



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

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Dissemination level

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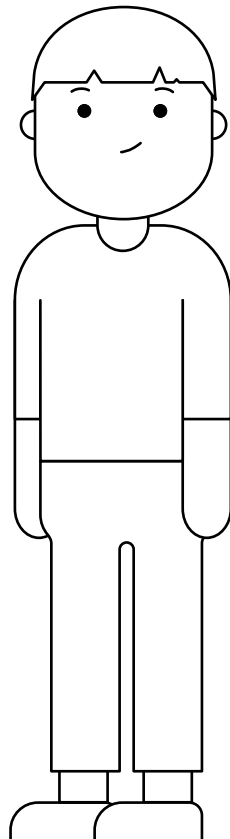
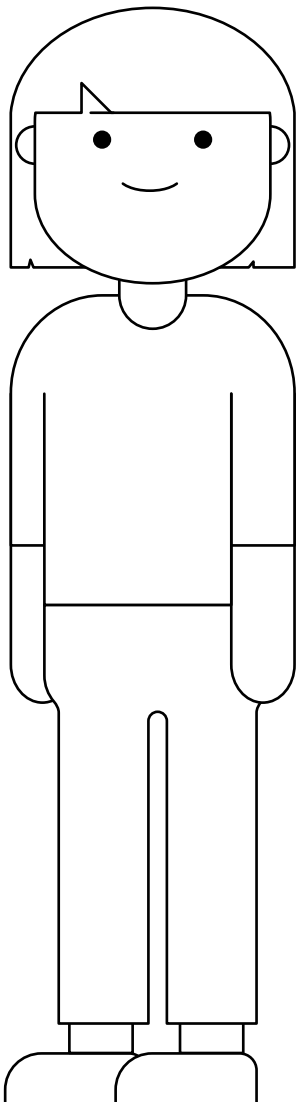
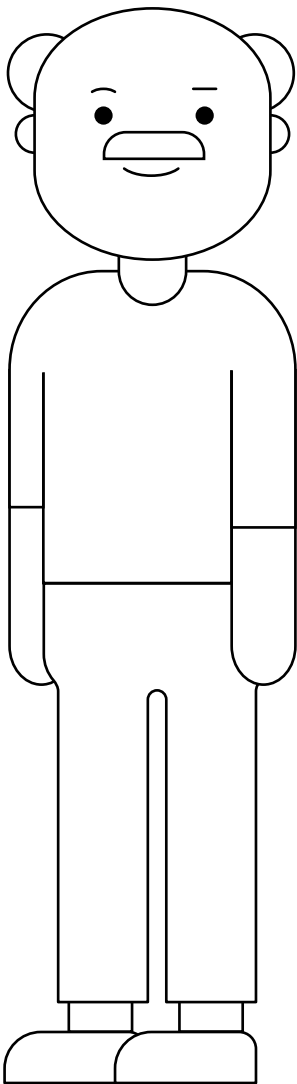


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Purpose of deliverable

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 Eklipse), 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, it's 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 lead 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

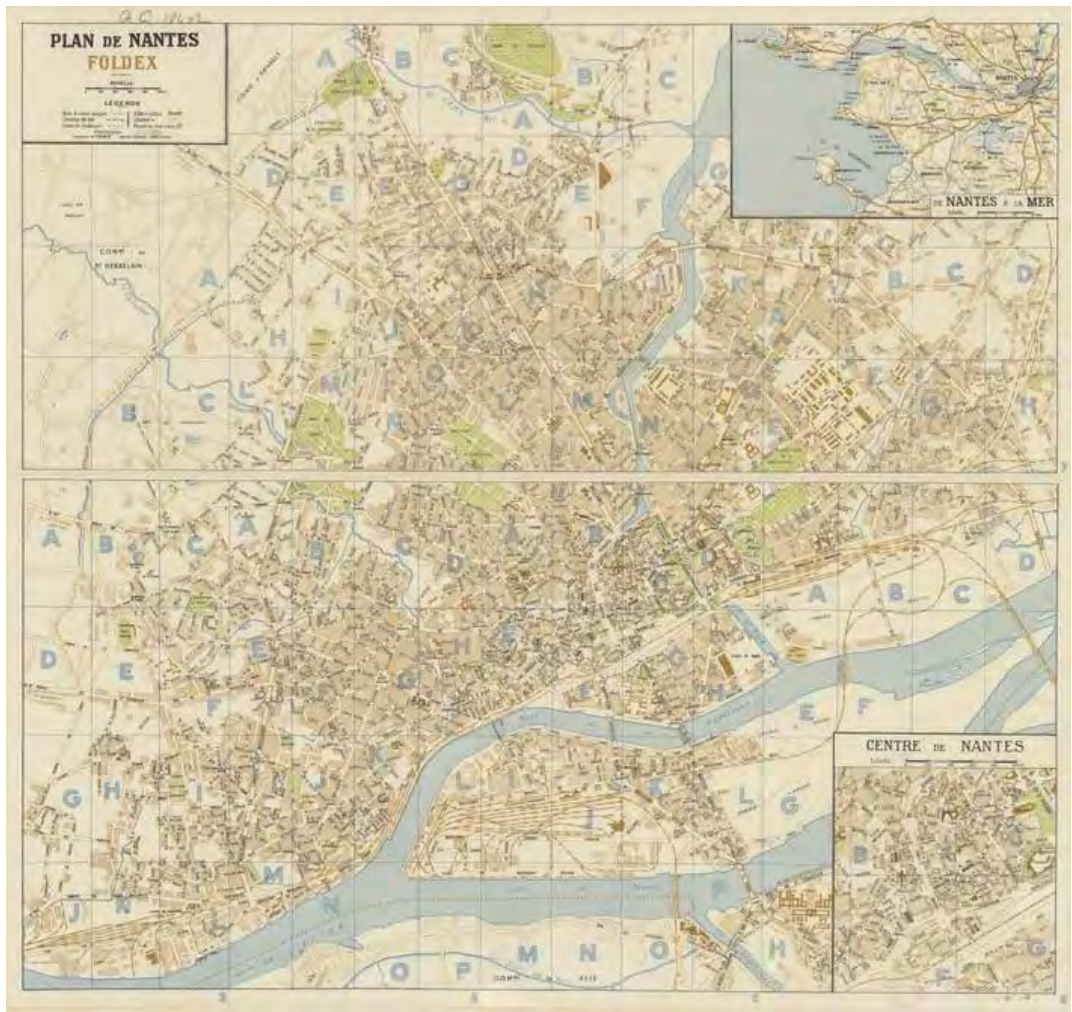


Figure 3. Plan de Nantes, 1948. Credits: gallica.bnf.fr / Bibliothèque Nationale de France.

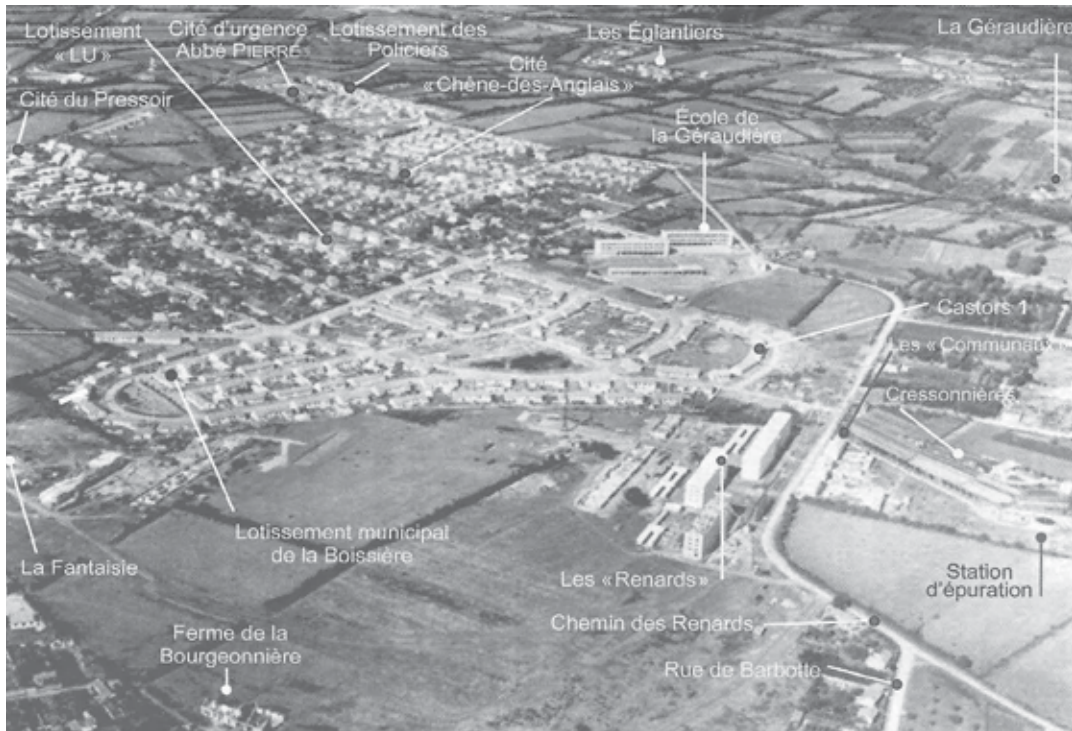


Figure 4. Aerial view of "La Boissière", 1960. Credits: Archives Municipales de la Ville de Nantes



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

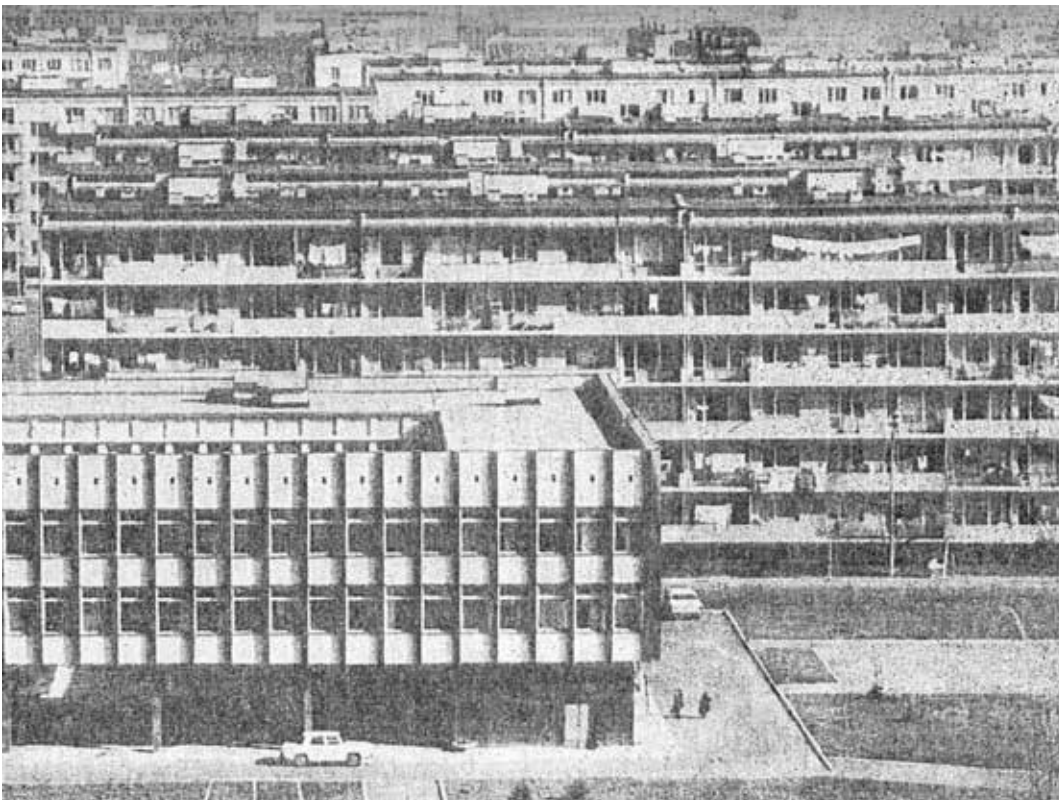


Figure 6. Nadezhda, 1972. Credits: Sofia magazine, December issue, 1972

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

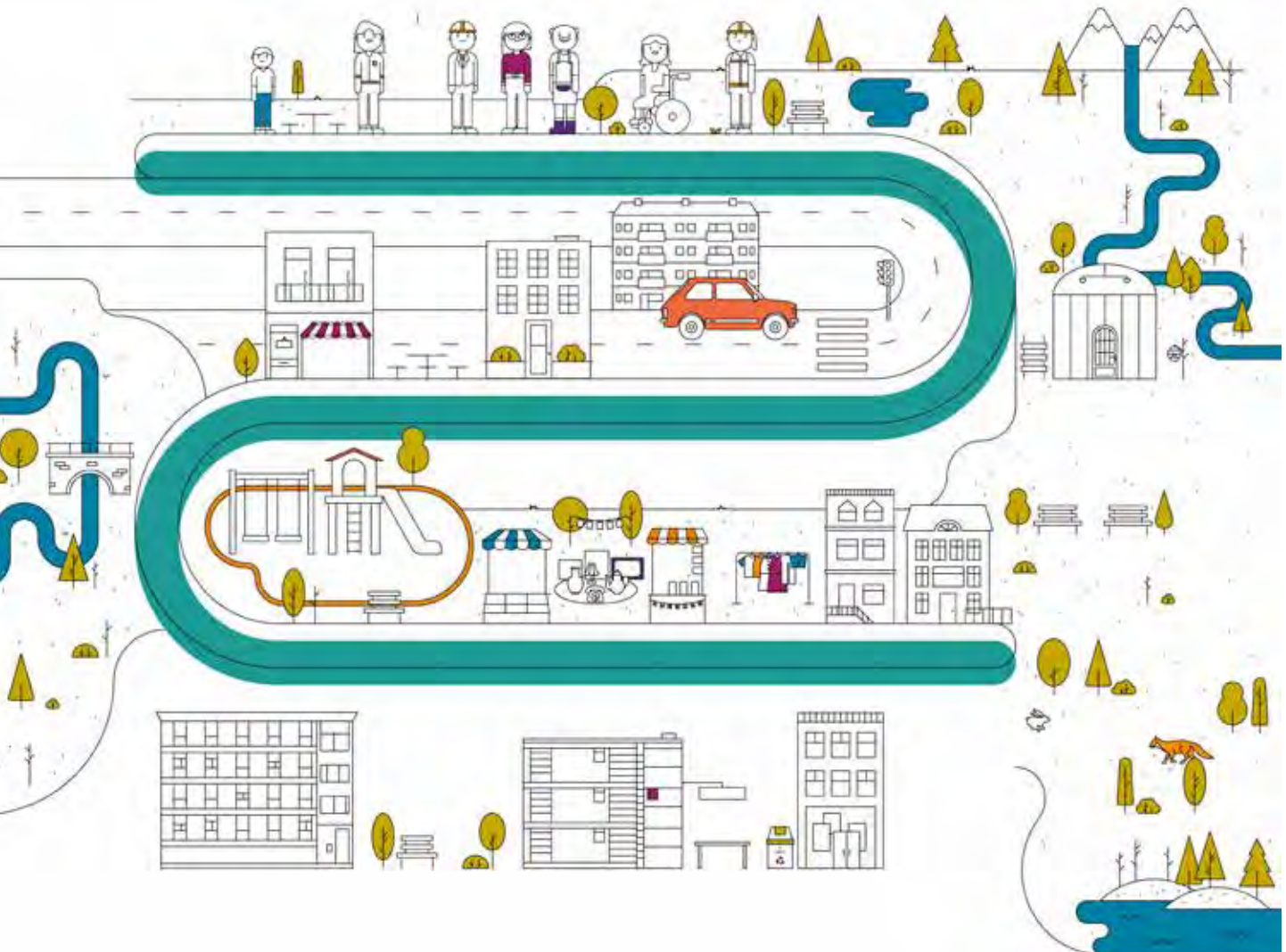


Figure 7. Healthy Corridor concept. Credits: GUDA, URBiNAT, 2020

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.

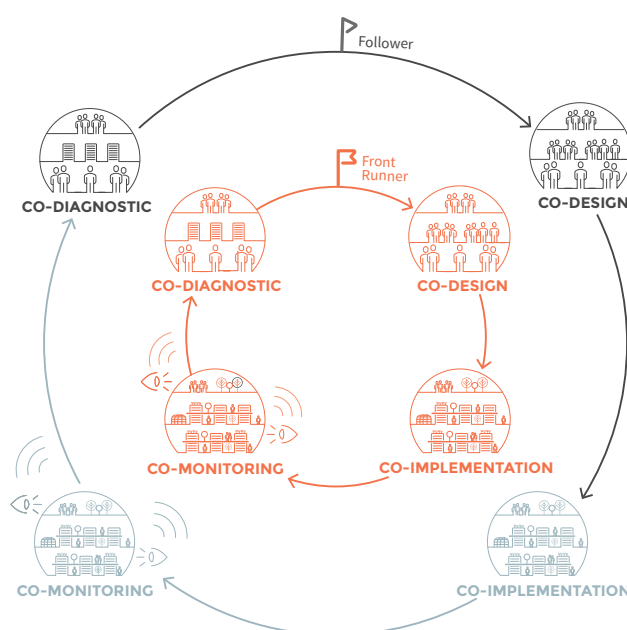


Figure 8. Co-creation circular process. Credits: GUDA, URBiNAT, 2019

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 Gonalo 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: Lu s Miguel Correia



Figure 10. Tehran Nature Bridge (2010-2014) designed by Leila Araghian to connect to parks separated by a highway. Credits: Gonalo 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.

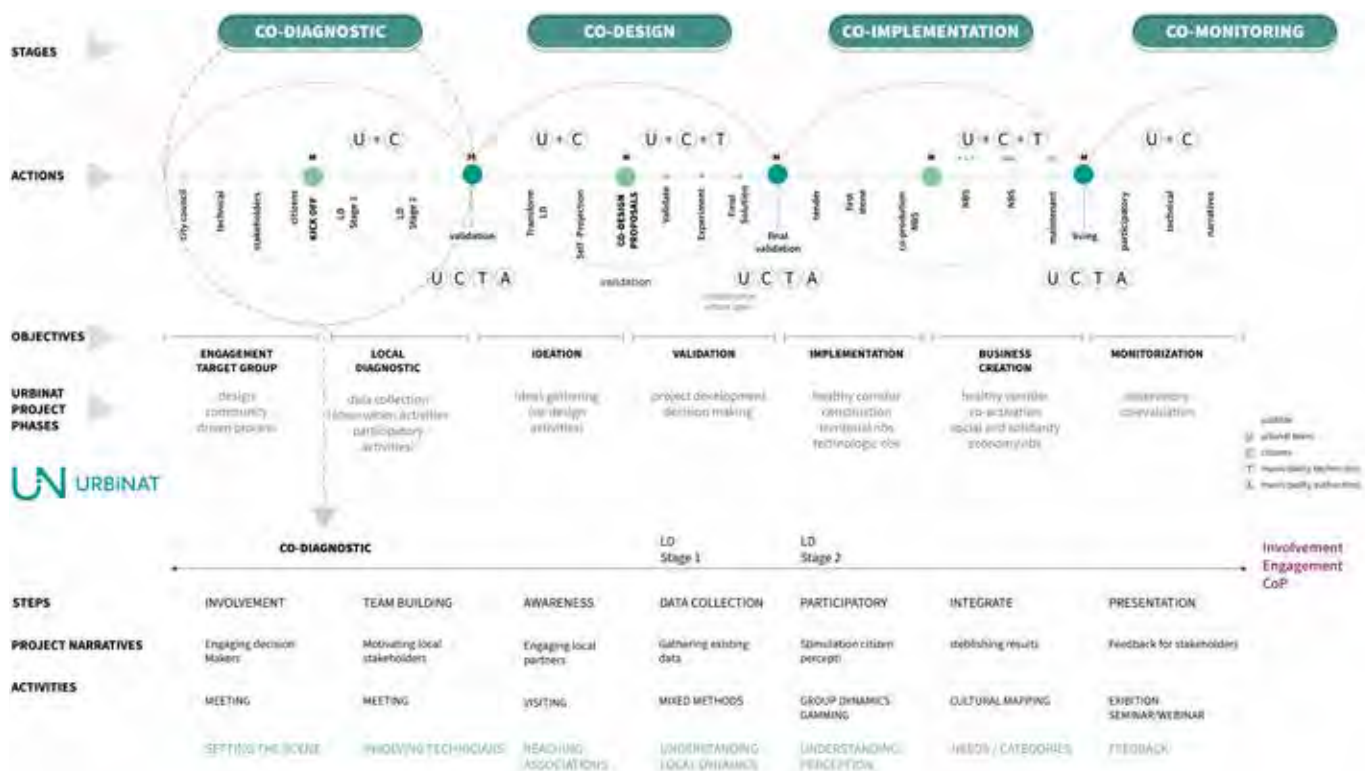


Table 3. Co-creation process with focus on co-diagnostic stage

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

| CO-DIAGNOSTIC STAGE | | | |
|----------------------|--|---|---|
| | PORTO | NANTES | SOFIA |
| 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.

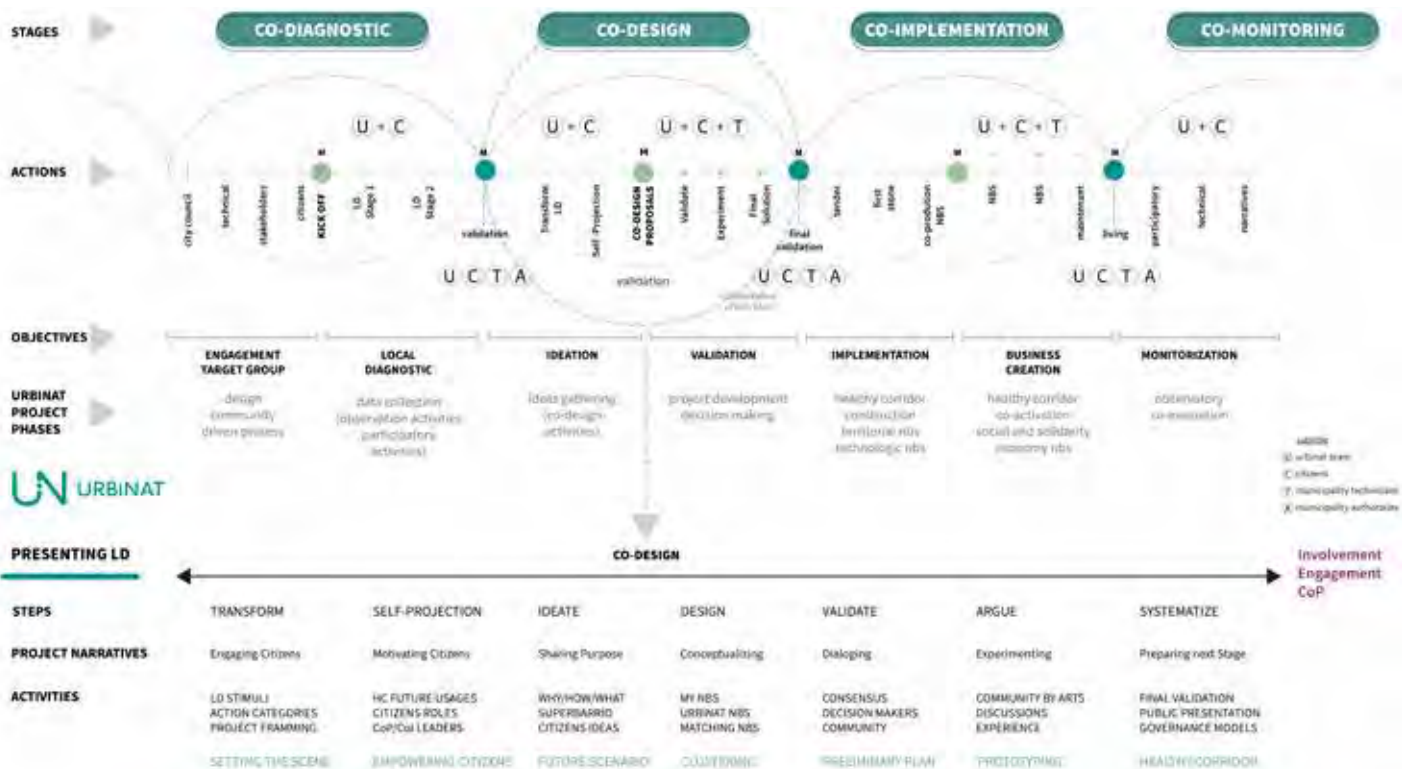


Table 6. Co-creation process with focus on co-design stage. Credits: GUDA, URBINAT, 2021

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.

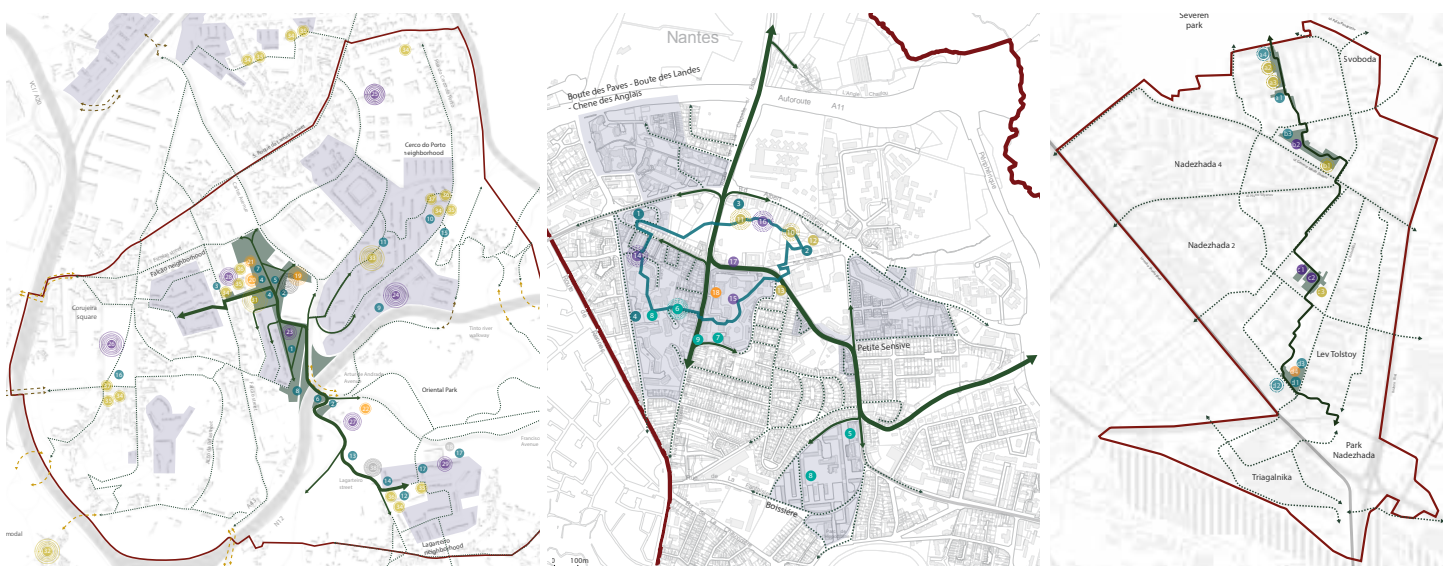


Figure 24. Healthy Corridor Global Strategy with NBS co-created with citizens of Porto, Nantes and Sofia. Credits: UC, URBiNAT, 2021

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

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Healthy corridor Concept

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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

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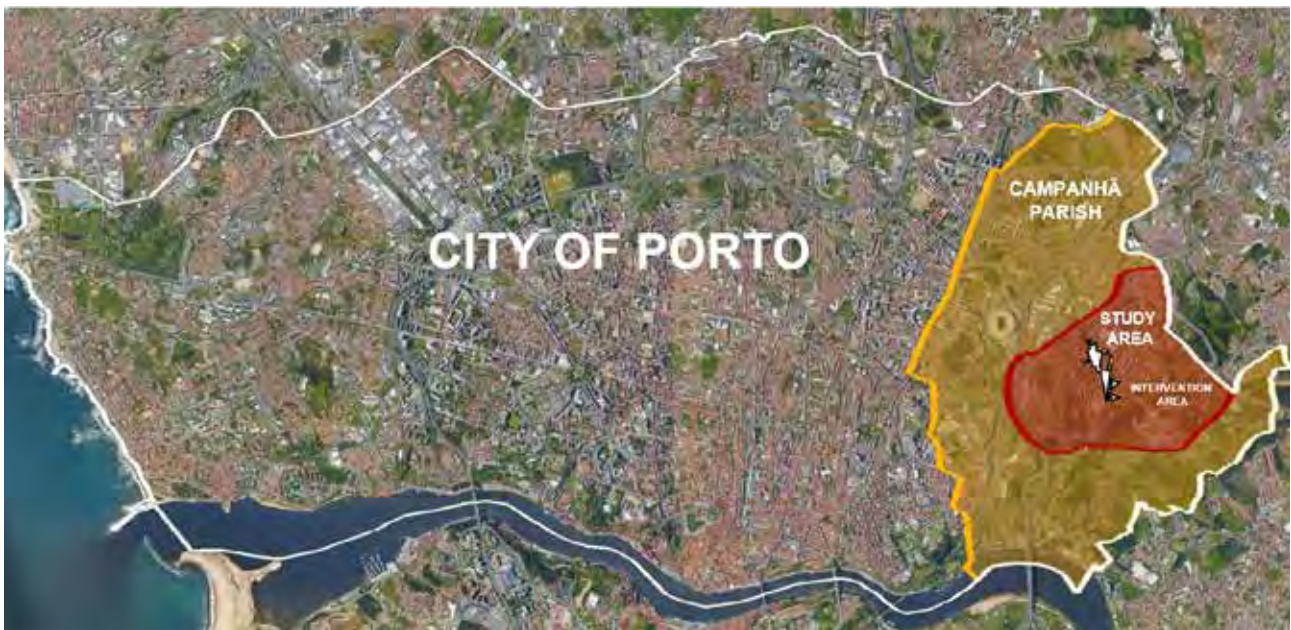


Figure 1. City of Porto map identifying the Campanhã Parish (orange) and URBiNAT' study area (red) and intervention area (white).

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.

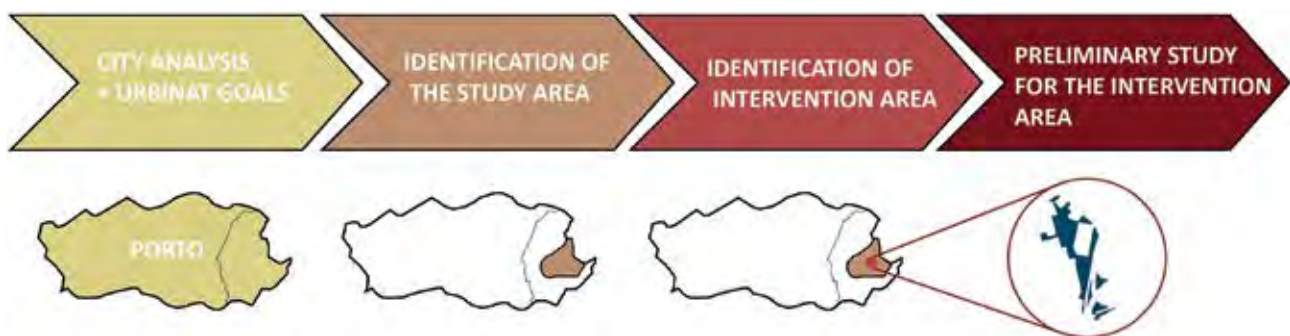


Figure 2. URBiNAT's process from the identification of the study area inside Campanhã Parish and the intervention area where the Healthy Corridor will be implemented.

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 Bonjóia*. 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)

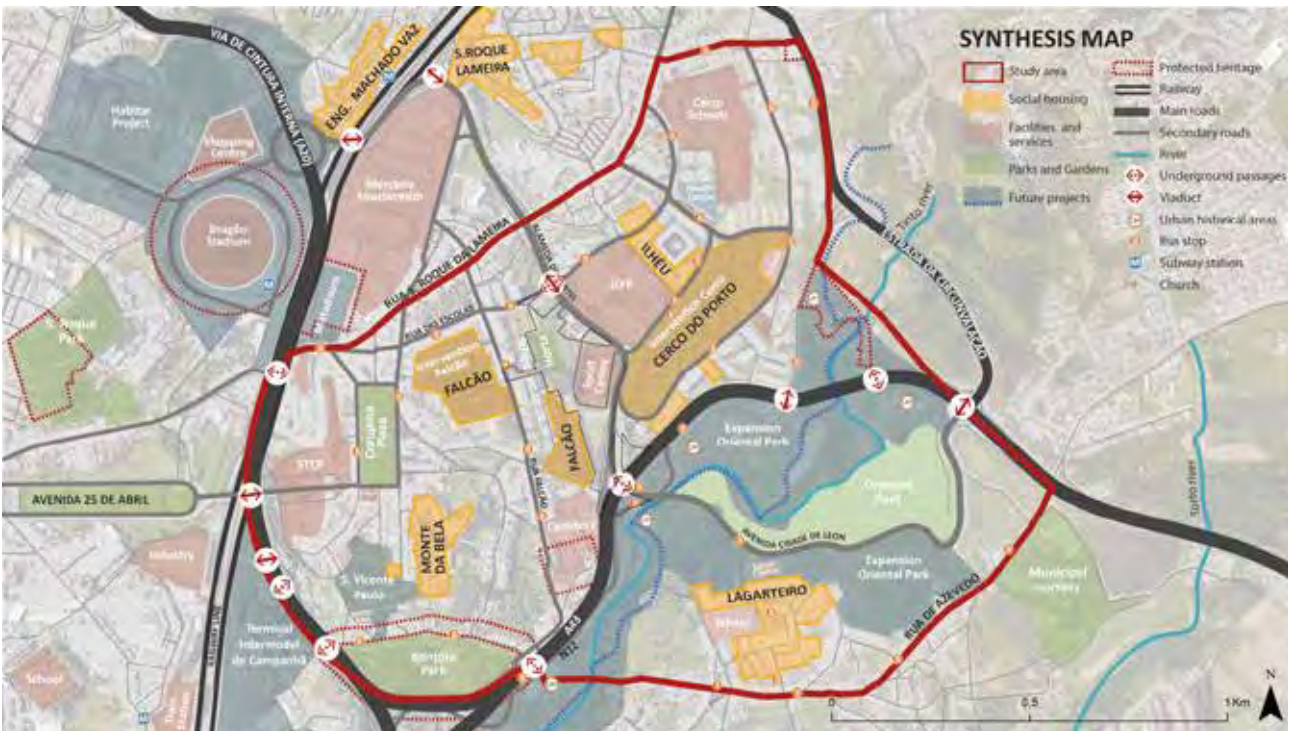


Figure 4. URBiNAT's study area (red limits) showing the main territorial typologies according to its use (social housing, facilities and services, parks and gardens, future projects, protected heritage, urban historical areas, churches) and connective networks.

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

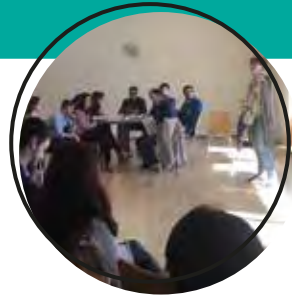


Involvement
Meeting with councillors and directors of department

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

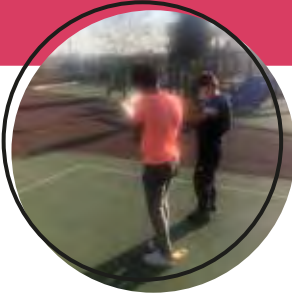
Citizen workshop (11 participants)

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

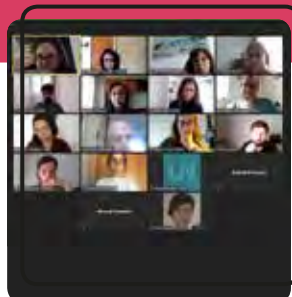
Online meeting with citizens and political representatives

Presentation

Public presentation of the Local Diagnostic

S12a

17/06/2020



Involvement

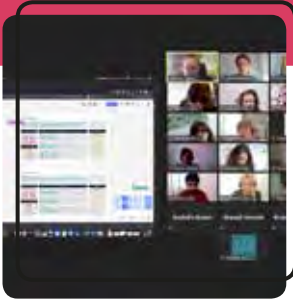
Online meeting with citizens – a)

Transform

Development of new ideas – Needs

S12b

23/06/2020



Integration

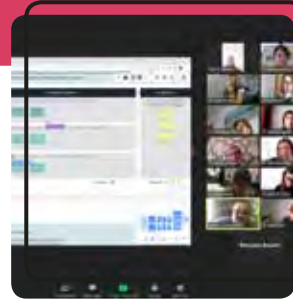
Online meeting with citizens – b)

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

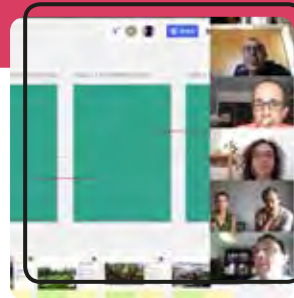
Meeting with citizens

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

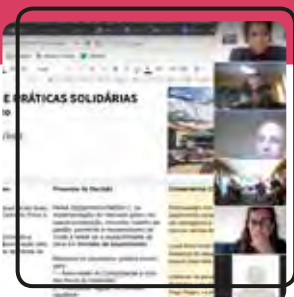
Workshop with citizens and municipal technicians

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

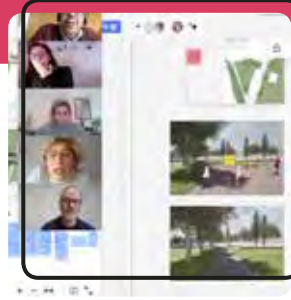
Online meeting with citizens and political representatives

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> |

| | |
|---|---|
| <p>Availability for participation</p> <p>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.</p> | <p>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).</p> |
| <p>Low participation culture</p> <p>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.</p> | <p>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.</p> |

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 |

Activities with elementary school children

- “NBS around the trees”: 8 children would like to implement the NBS Fairs and Markets

Participatory activities (adults)

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

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) |

Participatory activities (adults):

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.

Territorial studies (study/intervention area)

The intervention area is fully marked by its ancient rural landscape. CIBIO mapped all rural traces in the intervention area.

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 | Territorial studies (study/intervention area) Participatory activities: walking activity and workshops (adults) | No. of improved connections Strengthening the local economy, (formal and non-formal) | 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. Articulation with social project REDES (APPC, Fios e Desafios). |

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.

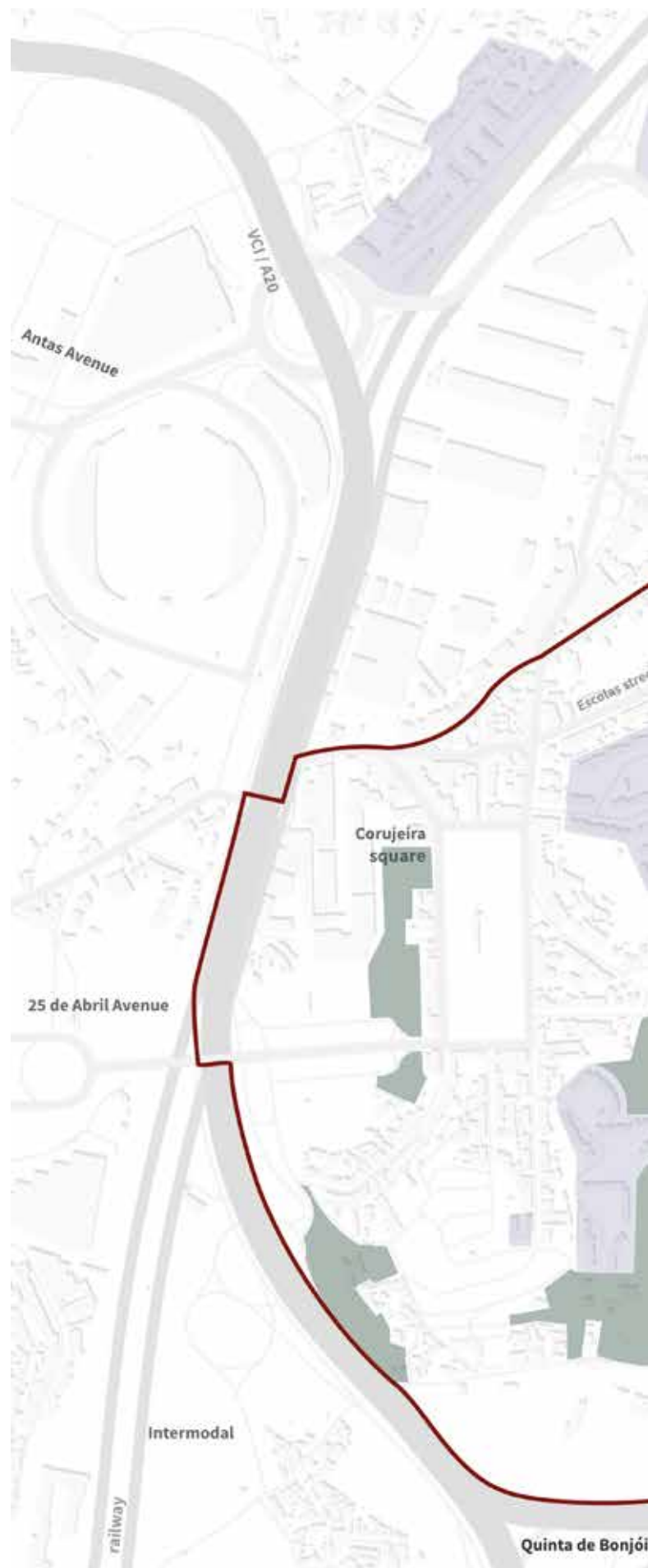
3. Healthy Corridor NBS

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.



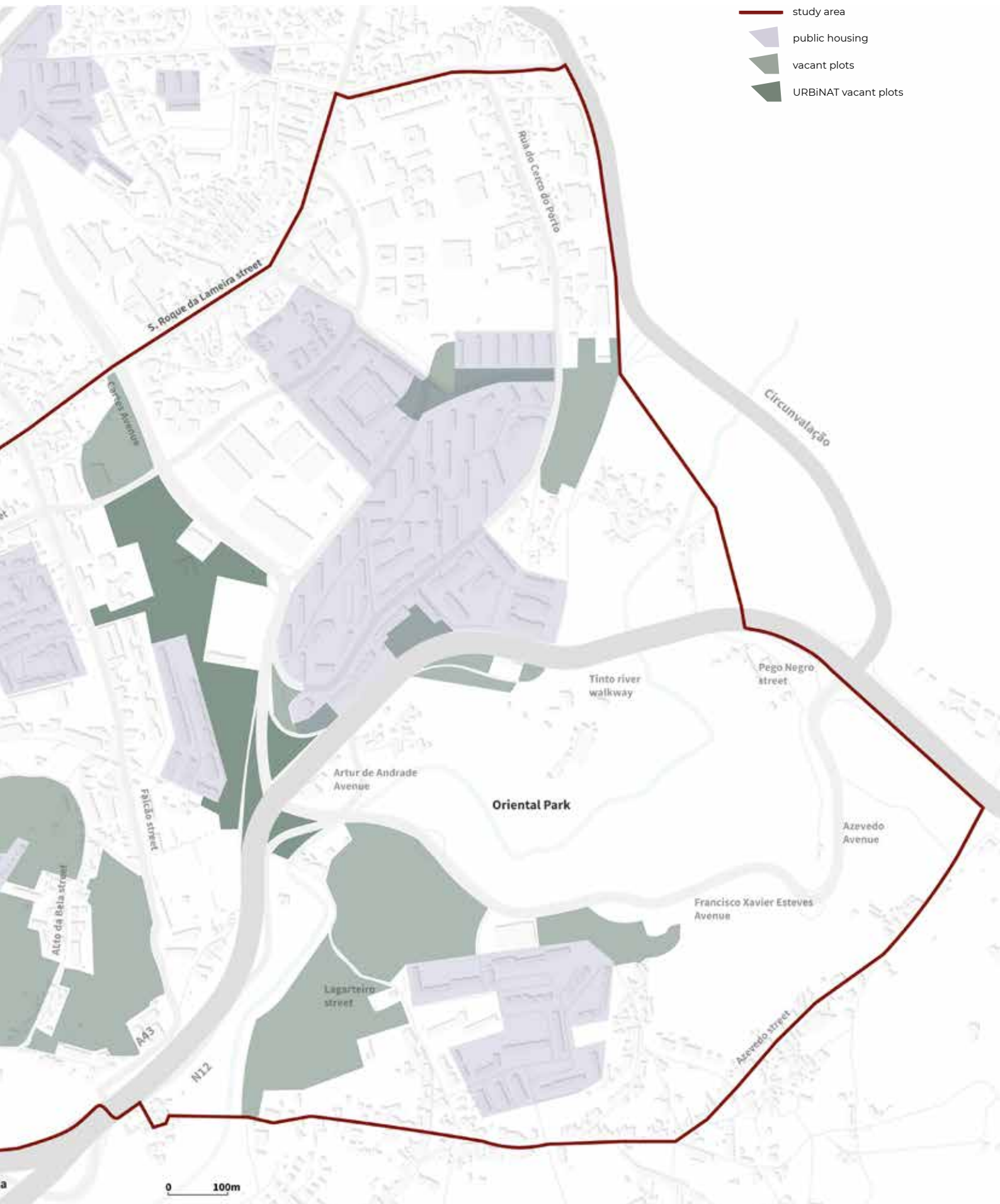


Figure 5. Campanhã study area with the vacant plots and the intervention area.

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.



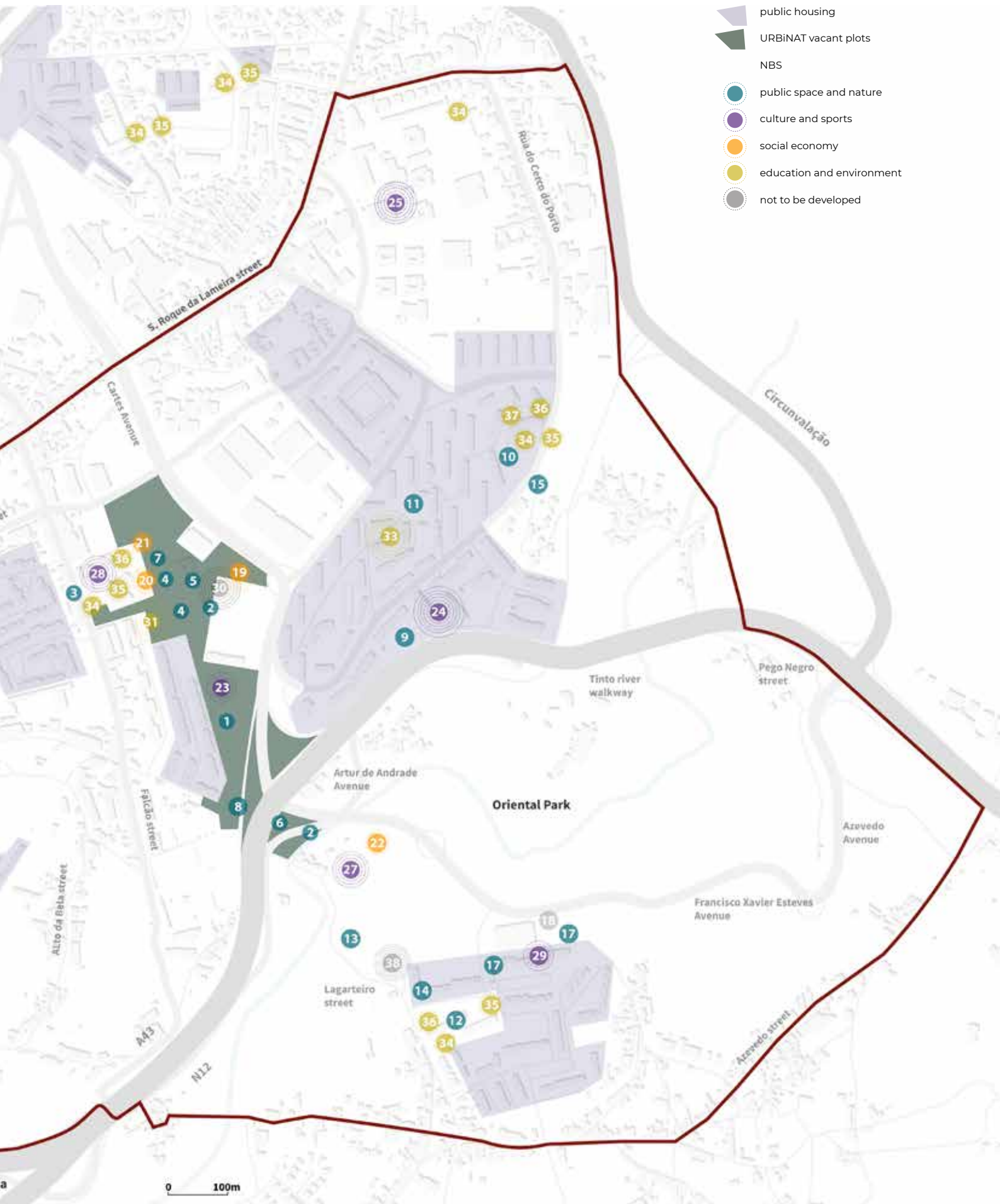


Figure 6. Proposed location of the New NBS for Porto in the study area.

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.

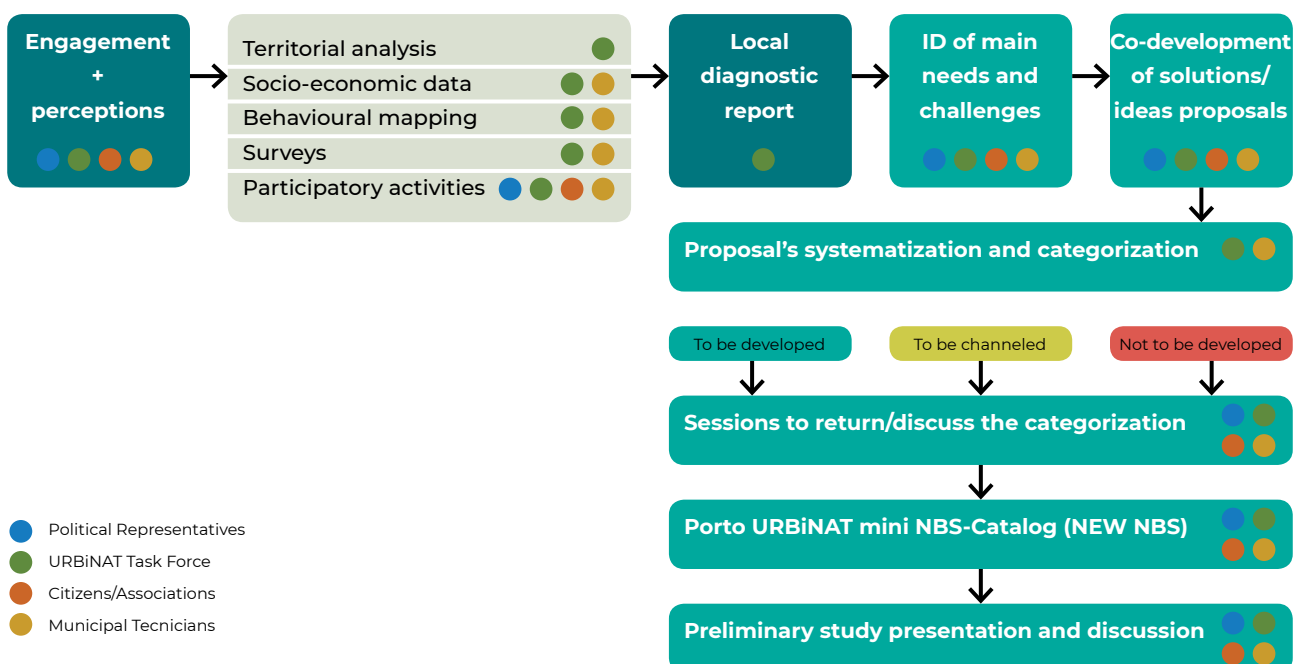


Figure 7. Schematic view of the co-diagnostic (blue) and co-design process (green), detailing the steps from the proposal's systematization to the finalization of the Preliminary study and its presentation/discussion with the actors involved.

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 |
|---|--|---------------------|

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 |
|--|---|------------------------------------|

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 APCC 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.



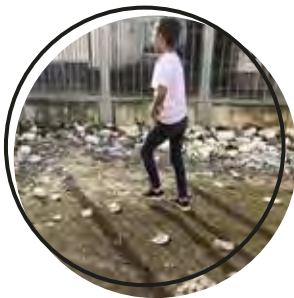
31. Educational Living Lab

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.

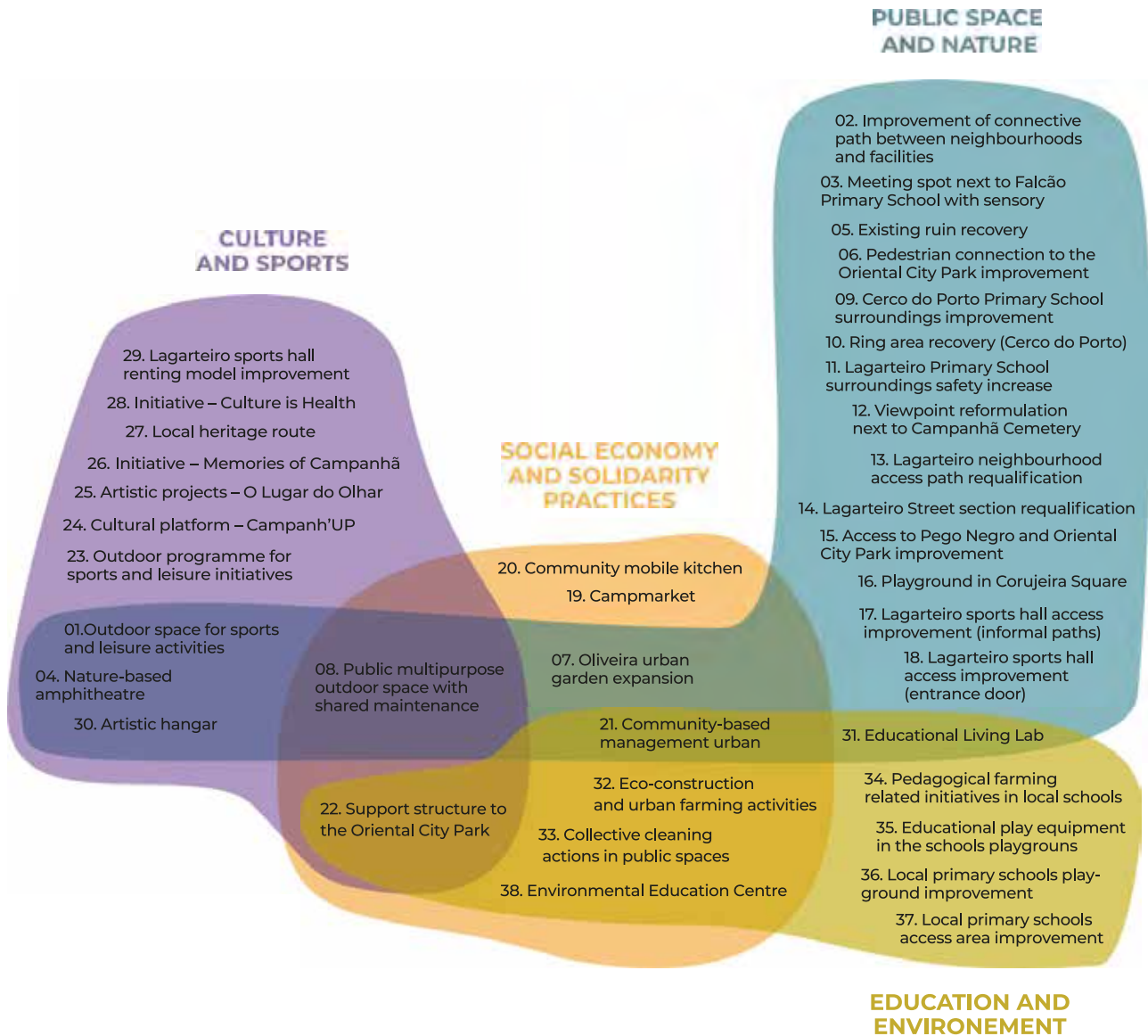


Figure 12. New NBS categorization Venn diagram.

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



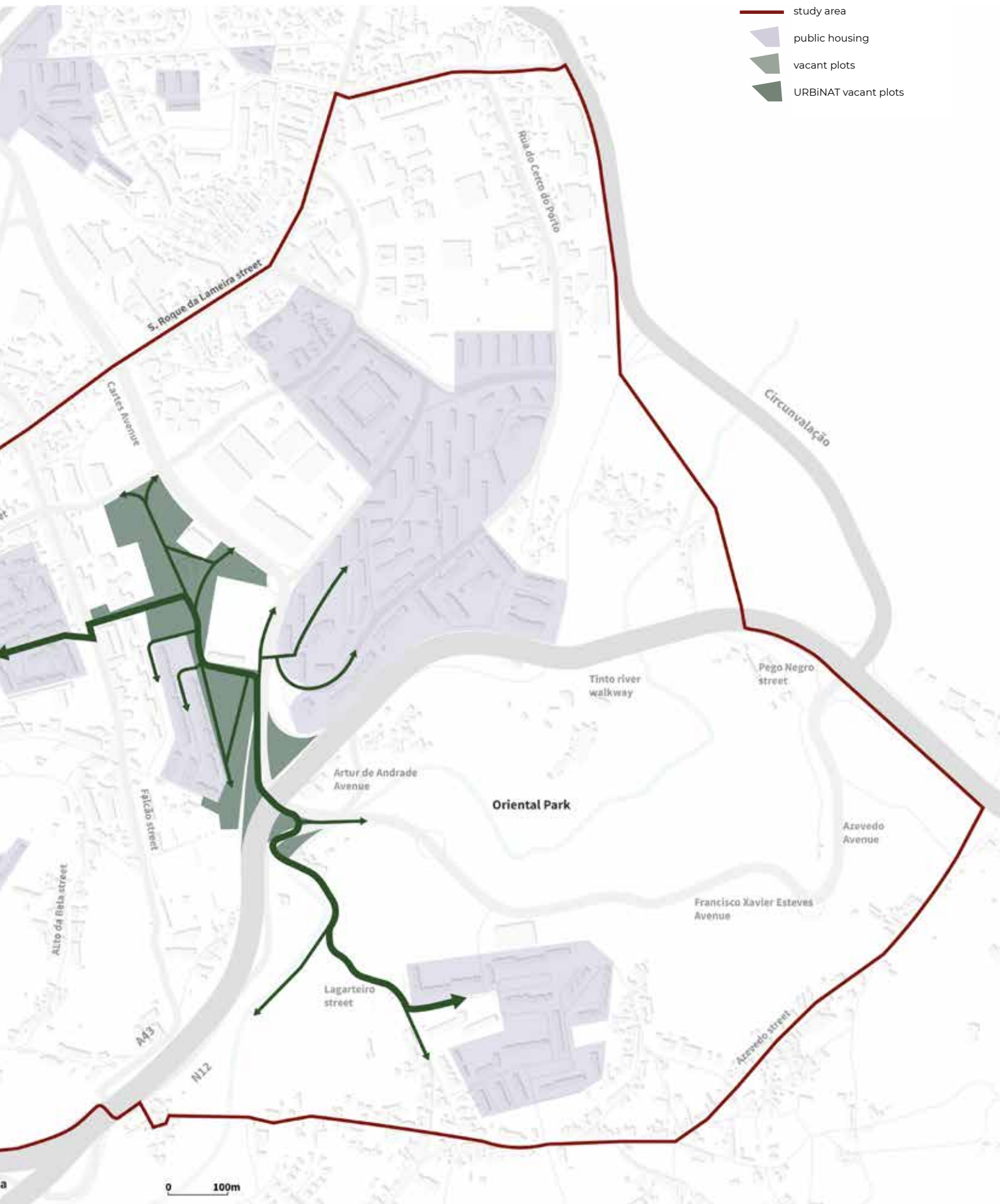


Figure 13. Healthy corridor pathway and connections with the neighbourhoods.

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>

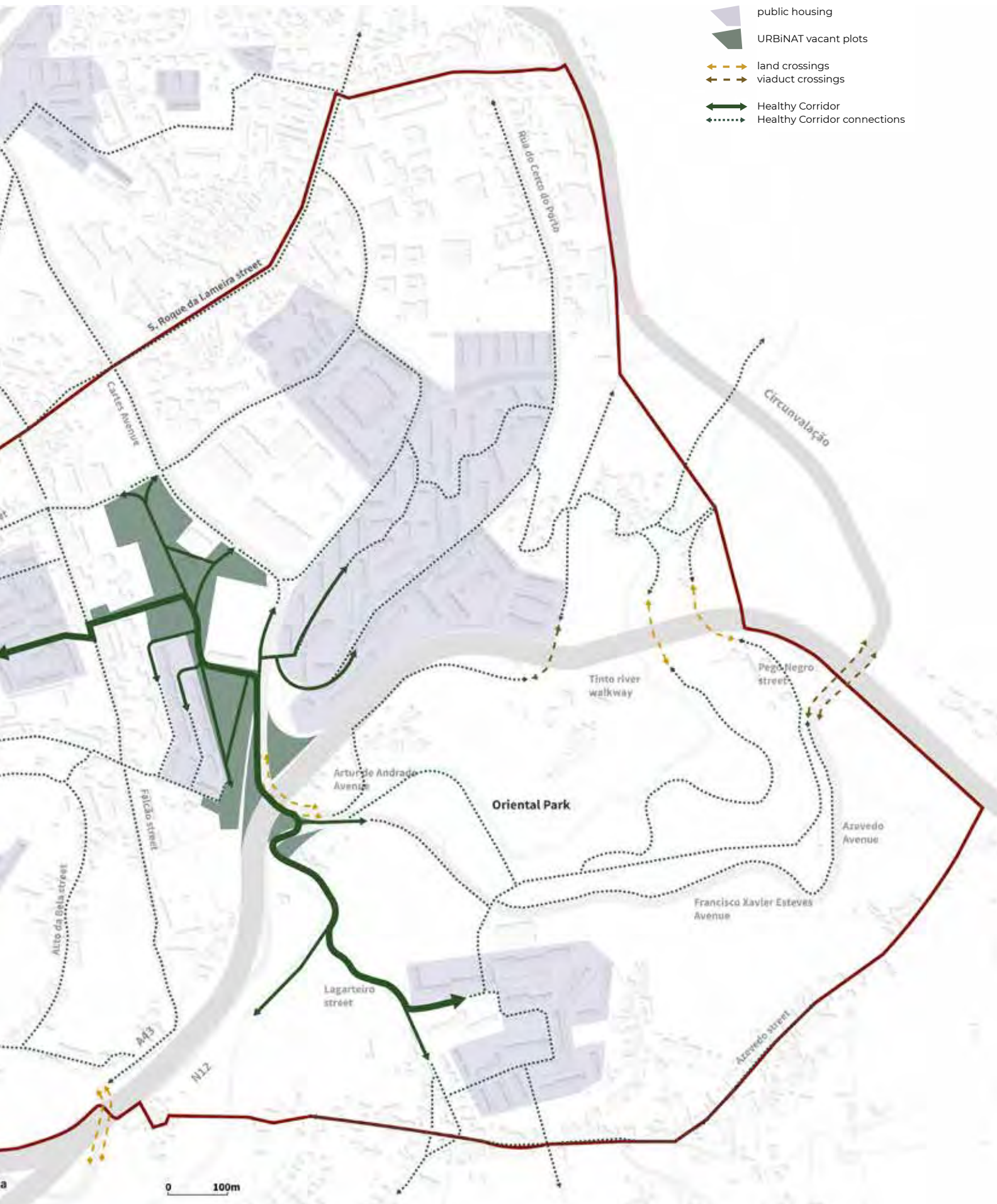


Figure 14. Map with the articulation of the healthy corridor with main paths of the neighbourhoods.

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.



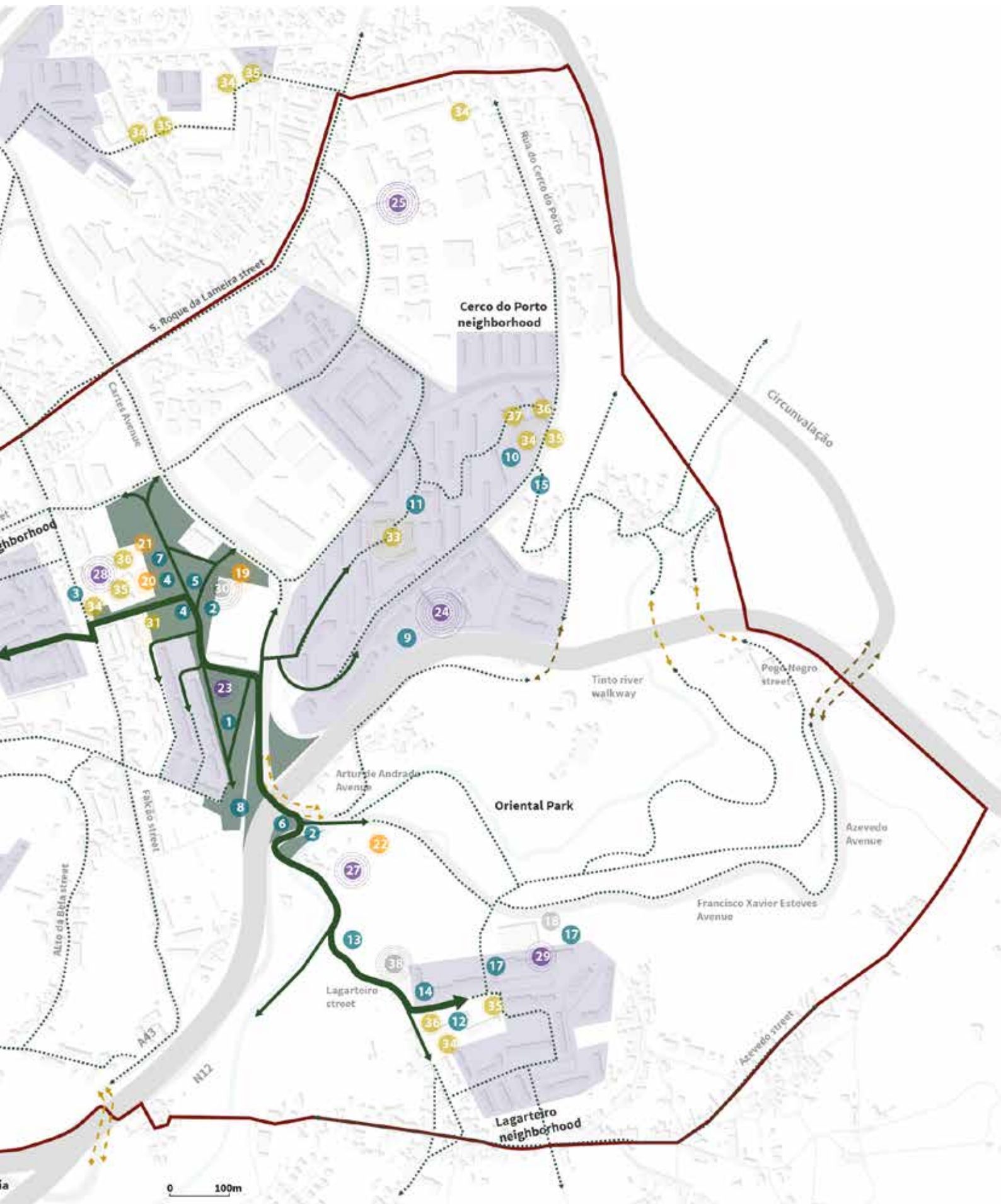


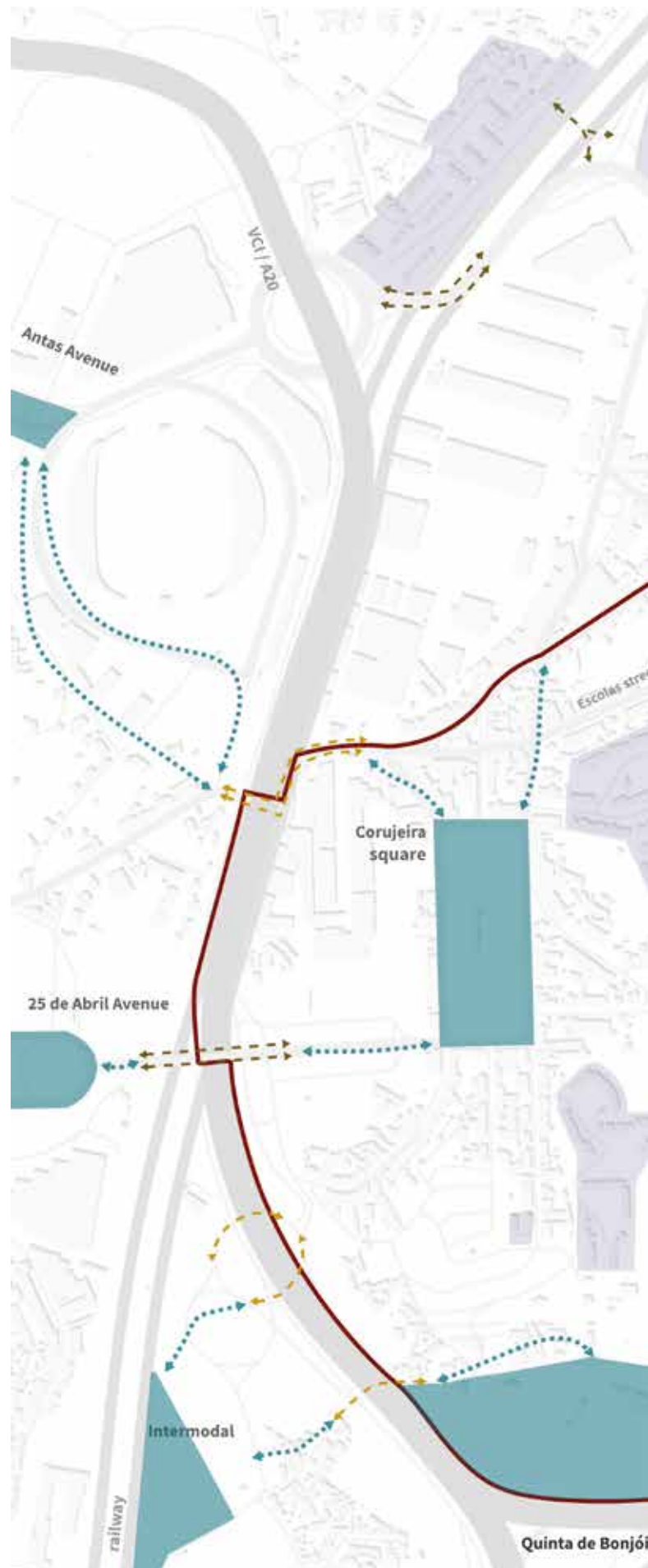
Figure 15. Map with the urban articulation of the Healthy Corridor and the proposed location of the New NBS.

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.



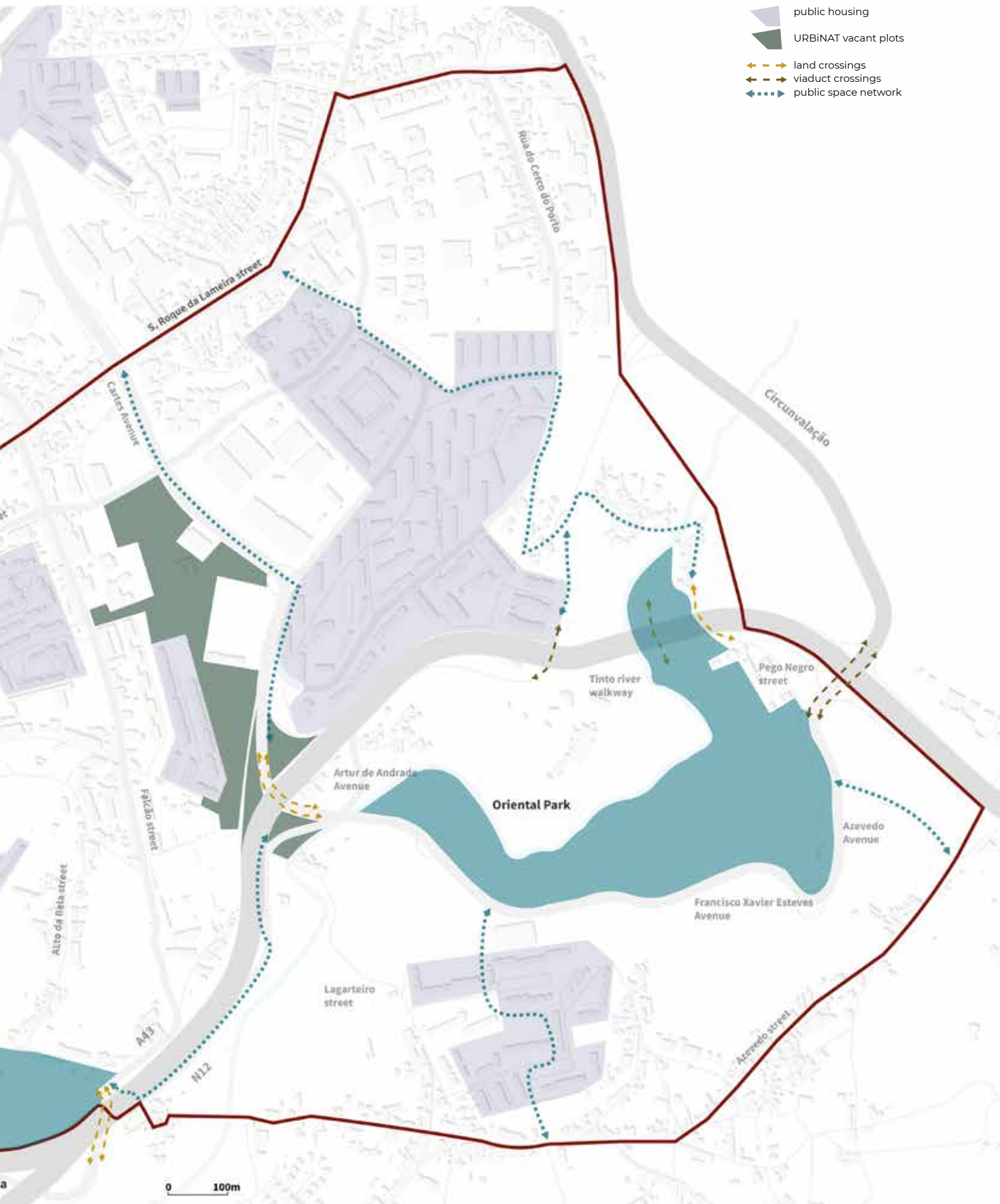
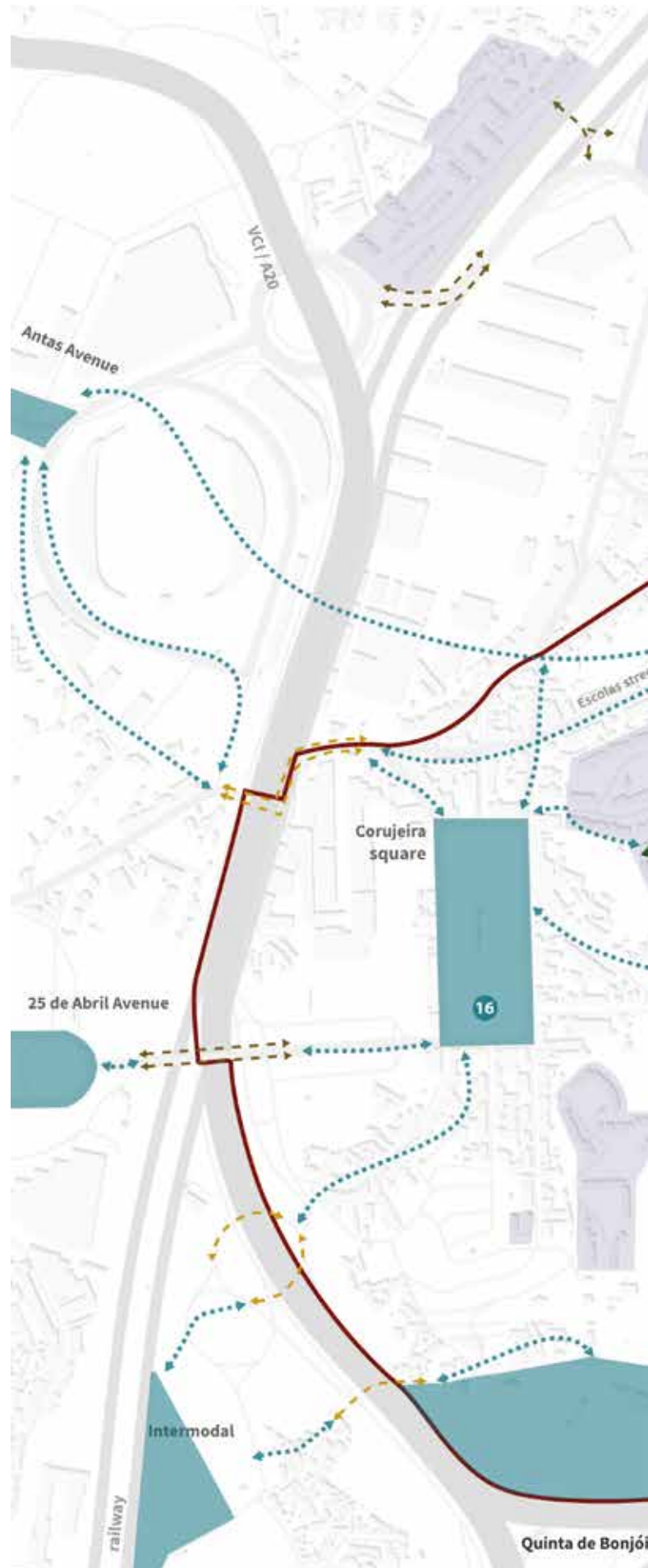


Figure 16. Map of the existing public space network.

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).



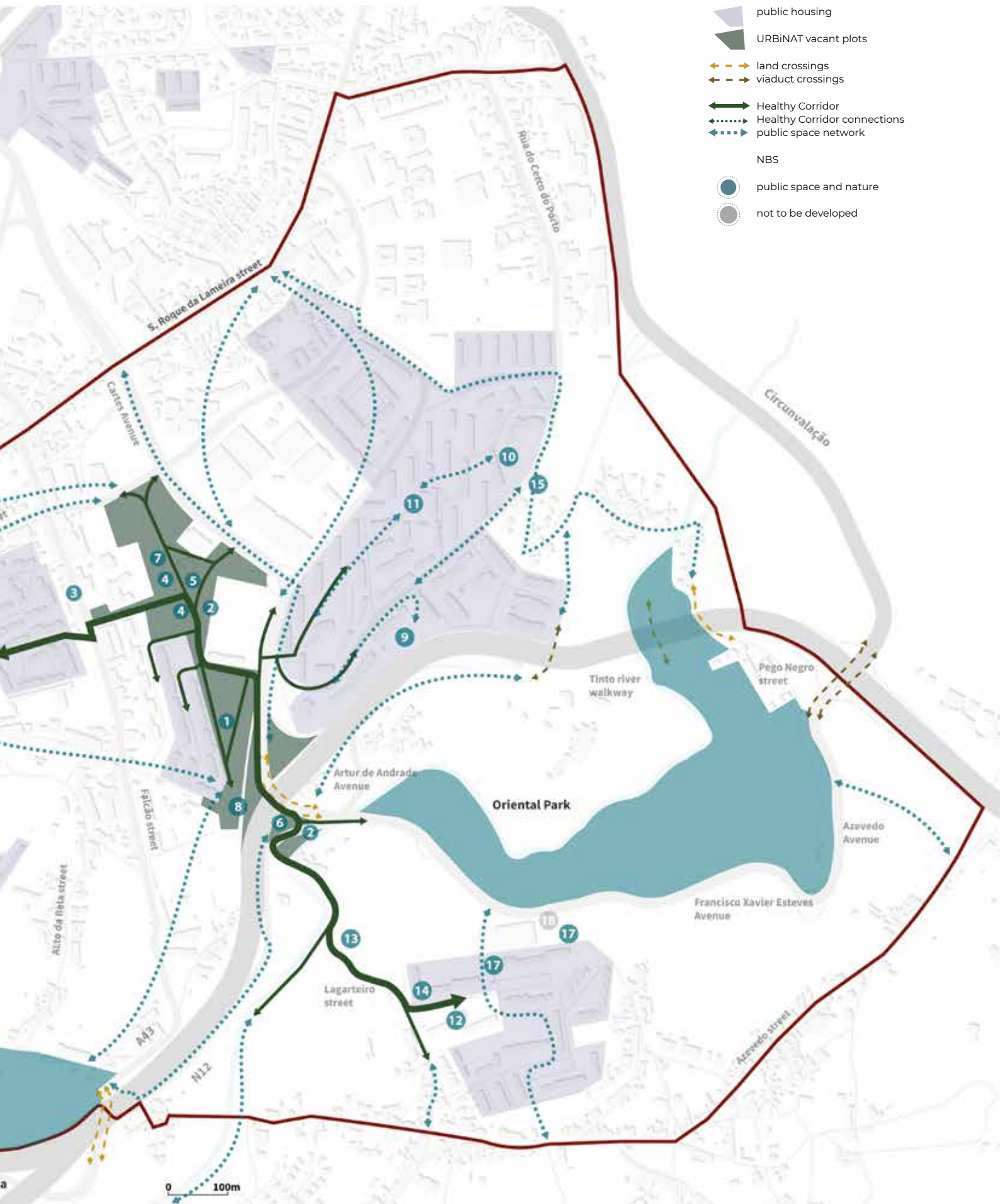


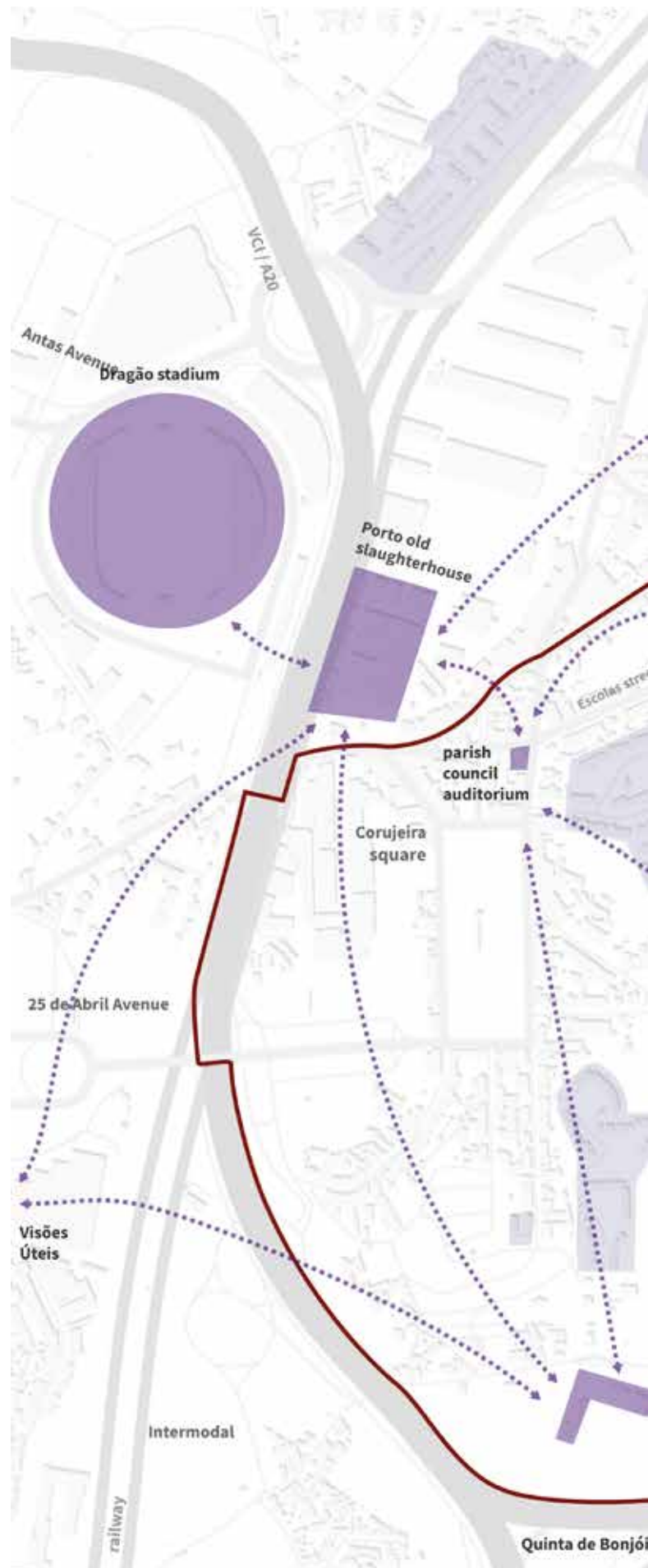
Figure 17. Map of the new public space network articulated with the Healthy Corridor and the new NBS.

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.



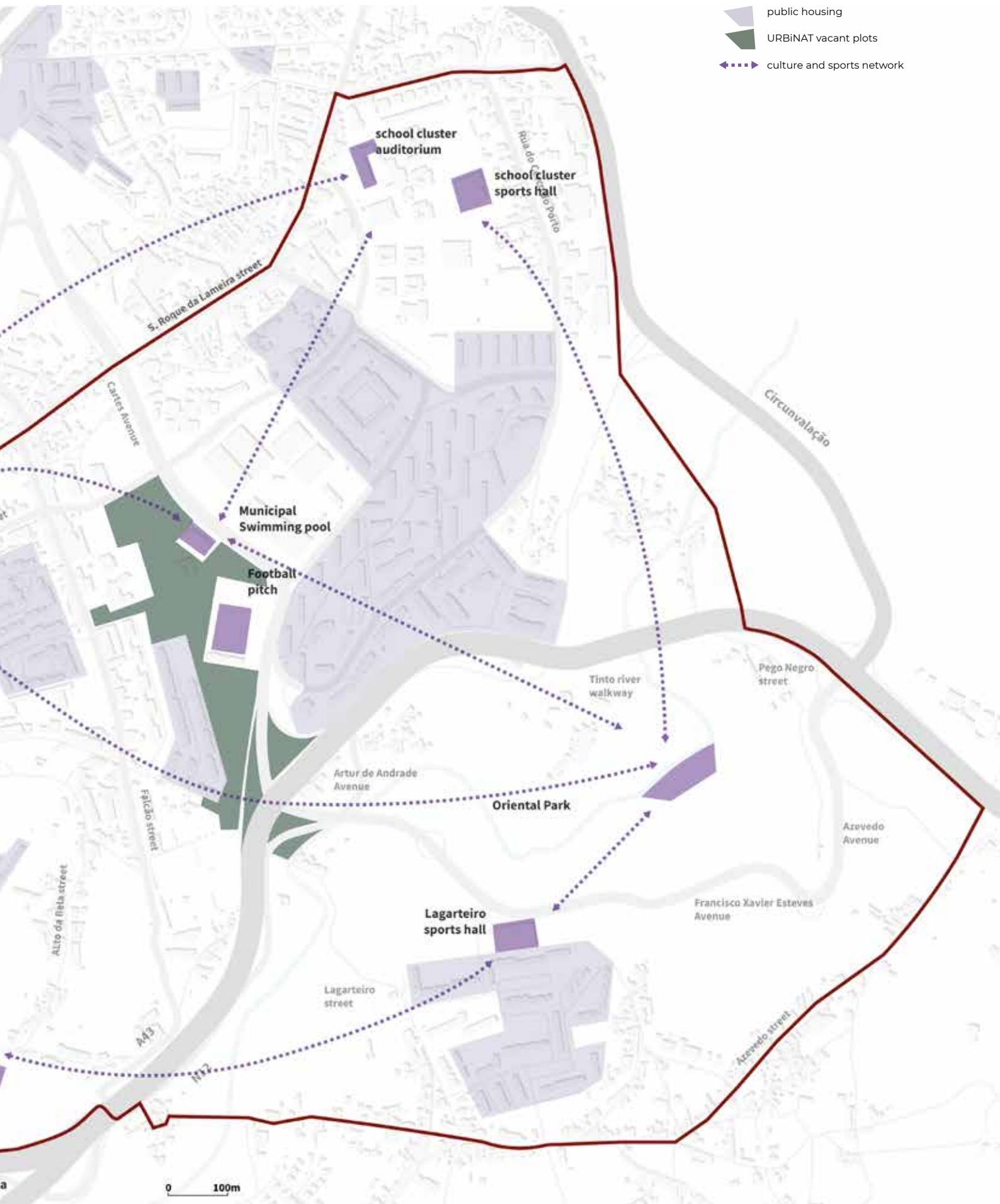
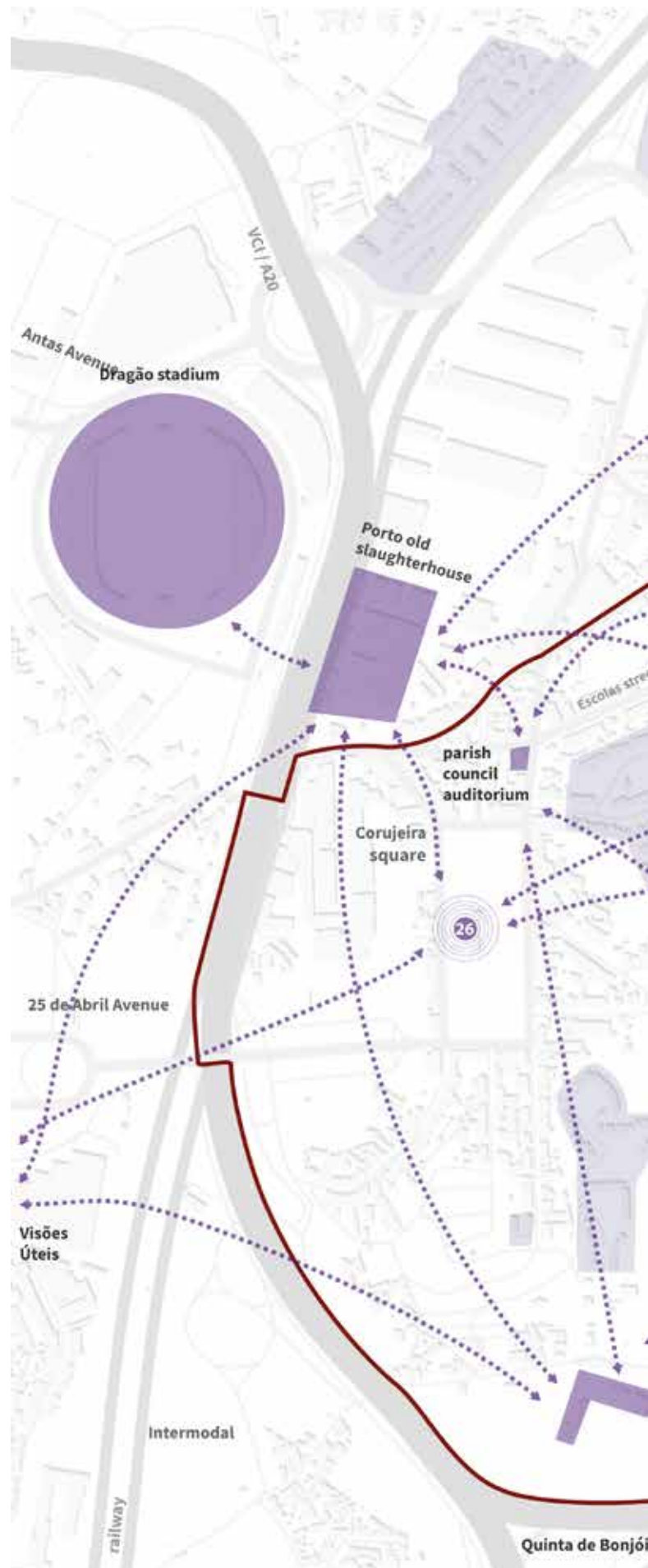


Figure 18. Map of the existing culture and sports network.

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.



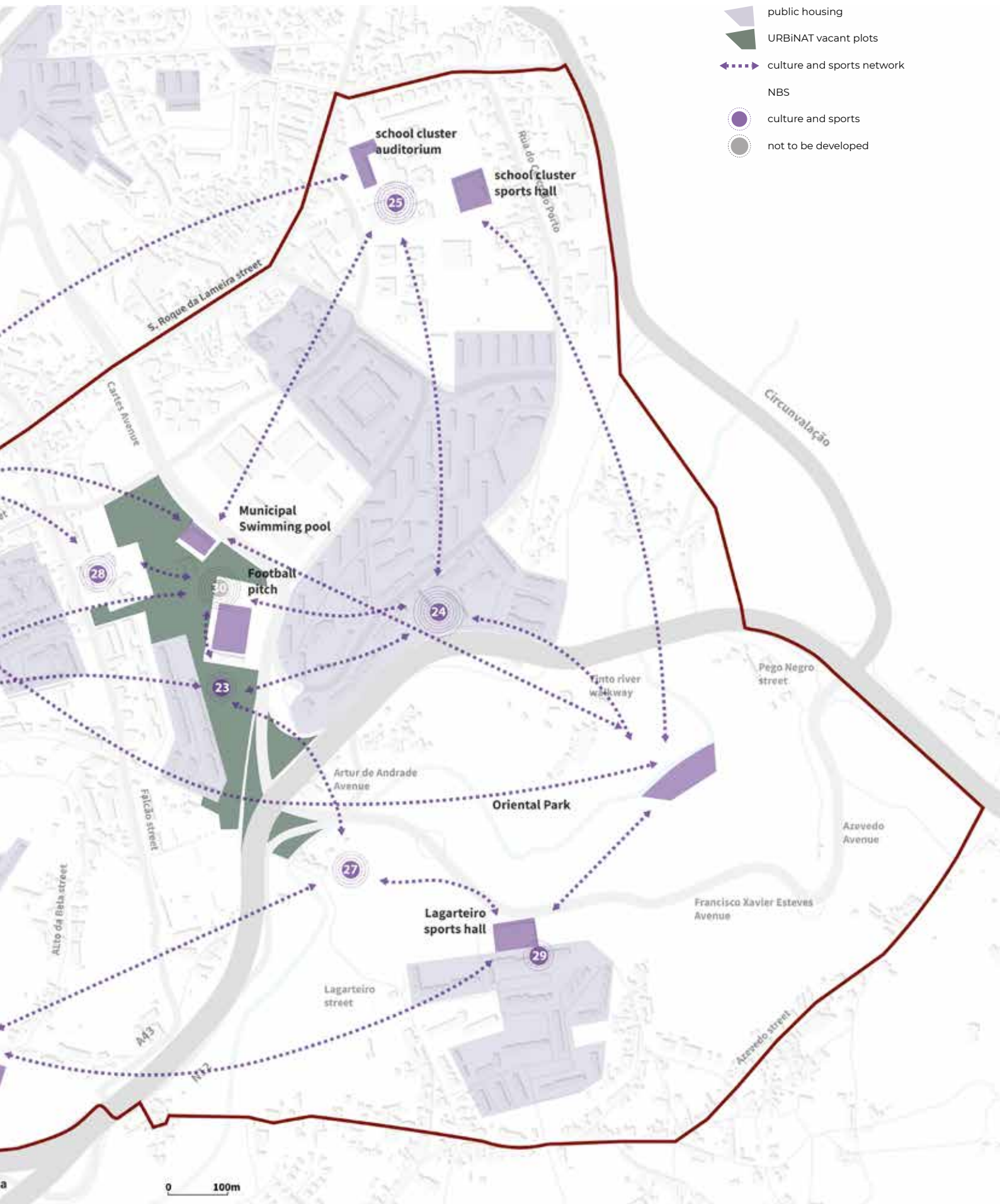


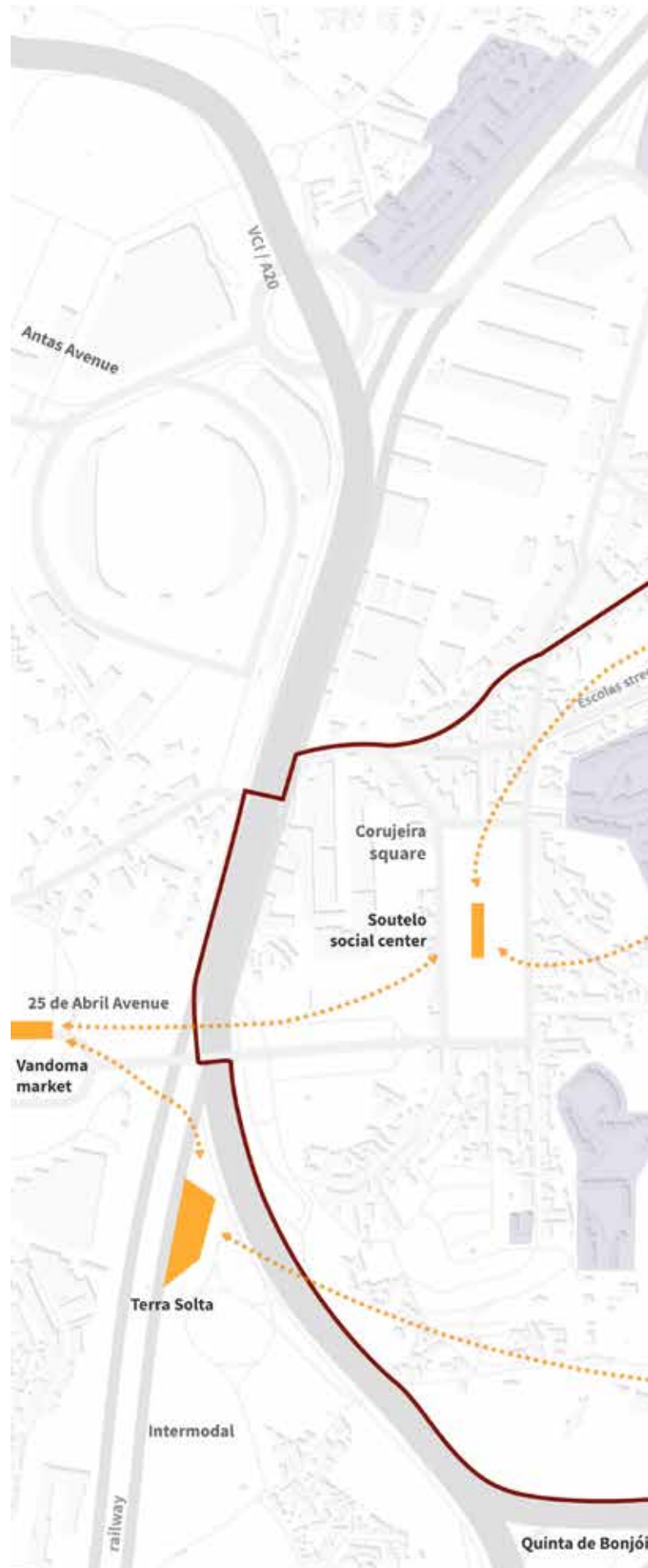
Figure 19. Map of the new culture and sports network articulated with the new NBS.

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.



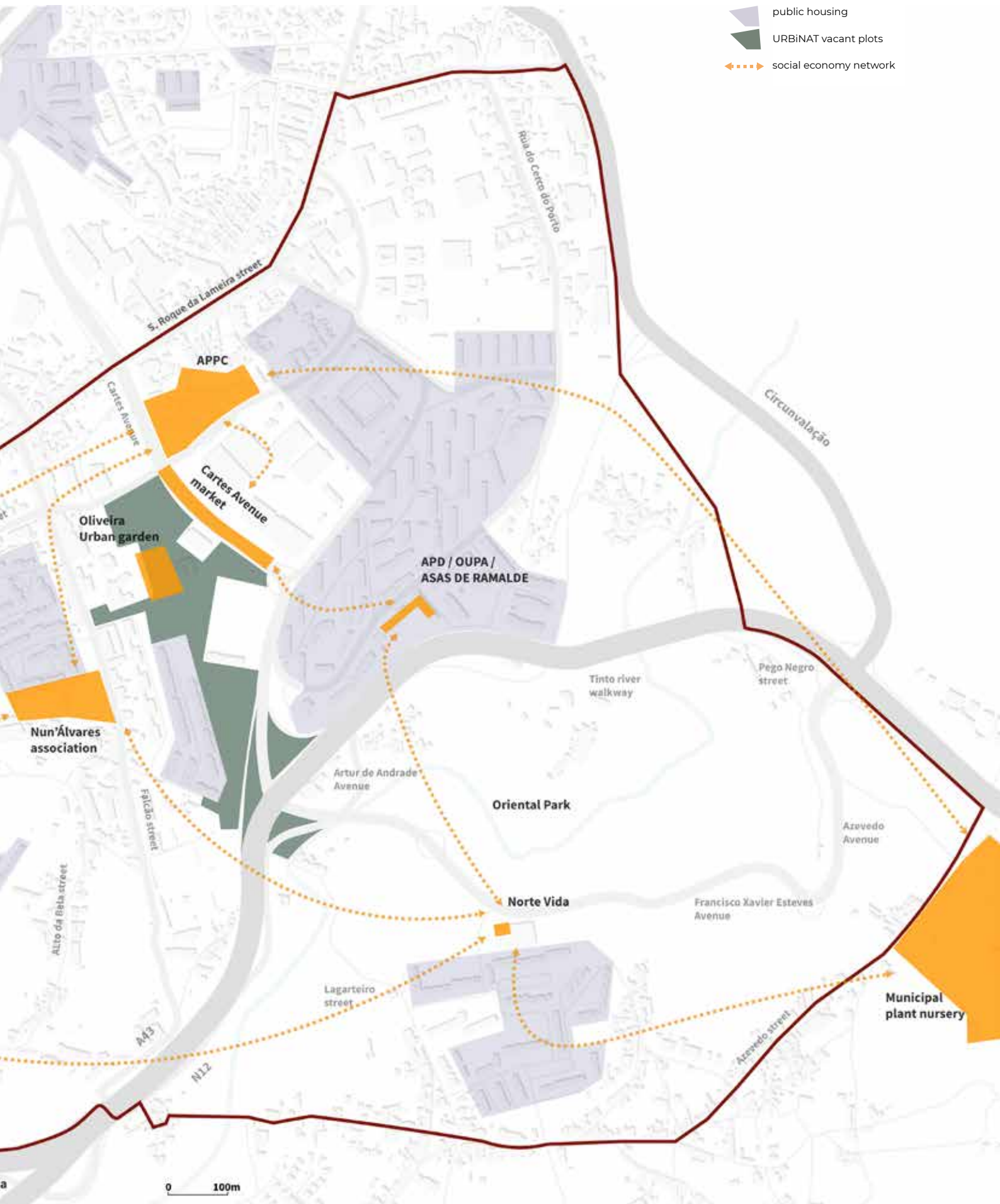


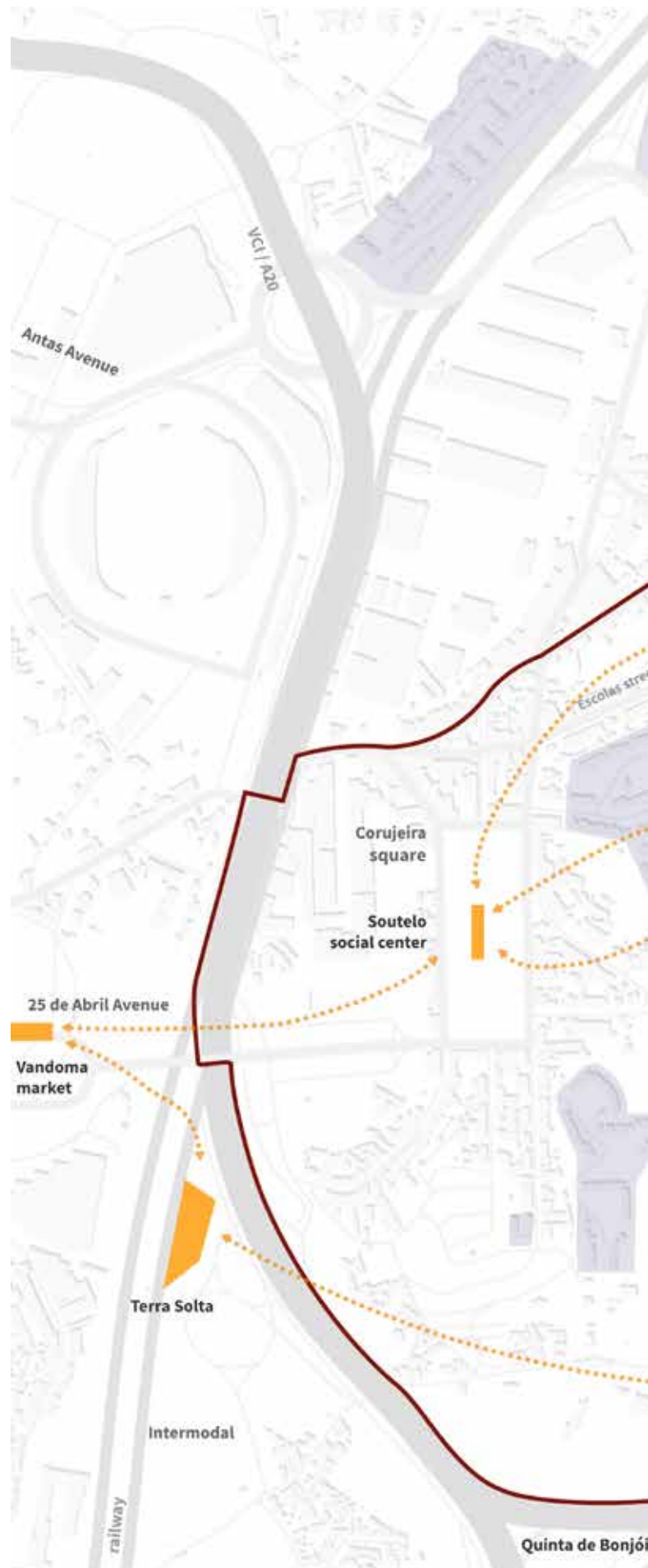
Figure 20. Map of the existing social economy and solidarity practices network.

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.



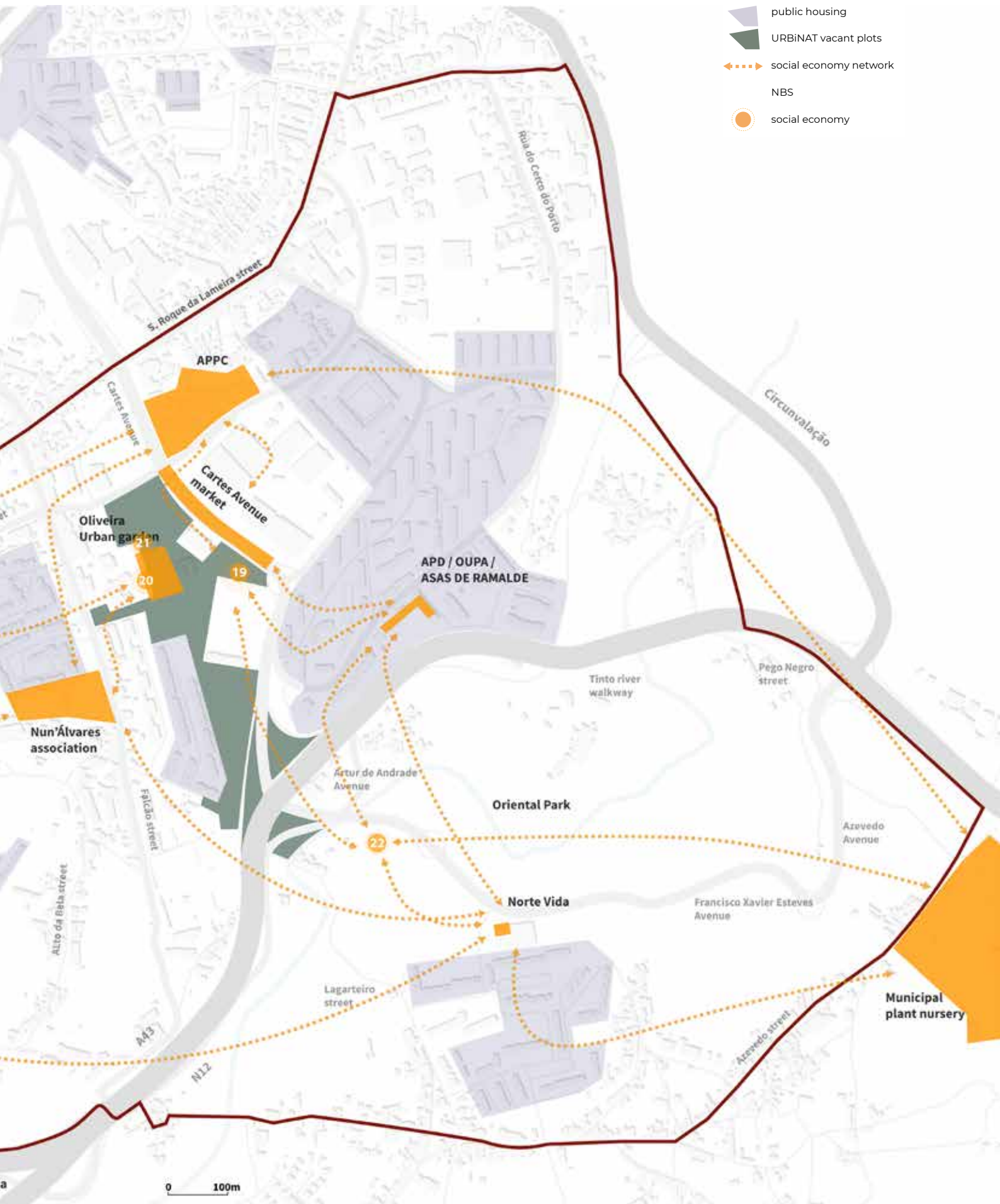


Figure 21. Map of the new social economy and solidarity practices network articulated with the new NBS.

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.

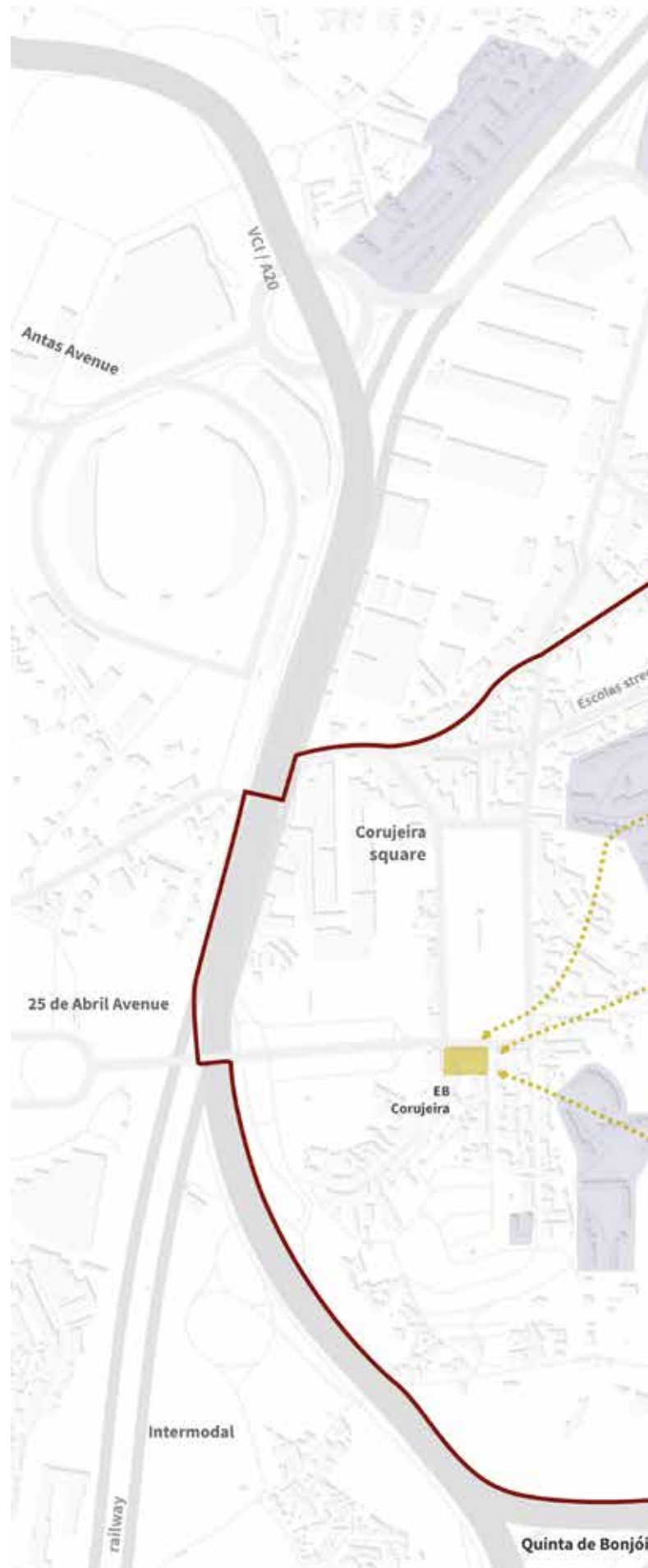


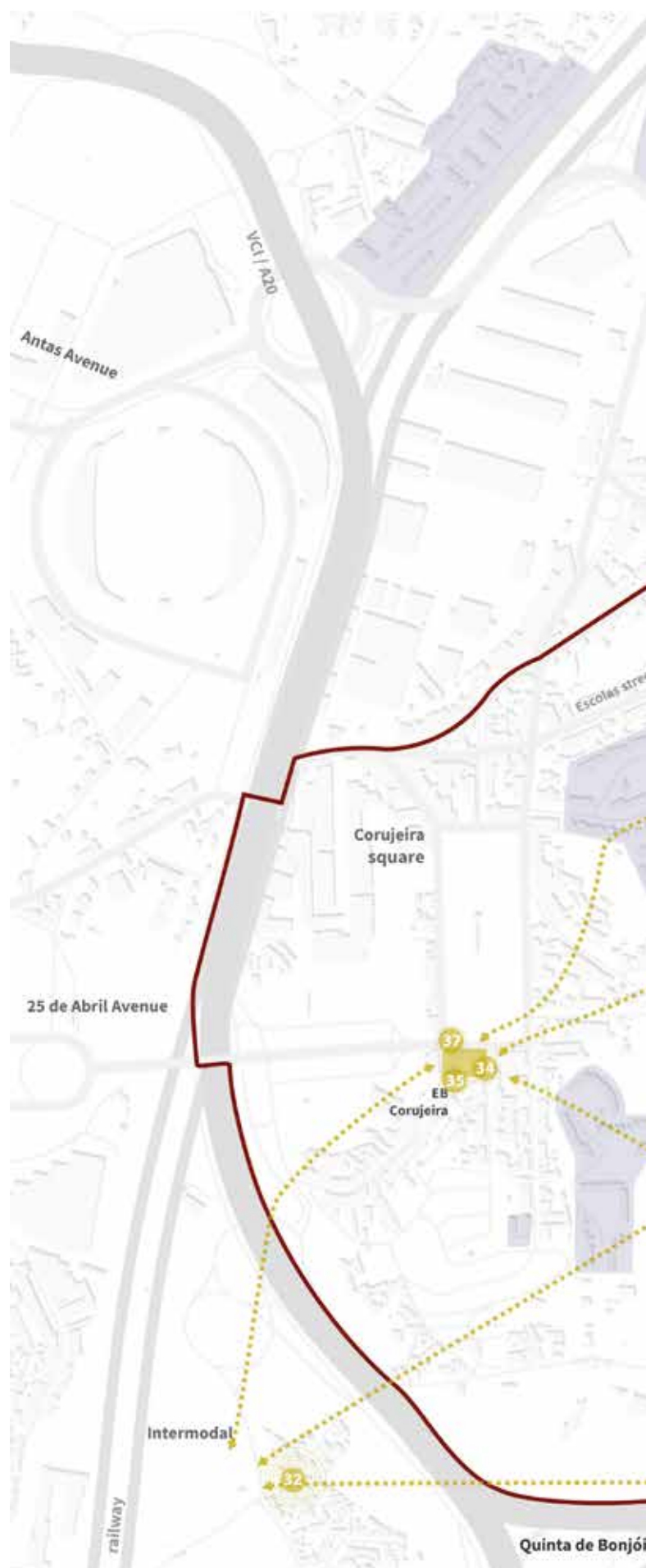


Figure 22. Map of the existing education and environment network.

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).



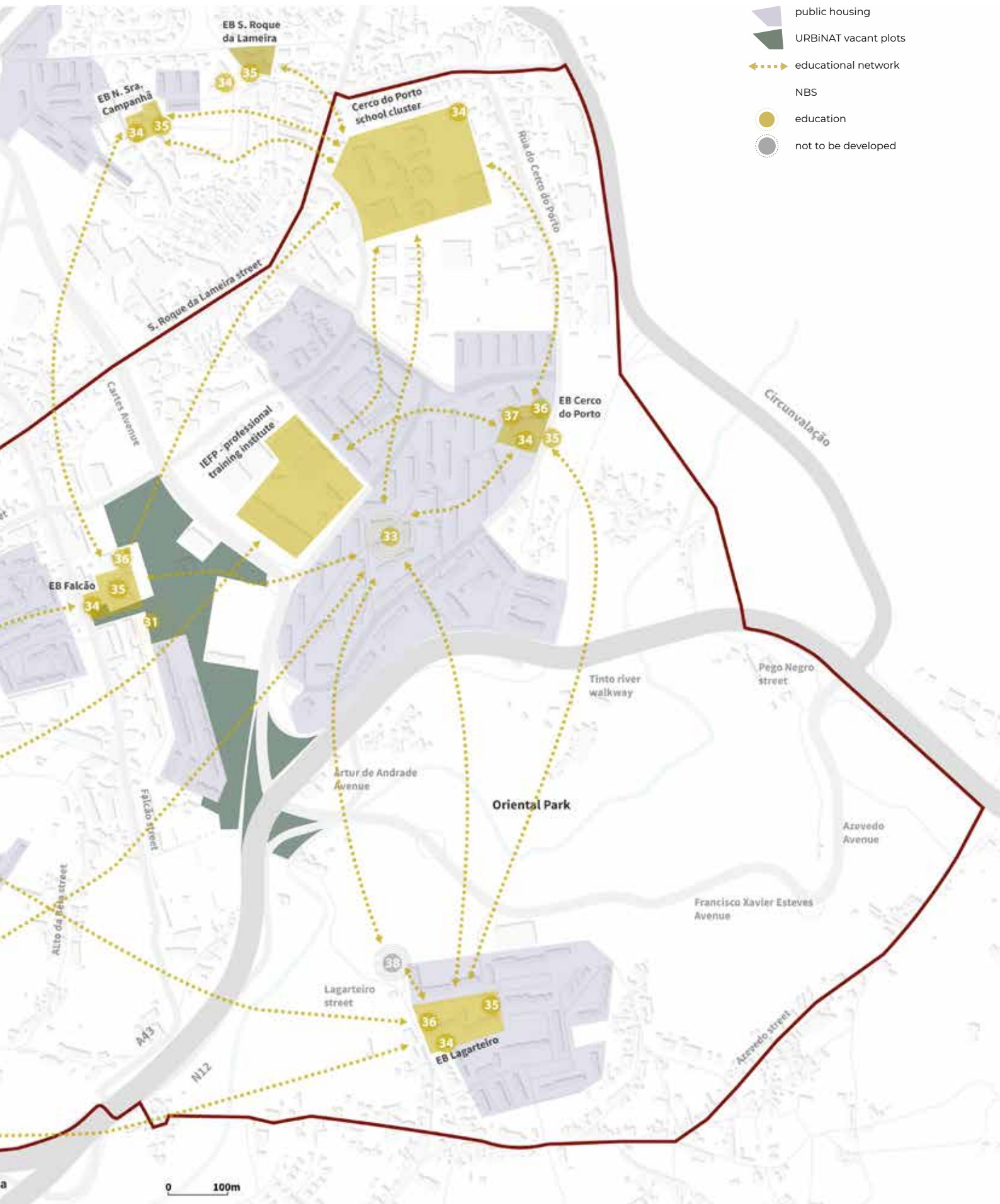


Figure 23. Map of the new education and environment network articulated with the new NBS.

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.

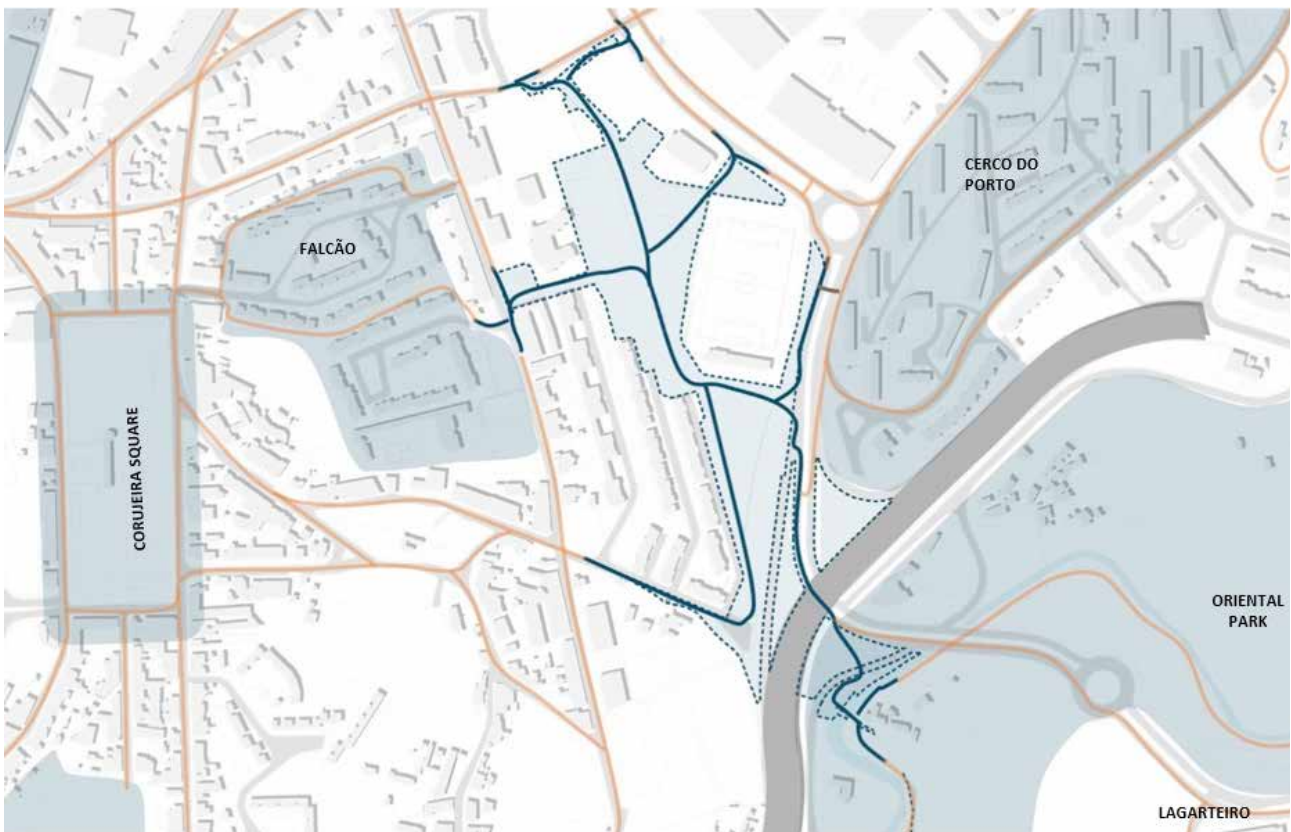


Figure 24. Spatial concept of the Healthy corridor.

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.

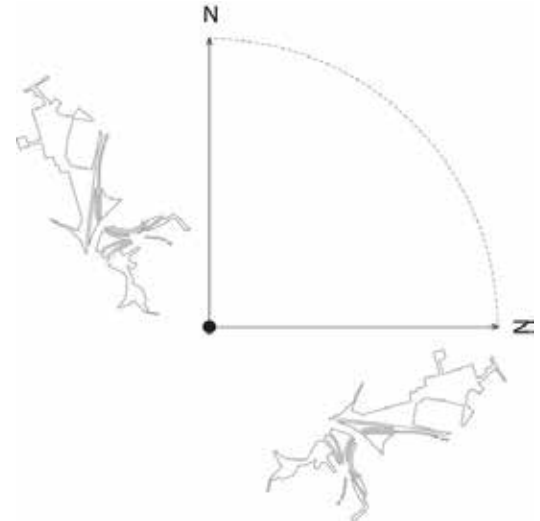


Figure 25. URBiNAT's limits for the implementation of the Healthy Corridor in Campanhã Parish.



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:

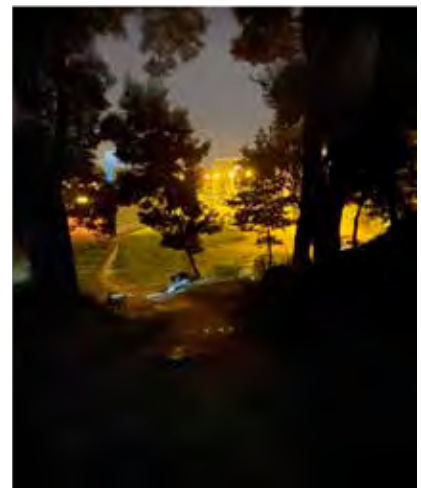


Figure 31. Pavement conditions (worst in winter); Extreme slopes in some parts of the path; Lack of light in the intervention area.



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

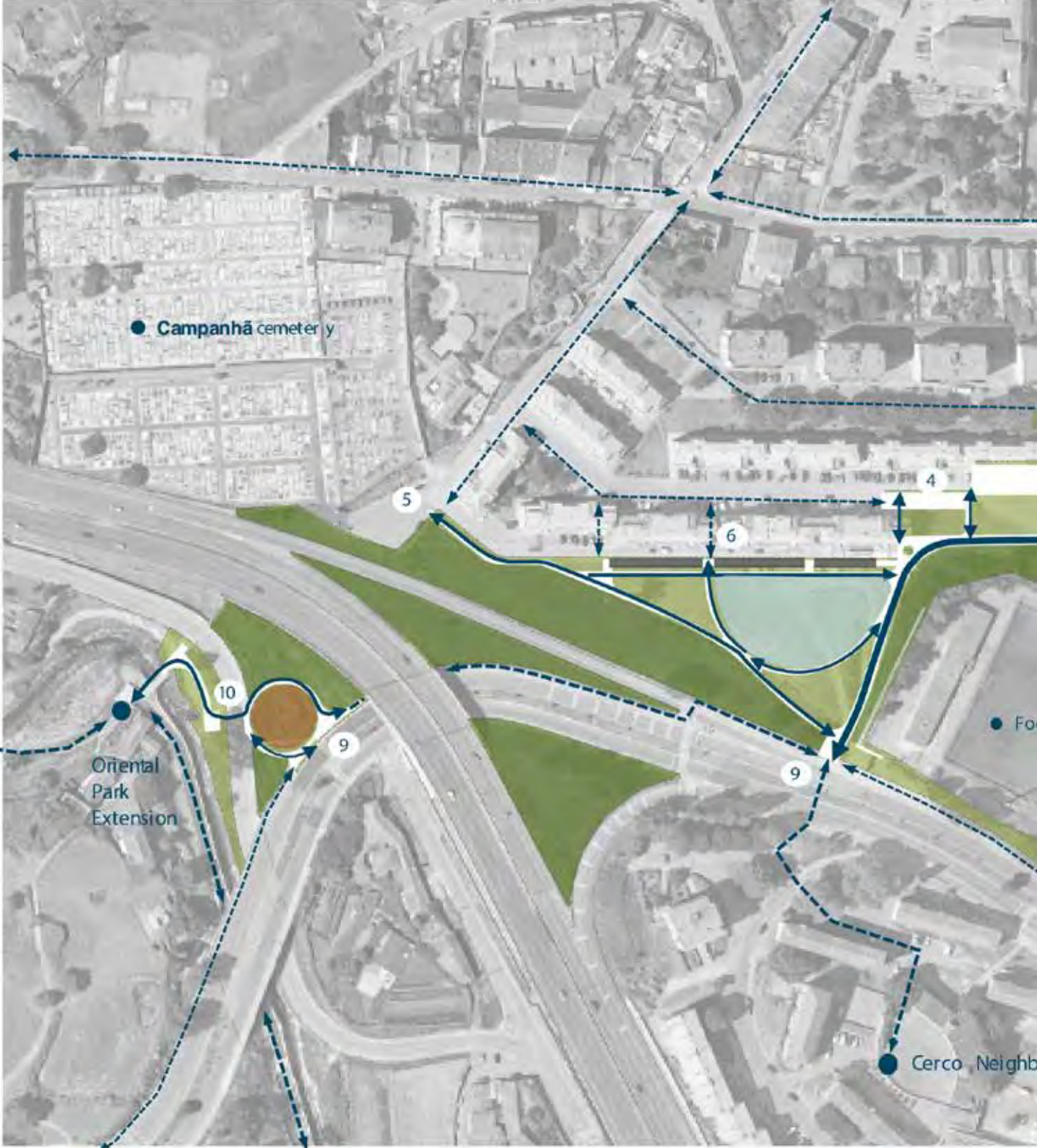
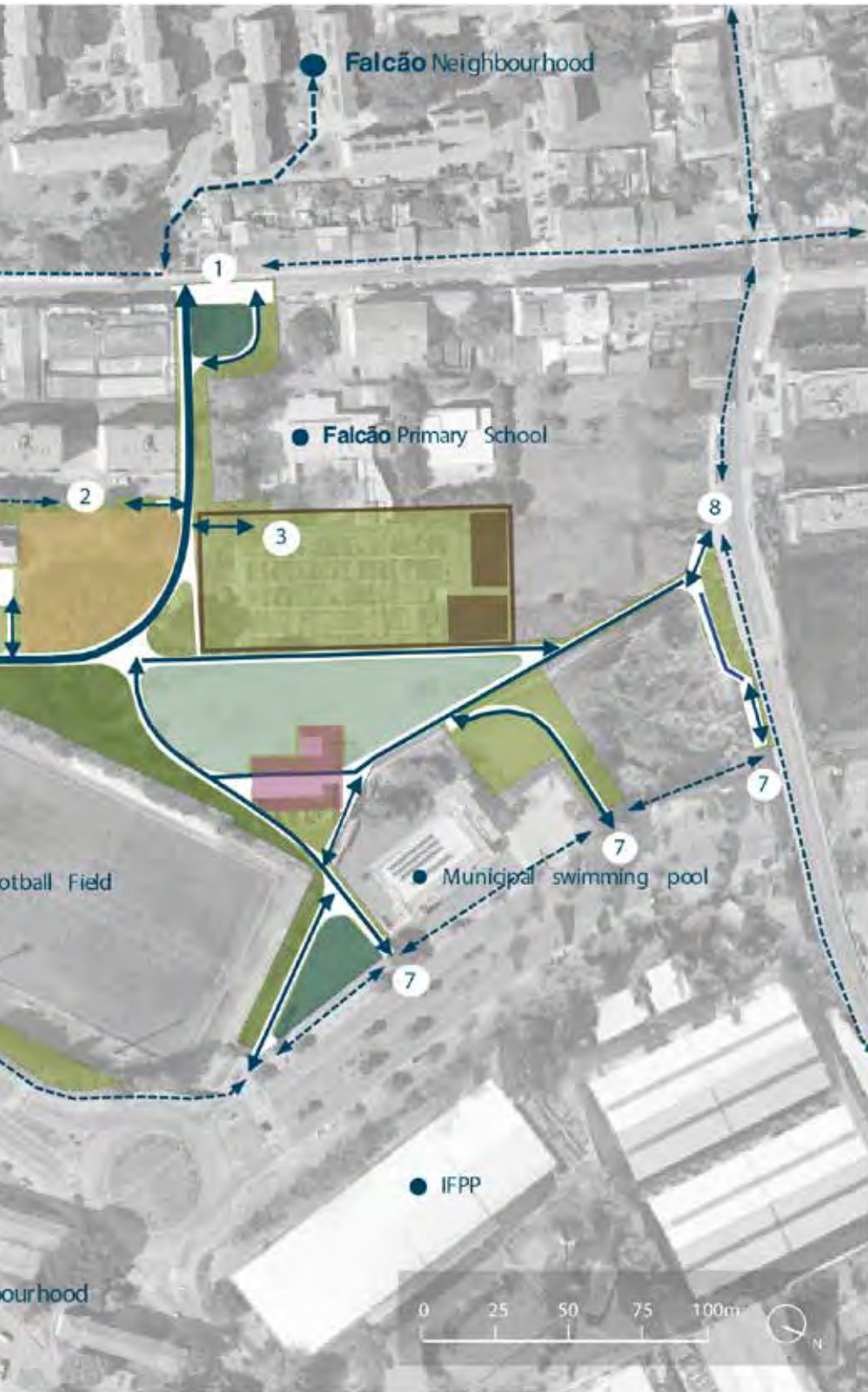


Figure 33. Conceptual plan for the spatialization of the Healthy Corridor.



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.

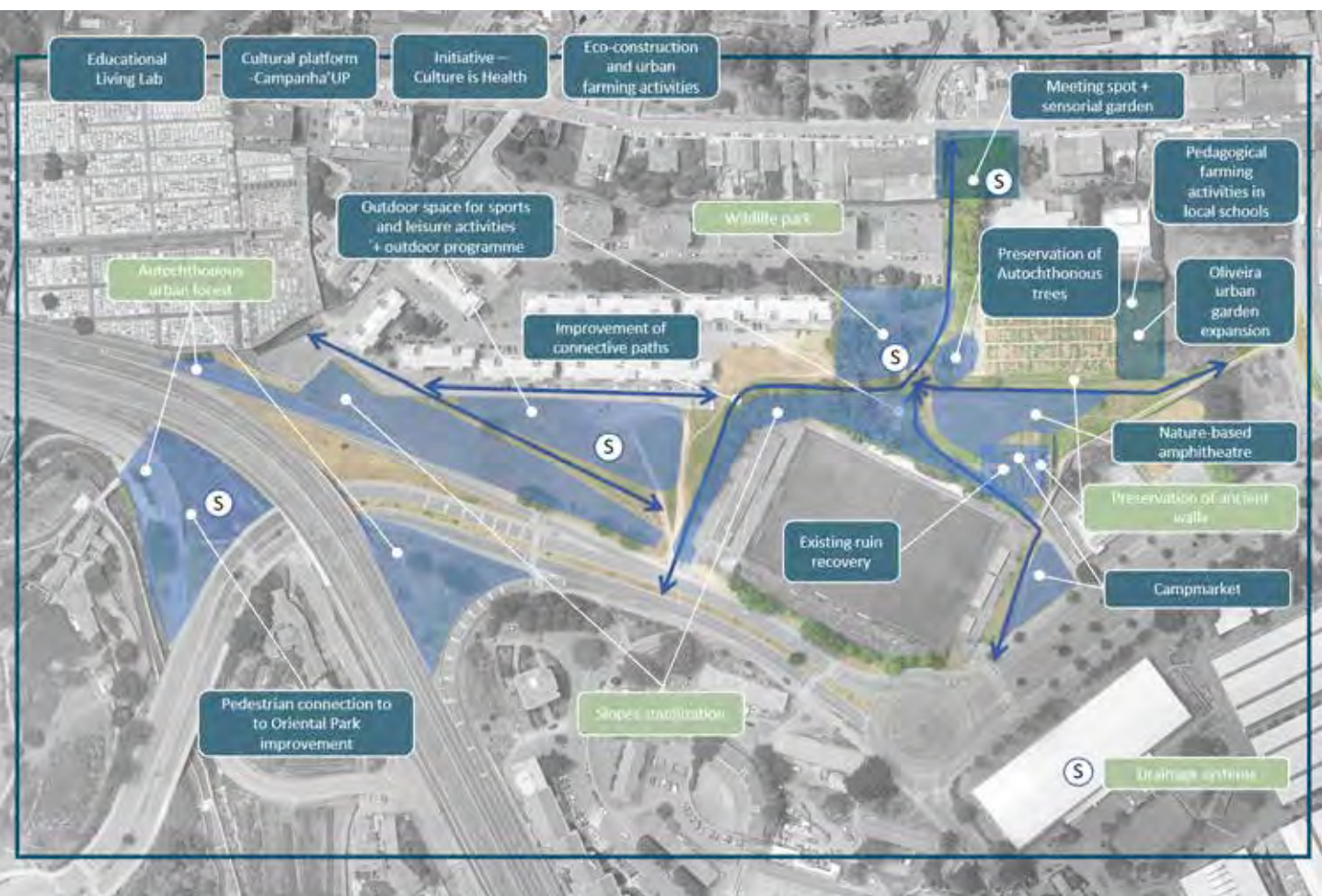


Figure 34. Territorial Nature-based solutions in the intervention area and proposals from the participatory activities.

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

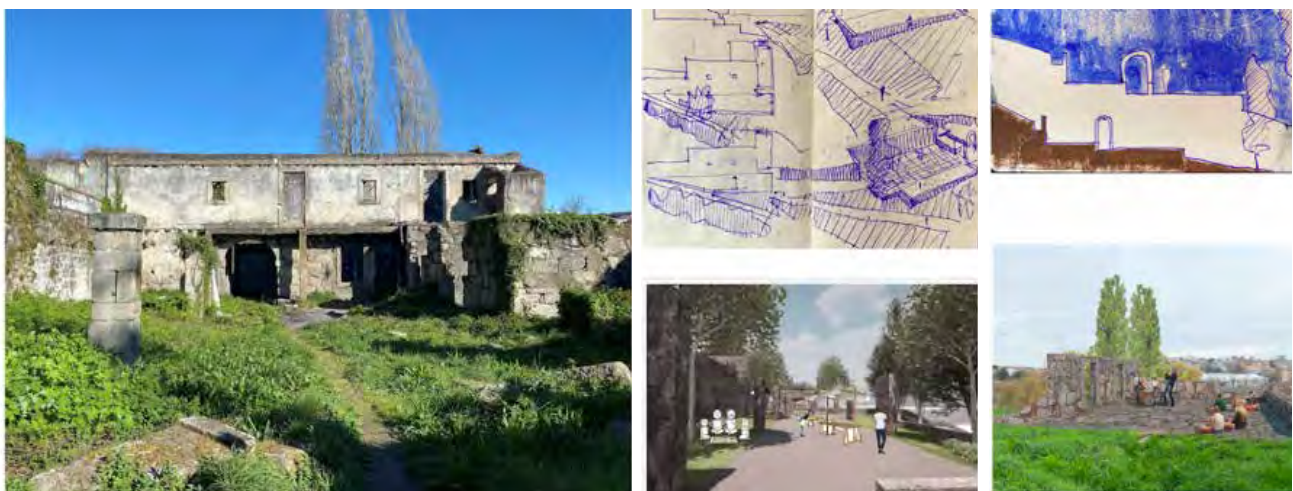


Figure 38. Current state of the ruin, handmade drawings exploring the design solution from the design team and and some images with the result from the co-design workshop with citizens.

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.

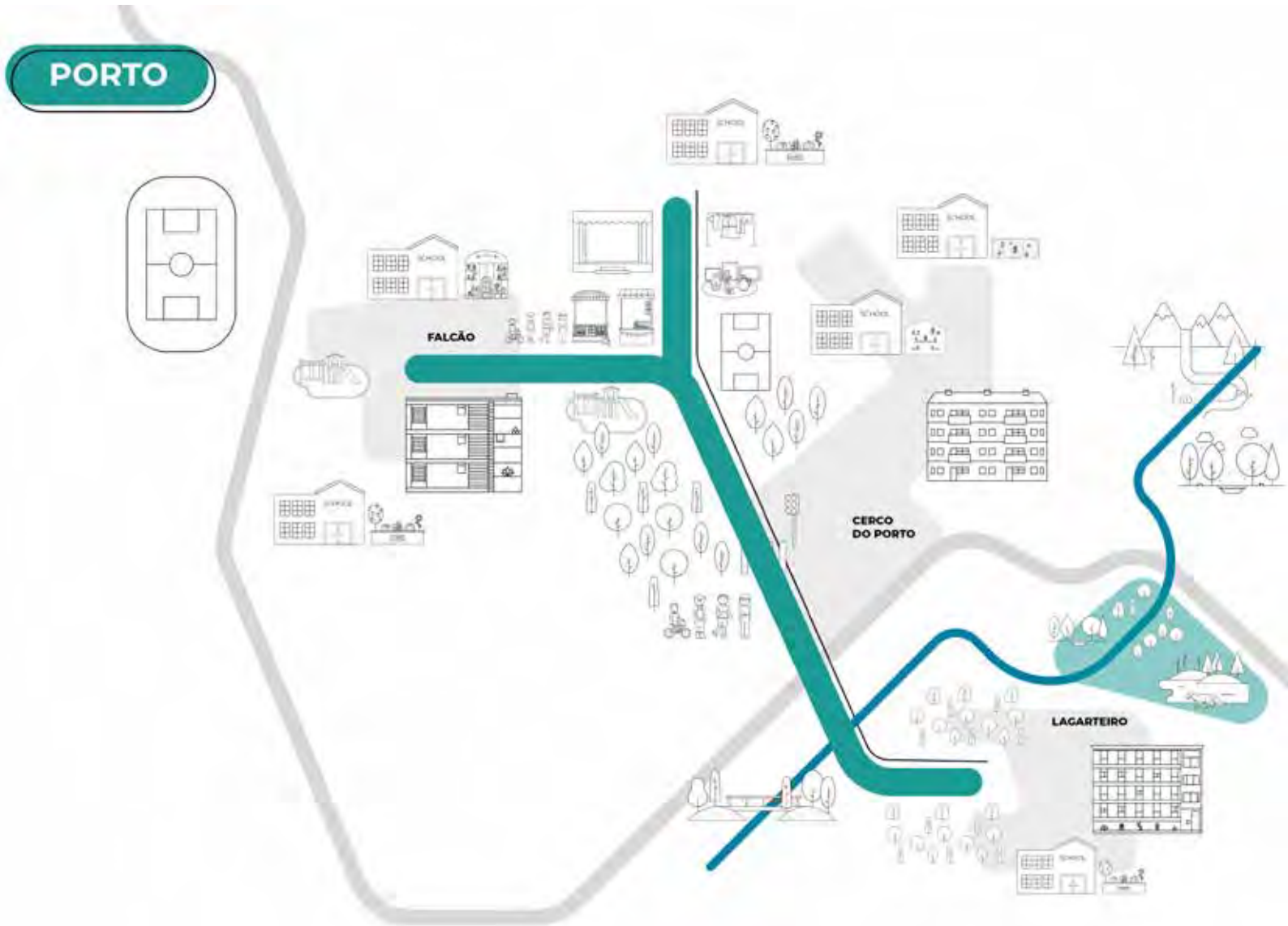
New connections will be created to solve inaccessibility issues and architectural obstacles. This will improve local urban regeneration and allow for the Healthy Corridor to relate with the surrounding territory (facilities, parks, housing units, schools and many others)



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

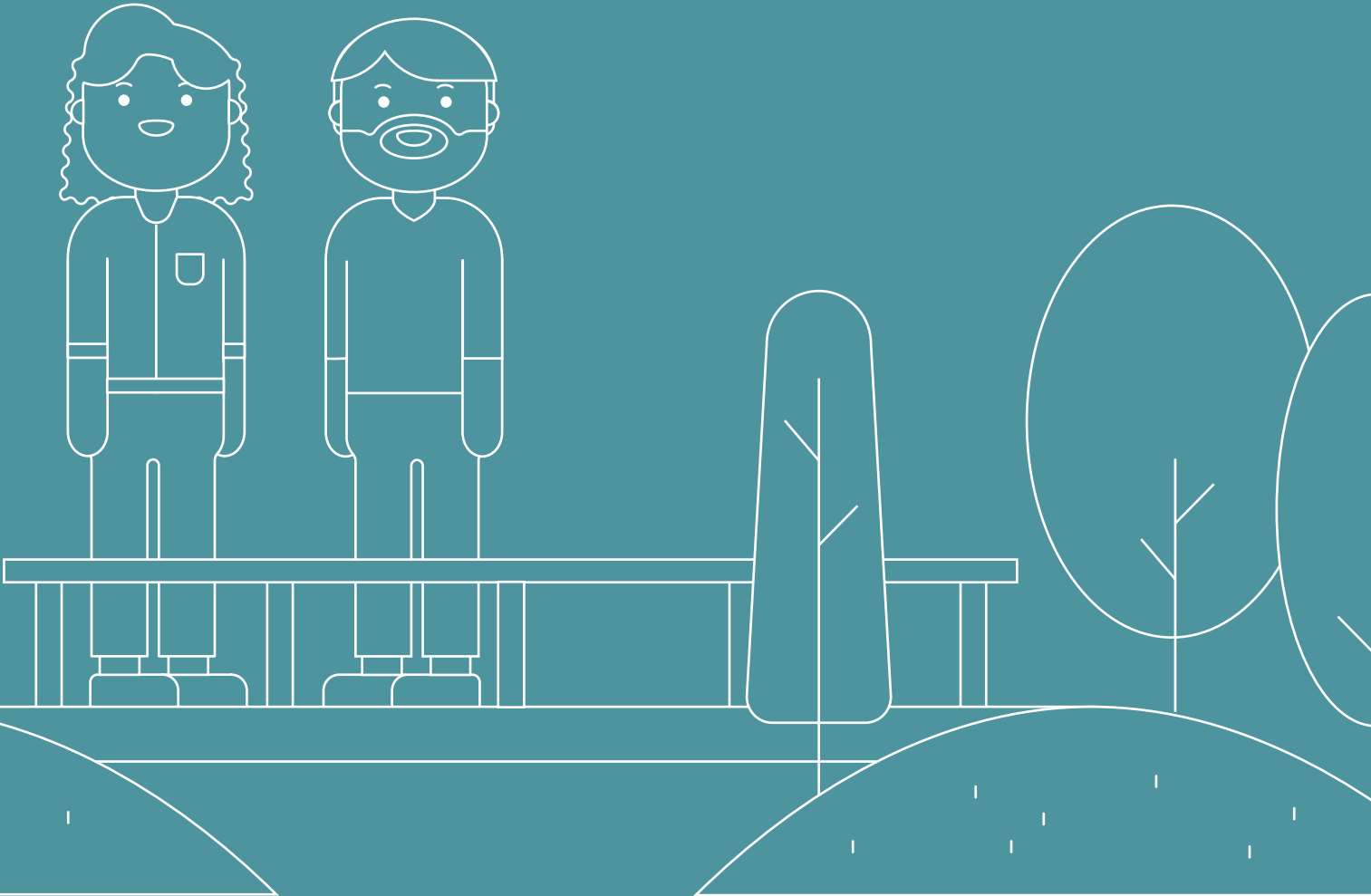
- Co-diagnostic – integration of the analyses developed in subchapter 2.2 From co-diagnostic to co-design

- 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 (Cercos do Porto)



Description

The proposal aims to requalify the rear space of buildings no. 33 and 34 from Cercos 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 (Cercos 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 Cercos 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 (Cerco do Porto)

Description

This proposal aims to reformulate the Ring (Cerco 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 Cerco 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 (Cerco do Porto) 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)
- 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





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

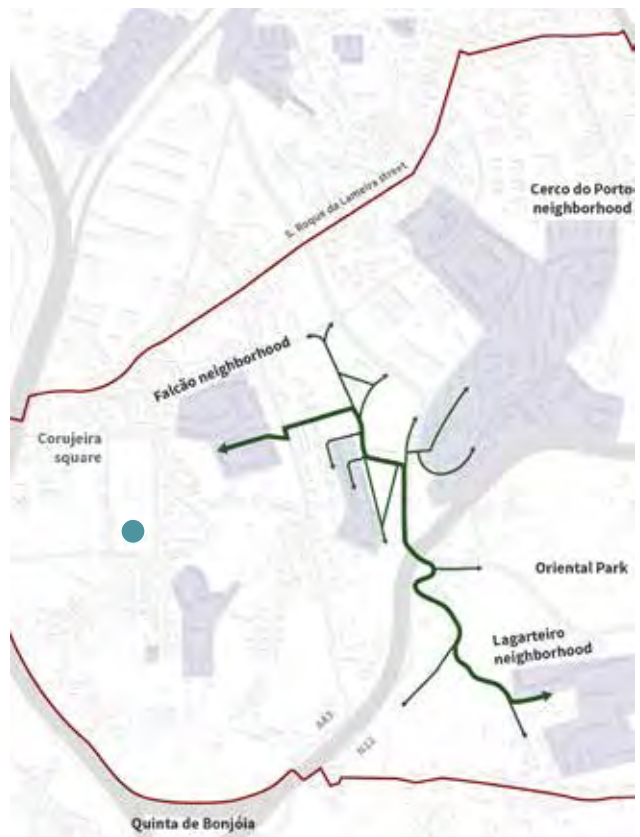
The Access to Pego Negro and Oriental City Park improvement was proposed by pupils and teachers and developed with other participants in co-design several activities:

- 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

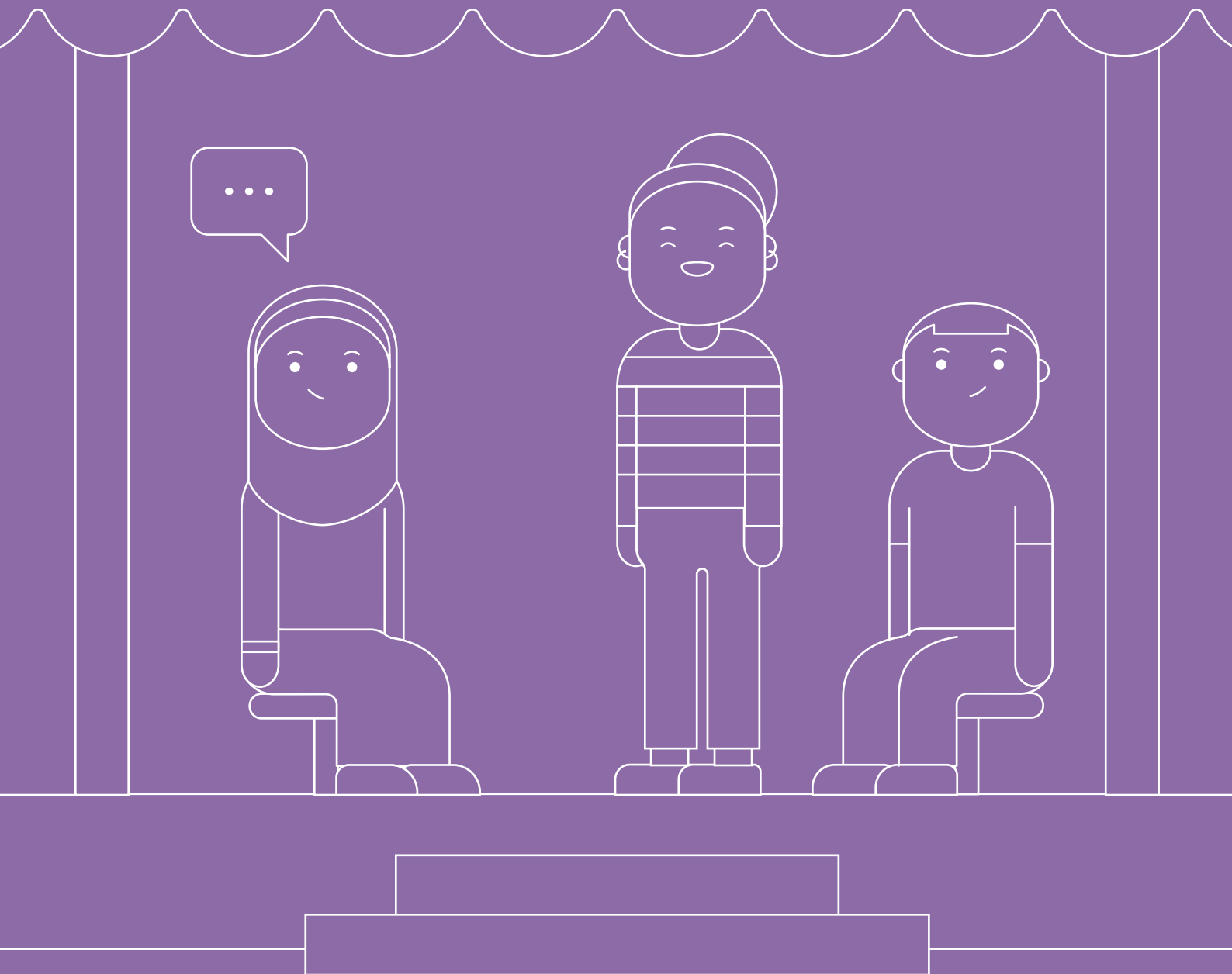
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Description

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



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

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

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

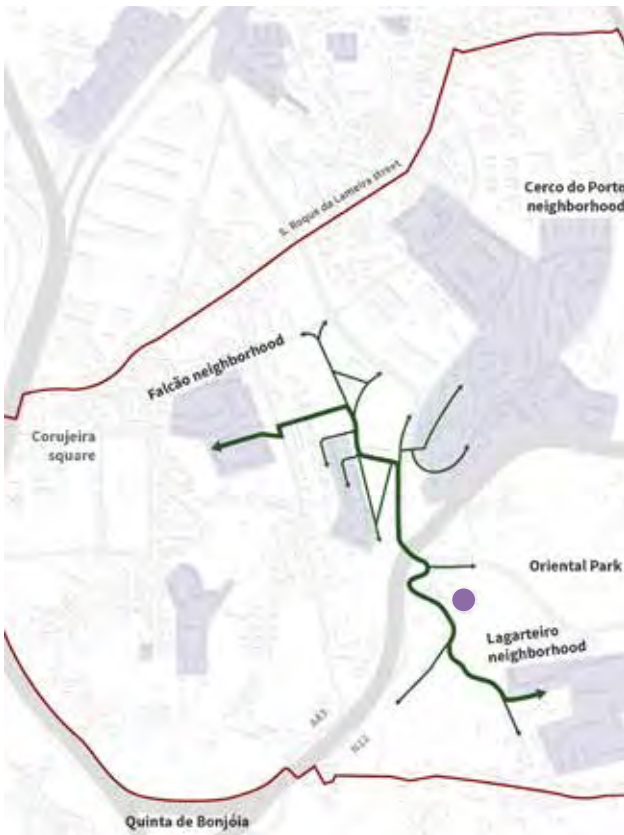
The Initiative Memories of Campanhã was proposed by a group of citizens, namely by Laurinda e Paulo Lima, from association Lagartixa Park and then developed in several co-design activities:

- 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)

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.



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).

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.

CULTURA TAMBÉM É SAÚDE



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;



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;

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)

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

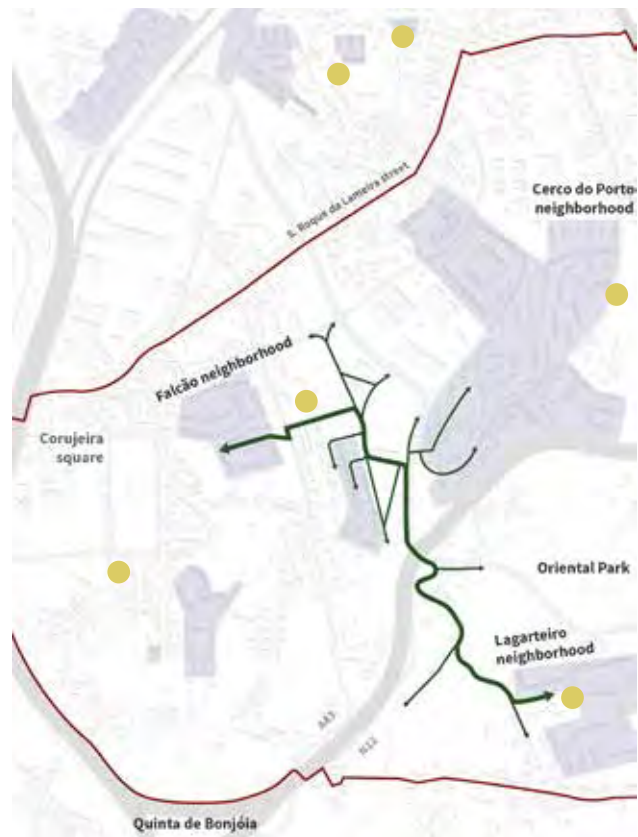
CO-DIAGNOSTIC

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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