia's building tenants



Co-diagnostic

The Ecosolies met with local stakeholders at the end of the year (2020) to identify the complementarity for the SEE project.

In the meantime, the premises are being used by local actors to meet the new inhabitants of the Tower and bring the place to life.

Co-selection & Co-design

Workshops with inhabitants will start in Spring 2021.

At the end of the process, the Ecosolies will look for the most appropriate project leader to set up, which could be a local structure, but not compulsory. The project must be a viable and sustainable economic activity.

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HEALTHY CORRIDOR CONCEPT SOFIA

Project

Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

Acronym

URBiNAT – Urban inclusive and innovative Nature

Title

Healthy corridor Concept

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HEALTHY CORRIDOR CONCEPT SOFIA



Project Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental and marketable NBS

Acronym URBiNAT – Urban inclusive and innovative Nature



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Sofia



Figure 1. Aerial view of the city and the study area.

1. From the city to the intervention area

Sofia – the governmental, financial and cultural centre of Bulgaria, is located at the heart of the Balkan Peninsula in the western part of Bulgaria at the crossing of many historical routes and currently important elements of the Trans-European Transport Network. Sofia CITY population is 1,31 million and it is continually and fast growing. The territory within the city boundaries is 209,56 km² – too big and compact compared to other Bulgarian cities.

Nadezhda district – the Northern gateway to the capital city, has a population of 67 905, which is 5.3% of the city's population. There are about 2113 ha urban and rural areas within the boundaries of Nadezhda district.

The housing estates in Nadezhda fall within the priority areas for urban regeneration aiming at improved living conditions and better connections to the city center and the

neighbouring territories, and improved condition, connectedness and accessibility of the available public spaces. Despite these challenges, the availability of abundant green areas and municipal vacant lots in the URBiNAT study area represent unique opportunities for inclusive urban regeneration through the use of multifunctional nature-based solutions (NBS).

A comprehensive analysis of the current territorial, social, economic and environmental situation at three levels – city, the study area (and Nadezhda district), and the Healthy corridor area – were conducted and respectively delivered in the Local diagnostic Stage 1 and Stage 2 reports. The transition from the local diagnostic to the co-creation process imposed the need to introduce the fourth level of analysis – the groups of lots.

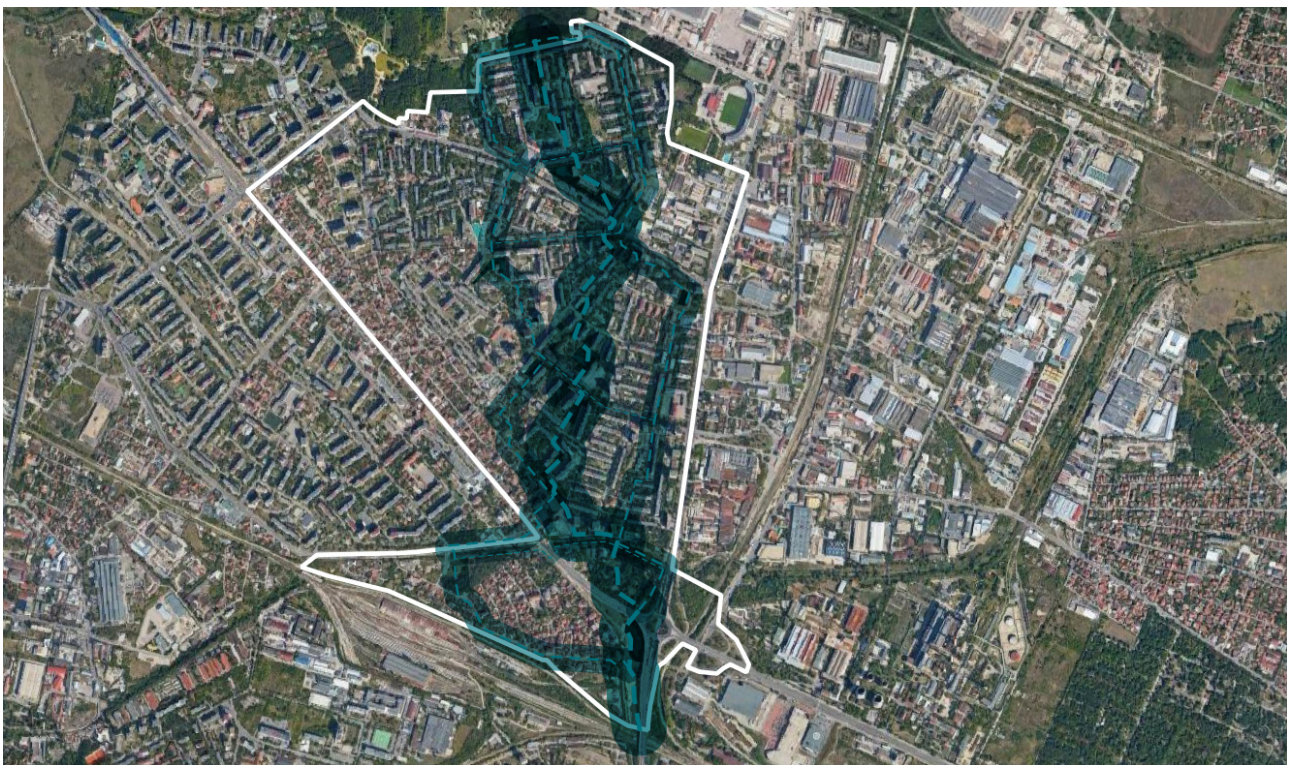


Figure 2. Aerial view of Nadezhda and the study area.

The intervention area and its integration on the city

Urban fragmentation, was identified at different levels:

- At the city level – although relatively close to the city center, the area is spatially isolated from the city centre and the whole southern part of the city due to the existing physical barriers such as railway lines, adjacent predominantly area built up with warehouses (from south, east and north), multilevel junction (southeast of Nadezhda), and general lack of pedestrian friendly crossings.
- At the district level – Planned according to the concept of the microregion during the 1960-1980, the area nowadays suffers a major division due to the profile of boulevards (Lomsko shose, Rozhen and General Nikola Zhekov) and their inconvenient crossing leading to jaywalking at several points as well as scarce number of bridges providing the crossing of the corrected river bed of Suhodolska river.
- At the neighborhood level – abundant interblock spaces which are pinched around block edges or next to high rise multifamily blocks of flats where parking space does not answer to the motorization rate. A much denser pedestrian network than the initially planned one responded to residents' diversified needs since the 1990s and searched for walking convenience. An increase of pedestrian flows between the neighboring housing estates is now motivated by the diversity of services and personal motivations.
- Along the corridor axis – specific accumulation of all of the barriers mentioned above between park Nadezhda and Severen park and beyond, all of which are addressed by the concept of the route intended to link and bridge the divided parts through a walkable Healthy Corridor with four areas of intervention along its axis.

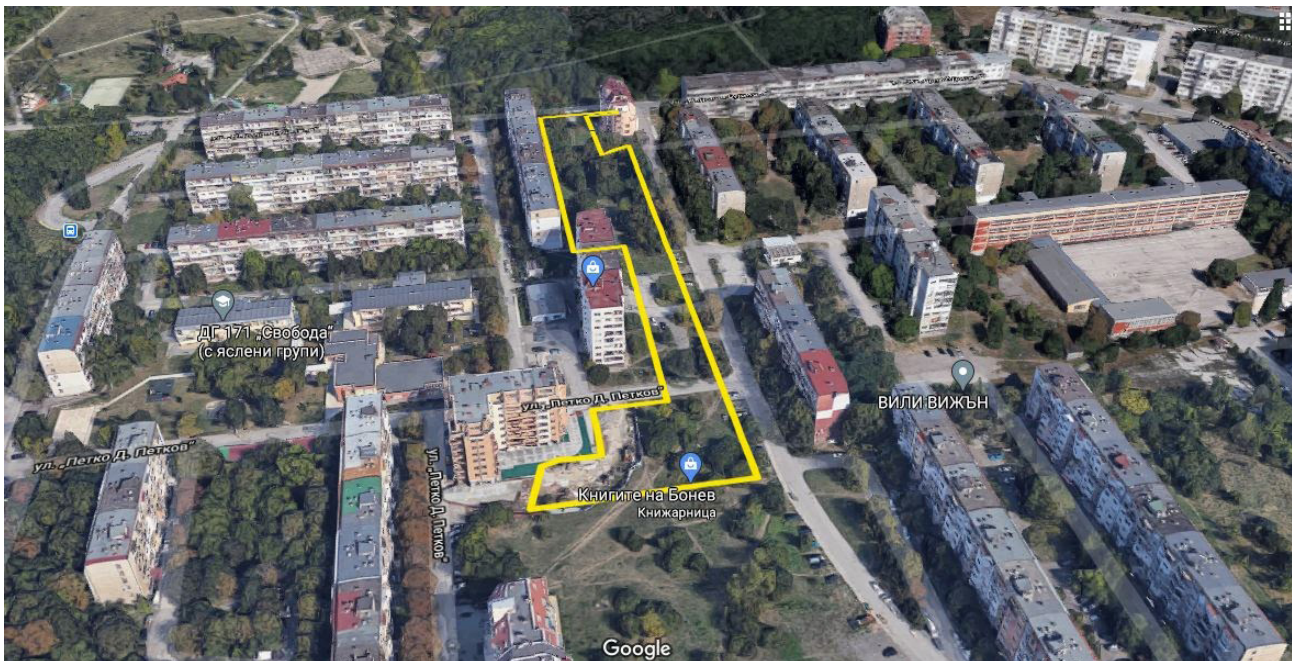


Figure 3. Intervention zone 1., Sources: Google, Изображения @2021 CNES/Airbus, Maxar Technologies, Картографски данни @2021



Figure 4. Intervention zone 2., Sources: Google, Изображения @2021 CNES/Airbus, Maxar Technologies, Картографски данни @2021

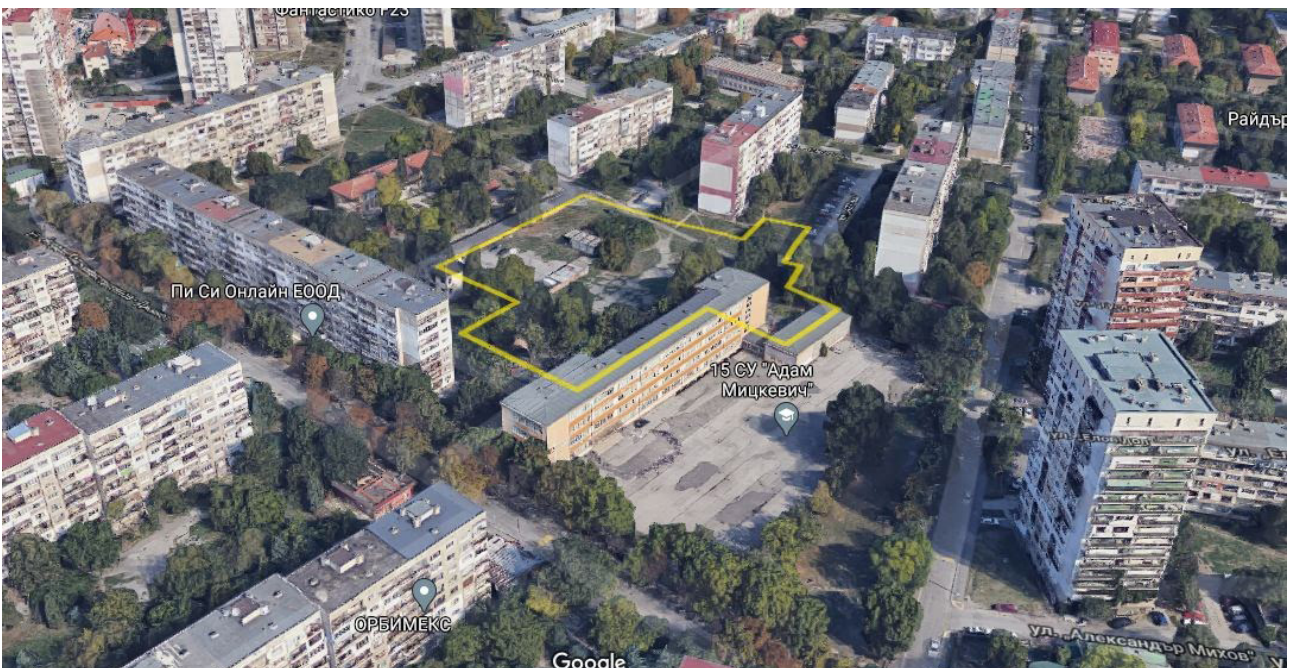


Figure 5. Intervention zone 3., Sources: Google, Изображения @2021 CNES/Airbus, Maxar Technologies, Картографски данни @2021

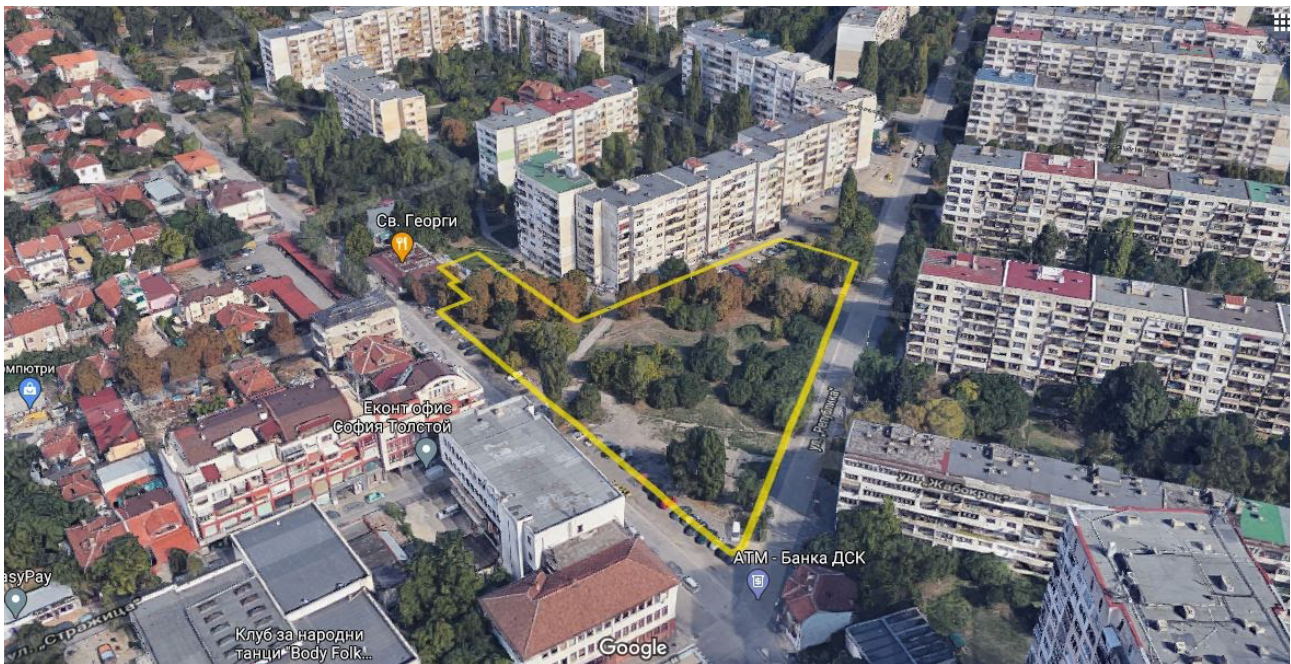


Figure 6. Intervention zone4. , Sources: Google, Изображения @2021 CNES/Airbus, Maxar Technologies, Картографски данни @2021

Urbinat study area and the Healthy Corridor territory. Introduction

The core of the intervention area is under final estimations and will be precisely defined after the co-design of the NBSs and the zones of intervention. The location of the specific interventions related to the co-implementation of the NBSs is in about 20 vacant lots provisioned by the plans as part of the green infrastructure and public spaces in the four residential estates, namely Lev Tolstoy, Nadezhda 2 and 4 and Svoboda. The 2,5 km long axis of the Healthy corridor provides connection between Severen park and park Nadezhda and integrates important available territorial resources related to the major themes of the URBiNAT project – mobility, energy, water and nature.

The URBiNAT study area is 2,57 km², while the intervention area has an overall surface of 1,43 km² of which 5,6 ha is the area of the vacant municipal plots that obtained the highest scores when subjected to multicriteria evaluation. The indicative buffer area of the primary and secondary axes of the corridor is 138,1 ha.

The area is mainly occupied by multifamily apartment housing constructed during the period of Centralized planning and predominantly built between the 1950-80s.

The pedestrian paths and open spaces vary in terms of actual and planned significance and use. Most often there are narrow streets and informal unpaved paths as well as inter-block vacant and partially underutilized lots.

Among the main constraints are the poor pedestrian connectivity and contested spaces due to high motorization rate and density of occupation as well as many abandoned, marginalized and unattended plots.

The main opportunity is the implementation of major improvements in the large green open public space such as public works, playgrounds and social spaces that can help the area to overcome its long restructuring both in environmental and social-economic terms. Furthermore, stimulation of participatory culture and solidarity networks can have a synergistic effect when combined with the physical improvements based on the self-confidence of the inhabitants and their attachment with the place.

2. The co-creation process

2.1. The Co-Creation activities and timeline

The co-creation of the healthy corridor concept was implemented according to the methodology defined by URBiNAT and adapted to the local context in two stages: co-diagnostic and co-design.

Co-diagnostic

During the co-diagnostic stage, the project was introduced to diverse groups, mainly political representatives, municipal technicians, citizens, and other stakeholders. The conducted “mapping of the local participatory culture” that started during the Consortium meeting in Sofia (Jan. 2019) gave a good start to the identification of active and interested actors, existing practices and projects under implementation in the Sofia, Nadezhda and the URBiNAT study area. Two strategies to develop the “participatory activities” were adjusted by the local taskforce, one focused on specific groups that were approached through diverse methods, and another – focused on a public event in the Nadezhda Institute of Culture held in May 2019. These activities and actions involved a large group of citizens in URBiNAT and activated the Sofia Living Lab (see milestone 2). The outputs of the methods applied and the implemented actions were reported in the D2.1 Sofia Local Diagnostic (Dec. 2019) and constituted the baseline for the planning of the co-design stage. The main steps in the actors’ involvement and the activities performed are briefly presented on Table 1.

The wider framework of the analysis and the holistic approach to the LD brought the challenge to identify a broader scope of basic and specific human needs, the satisfaction of which is impossible to be handled financially, temporally, operationally and in terms of capacity for implementation. It was realized that this might threaten the management of expectations. In

this way, and in the light of the theory-practice dialogue on the right to the city and the representative democracy in order to address the pressure on time, budget and capacity, Sofia task force started to design the procedures and formal rules for the establishment of the advisory board at the earliest stage, soon after the opening of the co-design stage. Meanwhile the Sofia Task force (STF), along with the municipal and district technicians, made the prioritization and validation of the problems addressed in the LD. An exhibition and a public event made it possible to reach more citizens’ groups, share the results and announce the forthcoming feedback and argumentation on the choices during the co-design process.

Based on the analysis of the understanding about the rights and obligations and the arising tensions, different arguments were identified that give insight to the culturally rooted and intergenerational differences to the approaches and motivations to collaboration and participation among the closely involved groups of actors – inhabitants, pupils and representatives of the district administration, citizens. As children are recognized both by the citizens and STF members as a “channel for influencing and motivating for action”, the STF considered that parents of students and children should be encouraged and engaged to participate and motivate other friends and parents. Young people aged 19-27 were eager to participate but they were likely to lose interest if there were no immediate tangible results. The recognized diversity by the user groups involved outlined the important role of the co-evaluation and effective control during the public space co-creation process since the very beginning of any initiative of upgrading or planning for new development of urban public places in the URBiNAT housing estates.

CO-DIAGNOSTIC STEPS			
ACTORS [1]	PRESENTATION	MAPPING THE LOCAL PARTICIPATORY CULTURE	PARTICIPATORY ACTIVITIES
Pupils from the 4 schools in the URBiNAT study area	Meetings with the Pupils' Parliaments, presenting URBiNAT	Events in schools; Exhibition of the results of the local diagnostic	Walkthrough Photovoice Motivational interviews
Pedagogical staff from the 4 schools in the URBiNAT area	Meetings with the headmasters of the schools and the teachers presenting URBiNAT	Focus group with teachers; Events in schools; assistance in the participatory activities with pupils	Walkthrough (assistance) Photovoice (assistance) Regular meetings with the "Work with children" mini working group
Staff from the kindergartens in the URBiNAT study area	Presenting URBiNAT On-line seminar to introduce the "tasty gardens of learning"	Focus group with teachers	Regular meetings with the "Work with children" mini working group
Staff from the local cultural institutions	Presenting the project to the staff of Nadezhda Institute of Culture, The centre for arts, culture and education, The 2 Local cultural centres	Cultural mapping Focus group Interviews	Participation in workshops Participation in the public events
Parents of the children attending activities at cultural institutions	Presenting the project goals, philosophy and activities	Focus groups	Participation in the public event
Citizens	Public Events (1 kick-off event) – informing Open – air exhibition – 14 days, information provided by URBiNAT representative 3 hours per day; On-line access to the Exhibition materials	Box for comments Cultural mapping	Presentations Mini-focus groups Participation in the public events
NGO-s and professional organizations, usually operating on city level	Meetings to present URBiNAT with NGOs and professional organizations (e.g., owners of nurseries)	Present their projects with URBiNAT taskforce and share experience with citizens	Participation in the public events Focus groups Cultural mapping
Local organizations and local businesses	Informing through Face-to-face contact on-site	Mapping stakeholders' activities and engaging	Participated in the public event

Municipal technicians and staff at Sofia Municipality and Nadezhda district administration	Meetings to present URBiNAT Involvement in the meetings of the Mini working groups (e. group “work with children”)	Participation in the regular meetings of the Local task Forces Coordinate with other projects	Training to get in touch with URBiNAT methodologies and involvement in the activities at public events; Walkthrough Cultural mapping – mixed groups
Political representatives	Presentation of URBiNAT	Validation of the scope of the study area Coordination with other projects	Participation in Public Event

Table 1. Main steps in actors' involvement and activities performed.

Co-Design

The co-design activities are organized in seven steps, according to the methodology proposed in the co-creation process: transform, self-projection, ideation, design, validate, argue, systematize. These steps aim to diversify among the different levels of commitment to the project, as involvement, interaction and integration. Although the self-projection and ideation were already part of the implemented techniques during the co-analysis, the kick-off of the co-design on June 20th 2020, was considered as the formal start of the co-design process for Nadezhda Living Lab. According to the level of details discussed and the results from the participatory activities implemented, two sub-stages could be identified within this stage. The first sub-stage focuses on the appropriation and relating the NBSs solutions to the areas of intervention, which includes the activities of transformation, self-projection and ideation. At the end of this stage, the NBSs suitable for implementation in the four intervention zones were co-selected from Sofia URBiNAT mini-catalogue and the new NBS were identified and classified according to the URBiNAT catalogue into territorial, technological, participatory and social-and solidarity economy. The focus of the workshops and the results gave good representation of new technological and territorial co-selected solutions and very few proposals for the nonmaterial solutions. There are several reasons for this result: the applied methodology

of the workshops and the conscious attempt to seek interrelation between the solutions and their spatial localization, the cultural perceptions and expectations of the participants on public space, the low popularity of the social and solidarity economy among the inhabitants of Nadezhda. Nevertheless, these findings, it is also important to outline that many of the ideas appropriated to some of the immaterial solutions related to education, culture and civic capacity building were addressed during the conducted interviews and focus groups in the Local Diagnostic Stage 2. All of the collected new proposals were further related to one of the following groups of categories: public space, sports and recreation, social economy, education, culture, and solutions providing for climate change resilience (climate adaptat). The URBiNAT team systematized all the information collected and went through a decision process with the municipal technicians in order to further diversify the proposals according to the possibility to develop the proposal as NBS, the need to channel the proposal to other municipal projects, and not to develop the NBS. (Figure 7)

Finally, the NBS approved were integrated in the Healthy corridor preliminary project, the approved version of which was presented to the citizens and other stakeholders before the implementation of the co-design workshops. Some NBS are being developed in parallel, namely the immaterial solutions that will activate the use of the Healthy corridor.

From co-diagnosis to co-creation. The Inclusive Process

2019

JAN-APRIL



Kick-of Participation process
with local stakeholders and citizens

2019

MAY-SEPT



Perceptions & Engagement
with schools



Preliminary Project of the Healthy Corridor

2019

MAY-JULY



Main needs & challenges through Behavioral mapping, Focus-groups and Interviews

2020

DEC-FEBR



Ideas co-development and consolidation (systematization/discussion/validation/

2021

NOV-MARCH



Feedback to citizens Decision and experimentation sessions and workshops

2020

JUNE-SEPT



Dissemination and Co-selection Presentation of the LD to the citizens and workshops

Figure 7. The co-creation process in Sofia.

The first stage of the Co-design was closed in January 2021, followed by a two-month procedure of finalizing the Healthy corridor concept and presenting it to different Municipal Council's Commissions, and finalized with the Political approval (March 18th 2021) of the axis of the Healthy corridor, the zones of intervention, and the groups of NBSs to be implemented. At the time of the delivery of this report, the second stage was under implementation, with most of the participatory activities implemented outdoors implementation in June 2021.

The second stage focused on the participatory co-design of each NBSs and its interconnectedness

with the solutions within the group already selected and validated by the municipal technicians and politically approved by the municipal Council. During the first half of June, Sofia task force (STF) worked with 3d models and in close interaction with inhabitants and stakeholders at the proximity of each intervention zone in order to precise the NBSs already selected. Meanwhile, in January and February 2021, several on-line co-design workshops were already conducted and led by IAAC for the development of the educational pavilion in 15th school and Superbarrio session was organized for the pupils of 154th sports school.

2.2. The co-creation Chronology

co-diagnostic

M01

00/07/2018



Involvement

Observation visits of the Local Taskforce to Nadezhda

Mapping

Observation of the URBiNAT study area, passive territorial mapping and mapping of activities

M02

06/11/2018



Involvement

Meeting with the Deputy Mayor and the Mayors of Nadezhda and the neighboring districts

Mapping

Awareness raising among the elected politicians and discussion of the scope of the URBiNAT area, its connections with neighboring territories, and common projects planned or underway

M08

25/01/ 2019



Integration

Workshop with local stakeholders during Sofia meeting of URBiNAT partners

Perceptions

Cultural mapping among the municipal staff, local champions, and NGO-s operating on city level

Training

To share principles of for implementation of the Cultural mapping

M07

23/01/2019



Involvement

Visit to the Municipal centre for Personal Development in Nadezhda

Mapping/Self-projection

To present URBiNAT and engage children in the co-creation process
To present some of the cultural activities to the consortium members

M09

01/02/2019



Involvement

Formalization of the Sofia Task Force

Internal communication and Training

To present URBiNAT and engage citizens and stakeholders in the participatory process of local diagnostic

M10

05/03/2019



Involvement

Local task force meets thermal water and swimming specialists

Perceptions/Co-design

Discuss the innovative aspects and characteristics of the thermal water swimming pool as NBS. Establishment of a life-cycle strategy for implementation

M03

03/01/2019



Involvement

Formal approval of the scope of the URBiNAT study area

Agreement

local political actors for agreed on coordinated actions within the selected area of the 5 neighborhoods for the co creation of the Healthy Corridor



M04

08/01/2019

Involvement

Meeting of Sofia Taskforce with local stakeholders

Mapping/ Self-projection

To present URBiNAT to NGOs operating at city level

M06

23/01/2019



Involvement

URBiNAT consortium - meeting the chief architect of Sofia and the mayor of Nadezhda district at Sofia City Hall

Perceptions

Awareness rising within the Municipal elected politicians and administration



M05

17/01/2019

Involvement

Meeting with the staff at the Municipal centre for Personal Development in Nadezhda

Self-projection

To present URBiNAT to the staff prepare activities for the Sofia Meeting

M11

20/04/2019



Involvement

Public Kick-off in Nadezhda Institute of Culture

Presentation

To present URBiNAT and engage citizens and stakeholders in the participatory process of local diagnostic

Mapping/Self-projection
cultural mapping and motivational interviews



M12

09/05/2019

Involvement

Meeting with headmasters and deputy headmasters of schools and kindergartens in URBiNAT study area

Presentation

To present URBiNAT and engage the municipal educational institutions and their pupils in the co-creation process

M13

10/05/2019



Involvement

Presenting URBiNAT to the Pupils' Parliaments in four schools

Self-projection

To present URBiNAT and engage active pupils in the co-creation

Ideation

To collect concrete ideas outlined as mini-projects/ initiatives

M14

16/05, 18/05, 13/06, 15/06/2019



Observation

Behaviour mapping at 19 locations within the URBiNAT study area

Mapping

Observation and mapping of activities, users, and flows during working and nonworking day

M20

15/01/2020



Interaction

Citizen workshop

Ideation

Presentation of NBS catalogue and co-selection of new NBS



M19

17/09 – 10/10/2019

Involvement and Sharing

Exhibition on the Local Diagnostics in the 4 schools

Presentation/ Self-projection

To activate schools as horizontal partners
To explain the opportunities to participate
To negotiate further forms of collaboration during the co-creation process

co-selection and co-design

C01

12/2019 – 02/2020

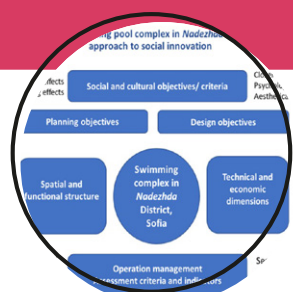


Integration

Validation of the URBiNAT plots by the Municipal technicians

Coordination

Validation of plots to be chosen for the Healthy corridor activities and the suitable NBS for each plot



C02

24/01/2020

Involvement

Focus group of professionals related to health, thermal, water, and swimming and its inclusive potential

Perceptions/Co-design

Discuss the innovative aspects and characteristics of the thermal water swimming pool as NBS

M15

28/05, 05/06/2019



Involvement

To engage pupils - "sports champions" from the 153th sports school in the co-creation process
To engage the staff from Nadezhda district administration

Ideation

To gather ideas and relate them to NBSs

M16

06/2019, 07/2019



Involvement

3 focus groups with the local administration staff, staff from cultural institutions, parents
1 focus group related to mineral water

Ideation

To collect ideas for activities and projects

M18

11/07/2019
27/08/2019



Involvement

Activities of the Mini Working Group "Work with pupils".

Presentation and organization

Engaging pupils from the schools within the URBiNAT study area

M17

11/06/2019



Interaction

Meeting with the Deputy Mayor the Chief architect of Sofia Municipality

Coordination

Political and municipal experts' validation

C03

01/03/2020



Integration

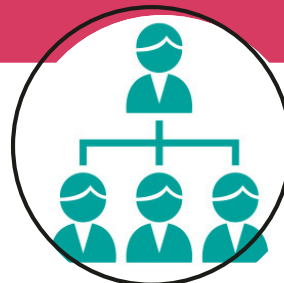
Preliminary Mini catalogue of Sofia

Co-selection

To select relevant context sensitive NBSs from URBiNAT's catalogue in order to use them as reference examples in the co-creation process

C04

01-05/06/2020



Interaction

local administration technicians and politicians from the district

Presentation

Presentation of the local diagnostic

C05

13/06 – 27/06/2020



Involvement, sharing, and discussion

Two-week exhibition in the public space in front of the Nadezhda Cultural Institute

Presentation

Explaining and sharing URBiNAT's philosophy, achievements and steps forward

Perceptions and Ideation

To map perceptions and to collect ideas for NBSs

C06

20/06/2020



Kick-off event

Closing local diagnostics and opening of the Co-creation process

Presentation

To present the Local diagnostics to the citizens

C12

10/09/2020



Interaction

Citizen workshop at place of intervention "Green Assembly"

Perceptions/Ideation

To collect solutions and ideas and relate them to NBSs

C11

27/08/2020



Interaction

Citizen workshop at place of intervention "Co-place"

Perceptions/Ideation

To collect solutions and ideas and relate them to NBSs

C13

24/09/2020



Interaction

Citizen workshops at places of intervention "Aqua Vita" and "Health Energy"

Perceptions/Ideation

To collect solutions and ideas and relate them to NBSs

C14

10-11/2020



Interaction

Preparation of the Urban Plan Design brief

Validation Design

Summarize the local diagnostics for the purposes of the plan elaboration

Define the scope and content of the Urban Plan
Summarize ideas and their expert validation

C07

20/06/2020



Interaction

Citizen workshops for 4 places of intervention

Ideation

Collecting ideas through 4 workshops with citizens for 4 locations



C08

07/07/2020

Involvement

On-line seminar for the staff from the kindergartens in Nadezhda District

Presentation

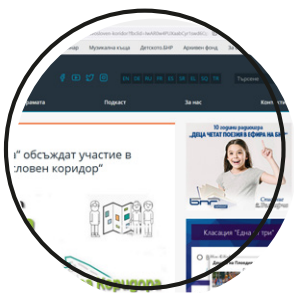
Introduction to the Edible Gardens of Learning.

Transform

Ideas for transformation of the kindergarten's yards

C10

27/08/2020

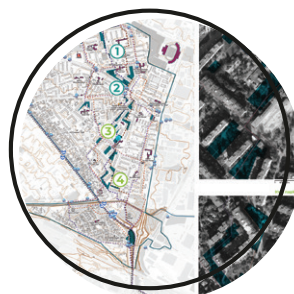


Involvement

Radio interview (for Radio Sofia)

Presentation

Interview on the URBiNAT's aims and open call for citizens to join the forthcoming workshops



C09

27/08/2020

Interaction

Meeting with the Mayor of Nadezhda district

Validation

Formal approval of the selected 4 areas for workshops with citizens and discussion of the possible interventions

C15

17/12/2020



Interaction

Sofia task force meets the Headmistress of 15th school

Ideation

Discussion on the needs of educational facility and its location within the school yard



C16

Expert judgement

Observation visits of the Local Taskforce to Nadezhda

Mapping and in-depth studies of the areas of intervention

Observation of the URBiNAT study area, passive territorial mapping and interaction with citizens

C17

02-03/2021



Interaction/coordination
Internal validation among municipal technicians

Validation
Agreement on NBS ideas to be channeled for implementation

C18

13/01/2021
04/03/2021



Interaction
Sofia Task force meets IAAC team

Ideation/Co-design
Agreement of the design, functions and structure of the Greenhouse in the 15th school yard

C23

17/03/2021, 18/03/2021



Interaction
Sofia Municipal council

Validation
The Healthy Corridor Concept (plots for intervention and axis of the Corridor) approved

By Commission on Ecology at the Municipal Council, By Commission on Spatial Planning, Architecture and housing policy at the Municipal Council and finally By the Municipal Council

C24

05/2021

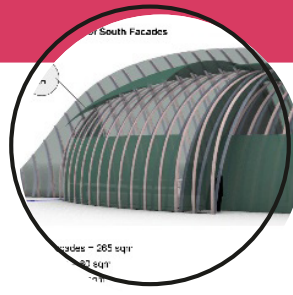


Involvement
Pupils from 15th school

Perceptions/Ideation
To test "learn for life – GIS for citizen participation" – preparation of the workshop

C25

01/06/2021



Interaction
Technical meeting between Sofia municipality Urban Plan Team and IAAC

Co-Design
Discussion on the requirements in the design brief for the educational pavilion in the yard of 15 school

C19

18/02/2021



Interaction

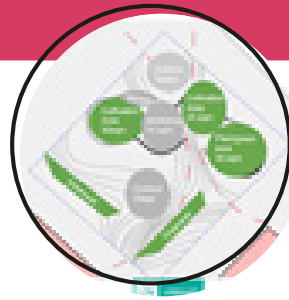
Presentation to the Sofia Municipal council

Presentation

Sending the Report for the Healthy Corridor Concept to the elected politicians at the Municipal council

C20

23/02/2021



Interaction

Meeting with the headmaster of kindergarten 90 in Svoboda

Ideation/Co-design

Discussing options for the layout and the technical parameters

C22

15/03/2021



Interaction

Headmistress of 15 school

Co-Design

Co-design of the educational pavilion in the yard of 15 school

C21

05/03/2021



Interaction

Super Barrio workshop with pupils from 153 school

Presentation/Ideation

To introduce the NBSS concept and to inform on their benefits to collect solutions and ideas for the area around the sports school through gamification

C26

04/06/2021



Interaction

Citizen workshops at place of intervention "Health Energy"

Co-Design

Co-design of the subzones and NBSS

C27

05/06/2021



Interaction

Citizen workshops at place of intervention "Co-Place"

Co-Design

Co-design of the subzones and NBSS

C28

08/06/2021



Interaction

Technical meeting between Sofia Task Force and IAAC

Co-Design

presentation of the revised concept and the administrative, legal and technical requirements to the design, and the possibilities for implementation of the educational pavilion in the yard of 15 school

C29

11/06/2021



Interaction

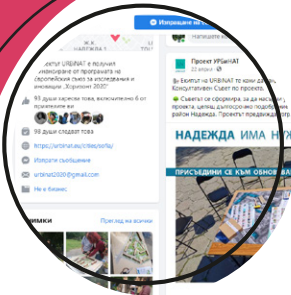
Citizen workshops at place of intervention "Aqua Vita"

Co-Design

Co-design of the subzones and NBSs

C31

15/06/2021



Interaction

Advisory Board

Presentation and foundation

First meeting



C30

12/06/2021

Interaction

Citizen workshops at place of intervention "Green Assembly"

Co-Design

Co-design of the subzones and NBSs

C32

23/06/2021



Interaction

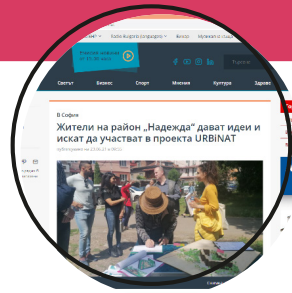
Sharing results of the co-design and prototyping of the tasty gardens of learning in Kindergarten N 90

Co-Design

Demonstration of the non-formal activities to the Mayor of Sofia and the Mayor of Nadezhda district

C33

23/06/2021



Involvement

Radio interview (for Radio Sofia)

Presentation

Interview on the URBiNAT aims and results from the co-design workshops

2.3. Challenges of the co-creation process and the impact of the Covid 19 crisis

During the first pandemic wave (March-May 2020) the main anti-epidemic measures against the spread of coronavirus (COVID-19) were the prohibiting the access to Nadezhda Park, North Park, and all sports facilities and playgrounds in the city, including those in the URBINAT area. Schools and kindergartens were closed until the state of emergency ended, and parents had to organize a home office and parenting. On the recommendation of the Government, Green shopping corridors in supermarkets, grocery stores and pharmacies opened only for elderly people aged 65 and over. Although required and constantly monitored, the opinion about the efficiency of this measure was very controversial. The high vulnerability of the elderly did not allow the Taskforce to organize a special workshop with the club members of the retired elderly in Svoboda housing estate.

The situation of emergency imposed various challenges, such as the need for access to equipment and Internet, especially for the vulnerable population as well as the need for

additional equipment and space for the households with more children and those organizing a home office. In fact, the restrictive measures did not allow any project events to be held indoors, while the winter season limited the Taskforce to hold them outdoors. The planned public event for closing the local diagnostic and the co-design kick-off in the beginning of April was postponed for June 13th and due to the rain was postponed a second time for June 20th. The time under the lockdown was effectively used to synthesize and appropriately present the local diagnostics in 13 panels and to prepare the methodology for the workshops held on the day of the event. Regardless of the holiday summer season, the risk of infection, and requirements for social distance, four open air workshops at the places of intervention were organized during August and September 2020. Though planned in advance, the need for more space for the public events in order to maintain a safe social distance, even outdoors, has been recognized during the workshops.





Figure 8. Social Distancing measures applied. Routes for recreation in Severen Park during the first Lockdown

During the second wave (November 2020) the large shopping centres (malls), bars, sports halls and sport facilities for persons under 18 years were closed. Restrictions on public gatherings with more than 15 participants were introduced and all public hearings on the territory of Sofia Municipality were cancelled or postponed.

During the period of the imposed measures from November 2020 onwards, the planned SuperBarrio workshops with pupils and the design workshops were postponed. Meanwhile the design of the concept and rules of the Stakeholders Advisory Board were created, allowing for remote participatory actions to be taken. The Design brief was prepared and the work on the Urban plan concept and its adoption took place during the second long period of imposed measures (November 2020 – March 2021) The preparation of the methodological guidelines and the 1:500 scale models for the planned co-design workshops at the places of intervention in May took place during this second long period of restrictions.

Looking at the future, there is the need to maintain the organization and coordination of the digital work process and exploit effectively the advantages of online communication tools. The exhibition panels produced for the public

event in June 2020 were uploaded and accessible online thus allowing the inhabitants of Nadezhda, but also the general public to get information about the project's progress in Bulgarian language. The test for performing some of the co-creation activities online started with the "Tasty gardens of learning NBS" seminar, organized for the headmasters and staff of the kindergartens in Nadezhda and the workshops for the co-design of the educational pavilion in the school yard of School N15. Interactive co-design online workshops and feedbacks on the proposal mainly with the members of the Advisory Board are scheduled for the second half of August and September and a series of on-line discussions and an online competition for project ideas for the swimming pool are also under preparation.

The long period of disconnection with citizens and stakeholders due to the second and third pandemic waves, combined with the winter season (lasting from November 2020 to April 2021) demotivated many of the local leaders and active inhabitants during the workshops held in June 2021. Due to the long delay, most of them demonstrated indifference and mistrust of the activities at hand.

3. The Healthy Corridor Strategy

3.1. The strategic and operational framework

The city policies related to the URBiNAT project objectives are defined and developed in a series of strategic documents, plans and programs. (Figure 9) The objectives of the URBiNAT project are in line with a significant part of the current general, framework and long-term objectives of the strategic and tactical documents, as well as with the envisaged specific interventions associated with the Healthy Corridor. Their parallel existence is determined by the national legislation, international agreements, funding conditions or civil and market expectations. Some of the planning instruments are provided with resources, but for most of them there are no explicit financial resources.

Protecting and strengthening the residents' health is a priority of the Sofia Municipality. The topic of health is included in the section "People" of "Vision for Sofia 2050" together with sports, supporting the youth friendly environment, social and territorial cohesion, and quality education. The surveys conducted in connection with the development of the document show that, unfortunately, the majority of Sofia residents still do not play sports actively – every seven out of 10 respondents (71%) admit that they do not spend time on sports activities during the week. At the same time, only 34% of Sofia residents are completely satisfied with their health condition (compared to 45% only partially). It has been recognized that the people of Sofia like their city in general, but there is also criticism of the condition of the inter-block spaces and the infrastructure in the neighborhoods. That is why in the section "Living Environment" of the "Vision for Sofia 2050" there is an explicit emphasis on the green inter-block spaces and courtyards (step 7), the vertical and roof landscaping of the buildings (step 8); building a park environment for recreation around urban rivers (step 9).

The Sofia Municipality's Sustainable Urban Mobility Plan imposes walking and cycling as the most important priorities for transport in the city and proposes measures to encourage cycling. The program for the development of bicycle transport on the territory of Sofia Municipality aims to turn bicycle transport into a significant part of the city's transportation modes.

The municipal policy in support of civic initiatives aimed at creating a quality urban environment has been channeled through several innovative programs of Sofia Municipality since 2008: "Europe", "Culture" and "Green Sofia".

The initiative "Sofia – Green capital" and the strategy for the valorization and reconstruction of the mineral water deposits in Sofia municipality, along with the Sustainable Energy and Climate Action Plan (still under development) put at the front the value of the natural capital, climate change resilience, and the potential of its added value for socio-economic development and citizens' health and wellbeing.

Sofia is among cities such as Zurich, London, Stockholm, Copenhagen, New York, Istanbul, Moscow, Shanghai and Bern, which have worked with Prof. Jan Gehl in the last 10 years for building and implementing strategies for development of public spaces. The "Sofia – a city for the people" report describes in detail the challenges Sofia municipality has to deal with and prescribes sets of measures in order to transform the city's public spaces into a well-functioning people friendly network. Five of these measures are currently being implemented: pedestrian zone expansion and the introduction of traffic restrictions of small streets in the historical centre of the city; discovering and exhibiting the cultural and historical heritage and its transformation into well-used public spaces well integrated into the life of the city centre; connecting bicycle lanes into a common network; removing transit traffic from the city centre; and amendments to the Building and Construction Act of Sofia Municipality, which should provide good solutions for both citizens and investors. As the URBiNAT study area was not included in this pilot attempt focused on the city centre, the The City Administration, envisioned The Healthy corridor construction as a good occasion for promoting the idea for making cities for people in the North-West periphery of Sofia.

Sofia plays strategy proposes the implementation of a system of measures that will create the preconditions for healthy and socially engaged development of children and youth, for the formation of sustainable local communities

and for the implementation of flexible financial models for the construction and maintenance of playgrounds. Sofia Plays is a strategy for building, maintaining the 1,770 playgrounds and

adapting them. The strategy has been initiated by the Green System, Ecology and Land Use Directorate and commissioned by the Chief Architect of the Sofia Municipality.

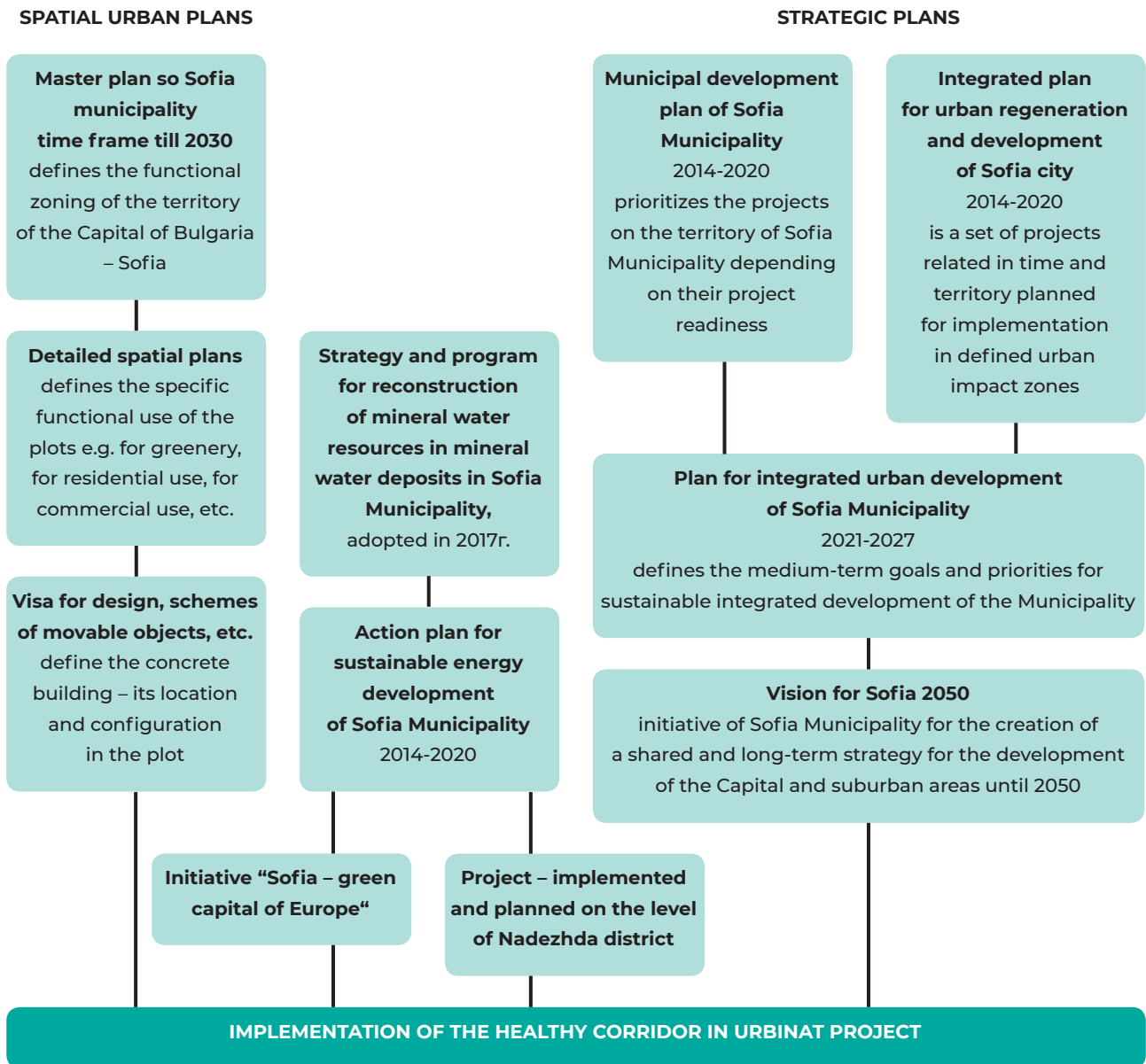


Figure 9. Healthy Corridor Strategy. The strategic Reference Framework

An important condition for achieving synergy are the commitments of the Municipality to make planned investments in the restoration and development of the elements of the urban environment and public works. The Healthy Corridor plan is implicitly related and is fully coordinated with The Integrated Plan for Urban Regeneration and Development (IPURD) 2014-2020 and the approved detailed spatial plans of the housing estates. It will be coordinated with the Municipal Plan for Integrated Territorial Investments 2021-2027 (still under elaboration), the annual investment programs of the Municipality, and with the forthcoming update of the Master Plan of Sofia Municipality.

The URBiNAT study area falls within the boundaries of the social zone of intervention of the Integrated Plan for Urban Regeneration and Development of Sofia 2014-2020 (IPURD). The Municipality has been implementing the IPURD, mainly through projects for improving

energy efficiency of buildings (housing and public buildings – schools, kindergartens, etc.), construction of new buildings, development of infrastructure, public works, and rehabilitation of the green areas and sport facilities. The studies within the URBiNAT framework further seek the prospective to provide synergies through the integrated territorial investments in health, green system, public space and mobility. The sectoral and hierarchical system of the planning of documents and the resulting difficulties to integrate the changing set of documents and their scope and content in the midway between two planning periods, imposed challenges for integration of the URBiNAT plan with the existing planning system reference framework. (Figure 10) Therefore it has been agreed that the plan will cover both a strategic part, but also will provide a specific scheme for the implementation of the Healthy Corridor, the areas of intervention and the specific NBSs.

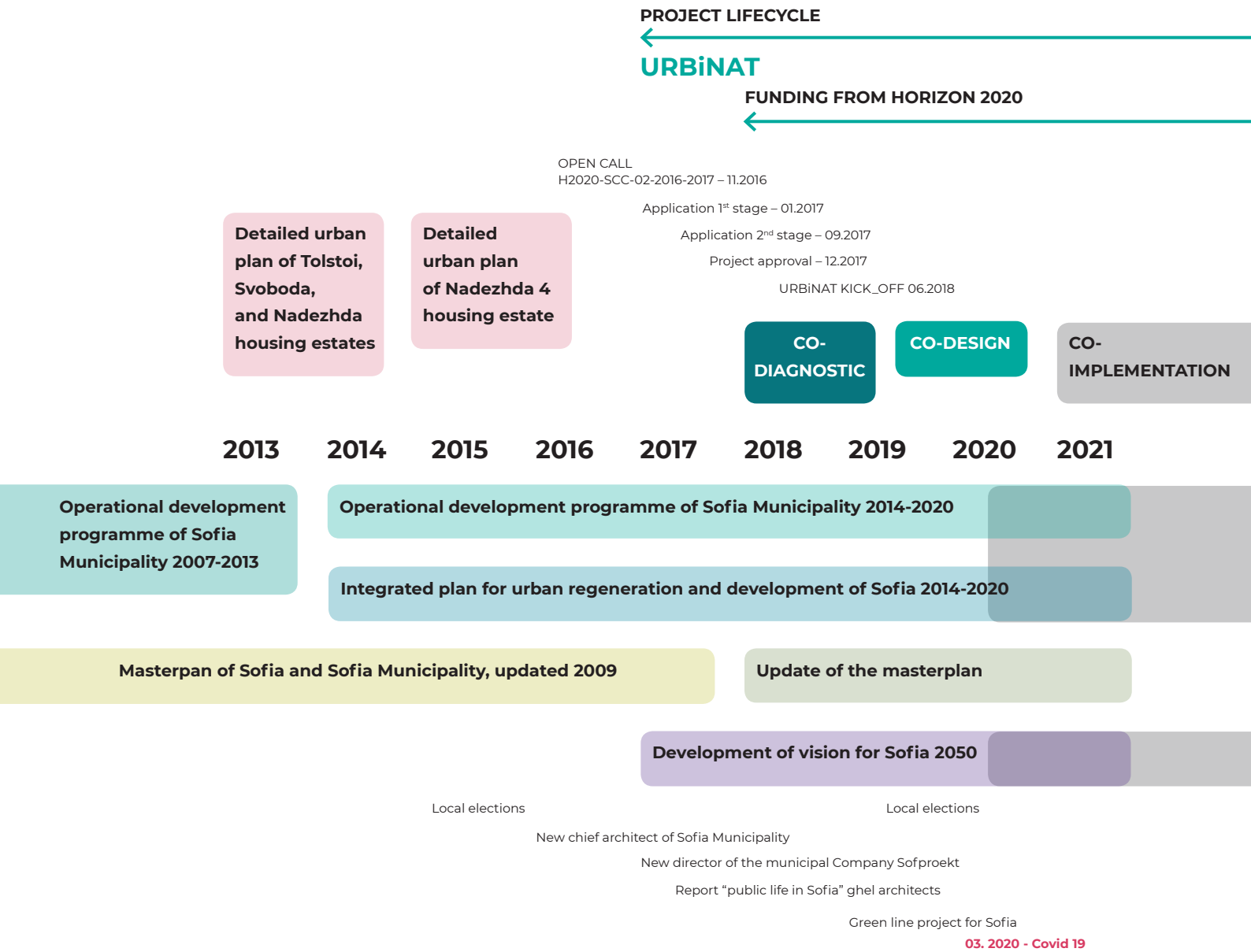
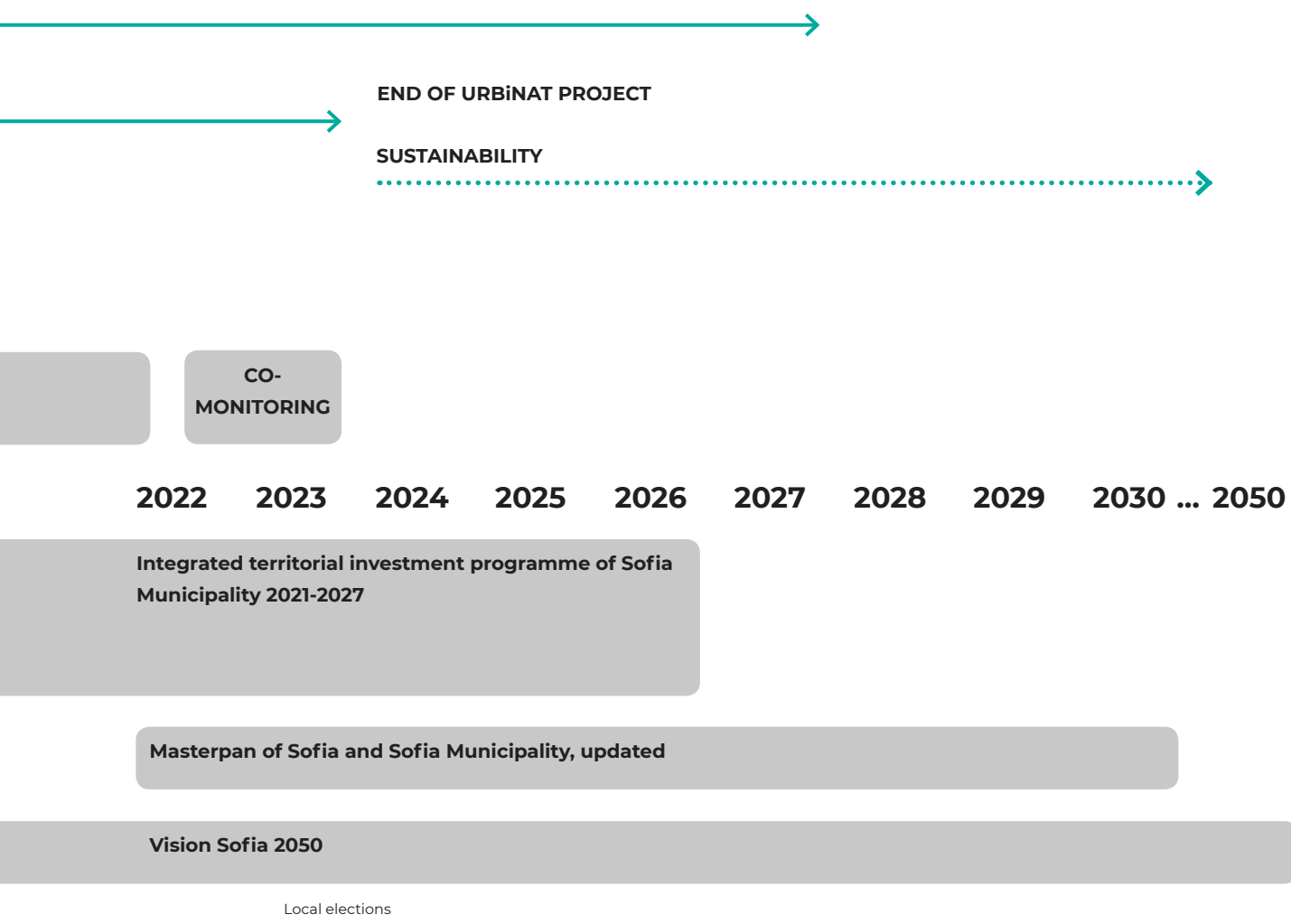


Figure 10. The changing spatial planning framework of Sofia Municipality.



In the course of the Healthy corridor co-creation, the process consisted of a sequence of four main groups of activities involving citizens, experts, politicians and municipal experts. The co-creation process was integrated into the planning framework, respecting the procedures and validating solutions proposed at three steps, mainly connected to: approval of the municipal

plots for future interventions and the NBS mini catalogue of Sofia, the approval of the healthy corridor concept, and the approval of the detailed scheme for movable objects, the NBSs technical projects, issuing a construction permit for the Healthy Corridor and the zones of intervention. (Figure 11)

The co-design process of the healthy corridor in Nadezhda, Sofia

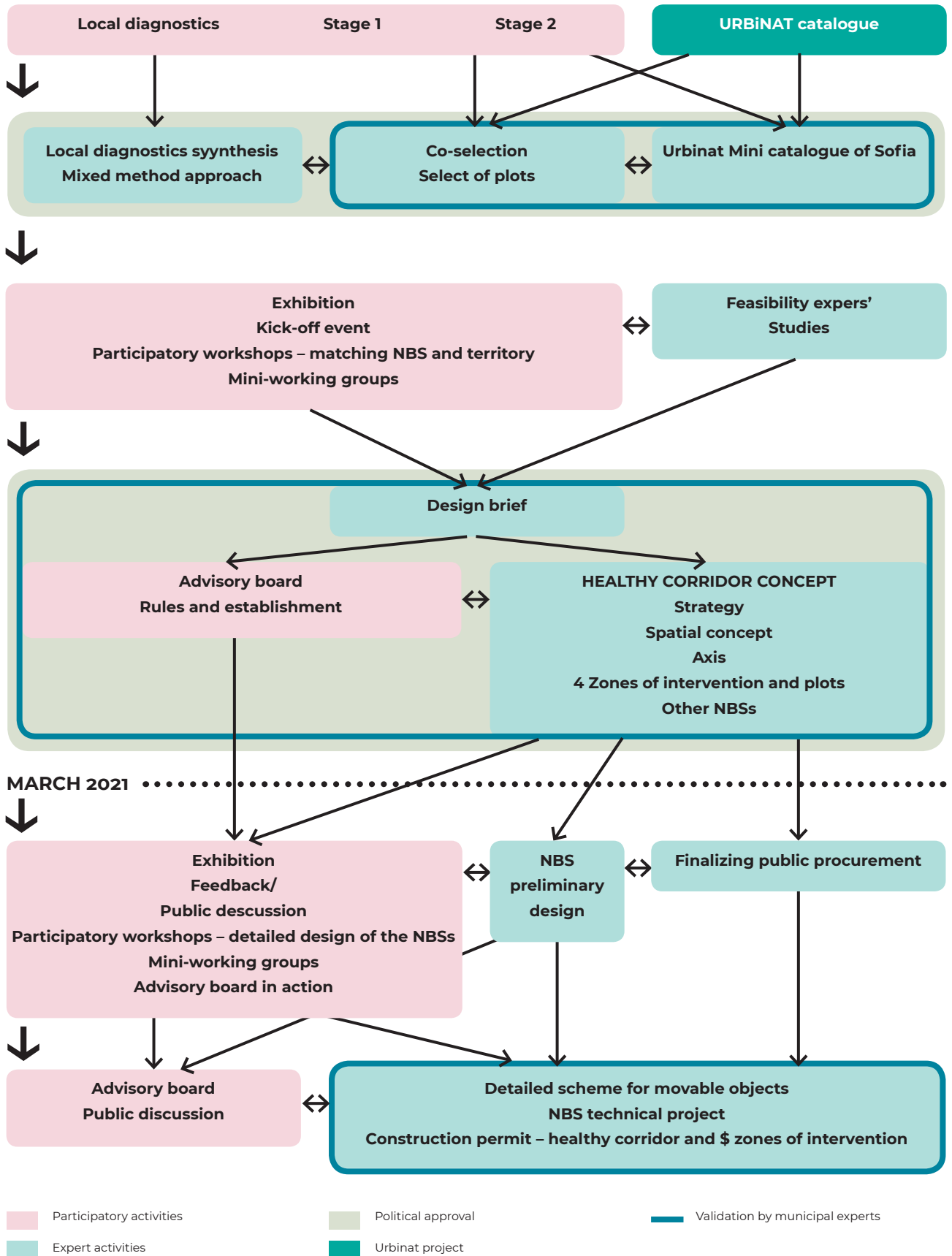


Figure 11. The URBiNAT Healthy Corridor in Nadezhda: Process, scope of activities, and content.

3.2. From co-diagnostic to co-design

3.2.1. Methods and research questions

Based on the overall URBiNAT methodology, the Healthy Corridor co-creation process in Nadezhda was adapted to the local administrative framework and cultural context. This chapter presents the first two phases of the co-creation process – co-diagnostic and co-design in terms of the activities developed, participating actors, and main goals achieved. The planned activities in May 2021 for concluding the second stage of the co-design process are presented briefly.

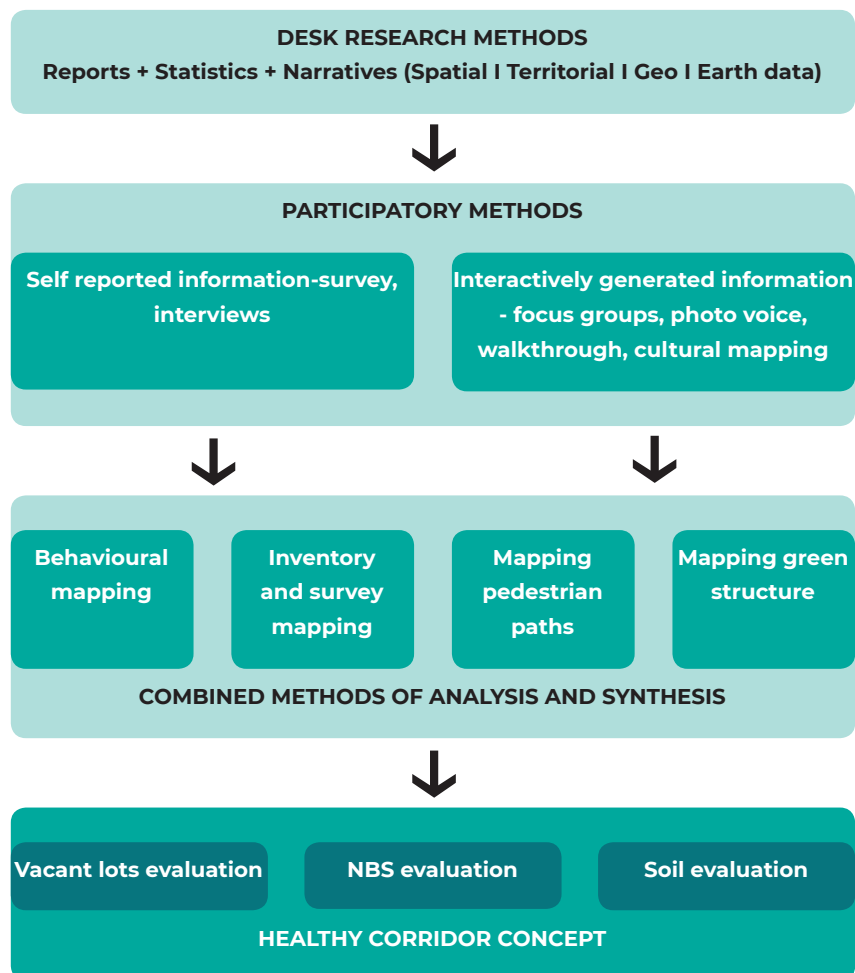


Figure 12. Mixed-method approach implemented in the co-diagnostic phase.

Local diagnostic

During the co-diagnostic stage, analyses were conducted at three levels: city, district, and URBiNAT study area. Except the conducted analysis and evaluation of the biophysical characteristics, the green structure, the biodiversity, and the land-cover, the territorial analysis in the first stage of the local diagnostic focused on the transportation network and services, the local masterplans, and the urban/landscape design projects. The social description explored the demographic data and information on safety and health, summarized the perceptions and demonstrated participatory culture, and compiled a description of the public services in the district. Income, employment, activity sectors and available facilities were also addressed as part of the economic description of Nadezhda district. The Local Diagnostic Part 2 zoomed in over the study area where the Healthy corridor is planned to be implemented. This zooming in over the area and the neighbourhoods of Tolstoy, Nadezhda 2, Nadezhda 1, Svoboda and Triagalnika neighbourhoods and Park Nadezhda was based on the project ambitions to achieve a level of detail that would impact and involve the communities whose life's can be improved by URBiNAT's goals and lines of action.

The synthesis from the various methods and

techniques makes the connection between the co-diagnostic and co-design phases through the elaboration of the Healthy Corridor concept. (Figure 12)

Focusing by zooming in and changing scales, along with the implementation of the mixed-method approach helped to identify specific complementary or contradictory findings related to perceptions, aspirations, fears and threads, but also daily, seasonal and weekly dynamics aspects of public space use, activities, flows and preferred location. The various methods applied involved different number of participants and followed preliminary designed methodology (Table 2). The real challenge came along with the contested "hot points" where competition for space and among uses imposed the need to fully address the multifunctionality of inclusive public space when designing the Healthy Corridor by applying the principles of Universal design. Grounding on the local context, the implemented mixed-method approach combines traditional methods for information gathering and synthesis, inclusive participatory methods for gathering specific information about the area and its inhabitants. All these, along with the intensive consultations and validation procedures were gradually integrated into the established statutory planning process.

METHODS	PERIOD OF IMPL.	NUMBER OF PARTICIPANTS	RESEARCH QUESTIONS
Participatory – Territorial			
Cultural mapping	01/2019 05/2019	24 participants 40 participants	The questions to the participants in the course of the discussion were: What do you like about the area? What would you like to change? How can you contribute? And who should help?
Walkthrough and Motivational interviews	05/2019	30 pupils from 153 rd sports school "Neofit Rilski" 4 Nadezhda district administration staff	General knowledge of the place and transportation habits. General Impression on buildings, public space, schoolyards. Places of interest. Main dangers perceived.
Photovoice	05/2019	30 pupils from 153 rd sports school "Neofit Rilski"	Things they like and things they do not like. What they would change. Ideas for change.

Participatory – Self-reported			
Focus groups	06-09/ 2019	21 participants, 4 focus groups	What aspects of the built environment are liked and disliked;
Face-to-face Interviews	06-09/ 2019	11 respondents/ citizens, 10 interviews	Interest, motivations and degree of participation of the residents;
	03/2019	Representatives of 24 green and social businesses in Sofia	District administration – degree of satisfaction with the district management, communication and interaction with citizens; Potential and ideas for changes in the corridor; To identify the eco-social benefit and the eco-social costs the companies are creating or causing, to evaluate the eco-social benefit and weigh it against the eco-social cost, assess the overall objective and solutions the business model is thriving
Survey	11,12/2019	400 inhabitants of the area along the HC, 40 people – control group	Some of the possible correlations that the data can provide are: Wellbeing and health status related to location, to available green space, to satisfaction with the neighbourhood.; Neighbourhood satisfaction related to location, to available green space, to social activity or network; Level of discomfort in the neighbourhood related to location; Physical activity – duration and frequency related to available green space (GIS); Social activity – duration and frequency related to quality of open space (GIS); Social network – range and intensity related to quality of open space (GIS).
Analysis – Territorial			
Territorial mapping	01-09/2019		Inventory and analysis of the green structure, pedestrian paths, vacant lots, public facilities, services and housing.
Observation			
Behavioural mapping	05,06/ 2019 – 4 day observation at 19 sites	Sum total of 7685 users mapped between 54 and 4788 people who walked through the observed directions in the working day	Main characteristics of people observed: (approximate) age, gender group, general pattern of stationary occupation, major areas and types of play, and key directions of non-motorized flows of movement through or along the sites; Types of behaviour, categories of people and place inventory;
	05/2019 – 2 day observation of play activities and game	Between 126 and 5700 people walking through the observed direction in the non-working day	Main categories of the observed behaviour – moving, staying and playing, activities such as gambling, smoking, drinking, taking drugs, fast food eating, usage of media and communication devices, socializing (talking, music playing, collective games).

Table 2. Methods applied, number of participants and followed preliminary designed methodology.

3.2.2. The transition from co-diagnostic to co-design: The strategy process

The transition from the local diagnostic to the co-design process focuses on the scale of the neighborhood level and the scale and scope around the axis of the corridor and the four intervention areas, in order to further develop the Healthy Corridor Concept, where the expert knowledge and assessment were critical for the precise definition of the areas of intervention.

3.2.2.1. Defining the scope of the areas of intervention

Initially, 107 municipal plots of land and undeveloped land within the URBiNAT study area were identified in Svoboda, Lev Tolstoy, Nadezhda 2a and 2b (eastern part), Nadezhda 4 (eastern part), Triangle area, Nadezhda Park and Nadezhda road junction. The process of plot selection included multi-criteria evaluation for preliminary and final selection of plots, preliminary and interim criteria for the evaluation within stage 2 of the local diagnosis, and final selection of groups of municipal plots for NBS implementation during the co-design process. Then an interim coordination was carried out with the mayor's office at Nadezhda district and the Sofia Municipality experts. Developed in order to shorten the list of possible properties, the selection criteria aimed at prioritization of investments and achieving a synergistic effect after the implementation of (potential) interventions.

Except mapping, the plots pre-selection criteria include: valuation of property, assessment of development forecasts and investment intentions, evaluation of the implemented municipal and other public investments; assessment of the state of the environment; assessment of the proximity to elements and variants of the route of the Healthy Corridor. The main criteria for final selection of plots for intervention include: behavior mapping and expert evaluation of behavior; expert and inhabitants' assessment of the possibility to integrate Nature-Based Solutions within the defined budget; and political assessment of specific needs (in) compatible with URBiNAT investments. As a result, the short list of about 20 vacant plots was proposed and validated by the Municipal experts. The Healthy Corridor concept is further developed around these plots, grouped into 4 areas of intervention.

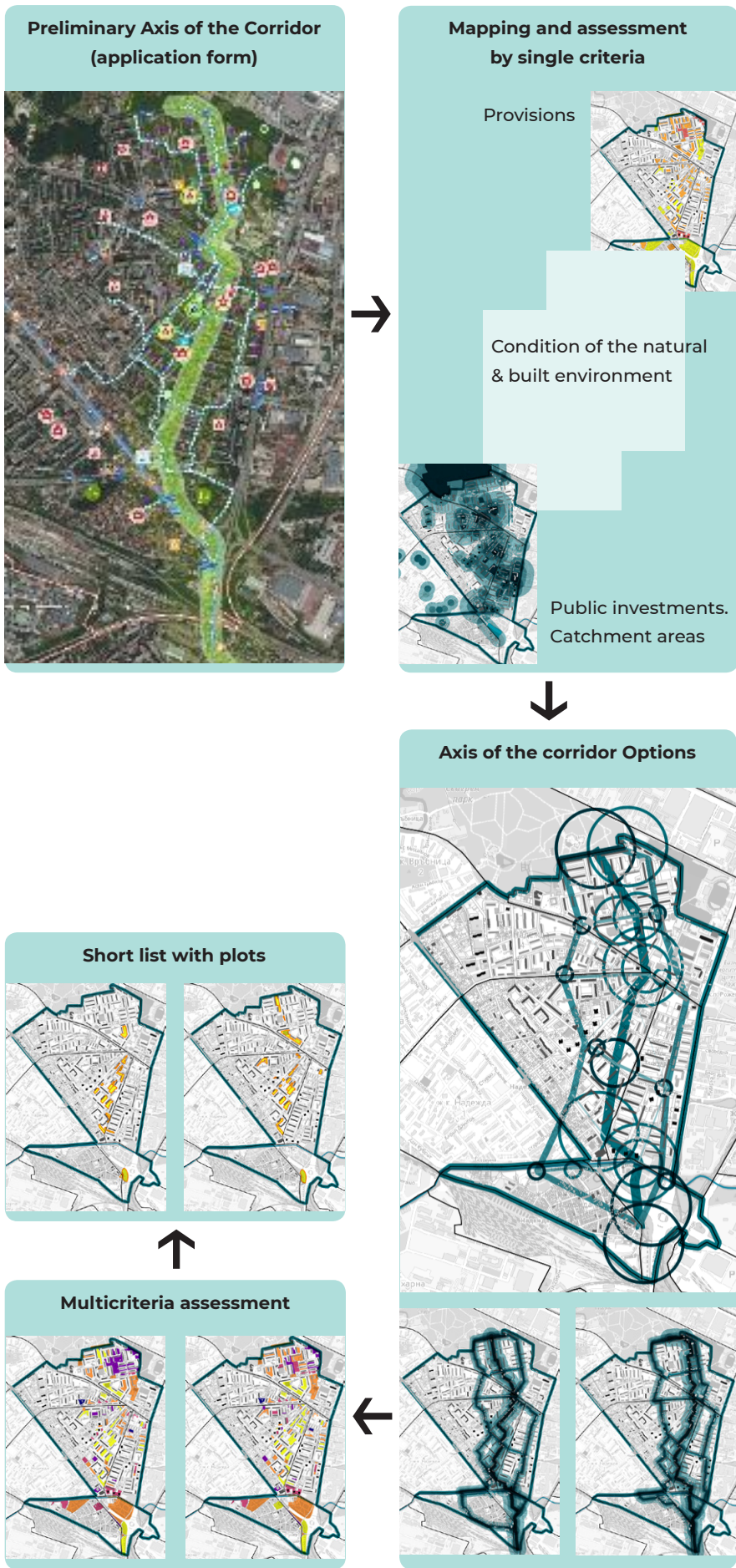











Figure 13. From co-diagnostic to co-creation. From mapping and assessment to selection of plots.

-  Study area
-  Underground stations
-  Cycling alley





Street network

-  IInd class - urban highways
-  IIIrd class - district arteries
-  IV class - primary streets
-  Vth class - collector streets
-  VIth class - service streets
-  links and local lanes



Buildings

-  1-3 stories
-  4 stories
-  5-9 stories
-  10-14 stories
-  15+ stories
-  Public buildings
-  Land lots
-  Major parks in Nadezhda


Service areas of the major parks in Nadezhda

-  150 m
-  300 m
-  450 m
-  600 m
-  Mineral water drills


Service areas of a rehabilitated mineral water drill



-  150 m
-  300 m
-  450 m
-  600 m
-  Suhodolska river

Green healthy corridor


-  'Airborne' stright line between the major elements of the Healthy green corridor

Axes pointing to the major route and network of places along the corridor

-  1st level
-  2nd level
-  3rd level
-  4th level

-  Route of the project idea
-  Green line Sofia

Nodes of intersection

-  Primary
-  Secondary

Base from OpenStreetMap



-  170
-  242



Figure 14. Local features and intention of the Healthy Corridor.

3.2.2.2. The process and methodology

The approach applied to evaluate the impact of URBiNAT interventions in the study area and promote the transition from co-diagnostic to co-design comprised 5 steps: (1) Analyzing the local diagnostic results to identify local needs relevant to URBiNAT project; (2) Relating the findings to the broader frame of contemporary urban challenges (as outlined in Eclipse typology);

(3) Describing the key activities chosen to address specific local needs and demands in the study area; (4) Defining expected impacts, and relevant criteria to evaluate action effectiveness in addressing one or several challenges; (5) Developing an indicators set related to available information sources, type and scope of impact, and monitoring procedures. CO-DESIGN proposals were then developed to be integrated into the urban plan. (Figure 9)

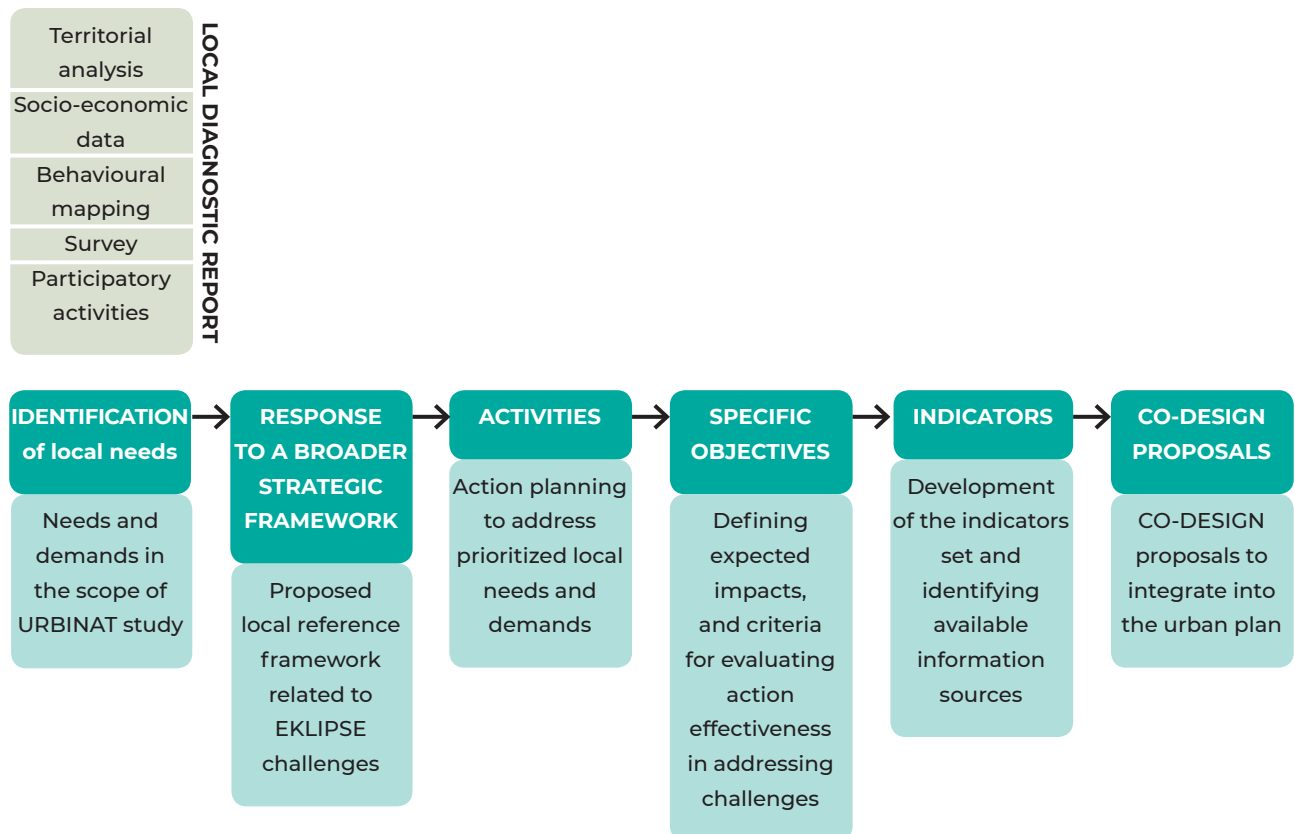


Figure 15. From co-diagnostic to co-design. Process and methodology.

3.2.2.3. Linking needs, Eclipse challenges, indicators, strategic objectives and co-design proposals

In order to formulate the strategic objectives, a brief review of the findings from the local diagnostics were analysed in terms of needs, actions to be undertaken in order to answer the Eclipse challenges and possible solutions in meeting the needs identified.

Methods Applied during the local diagnostic:

- Desk and field studies, spatial data processing
- Focus groups, Interviews, Cultural mapping
- Questionnaire
- Behavioral mapping
- Territorial mapping and spatial analysis

Green structure



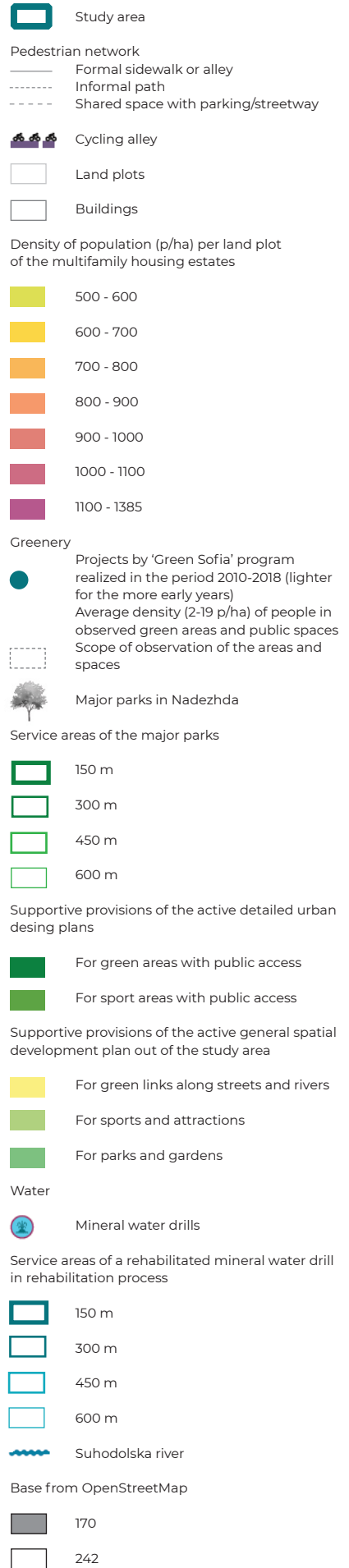
Analyses of the co-diagnostic results that informed the co-design process:

The relatively flat URBINAT area, part of Nadezhda district, is slightly sloping towards the north-east and is bypassed by the small Suhodolska river at the south-east side.

The vegetation cover is partially autochthonous, partially planted or kept after the reconstruction of the housing estates over green fields or low-rise housing. In the last three decades it is mostly represented by volunteer pioneer plants, self-grown in vacant or poorly maintained areas. Older age and higher canopy of trees is found in Lev Tolstoy housing estate as well as in the parks. Many of the interblock spaces in the other housing estates – Svoboda, Nadezhda 4 and Nadezhda 2 as well as Triagalnika are not that well covered by healthy vegetation due to the intensification of uses and soil sealing resulted from the urban development processes that took place in the last century. In addition, along with non-accomplished and not fully equipped parts of the estates, the transition period after 1989 led to shifts in the land, property and asset rights, management, redistribution of local resources and culture transformations. The fast-growing demand for

parking areas proved to be a major challenge difficult to cope with. New residential buildings, shops on the ground level, but also playgrounds and sports facilities appeared on restituted plots to meet new societal needs and market demand. New points of interest and new barriers have shaped the new daily routes of the inhabitants. Alternative informal paths – usually over municipal private land, were trodden by and actively used in the large inter-block spaces, mainly connecting the buildings to the public transport stops and the playgrounds located in the inter-block spaces. A much denser pedestrian network than the initially planned one responded to residents' diversified needs and searched for walking convenience. Residents pointed out the poor condition of the natural and built environment as a major shortcoming. An increase of pedestrian flows between the neighbouring housing estates was motivated by the diversity of services and personal motivations.

The aim of the project is to recover and fill some of the gaps in order to provide conditions for more diverse social interactions in as much closer to the natural environment as possible in this high densely populated housing area.



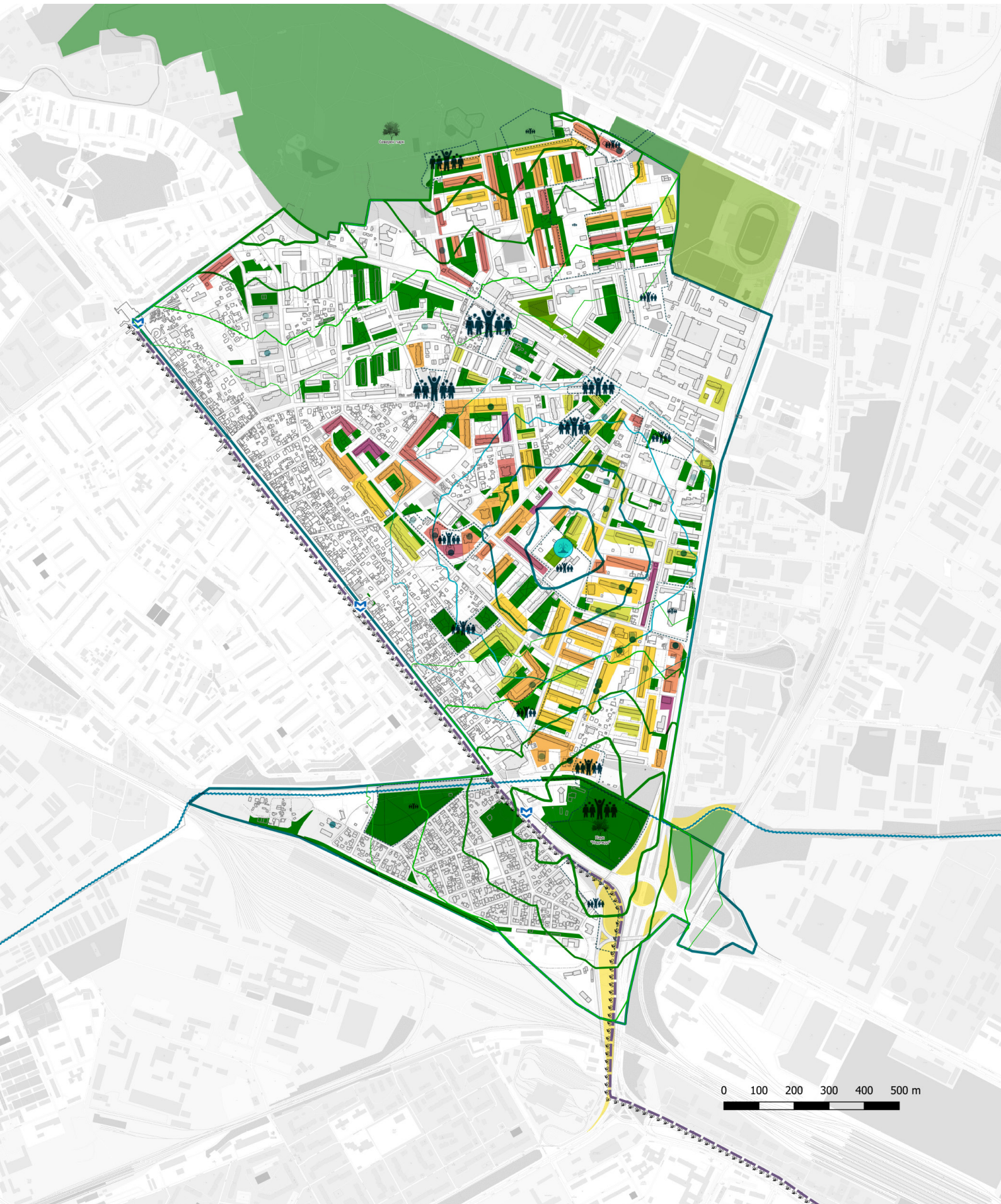


Figure 16. Green structure – synthesis. Results that informed the co-design process.

Synthesis / critical aspects:

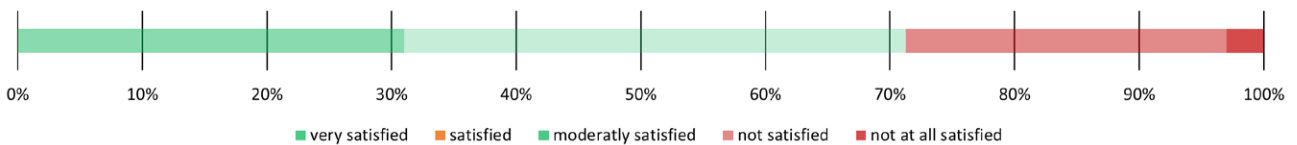
'Brown spots' of bare sealed soil

Many open spaces are covered by bare soil, sealed and polluted by past construction, and resulted by the poor waste management and illegal parking of vehicles. These generate more dust and particulate matter that is a major contributor to respiratory and other diseases. Most of these spaces become muddy and inaccessible after intensive rainfall or snow melting and also heat up if not covered by tree canopy during summer hot waves and contribute to the micro heat island effect, part of the bigger one observed in Nadezhda.

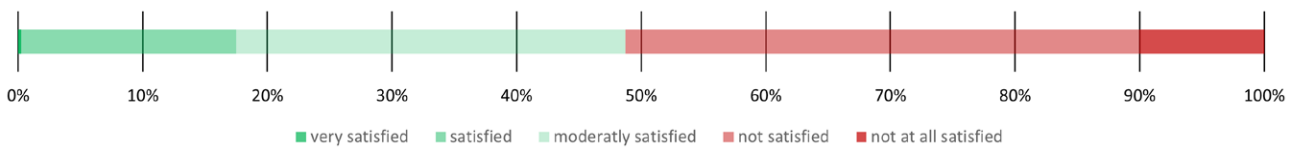
Findings from the Survey:

A large proportion of survey respondents are dissatisfied with environmental protection in the area. Dissatisfied with the degree of naturality are more than 40% and dissatisfied with green areas and parks are 26%. Responses indicate that the level of discomfort caused by air pollution among the respondents is not satisfactory for 16%, while 44% are moderately satisfied. Respondents dissatisfied with the noise level generated by the traffic are 23%, while 47% are moderately satisfied.

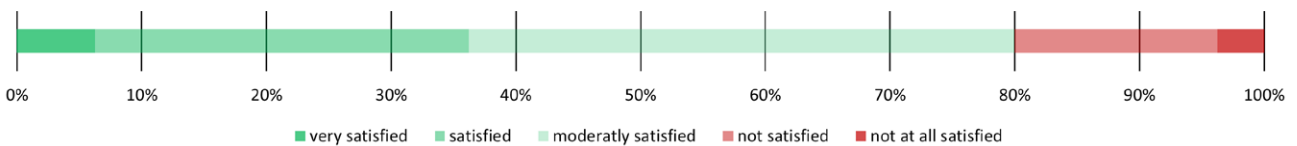
Satisfaction with green areas and parks



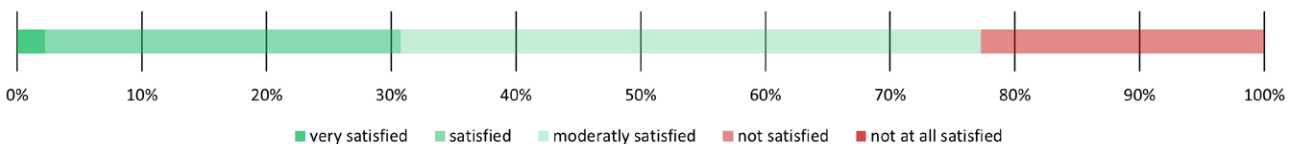
Satisfaction with the degree of naturality



Level of discomfort caused by air pollution (smoke, dust, exhaust fumes...)



Level of discomfort caused by noise due to the traffic



NEEDS	Eclipse challenges	Indicators	Specific objectives addressed by the co-designed proposals	Co-design proposals
To eliminate the 'brown spots' of bare sealed soil which significantly contribute to the exceeding levels of fine particulate matter and are inaccessible or perceived as unfavourable areas during contrasting or severe weather conditions	<p>Challenge 1 Contribution of NBS to Climate Resilience</p> <p>Challenge 5 Air Quality</p> <p>Challenge 9 Public Health and Well-being</p>	<p>Challenge 1 Temperature reduction, Soil quality – Physical and chemical properties combined with biological characterisation</p> <p>Challenge 5 Air quality – levels of fine particulate matter</p> <p>Challenge 9 Proximity measures, (green space of min. 2 ha within 300m, Percentage of green space</p>	<p>Co-create healthy urban environment</p> <p>Implement climate change adaptation measures</p> <p>Improve governance framework for NBS implementation</p>	<p>Rehabilitation of open space surfaces through care and recovery of existing green cover,</p> <p>Planting of new trees for canopy and creating meadows</p> <p>Creating the linear and smaller spot green features</p> <p>Implement innovative NBS solutions answering the technical norms</p>

Table 3. Needs on green structure.

Methods Applied during the local diagnostic:







































- Desk and field studies, spatial data processing
- Focus groups, Interviews, Cultural mapping
- Questionnaire
- Behavioral mapping
- Territorial mapping and spatial analysis
- Desk and field studies, spatial data processing
- Focus groups, Interviews, Cultural mapping
- Walkthrough, Photovoice

Analyses of the co-diagnostic results that informed the co-design process:

Mobility, pedestrian network and proximity to services, parks and other facilities

After the construction of the underground with the support of the EU and the national funding, the mobility options for the study area were significantly improved in terms of connectivity on city level. This also provoked higher development interest towards the district. At the same time the regional rail and bus services, as well as the

urban public transport have been continuously losing positions in the modal split despite the improvements in the fleet. The car dependency continues to lead to stronger and stronger car dependency along with the many obstacles and inconveniences for the non-motorized and/or micro mobility modes. The public transportation services cover most of the area but in the core of Nadezhda 2 and Nadezhda 4 as well as in Svoboda these are limited. Due to the remoteness of these housing estates, combined with the need to reach them, pedestrians have to pass through many informal paths with poor condition and sidewalks or alleys which are overwhelmed by illegal car parking. Most of the services have good distribution and coverage although the observed concentrations at the edges of most of the neighborhoods. The concept of the Health Corridor proposes better connectivity, especially for the internal peripheries which are less accessible, less maintained and sometimes with very high density of residents and ageing buildings and residents.

-  Study area
-  Land plots
-  Buildings
-  Suhodolska river
- Mobility and transport**
-  Jaywalking across IIIrd class primary streets
- Average volume of non-motorized mobility between 7-19 o'clock**
-  50 - 1000
-  1000 - 2000
-  2000 - 3000
-  3000 - 4000
-  4000 - 5000
- Pedestrian network**
-  Alley
-  Informal path
-  Sidewalk
-  Shared space with parking
-  Shared space with street
-  Crossing at walkway
-  Crossing at traffic lights
-  Crossing by subway
-  Crossing by bridge
-  Unregulated crossing
-  Cycling alley
-  Public transport stops (size depending on the number of lines stopping)
-  400 m service area around bus stops
-  400 m service area around tram stops
-  Underground stations
-  Entrances of the underground stations
-  400 m service area around underground stations
- Investments from the municipal budget**
-  Newly built parking areas in 2019
- Energy and buildings**
-  Mineral water drills
-  Multifamily housing built prior to 1970
- Investments from national and EU funding**
-  Renovated buildings by 2017
-  Renovated buildings by 2018
-  Renovated buildings by 2019
-  Buildings being renovated during 2020
-  Buildings planned for renovation after 2021
-  Buildings candidates for renovation without approved funding
- Base from OpenStreetMap**
-  170
-  242

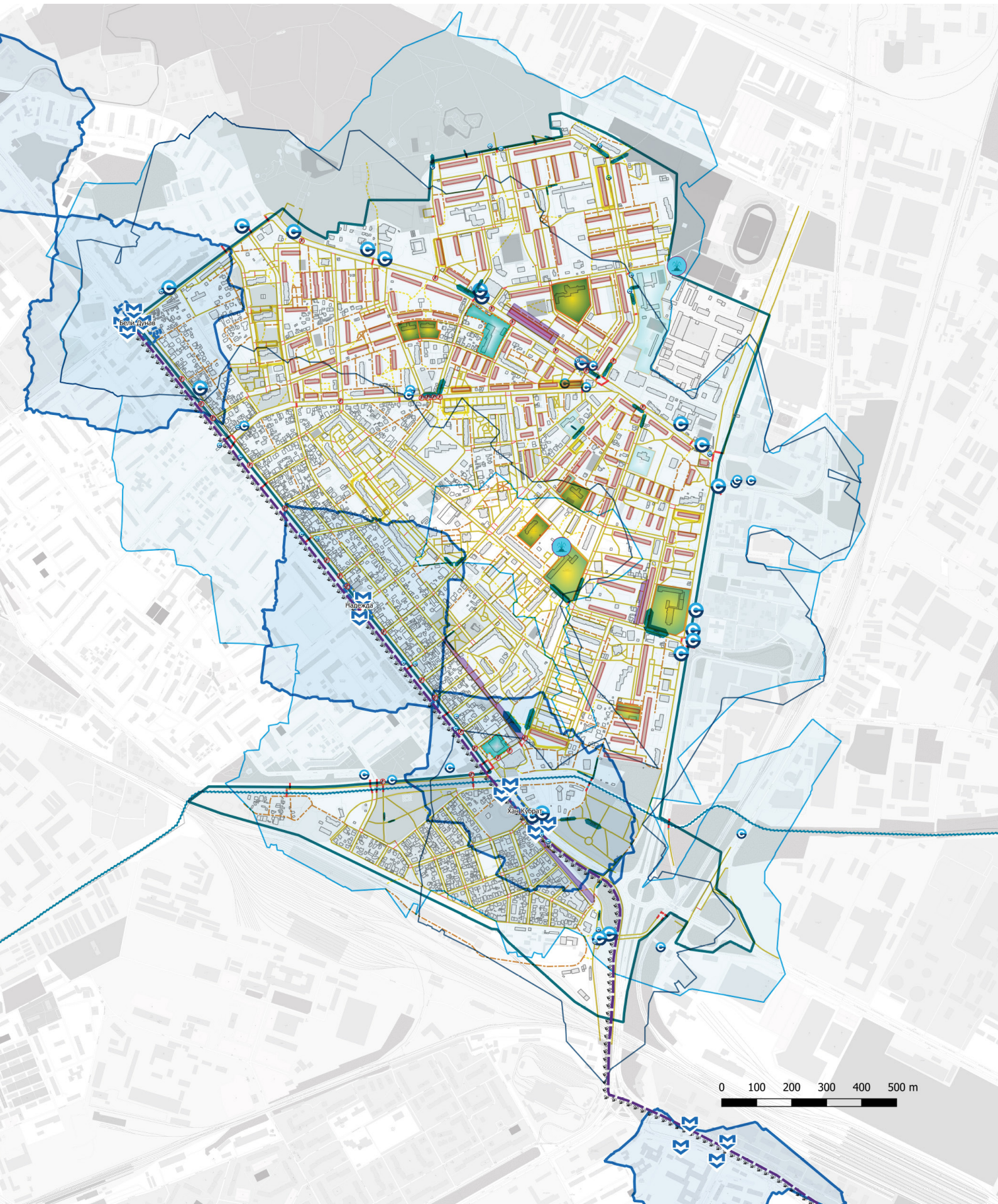
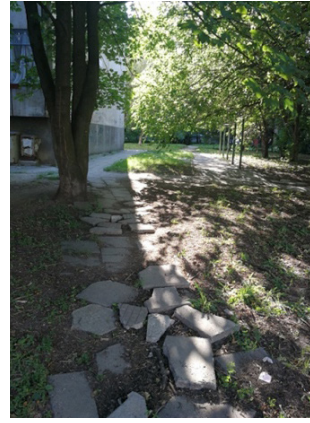
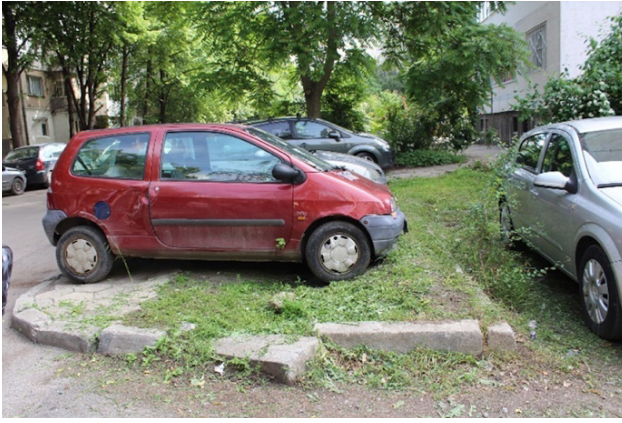


Figure 17. Map for the proximity network.



Existing features on lightning and intentions of the project

The condition of street lighting, where available, is predominantly good, but there are many places lacking lighting infrastructure or in need of upgrading of the existing infrastructure. These are the northern parts of Nadezhda 2a residential area, the garden next to the church of Sveti Duh, the northern and southern parts of Lev Tolstoy housing estate, Park Nadezhda, the inner neighborhood spaces in Svoboda housing estate, as well as the peripheral parts of Triagalnika neighbourhood and Park Gorska kultura. (Source: Actual state of lighting in Sofia, Vision for Sofia 2050, 2017). The concept of the corridor includes better lighting for pedestrian routes along the major axis, especially around the entrances of Severen park and park Nadezhda.

Perceptions on safety, visibility and lightning

The identified needs through focus groups, interviews, walkthrough and cultural mapping during the Local diagnostic stage 2 are directly connected to physical and mental determinants of health varying from needs for walkable connections and feeling of safety to needs of equipped space for leisure and recreation, creative action and socializing. The number of zebra crossings is insufficient compared to the big number of unregulated crossings, poor visibility and missing traffic calming measures. Jaywalks and bridges are scarce, hardly accessible, narrow and dimly lit. In order to provide better accessibility, higher capacity of the facilities and safety should be provided. Apprehensions and fears are connected to the unsafe jaywalking and the growing shrubs and ruderal vegetation at some abandoned sites.

Green areas and trees are not maintained on a regular basis, which creates more shadowy and branchy areas, streets, sidewalks, and inter-block spaces. This is an issue of comfort and friendliness

of the environment, but also of safety due to the lack of openness and visibility. In addition, pupils who participated in the walk-through admitted that they are afraid of stray dogs and cats, and of suspicious people that they tend to meet while going through the forest on their way to the sport facilities or through shadowy non lighted public spaces.

The district and the neighbourhoods in the study area have an image of places with higher numbers of criminal activities than the average. Data from the police department to which the district belongs reveal relatively high levels of drug presence compared to the other city police departments, though when estimated against the number of residents, these levels are comparable to the city average. The levels of satisfaction with crime prevention among the citizens within the URBiNAT study area neighbourhoods (being part of the larger zone 5) rank 4th out of 13 zones., with around 46% of respondents fully and 54 % partially, partly, and fully unsatisfied. (Source: Sociological survey on the quality of life in Sofia, Vision Sofia 2050, 2019)

The district administration staff is mostly concerned about safety and vandalism over amenities and urban furniture and they acknowledge responsibility for lighting, visibility (maintenance of municipal plots, including mowing and cleaning shrubs), and safety. The elderly citizens, however, believe that the noisy groups gathering in the evenings happen at well-equipped and lighted interblock-spaces, and therefore nothing should be done in order to keep the peace during night hours. The co-design of the zones of intervention explicitly addresses these contradictions.

According to the local administration of Nadezhda district, the presence of good lighting in the area of some playgrounds in inter-block spaces is a prerequisite for gathering of companies and vandalism in the evenings. Inhabitants also

do not appreciate good lighting in the inter-block space as it “invites” noisy groups. Therefore, and in order to avoid light pollution, the Healthy

corridor project will seek flexible and energy saving solutions for lighting the main axis as well as the places for intervention.



Synthesis:

Physical conditions and connectivity between formal and informal pedestrian walkways are poor, including many of the sidewalks, the shared street spaces with no traffic calming measures, depreciated alleys and many dirt tracks.

Several lines of jaywalking across boulevards are observed and they pose risk to all age groups due to inconvenient configuration of the formal places for crossing and passing around public transport stops. Illegal car parking is overwhelming and it is a major concern but challenging to be tackled due to the very high motorization rate which has grown in the past 15 years.

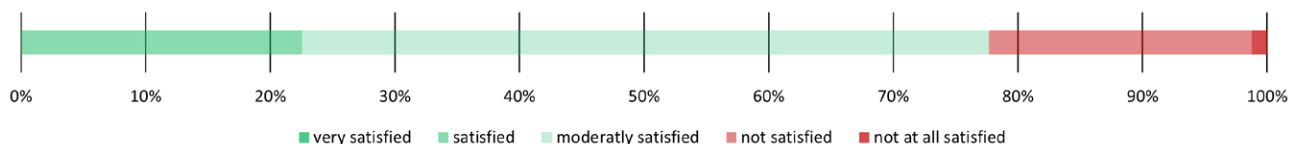
Eliminating physical, social and psychological barriers, the Healthy Corridor should provide convenient, safe and inclusive pedestrian connection between the two parks and the areas of co-creation.

Findings from the Survey:

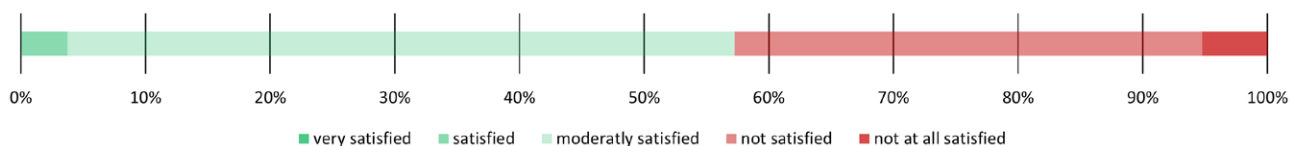
One fifth of the respondents are dissatisfied with the possibility of walking on sidewalks in their neighborhood and more than 55% are moderately satisfied. The upkeep of the streets is another factor that brings together many dissatisfied (38%) and moderately satisfied (54%) respondents.

Around 62% of the respondents are satisfied with the public transport services provided to the district, while 28% are not satisfied with the security in the neighborhood.

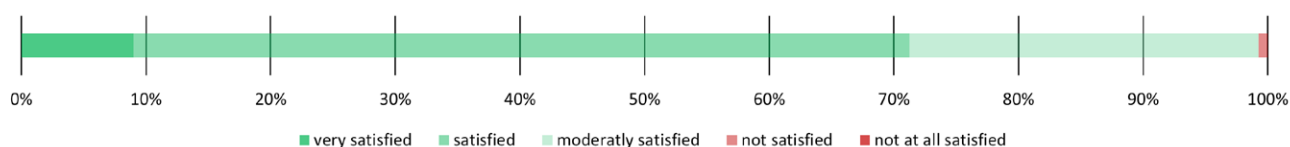
Satisfaction with the ability to walk on sidewalks in your neighbourhood:



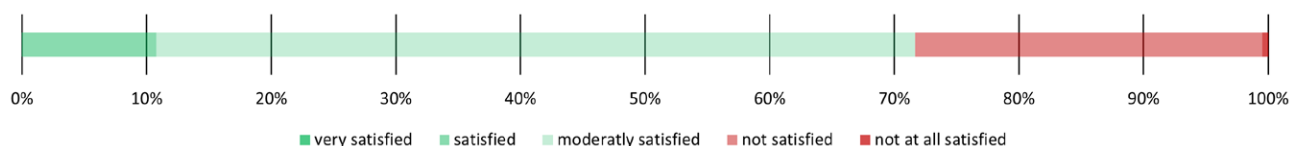
Satisfaction with the upkeep of the streets:



Satisfaction with the public transport service to the district:



Satisfaction with the level of safety in the neighbourhood (police, delinquency, theft, drugs,):



NEEDS	Eclipse Challenges	Indicators	Specific objectives addressed by the co-designed proposals	Co-design proposals
Better physical conditions, convenience and connectivity of pedestrian walkways, safe crossing of boulevards and optimised parking.	<p>Challenge 6 Urban Regeneration</p> <p>Challenge 9 Public Health and Well-being</p>	<p>Challenge 6 Land devoted to roads: percentage of site area occupied by roads (and parking facilities); Land dedicated to pedestrians: percentage of road network; Access to open space: average journey time for residents/ employees by foot or average distance to sports centre, recreation area, or green space Level of devices contributing to the safety of users in the neighbourhood: lighting of common areas</p>	<p>Upgrade existing pedestrian paths Create new connections Curb jaywalking and improve pedestrian safety Reduce conflicts between walking and parking</p>	<p>Creation of favorable conditions for choosing walking before other modes of mobility through making it more convenient and well lit; Construction of eco-parking for different kinds of vehicles; Construction of comfortable pedestrian access to the existing parks and transport nodes including for people with disability.</p>

Table 4. Needs on mobility and physical urban features.

Methods Applied during the local diagnostic:

- Desk and field studies, spatial data processing
- Focus groups
- Interviews
- Cultural mapping
- Walkthrough Photovoice
- Questionnaire
- Behavioral mapping

Analyses of the co-diagnostic results that informed the co-design process:

Public space and public life activities

The observed public life activities during the local diagnostics stage are related to the urban public spaces, which usually accommodate simultaneously one or several activities providing for access, encounter, and exchange. The existing public space in the four housing estates is nowadays multifunctional and liveable. Pedestrians walking and socializing are found in most of the analysed public places. The most intensive activities are ascribed to places enabling encounters. Although intensive and multi-layered, with established rhythms, and meeting points, the public life in the LHEs is rather fragmented into numerous places due to the disperse location and discontinuity of the public lots, the

poor amenities, and the existing barriers such as abandoned and non-maintained private lots. Despite the declared high level of self-identification with the neighbourhoods, people do not gather often in open public space except the small territorial communities that gather at specific places. There are very few mass events, cultural activities, and celebrations in the housing estate and no place explicitly intended for that, though many of the participants during the co-diagnostics outlined the need for such a place. Public life is interwoven into residents' daily activities. The specific atmosphere in the neighbourhoods and the community spirit there are shaped by the prevailing pedestrian walking and biking. There is no public place explicitly intended for teenagers in the housing estates, the places for public gathering and entertainment are insufficient, and few cultural activities are organized in the open space.

People who took part in various participatory activities stress on the need of keeping the neighbourhoods greener and preserving the open space and the greenery between the blocks and other buildings. Although currently people have not complained about overly dense construction, a concern of such a phenomenon has been expressed.





Synthesis

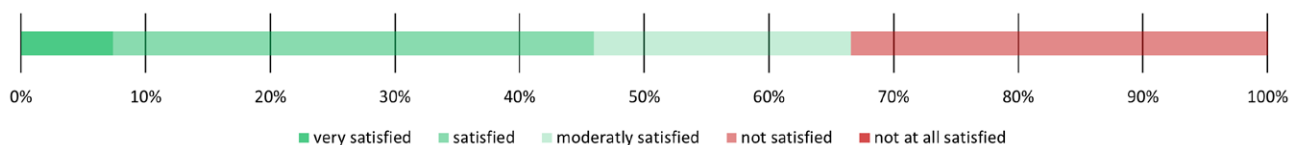
The 'no man's land' image of the interblock green spaces has turned them into either neglected sites or ones for which aspirations to privatize or turn them into club goods exist. This makes some of the places more semi-private and altogether with their poor physical condition – exclusive for various groups depending on the place and the social context around. Functions are backed by do-it-yourself facilities rather than specially designed and managed equipment and public works – a sign for the need and potential of many spots and pockets. Some of these initiatives were supported by the 'Green Sofia' program but they do not seem to have good continuity, especially for the greenery. The informal elements enrich some of the more monotonous

areas but often few of the neighbours associate with them and there are often conflicting situations.

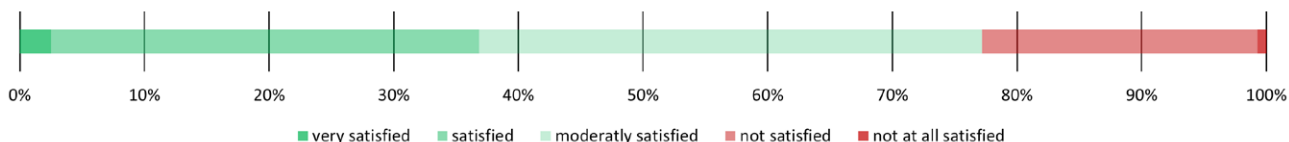
Findings from the Survey:

Respondents cite the large distance between the buildings as a strength. The share of those satisfied with the size of the open inter-block spaces is 58%. At the same time, 22% of the respondents are not satisfied with the leisure facilities available on site. The most worrying are the very small shares of those who performed activities with friends that took place outdoors in the neighborhood (merely 2%), and the marginal share of respondents who performed personal relaxing activities outside in the neighborhood.

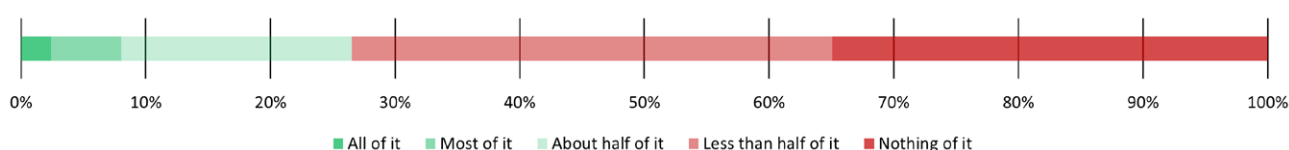
Satisfaction with distance between the buildings of your neighbourhood (luminosity in your building, intimacy regarding building opposite):



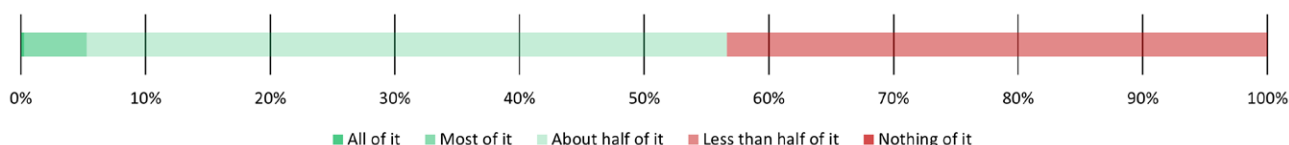
Satisfaction with leisure facilities available on site (cafés, restaurants, cultural sites, playgrounds...):



How much of you and your friends' activity is spent outside in your neighborhood?



How much of your relaxing activity is spent outside in your neighborhood?



NEEDS	Eklipse Challenges	Indicators	Specific objectives addressed by the co-designed proposals	Co-design proposals
Improved management, planning, design and renewal of green and other public spaces, accessible for all and recognised by more diverse groups which can find their suitable individual, group or community activities	Challenge 4 Green Space Management	Challenge 4 Accessibility: distribution, configuration, and diversity of green space and land use changes	Safeguard urban open space	Activation of public life in existing open space and green areas through activities for attachment and involvement in place making
	Challenge 6 Urban Regeneration	Challenge 6 Ratio of open spaces to build-form	Manage inclusive public space	
	Challenge 8 Social Justice and Social Cohesion	Challenge 8 Senses, imagination and thought: being able to use the senses, to imagine, think, and reason about the environment, informed by indicators of levels of literacy, mathematics and science knowledge	Enhance diversity of uses and multifunctionality	
	Challenge 10 Potential for Economic Opportunities and Green Jobs	Challenge 10 Consumption benefits: property betterment and visual amenity enhancement resulting from NBS.	Recreate identity and uniqueness	

Table 5. Needs on public space and public activities.

Methods Applied during the local diagnostic:

- Cultural mapping
- Walkthrough
- Photovoice
- Questionnaire
- Behavioral mapping

Analyses of the co-diagnostic results that informed the co-design process:

Education

According to the grades obtained at the state exams of their graduates, the 5 schools in the study area fall into the second and the last third in the ranking of Sofia schools. The schools in the

most northern part, in Svoboda housing estate, are among the last in the ranking. The rest of the schools are in the golden mean, although their performance is lower than the average for the Sofia municipality. This is a stable trend for the last five and more years. Children under 7 years are covered by 7 kindergartens, which are evenly distributed in the study area. Some of the kindergartens are running small self-made vegetable gardens that may be upgraded and developed as places that educate children's sensitivity and respect to Nature. The Healthy Corridor concept will focus on activities that provide for nonformal environmental education and will include initiatives that provoke lifestyle change.



Culture

The available cultural infrastructure in the URBiNAT study area provides a good basis for the activation of the communities with a strong belonging to their neighbourhoods. Two small community centres provide equipment for general educational and cultural activities for the local people and their children. Residents of the neighbourhoods as well as all children and citizens of Sofia Municipality regardless of their residence can use the educational and cultural services of the Centre for Arts, Culture and Education and the Municipal

Cultural Institute "Nadezhda". The centre teaches children in dance and singing, in mastering several musical instruments, theatre and ballet, fine and craft arts. The Cultural Institute provides a stage and trains theatre, dance and music professional and amateur formations and actors. However, more spaces for individual, independent artists' or people's dances in public space (e.g., for folk dances in open air, tango dance, breakdances, etc.) were envisioned by the participants in the focus groups as important places for active living and socializing.



Sport

The interest towards sports activities in the district and the study area is high and outdoor fitnesses as well as some of the freely accessible sports fields are attractive places for social interaction though much more often for boys than girls. There are several sports clubs, including a football playground in Svoboda which was funded by FIFA through the Bulgarian football union, as well as the professional sports club Lokomotiv Sofia. The sports club runs a 22 000 seats stadium

and other facilities that are provided through a partnership scheme to the Sport school 153 Neofit Rilski. Despite the availability of a high number of facilities in the study, the inhabitants claim that more various sport spaces for freely accessed are needed in the parks and inter-block spaces. They declared the need to have more places to practice sport/fitness activities in the open air or/and adults to play games (e.g., archery, petanque, fitness, etc.).



Leisure and recreation

There are different opportunities for access to informal education in the city but also limitations for those who are less mobile. The affordability and free access to some of the sport and cultural facilities, as well as to informal education is threatened, although many NGOs and civic groups offer free alternatives to “clubification” from time to time. According to some of the teenagers, there is no place for them in the open public space in the housing estates – they are supposed to be in schools, gyms or if they want to meet their friends – in cafes or clubs, to the movies or to a more interesting meeting place. Obesity is also a recent phenomenon which is well observed among the pupils and it is partially attributed to the fast-food diet but also to digital technologies and gaming which have become even more apparent ways of spending time during the pandemic.

Participation

Very often a problem is the why-me-syndrome of participation. People would tend to associate participation as an additional effort for others, who are practically not getting involved, just standing by. One block manager, however, insisted that “When people see that things happen (change), they join – trust me on this!”. Therefore, motivators need to be identified and encouraged. Even the team of URBiNAT was identified at one of the focus groups as the potential motivating agent

for such change. It was outlined that citizens’ participation (including the interest, motivations and degree of participation of the residents) is low and that people are not very active and interested. People would like to be informed at their local/neighbourhood which is closely related to the residence.

The Healthy corridor strategy will pay careful attention to the mechanisms of motivating and involving the citizens. Potentially some key agents (citizens and representatives of the culture institutions) have to be included in the activist nucleus, which could design and take care of spreading wavelike spirit until a larger active core is created. Interventions, messages and events should be provoking interest, should be catchy and fun-bringing. Parents of pupils/at schools/ and kids/at kindergartens/ should be encouraged and involved to participate and motivate other friends and parents to join. Kids are seen as a “channel to bring impact and motivate participation”. Young people could/should be involved and educated through involvement (e.g., design, organisation of events, etc.) – they would ensure motivation and spread out to other groups of the population. Pensioners, with their good organisational skills, culture and wisdom, are another group which could be very well integrated in the process if clear ideas and tasks are set.

Synthesis

There are outdoor activities observed in the warmer season (mid-April – mid October) mostly related to socialization and passive recreation among elders, as well as active recreation and play as socialization among youngsters. Elders and especially women are rarely physically active. There are many small places of socialization that exist just in front of the high-rise prefabricated blocks of flats. Tensions have been observed between long established residents and newcomers but also between different sub-cultural and age groups which sometimes escalates into intolerance and conflicts. Regarding minorities, there are no conflicts and problems between the locals and the newcomers from abroad. Even some of the communities are seen as “better” and more conscientious and disciplined citizens and neighbours in their attitude towards the environment and the community. People live very easily and on friendly neighbourly terms with various communities – e.g., Chinese, Armenians, Arabs, etc.

The creation of an active social community in the neighborhood is possible but needs persistence and more contribution from all actors – inhabitants, administration, young people and pupils. Increasing the knowledge and commitment to the improved environmental state and presence of nature, as well as the attitude to healthy food production among the youth are processes that need additional support, capacity building and persistent focus on well-being. The consumption oriented urban lifestyles and status attainment

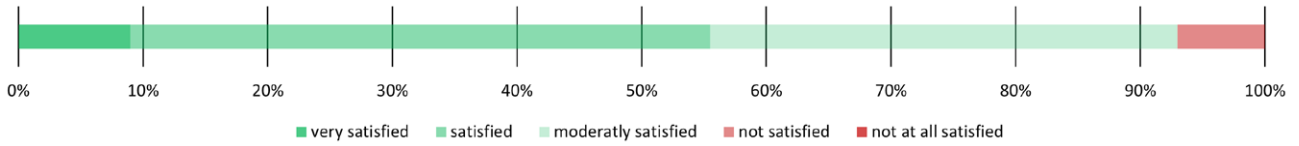
through material, man-made, and technologically driven value systems and favored symbols of being may act as a serious threat to the successful implementation of the corridor and the NBSs as drivers for healthy change.

Needed changes in inhabitants' behaviour and culture are also considered as urgent: A greater personal responsibility and care for the environment by everybody in the quarter is claimed to be important. The need for strengthening the control and imposing strict sanctions for parking on cycle paths, green spaces and sidewalks is associated with a measure that might restrict the hampered movement of pedestrians, mothers with prams and disabled people.

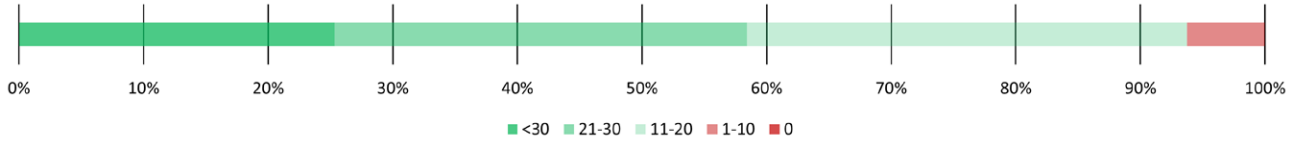
Findings from the Survey:

The respondents value community connections and their neighbourhood. Around 47% of the respondents are satisfied with the neighborhood relations (conviviality, mutual aid, solidarity), and a quarter say they know the names of more than 30 people in the neighborhood. Almost 50% of the respondents indicate their strong feeling of belonging to a community, and around 36% feel that they have something important to contribute to society. At the same time, the general level of outdoor physical activity in the neighborhood is low. The share of respondents who do not walk even 10 minutes during the last 7 days is 29% and 41% of respondents answer that they do not perform moderate physical activities like carrying light loads or cycling at a regular pace.

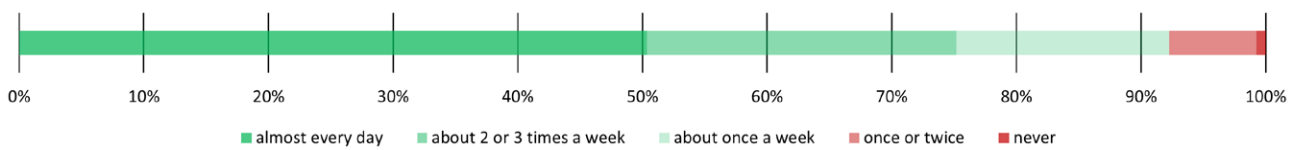
Satisfaction with Neighbourhood relations (conviviality, mutual aid, solidarity):



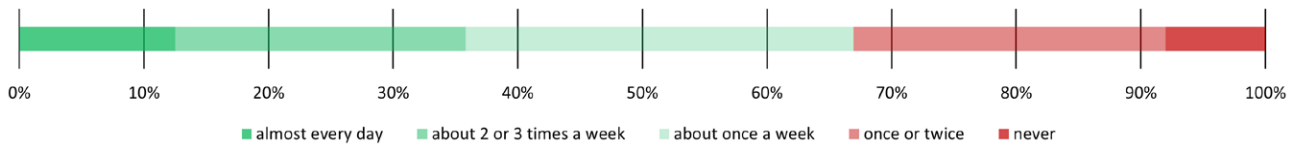
How many people do you approximately know the names of in the neighborhood?



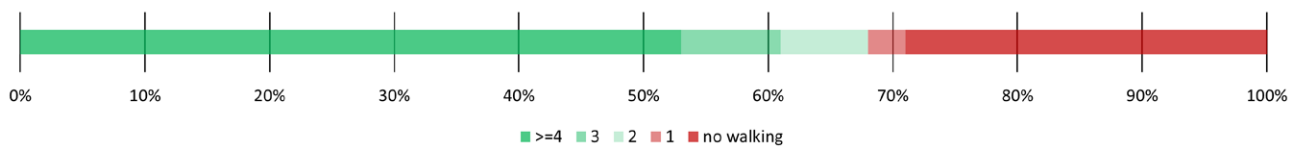
During the past month, how often did you feel that you belonged to a community?



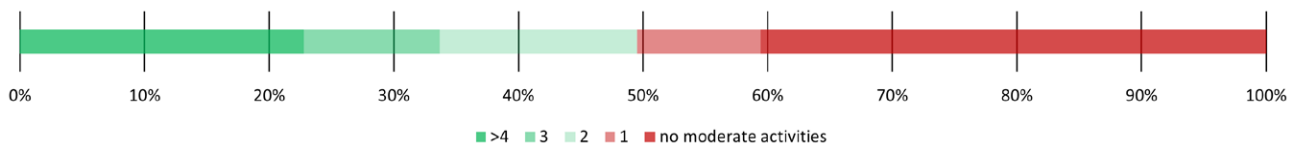
During the past month, how often did you feel that you had something important to contribute to society:



During the last 7 days, on how many days did you walk for at least 10 minutes at a time?



During the last 7 days, how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace? Do not include walking:



NEEDS	Eclipse Challenges	Indicators	Specific objectives addressed by the co-designed proposals	Co-design proposals
More physical activities and wider spaces for community cohesion through arts, culture and play. Places serving as educational environments for various domains of life. People centered approach in planning and design for personal and community development	<p>Challenge 7 Participatory Planning and Governance</p> <p>Challenge 8 Social Justice and Social Cohesion</p> <p>Challenge 9 Public Health and Well-being</p>	<p>Challenge 7 Openness of participatory processes; Legitimacy of knowledge in participatory processes; Perceptions of citizens on urban nature, self-reported perception on Healthy behaviour/ Well-being</p> <p>Challenge 8 Frequency and duration of socializing activities; Range and Intensity of social network, Social Wellbeing; Senses, imagination and thought</p> <p>Challenge 9 Number and share of people being physically active, Frequency and duration of different levels of physical activity</p>	<p>Activate inhabitants, social life and well-being</p> <p>Facilitate movement, sports, and physical activity</p> <p>Provide education and develop capacity for NBS implementation</p> <p>Provoke behavioral change and lifestyle transformations</p>	<p>Construction of places for social gatherings at neighborhood level, also places for public events</p> <p>Creation of a wide variety of possibilities for practicing sports in the urban environment, especially such with use of natural materials and less equipment needed. Provision of recreational routes for cycling and jogging.</p> <p>Establishment of the “tasty gardens” and a greenhouse in 15th school Adam Mitkiewicz and in some kindergartens</p> <p>Co-design of thermal mineral water swimming pool with innovative technological and social NBSs for development beyond the URBINAT intervention</p>

Table 6. Needs on participation culture, culture, education and sports.

3.3. The global strategy for the intervention

Based on the URBiNAT pillars inclusive urban regeneration, public space, nature, health and NBS marketable solutions, The Healthy Corridor in Nadezhda will focus on four specific objectives supported by different activities in meeting the identified needs during the co-diagnostic and co-design process: 1) Provide healthy and adaptive solutions in the neighbourhood; 2) Improve

connections, access and porosity; 3) Cherish public space for all, diversify its use, and make it distinctive together; 4) Celebrate open space, provoke active life and fruitful community ties. The specific objectives addressed by the co-designed proposals have been discussed in 3.2.2.3. and the needed actions are summarized in Figure 18 (below).

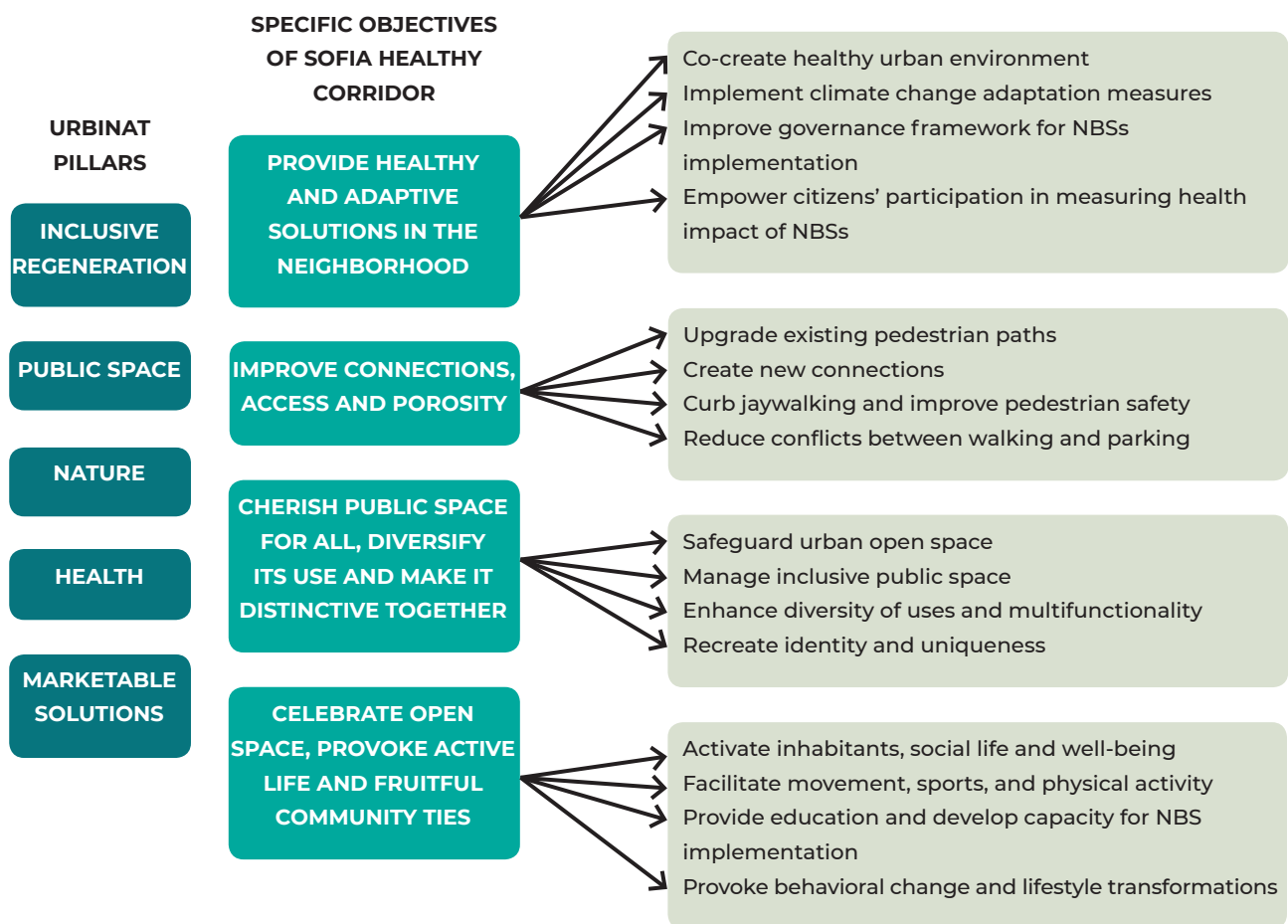


Figure 18. The Healthy Corridor Strategy. Specific objectives and measures related to the URBiNAT project pillars.

The four groups of measures, referred to as specific objectives and each measure are related to several Eclipse challenges thus ensuring the complexity and integration of the measures proposed in response to the local needs. (Figure 19)

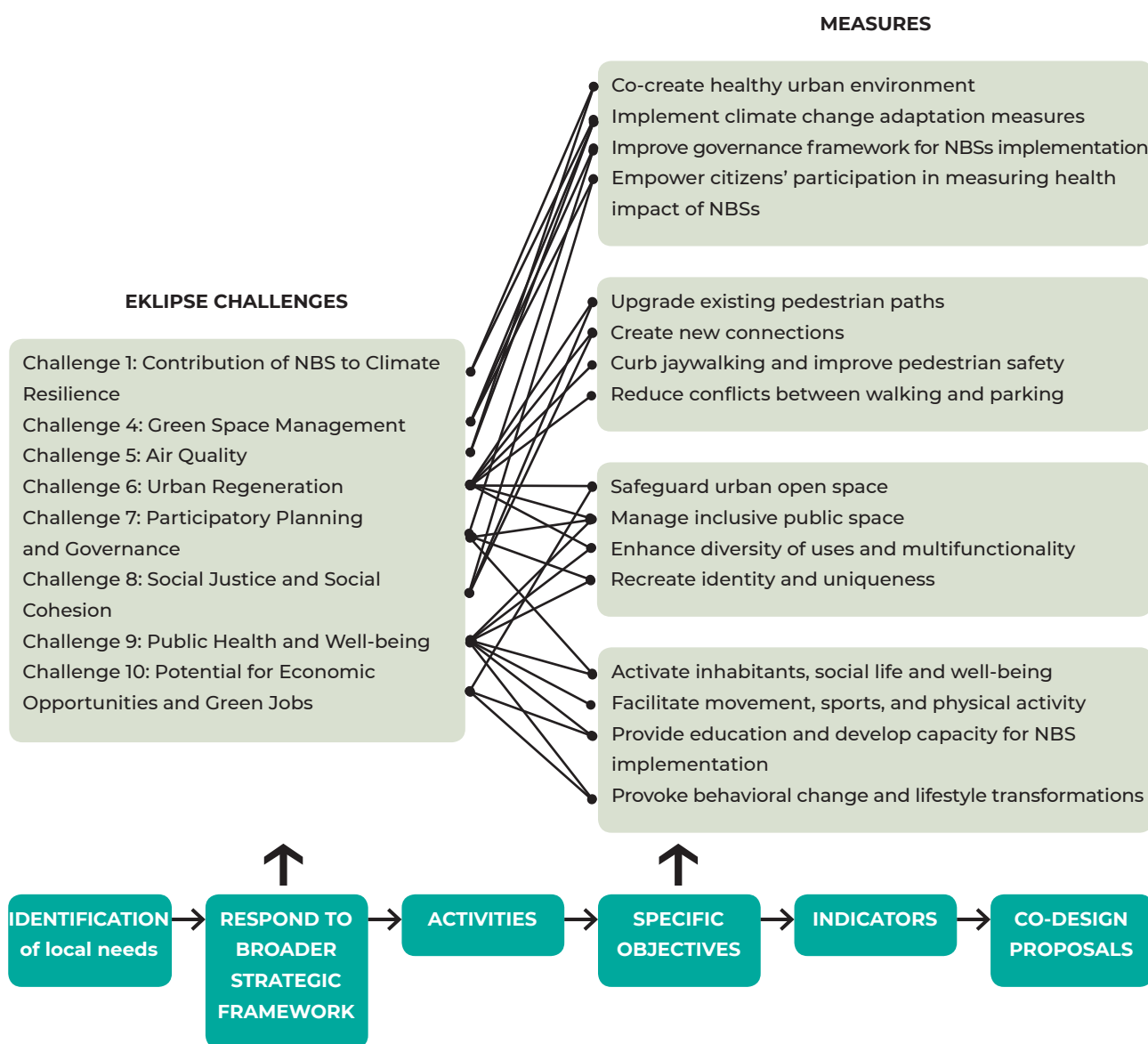


Figure 19. The Healthy Corridor Strategy. Relationship between the Eklipse challenges and the measures under the specific objectives.

The global strategy for the Healthy Corridor integrates the proposals developed by the URBiNAT project with the existing provisions of the planning tools according to the administrative and technical requirements and procedures.

According to the co-creation process (chapter 3), specifically developed in the frame of the local culture of Sofia, a set of goals were co-developed with the actors involved – citizens, local stakeholders, municipal technicians and political representatives.

The Healthy Corridor in Nadezhda focuses on the co-creation and spatial appropriation of nature-based solutions (NBSs) as means to improve living conditions and microclimate, develop public life around existing public spaces, and provoke active life and healthy lifestyles. The four specific objectives supported by different groups of activities aim to meet the identified needs during the co-diagnostic and co-design process.

CO-PLACE



HEALTH-ENERGY



AQUA VITA



















GREEN ASSEMBLY



Figure 20. Images of the intervention zones.

3.4. The Healthy Corridor Spatial Strategy

The Healthy corridor spatial strategy fits into the strategic and spatial development agenda for the city, covers the whole URBiNAT area, and complements the global strategy for the Healthy Corridor. Main thematic focuses of the spatial strategy are: the connections with the wider urban context; the existing and the proposed links between public space, parks and greenery; the existing and proposed spatial organization of the educational (formal and informal) infrastructure, services and activities; the existing and proposed network of facilities for sport/play and the main axis for recreational activities; and the social and solidarity networks. The plots, the infrastructure, but also the flows, the axis, and the physical connections are then further assessed and taken into consideration in the Preliminary Urban plan, where the NBSs are clustered in the 4 areas of intervention: Co-place, Health Energy, Aqua Vita, Green Assembly.

-  Study area
-  Places of intervention and co-creation
-  Recreational connectivity
-  Services/occupational connectivity
-  Suhodolska river
-  Greenline of Sofia initiative
-  Railways and associated land
-  Underground stations
-  Underground line
-  IInd class - urban highways
-  IIIRD class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Parks and gardens
-  Public buildings
-  Buildings
-  Socialist housing estates

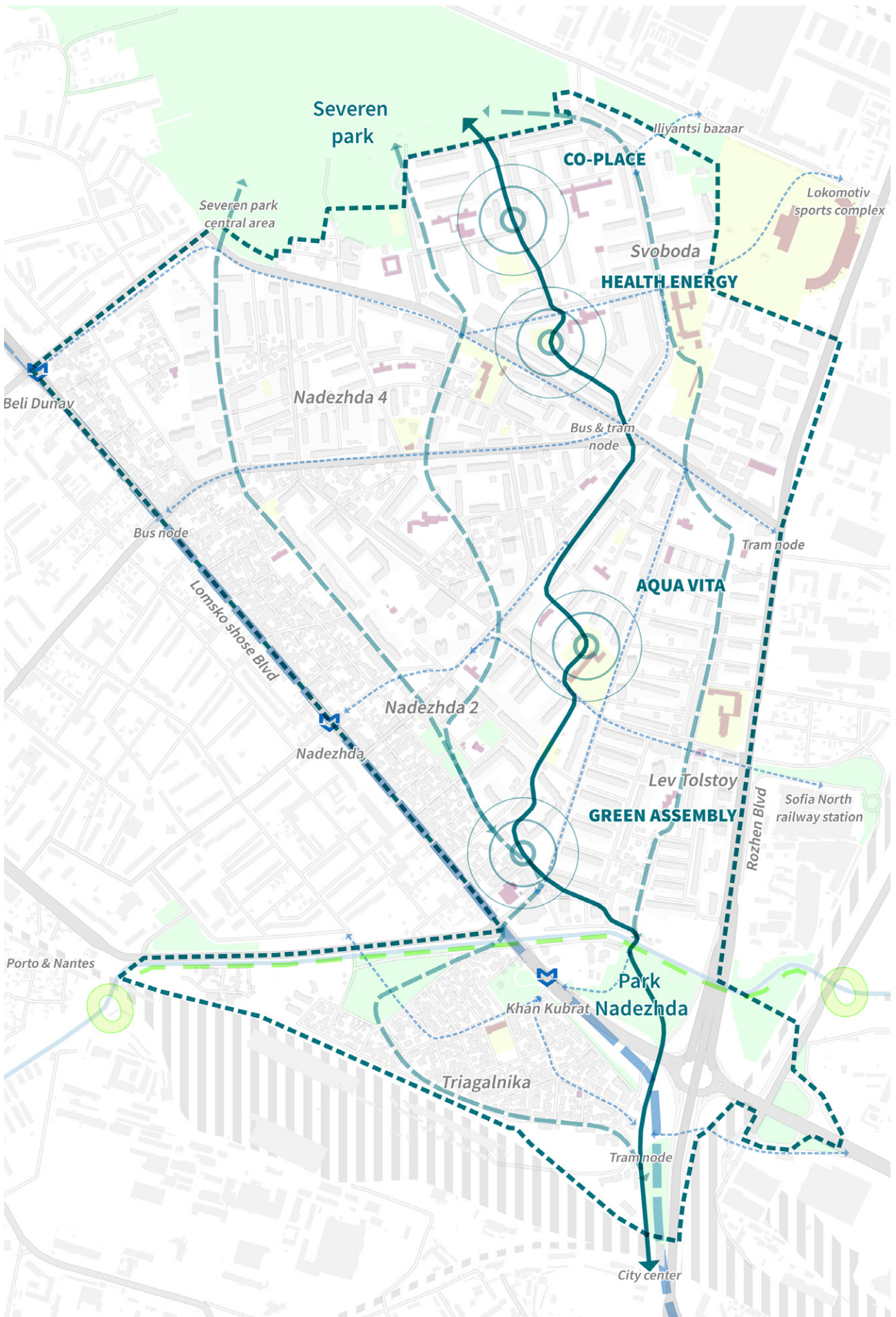
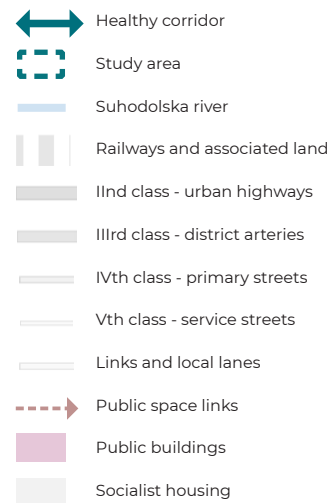


Figure 21. Spatial concept on the Healthy Corridor. Connecting wider urban context.

The urban connections envisioned in the Healthy corridor concept take into account the existing public transport nodes and hubs, the green structure, the pedestrian pathways and the general mobility modes and behavioral patterns. The major dividers as the Nadezhda junction and the Nikola Zhekov boulevard are addressed through the strengthening of the major and secondary axes of the Healthy Corridor, and the connection to the city center. These links need further more detailed planning, design, and implementation of traffic calming, pedestrian and cycling infrastructure and facilities. Some of them are beyond the resources of the URBiNAT project and have to be supported by internal and external funding. Several links seen as prospective connectors depend on integrated national, regional and local policies and projects such as the regeneration and development of the railway station Sofia Sever (Sofia North). The combination of pedestrian, cycling and other micro mobility is necessary for several of the directions and their design and implementation will be realized through municipal funding.



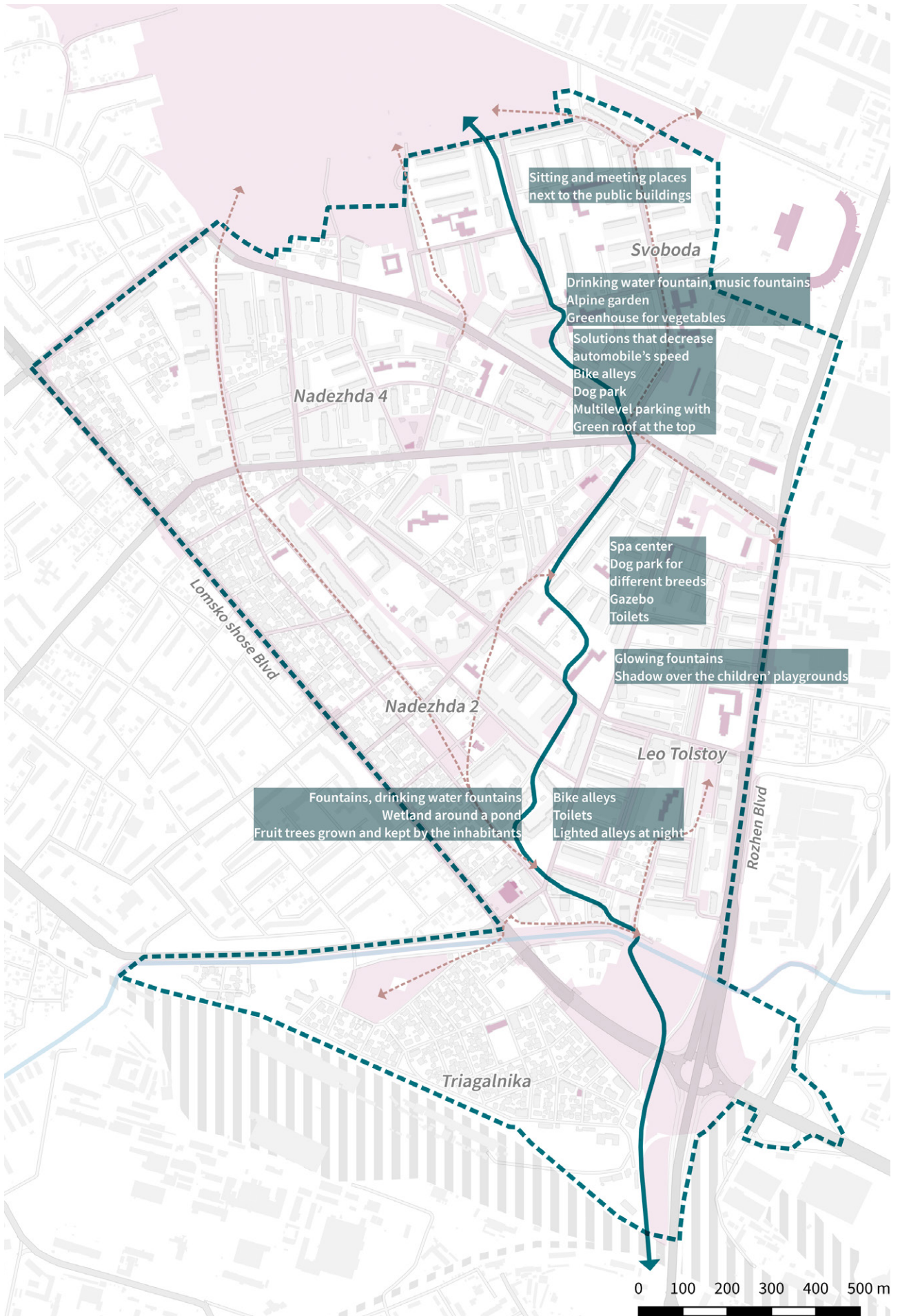
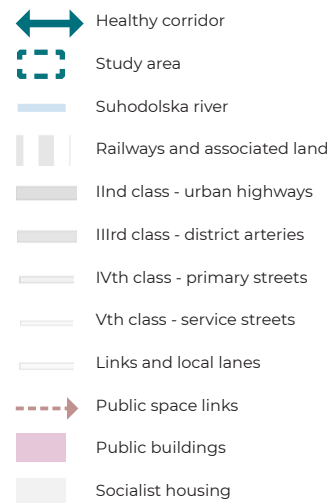


Figure 22. Public space, parks and green areas.

The baseline of the Healthy Corridor in terms of public space are the well distributed places of interest and activities, mostly commercial (markets, shopping centers and the Iliyantsi bazaar) and recreational (incl. Severen park, park Nadezhda, park Gorska kultura, etc.). The functional links between them, however, are weak due to the fragmentation of the urban environment, the existence of strong dividers and some adverse impacts caused by the traffic and the transport infrastructure in the South-east part of the study area. The authentic proposals connected to this theme reveal a rich mix of ideas aiming at reclamation of space for public life; solutions satisfying basic needs in public space (such as toilets); needs to provide permeability, access, safety, comfort (including thermal); and ideas for new attractions and points of interests.



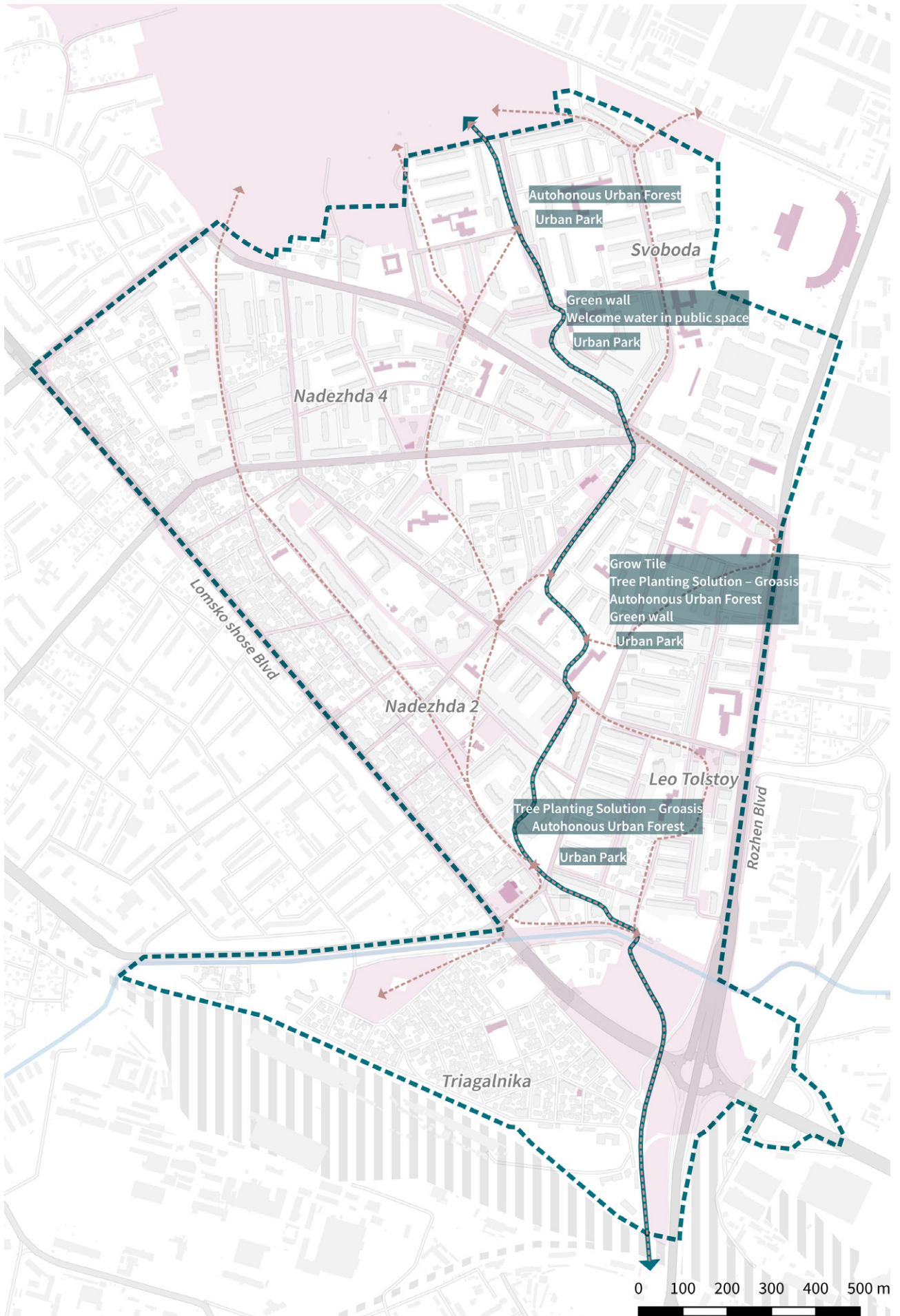
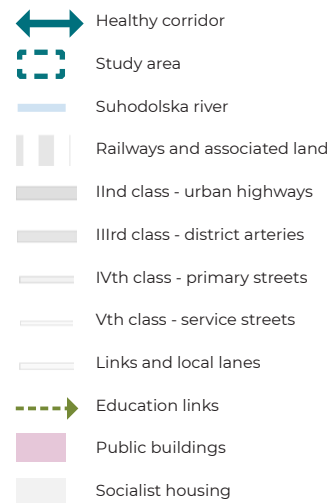


Figure 23. Connecting public space, parks and greenery.

The strategic focus of the Healthy Corridor as public space is based on the various proposals integrated into multifunctional public green spaces that will also provide a favourable micro-climate and will provoke diverse public life. Along with the existing spatial and functional links, the proposed new ones are to connect the territorial and technological solutions, and be supported by the participatory and social and solidarity solutions thus addressing the cultural, sports and other social activities.



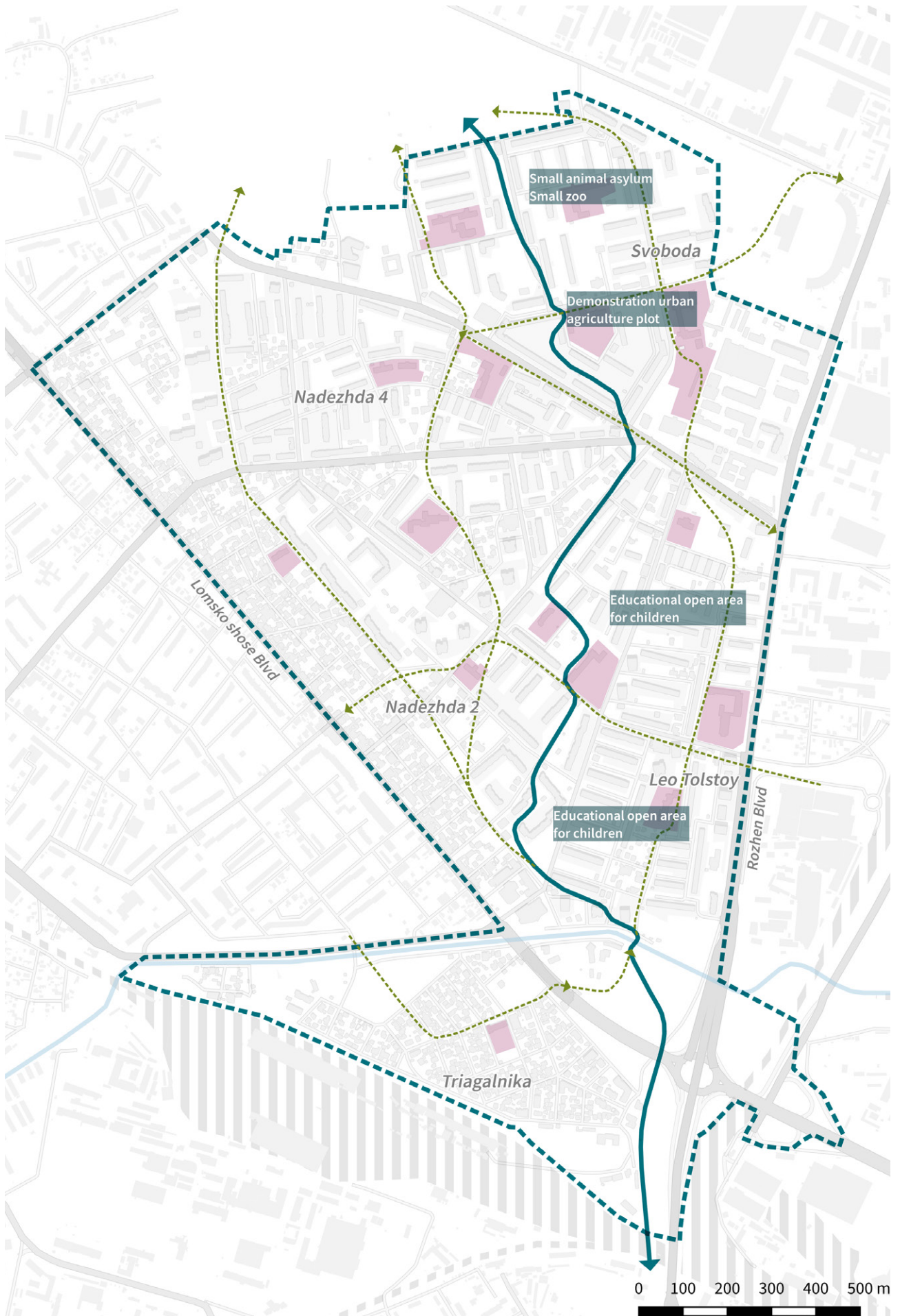
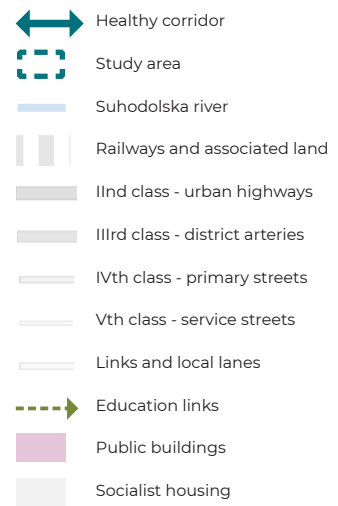


Figure 24. Education.

The high concentration of education facilities and the established strong links between them and other assets in the area are a good prerequisite and baseline for the creation of the Healthy Corridor. Several authentic proposals indicate specific needs for informal education and prompts its strategic role as horizontal strategy and tactics for every place of intervention and co-creation. Most of the specific needs expressed are related to the contact with nature, although some of them are still challenging to implement (e.g., the small animal asylum or the zoo) or in need to reconsider interactive approaches in addressing topics as biodiversity and sinantropic animals in urban open space.



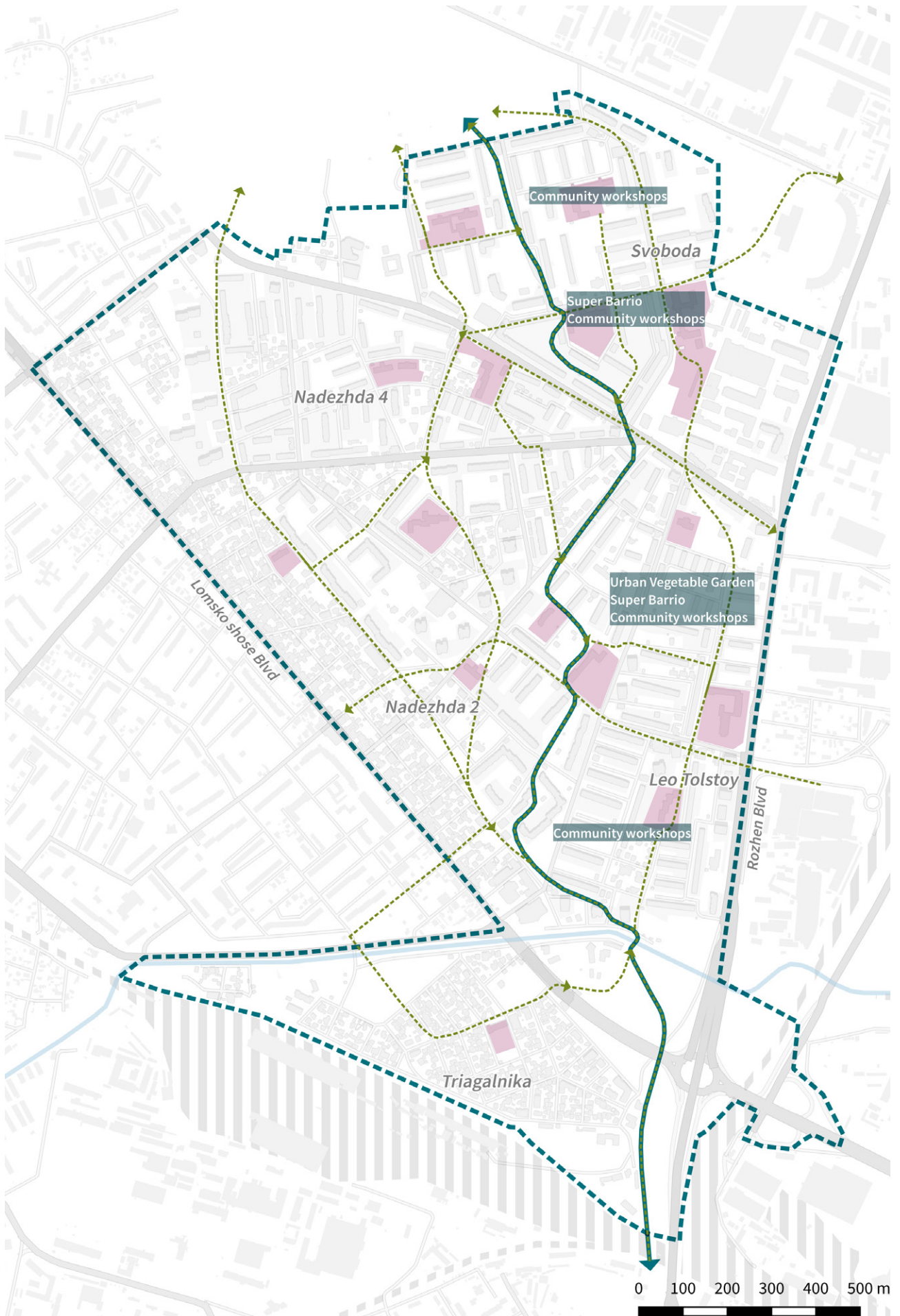


Figure 25. Connecting education.

The strategic focal point of the Healthy Corridor on education is a school educational pavilion in the 15th schoolyard that can be managed as an asset accessible for all pupils in the area. Community workshops were frequently proposed and selected as a flexible and dynamic form of providing education in open space for different groups at different times. The central location of the educational pavilion and the established relations between formal and informal educational organizations supports a hypothesis for the future intensification and enrichment of links and networks across different locations and within various timeframes.



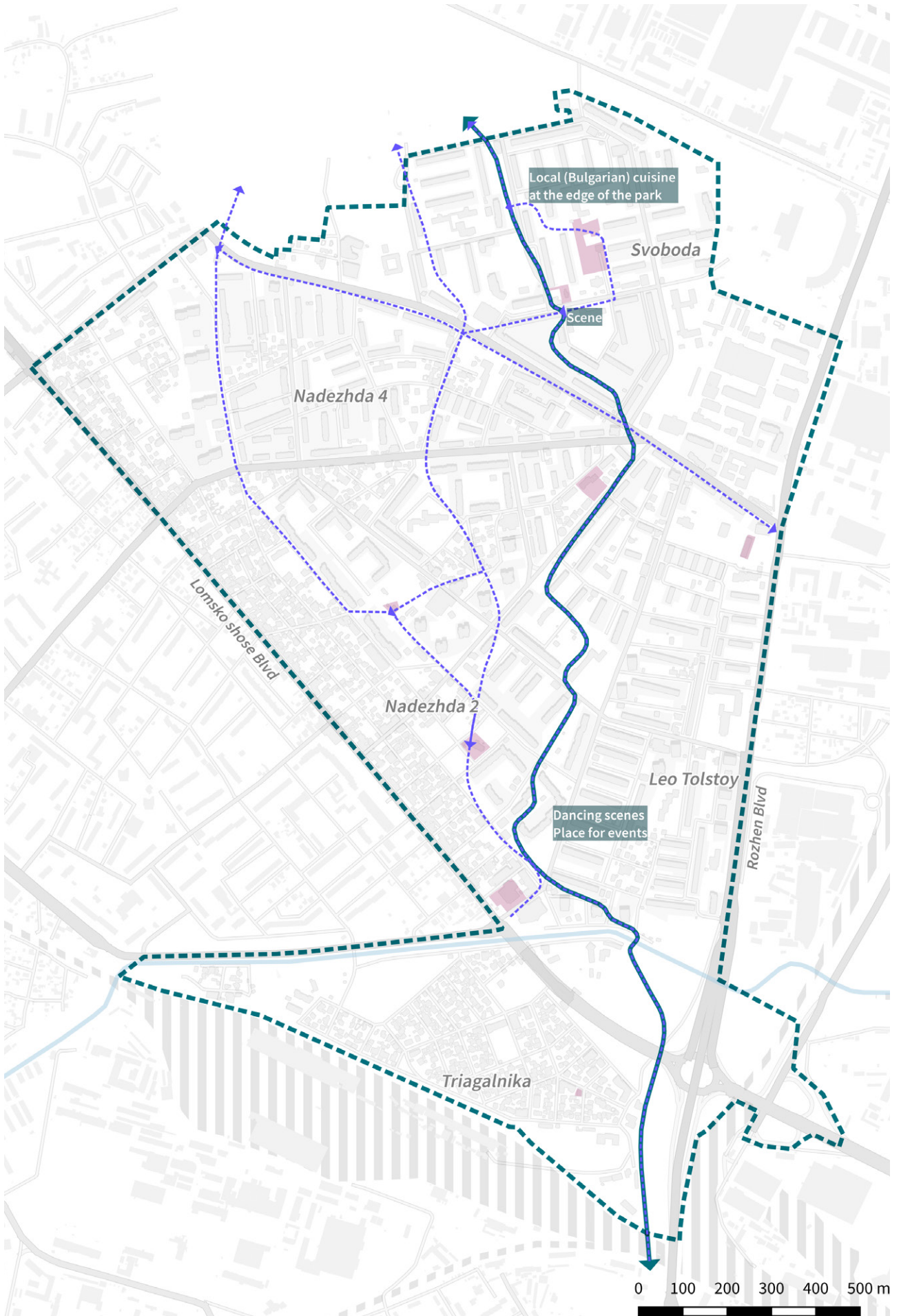


Figure 26. Cultural facilities.

The cultural baseline of the healthy corridor grounds on few links between neighbouring cultural institutions and between them and the Northern Park where some of the yearly events and the district's cultural calendar take place. The buildings of the local cultural centers (chitalishta) in the area seem to be abandoned, and the insufficient cultural life there pushes the inhabitants to the center of the city where many cultural institutions, facilities, independent artists and cultural events are concentrated. Some of the authentic proposals (without mentioning the NBS catalogue co-selection preferences) include the keyword 'scene' which means that there is a need for an open space to accommodate mainstream and sub cultures as part of contemporary events beyond the traditional celebrations.

-  Healthy corridor
-  Study area
-  Suhodolska river
-  Railways and associated land
-  IIrd class - urban highways
-  IIIrd class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Social economy, culture and sports links
-  Public buildings
-  Socialist housing

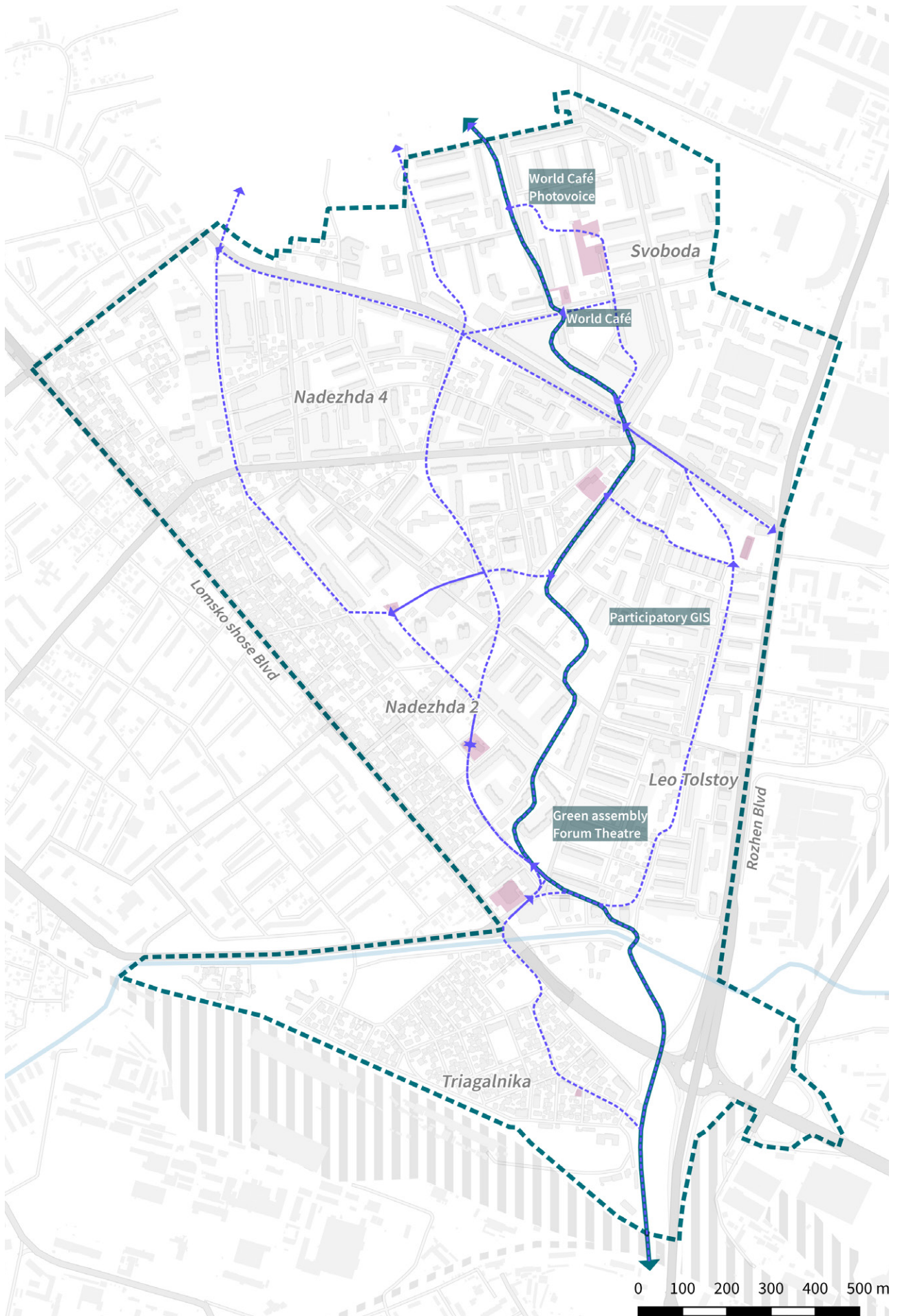















Figure 27. Connecting cultural facilities.

The key spatial element addressing the cultural topic in the Healthy Corridor strategy is the green assembly, situated next to the post office and close to the Municipal cultural institute 'Nadezhda'. This facility would provide ground for diverse cultural events, and combined with participatory and other types of solutions, will cultivate inclusive and interactive community and citizen networks with the participation of the cultural organizations in the public space.

-  Healthy corridor
-  Study area
-  Suhodolska river
-  Railways and associated land
-  IInd class - urban highways
-  IIIrd class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Social economy, culture and sports links
-  Playground facilities
-  Public buildings
-  Socialist housing

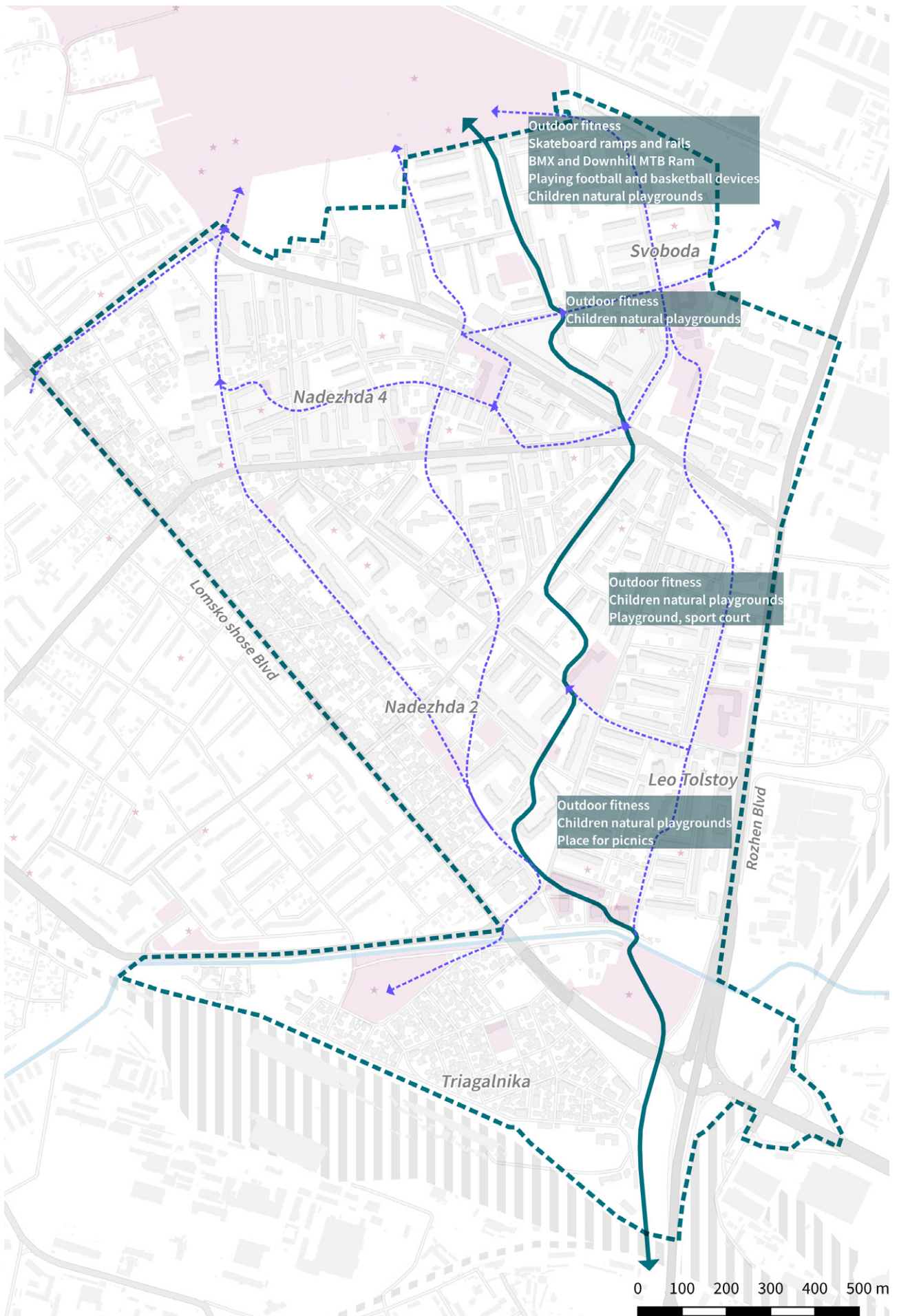















Figure 28. Sport, play and recreation.

The sports activities, play and recreation opportunities as a baseline are well structured in their spatial distribution but still part of them are in poor physical condition although there has been focused rehabilitation of such facilities in the last decade. The links represent the features in relatively good condition and rate of usage. The demand for more facilities similar to known examples in and out of the district as well as an accent on the natural playgrounds can be seen from the local residents' input (without mentioning the NBS catalogue co-selection preferences).

-  Healthy corridor
-  Study area
-  Suhodolska river
-  Railways and associated land
-  IInd class - urban highways
-  IIIrd class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Social economy, culture and sports links
-  Playground facilities
-  Public buildings
-  Socialist housing

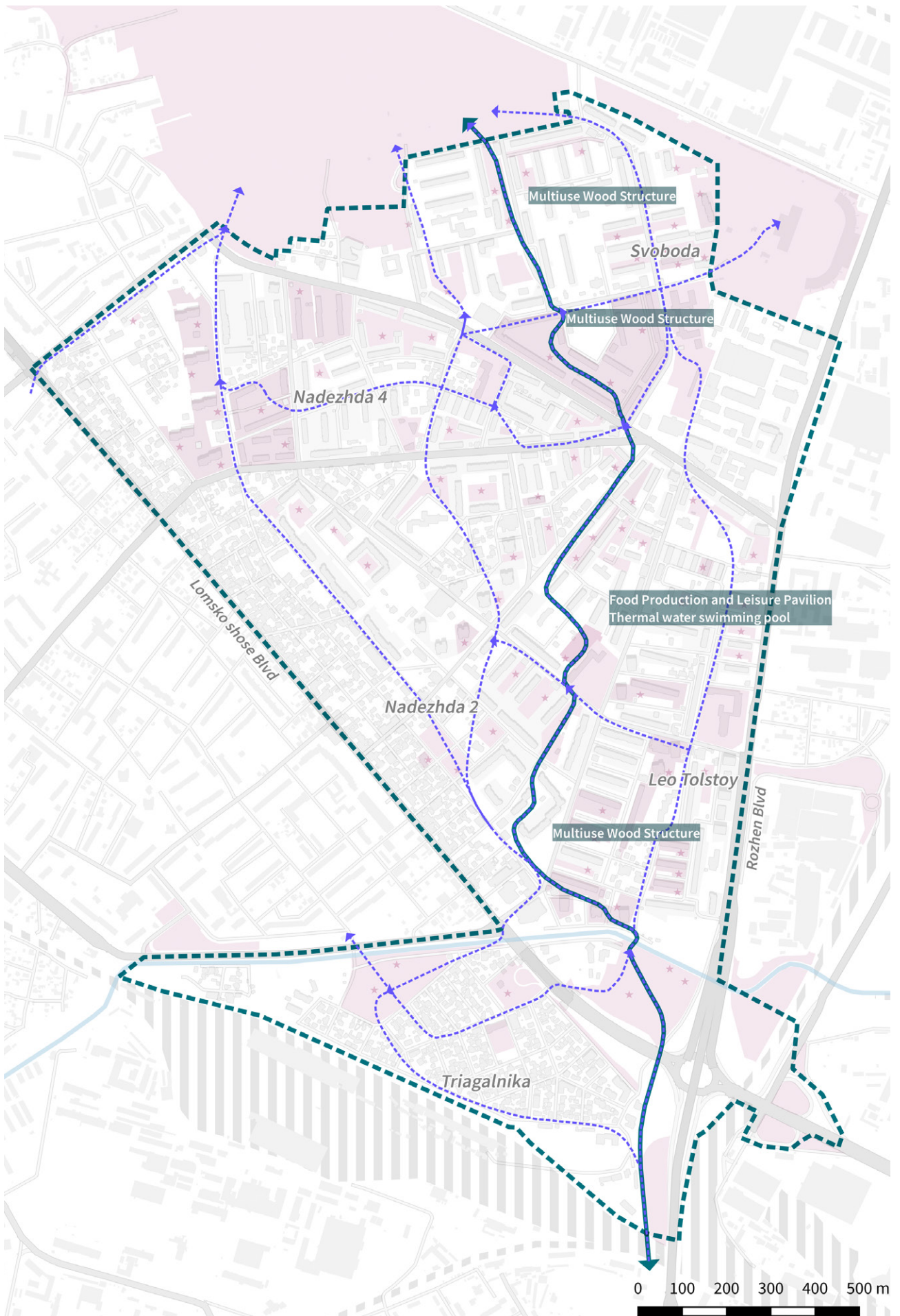
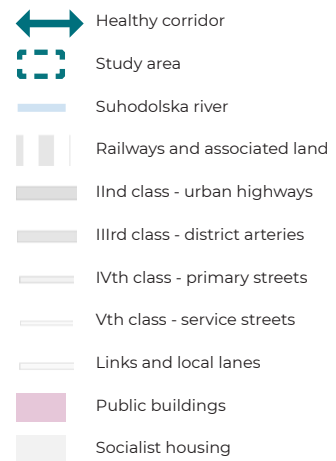


Figure 29. Connecting sport, play and recreation.

The Healthy Corridor strategic accent in terms of sport and recreational activities falls on the thermal water swimming pool next to the 15th school 'Adam Mitkiewicz'. The educational pavilion is in almost direct contact with the pool thus forming a recreational and educational hub at the middle section of the corridor. A system of other multipurpose structures will support sports and recreational activities in the other places of intervention and co-creation. The extension and densification of the network and the intensification of the links depends not only on the rehabilitation of the available facilities and regeneration of declined places but also on the higher level of participation in physical activities and active lifestyles that can be promoted through different campaigns and communication channels.



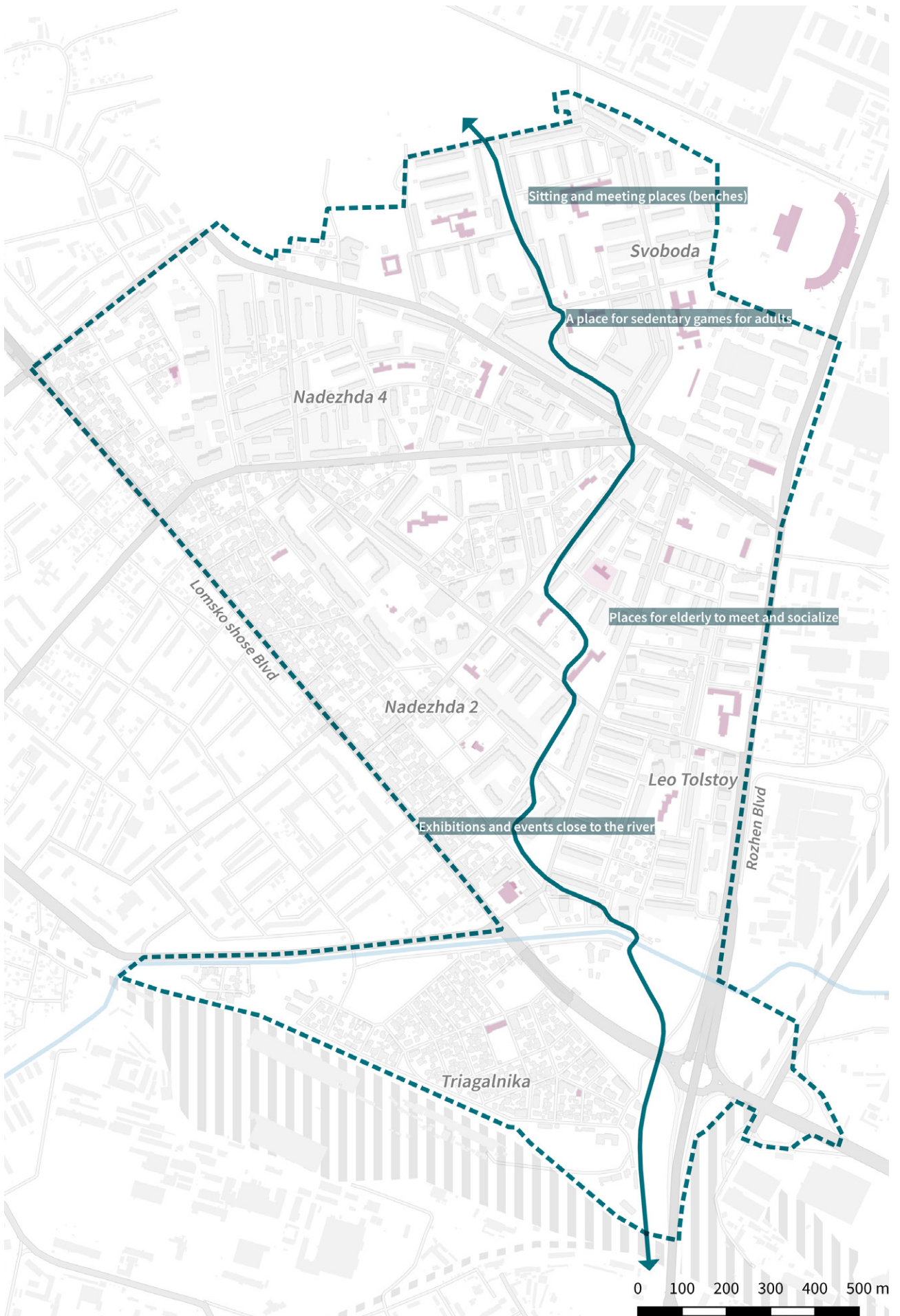









Figure 30. Social and solidarity networks.

The existing social and solidarity networks are almost invisible as they are part of very informal peer-to-peer connections or are municipality or institutionally led with parallel or supporting NGO activities. There are only two social enterprises registered in the area. Overall social and solidarity links are fragmented and due to the Covid19 situation adults seem to be atomized or detached from community life. It was difficult to outline significant links, yet some of the authentic proposals show that there are various needs which can be met by providing small scale solutions for social and economic inclusion.

-  Healthy corridor
-  Study area
-  Suhodolska river
-  Railways and associated land
-  IInd class - urban highways
-  IIIrd class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Social economy, culture and sports links
-  Public buildings
-  Socialist housing

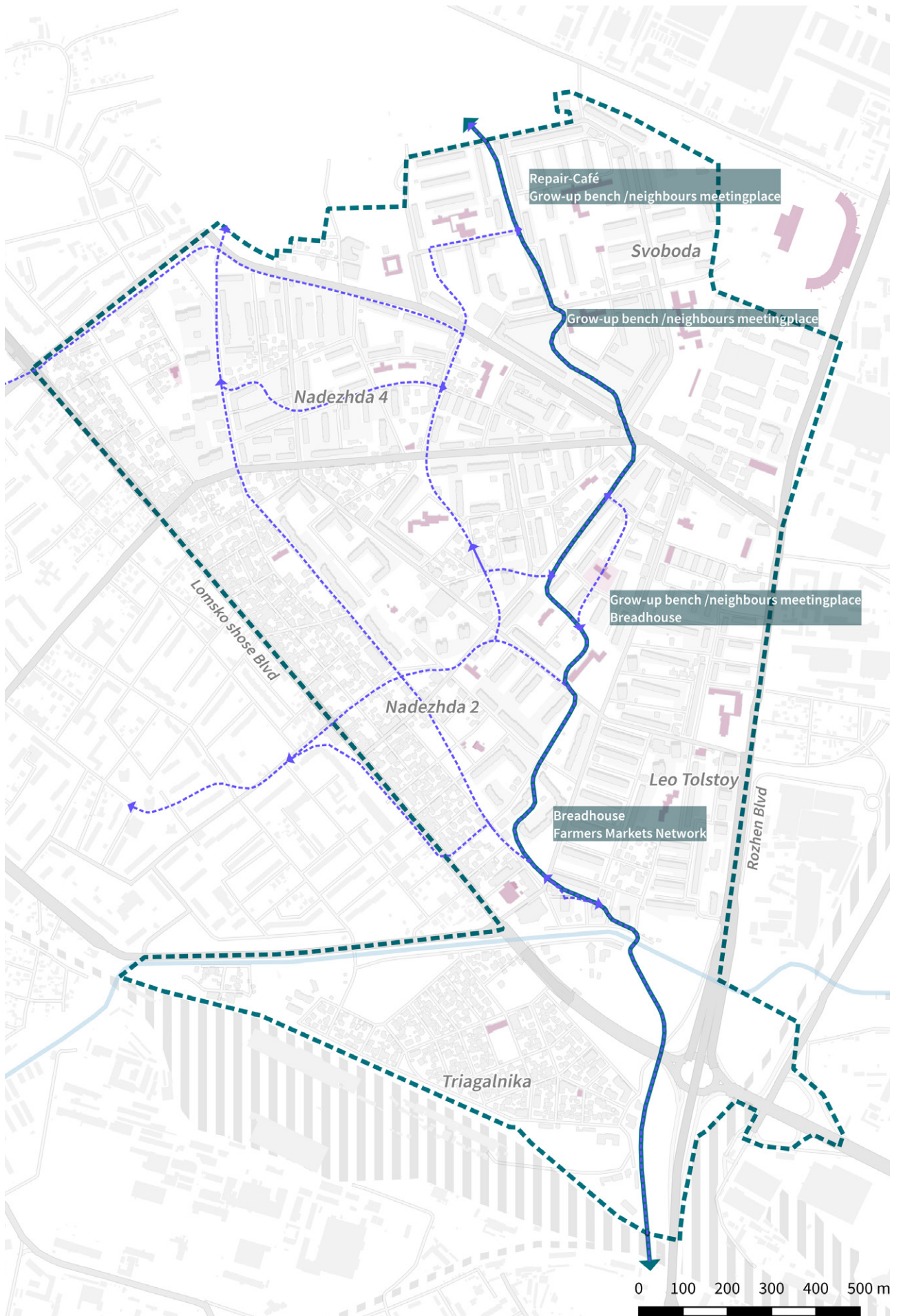


Figure 31. Connecting social and solidarity networks.

The social and solidarity economy component in the strategy for the Healthy Corridor is marked by several solutions well recognised during the co-selection phase – Repair Cafe, Breadhouse and Farmers markets network. The Breadhouse and Farmers markets network are recognised as solutions successfully implemented at other places in the city of Sofia. Building upon the existing socio-spatial format of the neighborhood and community interaction observed, the New NBS “Grow a bench” was added. A perspective exists for more intensive collaboration between the social institutions, deinstitutionalized centers as well as social enterprises and the NBSs along the corridor to shape the possible future links in this domain.

The synergetic exchange of ideas and experience between all partners in the project highlights the potential for the creation of a truly resilient future-oriented and common vision for the district of Nadezhda on the basis of URBiNAT. The Developed rules and the expected establishment of The Stakeholder Advisory Board as part of the URBiNAT tasks will play a preeminent role in the facilitation of dialogue between the various participants in the process. While its establishment is inextricable from the Healthy Corridor project, it possesses tremendous potential to evolve and widen the scope of its activities over time, in order to become a platform for interaction between representatives of the civic society, businesses, academia and the administration. The emphasis on collaborative practices in all stages of the project marks a departure from the established predominantly technocratic approach to urban planning for Sofia Municipality. As a pilot initiative, the Advisory Board aims to empower citizens to overcome the deeply embedded conviction that urban planning is a top-down process, which disregards the public’s voice. Encouraging civic pride and involvement ensures the future sustainability of the Healthy Corridor project and provides a stable foundation for the subsequent development and management of the area based on collaboration and consensus building.

4. Healthy corridor NBS

4.1. The NBS co-creation process

The timeline planned for the co-creation of the NBS living catalogue for Nadezhda (Sofia) is resumed and presented on Figure 32.

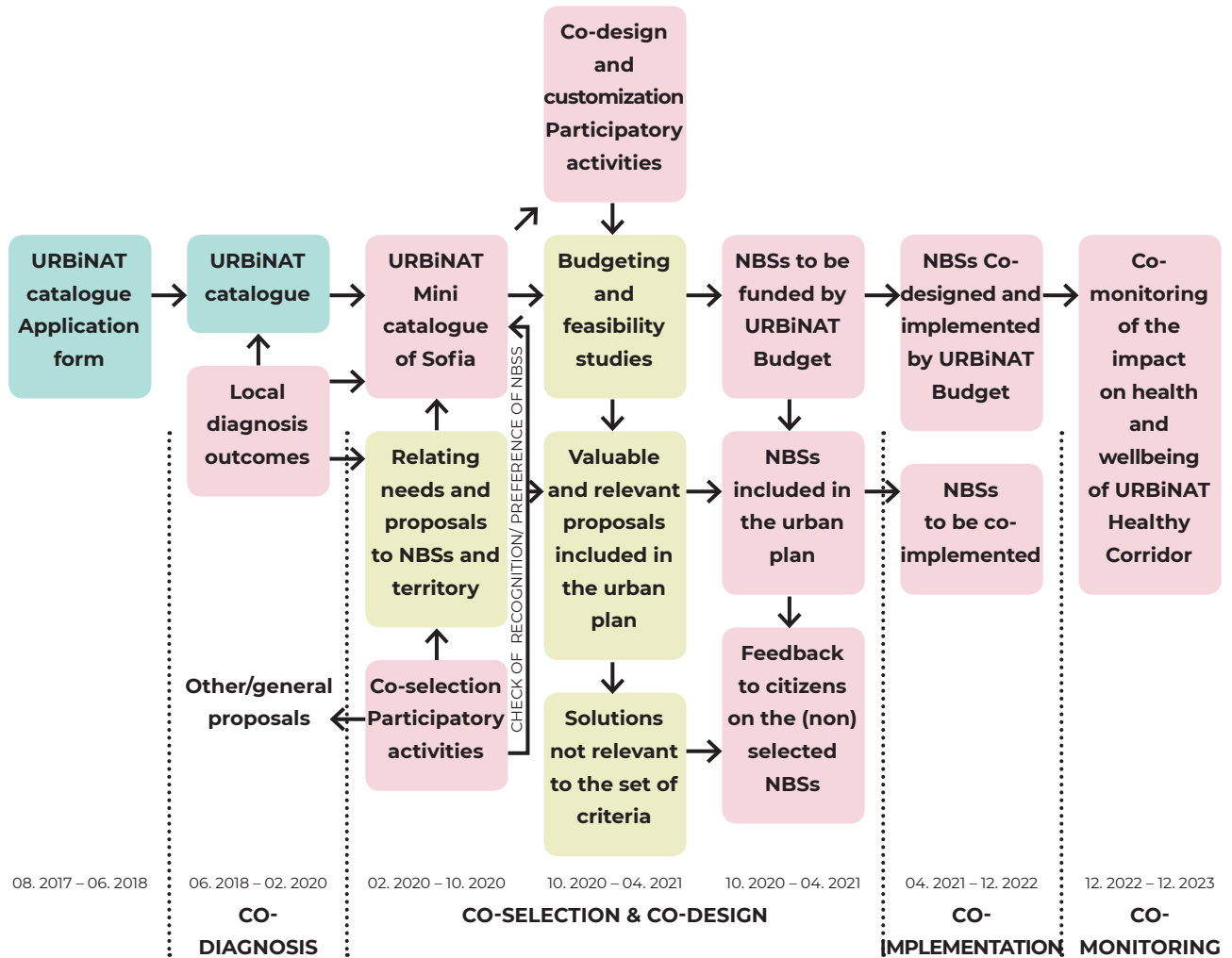


Figure 32. The Co-creation of the living NBS catalogue for Nadezhda, Sofia.

METHODS USED	DATE OF IMPLEMENTATION	NUMBER OF PARTICIPANTS		RESEARCH QUESTIONS
		male	female	
Focus group with thermal water and swimming specialists	05/03/2019	2	8	Identify the innovative characteristics of the thermal water swimming pool as NBS. Meeting NGOs – union of landscape architects, and Hidrolija
Focus group related to thermal water	24/01/2020	1	6	Identify the inclusive potential of thermal water – NGO ParaKinds (children with specificities), professionals
Exhibition and face-to-face interviews and quick-polls	13/06/2020 -27/06/2020	22	27	Explaining and presenting the project, mapping perceptions and collecting ideas for NBSs, Mapping participation culture and interests to contribute
Workshops during the co-design kick-off event	20.06.2020	5	7	Collect ideas, relate them to NBSs and appropriate the ideas from the Mini catalogue – through 4 simultaneous workshops with citizens for the 4 zones of intervention
On-line seminar for the kindergarten staff	07/07/2020		6	Introduction to the Edible Gardens of Learning; Ideas for transformation of Nadezhda's kindergarten yards
Workshop at the Intervention zone 1 – (Co-place)	27/08/2020	8	31	How participants use public space Which are the most preferred spaces What do the participants propose in order to improve the public space (collect ideas and relate them to NBSs)
Workshop at the Intervention zone 4 (Green assembly)	10/09/2020	19	24	Which of the solutions in the catalogue seem relevant and desirable for that particulate place (to appropriate the ideas from the Mini-catalogue)
Workshop at the Intervention zone 3 – (Aqua vita); Workshop at the Intervention zone 2 – (Health energy)	24/09/2020	24	34	To check what is the understanding and the expectations of the NBSs' impact To understand how the participants envision themselves in the process
Sofia task force interview the Headmistress of 15th school	17/12/2021	2	7	Discussion on the needs of educational facility and its location within the school yard – Sofia Task force meets IAAC team and discusses
Co-design of the educational pavilion in 15th school yard	13/01/2021 04/03/2021	2	7	To generate ideas about the functions and the structure of the Greenhouse in the 15th school yard
Co-design of tasty gardens of learning in kindergarten N90	04/2021	-	3	Meetings and discussions of options for the layout and the technical parameters (Zaedno, UACE, the headmistress)
Super Barrio workshop with pupils from 153 school	05/03/2021	4	2	To collect solutions and ideas for the area around the sports school through gamification
Co-design of the educational pavilion in 15 school yard –	15/03/2022	3	4	Co-design of the educational pavilion in the yard of 15th school – agreement on the layout Sofia Task force, the headmistress of the school, and IAAC team

Testing "learn for life – GIS for citizen participation – preparation of the workshop with pupils from 15 th school	05/2021	3	2	Discussion on the requirements in the design brief for the educational pavilion in the yard of 15 school
Co-design workshop at the Intervention zone 2 – (Health Energy)	04/06/2021	9	18	Location and content of the functional areas Level of appreciation of the proposed areas and arguments for disagreement What elements can complement the functional areas, are there any missing elements?
Co-design workshop at the Intervention zone 1 – (Co-place)	05/06/2021	2	8	Size, spatial parameters, and characteristics of the proposed NBSs by sub-zone Target groups, materials, elements, safety concerns. Level of appreciation of the Corridor axis, arguments for disagreement, alternative proposals
Co-design workshop at the Intervention zone 3 – (Aqua Vita)	11/06/2021	12	16	Location and content of the functional areas Level of appreciation of the proposed areas and arguments for disagreement What elements can complement the functional areas, are there any missing elements?
Co-design workshop at the Intervention zone 4 – (Green Assembly)	12/06/2021	13	16	Size, spatial parameters, and characteristics of the proposed NBSs by sub-zone Target groups, materials, elements, safety concerns. Level of appreciation of the Corridor axis, arguments for disagreement, alternative proposals
Sharing results of the co-design and prototyping	23/06/2021	6	20	Sharing results on the of the tasty gardens of learning in Kindergarten N 90 among the distric administration, The Mayor of Nadezhda, and the Mayor of Sofia
Total		137	246	383

Table 7. NBS Co-creation workshops: Methods, participants, research questions.

Different groups took part in the first phase of the co-design – inhabitants of the blocks in close proximity to the buildings around the four zones of intervention and people usually crossing or walking nearby; representatives of specific interest groups and communities as dog owners, bicycle riders, professionals (as architects, engineers, a medical doctor, a retired journalist, a retired civil worker at the District municipality), and elderly/retired; active citizens that lead the action for cleaning of interblock spaces, initiators of actions for upgrading public space (at Co-place and Aqua vita) managers of the condominium associations (at Co-place and Aqua vita).

Based on the on-site communications, the participatory activities performed outlined several types of inhabitants by attitude to social action for transforming public space: (a) very active ones in addressing certain problems (a rather limited group, most of them already involved in ongoing initiatives); (b) ones ready to join if invited, with further guidance and organization needed; (c) ones reluctant to join as it is considered a responsibility of the municipality; (d) passive ones, unwilling to be bothered; (d) ones providing advice and proposing solutions, yet unwilling to be involved in practical action; (e) ones suspecting a hidden agenda behind the project initiatives; (f) ones easily disappointed when things do not happen fast enough.

4.2. The new NBSs and the open Mini Catalogue of Sofia

In the course of the URBiNAT project different new NBSs were and are being integrated in the NBS living catalogue of Sofia. Since the application to March 2021, NBSs were: a) proposed by Sofia as frontrunner city during the application process; b) identified as established cultural practices in the city and in Nadezhda district, c) valorized or in need to be reclaimed and brought back in public space, d) envisioned and appropriated during the co-creation process.

One of the main accents during the URBiNAT project proposal phase (2018) was the availability of thermal water springs. The healing quality of the thermal water has been recognized in the region for centuries in public baths with pools. Swimming has been a compulsory element of school physical education and training in Bulgaria since the mid-1970s, yet only a few large school complexes had functioning swimming pools by the late 1980s. Therefore, the utilization of the healing qualities of the thermal water and integrating it into the swimming pools was initially assumed as possible NBS to be developed in the course of the URBiNAT co-creation process.

The Internationally recognized practices of the “Bread house network” and “The edible organic garden of learning: alternative environmental education for the youngest” (later transformed to “Tasty gardens of learning”) have been included as best practices for Sofia as a front runner city, thus complementing the

already selected NBSs coming from different partners in the first draft of URBiNAT catalogue. Along with the letter of support from the Zaedno foundation, the “Tasty gardens of learning” practices became part of the project application.

The stakeholders’ workshop and the organization of the Consortium meeting in Sofia held in January 2019 brought the “Farmer’s market network” as a social and solidarity NBS. It was conceived along with already developed and experienced agents viewed as potential facilitators of the participatory process in Nadezhda. This NBS is expected to contribute to the restoration of the connection of bigger cities’ inhabitants to land, fresh and good quality food at the fostering of a new and healthier consumer identity, providing a new cultural and social space for encounters and shared identity.

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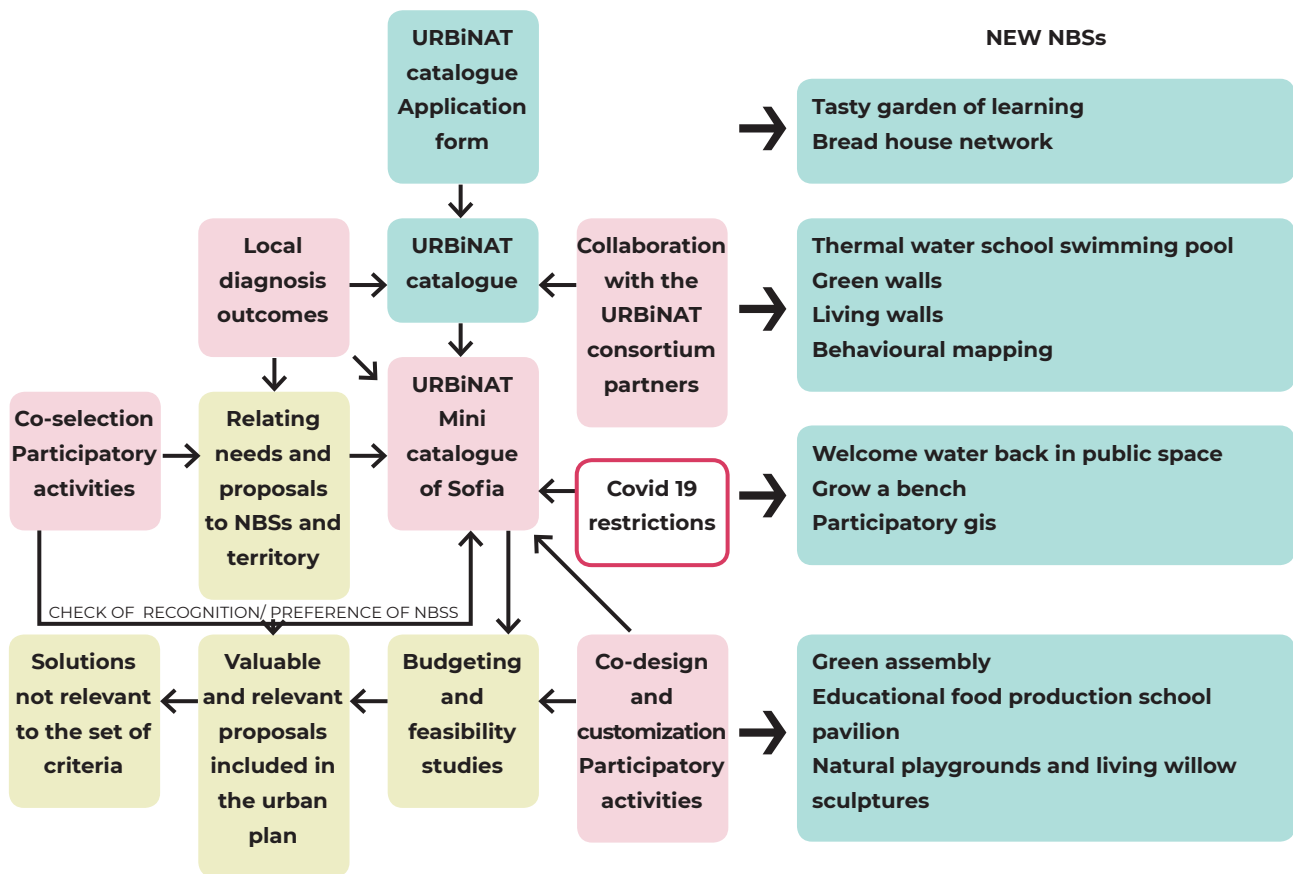


Figure 33. NEW NBSs developed and NEW NBSs under development by Sofia Task Force as of January 2021.

The two-stage process of the local diagnostic gave a good baseline for identifying possible solutions that fit the local natural and social needs. In the course of the local diagnostic, the appropriateness of the territorial (and of some of the technological) NBS was re-considered and aligned with the specific territorial context and needs, as well as with the local strategic agenda and the current political support. The fulfilment of these criteria strengthened the idea of the “Thermal mineral water swimming pool”, built upon the use of local geothermal resources and providing a healthy environment for physical education and training as well as recreational activities for schools’ children.

Another NBS, called “Grow a bench” (Co-creation of neighbors meeting places), has been extensively studied as an existing sustainable practice during the local diagnosis and developed in a preliminary draft, yet not included in Sofia Mini Catalogue. The formulated new NBSs “Welcome water back in public space” was identified and augmented as needed since it was previously existing as a practice in Sofia as well

as a step towards building resilient communities in the process of climate adaptation change. During the co-selection process, the idea of this NBS was also widely supported by the citizens.

The workshop with the municipal technicians and Sofia Task Force carried out in March 2020 brought to the compilation of the first draft of the Sofia Mini Catalogue. It consists of 11 participatory, 9 territorial, 5 technological and 7 social and solidarity NBSs. The compilation process of Sofia Mini Catalogue, prepared for the purposes of the co-selection and co-design, was subjected to the following criteria: a) objective need, cultural traditions and political support to implement the NBS; b) realism; c) potential for clustering and synergetic results; d) availability of agents able to assist the implementation of the NBS. During the co-selection phase, a series of activities influenced the expansion, elimination of solutions, and further diversification of the compiled first draft of Sofia Mini Catalogue thus proving the need of an open and “living” catalogue that serves as an inspiration rather than imposition of ready-made solutions.

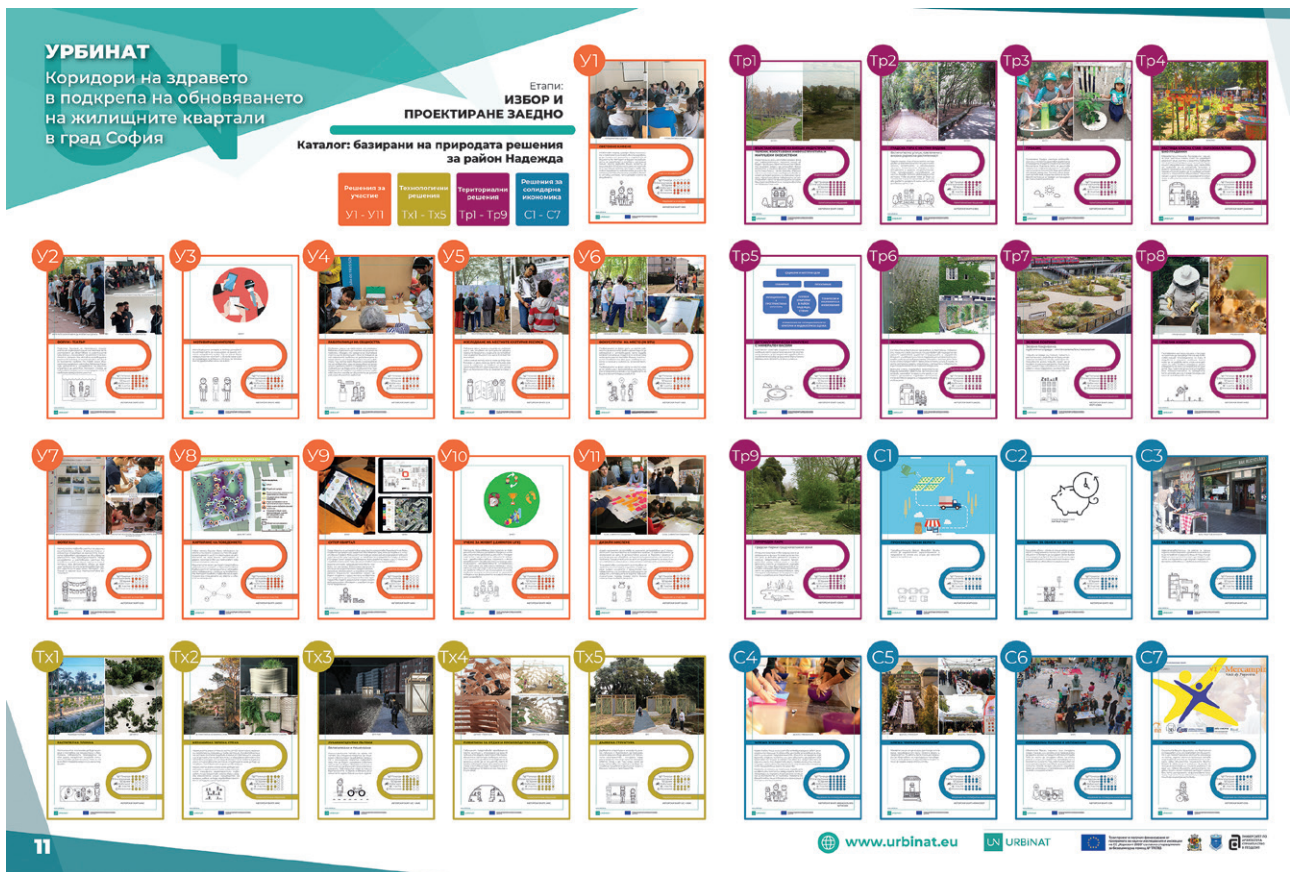
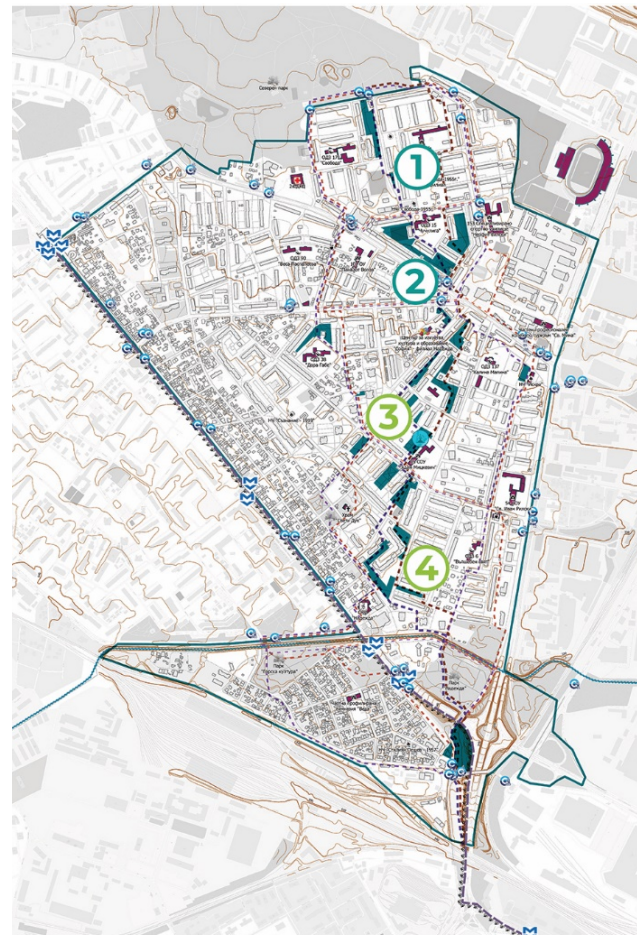


Figure 34. Sofia NBS catalogue as prepared for the purposes of the open-air exhibition and later circulated in Internet (<https://public.3.basecamp.com/p/dPT5RLzECMWqLDNYKihMJsf6>).

The presentation of the local diagnostic results and the two-week exhibition in May 2020 served as an occasion of attracting new participants, hearing new ideas, and testing the appropriation and the perception of the NBSs in the draft catalogue. In August and September 2020 four workshops were organized with the citizens to collect ideas about the four intervention zones within the URBiNAT area.

The zones consist of groups of lots whose size, layout and location provide a promising potential to develop a NBS or a group of complementary NBSs. These four workshops informed the process of collecting ideas and appropriating NBSs in relation to the specific places initially named Intervention zone 1, 2, 3, and 4 and renamed during the elaboration of the Healthy corridor strategy and the Healthy Corridor spatial concept respectfully into Co-place, Health energy, Aqua vita, and green assembly. (Figure 35).



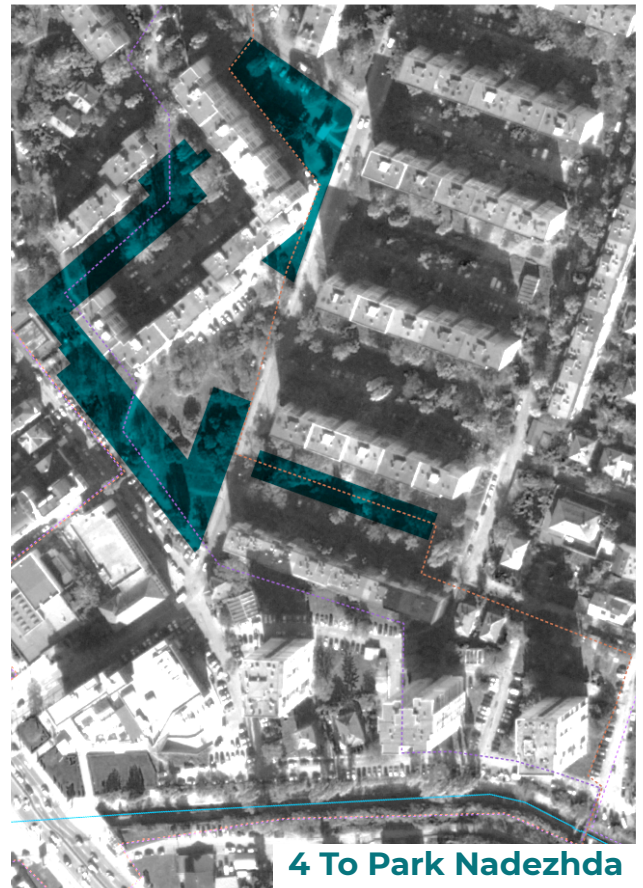
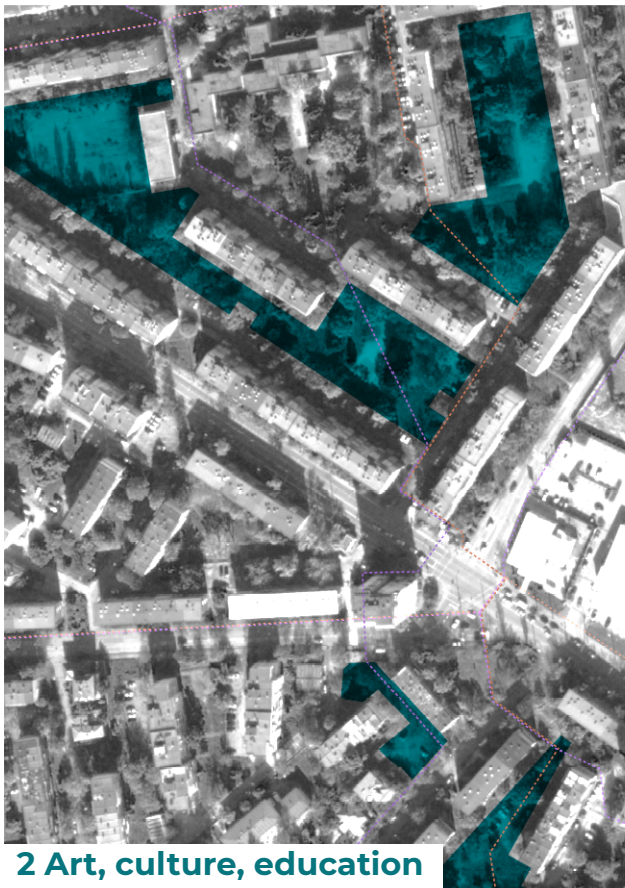
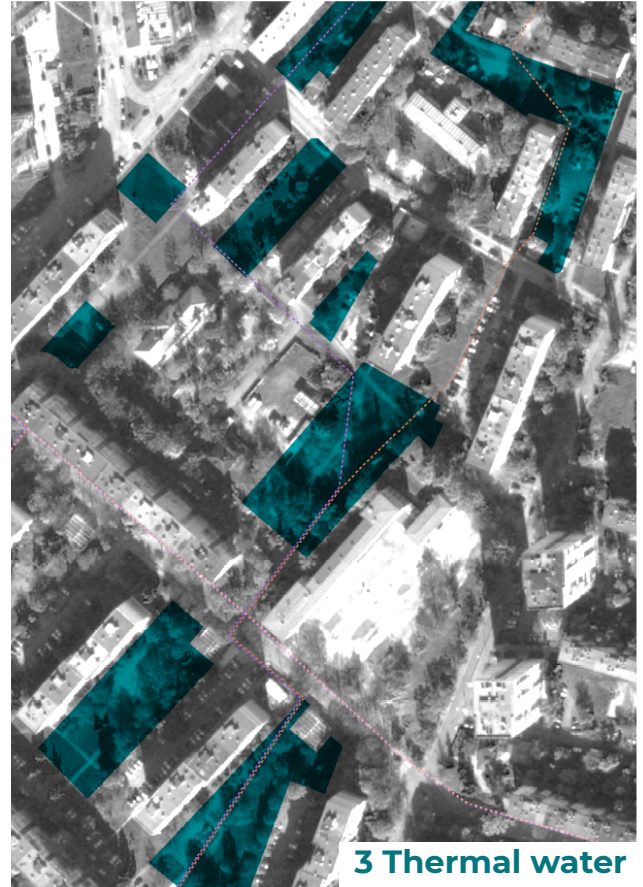


Figure 35. The four groups of plots prepared for the public event on 20.06.2020 and the 4 workshop sites held August and September 2020.

The NBSs included in the draft catalogue were used as reference and best practices as well as a source of inspiration for the generation of the new ideas.

The data collected during the process, and organized in a GIS database, included both the

attributes of the ideas and of the participants who raised them. In the following image, the main processes of discussing citizens' ideas, ideas' spatial reference, using the catalogue as inspiration and appropriation of ideas to the catalogue NBSs during the workshops are shown.



Figure 36. Operationalization of the NBS draft catalogue for the purpose of idea generation and connection to different locations: 1. discussing citizens' ideas, 2. Ideas' spatial reference, 3. using the catalogue as inspiration, 4. appropriation of ideas to the catalogue NBSs, 5-6. Using NBS Cards and pools of different size during the workshops with models.

4.3. NBSs proposed through the first round of the co-creation workshops

The first round of co-creation workshops was postponed for around 3 months due to the first stage of the Covid-19 pandemic. The warmer season between June and September provided suitable chances for direct contact while keeping the needed sanitary measures at the most relevant level. During the workshops organized around the parallel exhibition in front of the Municipal cultural institute “Nadezhda” there was modest participation which later on increased as citizens gained more confidence.

Some differences in the readiness and depth of participation through proposals and co-selection of NBSs were observed in the various types of workshop sites. In the more transitional but narrow public space at the edge of Park Nadezhda the many people crossing the Suhodolska river bridge were passing, asking and informing themselves but a smaller part of them spent more time looking through, discussing, sharing of impressions, proposing and selecting. Contrary to this, the other transitional site behind the Post office gathered passers-by that were actively proposing ideas rather than selecting from the catalogue. In these cases, there was a more general agreement and even positive emotions and surprise about the good intentions of the project and its innovative, regenerative, green and healthy oriented character.

The other types of places – more semi-public ones around some of the housing groups and their territorial communities, proved to be more

fruitful for intensive discussions and specific interests of the local residents expressed. Some of them were presenting themselves as leaders and certainly seemed to be opinion makers of the neighbourhood. Some of them were well informed about the project and they had very specific attitudes towards the concept, the solutions, the expected impacts from the project and more generally about the public works and the community activities needed at that place. Some of them were sceptical or were addressing issues that are more basic in terms of the physical conditions, parking and other problems of the urban environment and its use, that cannot be resolved solely by the project and its funding. While communicating and realising the opportunities and the constraints of the project many of the participants were readjusting their preferences towards attainable and practical proposals and solutions. Some of them were not always that inclusive and oriented towards other groups of users and uses out of their lifestyles. At some sites there were core groups of interested users and more peripheral ones which outnumber the core groups and they seem to have differing ideas and preferences. The following table makes a summary of the proposed ideas and solutions with reference to the Sofia NBS catalogues and beyond. Some of the proposals without reference to the catalogue can hardly be regarded as NBSs, but many of them can be adapted to or NBSs can be part of their implementation.

CO-CREATION ZONE 1: TO SEVEREN PARK /LATER REFERRED AS CO-PLACE/

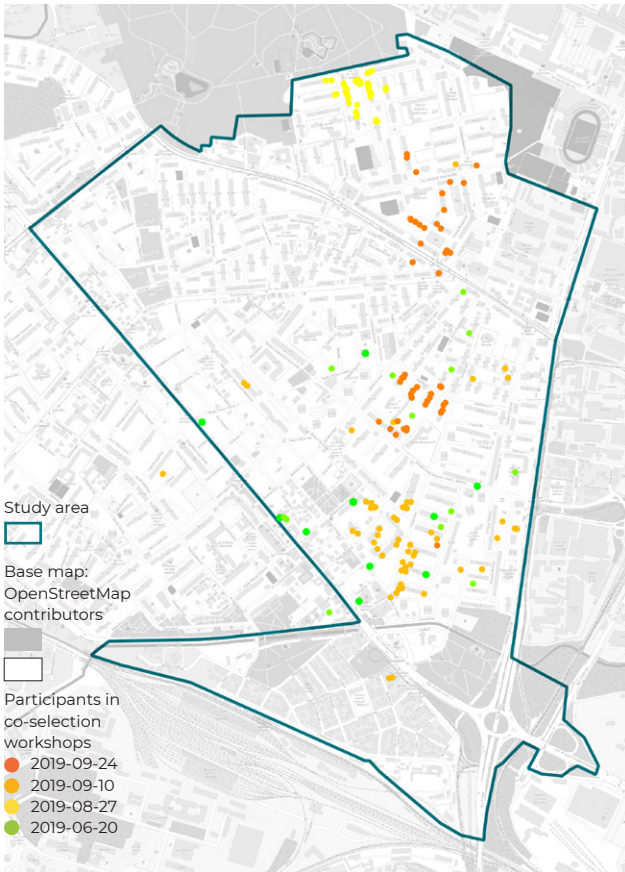
Type of NBS	Proposed ideas and solutions with reference to Sofia NBS Mini catalogue	Proposed ideas and solutions with no reference to Sofia NBS Mini catalogue
Territorial	<ul style="list-style-type: none"> Renaturalization of brownfields and degraded ecosystems Autonomous urban forest Thermal water swimming pool Growing classroom: tasty gardens of learning Groasis Bee hives Green walls 	<ul style="list-style-type: none"> Children natural playgrounds Outdoor fitness Sitting and meeting places next to the public buildings* Skateboard ramps and rails BMX and Downhill MTB Ramp Playing football and basketball devices Sitting and meeting places (benches) Local (Bulgarian) cuisine on the edge of the park*
Technological	<ul style="list-style-type: none"> Pavillion for food and recreation Wooden multifunctional structure Grow tiles Ceramic green wall Luminescent pathways for people and bicycles 	<ul style="list-style-type: none"> Small animal asylum Small zoo
SSE	<ul style="list-style-type: none"> Solidarity markets, exhibitions, and fairs Repair cafe Time bank 	
Participatory	<ul style="list-style-type: none"> Forum theatre Cultural mapping Работилници на общността Photovoice SuperBarrio Learn for life 	

CO-CREATION ZONE 2 ART, CULTURE, EDUCATION/LATER REFERRED AS HEALTH ENERGY/

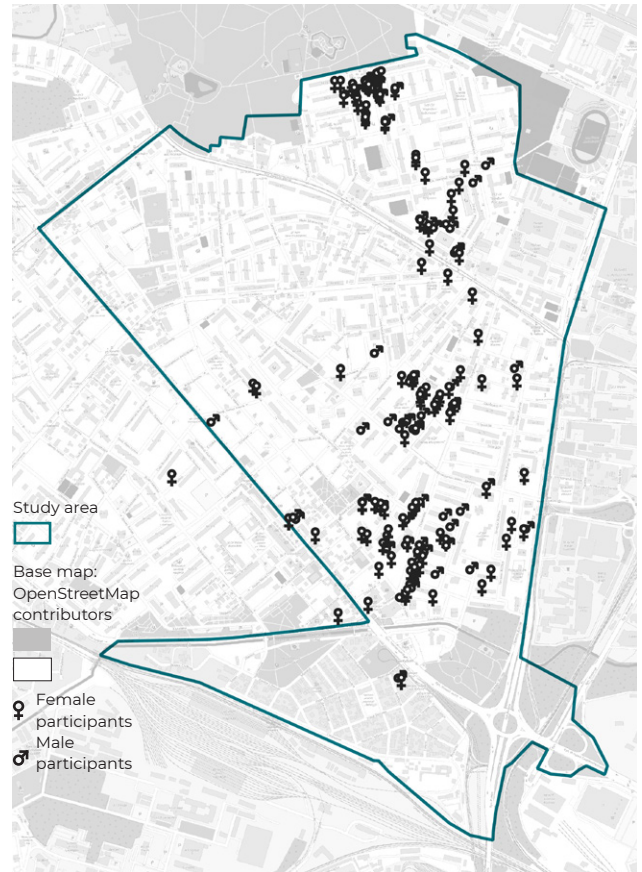
Type of NBS	Proposed ideas and solutions with reference to Sofia NBS Mini catalogue	Proposed ideas and solutions with no reference to Sofia NBS Mini catalogue
Territorial	<ul style="list-style-type: none"> Growing classroom: tasty gardens of learning Groasis Bee hives Green walls 	<ul style="list-style-type: none"> Children natural playgrounds Outdoor fitness Solutions that decrease automobile's speed Bike alleys Dog Park
Technological	<ul style="list-style-type: none"> Pavillion for food and recreation Wooden multifunctional structure Grow tiles 	<ul style="list-style-type: none"> A place for board games for adults Scene Drinking water fountain, music fountains
SSE	<ul style="list-style-type: none"> Solidarity markets, exhibitions, and fairs Repair cafe Time bank 	<ul style="list-style-type: none"> Demonstration urban agriculture plot Alpine garden Greenhouse for vegetables Multi-level parking with green roof at the top

CO-CREATION ZONE 3 THERMAL WATER /LATER REFERRED AS AQUA VITA/		
Type of NBS	Proposed ideas and solutions with reference to Sofia NBS Mini catalogue	Proposed ideas and solutions with no reference to Sofia NBS Mini catalogue
Territorial	Growing classroom: tasty gardens of learning Thermal water swimming pool Green walls Natural Park Autohonous urban forest Groasis	Children natural playgrounds Outdoor fitness Educational open area for children Places for elderly to meet and socialize Dog Park for different breeds Playground, sport court Gazebo
Technological	Pavillion for food and recreation Wooden multifunctional structure Grow tiles Ceramic green wall Luminescent pathways for people and bicycles	Glowing fountains Toilets Spa center Shadow over the children' playgrounds
SSE	Farmers' markets network Production chains Time bank	
Participatory	Forum theatre Interviews Focus groups Photovoice Learn for life	
CO-CREATION ZONE 4 TO PARK NADEZHDA / LATER REFERRED AS GREEN ASSEMBLY		
Type of NBS	Proposed ideas and solutions with reference to Sofia NBS Mini catalogue	Proposed ideas and solutions with no reference to Sofia NBS Mini catalogue
Territorial	Growing classroom: tasty gardens of learning Groasis Autohonous urban forest Bee hives Green walls Renaturalization of brownfields and degraded ecosystems	Children natural playgrounds Outdoor fitness Educational open area for children Bike alleys New bridge over Suhodolska river Exhibitions and events close to the river Dancing scenes Fountains, drinking water fountains
Technological	Ceramic green wall Luminescent pathways for people and bicycles Wooden multifunctional structure Grow tiles Pavillion for food and recreation	Toilets Wetland around a pond Fruit trees grown and kept by the inhabitants Lighted alleys at night Place for picnics Place for events
SSE	Repair cafe Bread House network Farmers' Market network Solidarity markets and exhibitions	
Participatory	Forum theatre SuperBarrio	

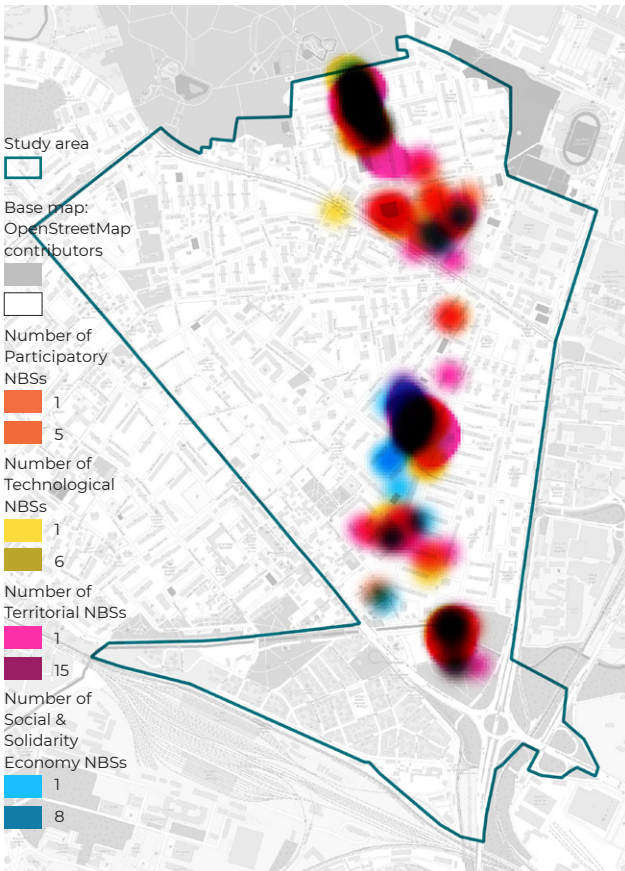
Table 8. A summary of the proposed ideas and solutions by co-creation zone. June-september Co-design Workshops results.



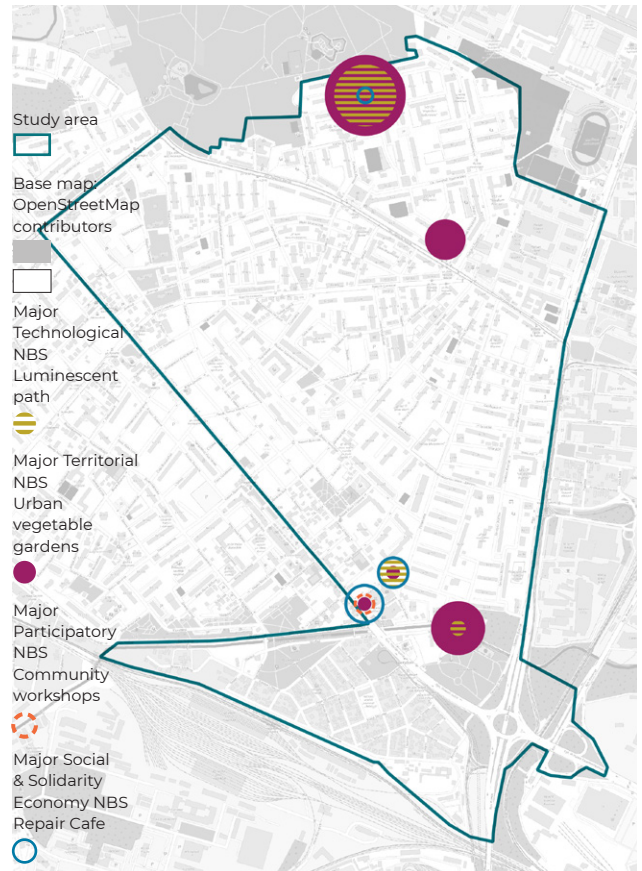
Participants in the 4 workshops by zone of intervention



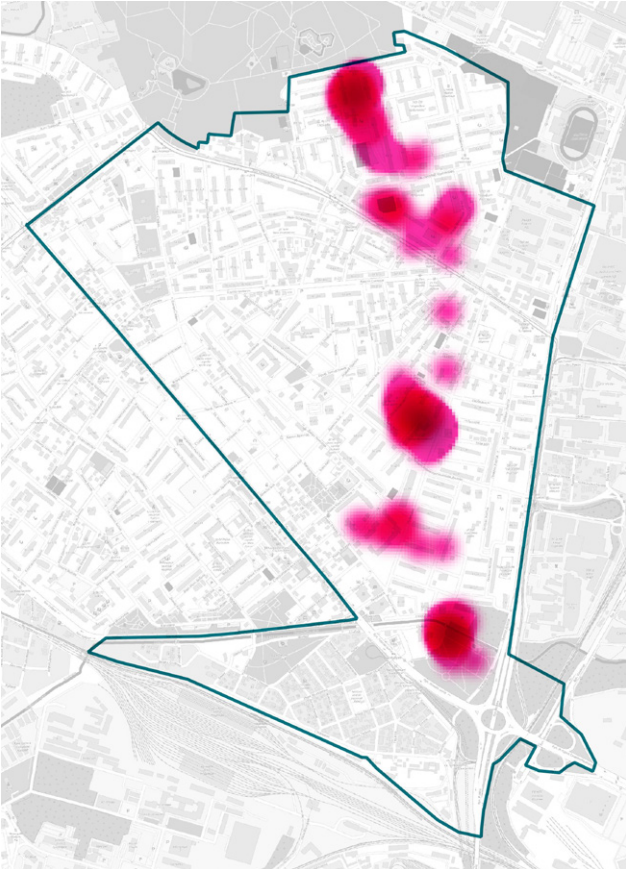
Spatial distribution of the workshop participants by gender (based on visible attributes)



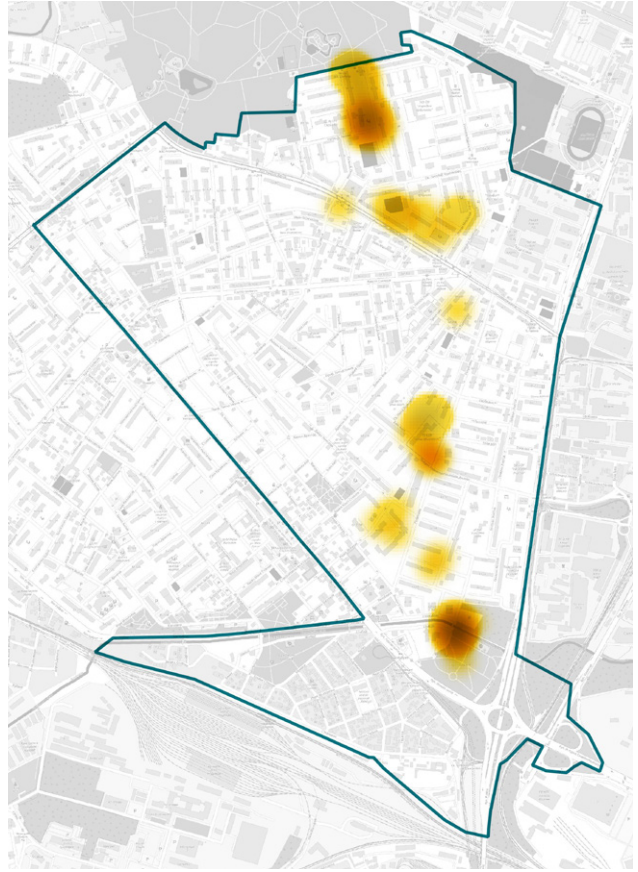
Spatial distribution of all proposed NBS by type – technological, territorial, participatory, SSE Spatial distribution of the proposed NBSs



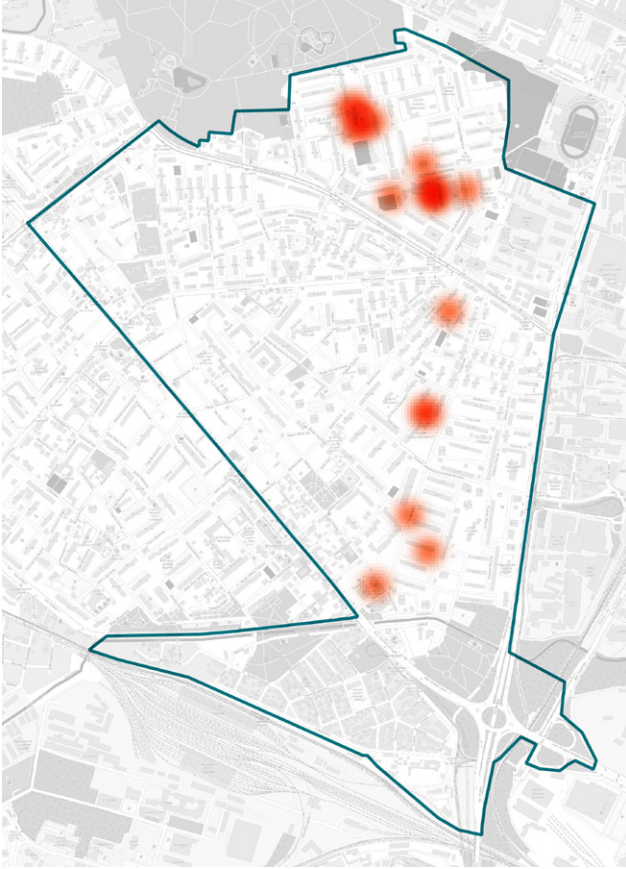
Major NBS in the 4 groups



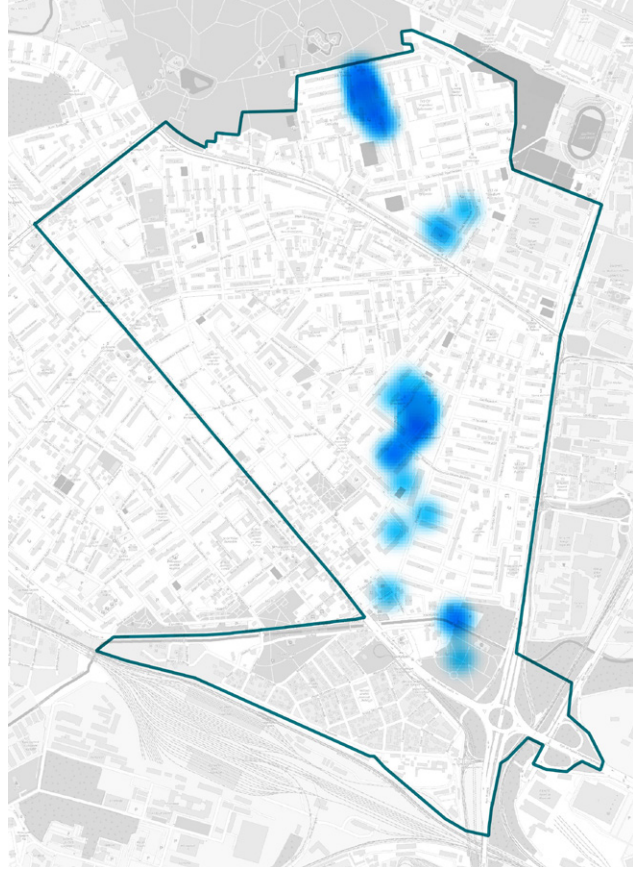
Heatmap of territorial NBSs



Heatmap of technological NBSs

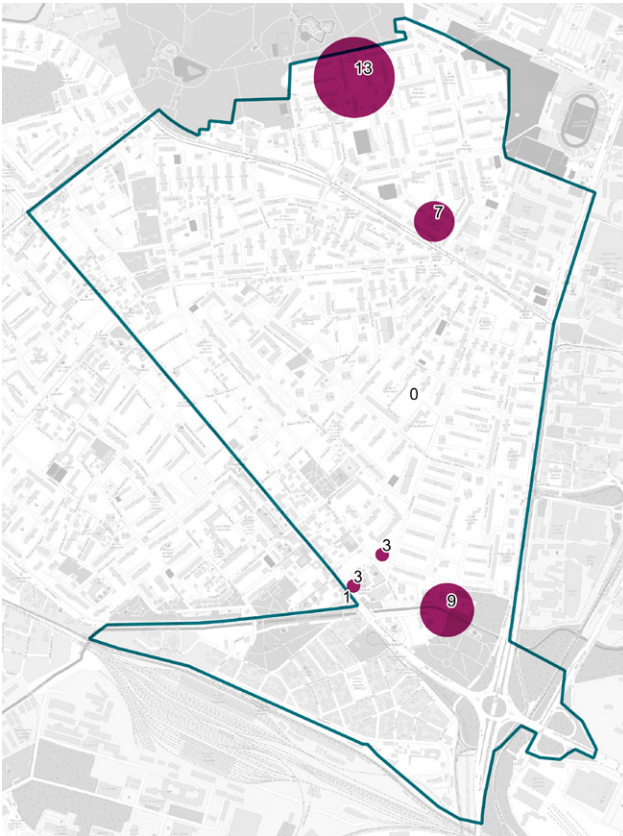


Heatmap of participatory NBSs

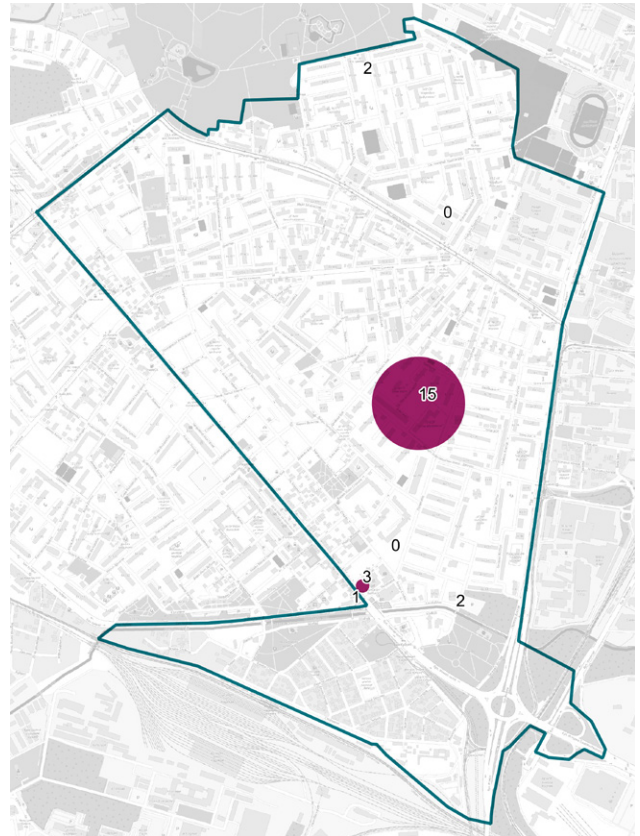


Heatmap of social and solidarity economy NBSs

Number of preferences of selected NBSs by location



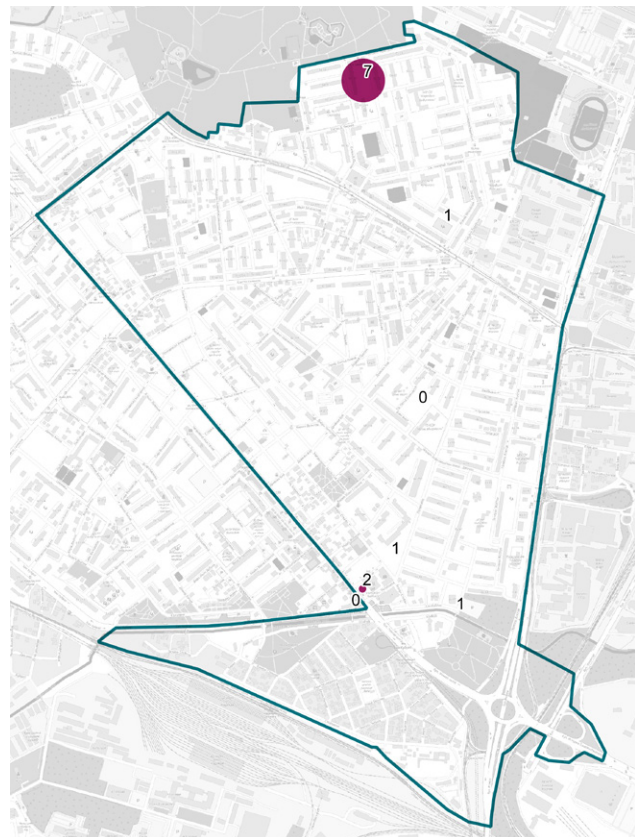
Territorial NBS – Urban vegetable gardens (Tp4) overall 36 preferences



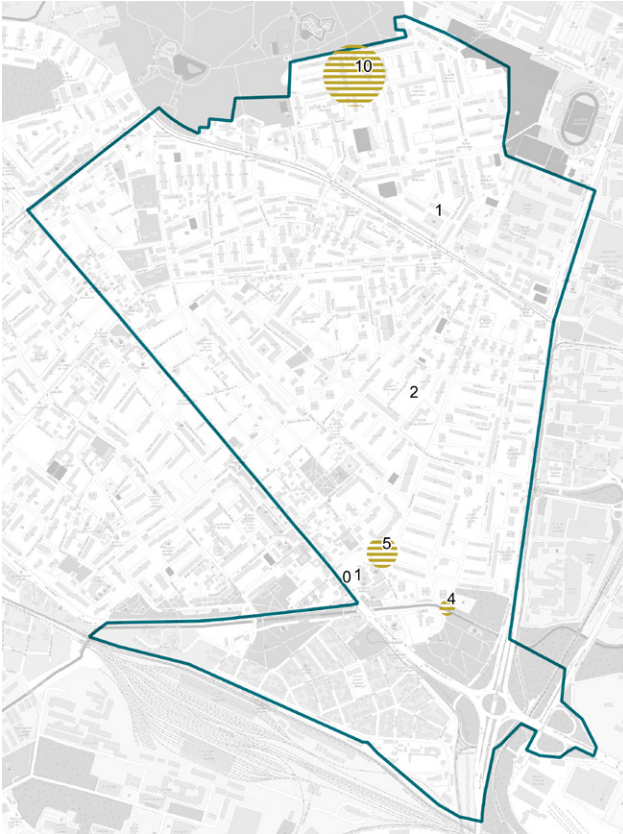
Territorial NBS – Thermal water swimming pool (Tp5) overall 23 preferences



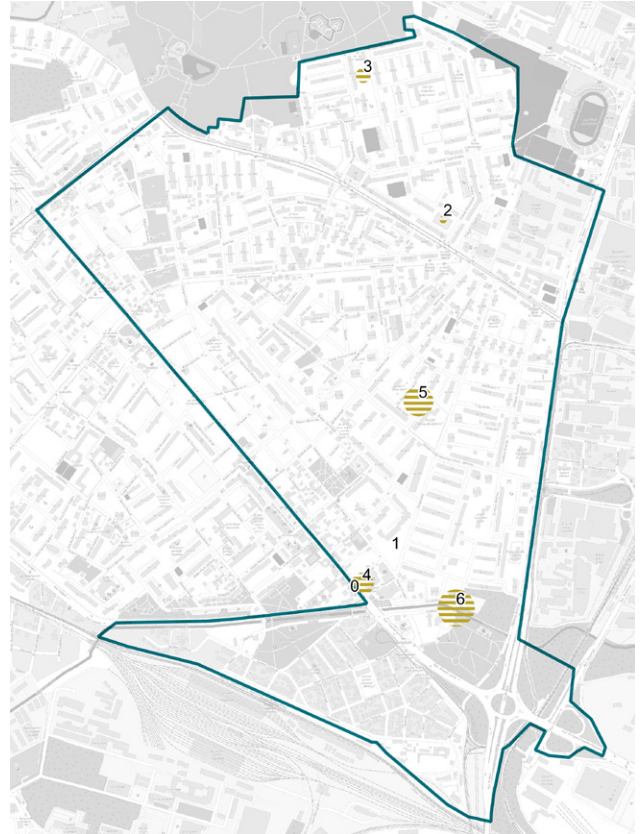
Territorial NBS – Treesolution Groasis (Tp3) overall 15 preferences



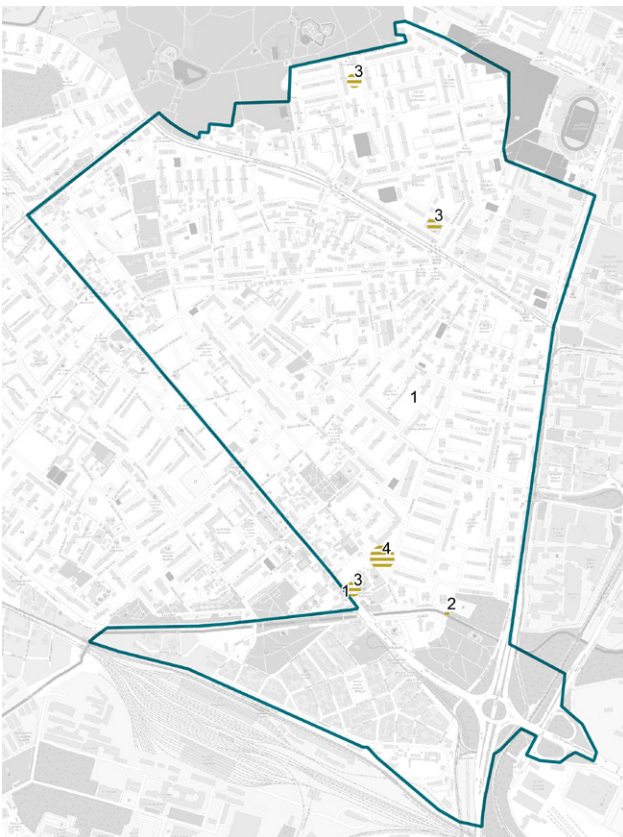
Territorial NBS – Green Wall and Living Wall (Tp6) overall 12 preferences



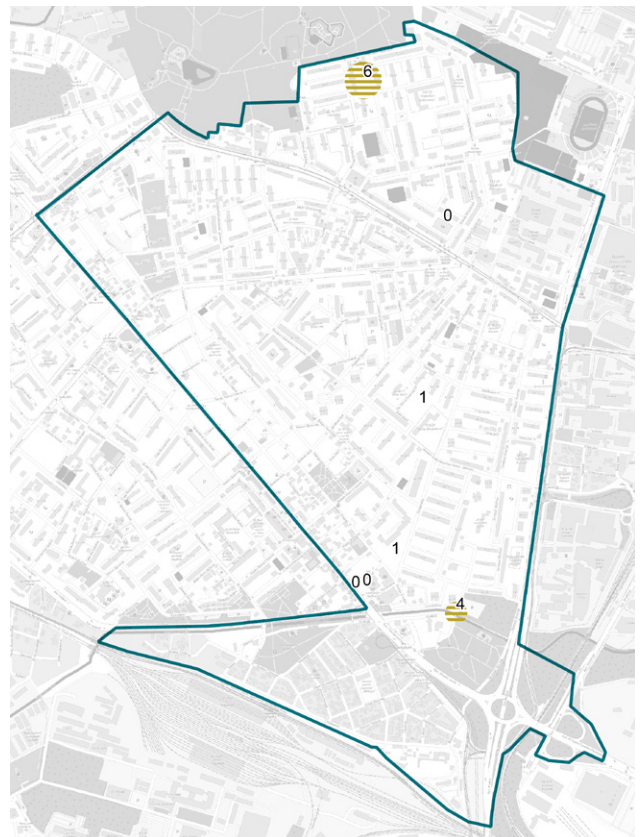
Technological NBS – Luminescent path (Tx3) overall 23 preferences



Technological NBS – Grow tile (Tx1) overall 21 preferences



Technological NBS – Food production and leisure pavillion (Tx4) overall 17 preferences



Technological NBS – Ceramic green wall (Tx2) overall 12 preferences

The preferences for some of the solutions in the NBS catalogue explicitly were referenced to those in the territorial and technological group in the mini catalogue. The participatory and social and solidarity solutions were less recognized and more rarely proposed, maybe because of lack of awareness and recognition or difficulty to be easily imagined.

The ideas collected were documented in working NBS forms and further co-evaluated in terms of technical and financial feasibility through a collaborative and transparent process with the URBiNAT task force, the municipal technicians and the political representatives. As a result, from this systematic analysis, all proposals were divided into three main categories (Table 1):

- **Category 1)** Proposals to be developed on the Healthy Corridor and that will be further developed as they met financial/technical

feasibility within URBiNAT and are aligned with the project's goals, the project's timeframe, and the municipal priorities;

- **Category 2)** Proposals to be forwarded and channeled to the respective municipal departments to be integrated in ongoing and/or future projects as they do not meet financial/technical feasibility within URBiNAT and/or that are not aligned with the project's goals, but are meeting certain needs of the study area and/or are aligned with the municipal priorities;
- **Category 3)** Proposals not to be forwarded and not further developed/implemented as they do not meet financial/technical feasibility within URBiNAT and are not aligned with the project's goals and the municipal priorities for the study area.

TO BE DEVELOPED ON THE HEALTHY CORRIDOR	FOR FORWARDING	DO NOT MOVE/ FORWARD
Thermal water School Swimming pool Greenhouse classroom Small social spaces Living playgrounds, Children natural playgrounds Children natural playgrounds Outdoor fitness Playground, sport court Places and equipment for sedentary and dynamic games for all ages Basketball and football facilities for beginners Greenhouse for vegetables Educational open area for children Scene for meetings Dancing scenes Gazebo Places for elderly to meet and socialize Place for events Place for picnics Drinking water fountain Glowing fountains, music fountains Education and awareness raising on waste management Shadow at the playgrounds for children New bridge over the river Tasty gardens of learning	Multi-Level parking with green roof Solutions that decrease automobiles' speed Sitting and meeting places next to the public buildings Toilets Waste bins Demonstration urban agriculture plot Shelter for homeless dogs and cats Education for environmental education at school Swimming integrated into school physical education Exhibitions and cultural events close to the river Local Bulgarian cuisine on the edge of the park	Lighted alleys at night (still potential to be integrated) Spa center Bike/scooter extreme park and skate park Dog Park for different breeds Free dancing courses (still potential to be integrated and developed as immaterial NBS) Archery Fruit trees grown and kept by inhabitants (already exist, to be rediscovered – the process supported by new digital enablers) Small urban zoo Wetland around a pond Alpine garden (still potential to be integrated, e.g. with the natural playgrounds)

Table 9. Citizens' proposals summarised: to be developed, for forwarding, and not to be developed within the URBiNAT budget and timeframe.

The summarized in Table 10, proposed citizens' solutions, are evaluated through the prism of the project goals and the realization possibilities and in terms of their functional characteristics and realistic timeframe for their implementation.

The Task force and the expert estimation noted that some of the workshop participants propose solutions, but they do not project themselves neither as users nor as organizers. Their proposals are generally intended for someone else. However, in cases when the proposals addressed an important environmental and community issue, they were considered and included in the URBiNAT plan. Another important consideration when evaluating the proposed solutions was their potential for integration, complementation and expected synergetic results. Therefore, the

immaterial solutions are projected as means for activation of the Healthy Corridor, and the clusters of territorial and technological NBSs will accommodate events, community initiatives, and interactions.

The authentic ideas gathered through the different participatory methods implemented in the Living Lab in Sofia, and used for the definition of the new NBSs, were summarized into six groups: public space, sports and recreation, social economy, education, culture, and climate adaptation measures (climate adapt) (Table 11). These groups represent the main, but not the only one, connection that the generated ideas have with the site. The following table summarizes the ideas collected for the creation of the NEW NBSs in the six groups previously defined.

PUBLIC SPACE	SPORTS AND RECREATION	SOCIAL ECONOMY	EDUCATION	CULTURE	CLIMATE ADAPT
Pedestrian path linking the park with the inter-block space	Children natural playgrounds	Demonstration urban agriculture plot	Children natural playgrounds	Scene for meetings	Drinking water fountain, music fountains
New bridge over the river	Outdoor fitness	Greenhouse for vegetables	Educational open area for children	Dancing scenes	fountains
Bike alleys	Spa center	Fruit trees grown and kept by inhabitants	Small urban zoo	Gazebo	Glowing fountains
Solutions that decrease automobiles' speed	Bike/scooter extreme park and skate park		Education and awareness raising on waste management	Places for elderly to meet and socialize	Multi-level parking with green roof
Lighted alleys at night	Dog Park for different breeds		Education for environmental education at school	Place for events and cultural events close to the river	Wetland around a pond
Sitting and meeting places next to the public buildings	Playground, sport court		Swimming integrated into school physical education	Exhibitions and cultural events close to the river	Shadow at the playgrounds for children
Toilets	Places and equipment for sedentary and dynamic games for all ages			Local Bulgarian cuisine on the edge of the park	Alpine garden
Waste bins	Basketball and football facilities for beginners			Place for picnics	
Place for picnics	Free dancing courses			Shelter for homeless dogs and cats	
Children natural playgrounds	Archery				
Scene for meetings					

Table 10. Authentic NBS ideas collected during the co-design workshops with citizens held at the 4 intervention areas in August – September 2020.

RAW IDEAS	NEW NBS
Thermal water school swimming pool	Thermal water school swimming pool
Greenhouse for vegetables	Greenhouse classroom, (working title 'Educational pavillion')
Educational open area for children	
Environmental education at school	
Playground	Living playgrounds, Children natural playgrounds
Shadow at the playgrounds for children	
Outdoor fitness	Multipurpose Sport Field
Sport court	
Basketball and football facilities for beginners	
Places and equipment for sedentary and dynamic games	
Places and equipment for sedentary and dynamic games	Small social spaces
Places for elderly to meet and socialize	
Place for picnics	
Scene for meetings	
Gazebo	Grow a bench\neighbourhood's meeting place
Places for elderly to meet and socialize	
Place for events	Green Amphitheatre
Scene for meetings	
Dancing scenes	
Drinking water fountain	Welcome water back into public place
	Living Lab – URBiNAT Pavilion
Multilevel parking with green roof	Eco-parking for different kind of vehicles

Table 11. Distinction between the raw ideas and the New NBSs.

5. The Healthy Corridor Spatial Concept

5.1. The Healthy Corridor Spatial Strategy

The aim of the **Green Healthy Corridor** in Sofia is to provide connection between two urban parks – Nadezhda and Severen, to make connections between different NBSs and to act as an alternative path between different parts of the neighbourhood. At a larger scale it outlines the connections of the Nadezhda district with the city center and with major transport hubs like railway stations Sofia-North and Central railway station, links the main pedestrian and bicycle routes with the public transport hubs.

In support of the area-based approach to urban regeneration, two main principles are applied: a) to provide actions that are expected to bring about a lasting improvement in the economic, physical, socio-cultural and environmental conditions of the area within; b) to combine diverse complementary NBSs in order to obtain synergetic effect and added-value within the defined timeframe and spatial planning framework. The concept integrates territorial and thematic approaches by introducing interventions to the four focus areas outlined

by the findings from the multicriterial analysis performed during the local diagnostics stage. The four themes Co-place, Health Energy, Aqua Vita, and Green Assembly address the topics of the URBiNAT project and brand the uniqueness of each one of them.

Each focus area is also supposed to act as a connecting hub for the thematically related urban elements as follows:

- the Aqua Vita area with the open classroom and the swimming pool will attract and connect the schools and kindergartens located near the Green Healthy Corridor,
- the Green Assembly area will be a connector for the cultural and solidarity institutions and initiatives,
- the Health Energy area will be the focal point of the outdoor sports and recreation activities connecting young generations,
- the Co-Place area will connect the neighbours to the place they see from their windows and focus on the social engagement and connectedness.

The integration of NBS on the Healthy Corridor

Spatially, the route of the Healthy Corridor in Sofia forms a strategic pedestrian link between two of the dominant features in the local green infrastructure – Nadezhda Park and Northern Park. The Healthy Corridor is a vital first step towards the long-term improvement of the pedestrian connectivity within the district of Nadezhda and highlights the potential for further expansion of the network of walkable routes. The Healthy Corridor itself represents a linear park that can be regarded as a complex nature-based solution. Its impact will be most evident in the four main areas of intervention along its length. Thematically, the four areas of intervention are dedicated to four main topics and each area of intervention integrates several individual nature-based solutions that are currently under development through collaborative practices (see part 1 – introduction).

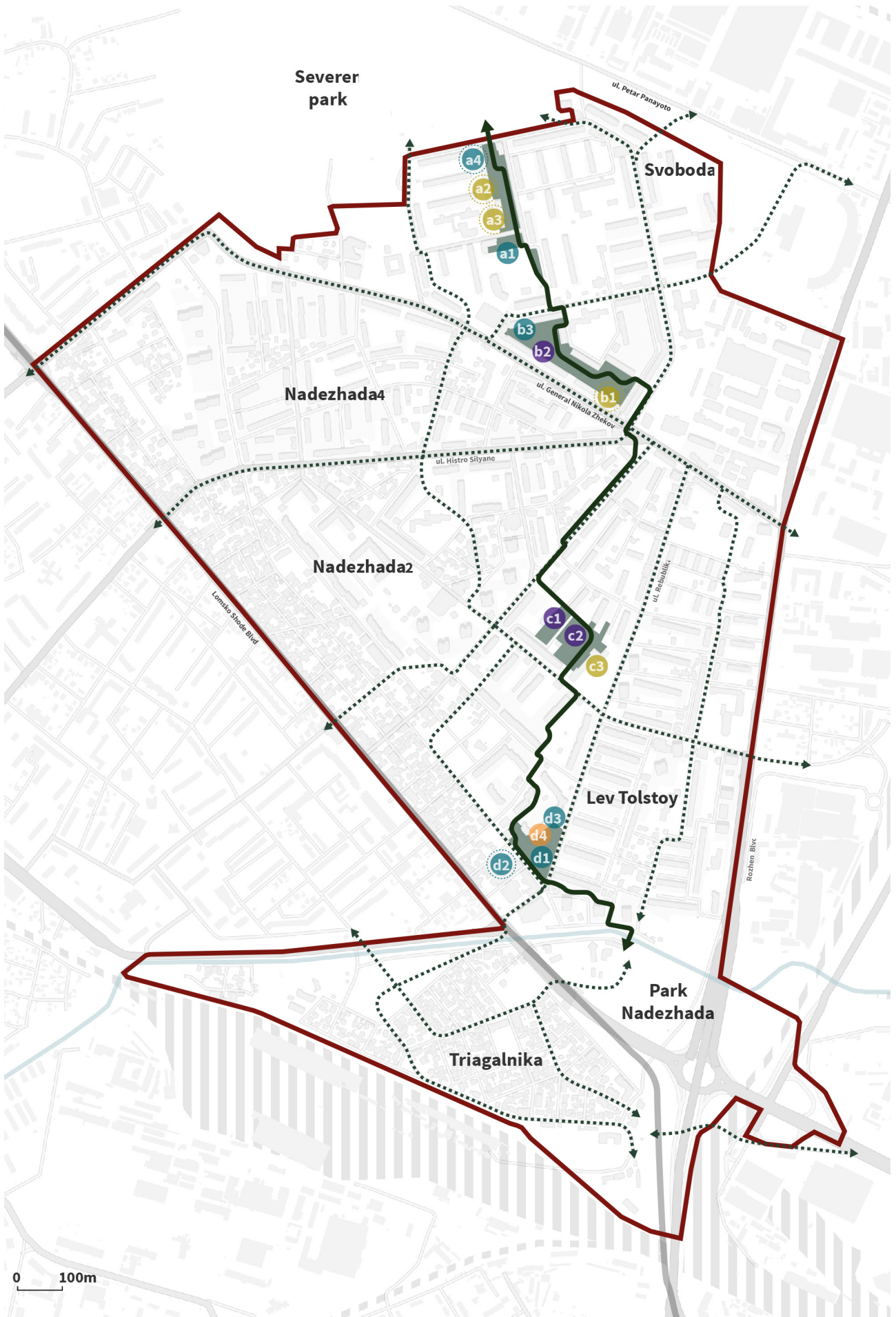




















Figure 37. Map with the urban articulation of the Healthy Corridor and the proposed location of the New NBS.

-  Study area
-  Places of intervention and co-creation
-  Recreational connectivity
-  Services/occupational connectivity
-  Suhodolska river
-  Greenline of Sofia initiative
-  Railways and associated land
-  Underground stations
-  Underground line
-  IInd class - urban highways
-  IIIrd class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Parks and gardens
-  Public buildings
-  Buildings
-  Socialist housing estates

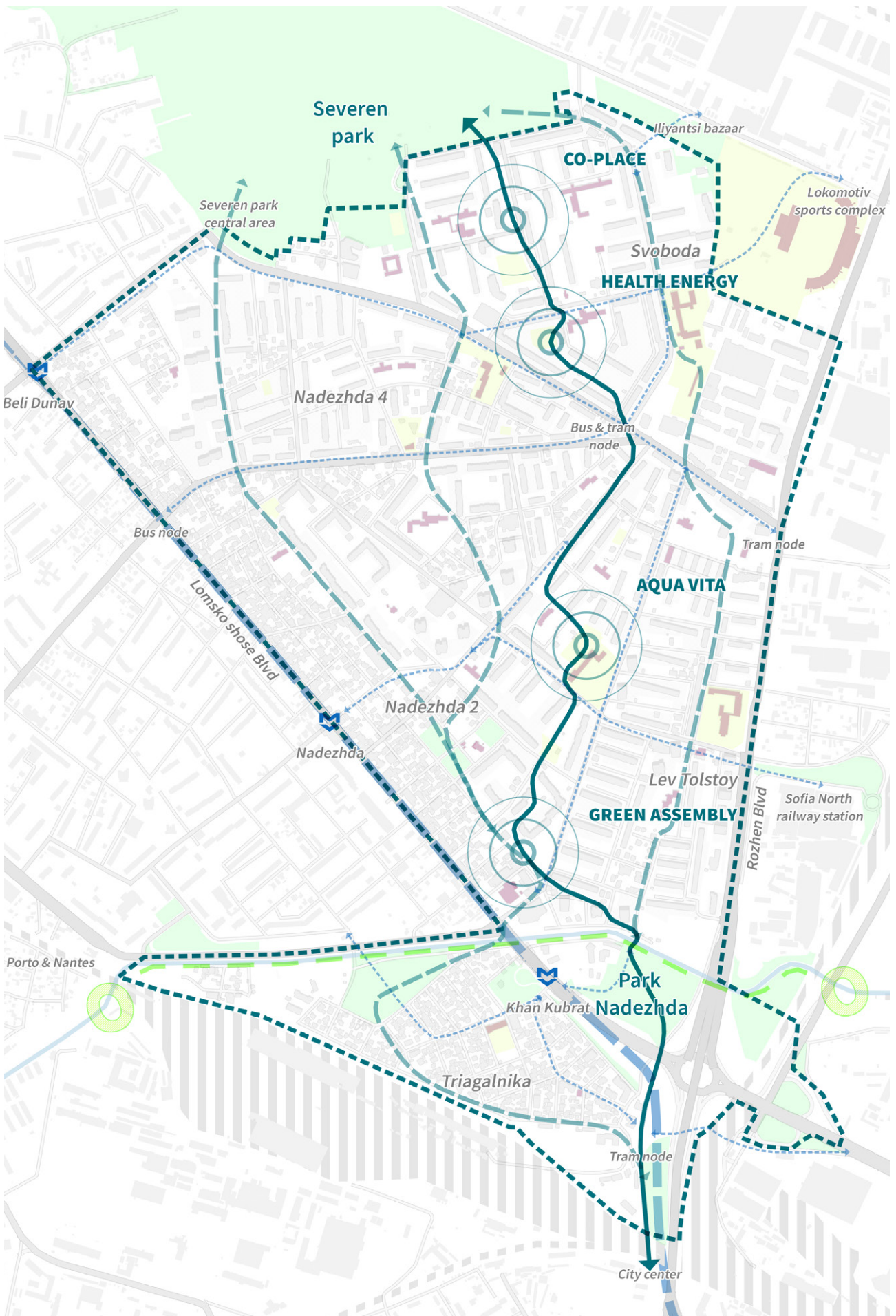


Figure 38. The urban concept for Sofia Green Corridor.

5.2. Preliminary urban project for the intervention area

5.2.1. The concept

The urban project of the Sofia Healthy Corridor focuses on building green connections, understandings, co-implementation and use of public spaces. The involvement of citizens in the creation of living public spaces is expected to contribute to overcoming urban fragmentation by removing physical and symbolic barriers to their use, protection of the environment and maintenance of inter-block spaces.

The Healthy Corridor in Sofia is a “green connection” designed as a pedestrian path in the public urban space, that connects the neighborhoods between themselves and the surrounding urban environment. It connects different NBSs developed through collaborative practices and included in the catalog, as well as solutions proposed by the citizens in the co-selection process. In this way, the focus is on the quality of life of citizens in relation to energy, water, food, nature, mobility, participation, behavior change, digital democracy, social cohesion and the solidarity economy. The Healthy Corridor (HC) is planned and will be built by testing an innovative and inclusive methodology for renovation of the selected peripheral neighborhoods in seven European cities. The creation of the HC in Sofia through NBSs implementation will take place through creative thinking.

In order to start URBINAT in Sofia with the “Living Laboratory” and the research, design and then construction works for the implementation of the infrastructural elements of the Sofia HC, it was necessary to specify the main environmentally friendly solutions that will be implemented. This “green corridor of health” will be an urban environment of new quality, created through the implementation of environmentally friendly solutions, which will become “living laboratories” for testing and developing new urban solutions.

The preliminary urban project is not statutory, but clarifies the spatial parameters of the long-term district vision, aimed at improving the quality of the urban environment and creating better conditions for active movement and daily physical activity of all members of the local community. It also provides the appropriate activities for different target groups and balances the compatibility of the various events, traditional and new activities carried out in the inter-block spaces of the residential complexes.

Along with the proposed opportunities for implementation of the main route and its connection with the green system, and the street network and public spaces on the territory, the preliminary urban project will be open and will be able to flexibly respond to changing natural and socio-economic conditions and community needs, as well as emerging ideas and innovative solutions, through changes in the set of functions, physical elements and modes of use.

The project team organized and held eight workshops for four intervention areas with residents of Nadezhda district, dedicated to the possibilities of using NBSs in the implementation of the Healthy Corridor (HC). As a result of the active participation of the citizens, the main ideas of the preliminary urban project for four zones of interventions were formulated.

A place for meetings and events shaped as a green amphitheater will be created in the area called "the Green Assembly". There will be placed the "information point" of the project, where local residents will be able to get acquainted with the upcoming initiatives.

The area of intervention named "Aqva vita" will accommodate a place for social activities and a sport playground made by natural materials. One of the technological solutions of the set of projects will be the educational pavilion – an open classroom with a greenhouse in the school yard of 15th School. The greenhouse is an innovative project developed by the URBiNAT partner IAAC (Barcelona), responsible for the technological NBSs. The open classroom will contribute to the application of modern educational approaches and training in the conditions of physical distance imposed by the measures against the spread of COVID-19. In this greenhouse pupils will have the opportunity to participate in cultivation and observing the development of different plant species. An innovative concept, design brief and a detailed project for construction of a thermal water swimming pool in the same intervention area will be developed based on the desires of the citizens and with their active participation. The innovative project will also seek to create a new functional and business model for cooperation between citizens, municipality and business. As a result, the project will create a social and technological innovation by using the qualities of the existing mineral water with emphasis on the physiological health of the children and pupils.

The preliminary project provides a multifunctional sport field, a children's playground, places to play and expression of masterful skills for children and adults for the other two intervention areas called "Energy for life" and "Co-place".

The implementation of the HC in Sofia will focus mainly on public works, placing movable objects in public space and the development of green areas along the corridor – planting of new vegetation and care for the soil and grass cover is foreseen.

5.2.2. The vision

THE GREEN CORRIDOR FOR HEALTH is a linear urban park with four areas of focused and thematic interventions and co-creation related to the URBiNAT thematic areas and a sequence of green spaces for active and passive recreation. The Healthy Corridor is a convenient, illuminated and a high quality urban green infrastructure that serves as a pedestrian connection between the two parks and stops of public transport, and is accessible to all groups of residents (children, adults, pensioners, people with disability, etc.).

The main concept of the interventions in the municipal plots is to create four different types of zones corresponding to the four main clusters of the NBS. Each of the zones is characterized by a passive and active subzone modeled after NBS – Urban Park. The passive zones are intended for family gatherings and recreation, and the active ones for outdoor games for all ages, sports activities and public events.

Among the positive results that the project would like to achieve is the renovation of unused/empty public spaces through the involvement of the local community, creating an interesting, accessible and diverse urban environment for sports, communications, knowledge exchange and entertainment of the local community.

-  Healthy corridor
-  Study area
-  Corridor integration area
-  Intervention lots
-  Places of intervention and co-creation
-  Recreational connectivity
-  Services/occupational connectivity
-  Trees
-  Suhodolska river
-  Greenline of Sofia initiative
-  Railways and associated land
-  Underground stations
-  Underground line
-  IInd class - urban highways
-  IIIrd class - district arteries
-  IVth class - primary streets
-  Vth class - service streets
-  Links and local lanes
-  Parks and gardens
-  Public buildings
-  Buildings
-  Socialist housing estates

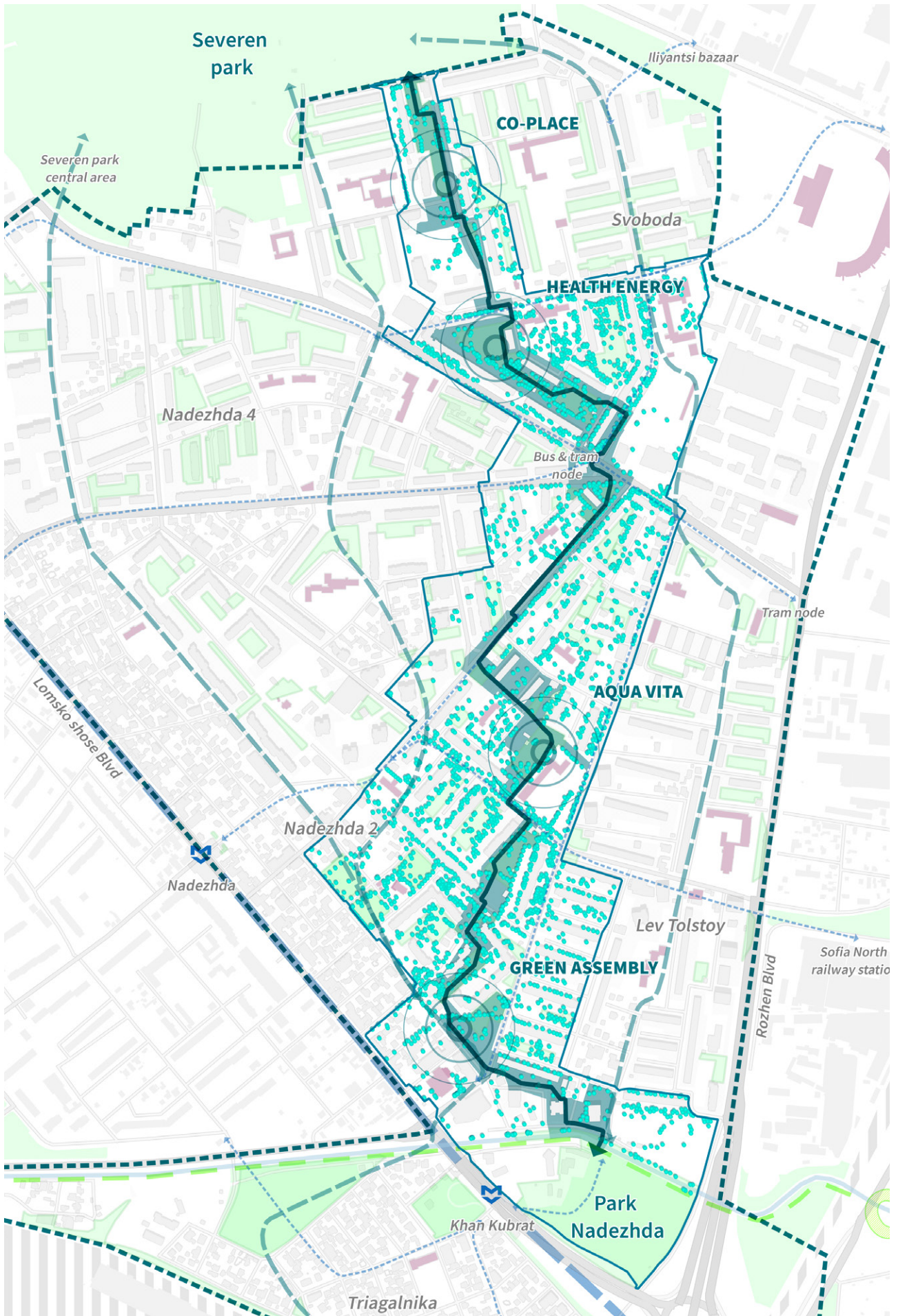































Figure 39. Sofia Green Corridor – territorial scope.

-  Healthy corridor
 -  Study area
 -  Corridor integration area
 -  Intervention lots
 -  Places of intervention and co-creation
 -  Recreational connectivity
 -  Services/occupational connectivity
 -  Designated green/sports areas
 -  Suhodolska river
 -  Greenline of Sofia initiative
 -  Railways and associated land
 -  Underground stations
 -  Underground line
 -  Pedestrian network
 -  IInd class - urban highways
 -  IIIRD class - district arteries
 -  IVth class - primary streets
 -  Vth class - service streets
 -  Links and local lanes
 -  Playground facilities
 -  Parks and gardens
 -  Public buildings
 -  Buildings
 -  Socialist housing estates
- Designation of intervention lots
-  For (underground) parking and/or garage (and greenery)
 -  For commerce
 -  For housing (and services, parking, etc.)
 -  For local urban green area
 -  For sports (field, playground or hall and electric substation, swimming pool or greenery)

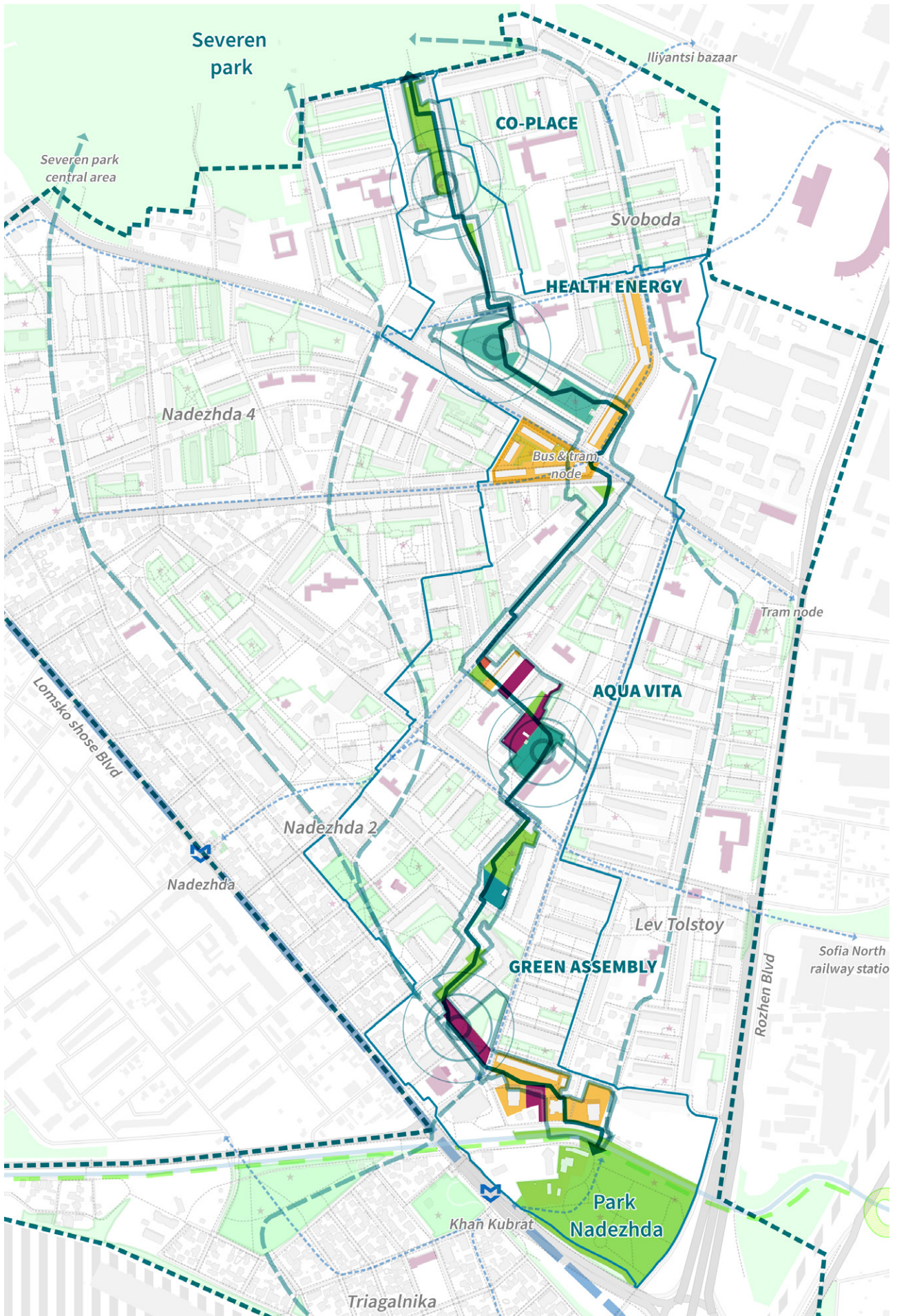


Figure 40. Land use provisions for the municipal plots along the Sofia Healthy Corridor.

5.2.3. Zones of intervention

The first zone of intervention – Co-Place

Co-Place is an open space between the apartment buildings, recognized and appreciated by the local community. The aim of intervention is to strengthen the existing community and to activate participatory behavior through the proposed new uses and facilities.

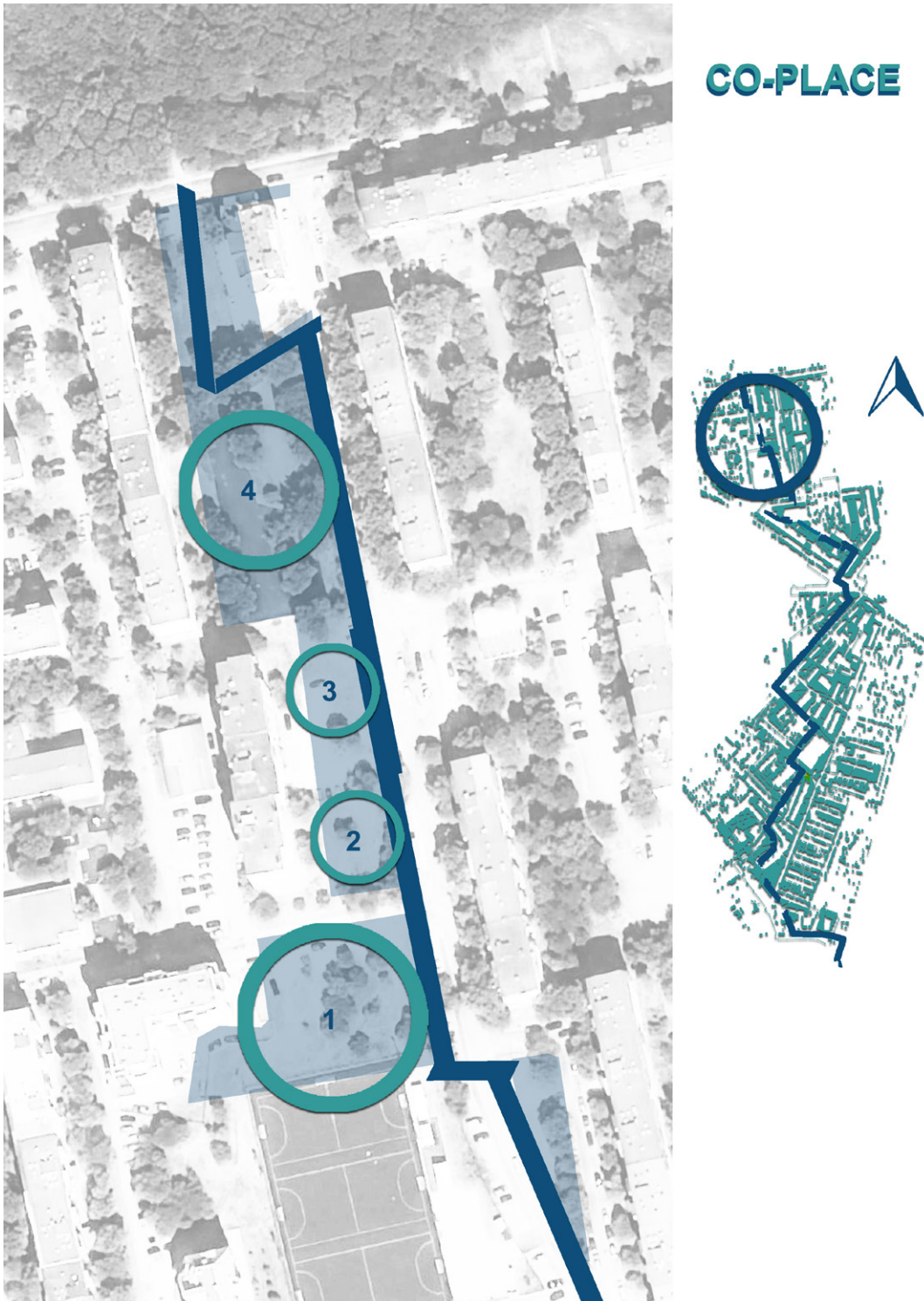


Figure 41. The first zone of intervention – Co-Place.

Includes:

- An eco-parking for different kinds of vehicles;
- Two areas for open-air family games;
- A space for leisure with a flower garden and a picnic and social zone.



1. ECOPARKING



2. + 3. SPACE FOR FAMILY GAMES



4. RECREATION AREA



Figure 42. The first zone of intervention – Co-Place: NBSs to be further co-designed.

The second zone of intervention – Health Energy

Health Energy is a wide green space enclosed between high-rise apartment buildings where a degraded savage playground and an abandoned building go along with social problems and crime. The aim of the intervention is to fight both physical and social degradation by attracting young and active people and engaging their energy in sports and encouraging healthy lifestyles.



Figure 43. The second zone of intervention – Health Energy

Includes:

- A new interactive playground facility employing natural materials;
- The restoration of a multipurpose sports field;
- The elimination of existing privately-owned garages built illegally on municipal land.



1. PLAYGROUND AREA



2. MULTIPURPOSE SPORTS FIELD



3. REMOVAL OF ILLEGAL GARAGES



Figure 44. The second zone of intervention – Health Energy – three subzones

Third zone of intervention – Aqua Vita

Aqua Vita or (living water) is an underused space between a kindergarten and one of the largest schools in the district of Nadezhda where a natural source of underground thermal mineral water exists. Therefore, the intervention is thematically dedicated to the water. It will include three main spatial elements – an open classroom with a greenhouse in the schoolyard, a project for a public swimming pool with mineral water, and an open public space in between.



Figure 45. The third zone of intervention – Aqua Vita.

Includes:

- An innovative project of a public swimming pool with mineral water inspired by the ideas of the citizens and students;
- A school greenhouse supplied by mineral water for heating and watering;
- Active sport zone with an outdoor fitness, social place and a square.



1. THERMAL SWIMMING POOL



2. OUTDOOR GYM



3. SCHOOL GREENHOUSE + CLASSROOM



Figure 46. The third zone of intervention – Aqua Vita – three subzones

The fourth zone of intervention – Green Assembly

Green Assembly is an underdeveloped and underused open public green space, located near some of the important pedestrian paths, public transport nodes, commercial, service and public buildings. It will be designed as an open green place welcoming formal and informal public events and activities, hosting the URBiNAT pavilion, social and solidarity economy events, and will demonstrate nature-based approaches towards design and maintenance of urban greenery.



Figure 47. The fourth zone of intervention – Green Assembly

Includes:

- An open-air green amphitheater;
- A flexible recreation area;
- An urban forest;
- A workshop/cafe/infopoint the URBiNAT pavilion



1. GREEN AMPHITHEATRE



2. RECREATION AREA



3. URBAN FOREST



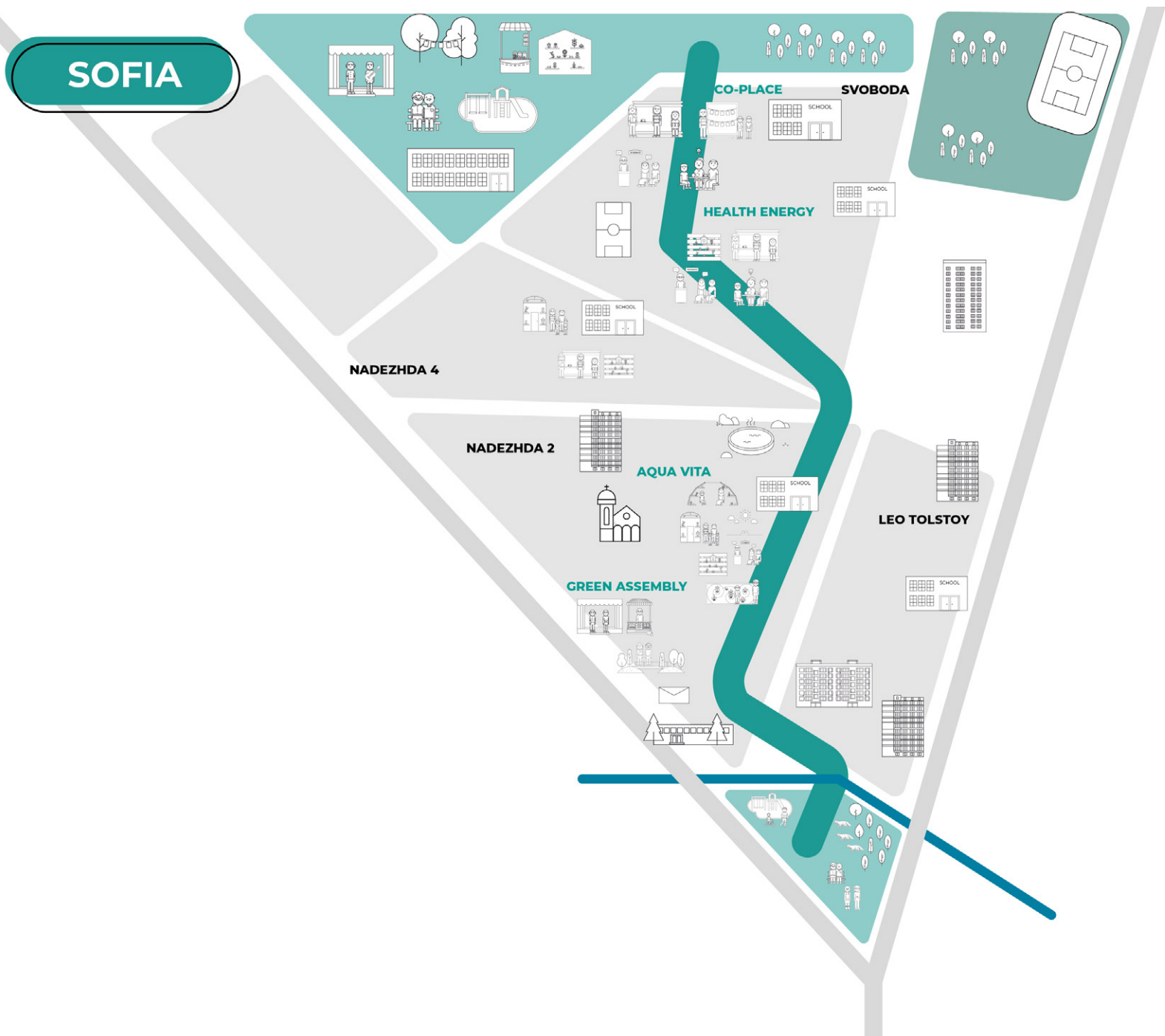
4. URBiNAT PAVILION



Figure 48. The fourth zone of intervention – Green Assembly – four sub areas

6. Sofia Healthy Corridor

6.1. Healthy corridor concept diagram



6.2. Main achievements and next steps

Based on the important steps taken so far by the URBiNAT project, the main achievements are hereby resumed, followed by the steps that will compose the next phases – co-implementation and co-monitoring:

- Clear definition of the correlation between identified needs and the co-design proposals;
- Engagement of 383 adults and pupils during co-selection and co-design activities in schools, public spaces and online workshops, and another 554 during the co-analysis;
- Systematization of proposals into operative categories, with the involvement of all actors – citizens, local associations, schools, municipal technicians, political representatives and URBiNAT technical team;
- Formulation of a global strategy for the Healthy Corridor that fits into the strategic and spatial development agenda for the city and the URBiNAT area;
- Organization of the 43 proposals in 3 categories: 23 NBS proposals that will be integrated in the Healthy Corridor plan; 11 NBSs channelled to other municipal projects; and 10 NBSs that will not be developed. In this sense, URBiNAT will develop 52% of the proposed NBSs, while 25% will (potentially) be considered for implementation in future projects;
- Acquisition of key diagnostic data focused on the intervention area and based on the integrated approach and expectations for synergy during the Healthy Corridor implementation, activation and functioning
- Stabilization of a Preliminary urban project that summarizes proposals in 16 subzones of territorial and technological NBS clusters, all of them organized into 4 main zones of intervention (Co-place, Health Energy, Aqua Vita, and Green Assembly) and 2 minor zones of intervention (Kindergarten N90 and the bridge over Suhodolska river);
- The Preliminary urban project for the Healthy Corridor is discussed by all the involved actors and validated by The Municipal council;
- Establishment of the Advisory board as main corrective and tool for inclusive participation in the course of the Implementation and management of the Healthy Corridor;
- The Preliminary urban project for the Healthy Corridor contains 4 groups of NBSs (public space, culture, education, and sports and

recreation located in 20 vacant plots along a 2,5 km long axis provisioned by the plans as part of the green infrastructure and public spaces in the four residential estates (Nadezhda 2, Nadezhda 4, Tolstoy and Svoboda) thus covering an area of 138,1 ha (defined as a buffer area of the primary and secondary axes of the corridor);

- Establishment of important synergies with other municipal departments and projects for further integration of the co-created NBSs;
- Establishment of an effective communication within the Municipality and operative unit within the local Task Force, and recognition of commitment to the implementation of the Healthy Corridor Concept URBiNAT beyond its lifetime;

The Next steps are focused on the implementation, with the main stages: finalization of the public procurement for the realization of the project events, finalization of the engineering public procurement and the subsequent detailed design and licencing, beginning of the construction (march 2022) and opening of the Healthy Corridor (end of 2022).

The implementation of the planned co-creation activities and steps for Sofia Healthy Corridor will seek to achieve the following results:

- A functional spatial link between Park Nadezhda and Severen Park connecting a network of various NBSs, a socio-economic network uniting different communities and different possibilities for implementation of market-based potentials and synergies resulting from the application of the NBSs, an arena to change perceptions, attitudes, behavior, lifestyle and philosophy of life;
- Upgrading and achieving synergy with the activities already set in a number of planning documents, and expanding the territorial scope of the already started process of promoting the city as a “City for people” taking into account the investment initiatives implemented by Sofia Municipality;
- Reaching consensus and implementing innovations in public space management policy in the complex range of interests of different users and stakeholders;
- Establishing a process of inclusion of local communities in identifying and finding solutions to meet the diverse needs of

communities and specific target groups in the neighborhoods of Triygylnika, Nadezhda 1, Nadezhda 2, Tolstoy and Svoboda through close cooperation with the local municipal authorities;

- Activating the pedestrian mobility as a key driver for urban regeneration;
- Improving the quality of public space, including development, maintenance, better accessibility for all citizens and providing opportunities for multifunctionality through tools offered by urban design, landscape architecture and architectural design;
- Development and establishment of a common, integrated and systematic model, which includes local actors and stakeholders from the city (NGOs, institutions, networks) in the process of co-creation of the Healthy Corridor in Sofia and implementation of the NBSs;
- integrating new (business) models that make the active population, public goods and local capital sectors profitable.

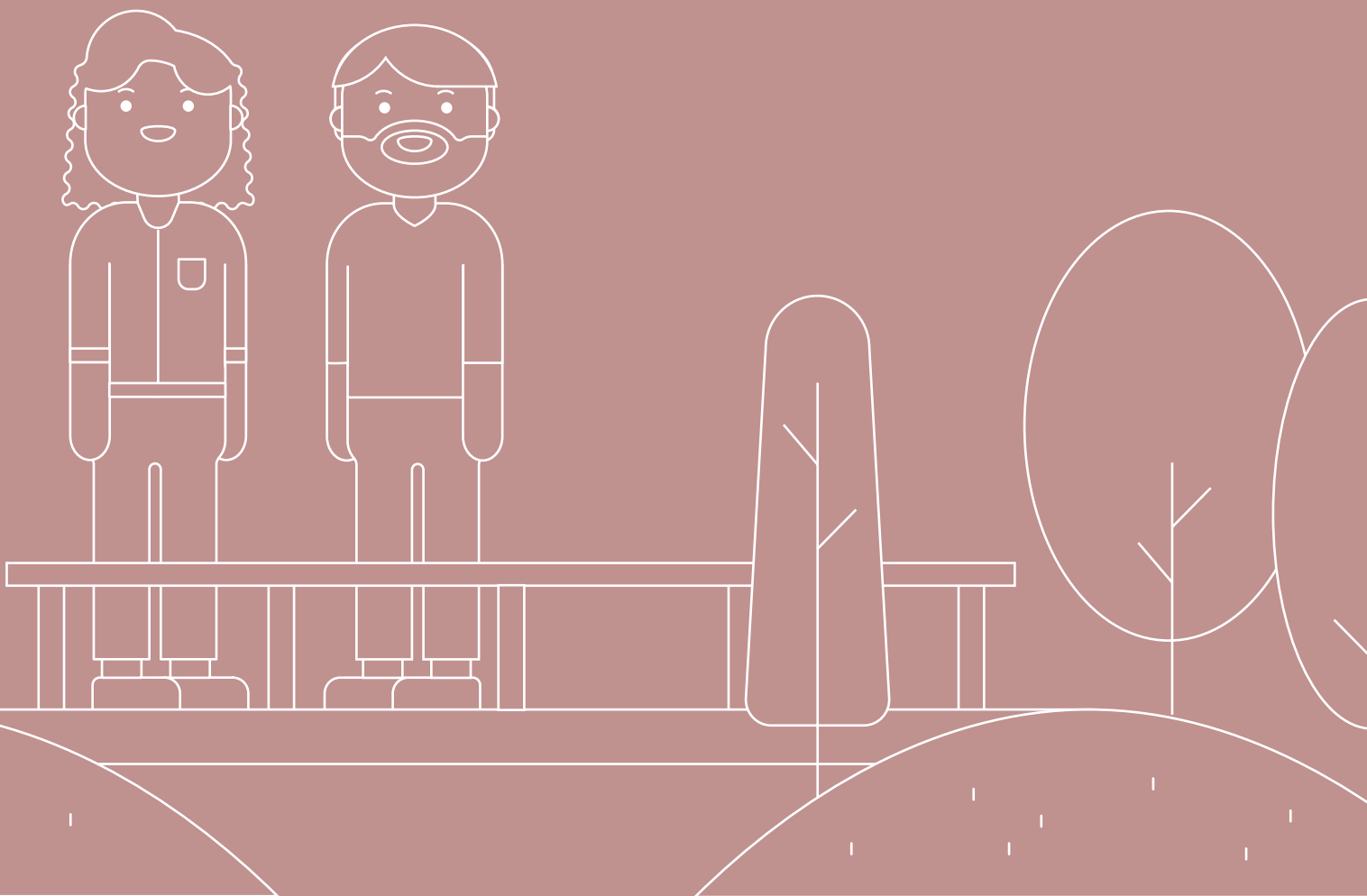
Public Space	126
Eco-parking for different kind of vehicles	127
Place for leisure with a flower garden and a picnic and social zone	128
Neighbourhood meeting place / Grow a bench / a neighbourhood open space for social sitting and meeting space	129
Bridge over the Suhodolska River	130
Bring water back in public space (water fountains)	131
Living lab – Urbinat pavillion	132
Culture	133
Green amphitheatre	134
Dancing classes	134
Education	136
Open green classroom – school greenhouse	137
Tasty garden of learning – Kindergarten N 90 in Nadezhda 4	138
“Make a game yourself” – a place for expression of master skills; family outdoor games for children and adults	139
Forum theatre	140
Sports and Recreation	141
Innovative project of public swimming pool with mineral water	142
New interactive playground facilities employing natural materials	143
Restoration of a multipurpose sports field	144
Outdoor gym / Sport activities, a neighborhood open space for social and sport activities	145

Public Space

The category “public space” comprises all co-selected and co-designed solutions fitting in the territorial context of the areas of intervention and aiming at the improved quality of the public space in terms of accessibility and mobility, liveability and diversity of activities, and greenery and vegetation.

It is expected that some of these “material solutions”, implemented as investment projects in the proposed intervention areas, will be in direct relation with the immaterial solutions, and will contribute to an expected synergetic impact.

This section represents the decisions taken on the development of NBS, according to the analyses of the NBS developed by the task force, the municipality and the inhabitants.





CO-PLACE



Eco-parking for different kind of vehicles

Zone CO-PLACE, subzone 1

- To address tensions and opposition among residents on the prohibition of the parking zones along some streets.
- To protect parked bicycles and other micro-vehicles from theft or vandalism.
- To maintain the eco parking

Participation process to use the NBS

CO-DIAGNOSTIC

The problem with car parking was identified through Expert observations, BM, walkthrough, and culture mapping. It was also pointed as a problem by the participants in the Interviews, focus groups and workshops. Cars are parked on green areas, sidewalks, and streets in violation of the traffic rules. They limit the freeway of the pedestrians, destroy pavements, contribute to air pollution, and worsen the micro-climate characteristics. Public parking for bicycles and scooters within the URBiNAT study area is not available.

CO-SELECTION & CO-DESIGN

Parking was persistently mentioned as a problem during the workshops in the Co-selection & Co-design process. Participants expressed their concern about the lack of enough parking spaces, the loss of green spaces and the replacement of already established functions by unregulated parking. Citizens proposed diverse solutions – from introduction of short-term paid parking zones to construction of underground and above-ground multi-story car parks. People consider that expensive technological solution will make parking inaccessible for most of them. That is why the proposal focuses on a solution based on natural materials, implemented on the ground level, and providing opportunities for parking of several types of vehicles.

Best Practices and References

<http://new.acera-bg.com/parking-element/>
<https://www.pinterest.com/pin/57702438956147082/>,
<https://www.bigstockphoto.com/image-283365145/stock-photo-bicycle-parking-in-the-park-bikes-in-the-parking-lot-for-bicycles%2C-the-view-from-the-side>

Description

Environmentally friendly parking for cars, bicycles and other vehicles will provide the much-needed parking spaces and free up area for development and accessibility of the Healthy Corridor while avoiding future conflicts between different users. In the process of the Corridor co-creation, places for recreation and social contacts could be added to this area.

Positive aspects/challenges

POSITIVE

- Freeing up the inter-bloc spaces from parked cars and allow for non-parking space along some streets around the intervention areas and the Corridor;
- Creating space that supports the functioning of the existing sport playground;
- Separating the parking zone from the zones for playing and leisure and reduce the conflict between the users.

CHALLENGES

- To provide a parking that will be used by all residents

Place for leisure with a flower garden and a picnic and social zone

zone CO-PLACE, subzone 4

Description

The idea is to diversify this inter-bloc space and create opportunities for social contacts and joint community activities for both children and adults. It is also envisaged that the pavement of the Corridor in this part will be made of luminescent coating to make the environment suitable for use as many hours a day as possible, but also to avoid light pollution and unpleasant feelings among the residents of the surrounding blocks.

Located at a close proximity to the Severn park, the Co-place area will host activities for the residents to create a flower garden, a zone for picnic and social interaction where they can put a hammock or to hold a NBS – photovoice, world café, etc.

The proposal will be further developed in the process of joint co-creation of the Corridor.

Positive aspects/challenges

POSITIVE

- Enrich the recently renovated space with different activities and create a zone for social communication and leisure;
- Create more possibilities to spend time outside especially in Covid-19 situation;
- Make an urban area look like a park and create a natural link with the entrance of the existing park.

CHALLENGES

- To avoid conflict between the users of this space and people that live in the buildings around the area;
- To encourage people to use this place with respect for nature and make a society aware of its responsibility for guarding and keeping it clean.
- To keep the place clean
- To involve adults in the games and dynamic activities

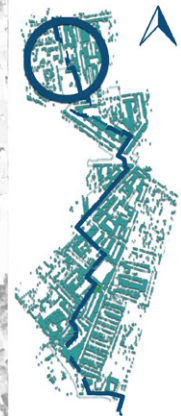
Participation process to use the NBS

CO-DIAGNOSTIC

The interaction with citizens during cultural mapping, walkthrough, and photovoice, revealed



CO-PLACE



the importance of the place and the practise which already proved its sustainability – the maintenance of the space in front of the blocks entrances. Moreover, people shared the expectation of a better-maintained public space. Special attention was drawn on the small and large flower gardens. This diagnosis was further confirmed in the course of the conducted territorial analysis and expert observations.

CO-SELECTION & CO-DESIGN

The walkthrough, photovoice, behavioural mapping and community workshops confirmed the hypothesis that young people seek and use spaces that differ from these preferred by the elderly inhabitants. Youngers and teenagers are attracted by the urban environments and practices typical for the Sofia central parks and places. Therefore, the proposed NBS enables different groups of citizens to design spaces according to their specific needs.

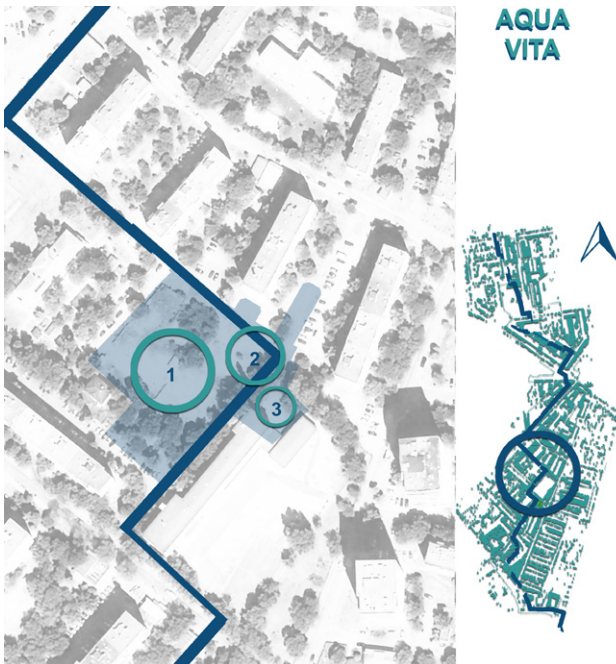
Best Practices and References

<https://mydesiredhome.com/27-fantastic-diy-ideas-to-transform-a-tree-trunk-into-a-beautiful-garden-decoration/>



Neighbourhood meeting place – a neighbourhood open space for socializing, sitting and meeting

Zone AQUA VITA, subzone 2



Description

The detailed design(s) of the Neighbours' meeting places or social sitting spaces will be elaborated together with local communities. However, most probably they will incorporate a variation of a bench, lounge chair and/or chairs, table, space for plants and other furniture that is perceived as important by the locals. Aforementioned elements will be developed from natural materials by architects and urbanist with rich hands-on experience, together with local communities.

Materials that will be used are: high quality wood and metals, stones, eventually concrete, plants and various tools.

Urban design elements that will be designed and installed have to be approved by certified architects and constructors.

Positive aspects/challenges

POSITIVE

- Creating new and renovating the existing places for communication, exchange and recreation
- Creating equal rights of use through activating new participants among the inhabitants
- Increasing the built environment aesthetics
- Supporting the revival of 6 decades' tradition

CHALLENGES

- Use of the furniture without restrictions for residents and external users
- Maintenance, especially the furniture and surrounding area in public spaces and around public buildings
- Protection from vandalism

Participation process to use the NBS

CO-DIAGNOSTIC

Through territorial analysis and expert observation, walkthrough and cultural mapping was found that neighbours' meeting places are common phenomenon in the neighbourhoods Nadezhda district. They vary from a bench in front of the entrance, through a gazebo, and to multifunctional places. Over the years, citizens have implemented different approaches to transforming them by adding, changing, adapting, expanding or inviting new functions. Most of the results are groups of hand-made tables, chairs or benches, alone or in combination of interior furniture reused outdoors. Such furniture is found in closed or semi-closed pavilions or shelters. There is no evidence that these interventions were the result of a community decision.

CO-SELECTION & CO-DESIGN

During the community Workshops, face-to-face interviews, and the focus-groups, the need for equipped places with furniture to sit, rest and meet was repeatedly mentioned. Citizens expect more places of that kind in the parks, the green areas, and in front of the public buildings. Some workshop participants commented on the aesthetics of the available public urban furniture and the one created and maintained by the citizens in front of the blocks' entrances. The estimations differ significantly and sometimes are contradictory.

Best Practices and References

<https://thespot.bgbeactive.org/the-spot-2018/>

Bridge over the Suhodolska River

Zone GREEN ASSEMBLY, (not numbered in the schemes)



Description

A bridge with a wooden structure is a natural solution for overcoming the canal of the Suhodolska River and connecting the Tolstoy neighbourhood and Nadezhda Park. The new bridge must allow a comfortable passage in both directions. The bridge should have a suitable pavement allowing for prams and wheelchairs, scooters, and bicycles to move without risk in all seasons. The current bridge is narrow with metal decking, which implies an increased risk of slipping on wet, rainy and foggy days. During the recovery from the Covid 19 pandemic, it is important to improve access to parks and other public green spaces. Providing a safe bridge and enough space for crossing directions at a safe distance is also a reasonable health protection measure.

Positive aspects/challenges

POSITIVE

- Increased safety when crossing regardless of weather conditions
- Simultaneous and safe crossing of several people and cyclists in both directions

CHALLENGES

- Difficult communication with authorities in charge of critical infrastructure
- Risk to the facility longevity due to the need for wooden structure permanent maintenance and seasonal care

Participation process to use the NBS

CO-DIAGNOSTIC

A lot of people crossing over the river were observed in the course of the expert observation and behavioural mapping. Most often stopping and waiting the one-way crossing is needed due to the narrowness of the bridge – about a meter width. Despite this, it is a preferred entrance for Nadezhda Park by people living in Tolstoy and Nadezhda 2 neighbourhoods as the other entrances to the park are too far from the residential area.



CO-SELECTION & CO-DESIGN

During the Co-selection and Co-design workshops the citizens shared the perception of discomfort in situations when many people gather on one or both sides of the bridge as sometimes waiting takes longer. They also share concerns about the people accompanied by their dogs. In connection with these daily difficulties and the discomfort associated with them, citizens expect improvements of access to the park over the Suhodolska River. This new NBS includes a wider bridge with non-slip decking build by nature-based materials.

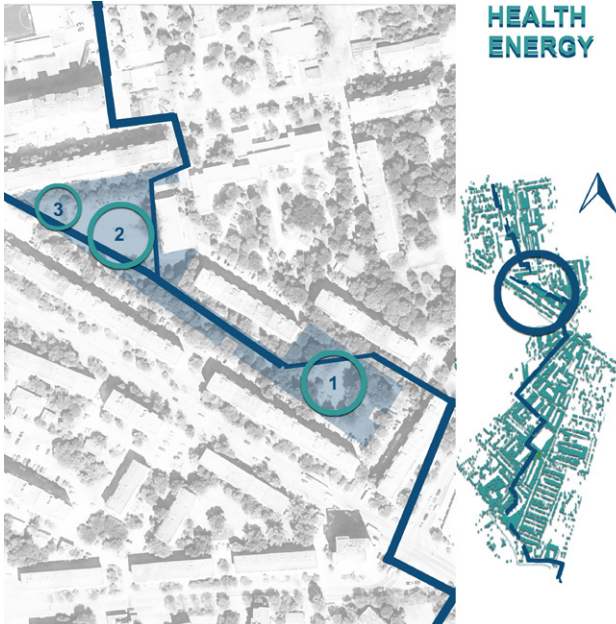
Best Practices and References

Bostanlı Footbridge & Sunset Lounge / Studio Evren Başbuğ, <https://www.archdaily.com/866903/bostanli-footbridge-and-sunset-lounge-steb>



Bring water back in public space (water fountains)

Zone HEALTH ENERGY, Subzone 1



Description

Water fountains in South-Eastern and Southern Europe are a tradition that facilitates climate change adaptation as they provide fresh drinking water in periods of high temperatures and improve microclimate. Despite overcoming seasonal stress, water is essential and valuable for human health.

Drinking water fountains in Bulgarian public spaces are a tradition that has been lost in the recent 30 decades. Through the endorsement of bottled water, trust in the drinking tap water qualities was undermined thus changing preferences and lifestyles of many Bulgarian citizens. Today, when the good quality of tap water is guaranteed, and at the same time the daily consumption of bottled water generates large amounts of non-degradable plastic waste, it is important to bring back drinking water fountains in public places. They can be equipped with water-saving technologies and can be integrated into systems for grey water discharge.

Positive aspects/challenges

POSITIVE

- Provide access to clean drinking water in public spaces
- Help to adapt to rising temperatures on hot days
- Have positive impact on human health and

- the built environment
- Reduce the use of bottled water, and hence the generated waste
- As attractive elements in public space, they encourage interaction between people

CHALLENGES

- To implement a proper management and maintenance model
- To prevent uncontrolled and unnecessary water consumption
- Misuse of public resources
- To protect them and the technological innovations implemented against vandalism

Participation process to use the NBS CO-DIAGNOSTIC

During the expert observation, it was discovered that only one fountain operates in the yard of the Sveti duh Church and three more in the contact area: one in North Park and at two at the metro stations. There are no fountains in the schoolyards, the wide inter-block spaces, the sports and children's playgrounds. During the Behavioural mapping, a young people's game with water bombs observed in the yard of 141 school, proved that water could serve multiple purposes – from being essential for climate change adaptation to serving as means for recreation and fun.

CO-SELECTION & CO-DESIGN

During the workshops in Svoboda neighbourhood, the middle-aged and elderly inhabitants recalled and claimed the restoration of the existing fountains in the inter-block spaces. People demonstrated their awareness of the existing mineral water drilling in Zone Aquq Vita. They shared their expectation that this public resource should be close to the citizens in the form of a swimming pool, a fountain for recreation or just a fountain symbolizing the presence and the future utilization of the thermal water.

Best Practices and References

Interactive map with the functioning fountains in Sofia (in Bulgarian): <https://zerowastesofia.com/watermap/>

Living lab – URBiNAT pavillion

Zone GREEN ASSEMBLY, subzone 2

Description

Located at the very beginning of the Corridor, the pavillion will provide indoor space that can serve multiple functions: a project's information point; a workshop space; a forum where stakeholders will be able to express their interest and willingness to participate; one of the main venues for the implementation of the participatory NBSs.

Previously used for other purposes, the pavillion will be externally branded and adapted for the purposes of URBiNAT in line with the concept of Recycle and Reuse. There is a possibility to integrate vertical greenery on the façades or on the railings of the roof terrace.

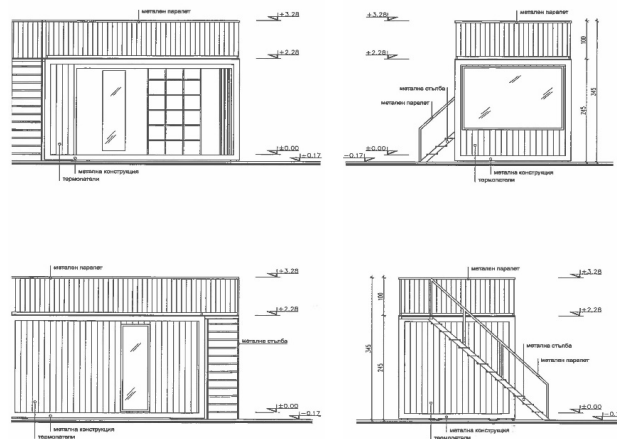
Positive aspects/challenges

POSITIVE

- Allows flexibility of uses and complements the rest of the outdoor facilities by adding indoor space
- Helps raising citizens' awareness about the project, the role of nature in the urban environment and its importance for human health
- Provides space for interactions among stakeholders and residents and acts as an arena for implementation of the NBSs that enhance participation and inclusion
- Acts as a forum for sharing project progress and announcing upcoming events
- Provides an opportunity for future revenue streams from the workshop cafe that can be channelled back into maintaining the structure and the intervention zone

CHALLENGES

- Maintaining up-to-date information about the project, both in digital and analogue format
- Creating a work schedule suitable for the rhythm of the residents
- To provide proper upkeep and maintenance to the structure;
- To involve local grassroots community organisations in the running of the pavillion on a non-for-profit basis.



Participation process to use the NBS

CO-DIAGNOSTIC

Finding the appropriate location for the URBiNAT pavillion was the key factor to make the URBiNAT Living lab visible and sustainable. The existing local cultural centres are located at the periphery of the Healthy Corridor area and they, along with the other cultural institutes have limited and controlled access and are full of scheduled regular events and activities. Through the territorial analysis, the evaluation of the municipal plots, and the expert observation, a suitable communicative location for the Living Lab contact point was identified.

CO-SELECTION & CO-DESIGN

The conduct of the Co-selection and Co-design Workshops and other methods for involving citizens and other stakeholders in project activities showed that systematic but periodic dissemination and actions are not enough to attract the locals in a sustainable way. Therefore, establishing a permanent location to act as URBiNAT project contact point is key to the success of the project.

Culture

The category “culture” organizes all co-designed solutions related to culture in the URBiNAT study area region and will contribute to improve the cultural communication and boost the number and quality of cultural events in terms of music, theatre, cultural and natural heritage, among others.

Analyses and decision on the development of the New NBS

This section represents the decisions taken on the development of NBS, according to the analyses of the NBS developed by the task force, the municipality and the citizen



Green amphitheatre

Zone GREEN ASSEMBLY, subarea 1

Description

As a main focal point of the intervention zone GREEN ASSEMBLY, the green amphitheater will serve as a flexible outdoor space that will function as an informal social area, an event venue for performances and concerts, dance and music events, exhibitions, literary readings as well as a gathering spot for the citizens of Nadezhda. The amphitheater will act as a landmark and provide a distinctive character to the intervention zone, increasing its attractiveness for new users.

The Green Amphitheater is a well-integrated in the urban landscape shared open space. The creation of such a place indicates the intention to hold larger community events and initiatives, including the URBiNAT participatory NBSs discussing issues important to communities and citizens through the Forum Theater, Word Café, focus groups in Situ, community workshops will help the Green Amphitheater to establish itself as the Corridor landmark.

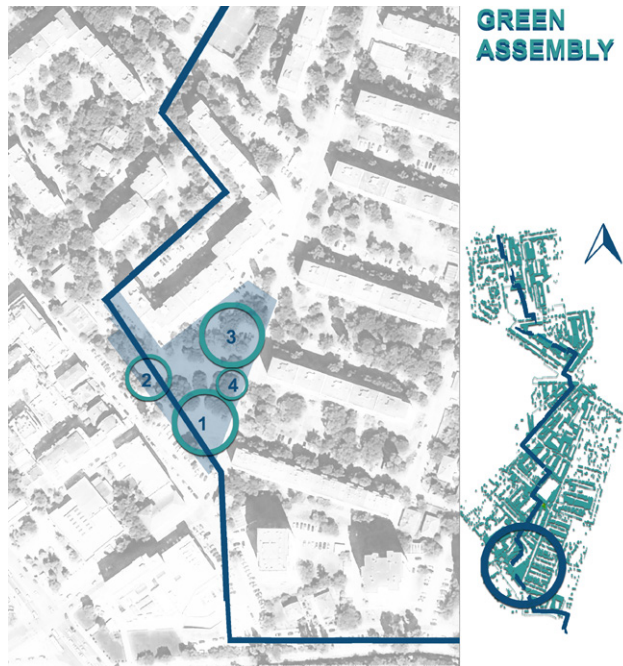
Positive aspects/challenges

POSITIVE

- Brings together communities
- Provides space for sharing common problems and making decisions together
- Enhances integration between culture and urban environment
- Provides new community space to play
- Creates a local landmark suitable for different users;
- Provides a much needed comfortable outdoor event venue to Nadezhda;
- Employs natural materials to increase local citizens' awareness of alternative construction techniques and their positive impact on the environment.

CHALLENGES

- To keep the place safe and to ensure its protection against potential vandalism
- To proper maintenance
- To ensure that it serves both informal social purposes and formal events by setting up a model for its future operation in accordance with the needs of the local community
- To find a business model for the post-URBiNAT future



Participation process to use the NBS

CO-DIAGNOSTIC

The Local Diagnostic outlined that the only place recognized for organized outdoor events is the North Park. These are usually events addressed to all residents of the Nadezhda district – significantly larger in area and in number of population than the URBiNAT study area. In this sense, these events cannot be called community. The green amphitheatre comes to fill the gap of small public space for events and informal cultural activities.

CO-SELECTION & CO-DESIGN

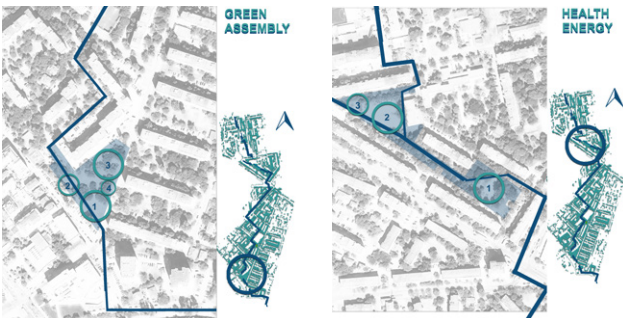
Modelled as a green amphitheatre, such open space is not in itself an innovation. Still, its future functions it can perform and community events to be sheltered can bring innovation to community interactions and relations. During the workshops, interviews, and focus groups, it was found that there are inhabitants who are ready and willing to participate and provide dance classes or other educational or cultural activities for free.



Dancing classes

Zone GREEN ASSEMBLY, subzone 1

Zone HEALTH ENERGY, subzone 2



Description

Dancing in public space is a well-known tradition in Sofia and in the country. Along with the Bulgarian folk dancing in the squares on holidays, one can add classical and sport dances on special platforms or separate places in parks and gardens, or of street dance art. Apart from the active lifestyle, the benefits of dancing are numerous, especially when dancing takes place in open space and in close connection to nature.

In the context of the challenges facing Covid 19 around the world, it is important to look for opportunities for more collective activities outdoors. The continental climate in Sofia allows dance classes to take place in open public places almost 9 months – from early spring until late autumn.

In spatial terms, this NBS can be described as a space or platform with dance flooring. It can be combined and practiced in the Green Amphitheatre, in the restored sports playground in Zone Health Energy, subzone 2, in North Park and Nadezhda Park. Apart from being used as a forum of culture and education, the NBS can also be implemented as a social and solidarity economy solution.

Positive aspects/challenges

POSITIVE

- Encouraging activities in the urban environment for groups that are not traditionally active – e. g. women.
- Bringing different dances closer to a wider range of people
- Building a dance culture among young people

CHALLENGES

- Activities depend on weather conditions
- Involvement of residents in such an initiative
- Finding a suitable business model, so dancing classes to be accessible to disadvantaged groups
- Concern among participants about outdoor training

Participation process to use the NBS

CO-DIAGNOSTIC

During the expert observation, behavioural mapping, face-to-face interviews and focus-groups it was found that various dance lessons are held in all cultural institutes and some of the schools. In combination with the tradition of dancing outdoors, this NBS has a strong potential to be realized successfully.

CO-SELECTION & CO-DESIGN

During the workshops, one of the participants shared his willingness to give outdoor dance lessons.

Best Practices and References

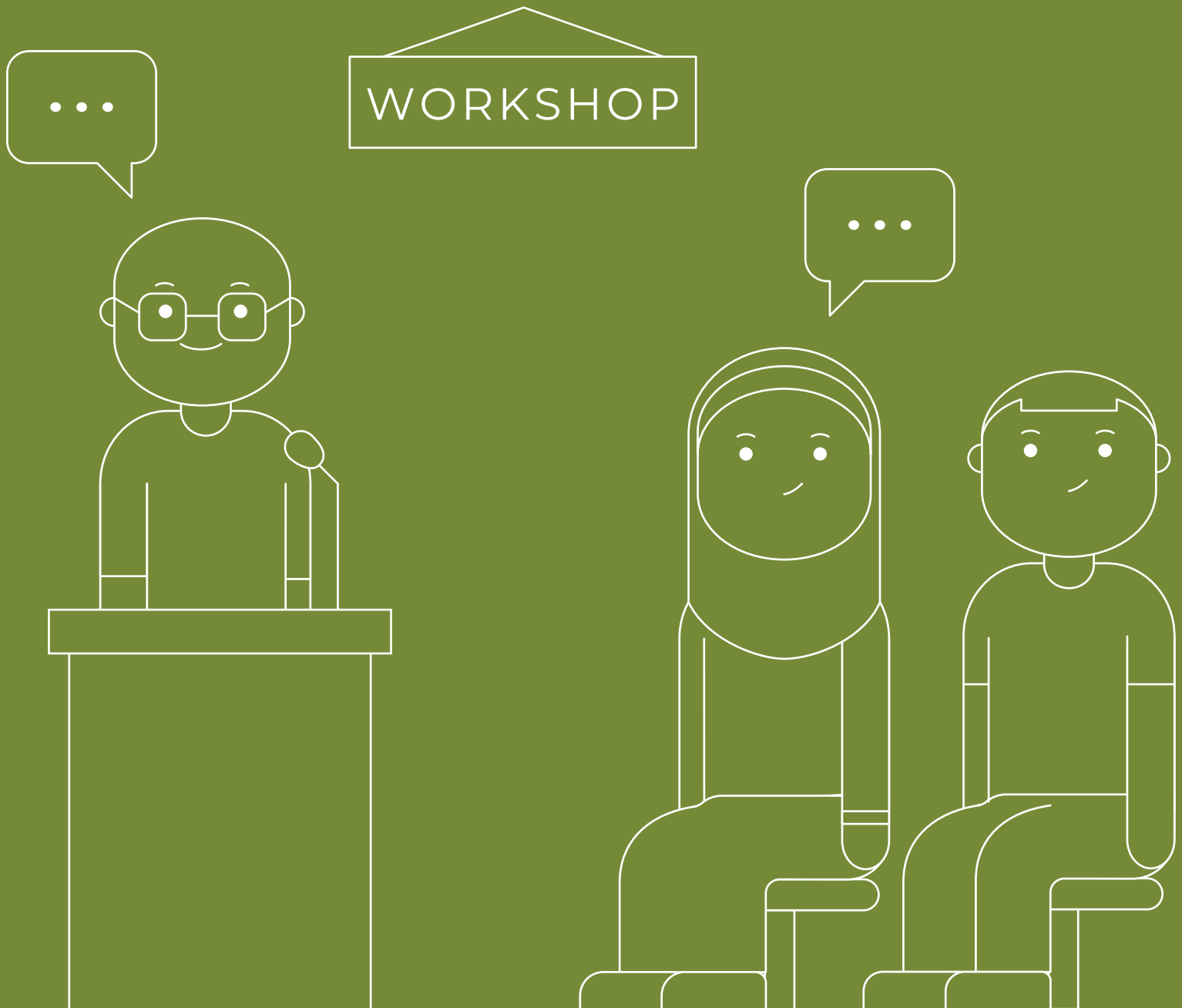
<https://www.youtube.com/watch?v=dYtJq5XNjaU>

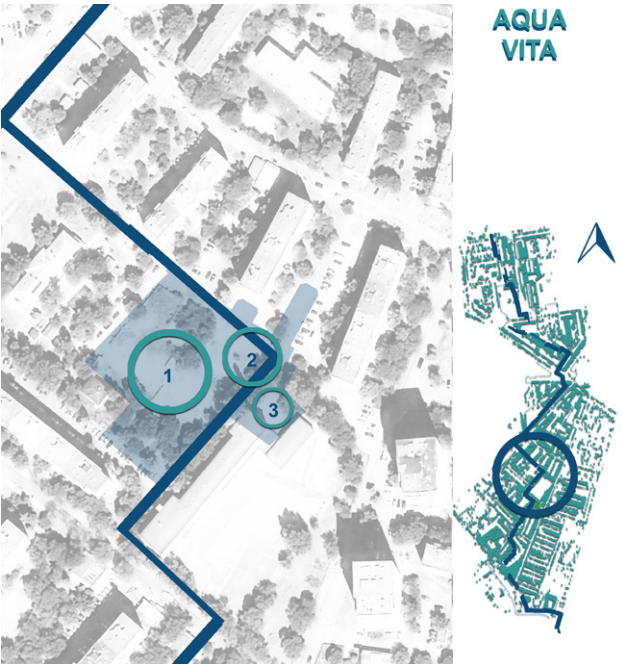
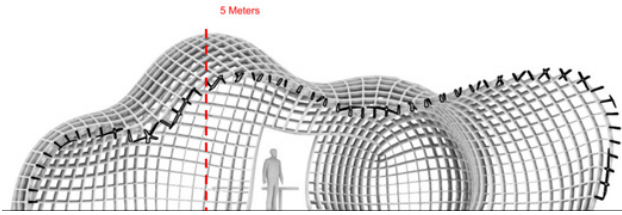
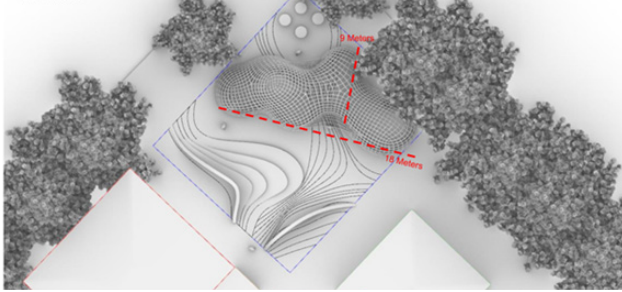
Education

The category “education” organizes all the solutions co-designed with citizens that are related with recreational and educational activities and will contribute to improve a set of recreational and pedagogical activities that promote the relationship with space and the sense of belonging at the community level in conjunction with the region’s school community.

Analyses and decision on the development of the New NBS

This section represents the decisions taken on the development of NBS, according to the analyses of the NBS developed by the task force, the municipality and the citizens





Open green classroom – school greenhouse

Zone AQUA VITA, subzone 3

- Providing information about the thermal water qualities and its impact on human health
- Creating students' community place for knowledge exchange and communication;
- Bringing back the tradition of running a greenhouse at the same place in the schoolyard
- Providing a demonstration greenhouse project, utilizing thermal water for heating and watering

CHALLENGES

- To solve technological problems in connecting the greenhouse with the thermal water drilling device
- To create a comfortable and appropriate innovative construction of the greenhouse
- Create a working mechanism for activating the students to participate in the co-creation and maintenance

Participation process to use the NBS

CO-DIAGNOSTIC

Through territorial analysis, expert observation, face-to-face interviews, and focus groups, it was identified that education is “closed” in the school buildings. The schoolyards are partially used for physical education and sports classes, and for this purpose, their outdoor surface is impermeable, and the soils are sealed. The need for environmental and health education was emphasized during the meetings and interactions of the working group that involved representatives of the educational institutions in the URBiNAT study area.

CO-SELECTION & CO-DESIGN

The Food Production and Leisure Pavilion from the Sofia Mini Catalogue were recognized as a desired solutions during the opening event and the four local workshops. The opportunity to combine the attractive structure of the pavilion and the educational component was recognized by the school management of 15th high school. As a result of intensive work between the Sofia Taskforce, the management body of 15th school and IAAC, this new NBS was developed.

Description

The school greenhouse is an interesting space for learning and recreation by the combination of the three NBSs – leisure pavilion, tasty garden, and utilization of the existing mineral water. The main aim of this complex NBS is to make pupils acquainted with plant growing and the qualities of the mineral water. The pavilion will provide place for spending free time and organizing different school activities. It will be integrated with the open space thus providing opportunity to organizing open space classroom in a natural environment. The innovative construction of the greenhouse will be created by IAAC.

Positive aspects/challenges

POSITIVE

- Increasing students' awareness of nature and botany

Tasty garden of learning – Kindergarten N 90 in Nadezhda 4

Description

The Tasty Garden of Learning is a green “growing classroom” situated in the yard of the kindergarten where children, teachers and parents unite their efforts and vision to grow together herbs, vegetables and fruits and receive valuable lessons and inspiration directly from their own experience with Nature. It is also a multi-dimensional educational tool with a potential to unite school subjects to real life and provide inclusive educational activities easily and in inspiring way. In a very natural way the Garden of Learning brings together all participants in the educational process in a life-enriching relationship and leads them to a deep creative process of learning by experiencing that supports the development of the physical, intellectual, emotional and social intelligence of the children, and also unites and supports the sustainable development of their local communities.

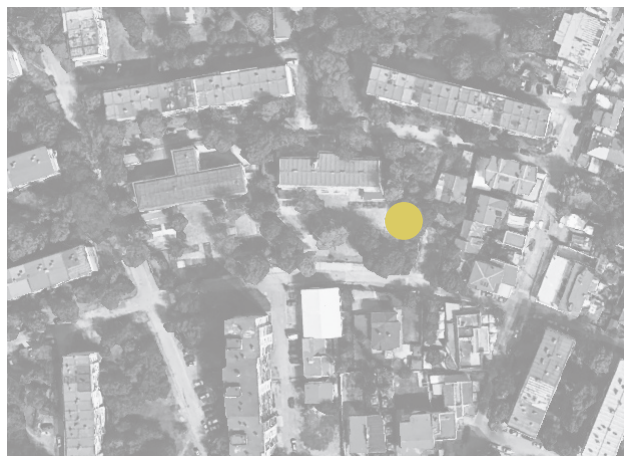
Positive aspects/challenges

POSITIVE

- Positive integration and shared responsibility of the parents and the local community in the educational process of children in their early years;
- Upgrading of the educational system through innovative methods for inclusive and experiential learning that helps children to develop multiple intelligences and build basic competences such as creativity, flexibility, team working and risk management
- Developing lasting skills and attitudes for healthy living in harmony with oneself, other people and Nature as a whole

CHALLENGES

- The need for constant care of the garden – watering, weeding and plant care, lawn mowing
- The challenges of pests and climate disasters
- Summer vacation is the time when the garden is most in need of watering, and staff and volunteers are the least
- Maintenance of wooden planter boxes



Participation process to use the NBS

CO-DIAGNOSTIC

During the co-selection and the co-design workshops the staff from the kindergartens expressed interest to develop vegetable and herb gardens and to integrate them with different educational activities. Many people recognized urban agriculture as an option to effectively utilize the space in the kindergartens. It has been realized that such practices may have a positive impact on community and social cohesion, and could influence human health and well-being by encouraging physical activity, enhancing healthy lifestyles and encouraging children and families to spend more time outdoors together in direct contact with Nature.

CO-SELECTION & CO-DESIGN

In July 2020, a presentation on the implementation steps was delivered for all headmasters and staff from Nadezhda district. The staff of the Kindergarten N90 directly contacted Sofia Taskforce and shared their vision to upgrade the existing small herb garden in one corner of the spacious non shadowed yard.

Best Practices and References

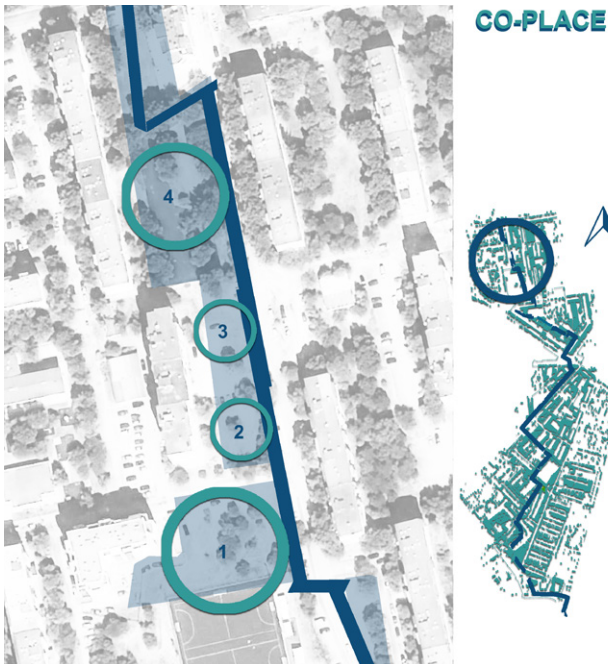
<http://gradinka.zaedno.net/elhica-eng>

The existing herb garden in Kindergarten N90 in Nadezhda 4



“Make a game yourself” – a place for expression of master skills; family outdoor games for children and adults

Zone CO-PLACE, subzones 2 & 3: Two-part place for open-air family games



Description

A new kind of space for outdoor activities that will foster the transition from the sedentary lifestyle of children and adults, and overcome the consequences around Covid-19 restrictions and measures. The space will be equipped with an information board with suggestions for various family games that people can make out of the materials at hand. Children and adults will be able to develop and demonstrate their skills in making various games and/or other items out of recycled materials. Campaign events for collection and recovery of recyclable items will be held there. The Subzone 1 – “Make a game yourself” will be designed as a place for expression of master skills, while Subzone 2 – as a place for family outdoor games for children and adults. The proposal will be further developed in the process of joint co-creation of the Corridor.

Positive aspects/challenges

POSITIVE

- Expand the diversity of options for entertainment for the residents and encourage the intergenerational interactions;
- Make suitable conditions for knowledge exchange and development of people’s skills in handy works.
- Transform an empty zone used for parking in a place where people can play and learn interesting things together.

CHALLENGES

- Attract people to participate in co-design and co-creation of these zones;
- Convince the residents not to park in the area with imposed restrictions.

Participation process to use the NBS

CO-DIAGNOSTIC

The expert observation and the conducted interviews, brought to the conclusion that the adult’s activity and the active, creative interactions between children and adults are limited partially due to the limited space providing the opportunity for adults and children to play together. To some extent adults perceive the self-imposed main responsibility to safeguard children, which do not necessarily include the active involvement in everyday games. In general, there are no conditions for creative activities in neighbourhoods open space.

CO-SELECTION & CO-DESIGN

During the Co-selection & Co-design workshops, the need for small nonstandard playgrounds and multifunctional places for interaction was identified.

Best Practices and References

<http://online.fliphtml5.com/vwkc/jpsw/#p=52>
<http://dev.bgbeactive.org/>

Forum theatre

Zone GREEN ASSEMBLY, subzone 1
Zone CO-PLACE, subzone 1

Description

A participatory method based on theatre techniques, games and exercises, involving the community in analyzing and discussing problems, provoking awareness and citizen participation. Particularly relevant in the co-implementation of the Green Corridor and its activation. Valuable for finding collective arrangements of co-maintenance and co-production.

Positive aspects/challenges

POSITIVE

- Brings together individual and social dimensions, enhancing cohesion, commonality, and sense of identity;
- Using the performing arts techniques that allow addressing complex and symbolic dimensions of urban development and rehabilitation,
- Optimizing public discussion on collective issues and catalysing action on alternative local actions and interventions according to the available resources.

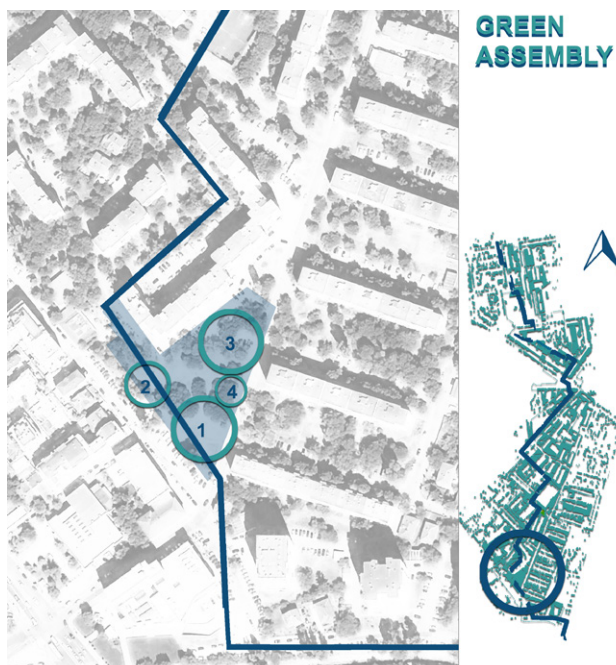
CHALLENGES

- To address and involve diverse groups of inhabitants;
- To establish a sustainable practice in communicating and discussing different problems;
- Create a working mechanism to activate larger groups of inhabitants and sustain thrust and commitment among them;
- Needs a flexible space to serve as a scene, which should allow hosting from few to many participants and audiences.

Participation process to use the NBS

CO-DIAGNOSTIC

During the focus groups and interviews, it was identified that forum theatre has a great potential for awareness rising, non-formal education, and promotion of healthy lifestyles and activities that would transform the urban environment.



CO-SELECTION & CO-DESIGN

The Forum Theatre from the Sofia Mini Catalogue was recognized as a desired solution for the public space during the opening event of the Co-design process and the eight local workshops. The opportunities to combine another NBSs and use them as a scene were recognized by citizens and professionals employed at the cultural institutions located in the URBiNAT study area. Several citizens with expertise in participation in Forum theatre events expressed their interest to participate in the organization of such events during the activation of the Healthy Corridor. A proposal for organizing an event focused on waste management in the inter-block spaces was raised.

Best Practices and References

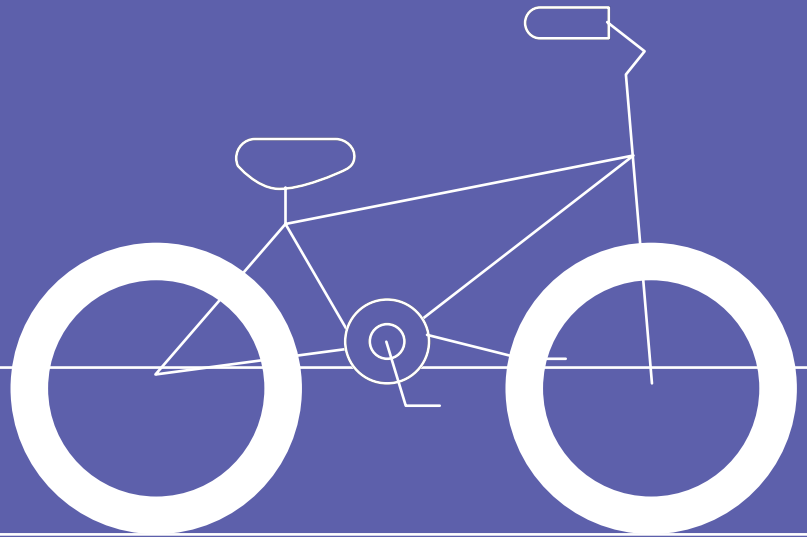
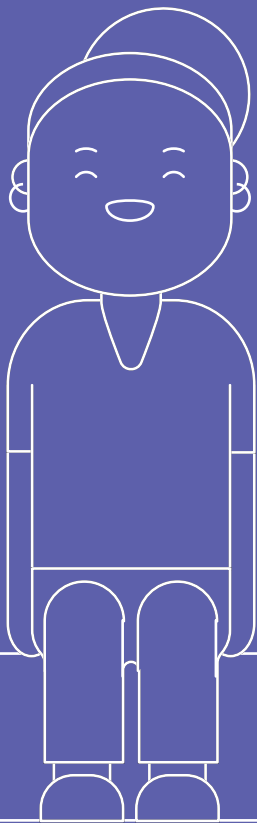
'Forum Theatre' is one of the techniques and tools used by the 'Ideas Factory Sofia' – local NGO that actively explores how to catalyze a positive change in attitudes in Bulgarian society towards inclusion in decision-making, social entrepreneurship, civic education and innovative solutions to critical issues. Forum Theatre, Source: <https://ideasfactorybg.org>

Sports and Recreation

The category “sport and recreation” combines all the solutions co-designed with citizens that are related with recreational and educational activities. These NBSs, used individually or in groups, will contribute to active movement and healthy lifestyles.

Analyses and decision on the development of the New NBS

This section represents the decisions taken on the development of NBS, according to the analyses of the NBS developed by the task force, the municipality and the citizens.



Innovative project of public swimming pool with mineral water

Zone AQUA VITA, subzone 1

Description

The thermal mineral water swimming pool relies on the use of a local geothermal resource – mineral water, to provide healthy environment for physical education and training as well as recreational activities of school children. It also aims at the revival of the millennia-long regional cultural tradition of living in close contact with mineral water.

The nature-based concept for the geothermal swimming pool aims at the development and practical implementation of complex socio-cultural and technological innovation.

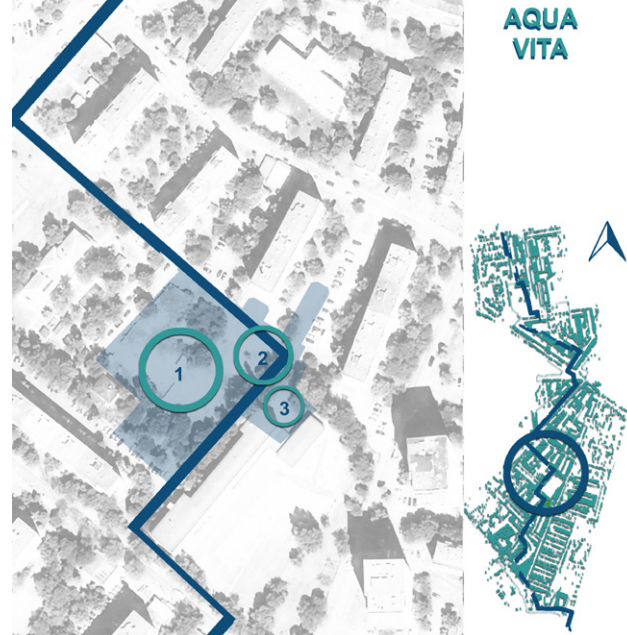
Within the URBiNAT project framework, an innovative project for a public mineral water swimming pool based on the desires of the citizens and with their active participation will be delivered. The aim of the project will be to propose a new functional and business model for cooperation between citizens, municipality and business.

Nowadays part of the territory that will be occupied by the swimming pool is not well-maintained. During the project elaboration this area will be promoted and used for exhibitions and information of the qualities and composition of the mineral water and its benefits for human health. It could be also used for demonstrating the swimming pool project progress and for organization of public discussions.

Positive aspects/challenges

POSITIVE

- Provision of a new accessible educational, recreational and sports facility for the communities
- Base on cost-efficient solutions (water as main resource and for heating)
- High ecological benefits
- Contributes to human health, wellness, and wellbeing
- Possibility to integrate swimming into school physical education
- Straighten the relationship and communication between different stakeholders concerning the urban environment and its use by opening a dialogue on the utilization of the thermal water as a public good;



- Efficient and effective use of the existing mineral water resources.

CHALLENGES

- To create and implement a proper swimming pool maintenance business model
- To attract investors for implementation of the project
- To protect community right for fair access to the swimming pool

Participation process to use the NBS

CO-DIAGNOSTIC

The swimming pool was provided in the Nadezhda 2 original detailed development plan, and was confirmed by the updated plan. The residents of Nadezhda 2 and the nearby neighbourhoods supported this idea, expressed positive attitude towards the pool, and shared expectations for its realization during all community meetings, interviews, and focus groups. For some of the participants, these expectations last more than 40 years.

CO-SELECTION & CO-DESIGN

During the Co-selection & Co-design process, the swimming pool was most preferred NBS and was marked as needed by the pupils and the active citizens in the area. NBS received support also from parents, teachers, residents, and Nadezhda district administration.

Best Practices and References

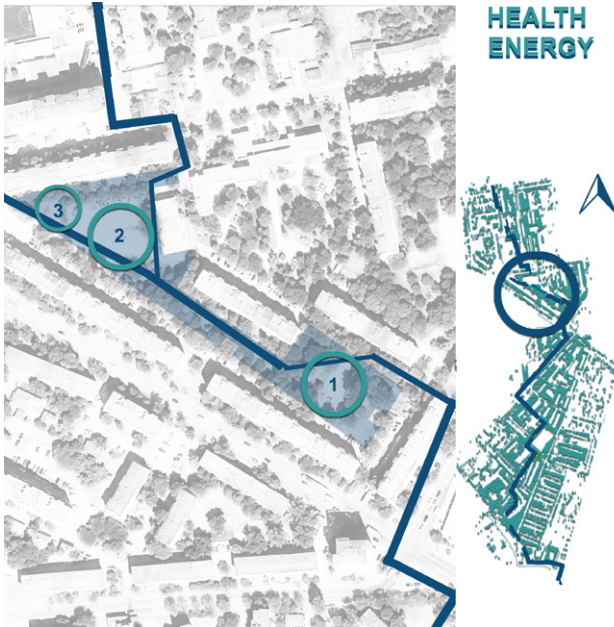
A functioning swimming pool complex in school No 56, Lyulin District, Sofia, which provides services for the local community – from babies and schoolchildren to adults. Its successful functioning is indicative for estimated needs and the relevance of the concept.

Source: <https://aquasofia.com/#basein-56-su>



New interactive playground facilities employing natural materials

Zone HEALTH ENERGY, Subzone 1



Description

The existing playground is a popular spot for local families with children. Nevertheless, the current facilities can benefit tremendously from an upgrade that will focus on creative spatial solutions that would inspire children to develop environmental responsibility through interaction with natural materials.

Positive aspects/challenges

POSITIVE

- Increase the children's awareness of nature-based solutions via a playful interactive approach;
- Improve the playground by challenging the current paradigm that relies on facilities constructed from plastic materials;

CHALLENGES

- To provide proper maintenance to the facilities;
- To demonstrate successfully the potential of natural materials in the construction of new playgrounds and to address any public safety concerns that might arise in the process;
- To create a model suitable for replication in other places through its modularity of design or streamlining the creation process

Participation process to use the NBS

CO-DIAGNOSTIC

During the walkthrough, cultural mapping, face-to-face interviews, and focus-groups it was observed that the playgrounds are an essential public element for the citizens. In most cases, playgrounds are more than places for children to play. They bring together representatives of broader community groups, such as adolescents and teenagers, adults, and the elderly. Nevertheless, the liveable sites used by different groups are usually arenas for conflicts.

CO-SELECTION & CO-DESIGN

Playgrounds are among the most mentioned proposals during the co-selection and co-diagnosis. At the same time, the need for nature-based solutions for the facilities and the pavements was emphasised. Expectations for different design for the newly built playgrounds were identified. Parents expressed their wishes to have new playgrounds that promote innovation, allow creativity through games, and combine playing and learning. Some citizens suggest a more precise separation of user groups through organizing different subzones.

Best Practices and References

City park Dobrich; Danube garden, Silistra; South Park, Sofia; Musical outdoor playground, Geo Milev park, Sofia

Restoration of a multipurpose sports field

Zone HEALTH ENERGY, Subzone 2

Description

The multifunctional sports field at the place of the pre-existing sport courts will be the main element of the intervention zone Health Energy. The field is currently out of use and is plagued by public perceptions of danger and criminal activities. The reintegration of the sports field in the urban fabric will benefit mostly the young adults in the vicinity and will enrich the spectrum of local users of the space through providing communal activities related to healthy outdoor pursuits.

Positive aspects/challenges

POSITIVE

- Provides new opportunities for healthy outdoor social activities;
- Motivates citizens to develop a connection with the site through changing the image of the zone and the subjective perception of danger among the inhabitants;
- Enriches the spectrum of citizens' proactive involvement in local sports events;

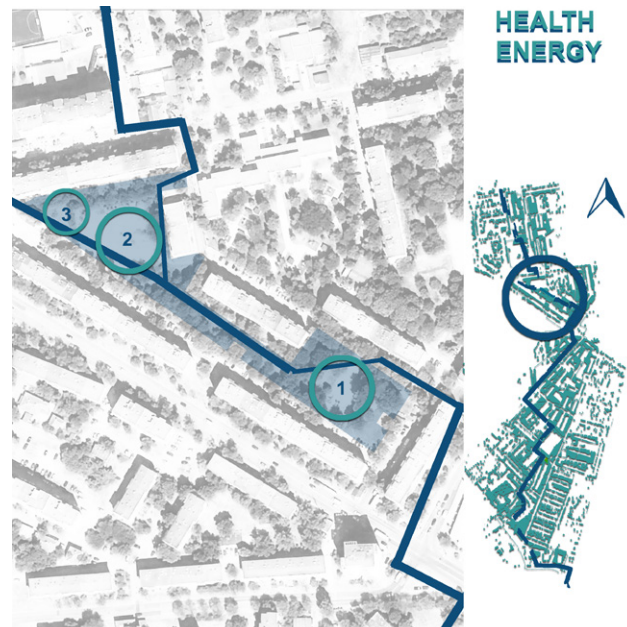
CHALLENGES

- Maintenance of equipment and flooring
- Protection against vandalism
- Conflict management
- Organization and management of the facilities
- Providing non limited access for all

Participation process to use the NBS

CO-DIAGNOSTIC

The unmaintained playground and the adjoining abandoned building were pointed out as an unpleasant and dangerous spots in the neighbourhood during the walkthrough, cultural mapping, face-to-face interviews, focus-groups and the workshops. All participants agreed on the need to take action to renovate both the abandoned playground and the building next to it.



CO-SELECTION & CO-DESIGN

Participants in the Co-selection and Co-design Workshops in Svoboda shared their desire to see the playground restored and accessible for everyone. They outlined that the other sports facilities nearby, including the newly built ones, are only available for a fee. They also suggested a more flexible organization of multifunctional sport courts that would allow for practicing different sports. Adolescents and teenagers suggested a skate park and down-hill facility.

Best Practices and References

Danube garden, Silistra; Knyazhevska garden, Sofia



Outdoor gym / Sport activities, a neighborhood open space for social and sport activities

Zone AQUA VITA, subzone 2



Description

The neighbourhood open space is developed around a small square for implementation of social NBSs and cultural events. That kind of place aims to accommodate a diversity of leisure, recreation, sport and social activities. Natural and recycled materials will be used for the constructions of open-air fitness, sitting and meeting place, and space for outdoor games. These proposals were adopted during the workshops with the citizens who shared expectations about revival of the place and making it attractive and comfortable for people of different ages.

Positive aspects/challenges

POSITIVE

- More possibilities for sport outdoors thus promoting active and healthy lifestyles;
- A comfortable open-air social place for people from the neighbourhood;
- Renovation of an abandoned space that many people pass through but don't occupy.

CHALLENGES

- To protect the fitness equipment from vandalism and fire;
- To create a place that the residents will recognize as their own and will use and keep it.

Participation process to use the NBS

CO-DIAGNOSTIC

The citizens, who participated in face-to-face interviews, focus groups, and workshops often required from the municipal authority to build additional sports facilities. On one hand, need for such facilities is proved by the survey results reporting a large share of respondents performing heavy and medium-heavy activities, which do not happen outdoors. On the other hand, during the expert observation and the behavioural mapping, the use of outdoor gyms and open-air sports facilities in the school was observed.

CO-SELECTION & CO-DESIGN

Groups of young people are systematically using outdoor fitness equipment in the Park Gorska kultura. Some of these facilities are self-made by the groups mentioned. During the Behavioural mapping, some of these youngsters declared their readiness to participate in creating such facilities in public places. Involving their energy in the co-design process would positively affect community development and provoke more people to be active in co-creating urban open space.

Best Practices and References

Borisova garden – urban forest part

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